Pikes Peak Area Council of Governments
Communities Working Together

Meeting Agenda
Community Advisory Committee
Wednesday, October 29, 2025, 3:00 PM

In-Person
Pikes Peak Area Council of Governments Main Conference Room
14 S. Chestnut St., Colorado Springs, CO 80905

Virtual: Microsoft Teams (Video and Audio)
www.microsoft.com/en-us/microsoft-teams/join-a-meeting
Meeting ID: 276 156 059 958 6
Passcode: r8Vm2vc3

Virtual: Phone (Audio Only)
Phone: (929) 242-8427
Conference ID: 950 526 751

1. **Call to Order / Establish a Quorum / Introductions**
2. **Agenda Approval**
3. **Consent Items**
   (These items will be acted upon as a whole, unless they are called up for discussion by a Committee member or a citizen wishing to address the Committee.)
   A. Approval of the minutes (September 24, 2025) ✉
4. **Public Comments / Presentations**
   Public comments can be made before or during the meeting. Public comments during the meeting is limited to three minutes and can be done at the meeting location or remotely by using the posted Microsoft Teams link. Individuals are encouraged to notify the meeting organizer at ppacg@ppacg.org before the start of the meeting with the agenda item they would like to comment on. Public comments can be submitted before the meeting via email to ppacg@ppacg.org for distribution to the committee members.
5. **Action Items**
   A. Widefield Water & Sanitation District, Jimmy Camp Lift Station Force Main Extension: Angie Martell, Environmental Planner ✉
   B. Walden Corporation, Wastewater Treatment Plant: Angie Martell, Environmental Planner ✉
   C. Fountain Sanitation District, plant upgrades: Angie Martell, Environmental Planner ✉
   D. Regional Traffic Data Service: William Mast, GIS and Modeling Manager ✉

6. **Information Items**
   A. Safety Action Plan: Jason O'Brien, Senior Transportation Planner ✉
   B. Colorado Department of Transportation Regional Priority Project Funding Update: Colorado Department of Transportation/Josh Squires, Transportation Planner ✉
   C. Federal Transit Administration 5310 Funding: Lisa Gagnon, Transit Planner ✉
7. **Member Entity Announcements**
8. **Meeting Schedule** ✉
9. **Adjournment**

The Pikes Peak Area Council of Governments will not discriminate against qualified individuals with disabilities. Meetings are available to join remotely via Microsoft Teams, and meetings include live transcription for remote and in-person attendees using automated software. Should you require any additional auxiliary aids or services to participate, please contact ppacg@ppacg.org or (719) 471-7080 x139 as soon as possible so that we can do our best to accommodate your needs.

Si necesita ayuda con traducción, llame por favor al (719) 471-7080 x139 o ppacg@ppacg.org.

Pikes Peak Area Council of Governments
Communities Working Together

Roster
Community Advisory Committee

Chair: Ed Dills
First Vice Chair: Tyler Peoples
Second Vice Chair: Teresa Cheek

Thirty percent of the current voting committee membership (rounded up to the nearest whole number) shall constitute a quorum.

Citizens-At-Large
Teresa Cheek: Expires Nov. 30, 2026
Chuck Broerman: Expires May 31, 2028
Gary Shugart: Expires Nov. 30, 2026
Tyler Peoples: Expires Nov. 30, 2026
Steve Schleiker: Expires May 31, 2028
Paul Wiggins: Expires Nov. 30, 2026

City of Colorado Springs
Chuck Theobald: Expires May 31, 2026
Mattie Gullixson: Expires May 31, 2026
Cali Standard: Expires May 31, 2026

El Paso County
Welling Clark: Expires: May 31, 2028
Brad Simmons: Expires May 31, 2027
Kevin Clark: Expires May 31, 2028

City of Fountain
Summer Earthsong: Expires May 30, 2026

City of Manitou Springs
Carey Storm: Expires Nov. 30, 2026

City of Woodland Park
Jon DeVaux: Expires Nov. 30, 2026

Town of Calhan
Kathy Hisey: Expires May 30, 2026

Town of Monument
Karen Lusby: Expires Nov. 30, 2026

Town of Ramah
Ed Dills: Expires Nov. 30, 2025

League of Women Voters
Andrea Perry: Expires Nov. 30, 2025

Northern El Paso County Coalition of Community Associations (NEPCO)
Harold Larson: Expires May 30, 2026

Open Member Seats
Alma
Fairplay
Green Mountain Falls
Palmer Lake
Victor
Cripple Creek
Teller County
Park County
Hey Neighbor

Pikes Peak Area Council of Governments
Communities Working Together

Meeting Minutes
Community Advisory Committee
Wednesday, September 24, 2025, 3 PM

In-Person
Pikes Peak Area Council of Governments Main Conference Room
14 S. Chestnut St., Colorado Springs, CO 80905

Virtual – Microsoft Teams (Video and Audio)
www.microsoft.com/en-us/microsoft-teams/join-a-meeting
Meeting ID: 294 915 903 482 7
Passcode: Kz3fb6Pv

Virtual – Phone (Audio Only)
Phone Number: (929) 242-8427
Conference ID: 219 956 090

1. **Call to Order / Establish a Quorum / Introductions**
   Chair Ed Dills called the meeting to order at 3:00 p.m.
2. **Agenda Approval**
   Chuck Theobald motioned to approve the agenda; Welling Clark seconded. The motion was approved unanimously.
3. **Consent Items**
   (These items will be acted upon as a whole, unless they are called up for discussion by a Committee member or a citizen wishing to address the Committee.)
   A. Approval of the minutes from July 30, 2025, regular meeting
      Welling Clark noted that the CAC minutes need to be amended. He and others were missing from the attendance on the minutes. Welling Clark motioned to approve the corrected minutes; Carey Storm seconded. The motion was approved unanimously.
4. **Public Comments / Presentations**.
   None.
5. **Action Items**
   A. Transportation Improvement Plan Amendment #6: Josh Squires, Transportation Planner, Emily Barden from CDOT DTR, and Scott Skinner from CDOT Region 2 provided an overview on the project and answered questions in regard to the project and a nearby El Paso County project. A member noted that the table on page 11, State

source-SB 267-line total project cost is not accurate, and Emily Barden stated that the total has been updated.

Chuck Broerman made a motion to recommend approval for the Transportation Improvement Plan Amendment #6, seconded by Chuck Theobald. The motion was approved unanimously.

6. **Information Items**

A. Complete Streets Toolkit: Jason O'Brien, Senior Transportation Planner and Katie Salerno from Olsson provided an overview of the draft toolkit and answered questions about an implementation team, studies to support the economic benefits, funding, and resources from the United States Agricultural Department or other rural development resources.

B. Committee Updates: Danelle Miller, Transportation Associate Director

- Two members whose terms expire November 30. Ed Dills has been reappointed by Ramah. Staff will reach out to Andrea Perry and the League of Women Voters to see if she'd like to continue.
- There are vacancies at Hey Neighbor as well as several of our local jurisdictions. There are spots for two additional community organizations if anyone knows of a group that would like to have a seat on the CAC.
- Staff plans to select officers at the November meeting. In the past we have had nominations and selected the officers at the same meeting.
- The November meeting is currently scheduled for the day before Thanksgiving, and the December meeting is on New Year's Eve. If you will not be available on those days, please let staff know. If we might have difficulty reaching quorum, we may need to reschedule those meetings.
- Danelle Miller will send out list of vacancies to the CAC.

7. **Member Entity Announcements**

Welling Clark noted that the Board of County Commissioners will make a proclamation for Navy 250.

National Museum of World War II Aviation will have a fly day on the second Saturday of October

8. **Meeting Schedule**
9. **Adjournment**

The meeting was adjourned at 3:47 p.m.

Attendees

Present	Name	Agency/Affiliation
	Andrea Perry	League of Women Voters
X	Brad Simmons	El Paso County
	Cali Standard	City of Colorado Springs
X	Carey Storm	City of Manitou Springs

Present	Name	Agency/Affiliation
X	Chuck Broerman	At-large
X	Chuck Theobald	City of Colorado Springs
X	Ed Dills	Town of Ramah
x	Gary Shugart	At-large
	Harold Larson	Northern El Paso County Coalition of Community Organizations
	Jon DeVaux	City of Woodland Park
X	Kathy Hisey	Town of Calhan
X	Karen Lusby	Town of Monument
X	Kevin Clark	El Paso County
X	Mattie Gullixson	City of Colorado Springs
	Paul Wiggins	At-large
	Steve Schleiker	At-large
X	Summer Earthsong	City of Fountain
X	Teresa Cheek	At-large
X	Tyler Peoples	At-large
X	Welling Clark	El Paso County
X	Staff	Colorado Department of Transportation
X	Staff and guests	Pikes Peak Area Council of Governments

Pikes Peak Area Council of Governments
Communities Working Together

Date: October 29, 2025

To: Pikes Peak Area Council of Governments Community Advisory Committee

From: Angie Martell, Environmental Planner

Subject: Site Application for Widefield Water and Sanitation District's Jimmy Camp Lift Station Force Main Extension

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Action Requested: Review and Recommend

Previous Action

1) The application was reviewed by the Lower Fountain Water Quality Management Association and recommended for review by the Site Application Review Committee (SARC) on July 24, 2025.
2) The Application was reviewed and recommended by the SARC on August 20, 2025.
3) The Application was reviewed and recommended by the Water Quality Management Committee (WQMC) on October 15, 2025.

Summary

As required by §22.12(1) of the Colorado Department of Public Health and Environment's Regulation 22 - Site Location and Design Regulations for Domestic Wastewater Treatment Works, Garver USA, on behalf of Widefield Water and Sanitation District, is providing the Pikes Peak Area Council of Governments CAC with the attached summary of Site Application request for the Widefield Water and Sanitation District (WWSD) Jimmy Camp Lift Station (JCLS)

The full extent of this project includes the design and construction of approximately 9,895 linear feet of new 16" force main that will tie into the existing 12" force main along Mesa Ridge Pkwy and carry flows to the downstream treatment facility. The new section of force main will not impact the service area or design capacity of the JCLS as defined in past site location approvals. As a part of the design process for this project, a force main routing alternatives analysis was completed to select the alignment path.

The JCLS facility and existing force main both will have no updates in location or extent since the last site location approval was issued. The new section of force main proposed in this project starts on Mesa Ridge Pkwy, runs south before turning west onto Cross Creek Ave, continues west along Mesa Rd until the BNSF railroad is crossed, runs north between the BNSF and UP railroads, then turns west to cross the UP railroad and follows Rice Ln and Willow Springs Rd until the discharge point at a manhole located at the WWSD Water Reclamation Facility (WRF). Nearly the entire extent of the force main is located within the Fountain City Limits, with the only exception being approximately the final 650 LF on the WWSD WRF property which is located in an unincorporated area within El Paso County, Colorado.

The Jimmy Camp Lift Station (JCLS) has been serving the Jimmy Camp Creek Basin of the WWSD sewer service area since 2006. Its original construction provided for sewage collected from the Jimmy Camp Creek Basin to be pumped to a discharge location in the collection system west of Powers Boulevard on Woody Creek Drive in the Sunrise Ridge Development. In 2009, the JCLS was modified with a partial force main relocation to relieve the Woody Creek line of capacity following a series of overflow issues. This relocation included approximately 6,400 linear feet of new 12" PVC line to carry flows to a new discharge location on WWSD's 18" Southern Interceptor.

For the past 16 years, the JCLS has successfully discharged into the Southern Interceptor, which carries flows by gravity to the WWSD's Water Reclamation Facility. In 2021, WWSD developed a Water and Wastewater Utility Master Plan which identified that the Southern Interceptor was projected to meet its capacity by the end of 2025. Additionally, a 2022 JCLS Capacity Phasing Study concluded that the best approach to prepare the JCLS for future capacity expansion could also relieve the Southern Interceptor of its capacity limitations by installing a new section of 16" force main that ties into the existing JCLS force main and extends it to a new discharge location at the Widefield Water Reclamation Facility's influent manhole.

The WQMC identified no significant concerns with this application, and the applicant worked with the Lower Fountain Water Quality Management Association and the City of Fountain to address initial concerns. The applicant's responses have fully resolved all questions and comments raised.

Proposed Motion

Recommend the Site Application request for the Widefield Water and Sanitation District Jimmy Camp Lift Station Force Main Extension to the PPACG Board of Directors for signature.

Attachments

1. Site Application Report for the Widefield Water and Sanitation District Jimmy Camp Lift Station Force Main Extension *(1,355 pages)*
2. WQMC meeting minutes from October 15, 2025

Strategic Plan Goals

☐ Advocacy: Serve as an effective advocacy voice for common ground issues.
☒ Information Sharing: Serve as a significant resource for PPACG members to collect and share information with regional partners.
☐ Aging: Expand and extend senior access, awareness, education, and connectivity to support age-friendly communities and empower individual seniors.
☐Transportation: Maintain and improve a coordinated, validated plan for transportation needs across the PPACG region.
☒ Program Excellence: Continue to excel in the key fundamental areas of PPACG: Military support, Environmental programs, Transportation, Area Agency on Aging, and regional communication and collaboration.

COLORADO
Department of Public Health & Environment

Water Quality Control Division
Engineering Section

4300 Cherry Creek Drive South, B2
Denver, Colorado 80246-1530
CDPHE.WQEngReview@state.co.us
303-692-6298

Regulation 22 Site Location Application Form
Section 22.9 – Lift Station

A. Project and System Information			
System Name	Jimmy Camp Lift Station		
Project Title	Jimmy Camp Lift Station Force Main Extension		
County	El Paso		
Associated CDPS Permit No.			
Date Fee Paid or payment attached		Invoice Number and Check Number	
Design Company Name	Garver		
Design Engineer	John Wesley Lozano	CO License Number	65534
Address	188 Inverness Drive West, Suite 500, Englewood, CO 80112		
Email	jwlozano@garverusa.com	Phone	(830) 370-2608
Applicant/Entity	Widefield Water and Sanitation District		
Representative Name	Robert Bannister		
Address	8495 Fontaine Blvd, Colorado Springs, CO 80925		
Email	rob@wwsdonline.com	Phone	(719) 390-7111

B. Project Information								
Location (existing or proposed site)			***Proposed Project Capacity***					
Brief location description			Firm Pumping Capacity (capacity with the largest unit out of service)				1,285 GPM	
Legal Description (e.g., Township, Range)	NW ¼, NW ¼, Section 27, Township 15S, Range 65W		Service Area Flow to Lift Station (maximum month average flow)				0.8 MGD	
County	El Paso							
Latitude			Service Area Flow to Lift Station (peak hour flow)				1.8 MGD	
Longitude								
Funding Process	Will the State Revolving Fund (SRF) loan program be used to finance any portion of the project?		Yes	☐	No	☐	If yes, please list project number	
Project Schedule and Cost Estimate								
Estimated Bid Opening Date								
Estimated Completion Date								
Estimated Project Cost								

Project and System Information	
System Name	Jimmy Camp Lift Station
Project Title	Jimmy Camp Lift Station Force Main Extension
County	El Paso
Associated CDPS Permit No.	

Treatment Entity Information	
1.	Name and address of the treatment plant providing treatment (Receiving treatment entity must fill out "Receiving Wastewater Entity Certification")
	Widefield Water Reclaimation Facility (owned and operated by Widefield Water and Sanitation District) 450 Willow Spring Rd, Fountain, CO 80817

Site Information	
2.	**Vicinity maps of site location which includes the following:** a) 5-mile radius map: all treatment plants, lift stations and domestic water supply intakes b) 1-mile radius map: habitable buildings (e.g., residences, schools, and commercial structures), location of public and private potable water wells, an approximate indication of the topography of the area, and neighboring land uses.
	See Report.
3.	**Site Location Zoning**
	a) Present zoning of the site location?
	See Report.
	b) Zoning within a one (1) mile radius of the site location?
	See Report.
4.	**Flood Plain and Natural Hazards**
	a) Is the site located in a 100-year flood plain or other natural hazard area? If so, what precautions are being taken?
	No.
	b) Has the flood plain been designated by the Colorado Water Conservation Board, Department of Natural Resources or other agency? If so, please list agency name and the designation.
5.	**Legal Arrangements Demonstrating Control of the Site**
	Please provide the legal arrangements showing control of the site or right-of-way for the project life or showing the ability of the entity to acquire the site or right-of-way and use it for the project life.
	See Report.

Lift Station Information	
6.	Please describe the period during which service area build-out will occur.
	Established in prior Site Applications for this facility.
7.	Please describe the flows/loadings expected in the first five years operation. Also provide the flow/loading projections showing projected flow and loading over the following 20 years.
	Established in prior Site Applications for this facility.
8.	Will the proposed lift station replace an existing lift station?
	Yes ☐ No ☒
	If Yes, please describe the current flows and loadings that will be switched to the proposed lift station.
9.	Describe emergency back-up system in case of lift station and/or power failure to minimize the possibility of sanitary sewer overflows and health hazards to the public and operations personnel.

	Established in prior Site Applications for this facility.
Project Information	
10.	What entity is financially responsible for the construction of the treatment works?
	Widefield Water and Sanitation District
11.	What entity has the financially responsibility for owning and long term operating expense of the proposed treatment works?
	Widefield Water and Sanitation District
12.	What entity has the responsibility for managing and operating the proposed treatment works after construction?
	Widefield Water and Sanitation District
Additional Factors	
13.	Please identify any additional factors that might help the Division make an informed decision on your site location application.
	This site application is only for a new section of force main piping to reroute flows to an alternative discharge point and avoid over loading the current receiving gravity interceptor.

COLORADO
Department of Public Health & Environment

Water Quality Control Division
Engineering Section

4300 Cherry Creek Drive South, B2
Denver, Colorado 80246-1530
CDPHE.WQEngReview@state.co.us
303-692-6298

Applicant Certification and Review Agencies Recommendation
Section 22.9 – Lift Station

Project and System Information	
System Name	Jimmy Camp Lift Station
Project Title	Jimmy Camp Lift Station Force Main Extension
County	El Paso
Associated CDPS Permit No.	

1. Applicant Certification

I certify that I am familiar with the requirements of *Regulation 22 - Site Location and Design Regulations for Domestic Wastewater Treatment Works*, and have posted the site location in accordance with the regulations. An engineering report, as described and required by the regulations, has been prepared and is enclosed.

Applicant Legal Representative			
Position/Title	Typed Name	Signature	Date
Email		Phone	

The system legal representative is the legally responsible agent and decision-making authority (e.g. mayor, president of a board, public works director, owner). The Design Engineer is not the legal representative and cannot sign this form.

2. Recommendation of Review Agencies

As required in Sections 22.9(1)(c) and 22.9(1)(d), the application and the engineering report must be submitted to all appropriate local governments, local health authority, 208 designated planning and management agencies and other state or federal agencies for review and comment prior to submittal to the Division. By signing below, the review agency: 1) acknowledges receipt of the proposed site location application, 2) has reviewed the proposed application and may elect to provide comments, and 3) has provided a recommendation concerning the application to the Division. The recommendation should be based on the consistency of the proposed site location application with the local comprehensive plan(s) as they relate to water quality and the approved regional water quality management plan(s). *Please note: Review agencies are encouraged to provide project comments; however, if a review agency does not recommend approval then the agency must attach a letter describing the reason for their decision or comment on the next page.*

Signature of designated Management Agency (i.e., Water Quality Authority, Watershed Association, Watershed Authority)					
Agency Lower Fountain Water Quality Management Association	Typed Name	Signature		Date	
Email		Phone	Recommend Approval?	*Yes* ☐ *No* ☐	
Signature of County, if the site is located in unincorporated areas of a county					
County El Paso County	Typed Name	Signature		Date	
Email		Phone	Recommend Approval?	*Yes* ☐ *No* ☐	
Signature of City or Town, if the site is located within a City/Town boundary or within three miles of the City/Town boundary (if multiple, attach additional sheets as needed)					
City/Town City of Fountain	Typed Name	Signature		Date	
Email		Phone	Recommend Approval?	*Yes* ☐ *No* ☐	

Signature of Local Health Authority					
Agency El Paso County Public Health	Typed Name	Signature		Date	
Email		Phone	Recommend Approval?	*Yes*	☐
				No	☐
Signature of 208 Designated Planning Agency					
Agency Pikes Peak Area Council of Governments	Typed Name	Signature		Date	
Email		Phone	Recommend Approval?	*Yes*	☐
				No	☐
Signature of other State or Federal Agencies, if treatment works is located on or adjacent to a site that is owned or managed by a federal or state agency.					
Agency	Typed Name	Signature		Date	
Email		Phone	Recommend Approval?	*Yes*	☐
				No	☐
Signature of other undesignated Basin Water Quality Authority, Watershed Association, Watershed Authority, etc.					
Agency	Typed Name	Signature		Date	
Email		Phone	Recommend Approval?	*Yes*	☐
				No	☐

Review Agency Comments:

COLORADO
Department of Public Health & Environment

Water Quality Control Division
Engineering Section

4300 Cherry Creek Drive South, B2
Denver, Colorado 80246-1530
CDPHE.WQEngReview@state.co.us
303-692-6298

Wastewater Receiving Entity Certification
Section 22.9 - Lift Station

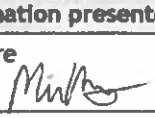
Project and System Information			
System Name	Jimmy Camp Lift Station		
Project Title	Jimmy Camp Lift Station Force Main Extension		
County	El Paso		
Receiving Treatment Entity Information - Certification of Available Treatment Capacity			
Receiving Treatment Entity	Widefield Water and Sanitation District	Receiving Treatment Plant	Widefield Water Reclaimation Facility
CDPS Permit No.	CO0021067	Permit Capacity	2.5 MGD 30-day average
Site Location Approval No. (attach copy of approval)	4417	Site Location Approved Capacity	2.5MGD 30-day average

Proposed treatment works capacity impacts on receiving treatment plant (projected at buildout or 20-years)	
Proposed maximum month average hydraulic capacity:	5MGD
Proposed peak hour hydraulic capacity:	9.9MGD
Proposed maximum month average organic loading capacity:	14,970lbs BOD_5/day
Proposed treatment works will increase the receiving treatment plant's hydraulic loading to:	200 (% of total plant capacity)
Proposed treatment works will increase the receiving treatment plant's organic loading to:	200 (% of total plant capacity)

Treatment Certification - Section 22.9(1)(b)(v)(A)			
Yes, the treatment entity will provide treatment	☒	No, the treatment entity will not provide treatment	☐

Capacity Certification - Section 22.9(1)(b)(v)(B)	
I certify that the receiving treatment plant is not presently receiving wastes in excess of the design capacity as defined in the above listed site location approval and discharge permit and has the capacity to treat the projected discharge from the proposed treatment works (initial in box).	MTM
OR	
I certify that the receiving treatment plant does not currently have the capacity to serve the proposed project flows but is under construction, or will be in a phased construction of new or expanded facilities, and will have the necessary capacity to treat the projected discharge from the proposed treatment works (initial in box).	
Estimated date capacity will be available	
Note: Projections of flow and loading to the treatment plant over the period during which build out of the service area will occur or twenty years, whichever is less, as well as current and future plant capacity information must be provided to demonstrate the plan for maintaining adequate capacity to treat. Any proposed treatment plant phased construction must be shown in the Water Quality Management Plan or by appropriate planning and engineering studies.	

Compliance Status Certification - Section 22.9(1)(b)(v)(C)	
I certify that the receiving treatment plant has not been in violation of any effluent limitations in its discharge permit for the last two years (initial in box).	MTM
I certify that the receiving treatment plant is not operating under a Notice of Violation and/or Cease and Desist Order from the Division resulting from discharge permit violations (initial in box).	MTM
Note: If there have been effluent violations or if the treatment plant is operating under a Notice of Violation and/or Cease and Desist Order from the Division, please provide additional description of the situation and the treatment entity's proposed corrective measures to achieve consistent compliance. The Division will evaluate information provided and determine if approval should be granted, granted with conditions, or denied.	

Signature of Treatment Entity Representative certifying that the information presented above is accurate and complete.			
Position/Title Wastewater Supervisor	Typed Name Mike Morgan	Signature 	Date 04/03/2025
Email mike@wwsdonline.com		Phone 719-491-1153	

Jimmy Camp Lift Station Force Main Extension

Site Application Engineering Report

Widefield Water & Sanitation District

Prepared by:

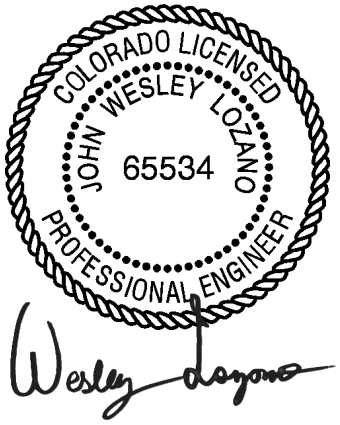
188 Inverness Drive West
Suite 500
Englewood, CO 80112

7/21/2025

Garver Project No. 22W23080

Engineer's Certification

I hereby certify that this Site Application Engineering Report for the Jimmy Camp Lift Station Force Main Extension Project was prepared by Garver under my direct supervision for the Widefield Water and Sanitation District.



_____

Wesley Lozano, PE
State of Colorado PE License 65534

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Appendix A Geotechnical Engineering Report
Appendix B JCLS FM Extension Alternate Alignment Routing Study

1.0 Applicant

WIDEFIELD WATER AND SANITATION DISTRICT
8495 FONTAINE BLVD
COLORADO SPRINGS, CO 80925

2.0 Background & Existing Facilities

The Jimmy Camp Lift Station (JCLS) has been serving the Jimmy Camp Creek Basin of the Widefield Water and Sanitation District (WWSD) sewer service area since 2006. Its original construction was approved under Site Application #4815 and provided for sewage collected from the Jimmy Camp Creek Basin to be pumped to a discharge location in the collection system west of Powers Boulevard on Woody Creek Drive in the Sunrise Ridge Development. The original force main for the JCLS was comprised of two parts which were tied in together: (1) the section of force main constructed with the JCLS as a part of Site Application #4815, and a section of preexisting force main which was reused following the decommissioning of Lift Station #10 documented under Site Application #3979.

In 2009, the JCLS was modified with a partial force main relocation to relieve the Woody Creek line of capacity following a series of overflow issues. This relocation included approximately 6,400 linear feet of new 12" PVC line to carry flows to a new discharge location on WWSD's 18" Southern Interceptor. This force main relocation was approved under Site Application #5069, making a total of three site applications currently associated with the JCLS.

3.0 Proposed Upgrades

For the past 16 years, the JCLS has successfully discharged into the Southern Interceptor, which carries flows by gravity to the WWSD's Water Reclamation Facility. In 2021, WWSD developed a Water and Wastewater Utility Master Plan which identified that the Southern Interceptor was projected to meet its capacity by the end of 2025. Additionally, a 2022 JCLS Capacity Phasing Study concluded that the best approach to prepare the JCLS for future capacity expansion could also relieve the Southern Interceptor of its capacity limitations by installing a new section of 16" force main that ties into the existing JCLS force main and extends it to a new discharge location at the Widefield Water Reclamation Facility's influent manhole.

The full extent of this project includes the design and construction of approximately 9,895 linear feet of new 16" force main that will tie into the existing 12" force main along Mesa Ridge Pkwy and carry flows to the downstream treatment facility. The new section of force main will not impact the service area or design capacity of the JCLS as defined in past site location approvals. As a part of the design process for this project, a force main routing alternatives analysis was completed to select the alignment path and is available in Appendix A.

4.0 Project Location

The JCLS facility and existing force main both will have no updates in location or extent since the last site location approval was issued. The new section of force main proposed in this project starts on Mesa Ridge Pkwy, runs south before turning west onto Cross Creek Ave, continues west along Mesa Rd until

the BNSF railroad is crossed, runs north between the BNSF and UP railroads, then turns west to cross the UP railroad and follows Rice Ln and Willow Springs Rd until the discharge point at a manhole located at the WWSD Water Reclamation Facility (WRF). Nearly the entire extent of the force main is located within the Fountain City Limits, with the only exception being approximately the final 650 LF on the WWSD WRF property which is located in an unincorporated area within El Paso County, Colorado. Figure 1 depicts the proposed FM alignment in red with the Fountain City Limits shaded in blue.

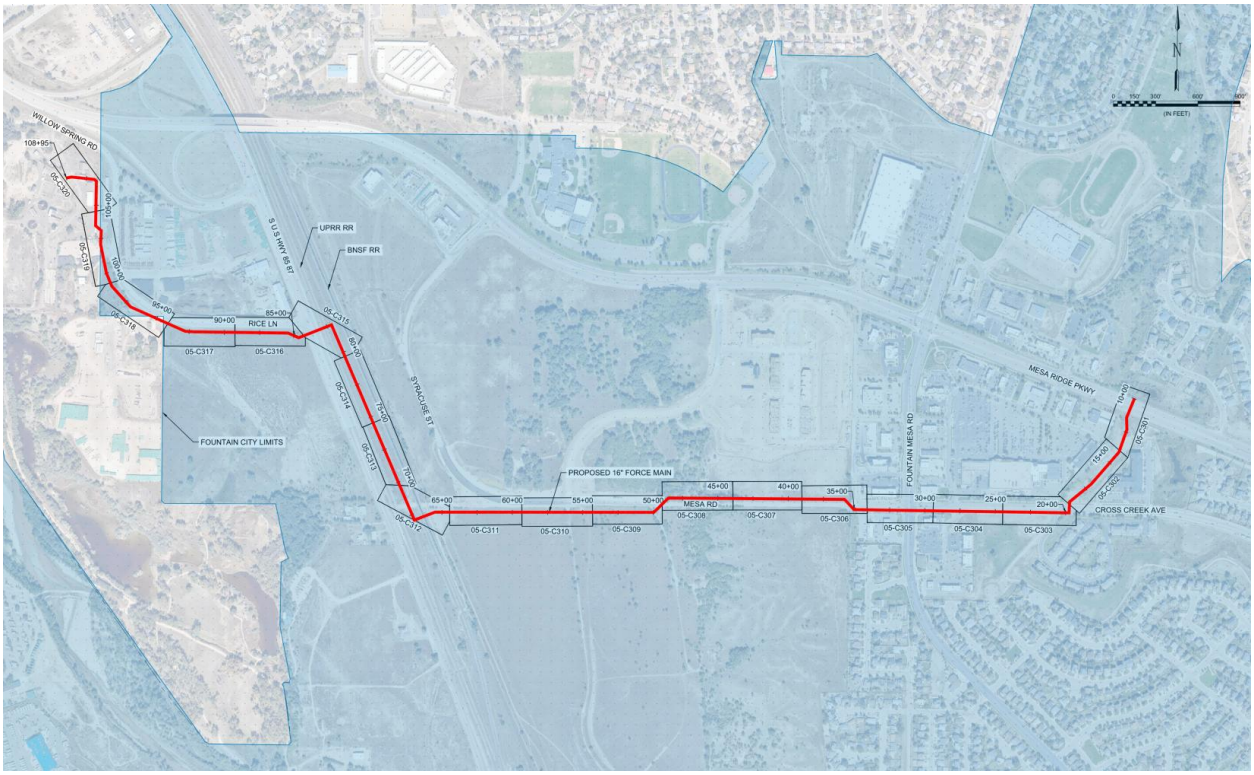


Figure 1: Overall Force Main Extension Route

4.1 Encumbrances and Surrounding Area

The proposed FM alignment does not encounter any designated flood plains or hazard areas. The alignment is nearly free of intersection with nearby zoning districts. The exceptions are two (2) areas along the alignment with a designated zoning district, including a short (~100 LF) section that passes through an I-3 Zone (heavy industrial) and approximately the final 600 LF of the FM which is on the WWSD WRF facility designated as an A-5 zone (agricultural). Shown in Figure 2, several additional zoning districts have been identified within a 1-mile radius of the alignment, each listed in Table 1.

While most of the FM alignment is not within a specifically designated zoning district, much of the property in the immediate vicinity could be classified as commercial, residential, and industrial. The vicinity map in Figure 3 identifies the major developments in the area surrounding the proposed FM.

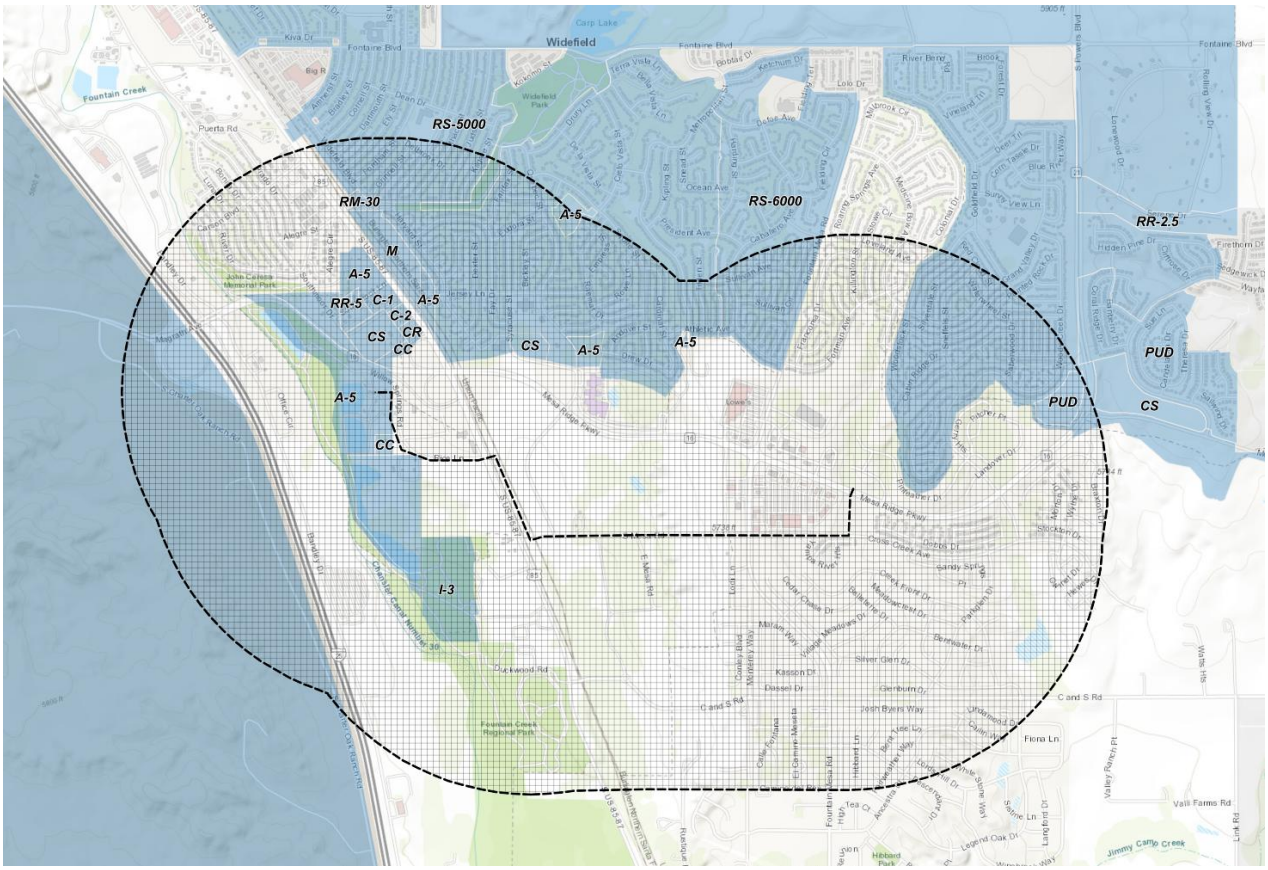


Figure 2: El Paso County Zoning Districts Within 1 Mile of FM Alignment

Table 1: List of Zoning Districts Within 1-Mile of Proposed FM

Zoning District Code	Description	Type
A-5	Agricultural	General
C-1	Commercial	Obsolete
C-2	Commercial	Obsolete
CC	Commercial Community	General
CR	Commercial Regional	General
CS	Commercial Service	General
I-3	Heavy Industrial	General
M	Industrial	Obsolete
PUD	Planned Unit Development	Special Purpose
RM-30	Residential Multi-Dwelling	General
RR-2.5	Residential Rural	General
RR-5	Residential Rural	General
RS-5000	Residential Suburban	General
RS-6000	Residential Suburban	General

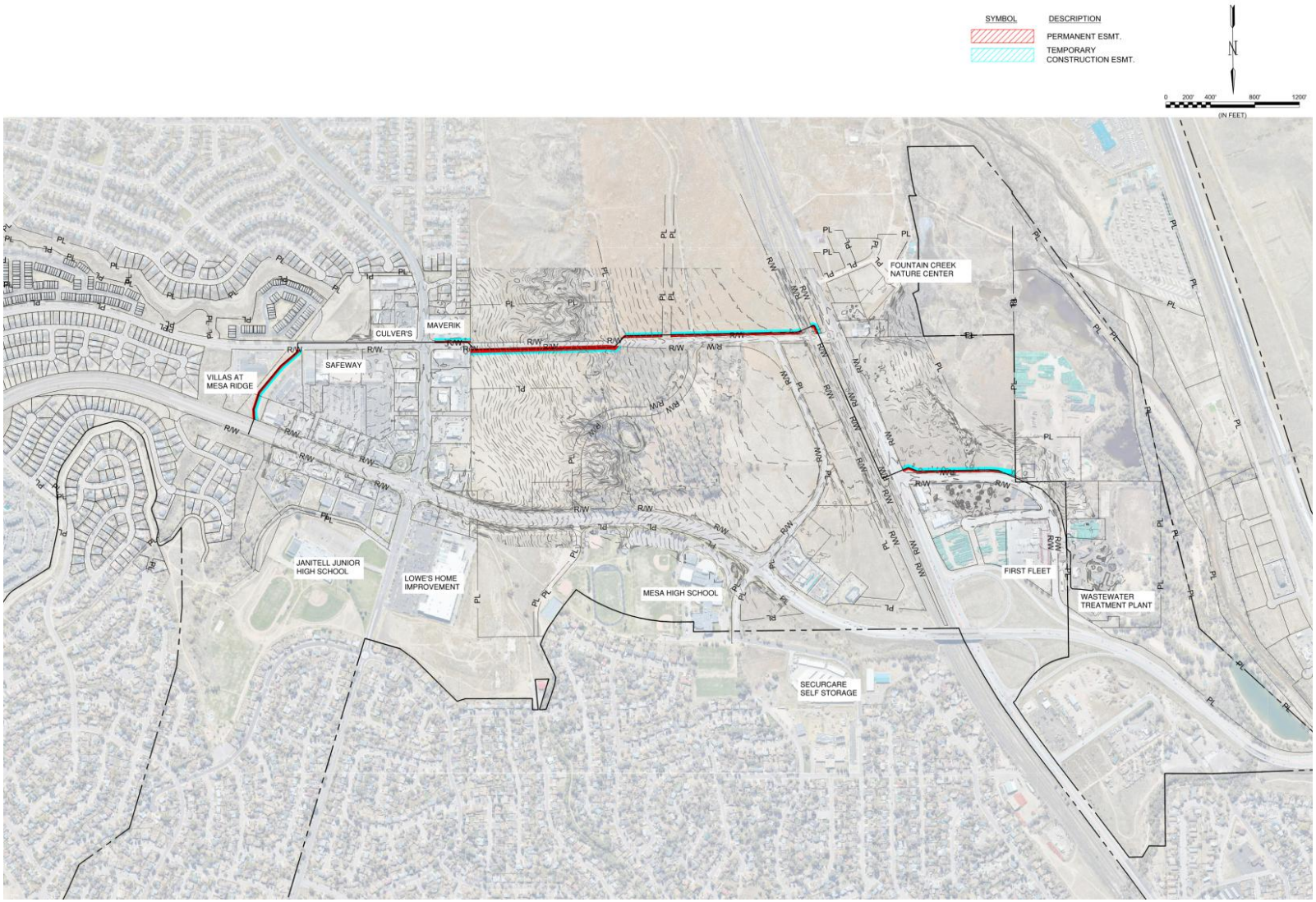


Figure 3: Surrounding Developments Vicinity Map

4.2 Site Control

WWSD will obtain adequate control over the project area prior to construction through the use of public rights-of-way (ROW), purchased easements, and owned property. Easements are being acquired for a total of 7 privately owned parcels, and approvals are being furnished with the Colorado Department of Transportation (CDOT), City of Fountain (COF), BNSF Railroad, and Union Pacific Railroad to allow crossings within their rights of way (ROW). Table 2 and Figure 4 below detail the site control plan along the entire length of the proposed new FM alignment.

WWSD will be the responsible agency for funding, constructing, operating, and maintaining the JCLS and all associated force main piping, and will receive and treat all flows coming from the JCLS at the Widefield Water Reclamation Facility for the foreseeable future.

Table 2: Site Control Details

STA. Start	STA. End	Site Control	Details
10+00	11+45	CDOT ROW	Mesa Ridge Pkwy
11+45	13+60	Easement	Parcel No. 5529205021
13+60	19+10	Easement	Parcel No. 5529205046
19+10	32+05	COF ROW	Cross Creek Ave
32+05	35+10	Easement	Parcel No. 5530403006
35+10	35+90	COF ROW	Mesa Rd
35+90	48+50	Easement	Parcel No. 5530004022
48+50	49+75	COF ROW	Mesa Rd
49+75	53+25	Easement	Parcel No. 5530000086
53+25	54+05	COF ROW	Mesa Rd
54+05	65+75	Easement	Parcel No. 5530000086
65+75	66+85	BNSF ROW	Trenchless Crossing
66+85	67+90	Easement	Parcel No. 5530000011
67+90	68+75	COF ROW	Mesa Rd
68+75	82+40	Owned Property	
82+40	83+05	UPRR ROW	Trenchless Crossing
83+05	84+10	CDOT ROW	US HWY 85 87
84+10	93+50	Easement	Parcel No. 5530000083
93+50	98+10	COF ROW	Willow Spring Rd
98+10	108+95	Owned Property	

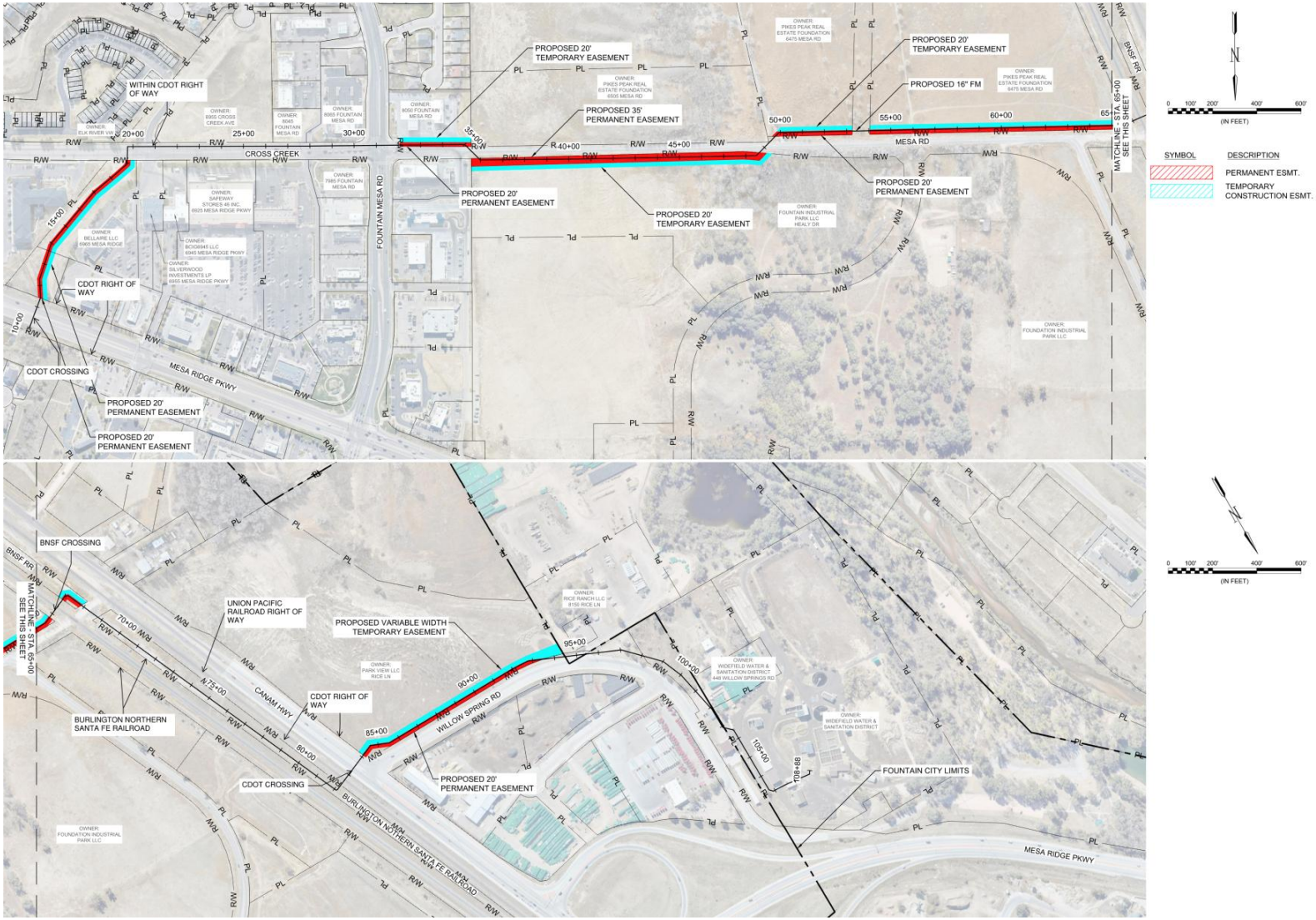


Figure 4: Site Control Map

Appendix A

Geotechnical Engineering Report

Final

Geotechnical Engineering Study

Widefield Water and Sanitation District (WWSD)

Jimmy Camp Lift Station Force Main Extension Project

Fountain, Colorado

Yeh Project No.: 224-104

June 24, 2025

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Yeh and Associates, Inc.
Geotechnical • Geological • Construction Services

Final

Geotechnical Engineering Study

Widefield Water and Sanitation District (WWSD)

Jimmy Camp Lift Station Force Main Extension Project

Fountain, Colorado

Yeh Project No.: 224-104

June 24, 2025

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1. PURPOSE AND SCOPE OF STUDY

This report presents the results of Yeh and Associates, Inc. (Yeh) geotechnical engineering study for the proposed 16-inch Force Main extension of the existing 12-inch Force Main to varying installation depths beneath existing ground surface (BGS) in Fountain, Colorado. The proposed approximately 9,000 linear-foot (LF) Force Main begins at the tie-in at the existing 12-inch Force Main (AA3 on Mesa Ridge Parkway) and routed to Widefield Water & Sanitation District (WWSD). The project location is presented in Figure 1, Project Location Map.



Figure 1. Project Location Map.

The purpose of our study was to evaluate the subsurface conditions along the proposed alignment and provide geotechnical engineering recommendations for design and construction of the proposed Force Main.

Our engineering study was completed in general accordance with our approved proposal for geotechnical engineering services, No. 224-104, dated July 21, 2024. To meet the intended purpose, we completed the following scope of services:

- Review available geological information about the site including mapped geology.
- Conduct a site observation and subsurface exploration to evaluate the existing subsurface conditions. The subsurface exploration consisted of 19 geotechnical borings performed along the Force Main alignment at the approximate locations presented in Appendix A.
- Perform laboratory testing on soil samples obtained during the subsurface exploration to evaluate the engineering characteristics.
- Provide boring-specific native E' values.
- Provide nominal bearing resistance equations and resistance factors for concrete reverse anchors.
- Prepare this report that presents the results of our geotechnical engineering analyses, geotechnical feasibility evaluation, encountered site and subsurface conditions, and geotechnical design and construction recommendations for the Force Main.

The conclusions and recommendations presented herein are based on our limited site explorations and the subsurface conditions encountered at our boring locations during the time of our exploration. Our findings, conclusions, and recommendations should not be extrapolated to other areas of the site or used for other projects without our prior review. Additionally, they should not be used if the site has been altered or if more than two years has elapsed since the date of this report without our prior review to determine if they remain valid.

1.1 Project Understanding

Based on our discussions with the project team, we understand that the project involves the installation of a proposed 16-inch diameter C900 PVC DR14 Force Main that spans approximately 9,000 LF along residential roads and through an open field. Current plans call for the proposed Force Main to be installed by both open cut trenching and trenchless methods. Anticipated

pipeline invert depths are generally in the range of 3.5 feet, with a potential minimum soil cover of 4 to 12 feet for open cut trench areas and 10 to 20 feet for trenchless crossing areas.

If the proposed construction methodology is different than described above, Yeh should be contacted and provided the opportunity to evaluate our recommendations presented herein and evaluate if they remain valid based on the proposed construction procedures.

2. SUBSURFACE EXPLORATION

2.1 Field Exploration

Our site observation and subsurface exploration was completed in August and September of 2024 and consisted of advancing 19 exploratory borings to various depths below the existing ground surface (BGS) ranging from approximately 15 feet BGS to a maximum depth of approximately 25 feet BGS. The locations and required depths of these borings were designated by Garver, LLC. Approximate boring locations are shown in Appendix A.

The borings were advanced using truck mounted Simco 2800 and CME 75 drill rigs equipped with solid- and hollow-stem continuous flight augers. Soil samples were collected at regular intervals by driving a Modified California (MC) sampler into the strata with either an automatic or manual, 140-pound hammer falling 30-inches. The hammer type used in the sampling process is indicated on the respective boring logs provided in Appendix B.

The Modified California (MC) Sampler is a 2.5-inch O.D., 2.0-inch ID (1.95-inch ID with liners), split barrel sampler with internal liners, following ASTM D3550. The MC Sampler “Penetration Resistance” refers to the sum of all blows required to drive the sampler the drive length of 12-inches or portion thereof. The MC penetration resistance represents the consistency or relative density of the strata. The borings were logged and sampled by a qualified representative of Yeh. The boring logs and the legend of the boring logs are presented in Appendix B.

2.2 Laboratory Testing

Representative soil samples were selected for geotechnical and analytical laboratory testing. Laboratory testing was performed following industry standards and local practice. Laboratory soil testing included the following:

- Natural moisture-density
- Gradation analysis
- Atterberg limits

- Unconfined compressive strength
- Swell/Consolidation
- Analytical tests including water soluble sulfates and chlorides, soil resistivity, and pH

Results of the laboratory testing are shown on the boring logs and presented in the Laboratory Summary in Appendix C.

3. SITE AND SUBSURFACE CONDITIONS

3.1 Site Conditions

The project site is located in Fountain, Colorado and the proposed alignment travels adjacent to and across several streets and open fields. Development is industrial along the western portion of the alignment, residential near the eastern portion, and vacant land with residential development potential near the central portion. The photographs below show the site conditions at several locations at the time of our exploration.



Picture 1. Drilling at Widefield Water & Sanitation



Picture 2. Drilling at Willow Spring Road



Picture 3. Drilling near Mesa Road.



Picture 4. Drilling near Mesa Road.



Picture 5. Drilling along Cross Creek.

For the borings drilled through existing pavement, the thickness of the asphalt and road base was measured during the field investigation. A summary of asphalt and road base thicknesses is presented in Table 1.

Table 1. Summary of Asphalt and Road Base Thickness

Boring ID	Roadway	Asphalt Thickness (inches)	Road Base Thickness (inches)
B-14	Cross Creek	9.5	N/A
B-15	Cross Creek	9.5	N/A
B-16	Cross Creek	8.75	N/A
B-17	Cross Creek	9.0	N/A
B-18	CO 16/Mesa Ridge Parkway	5.0	15.0
B-19	CO 16/Mesa Ridge Parkway	5.0	18.0

Note: All thicknesses are approximate and represent conditions at the time of field investigation.

3.2 Geologic Setting

The project area has been mapped by the Colorado Geological Survey as shown in Figure 2. Much of the project area is mapped as various gravel deposits including Alluvial gravel one of upper to middle Holocene age (Qag1), Alluvial gravel five of Upper Pleistocene age (Qag5), Alluvial gravel six of lower Upper Pleistocene to upper Middle Pleistocene age (Qag6). These three units consist of glaciofluvial gravels that were episodically deposited and downcut in the Fountain Creek valley. All the alluvial gravel units in the project area generally consist of reddish, well rounded ovoid pebbles and cobbles in a very coarse sand to fine pebble matrix. Local small boulders (less than three feet diameter) may be present. Alluvial gravels one and five may vary from 3 to 15 feet thick, and Alluvial gravel six has an unknown thickness.

The central project area is mapped as Young alluvial-fan deposits of late to middle Holocene age (Qf). These fan deposits generally consist of dark gray to gray clay, gravel, and sand. This unit was deposited as episodic mudflows from tributary channels onto river terraces and floodplains. The alluvial fans typically form coalescing aprons that mantle the transition from shale bedrock hills to floodplains. This unit contains clay derived from nearby Pierre Shale and may be expansive. This unit may vary from less than five feet to approximately 30 feet thick.

An east-central portion of the project area is mapped as Eolian loess of lower Holocene to Upper Pleistocene age (Qlo). This tan to light brown loamy silt, clay, and very fine-grained sand was deposited by wind and may have a local reddish hue and weak calcic soil development. Some areas may include reworked bedrock residuum, may grade into bedrock residuum, include fine

gravel, or include Pierre Shale fragments. Loess may be prone to collapse and settlement upon wetting. Maximum thickness of this loess unit is about 20 feet.

Some of the project area, notably along existing roadways, is mapped as Artificial fill/disturbed areas (af/da). These areas may consist of gravel, sand, silt, clay, and human-made materials emplaced, disturbed, or removed by human activities. This includes roadway embankments, grading for development, uncontrolled or unsorted storage piles of varying compositions and properties, and landfills.

Valley-fill alluvium of Holocene age (Qav) is mapped in a north-south oriented valley near the eastern edge of the project area. This alluvium consists of gray, tan, to brownish gray, unsorted to poorly sorted, weakly stratified sandy to silty clay. The alluvium was deposited as valley fill in broad drainage swales on low hillsides where underlain by Pierre Shale. The alluvium often contains dispersed small crystalline gravel clasts and Pierre Shale concretion fragments. Sheetwash sediments may be present. This alluvium contains expansive clays. Thickness of this alluvium unit may vary from about five feet to 20 feet.

The Pierre Shale cone-in-cone zone of Lavington (1933) of Upper Cretaceous age (Kpc) underlies the sedimentary units in the project area, and small outcrops are notably mapped southwest of and along the eastern edge of the project area. The Pierre Shale cone-in-cone zone is typically dark gray, tan-gray, or olive-gray, blocky to finely fissile, non-calcareous shale, silty shale, or orange to buff colored very fine-grained sandstone. Thin bentonite beds may be present, as well as orange-brown stained limestone and reddish-brown siderite ironstone concretions. The concretions can be locally abundant, vary in shape, and may be large (up to six feet across). Cone-in-cone structures (secondary cone-shaped sedimentary structures formed due to burial and diagenesis) are common in tabular-shaped concretions. The Pierre Shale cone-in-cone zone is estimated to be approximately 2,290 feet thick.

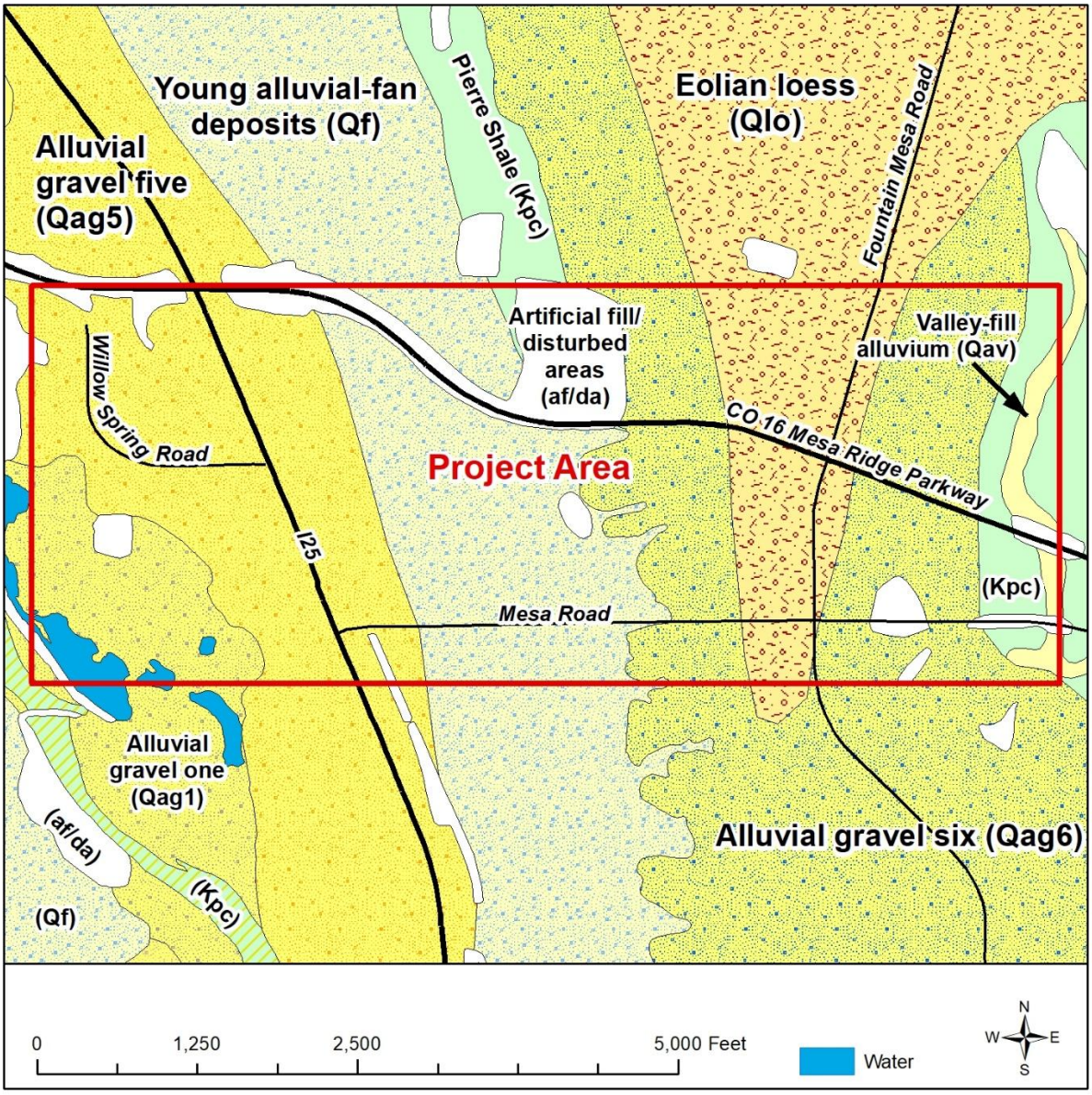


Figure 2. Geologic map of the project area. From *White, J.L., Lindsey, K.O., Morgan, M.L., and Mahan, S.A., Geologic Map of the Fountain Quadrangle, El Paso County, Colorado, 2017. Colorado Geological Survey, Open-File Report OF-17-05. Scale 1:24,000.*

3.3 Subsurface Conditions

The subsurface earth materials encountered in our borings are generally consistent with the mapped geology. The soils encountered along the alignment from WWSD east to a newly-built unnamed roadway (Borings B-1 through B-11) generally consist of several feet of clayey sand or lean clay with varying amounts of sand over several feet of well graded sand with varying amounts of silt and gravel until shale bedrock is encountered or to the boring termination depth. Following the alignment from the new unnamed road east and north to Mesa Ridge Parkway (Borings B-11

through B-19), the soils encountered generally consist of lean clay with varying amounts of sand from surface (or beneath pavement) to the boring termination depth. Approximately 15 to 18 feet of fill material was encountered in borings B-3, B-16, and B-18. The shale bedrock encountered in Borings B-6 through B-10 is generally dark gray and varied from firm to very hard. A summary of encountered shale depths in the borings is provided in Table 2.

Table 2. Summary of Shale Bedrock Depths

Boring ID	Shale Depth (ft BGS)
B-6	18
B-7	20
B-8	20
B-9	18
B-10	24

Note: Shale bedrock was not encountered in the following borings:
B-1, B-2, B-3, B-4, B-5, B-11, B-12, B-13, B-14, B-15, B-16, B-17, B-18, B-19

3.4 Groundwater

Groundwater was encountered in six borings during our field exploration. Groundwater was observed at approximately 14 to 21 feet BGS in the borings as summarized in Table 3 below. Groundwater was not observed at any other borings during our field exploration. Groundwater observations are representative of conditions at the time of our field exploration. Groundwater levels at other times of the year, or at other locations across the site, may fluctuate with seasonal precipitation, site grading and improvements, and local irrigation practices.

Table 3. Summary of Groundwater Depths Encountered During Drilling

Boring ID	Groundwater Depth (ft BGS)
B-6	18
B-7	14
B-8	14
B-9	14
B-10	14
B-19	21

Note: Groundwater was not encountered in borings B-1 to B-5 or borings B-11 to B-18.

3.5 Open Trench Subsurface Conditions

Anticipated pipeline invert installation depths for open trenching are generally in the range of 3.5 feet to 12 feet BGS. Within this range, soil conditions along the western region of the alignment from borings B-1 to B-5 generally consist of clayey sand, lean clay with varying amounts of sand,

and silty sand with varying amounts of gravel. At the anticipated open-trench installation depths from boring B-10 to B-17, the soils encountered generally consist of sandy lean clay and sand with clay and gravel. A summary of encountered soil conditions at the pipeline installation depths for open trenching is provided in Table 4.

Table 4. Open Trench Soil Conditions

Boring ID	Depth (ft BGS)	Subsurface Conditions
B-1	3.5 - 12	Clayey Sand, Well-graded Sand with Gravel
B-2		Sandy Lean Clay, Silty Sand
B-3		Sandy Lean Clay, Clayey Sand to Silty Clayey Sand
B-4		Sandy Lean Clay, Well-Graded to Poorly Graded Sand with Silt and Gravel
B-5		Sandy Lean Clay, Poorly Graded to Well-Graded Sand with Silt and Gravel
B-11		Sandy Lean Clay, Clayey Sand with Gravel
B-12		Sandy Lean Clay
B-13		Sandy Lean Clay
B-16		Sandy Lean Clay
B-17		Sandy Lean Clay

3.6 Trenchless Subsurface Conditions

Anticipated pipeline installation depths are generally in the range of 10 to 20 feet BGS for trenchless pipeline construction areas. Within this range, soil conditions at the trenchless crossing beneath US Highway 85 from boring B-6 to B-10 generally consist of well-graded sand with silt and gravel. Shale is encountered within this range at approximately 18 to 20 feet. The trenchless crossing at Fountain Mesa Road, at borings B-14 and B-15, generally consists of lean clay between 10 and 20 feet BGS. The trenchless crossing at CO Highway 16/Mesa Ridge Parkway, at borings B-18 and B-19, generally consists of lean clay with varying amounts of sand. Groundwater was encountered during drilling in borings B-6 through B-10 at depths between 14 and 18 feet BGS, and in boring B-19 at 21 feet BGS.

A summary of encountered soil conditions at the anticipated trenchless pipeline installation depths is provided in Table 5.

Table 5. Trenchless Soil Conditions

Boring ID	Depth (ft BGS)	Subsurface Conditions
B-6	10 - 20	Well-Graded Sand with Silt and Gravel, Shale (encountered at 18ft BGS)
B-7		Silty Sand with Gravel, Shale (encountered at 20ft BGS)
B-8		Well-Graded Sand with Silt and Gravel, Shale (encountered at 20ft BGS)
B-9		Well-Graded Sand with Silt and Gravel, Shale (encountered at 18ft BGS)
B-10		Well-Graded Sand with Clay and Gravel, Silty Sand with Gravel
B-14		Sandy Lean Clay
B-15		Sandy Lean Clay
B-18		Sandy Lean Clay
B-19		Sandy Lean Clay

4. Feasibility and General Recommendations

Based on the results of our subsurface exploration, laboratory testing, and our understanding of the project, the proposed waterline project is geotechnically feasible provided the geotechnical concerns presented herein are properly addressed during design and construction.

The primary geotechnical concerns at the site are the presence of variable soil conditions in the proposed trenching and trenchless areas consisting of soft to very stiff clay soils with sand layers, firm to very hard shale bedrock, and the potential for groundwater to be encountered.

The following sections present our construction and design recommendations for the project.

5. Construction Considerations

Site preparation and earthwork operations should be performed in accordance with applicable codes, safety regulations, and other local, State, or Federal guidelines. Earthwork on the project should be observed and evaluated by Yeh. The evaluation of earthwork should include observation and testing of engineered fills, subgrade preparation, foundation bearing soils, and other geotechnical conditions exposed during the construction of the project. All earthwork and excavations should be in accordance with Widefield Water and Sanitation District (WWSD) Standard Construction Specifications.

5.1 Site and Subgrade Preparation

5.1.1 Trenchless Access Pits

Drilling/boring pit areas should be prepared following WWSD Standard Specifications. Site preparation should consist of removing any existing structures, sod, and all organic or other deleterious material from the excavation area.

Following site preparation, stripping, and initial excavation, the subgrade should be inspected and evaluated to meet the requirements of WWSD Standard Specifications, and pipe manufacturer requirements. If groundwater and soft subgrade are encountered within the excavation limits, additional improvement by remove-and-replace with crushed rock, or mechanically stabilized subgrade may be required.

5.2 Excavations and Trench Construction

5.2.1 Excavation Characteristics

Clayey and sandy soil and firm to very hard shale bedrock was encountered in the borings near the anticipated excavation depths. The soils may be excavated using conventional heavy-duty earth working equipment in good working order. We note additional effort may be required to excavate the shale bedrock based on the blowcounts recorded during sampling (refusal blowcounts in some locations).

Groundwater was encountered during our exploration as summarized previously and may be encountered during excavation of trenchless access pits and the trenchless crossing near borings B-6, B-7, B-8, B-9, B-10, and B-19.

5.2.2 Temporary Excavations

All excavations must comply with the applicable local, State, and Federal safety regulations, and particularly with the excavation standards of the Occupational Safety and Health Administration (OSHA). Construction site safety, including excavation safety, is the sole responsibility of the Contractor as part of its overall responsibility for the means, methods, and sequencing of construction operations. Yeh's recommendations for excavation support are provided for the Client's sole use in planning the project, and in no way relieve the Contractor of its responsibility to construct, support, and maintain safe slopes. Under no circumstances should the following recommendations be interpreted to mean that Yeh is assuming responsibility for either construction site safety or the Contractor's activities.

We believe the overburden soil encountered on this site will classify as a Type C material, using OSHA criteria. OSHA requires that unsupported cuts be no steeper than 1½ horizontal:1 vertical (1½h:1v) for Type C material for unbraced excavations up to 20 feet in height, above the groundwater. In general, we believe that these slope ratios will be temporarily stable under unsaturated conditions. Flattened slopes may be required if excavations encounter groundwater, or if the slopes will be exposed for an extended period of time. Please note that the Contractor's

OSHA-qualified “competent person” must make the actual determination of soil type and allowable sloping in the field.

The soils encountered by the proposed excavations may vary significantly across the site. The preliminary classifications presented above are based solely on the materials encountered in widely spaced exploratory test borings. The contractor should verify that similar conditions exist throughout the proposed area of excavation.

As a safety measure, it is recommended that all vehicles and soil piles be kept to a lateral distance equal to at least the depth of the excavation from the crest of the slope. The exposed slope face should be protected against the elements and monitored by the Contractor daily.

5.2.3 Dewatering/Shoring

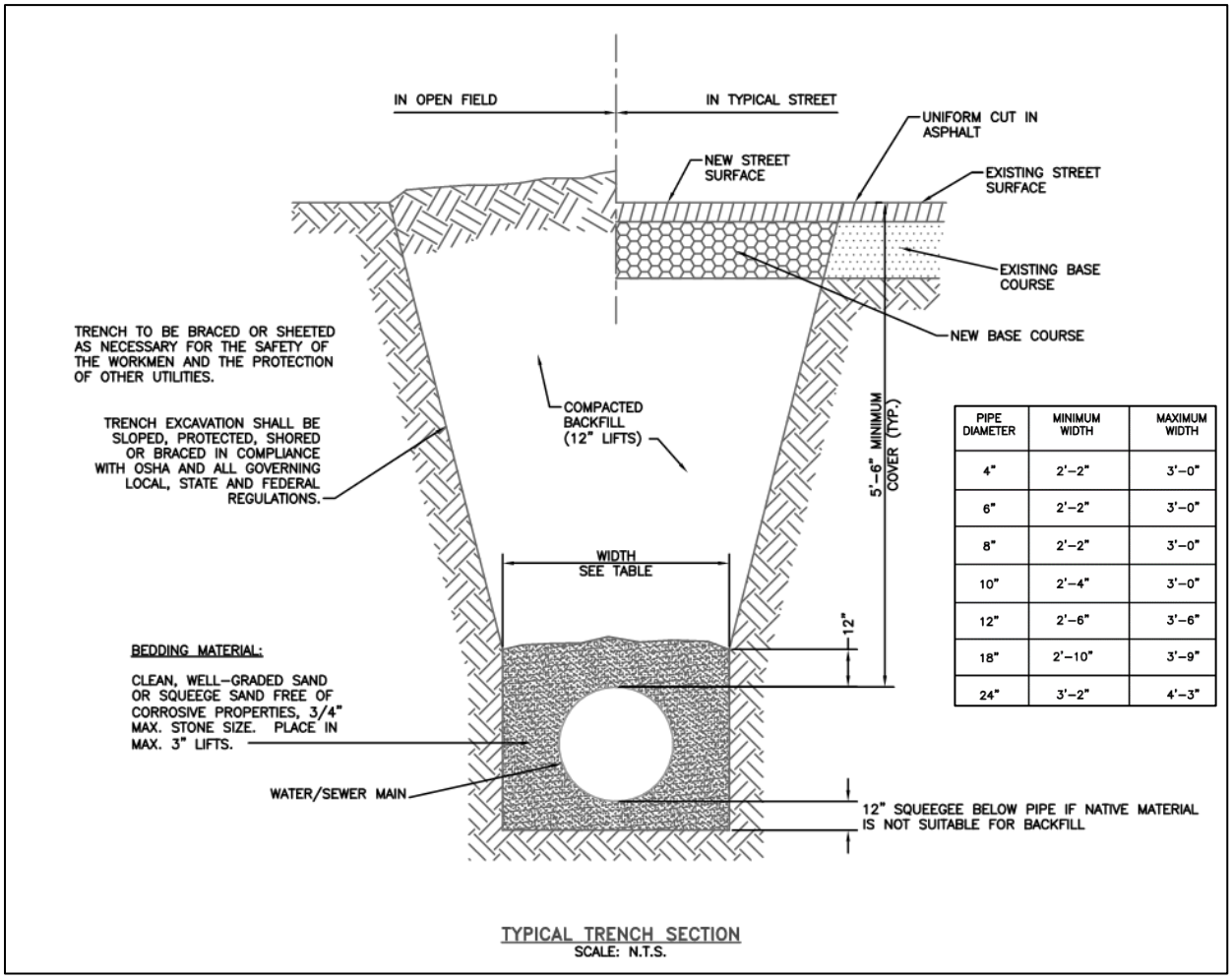
Groundwater was encountered in six borings (see Table 3 and Appendix B for groundwater depths). Construction watering should be planned and designed by qualified personnel utilizing appropriate construction dewatering equipment/systems such as well points, sumps, and trenches. Design of the dewatering system will be the responsibility of the Contractor. In addition, trenching into unstable, saturated overburden soils may require temporary shoring, where construction of safe slopes is not feasible. OSHA requirements for excavation in unstable materials should be followed.

5.3 Construction in Wet or Cold Weather

No grading fill, structural fill, or other fill should be placed on frosted or frozen ground, nor should frozen material be placed as fill. Frozen ground should be allowed to thaw or be completely removed prior to placement of fill. A good practice to help limit the risk of freezing is to cover the compacted fill with a “blanket” of loose fill. Prior to commencement of additional fill, the loose fill blanket must be entirely removed and allowed to thaw before incorporating it into the fill.

Attention to drainage conditions during construction is critical to long-term performance of the backfill and to help limit future settlement along the pipeline. During construction, grade the site so that surface water can drain readily away from the improvement areas. Ponding of water in or near excavations should be avoided. Promptly pump out or otherwise remove water that accumulates in excavations or on subgrades and allow these areas to dry-out before resuming construction. Use berms, ditches, and similar means to prevent stormwater from entering work areas and to convey it away from the work area efficiently.

5.4 Pipe Embedment, Trench Backfill Material and Placement



PIPE DIAMETER	MINIMUM WIDTH	MAXIMUM WIDTH
4"	2'-2"	3'-0"
6"	2'-2"	3'-0"
8"	2'-2"	3'-0"
10"	2'-4"	3'-0"
12"	2'-6"	3'-6"
18"	2'-10"	3'-9"
24"	3'-2"	4'-3"

Figure 3. Typical Trench Cross Section

Pipe embedment should be performed in accordance with WWSD Standard Specifications and the pipe manufacturer specifications. Trench backfill material, placement, and compaction should be performed following the requirements in WWSD Standard Specifications. In our opinion, the onsite sandy and clayey soils encountered in our borings are not suitable to be used for embedment materials but could be used for trench backfill one foot above the pipeline, although the fine-grained clay soil will likely need to be moisture conditioned (drying or adding moisture) prior to compaction. Figure 3 shows typical WWSD trench detail.

5.5 Concrete Reverse Anchor Bearing Resistance Equations

Estimated bearing resistance equations were developed based on the subsurface materials encountered in the borings near the proposed concrete reverse anchor locations along the

proposed waterline alignment. It is our understanding that the bottom of the proposed concrete reverse anchors will be at approximately eight feet BGS with a potential minimum soil cover of up to four feet. The upper three feet of soil was not used for estimated bearing resistance due to the potential of possible future disturbance as depicted in Figure 3. The assumed soil parameters used for the concrete reverse anchor bearing resistance equations and resistance factors are summarized in Appendix D, Summary of Nominal Bearing Resistance Equations and Resistance Factors for Concrete Reverse Anchors.

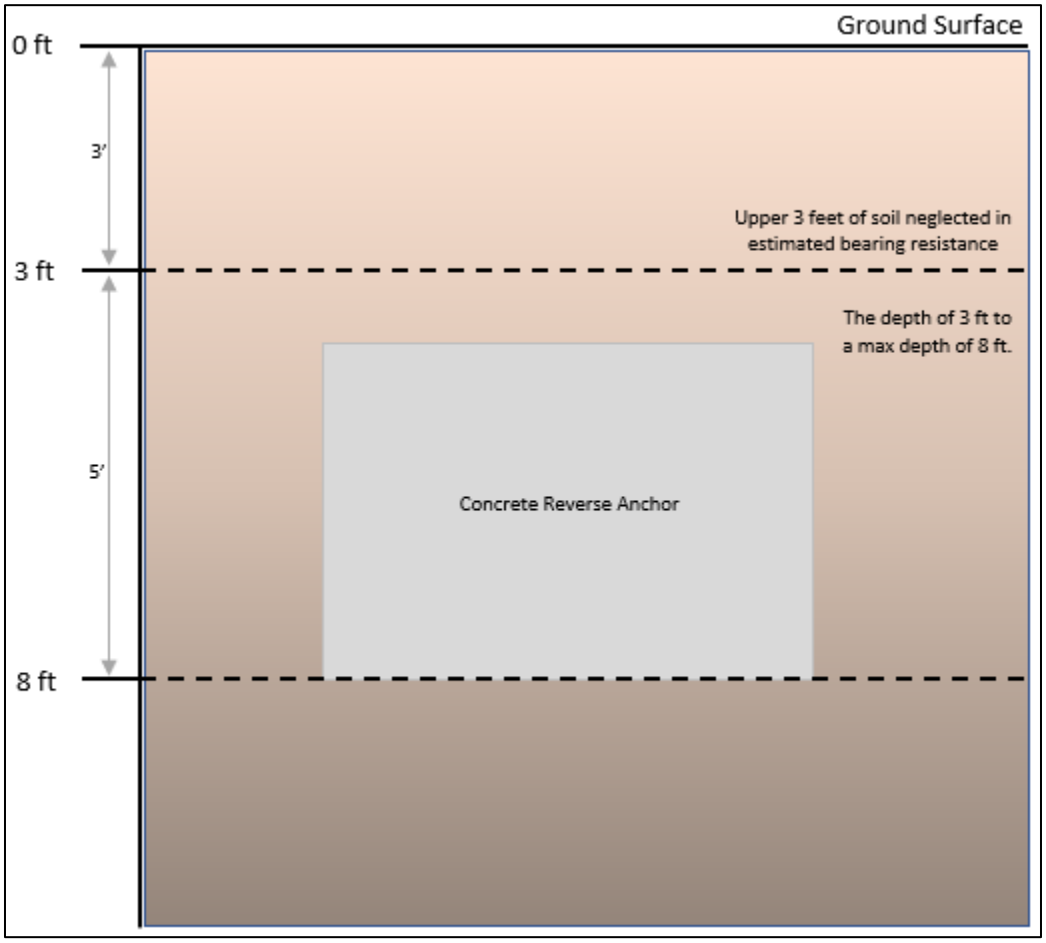


Figure 4. Concrete Reverse Anchor Embedment Depth

5.6 Imported Structural Fill Requirements

Based on our laboratory test results, the on-site clayey and sandy soils may be utilized as fill provided they are properly moisture conditioned and compacted as specified in this report. Additional imported structural fill, if required, should consist of non-expansive granular material

meeting the criteria presented in Table 6. (note that onsite clay (CL) may not meet this criteria and selective stockpiling of granular clayey sand soils maybe required).

Table 6. Imported Structural Fill Criteria

Gradation Requirements	
Standard Sieve Size	Percent Passing
2 inch	100
No. 200	10 - 30
Plasticity Requirements (Atterberg Limits)	
Liquid Limit	30 or less
Plasticity Index	6 or less

We recommend that a qualified representative of Yeh visit the site during excavation and during placement of the structural fill to verify the soils exposed in the excavations are consistent with those encountered during our subsurface exploration, and that proper foundation subgrade preparation and placement is performed.

All fill placed on this site should be compacted according to the recommendations in Section 5.6.1 of this report. A sample of any imported fill material should be submitted to our office for approval and testing at least three days prior to stockpiling at the site.

Per WWSD Standard Specifications, no rock or stone larger than allowed by sieve analysis, or any detrimental substance, shall be placed closer to the pipe than 6 inches, and WWSD reserves the right to require the use of select bedding material at any time.

5.6.1 Compaction Requirements

Fill materials should be placed in horizontal lifts compatible with the type of compaction equipment being used, moisture-conditioned, and compacted in accordance with the criteria shown in Table 7. Fill should be placed in level lifts not exceeding the maximum loose soil lift height outlined in the compaction chart in Section 3.4 of WWSD Standard Specifications and compacted to the specified percent compaction in Table 7 to produce a firm and unyielding surface. The loose soil lift height is dependent on the compaction equipment being used. If field density tests indicate the required percent compaction has not been obtained, the fill material should be reconditioned and recompacted as necessary to meet the required percent compaction before placing any additional material.

Table 7. Compaction Requirements

Fill Location	Material Type	Percent Compaction	Moisture Content
Trench Backfill above pipe bedding zone	Onsite Sandy & Clayey Soils/ Imported Structural Fill	95 minimum (ASTM D1557)	Optimum
Aggregate Base (ABC)	Imported CDOT Class 5 or 6 ABC	95 minimum (ASTM D1557)	Optimum
Pipe Embedment Zone 6 inches below bottom of pipe extending to 12 inches above top of pipe	Import granular soils meeting WWSD Specifications	90% maximum (ASTM D1557)	Optimum

6. PIPELINE DESIGN

6.1 Pipe Loads

Pipelines should be designed to resist vertical loads resulting from the backfill. The load on the pipe can be estimated as the prism load. The prism load is the total weight of the soil acting above the pipe and applied over a width equal to the outside diameter of the pipe. A total soil unit weight of 135 pounds per cubic foot can be used to estimate the prism load on the pipe. An effective unit weight of 72.5 pounds per cubic foot should be used where inundated conditions are expected. Loads from adjacent pipes within the same trench should be considered when designing for pipe loads

6.2 Modulus (E')

Pipes are typically designed to withstand a certain amount of deflection from applied earth loads. Procedures recommended by Howard (1996, 2006) were used to estimate the modulus of soil reaction (E') for use with deformation analyses of the pipe. A composite E' value of 760 pounds per square inch may be used for design of flexible pipe assuming a 48-inch-wide trench backfilled with a minimum of 10 inches of compacted sand. An E' value of 2,000 pounds per square inch was used for the compacted Pipe Zone Material (sand).

The recommended E' values assume that the trench will be excavated in the subsurface material described in this report and having a minimum of 3.5 feet of backfill placed over the top of the pipe.

The recommended E' values were selected based on the soil conditions encountered in the borings advanced along the pipeline alignment. If relatively soft clay or silt, or other unsuitable material is present within the pipe zone, or the pipe zone material is not properly compacted, then loads greater than those estimated could act on the pipe due to relatively poorly supported springline conditions along the pipe. Boring-specific native E' values calculated using WWSD minimum and maximum trench widths (38 inches and 52 inches, respectively) are provided in Tables 8 and 9 below. The geotechnical professional should observe the trench during construction. If unsuitable materials are encountered along the springline of the pipe, the trench detail and design of the pipe should be reviewed to evaluate if modifications to the design are needed to provide for the lower springline support.

Table 8. Summary of Soil Modulus Values Using WWSD Minimum Trench Width (38 inches)

Boring ID	Trench Width (in)	Pipe Installation Zone (ft)	SPT N Value[1]	UCCS (psi @ depth (ft))	Material Encountered	Composite E' (psi)
B-1	38	3.5-12	4	-	Clayey Sand, Sand with Gravel	355
B-2	38	3.5-12	12	-	Sandy Lean Clay, Silty Sand	1077
B-3	38	3.5-12	7	-	Sandy Lean Clay, Clayey to Silty Sand	786
B-4	38	3.5-12	7	-	Sandy Lean Clay, Sand with Silt and Gravel	786
B-5	38	3.5-12	7	-	Sandy Lean Clay, Sand with Silt and Gravel	786
B-6	38	10-20	20	-	Sand with Silt and Gravel, Claystone	1528
B-7	38	10-20	3	-	Silty Sand	355
B-8	38	10-20	5	-	Sand with Silt and Gravel	1023
B-9	38	10-20	15	-	Sand with Silt and Gravel, Claystone	1320
B-10	38	10-20	11	-	Sand with Clay and Gravel, Silty Sand	1320
B-11	38	3.5-12	15	-	Sandy Lean Clay, Clayey Sand	1077
B-12	38	3.5-12	9	-	Sandy Lean Clay	786
B-13	38	3.5-12	24	-	Sandy Lean Clay	1528
B-14	38	10-20	9	-	Sandy Lean Clay	786
B-15	38	10-20	12	-	Sandy Lean Clay	1077
B-16	38	3.5-12	7	27.8 @ 7	Sandy Lean Clay	786
B-17	38	3.5-12	4	23.0 @ 4	Sandy Lean Clay	355
B-18	38	10-20	14	-	Sandy Lean Clay	1077
B-19	38	10-20	3	-	Sandy Lean Clay	355

NOTE: [1]N values correlated from Modified California sampler blow counts as necessary.
Reference: Pipeline Installation 2.0, A. Howard, 2015
Typical Trench Cross Section, Widefield Water and Sanitation District, July 2011

Table 9. Summary of Soil Modulus Values Using WWSD Maximum Trench Width (52 inches)

Boring ID	Trench Width (in)	Pipe Installation Zone (ft)	SPT N Value[1]	UCCS (psi @ depth (ft))	Material Encountered	Composite E' (psi)
B-1	52	3.5-12	4	-	Clayey Sand, Sand with Gravel	524
B-2	52	3.5-12	12	-	Sandy Lean Clay, Silty Sand	1314
B-3	52	3.5-12	7	-	Sandy Lean Clay, Clayey to Silty Sand	1031
B-4	52	3.5-12	7	-	Sandy Lean Clay, Sand with Silt and Gravel	1031
B-5	52	3.5-12	7	-	Sandy Lean Clay, Sand with Silt and Gravel	1031
B-6	52	10-20	20	-	Sand with Silt and Gravel, Claystone	1684
B-7	52	10-20	3	-	Silty Sand	524
B-8	52	10-20	5	-	Sand with Silt and Gravel	1265
B-9	52	10-20	15	-	Sand with Silt and Gravel, Claystone	1523
B-10	52	10-20	11	-	Sand with Clay and Gravel, Silty Sand	1523
B-11	52	3.5-12	15	-	Sandy Lean Clay, Clayey Sand	1314
B-12	52	3.5-12	9	-	Sandy Lean Clay	1031
B-13	52	3.5-12	24	-	Sandy Lean Clay	1684
B-14	52	10-20	9	-	Sandy Lean Clay	1031
B-15	52	10-20	12	-	Sandy Lean Clay	1314
B-16	52	3.5-12	7	27.8 @ 7	Sandy Lean Clay	1031
B-17	52	3.5-12	4	23.0 @ 4	Sandy Lean Clay	524
B-18	52	10-20	14	-	Sandy Lean Clay	1314
B-19	52	10-20	3	-	Sandy Lean Clay	524

NOTE: [1]N values correlated from Modified California sampler blow counts as necessary.
Reference: Pipeline Installation 2.0, A. Howard, 2015
Typical Trench Cross Section, Widefield Water and Sanitation District, July 2011

6.3 Thrust Resistance

Thrust forces will develop in pressurized pipelines that can be resisted by soil pressures. The resistance to thrust forces can be provided by frictional resistance mobilized between the pipe and the surrounding soil and by passive resistance acting on thrust blocks placed within the trench to improve the lateral support for the pipe.

For PVC/HDPE pipe, a coefficient of friction of 0.25 can be used to estimate the sliding resistance that develops between the outside of the pipe and the compacted Pipe Zone Material. The

geotechnical engineer should be contacted for refined coefficient of friction values if other backfill material or pipe materials are anticipated. An effective soil unit weight of 72.5 pounds per cubic foot should be used when calculating the overburden stress above the pipe or thrust blocks to account for the potential for the backfill material to be inundated with water.

Thrust block resistance can be estimated as the passive soil pressure acting on a bearing side of the block plus the frictional resistance acting on the base of the block. Thrust blocks should be designed with a minimum cover of three feet below finish grade. A net passive resistance of 300 pounds per cubic foot (equivalent fluid pressure) plus the effective overburden pressure can be used to estimate the lateral resistance acting on thrust blocks bearing against relatively undisturbed native soil. Prior to placing concrete for thrust blocks and pipe anchors, loose soil should be removed from all surfaces and the exposed soil surfaces moistened to or just above optimum. A coefficient of friction of 0.48 may be used to estimate the frictional resistance acting on the base of cast-in-place concrete thrust blocks bearing in relatively undisturbed native material.

7. DESCRIPTION OF POTENTIAL TRENCHLESS METHODS

7.1 Jack and Bore

Jack and bore includes construction of a jacking pit and receiving pit that are excavated on either end of the crossing. The boring equipment and casing are installed from within the jacking pit and the receiving pit is where the casing terminates. The drilling equipment uses large diameter augers that are mounted to a horizontal drive shaft. Casing is pushed or jacked into the ground as the auger drills and removes the spoils. Additional pieces of casing are welded onto the exposed casing as the bore path advances. This method is typically well suited for soil conditions that can allow temporary stable open faces in dense sand with some clay and/or silt or clay soils that are above the groundwater surface. Depending on the depth of the installation, shallow, perched groundwater could be encountered that could require dewatering.

7.2 Pipe Ramming

Pipe ramming includes ramming a steel casing using vibration and impact. The equipment and casing are installed from within the jacking pit and the receiving pit is where the casing terminates. The equipment uses ramming and vibration equipment that is mounted to the casing. Casing is rammed through the ground along the desired alignment. Additional pieces of casing are welded onto the exposed casing as the path advances. Soil fills the inside of the casing and is removed

during or after the ramming is completed. This method is typically well suited for soil conditions that can allow temporary stable open faces in dense sand with some clay and/or silt or clay soils that are above the groundwater surface. The subsurface material at the project site where pipe ramming could be performed appear to be generally suitable for pipe installation using pipe ramming; however, the shale bedrock material in the proposed crossing locations may cause difficult driving conditions based on the drilling and sampling conditions encountered by the respective borings. In addition, pipe ramming causes a relatively high amount of vibration that could damage nearby utilities and improvements. Depending on the depth of the installation, shallow groundwater could also be encountered that could require dewatering.

8. TRENCHLESS CROSSING RECOMMENDATIONS

8.2 Anticipated Drilling Conditions and Construction Conditions

The soil conditions encountered at the trenchless crossings between borings B-14 and B-15 and between borings B-18 and B-19 indicate that the drilling/boring operations could be advanced through medium stiff to very stiff sandy lean clay.

Depending on the final pipeline depth and alignment, the geotechnical subsurface investigation for the proposed jack and bore construction site, based on borings B-6 through B-10, indicates potential challenges due to highly variable soil and rock conditions. The subsurface materials range from medium dense sand with gravel to medium stiff to very stiff sandy lean clay, while bedrock consists of firm to very hard shale. These variations may complicate the drilling process, making it difficult to maintain the intended alignment of the waterline. The differences in density and cohesion between the clay, sandy soils, and bedrock are likely to impact the final bore alignment.

To address these challenges, the contractor should be prepared for varying conditions and implement provisions for monitoring the cutting head during advancement. Additionally, the design should account for potential deviations from the intended alignment to ensure the successful installation of the waterline.

Groundwater was encountered in the trenchless crossing borings B-6 through B-10, and B-19. On that basis, groundwater should be anticipated and may be encountered near the bottoms of the proposed pipe and pit elevations. Contractors should be made aware of the groundwater elevations and evaluate potential impacts to constructability, and potential need for dewatering if pits/excavations extend into the groundwater.

8.3 Borehole Stability

Loose, cohesionless soils such as sand and gravel, and soft to very soft cohesive soils are generally prone to caving, slough, and running soil conditions in unsupported excavations, especially at the elevations where groundwater is present. These types of materials were encountered in Borings B-1 through B-10 and have higher potential to collapse along the drill/bore holes and sink holes can develop at ground surface. This should be considered for the installation of the pipe. The contractor should be prepared to maintain the stability of the hole during drilling/boring operations and have a mitigation plan in place in the event that settlement occurs, voids develop, or the hole collapses.

8.4 Bore Monitoring

When applying the jack and bore method, bore spoil volumes recovered from the bores should be monitored during construction to evaluate whether the excavated volume is consistent with the theoretical hole volume. Bulking of the excavated soils must be considered when comparing the spoil volumes to the theoretical hole volume. If spoil quantities (adjusted for bulking) exceed the theoretical hole volume, overmining of the heading may be occurring. This can result in voids along the bore path that can lead to settlement and/or sinkholes at the ground surface. If excessive voids occur, provisions should be made to fill those voids with cement grout or other suitable material to restore the integrity of the roadway subgrades.

Monitoring during drilling should be kept at the appropriate angle, and adjustments should be made to maintain design grade. Post-installation grouting of the carrier pipe, if necessary, should take place before installation of the waterline.

8.5 Jacking Resistance

The local resistance of the soil to provide resistance for jacking of casings at the crossings will depend upon the condition of the soil at the jacking location as well as the contractor's methods and equipment. The frictional resistance on the sides of the casing can be reduced by overcutting the heading to a diameter slightly larger than the casing (typically less than one-inch in diameter) using overcut banding on the lead casing, and by applying or introducing lubricants to the outside of the casing, such as slurries or drilling muds.

The reaction force for the jacking equipment will be provided by passive earth pressure developed against a plate bearing on the back of the launching pit. Soil encountered near the proposed

depths of the casings at the proposed launching pits for the crossings generally consisted of medium stiff clay with varying amounts of silty to clayey sand. Weathered, soft shale bedrock could also be encountered in some jacking pit locations depending on installation depth below the ground surface. Table 10 summarizes the results of the unconfined compressive testing performed on samples from the borings. The results of the unconfined compressive testing are also presented in Appendix C, Laboratory Test Results, as well as in Appendix B, Legend and Boring Logs.

Table 10. Summary of Unconfined Compressive Strengths

Boring ID	Depth (ft BGS)	Material	Strength (psf)
B-1	1.0	Clayey Sand	7,585
B-2	1.0	Sandy Lean Clay	10,243
B-6	1.0	Clayey Sand	7,998
B-7	1.0	Clayey Sand with Gravel	15,874
B-8	1.0	Clayey Sand	6,131
B-11	1.0	Sandy Lean Clay	2,213
B-12	1.0	Sandy Lean Clay	2,972
B-14	4.0	Sandy Lean Clay	3,766
B-15	4.0	Sandy Lean Clay	6,566
B-16	7.0	Sandy Lean Clay	3,996
B-17	4.0	Sandy Lean Clay	3,317
B-18	4.0	Sandy Lean Clay	4,306

The passive pressure for reaction blocks at the three crossings can be estimated using an allowable passive equivalent fluid pressure of 300 pounds per cubic foot for drained conditions. The estimated passive earth pressure assumes that the support soil for the jacking plate is at least four feet below the ground surface and above the groundwater. Some amount of lateral deflection will occur for the jacking force to develop the passive resistance of the soil. The size of the horizontal jacking pads and pressure area is directly related to the amount of lateral deflection.

8.6 Utility Clearance

All underground utilities near the alignment should be accurately located prior to construction and these utilities should be protected by the contractor so as not to be impacted by the proposed drilling/boring operations. The drilling/boring profile should be designed to allow sufficient clearance from all underground utilities to avoid entering into the existing utility trench or pipe zone materials.

Depending on the depth of the installation, shallow groundwater could also be encountered that could require dewatering.

9. Other Design Considerations

9.1 Chemical Test Results

Chemical testing was performed by Yeh's Denver laboratory on selected composite subsurface soil samples. The results of the analytical testing are presented in the boring logs, in Appendix C, and are summarized in Table 11.

Table 11. Chemical Test Results

Boring ID	Depth (ft)	pH	Water Soluble Sulfates (%)	Water Soluble Chlorides (%)	Resistivity (ohm-cm)
B-1	1.0	7.4	0.057	0.024	835
B-6	1.0	7.5	0.007	0.039	4,480
B-7	1.0	7.3	0.011	0.036	2,920
B-8	1.0	7.6	0.009	0.039	2,360
B-9	1.0	7.6	0.01	0.036	3,650
B-11+B-12	1.0	6.0	0.002	0.024	2,450
B-14	7.0	6.9	0.007	0.039	1,750
B-15	14.0	6.8	0.011	0.033	1,460
B-16	14.0	7.0	0.021	0.015	1,600
B-17	7.0	7.2	0.008	0.066	1,800
B-18	4.0	7.5	0.09	0.054	610
B-19	4.0	6.9	0.054	0.051	1,350

Note: A qualified corrosion engineer should review test results and determine the appropriate corrosion protection measures at the site.

9.2 One-Dimensional Swell or Collapse of Soils

One-dimensional swell or collapse tests were performed on select soils. The test results indicated that the on-site materials have a potential to swell when wetted. The results of the swell or collapse tests on samples are provided in Table 12.

Table 12. One-Dimensional Swell or Collapse Test Results

Boring ID	Depth (ft)	Soil Classification	Soil Description	Consolidation (-)/Swell (+), %	Applied Normal Pressure (psf)	Approx. Swell Pressure (psf)[1]
B-1	1.0	N/A[2]	Clayey Sand	-1.3	500	NA[2]
B-2	5.0	A-7-6 (15)/CL	Sandy Lean Clay	0.4	500	4,000
B-7	5.0	A-2-6 (0)/SC	Clayey Sand	-0.3	500	NA[2]
B-9	1.0	N/A[2]	Clayey Sand	1.7	500	2,300
B-10	1.0	A-7-6 (21)/CL	Sandy Lean Clay	1.0	500	16,000
B-11	5.0	A-7-6 (24)/CL	Sandy Lean Clay	0.9	500	16,000
B-13	9.0	A-6 (13)/CL	Sandy Lean Clay	0.9	500	31,000
B-14	14.0	N/A[2]	Sandy Lean Clay	0.1	500	2,000
B-19	14.0	N/A[2]	Sandy Lean Clay	0.0	500	N/A[2]

1. The swell pressure shown is the approximate vertical stress required to return the sample to the thickness the sample displayed at the time of wetting.
2. Not applicable

9.3 Foundation System Concrete

The highest concentration of water-soluble sulfates was observed to be 0.09 percent based on the test result from boring B-18 at four feet BGS. This concentration of water-soluble sulfates represents a Class 0 degree of sulfate attack on concrete exposed to these geologic materials. The degree of attack is based on a range of Class 0 (negligible) to Class 3 (very severe) as described in the American Concrete Institute (ACI) Standard 201.2R, “Guide to Durable Concrete”.

9.4 Corrosion Potential

Test results indicate a measured pH value ranging from 6.0 to 7.6 and resistivity ranging from 610 to 4480 ohm-cm for the tested soil samples. Corrosion of buried metal is an electrochemical process in which the amount of metal loss due to corrosion is directly proportional to the flow of electrical current (DC) from metal into the soil. As resistivity decreases, the corrosivity of the soil increases. Table 13 provides a correlation between soil resistivity and corrosivity towards ferrous metal, as recommended by “Underground Corrosion, NBS Circular 579”, Melvin Romanoff, 1957.

Table 13. Resistivity and Corrosivity Categories

Resistivity in Ohm-centimeters	Corrosivity Category
0 to 1,000	Severely Corrosive
1,000 to 2,000	Corrosive
2,000 to 10,000	Moderately Corrosive
Greater than 10,000	Mildly Corrosive

Based on the resistivity test results, the soils encountered at the site are anticipated to be moderately to severely corrosive to unprotected buried ferrous structures. A qualified corrosion engineer should review test results and determine the appropriate corrosion protection measures at the site.

9.5 Seismicity

Based upon the geologic setting, subsurface soil, and bedrock conditions we anticipate the liquefaction potential at the site to be low. The subsurface soil profiles correspond with Site Class D of the 2021 IBC. The site class was based on the conditions encountered in our shallow exploratory soil borings and our knowledge of the soil conditions in the site vicinity. The soil characteristics extending beyond the depth of our borings were assumed for the purposes of providing this site classification.

The intermediate values from 2021 IBC used to obtain the design parameters are provided in Table 14.

Table 14. Seismic Design Parameters

S_S	F_a	S_{MS} ($S_{MS} = F_a S_s$)	S_{DS} ($S_{DS} = 2/3\ S_{MS}$)
0.172 g	1.6	0.276 g	0.184 g
S_1	F_v	S_{M1} ($S_{M1} = F_v S_1$)	S_{D1} ($S_{D1} = 2/3\ S_{M1}$)
0.06 g	2.4	0.144 g	0.096 g

S_S = The mapped spectral accelerations for short periods (U.S. Geological Survey Web Page, 2020)
F_a = Site coefficient from Table 1613.5.3(1), 2021 IBC
S_{MS} = The maximum considered earthquake spectral response accelerations for short periods
S_{DS} = 5-percent damped design spectral response acceleration at short periods
S_1 = The mapped spectral accelerations for 1-second period (U.S. Geological Survey Web Page, 2020)
F_v = Site coefficient from Table 1613.5.3(2), 2021 IBC
S_{M1} = The maximum considered earthquake spectral response accelerations for 1-second period
S_{D1} = 5-percent damped design spectral response acceleration at 1-second period

10. LIMITATIONS

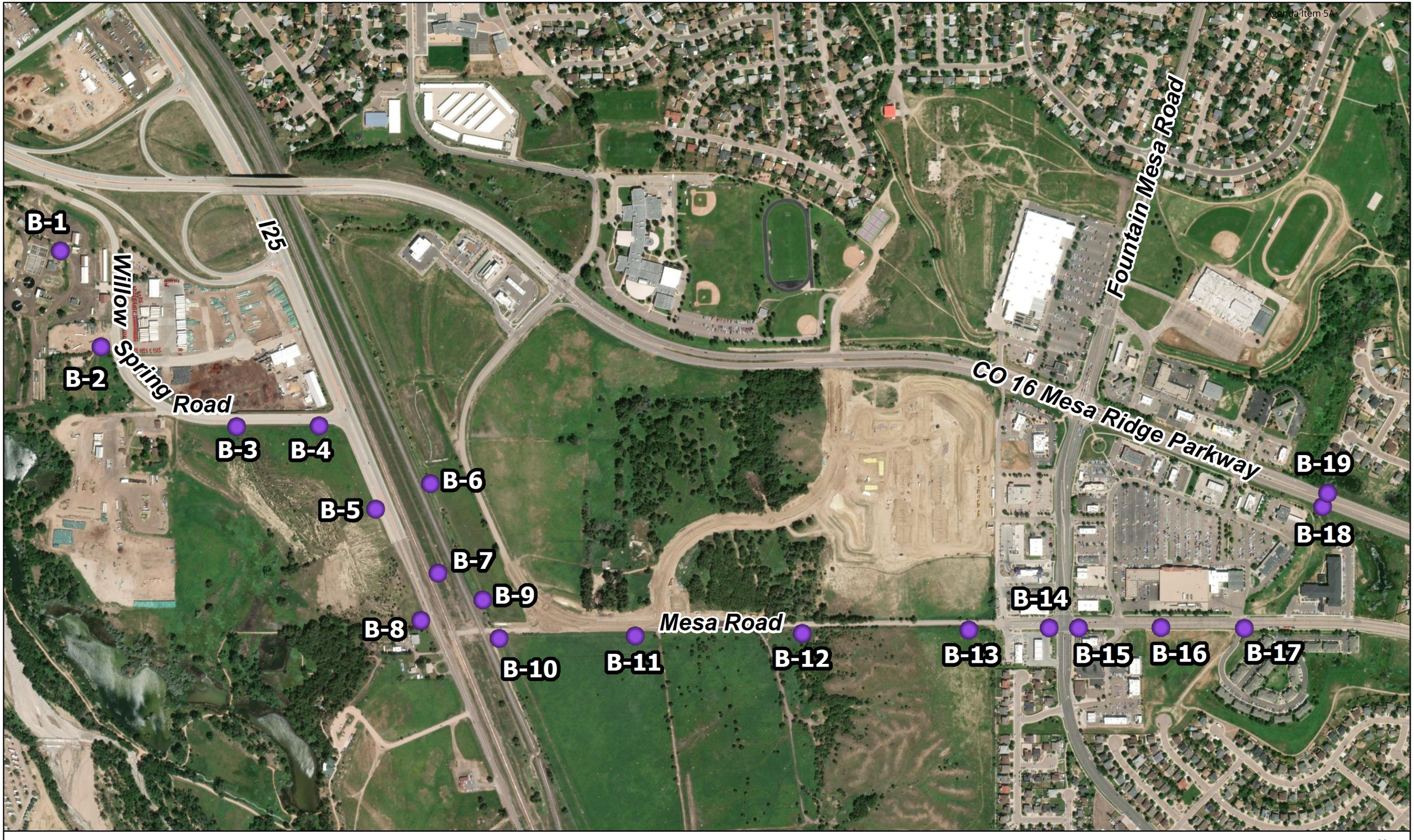
The findings and recommendations presented in this report are based upon data obtained from borings, field observations, laboratory testing, our understanding of proposed construction, and other sources of information referenced in this report. It is possible that subsurface conditions may vary between or beyond the locations explored. The nature and extent of such variations may not become evident until construction. If during construction, conditions appear to be different from those described herein, Yeh should be advised and provided the opportunity to observe and evaluate those conditions and provide additional recommendations, as necessary. Yeh should also be contacted if the scope of construction changes from that generally described within this report. The conclusions and recommendations contained in this report shall not be considered valid unless Yeh reviews all proposed construction changes and either verifies or modifies the conclusions of this report in writing.

This report was prepared in in a manner consistent with that level of care and skill ordinarily exercised by other members of profession practicing in the same locality, under similar conditions and at the date the services are provided. Yeh makes no other representation, guarantee, or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

This report may be used only by the Client and the registered design professional in responsible charge and only for the purposes stated for this specific engagement within a reasonable time from its issuance, but in no event later than two (2) years from the date of the report.

Appendix A

EXPLORATION LOCATION PLAN



0 1,250 2,500 5,000 Feet

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Exploration Location Plan

N W E S

Appendix B

LEGEND AND BORING LOGS

Yeh and Associates, Inc.
Geotechnical • Geological • Construction Services

Project: WWSD Jimmy Camp Lift Sation Force Main Extension

Project Number: 224-104

Legend for Symbols Used on Borehole Logs

Sample Types

Modified California Sampler (2.5 inch OD, 2.0 inch ID)

Drilling Methods

HOLLOW-STEM AUGER

SOLID-STEM AUGER

Lithology Symbols

(see Boring Logs for complete descriptions)

Fill

Asphalt

Sandy Lean Clay (CL)

Shale

Clayey Sand (SC)

Silty Sand (SM)

Poorly Graded Sand (SP)

Well-Graded Sand (SW)

Poorly Graded Sand with Silt (SP-SM)

Well-Graded Sand with Silt (SW-SM)

Lab Test Standards

Moisture Content	ASTM D2216
Dry Density	ASTM D7263
Sand/Fines Content	ASTM D421, ASTM C136, ASTM D1140
Atterberg Limits	ASTM D4318
AASHTO Class.	AASHTO M145, ASTM D3282
USCS Class.	ASTM D2487

(Fines = % Passing #200 Sieve
Sand = % Passing #4 Sieve, and retained on the #200 Sieve)

Other Lab Test Abbreviations

pH	Soil pH (AASHTO T289-91)
S	Water-Soluble Sulfate Content (AASHTO T290-91, ASTM D4327)
Chl	Water-Soluble Chloride Content (AASHTO T291-91, ASTM D4327)
S/C	Swell/Collapse (ASTM D4546)
UCCS	Unconfined Compressive Strength (Soil - ASTM D2166, Rock - ASTM D7012)
R-Value	Resistance R-Value (ASTM D2844)
DS (C)	Direct Shear cohesion (ASTM D3080)
DS (phi)	Direct Shear friction angle (ASTM D3080)
Re	Electrical Resistivity (AASHTO T288-91)
PtL	Point Load Strength Index (ASTM D5731)

Notes

1. Visual classifications are in general accordance with ASTM D2488, "Standard Practice for Description and Identification of Soils (Visual-Manual Procedures)".
2. "Penetration Resistance" on the Boring Logs refers to the uncorrected N value for SPT samples only, as per ASTM D1586. For samples obtained with a Modified California (MC) sampler, drive depth is 12 inches, and "Penetration Resistance" refers to the sum of all blows. Where blow counts were > 50 for the 3rd increment (SPT) or 2nd increment (MC), "Penetration Resistance" combines the last and 2nd-to-last blows and lengths; for other increments with > 50 blows, the blows for the last increment are reported.
3. The Modified California sampler used to obtain samples is a 2.5-inch OD, 2.0-inch ID (1.95-inch ID with liners), split-barrel sampler with internal liners, as per ASTM D3550. Sampler is driven with a 140-pound hammer, dropped 30 inches per blow.
4. "ER" for the hammer is the Reported Calibrated Energy Transfer Ratio for that specific hammer, as provided by the drilling company.
5. Rock strength grade (R0 to R6) based on Brown (1981).

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Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension

Project Number: 224-104 *Boring No.:* **B-1**

Boring Began: 9/9/2024
Boring Completed: 9/9/2024
Drilling Method(s): Solid-Stem Auger
Driller: RMG
Drill Rig: Simco 2800
Hammer: Cathead and rope, ER: %

Total Depth: 20.0 ft
Ground Elevation: Not Surveyed
Coordinates: Lat: 38.721853 Long: -104.722473
Location:
Logged By: D. Gruenwald
Final By: T. Yang

Weather Notes: Sunny/55°F
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels: Not Observed

Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/Depth	Drilling Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifications	Field Notes and Other Lab Tests
	0						**0.0 - 9.0 ft. Clayey SAND (SC)**, brown, low plasticity, moist, loose to medium dense.									
				13-18	31			7.1	128.2							pH=7.4 S=0.057% Chl=0.024% S/C=-1.3% @ 500 psf UCCS=7585 psf Re=835ohm·cm
	5			5-3	8			8.1	106.9	9.9	50.6	39.5	25	8	A-4 (0) SC	
	10			3-4	7		**9.0 - 20.0 ft. Well-graded SAND with gravel (SW)**, light brown, moist, loose to medium dense.									
				10-15	25			1.8	98.8	21.0	74.6	4.4	NV	NP	A-1-b (0) SW	
	15															
	20			3-3	6											

Bottom of Hole at 20.0 ft.

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Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension

Project Number: 224-104 *Boring No.:* **B-2**

Boring Began: 8/14/2024
Boring Completed: 8/14/2024
Drilling Method(s): Solid-Stem Auger
Driller: WSB
Drill Rig: CME 75 Truck
Hammer: Automatic (hydraulic), ER: 80%

Total Depth: 15.0 ft
Ground Elevation: Not Surveyed
Coordinates: Lat: 38.720272 Long: -104.721626
Location:
Logged By: D. Gruenwald
Final By: T. Yang

Weather Notes: Cloudy,Sunny/60°F
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels: Not Observed

Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/Depth	Drilling Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
							0.0 - 9.0 ft. Sandy lean CLAY (CL), light brown, medium plasticity, moist, stiff to very stiff.									
				4-7	11			13.4								UCCS=10243 psf
	5			8-14	22			9.3	109.0	0.6	32.0	67.4	43	26	A-7-6 (15) CL	S/C=0.4% @ 500 psf
							9.0 - 15.0 ft. Silty SAND (SM), brown to light brown, moist, medium dense.									
	10			6-11	17											
				9-11	20			8.6	108.1	0.7	51.1	48.2				
	15						Bottom of Hole at 15.0 ft.									

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Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension

Project Number: 224-104 *Boring No.:* **B-3**

Boring Began: 9/20/2024
Boring Completed: 9/20/2024
Drilling Method(s): Solid-Stem Auger
Driller: RMG
Drill Rig: Simco 2800
Hammer: Cathead and rope, ER: %

Total Depth: 20.0 ft
Ground Elevation: Not Surveyed
Coordinates: Lat: 38.718958 Long: -104.718788
Location:
Logged By: D. Gruenwald
Final By: T. Yang

Weather Notes: Sunny/58°F
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels: Not Observed

Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/Depth	Drilling Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
				6-5	11		**0.0 - 5.0 ft. Sandy lean CLAY (CL) (Fill)**, brown, low plasticity, moist, stiff.									
	5			4-6	10		**5.0 - 14.0 ft. Clayey SAND (SC) to Silty, clayey SAND (SC-SM)**, brown, low to medium plasticity, moist, loose.	12.8	116.3	3.4	47.1	49.5	32	18	A-6 (5) SC	
				5-6	11			11.1	105.1	0.1	61.5	38.4	22	6	A-4 (0) SC-SM	
	10															
	15			6-8	14		**14.0 - 20.0 ft. Well-graded SAND with silt and gravel (SW-SM)**, light brown, moist, medium dense.									
				5-10	15			2.3		24.3	67.7	8.0	NV	NP	A-1-b (0) SW-SM	
	20						Bottom of Hole at 20.0 ft.									

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Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension

Project Number: 224-104 *Boring No.:* **B-4**

Boring Began: 9/20/2024
Boring Completed: 9/20/2024
Drilling Method(s): Solid-Stem Auger
Driller: RMG
Drill Rig: Simco 2800
Hammer: Cathead and rope, ER: %

Total Depth: 15.0 ft
Ground Elevation: Not Surveyed
Coordinates: Lat: 38.718969 Long: -104.71706
Location:
Logged By: D. Gruenwald
Final By: T. Yang

Weather Notes: Sunny/60°F
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels: Not Observed

Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/Depth	Drilling Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifications	Field Notes and Other Lab Tests
				8-8	16		**0.0 - 5.0 ft. Sandy lean CLAY (CL)**, dark brown, medium plasticity, moist, stiff.	14.6		4.6	42.1	53.3	35	19	A-6 (7) CL	
	5			4-5	9		**5.0 - 15.0 ft. Well-graded SAND with silt and gravel (SW-SM) to Poorly graded SAND with gravel (SP)**, brown, moist, loose to dense.	4.2		8.5	79.9	11.6	NV	NP	A-1-b (0) SW-SM	
	10			7-8	15											
	15			12-30	42			3.1	124.5	28.8	66.8	4.4	NV	NP	A-1-b (0) SP	

Bottom of Hole at 15.0 ft.

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Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension

Project Number: 224-104 *Boring No.:* **B-5**

Boring Began: 9/20/2024
Boring Completed: 9/20/2024
Drilling Method(s): Solid-Stem Auger
Driller: RMG
Drill Rig: Simco 2800
Hammer: Cathead and rope, ER: %

Total Depth: 15.0 ft
Ground Elevation: Not Surveyed
Coordinates: Lat: 38.717598 Long: -104.715883
Location:
Logged By: D. Gruenwald
Final By: T. Yang

Weather Notes: Sunny/61°F
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels: Not Observed

Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/Depth	Drilling Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifications	Field Notes and Other Lab Tests
	0						**0.0 - 5.0 ft. Sandy lean CLAY (CL)**, dark brown, medium plasticity, moist, stiff.									
				6-9	15											
	5			4-5	9		**5.0 - 15.0 ft. Poorly graded SAND with silt and gravel (SP-SM) to well-graded SAND with silt and gravel (SW-SM)**, light brown, moist, loose to medium dense.	1.6		14.8	75.7	9.5	NV	NP	A-1-b (0) SP-SM	
				8-6	14											
	10															
				2-4	6			2.6		15.7	77.9	6.4	NV	NP	A-1-b (0) SW-SM	
	15						Bottom of Hole at 15.0 ft.									

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Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension

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Project Number: 224-104 *Boring No.:* **B-6**

Boring Began: 9/9/2024
Boring Completed: 9/9/2024
Drilling Method(s): Hollow-Stem Auger
Driller: RMG
Drill Rig: Simco 2800
Hammer: Cathead and rope, ER: %

Total Depth: 24.3 ft
Ground Elevation: Not Surveyed
Coordinates: Lat: 38.718013 Long: -104.714734
Location:
Logged By: D. Gruenwald
Final By: T. Yang

Weather Notes: Sunny/58°F
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels:

Symbol	▽		
Depth	18.0 ft	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/Depth	Drilling Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
							0.0 - 6.5 ft. Clayey SAND (SC), brown, low to medium plasticity, moist, medium dense.									
				10-11	21			20.5								pH=7.5 S=0.007% Chl=0.039% UCCS=7998 psf Re=4480ohm·cm
	5			7-6	13			4.2		4.4	54.7	40.9	28	15	A-6 (2) SC	
							6.5 - 18.0 ft. Well-graded SAND with silt and gravel (SW-SM), brown, moist, medium dense.								
	10			16-19	35											
	15			13-16	29			3.8		16.7	76.8	6.5	NV	NP	A-1-a (0) SW-SM	
	▽						**18.0 - 24.3 ft. SHALE**, dark gray, medium hard to very hard.									
	20			10-38	48											
				50/3	50/3			12.3	121.0		0.0	100.0	50	34	A-7-6 (37) CH	
							Bottom of Hole at 24.3 ft.									

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Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension

Project Number: 224-104 *Boring No.:* **B-7**

Boring Began: 9/9/2024
Boring Completed: 9/9/2024
Drilling Method(s): Solid-Stem Auger
Driller: RMG
Drill Rig: Simco 2800
Hammer: Cathead and rope, ER: %

Total Depth: 25.0 ft
Ground Elevation: Not Surveyed
Coordinates: Lat: 38.716542 Long: -104.714581
Location:
Logged By: D. Gruenwald
Final By: T. Yang

Weather Notes: Sunny/63°F
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels:			
Symbol	▽		
Depth	14.0 ft	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/Depth	Drilling Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifications	Field Notes and Other Lab Tests
							0.0 - 6.5 ft. Clayey SAND with gravel (SC), brown, low plasticity, moist, medium dense.									
				7-13	20			14.5								pH=7.3 S=0.011% Chl=0.036% UCCS=15874 psf Re=2920ohm·cm
	5			9-16	25			2.8	102.0	25.0	51.2	23.8	27	13	A-2-6 (0) SC	S/C=-0.3% @ 500 psf
							6.5 - 20.0 ft. Silty SAND with gravel (SM), brown, moist, loose.									
	10			2-3	5											
	▽															
				2-3	5			3.3	110.0	15.1	67.8	17.1	NV	NP	A-1-b (0) SM	
	15															
				3-9	12			5.0	119.7	24.2	60.4	15.4	NV	NP	A-1-a (0) SM	
	20						**20.0 - 25.0 ft. SHALE**, dark gray, firm.									
				10-18	28											

Bottom of Hole at 25.0 ft.

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Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension

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Project Number: 224-104 *Boring No.:* **B-8**

Boring Began: 9/9/2024
Boring Completed: 9/9/2024
Drilling Method(s): Solid-Stem Auger
Driller: RMG
Drill Rig: Simco 2800
Hammer: Cathead and rope, ER: %

Total Depth: 24.0 ft
Ground Elevation: Not Surveyed
Coordinates: Lat: 38.715771 Long: -104.714952
Location:
Logged By: D. Gruenwald
Final By: T. Yang

Weather Notes: Sunny/64°F
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels:			
Symbol	▽		
Depth	14.0 ft	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/Depth	Drilling Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifications	Field Notes and Other Lab Tests
				8-11	19		**0.0 - 6.5 ft. Clayey SAND (SC)**, brown, medium plasticity, moist, very stiff.	13.5								pH=7.6 S=0.009% Chl=0.039% UCCS=6131 psf Re=2360ohm·cm
	5			8-10	18			5.7	94.6	5.9	44.8	49.3	34	17	A-6 (5) SC	
				7-20	27		**6.5 - 20.0 ft. Well-graded SAND with silt and gravel (SW-SM)**, brown, moist, loose to medium dense.									
	10															
	15	▽														**No sample at 14 ft, boring caved at 10 ft**
	20			4-5	9			5.9		18.4	71.7	9.9	NV	NP	A-1-b (0) SW-SM	
				50/0	50/0		**20.0 - 24.0 ft. SHALE**, black-gray, very hard.									**refusal**
							Bottom of Hole at 24.0 ft.									

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Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension

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Project Number: 224-104 *Boring No.:* **B-9**

Boring Began: 9/9/2024
Boring Completed: 9/9/2024
Drilling Method(s): Hollow-Stem Auger
Driller: RMG
Drill Rig: Simco 2800
Hammer: Cathead and rope, ER: %

Total Depth: 24.3 ft
Ground Elevation: Not Surveyed
Coordinates: Lat: 38.716103 Long: -104.713649
Location:
Logged By: D. Gruenwald
Final By: T. Yang

Weather Notes: Sunny/71°F
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels:			
Symbol	▽		
Depth	14.0 ft	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/Depth	Drilling Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
				7-8	15		**0.0 - 9.0 ft. Clayey SAND with gravel (SC)**, dark brown, medium plasticity, moist, stiff to hard.									pH=7.6 S=0.01% Chl=0.036% S/C=1.7% @ 500 psf Re=3650ohm·cm
	5			18-32	50			7.7		11.6	45.1	43.3	43	28	A-7-6 (7) SC	
				50/0	50/0		**9.0 - 18.0 ft. Well-graded SAND with silt and gravel (SW-SM)**, brown, moist, medium dense.								**Sample Refusal On Gravel**
	10															
				10-11	21			4.7		33.0	60.6	6.4	NV	NP	A-1-a (0) SW-SM	
	15															
				50/6	50/6		**18.0 - 24.3 ft. SHALE**, dark gray, very hard.									
	20															
				50/3	50/3			11.0			0.0	100.0	44	24	A-7-6 (26) CL	
							Bottom of Hole at 24.3 ft.									

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Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension

Project Number: 224-104 *Boring No.:* **B-10**

Boring Began: 8/15/2024
Boring Completed: 8/15/2024
Drilling Method(s): Solid-Stem Auger
Driller: RMG
Drill Rig: Simco 2800
Hammer: Cathead and rope, ER: %

Total Depth: 24.2 ft
Ground Elevation: Not Surveyed
Coordinates: Lat: 38.71547 Long: -104.713308
Location:
Logged By: D. Gruenwald
Final By: T. Yang

Weather Notes: Sunny/62°F
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels:			
Symbol	▽		
Depth	14.0 ft	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/Depth	Drilling Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
				9-14	23		**0.0 - 5.0 ft. Sandy lean CLAY (CL)**, dark brown, medium plasticity, moist, very stiff.	12.6	109.8		19.2	80.3	45	27	A-7-6 (21) CL	S/C=1% @ 500 psf
	5			9-24	33		**5.0 - 19.0 ft. Well-graded SAND with silt and gravel (SW-SM)**, brown, moist, medium dense to dense.	1.4	121.0	21.5	71.3	7.2				
	10			13-23	36			1.4	129.8	33.8	60.7	5.5	NV	NP	A-1-a (0) SW-SM	
	15	▽		17-10	27											
	20			6-10	16		**19.0 - 24.0 ft. Silty SAND with gravel (SM)**, gray to brown, moist, medium dense.	11.2	121.3	24.1	62.0	13.9				
				50/2	50/2		**24.0 - 24.2 ft. SHALE**, dark gray, very hard.									

Bottom of Hole at 24.2 ft.

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Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension

Project Number: 224-104 *Boring No.:* **B-11**

Boring Began: 8/15/2024
Boring Completed: 8/15/2024
Drilling Method(s): Solid-Stem Auger
Driller: RMG
Drill Rig: Simco 2800
Hammer: Cathead and rope, ER: %

Total Depth: 15.0 ft
Ground Elevation: Not Surveyed
Coordinates: Lat: 38.7155 Long: -104.710457
Location:
Logged By: D. Gruenwald
Final By: T. Yang

Weather Notes: Sunny/63°F
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels: Not Observed

Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/Depth	Drilling Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifications	Field Notes and Other Lab Tests
	0						**0.0 - 7.0 ft. Sandy lean CLAY (CL)**, brown, medium plasticity, moist, medium stiff to very stiff.									
				2-3	5			19.3								UCCS=2213 psf
	5			10-14	24			11.6	104.8	0.2	9.2	90.6	43	26	A-7-6 (24) CL	S/C=0.9% @ 500 psf
							7.0 - 14.0 ft. Clayey SAND with gravel (SC), brown, moist, dense.									
	10			24-17	41			3.3	127.1	13.2	65.4	21.4				
	15			13-17	30		**14.0 - 15.0 ft. Silty SAND with gravel (SM)**, light brown, moist, medium dense.									
							Bottom of Hole at 15.0 ft.									

01 BORING LOG 2021 - SPT CDOT STYLE 224-104 WWSD JCLF UPDATED FILE.GPJ 2021 YEH COLORADO TEMPLATE.GDT 2021 YEH COLORADO LIBRARY.GLB 10/18/24

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Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension

Project Number: 224-104 *Boring No.:* **B-12**

Boring Began: 8/15/2024
Boring Completed: 8/15/2024
Drilling Method(s): Solid-Stem Auger
Driller: RMG
Drill Rig: Simco 2800
Hammer: Cathead and rope, ER: %

Total Depth: 15.0 ft
Ground Elevation: Not Surveyed
Coordinates: Lat: 38.715532 Long: -104.706967
Location:
Logged By: D. Gruenwald
Final By: T. Yang

Weather Notes: Sunny/64°F
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels: Not Observed

Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/Depth	Drilling Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
							0.0 - 15.0 ft. Sandy lean CLAY (CL), brown to light brown, medium plasticity, moist, medium stiff to very stiff.									
				3-3	6			18.0								UCCS=2972 psf
	5			5-9	14											
				8-12	20			7.2	106.4	0.1	23.1	76.8	31	16	A-6 (10) CL	
	10															
				8-12	20			9.9	117.6	0.2	32.2	67.6				
	15						Bottom of Hole at 15.0 ft.									

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Yeh and Associates, Inc.
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Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension

Project Number: 224-104 *Boring No.:* **B-13**

Boring Began: 8/15/2024
Boring Completed: 8/15/2024
Drilling Method(s): Solid-Stem Auger
Driller: RMG
Drill Rig: Simco 2800
Hammer: Cathead and rope, ER: %

Total Depth: 15.3 ft
Ground Elevation: Not Surveyed
Coordinates: Lat: 38.715585 Long: -104.703479
Location:
Logged By: D. Gruenwald
Final By: T. Yang

Weather Notes: Sunny/64°F
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels: Not Observed

Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/Depth	Drilling Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
				4-9	13		**0.0 - 15.3 ft. Sandy lean CLAY (CL)**, brown, medium plasticity, moist, stiff to very stiff.									
	5			12-19	31			10.5	109.9	0.9	23.2	75.9				
	10			10-26	36			9.3	121.1		26.8	72.8	35	21	A-6 (13) CL	S/C=0.9% @ 500 psf
	15			10-12	22											
				50/3	50/3											

Bottom of Hole at 15.3 ft.

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Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension

Project Number: 224-104 *Boring No.:* **B-14**

Boring Began: 8/28/2024
Boring Completed: 8/28/2024
Drilling Method(s): Solid-Stem Auger
Driller: RMG
Drill Rig: Simco 2800
Hammer: Cathead and rope, ER: %

Total Depth: 25.0 ft
Ground Elevation: Not Surveyed
Coordinates: Lat: 38.715615 Long: -104.701794
Location:
Logged By: D. Gruenwald
Final By: T. Yang

Weather Notes: Sunny/60°F
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels: Not Observed

Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/Depth	Drilling Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifications	Field Notes and Other Lab Tests
							0.0 - 0.8 ft. Asphalt (9.5 inches).									
				16-8	24		**0.8 - 25.0 ft. Sandy lean CLAY (CL)**, brown to gray, low to medium plasticity, wet, medium stiff to very stiff.									
	5			3-4	7			18.5								UCCS=3766 psf
				5-5	10											pH=6.9 S=0.007% Chl=0.039% Re=1750ohm·cm
	10			3-4	7			21.7	98.9	0.1	13.6	86.3	36	19	A-6 (16) CL	
	15			6-8	14			18.5	108.7							S/C=0.1% @ 500 psf
	20			9-12	21			22.2	104.2	0.1	12.5	87.4				
				7-9	16											

Bottom of Hole at 25.0 ft.

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Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension

Project Number: 224-104 *Boring No.:* **B-15**

Boring Began: 8/28/2024
Boring Completed: 8/28/2024
Drilling Method(s): Solid-Stem Auger
Driller: RMG
Drill Rig: Simco 2800
Hammer: Cathead and rope, ER: %

Total Depth: 25.0 ft
Ground Elevation: Not Surveyed
Coordinates: Lat: 38.715613 Long: -104.701178
Location:
Logged By: D. Gruenwald
Final By: T. Yang

Weather Notes: Sunny/64°F
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels: Not Observed

Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/Depth	Drilling Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
							0.0 - 0.8 ft. Asphalt (9.5 inches).									
				7-12	19		**0.8 - 25.0 ft. Sandy lean CLAY (CL)**, brown to gray, low to medium plasticity, moist to wet, medium stiff to very stiff.									
	5			4-5	9			15.6								UCCS=6566 psf
				3-4	7			18.4	105.9		13.4	86.5				
	10			4-5	9											
	15			7-10	17											pH=6.8 S=0.011% Chl=0.033% Re=1460ohm·cm
	20			9-14	23			17.5			17.5	82.4				
				9-15	24											

Bottom of Hole at 25.0 ft.

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Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension

Project Number: 224-104 *Boring No.:* **B-16**

Boring Began: 8/28/2024
Boring Completed: 8/28/2024
Drilling Method(s): Solid-Stem Auger
Driller: RMG
Drill Rig: Simco 2800
Hammer: Cathead and rope, ER: %

Total Depth: 15.0 ft
Ground Elevation: Not Surveyed
Coordinates: Lat: 38.71561 Long: -104.69945
Location:
Logged By: D. Gruenwald
Final By: T. Yang

Weather Notes: Sunny/67°F
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels: Not Observed

Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/Depth	Drilling Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
	0						**0.0 - 0.7 ft. Asphalt** (8.75 inches).									
				6-8	14		**0.7 - 15.0 ft. Sandy lean CLAY (CL) (Fill)**, brown to gray, medium plasticity, moist to wet, stiff.									
	5			4-7	11			19.7	106.5	2.8	26.4	70.8				
				4-8	12			18.4								UCCS=3996 psf
	10			6-9	15			19.3	105.2	0.7	20.4	78.9	38	22	A-6 (16) CL	
	15			4-7	11											pH=7.0 S=0.021% Chl=0.015% Re=1600ohm·cm

Bottom of Hole at 15.0 ft.

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Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension

Project Number: 224-104 *Boring No.:* **B-17**

Boring Began: 8/28/2024
Boring Completed: 8/28/2024
Drilling Method(s): Solid-Stem Auger
Driller: RMG
Drill Rig: Simco 2800
Hammer: Cathead and rope, ER: %

Total Depth: 15.0 ft
Ground Elevation: Not Surveyed
Coordinates: Lat: 38.715597 Long: -104.697708
Location:
Logged By: D. Gruenwald
Final By: T. Yang

Weather Notes: Sunny/64°F
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels: Not Observed

Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/Depth	Drilling Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifications	Field Notes and Other Lab Tests
							0.0 - 0.8 ft. Asphalt (9 inches).									
				5-7	12		**0.8 - 15.0 ft. Sandy lean CLAY (CL)**, brown to gray, medium plasticity, moist to wet, stiff.									
	5			4-7	11			20.7								UCCS=3317 psf
				4-4	8											pH=7.2 S=0.008% Chl=0.066% Re=1800ohm·cm
	10			3-4	7			19.9	103.6	0.2	23.3	76.5	37	22	A-6 (15) CL	
	15			5-7	12											

Bottom of Hole at 15.0 ft.

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Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension

Project Number: 224-104 *Boring No.:* **B-18**

Boring Began: 8/28/2024
Boring Completed: 8/28/2024
Drilling Method(s): Solid-Stem Auger
Driller: RMG
Drill Rig: Simco 2800
Hammer: Cathead and rope, ER: %

Total Depth: 25.0 ft
Ground Elevation: Not Surveyed
Coordinates: Lat: 38.717589 Long: -104.696062
Location:
Logged By: D. Gruenwald
Final By: T. Yang

Weather Notes: Sunny/80°F
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels: Not Observed

Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/Depth	Drilling Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
							0.0 - 0.4 ft. Asphalt (5 inches).									
				4-5	9		**0.4 - 1.7 ft. Aggregate Base Course**, Poorly graded SAND with gravel, red-brown, moist, medium dense.									
							1.7 - 10.0 ft. Sandy lean CLAY (CL) (Fill), brown to gray, medium plasticity, moist, stiff to very stiff.									
	5			8-12	20			16.7								pH=7.5 S=0.09% Chl=0.054% UCCS=4306 psf Re=610ohm·cm
				6-9	15			16.4	111.3	0.3	26.4	73.3				
				6-10	16											
	10						**10.0 - 25.0 ft. Sandy lean CLAY (CL)**, bright red to gray, medium plasticity, moist, very stiff, (possible fill).									
				8-12	20			18.4	109.8	0.7	18.5	80.8	36	21	A-6 (16) CL	
	15															
				8-13	21											
	20															
				9-18	27											

Bottom of Hole at 25.0 ft.

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Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension

Project Number: 224-104 *Boring No.:* **B-19**

Boring Began: 8/28/2024
Boring Completed: 8/28/2024
Drilling Method(s): Solid-Stem Auger
Driller: RMG
Drill Rig: Simco 2800
Hammer: Cathead and rope, ER: %

Total Depth: 25.0 ft
Ground Elevation: Not Surveyed
Coordinates: Lat: 38.717806 Long: -104.695955
Location:
Logged By: D. Gruenwald
Final By: T. Yang

Weather Notes: Sunny/79°F
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels:			
Symbol	▽		
Depth	21.0 ft	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/Depth	Drilling Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifications	Field Notes and Other Lab Tests
							0.0 - 0.4 ft. Asphalt (5 inches).									
							0.4 - 1.9 ft. Aggregate Base Course, Poorly graded SAND with gravel, red-brown, moist, medium dense.									
				3-4	7		**1.9 - 18.0 ft. Sandy lean CLAY (CL) (Fill)**, light brown to tan, medium plasticity, moist, stiff to very stiff.									
	5			5-7	12											pH=6.9 S=0.054% Chl=0.051% Re=1350ohm·cm
				7-12	19											
	10			6-6	12			18.9	106.9	0.2	14.1	85.7	41	25	A-7-6 (21) CL	
	15			6-9	15			18.4	109.6							S/C=0% @ 500 psf
							18.0 - 25.0 ft. Sandy lean CLAY (CL), light brown to tan, medium plasticity, moist, medium stiff to stiff, (possible fill).									
	20			5-6	11			19.6	108.5	1.2	40.8	58.0				
	▽															
				3-2	5											

Bottom of Hole at 25.0 ft.

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Appendix C

LABORATORY TEST RESULT

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Colorado Springs Lab

Summary of Laboratory Test Results

Project No: 224-104 Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension Date: 10-18-2024

Sample Location			Natural Moisture Content (%)	Natural Dry Density (pcf)	Gradation			Atterberg			pH	Water Soluble Sulfate (%)	Water Soluble Chloride (%)	Resistivity (ohm-cm)	Swell (+) / Collapse (-) (% at Load in psf)	Unconf. Comp. Strength (psf)	R-Value	Classification	
Boring No.	Depth (ft)	Sample Type			Gravel > #4 (%)	Sand (%)	Fines < #200 (%)	LL	PL	PI								AASHTO	USCS
B-1	1.0	MC	7.1	128.2							7.4	0.057	0.024	835	-1.3 @ 500	7585			
B-1	5.0	MC	8.1	106.9	4.7	50.6	39.5	25	17	8								A-4 (0)	SC
B-1	14.0	MC	1.8	98.8	18.7	74.6	4.4	NV	NP	NP								A-1-b (0)	SW
B-2	1.0	MC	13.4													10243			
B-2	5.0	MC	9.3	109.0		32.0	67.4	43	17	26					0.4 @ 500			A-7-6 (15)	CL
B-2	14.0	MC	8.6	108.1		51.1	48.2												
B-3	5.0	MC	12.8	116.3		47.1	49.5	32	14	18								A-6 (5)	SC
B-3	9.0	MC	11.1	105.1		61.5	38.4	22	16	6								A-4 (0)	SC-SM
B-3	19.0	MC	2.3		19.3	67.7	8.0	NV	NP	NP								A-1-b (0)	SW-SM
B-4	1.0	MC	14.6		3.1	42.1	53.3	35	16	19								A-6 (7)	CL
B-4	5.0	MC	4.2			79.9	11.6	NV	NP	NP								A-1-b (0)	SW-SM
B-4	14.0	MC	3.1	124.5	21.7	66.8	4.4	NV	NP	NP								A-1-b (0)	SP
B-5	5.0	MC	1.6		13.1	75.7	9.5	NV	NP	NP								A-1-b (0)	SP-SM
B-5	14.0	MC	2.6		11.4	77.9	6.4	NV	NP	NP								A-1-b (0)	SW-SM
B-6	1.0	MC	20.5								7.5	0.007	0.039	4480		7998			
B-6	5.0	MC	4.2			54.7	40.9	28	13	15								A-6 (2)	SC
B-6	14.0	MC	3.8		14.2	76.8	6.5	NV	NP	NP								A-1-a (0)	SW-SM
B-6	24.0	MC	12.3	121.0	0.0	0.0	100.0	50	16	34								A-7-6 (37)	CH
B-7	1.0	MC	14.5								7.3	0.011	0.036	2920		15874			
B-7	5.0	MC	2.8	102.0	17.5	51.2	23.8	27	14	13					-0.3 @ 500			A-2-6 (0)	SC

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Summary of Laboratory Test Results

Project No: 224-104 Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension Date: 10-18-2024

Sample Location			Natural Moisture Content (%)	Natural Dry Density (pcf)	Gradation			Atterberg			pH	Water Soluble Sulfate (%)	Water Soluble Chloride (%)	Resistivity (ohm-cm)	Swell (+) / Collapse (-) (% at Load in psf)	Unconf. Comp. Strength (psf)	R-Value	Classification	
Boring No.	Depth (ft)	Sample Type			Gravel > #4 (%)	Sand (%)	Fines < #200 (%)	LL	PL	PI								AASHTO	USCS
B-7	14.0	MC	3.3	110.0	13.0	67.8	17.1	NV	NP	NP								A-1-b (0)	SM
B-7	19.0	MC	5	119.7	22.7	60.4	15.4	NV	NP	NP								A-1-a (0)	SM
B-8	1.0	MC	13.5								7.6	0.009	0.039	2360		6131			
B-8	5.0	MC	5.7	94.6	4.6	44.8	49.3	34	17	17								A-6 (5)	SC
B-8	19.0	MC	5.9		10.5	71.7	9.9	NV	NP	NP								A-1-b (0)	SW-SM
B-9	1.0	MC									7.6	0.01	0.036	3650	1.7 @ 500				
B-9	5.0	MC	7.7		6.3	45.1	43.3	43	15	28								A-7-6 (7)	SC
B-9	14.0	MC	4.7		28.7	60.6	6.4	NV	NP	NP								A-1-a (0)	SW-SM
B-9	24.0	MC	11		0.0	0.0	100.0	44	20	24								A-7-6 (26)	CL
B-10	1.0	MC	12.6	109.8		19.2	80.3	45	18	27					1 @ 500			A-7-6 (21)	CL
B-10	5.0	MC	1.4	121.0	18.5	71.3	7.2												
B-10	9.0	MC	1.4	129.8	25.3	60.7	5.5	NV	NP	NP								A-1-a (0)	SW-SM
B-10	19.0	MC	11.2	121.3	21.5	62.0	13.9												
B-11	1.0	MC	19.3													2213			
B-11	5.0	MC	11.6	104.8		9.2	90.6	43	17	26					0.9 @ 500			A-7-6 (24)	CL
B-11	9.0	MC	3.3	127.1	11.2	65.4	21.4												
B-11+B-12	1.0	MC									6.0	0.002	0.024	2450					
B-12	1.0	MC	18													2972			
B-12	9.0	MC	7.2	106.4		23.1	76.8	31	15	16								A-6 (10)	CL
B-12	14.0	MC	9.9	117.6		32.2	67.6												

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Colorado Springs Lab

Summary of Laboratory Test Results

Project No: 224-104 Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension Date: 10-18-2024

Sample Location			Natural Moisture Content (%)	Natural Dry Density (pcf)	Gradation			Atterberg			pH	Water Soluble Sulfate (%)	Water Soluble Chloride (%)	Resistivity (ohm-cm)	Swell (+) / Collapse (-) (% at Load in psf)	Unconf. Comp. Strength (psf)	R-Value	Classification	
Boring No.	Depth (ft)	Sample Type			Gravel > #4 (%)	Sand (%)	Fines < #200 (%)	LL	PL	PI								AASHTO	USCS
B-13	5.0	MC	10.5	109.9		23.2	75.9												
B-13	9.0	MC	9.3	121.1		26.8	72.8	35	14	21					0.9 @ 500			A-6 (13)	CL
B-14	4.0	MC	18.5													3766			
B-14	7.0	MC									6.9	0.007	0.039	1750					
B-14	9.0	MC	21.7	98.9		13.6	86.3	36	17	19								A-6 (16)	CL
B-14	14.0	MC	18.5	108.7											0.1 @ 500				
B-14	19.0	MC	22.2	104.2		12.5	87.4												
B-15	4.0	MC	15.6													6566			
B-15	7.0	MC	18.4	105.9		13.4	86.5												
B-15	14.0	MC									6.8	0.011	0.033	1460					
B-15	19.0	MC	17.5			17.5	82.4												
B-16	4.0	MC	19.7	106.5		26.4	70.8												
B-16	7.0	MC	18.4													3996			
B-16	9.0	MC	19.3	105.2		20.4	78.9	38	16	22								A-6 (16)	CL
B-16	14.0	MC									7.0	0.021	0.015	1600					
B-17	4.0	MC	20.7													3317			
B-17	7.0	MC									7.2	0.008	0.066	1800					
B-17	9.0	MC	19.9	103.6		23.3	76.5	37	15	22								A-6 (15)	CL
B-18	4.0	MC	16.7								7.5	0.09	0.054	610		4306			
B-18	7.0	MC	16.4	111.3		26.4	73.3												

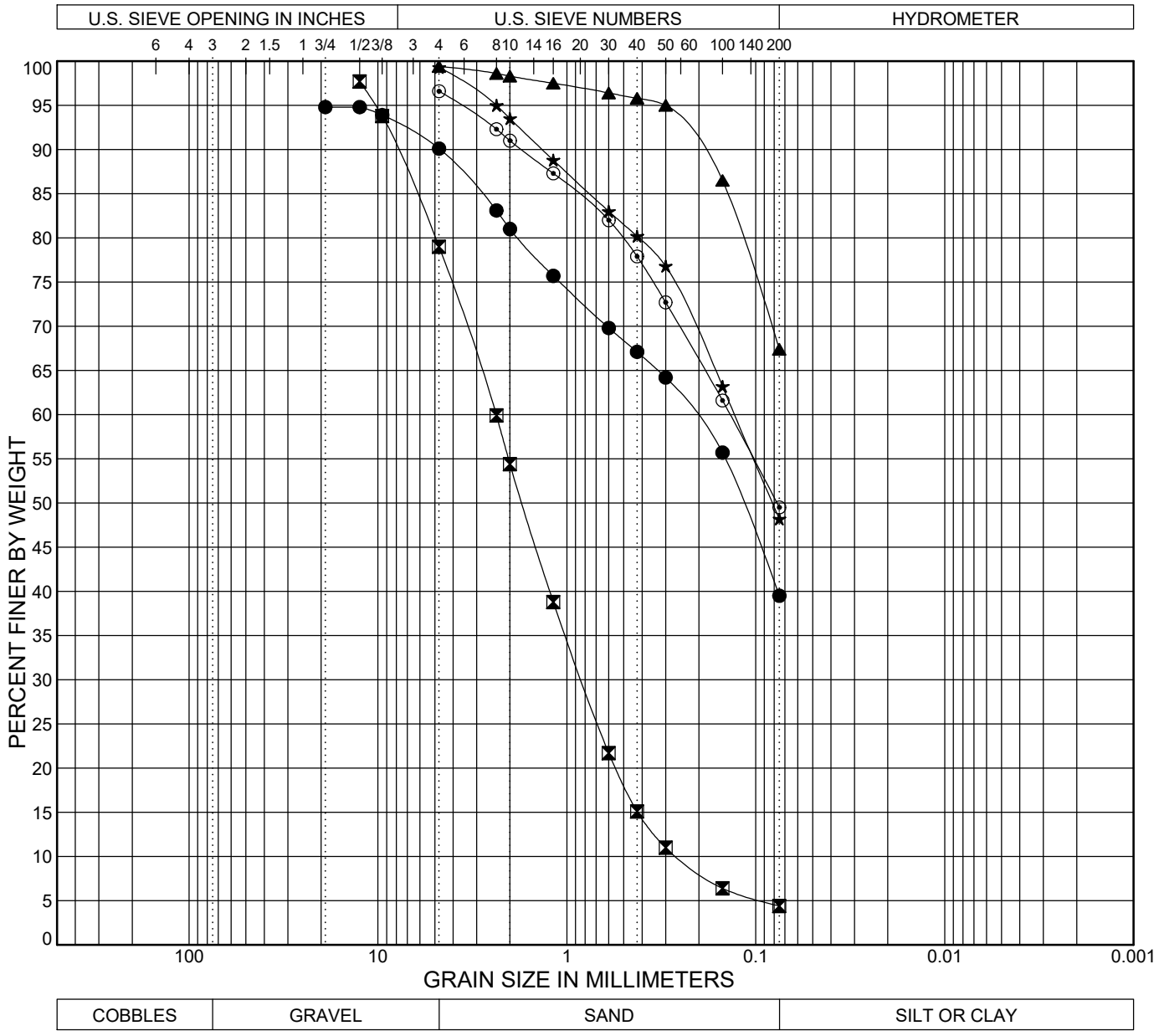
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Colorado Springs Lab

Summary of Laboratory Test Results

Project No: 224-104 Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension Date: 10-18-2024

Sample Location			Natural Moisture Content (%)	Natural Dry Density (pcf)	Gradation			Atterberg			pH	Water Soluble Sulfate (%)	Water Soluble Chloride (%)	Resistivity (ohm-cm)	Swell (+) / Collapse (-) (% at Load in psf)	Unconf. Comp. Strength (psf)	R-Value	Classification	
Boring No.	Depth (ft)	Sample Type			Gravel > #4 (%)	Sand (%)	Fines < #200 (%)	LL	PL	PI								AASHTO	USCS
B-18	14.0	MC	18.4	109.8		18.5	80.8	36	15	21								A-6 (16)	CL
B-19	4.0	MC									6.9	0.054	0.051	1350					
B-19	9.0	MC	18.9	106.9		14.1	85.7	41	16	25								A-7-6 (21)	CL
B-19	14.0	MC	18.4	109.6											0 @ 500				
B-19	19.0	MC	19.6	108.5		40.8	58.0												



	BOREHOLE	DEPTH (ft)	AASHTO Classification	USCS Classification	LL	PL	PI	%Gravel	%Sand	%Fines	
										%Silt	%Clay
●	B-1	5.0	A-4 (0)	SC	25	17	8	4.7	50.6	39.5	
⊠	B-1	14.0	A-1-b (0)	SW	NV	NP	NP	18.7	74.6	4.4	
▲	B-2	5.0	A-7-6 (15)	CL	43	17	26		32.0	67.4	
★	B-2	14.0							51.1	48.2	
⊙	B-3	5.0	A-6 (5)	SC	32	14	18		47.1	49.5	

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Project No. 224-104 Date: 10-18-2024
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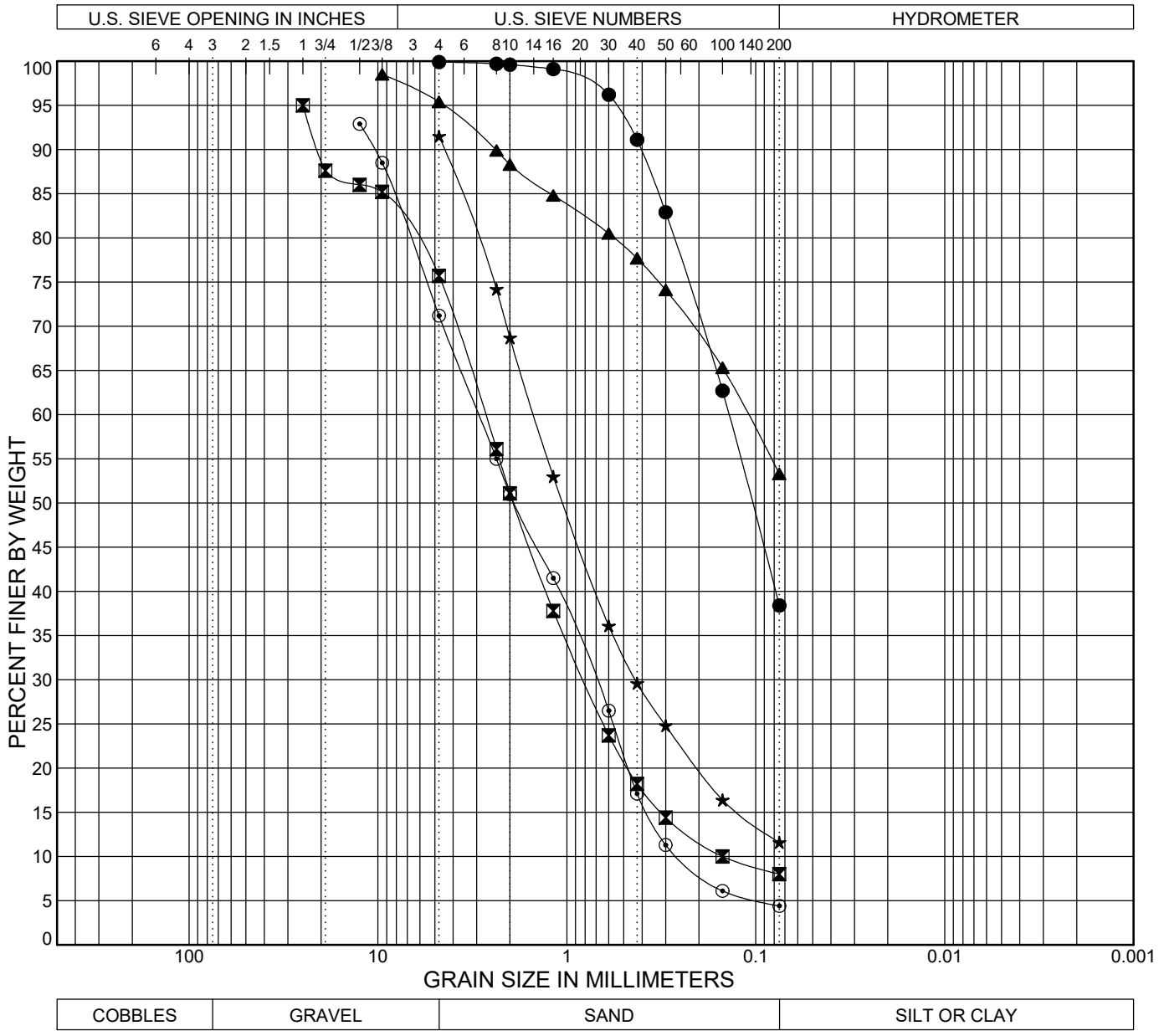
SIEVE ANALYSIS

WWSD Jimmy Camp Lift Sation
Force Main Extension
Fountain, Colorado

FIGURE

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03 GRAIN SIZE YEH 224-104 WWSD JCLF UPDATED FILE.GPJ 2021 YEH COLORADO TEMPLATE.GDT 2021 YEH COLORADO LIBRARY.GLB 10/18/24



BOREHOLE		DEPTH (ft)	AASHTO Classification	USCS Classification	LL	PL	PI	%Gravel	%Sand	%Fines	
										%Silt	%Clay
●	B-3	9.0	A-4 (0)	SC-SM	22	16	6		61.5	38.4	
⊠	B-3	19.0	A-1-b (0)	SW-SM	NV	NP	NP	19.3	67.7	8.0	
▲	B-4	1.0	A-6 (7)	CL	35	16	19	3.1	42.1	53.3	
★	B-4	5.0	A-1-b (0)	SW-SM	NV	NP	NP		79.9	11.6	
⊙	B-4	14.0	A-1-b (0)	SP	NV	NP	NP	21.7	66.8	4.4	

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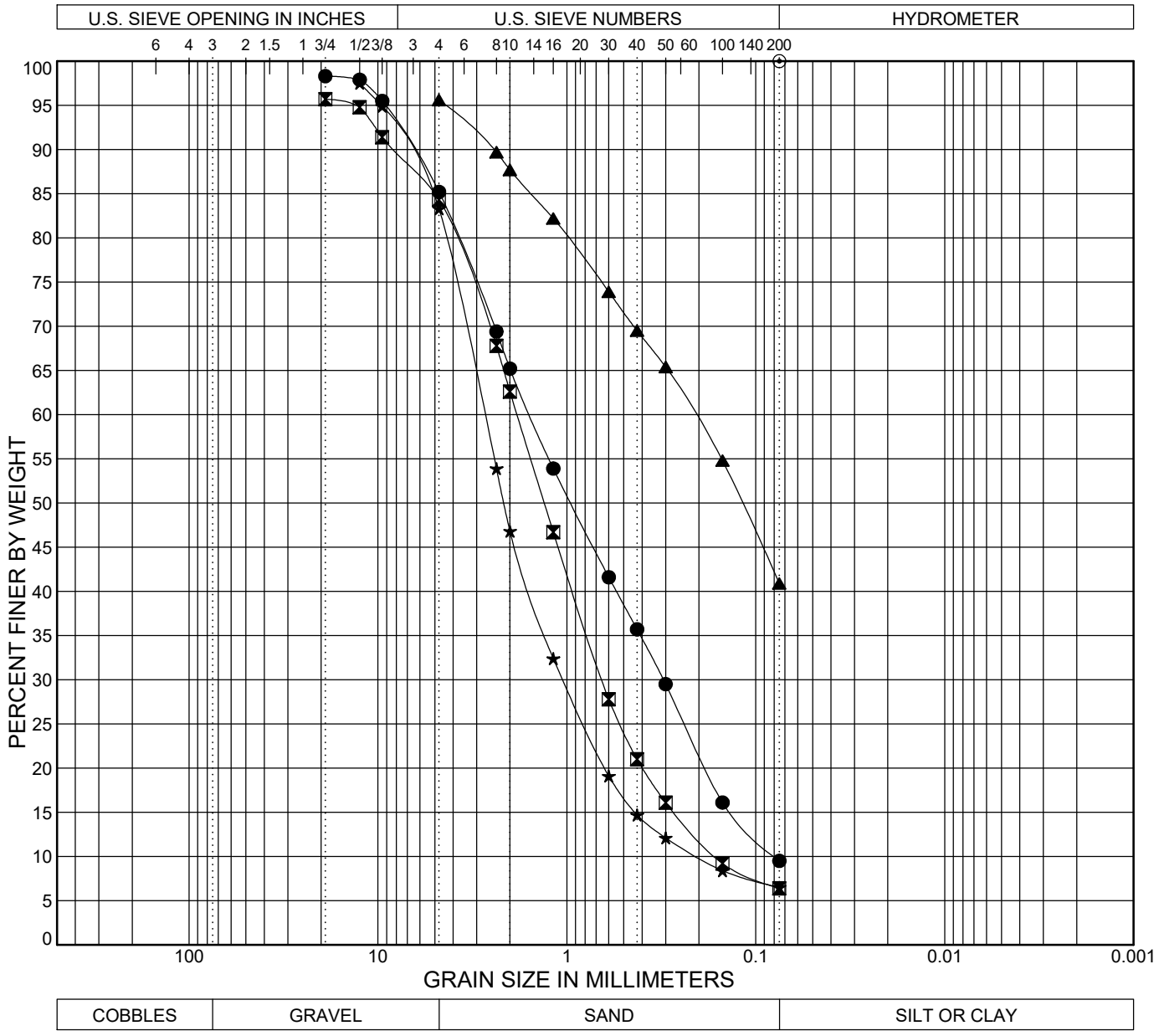
FIGURE

C- 2

Project No. 224-104 Date: 10-18-2024
Report By: D. Gruenwald Yeh Lab: Colorado Springs
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WWSD Jimmy Camp Lift Sation
Force Main Extension
Fountain, Colorado

03 GRAIN SIZE YEH 224-104 WWSD JCLF UPDATED FILE.GPJ 2021 YEH COLORADO TEMPLATE.GDT 2021 YEH COLORADO LIBRARY.GLB 10/18/24



BOREHOLE		DEPTH (ft)	AASHTO Classification	USCS Classification	LL	PL	PI	%Gravel	%Sand	%Fines	
										%Silt	%Clay
●	B-5	5.0	A-1-b (0)	SP-SM	NV	NP	NP	13.1	75.7	9.5	
⊠	B-5	14.0	A-1-b (0)	SW-SM	NV	NP	NP	11.4	77.9	6.4	
▲	B-6	5.0	A-6 (2)	SC	28	13	15		54.7	40.9	
★	B-6	14.0	A-1-a (0)	SW-SM	NV	NP	NP	14.2	76.8	6.5	
⊙	B-6	24.0	A-7-6 (37)	CH	50	16	34	0.0	0.0	100.0	

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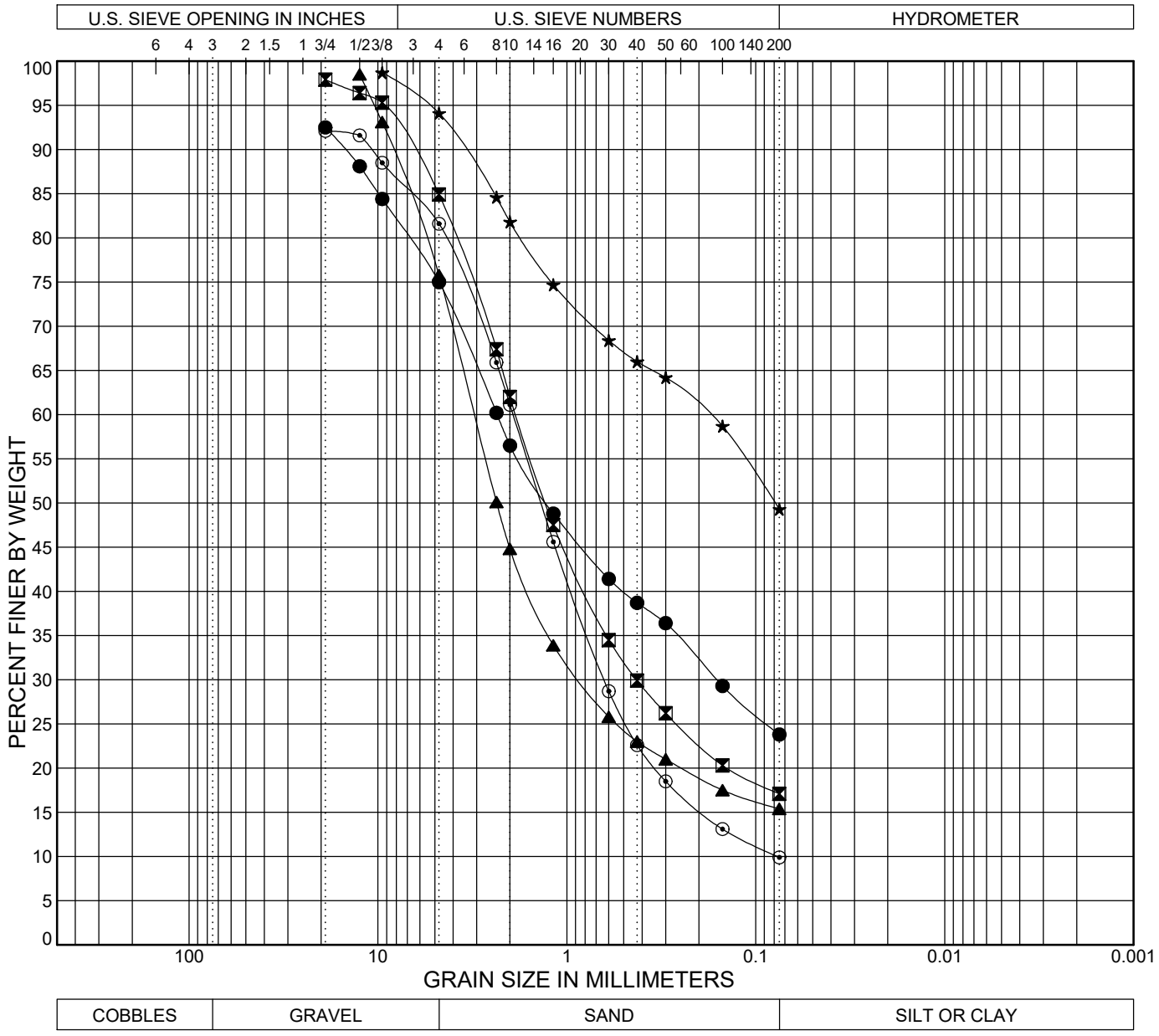
SIEVE ANALYSIS

FIGURE
C- 3

Project No. 224-104 Date: 10-18-2024
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Force Main Extension
Fountain, Colorado

03 GRAIN SIZE YEH 224-104 WWSD JCLF UPDATED FILE.GPJ 2021 YEH COLORADO TEMPLATE.GDT 2021 YEH COLORADO LIBRARY.GLB 10/18/24



BOREHOLE		DEPTH (ft)	AASHTO Classification	USCS Classification	LL	PL	PI	%Gravel	%Sand	%Fines	
										%Silt	%Clay
●	B-7	5.0	A-2-6 (0)	SC	27	14	13	17.5	51.2	23.8	
⊠	B-7	14.0	A-1-b (0)	SM	NV	NP	NP	13.0	67.8	17.1	
▲	B-7	19.0	A-1-a (0)	SM	NV	NP	NP	22.7	60.4	15.4	
★	B-8	5.0	A-6 (5)	SC	34	17	17	4.6	44.8	49.3	
⊙	B-8	19.0	A-1-b (0)	SW-SM	NV	NP	NP	10.5	71.7	9.9	

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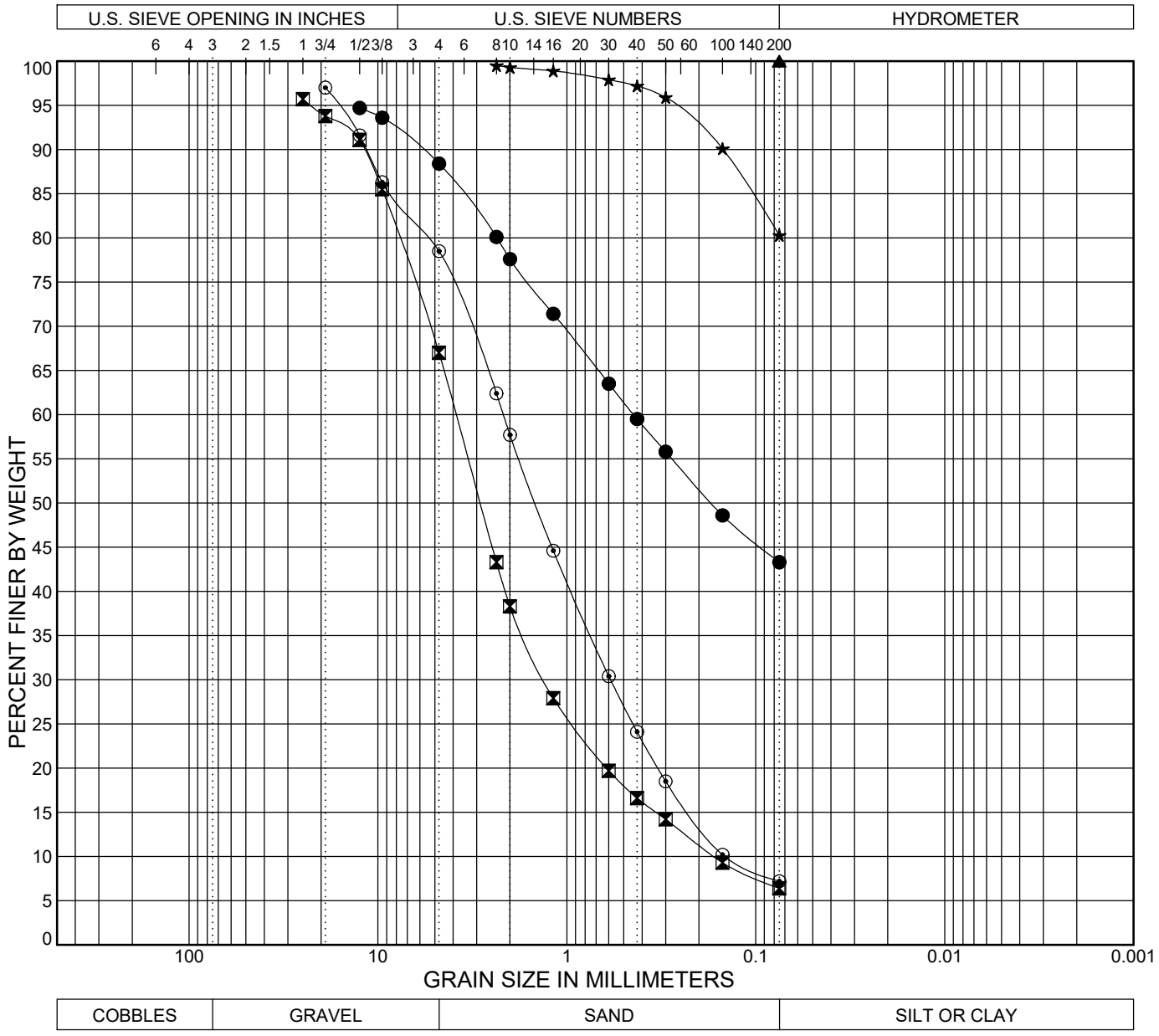
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FIGURE
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Project No. 224-104 Date: 10-18-2024
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Fountain, Colorado

03 GRAIN SIZE YEH 224-104 WWSD JCLF UPDATED FILE.GPJ 2021 YEH COLORADO TEMPLATE.GDT 2021 YEH COLORADO LIBRARY.GLB 10/18/24



	BOREHOLE	DEPTH (ft)	AASHTO Classification	USCS Classification	LL	PL	PI	%Gravel	%Sand	%Fines	
										%Silt	%Clay
●	B-9	5.0	A-7-6 (7)	SC	43	15	28	6.3	45.1	43.3	
⊠	B-9	14.0	A-1-a (0)	SW-SM	NV	NP	NP	28.7	60.6	6.4	
▲	B-9	24.0	A-7-6 (26)	CL	44	20	24	0.0	0.0	100.0	
★	B-10	1.0	A-7-6 (21)	CL	45	18	27		19.2	80.3	
⊙	B-10	5.0						18.5	71.3	7.2	

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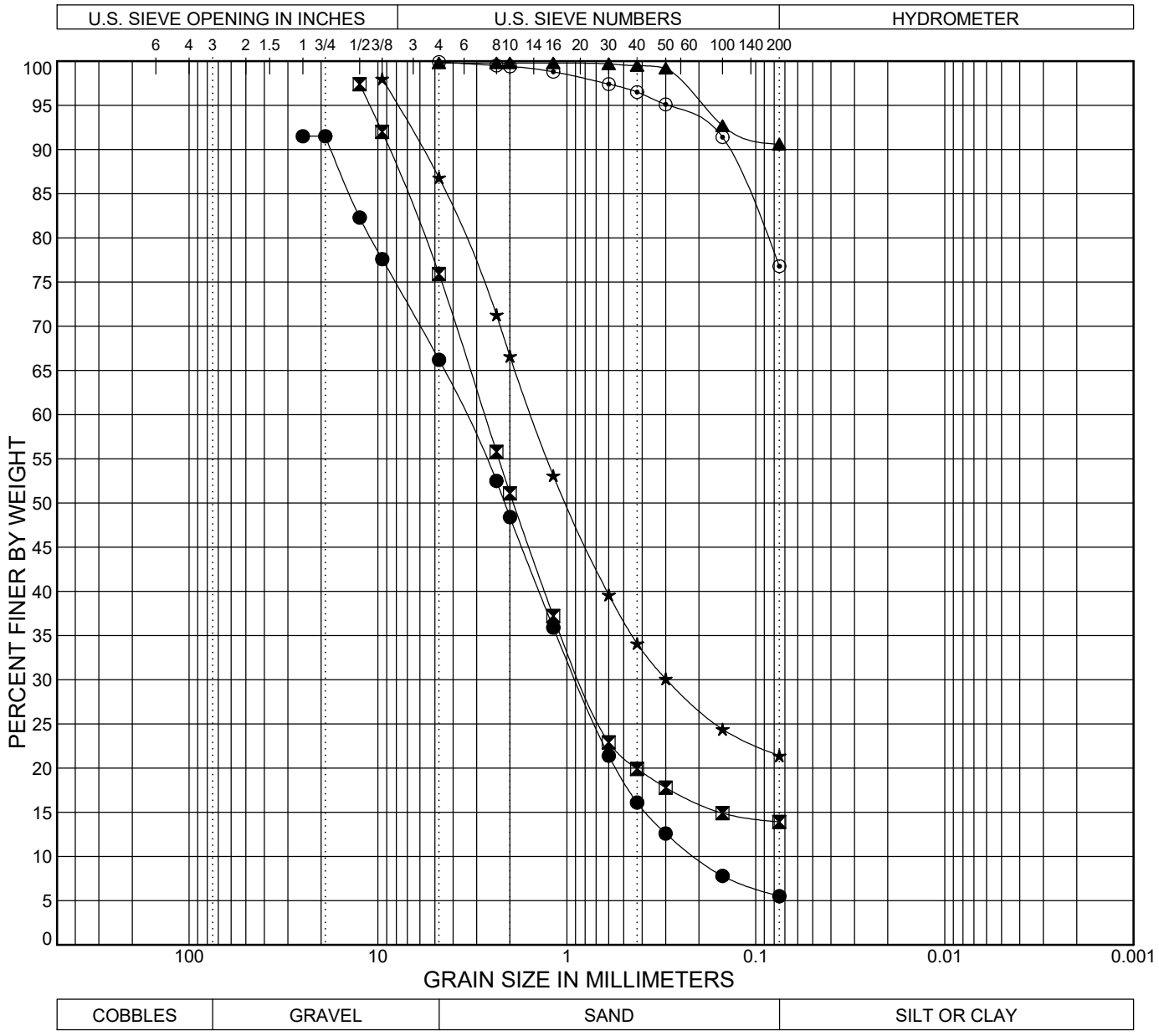
FIGURE

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Project No. 224-104 Date: 10-18-2024
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Force Main Extension
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03 GRAIN SIZE YEH 224-104 WWSD JCLF UPDATED FILE.GPJ 2021 YEH COLORADO TEMPLATE.GDT 2021 YEH COLORADO LIBRARY.GLB 10/18/24



	BOREHOLE	DEPTH (ft)	AASHTO Classification	USCS Classification	LL	PL	PI	%Gravel	%Sand	%Fines	
										%Silt	%Clay
●	B-10	9.0	A-1-a (0)	SW-SM	NV	NP	NP	25.3	60.7	5.5	
⊠	B-10	19.0						21.5	62.0	13.9	
▲	B-11	5.0	A-7-6 (24)	CL	43	17	26		9.2	90.6	
★	B-11	9.0						11.2	65.4	21.4	
⊙	B-12	9.0	A-6 (10)	CL	31	15	16		23.1	76.8	

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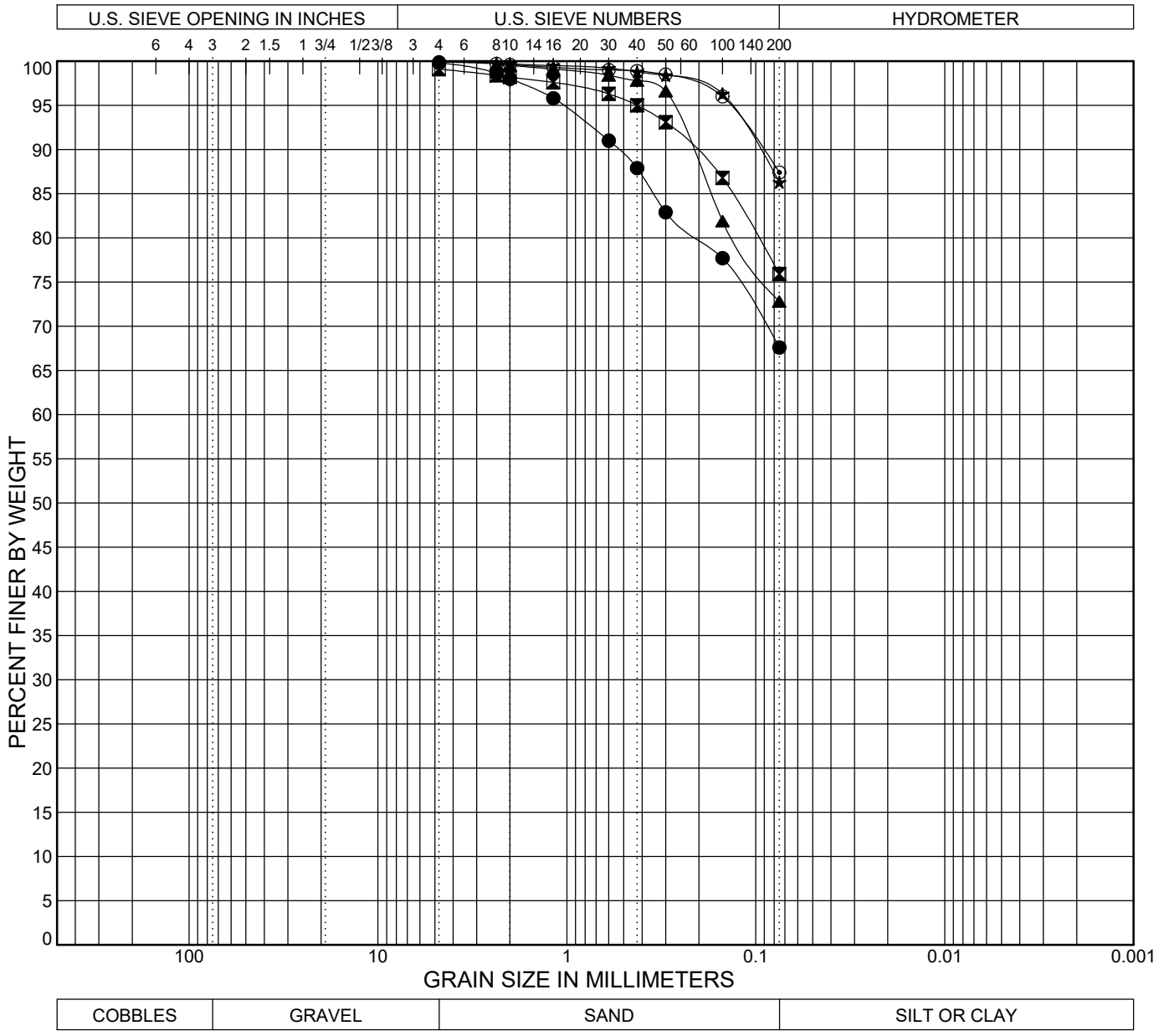
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FIGURE
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Project No. 224-104 Date: 10-18-2024
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Fountain, Colorado

03 GRAIN SIZE YEH 224-104 WWSD JCLF UPDATED FILE.GPJ 2021 YEH COLORADO TEMPLATE.GDT 2021 YEH COLORADO LIBRARY.GLB 10/18/24



	BOREHOLE	DEPTH (ft)	AASHTO Classification	USCS Classification	LL	PL	PI	%Gravel	%Sand	%Fines	
										%Silt	%Clay
●	**B-12**	**14.0**							**32.2**	**67.6**	
⊠	**B-13**	**5.0**							**23.2**	**75.9**	
▲	**B-13**	**9.0**	**A-6 (13)**	**CL**	**35**	**14**	**21**		**26.8**	**72.8**	
★	**B-14**	**9.0**	**A-6 (16)**	**CL**	**36**	**17**	**19**		**13.6**	**86.3**	
⊙	**B-14**	**19.0**							**12.5**	**87.4**	

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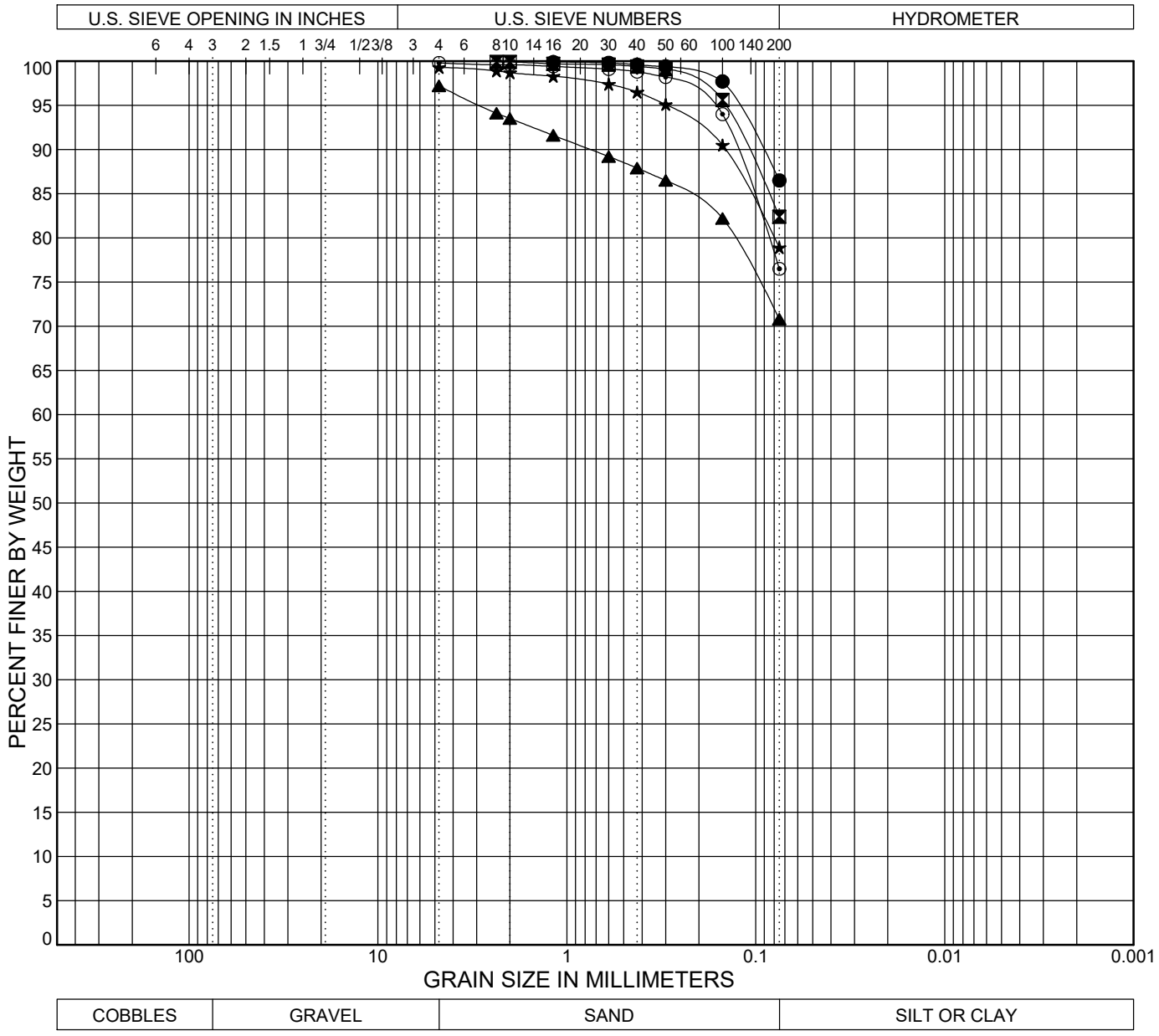
FIGURE

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Project No. 224-104 Date: 10-18-2024
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Force Main Extension
Fountain, Colorado

03 GRAIN SIZE YEH 224-104 WWSD JCLF UPDATED FILE.GPJ 2021 YEH COLORADO TEMPLATE.GDT 2021 YEH COLORADO LIBRARY.GLB 10/18/24



BOREHOLE		DEPTH (ft)	AASHTO Classification	USCS Classification	LL	PL	PI	%Gravel	%Sand	%Fines	
										%Silt	%Clay
●	B-15	7.0							13.4	86.5	
⊠	B-15	19.0							17.5	82.4	
▲	B-16	4.0							26.4	70.8	
★	B-16	9.0	A-6 (16)	CL	38	16	22		20.4	78.9	
⊙	B-17	9.0	A-6 (15)	CL	37	15	22		23.3	76.5	

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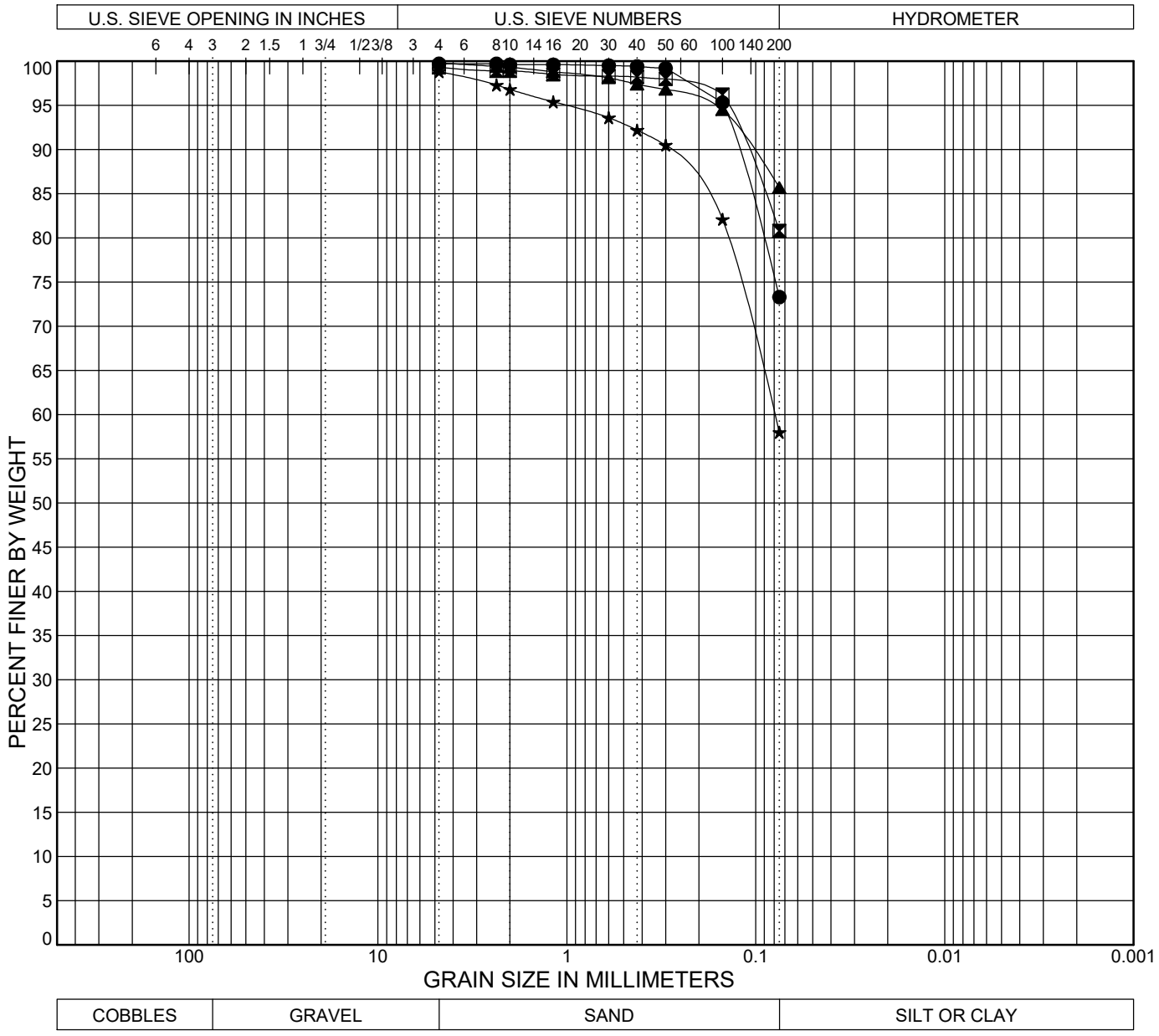
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FIGURE
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Project No. 224-104 Date: 10-18-2024
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Force Main Extension
Fountain, Colorado

03 GRAIN SIZE YEH 224-104 WWSD JCLF UPDATED FILE.GPJ 2021 YEH COLORADO TEMPLATE.GDT 2021 YEH COLORADO LIBRARY.GLB 10/18/24



	BOREHOLE	DEPTH (ft)	AASHTO Classification	USCS Classification	LL	PL	PI	%Gravel	%Sand	%Fines	
										%Silt	%Clay
●	**B-18**	**7.0**							**26.4**	**73.3**	
⊠	**B-18**	**14.0**	**A-6 (16)**	**CL**	**36**	**15**	**21**		**18.5**	**80.8**	
▲	**B-19**	**9.0**	**A-7-6 (21)**	**CL**	**41**	**16**	**25**		**14.1**	**85.7**	
★	**B-19**	**19.0**							**40.8**	**58.0**	

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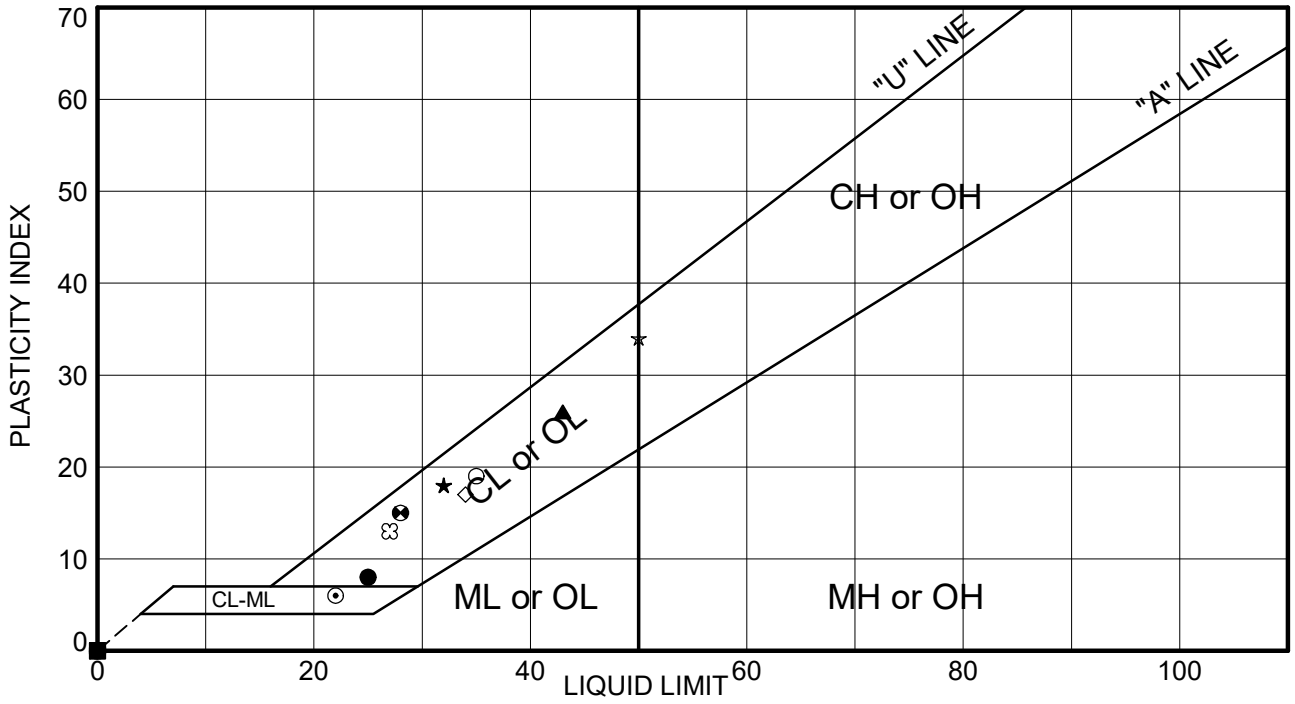
FIGURE

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Project No. 224-104 Date: 10-18-2024
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Force Main Extension
Fountain, Colorado

03 GRAIN SIZE YEH 224-104 WWSD JCLF UPDATED FILE.GPJ 2021 YEH COLORADO TEMPLATE.GDT 2021 YEH COLORADO LIBRARY.GLB 10/18/24



	BOREHOLE	DEPTH (ft)	LL	PL	PI	Passing #200	USCS Sample Description and Symbol	AASHTO Class.
●	B-1	5.0	25	17	8	39.5	CLAYEY SAND (SC)	A-4 (0)
⊠	B-1	14.0	NV	NP	NP	4.4	WELL-GRADED SAND with GRAVEL (SW)	A-1-b (0)
▲	B-2	5.0	43	17	26	67.4	SANDY LEAN CLAY (CL)	A-7-6 (15)
★	B-3	5.0	32	14	18	49.5	CLAYEY SAND (SC)	A-6 (5)
⊙	B-3	9.0	22	16	6	38.4	SILTY, CLAYEY SAND (SC-SM)	A-4 (0)
✿	B-3	19.0	NV	NP	NP	8.0	WELL-GRADED SAND with SILT and GRAVEL (SW-SM)	A-1-b (0)
○	B-4	1.0	35	16	19	53.3	SANDY LEAN CLAY (CL)	A-6 (7)
△	B-4	5.0	NV	NP	NP	11.6	WELL-GRADED SAND with SILT (SW-SM)	A-1-b (0)
⊗	B-4	14.0	NV	NP	NP	4.4	POORLY GRADED SAND with GRAVEL (SP)	A-1-b (0)
⊕	B-5	5.0	NV	NP	NP	9.5	POORLY GRADED SAND with SILT (SP-SM)	A-1-b (0)
□	B-5	14.0	NV	NP	NP	6.4	WELL-GRADED SAND with SILT and GRAVEL (SW-SM)	A-1-b (0)
◓	B-6	5.0	28	13	15	40.9	CLAYEY SAND (SC)	A-6 (2)
◕	B-6	14.0	NV	NP	NP	6.5	WELL-GRADED SAND with SILT and GRAVEL (SW-SM)	A-1-a (0)
☆	B-6	24.0	50	16	34	100.0	FAT CLAY (CH)	A-7-6 (37)
⊠	B-7	5.0	27	14	13	23.8	CLAYEY SAND with GRAVEL (SC)	A-2-6 (0)
■	B-7	14.0	NV	NP	NP	17.1	SILTY SAND with GRAVEL (SM)	A-1-b (0)
◆	B-7	19.0	NV	NP	NP	15.4	SILTY SAND with GRAVEL (SM)	A-1-a (0)
◇	B-8	5.0	34	17	17	49.3	CLAYEY SAND (SC)	A-6 (5)

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ATTERBERG LIMITS

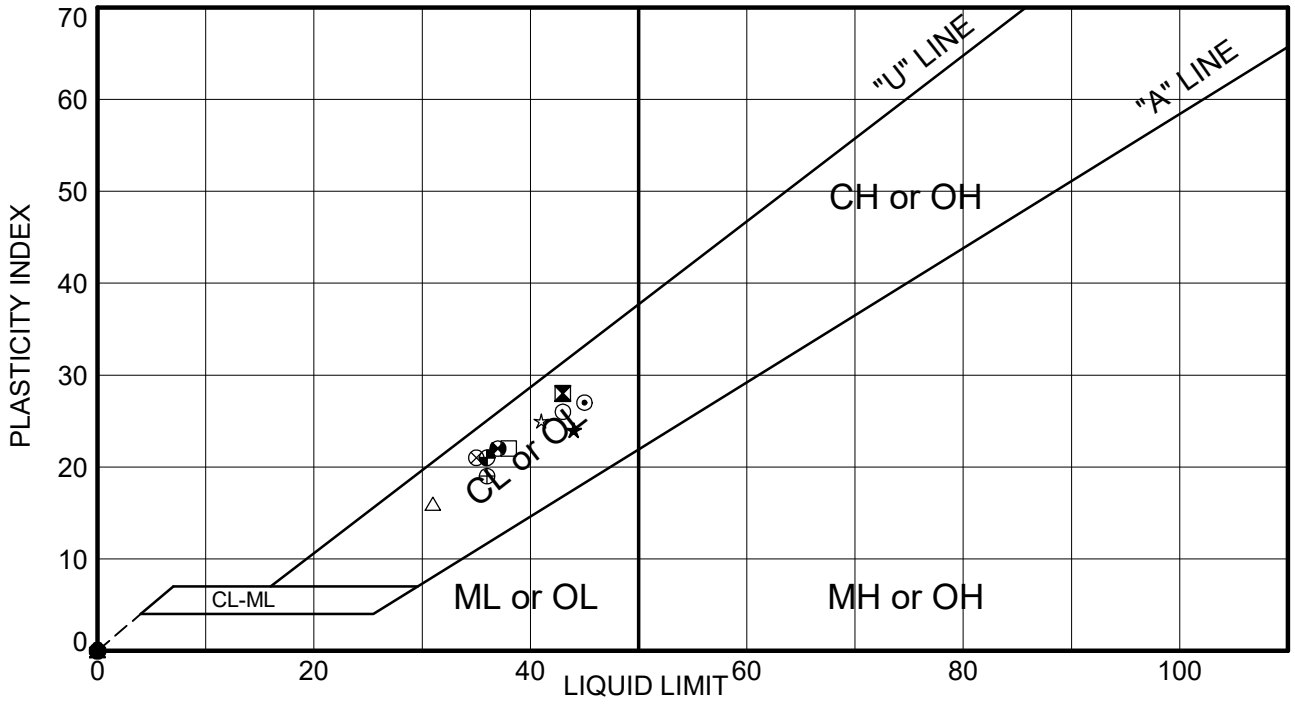
FIGURE

C - 1

Project No. 224-104 Date: 10-18-2024
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WWSD Jimmy Camp Lift Sation
Force Main Extension
Fountain, Colorado

01 ATTERBERG LIMITS YEH - ALL BORINGS 224-104 WWSD JCLF UPDATED FILE.GPJ 2021 YEH COLORADO TEMPLATE.GDT 2021 YEH COLORADO LIBRARY.GLB 10/18/24



	BOREHOLE	DEPTH (ft)	LL	PL	PI	Passing #200	USCS Sample Description and Symbol	AASHTO Class.
●	B-8	19.0	NV	NP	NP	9.9	WELL-GRADED SAND with SILT and GRAVEL (SW-SM)	A-1-b (0)
⧓	B-9	5.0	43	15	28	43.3	CLAYEY SAND (SC)	A-7-6 (7)
▲	B-9	14.0	NV	NP	NP	6.4	WELL-GRADED SAND with SILT and GRAVEL (SW-SM)	A-1-a (0)
★	B-9	24.0	44	20	24	100.0	LEAN CLAY (CL)	A-7-6 (26)
⊙	B-10	1.0	45	18	27	80.3	LEAN CLAY with SAND (CL)	A-7-6 (21)
✿	B-10	9.0	NV	NP	NP	5.5	WELL-GRADED SAND with SILT and GRAVEL (SW-SM)	A-1-a (0)
○	B-11	5.0	43	17	26	90.6	LEAN CLAY (CL)	A-7-6 (24)
△	B-12	9.0	31	15	16	76.8	LEAN CLAY with SAND (CL)	A-6 (10)
⊗	B-13	9.0	35	14	21	72.8	LEAN CLAY with SAND (CL)	A-6 (13)
⊕	B-14	9.0	36	17	19	86.3	LEAN CLAY (CL)	A-6 (16)
□	B-16	9.0	38	16	22	78.9	LEAN CLAY with SAND (CL)	A-6 (16)
⊛	B-17	9.0	37	15	22	76.5	LEAN CLAY with SAND (CL)	A-6 (15)
◕	B-18	14.0	36	15	21	80.8	LEAN CLAY with SAND (CL)	A-6 (16)
☆	B-19	9.0	41	16	25	85.7	LEAN CLAY (CL)	A-7-6 (21)

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ATTERBERG LIMITS

FIGURE

C - 2

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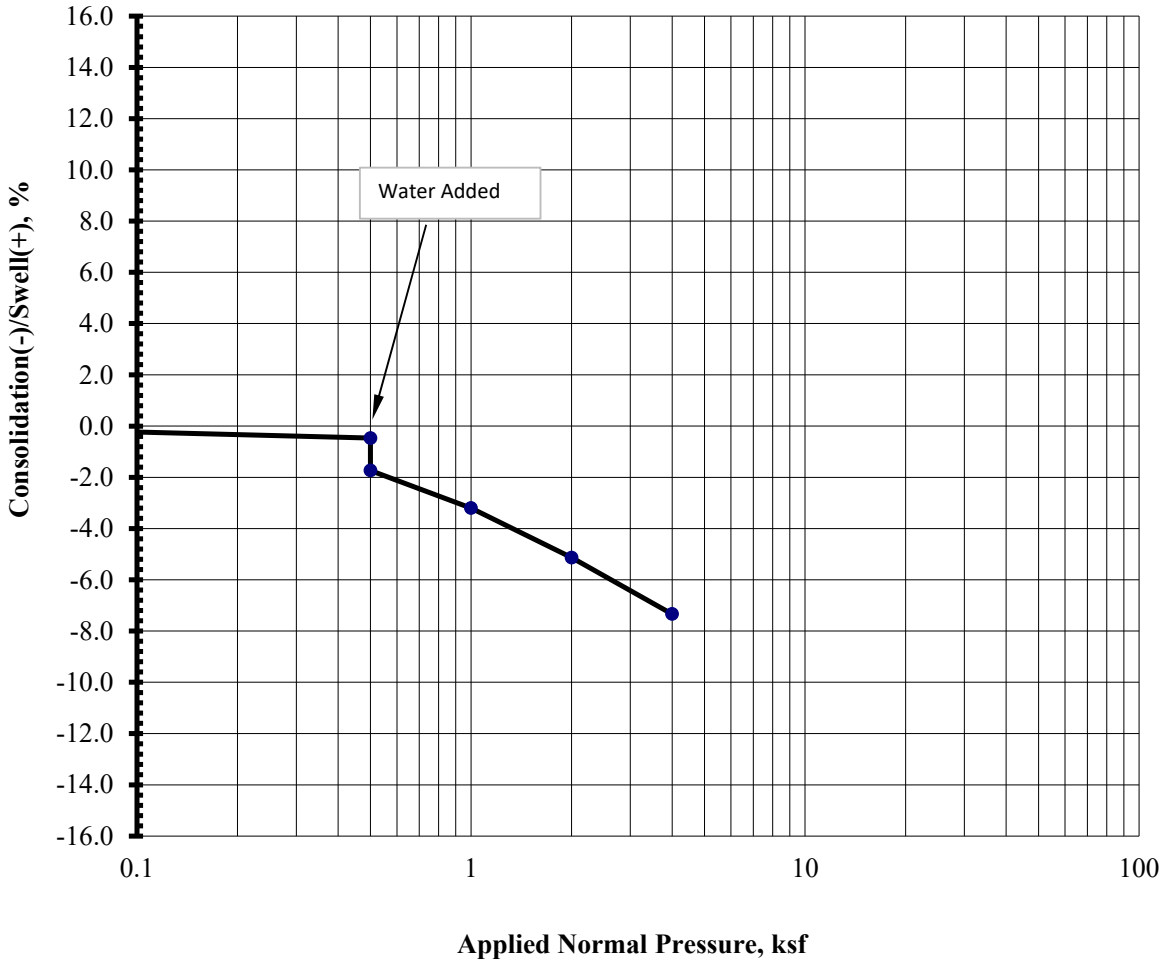
WWSD Jimmy Camp Lift Sation
Force Main Extension
Fountain, Colorado

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ONE - DIMENTIONAL SWELL OR COLLAPSE OF SOILS
ASTM D4546 METHOD C



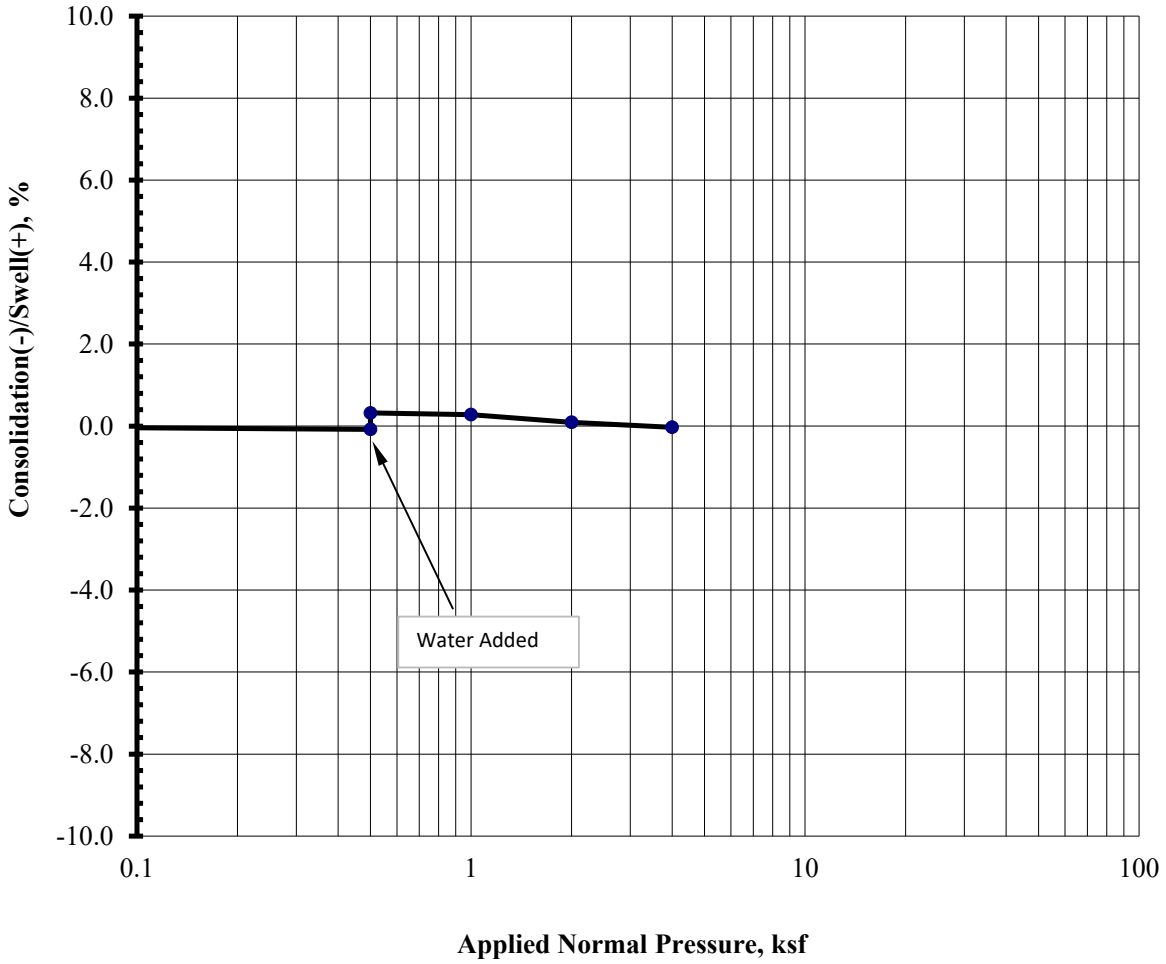
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B1		1	128.2	7.1%	-1.3	Clayey Sand	Drawn By:	M.A
Job No:	224-104	**Project Name:**		**WWSD JCLS**			**Checked By:**	**Tae**

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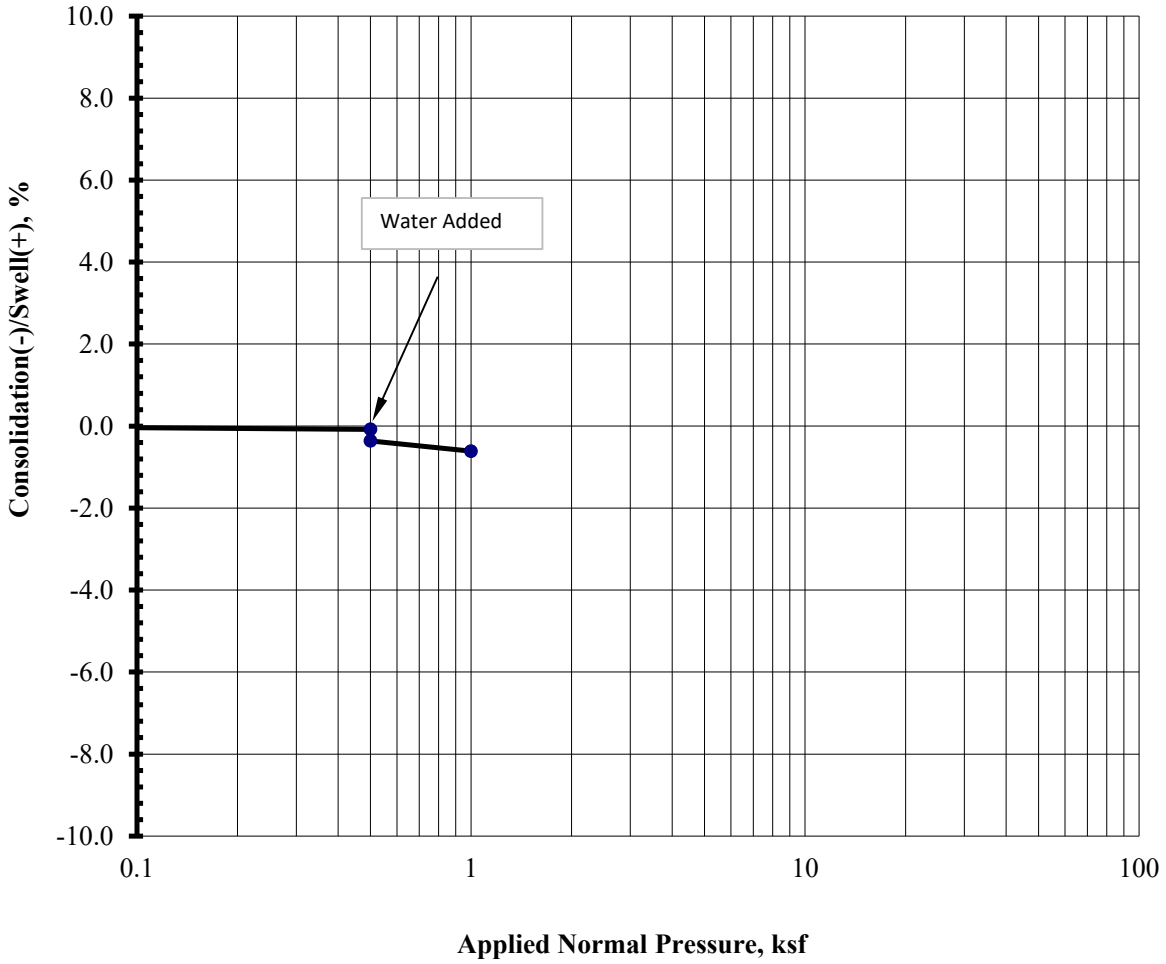
Boring Number		Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Classification	SWELL OR COLLAPSE GRAPH	
B2		5	109.0	9.3%	0.4	A-7-6 (15)/CL	Drawn By:	M.A
Job No:	224-104	**Project Name:**		**WWSD JCLS**			**Checked By:**	**Tae**

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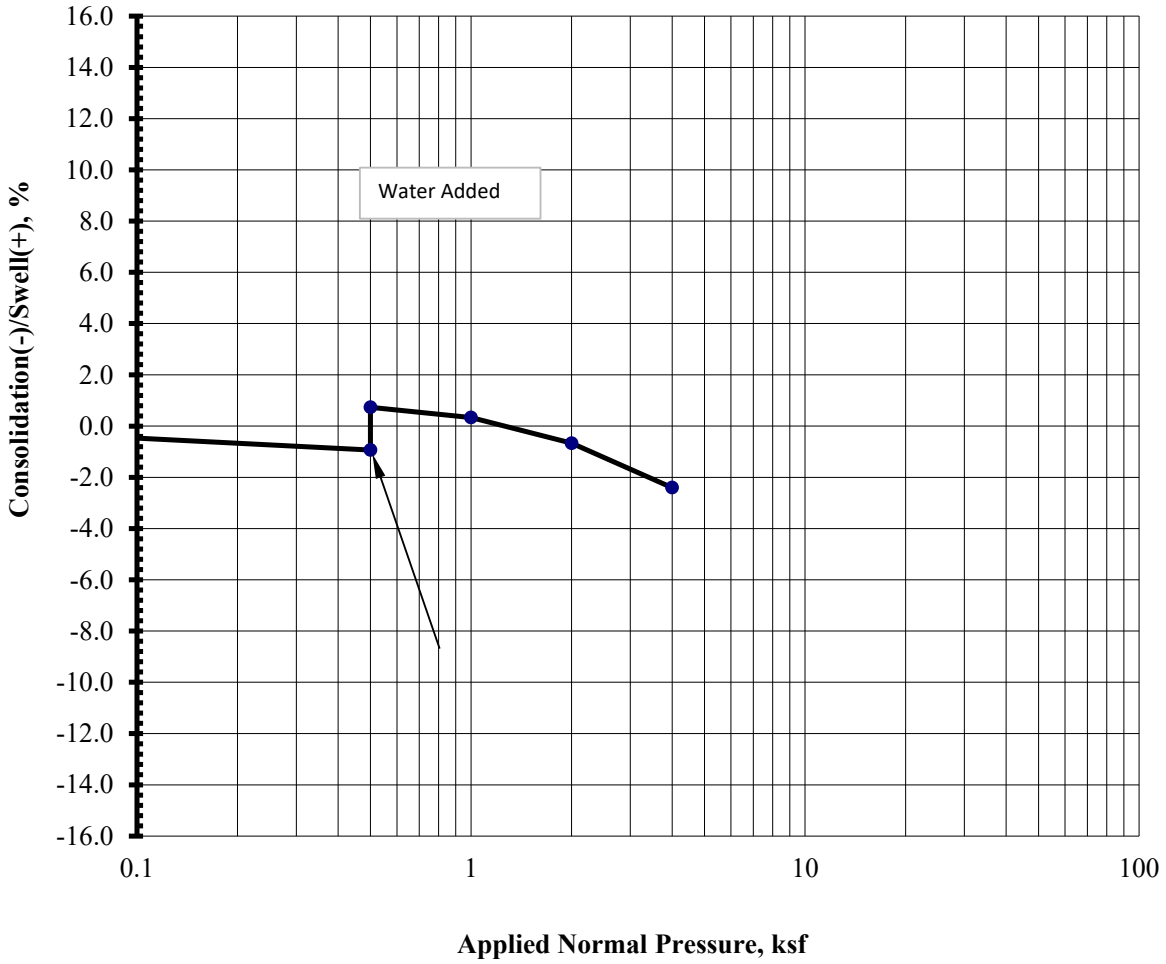
Boring Number		Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Classification	SWELL OR COLLAPSE GRAPH	
B7		5	102.0	2.8%	-0.3	A-2-6 (0)/SC	Drawn By:	M.A
Job No:	224-104	**Project Name:**		**WWSD JCLS**			**Checked By:**	**Tae**

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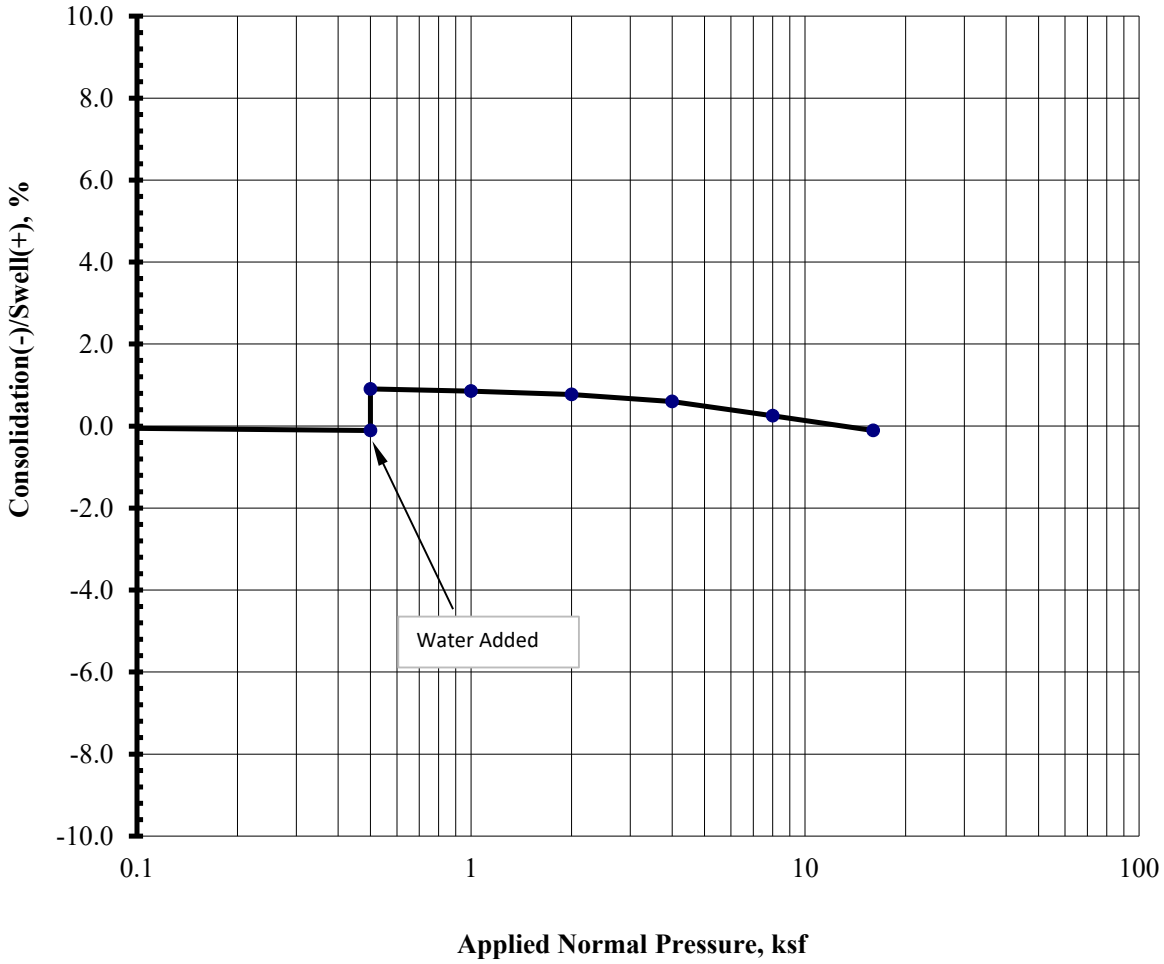
Boring Number		Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Classification	SWELL OR COLLAPSE GRAPH	
B9		1			1.7	Clayey Sand	Drawn By:	M.A
Job No:	224-104	**Project Name:**		**WWSD JCLS**			**Checked By:**	**Tae**

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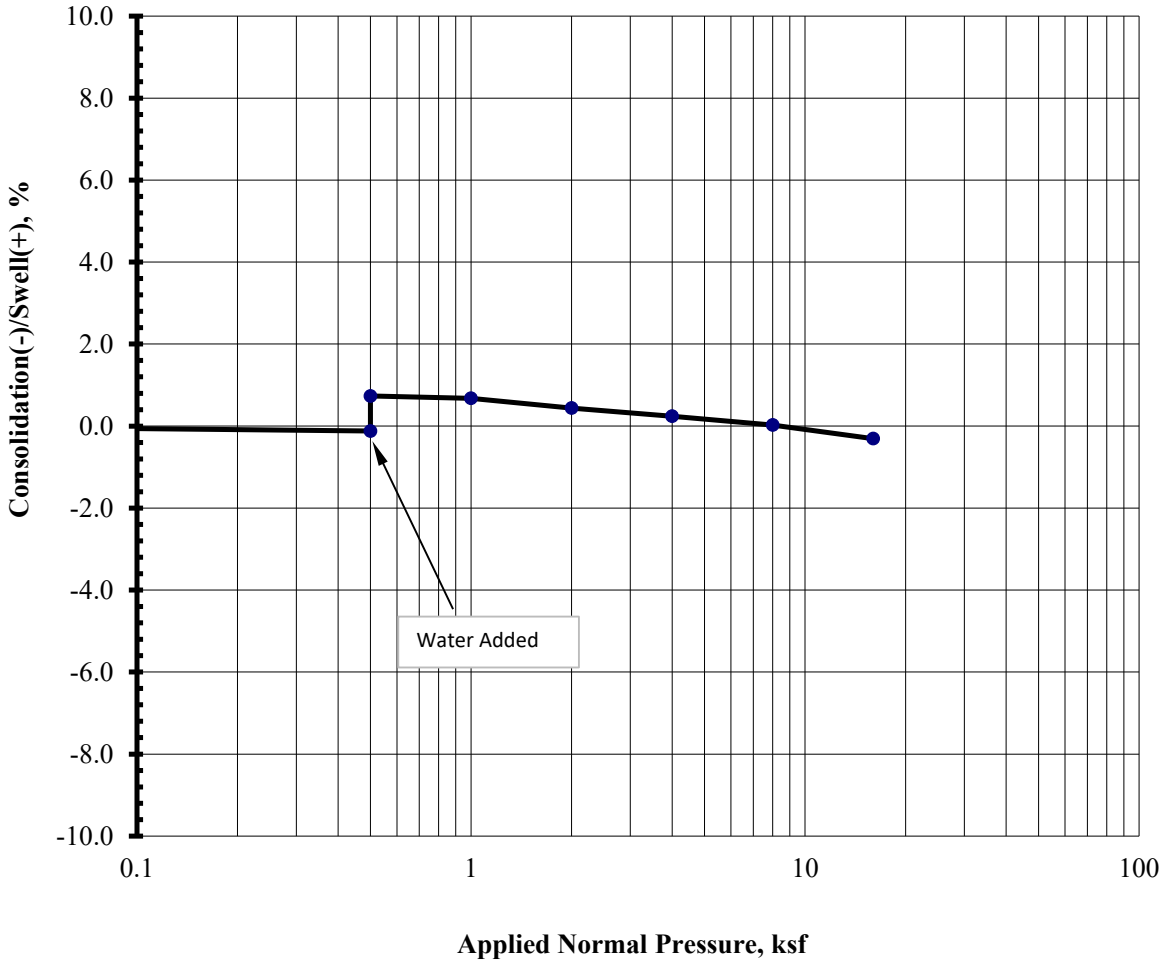
Boring Number		Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Classification	SWELL OR COLLAPSE GRAPH	
B10		1	109.8	12.6%	1.0	A-7-6 (21)/CL	Drawn By:	M.A
Job No:	224-104	**Project Name:**		**WWSD JCLS**			**Checked By:**	**Tae**

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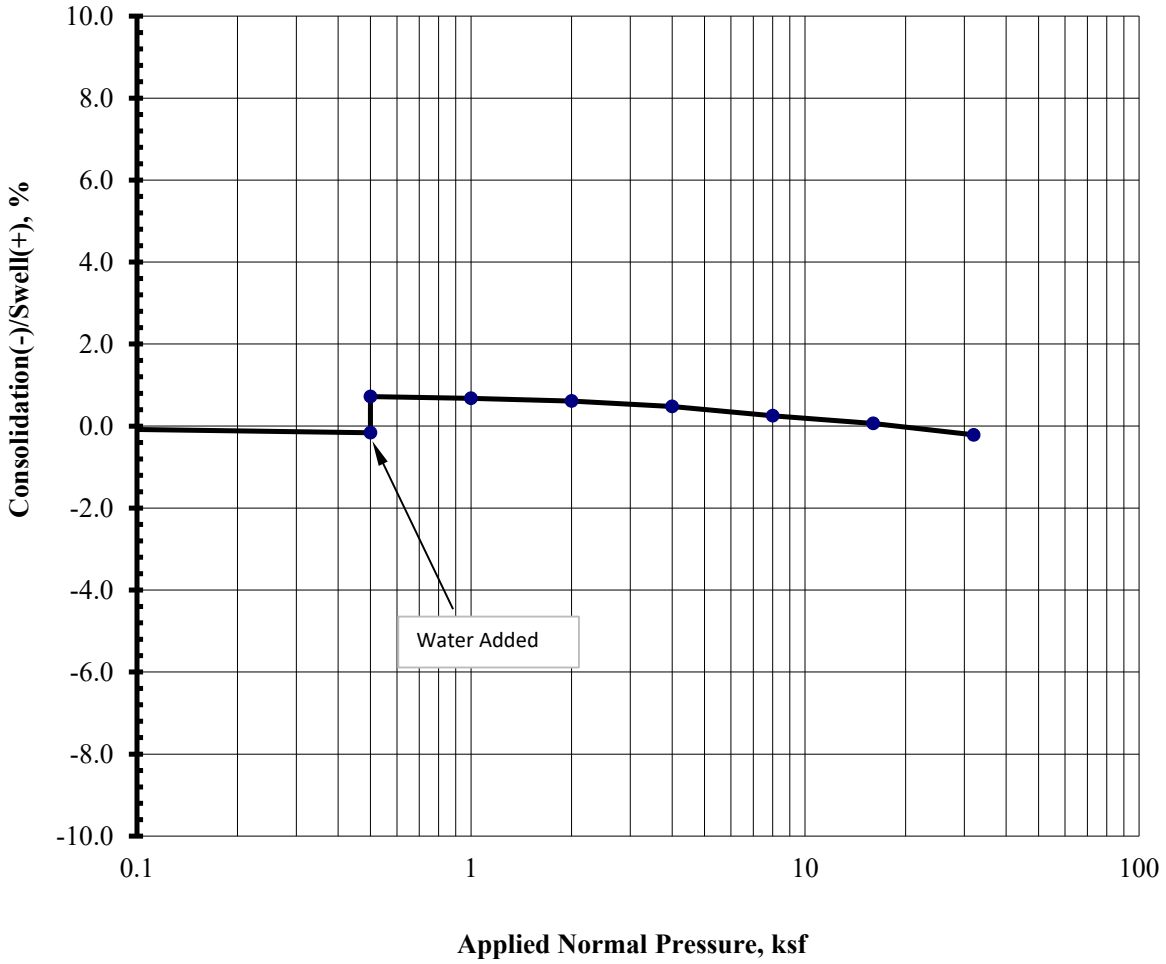
Boring Number		Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Classification	SWELL OR COLLAPSE GRAPH	
B11		5	104.8	11.6%	0.9	A-7-6 (24)/CL	Drawn By:	M.A
Job No:	224-104	**Project Name:**		**WWSD JCLS**			**Checked By:**	**Tae**

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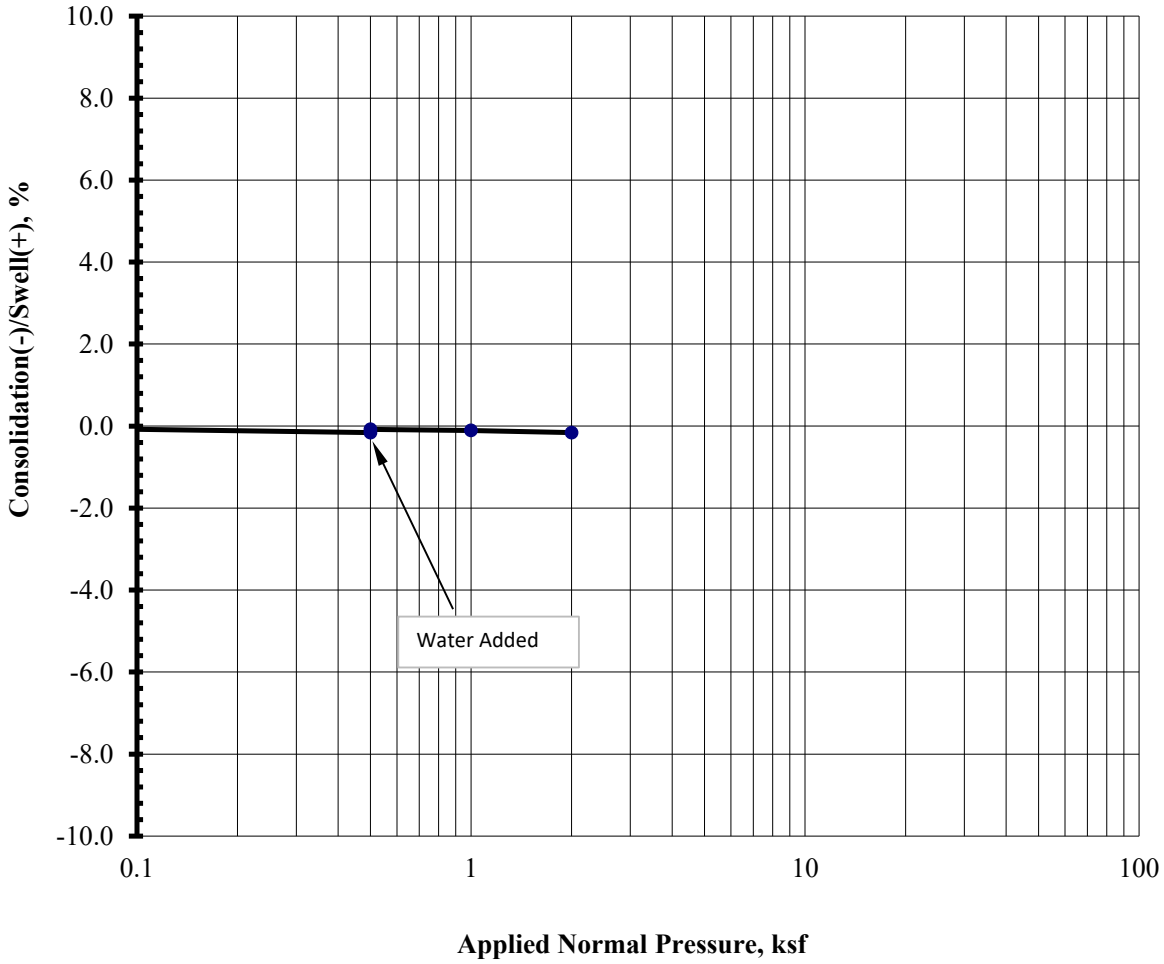
Boring Number		Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Classification	SWELL OR COLLAPSE GRAPH	
B13		9	121.1	9.3%	0.9	A-6 (13)/CL	Drawn By:	M.A
Job No:	224-104	**Project Name:**		**WWSD JCLS**			**Checked By:**	**Tae**

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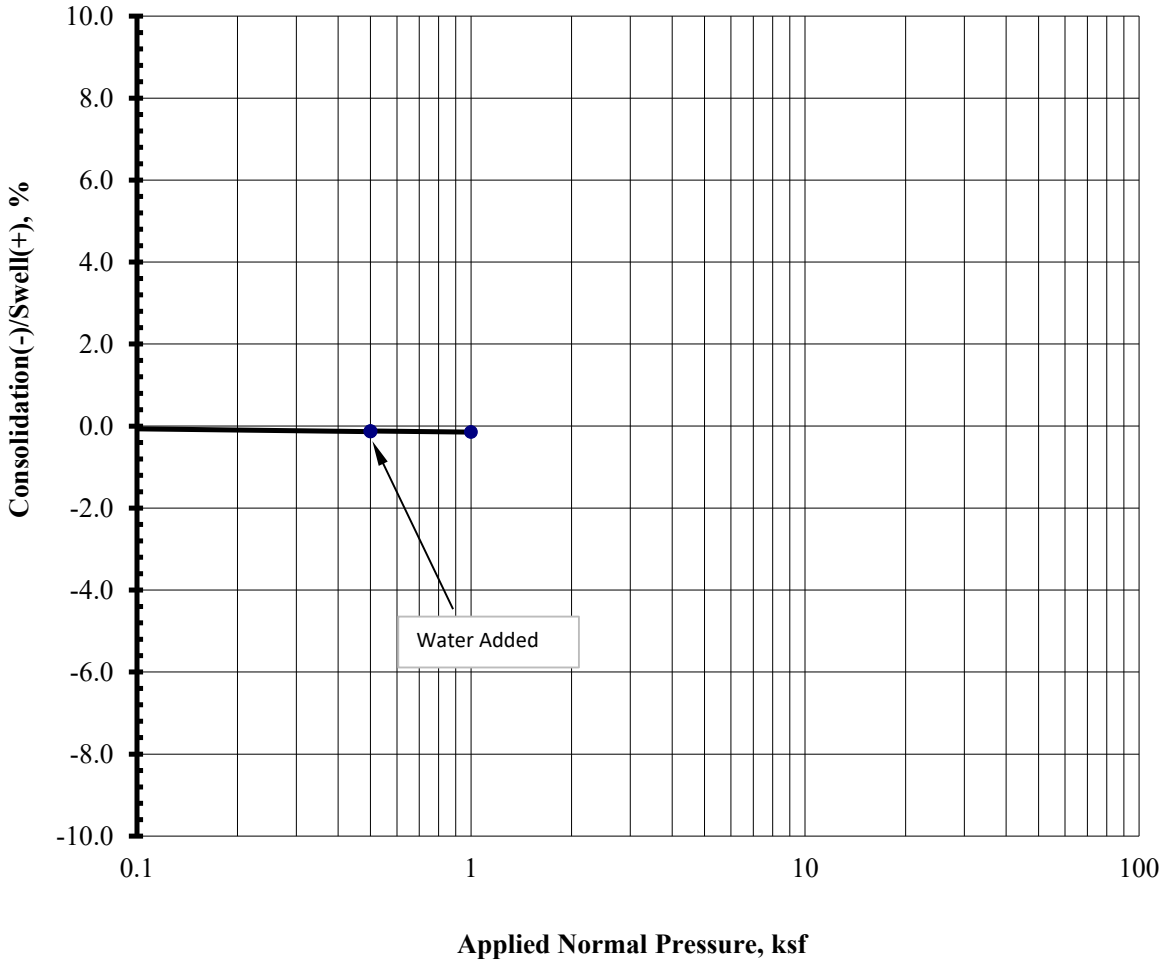
Boring Number		Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Classification	SWELL OR COLLAPSE GRAPH	
B14		14	108.7	18.5%	0.1	Sandy Lean Clay	Drawn By:	M.A
Job No:	224-104	**Project Name:**		**WWSD JCLS**			**Checked By:**	**Tae**

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Boring Number		Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Classification	SWELL OR COLLAPSE GRAPH	
B19		14	109.6	18.4%	0.0	Sandy Lean Clay	Drawn By:	M.A
Job No:	224-104	**Project Name:**		**WWSD JCLS**			**Checked By:**	**Tae**

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Appendix D

SUMMARY OF NOMINAL BEARING RESISTANCE

Nominal Bearing Resistance Equations and Resistance Factors for Concrete Reverse Anchors
Widefield Water and Sanitation District Jimmy Camp Lift Station
Widefield, Colorado
Yeh & Associates Project Number: 224-104

Referenced Boring ID	Approximate Depth of CRA (ft)	USCS Soil Classification	Effective Friction Angle ϕ' (°)	Cohesion c (ksf)	Unit Weight ɣ (ksf)	Embedment Depth Used in Calculation[1] d (ft)	N_c	N_q	N_γ	Nominal Bearing Resistance (NBR) Equations AASHTO 10.6.3.1.2A-1	Sliding Resistance Factors AASHTO Table 10.5.5.2.2-1			Coefficients of Sliding Friction AASHTO 10.6.3.4-2		Bearing Resistance Factors AASHTO Table 10.5.5.2.2-1	
										$NBR^{2,3} = c(Nc) + (\gamma d)(Nq) + 0.5(B')(\gamma)(N_\gamma)$	Cast-in-Place or Precast Concrete on Clay	Cast-in-Place Concrete on Sand	Precast Concrete on Sand	Coefficient of Sliding Friction for CIP Concrete	Coefficient of Sliding Friction for Precast Concrete	Clay	Sand
B-1	7.4	SC	28	0.10	0.115	4.4	25.8	14.7	16.7	NBR = 10.0 + 0.96 (B')	--	0.80	0.90	0.53	0.43	--	0.45
B-2	7.4	CL	26	0.15	0.120	4.4	22.3	11.9	12.5	NBR = 9.6 + 0.75 (B')	0.85	--	--	0.49	0.39	0.50	--
B-3	7.4	SC	28	0.10	0.120	4.4	25.8	14.7	16.7	NBR = 10.4 + 1.00 (B')	--	0.80	0.90	0.53	0.43	--	0.45
B-4	7.4	SW-SM	28	0.00	0.120	4.4	25.8	14.7	16.7	NBR = 7.8 + 1.00 (B')	--	0.80	0.90	0.53	0.43	--	0.45
B-5	7.4	SP-SM	28	0.00	0.120	4.4	25.8	14.7	16.7	NBR = 7.8 + 1.00 (B')	--	0.80	0.90	0.53	0.43	--	0.45
B-6	7.4	SW-SM	32	0.00	0.125	4.4	35.5	23.2	30.2	NBR = 12.7 + 1.89 (B')	--	0.80	0.90	0.62	0.50	--	0.45
B-7	7.4	SM	28	0.00	0.120	4.4	25.8	14.7	16.7	NBR = 7.8 + 1.00 (B')	--	0.80	0.90	0.53	0.43	--	0.45
B-8	7.4	SW-SM	30	0.00	0.120	4.4	30.1	18.4	22.4	NBR = 9.7 + 1.34 (B')	--	0.80	0.90	0.58	0.46	--	0.45
B-9	7.4	SC	30	0.10	0.120	4.4	30.1	18.4	22.4	NBR = 12.7 + 1.34 (B')	--	0.80	0.90	0.58	0.46	--	0.45
B-10	7.4	SW-SM	32	0.00	0.130	4.4	35.5	23.2	30.2	NBR = 13.3 + 1.96 (B')	--	0.80	0.90	0.62	0.50	--	0.45
B-11	7.4	CL/SC	30	0.10	0.120	4.4	30.1	18.4	22.4	NBR = 12.7 + 1.34 (B')	0.85	0.80	0.90	0.58	0.46	0.50	0.45
B-12	7.4	CL	26	0.10	0.115	4.4	22.3	11.9	12.5	NBR = 8.2 + 0.72 (B')	0.85	--	--	0.49	0.39	0.50	--
B-13	7.4	CL	26	0.15	0.120	4.4	22.3	11.9	12.5	NBR = 9.6 + 0.75 (B')	0.85	--	--	0.49	0.39	0.50	--
B-14	7.4	CL	26	0.10	0.120	4.4	22.3	11.9	12.5	NBR = 8.5 + 0.75 (B')	0.85	--	--	0.49	0.39	0.50	--
B-15	7.4	CL	26	0.10	0.125	4.4	22.3	11.9	12.5	NBR = 8.7 + 0.78 (B')	0.85	--	--	0.49	0.39	0.50	--
B-16	7.4	CL	26	0.10	0.125	4.4	22.3	11.9	12.5	NBR = 8.7 + 0.78 (B')	0.85	--	--	0.49	0.39	0.50	--
B-17	7.4	CL	26	0.10	0.120	4.4	22.3	11.9	12.5	NBR = 8.5 + 0.75 (B')	0.85	--	--	0.49	0.39	0.50	--
B-18	7.4	CL	26	0.10	0.125	4.4	22.3	11.9	12.5	NBR = 8.7 + 0.78 (B')	0.85	--	--	0.49	0.39	0.50	--
B-19	7.4	CL	26	0.10	0.125	4.4	22.3	11.9	12.5	NBR = 8.7 + 0.78 (B')	0.85	--	--	0.49	0.39	0.50	--

Note:
(1) upper 3 feet of embedment ignored for calculation
(2) B' is the footing width in feet reduced for eccentricity (e). B' = B - 2e, where B is the nominal foundation width.
(3) Nominal bearing resistance in units of ksf. Based on a minimum foundation embedment of 7.4 feet.

Appendix B

JCLS FM Extension Alternative Alignment Routing Study

Jimmy Camp Lift Station Force Main Extension Alternate Alignment Routing Study

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TECHNICAL MEMORANDUM

For

Widefield, Colorado

Prepared by:

One Denver Technology Center
5251 DTC Parkway, Suite 420
Greenwood Village, CO 80111

December 2023

Garver Project No. 22W23080

Engineer's Certification

I hereby certify that this Jimmy Camp LS Force Main Extension Alternate Alignment Routing Study was prepared by Garver under my direct supervision for the Widefield Water and Sanitation District.



Jason M. Coontz, PE
State of Colorado PE License 0058211

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Appendices

APPENDIX A – Data Collection

APPENDIX B – 10% Alternate Alignment Routing Study Drawings

APPENDIX C – Environmental Report

List of Acronyms and Abbreviations

AACE	Association for the Advancement of Cost Engineering
ARV	air release and vacuum breaker valve
FM	force main
ft	feet
ARV	air release and vacuum breaker valve
JCLS	Jimmy Camp Lift Station
OPC	Opinion of Probable Cost
O&M	operations and maintenance
ROW	right-of-way
WRF	Water Reclamation Facility
WWSD	Widefield Water and Sanitation District, District

1.0 Executive Summary

Widefield Water and Sanitation District (WWSD), a municipal entity serving unincorporated areas south of Colorado Springs, faces critical challenges in its wastewater services due to limitations in the existing 12-inch Jimmy Camp Lift Station (JCLS) force main (FM) and the Mesa Ridge Interceptor. The 2021 Water and Wastewater Utility Master Plan and the 2022 Jimmy Camp LS Capacity Phasing Study concluded that the first step to improving the capacity limitations in both would be to install a 16-inch extension to divert the JCLS FM flow from its current discharge into the Mesa Ridge Interceptor to the Water Reclamation Facility (WRF). This technical memorandum summarizes the findings of Garver's Alternate Alignment Routing Study, evaluating two alignments previously identified for the JCLS FM extension.

The primary goal of the study was to determine the most suitable routing for WWSD, considering utility conflicts, easement acquisitions, environmental considerations, constructability, operations and maintenance requirements, and cost. To evaluate the Alternate Alignments, Garver collected utility, parcel, and as-built data; performed site investigations; evaluated environmental considerations; and gathered information on applicable permitting requirements for the JCLS FM extension.

AACE Class 4 Opinions of Probable Cost (OPCs) were prepared for each alignment, including additional costs not typically included in construction cost estimates, such as geotechnical engineering, subsurface utility engineering, survey, contractor markup, detailed design engineering, and construction engineering. A Class 4 cost estimate provides an expected range of accuracy from -30% to +50%.

Alternate Alignment 1:

Approximately 9,000 feet in length, this alignment has six road and two railroad crossings. Two air release and vacuum breaker valves (ARVs) are recommended for this alignment. Construction challenges include a density of businesses for the first 2,000 feet of the alignment, the presence of many other utilities along the alignment for the next 3,500 feet, and two railroad crossings. Operations and maintenance (O&M) considerations include access challenges in high-traffic areas and the potential for solids buildup in flat sections.

The AACE Class 4 OPC for Alternate Alignment 1 is $7.4M.

Alternate Alignment 2:

Approximately 11,000 feet in length, this alignment has similar crossings to Alternate Alignment 1. Two air release and vacuum breaker valves (ARVs) are recommended for this alignment. Construction challenges include a density of businesses for the first 2,000 feet of the alignment, a longer overall length than Alternate Alignment 1, and two railroad crossings. O&M considerations as compared to Alternate Alignment 1 include fewer access challenges, a higher potential for solids buildup in flat and low-elevation sections, and a longer alignment length to maintain.

The OPC for Alternate Alignment 2 is $8.0M.

Alternate Alignment 3:

Added at the request of WWSD after the Alternate Alignment Routing Study Workshop, it is approximately 10,200 feet in length and this alignment has a similar number of crossings as Alternate

Alignment 1 and 2. Two air release and vacuum breaker valves (ARVs) are recommended for this alignment. Construction challenges include a density of businesses for 1,500 feet of the alignment, a longer overall length than Alternate Alignment 1, but shorter than Alternate Alignment 2, and two railroad crossings. O&M considerations include fewer access challenges than Alternate Alignment 1 or 2, a potential for solids buildup in flat and low-elevation sections similar to Alternate Alignment 2, and a longer alignment length to maintain than Alternate Alignment 1 but shorter than Alternate Alignment 2.

The OPC for Alternate Alignment 3 is $7.7M.

2.0 Introduction

Widefield Water and Sanitation District (WWSD) is a municipal district providing water and wastewater services in unincorporated areas south of Colorado Springs in El Paso County, Colorado. The existing 12-inch Jimmy Camp Lift Station (JCLS) force main (FM) discharges into the 18-inch Mesa Ridge Interceptor, where the flow is conveyed by gravity to the Water Reclamation Facility (WRF). Previous studies determined that the JCLS FM needs to be upsized and extended to reroute flows from Mesa Ridge Interceptor to the WRF. Two alignments were identified for the FM extension. This Technical Memorandum presents the findings of Garver's Alternate Alignment Routing Study evaluating the two alignments for the JCLS FM extension.

The flow projections and hydraulic modeling conducted in the Water and Wastewater Utility Master Plan (Master Plan, 2021) indicated that additional capacity is needed in the Mesa Ridge Interceptor and the JCLS FM. The capacity of the JCLS FM is expected be reached in 2025. The Interceptor periodically surcharges and exceeds the recommended carrying capacity but is not expected to overflow until 2028. The Master Plan recommended increasing the capacity of the interceptor by upsizing it or adding a parallel line and upgrading the JCLS to increase capacity of the FM. A phasing study was recommended to further evaluate these upgrades.

In the Jimmy Camp LS Capacity Phasing Study (Phasing Study, 2022), a more focused hydraulic modeling evaluation was conducted for the Mesa Ridge Interceptor and the JCLS FM to determine the most efficient upgrades for WWSD. The evaluation of the Mesa Ridge Interceptor revealed hydraulic jumps and venting of odors due to a lack of available headspace for gas transport to the WRF. The evaluation of the JCLS FM determined that a 16-inch FM would provide capacity for projected flows until 2037, at which point a second 16-inch FM installation was recommended to meet buildout flows and provide redundancy to the system. By extending the upsized FM, sufficient flow would be diverted from the Mesa Ridge Interceptor to meet projected buildout flows without additional capacity. The final recommendation in the Phasing Study was to install the following upgrades:

1. Install a 16-inch extension to the existing JCLS FM from the current discharge point into the Mesa Ridge Interceptor to the WRF. Two alignment alternatives were identified, and it was recommended that this upgrade be constructed as soon as practical.

2. Upsize the existing JCLS FM from 12-inch to 16-inch before the it reaches capacity, which is expected to occur in 2025.

3. Install a second lift station and FM before the 16-inch JCLS FM reaches capacity, which is expected to occur in 2037.

WWSD hired Garver for the design of the JCLS FM extension. An Alternate Alignment Routing Study was included in the design services scope to evaluate the two alignments proposed in the Phasing Study. The two alignments are shown in Figure 1. Segment 1 for both alignments runs west along Mesa Ridge Pkwy, crossing Fountain Mesa Rd. At this point the two alignments diverge. Segment 2.1, for Alternate Alignment 1, continues west and northwest along Mesa Ridge Pkwy, turns southwest along Syracuse St., then heads west, crossing two railroads and US-85. Segment 2.2, for Alternate Alignment 2, heads south

along the unnamed road west of Fountain Mesa, turns west along Mesa Rd, then heads north along Syracuse St and turns west to cross two railroads and US-85 before rejoining Alternate Alignment 1. Segment 3 for both alignments follows Willow Springs Rd. west and north to the WRF.

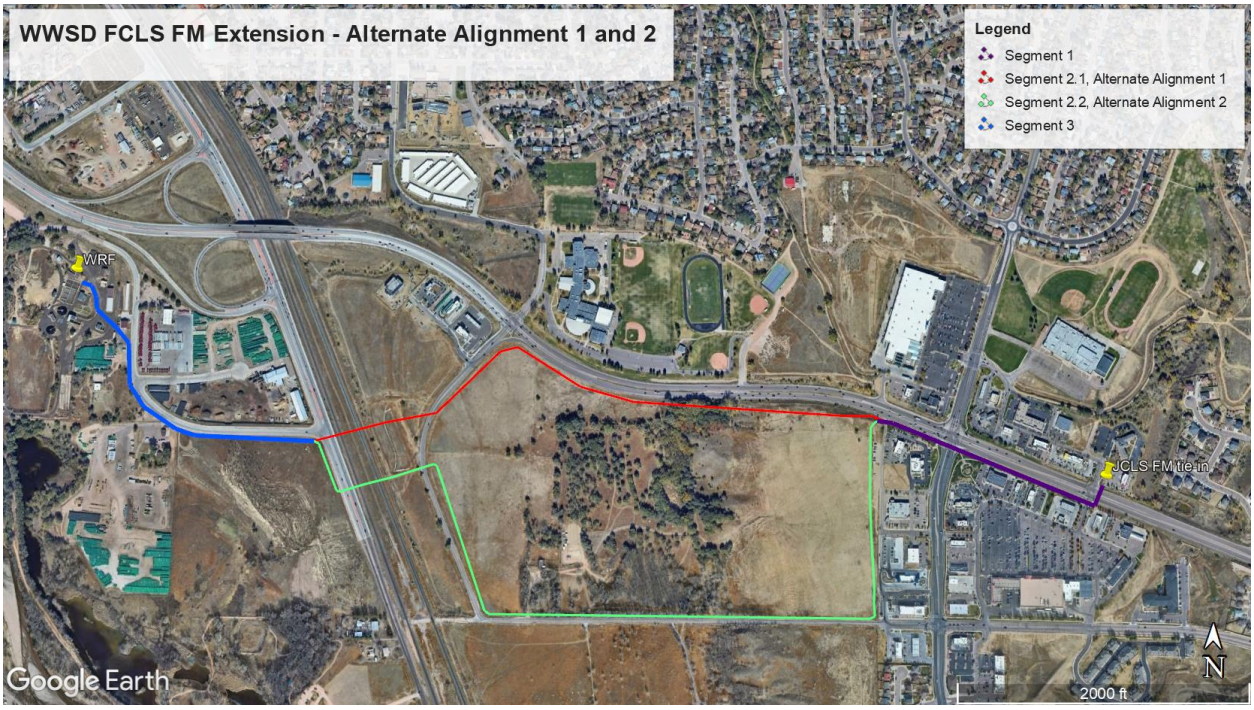


Figure 1 - Overall Routing Map for Alternate Alignments 1 and 2

The primary goal of this Alternate Alignment Routing Study is to assess and determine the routing most suitable for WWSD, considering the following:

- Utility conflicts. An alignment congested with other utilities will increase the number of utility crossings and make the pipeline more difficult to construct. This may increase the construction time and cost.
- Easement acquisitions required. While purchasing easements increases the cost of the JCLS FM extension and may result in delays to negotiate with property owners existing, this needs to be balanced with the increased access provided by a dedicated easement. This may make repairs and maintenance easier.
- Environmental Considerations. Environmental constraints may necessitate additional evaluations and permitting, which could delay construction and increase costs to mitigate the impacts.
- Constructability. A FM that is easier to construct will be less expensive, less impactful to the general public, and become operational sooner.
- Operations and Maintenance (O&M). A FM that is easier to maintain and operate will require less oversight, less time from operations staff, be less costly over time, and will impact the general public less.

- Cost. WWSD has a responsibility to its customers to balance the cost of projects with the benefits of the upgrades. Money spent on a more expensive alternative are not available for other infrastructure upgrades to meet future needs of the District.

3.0 Data Collection and Review Summary

Garver has collected the available utility, parcel, and as-built data applicable for this analysis. Additionally, Garver has performed a site investigation with WWSD, conducted an evaluation to determine the environmental considerations for each alignment, and gathered information on applicable permitting requirements for the JCLS FM extension Alternate Alignments.

3.1 Existing Utilities Data

Garver collected data from numerous utility owners in the vicinity of the Project. This information and as-builts provided by WWSD were used to fine-tune the alignments to avoid conflicts and maintain utility spacing, propose borings locations, determine new easement requirements, evaluate the environmental considerations, and provide an Opinion of Probabl Cost for each Alternate Alignment. Appendix A provides a list of the utilities and organizations contacted, contact details, and information regarding the location of utilities and wetlands. Garver staff also conducted two site walks to further evaluate the Alternate Alignments: one on June 29, 2023, with just Garver staff, and one on August 31, 2023, with Garver and WWSD staff. The information gathered has been added to the 10% Alternate Alignment Routing Study Drawings (Drawings), included in Appendix B.

3.2 Existing Easements

WWSD provided as-built drawings of the existing easements along Syracuse St and the railroad crossings adjacent to US-85. Along Syracuse St, there is a 30-feet wide wastewater easement on the northwest side of the right-of-way (ROW) that continues southwest and crosses the two railroad east of US-85. Alternate Alignment 1 uses a portion of the existing easements on Syracuse St, but only briefly. Most of WWSD's wastewater assets are located within existing ROWs so there are limited existing easements available.

3.3 New Easements

Permanent easements and temporary construction easements will be required along both Alternate Alignments. Below is a description of the areas where they will be required for each Segment and an explanation of why this approach is being considered. The Drawings include detailed parcel information and show the precise alignments.

Both Alternate Alignments are expected to require permanent and temporary construction easements along Segment 1 at the following locations:

- At the tie-in location, existing infrastructure and developed parcels will require temporary construction easements for the tie-in and bore pit for the crossing of Mesa Ridge Pkwy. A permanent easement is anticipated to maintain the FM and appurtenances.
- A temporary construction easement is anticipated along the south side of Mesa Ridge Pkwy to construct the FM within the ROW until the end of Segment 1. A couple of short segments are expected to require permanent easements to maintain spacing around existing utilities and

facilitate bore pit locations. Staying in the ROW in this area will avoid expensive landscaping present within the property lines and reduce easement costs in a very developed area.

Alternate Alignment 1 is expected to require permanent and temporary construction easements in the following locations along Segment 2.1:

- A permanent and temporary construction easement are expected along Mesa Ridge Pkwy. Many utilities are present within the ROW, and the area is largely undeveloped, so impacts of construction are expected to be minimal.
- A permanent and temporary construction easement are expected along the southeast side of Syracuse St. This side of Syracuse St is largely undeveloped, so impacts of construction are expected to be minimal and will avoid impacting the development on the northwest side of Syracuse St.
- A temporary construction easement is expected after crossing Syracuse St, along the shared easement with the Mesa Ridge Interceptor.
- A permanent and temporary construction easement are expected west of Syracuse St after moving away from the Mesa Ridge Interceptor to facilitate the railroad and US-85 crossings to the south side of Willow Spring Rd.

Alternate Alignment 2 is expected to require permanent and temporary construction easements in the following locations along Segment 2.2:

- A permanent and temporary construction easement are expected along the unnamed road west of Fountain Mesa Rd. The road is privately owned, with some of the easements expected to be very costly, so the proposed alignment stays west of the road in the undeveloped area where construction impacts are expected to be minimal.
- A permanent and temporary construction easement are expected along Mesa Rd heading west where the ROW is narrow to reduce construction impacts and avoid impacts to portions of Mesa Rd that were just replaced this year. These are not expected to be required past the point where the Mesa Rd ROW widens, as there appears to be plenty of space.
- A permanent and temporary construction easement are expected along the east side of Syracuse St. The area is undeveloped, so construction impacts are expected to be minimal, and this will avoid conflicts with an existing sewer line owned by Fountain within the ROW.
- A permanent and temporary construction easement are expected heading west from Syracuse St to cross the railroads and US-85.
- A permanent and temporary construction easement are expected heading north on the west side of US-85 to Willow Springs Rd. The area is largely undeveloped, so impacts of construction are expected to be minimal.

Both Alternate Alignments are expected to require permanent and temporary construction easements along Segment 3 at the following locations:

- A permanent and temporary construction easement is expected along the south and west side of Willow Spring Rd until reaching WWSD property. The Mesa Ridge interceptor alignment runs through the road, but the JCLS FM alignment is being kept off the road at the request of WWSD because it is made of concrete, which would be costly to replace. Where the ROW widens, no permanent or temporary construction easements are required.

For this study, it is assumed that locations with a permanent easement will require a 20-ft wide corridor centered on the FM. It is assumed that locations with a temporary easement will require a 20-ft wide area inside from the property line or the edge of the permanent easement (for a total of a 40-ft construction corridor where both temporary and permanent easements are required). The permanent and temporary construction easements are shown in detail on the Drawings. Table 1 summarizes the easement requirements for Alternate Alignment 1 and Table 2 summarizes the easement requirements for Alternate Alignment 2.

Table 1 - Alternate Alignment 1 Easements Summary Table

Alternate Alignment 1 - Easements Summary Table				
Parcel No.	Owner Name	Length	Permanent	Temporary
		ft	sq. ft (est)	sq. ft (est)
1.1	NATIONAL RETAIL PROPERTIES LP	25	500	2080
1.2	SRI REAL ESTATE PROPERTIES LLC	75	1500	1400
1.3	SUN COLORADO INVESTMENTS LLC	255		5100
1.4	R P ONE LLC C/O KBP FOODS	140		2800
1.5	YVONNE SHARK LIFETIME HERITAGE	110		2200
1.6	K & Y FRIENDS LLC	255		5100
1.7	STARBOARD MESA RIDGE DST	80	1600	1600
1.8	MPT OF FOUNTAIN FCER LLC	100	2000	1000
1.9	MESA RIDGE HOLDINGS LLC	80		1600
1.10	MESA RIDGE HOLDINGS LLC	311	3160	6220
1.11	TTRES CO FOUNTAIN METROPOLITAN LLC	505	10100	10100
1.12	FOUNTAIN INDUSTRIAL PARK LLC	360	7200	7200
1.13	FOUNTAIN INDUSTRIAL PARK LLC	2365	47300	47300
1.14	EVERGREEN-MESA RIDGE & SYRACUSE LLC	210	4200	4200
1.15	EVERGREEN-MESA RIDGE & SYRACUSE LLC	170	3400	3400
1.16	BURLINGTON NORTHERN SANTA FE RAILROAD	100	2000	
1.17	EVERGREEN-MESA RIDGE & SYRACUSE LLC	60	1200	
1.18	UNION PACIFIC RAILROAD	100	2000	
1.19	PARK VIEW LLC	1070	21400	21400
1.20	CDOT	110	2200	
	TOTALS (sq. ft)		**109760**	**122700**
	TOTALS (acres)		**2.5**	**2.8**

Table 2 - Alternate Alignment 2 Easements Summary Table

Alternate Alignment 2 - Easements Summary Table				
Parcel No.	Owner Name	Length	Permanent	Temporary
		ft	sq. ft (est)	sq. ft (est)
2.1	NATIONAL RETAIL PROPERTIES LP	25	500	2080
2.2	SRI REAL ESTATE PROPERTIES LLC	75	1500	1400
2.3	SUN COLORADO INVESTMENTS LLC	255		5100
2.4	R P ONE LLC C/O KBP FOODS	140		2800
2.5	YVONNE SHARK LIFETIME HERITAGE	110		2200
2.6	K & Y FRIENDS LLC	255		5100
2.7	STARBOARD MESA RIDGE DST	80	1600	1400
2.8	MPT OF FOUNTAIN FCER LLC	100	2000	1000
2.9	MESA RIDGE HOLDINGS LLC	80		1600
2.10	MESA RIDGE HOLDINGS LLC	280	2920	5600
2.11	TTRES CO FOUNTAIN METROPOLITAN LLC	925	18500	18500
2.12	FOUNTAIN INDUSTRIAL PARK LLC	1650	33000	33000
2.13	FOUNTAIN INDUSTRIAL PARK LLC	800	16000	16000
2.14	EVERGREEN-MESA RIDGE & SYRACUSE LLC	235	4700	4700
2.15	BURLINGTON NORTHERN SANTA FE RAILROAD	100	2000	
2.16	EVERGREEN-MESA RIDGE & SYRACUSE LLC	70	1400	
2.17	UNION PACIFIC RAILROAD	70	1400	
2.18	PARK VIEW LLC	1505	30500	30500
2.19	CDOT	110	2200	
	TOTALS (sq. ft)		**118220**	**130980**
	TOTALS (acres)		**2.7**	**3.0**

3.4 Environmental Data and Report

Site investigations and observations have enabled Garver to consult the environmental aspects and impacts on the identified construction areas. The desktop environmental study of the alignment alternates found the following:

- No threatened or endangered species critical habitats are present.
- Three identified migratory birds may be present.
- Two potential wetland areas are present.
- Water quality and detention ponds are present west of Syracuse St that are not jurisdictional.
- Invasive weed species are present, and noxious/invasive weeds have been identified in the County.
- There are no requirements for construction related to spills or underground storage tanks found.

As the engineering design progresses, additional environmental-related permitting evaluations may be required. The environmental report is included in Appendix C.

3.5 Permitting, Regulations, and Approvals

3.5.1 County and Local/Regional

Below is list of County and local permitting, regulations, and approval items currently identified:

- 1041 Regulations: Areas and Activities of State Interest
- Design Deviation Request
- Construction Design Review
- Construction in the Right-of-Way
- Stormwater, Erosion, Municipal Separate Storm Sewer System controls, practices and programs
- Pike's Peak Regional Building Department Review
- Railroads
- Parcel Owners

3.5.2 State and Federal

Below is list of State and Federal permitting, regulations and approval items currently identified:

- Colorado Department of Public Health and Environment
    - Basis of Design Report (including application submission, requests for information, etc.)
    - Regulation 11
    - Design Criteria for Potable Water Systems
    - Design Criteria for Wastewater Systems
    - Construction Completion
- Colorado Department of Transportation
- Colorado Parks and Wildlife
- US Fish and Wildlife Services

4.0 Alternate Force Main Extension Alignment Analysis

4.1 Alternate Alignment 1

4.1.1 General Overview

Alternate Alignment 1 is the more direct routing from the existing JCLS FM to the WRF, at approximately 9,000 feet in length. It begins upstream of the existing 12-inch force main discharge point, with the expected tie-in approximately 0.2 miles east of the intersection of Fountain Mesa Rd and Mesa Ridge Pkwy. Alternate Alignment 1 will cross 6 roadways and 2 railroads, with 4 segments of trenchless construction as follows:

1. Mesa Ridge Pkwy (North-South), trenchless construction
2. The entrance to a Safeway shopping center (East-West), trenchless construction
3. Fountain Mesa Rd, East-West, trenchless construction
4. An unnamed intermediate roadway (East-West), open-cut construction
5. Syracuse St (East-West), open-cut construction
6. Two consecutive railroads and US-85 (East-West), trenchless construction

Figure 2 shows the general route of Alternate Alignment 1. Additional details are included in the Drawings.



Figure 2 - JCLS FM Extension Alternate Alignment 1

4.1.2 Hydraulics Overview

Alternate Alignment 1 has a high point of 5,753 feet of elevation, occurring 1,100 feet from the tie-in location. An air release and vacuum breaker valve (ARV) at this high-point is required to allow the line to drain between cycles and fill at the start of each cycle without becoming air-locked. The elevation drops for the next 4,000 feet, at some points very steeply, to an elevation of approximately 5,640 feet. Garver recommends a second ARV along this steep section to prevent air entrainment partway down the FM. The remainder of the alignment elevation is relatively flat, and it is expected that the FM will adequately drain between pumping cycles. The general elevation profile of Alternate Alignment 1 is shown in Figure 3. Additional elevation details are included in the Drawings.

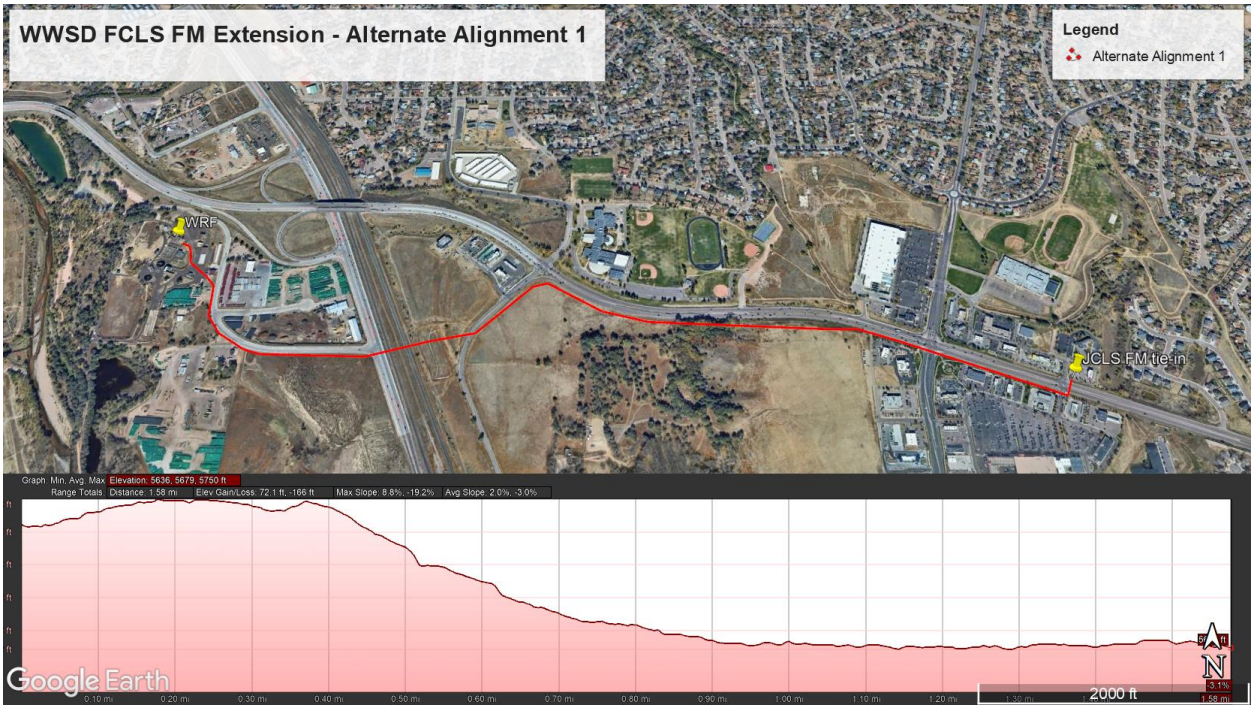


Figure 3 - JCLS FM Extension Alternate Alignment 1 and Profile

4.1.3 Construction Overview

The constructability of Alternate Alignment 1 is impacted by the density of businesses and presence of other utilities. Segment 1 is densely populated with businesses, which may slow down construction and increase installation costs. There are numerous trees and significant landscaping within the property lines of the businesses, but inside the ROW is a shallow drainage channel where the pipe could be installed more easily and with fewer landscape recovery efforts. Segment 2.1 along Mesa Ridge Pkwy and Syracuse St includes numerous other utilities within the ROW that would make installation challenging, so acquiring easements is recommended to improve the constructability of this alignment. The presence of so many other utilities means significant potholing will be required and several utility crossings may be required. Acquiring easements to cross under the two railroads will be time-consuming and may delay construction in that area, but this is unavoidable. Segment 3 will require new easements to avoid

construction in the concrete road, but there are few utility conflicts until the alignment reaches WWSD property. From the edge of WWSD property to the discharge point at the WRF, there is significant utility congestion and numerous crossings are expected.

4.1.4 O&M Considerations

The primary O&M considerations for Alternate Alignment 1 include access in high-traffic areas, density of other utilities, and the ability of the FM to clear solids to prevent buildup. The prevalence of so many businesses along Segment 1, and planned developments along Segment 2.1 will make access more difficult and may result in complaints when maintenance is required. The flat section of the FM in Segment 2.1 and Segment 3 may be prone to collecting solids. This is especially true until the existing 12-inch JCLS FM is replaced with a 16-inch FM. Once the 12-inch line is upsized, the pump output from JCLS will increase and pipe velocities in the flat portion of the FM will increase, reducing the likelihood of solids buildup.

4.2 Alternate Alignment 2

4.2.1 General Overview

Alternate Alignment 2 is the less direct routing from the existing JCLS FM to the WRF, at approximately 11,000 feet in length. It begins upstream of the existing 12-inch force main discharge point, with the expected tie-in approximately 0.2-miles east of the intersection of Fountain Mesa Rd and Mesa Ridge Pkwy. Alternate Alignment 2 will cross 6 roadways and 2 railroads, with 4 segments of trenchless construction as follows:

1. Mesa Ridge Pkwy (North-South), trenchless construction
2. The entrance to a Safeway shopping center (East-West), trenchless construction
3. Fountain Mesa Rd, East-West, trenchless construction
4. An unnamed intermediate roadway (East-West), open-cut construction
5. Syracuse St (East-West), open-cut construction
6. Two consecutive railroads and US-85 (East-West), trenchless construction

Figure 4 shows the general route of Alternate Alignment 2. Additional details are included in the Drawings.



Figure 4 - JCLS FM Extension Alternate Alignment 2

4.2.2 Hydraulics Overview

Alternate Alignment 2 has a high point of 5,753 feet of elevation, occurring 1,100 feet from the tie-in location. An ARV at this high-point is required to allow the line to drain between cycles and fill at the start of each cycle without becoming air-locked. The elevation drops for the next 4,500 feet, at some points very steeply, to an elevation of approximately 5,633 feet. Garver recommends a second ARV along this steep section to prevent air entrainment partway down the FM. This low elevation is relatively flat for the next 1,500 feet before raising up slightly to approximately 5,640 feet of elevation for the remainder of the alignment. Due to this lower elevation section, it is likely there will be stagnant wastewater in the FM between cycles. The general elevation profile of Alternate Alignment 2 is shown in Figure 5. Additional elevation details are included in the Drawings.

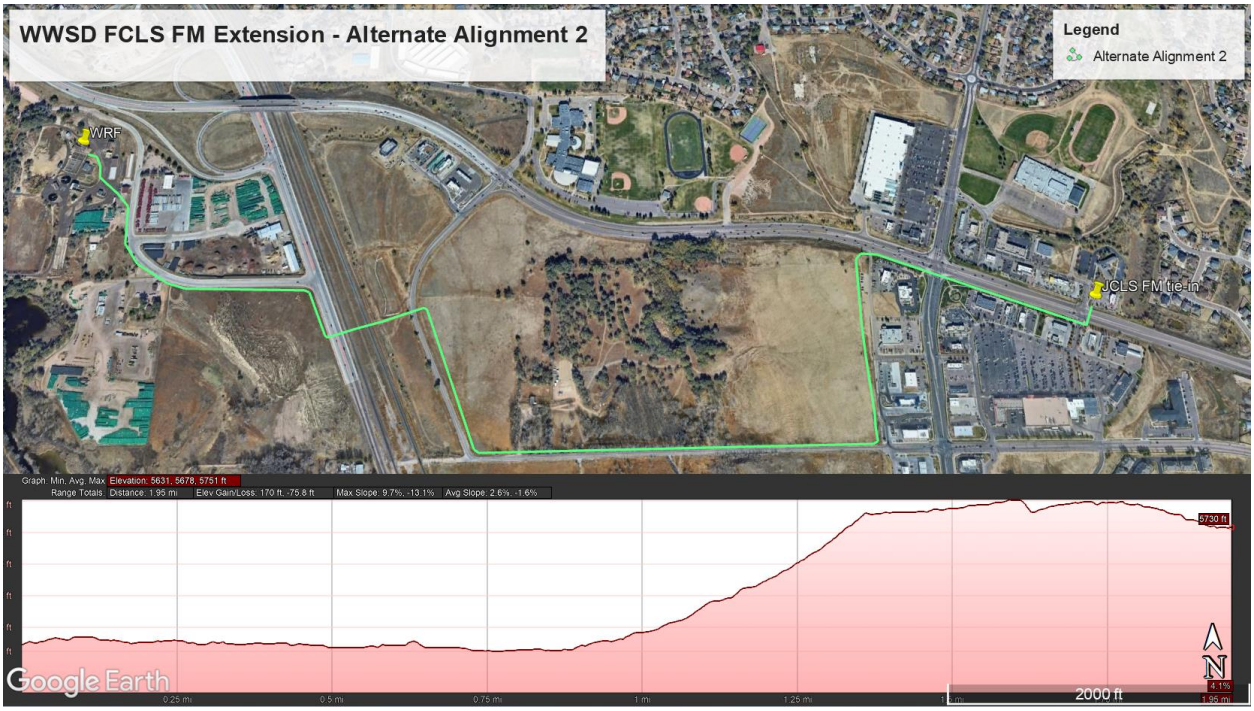


Figure 5 - JCLS FM Extension Alternate Alignment 2 and Profile

4.2.3 Construction Overview

The constructability of Alternate Alignment 2 is impacted by the density of businesses and presence of other utilities. Segment 1 is densely populated with businesses, which may slow down construction and increase installation costs. There are numerous trees and significant landscaping within the property lines of the businesses, but inside the ROW is a shallow drainage channel where the pipe could be installed more easily and with fewer landscape recovery efforts. Segment 2.2, to the south along the unnamed road west of Fountain Mesa Rd includes other utilities and the road is privately owned by expensive businesses to the east; there is no ROW. Easements on the property west of this road are therefore recommended. Along this alignment conflicts with other utilities are not expected, making installation easier. Similarly, Segment 2.2 along Mesa Rd, Syracuse St, and US-85 includes few other utilities, so an

easier installation is expected here as well. Acquiring easements to cross under the two railroads will be time-consuming and may delay construction in that area, but this is unavoidable. Segment 3 will require new easements to avoid construction in the concrete road, but there are few utility conflicts until the alignment reaches WWSD property. From the edge of WWSD property to the discharge point at the WRF, there is significant utility congestion and numerous crossings are expected. Alternate Alignment 2 is overall likely to be easier to construct on a per linear foot basis. But being longer than Alternate Alignment 1, the overall construction is likely to take longer.

4.2.4 O&M Considerations

The primary O&M considerations for Alternate Alignment 2 include access in high-traffic areas, density of other utilities, and the ability of the FM to clear solids to prevent buildup. The prevalence of so many businesses along Segment 1 will make access more difficult and may result in complaints when maintenance is required. But the less congested area along Segment 2.2 will make access easier there. The 1,500-foot low elevation section of FM in Segment 2.2 may be prone to gas buildup if the time between pumping cycles is long enough, and this low section followed by the long flat section in Segment 3 may be prone to collecting solids. This is especially true until the 12-inch FM is replaced with a 16-inch FM. Once the 12-inch line is upsized, the pump output from JCLS will increase and pipe velocities in the flat portion of the FM will increase, reducing the likelihood of solids buildup. Overall, access is likely to be easier for Alternate Alignment 2 than Alternate Alignment 1, but solids buildup concerns are likely to be more significant. The longer FM length for Alternate Alignment 2 also means there will be more pipe to maintain than Alternate Alignment 1.

5.0 Cost Evaluation

An Opinion of Probable Cost (OPC) was prepared for each Alternate Alignment. Materials and construction costs were based on equipment quotes received from vendors and installed costs of other projects in the area, including the Upper West to East Loop. It is expected that the pipe material for the FM will be either PVC or HDPE, but vendors have indicated that the prices are highly variable. At the time quotes were received for pipe, PVC was a higher cost, so to be conservative and account for market volatility, the OPC used this unit price for the estimate. If HDPE continues to be the cheaper option, pipe costs remain relatively consistent, and HDPE is selected as the preferred pipe material, the FM pipe prices may be lower than shown in the estimates below. To estimate the cost of Permanent and Temporary Construction Easements, the Land Value of each impacted parcel was obtained from the El Paso County Tax Assessor, then multiplied by 50% for a permanent easement and 10% for a temporary easement, to establish a unit cost for each parcel (i.e., $/acre) and easement type (Permanent vs Temporary). In determining an initial cost estimate for easement acquisitions, a unit cost of $15,000 per landowner estimate is used at this planning level phase per subconsultant feedback. This information has been incorporated into the OPC for all alternate alignments and updated accordingly in the figures and tables provided.

The Alternate Alignment OPCs shared in this section includes additional costs not typically included in construction cost estimates to estimate all expected costs after the preliminary design (30%). This includes geotechnical engineering, subsurface utility engineering, survey, contractor markup, detailed design engineering, and construction engineering.

Based on the recommended practice of the Association for the Advancement of Cost Engineering (AACE), at 10% design a Class 4 cost estimate is appropriate. The expected accuracy of an AACE Class 4 cost estimate is -30% on the low end to +50% on the high end. To clearly convey this range of costs, the estimates below include the low and high end of this estimate range as well as the estimated value. The Opinion of Probable Cost for Alternate Alignment 1 is included in Table 3. The Opinion of Probable Cost for Alternate Alignment 2 is included in Table 4.

OPINION OF PROBABLE COST (OPC): Jimmy Camp Lift Station 16-inch Force Main Extension Alternate 1

PROJECT: **Widefield Water and Sanitation District - Jimmy Camp Lift Station 16-inch Force Main Extension Design**
SGM NO.: 22W23080
DATE: 4-Jan-24
OPC LEVEL: Planning
PREPARED BY: Austin Chavez, EIT
REVIEWED BY: Jason Coontz, PE and Rick Huggins, PE

GARVER
Colorado Water Team
Denver, CO
TEL 303.721.6932
www.GarverUSA.com

PROJECT DESCRIPTION/ASSUMPTIONS:

A planning level cost opinion for a 16-inch Force Main extension of the existing 12-inch Force Main, for a capacity improvement to meet current and near-term future demands; 16-inch PVC pipe, 2 Air Release Vaults, 4 trenchless crossings, 3 isolation valves, Geotechnical, Survey and SUE services, permanent and temporary construction easements, easement acquisition, agency and public services.

INSTALLATION ITEMS		UNIT	QUANTITY	UNIT COST	TOTAL COST	% OF (a)
Pipeline Costs	16-inch PVC (Open Cut Installation)	LF	9,000	$ 190	$ 1,710,000	37.8%
	16-inch PVC (Trenchless Install, Casing Piping, Spacers)	LF	1,030	$ 850	$ 876,000	19.4%
	Bell Joint Restraints	EA	135	$ 800	$ 108,000	2.4%
	16-inch Isolation Valves	EA	3	$ 20,000	$ 60,000	1.3%
	Air Valve and Vault (Size TBD)	EA	2	$ 25,000	$ 50,000	1.1%
	Thrust Blocks/CRAs	CY	35	$ 610	$ 21,000	0.5%
	Erosion Control and Re-vegetation	LS	1	$ 20,000	$ 20,000	0.4%
	Parcel and ROW Recovery	LS	1	$ 300,000	$ 300,000	6.6%
Easements	Permanent Easement (50% of Land Value)	LS	1	$ 635,000	$ 635,000	14.0%
	Temporary Easement (10% of Land Value, 1 year)	LS	1	$ 140,000	$ 140,000	3.1%
	Acquisition	EA	20	$ 15,000	$ 300,000	6.6%
Exploration	Geotechnical Investigation, Soil Testing, and Report	LS	1	$ 80,000	$ 80,000	1.8%
	Subsurface Utility Engineering, and Report	LS	1	$ 75,000	$ 75,000	1.7%
	Survey and Report	LS	1	$ 45,000	$ 45,000	1.0%
Agency and Public	Agency Coordination, Applications and Permitting	LS	1	$ 50,000	$ 50,000	1.1%
	Community Outreach and Public Relations	LS	1	$ 55,000	$ 55,000	1.2%
				SUBTOTAL OF INSTALLATION ITEMS:	**$ 4,525,000**	**(a)**

CONTRACTOR MARKUPS	% OF (a)	ESTIMATED COST	% OF (b)
Bonds/Insurance	1.3%	$ 59,000	4.4%
Management/Superintendent	4.0%	$ 181,000	13.7%
Mobilization	1.5%	$ 68,000	5.1%
Traffic Control	2.5%	$ 113,000	8.5%
Overhead and Profit	20.0%	$ 905,000	68.3%
SUBTOTAL OF CONTRACTOR INSTALLATION COSTS:		**$ 1,326,000**	**(b)**

ENGINEER'S OPINION OF TOTAL CONSTRUCTION COSTS (a+b) **$ 5,851,000 (c)**

OTHER PROJECT COSTS	% OF (c)	ESTIMATED COST	% OF (d)
Detailed Design Engineering	6.0%	$ 351,000	23.1%
Construction Engineering	5.0%	$ 293,000	19.3%
Contingencies	15.0%	$ 878,000	57.7%
SUBTOTAL OF OTHER PROJECT COSTS:		**$ 1,522,000**	**(d)**

	OPC - 30%	$ 5,161,000
ENGINEER'S OPINION OF PROBABLE COST (a+b+d)	**OPC**	**$ 7,373,000**
	OPC + 50%	$ 11,060,000

Engineer's Opinion of Probable Cost (OPC) Summary	Estimated Cost	% of Total
Pipeline Costs	$ 4,525,000	61%
Contractor Markups	$ 1,326,000	18%
Other Project Costs	$ 1,522,000	21%
OPCC - 30%	$ 5,161,000	
Opinion of Probable Construction Cost (OPCC)	**$ 7,373,000**	
OPCC + 50%	$ 11,060,000	

Table 3 - Alternate Alignment 1 Opinion of Probable Cost

OPINION OF PROBABLE COST (OPC): Jimmy Camp Lift Station 16-inch Force Main Extension Alternate 2

PROJECT: **Widefield Water and Sanitation District - Jimmy Camp Lift Station 16-inch Force Main Extension Design**
SGM NO.: 22W23080
DATE: 4-Jan-24
OPC LEVEL: Planning
PREPARED BY: Austin Chavez, EIT
REVIEWED BY: Jason Coontz, PE and Rick Huggins, PE

GARVER
Colorado Water Team
Denver, CO
TEL 303.721.6932
www.GarverUSA.com

PROJECT DESCRIPTION/ASSUMPTIONS:

A planning level cost opinion for a 16-inch Force Main extension of the existing 12-inch Force Main, for a capacity improvement to meet current and near-term future demands; 16-inch PVC pipe, 2 Air Release Vaults, 4 trenchless crossings, 3 isolation valves, Geotechnical, Survey and SUE services, permanent and temporary construction easements, easement acquisition, agency and public services.

INSTALLATION ITEMS		UNIT	QUANTITY	UNIT COST	TOTAL COST	% OF (a)
Pipeline Costs	16-inch PVC (Open Cut Installation)	LF	11,000	$ 190	$ 2,090,000	42.6%
	16-inch PVC (Trenchless Install, Casing Piping, Spacers)	LF	1,030	$ 850	$ 876,000	17.9%
	Bell Joint Restraints	EA	165	$ 800	$ 132,000	2.7%
	16-inch Isolation Valves	EA	3	$ 20,000	$ 60,000	1.2%
	Air Valve and Vault (Size TBD)	EA	2	$ 25,000	$ 50,000	1.0%
	Thrust Blocks/CRAs	CY	40	$ 610	$ 24,000	0.5%
	Erosion Control and Re-vegetation	LS	1	$ 25,000	$ 25,000	0.5%
	Parcel and ROW Recovery	LS	1	$ 360,000	$ 360,000	7.3%
Easements	Permanent Easement (50% of Land Value)	LS	1	$ 540,000	$ 540,000	11.0%
	Temporary Easement (10% of Land Value, 1 year)	LS	1	$ 120,000	$ 120,000	2.4%
	Acquisition	EA	19	$ 15,000	$ 285,000	5.8%
Exploration	Geotechnical Investigation, Soil Testing, and Report	LS	1	$ 95,000	$ 95,000	1.9%
	Subsurface Utility Engineering, and Report	LS	1	$ 90,000	$ 90,000	1.8%
	Survey and Report	LS	1	$ 55,000	$ 55,000	1.1%
Agency and Public	Agency Coordination, Applications and Permitting	LS	1	$ 50,000	$ 50,000	1.0%
	Community Outreach and Public Relations	LS	1	$ 55,000	$ 55,000	1.1%
				SUBTOTAL OF INSTALLATION ITEMS:	**$ 4,907,000**	**(a)**

CONTRACTOR MARKUPS	% OF (a)	ESTIMATED COST	% OF (b)
Bonds/Insurance	1.3%	$ 64,000	4.5%
Management/Superintendent	4.0%	$ 196,000	13.6%
Mobilization	1.5%	$ 74,000	5.1%
Traffic Control	2.5%	$ 123,000	8.6%
Overhead and Profit	20.0%	$ 981,000	68.2%
SUBTOTAL OF CONTRACTOR INSTALLATION COSTS:		**$ 1,438,000**	**(b)**

ENGINEER'S OPINION OF TOTAL CONSTRUCTION COSTS (a+b) **$ 6,345,000 (c)**

OTHER PROJECT COSTS	% OF (c)	ESTIMATED COST	% OF (d)
Detailed Design Engineering	6.0%	$ 381,000	23.1%
Construction Engineering	5.0%	$ 317,000	19.2%
Contingencies	15.0%	$ 952,000	57.7%
SUBTOTAL OF OTHER PROJECT COSTS:		**$ 1,650,000**	**(d)**

	OPC - 30%	$ 5,597,000
ENGINEER'S OPINION OF PROBABLE COST (a+b+d)	**OPC**	**$ 7,995,000**
	OPC + 50%	$ 11,993,000

Engineer's Opinion of Probable Cost (OPC) Summary	Estimated Cost	% of Total
Pipeline Costs	$ 4,907,000	61%
Contractor Markups	$ 1,438,000	18%
Other Project Costs	$ 1,650,000	21%
OPCC - 30%	$ 5,597,000	
Opinion of Probable Construction Cost (OPCC)	**$ 7,995,000**	
OPCC + 50%	$ 11,993,000	

Table 4 - Alternate Alignment 2 Opinion of Probable Cost

6.0 Recommendations

Following the Alternate Alignment Routing Study Workshop, WWSD directed Garver to evaluate a third alternate alignment. The tie-in for Alternate Alignment 3 is further upstream on the existing 12-inch Force Main. After the tie-in, Segment 1B is routed southward through open space, paralleling the Fountain Valley Conduit – Lateral, to Cross Creek Ave, then proceeds westward to Mesa Rd. (For clarity, the first segment of Alternate Alignment 1 and 2 will be referred to as Segment 1A.) Alternate Alignment 3 then follows the remaining route of Alternate Alignment 2 for Segment 2.2 and Segment 3 to the WRF. See Figure 6 for the overall map of all alternate alignments and segments.

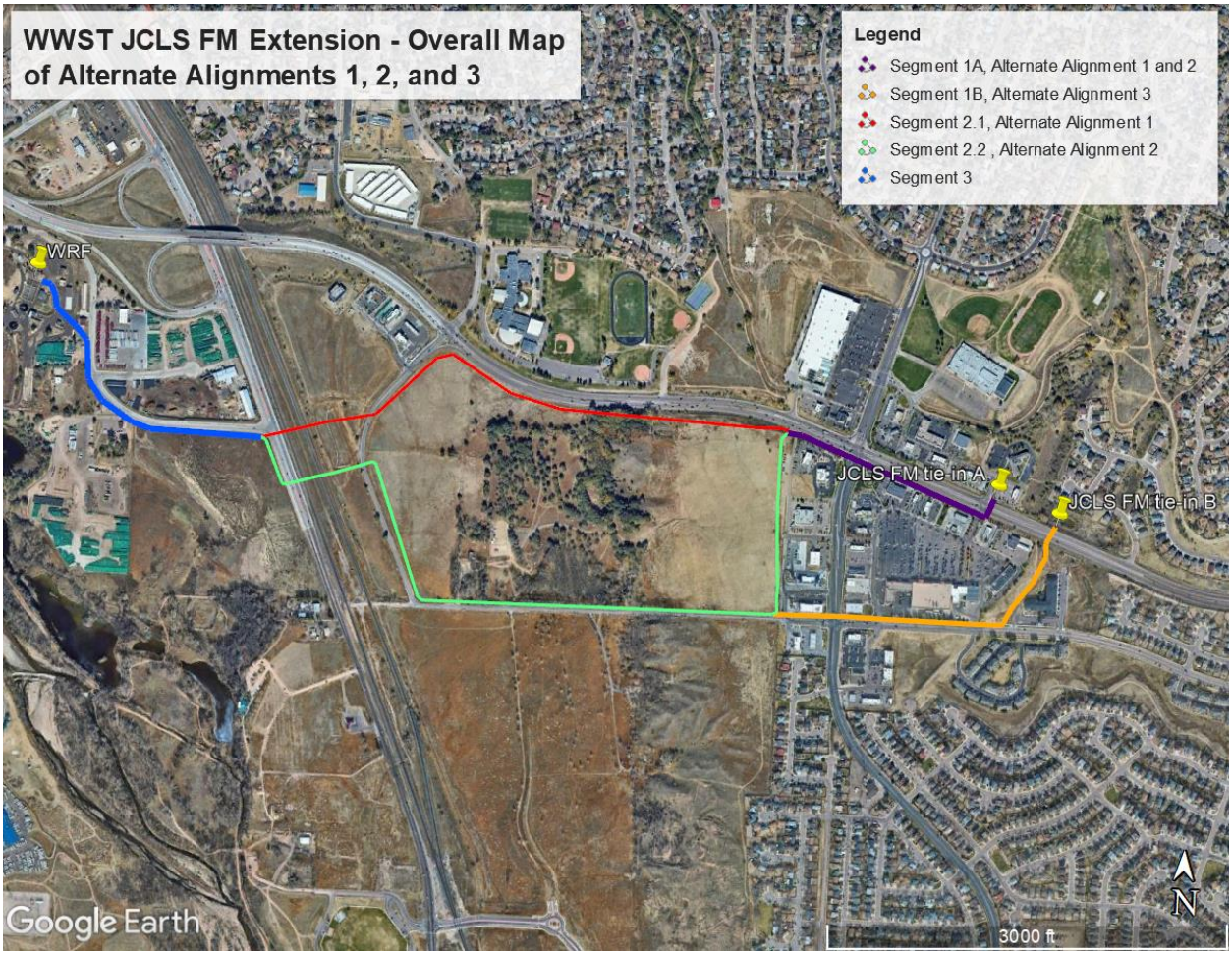


Figure 6 - Overall Routing Map for Alternate Alignments 1, 2, and 3

6.1 Alternate Alignment 3

6.1.1 General Overview

Alternate Alignment 3 is a variation of Alternate Alignment 2, from the existing JCLS FM to the WRF, at approximately 10,200 feet in length. It begins upstream of the existing 12-inch force main discharge point, with the expected tie-in approximately 0.3 miles east of the intersection of Fountain Mesa Rd and Mesa Ridge Pkwy. Alternate Alignment 3 will cross 6 roadways and 2 railroads, with 3 segments of trenchless construction as follows:

1. Mesa Ridge Pkwy (North-South), trenchless construction
2. An entrance to a Safeway shopping center (East-West), open-cut construction
3. Another entrance to a Safeway shopping center (East-West), open-cut construction
4. Fountain Mesa Rd (East-West), trenchless construction
5. Syracuse St (East-West), open-cut construction
6. Two consecutive railroads and US-85 (East-West), trenchless construction

Figure 7 shows the general route of Alternate Alignment 3. Additional details are included in the Drawings.



Figure 7 - JCLS FM Extension Alternate Alignment 3

6.1.2 New Easements

Alternate Alignment 3 is expected to require permanent and temporary construction easements in the following locations:

- At the tie-in location existing infrastructure and developed parcels will require temporary construction easements for the tie-in and bore pit for the crossing of Mesa Ridge Pkwy. A permanent easement is anticipated to maintain the FM and appurtenances.
- A permanent and temporary construction easement are expected along the open space between the Safeway shopping center and the Villas at Mesa Ridge apartment complex.
- A permanent and temporary construction easement are expected along Cross Creek Ave, heading west until crossing Fountain Mesa Rd.
- A permanent and temporary construction easement are expected along Mesa Rd heading west where the ROW is narrow to reduce construction impacts and avoid impacts to portions of Mesa Rd that were just replaced this year. These are not expected to be required past the point where the Mesa Rd ROW widens, as there appears to be plenty of space.
- A permanent and temporary construction easement are expected along the east side of Syracuse St. The area is undeveloped, so construction impacts are expected to be minimal, and this will avoid conflicts with an existing sewer line owned by Fountain within the ROW.
- A permanent and temporary construction easement are expected heading west from Syracuse St to cross the railroads and US-85.
- A permanent and temporary construction easement are expected heading north on the west side of US-85 to Willow Springs Rd. The area is largely undeveloped, so impacts of construction are expected to be minimal.
- A permanent and temporary construction easement is expected along the south and west side of Willow Spring Rd until reaching WWSD property. The Mesa Ridge interceptor alignment runs through the road, but the JCLS FM alignment is being kept off the road at the request of WWSD because it is made of concrete, which would be costly to replace. Where the ROW widens, no permanent or temporary construction easements are required.

Table 5 - Alternate Alignment 3 Easements Summary Table

Alternate Alignment 3 - Easements Summary Table				
Parcel No.	**Owner Name**	**Length ft**	**Permanent sq. ft (est)**	**Temporary sq. ft (est)**
3.1	MESA RIDGE METRO DISTRICT NO 1 CO RS WELLS LLC	25	500	2080
3.2	STARBOARD MESA RIDGE DST	225	4500	2000
3.3	STARBOARD MESA RIDGE DST	585	11700	11700
3.4	SILVERWOOD INVESTMENTS LP	125	2500	2500
3.5	BCIG6945 LLC	110	2200	2200
3.6	SAFEWAY STORES 46 INC C/O PARADIGM TAX GROUP	315	6300	6300
3.7	STARBOARD MESA RIDGE DST	290	5800	5800
3.8	FOOTHILLS PROPERTY GROUP LLC	265	5300	2080
3.9	SFP-E LLC	340	6800	6800
3.10	FOUNTAIN INDUSTRIAL PARK LLC	1430	27400	28600
3.11	FOUNTAIN INDUSTRIAL PARK LLC	800	16000	16000
3.12	EVERGREEN-MESA RIDGE & SYRACUSE LLC	235	4700	4700
3.13	BURLINGTON NORTHERN SANTA FE RAILROAD	100	2000	
3.14	EVERGREEN-MESA RIDGE & SYRACUSE LLC	70	1400	
3.15	UNION PACIFIC RAILROAD	70	1400	
3.16	PARK VIEW LLC	1525	30500	30500
3.17	CDOT	110	2200	
	TOTALS (sq. ft)		**131200**	**121260**
	TOTALS (acres)		**3.0**	**2.8**

6.1.3 Hydraulics Overview

Alternate Alignment 3 has similar hydraulics as Alternate Alignment 2 but has a lower alignment high-point that may slightly increase the output flow from JCLS by decreasing the pump head. Alternate Alignment 3 has a high point of 5,741 feet of elevation, occurring 2,400 feet from the tie-in location. An ARV at this high-point is required to allow the line to drain between cycles and fill at the start of each cycle without becoming air-locked. The elevation drops for the next 3,100 feet, at some points very steeply, to an elevation of approximately 5,633 feet. Garver recommends a second ARV along this steep section to prevent air entrainment partway down the FM. This low elevation is relatively flat for the next 1,500 feet before raising up slightly to approximately 5,640 feet of elevation for the remainder of the alignment. Due to this lower elevation section, it is likely there will be stagnant wastewater in the FM between cycles. The general elevation profile of Alternate Alignment 3 is shown in Figure 8. Additional elevation details are included in the Drawings.

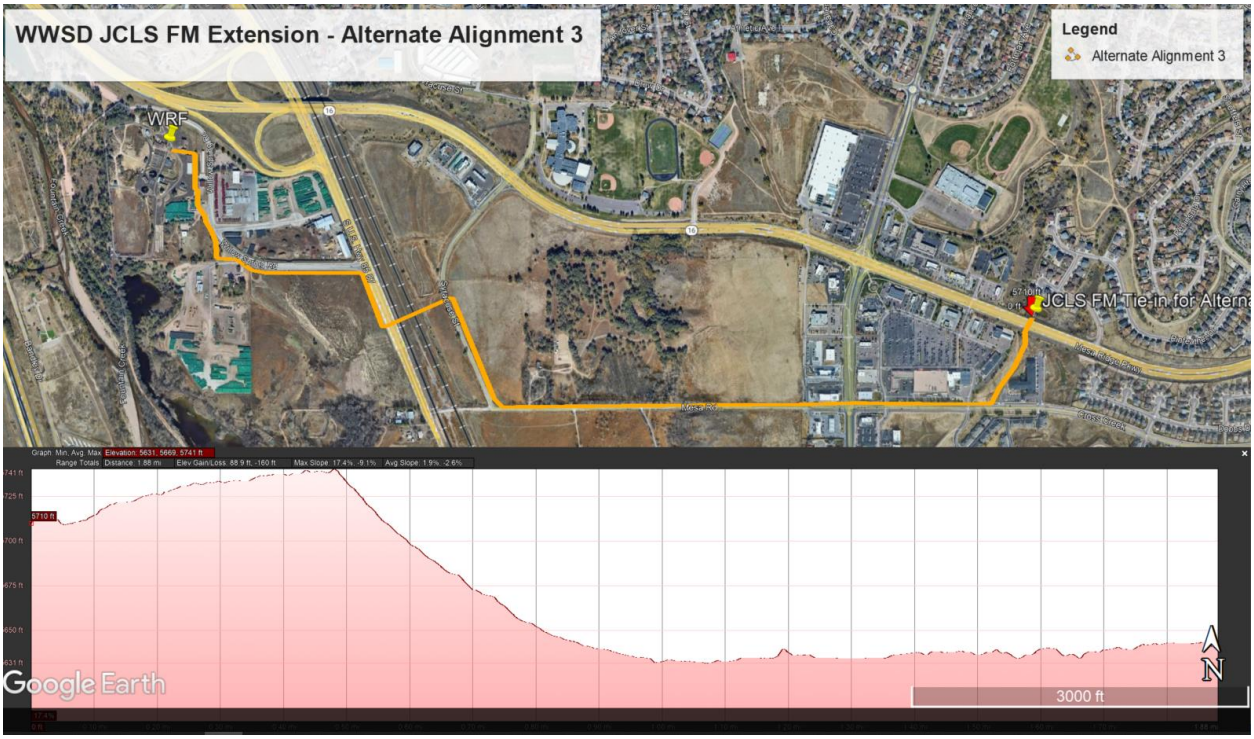


Figure 8 - JCLS FM Extension Alternate Alignment 3 and Profile

6.1.4 Construction Overview

The constructability of Alternate Alignment 3 is primarily impacted by the density of businesses and presence of other utilities. Segment 1B along the open space behind the Safeway shopping center should present minimal constructability issues, though an easement is required. Segment 1B along Cross Creek Ave includes the supply access to the Safeway shopping center businesses and is densely populated with business further west, which may slow down construction and increase installation costs. Landscaping will be difficult to avoid, there are other utilities to avoid along Cross Creek Ave, and easements will be required. Segment 2.2 along Mesa Rd, Syracuse St, and US-85 includes few other utilities, so an easier installation is expected here. Acquiring easements to cross under the two railroads will be time-consuming and may delay construction in that area, but this is unavoidable. Segment 3 will require new easements to avoid construction in the concrete road, but there are few utility conflicts until the alignment reaches WWSD property. From the edge of WWSD property to the discharge point at the WRF, there is significant utility congestion and numerous crossings are expected. Alternate Alignment 3 is overall likely to be easier to construct on a per linear foot basis than Alternate Alignment 1, similar to Alternate Alignment 2. Being longer than Alternate Alignment 1 and shorter than Alternate Alignment 2, the overall construction time for is likely to fall between them.

6.1.5 O&M Considerations

The primary O&M considerations for Alternate Alignment 3 include access in high-traffic areas and the ability of the FM to clear solids to prevent buildup. The open area portion of Segment 1B will be easier to maintain than Segment 1A, but the Cross Creek Ave portion of Segment 1B may be similarly difficult to

maintain and prone to complaints as Segment 1A. But the less congested area along Segment 2.2 will make access easier. The 1,500-foot low elevation section of FM in Segment 2.2 may be prone to gas buildup if the time between pumping cycles is long enough, and this low section followed by the long flat section in Segment 3 may be prone to collecting solids. This is especially true until the 12-inch FM is replaced with a 16-inch FM. Once the 12-inch line is upsized, the pump output from JCLS will increase and pipe velocities in the flat portion of the FM will increase, reducing the likelihood of solids buildup. Overall, access is likely to be easier for Alternate Alignment 3 than Alternate Alignment 1 or 2. The FM length for Alternate Alignment 3 also means there will be more pipe to maintain than Alternate Alignment 1.

6.1.6 Cost Evaluation

An OPC was prepared for Alternate Alignment 3, following the same criteria and assumptions as Alternate Alignments 1 and 2. A summary table showing the cost for all three Alternate Alignments, including the expected range of accuracy from -30% to +50% for AACE Class 4 OPCs are included in Table 6**Error! Reference source not found.**. The detailed OPC for Alternate Alignment 3 is included in Table 7.

	Alternate Alignment 1	Alternate Alignment 2	Alternate Alignment 3
OPC - 30%	$ 5,161,000	$ 5,597,000	$ 5,396,000
OPC	**$ 7,373,000**	**$ 7,995,000**	**$ 7,709,000**
OPC + 50%	$ 11,060,000	$ 11,993,000	$11,564,000

Table 6 - OPC Summary Table

OPINION OF PROBABLE COST (OPC): Jimmy Camp Lift Station 16-inch Force Main Extension Alternate 3

PROJECT: **Widefield Water and Sanitation District - Jimmy Camp Lift Station 16-inch Force Main Extension Design**
SGM NO.: 22W23080
DATE: 4-Jan-24
OPC LEVEL: Planning
PREPARED BY: Austin Chavez, EIT
REVIEWED BY: Jason Coontz, PE and Rick Huggins, PE

GARVER
Colorado Water Team
Denver, CO
TEL 303.721.6932
www.GarverUSA.com

PROJECT DESCRIPTION/ASSUMPTIONS:

A planning level cost opinion for a 16-inch Force Main extension of the existing 12-inch Force Main, for a capacity improvement to meet current and near-term future demands; 16-inch PVC pipe, 2 Air Release Vaults, 3 trenchless crossings, 3 isolation valves, Geotechnical, Survey and SUE services, permanent and temporary construction easements, easement acquisition, agency and public services.

INSTALLATION ITEMS		UNIT	QUANTITY	UNIT COST	TOTAL COST	% OF (a)
Pipeline Costs	16-inch PVC (Open Cut Installation)	LF	10,200	$ 190	$ 1,938,000	41.0%
	16-inch PVC (Trenchless Install, Casing Piping, Spacers)	LF	910	$ 850	$ 774,000	16.4%
	Bell Joint Restraints	EA	150	$ 800	$ 120,000	2.5%
	16-inch Isolation Valves	EA	3	$ 20,000	$ 60,000	1.3%
	Air Valve and Vault (Size TBD)	EA	2	$ 25,000	$ 50,000	1.1%
	Thrust Blocks/CRAs	CY	40	$ 610	$ 24,000	0.5%
	Erosion Control and Re-vegetation	LS	1	$ 23,000	$ 23,000	0.5%
	Parcel and ROW Recovery	LS	1	$ 334,000	$ 334,000	7.1%
Easements	Permanent Easement (50% of Land Value)	LS	1	$ 715,000	$ 705,000	14.9%
	Temporary Easement (10% of Land Value, 1 year)	LS	1	$ 130,000	$ 130,000	2.7%
	Acquisition	EA	17	$ 15,000	$ 255,000	5.4%
Exploration	Geotechnical Investigation, Soil Testing, and Report	LS	1	$ 88,000	$ 88,000	1.9%
	Subsurface Utility Engineering, and Report	LS	1	$ 83,000	$ 83,000	1.8%
	Survey and Report	LS	1	$ 51,000	$ 51,000	1.1%
Agency and Public	Agency Coordination, Applications and Permitting	LS	1	$ 46,000	$ 46,000	1.0%
	Community Outreach and Public Relations	LS	1	$ 51,000	$ 51,000	1.1%
				SUBTOTAL OF INSTALLATION ITEMS:	**$ 4,732,000**	**(a)**

CONTRACTOR MARKUPS	% OF (a)	ESTIMATED COST	% OF (b)
Bonds/Insurance	1.3%	$ 62,000	4.5%
Management/Superintendent	4.0%	$ 189,000	13.6%
Mobilization	1.5%	$ 71,000	5.1%
Traffic Control	2.5%	$ 118,000	8.5%
Overhead and Profit	20.0%	$ 946,000	68.3%
SUBTOTAL OF CONTRACTOR INSTALLATION COSTS:		**$ 1,386,000**	**(b)**

ENGINEER'S OPINION OF TOTAL CONSTRUCTION COSTS (a+b) **$ 6,118,000 (c)**

OTHER PROJECT COSTS	% OF (c)	ESTIMATED COST	% OF (d)
Detailed Design Engineering	6.0%	$ 367,000	23.1%
Construction Engineering	5.0%	$ 306,000	19.2%
Contingencies	15.0%	$ 918,000	57.7%
SUBTOTAL OF OTHER PROJECT COSTS:		**$ 1,591,000**	**(d)**

	OPC - 30%	$ 5,396,000
ENGINEER'S OPINION OF PROBABLE COST (a+b+d)	**OPC**	**$ 7,709,000**
	OPC + 50%	$ 11,564,000

Engineer's Opinion of Probable Cost (OPC) Summary	Estimated Cost	% of Total
Pipeline Costs	$ 4,732,000	61%
Contractor Markups	$ 1,386,000	18%
Other Project Costs	$ 1,591,000	21%
OPCC - 30%	$ 5,396,000	
Opinion of Probable Construction Cost (OPCC)	**$ 7,709,000**	
OPCC + 50%	$ 11,564,000	

Table 7 - Alternate Alignment 3 Opinion of Probable Cost

6.2 Alignment Selection

WWSD staff have indicated their preference for Alternate Alignment 3. It is expected to be easier to maintain than Alternate Alignment 1, but with a slightly lower cost than Alternate Alignment 2. But input from a contractor is recommended to better quantify the constructability cost implications of each alignment. Therefore, Garver will proceed with procuring a Construction Manager at Risk (CMAR) to confirm our cost estimates and constructability assessments. CMAR involvement will begin immediately and continue with the future design milestones.

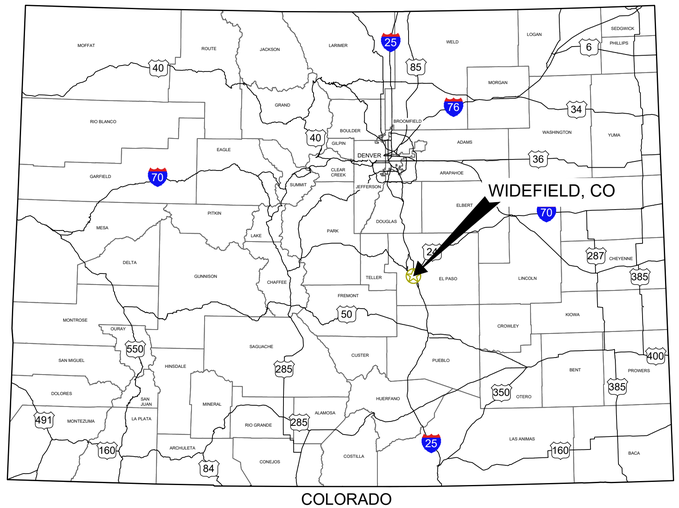
Appendix A – List of Contacted Utilities

List of Contacted Utilities

Company	Contact	Phone No.	Email/Website	Information
Fountain Water	Taylor Murphy	719-619-6270	tmurphy@fountaincolorado.org	GIS-Based Images
Fountain Electric	David Wooley	(719) 641-1384	DWoolley@fountaincolorado.org	GIS-Based Images
Fountain Sanitation	Jonathan Moore	719-382-5303	jonathanM@FSD901.org	GIS-Based Images
Colorado Springs Utilities		719-448-4800	https://www.csu.org/Pages/GISMapping.aspx	GIS-Based Images
Black Hills Energy (Gas)	Santiago Tijerina		Santiago.Tijerina@blackhillscorp.com	GIS-Based Images
Oil and Gas Companies			NPMS Public Viewer (dot.gov)	GIS-Based Images
El Paso County GIS			https://opendata-elpasoco.hub.arcgis.com/	GIS Shapefiles
El Paso County Tax Assessor			https://property.spatialest.com/co/elpaso/#/	Parcel Data
El Paso County Planning and Development			https://epcdevplanreview.com/Public/Search/	Plan Review documents submitted
National Wetlands Inventory			Download Wetlands Data (fws.gov)	GIS Shapefiles
El Paso County Wastewater	Rick Reiter		RickReiter@elpasoco.com	GIS-Based Images
Zayo (Fiber)	James Wallace	970-485-1489	james.wallace@zayo.com	GIS-Based Images

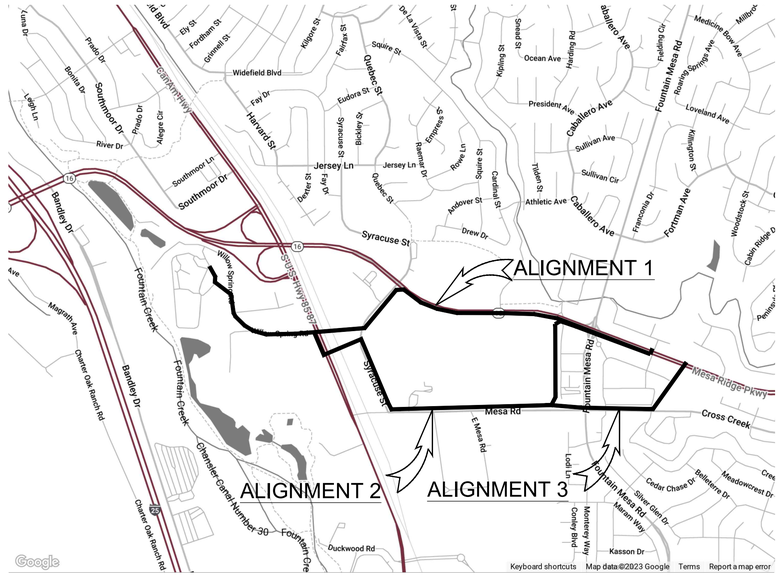
Appendix B – 10% Alternate Alignment Routing Study Drawings

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT:
FORCE MAIN EXTENSION DESIGN
WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, CO



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NO SCALE





VICINITY MAP
NO SCALE

GARVER PROJECT NO. 22W23080
DEC. 2023

Widefield Water and Sanitation District

GARVER
One Denver Technology Center
5251 DTC Parkway, Suite 420
Greenwood Village, CO 80111
(303) 721-6932

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WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT: FORCE MAIN EXTENSION DESIGN

COVER SHEET

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02	01-G002	SHEET INDEX
05 - CIVIL		
03	05-C101	OVERALL LAYOUT
04	05-C301	ALTERNATE ALIGNMENT 1 EXHIBIT 1
05	05-C302	ALTERNATE ALIGNMENT 1 EXHIBIT 2
06	05-C303	ALTERNATE ALIGNMENT 1 EXHIBIT 3
07	05-C304	ALTERNATE ALIGNMENT 1 EXHIBIT 4
08	05-C305	ALTERNATE ALIGNMENT 1 EXHIBIT 5
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20	05-C317	ALTERNATE ALIGNMENT 3 EXHIBIT 5
21	05-C318	ALTERNATE ALIGNMENT 3 EXHIBIT 6

CIVIL LEGEND

LINETYPE	DESCRIPTION
—— —— ——	EASEMENT LINE
——PL——	PROPERTY LINE
——W——	WWSD WATER LINE
——W——	FOUNTAIN WATER LINE
——SS——	SANITARY SEWER
——SS——	FSD SANITARY SEWER
——FM——	FORCE MAIN
——G——	GAS LINE
——FO——	FIBER OPTIC LINE

SYMBOL	DESCRIPTION
	PERMANENT ESMT.
	TEMPORARY CONSTRUCTION ESMT.
	WETLANDS AREA
	CROSSING BY OTHER THAN OPEN CUT

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WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT FORCE MAIN EXTENSION DESIGN

SHEET INDEX

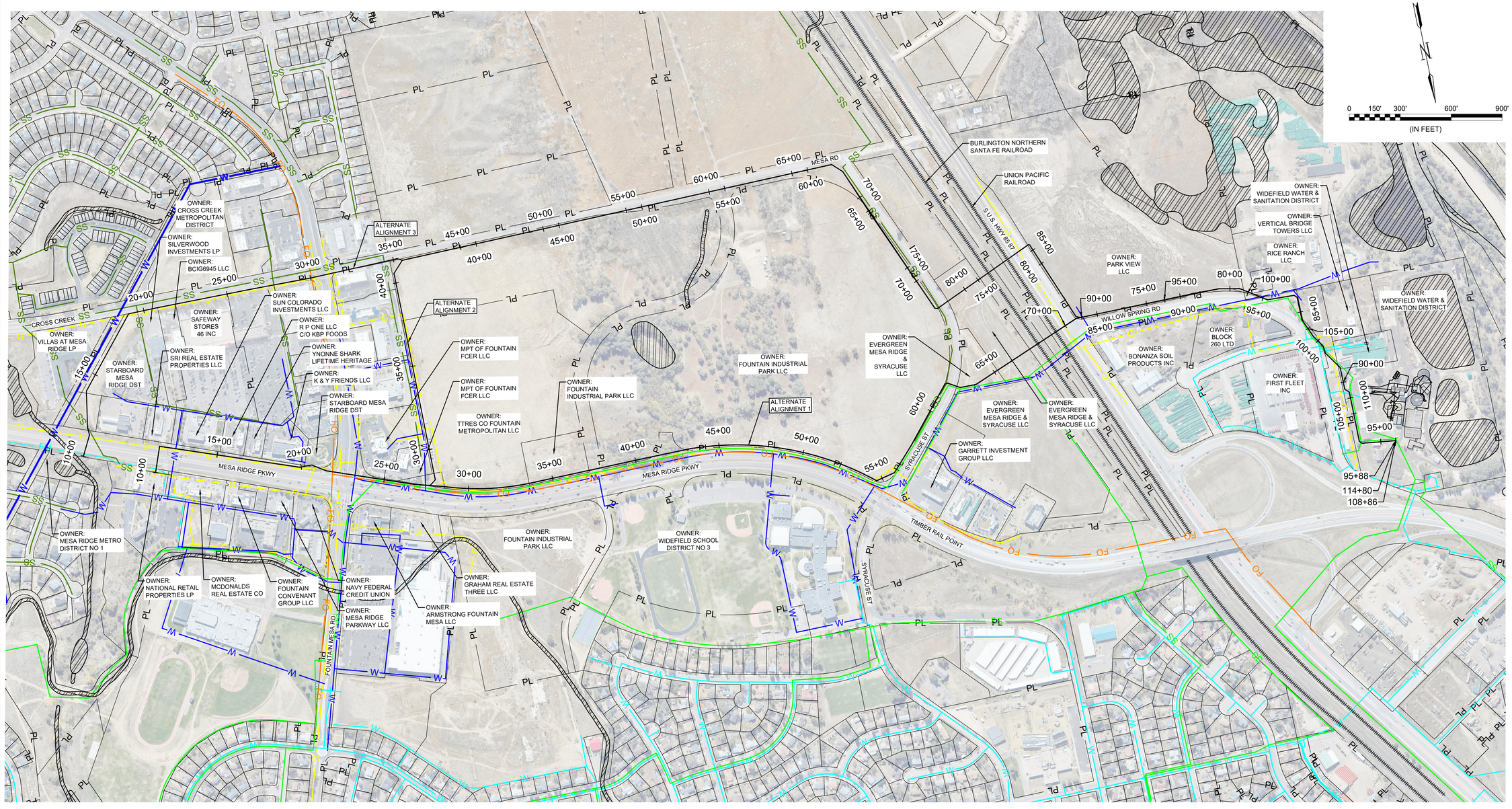
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JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENTS FORCE MAIN EXTENSION DESIGN

OVERALL LAYOUT

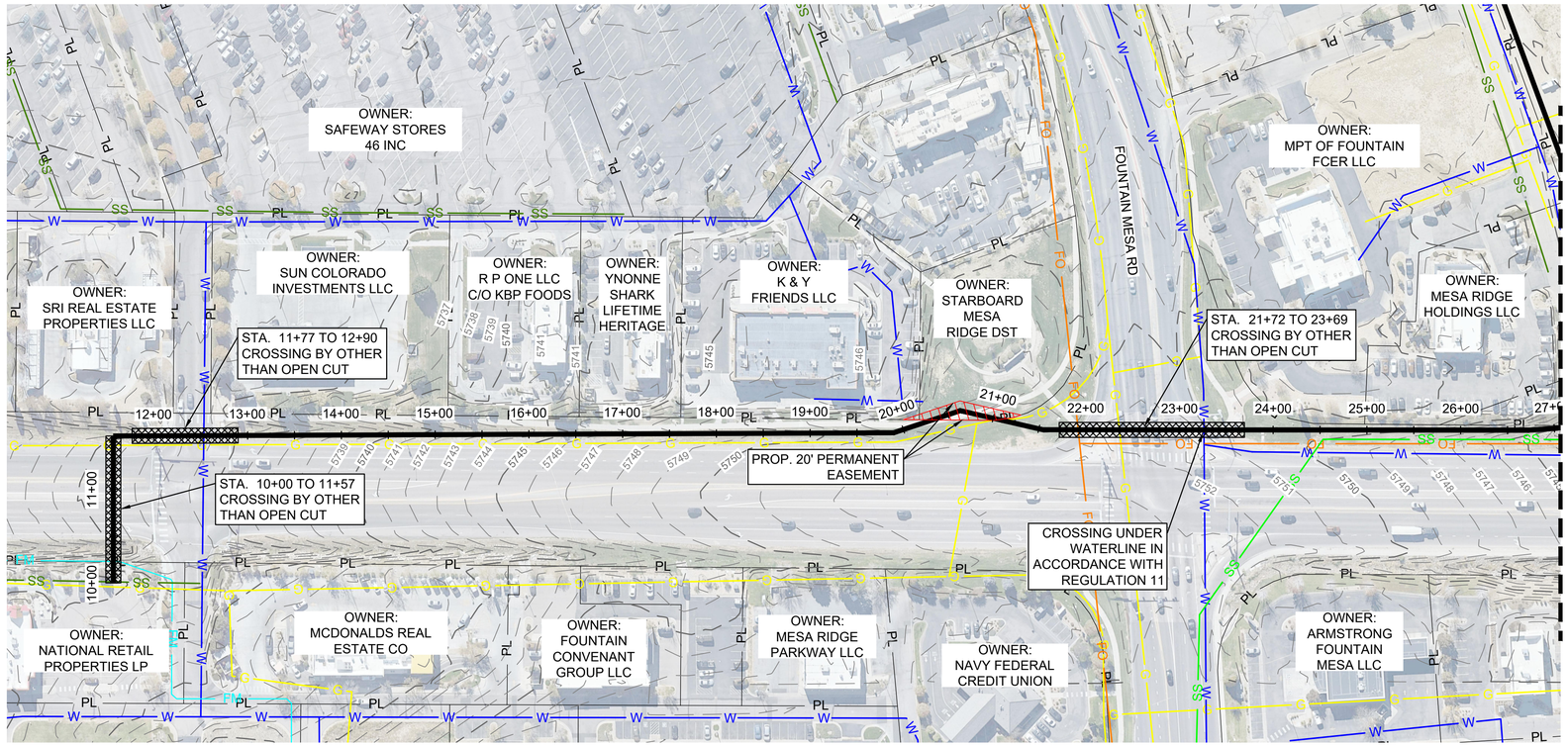
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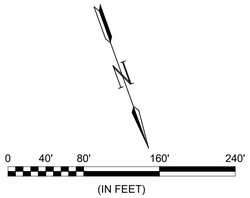
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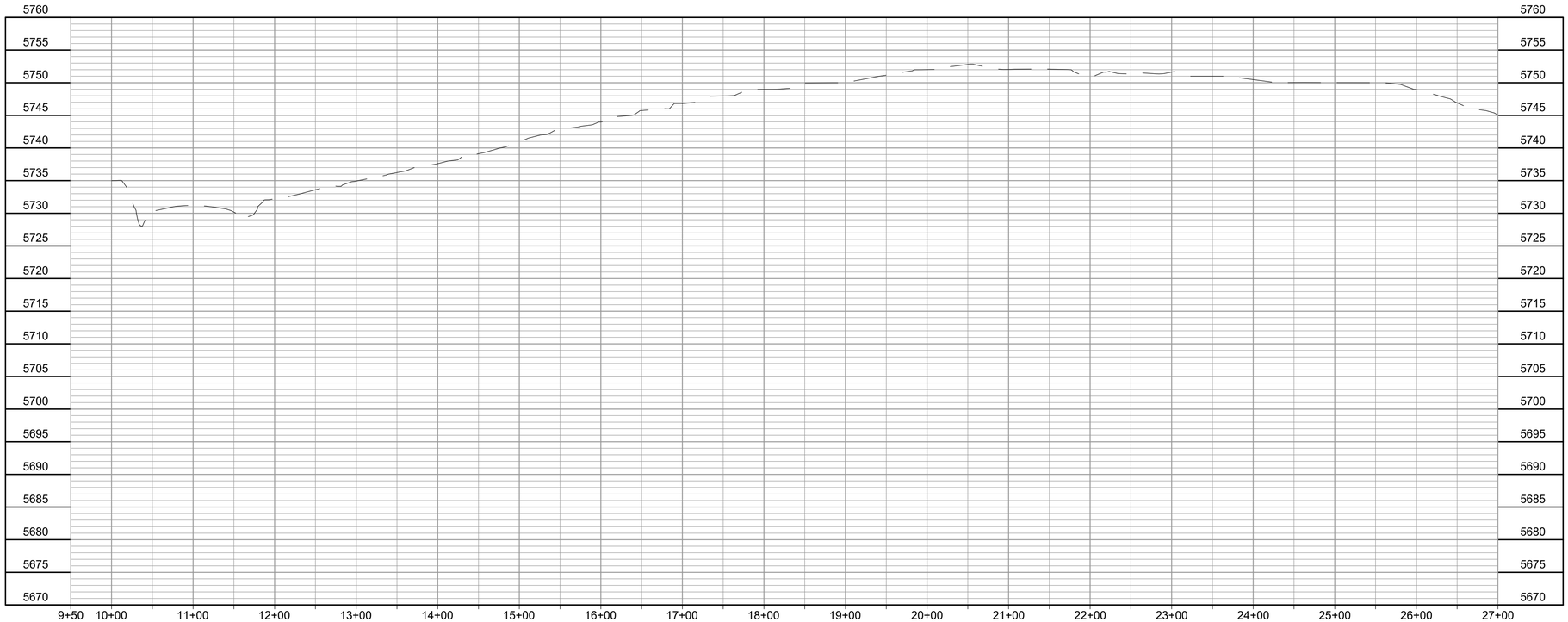
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JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT FORCE MAIN EXTENSION DESIGN

ALTERNATE ALIGNMENT 1 EXHIBIT 1

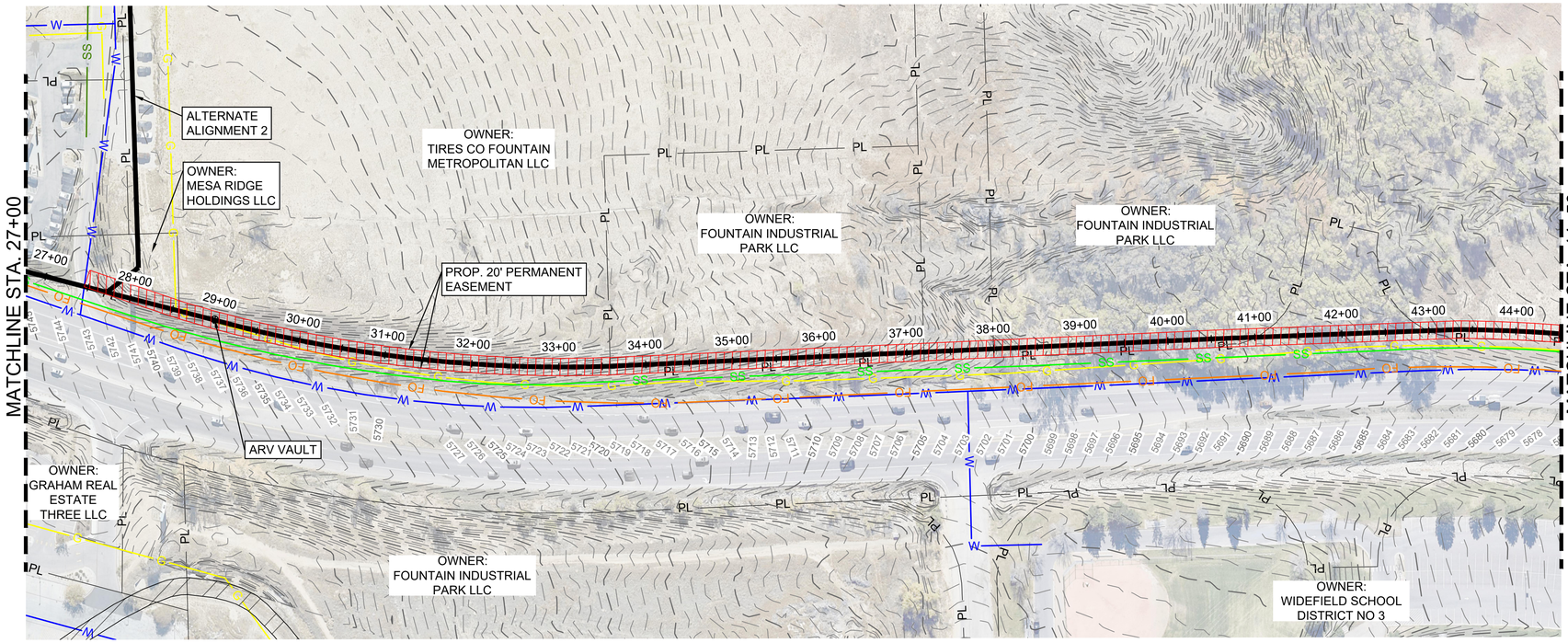
JOB NO.: 22W23080
DATE: DEC. 2023
DESIGNED BY: JMC
DRAWN BY: UOP
CHECKED BY: PMB

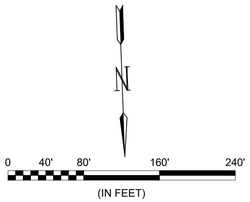
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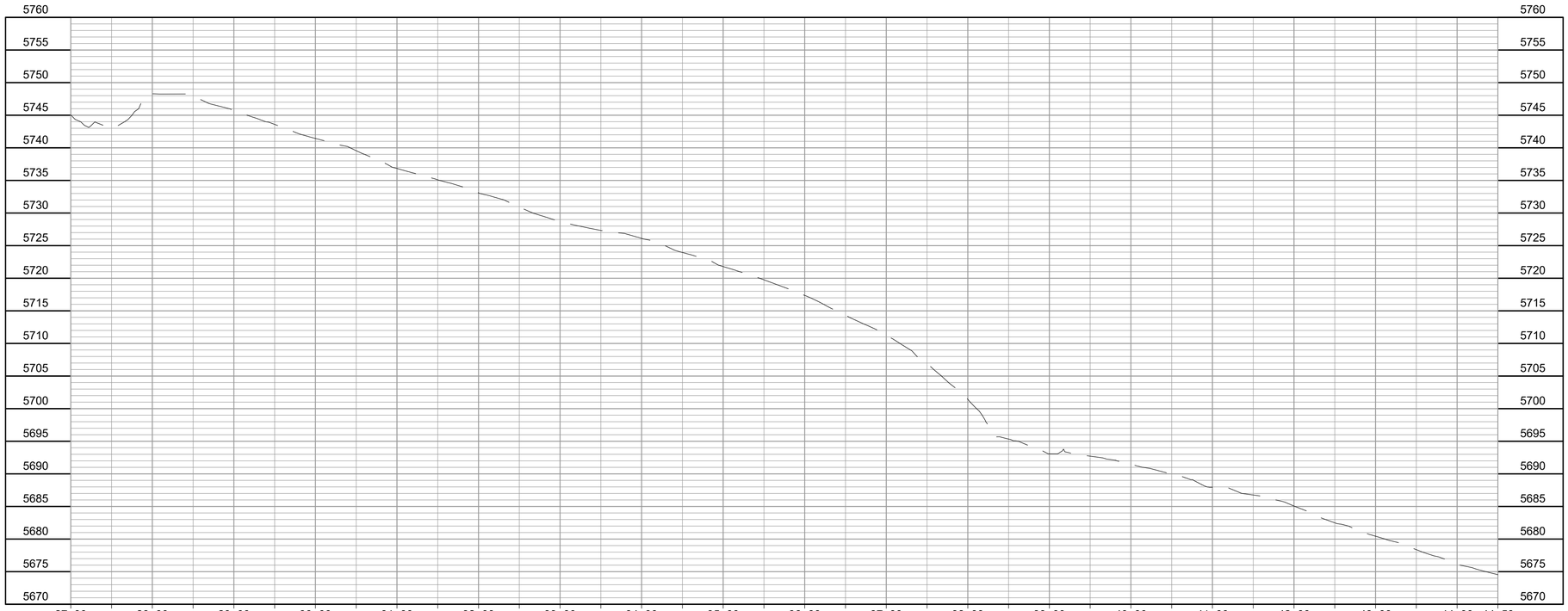
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SHEET NUMBER **04**

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Last plotted by: Martinez, Ervin S. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 12/26/2023 2:07 PM Plotter used: None







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REV.	DATE	DESCRIPTION	BY

WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT FORCE MAIN EXTENSION DESIGN

ALTERNATE ALIGNMENT 1 EXHIBIT 2

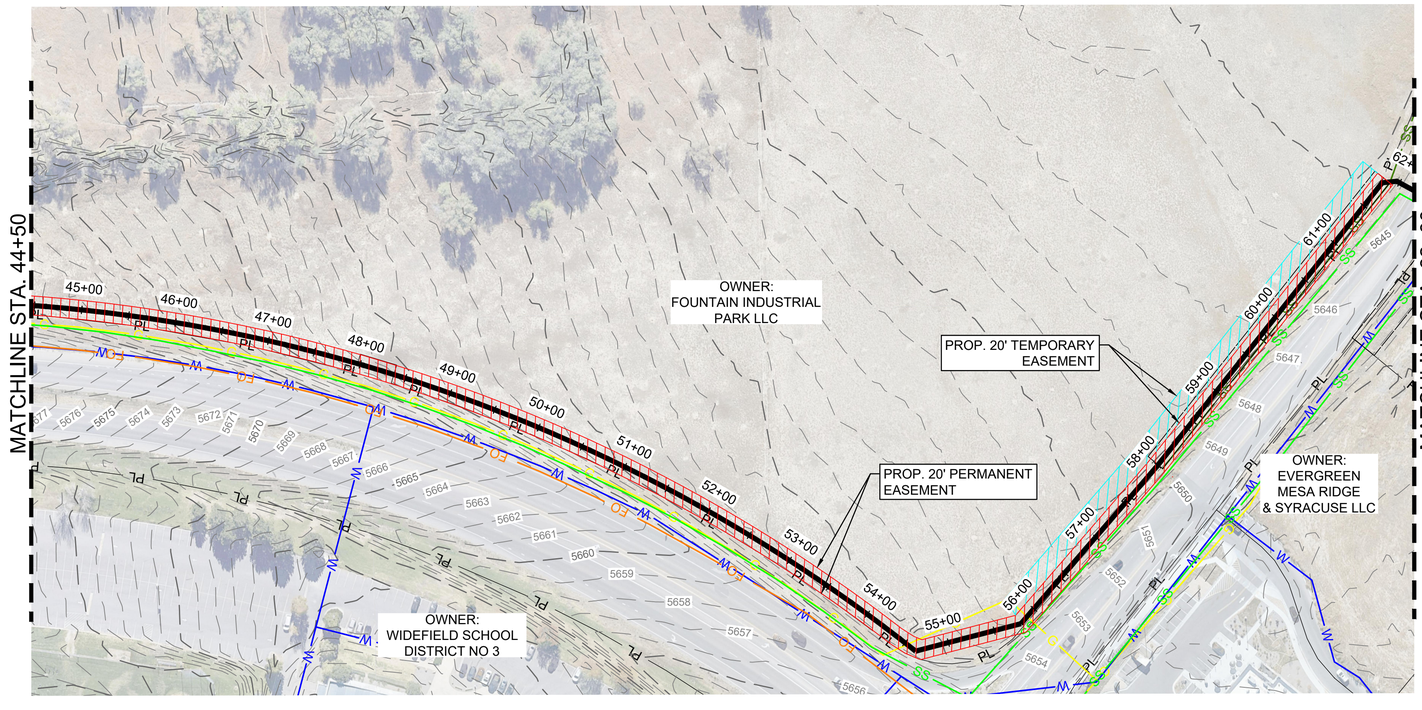
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DATE: DEC. 2023
DESIGNED BY: JMC
DRAWN BY: UOP
CHECKED BY: PMB

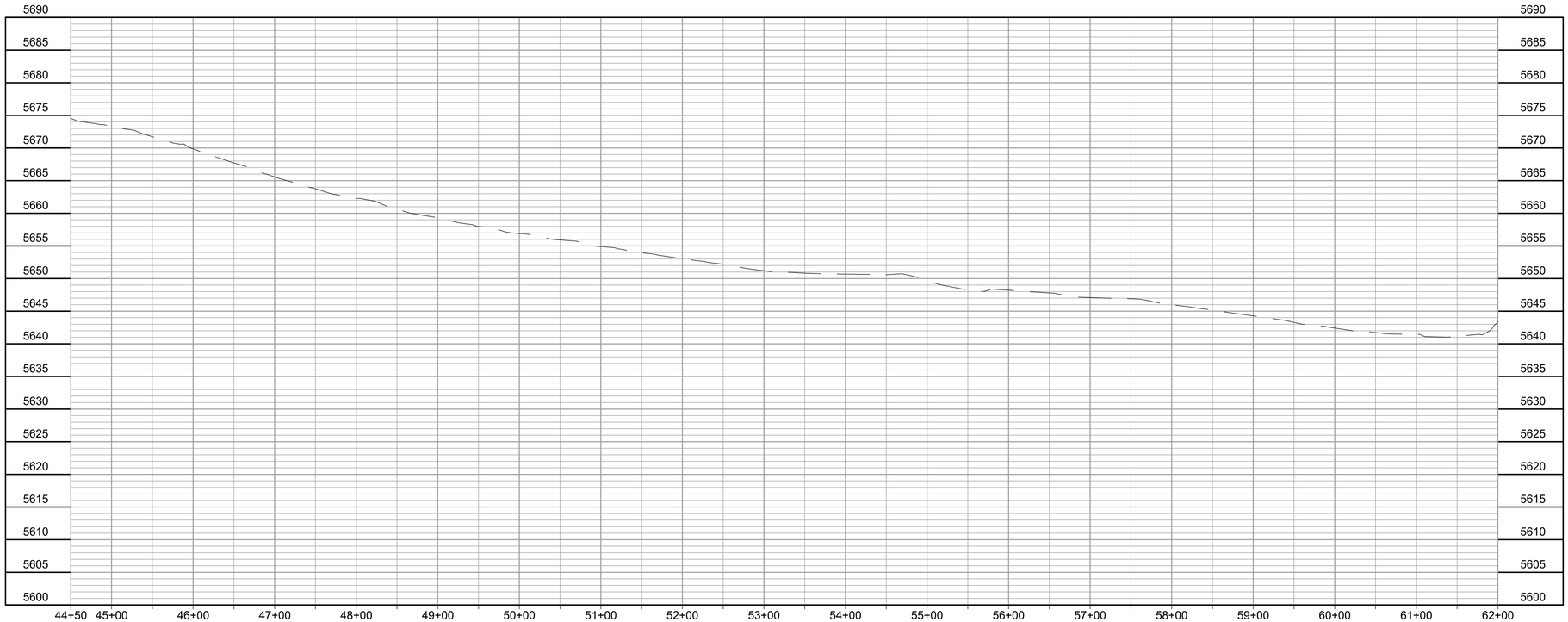
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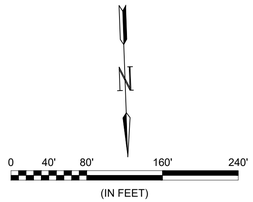
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SHEET NUMBER **05**

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Last plotted by: Martinez, Ervin S. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 12/26/2023 2:07 PM Plotter used: None







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REV.	DATE	DESCRIPTION	BY

WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT FORCE MAIN EXTENSION DESIGN

ALTERNATE ALIGNMENT 1 EXHIBIT 3

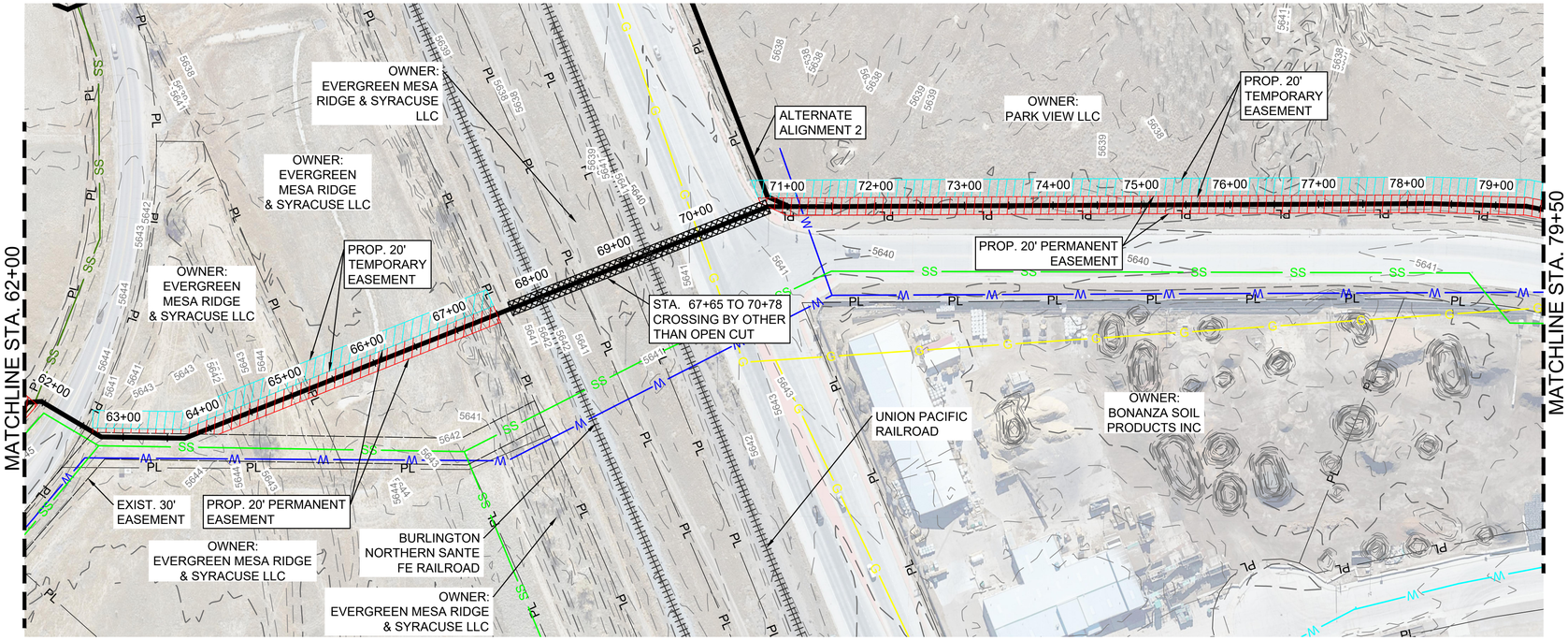
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DATE: DEC. 2023
DESIGNED BY: JMC
DRAWN BY: UOP
CHECKED BY: PMB

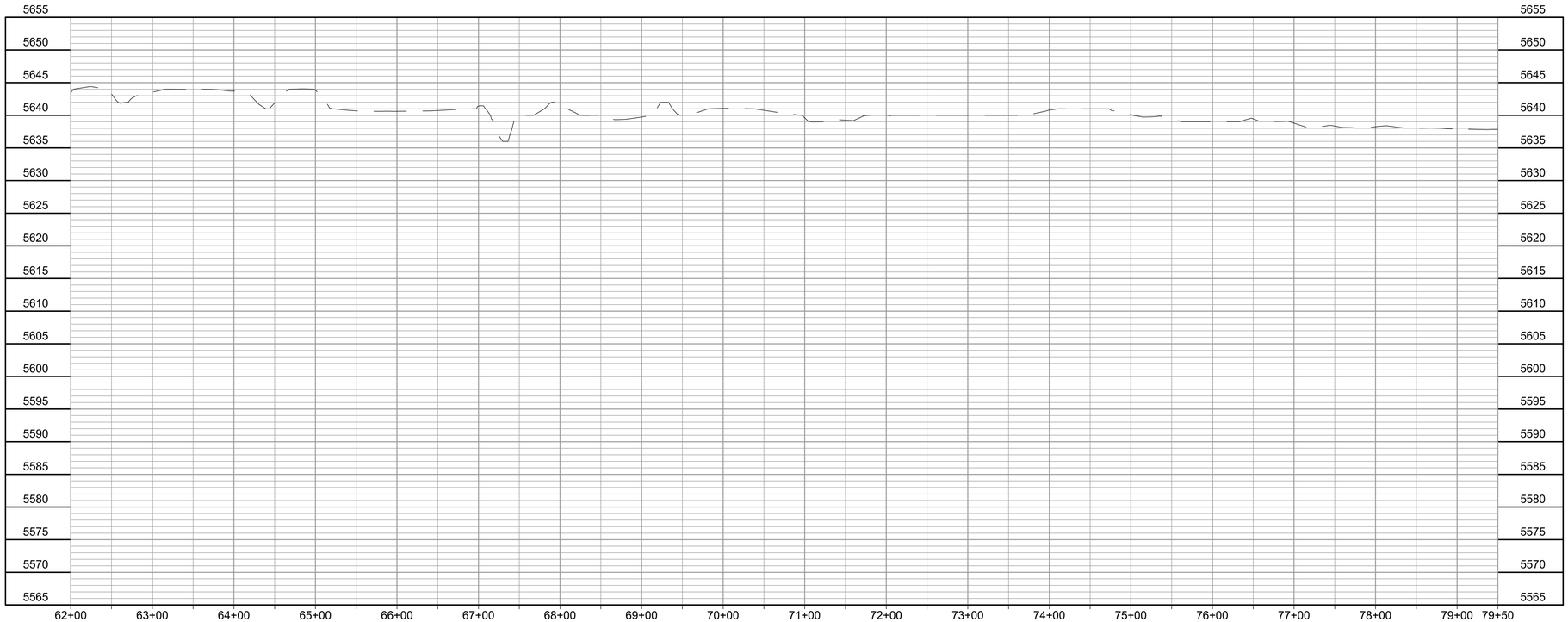
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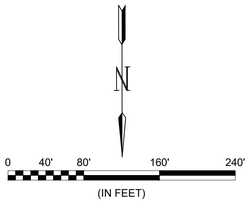
DRAWING NUMBER
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SHEET NUMBER **06**

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REV.	DATE	DESCRIPTION	BY

WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT FORCE MAIN EXTENSION DESIGN

ALTERNATE ALIGNMENT 1 EXHIBIT 4

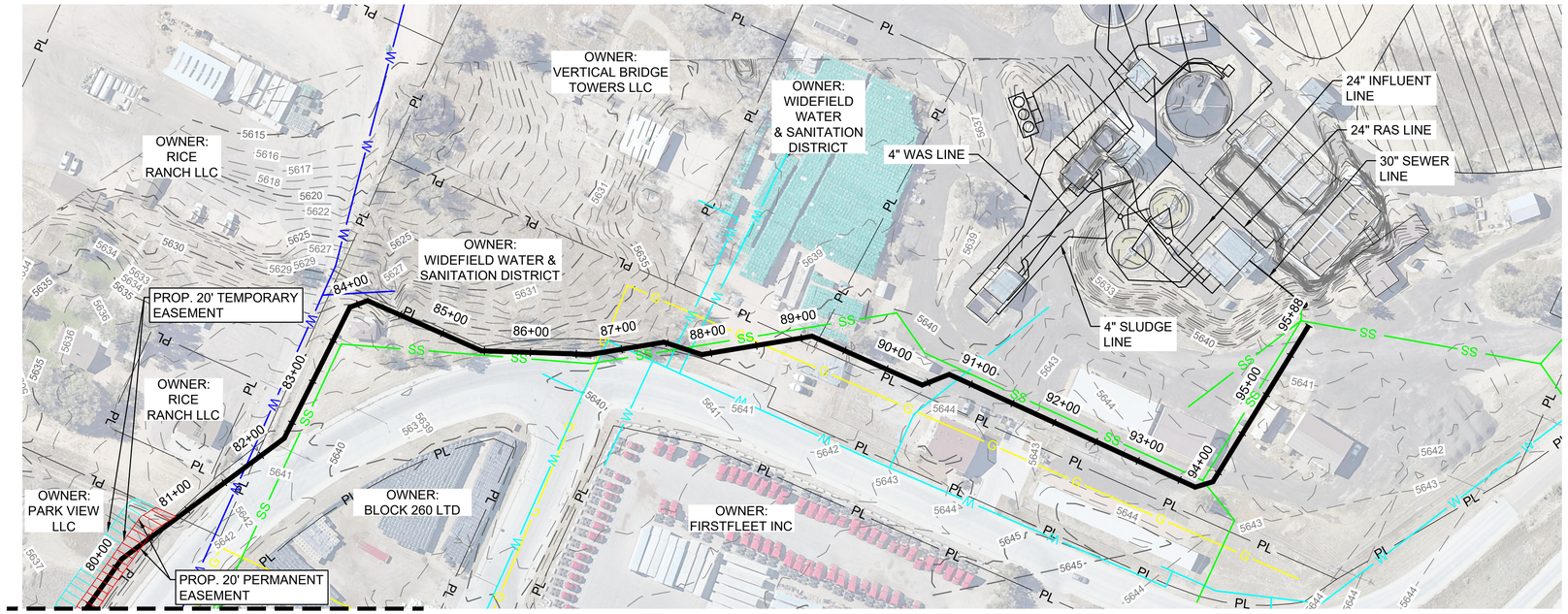
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DATE: DEC. 2023
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DRAWN BY: UOP
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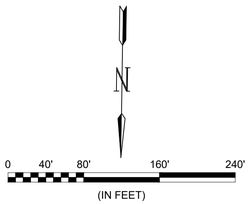
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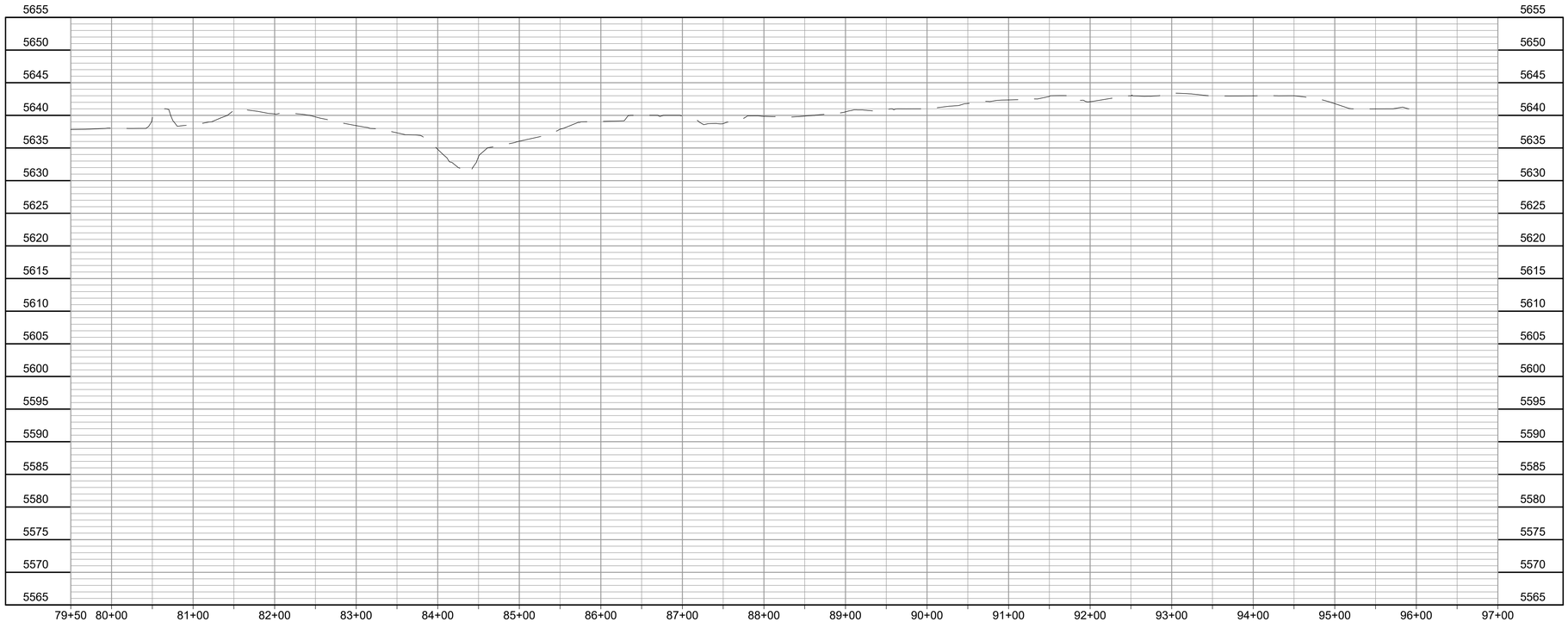
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SHEET NUMBER **07**

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WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT FORCE MAIN EXTENSION DESIGN

ALTERNATE ALIGNMENT 1 EXHIBIT 5

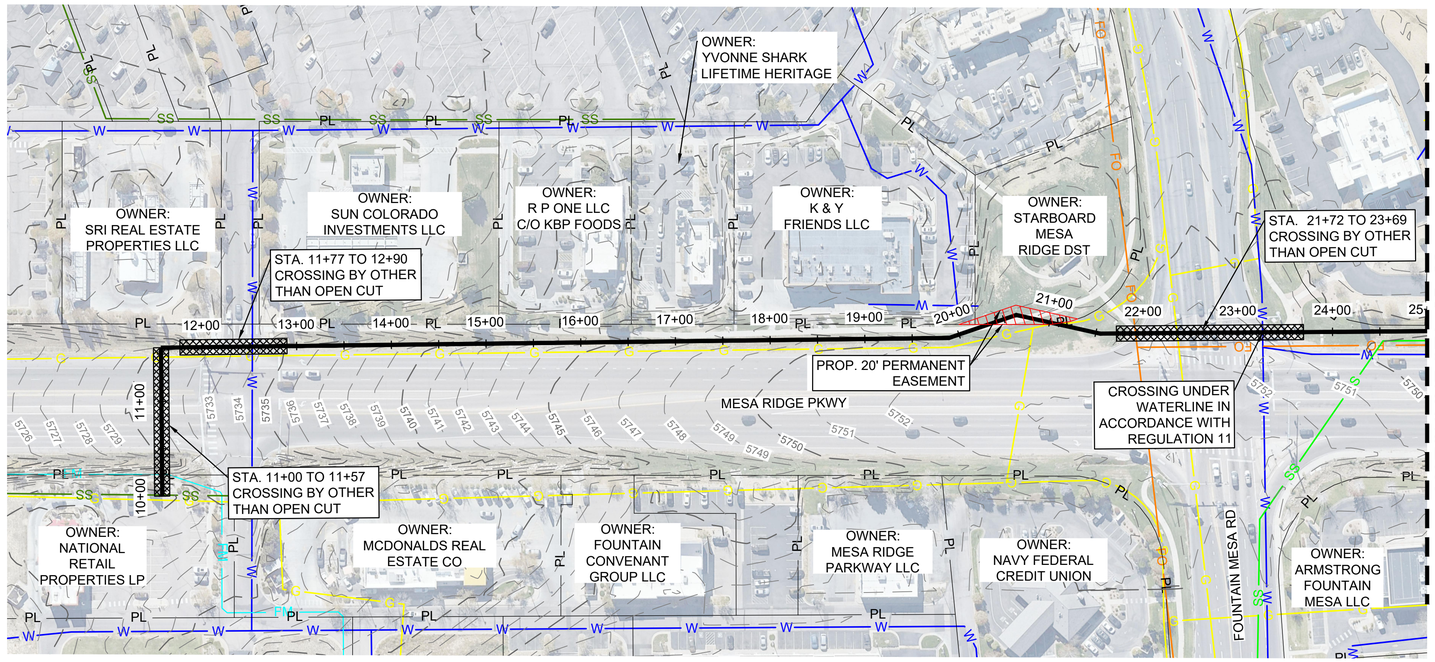
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DATE: DEC. 2023
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DRAWN BY: UOP
CHECKED BY: PMB

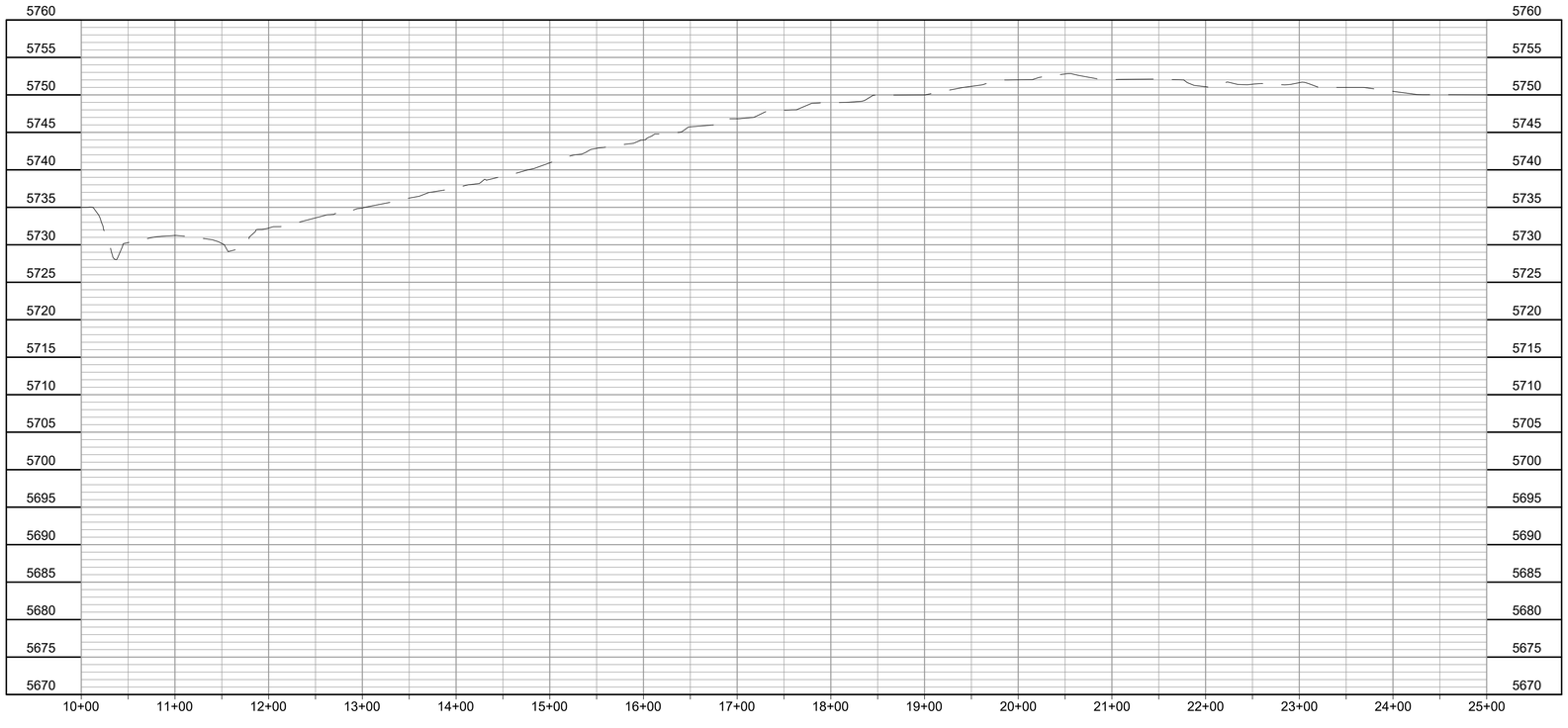
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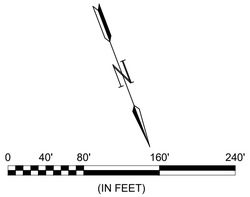
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SHEET NUMBER **08**

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Last plotted by: Martinez, Ervin S. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 12/26/2023 2:08 PM Plotter used: None







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WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT FORCE MAIN EXTENSION DESIGN

ALTERNATE
ALIGNMENT 2 EXHIBIT
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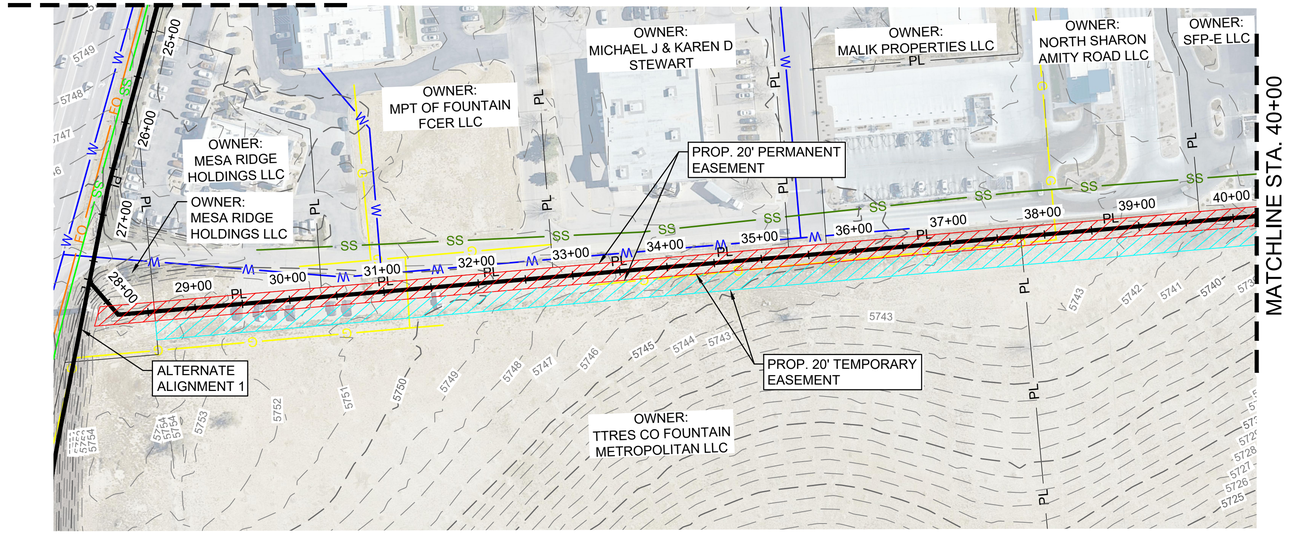
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DATE: DEC. 2023
DESIGNED BY: JMC
DRAWN BY: UOP
CHECKED BY: PMB

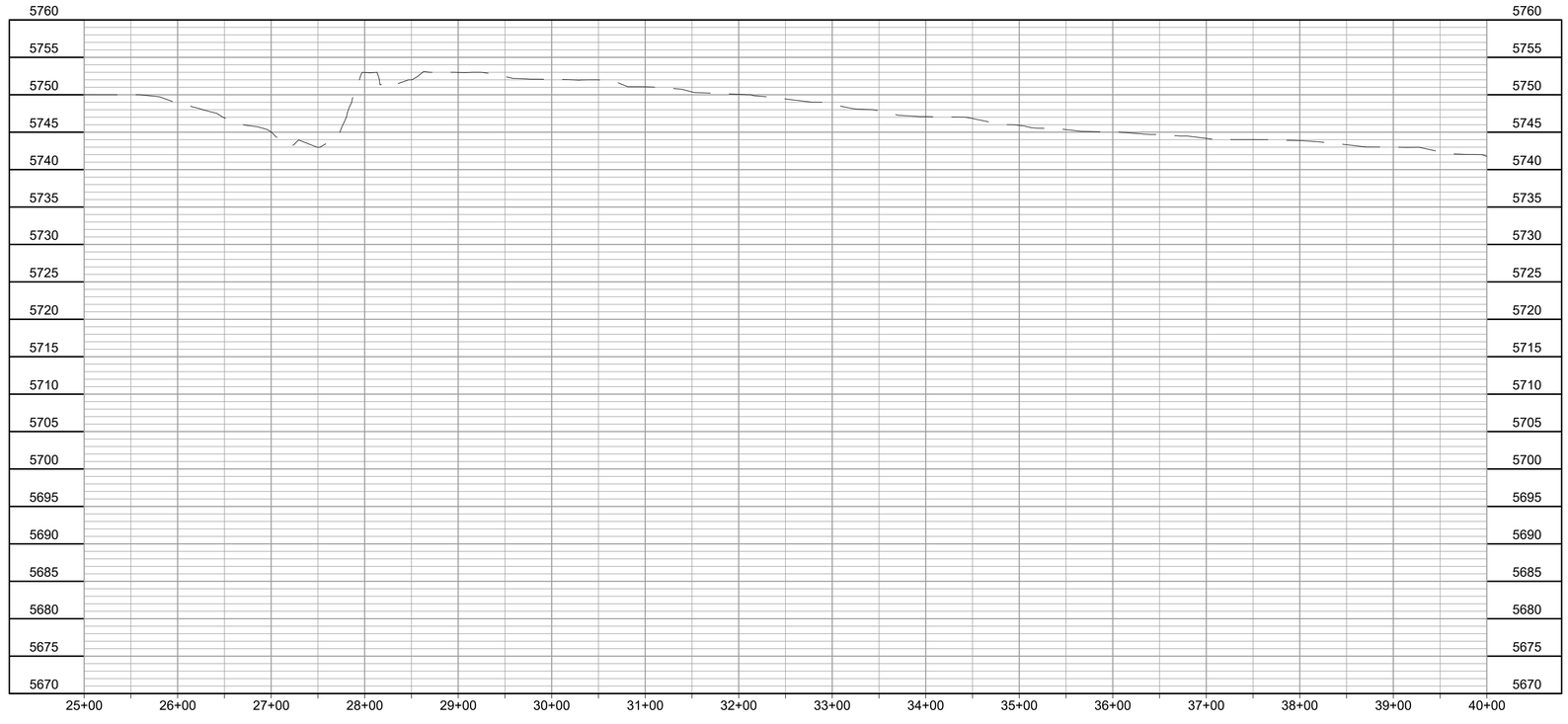
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DRAWING NUMBER
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SHEET NUMBER **09**

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(IN FEET)

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REV.	DATE	DESCRIPTION	BY

WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT FORCE MAIN EXTENSION DESIGN

ALTERNATE ALIGNMENT 2 EXHIBIT 2

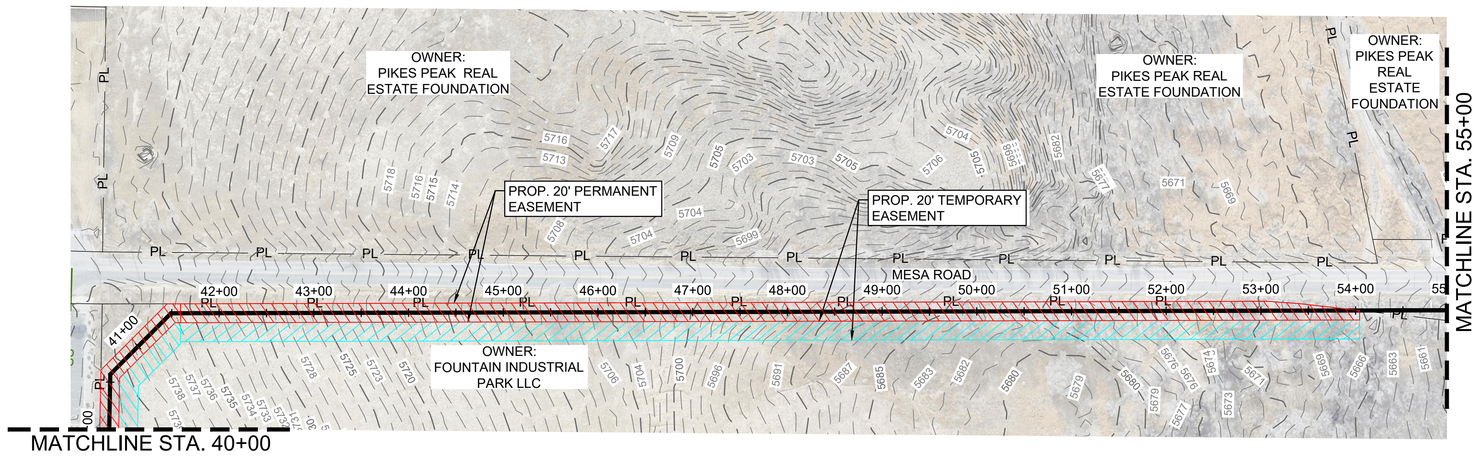
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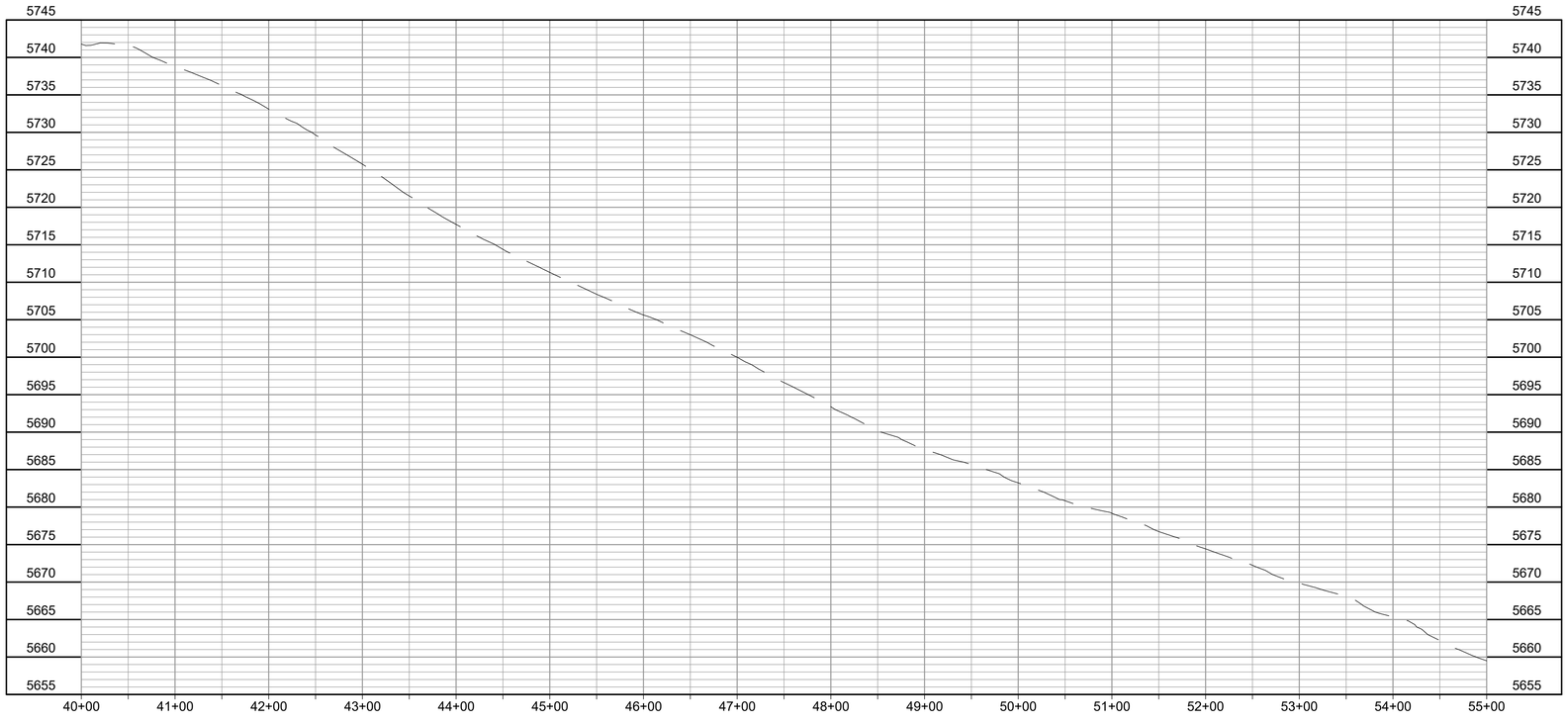
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Last plotted by: Martinez, Ervin S. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 12/26/2023 2:09 PM Plotter used: None





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(IN FEET)

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WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT FORCE MAIN EXTENSION DESIGN

ALTERNATE ALIGNMENT 2 EXHIBIT 3

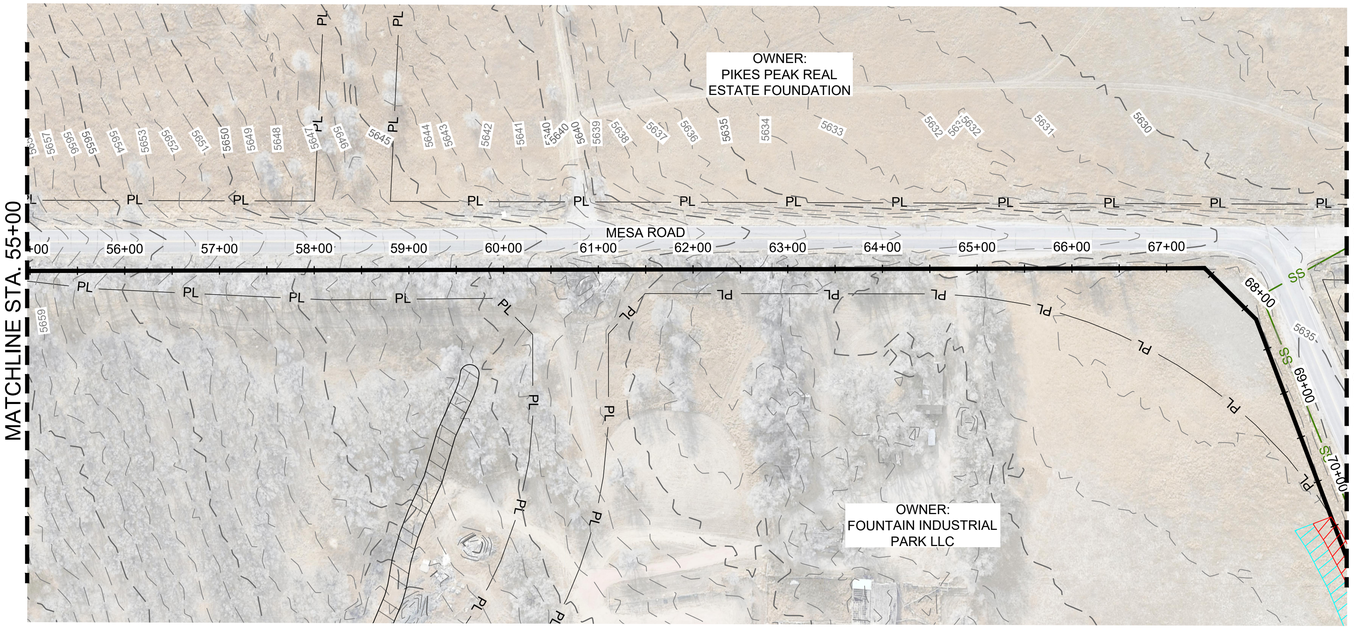
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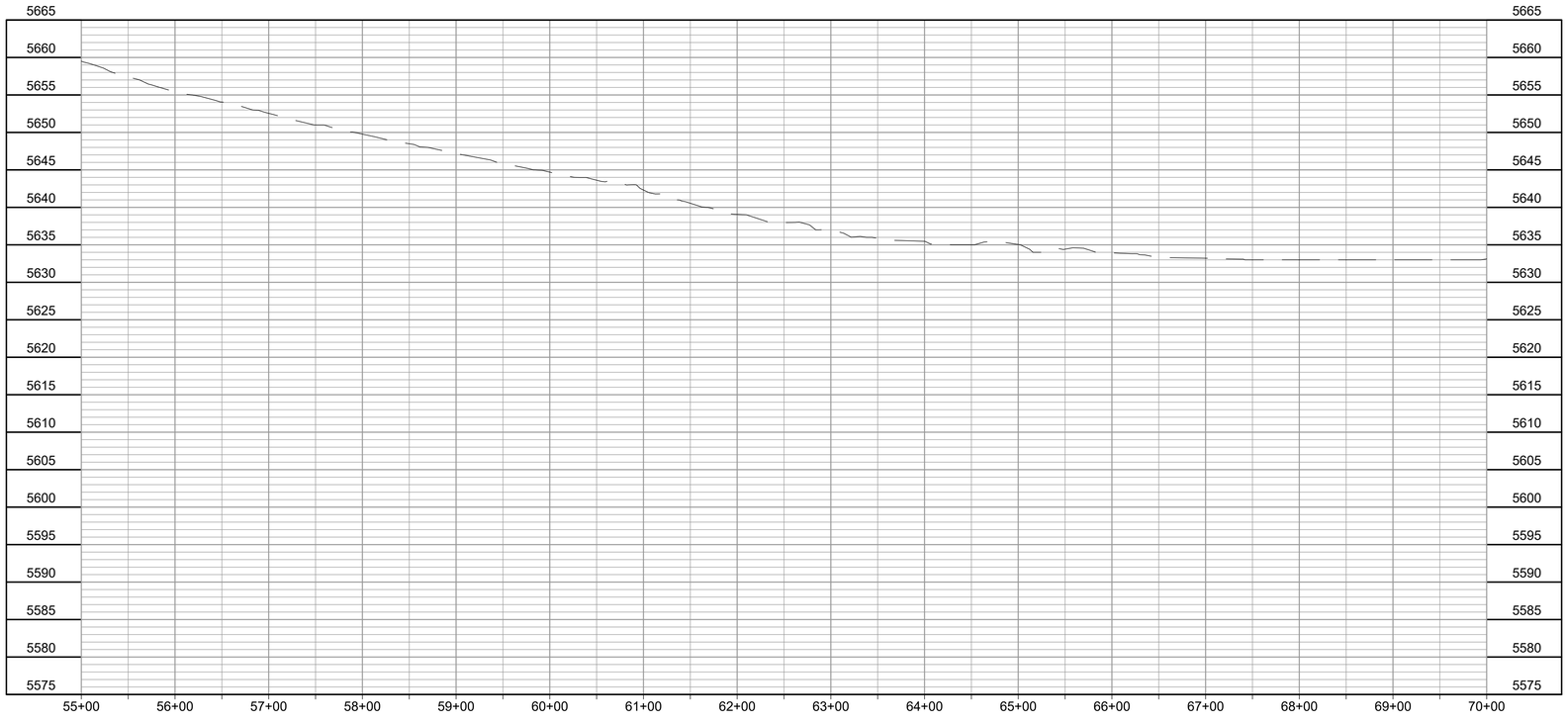
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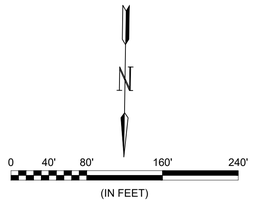
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REV.	DATE	DESCRIPTION	BY

WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT FORCE MAIN EXTENSION DESIGN

ALTERNATE ALIGNMENT 2 EXHIBIT 4

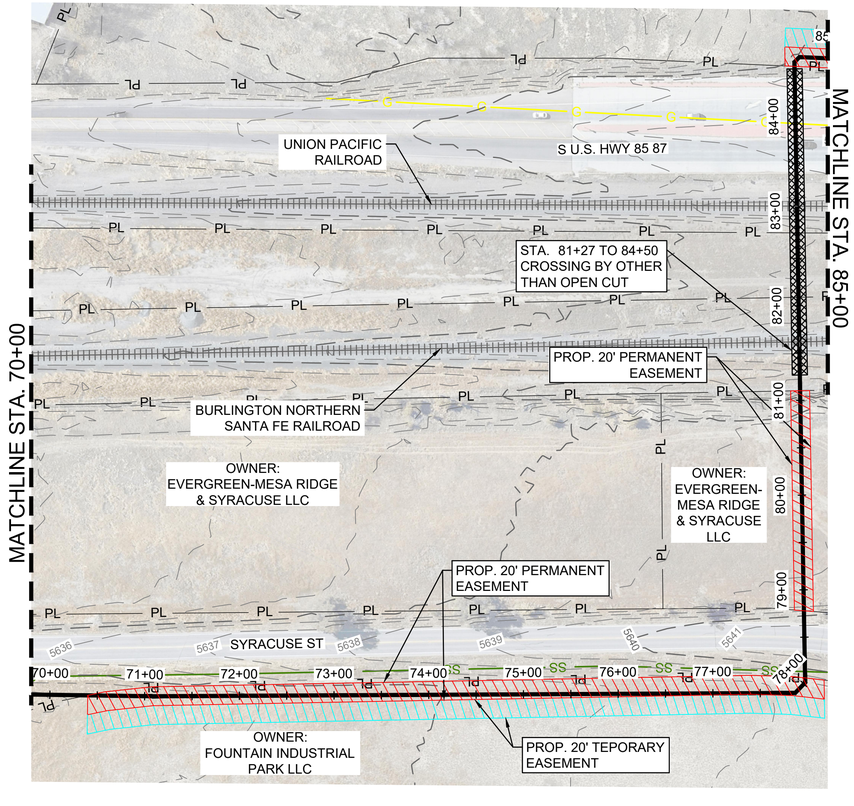
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DATE: DEC. 2023
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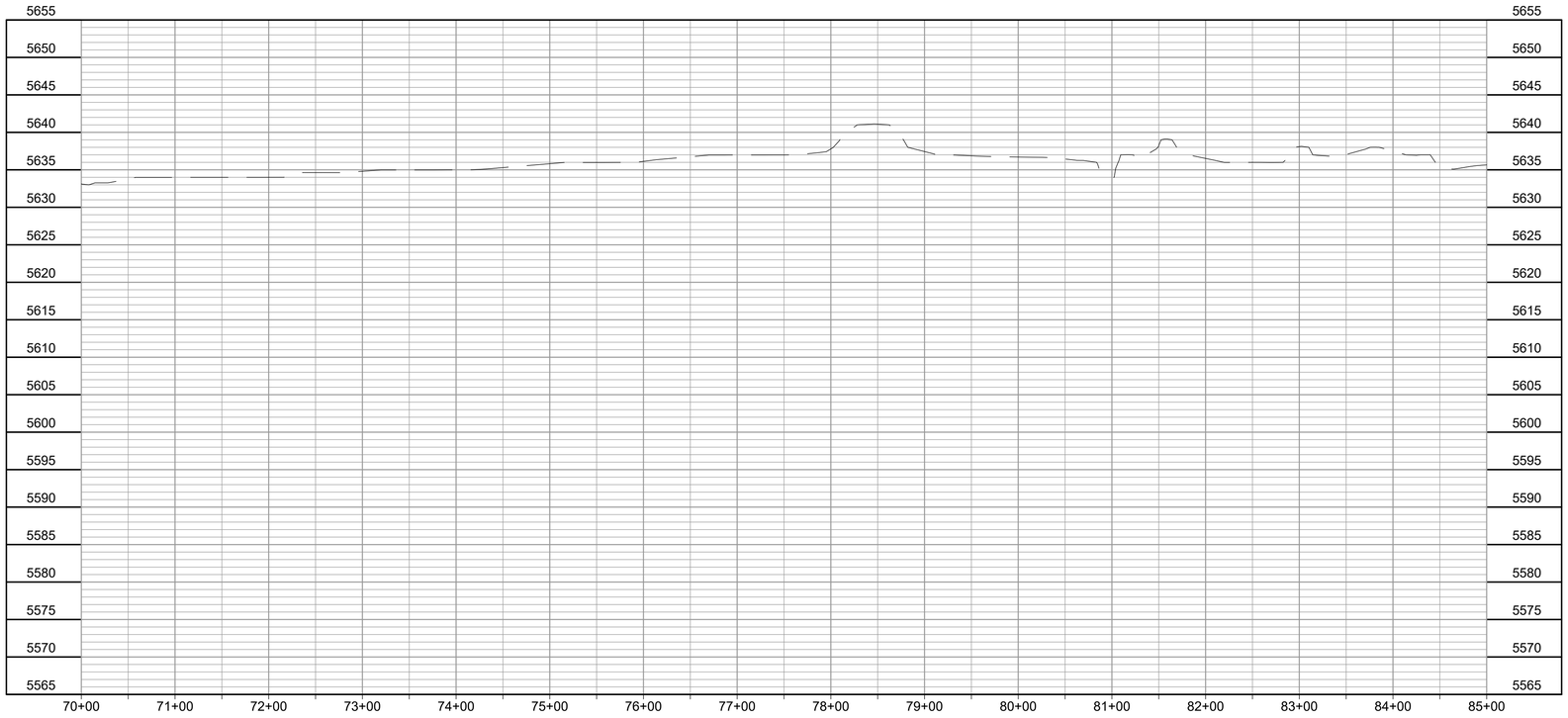
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DRAWING NUMBER
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SHEET NUMBER **12**

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REV.	DATE	DESCRIPTION	BY

Widefield Water and Sanitation District

WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT FORCE MAIN EXTENSION DESIGN

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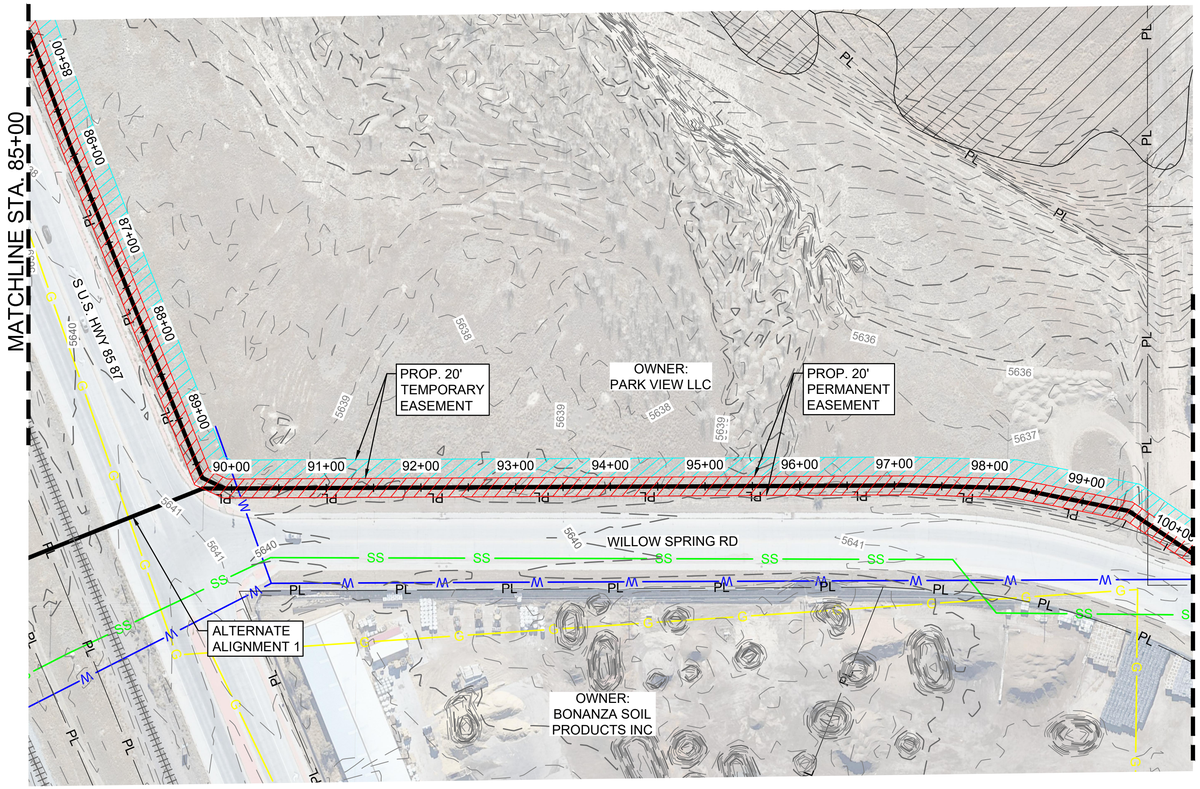
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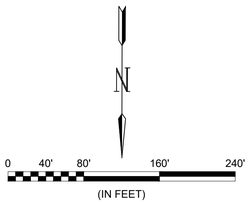
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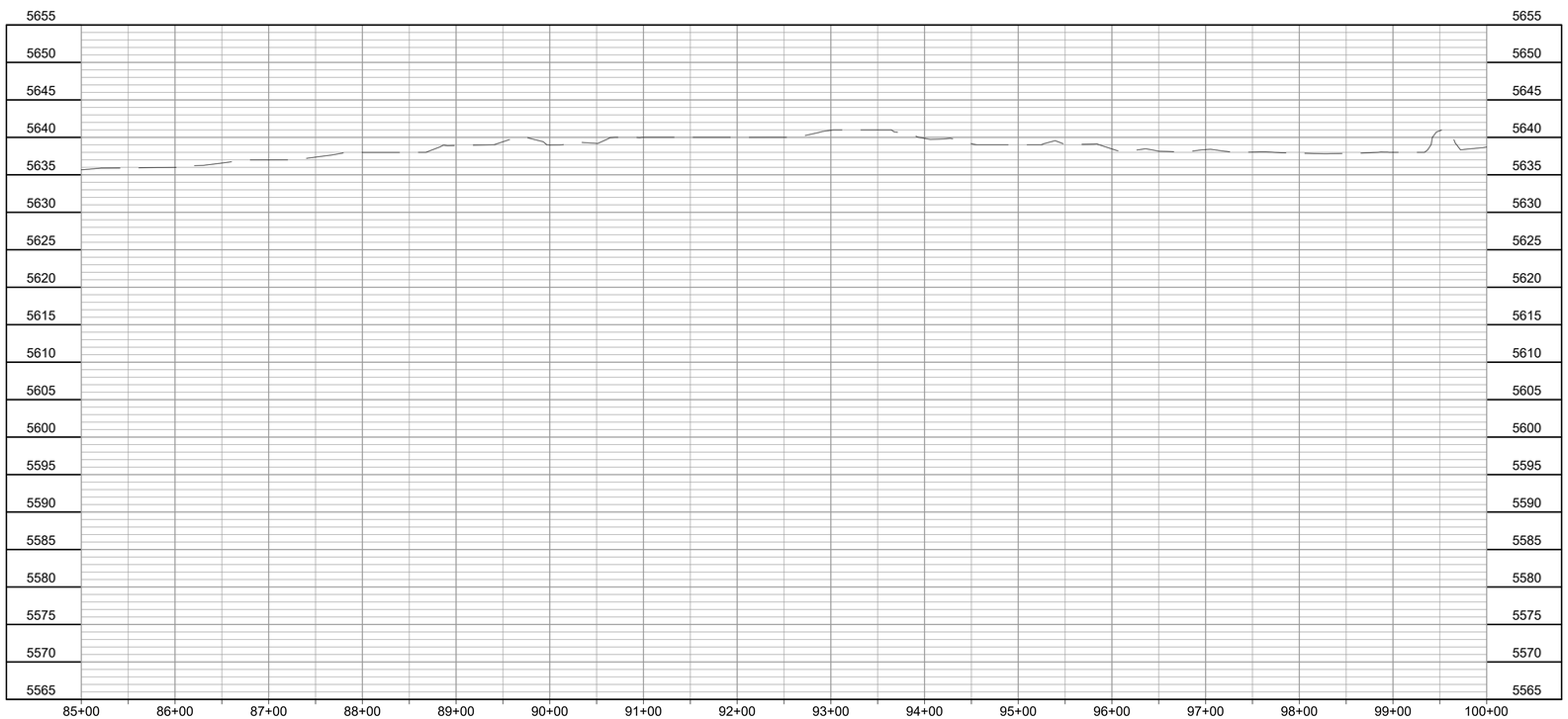
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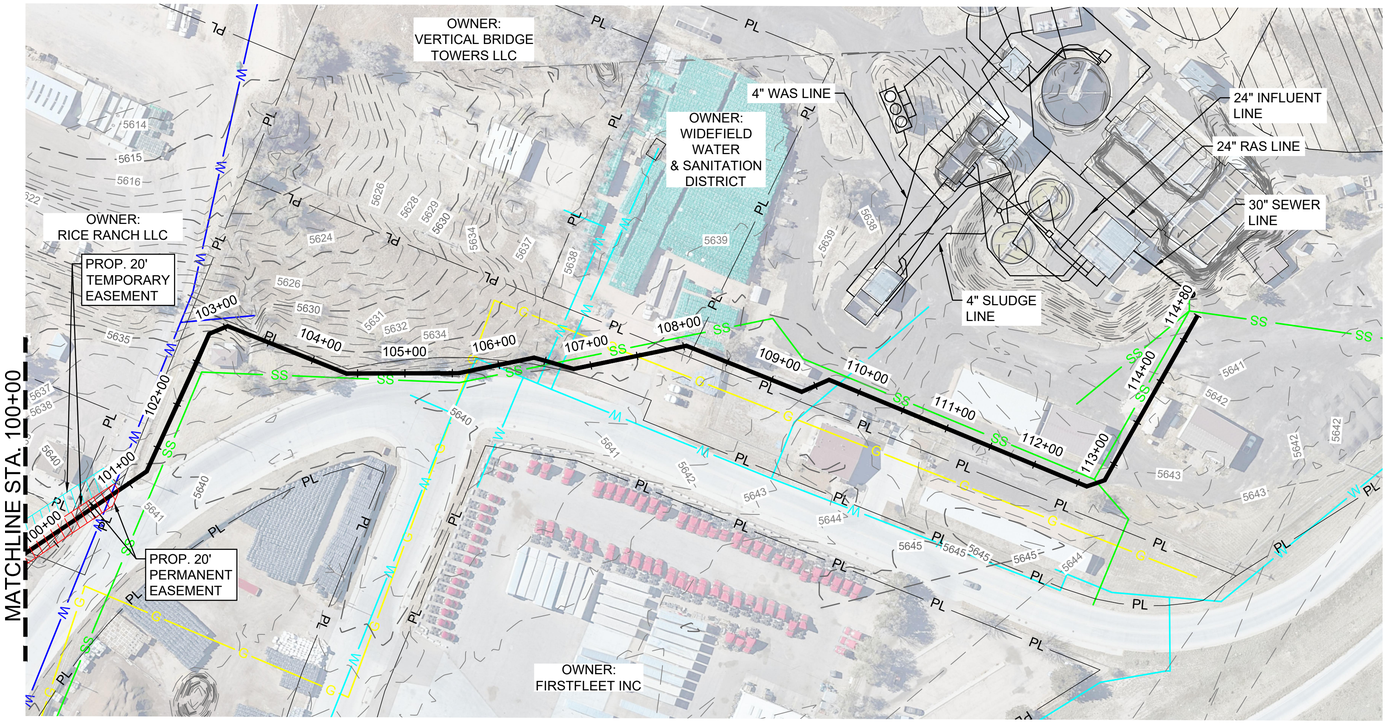
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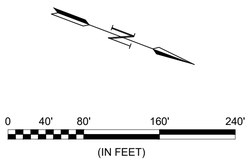
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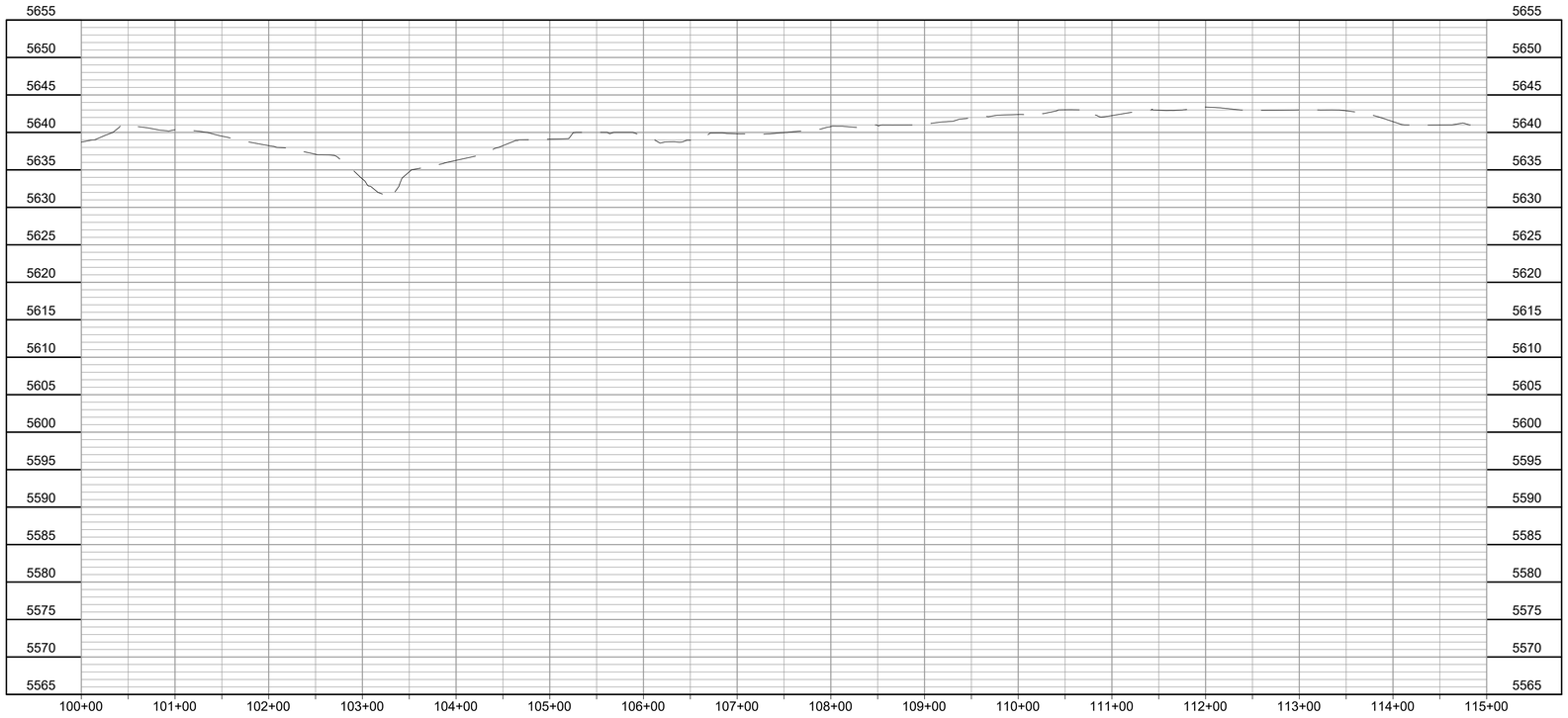
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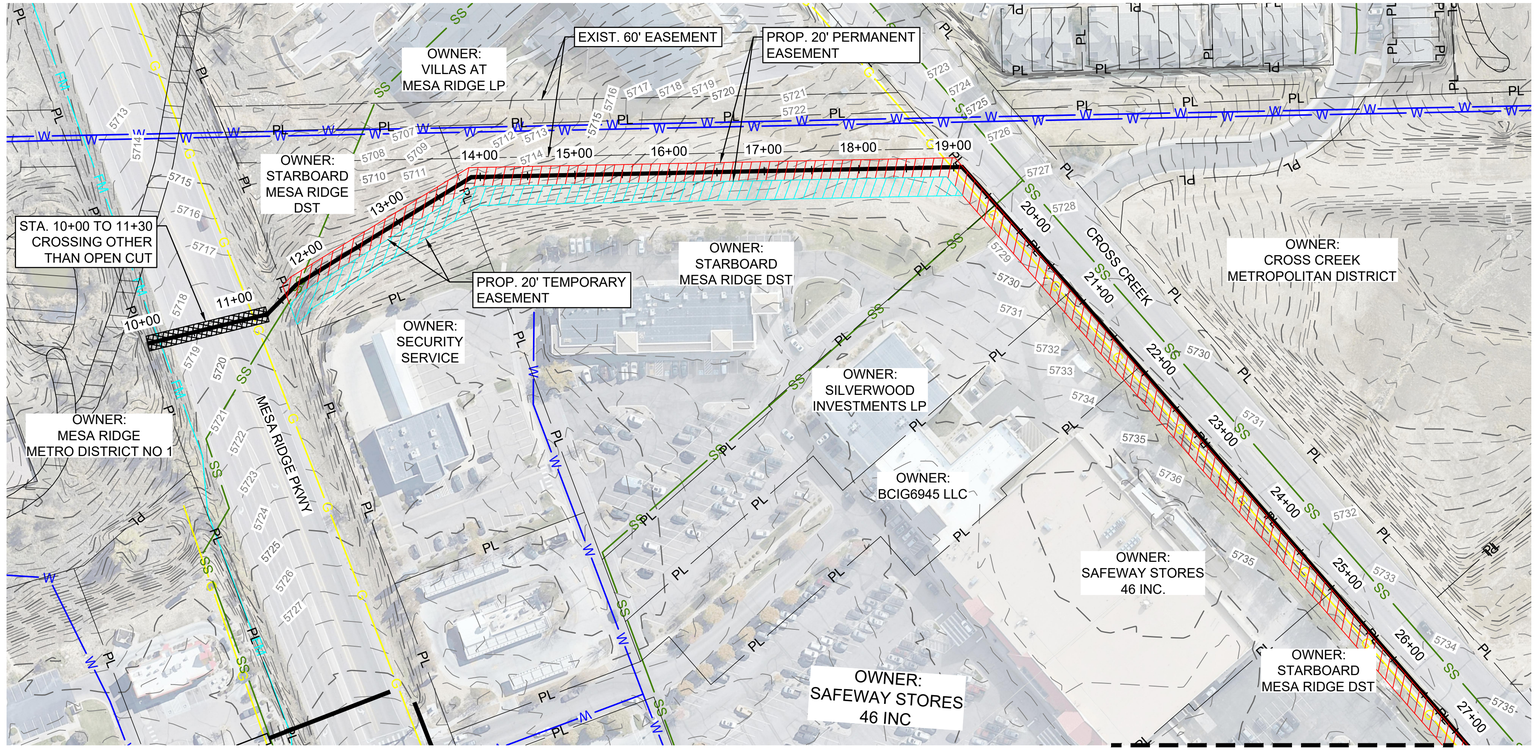
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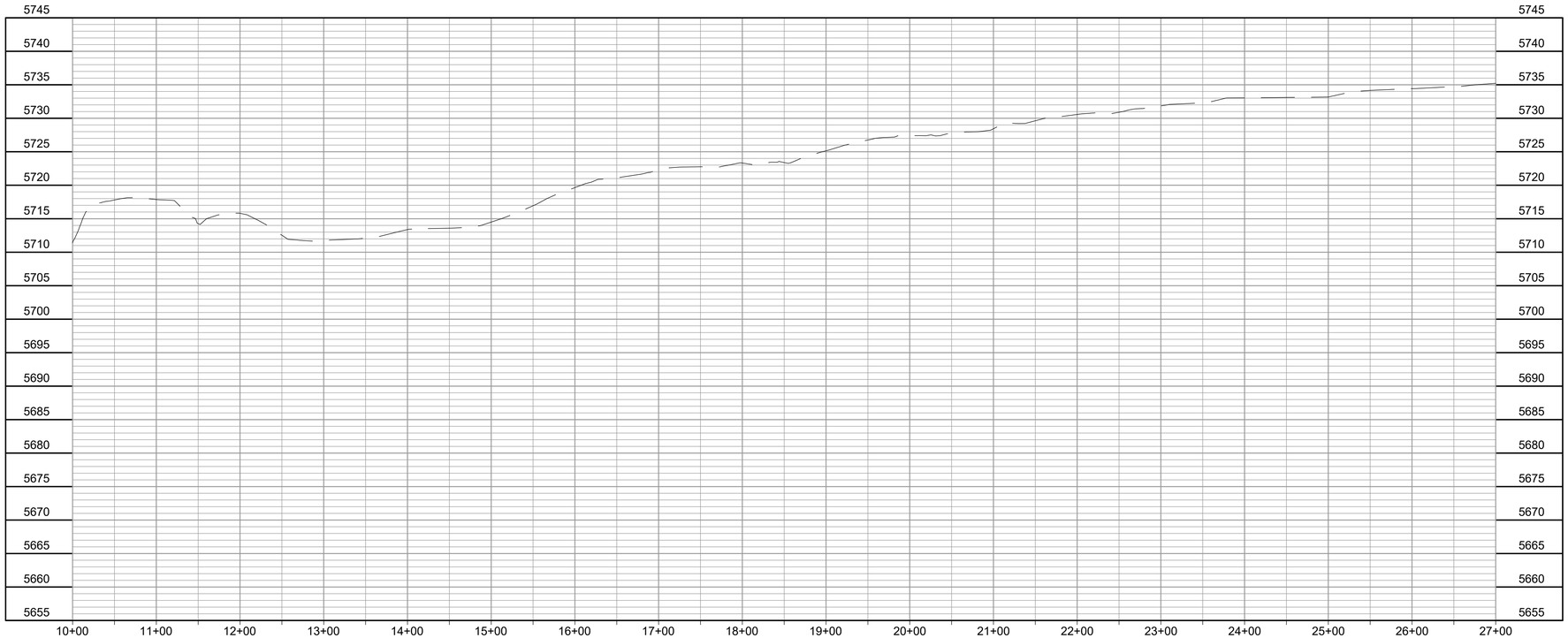
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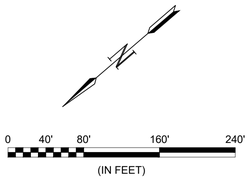
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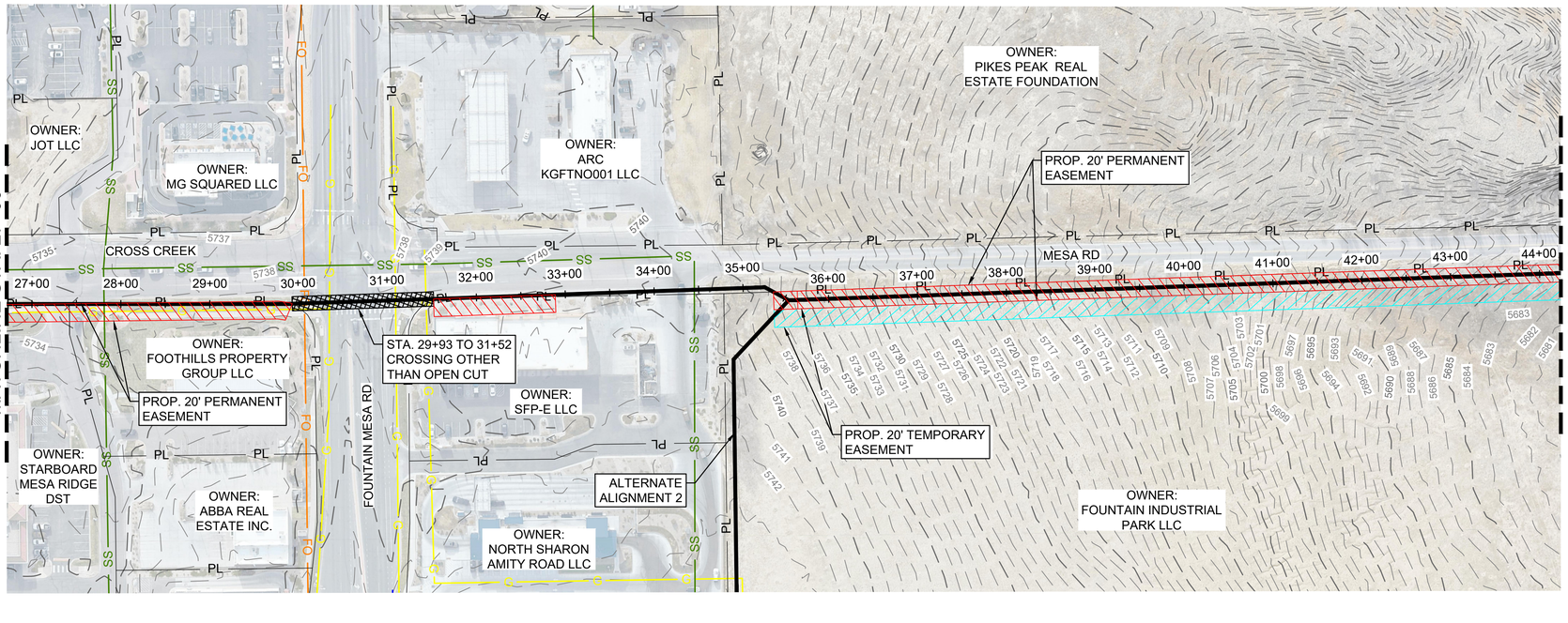
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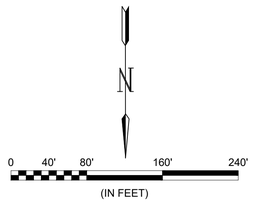
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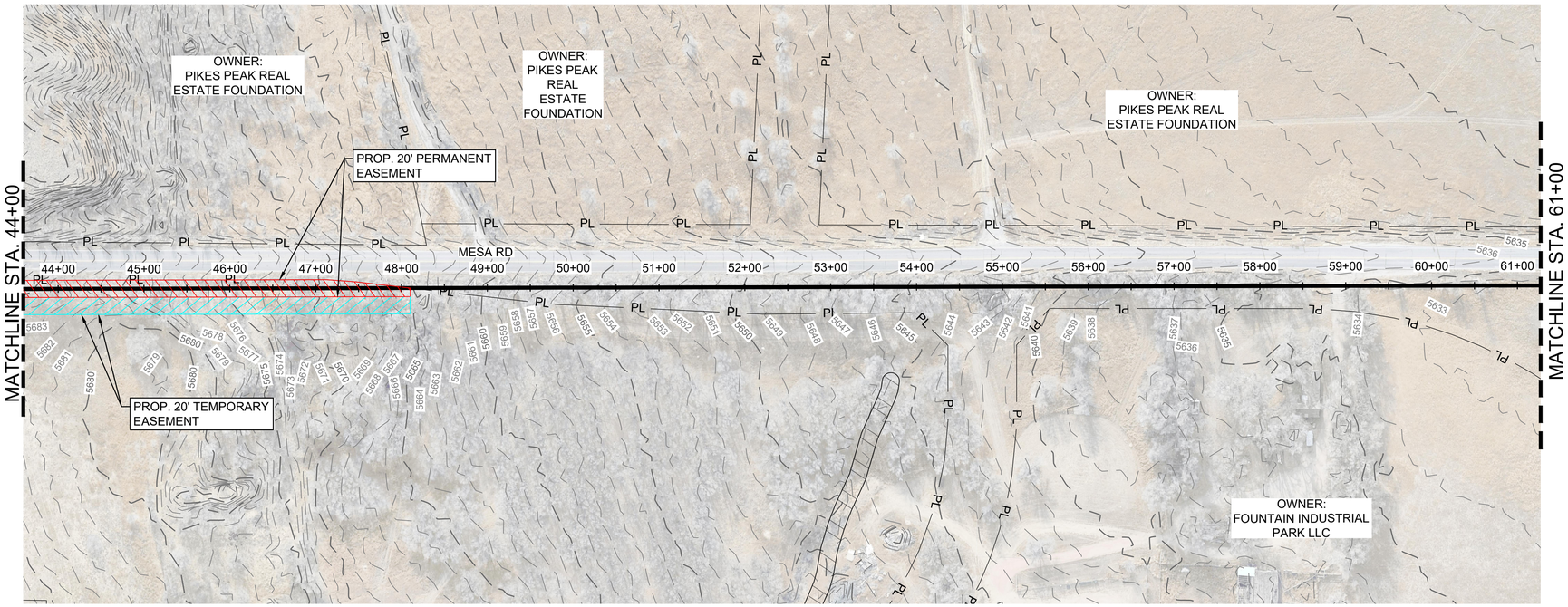
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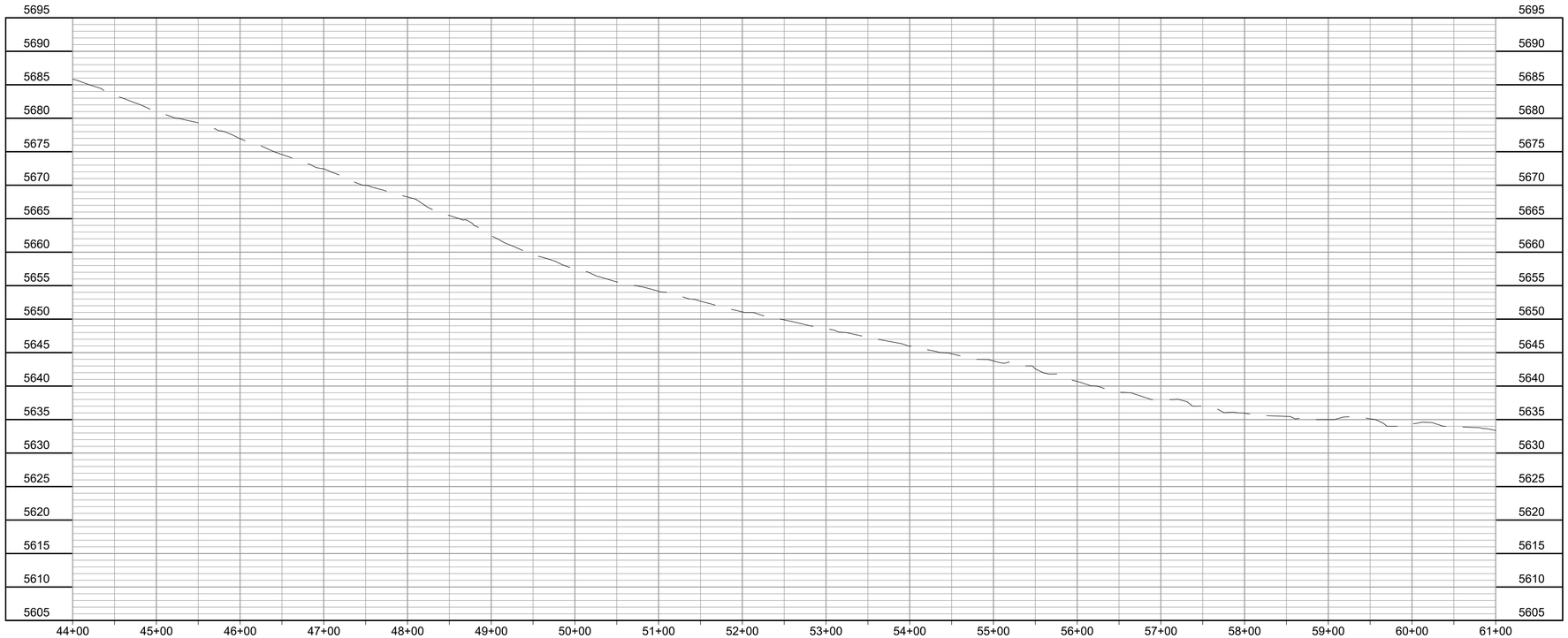
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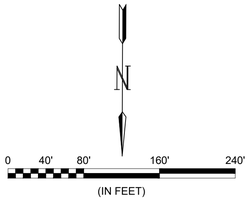
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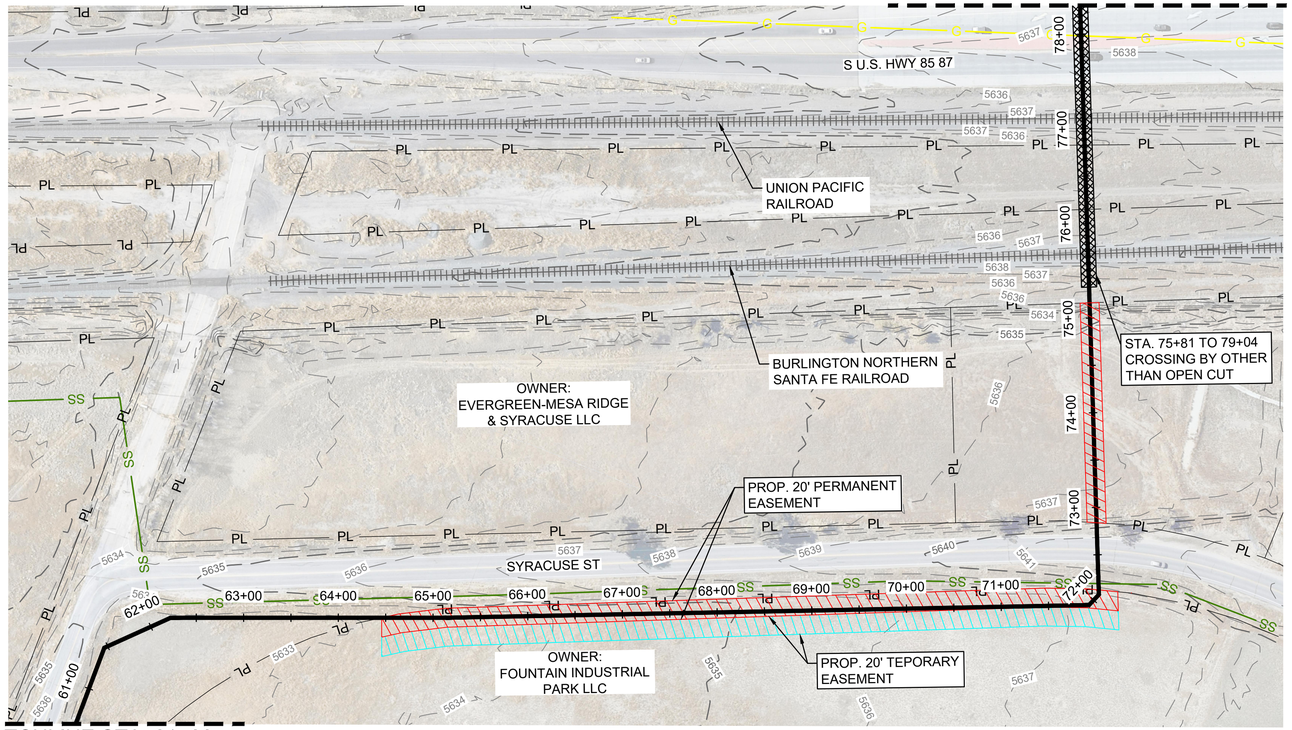
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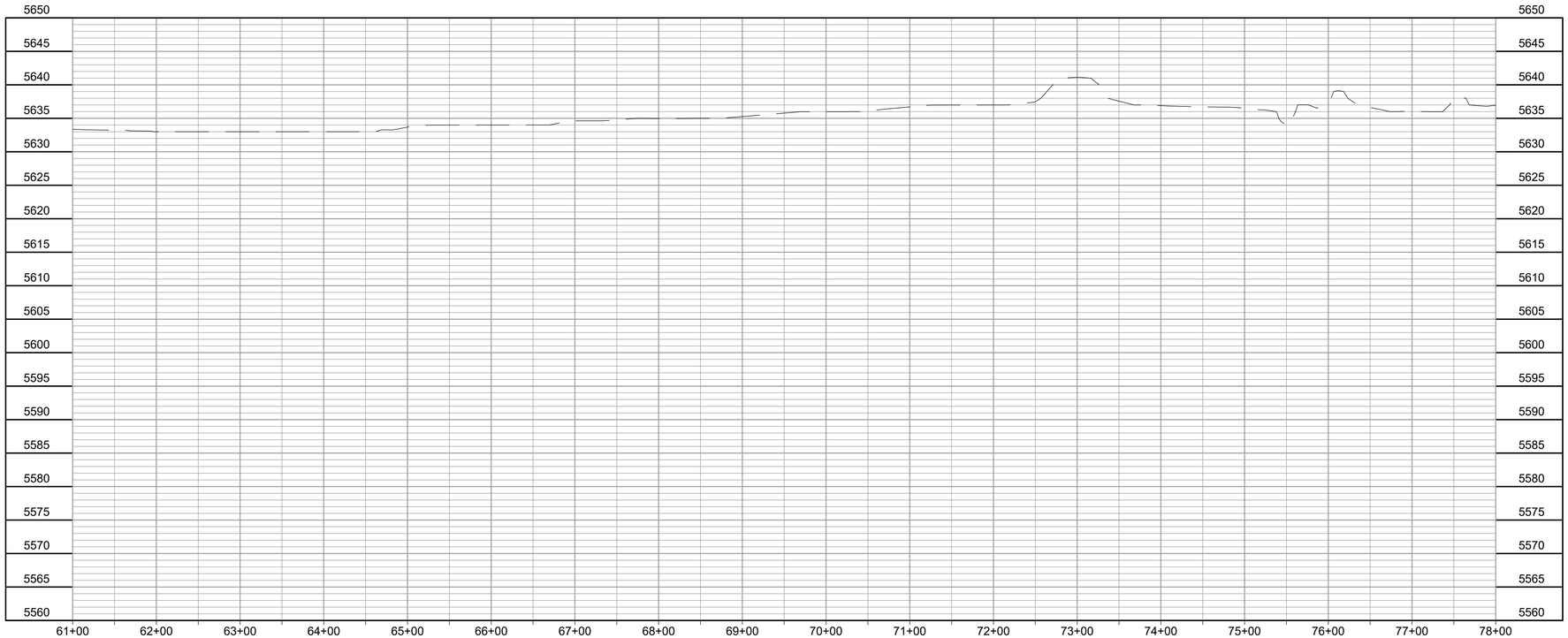
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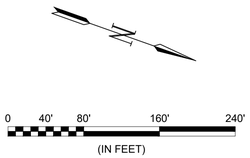
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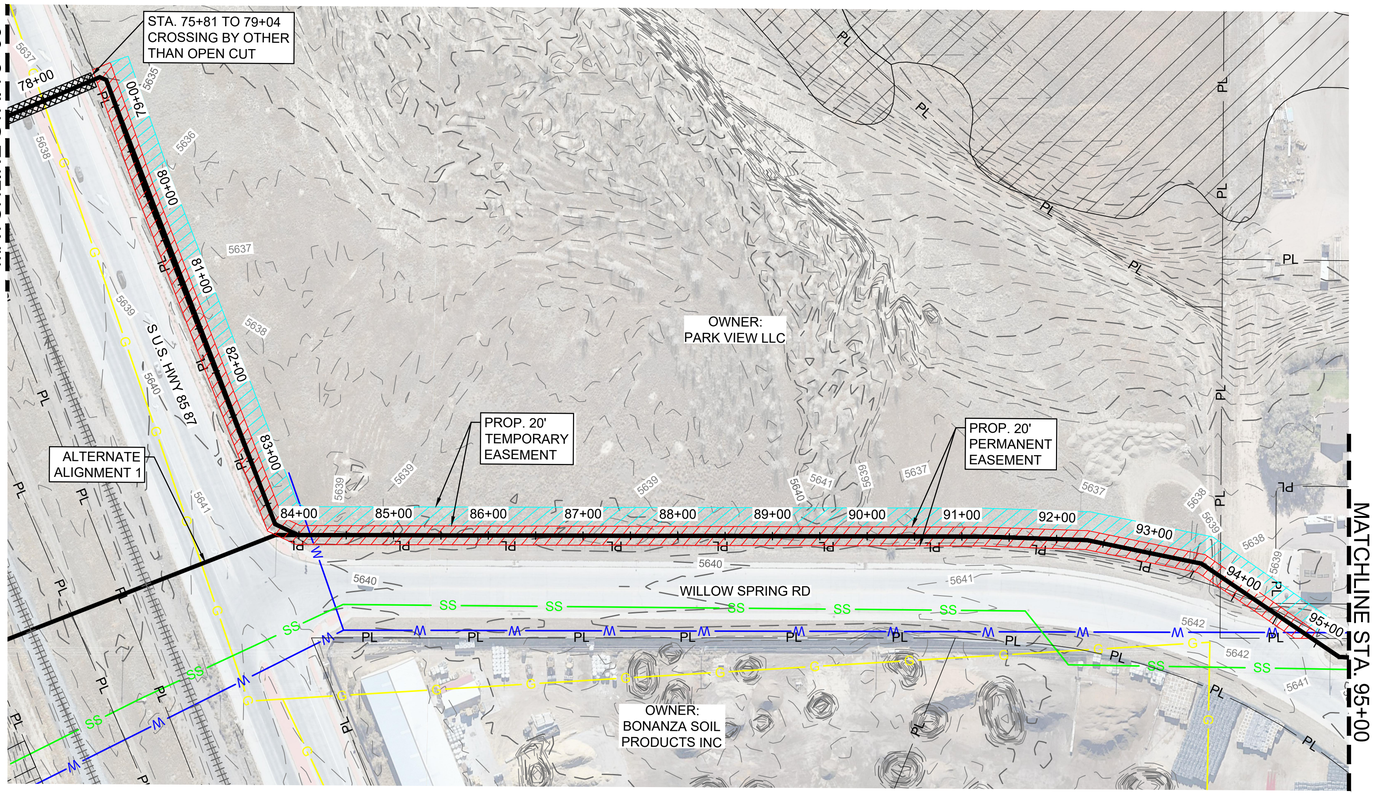
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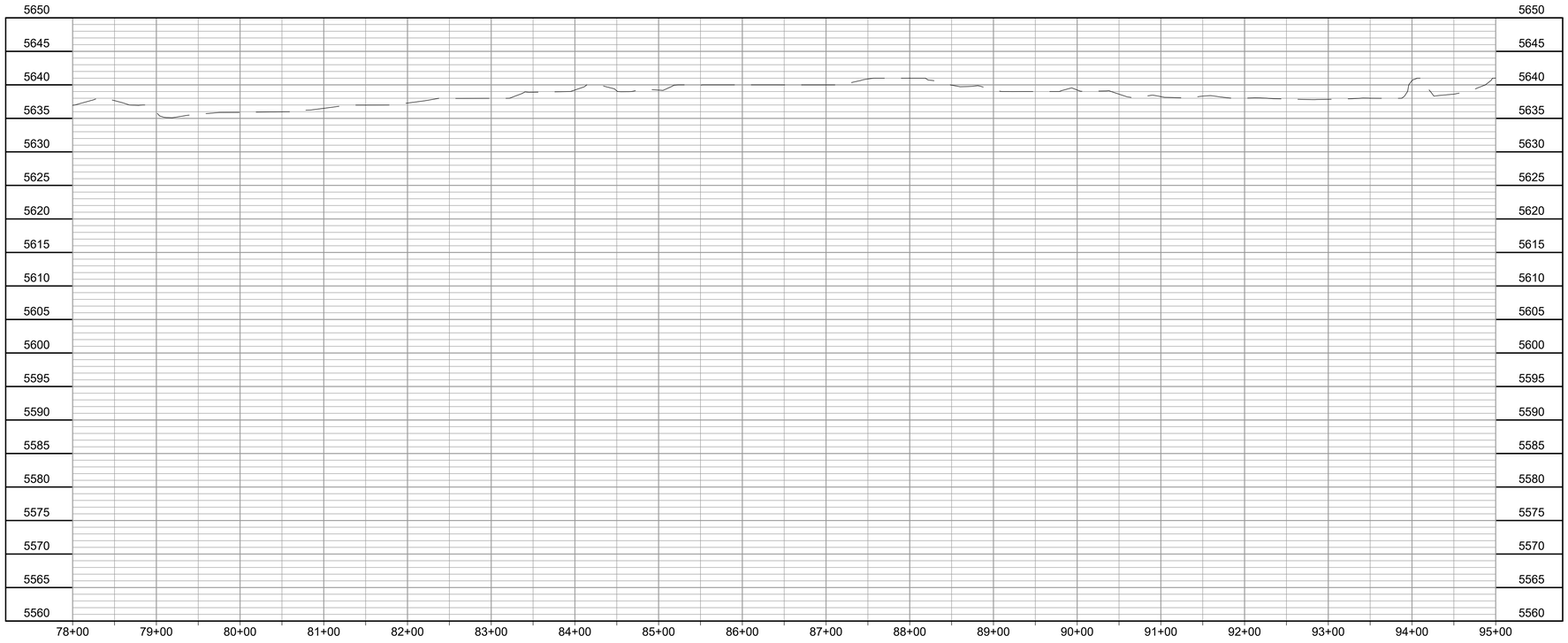
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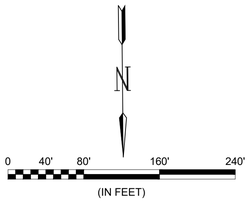
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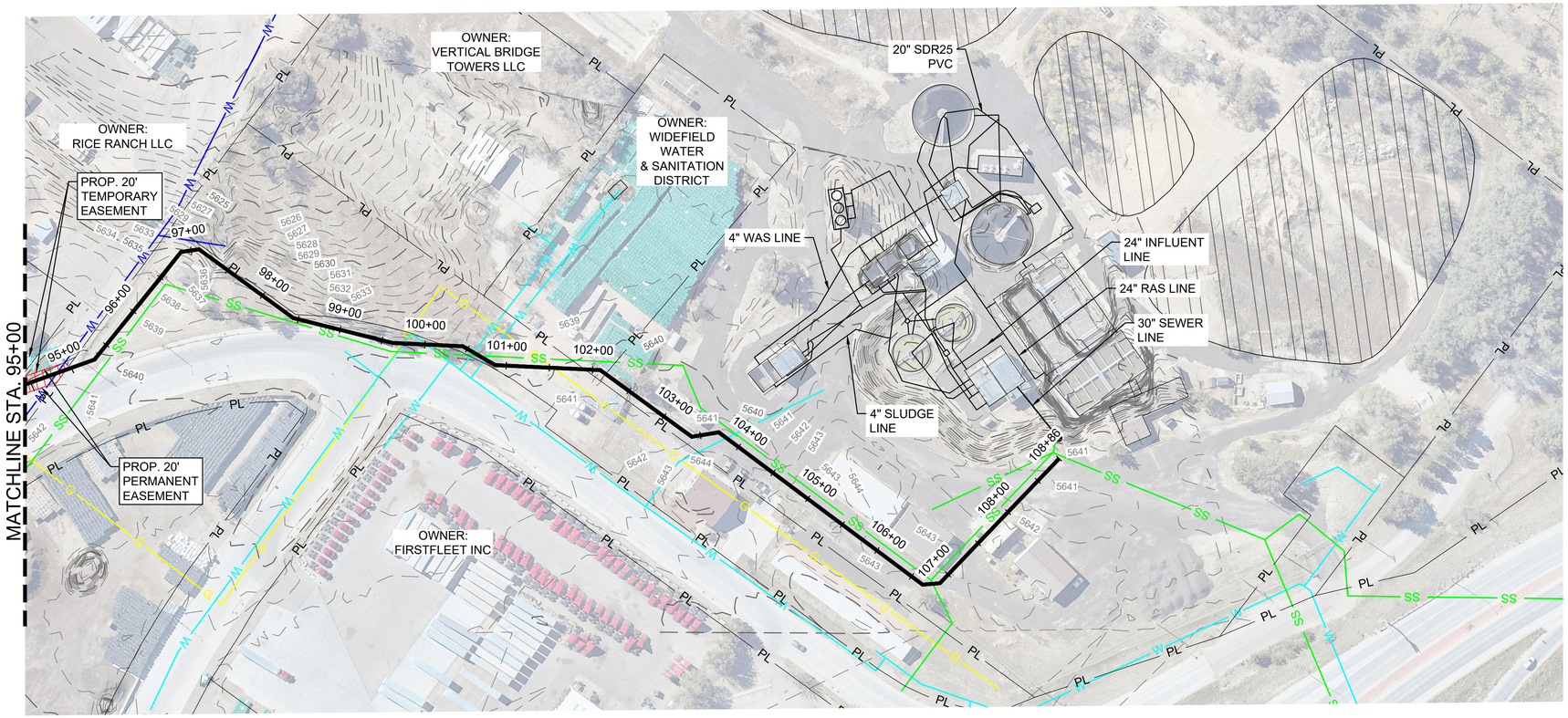
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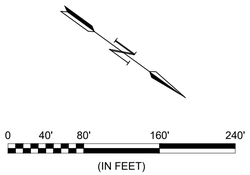
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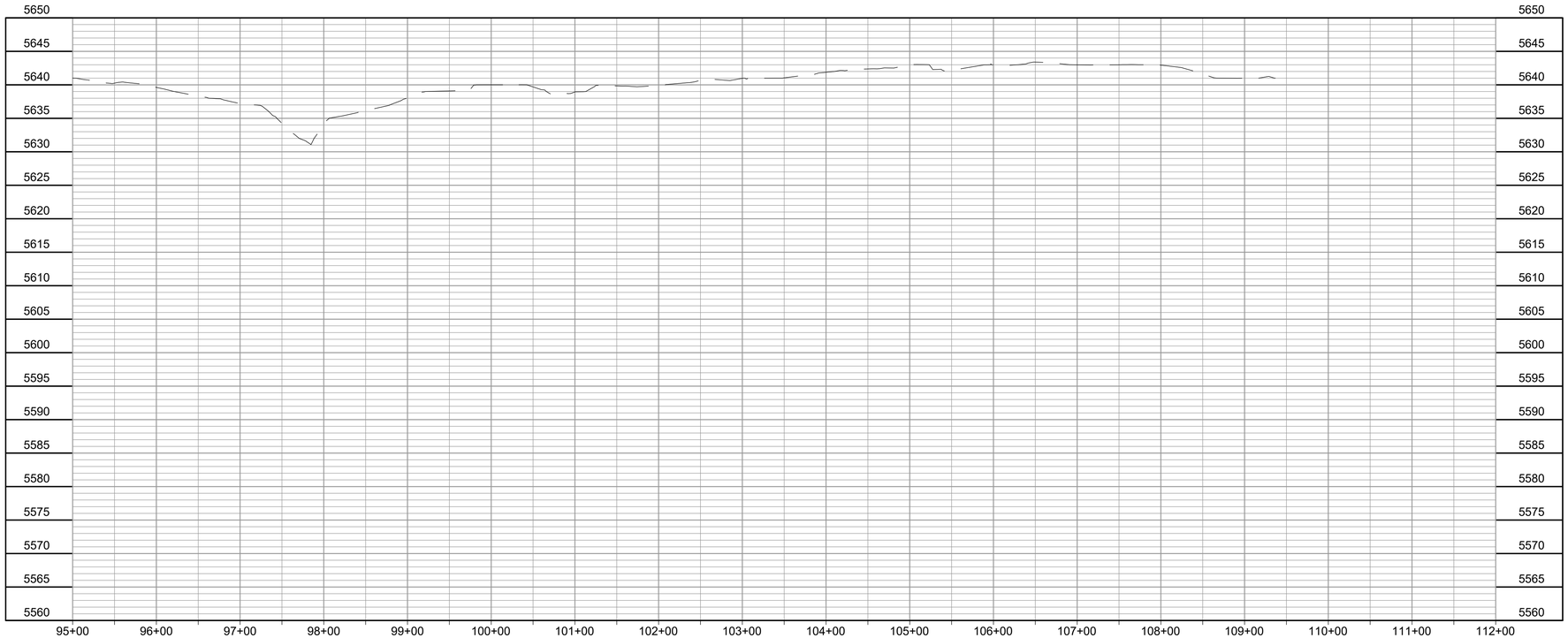
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Appendix C – Environmental Report

ENVIRONMENTAL DESKTOP ANALYSIS

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PROPOSED JIMMY CAMP LIFT STATION (JCLS)
FORCE MAIN EXTENSION DESIGN PROJECT

October 2023

Prepared by

ECOPOINT, INC

225 Hutton Ave,

Rifle, CO 81650

208.596.8194

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Table 4. Recognized Environmental Conditions in Hazardous Database Review within the Project Area. 14

EXECUTIVE SUMMARY

EcoPoint, Inc. conducted a desktop environmental review for the Widefield Water and Sanitation District (District) Jimmy Camp Lift Station (JCLS) Force Main Extension Design Project for Garver, LLC. The project is located in El Paso County in Division 2- Arkansas River Watershed. The District hired Garver in 2022 to complete an alignment and capacity study of the Mesa Ridge Interceptor and recommend infrastructure improvements that could reduce nuisance odor and increase interceptor capacity. The 2022 alignment and capacity study recommended that the existing JCLS Force Main be extended all the way to the Water Reclamation Facility (WRF) and that new segments of the force main be upsized to 16-inch. This force main extension would convey JCLS flows directly to the WRF and allow existing gravity flows from portions of District north of Mesa Ridge Parkway to remain in the interceptor, effectively increasing the useful life of the Mesa Ridge Interceptor. The Project Area encompasses both alternative alignments located in Widefield, Colorado primarily along a portion of Mesa Ridge Parkway in Sections 29 and 30, Township 15 S, Range 95W.

There are no threatened or endangered species critical habitat present in the Project Area. There are three migratory birds that may be present in the Project Area including Chestnut-collard Longspur, Ferruginous Hawk, and Long-billed Curlew. The Chestnut-collard Longspur migratory bird breeds May 1-August 10 and its habitat is rolling mixed-grass and shortgrass uplands without dense litter, the IPac report shows low probability of presence during the breeding season. The Long-billed Curlew breeds April – July but has a higher probability of presence in April. The Long-billed Curlew's habitat is in short-grass/mixed grass prairie. The Ferruginous Hawk breeds March 15- August 15 and may have nests in large trees near grassland/shrub steppe habitat. If construction activities are planned during the breading season for the Ferruginous Hawk, then identifying areas of active nests (in large trees) and avoiding their destruction are very helpful to minimize species impact. If construction is planned in April, it is recommended to also conduct active nest surveys for Long-billed Curlew in short grass/mixed grass prairie in the project area and avoid active nests during construction. The USFWS Mountain Prairie Region regulates Migratory Birds in Colorado, and a Special Purpose Migratory Bird Permit is not required but recommended. The Utility needs to apply for the permit. The purpose of the Permit is if any birds, feathers, nests, etc. are found during construction, these items cannot be removed from the site unless the Utility has a permit. More information can be found at the USFWS 3-200-81 Migratory Bird Special Use Purpose Utility (USFWS 50 CFR 21.95).

The Fountain Mutual Canal, south of the Janitell Junior High School is an irrigation canal, if there are wetlands present in the canal, the construction activities for the sewer lines including outfalls will qualify under Nationwide Permit 58, assuming the loss of wetlands is no greater than 0.5 acres. Notification to the USACE in the form of a pre-construction notification needs to be submitted prior to commencing the activity if the discharge will result in the loss of greater than 1/10th acre of waters of the United States. There are also exceptions for wetlands in irrigation ditches that are not regulated by the USACE.

INTRODUCTION/PURPOSE

EcoPoint, Inc. conducted a desktop environmental review for the Widefield Water and Sanitation District (District) Jimmy Camp Lift Station (JCLS) Force Main Extension Design Project for Garver, LLC. The project is located in El Paso County in Division 2- Arkansas River Watershed. The District hired Garver in 2022 to complete an alignment and capacity study of the Mesa Ridge Interceptor and recommend infrastructure improvements that could reduce nuisance odor and increase interceptor capacity. During this study the Mesa Ridge Interceptor was modeled in greater detail and multiple proposed improvements to the interceptor were also evaluated to assess their cost-effectiveness and feasibility. The sewer headspace (or air space within the sewer) was also evaluated over a range of sewer flows and this analysis found multiple manholes along the interceptor that were expected to release, or emit, significant quantities of air during high periods of high sewer flow. This finding was consistent with areas identified by staff as having a high amount of odor complaints in the past.

The 2022 alignment and capacity study recommended that the existing JCLS Force Main be extended all the way to the Water Reclamation Facility (WRF) and that new segments of the force main be upsized to 16-inch. This force main extension would convey JCLS flows directly to the WRF and allow existing gravity flows from portions of District north of Mesa Ridge Parkway to remain in the interceptor, effectively increasing the useful life of the Mesa Ridge Interceptor. Also, by reducing the volume of flow in the Mesa Ridge Interceptor the main driver for emission of nuisance odors would be directly addressed. In the future, a second force main could be installed between JCLS and the WRF to further increase sewer capacity.

LOCATION

The project includes two alignment alternatives. Alignment 1 runs along Mesa Ridge Parkway about 0.6 miles east of Fountain Mesa Road, south onto Syracuse Streat, and west across US Highway 85/87 onto Willow Spring Road, and west along Willow Spring Road to the WRF. Alternative 1 is about 1.68 miles in length. Alternative 2 runs along Mesa Ridge Parkway about 0.1 miles east of Fountain Mesa Road, north on Syracuse Street, west across US Highway 85/87, and west along Willow Spring Road to WRF. Alternative 2 is about 2.06 miles in length. Both alternative alignments are located in Sections 29 and 30, Township 15 South, Range 65 West and Section 25, Township 15S, Range 66W of the 6th P.M., El Paso County, Colorado. Both alternatives cross the Atchison, Topeka and the Santa Fe Railroad and the Denver & Rio Grande Western Railroad right-of-ways west of Syracuse Street.

METHODS

EcoPoint, Inc. conducted a desktop environmental review for the District JCLS Force Main Extension Design Project. EcoPoint reviewed the site visit photographs from Garver's June 2023 site visit and a variety of online GIS resources and databases. The desktop environmental review includes a review of the following databases:

- National wetlands inventory (NWI) and riparian areas
- Google Earth
- Site photos from Garver's June 28, 2023 site visit and August 31, 2023 site visit

- US Fish and Wildlife Service IPAC report (T&E species and migratory birds)
- CPW High Priority Habitat
- CPW Species Presence
- National Hydrological Dataset
- Colorado Water Conservation Board Division 2- Arkansas River Watershed Irrigated Lands and Irrigation Canals
- NRCS Soil Map Units, Prime Farmland, Ecological Site Descriptions, and Hydric Soils
- El Paso County Assessors
    - Land Analysis Report for Commercial Development SWC Mesa Ridge Parkway and Syracuse Street, Fountain, Colorado by Salem Engineering Group, Inc. January 6, 2020.
- ERIS Historical photograph search
- ERIS Database Report: search of historical records of hazardous materials

VEGETATION AND SOILS

The vegetation communities present in the Project Area include Upland Grassland, roadside ditches, and Prairie Dog Communities. The Upland Grassland community is dominated by *Bromus inermis* (smooth brome), *Pascopyrum smithii* (western wheatgrass), *Kochia scoparia* (kochia), and sunflower. The Upland Grassland communities are present throughout the Project Area. The roadside ditches generally have smooth brome, *Populous deltoides* (plains cottonwood), and *Rumex crispus* (curly dock) present. The prairie dog communities consist of overly grazed grasslands. The prairie dog communities are north of Mesa Road/ West of Fountain Mesa Road and to the East of Syracuse Street. Table shows the NRCS Soil Map Units in the Project Area, dominant soil texture, ecological site description (ESD).

Table 1. Soils and ESD in Project Area

NRCS Soil Map Unit #	NRCS Soil Map Unit Name	Dominant Topsoil Soil Texture*	Ecological Site Description (ESD).
10	Blendon sandy loam, 0 to 3 percent slopes	Sandy Loam	Sandy Foothill
97	Truckton sandy loam, 3 to 9 percent slopes	Sandy Loam	Sandy Foothill
120	Fort sandy loam, 8 to 15 percent slopes, cool	Sandy Loam	Sandy Plains
30	Fort Collins loam, 0 to 3 percent slopes	Loam	Loamy Plains
39	Keith silt loam, 0 to 3 percent slopes	Silt Loam	Loamy Plains
108	Wiley silt loam, 3 to 9 percent slopes	Silt Loam	Loamy Plains
59	Nunn clay loam, 0 to 3 percent slopes	Clay Loam	Clayey Plains
82	Schamber-Razor complex, 8 to 50 percent slopes	Gravelly Loam	Gravel Breaks
101	Ustic Torrifluvents, loamy	Variable	Saline Overflow
111	Water		Water

*According to NRCS Soil Map Unit Descriptions (Appendix A).

There is no prime farmland present in the project area as the fields are not irrigated. The last time the fields were irrigated appear to be in the 1970s. The soil map units are not hydric or have a very low (1-32%) soil rating for hydric soils based on the NRCS Soil Map Units.

COLORADO PARKS AND WILDLIFE HIGH PRIORITY HABITATS

There are no Colorado Parks and Wildlife (CPW) High Priority Habitat within the Project Area. High Priority Habitats include bald eagle and golden eagle active nest sites, greater sagebrush lek sites, and lesser prairie chicken lek sites, of which there are none in the Project Area. A list of CPW species present in the Project Area is included in Appendix B.

THREATENED/ENDANGERED SPECIES HABITAT REVIEW

EcoPoint ran a United States Fish and Wildlife (USFWS) Information for Planning and Consultation (IPaC) report, Appendix C, and found there are no critical habitats for Threatened/Endangered species present according the IPaC report. There are no threatened/endangered species habitat identified in the Project Area. Table 2 shows the threatened/endangered species identified in the IPaC report, type of habitat, and why species were not present in the Project Area.

MIGRATORY BIRDS HABITAT REVIEW

The USFWS IPaC report indicated potential migratory bird habitat present in the Project Area. Table 3 shows the migratory birds considered and if suitable habitat is present. There are three migratory birds that may be present in the Project Area including Chestnut-collard Longspur, Long-billed Curlew, and Ferruginous Hawk. The Chestnut-collard Longspur migratory bird breeds May 1- August 10 and its habitat is rolling mixed-grass and shortgrass uplands without dense litter, the IPac report shows low probability of presence during the breeding season. The Long-billed Curlew breeds April – July but has a higher probability of presence in April. The Long-billed Curlew's habitat is in short-grass/mixed grass prairie. The Ferruginous Hawk breeds March 15- August 15 and may have nests in large trees near grassland/shrub steppe habitat. If construction activities are planned during the breading season for the Ferruginous Hawk or Long-billed Curlew it is recommended that species specific nesting surveys been conducted at least 10 days before construction. The species-specific nesting surveys will confirm if nests are present in the Project Area and if the nests can be avoided during construction or if construction can be delayed till after the birds have fledged from the nests. If nests cannot be avoided during construction than the USFWS recommends that the District applies for a Special Purpose Migratory Bird Permit. The USFWS Mountain Prairie Region regulates Migratory Birds in Colorado, and a Special Purpose Migratory Bird Permit is not required but recommended if construction occurs during the breeding season. The Utility needs to apply for the permit. The purpose of the Permit is if any birds, feathers, nests, etc. are found during construction, these items cannot be removed from the site unless the Utility has a permit. More information can be found at: 3-200-81 - Migratory Bird: Special Purpose - Utility (servicenowservices.com).

Table 2. Threatened and Endangered Species Habitat Presence

Species	Type	Status	Habitat Present?	Habitat Description*
Preble's Meadow Jumping Mouse	Mammal	Threatened	No- wetland habitat not sufficient and upland grassland community is over grazed.	Found in El Paso County, US Air Force Academy. The Preble's meadow jumping mouse (Preble's mouse) is found in high plains riparian habitat often reaching to foothills riparian habitats from southeastern Wyoming to south central Colorado. Well-developed riparian vegetation includes a fairly dense combination of grasses, forbs, and shrubs with the possible inclusion of a taller tree and shrub canopy (Bakeman 1997; Meaney et al. 1997a; Shenk and Eussen 1999; Schorr 2001).
Eastern Black Rail	Bird	Threatened	No- Habitat does not exist.	The eastern black rail is a wetland dependent bird primarily associated with herbaceous, persistent, emergent wetland plant cover. The subspecies requires dense overhead cover and soils that are moist to saturated (occasionally dry) and interspersed with or adjacent to very shallow water (typically ≤ 3 cm; Table 2-3). Occupied habitat tends to be primarily composed of fine-stemmed emergent plants (rushes, grasses, and sedges) with high stem densities and dense overhead cover
Piping Plover	Bird	Threatened	No- Habitat is not present in the Project Area.	Piping Plovers in Colorado use sparsely vegetated sandy shores of reservoirs and gravel pits. Piping Plovers nest on the ground. In Colorado, the species has been found in Kiowa and Bent Counties in SE Colorado. The birds prefer ungrazed and low human disturbance areas. Information obtained by Colorado Parks of Wildlife Piping Plover Assessing Habitat Quality for Priority Wildlife Species in Colorado Wetlands (CPW 2020).

Species	Type	Status	Habitat Present?	Habitat Description*
Greenback Cutthroat Trout	Fish	Threatened	No- cold water streams present in Project Area.	Cold water streams that are capable of supporting a minimum of 20 kg/ha of fish and are not occupied by non-native trout (Greenback Cutthroat Trout Recovery Plan, 1998).
Pallid Sturgeon	Fish	Endangered	Does not apply.	This species only needs to be considered if the following condition applies: Project includes water-related activities and/or use in the N. Platte, S. Platte, and Laramie River Basins which may affect listed species in Nebraska.
Monarch Butterfly	Insect	Candidate	No habitat- A site visit conducted by Garver on 8/31/23 found no milkweeds present in the project area near the Fountain Mutual Canal or the stormwater drainage area west of Syracuse Street.**	During the breeding season, monarchs lay their eggs on their obligate milkweed host plant (primarily Asclepias spp.), and larvae emerge after two to five days
Ute Ladies'-tresses	Plant	Threatened	No habitat- there are no perennial streams in the area.	Suitable habitat includes moist soils, perennial streams, seeps, springs, with FACW or OBL vegetation present. Silty, sandy, graveling soils is preferred, with non-alkaline soils. Gentle slopes and gradual transitions to upland areas.

*Habitat Descriptions came from USFWS IPAC. Gray Wolf was not considered as the Project Area does not include a predator management program and the Project Area is within a dense population.

**If milkweeds are present during construction, it is recommended that these individual plants are not removed (disturbed or damaged) if they can be avoided. Colorado is not on the main migration path of monarch butterflies, but they can still be found in Colorado. The USFWS Section 7 of the Endangered Species Act does not contain requirements for candidate species. It is a voluntary effort to conserve monarch butterflies and their habitat (USFSW 2023). If milkweeds cannot be avoided during construction, it is recommended that milkweeds are included in the seeding mix for reclamation of disturbed areas for the project, thus introducing more habitat for monarch butterflies.

Table 3. Migratory Bird Habitat Presence

Species	Type	Status	Season Affected	Habitat Present?	Habitat Description*
Bald Eagle	Bird	Migratory Bird	Year Round	No-large bodies of water present, for good breeding habitat. There are some cottonwood trees present along roadway areas. Bald eagles may utilize the area to hunt but according to CPW GIS data (July 2023) there are no bald eagle nests, roost sites, winter concentration area, summer or winter forage areas in the Project Area.	Bald Eagles typically breed and winter in forested areas adjacent to large bodies of water. Throughout range, selects large, super-canopy roost trees that are open and accessible.
Chestnut-collard Longspur	Bird	Migratory Bird	Breeds May 1-August 10	Yes- Potential habitat is present. However, the IPaC report estimates the probability of presence to be outside of the breeding season in late August and early October.	Uses level to rolling mixed-grass and shortgrass uplands, and, in drier habitats, moist lowlands. Areas with dense litter accumulations are avoided. (NatureServe 2023).
Chimney Swift	Bird	Migratory Bird	Breeds March 15 – August 15	No- due to proximity of metropolitan area.	Cosmopolitan; inhabits rural and urban environments having both an abundance of flying arthropods and suitable roosting/nesting sites. Nests principally in chimneys, but also on the interior walls of a variety of other anthropogenic structures including silos, barns, outhouses, uninhabited houses, boathouses, wells, and cisterns. Due to the prevalence of nesting structures in areas populated by humans, often occurs at higher densities in anthropogenic environments than natural ones. (NatureServe 2023).
Clark's Grebe	Bird	Migratory Bird	Breeds June 1-August 31	No- dominant vegetation species not present.	Breeding areas are located in the central arid steppe and Big Sage/Fescue zones that stretch from California north and east to south-central Canada.

Table 3. Continued.

Species	Type	Status	Season Affected	Habitat Present?	Habitat Description*
Ferruginous Hawk	Bird	Migratory Bird	Wintering, breeds Mar 15-Aug15	Yes - Project Area has upland grassland present as well as several large trees along roadways.	Ideal habitat for Ferruginous Hawks is grassland and shrub-steppe habitat including pastures, hayland and cropland (Dechant et al. 1999, p. 2). Ferruginous Hawk nests can be found in trees and large shrubs and on roofs, utility structures and artificial platforms, or near the ground on river cutbanks, or less frequently other ground locations such as rockpiles and riverbed mounds (Goodrich and Smith 2008, p. 125).
Golden Eagle	Bird	Migratory Bird	Breeds Dec 1 – August 31	No- Lack of suitable nesting sites.	Golden eagles generally inhabit open and semi-open country such as prairies, sagebrush, arctic and alpine tundra, savannah or sparse woodland, and barren areas, especially in hilly or mountainous regions, in areas with sufficient mammalian prey base and near suitable nesting sites (rock ledges and cliffs).
Lesser Yellowlegs	Bird	Migratory Bird	Breeds elsewhere	No- Wintering habitat is not present due to lack of common vegetation in the habitat description.	Lesser Yellowlegs are common breeders in boreal forest and forest/tundra transition habitats. Wintering habitat use varies with rainfall; tidal flats may be frequented during the dry season, while adjacent shallow lagoons and marshes are used during the rainy season. Nests are depressions in the ground or moss, lined with dry grass, decayed leaves, spruce needles, and moss and twig fragments. Lining materials are taken from the immediate vicinity of the nest.
Lewis's Woodpecker	Bird	Migratory Bird	Breeds April 20-Sept 30	No- Habitat is not present due to the lack of common species in the habitat description.	Three important habitats for Lewis's Woodpeckers include open ponderosa pine forest, open riparian woodland dominated by cottonwood, and logged or burned pine forest. Their breeding distribution is widely associated with ponderosa pine distribution in western North America. Lewis's Woodpeckers commonly reuse existing nest holes or natural cavities in trees, as they do not use newly excavated ones

Table 3. Continued.

Species	Type	Status	Season Affected	Habitat Present?	Habitat Description*
Long-billed Curlew	Bird	Migratory Bird	Breeding	Yes- upland grassland communities are present in the Project Area and may provide suitable breeding habitat. The IPaC report estimates that the species is likely present in April.	Short-grass or mixed prairie habitat with flat to rolling topography while breeding; tidal estuaries, wet pasture habitats and sandy beaches while wintering; wide range of habitats used during migration. Nests are a shallow depression in the ground, with scraping initiated by male. Nest lining material is variable, but may include small pebbles, bark, grass, small stems and twigs, seeds and cheatgrass leaves as well as droppings from livestock, rabbits and Canada geese.
Long-eared Owl	Bird	Migratory Bird	Breeds Mar 1 to July 15	No- vegetation communities are not present.	Woodland - Hardwood, Forest - Conifer, Forest - Hardwood, Woodland - Conifer, Old field, Woodland - Mixed, Shrubland/chaparral, Forest – Mixed. Riparian-herbaceous wetland (NatureServe Explorer 2023).
Mountain Plover	Bird	Migratory Bird	Breeds April 15- Aug 15	No- not enough diversity in upland grassland.	Grassland/herbaceous, Cropland/hedgerow, Desert. In central and southwestern Montana, southeastern Wyoming, and northeastern Colorado, nesting often occurs in shortgrass prairie with a history of heavy grazing or in low shrub semideserts (NatureServe Explorer 2023).
Red-headed woodpecker	Bird	Migratory Bird	Breeds May 10- Sept 10	No- some large trees are present in the Project Area but not large groves.	Groves, farm country, orchards, shade trees in towns, large, scattered trees. Avoids unbroken forest, favoring open country or at least clearings in the woods. Forest edges, orchards, open pine woods, groves of tall trees in open country are likely habitats. Winter habitats influenced by source of food in fall, such as acorns or beechnuts. Uncommon in CO, sometimes very eastern CO

*Habitat Descriptions came from USFWS IPAC and NatureServe Explorer (Search Results | NatureServe Explorer).

FLOOD HAZARDS

A review of the FEMA flood hazard zones shows the Project Area in a 0.2% annual chance flood hazard.

WETLAND ASSESSMENT

EcoPoint conducted a desktop review of aquatic resources within the Project Area. There are two wetland potential areas in the Project Area. The Fountain Mutual Canal, south of the Junior High School is an irrigation canal (Figure 1). Garver engineers took a site walk in July 2023 and photographs show riparian shrub species (likely willow) in the canal with the adjacent upland being dominated by sunflower, western wheatgrass, and weedy annual species. If there are wetlands present in the canal, the construction activities for the sewer lines (including outfalls) will qualify under Nationwide Permit 58, assuming the loss of wetlands is no greater than 0.5 acres (USACE 2021). Notification to the USACE in the form of a pre-construction notification (PCN) needs to be submitted prior to commencing the activity if the discharge will result in the loss of greater than 1/10th acre of waters of the United States. Thus if planned disturbance in greater than 1/10th of an acre on the Fountain Mutal Canal it is recommended to have a consultant conduct a specific wetland delineation in the field to delineate the extent of the wetland and aid in the PCN. Further, the Fountain Mutual Canal is primarily used for irrigation and irrigation waters are generally not considered waters of the United States (EPA 2022). According to the Fountain Mutual Canal website: “FMIC irrigates approximately 2,000 acres of land and the ditch (including laterals) which runs slightly less than 35-miles of open ditch with several segments of piped sections. Most Shareholders today are no-longer Irrigators, but Augmentors who run water to fulfill their augmentation plans as water providers” (FMIC 2023).

A Water Quality and Detention Pond west of Syracuse Street (Figure 4), holds water during storm events, however, this detention pond is not jurisdictional as it does not have connectivity to any stream or interstate commerce and is not a permanent water body. The definition of a relatively permanent test is “waterbodies that must be relatively permanent, standing, or continuously flowing waters connected to waters or waters with a continuous surface connection to such relatively permanent waters” (USACE 2022). The drainage basin and water pathway are lined with concrete. The surrounding dominant vegetation, noted in a site visit by Garver on August 31, 2023, includes sunflower, western wheatgrass, kochia, *Agropyron cristatum* (crested wheatgrass), and smooth brome. These species are all upland plant species and are not hydrophytic. No intrusive soil samples were collected to determine if hydric soils are present. Also, the Salem Engineering Group, Inc. Land Analysis Report (2020) that was found for the proposed development of that area found no wetlands presence requiring a permit.

Figure 1. Near End of Existing Force Main



Figure 2 shows the new FM Start, on the north side of Mesa Ridge Parkway. There are roadside ditches that appear to be dominated with bindweed, kochia, and upland shrubs. No wetlands present.

Figure 2. New FM Start, North Side of Mesa Ridge Parkway



There is ponded water present west along Syracuse Street. Figure 3 and Figure 4 show the field to the north between Syracuse Street and Mesa Ridge Parkway and Figure 4 shows the field west of Syracuse Street. The vegetation in the field to the north appears to be green (likely due to the wet summertime moisture). The field to the west of Syracuse Street has a large, ponded area with open water present. According to construction drawings for the Mesa Ridge Crossing (January 2020) this area is a water quality/detntion pond. A Land Analysis Report by Salen Engineering Group, Inc. (Jan 2020) found that there are no known man-made or natural features that require mitigation including wetlands. The NWI shows no wetlands in this area.

Figure 3. Syracuse Street, Looking North



Figure 4. Syracuse Street Looking West



There is currently construction along Mesa Road, within the Project Area. The vegetation along the roadway appears to be dominated with kochia, upland grasses, cottonwood trees, and oakbrush (Figure 5). The field adjacent to Mesa Road and Fountain Mesa Road is a prairie dog community with grazed grasses and annual weeds. Another prairie dog community is found east of Syracuse Street, within the project area.

Figure 5. Land around Mesa Road



No other wetlands or other waters of the United States occur within the Project Area. Based on the proposed waterline route, limited wetlands will be impacted, should disturbance occur along the Fountain Mutual Canal.

NOXIOUS / INVASIVE WEEDS

A site-specific survey was not conducted for the Project Area. Soil and Ecological Site Descriptions in Project Areas weeds. El Paso County has six List A Noxious Weeds, 20 List B Noxious Weeds, and four List C noxious weeds. Photographs from the site walk conducted by Garver in June 2023 show there are several annual forb species present in the Project Area, some of which are invasive weeds. It is recommended that the noxious weeds be treated prior to construction. Also, it is recommended that vehicles are washed prior to moving to another location to limit the spread of noxious/invasive weed seeds.

HAZARDOUS MATERIALS REVIEW

EcoPoint contracted with ERIS to run an Environmental Risk Report for the Project Area. The report searches through federal and state electronic databases to determine if there is any likely presence of hazardous areas within the Project Area. The Environmental Risk Report showed limited presence of any hazardous substances or petroleum products in, on, or at the Project Area. See Table 4 for a summary of the ERIS Database results within the Project Area and Figure 6 showing the location of the review. Appendix D has the full ERIS Report.

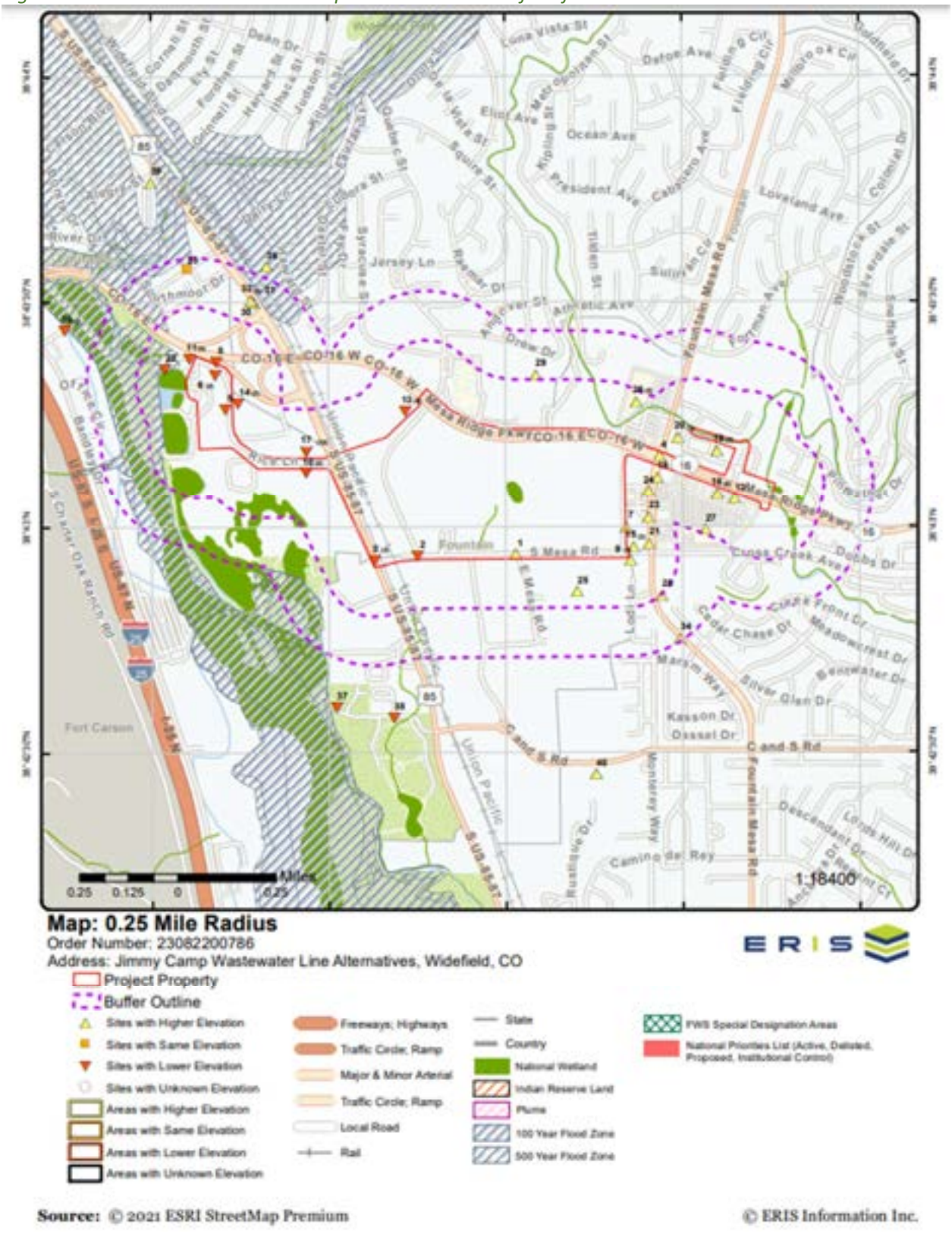
There have been two spills in the Project Area, one in 2011 due to a vehicular accident at the intersection of Mesa Ridge Parkway and Fountain Mesa Road. The spill was cleaned up by CDOT, the material was cake biosolids. The other spill occurred west of Willow Spring Road at the Waste Water Treatment Plant due to an equipment failure in 2018. There is one permanently closed underground storage tank at Widefield Homes along Fountain Mesa Road.

There are no requirements for construction required for the spills or underground storage tanks found in the project area as the spills have been cleaned up and the underground storage tank has been closed.

Table 4. Recognized Environmental Conditions in Hazardous Database Review within the Project Area

Database	Within the Project Area
UST (Underground Storage Tank)	1 (Widefield Homes- Permanently closed, Fountain Mesa Road)
FINDS/FRS (The Facility Registry Service (FRS) is a centrally managed database that identifies facilities, sites, or places subject to environmental regulations or of environmental interest)	2 (District and Mr. Car Wash on Fountain Mesa Road)
ICIS (ICIS-NPDES is an information management system maintained by the Office of Compliance to track permit compliance and enforcement status of facilities regulated by the NPDES under the Clean Water Act. This data includes permit, inspection, violation and enforcement action information for applicable ICIS records.)	2 (District and Highway 85 Outfall Sewer (Hwy 85/Mesa Road)
Spills (A list of hazardous material spills and releases (including Meth Labs) that were reported to the Colorado Department of Public Health and Environment (CDPHE).)	2 (District and intersection of Mesa Ridge Pkwy/ Fountain Mesa Road)
PDES- A list of permitted facilities tracked by the Water Quality Control Division of the Department of Public Health & Environment (DPHE). This list is the state version of the NPDES (National Pollution Discharge Elimination System).	3 (District-2 and Thompson Thrift Construction Stormwater Permit)

Figure 6. ERIS Hazardous Review Map within 0.25 miles of Project Area



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APPENDIX A NRCS SOIL MAP UNIT REPORT

United States Department of Agriculture

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for El Paso County Area, Colorado



August 29, 2023

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

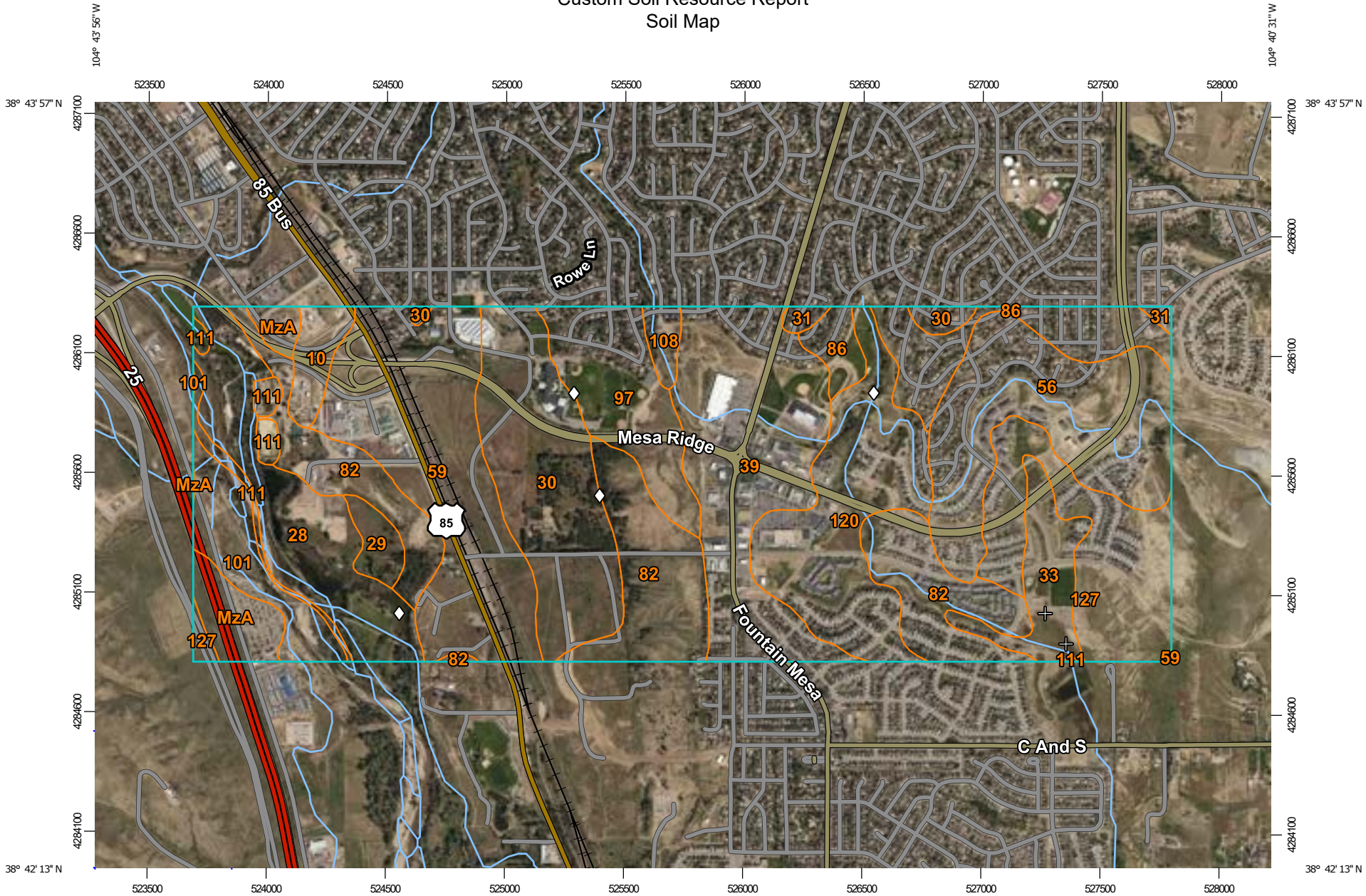
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 20, Sep 2, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 14, 2018—Sep 23, 2018

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
10	Blendon sandy loam, 0 to 3 percent slopes	20.5	1.4%
28	Ellicott loamy coarse sand, 0 to 5 percent slopes	105.9	7.0%
29	Fluvaquentic Haplaquolls, nearly level	14.0	0.9%
30	Fort Collins loam, 0 to 3 percent slopes	142.0	9.4%
31	Fort Collins loam, 3 to 8 percent slopes	6.0	0.4%
33	Heldt clay loam, 0 to 3 percent slopes	43.9	2.9%
39	Keith silt loam, 0 to 3 percent slopes	168.6	11.1%
56	Nelson-Tassel fine sandy loams, 3 to 18 percent slopes	150.8	10.0%
59	Nunn clay loam, 0 to 3 percent slopes	181.3	12.0%
82	Schamber-Razor complex, 8 to 50 percent slopes	183.9	12.2%
86	Stoneham sandy loam, 3 to 8 percent slopes	71.1	4.7%
97	Truckton sandy loam, 3 to 9 percent slopes	74.7	4.9%
101	Ustic Torrifluvents, loamy	46.4	3.1%
108	Wiley silt loam, 3 to 9 percent slopes	10.1	0.7%
111	Water	19.1	1.3%
120	Fort sandy loam, 8 to 15 percent slopes, cool	131.9	8.7%
127	Midway-Razor clay loams, dry, 1 to 18 percent slopes	107.4	7.1%
MzA	Manzanola silty clay loam, saline, 0 to 2 percent slopes	35.0	2.3%
Totals for Area of Interest		**1,512.6**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps.

The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

El Paso County Area, Colorado

10—Blendon sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 3671
Elevation: 6,000 to 6,800 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 125 to 145 days
Farmland classification: Not prime farmland

Map Unit Composition

Blendon and similar soils: 98 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Blendon

Setting

Landform: Alluvial fans, terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy alluvium derived from arkose

Typical profile

A - 0 to 10 inches: sandy loam
Bw - 10 to 36 inches: sandy loam
C - 36 to 60 inches: gravelly sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Available water supply, 0 to 60 inches: Moderate (about 6.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 1 percent
Hydric soil rating: No

Pleasant

Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

28—Ellicott loamy coarse sand, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 3680
Elevation: 5,500 to 6,500 feet
Mean annual precipitation: 13 to 15 inches
Mean annual air temperature: 47 to 50 degrees F
Frost-free period: 125 to 145 days
Farmland classification: Not prime farmland

Map Unit Composition

Ellicott and similar soils: 97 percent
Minor components: 3 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ellicott

Setting

Landform: Stream terraces, flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy alluvium

Typical profile

A - 0 to 4 inches: loamy coarse sand
C - 4 to 60 inches: stratified coarse sand to sandy loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: NoneFrequent
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: A
Ecological site: R069XY031CO - Sandy Bottomland

Other vegetative classification: SANDY BOTTOMLAND (069AY031CO)
Hydric soil rating: No

Minor Components

Fluvaquentic haplaquoll
Percent of map unit: 1 percent
Landform: Swales
Hydric soil rating: Yes

Other soils
Percent of map unit: 1 percent
Hydric soil rating: No

Pleasant
Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

29—Fluvaquentic Haplaquolls, nearly level

Map Unit Setting
National map unit symbol: 3681
Elevation: 5,000 to 7,800 feet
Mean annual precipitation: 13 to 15 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 110 to 165 days
Farmland classification: Not prime farmland

Map Unit Composition
Fluvaquentic haplaquolls and similar soils: 98 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fluvaquentic Haplaquolls

Setting
Landform: Marshes, flood plains, swales
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile
A - 0 to 12 inches: variable
C - 12 to 60 inches: stratified very gravelly sand to loam

Properties and qualities
Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 6.00 in/hr)
Depth to water table: About 0 to 24 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: D
Ecological site: R067BY029CO - Sandy Meadow
Hydric soil rating: Yes

Minor Components

Haplaquolls

Percent of map unit: 1 percent
Landform: Domes
Hydric soil rating: Yes

Other soils

Percent of map unit: 1 percent
Hydric soil rating: No

30—Fort Collins loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 3683
Elevation: 5,200 to 6,500 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 135 to 155 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Fort collins and similar soils: 98 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fort Collins

Setting

Landform: Flats
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy alluvium

Typical profile

A - 0 to 9 inches: loam
Bt - 9 to 16 inches: clay loam
Bk - 16 to 21 inches: clay loam
Ck - 21 to 60 inches: loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.1 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: R067BY002CO - Loamy Plains
Other vegetative classification: LOAMY PLAINS (069AY006CO)
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 1 percent
Hydric soil rating: No

Pleasant

Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

31—Fort Collins loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 3684
Elevation: 5,200 to 6,500 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 48 to 52 degrees F
Farmland classification: Not prime farmland

Map Unit Composition

Fort collins and similar soils: 98 percent

Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fort Collins

Setting
Landform: Hills
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy alluvium

Typical profile
A - 0 to 9 inches: loam
Bt - 9 to 16 inches: clay loam
Bk - 16 to 21 inches: clay loam
Ck - 21 to 60 inches: loam

Properties and qualities
Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.1 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R067BY002CO - Loamy Plains
Other vegetative classification: LOAMY PLAINS (069AY006CO)
Hydric soil rating: No

Minor Components

Other soils
Percent of map unit: 1 percent
Hydric soil rating: No

Pleasant
Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

33—Heldt clay loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 3686
Elevation: 5,200 to 6,500 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 135 to 155 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Heldt and similar soils: 98 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Heldt

Setting

Landform: Stream terraces, alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey alluvium derived from shale

Typical profile

Ap - 0 to 8 inches: clay loam
Bw - 8 to 41 inches: silty clay
Bk - 41 to 60 inches: silty clay loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Gypsum, maximum content: 4 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 10.0
Available water supply, 0 to 60 inches: High (about 10.4 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: C
Ecological site: R069XY047CO - Alkaline Plains

Other vegetative classification: ALKALINE PLAINS (069BY047CO)
Hydric soil rating: No

Minor Components

Other soils
Percent of map unit: 1 percent
Hydric soil rating: No

Pleasant
Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

39—Keith silt loam, 0 to 3 percent slopes

Map Unit Setting
National map unit symbol: 368d
Elevation: 5,500 to 5,800 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 135 to 155 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition
Keith and similar soils: 98 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Keith

Setting
Landform: Flats
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty eolian deposits

Typical profile
A - 0 to 8 inches: silt loam
Bt - 8 to 20 inches: silty clay loam
Bk - 20 to 30 inches: silty clay loam
Ck - 30 to 60 inches: silt loam

Properties and qualities
Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)

Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water supply, 0 to 60 inches: High (about 11.0 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R069XY006CO - Loamy Plains
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 1 percent
Hydric soil rating: No

Pleasant

Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

56—Nelson-Tassel fine sandy loams, 3 to 18 percent slopes

Map Unit Setting

National map unit symbol: 3690
Elevation: 5,600 to 6,400 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 135 to 155 days
Farmland classification: Not prime farmland

Map Unit Composition

Nelson and similar soils: 55 percent
Tassel and similar soils: 40 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nelson

Setting

Landform: Hills
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Calcareous residuum weathered from interbedded sedimentary rock

Typical profile

A - 0 to 5 inches: fine sandy loam
Ck - 5 to 23 inches: fine sandy loam
Cr - 23 to 27 inches: weathered bedrock

Properties and qualities

Slope: 3 to 12 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 2.8 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R067BY045CO - Shaly Plains
Other vegetative classification: SHALY PLAINS (069AY046CO)
Hydric soil rating: No

Description of Tassel

Setting

Landform: Hills
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Calcareous slope alluvium over residuum weathered from sandstone

Typical profile

A - 0 to 4 inches: fine sandy loam
C - 4 to 10 inches: fine sandy loam
Cr - 10 to 14 inches: weathered bedrock

Properties and qualities

Slope: 3 to 18 percent
Depth to restrictive feature: 6 to 20 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Available water supply, 0 to 60 inches: Very low (about 1.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Ecological site: R067BY045CO - Shaly Plains
Other vegetative classification: SHALY PLAINS (069AY046CO)
Hydric soil rating: No

Minor Components

Other soils
Percent of map unit: 4 percent
Hydric soil rating: No

Pleasant
Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

59—Nunn clay loam, 0 to 3 percent slopes

Map Unit Setting
National map unit symbol: 3693
Elevation: 5,400 to 6,500 feet
Mean annual precipitation: 13 to 15 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 135 to 155 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition
Nunn and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nunn

Setting
Landform: Terraces, fans
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Typical profile
A - 0 to 12 inches: clay loam
Bt - 12 to 26 inches: clay loam
BC - 26 to 30 inches: clay loam
Bk - 30 to 58 inches: sandy clay loam
C - 58 to 72 inches: clay

Properties and qualities
Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches

Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Gypsum, maximum content: 2 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.8 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 3c
Hydrologic Soil Group: C
Ecological site: R069XY042CO - Clayey Plains
Other vegetative classification: CLAYEY PLAINS (069AY042CO)
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 4 percent
Hydric soil rating: No

Pleasant

Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

82—Schamber-Razor complex, 8 to 50 percent slopes

Map Unit Setting

National map unit symbol: 369y
Elevation: 5,500 to 6,500 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 135 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Schamber and similar soils: 55 percent
Razor and similar soils: 43 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Schamber

Setting

Landform: Breaks

Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite and/or colluvium derived from granite and/or eolian deposits derived from granite

Typical profile

A - 0 to 5 inches: gravelly loam
AC - 5 to 15 inches: very gravelly loam
C - 15 to 60 inches: very gravelly sand

Properties and qualities

Slope: 8 to 50 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: R069XY064CO - Gravel Breaks
Hydric soil rating: No

Description of Razor

Setting

Landform: Breaks
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey slope alluvium over residuum weathered from shale

Typical profile

A - 0 to 3 inches: clay loam
Bw - 3 to 9 inches: clay loam
Bk - 9 to 31 inches: clay
Cr - 31 to 35 inches: weathered bedrock

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Gypsum, maximum content: 5 percent

Maximum salinity: Moderately saline to strongly saline (8.0 to 16.0 mmhos/cm)
Sodium adsorption ratio, maximum: 15.0
Available water supply, 0 to 60 inches: Low (about 5.5 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: R069XY047CO - Alkaline Plains
Other vegetative classification: ALKALINE PLAINS (069AY047CO)
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 1 percent
Hydric soil rating: No

Pleasant

Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

86—Stoneham sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 36b2
Elevation: 5,100 to 6,500 feet
Mean annual precipitation: 13 to 15 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 135 to 155 days
Farmland classification: Not prime farmland

Map Unit Composition

Stoneham and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Stoneham

Setting

Landform: Hills
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Calcareous loamy alluvium

Typical profile

A - 0 to 4 inches: sandy loam
Bt - 4 to 8 inches: sandy clay loam

Btk - 8 to 11 inches: sandy clay loam
Ck - 11 to 60 inches: loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.5 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: R067BY024CO - Sandy Plains
Other vegetative classification: SANDY PLAINS (069AY026CO)
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 4 percent
Hydric soil rating: No

Pleasant

Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

97—Truckton sandy loam, 3 to 9 percent slopes

Map Unit Setting

National map unit symbol: 2x0j2
Elevation: 5,300 to 6,850 feet
Mean annual precipitation: 14 to 19 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 85 to 155 days
Farmland classification: Not prime farmland

Map Unit Composition

Truckton and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Truckton

Setting

Landform: Hillslopes, interfluves
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Re-worked alluvium derived from arkose

Typical profile

A - 0 to 4 inches: sandy loam
Bt1 - 4 to 12 inches: sandy loam
Bt2 - 12 to 19 inches: sandy loam
C - 19 to 80 inches: sandy loam

Properties and qualities

Slope: 3 to 9 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Maximum salinity: Nonsaline (0.1 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.6 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Minor Components

Blakeland

Percent of map unit: 8 percent
Landform: Hillslopes, interfluves
Landform position (two-dimensional): Shoulder, backslope, summit
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Bresser

Percent of map unit: 7 percent
Landform: Low hills, interfluves
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave

Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

101—Ustic Torrifluvents, loamy

Map Unit Setting

National map unit symbol: 3673
Elevation: 5,500 to 7,000 feet
Mean annual precipitation: 13 to 16 inches
Mean annual air temperature: 47 to 52 degrees F
Frost-free period: 125 to 155 days
Farmland classification: Not prime farmland

Map Unit Composition

Ustic torrifluvents and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ustic Torrifluvents

Setting

Landform: Stream terraces, flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy, clayey, stratified loamy

Typical profile

A - 0 to 6 inches: variable
C - 6 to 60 inches: stratified loamy sand to clay loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.6 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: R069XY037CO - Saline Overflow
Other vegetative classification: OVERFLOW (069BY036CO)
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 4 percent
Hydric soil rating: No

Pleasant

Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

108—Wiley silt loam, 3 to 9 percent slopes

Map Unit Setting

National map unit symbol: 367b
Elevation: 5,200 to 6,200 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 135 to 155 days
Farmland classification: Not prime farmland

Map Unit Composition

Wiley and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wiley

Setting

Landform: Hills
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Calcareous silty eolian deposits

Typical profile

A - 0 to 4 inches: silt loam
Bt - 4 to 16 inches: silt loam
Bk - 16 to 60 inches: silt loam

Properties and qualities

Slope: 3 to 9 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 11.5 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R067BY002CO - Loamy Plains
Other vegetative classification: LOAMY PLAINS (069AY006CO)
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 4 percent
Hydric soil rating: No

Pleasant

Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

111—Water

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

120—Fort sandy loam, 8 to 15 percent slopes, cool

Map Unit Setting

National map unit symbol: 2t50p
Elevation: 4,000 to 6,500 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 48 to 54 degrees F
Frost-free period: 125 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Fort, cool, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fort, Cool

Setting

Landform: Interfluves, hills
Landform position (two-dimensional): Backslope, footslope

Landform position (three-dimensional): Side slope, head slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium and/or eolian deposits

Typical profile

A - 0 to 5 inches: sandy loam
Bt - 5 to 13 inches: clay loam
Btk - 13 to 28 inches: clay loam
Bk1 - 28 to 36 inches: loam
Bk2 - 36 to 79 inches: sandy loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Maximum salinity: Nonsaline to very slightly saline (0.1 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Moderate (about 8.2 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R069XY026CO - Sandy Plains
Forage suitability group: Loamy (G069XW017CO)
Other vegetative classification: Sandy Plains #26 (069XY026CO_2), Loamy (G069XW017CO)
Hydric soil rating: No

Minor Components

Vonid

Percent of map unit: 10 percent
Landform: Ridges, hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex
Ecological site: R069XY026CO - Sandy Plains
Other vegetative classification: Loamy, Dry (G069XW019CO)
Hydric soil rating: No

Wilid

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R069XY006CO - Loamy Plains

Other vegetative classification: Loamy Plains #6 (069XY006CO_2), Loamy (G069XW017CO)
Hydric soil rating: No

127—Midway-Razor clay loams, dry, 1 to 18 percent slopes

Map Unit Setting

National map unit symbol: 2t52f
Elevation: 3,700 to 6,400 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 48 to 54 degrees F
Frost-free period: 130 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Midway, dry, and similar soils: 46 percent
Razor, dry, and similar soils: 44 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Midway, Dry

Setting

Landform: Hillslopes, ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Slope alluvium and/or residuum weathered from shale

Typical profile

A - 0 to 3 inches: clay loam
AC - 3 to 9 inches: clay
C - 9 to 16 inches: paragravelly clay
Cr - 16 to 79 inches: bedrock

Properties and qualities

Slope: 3 to 18 percent
Depth to restrictive feature: 11 to 20 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.00 to 0.21 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Gypsum, maximum content: 5 percent
Maximum salinity: Very slightly saline to slightly saline (2.0 to 7.9 mmhos/cm)
Sodium adsorption ratio, maximum: 10.0

Available water supply, 0 to 60 inches: Very low (about 2.2 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: R069XY046CO - Shaly Plains
Hydric soil rating: No

Description of Razor, Dry

Setting

Landform: Hillslopes, pediments
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Slope alluvium and/or residuum weathered from shale

Typical profile

A - 0 to 4 inches: clay loam
Bw - 4 to 15 inches: silty clay
Bky - 15 to 30 inches: clay
Cr - 30 to 79 inches: bedrock

Properties and qualities

Slope: 1 to 9 percent
Depth to restrictive feature: 20 to 39 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.00 to 0.21 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Gypsum, maximum content: 5 percent
Maximum salinity: Very slightly saline to slightly saline (2.0 to 7.9 mmhos/cm)
Sodium adsorption ratio, maximum: 10.0
Available water supply, 0 to 60 inches: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: R069XY047CO - Alkaline Plains
Hydric soil rating: No

Minor Components

Manzanola

Percent of map unit: 9 percent
Landform: Hillslopes, fan remnants
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Base slope, side slope
Down-slope shape: Linear
Across-slope shape: Linear

Ecological site: R069XY042CO - Clayey Plains
Other vegetative classification: Loamy Plains #6 (069XY006CO_2)
Hydric soil rating: No

Rock outcrop
Percent of map unit: 1 percent
Hydric soil rating: No

MzA—Manzanola silty clay loam, saline, 0 to 2 percent slopes

Map Unit Setting
National map unit symbol: 2rgrg
Elevation: 3,900 to 6,000 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 48 to 54 degrees F
Frost-free period: 130 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition
Manzanola and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Manzanola

Setting
Landform: Terraces, interfluves, fan remnants, drainageways
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Side slope, tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from shale

Typical profile
A - 0 to 4 inches: silty clay loam
Bt1 - 4 to 11 inches: silty clay loam
Bt2 - 11 to 26 inches: silty clay loam
Bk1 - 26 to 38 inches: silty clay loam
Bk2 - 38 to 79 inches: silty clay loam

Properties and qualities
Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 14 percent

Gypsum, maximum content: 3 percent
Maximum salinity: Moderately saline (8.0 to 15.0 mmhos/cm)
Sodium adsorption ratio, maximum: 13.0
Available water supply, 0 to 60 inches: Very high (about 12.1 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: C
Ecological site: R069XY037CO - Saline Overflow
Other vegetative classification: Saline Overflow (069XY037CO_1)
Hydric soil rating: No

Minor Components

Haversid

Percent of map unit: 5 percent
Landform: Terraces, drainageways
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R069XY037CO - Saline Overflow
Other vegetative classification: Loamy (G069XW017CO)
Hydric soil rating: No

Aguilar

Percent of map unit: 5 percent
Landform: Fan remnants
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R069XY033CO - Salt Flat
Other vegetative classification: Salt Flat #33 (069AY033CO_2), Sodic, Sodic/Saline (G069XW027CO)
Hydric soil rating: No

Soil Information for All Uses

Soil Reports

The Soil Reports section includes various formatted tabular and narrative reports (tables) containing data for each selected soil map unit and each component of each unit. No aggregation of data has occurred as is done in reports in the Soil Properties and Qualities and Suitabilities and Limitations sections.

The reports contain soil interpretive information as well as basic soil properties and qualities. A description of each report (table) is included.

AOI Inventory

This folder contains a collection of tabular reports that present a variety of soil information. Included are various map unit description reports, special soil interpretation reports, and data summary reports.

Component Legend

This report presents general information about the map units and map unit components in the selected area. It shows map unit symbols and names and the components in each map unit. It also shows the percent of the components in the map units, the kind of component, and the slope range of each component.

Report—Component Legend

Component Legend–El Paso County Area, Colorado							
Map unit symbol and name	Map unit acres	Pct. of map unit	Component name	Component kind	Pct. slope		
					Low	RV	High
10—Blendon sandy loam, 0 to 3 percent slopes	11,680						
		98	Blendon	Series	0.0	2.0	3.0
28—Ellicott loamy coarse sand, 0 to 5 percent slopes	25,916						
		97	Ellicott	Series	0.0	3.0	5.0

Custom Soil Resource Report

Component Legend–El Paso County Area, Colorado							
Map unit symbol and name	Map unit acres	Pct. of map unit	Component name	Component kind	Pct. slope		
					Low	RV	High
29—Fluvaquentic Haplaquolls, nearly level	3,746						
		98	Fluvaquentic haplaquolls	Family	0.0	1.0	2.0
30—Fort Collins loam, 0 to 3 percent slopes	2,171						
		98	Fort collins	Series	0.0	2.0	3.0
31—Fort Collins loam, 3 to 8 percent slopes	4,859						
		98	Fort collins	Series	3.0	6.0	8.0
33—Heldt clay loam, 0 to 3 percent slopes	6,706						
		98	Heldt	Series	0.0	2.0	3.0
39—Keith silt loam, 0 to 3 percent slopes	5,387						
		98	Keith	Series	0.0	2.0	3.0
56—Nelson-Tassel fine sandy loams, 3 to 18 percent slopes	13,570						
		55	Nelson	Series	3.0	8.0	12.0
		40	Tassel	Series	3.0	11.0	18.0
59—Nunn clay loam, 0 to 3 percent slopes	10,665						
		95	Nunn	Series	0.0	2.0	3.0
82—Schamber-Razor complex, 8 to 50 percent slopes	18,148						
		55	Schamber	Series	8.0	29.0	50.0
		43	Razor	Series	8.0	12.0	15.0
86—Stoneham sandy loam, 3 to 8 percent slopes	5,274						
		95	Stoneham	Series	3.0	6.0	8.0
97—Truckton sandy loam, 3 to 9 percent slopes	72,659						
		85	Truckton	Series	3.0	5.0	9.0
101—Ustic Torrifluvents, loamy	24,061						
		95	Ustic torrifluvents	Family	0.0	2.0	3.0
108—Wiley silt loam, 3 to 9 percent slopes	6,348						
		95	Wiley	Series	3.0	6.0	9.0
111—Water	1,738						
		100	Water	Miscellaneous area			
120—Fort sandy loam, 8 to 15 percent slopes, cool	1,735						
		85	Fort, cool	Series	8.0	10.0	15.0

Component Legend–El Paso County Area, Colorado							
Map unit symbol and name	Map unit acres	Pct. of map unit	Component name	Component kind	Pct. slope		
					Low	RV	High
127—Midway-Razor clay loams, dry, 1 to 18 percent slopes	22,148						
		46	Midway, dry	Series	3.0	9.0	18.0
		44	Razor, dry	Series	1.0	6.0	9.0
MzA—Manzanola silty clay loam, saline, 0 to 2 percent slopes	5,983						
		90	Manzanola	Series	0.0	1.0	2.0

Land Classifications

This folder contains a collection of tabular reports that present a variety of soil groupings. The reports (tables) include all selected map units and components for each map unit. Land classifications are specified land use and management groupings that are assigned to soil areas because combinations of soil have similar behavior for specified practices. Most are based on soil properties and other factors that directly influence the specific use of the soil. Example classifications include ecological site classification, farmland classification, irrigated and nonirrigated land capability classification, and hydric rating.

Hydric Soils

This table lists the map unit components that are rated as hydric soils in the survey area. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and others, 2002).

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for all of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register,

2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

Map units that are dominantly made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units dominantly made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

The criteria for hydric soils are represented by codes in the table (for example, 2). Definitions for the codes are as follows:

1. All Histels except for Folistels, and Histosols except for Folists.
2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, Pachic subgroups, or Cumulic subgroups that:
    A. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or
    B. Show evidence that the soil meets the definition of a hydric soil;
3. Soils that are frequently ponded for long or very long duration during the growing season.
    A. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or
    B. Show evidence that the soil meets the definition of a hydric soil;
4. Map unit components that are frequently flooded for long duration or very long duration during the growing season that:
    A. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or
    B. Show evidence that the soil meets the definition of a hydric soil;

Hydric Condition: Food Security Act information regarding the ability to grow a commodity crop without removing woody vegetation or manipulating hydrology.

References:
Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.
Federal Register. September 18, 2002. Hydric soils of the United States.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.
Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.
National Research Council. 1995. Wetlands: Characteristics and boundaries.
Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.
Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.
Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.
Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.
United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

Report—Hydric Soils

Hydric Soils–El Paso County Area, Colorado				
Map symbol and map unit name	**Component**	**Percent of map unit**	**Landform**	**Hydric criteria**
10—Blendon sandy loam, 0 to 3 percent slopes				
	Pleasant	1	Depressions	3
28—Ellicott loamy coarse sand, 0 to 5 percent slopes				
	Fluvaquentic haplaquoll	1	Swales	2
	Pleasant	1	Depressions	3
29—Fluvaquentic Haplaquolls, nearly level				
	Fluvaquentic haplaquolls	98	Marshes, flood plains, swales	2
	Haplaquolls	1	Domes	2, 3
30—Fort Collins loam, 0 to 3 percent slopes				
	Pleasant	1	Depressions	3
31—Fort Collins loam, 3 to 8 percent slopes				
	Pleasant	1	Depressions	3
33—Heldt clay loam, 0 to 3 percent slopes				
	Pleasant	1	Depressions	3
39—Keith silt loam, 0 to 3 percent slopes				
	Pleasant	1	Depressions	3
56—Nelson-Tassel fine sandy loams, 3 to 18 percent slopes				
	Pleasant	1	Depressions	3

Hydric Soils–El Paso County Area, Colorado				
Map symbol and map unit name	**Component**	**Percent of map unit**	**Landform**	**Hydric criteria**
59—Nunn clay loam, 0 to 3 percent slopes				
	Pleasant	1	Depressions	3
82—Schamber-Razor complex, 8 to 50 percent slopes				
	Pleasant	1	Depressions	3
86—Stoneham sandy loam, 3 to 8 percent slopes				
	Pleasant	1	Depressions	3
101—Ustic Torrifluvents, loamy				
	Pleasant	1	Depressions	3
108—Wiley silt loam, 3 to 9 percent slopes				
	Pleasant	1	Depressions	3

Prime and other Important Farmlands

This table lists the map units in the survey area that are considered important farmlands. Important farmlands consist of prime farmland, unique farmland, and farmland of statewide or local importance. This list does not constitute a recommendation for a particular land use.

In an effort to identify the extent and location of important farmlands, the Natural Resources Conservation Service, in cooperation with other interested Federal, State, and local government organizations, has inventoried land that can be used for the production of the Nation's food supply.

Prime farmland is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil quality, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. The water supply is dependable and of adequate quality. Prime farmland is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

For some of the soils identified in the table as prime farmland, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures.

A recent trend in land use in some areas has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

Unique farmland is land other than prime farmland that is used for the production of specific high-value food and fiber crops, such as citrus, tree nuts, olives, cranberries, and other fruits and vegetables. It has the special combination of soil quality, growing season, moisture supply, temperature, humidity, air drainage, elevation, and aspect needed for the soil to economically produce sustainable high yields of these crops when properly managed. The water supply is dependable and of adequate quality. Nearness to markets is an additional consideration. Unique farmland is not based on national criteria. It commonly is in areas where there is a special microclimate, such as the wine country in California.

In some areas, land that does not meet the criteria for prime or unique farmland is considered to be *farmland of statewide importance* for the production of food, feed, fiber, forage, and oilseed crops. The criteria for defining and delineating farmland of statewide importance are determined by the appropriate State agencies. Generally, this land includes areas of soils that nearly meet the requirements for prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. Some areas may produce as high a yield as prime farmland if conditions are favorable. Farmland of statewide importance may include tracts of land that have been designated for agriculture by State law.

In some areas that are not identified as having national or statewide importance, land is considered to be *farmland of local importance* for the production of food, feed, fiber, forage, and oilseed crops. This farmland is identified by the appropriate local agencies. Farmland of local importance may include tracts of land that have been designated for agriculture by local ordinance.

Report—Prime and other Important Farmlands

Prime and other Important Farmlands–El Paso County Area, Colorado		
Map Symbol	**Map Unit Name**	**Farmland Classification**
10	Blendon sandy loam, 0 to 3 percent slopes	Not prime farmland
28	Ellicott loamy coarse sand, 0 to 5 percent slopes	Not prime farmland
29	Fluvaquentic Haplaquolls, nearly level	Not prime farmland
30	Fort Collins loam, 0 to 3 percent slopes	Prime farmland if irrigated
31	Fort Collins loam, 3 to 8 percent slopes	Not prime farmland
33	Heldt clay loam, 0 to 3 percent slopes	Prime farmland if irrigated
39	Keith silt loam, 0 to 3 percent slopes	Prime farmland if irrigated
56	Nelson-Tassel fine sandy loams, 3 to 18 percent slopes	Not prime farmland
59	Nunn clay loam, 0 to 3 percent slopes	Prime farmland if irrigated

Prime and other Important Farmlands–El Paso County Area, Colorado		
Map Symbol	**Map Unit Name**	**Farmland Classification**
82	Schamber-Razor complex, 8 to 50 percent slopes	Not prime farmland
86	Stoneham sandy loam, 3 to 8 percent slopes	Not prime farmland
97	Truckton sandy loam, 3 to 9 percent slopes	Not prime farmland
101	Ustic Torrifluvents, loamy	Not prime farmland
108	Wiley silt loam, 3 to 9 percent slopes	Not prime farmland
111	Water	Not prime farmland
120	Fort sandy loam, 8 to 15 percent slopes, cool	Not prime farmland
127	Midway-Razor clay loams, dry, 1 to 18 percent slopes	Not prime farmland
MzA	Manzanola silty clay loam, saline, 0 to 2 percent slopes	Not prime farmland

Soil Erosion

This folder contains a collection of tabular reports that present soil erosion factors and groupings. The reports (tables) include all selected map units and components for each map unit. Soil erosion factors are soil properties and interpretations used in evaluating the soil for potential erosion. Example soil erosion factors can include K factor for the whole soil or on a rock free basis, T factor, wind erodibility group and wind erodibility index.

Conservation Planning

This report provides those soil attributes for the conservation plan for the map units in the selected area. The report includes the map unit symbol, the component name, and the percent of the component in the map unit. It provides the soil description along with the slope, runoff, T Factor, WEI, WEG, Erosion class, Drainage class, Land Capability Classification, and the engineering Hydrologic Group and the erosion factors Kf, the representative percentage of fragments, sand, silt, and clay in the mineral surface horizon. Missing surface data may indicate the presence of an organic surface layer. Further information on these factors can be found in the National Soil Survey Handbook section 618 found at the url http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/ref/?cid=nrcs142p2_054223#00 .

Soil properties and interpretations for conservation planning. The surface mineral horizon properties are displayed. Organic surface horizons are not displayed.

Conservation Planning–El Paso County Area, Colorado																	
Map symbol and soil name	Pct. of map unit	Slope RV	USLE Slope Length ft.	Runoff	T Factor	WEI	WEG	Erosion	Drainage	NIRR LCC	Hydrologic Group	Surface					
												Depths in.	Kf Factor	Frag-ments RV	Sand RV	Silt RV	Clay RV
10—Blendon sandy loam, 0 to 3 percent slopes																	
Blendon	98	2.0	—	Low	5	86	3	—	Well drained	3e	B	0 - 9	.20	3	66	19	14
28—Ellicott loamy coarse sand, 0 to 5 percent slopes																	
Ellicott	97	3.0	—	Very low	5	134	2	—	Somewhat excessively drained	7w	A	0 - 3	.17	11	84	11	5
29—Fluvaquentic Haplaquolls, nearly level																	
Fluvaquentic Haplaquolls	98	1.0	—	Very high	3	0	8	—	Poorly drained	5w	D	0 - 11	—	—	—	—	—
30—Fort Collins loam, 0 to 3 percent slopes																	
Fort Collins	98	2.0	—	Low	5	56	5	—	Well drained	4e	B	0 - 9	.28	—	44	40	15
31—Fort Collins loam, 3 to 8 percent slopes																	
Fort Collins	98	6.0	—	Medium	5	56	5	—	Well drained	6e	B	0 - 9	.28	—	44	40	15
33—Heldt clay loam, 0 to 3 percent slopes																	
Heldt	98	2.0	—	Low	5	48	6	—	Well drained	4c	C	0 - 7	.24	—	34	32	33
39—Keith silt loam, 0 to 3 percent slopes																	
Keith	98	2.0	—	Low	5	48	6	—	Well drained	4e	C	0 - 7	.37	—	11	67	21

Conservation Planning–El Paso County Area, Colorado																	
Map symbol and soil name	Pct. of map unit	Slope RV	USLE Slope Length ft.	Runoff	T Factor	WEI	WEG	Erosion	Drainage	NIRR LCC	Hydrologic Group	Surface					
												Depths in.	Kf Factor	Frag-ments RV	Sand RV	Silt RV	Clay RV
56—Nelson-Tassel fine sandy loams, 3 to 18 percent slopes																	
Nelson	55	8.0	—	Medium	3	86	3	—	Well drained	6e	B	0 - 5	.24	13	65	27	7
Tassel	40	11.0	—	Medium	2	86	3	—	Well drained	6s	D	0 - 3	.28	11	62	26	11
59—Nunn clay loam, 0 to 3 percent slopes																	
Nunn	95	2.0	—	Low	5	48	6	—	Well drained	3c	C	0 - 11	.17	—	35	33	31
82—Schamber-Razor complex, 8 to 50 percent slopes																	
Schamber	55	29.0	—	Medium	2	48	6	—	Well drained	7e	A	0 - 5	.28	29	44	40	15
Razor	43	12.0	—	Medium	3	48	6	—	Well drained	6e	D	0 - 3	.24	—	33	32	34
86—Stoneham sandy loam, 3 to 8 percent slopes																	
Stoneham	95	6.0	—	Medium	5	86	3	—	Well drained	4e	B	0 - 3	.28	13	65	19	15
97—Truckton sandy loam, 3 to 9 percent slopes																	
Truckton	85	5.0	160	Low	5	86	3	—	Well drained	6e	A	0 - 3	.28	—	68	24	8
101—Ustic Torrifluvents, loamy																	
Ustic Torrifluvents	95	2.0	—	Low	5	—	—	—	Well drained	3e	B	0 - 5	—	—	—	—	—
108—Wiley silt loam, 3 to 9 percent slopes																	
Wiley	95	6.0	—	Medium	5	86	4L	—	Well drained	6e	B	0 - 3	.43	—	11	67	21

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Conservation Planning–El Paso County Area, Colorado																	
Map symbol and soil name	Pct. of map unit	Slope RV	USLE Slope Length ft.	Runoff	T Factor	WEI	WEG	Erosion	Drainage	NIRR LCC	Hydrologic Group	Surface					
												Depths in.	Kf Factor	Frag-ments RV	Sand RV	Silt RV	Clay RV
120—Fort sandy loam, 8 to 15 percent slopes, cool																	
Fort, cool	85	10.0	118	—	5	86	3	Class 1	Well drained	6e	B	0 - 5	.17	—	65	18	16
127—Midway-Razor clay loams, dry, 1 to 18 percent slopes																	
Midway, dry	46	9.0	124	High	2	86	4L	—	Well drained	6e	D	0 - 3	.24	—	32	31	37
Razor, dry	44	6.0	150	Medium	3	86	4L	—	Well drained	6e	D	0 - 3	.20	—	31	31	38
MzA—Manzanola silty clay loam, saline, 0 to 2 percent slopes																	
Manzanola	90	1.0	196	—	5	86	4L	Class 1	Well drained	4c	C	0 - 3	.37	—	12	59	29

Vegetative Productivity

This folder contains a collection of tabular reports that present vegetative productivity data. The reports (tables) include all selected map units and components for each map unit. Vegetative productivity includes estimates of potential vegetative production for a variety of land uses, including cropland, forestland, hayland, pastureland, horticulture and rangeland. In the underlying database, some states maintain crop yield data by individual map unit component. Other states maintain the data at the map unit level. Attributes are included for both, although only one or the other is likely to contain data for any given geographic area. For other land uses, productivity data is shown only at the map unit component level. Examples include potential crop yields under irrigated and nonirrigated conditions, forest productivity, forest site index, and total rangeland production under of normal, favorable and unfavorable conditions.

Link to Ecological Site Descriptions in EDIT

This report generates a list of components and any associated ecological sites. Hyperlinks are created for each ecological site. Clicking on the hyperlink opens the Ecological Site Description in the USDA-Natural Resource Conservation Service (USDA-NRCS) Ecological Site Interpretative Tool (EDIT).

EDIT is an online information system that contains the official list of publicly available USDA-NRCS ecological sites. It replaces the out-of-date Ecological Site Information System (ESIS).

Not all Ecological Site Descriptions are publicly available in EDIT. Please contact your local State Soil Scientist if you have problems viewing the ecological site description within EDIT.

The report only displays information for those soils that are within the Area of Interest and are linked to an ecological site in the Soil Survey Geographic Database (SSURGO). If a soil (component) is not linked to an ecological site, it will not be displayed in the report.

The report displays soil map unit names and symbols, ecological site IDs, ecological site names, and available links to the EDIT website.

Report—Link to Ecological Site Descriptions in EDIT

This report links the soils in the Area of Interest to the ecological sites in the EDIT website.

Custom Soil Resource Report

Link to Ecological Site Descriptions in EDIT–El Paso County Area, Colorado					
Map symbol and map unit name	**Component**	**Percent of map unit**	**Ecological Site ID**	**Ecological Site Name**	**Hyperlink to Ecological Site Description in EDIT**
10—Blendon sandy loam, 0 to 3 percent slopes					
	Blendon	98	R049XB210CO	Sandy Foothill	https://edit.jornada.nmsu.edu/catalogs/esd/049X/R049XB210CO
28—Ellicott loamy coarse sand, 0 to 5 percent slopes					
	Ellicott	97	R069XY031CO	Sandy Bottom land	https://edit.jornada.nmsu.edu/catalogs/esd/069X/R069XY031CO
29—Fluvaquentic Haplaquolls, nearly level					
	Fluvaquentic haplaquolls	98	R067BY029CO	Sandy Meadow	https://edit.jornada.nmsu.edu/catalogs/esd/067B/R067BY029CO
30—Fort Collins loam, 0 to 3 percent slopes					
	Fort collins	98	R067BY002CO	Loamy Plains	https://edit.jornada.nmsu.edu/catalogs/esd/067B/R067BY002CO
31—Fort Collins loam, 3 to 8 percent slopes					
	Fort collins	98	R067BY002CO	Loamy Plains	https://edit.jornada.nmsu.edu/catalogs/esd/067B/R067BY002CO
33—Heldt clay loam, 0 to 3 percent slopes					
	Heldt	98	R069XY047CO	Alkaline Plains	https://edit.jornada.nmsu.edu/catalogs/esd/069X/R069XY047CO
39—Keith silt loam, 0 to 3 percent slopes					
	Keith	98	R069XY006CO	Loamy Plains	https://edit.jornada.nmsu.edu/catalogs/esd/069X/R069XY006CO
56—Nelson-Tassel fine sandy loams, 3 to 18 percent slopes					
	Nelson	55	R067BY045CO	Shaly Plains	https://edit.jornada.nmsu.edu/catalogs/esd/067B/R067BY045CO
	Tassel	40	R067BY045CO	Shaly Plains	https://edit.jornada.nmsu.edu/catalogs/esd/067B/R067BY045CO
59—Nunn clay loam, 0 to 3 percent slopes					
	Nunn	95	R069XY042CO	Clayey Plains	https://edit.jornada.nmsu.edu/catalogs/esd/069X/R069XY042CO

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Link to Ecological Site Descriptions in EDIT–El Paso County Area, Colorado					
Map symbol and map unit name	**Component**	**Percent of map unit**	**Ecological Site ID**	**Ecological Site Name**	**Hyperlink to Ecological Site Description in EDIT**
82—Schamber-Razor complex, 8 to 50 percent slopes					
	Schamber	55	R069XY064CO	Gravel Breaks	https://edit.jornada.nmsu.edu/catalogs/esd/069X/R069XY064CO
	Razor	43	R069XY047CO	Alkaline Plains	https://edit.jornada.nmsu.edu/catalogs/esd/069X/R069XY047CO
86—Stoneham sandy loam, 3 to 8 percent slopes					
	Stoneham	95	R067BY024CO	Sandy Plains	https://edit.jornada.nmsu.edu/catalogs/esd/067B/R067BY024CO
97—Truckton sandy loam, 3 to 9 percent slopes					
	Truckton	85	R049XB210CO	Sandy Foothill	https://edit.jornada.nmsu.edu/catalogs/esd/049X/R049XB210CO
	Blakeland	8	R049XB210CO	Sandy Foothill	https://edit.jornada.nmsu.edu/catalogs/esd/049X/R049XB210CO
	Bresser	7	R049XB210CO	Sandy Foothill	https://edit.jornada.nmsu.edu/catalogs/esd/049X/R049XB210CO
101—Ustic Torrifluvents, loamy					
	Ustic torrifluvents	95	R069XY037CO	Saline Overflow	https://edit.jornada.nmsu.edu/catalogs/esd/069X/R069XY037CO
108—Wiley silt loam, 3 to 9 percent slopes					
	Wiley	95	R067BY002CO	Loamy Plains	https://edit.jornada.nmsu.edu/catalogs/esd/067B/R067BY002CO
120—Fort sandy loam, 8 to 15 percent slopes, cool					
	Fort, cool	85	R069XY026CO	Sandy Plains	https://edit.jornada.nmsu.edu/catalogs/esd/069X/R069XY026CO
	Vonid	10	R069XY026CO	Sandy Plains	https://edit.jornada.nmsu.edu/catalogs/esd/069X/R069XY026CO
	Wilid	5	R069XY006CO	Loamy Plains	https://edit.jornada.nmsu.edu/catalogs/esd/069X/R069XY006CO

Link to Ecological Site Descriptions in EDIT–El Paso County Area, Colorado					
Map symbol and map unit name	**Component**	**Percent of map unit**	**Ecological Site ID**	**Ecological Site Name**	**Hyperlink to Ecological Site Description in EDIT**
127—Midway-Razor clay loams, dry, 1 to 18 percent slopes					
	Midway, dry	46	R069XY046CO	Shaly Plains	https://edit.jornada.nmsu.edu/catalogs/esd/069X/R069XY046CO
	Razor, dry	44	R069XY047CO	Alkaline Plains	https://edit.jornada.nmsu.edu/catalogs/esd/069X/R069XY047CO
	Manzanola	9	R069XY042CO	Clayey Plains	https://edit.jornada.nmsu.edu/catalogs/esd/069X/R069XY042CO
MzA—Manzanola silty clay loam, saline, 0 to 2 percent slopes					
	Manzanola	90	R069XY037CO	Saline Overflow	https://edit.jornada.nmsu.edu/catalogs/esd/069X/R069XY037CO
	Haversid	5	R069XY037CO	Saline Overflow	https://edit.jornada.nmsu.edu/catalogs/esd/069X/R069XY037CO
	Aguilar	5	R069XY033CO	Salt Flat	https://edit.jornada.nmsu.edu/catalogs/esd/069X/R069XY033CO

Water Features

This folder contains tabular reports that present soil hydrology information. The reports (tables) include all selected map units and components for each map unit. Water Features include ponding frequency, flooding frequency, and depth to water table.

Water Features

This table gives estimates of various soil water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

Surface runoff refers to the loss of water from an area by flow over the land surface. Surface runoff classes are based on slope, climate, and vegetative cover. The concept indicates relative runoff for very specific conditions. It is assumed that the surface of the soil is bare and that the retention of surface water resulting from irregularities in the ground surface is minimal. The classes are negligible, very low, low, medium, high, and very high.

The *months* in the table indicate the portion of the year in which a water table, ponding, and/or flooding is most likely to be a concern.

Water table refers to a saturated zone in the soil. The water features table indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table. The kind of water table, apparent or perched, is given if a seasonal high water table exists in the soil. A water table is perched if free water is restricted from moving downward in the soil by a restrictive feature, in most cases a hardpan; there is a dry layer of soil underneath a wet layer. A water table is apparent if free water is present in all horizons from its upper boundary to below 2 meters or to the depth of observation. The water table kind listed is for the first major component in the map unit.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. The table indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after

rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Map unit symbol and soil name	Hydrologic group	Surface runoff	Most likely months	Water table			Ponding			Flooding	
				Upper limit	Lower limit	Kind	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*		*Ft*				
10—Blendon sandy loam, 0 to 3 percent slopes											
Blendon	B	Low	Jan-Dec	—	—	—	—	—	None	—	None
28—Ellicott loamy coarse sand, 0 to 5 percent slopes											
Ellicott	A	Very low	Jan-Feb	—	—	—	—	—	None	—	None
			Mar-Jun	—	—	—	—	—	None	Brief (2 to 7 days)	Frequent
			Jul-Dec	—	—	—	—	—	None	—	None
29—Fluvaquentic Haplaquolls, nearly level											
Fluvaquentic haplaquolls	D	Very high	Jan-Jul	0.0-2.0	6.0	Apparent	—	—	None	Brief (2 to 7 days)	Frequent
			Aug-Oct	—	—	—	—	—	None	Brief (2 to 7 days)	Frequent
			Nov-Dec	0.0-2.0	6.0	Apparent	—	—	None	Brief (2 to 7 days)	Frequent
30—Fort Collins loam, 0 to 3 percent slopes											
Fort collins	B	Low	Jan-Dec	—	—	—	—	—	None	—	None
31—Fort Collins loam, 3 to 8 percent slopes											
Fort collins	B	Medium	Jan-Dec	—	—	—	—	—	None	—	None
33—Heldt clay loam, 0 to 3 percent slopes											
Heldt	C	Low	Jan-Dec	—	—	—	—	—	None	—	None
39—Keith silt loam, 0 to 3 percent slopes											
Keith	C	Low	Jan-Dec	—	—	—	—	—	None	—	None
56—Nelson-Tassel fine sandy loams, 3 to 18 percent slopes											
Nelson	B	Medium	Jan-Dec	—	—	—	—	—	None	—	None
Tassel	D	Medium	Jan-Dec	—	—	—	—	—	None	—	None

Custom Soil Resource Report

Map unit symbol and soil name	Hydrologic group	Surface runoff	Most likely months	Water table			Ponding			Flooding	
				Upper limit	Lower limit	Kind	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*		*Ft*				
59—Nunn clay loam, 0 to 3 percent slopes											
Nunn	C	Low	Jan-Dec	—	—	—	—	—	None	—	None
82—Schamber-Razor complex, 8 to 50 percent slopes											
Schamber	A	Medium	Jan-Dec	—	—	—	—	—	None	—	None
Razor	D	Medium	Jan-Dec	—	—	—	—	—	None	—	None
86—Stoneham sandy loam, 3 to 8 percent slopes											
Stoneham	B	Medium	Jan-Dec	—	—	—	—	—	None	—	None
97—Truckton sandy loam, 3 to 9 percent slopes											
Truckton	A	Low	Jan-Dec	—	—	—	—	—	None	—	None
101—Ustic Torrifluvents, loamy											
Ustic torrifluvents	B	Low	Jan-Dec	—	—	—	—	—	None	—	None
108—Wiley silt loam, 3 to 9 percent slopes											
Wiley	B	Medium	Jan-Dec	—	—	—	—	—	None	—	None
111—Water											
Water			Jan-Dec	—	—	—	—	—	None	—	
120—Fort sandy loam, 8 to 15 percent slopes, cool											
Fort, cool	B		Jan-Dec	—	—	—	—	—	None	—	None
127—Midway-Razor clay loams, dry, 1 to 18 percent slopes											
Midway, dry	D	High	Jan-Dec	—	—	—	—	—	None	—	None
Razor, dry	D	Medium	Jan-Dec	—	—	—	—	—	None	—	None
MzA—Manzanola silty clay loam, saline, 0 to 2 percent slopes											
Manzanola	C		Jan-Dec	—	—	—	—	—	None	—	None

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Glossary

Many of the terms relating to landforms, geology, and geomorphology are defined in more detail in the following National Soil Survey Handbook link: “National Soil Survey Handbook.”

ABC soil

A soil having an A, a B, and a C horizon.

Ablation till

Loose, relatively permeable earthy material deposited during the downwasting of nearly static glacial ice, either contained within or accumulated on the surface of the glacier.

AC soil

A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

Aeration, soil

The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil

Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alkali (sodic) soil

A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Alluvial cone

A semiconical type of alluvial fan having very steep slopes. It is higher, narrower, and steeper than a fan and is composed of coarser and thicker layers of material deposited by a combination of alluvial episodes and (to a much lesser degree) landslides (debris flow). The coarsest materials tend to be concentrated at the apex of the cone.

Alluvial fan

A low, outspread mass of loose materials and/or rock material, commonly with gentle slopes. It is shaped like an open fan or a segment of a cone. The material was deposited by a stream at the place where it issues from a narrow mountain valley or upland valley or where a tributary stream is near or at its junction with the main stream. The fan is steepest near its apex, which points upstream, and slopes gently and convexly outward (downstream) with a gradual decrease in gradient.

Alluvium

Unconsolidated material, such as gravel, sand, silt, clay, and various mixtures of these, deposited on land by running water.

Alpha,alpha-dipyridyl

A compound that when dissolved in ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction implies reducing conditions and the likely presence of redoximorphic features.

Animal unit month (AUM)

The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions

Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon

A subsoil horizon characterized by an accumulation of illuvial clay.

Arroyo

The flat-floored channel of an ephemeral stream, commonly with very steep to vertical banks cut in unconsolidated material. It is usually dry but can be transformed into a temporary watercourse or short-lived torrent after heavy rain within the watershed.

Aspect

The direction toward which a slope faces. Also called slope aspect.

Association, soil

A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity)

The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low: 0 to 3
Low: 3 to 6
Moderate: 6 to 9
High: 9 to 12
Very high: More than 12

Backslope

The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

Backswamp

A flood-plain landform. Extensive, marshy or swampy, depressed areas of flood plains between natural levees and valley sides or terraces.

Badland

A landscape that is intricately dissected and characterized by a very fine drainage network with high drainage densities and short, steep slopes and narrow interfluves. Badlands develop on surfaces that have little or no vegetative cover overlying unconsolidated or poorly cemented materials (clays, silts, or sandstones) with, in some cases, soluble minerals, such as gypsum or halite.

Bajada

A broad, gently inclined alluvial piedmont slope extending from the base of a mountain range out into a basin and formed by the lateral coalescence of a series of alluvial fans. Typically, it has a broadly undulating transverse profile, parallel to the mountain front, resulting from the convexities of component fans. The term is generally restricted to constructional slopes of intermontane basins.

Basal area

The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

Base saturation

The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Base slope (geomorphology)

A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).

Bedding plane

A planar or nearly planar bedding surface that visibly separates each successive layer of stratified sediment or rock (of the same or different lithology)

from the preceding or following layer; a plane of deposition. It commonly marks a change in the circumstances of deposition and may show a parting, a color difference, a change in particle size, or various combinations of these. The term is commonly applied to any bedding surface, even one that is conspicuously bent or deformed by folding.

Bedding system

A drainage system made by plowing, grading, or otherwise shaping the surface of a flat field. It consists of a series of low ridges separated by shallow, parallel dead furrows.

Bedrock

The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock-controlled topography

A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

Bench terrace

A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

Bisequum

Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Blowout (map symbol)

A saucer-, cup-, or trough-shaped depression formed by wind erosion on a preexisting dune or other sand deposit, especially in an area of shifting sand or loose soil or where protective vegetation is disturbed or destroyed. The adjoining accumulation of sand derived from the depression, where recognizable, is commonly included. Blowouts are commonly small.

Borrow pit (map symbol)

An open excavation from which soil and underlying material have been removed, usually for construction purposes.

Bottom land

An informal term loosely applied to various portions of a flood plain.

Boulders

Rock fragments larger than 2 feet (60 centimeters) in diameter.

Breaks

A landscape or tract of steep, rough or broken land dissected by ravines and gullies and marking a sudden change in topography.

Breast height

An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

Brush management

Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Butte

An isolated, generally flat-topped hill or mountain with relatively steep slopes and talus or precipitous cliffs and characterized by summit width that is less than the height of bounding escarpments; commonly topped by a caprock of resistant material and representing an erosion remnant carved from flat-lying rocks.

Cable yarding

A method of moving felled trees to a nearby central area for transport to a processing facility. Most cable yarding systems involve use of a drum, a pole, and wire cables in an arrangement similar to that of a rod and reel used for fishing. To reduce friction and soil disturbance, felled trees generally are reeled in while one end is lifted or the entire log is suspended.

Calcareous soil

A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Caliche

A general term for a prominent zone of secondary carbonate accumulation in surficial materials in warm, subhumid to arid areas. Caliche is formed by both geologic and pedologic processes. Finely crystalline calcium carbonate forms a nearly continuous surface-coating and void-filling medium in geologic (parent) materials. Cementation ranges from weak in nonindurated forms to very strong in indurated forms. Other minerals (e.g., carbonates, silicate, and sulfate) may occur as accessory cements. Most petrocalcic horizons and some calcic horizons are caliche.

California bearing ratio (CBR)

The load-supporting capacity of a soil as compared to that of standard crushed limestone, expressed as a ratio. First standardized in California. A soil having a CBR of 16 supports 16 percent of the load that would be supported by standard crushed limestone, per unit area, with the same degree of distortion.

Canopy

The leafy crown of trees or shrubs. (See Crown.)

Canyon

A long, deep, narrow valley with high, precipitous walls in an area of high local relief.

Capillary water

Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Catena

A sequence, or “chain,” of soils on a landscape that formed in similar kinds of parent material and under similar climatic conditions but that have different characteristics as a result of differences in relief and drainage.

Cation

An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity

The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Catsteps

See Terracettes.

Cement rock

Shaly limestone used in the manufacture of cement.

Channery soil material

Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Chemical treatment

Control of unwanted vegetation through the use of chemicals.

Chiseling

Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Cirque

A steep-walled, semicircular or crescent-shaped, half-bowl-like recess or hollow, commonly situated at the head of a glaciated mountain valley or high on the side of a mountain. It was produced by the erosive activity of a mountain glacier. It commonly contains a small round lake (tarn).

Clay

As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions

See Redoximorphic features.

Clay film

A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Clay spot (map symbol)

A spot where the surface texture is silty clay or clay in areas where the surface layer of the soils in the surrounding map unit is sandy loam, loam, silt loam, or coarser.

Claypan

A dense, compact subsoil layer that contains much more clay than the overlying materials, from which it is separated by a sharply defined boundary. The layer restricts the downward movement of water through the soil. A claypan is commonly hard when dry and plastic and sticky when wet.

Climax plant community

The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse textured soil

Sand or loamy sand.

Cobble (or cobblestone)

A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material

Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

COLE (coefficient of linear extensibility)

See Linear extensibility.

Colluvium

Unconsolidated, unsorted earth material being transported or deposited on side slopes and/or at the base of slopes by mass movement (e.g., direct gravitational action) and by local, unconcentrated runoff.

Complex slope

Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil

A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions

See Redoximorphic features.

Conglomerate

A coarse grained, clastic sedimentary rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.

Conservation cropping system

Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage

A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil

Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the “Soil Survey Manual.”

Contour stripcropping

Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section

The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Coprogenous earth (sedimentary peat)

A type of limnic layer composed predominantly of fecal material derived from aquatic animals.

Corrosion (geomorphology)

A process of erosion whereby rocks and soil are removed or worn away by natural chemical processes, especially by the solvent action of running water, but also by other reactions, such as hydrolysis, hydration, carbonation, and oxidation.

Corrosion (soil survey interpretations)

Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop

A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Crop residue management

Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cropping system

Growing crops according to a planned system of rotation and management practices.

Cross-slope farming

Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

Crown

The upper part of a tree or shrub, including the living branches and their foliage.

Cryoturbate

A mass of soil or other unconsolidated earthy material moved or disturbed by frost action. It is typically coarser than the underlying material.

Cuesta

An asymmetric ridge capped by resistant rock layers of slight or moderate dip (commonly less than 15 percent slopes); a type of homocline produced by differential erosion of interbedded resistant and weak rocks. A cuesta has a long, gentle slope on one side (dip slope) that roughly parallels the inclined beds; on the other side, it has a relatively short and steep or clifflike slope (scarp) that cuts through the tilted rocks.

Culmination of the mean annual increment (CMAI)

The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

Cutbanks cave

The walls of excavations tend to cave in or slough.

Decreasers

The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deferred grazing

Postponing grazing or resting grazing land for a prescribed period.

Delta

A body of alluvium having a surface that is fan shaped and nearly flat; deposited at or near the mouth of a river or stream where it enters a body of relatively quiet water, generally a sea or lake.

Dense layer

A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depression, closed (map symbol)

A shallow, saucer-shaped area that is slightly lower on the landscape than the surrounding area and that does not have a natural outlet for surface drainage.

Depth, soil

Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Desert pavement

A natural, residual concentration or layer of wind-polished, closely packed gravel, boulders, and other rock fragments mantling a desert surface. It forms where wind action and sheetwash have removed all smaller particles or where rock fragments have migrated upward through sediments to the surface. It typically protects the finer grained underlying material from further erosion.

Diatomaceous earth

A geologic deposit of fine, grayish siliceous material composed chiefly or entirely of the remains of diatoms.

Dip slope

A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.

Diversion (or diversion terrace)

A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Divided-slope farming

A form of field stripcropping in which crops are grown in a systematic arrangement of two strips, or bands, across the slope to reduce the hazard of water erosion. One strip is in a close-growing crop that provides protection from erosion, and the other strip is in a crop that provides less protection from erosion. This practice is used where slopes are not long enough to permit a full stripcropping pattern to be used.

Drainage class (natural)

Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained*. These classes are defined in the “Soil Survey Manual.”

Drainage, surface

Runoff, or surface flow of water, from an area.

Drainageway

A general term for a course or channel along which water moves in draining an area. A term restricted to relatively small, linear depressions that at some time move concentrated water and either do not have a defined channel or have only a small defined channel.

Draw

A small stream valley that generally is shallower and more open than a ravine or gulch and that has a broader bottom. The present stream channel may appear inadequate to have cut the drainageway that it occupies.

Drift

A general term applied to all mineral material (clay, silt, sand, gravel, and boulders) transported by a glacier and deposited directly by or from the ice or transported by running water emanating from a glacier. Drift includes unstratified material (till) that forms moraines and stratified deposits that form outwash plains, eskers, kames, varves, and glaciofluvial sediments. The term is generally applied to Pleistocene glacial deposits in areas that no longer contain glaciers.

Drumlin

A low, smooth, elongated oval hill, mound, or ridge of compact till that has a core of bedrock or drift. It commonly has a blunt nose facing the direction from which the ice approached and a gentler slope tapering in the other direction. The longer axis is parallel to the general direction of glacier flow. Drumlins are products of streamline (laminar) flow of glaciers, which molded the subglacial floor through a combination of erosion and deposition.

Duff

A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Dune

A low mound, ridge, bank, or hill of loose, windblown granular material (generally sand), either barren and capable of movement from place to place or covered and stabilized with vegetation but retaining its characteristic shape.

Earthy fill

See Mine spoil.

Ecological site

An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.

Eluviation

The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation

A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian deposit

Sand-, silt-, or clay-sized clastic material transported and deposited primarily by wind, commonly in the form of a dune or a sheet of sand or loess.

Ephemeral stream

A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation

A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion

The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (accelerated)

Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Erosion (geologic)

Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion pavement

A surficial lag concentration or layer of gravel and other rock fragments that remains on the soil surface after sheet or rill erosion or wind has removed the finer soil particles and that tends to protect the underlying soil from further erosion.

Erosion surface

A land surface shaped by the action of erosion, especially by running water.

Escarpment

A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Most commonly applied to cliffs produced by differential erosion. Synonym: scarp.

Escarpment, bedrock (map symbol)

A relatively continuous and steep slope or cliff, produced by erosion or faulting, that breaks the general continuity of more gently sloping land surfaces. Exposed material is hard or soft bedrock.

Escarpment, nonbedrock (map symbol)

A relatively continuous and steep slope or cliff, generally produced by erosion but in some places produced by faulting, that breaks the continuity of more gently sloping land surfaces. Exposed earthy material is nonsoil or very shallow soil.

Esker

A long, narrow, sinuous, steep-sided ridge of stratified sand and gravel deposited as the bed of a stream flowing in an ice tunnel within or below the ice (subglacial) or between ice walls on top of the ice of a wasting glacier and left

behind as high ground when the ice melted. Eskers range in length from less than a kilometer to more than 160 kilometers and in height from 3 to 30 meters.

Extrusive rock

Igneous rock derived from deep-seated molten matter (magma) deposited and cooled on the earth's surface.

Fallow

Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fan remnant

A general term for landforms that are the remaining parts of older fan landforms, such as alluvial fans, that have been either dissected or partially buried.

Fertility, soil

The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fibric soil material (peat)

The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity

The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fill slope

A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

Fine textured soil

Sandy clay, silty clay, or clay.

Firebreak

An area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.

First bottom

An obsolete, informal term loosely applied to the lowest flood-plain steps that are subject to regular flooding.

Flaggy soil material

Material that has, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.

Flagstone

A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

Flood plain

The nearly level plain that borders a stream and is subject to flooding unless protected artificially.

Flood-plain landforms

A variety of constructional and erosional features produced by stream channel migration and flooding. Examples include backswamps, flood-plain splays, meanders, meander belts, meander scrolls, oxbow lakes, and natural levees.

Flood-plain splay

A fan-shaped deposit or other outspread deposit formed where an overloaded stream breaks through a levee (natural or artificial) and deposits its material (commonly coarse grained) on the flood plain.

Flood-plain step

An essentially flat, terrace-like alluvial surface within a valley that is frequently covered by floodwater from the present stream; any approximately horizontal surface still actively modified by fluvial scour and/or deposition. May occur individually or as a series of steps.

Fluvial

Of or pertaining to rivers or streams; produced by stream or river action.

Foothills

A region of steeply sloping hills that fringes a mountain range or high-plateau escarpment. The hills have relief of as much as 1,000 feet (300 meters).

Footslope

The concave surface at the base of a hillslope. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forb

Any herbaceous plant not a grass or a sedge.

Forest cover

All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type

A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Fragipan

A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Genesis, soil

The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gilgai

Commonly, a succession of microbasins and microknolls in nearly level areas or of microvalleys and microridges parallel with the slope. Typically, the microrelief of clayey soils that shrink and swell considerably with changes in moisture content.

Glaciofluvial deposits

Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur in the form of outwash plains, valley trains, deltas, kames, eskers, and kame terraces.

Glaciolacustrine deposits

Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial meltwater. Many deposits are bedded or laminated.

Gleyed soil

Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Graded stripcropping

Growing crops in strips that grade toward a protected waterway.

Grassed waterway

A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel

Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravel pit (map symbol)

An open excavation from which soil and underlying material have been removed and used, without crushing, as a source of sand or gravel.

Gravelly soil material

Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Gravelly spot (map symbol)

A spot where the surface layer has more than 35 percent, by volume, rock fragments that are mostly less than 3 inches in diameter in an area that has less than 15 percent rock fragments.

Green manure crop (agronomy)

A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water

Water filling all the unblocked pores of the material below the water table.

Gully (map symbol)

A small, steep-sided channel caused by erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage whereas a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock

Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hard to reclaim

Reclamation is difficult after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Hardpan

A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Head slope (geomorphology)

A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

Hemic soil material (mucky peat)

Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

High-residue crops

Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill

A generic term for an elevated area of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline. Slopes are generally more than 15 percent. The distinction between a hill and a mountain is arbitrary and may depend on local usage.

Hillslope

A generic term for the steeper part of a hill between its summit and the drainage line, valley flat, or depression floor at the base of a hill.

Horizon, soil

A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the “Soil Survey Manual.” The major horizons of mineral soil are as follows:

O horizon: An organic layer of fresh and decaying plant residue.

L horizon: A layer of organic and mineral limnic materials, including coprogenous earth (sedimentary peat), diatomaceous earth, and marl.

A horizon: The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon: The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon: The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon: The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon: Soft, consolidated bedrock beneath the soil.

R layer: Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

M layer: A root-limiting subsoil layer consisting of nearly continuous, horizontally oriented, human-manufactured materials.

W layer: A layer of water within or beneath the soil.

Humus

The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups

Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties include depth to a seasonal high water table, the infiltration rate, and depth to a layer that significantly restricts the downward movement of water. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Igneous rock

Rock that was formed by cooling and solidification of magma and that has not been changed appreciably by weathering since its formation. Major varieties include plutonic and volcanic rock (e.g., andesite, basalt, and granite).

Illuviation

The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil

A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Increasers

Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

Infiltration

The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity

The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate

The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate

The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Very low: Less than 0.2
Low: 0.2 to 0.4
Moderately low: 0.4 to 0.75
Moderate: 0.75 to 1.25
Moderately high: 1.25 to 1.75
High: 1.75 to 2.5
Very high: More than 2.5

Interfluve

A landform composed of the relatively undissected upland or ridge between two adjacent valleys containing streams flowing in the same general direction. An elevated area between two drainageways that sheds water to those drainageways.

Interfluve (geomorphology)

A geomorphic component of hills consisting of the uppermost, comparatively level or gently sloping area of a hill; shoulders of backwearing hillslopes can narrow the upland or can merge, resulting in a strongly convex shape.

Intermittent stream

A stream, or reach of a stream, that does not flow year-round but that is commonly dry for 3 or more months out of 12 and whose channel is generally below the local water table. It flows only during wet periods or when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Invaders

On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Iron depletions

See Redoximorphic features.

Irrigation

Application of water to soils to assist in production of crops. Methods of irrigation are:

Basin: Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Border: Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Controlled flooding: Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation: Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle): Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow: Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler: Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation: Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding: Water, released at high points, is allowed to flow onto an area without controlled distribution.

Kame

A low mound, knob, hummock, or short irregular ridge composed of stratified sand and gravel deposited by a subglacial stream as a fan or delta at the margin of a melting glacier; by a supraglacial stream in a low place or hole on the surface of the glacier; or as a ponded deposit on the surface or at the margin of stagnant ice.

Karst (topography)

A kind of topography that formed in limestone, gypsum, or other soluble rocks by dissolution and that is characterized by closed depressions, sinkholes, caves, and underground drainage.

Knoll

A small, low, rounded hill rising above adjacent landforms.

Ksat

See Saturated hydraulic conductivity.

Lacustrine deposit

Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Lake plain

A nearly level surface marking the floor of an extinct lake filled by well sorted, generally fine textured, stratified deposits, commonly containing varves.

Lake terrace

A narrow shelf, partly cut and partly built, produced along a lakeshore in front of a scarp line of low cliffs and later exposed when the water level falls.

Landfill (map symbol)

An area of accumulated waste products of human habitation, either above or below natural ground level.

Landslide

A general, encompassing term for most types of mass movement landforms and processes involving the downslope transport and outward deposition of soil and rock materials caused by gravitational forces; the movement may or may not involve saturated materials. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones

Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Lava flow (map symbol)

A solidified, commonly lobate body of rock formed through lateral, surface outpouring of molten lava from a vent or fissure.

Leaching

The removal of soluble material from soil or other material by percolating water.

Levee (map symbol)

An embankment that confines or controls water, especially one built along the banks of a river to prevent overflow onto lowlands.

Linear extensibility

Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $^{1}/_{3}$- or $^{1}/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit

The moisture content at which the soil passes from a plastic to a liquid state.

Loam

Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess

Material transported and deposited by wind and consisting dominantly of silt-sized particles.

Low strength

The soil is not strong enough to support loads.

Low-residue crops

Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Marl

An earthy, unconsolidated deposit consisting chiefly of calcium carbonate mixed with clay in approximately equal proportions; formed primarily under freshwater lacustrine conditions but also formed in more saline environments.

Marsh or swamp (map symbol)

A water-saturated, very poorly drained area that is intermittently or permanently covered by water. Sedges, cattails, and rushes are the dominant vegetation in marshes, and trees or shrubs are the dominant vegetation in swamps. Not used in map units where the named soils are poorly drained or very poorly drained.

Mass movement

A generic term for the dislodgment and downslope transport of soil and rock material as a unit under direct gravitational stress.

Masses

See Redoximorphic features.

Meander belt

The zone within which migration of a meandering channel occurs; the flood-plain area included between two imaginary lines drawn tangential to the outer bends of active channel loops.

Meander scar

A crescent-shaped, concave or linear mark on the face of a bluff or valley wall, produced by the lateral erosion of a meandering stream that impinged upon and undercut the bluff.

Meander scroll

One of a series of long, parallel, close-fitting, crescent-shaped ridges and troughs formed along the inner bank of a stream meander as the channel migrated laterally down-valley and toward the outer bank.

Mechanical treatment

Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil

Very fine sandy loam, loam, silt loam, or silt.

Mesa

A broad, nearly flat topped and commonly isolated landmass bounded by steep slopes or precipitous cliffs and capped by layers of resistant, nearly horizontal rocky material. The summit width is characteristically greater than the height of the bounding escarpments.

Metamorphic rock

Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement at depth in the earth’s crust. Nearly all such rocks are crystalline.

Mine or quarry (map symbol)

An open excavation from which soil and underlying material have been removed and in which bedrock is exposed. Also denotes surface openings to underground mines.

Mine spoil

An accumulation of displaced earthy material, rock, or other waste material removed during mining or excavation. Also called earthy fill.

Mineral soil

Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage

Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area

A kind of map unit that has little or no natural soil and supports little or no vegetation.

Miscellaneous water (map symbol)

Small, constructed bodies of water that are used for industrial, sanitary, or mining applications and that contain water most of the year.

Moderately coarse textured soil

Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil

Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon

A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Moraine

In terms of glacial geology, a mound, ridge, or other topographically distinct accumulation of unsorted, unstratified drift, predominantly till, deposited primarily by the direct action of glacial ice in a variety of landforms. Also, a general term for a landform composed mainly of till (except for kame moraines, which are composed mainly of stratified outwash) that has been deposited by a glacier. Some types of moraines are disintegration, end, ground, kame, lateral, recessional, and terminal.

Morphology, soil

The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil

Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Mountain

A generic term for an elevated area of the land surface, rising more than 1,000 feet (300 meters) above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can

occur as a single, isolated mass or in a group forming a chain or range. Mountains are formed primarily by tectonic activity and/or volcanic action but can also be formed by differential erosion.

Muck

Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Mucky peat

See Hemic soil material.

Mudstone

A blocky or massive, fine grained sedimentary rock in which the proportions of clay and silt are approximately equal. Also, a general term for such material as clay, silt, claystone, siltstone, shale, and argillite and that should be used only when the amounts of clay and silt are not known or cannot be precisely identified.

Munsell notation

A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Natric horizon

A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.

Neutral soil

A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules

See Redoximorphic features.

Nose slope (geomorphology)

A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent. Nose slopes consist dominantly of colluvium and slope-wash sediments (for example, slope alluvium).

Nutrient, plant

Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter

Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low: Less than 0.5 percent
Low: 0.5 to 1.0 percent
Moderately low: 1.0 to 2.0 percent
Moderate: 2.0 to 4.0 percent
High: 4.0 to 8.0 percent
Very high: More than 8.0 percent

Outwash

Stratified and sorted sediments (chiefly sand and gravel) removed or “washed out” from a glacier by meltwater streams and deposited in front of or beyond the end moraine or the margin of a glacier. The coarser material is deposited nearer to the ice.

Outwash plain

An extensive lowland area of coarse textured glaciofluvial material. An outwash plain is commonly smooth; where pitted, it generally is low in relief.

Paleoterrace

An erosional remnant of a terrace that retains the surface form and alluvial deposits of its origin but was not emplaced by, and commonly does not grade to, a present-day stream or drainage network.

Pan

A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.

Parent material

The unconsolidated organic and mineral material in which soil forms.

Peat

Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped

An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedisediment

A layer of sediment, eroded from the shoulder and backslope of an erosional slope, that lies on and is being (or was) transported across a gently sloping erosional surface at the foot of a receding hill or mountain slope.

Pedon

The smallest volume that can be called “a soil.” A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation

The movement of water through the soil.

Perennial water (map symbol)

Small, natural or constructed lakes, ponds, or pits that contain water most of the year.

Permafrost

Ground, soil, or rock that remains at or below 0 degrees C for at least 2 years. It is defined on the basis of temperature and is not necessarily frozen.

pH value

A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Phase, soil

A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

Piping

Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Pitting

Pits caused by melting around ice. They form on the soil after plant cover is removed.

Plastic limit

The moisture content at which a soil changes from semisolid to plastic.

Plasticity index

The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plateau (geomorphology)

A comparatively flat area of great extent and elevation; specifically, an extensive land region that is considerably elevated (more than 100 meters) above the adjacent lower lying terrain, is commonly limited on at least one side by an abrupt descent, and has a flat or nearly level surface. A comparatively large part of a plateau surface is near summit level.

Playa

The generally dry and nearly level lake plain that occupies the lowest parts of closed depressions, such as those on intermontane basin floors. Temporary flooding occurs primarily in response to precipitation and runoff. Playa deposits are fine grained and may or may not have a high water table and saline conditions.

Plinthite

The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.

Plowpan

A compacted layer formed in the soil directly below the plowed layer.

Ponding

Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded

Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Pore linings

See Redoximorphic features.

Potential native plant community

See Climax plant community.

Potential rooting depth (effective rooting depth)

Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning

Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil

The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil

A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use

Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and

promotes the accumulation of litter and mulch necessary to conserve soil and water.

Rangeland

Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Reaction, soil

A measure of acidity or alkalinity of a soil, expressed as pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid: Less than 3.5
Extremely acid: 3.5 to 4.4
Very strongly acid: 4.5 to 5.0
Strongly acid: 5.1 to 5.5
Moderately acid: 5.6 to 6.0
Slightly acid: 6.1 to 6.5
Neutral: 6.6 to 7.3
Slightly alkaline: 7.4 to 7.8
Moderately alkaline: 7.9 to 8.4
Strongly alkaline: 8.5 to 9.0
Very strongly alkaline: 9.1 and higher

Red beds

Sedimentary strata that are mainly red and are made up largely of sandstone and shale.

Redoximorphic concentrations

See Redoximorphic features.

Redoximorphic depletions

See Redoximorphic features.

Redoximorphic features

Redoximorphic features are associated with wetness and result from alternating periods of reduction and oxidation of iron and manganese compounds in the soil. Reduction occurs during saturation with water, and oxidation occurs when the soil is not saturated. Characteristic color patterns are created by these processes. The reduced iron and manganese ions may be removed from a soil if vertical or lateral fluxes of water occur, in which case there is no iron or manganese precipitation in that soil. Wherever the iron and manganese are oxidized and precipitated, they form either soft masses or hard concretions or nodules. Movement of iron and manganese as a result of redoximorphic processes in a soil may result in redoximorphic features that are defined as follows:

1. Redoximorphic concentrations.—These are zones of apparent accumulation of iron-manganese oxides, including:
   A. Nodules and concretions, which are cemented bodies that can be removed from the soil intact. Concretions are distinguished from nodules on the basis of internal organization. A concretion typically has concentric layers that are visible to the naked eye. Nodules do not have visible organized internal structure; *and*
   B. Masses, which are noncemented concentrations of substances within the soil matrix; *and*
   C. Pore linings, i.e., zones of accumulation along pores that may be either coatings on pore surfaces or impregnations from the matrix adjacent to the pores.
2. Redoximorphic depletions.—These are zones of low chroma (chromas less than those in the matrix) where either iron-manganese oxides alone or both iron-manganese oxides and clay have been stripped out, including:
   A. Iron depletions, i.e., zones that contain low amounts of iron and manganese oxides but have a clay content similar to that of the adjacent matrix; *and*
   B. Clay depletions, i.e., zones that contain low amounts of iron, manganese, and clay (often referred to as silt coatings or skeletans).
3. Reduced matrix.—This is a soil matrix that has low chroma *in situ* but undergoes a change in hue or chroma within 30 minutes after the soil material has been exposed to air.

Reduced matrix

See Redoximorphic features.

Regolith

All unconsolidated earth materials above the solid bedrock. It includes material weathered in place from all kinds of bedrock and alluvial, glacial, eolian, lacustrine, and pyroclastic deposits.

Relief

The relative difference in elevation between the upland summits and the lowlands or valleys of a given region.

Residuum (residual soil material)

Unconsolidated, weathered or partly weathered mineral material that accumulated as bedrock disintegrated in place.

Rill

A very small, steep-sided channel resulting from erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. A rill generally is not an obstacle to wheeled vehicles and is shallow enough to be smoothed over by ordinary tillage.

Riser

The vertical or steep side slope (e.g., escarpment) of terraces, flood-plain steps, or other stepped landforms; commonly a recurring part of a series of natural, steplike landforms, such as successive stream terraces.

Road cut

A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments

Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rock outcrop (map symbol)

An exposure of bedrock at the surface of the earth. Not used where the named soils of the surrounding map unit are shallow over bedrock or where “Rock outcrop” is a named component of the map unit.

Root zone

The part of the soil that can be penetrated by plant roots.

Runoff

The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Saline soil

A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.

Saline spot (map symbol)

An area where the surface layer has an electrical conductivity of 8 mmhos/cm more than the surface layer of the named soils in the surrounding map unit. The surface layer of the surrounding soils has an electrical conductivity of 2 mmhos/cm or less.

Sand

As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone

Sedimentary rock containing dominantly sand-sized particles.

Sandy spot (map symbol)

A spot where the surface layer is loamy fine sand or coarser in areas where the surface layer of the named soils in the surrounding map unit is very fine sandy loam or finer.

Sapric soil material (muck)

The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Saturated hydraulic conductivity (Ksat)

The ease with which pores of a saturated soil transmit water. Formally, the proportionality coefficient that expresses the relationship of the rate of water movement to hydraulic gradient in Darcy's Law, a law that describes the rate of water movement through porous media. Commonly abbreviated as "Ksat." Terms describing saturated hydraulic conductivity are:

Very high: 100 or more micrometers per second (14.17 or more inches per hour)

High: 10 to 100 micrometers per second (1.417 to 14.17 inches per hour)

Moderately high: 1 to 10 micrometers per second (0.1417 inch to 1.417 inches per hour)

Moderately low: 0.1 to 1 micrometer per second (0.01417 to 0.1417 inch per hour)

Low: 0.01 to 0.1 micrometer per second (0.001417 to 0.01417 inch per hour)

Very low: Less than 0.01 micrometer per second (less than 0.001417 inch per hour).

To convert inches per hour to micrometers per second, multiply inches per hour by 7.0572. To convert micrometers per second to inches per hour, multiply micrometers per second by 0.1417.

Saturation

Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Scarification

The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

Sedimentary rock

A consolidated deposit of clastic particles, chemical precipitates, or organic remains accumulated at or near the surface of the earth under normal low temperature and pressure conditions. Sedimentary rocks include consolidated equivalents of alluvium, colluvium, drift, and eolian, lacustrine, and marine deposits. Examples are sandstone, siltstone, mudstone, claystone, shale, conglomerate, limestone, dolomite, and coal.

Sequum

A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil

A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Severely eroded spot (map symbol)

An area where, on the average, 75 percent or more of the original surface layer has been lost because of accelerated erosion. Not used in map units in which “severely eroded,” “very severely eroded,” or “gullied” is part of the map unit name.

Shale

Sedimentary rock that formed by the hardening of a deposit of clay, silty clay, or silty clay loam and that has a tendency to split into thin layers.

Sheet erosion

The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Short, steep slope (map symbol)

A narrow area of soil having slopes that are at least two slope classes steeper than the slope class of the surrounding map unit.

Shoulder

The convex, erosional surface near the top of a hillslope. A shoulder is a transition from summit to backslope.

Shrink-swell

The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Shrub-coppice dune

A small, streamlined dune that forms around brush and clump vegetation.

Side slope (geomorphology)

A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel. Side slopes are dominantly colluvium and slope-wash sediments.

Silica

A combination of silicon and oxygen. The mineral form is called quartz.

Silica-sesquioxide ratio

The ratio of the number of molecules of silica to the number of molecules of alumina and iron oxide. The more highly weathered soils or their clay fractions in warm-temperate, humid regions, and especially those in the tropics, generally have a low ratio.

Silt

As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone

An indurated silt having the texture and composition of shale but lacking its fine lamination or fissility; a massive mudstone in which silt predominates over clay.

Similar soils

Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Sinkhole (map symbol)

A closed, circular or elliptical depression, commonly funnel shaped, characterized by subsurface drainage and formed either by dissolution of the surface of underlying bedrock (e.g., limestone, gypsum, or salt) or by collapse of underlying caves within bedrock. Complexes of sinkholes in carbonate-rock terrain are the main components of karst topography.

Site index

A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slickensides (pedogenic)

Grooved, striated, and/or glossy (shiny) slip faces on structural peds, such as wedges; produced by shrink-swell processes, most commonly in soils that have a high content of expansive clays.

Slide or slip (map symbol)

A prominent landform scar or ridge caused by fairly recent mass movement or descent of earthy material resulting from failure of earth or rock under shear stress along one or several surfaces.

Slope

The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slope alluvium

Sediment gradually transported down the slopes of mountains or hills primarily by nonchannel alluvial processes (i.e., slope-wash processes) and characterized by particle sorting. Lateral particle sorting is evident on long slopes. In a profile sequence, sediments may be distinguished by differences in size and/or specific gravity of rock fragments and may be separated by stone lines. Burnished peds and sorting of rounded or subrounded pebbles or cobbles distinguish these materials from unsorted colluvial deposits.

Slow refill

The slow filling of ponds, resulting from restricted water transmission in the soil.

Slow water movement

Restricted downward movement of water through the soil. See Saturated hydraulic conductivity.

Sodic (alkali) soil

A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Sodic spot (map symbol)

An area where the surface layer has a sodium adsorption ratio that is at least 10 more than that of the surface layer of the named soils in the surrounding map unit. The surface layer of the surrounding soils has a sodium adsorption ratio of 5 or less.

Sodicity

The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, or the ratio of Na^{+} to $Ca^{++} + Mg^{++}$. The degrees of sodicity and their respective ratios are:

Slight: Less than 13:1
Moderate: 13-30:1
Strong: More than 30:1

Sodium adsorption ratio (SAR)

A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

Soft bedrock

Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil

A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief and by the passage of time.

Soil separates

Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand: 2.0 to 1.0
Coarse sand: 1.0 to 0.5
Medium sand: 0.5 to 0.25
Fine sand: 0.25 to 0.10
Very fine sand: 0.10 to 0.05
Silt: 0.05 to 0.002
Clay: Less than 0.002

Solum

The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Spoil area (map symbol)

A pile of earthy materials, either smoothed or uneven, resulting from human activity.

Stone line

In a vertical cross section, a line formed by scattered fragments or a discrete layer of angular and subangular rock fragments (commonly a gravel- or cobble-sized lag concentration) that formerly was draped across a topographic surface and was later buried by additional sediments. A stone line generally caps material that was subject to weathering, soil formation, and erosion before burial. Many stone lines seem to be buried erosion pavements, originally formed by sheet and rill erosion across the land surface.

Stones

Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony

Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stony spot (map symbol)

A spot where 0.01 to 0.1 percent of the soil surface is covered by rock fragments that are more than 10 inches in diameter in areas where the surrounding soil has no surface stones.

Strath terrace

A type of stream terrace; formed as an erosional surface cut on bedrock and thinly mantled with stream deposits (alluvium).

Stream terrace

One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel, originally formed near the level of the stream; represents the remnants of an abandoned flood plain, stream bed, or valley floor produced during a former state of fluvial erosion or deposition.

Stripcropping

Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil

The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are:

Platy: Flat and laminated
Prismatic: Vertically elongated and having flat tops
Columnar: Vertically elongated and having rounded tops
Angular blocky: Having faces that intersect at sharp angles (planes)
Subangular blocky: Having subrounded and planar faces (no sharp angles)
Granular: Small structural units with curved or very irregular faces

Structureless soil horizons are defined as follows:

Single grained: Entirely noncoherent (each grain by itself), as in loose sand
Massive: Occurring as a coherent mass

Stubble mulch

Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil

Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling

Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum

The part of the soil below the solum.

Subsurface layer

Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summer fallow

The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

Summit

The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

Surface layer

The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the “plow layer,” or the “Ap horizon.”

Surface soil

The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Talus

Rock fragments of any size or shape (commonly coarse and angular) derived from and lying at the base of a cliff or very steep rock slope. The accumulated mass of such loose broken rock formed chiefly by falling, rolling, or sliding.

Taxadjuncts

Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Terminal moraine

An end moraine that marks the farthest advance of a glacier. It typically has the form of a massive arcuate or concentric ridge, or complex of ridges, and is underlain by till and other types of drift.

Terrace (conservation)

An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field

generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geomorphology)

A steplike surface, bordering a valley floor or shoreline, that represents the former position of a flood plain, lake, or seashore. The term is usually applied both to the relatively flat summit surface (tread) that was cut or built by stream or wave action and to the steeper descending slope (scarp or riser) that has graded to a lower base level of erosion.

Terracettes

Small, irregular steplike forms on steep hillslopes, especially in pasture, formed by creep or erosion of surficial materials that may be induced or enhanced by trampling of livestock, such as sheep or cattle.

Texture, soil

The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying “coarse,” “fine,” or “very fine.”

Thin layer

Otherwise suitable soil material that is too thin for the specified use.

Till

Dominantly unsorted and nonstratified drift, generally unconsolidated and deposited directly by a glacier without subsequent reworking by meltwater, and consisting of a heterogeneous mixture of clay, silt, sand, gravel, stones, and boulders; rock fragments of various lithologies are embedded within a finer matrix that can range from clay to sandy loam.

Till plain

An extensive area of level to gently undulating soils underlain predominantly by till and bounded at the distal end by subordinate recessional or end moraines.

Tilth, soil

The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope

The gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

Topsoil

The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements

Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Tread

The flat to gently sloping, topmost, laterally extensive slope of terraces, flood-plain steps, or other stepped landforms; commonly a recurring part of a series of natural steplike landforms, such as successive stream terraces.

Tuff

A generic term for any consolidated or cemented deposit that is 50 percent or more volcanic ash.

Upland

An informal, general term for the higher ground of a region, in contrast with a low-lying adjacent area, such as a valley or plain, or for land at a higher elevation than the flood plain or low stream terrace; land above the footslope zone of the hillslope continuum.

Valley fill

The unconsolidated sediment deposited by any agent (water, wind, ice, or mass wasting) so as to fill or partly fill a valley.

Variegation

Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Varve

A sedimentary layer or a lamina or sequence of laminae deposited in a body of still water within a year. Specifically, a thin pair of graded glaciolacustrine layers seasonally deposited, usually by meltwater streams, in a glacial lake or other body of still water in front of a glacier.

Very stony spot (map symbol)

A spot where 0.1 to 3.0 percent of the soil surface is covered by rock fragments that are more than 10 inches in diameter in areas where the surface of the surrounding soil is covered by less than 0.01 percent stones.

Water bars

Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Weathering

All physical disintegration, chemical decomposition, and biologically induced changes in rocks or other deposits at or near the earth's surface by atmospheric or biologic agents or by circulating surface waters but involving essentially no transport of the altered material.

Well graded

Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wet spot (map symbol)

A somewhat poorly drained to very poorly drained area that is at least two drainage classes wetter than the named soils in the surrounding map unit.

Wilting point (or permanent wilting point)

The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow

The uprooting and tipping over of trees by the wind.

APPENDIX B CPW SPECIES PRESENT IN PROJECT AREA

The below information was obtained by CPWSpeciesData ArcGIS Shapefile download from ArcGISOnline. Colorado Parks and Wildlife information on wildlife distributions provided to public and private agencies and individuals, for environmental assessment, proprietary land management resource planning and general scientific reference. This is an ArcGIS Online web service updated by the Colorado Parks and Wildlife GIS Unit for distributing Colorado state parks and wildlife species GIS data for public distribution. This file was updated on July 18, 2023.

Mammal Special Ranges:

- Black Bear Human Conflict Area
- Black-tailed Prairie Dog Colony Potential Occurrence Range (two colonies present)
- White-tailed Deer Concentration Area
- White-tailed Deer Winter Range

Mammal Overall Range:

- Black Bear
- Mountain Lion
- White-tailed Deer
- Botta's Pocket Gopher
- Dwarf Shrew
- White-tailed Jackrabbit

Avian Ranges:

- Lesser Sandhill Crane Overall Range
- Wild Turkey Overall Range
- Canada Geese Foraging Area and Winter Range (western 2/3rd of the Project Area)
- Brewer Sparrow Breeding Range
- Burrowing Owl Breeding Range
- Cassin Sparrow Breeding Range
- Golden Eagle Breeding Range
- Grasshopper Sparrow Breeding Range
- Lark Bunting Breeding Range
- Lazuli Bunting Breeding Range
- Lewis Woodpecker Breeding Range
- Mountain Plover Breeding Range
- Northern Harrier Breeding Range
- Prairie Falcon Breeding Range
- Swainson Hawk Breeding Range
- Veery Breeding Range
- Virginia Warbler Breeding Range
- Rufous Hummingbird Migration Range

Reptile/Amphibian Overall Range:

- Black-necked Gartersnake
- Bullsnake
- Coachwhip
- Common Lesser Earless Lizard
- Hernandez's Short-horned Lizard
- Milksnake
- North American Racer
- Ornate Box Turtle
- Painted Turtle
- Plains Gartersnake
- Plains Hog-nosed Snake
- Prairie Lizard And Plateau Fence Lizard
- Prairie Rattlesnake And Western Rattlesnake
- Six-lined Racerunner
- Smooth Greensnake
- Terrestrial Gartersnake
- Variable Skink and Many-lined Skink

Bat Overall Range:

- Big Brown Bat
- Hoary Bat
- Little Brown Myotis
- Red Bat
- Silver-haired Bat

APPENDIX D ERIS REPORT

ERIS

HISTORICAL AERIALS

Project Property: Jimmy Camp Wastewater Line Alternatives
Jimmy Camp Wastewater Line Alternatives
Widefield CO

Project No:

Requested By: EcoPoint, Inc.

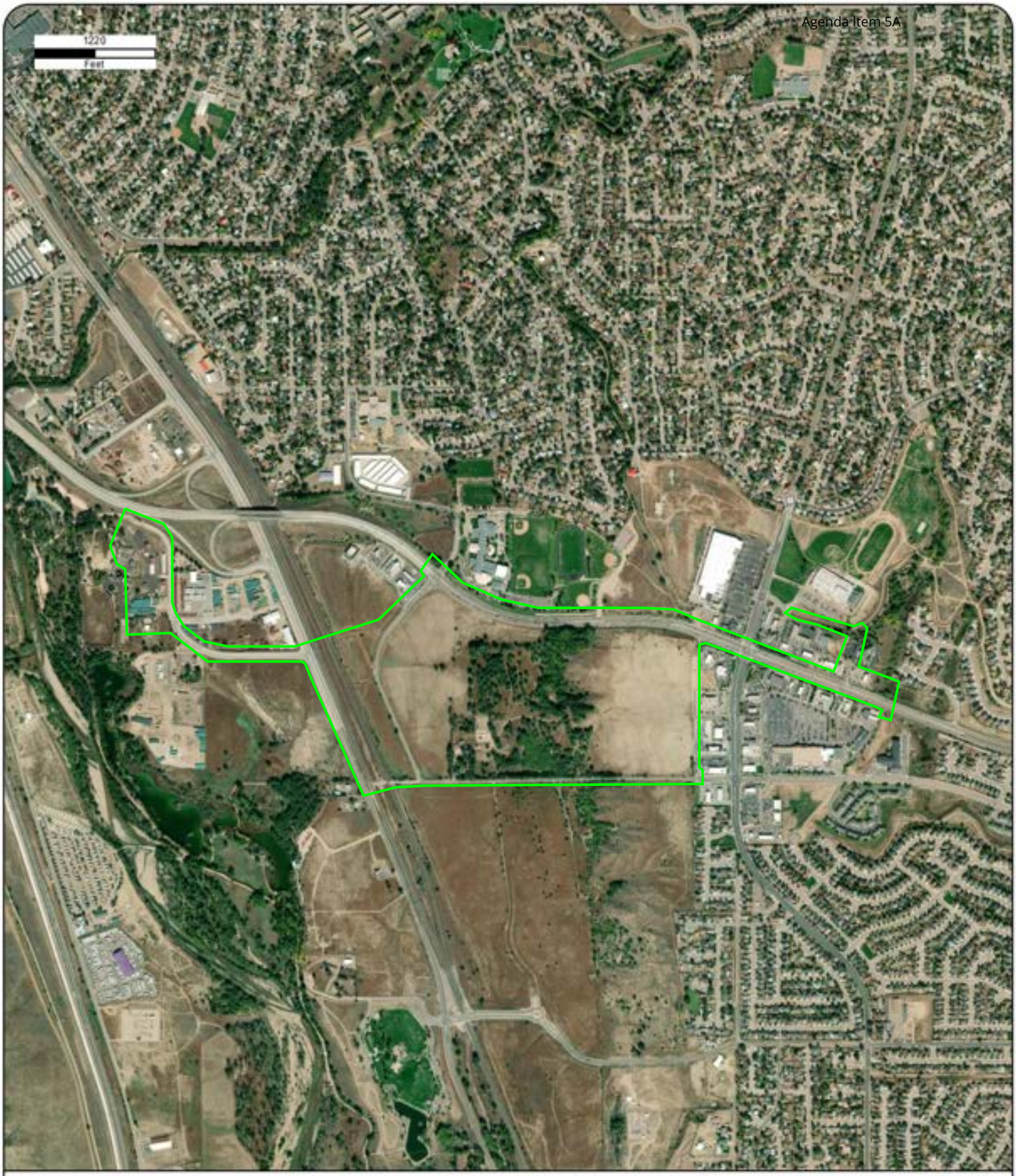
Order No: 23082200786

Date Completed: August 24,2023

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Date	Source	Scale	Comments
2022	MAXAR TECHNOLOGIES	1" = 1200'	
2021	United States Department of Agriculture	1" = 1200'	
2019	United States Department of Agriculture	1" = 1200'	
2017	United States Department of Agriculture	1" = 1200'	
2015	United States Department of Agriculture	1" = 1200'	
2013	United States Department of Agriculture	1" = 1200'	
2011	United States Department of Agriculture	1" = 1200'	
2009	United States Department of Agriculture	1" = 1200'	
2006	United States Department of Agriculture	1" = 1200'	
2005	United States Department of Agriculture	1" = 1200'	
2004	United States Department of Agriculture	1" = 1200'	
1999	United States Geological Survey	1" = 1200'	
1991	United States Geological Survey	1" = 1200'	
1983	United States Geological Survey	1" = 1200'	
1975	United States Geological Survey	1" = 1200'	
1969	United States Geological Survey	1" = 1200'	
1960	United States Geological Survey	1" = 1200'	
1953	Army Mapping Service	1" = 1200'	
1947	United States Geological Survey	1" = 1200'	
1937	Agricultural Stabilization & Conserv. Service	1" = 1200'	

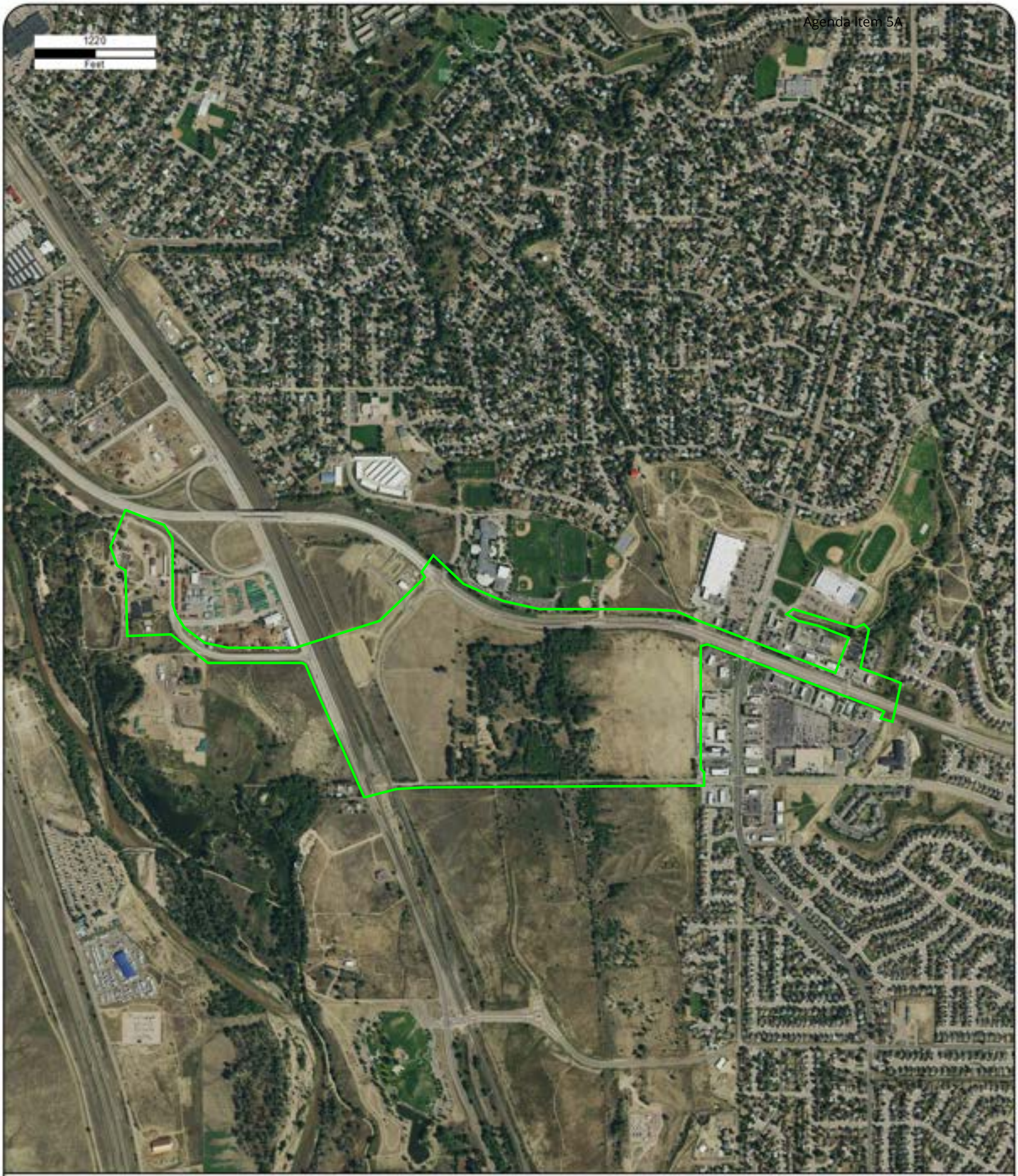


Year: 2022
Source: MAXAR
Scale: 1" = 1200'
Comment:

Address: Jimmy Camp Wastewater Line Alternatives,
Widefield, CO
Approx Center: -104.70968798,38.71832847

Order No: 23082200786

ERIS

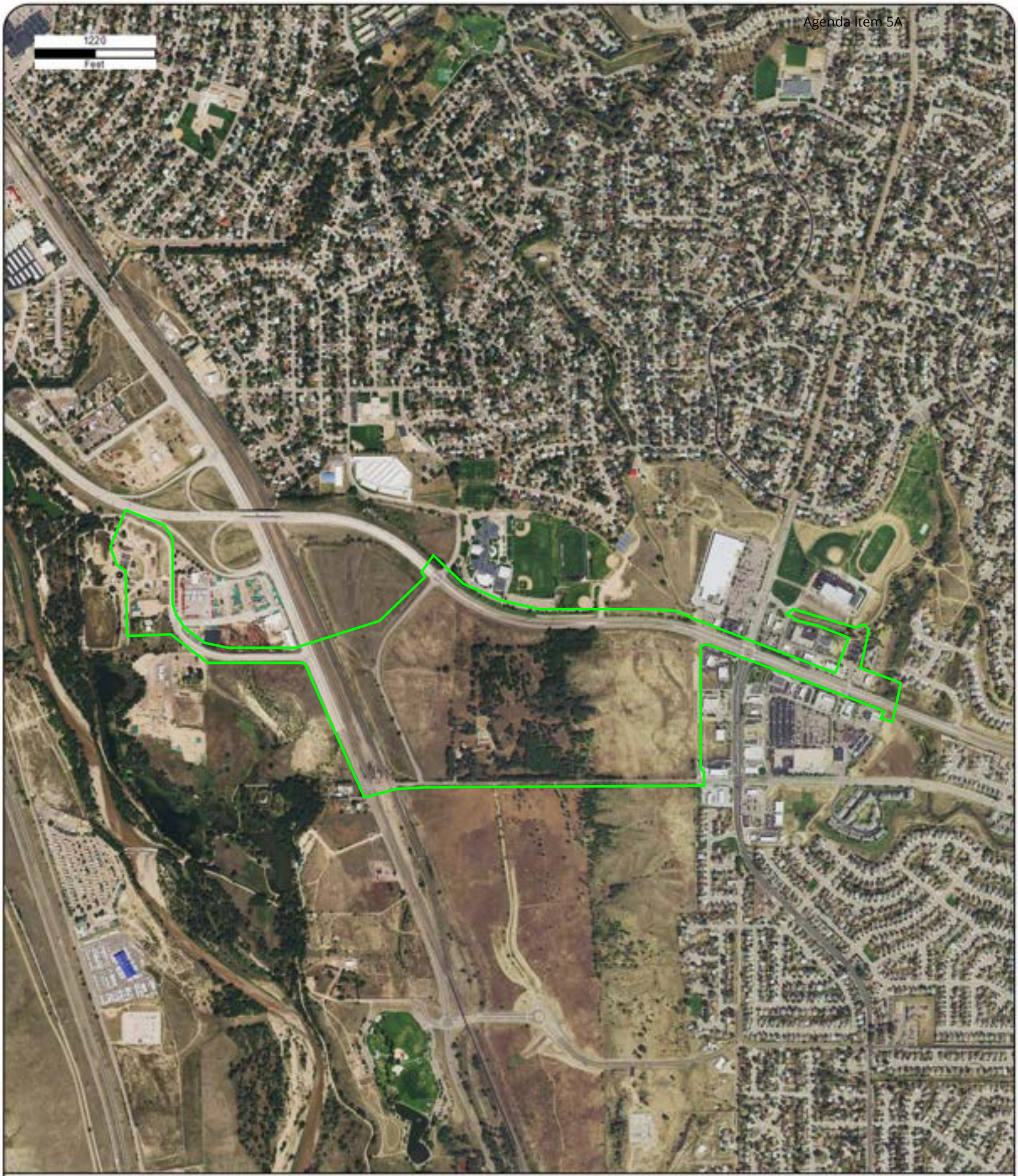


Year: 2021
Source: USDA
Scale: 1" = 1200'
Comment:

Address: Jimmy Camp Wastewater Line Alternatives,
Widefield, CO
Approx Center: -104.70968798,38.71832847

Order No: 23082200786

ERIS

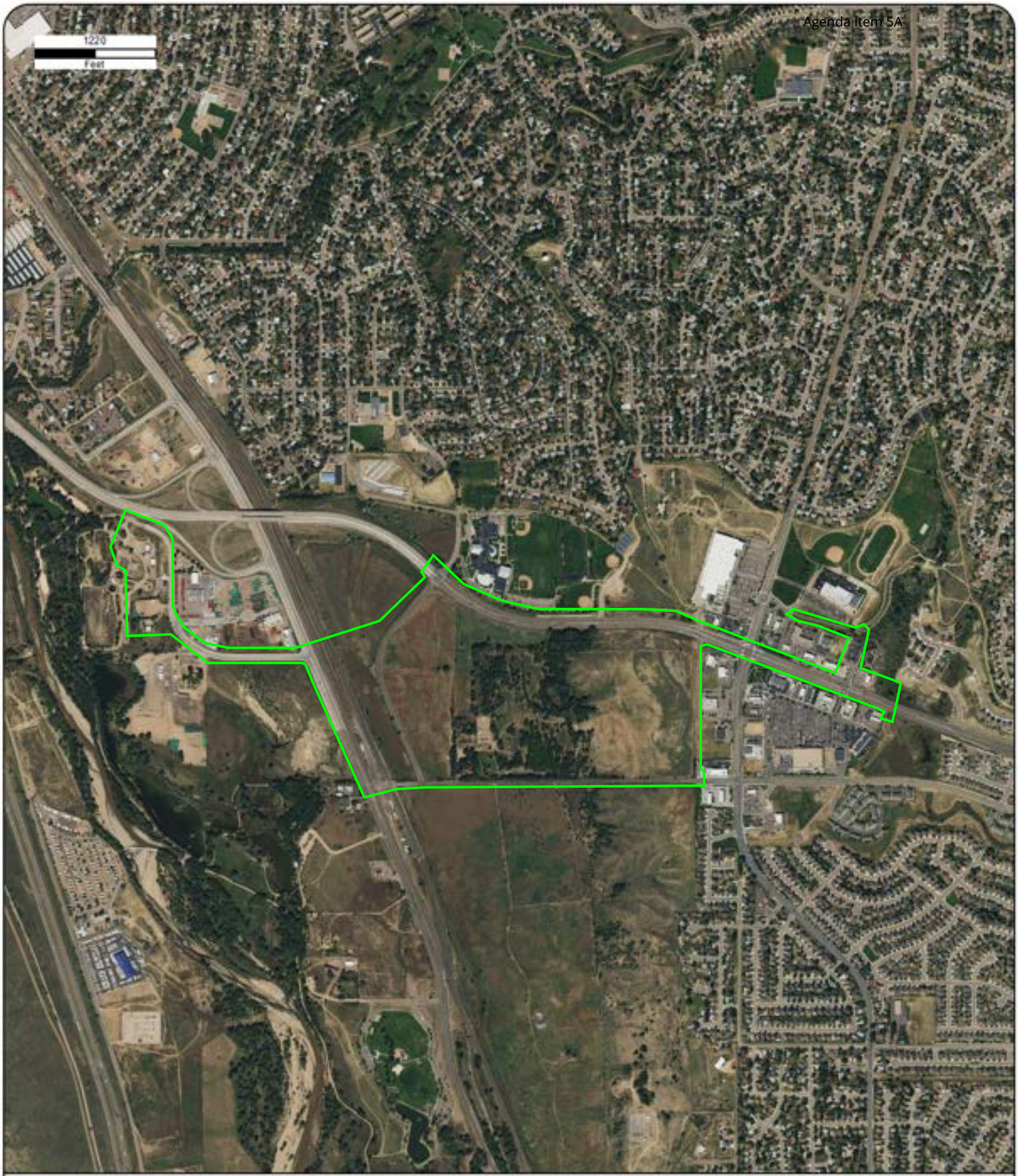


Year: 2019
Source: USDA
Scale: 1" = 1200'
Comment:

Address: Jimmy Camp Wastewater Line Alternatives,
Widefield, CO
Approx Center: -104.70968798,38.71832847

Order No: 23082200786

ERIS

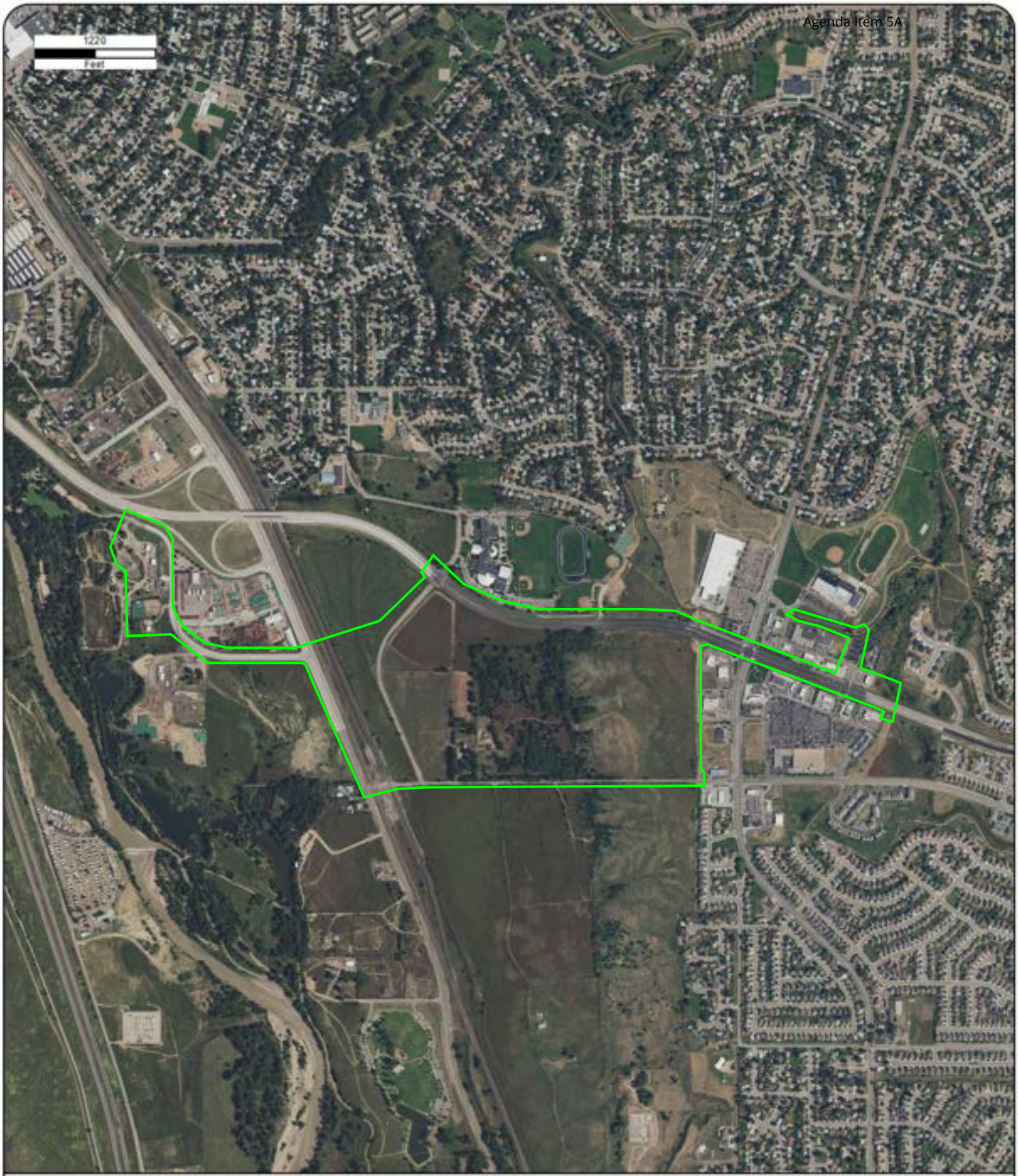


Year: 2017
Source: USDA
Scale: 1" = 1200'
Comment:

Address: Jimmy Camp Wastewater Line Alternatives,
Widefield, CO
Approx Center: -104.70968798,38.71832847

Order No: 23082200786

ERIS



Year: 2015
Source: USDA
Scale: 1" = 1200'
Comment:

Address: Jimmy Camp Wastewater Line Alternatives,
Widefield, CO
Approx Center: -104.70968798,38.71832847

Order No: 23082200786

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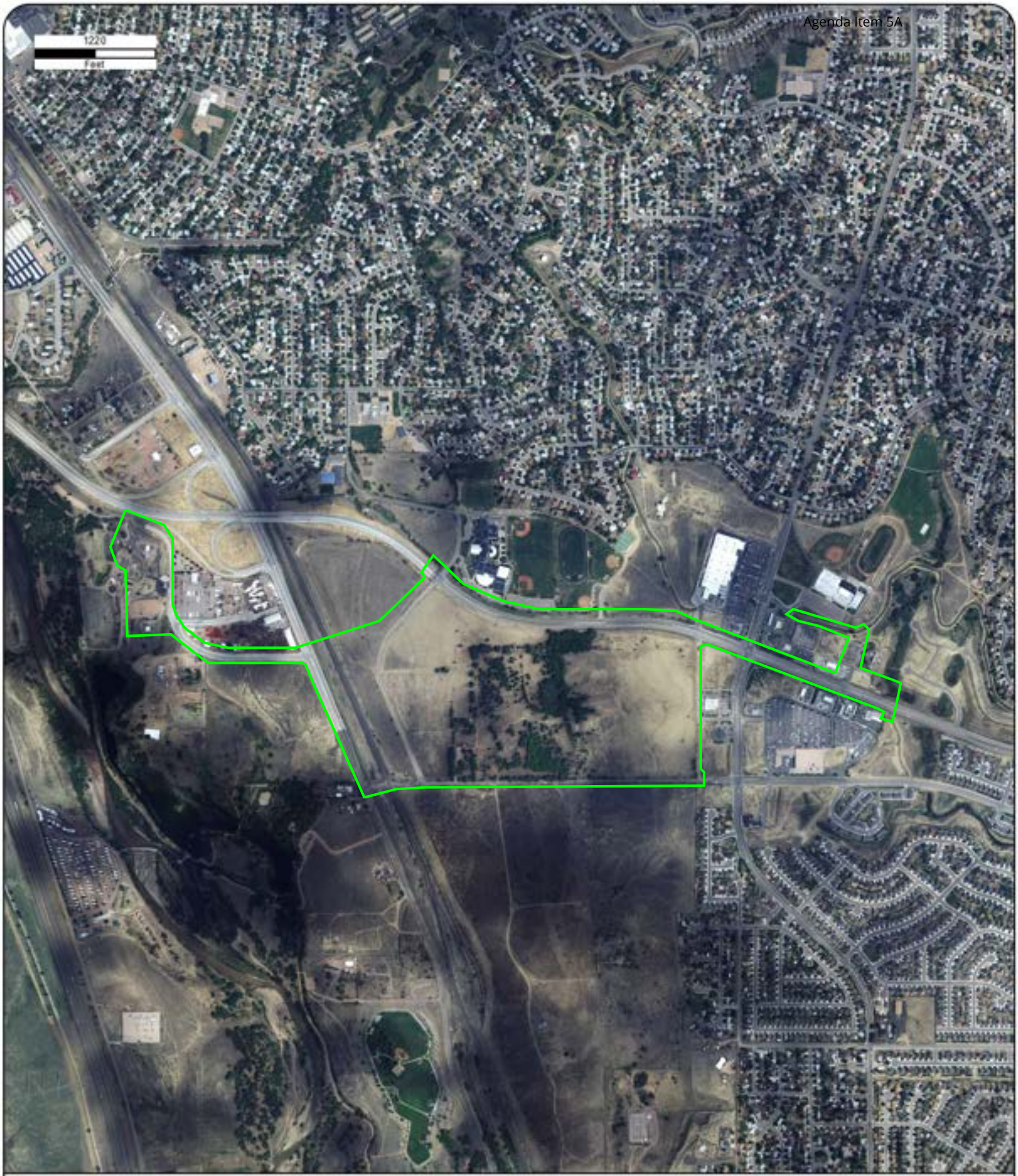


Year: 2013
Source: USDA
Scale: 1" = 1200'
Comment:

Address: Jimmy Camp Wastewater Line Alternatives,
Widefield, CO
Approx Center: -104.70968798,38.71832847

Order No: 23082200786

ERIS

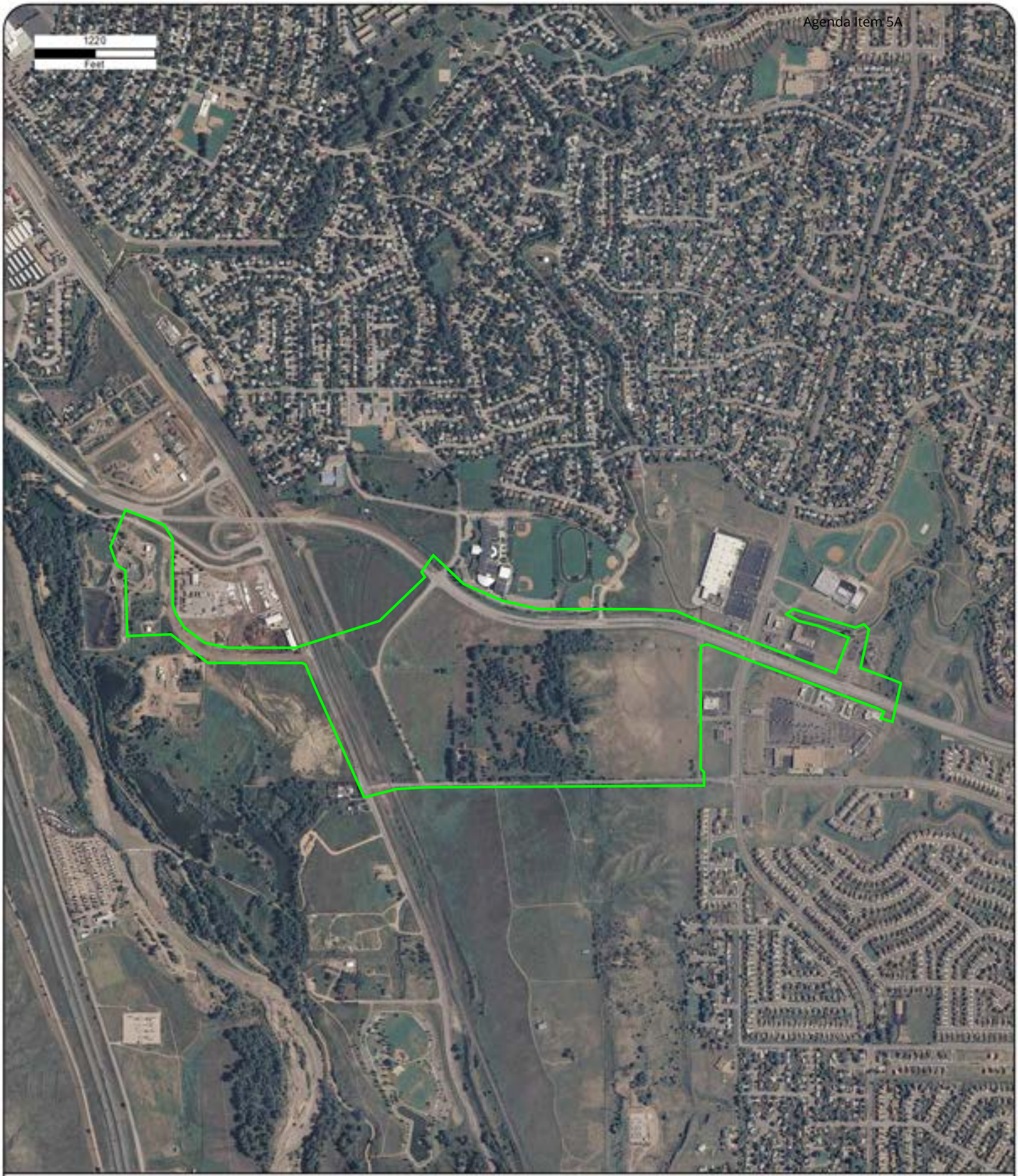


Year: 2011
Source: USDA
Scale: 1" = 1200'
Comment:

Address: Jimmy Camp Wastewater Line Alternatives,
Widefield, CO
Approx Center: -104.70968798,38.71832847

Order No: 23082200786

ERIS



Year: 2009
Source: USDA
Scale: 1" = 1200'
Comment:

Address: Jimmy Camp Wastewater Line Alternatives,
Widefield, CO
Approx Center: -104.70968798,38.71832847

Order No: 23082200786

ERIS



Year: 2006
Source: USDA
Scale: 1" = 1200'
Comment:

Address: Jimmy Camp Wastewater Line Alternatives,
Widefield, CO
Approx Center: -104.70968798,38.71832847

Order No: 23082200786

ERIS



Year: 2005
Source: USDA
Scale: 1" = 1200'
Comment:

Address: Jimmy Camp Wastewater Line Alternatives,
Widefield, CO
Approx Center: -104.70968798,38.71832847

Order No: 23082200786

ERIS



Year: 2004
Source: USDA
Scale: 1" = 1200'
Comment:

Address: Jimmy Camp Wastewater Line Alternatives,
Widefield, CO
Approx Center: -104.70968798,38.71832847

Order No: 23082200786

ERIS



Year: 1999
Source: USGS
Scale: 1" = 1200'
Comment:

Address: Jimmy Camp Wastewater Line Alternatives,
Widefield, CO
Approx Center: -104.70968798,38.71832847

Order No: 23082200786

ERIS



Year: 1991
Source: USGS
Scale: 1" = 1200'
Comment:

Address: Jimmy Camp Wastewater Line Alternatives,
Widefield, CO
Approx Center: -104.70968798,38.71832847

Order No: 23082200786

ERIS



Year: 1983
Source: USGS
Scale: 1" = 1200'
Comment:

Address: Jimmy Camp Wastewater Line Alternatives,
Widefield, CO
Approx Center: -104.70968798,38.71832847

Order No: 23082200786

ERIS



Year: 1975
Source: USGS
Scale: 1" = 1200'
Comment:

Address: Jimmy Camp Wastewater Line Alternatives,
Widefield, CO
Approx Center: -104.70968798,38.71832847

Order No: 23082200786

ERIS

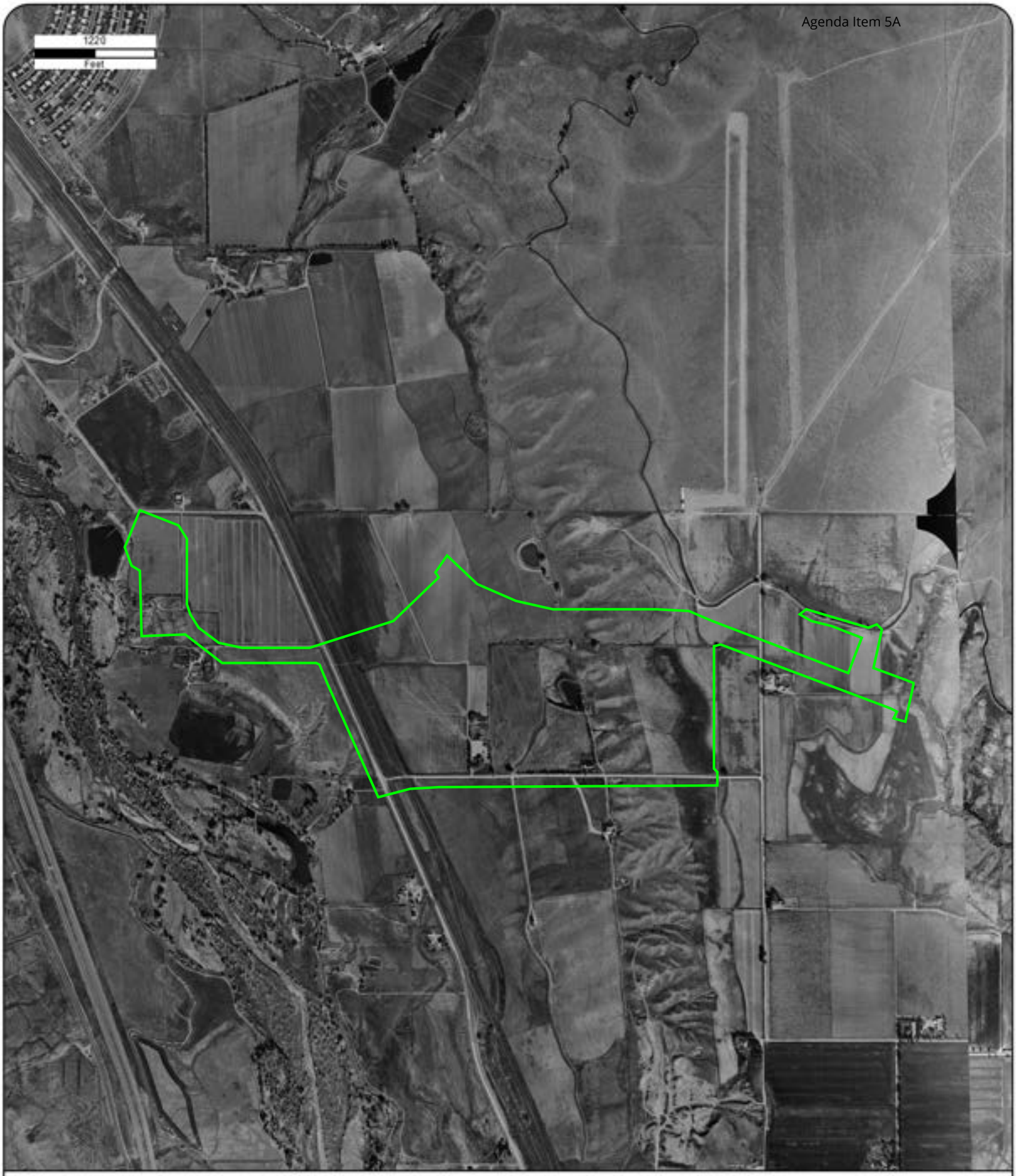


Year: 1969
Source: USGS
Scale: 1" = 1200'
Comment:

Address: Jimmy Camp Wastewater Line Alternatives,
Widefield, CO
Approx Center: -104.70968798,38.71832847

Order No: 23082200786

ERIS



Year: 1960
Source: USGS
Scale: 1" = 1200'
Comment:

Address: Jimmy Camp Wastewater Line Alternatives,
Widefield, CO
Approx Center: -104.70968798,38.71832847

Order No: 23082200786

ERIS



Year: 1953
Source: AMS
Scale: 1" = 1200'
Comment:

Address: Jimmy Camp Wastewater Line Alternatives,
Widefield, CO
Approx Center: -104.70968798,38.71832847

Order No: 23082200786

ERIS



Year: 1947
Source: USGS
Scale: 1" = 1200'
Comment:

Address: Jimmy Camp Wastewater Line Alternatives,
Widefield, CO
Approx Center: -104.70968798,38.71832847

Order No: 23082200786

ERIS



Year: 1937
Source: ASCS
Scale: 1" = 1200'
Comment:

Address: Jimmy Camp Wastewater Line Alternatives,
Widefield, CO
Approx Center: -104.70968798,38.71832847

Order No: 23082200786

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FIRE INSURANCE MAPS

Project Property:	Jimmy Camp Wastewater Line Alternatives Jimmy Camp Wastewater Line Alternatives Widefield CO
Project No:	
Requested By:	EcoPoint, Inc.
Order No:	23082200786
Date Completed:	August 23, 2023

Please note that no information was found for your site or adjacent properties.

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DATABASE REPORT

Project Property:	*Jimmy Camp Wastewater Line Alternatives* *Jimmy Camp Wastewater Line Alternatives* *Widefield CO*
Project No:	
Report Type:	*Database Report*
Order No:	*23082200786*
Requested by:	*EcoPoint, Inc.*
Date Completed:	*August 24, 2023*

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Executive Summary

Property Information:

Project Property: *Jimmy Camp Wastewater Line Alternatives*
Jimmy Camp Wastewater Line Alternatives Widefield CO

Project No:

Coordinates:

Latitude:	*38.71832847*
Longitude:	*-104.70968798*
UTM Northing:	*4,285,559.94*
UTM Easting:	*525,238.02*
UTM Zone:	*UTM Zone 13S*

Elevation: *5,654 FT*

Order Information:

Order No:	*23082200786*
Date Requested:	*August 22, 2023*
Requested by:	*EcoPoint, Inc.*
Report Type:	*Database Report*

Historicals/Products:

Aerial Photographs	*Historical Aerials (with Project Boundaries)*
ERIS Xplorer	*ERIS Xplorer*
Excel Add-On	*Excel Add-On*
Fire Insurance Maps	*US Fire Insurance Maps*
Physical Setting Report (PSR)	*Physical Setting Report (PSR)*

Executive Summary: Report Summary

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
Standard Environmental Records								
Federal								
NPL	Y	1	0	0	0	0	0	0
PROPOSED NPL	Y	1	0	0	0	0	0	0
DELETED NPL	Y	0.5	0	0	0	0	-	0
SEMS	Y	0.5	0	0	0	0	-	0
SEMS ARCHIVE	Y	0.5	0	0	0	0	-	0
ODI	Y	0.5	0	0	0	0	-	0
CERCLIS	Y	0.5	0	0	0	0	-	0
IODI	Y	0.5	0	0	0	0	-	0
CERCLIS NFRAP	Y	0.5	0	0	0	0	-	0
CERCLIS LIENS	Y	PO	0	-	-	-	-	0
RCRA CORRACTS	Y	1	0	0	0	0	0	0
RCRA TSD	Y	0.5	0	0	0	0	-	0
RCRA LQG	Y	0.25	0	0	0	-	-	0
RCRA SQG	Y	0.25	0	**1**	0	-	-	**1**
RCRA VSQG	Y	0.25	0	**2**	0	-	-	**2**
RCRA NON GEN	Y	0.25	0	**2**	**2**	-	-	**4**
RCRA CONTROLS	Y	0.5	0	0	0	0	-	0
FED ENG	Y	0.5	0	0	0	0	-	0
FED INST	Y	0.5	0	0	0	0	-	0
LUCIS	Y	0.5	0	0	0	0	-	0
NPL IC	Y	0.5	0	0	0	0	-	0
ERNS 1982 TO 1986	Y	PO	0	-	-	-	-	0
ERNS 1987 TO 1989	Y	PO	0	-	-	-	-	0
ERNS	Y	PO	0	**1**	-	-	-	**1**
FED BROWNFIELDS	Y	0.5	0	**1**	0	**1**	-	**2**
FEMA UST	Y	0.25	0	0	0	-	-	0
FRP	Y	0.25	0	0	0	-	-	0

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
DELISTED FRP	Y	0.25	0	0	0	-	-	0
HIST GAS STATIONS	Y	0.25	0	0	0	-	-	0
REFN	Y	0.25	0	0	0	-	-	0
BULK TERMINAL	Y	0.25	0	0	0	-	-	0
SEMS LIEN	Y	PO	0	-	-	-	-	0
SUPERFUND ROD	Y	1	0	0	0	0	0	0
DOE FUSRAP	Y	1	0	0	0	0	0	0
State								
COVENANTS	Y	0.5	0	0	0	0	-	0
SUPERFUND NRD	Y	1	0	0	0	0	0	0
LANDFILL METHANE	Y	0.5	0	0	0	0	-	0
SHWS	Y	1	0	0	0	0	0	0
DELISTED SHWS	Y	1	0	0	0	0	0	0
SWF/LF	Y	0.5	0	**2**	**1**	0	-	**3**
HIST LF	Y	0.5	0	0	0	0	-	0
HIST LANDFILLS	Y	0.5	0	0	0	0	-	0
RECYCLING	Y	0.5	0	0	0	0	-	0
LST	Y	0.5	0	**3**	**1**	**4**	-	**8**
LUST TRUST	Y	0.5	0	**1**	0	**1**	-	**2**
DELISTED LST	Y	0.5	0	0	0	0	-	0
UST	Y	0.25	**1**	**6**	**3**	-	-	**10**
AST	Y	0.25	0	**2**	0	-	-	**2**
TANKS	Y	0.25	0	0	0	-	-	0
DTNK	Y	0.25	0	0	0	-	-	0
AUL	Y	0.5	0	0	0	0	-	0
VCP	Y	0.5	0	0	0	0	-	0
BROWNFIELDS	Y	0.5	0	0	0	0	-	0
Tribal								
INDIAN LUST	Y	0.5	0	0	0	0	-	0
INDIAN UST	Y	0.25	0	0	0	-	-	0
DELISTED INDIAN LST	Y	0.5	0	0	0	0	-	0
DELISTED INDIAN UST	Y	0.25	0	0	0	-	-	0
County	***No County databases were selected to be included in the search.***							

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
Additional Environmental Records								
Federal								
FINDS/FRS	Y	PO	**2**	**13**	-	-	-	**15**
TRIS	Y	PO	0	-	-	-	-	0
PFAS NPL	Y	0.5	0	0	0	0	-	0
PFAS FED SITES	Y	0.5	0	0	0	0	-	0
PFAS SSEHRI	Y	0.5	0	0	0	0	-	0
ERNS PFAS	Y	0.5	0	0	0	0	-	0
PFAS NPDES	Y	0.5	0	0	0	0	-	0
PFAS TRI	Y	0.5	0	0	0	0	-	0
PFAS WATER	Y	0.5	0	0	0	0	-	0
PFAS TSCA	Y	0.5	0	0	0	0	-	0
PFAS E-MANIFEST	Y	0.5	0	0	0	0	-	0
PFAS IND	Y	0.5	0	0	0	0	-	0
HMIRS	Y	0.125	0	0	-	-	-	0
NCDL	Y	0.125	0	0	-	-	-	0
TSCA	Y	0.125	0	0	-	-	-	0
HIST TSCA	Y	0.125	0	0	-	-	-	0
FTTS ADMIN	Y	PO	0	-	-	-	-	0
FTTS INSP	Y	PO	0	-	-	-	-	0
PRP	Y	PO	0	-	-	-	-	0
SCRD DRYCLEANER	Y	0.5	0	0	0	0	-	0
ICIS	Y	PO	**2**	**7**	-	-	-	**9**
FED DRYCLEANERS	Y	0.25	0	0	0	-	-	0
DELISTED FED DRY	Y	0.25	0	0	0	-	-	0
FUDS	Y	1	0	0	0	0	0	0
FUDS MRS	Y	1	0	0	0	0	0	0
FORMER NIKE	Y	1	0	0	0	0	0	0
PIPELINE INCIDENT	Y	PO	0	-	-	-	-	0
MLTS	Y	PO	0	-	-	-	-	0
HIST MLTS	Y	PO	0	-	-	-	-	0
MINES	Y	0.25	0	0	0	-	-	0
SMCRA	Y	1	0	0	0	0	0	0
MRDS	Y	1	0	0	**1**	0	**1**	**2**
LM SITES	Y	1	0	0	0	0	0	0

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
ALT FUELS	Y	0.25	0	**2**	0	-	-	**2**
CONSENT DECREES	Y	0.25	0	0	0	-	-	0
AFS	Y	PO	0	**3**	-	-	-	**3**
SSTS	Y	0.25	0	0	0	-	-	0
PCBT	Y	0.5	0	0	0	0	-	0
PCB	Y	0.5	0	0	0	0	-	0
State								
SPILLS	Y	0.125	**2**	**3**	-	-	-	**5**
OG SPILLS	Y	0.125	0	0	-	-	-	0
DRYCLEANERS	Y	0.25	0	0	0	-	-	0
DELISTED DRYCLEANERS	Y	0.25	0	0	0	-	-	0
AIR PERMITS	Y	0.125	0	**4**	-	-	-	**4**
PFAS	Y	0.5	0	0	0	0	-	0
ASBESTOS	Y	0.125	0	0	-	-	-	0
HAZ GEN	Y	0.125	0	0	-	-	-	0
PDES	Y	PO	**3**	**5**	-	-	-	**8**
HAZ TSD	Y	0.5	0	0	0	0	-	0
HAZ CORRACT	Y	1	0	0	0	0	0	0
UMTRA	Y	0.5	0	0	0	0	-	0
Tribal	***No Tribal additional environmental record sources available for this State.***							
County	***No County additional environmental databases were selected to be included in the search.***							
	Total:		**10**	**58**	**8**	**6**	**1**	**83**

**** PO – Property Only***
**** 'Property and adjoining properties' database search radii are set at 0.25 miles.***

Executive Summary: Site Report Summary - Project Property

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
1	UST	Widefield Homes	Fountain Mesa Rd West Of Widefield Colorado Springs 80911 CO ***Facility ID:*** *7032* ***Tank Tag | Tank Status:*** *7032-1 | Permanently Closed, 7032-2 | Permanently Closed*	SE	0.00 / 0.00	8	30
2	PDES	Fountain Industrial Park, LLC	N of Syracuse St and Mesa Rd Fountain CO 80817	SW	0.00 / 0.00	-24	32
3	FINDS/FRS	HIGHWAY 85 OUTFALL SEWER	HWY 85 AND MESA RD FOUNTAIN CO 80817 ***Registry ID:*** *110040433046*	WSW	0.00 / 0.00	-27	34
3	ICIS	HIGHWAY 85 OUTFALL SEWER	HWY 85 AND MESA RD FOUNTAIN CO 80817 ***Registry ID:*** *110040433046*	WSW	0.00 / 0.00	-27	35
4	SPILLS		MESA RIDGE ROAD AND FONTAIN BLVD FOUNTAIN CO 80817 ***Case No:*** *2011-0328*	E	0.00 / 0.00	96	35
5	SPILLS		480 WILLOW SPRINGS RD. FOUNTAIN CO 80817 ***Case No:*** *2018-0278*	WNW	0.00 / 0.00	-18	35
6	FINDS/FRS	WIDEFIELD WSD	450 WILLOW SPRINGS RD FOUNTAIN CO 80817 ***Registry ID:*** *110055989649*	WNW	0.00 / 0.00	-11	36
6	ICIS	WIDEFIELD WSD WWTF	450 WILLOW SPRINGS RD WIDEFIELD CO 80817 ***Registry ID:*** *110055989649*	WNW	0.00 / 0.00	-11	37
6	PDES	Widefield WSD WWTF	450 Willow Springs Rd Fountain CO 80817	WNW	0.00 / 0.00	-11	37
6	PDES	Widefield WSD WWTF	450 Willow Springs Rd Fountain CO 80817	WNW	0.00 / 0.00	-11	40

Executive Summary: Site Report Summary - Surrounding Properties

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
7	FINDS/FRS	MR. CAR WASH	7980 FOUNTAIN MESA ROAD FOUNTAIN CO 80817 ***Registry ID:*** 110070668495	ESE	0.00 / 7.46	91	41
8	RCRA NON GEN	DATA GENERAL SERVICE INC	702 FRONTAGE RD FOUNTAIN CO 80817 ***EPA Handler ID:*** COD982648487	WNW	0.01 / 27.09	-9	41
9	UST	Kum & Go #670	8050 Fountain Mesa Rd Fountain 80817 CO ***Facility ID:*** 19326 ***Tank Tag | Tank Status:*** 19326-1 | Currently In Use, 19326-3 | Currently In Use, 19326-5 | Currently In Use, 19326-2 | Currently In Use, 19326-4 | Currently In Use	ESE	0.01 / 43.26	81	43
9	ALT FUELS	Kum & Go #670	8050 Fountain Mesa Rd Fountain CO 80817 ***ID:*** 50304	ESE	0.01 / 43.26	81	48
9	LST	Kum & Go #670	8050 Fountain Mesa Rd Fountain 80817 CO ***Facility ID:*** 19326 ***Event ID | Status:*** 13316 | Closed	ESE	0.01 / 43.26	81	49
9	LUST TRUST	Kum & Go #670	8050 Fountain Mesa Rd Fountain CO 80817 ***Facility ID | Event ID | Release Date:*** 19326 | 13316 | 5/23/2019	ESE	0.01 / 43.26	81	51
10	FINDS/FRS	COLJEN LEASING LTD ELPASO ASPHALT	8050 S US HWY 85 & 87 COLORADO SPRINGS CO 80901 ***Registry ID:*** 110038648489	W	0.01 / 51.71	-21	51
10	AFS	COLJEN LEASING LTD ELPASO ASPHALT	8050 S US HWY 85 & 87 COLORADO SPRINGS CO 000000000	W	0.01 / 51.71	-21	51
11	FINDS/FRS	EL PASO FOUNTAIN CREEK WILLOW SPRINGS	430 WILLOW SPRINGS ROAD FOUNTAIN CO 80817 ***Registry ID:*** 110032601628	WNW	0.01 / 59.68	-11	52
11	ICIS	EL PASO FOUNTAIN CREEK WILLOW SPRINGS	430 WILLOW SPRINGS ROAD FOUNTAIN CO 80817 ***Registry ID:*** 110032601628	WNW	0.01 / 59.68	-11	53
11	ICIS	EL PASO FOUNTAIN CREEK WILLOW SPRINGS	430 WILLOW SPRINGS ROAD FOUNTAIN CO 80817 ***Registry ID:*** 110032601628	WNW	0.01 / 59.68	-11	53

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
12	SPILLS		7005 MESA RIDGE PKWY FOUNTAIN CO ***Case No:*** 2019-0399	E	0.01 / 62.07	88	54
13	PDES	Mesa Ridge Crossing	Syracuse Street and Mesa Ridge Parkway Fountain CO 80903	NW	0.01 / 73.33	-8	54
13	UST	Maverik #659	Mesa Ridge PKWY & Syracuse Security 80911 CO ***Facility ID:*** 20721 ***Tank Tag | Tank Status:*** 20721-1 | Currently In Use, 20721-2 | Currently In Use, 20721-2 | Currently In Use, 20721-2 | Currently In Use	NW	0.01 / 73.33	-8	56
13	AIR PERMITS	MAVERIK-MAVERIK STORE #659	MESA RDIGE & SYRACUSE ST FOUNTAIN CO 80817	NW	0.01 / 73.33	-8	60
13	FINDS/FRS	MESA RIDGE CROSSING	SYRACUSE STREET AND MESA RIDGE PARKWAY FOUNTAIN CO 80903 ***Registry ID:*** 110070875060	NW	0.01 / 73.33	-8	64
13	FINDS/FRS	MAVERIK AT MESA RIDGE (LOT 1, MESA RIDGE CROSSING FILING 1)	MESA RIDGE PARKWAY AND SYRACUSE STREET FOUNTAIN CO 80903 ***Registry ID:*** 110071066162	NW	0.01 / 73.33	-8	65
13	FINDS/FRS	MAVERIK-MAVERIK STORE #659	MESA RDIGE & SYRACUSE ST FOUNTAIN CO 80817 ***Registry ID:*** 110071092165	NW	0.01 / 73.33	-8	65
14	FINDS/FRS	FIRST FLEET (FORMERLY AFC)	500 WILLOW SPRINGS ROAD COLORADO SPRINGS CO 80911 ***Registry ID:*** 110042344852	WNW	0.01 / 77.52	-16	66
14	ICIS	FIRST FLEET (FORMERLY AFC)	500 WILLOW SPRINGS ROAD COLORADO SPRINGS CO 80911 ***Registry ID:*** 110042344852	WNW	0.01 / 77.52	-16	66
15	FINDS/FRS	LES SCHWAB TIRE CENTER FOUNTAIN	7996 FOUNTAIN MESA RD FOUNTAIN CO 80817 ***Registry ID:*** 110064783195	ESE	0.02 / 80.39	88	67
15	ICIS	LES SCHWAB TIRE CENTER FOUNTAIN	7996 FOUNTAIN MESA RD FOUNTAIN CO 80817 ***Registry ID:*** 110064783195	ESE	0.02 / 80.39	88	67
15	SWF/LF	Les Schwab Tire Center	7996 Fountain Mesa Road Fountain CO	ESE	0.02 / 80.39	88	68

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
16	FINDS/FRS	SAFEWAY INC. # 1975	6949 MESA RIDGE PKWY FOUNTAIN CO 80817 ***Registry ID:*** 110041440296	E	0.02 / 81.34	91	68
16	UST	Safeway Fuel Center	6949 Mesa Ridge Rd Fountain 80817 CO ***Facility ID:*** 17892 ***Tank Tag | Tank Status:*** 17892-2 | Currently In Use, 17892-2 | Currently In Use, 17892-1 | Currently In Use	E	0.02 / 81.34	91	69
16	AIR PERMITS	SAFEWAY INC. # 1975	6941 MESA RIDGE PKWY FOUNTAIN CO 80817	E	0.02 / 81.34	91	72
16	ERNS		6949 MESA RIDGE PARKWAY FOUNTAIN CO 80817 ***NRC Report No:*** 1300134	E	0.02 / 81.34	91	75
16	AFS	SAFEWAY INC. # 1975	6949 MESA RIDGE PKWY FOUNTAIN CO 808171543	E	0.02 / 81.34	91	77
16	FINDS/FRS	6945 MESA RIDGE RETAIL	6945 MESA RIDGE PARKWAY FOUNTAIN CO 80817 ***Registry ID:*** 110071204685	E	0.02 / 81.34	91	77
17	FINDS/FRS	SCOTT'S COMPANY - HYPONEX CORP #1023	3 ASSEMBLY CT FOUNTAIN CO 808170000 ***Registry ID:*** 110001434742	W	0.02 / 83.39	-14	78
17	FINDS/FRS	SCOTT COMPANY	3 ASSEMBLY CT FOUNTAIN CO 808170000 ***Registry ID:*** 110010684232	W	0.02 / 83.39	-14	79
17	AST	The Scotts Company (Hyponex Corp)	3 Assembly Ct Fountain 80817 CO ***Facility ID:*** 10116 ***Tank Tag | Tank Status:*** 10116-4 | Currently In Use, 10116-3 | Not Regulated	W	0.02 / 83.39	-14	79
17	UST	The Scotts Company (Hyponex Corp)	3 Assembly Ct Fountain 80817 CO ***Facility ID:*** 10116 ***Tank Tag | Tank Status:*** 10116-2 | Permanently Closed, 10116-1 | Permanently Closed	W	0.02 / 83.39	-14	82
17	LST	The Scotts Company (Hyponex Corp)	3 Assembly Ct Fountain 80817 CO ***Facility ID:*** 10116 ***Event ID | Status:*** 11634 | Closed, 3541 | Closed	W	0.02 / 83.39	-14	84
17	ICIS	SCOTT COMPANY	3 ASSEMBLY CT FOUNTAIN CO 808170000 ***Registry ID:*** 110010684232	W	0.02 / 83.39	-14	86
17	ICIS	HYPONEX CO	3 ASSEMBLY CT FOUNTAIN CO 808172710 ***Registry ID:*** 110001434742	W	0.02 / 83.39	-14	87

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
17	ICIS	HYPONEX CORP	3 ASSEMBLY CT FOUNTAIN CO 80817 ***Registry ID:*** 110001434742	W	0.02 / 83.39	-14	87
17	PDES	Hyponex Corp	3 Assembly Ct Fountain CO 80817	W	0.02 / 83.39	-14	87
17	PDES	Hyponex Corp	3 Assembly Ct Fountain CO 80817	W	0.02 / 83.39	-14	90
17	PDES	Hyponex Corp	3 Assembly Ct Fountain CO 80817	W	0.02 / 83.39	-14	91
17	PDES	Hyponex Corp	3 Assembly Ct Fountain CO 80817	W	0.02 / 83.39	-14	92
17	AIR PERMITS	SCOTT'S COMPANY - HYPONEX CORP #1023	3 ASSEMBLY CT FOUNTAIN CO 80817	W	0.02 / 83.39	-14	93
17	AFS	HYPONEX CO	3 ASSEMBLY CT FOUNTAIN CO 808172710	W	0.02 / 83.39	-14	99
17	FED BROWNFIELDS	Scott's Fertilizer	3 Assembly Court FOUNTAIN CO 80817 ***Property ID:*** 251466	W	0.02 / 83.39	-14	101
18	FINDS/FRS	FAMILY DOLLAR #8650	6960 MESA RIDGE PKWY FOUNTAIN CO 80817 ***Registry ID:*** 110064376410	E	0.02 / 101.45	98	112
18	RCRA VSQG	FAMILY DOLLAR #8650	6960 MESA RIDGE PKWY FOUNTAIN CO 80817 ***EPA Handler ID:*** COR000238022	E	0.02 / 101.45	98	113
19	SPILLS		7841 FOUNTAIN MESA RD. FOUNTAIN CO 80817- ***Case No:*** 2002-004	E	0.03 / 151.65	92	114
20	UST	SEJ #33043	7725 Fountain Mesa Rd Fountain 80817 CO ***Facility ID:*** 15472 ***Tank Tag | Tank Status:*** 15472-1 | Currently In Use, 15472-2 | Currently In Use	E	0.03 / 175.28	99	115
20	LST	SEJ #33043	7725 Fountain Mesa Rd Fountain 80817 CO ***Facility ID:*** 15472 ***Event ID | Status:*** 9039 | Closed	E	0.03 / 175.28	99	118
20	AIR PERMITS	SEJ ASSET MANAGEMENT - 7-	7725 FOUNTAIN MESA RD FOUNTAIN CO 80817	E	0.03 / 175.28	99	119

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
		ELEVEN #33043					
21	SWF/LF	Les Schwab Tire Center #164	7990 Fountain Mesa Rd Fountain CO	ESE	0.06 / 291.50	87	121
22	SPILLS		702 FRONTAGE ROAD SOUTH FOUNTAIN CO ***Case No:*** CO96-360	WNW	0.06 / 307.16	-26	122
23	RCRA NON GEN	ADVANCE AUTO #6425	7960 FOUNTAIN MESA RD FOUNTAIN CO 80817 ***EPA Handler ID:*** COR000254318	E	0.06 / 313.16	91	122
24	ALT FUELS	UCHealth Fountain Freestanding ED	7890 Fountain Mesa Road Fountain CO 80817 ***ID:*** 213867	E	0.06 / 317.22	92	124
25	UST	Former John Janitell Property	6525 Mesa Rd Fountain 80817 CO ***Facility ID:*** 18992 ***Tank Tag | Tank Status:*** 18992-1 | Permanently Closed, 18992-2 | Permanently Closed	SE	0.08 / 446.00	51	124
26	AST	Lowes #2607	7710 Fountain Mesa Rd Fountain 80817 CO ***Facility ID:*** 18594 ***Tank Tag | Tank Status:*** 18594-1 | Currently In Use	ENE	0.10 / 521.22	112	127
26	RCRA SQG	LOWE'S OF FOUNTAIN CO #2607	7710 FOUNTAIN MESA RD FOUNTAIN CO 80817 ***EPA Handler ID:*** COR000247684	ENE	0.10 / 521.22	112	129
27	RCRA VSQG	SAFEWAY STORE #1975	6925 MESA RIDGE PKWY FOUNTAIN CO 80817 ***EPA Handler ID:*** COR000228155	E	0.11 / 599.90	71	134
28	UST	Snack Shack II	8005 Fountain Mesa Rd Fountain 80817 CO ***Facility ID:*** 20380 ***Tank Tag | Tank Status:*** 20380-2 | Currently In Use, 20380-1 | Currently In Use, 20380-2 | Currently In Use	ESE	0.13 / 670.43	81	135
29	MRDS	GRAVEL PIT	EL PASO COUNTY COLORADO SPRINGS CO 80911 ***Dep ID:*** 10215412	NE	0.14 / 720.31	51	139
30	RCRA NON GEN	A & C COLLISION CENTER	7390 S HWY 85 - 87 FOUNTAIN CO 80817 ***EPA Handler ID:*** COR000200303	WNW	0.18 / 942.26	5	139
31	RCRA NON GEN	PEOPLE'S CHOICE	7370 S HWY 85-87 FOUNTAIN CO 80917	WNW	0.18 / 956.47	5	143

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
			EPA Handler ID: COD982648057				
32	UST	Colorado Auto Auction	7360-7390 Hwy 85 And 87 Fountain 80817 CO ***Facility ID:*** 15267 ***Tank Tag | Tank Status:*** 15267-1 | Permanently Closed	WNW	0.18 / 962.18	5	144
32	LST	Colorado Auto Auction	7360-7390 Hwy 85 And 87 Fountain 80817 CO ***Facility ID:*** 15267 ***Event ID | Status:*** 8385 | Closed	WNW	0.18 / 962.18	5	146
33	SWF/LF	A-1 Emergency Mobile Inc	5620 Southmoor Lane Fountain CO	WNW	0.22 / 1,179.99	0	147
34	UST	Fountain Valley Fire Department #2	8201 Fountain Mesa Rd Fountain 80817 CO ***Facility ID:*** 3294 ***Tank Tag | Tank Status:*** 3294-2 | Permanently Closed, 3294-1 | Permanently Closed	ESE	0.24 / 1,280.51	79	148
35	LST	Glen Investment Group 1-12 LLC	18 Jersey Ln Colorado Springs 80911 CO ***Facility ID:*** 4503 ***Event ID | Status:*** 2907 | Closed	NW	0.28 / 1,458.28	8	150
36	LST	Loves Travel Stop #357	5505 Travel Plaza Dr Fountain 80817 CO ***Facility ID:*** 18115 ***Event ID | Status:*** 13423 | Closed	WNW	0.33 / 1,753.32	-30	152
36	LUST TRUST	Loves Travel Stop #357	5505 Travel Plaza Dr Fountain CO 80817 ***Facility ID | Event ID | Release Date:*** 18115 | 13423 | 7/24/2019	WNW	0.33 / 1,753.32	-30	153
37	LST	Fountain Valley Maint Shop	310 Duckwood Rd Fountain 80817 CO ***Facility ID:*** 5010 ***Event ID | Status:*** 8972 | Closed	SW	0.37 / 1,943.91	-59	153
38	FED BROWNFIELDS	Duckwood Property	200 Duckwood Road Fountain, CO 80817 (18 adjoining tax lots) FOUNTAIN CO 80817 ***Property ID:*** 250136	SSW	0.38 / 2,031.95	-47	155
39	LST	Loaf N Jug #18	7055 Alegre Cir Fountain 80817 CO ***Facility ID:*** 2226 ***Event ID | Status:*** 7978 | Closed	NW	0.46 / 2,410.38	11	166
40	MRDS	GRAVEL PIT	EL PASO COUNTY FOUNTAIN CO 80817 ***Dep ID:*** 10263607	SSE	0.55 / 2,900.33	22	167

Executive Summary: Summary by Data Source

Standard

Federal

RCRA SQG - RCRA Small Quantity Generators List

A search of the RCRA SQG database, dated Apr 24, 2023 has found that there are 1 RCRA SQG site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
LOWE'S OF FOUNTAIN CO #2607	7710 FOUNTAIN MESA RD FOUNTAIN CO 80817 ***EPA Handler ID**: COR000247684*	ENE	0.10 / 521.22	26

RCRA VSQG - RCRA Very Small Quantity Generators List

A search of the RCRA VSQG database, dated Apr 24, 2023 has found that there are 2 RCRA VSQG site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
FAMILY DOLLAR #8650	6960 MESA RIDGE PKWY FOUNTAIN CO 80817 ***EPA Handler ID**: COR000238022*	E	0.02 / 101.45	18
SAFEWAY STORE #1975	6925 MESA RIDGE PKWY FOUNTAIN CO 80817 ***EPA Handler ID**: COR000228155*	E	0.11 / 599.90	27

RCRA NON GEN - RCRA Non-Generators

A search of the RCRA NON GEN database, dated Apr 24, 2023 has found that there are 4 RCRA NON GEN site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
ADVANCE AUTO #6425	7960 FOUNTAIN MESA RD FOUNTAIN CO 80817 ***EPA Handler ID**: COR000254318*	E	0.06 / 313.16	23
A & C COLLISION CENTER	7390 S HWY 85 - 87 FOUNTAIN CO 80817 ***EPA Handler ID**: COR000200303*	WNW	0.18 / 942.26	30
PEOPLE'S CHOICE	7370 S HWY 85-87 FOUNTAIN CO 80917 ***EPA Handler ID**: COD982648057*	WNW	0.18 / 956.47	31

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
DATA GENERAL SERVICE INC	702 FRONTAGE RD FOUNTAIN CO 80817 ***EPA Handler ID**: COD982648487*	WNW	0.01 / 27.09	8

ERNS - Emergency Response Notification System

A search of the ERNS database, dated Apr 3, 2023 has found that there are 1 ERNS site(s) within approximately 0.02 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
	6949 MESA RIDGE PARKWAY FOUNTAIN CO 80817 ***NRC Report No**: 1300134*	E	0.02 / 81.34	16

FED BROWNFIELDS - The Assessment, Cleanup and Redevelopment Exchange System (ACRES) Brownfield Database

A search of the FED BROWNFIELDS database, dated Sep 13, 2022 has found that there are 2 FED BROWNFIELDS site(s) within approximately 0.50 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
Scott's Fertilizer	3 Assembly Court FOUNTAIN CO 80817 ***Property ID**: 251466*	W	0.02 / 83.39	17
Duckwood Property	200 Duckwood Road Fountain, CO 80817 (18 adjoining tax lots) FOUNTAIN CO 80817 ***Property ID**: 250136*	SSW	0.38 / 2,031.95	38

State

SWF/LF - Solid Waste Facilities and Landfills

A search of the SWF/LF database, dated May 4, 2023 has found that there are 3 SWF/LF site(s) within approximately 0.50 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
Les Schwab Tire Center	7996 Fountain Mesa Road Fountain CO	ESE	0.02 / 80.39	15
Les Schwab Tire Center #164	7990 Fountain Mesa Rd Fountain CO	ESE	0.06 / 291.50	21

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
A-1 Emergency Mobile Inc	5620 Southmoor Lane Fountain CO	WNW	0.22 / 1,179.99	33

LST - Leaking Storage Tanks

A search of the LST database, dated Jun 1, 2023 has found that there are 8 LST site(s) within approximately 0.50 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
Kum & Go #670	8050 Fountain Mesa Rd Fountain 80817 CO ***Facility ID**: 19326* ***Event ID | Status**: 13316 | Closed*	ESE	0.01 / 43.26	9
SEJ #33043	7725 Fountain Mesa Rd Fountain 80817 CO ***Facility ID**: 15472* ***Event ID | Status**: 9039 | Closed*	E	0.03 / 175.28	20
Colorado Auto Auction	7360-7390 Hwy 85 And 87 Fountain 80817 CO ***Facility ID**: 15267* ***Event ID | Status**: 8385 | Closed*	WNW	0.18 / 962.18	32
Glen Investment Group 1-12 LLC	18 Jersey Ln Colorado Springs 80911 CO ***Facility ID**: 4503* ***Event ID | Status**: 2907 | Closed*	NW	0.28 / 1,458.28	35
Loaf N Jug #18	7055 Alegre Cir Fountain 80817 CO ***Facility ID**: 2226* ***Event ID | Status**: 7978 | Closed*	NW	0.46 / 2,410.38	39

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
The Scotts Company (Hyponex Corp)	3 Assembly Ct Fountain 80817 CO ***Facility ID**: 10116* ***Event ID | Status**: 11634 | Closed, 3541 | Closed*	W	0.02 / 83.39	17
Loves Travel Stop #357	5505 Travel Plaza Dr Fountain 80817 CO ***Facility ID**: 18115* ***Event ID | Status**: 13423 | Closed*	WNW	0.33 / 1,753.32	36
Fountain Valley Maint Shop	310 Duckwood Rd Fountain 80817 CO ***Facility ID**: 5010* ***Event ID | Status**: 8972 | Closed*	SW	0.37 / 1,943.91	37

LUST TRUST - LUST Trust Sites

A search of the LUST TRUST database, dated Jun 1, 2023 has found that there are 2 LUST TRUST site(s) within approximately 0.50 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
Kum & Go #670	8050 Fountain Mesa Rd Fountain CO 80817	ESE	0.01 / 43.26	9

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
	Facility ID* | *Event ID* | *Release Date: *19326* | *13316* | *5/23/2019*			

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
Loves Travel Stop #357	5505 Travel Plaza Dr Fountain CO 80817	WNW	0.33 / 1,753.32	36
	Facility ID* | *Event ID* | *Release Date: *18115* | *13423* | *7/24/2019*			

UST - Underground Storage Tanks

A search of the UST database, dated Jun 1, 2023 has found that there are 10 UST site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
Widefield Homes	Fountain Mesa Rd West Of Widefield Colorado Springs 80911 CO ***Facility ID***: *7032* ***Tank Tag* | *Tank Status***: *7032-1* | *Permanently Closed, 7032-2* | *Permanently Closed*	SE	0.00 / 0.00	1
Kum & Go #670	8050 Fountain Mesa Rd Fountain 80817 CO ***Facility ID***: *19326* ***Tank Tag* | *Tank Status***: *19326-1* | *Currently In Use, 19326-3* | *Currently In Use, 19326-5* | *Currently In Use, 19326-2* | *Currently In Use, 19326-4* | *Currently In Use*	ESE	0.01 / 43.26	9
Safeway Fuel Center	6949 Mesa Ridge Rd Fountain 80817 CO ***Facility ID***: *17892* ***Tank Tag* | *Tank Status***: *17892-2* | *Currently In Use, 17892-2* | *Currently In Use, 17892-1* | *Currently In Use*	E	0.02 / 81.34	16
SEJ #33043	7725 Fountain Mesa Rd Fountain 80817 CO ***Facility ID***: *15472* ***Tank Tag* | *Tank Status***: *15472-1* | *Currently In Use, 15472-2* | *Currently In Use*	E	0.03 / 175.28	20
Former John Janitell Property	6525 Mesa Rd Fountain 80817 CO ***Facility ID***: *18992* ***Tank Tag* | *Tank Status***: *18992-1* | *Permanently Closed, 18992-2* | *Permanently Closed*	SE	0.08 / 446.00	25
Snack Shack II	8005 Fountain Mesa Rd Fountain 80817 CO ***Facility ID***: *20380* ***Tank Tag* | *Tank Status***: *20380-2* | *Currently In Use, 20380-1* | *Currently In Use, 20380-2* | *Currently In Use*	ESE	0.13 / 670.43	28
Colorado Auto Auction	7360-7390 Hwy 85 And 87 Fountain 80817 CO ***Facility ID***: *15267* ***Tank Tag* | *Tank Status***: *15267-1* | *Permanently Closed*	WNW	0.18 / 962.18	32
Fountain Valley Fire Department #2	8201 Fountain Mesa Rd Fountain 80817 CO ***Facility ID***: *3294* ***Tank Tag* | *Tank Status***: *3294-2* | *Permanently Closed, 3294-1* | *Permanently Closed*	ESE	0.24 / 1,280.51	34

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
Maverik #659	Mesa Ridge PKWY & Syracuse Security 80911 CO ***Facility ID**: 20721* ***Tank Tag | Tank Status**: 20721-1 | Currently In Use, 20721-2 | Currently In Use, 20721-2 | Currently In Use, 20721-2 | Currently In Use*	NW	0.01 / 73.33	13
The Scotts Company (Hyponex Corp)	3 Assembly Ct Fountain 80817 CO ***Facility ID**: 10116* ***Tank Tag | Tank Status**: 10116-2 | Permanently Closed, 10116-1 | Permanently Closed*	W	0.02 / 83.39	17

AST - Aboveground Storage Tanks

A search of the AST database, dated Jun 1, 2023 has found that there are 2 AST site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
Lowes #2607	7710 Fountain Mesa Rd Fountain 80817 CO ***Facility ID**: 18594* ***Tank Tag | Tank Status**: 18594-1 | Currently In Use*	ENE	0.10 / 521.22	26

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
The Scotts Company (Hyponex Corp)	3 Assembly Ct Fountain 80817 CO ***Facility ID**: 10116* ***Tank Tag | Tank Status**: 10116-4 | Currently In Use, 10116-3 | Not Regulated*	W	0.02 / 83.39	17

Non Standard

Federal

FINDS/FRS - Facility Registry Service/Facility Index

A search of the FINDS/FRS database, dated Aug 18, 2022 has found that there are 15 FINDS/FRS site(s) within approximately 0.02 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
MR. CAR WASH	7980 FOUNTAIN MESA ROAD FOUNTAIN CO 80817 ***Registry ID**: 110070668495*	ESE	0.00 / 7.46	7
LES SCHWAB TIRE CENTER FOUNTAIN	7996 FOUNTAIN MESA RD FOUNTAIN CO 80817 ***Registry ID**: 110064783195*	ESE	0.02 / 80.39	15
6945 MESA RIDGE RETAIL	6945 MESA RIDGE PARKWAY FOUNTAIN CO 80817 ***Registry ID**: 110071204685*	E	0.02 / 81.34	16
SAFEWAY INC. # 1975	6949 MESA RIDGE PKWY FOUNTAIN CO 80817	E	0.02 / 81.34	16

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
	***Registry ID**: 110041440296*			
FAMILY DOLLAR #8650	6960 MESA RIDGE PKWY FOUNTAIN CO 80817	E	0.02 / 101.45	18
	***Registry ID**: 110064376410*			

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
HIGHWAY 85 OUTFALL SEWER	HWY 85 AND MESA RD FOUNTAIN CO 80817	WSW	0.00 / 0.00	3
	***Registry ID**: 110040433046*			
WIDEFIELD WSD	450 WILLOW SPRINGS RD FOUNTAIN CO 80817	WNW	0.00 / 0.00	6
	***Registry ID**: 110055989649*			
COLJEN LEASING LTD ELPASO ASPHALT	8050 S US HWY 85 & 87 COLORADO SPRINGS CO 80901	W	0.01 / 51.71	10
	***Registry ID**: 110038648489*			
EL PASO FOUNTAIN CREEK WILLOW SPRINGS	430 WILLOW SPRINGS ROAD FOUNTAIN CO 80817	WNW	0.01 / 59.68	11
	***Registry ID**: 110032601628*			
MAVERIK-MAVERIK STORE #659	MESA RDIGE & SYRACUSE ST FOUNTAIN CO 80817	NW	0.01 / 73.33	13
	***Registry ID**: 110071092165*			
MESA RIDGE CROSSING	SYRACUSE STREET AND MESA RIDGE PARKWAY FOUNTAIN CO 80903 ***Registry ID**: 110070875060*	NW	0.01 / 73.33	13
MAVERIK AT MESA RIDGE (LOT 1, MESA RIDGE CROSSING FILING 1)	MESA RIDGE PARKWAY AND SYRACUSE STREET FOUNTAIN CO 80903 ***Registry ID**: 110071066162*	NW	0.01 / 73.33	13
FIRST FLEET (FORMERLY AFC)	500 WILLOW SPRINGS ROAD COLORADO SPRINGS CO 80911	WNW	0.01 / 77.52	14
	***Registry ID**: 110042344852*			
SCOTT'S COMPANY - HYPONEX CORP #1023	3 ASSEMBLY CT FOUNTAIN CO 808170000	W	0.02 / 83.39	17
	***Registry ID**: 110001434742*			
SCOTT COMPANY	3 ASSEMBLY CT FOUNTAIN CO 808170000	W	0.02 / 83.39	17
	***Registry ID**: 110010684232*			

ICIS - Integrated Compliance Information System (ICIS)

A search of the ICIS database, dated Oct 15, 2022 has found that there are 9 ICIS site(s) within approximately 0.02 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
LES SCHWAB TIRE CENTER FOUNTAIN	7996 FOUNTAIN MESA RD FOUNTAIN CO 80817 ***Registry ID**: 110064783195*	ESE	0.02 / 80.39	15

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
HIGHWAY 85 OUTFALL SEWER	HWY 85 AND MESA RD FOUNTAIN CO 80817 ***Registry ID**: 110040433046*	WSW	0.00 / 0.00	3
WIDEFIELD WSD WWTF	450 WILLOW SPRINGS RD WIDEFIELD CO 80817 ***Registry ID**: 110055989649*	WNW	0.00 / 0.00	6
EL PASO FOUNTAIN CREEK WILLOW SPRINGS	430 WILLOW SPRINGS ROAD FOUNTAIN CO 80817 ***Registry ID**: 110032601628*	WNW	0.01 / 59.68	11
EL PASO FOUNTAIN CREEK WILLOW SPRINGS	430 WILLOW SPRINGS ROAD FOUNTAIN CO 80817 ***Registry ID**: 110032601628*	WNW	0.01 / 59.68	11
FIRST FLEET (FORMERLY AFC)	500 WILLOW SPRINGS ROAD COLORADO SPRINGS CO 80911 ***Registry ID**: 110042344852*	WNW	0.01 / 77.52	14
HYPONEX CORP	3 ASSEMBLY CT FOUNTAIN CO 80817 ***Registry ID**: 110001434742*	W	0.02 / 83.39	17
HYPONEX CO	3 ASSEMBLY CT FOUNTAIN CO 808172710 ***Registry ID**: 110001434742*	W	0.02 / 83.39	17
SCOTT COMPANY	3 ASSEMBLY CT FOUNTAIN CO 808170000 ***Registry ID**: 110010684232*	W	0.02 / 83.39	17

MRDS - Mineral Resource Data System

A search of the MRDS database, dated Mar 15, 2016 has found that there are 2 MRDS site(s) within approximately 1.00 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
GRAVEL PIT	EL PASO COUNTY COLORADO SPRINGS CO 80911 ***Dep ID**: 10215412*	NE	0.14 / 720.31	29
GRAVEL PIT	EL PASO COUNTY FOUNTAIN CO 80817	SSE	0.55 / 2,900.33	40

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
	***Dep ID**: 10263607*			

ALT FUELS - Alternative Fueling Stations

A search of the ALT FUELS database, dated Jun 5, 2023 has found that there are 2 ALT FUELS site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
Kum & Go #670	8050 Fountain Mesa Rd Fountain CO 80817 ***ID**: 50304*	ESE	0.01 / 43.26	9
UCHealth Fountain Freestanding ED	7890 Fountain Mesa Road Fountain CO 80817 ***ID**: 213867*	E	0.06 / 317.22	24

AFS - Air Facility System

A search of the AFS database, dated Oct 17, 2014 has found that there are 3 AFS site(s) within approximately 0.02 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
SAFEWAY INC. # 1975	6949 MESA RIDGE PKWY FOUNTAIN CO 808171543	E	0.02 / 81.34	16

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
COLJEN LEASING LTD ELPASO ASPHALT	8050 S US HWY 85 & 87 COLORADO SPRINGS CO 000000000	W	0.01 / 51.71	10
HYPONEX CO	3 ASSEMBLY CT FOUNTAIN CO 808172710	W	0.02 / 83.39	17

State

SPILLS - Spills

A search of the SPILLS database, dated Apr 8, 2022 has found that there are 5 SPILLS site(s) within approximately 0.12 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
	MESA RIDGE ROAD AND FONTAIN BLVD FOUNTAIN CO 80817 ***Case No**: 2011-0328*	E	0.00 / 0.00	4
	7005 MESA RIDGE PKWY FOUNTAIN CO	E	0.01 / 62.07	12

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
	***Case No**: 2019-0399*			
	7841 FOUNTAIN MESA RD. FOUNTAIN CO 80817-	E	0.03 / 151.65	19
	***Case No**: 2002-004*			

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
	480 WILLOW SPRINGS RD. FOUNTAIN CO 80817	WNW	0.00 / 0.00	5
	***Case No**: 2018-0278*			
	702 FRONTAGE ROAD SOUTH FOUNTAIN CO	WNW	0.06 / 307.16	22
	***Case No**: CO96-360*			

AIR PERMITS - Air Pollution Control Division Permitted Facilities

A search of the AIR PERMITS database, dated Feb 13, 2023 has found that there are 4 AIR PERMITS site(s) within approximately 0.12 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
SAFEWAY INC. # 1975	6941 MESA RIDGE PKWY FOUNTAIN CO 80817	E	0.02 / 81.34	16
SEJ ASSET MANAGEMENT - 7-ELEVEN #33043	7725 FOUNTAIN MESA RD FOUNTAIN CO 80817	E	0.03 / 175.28	20

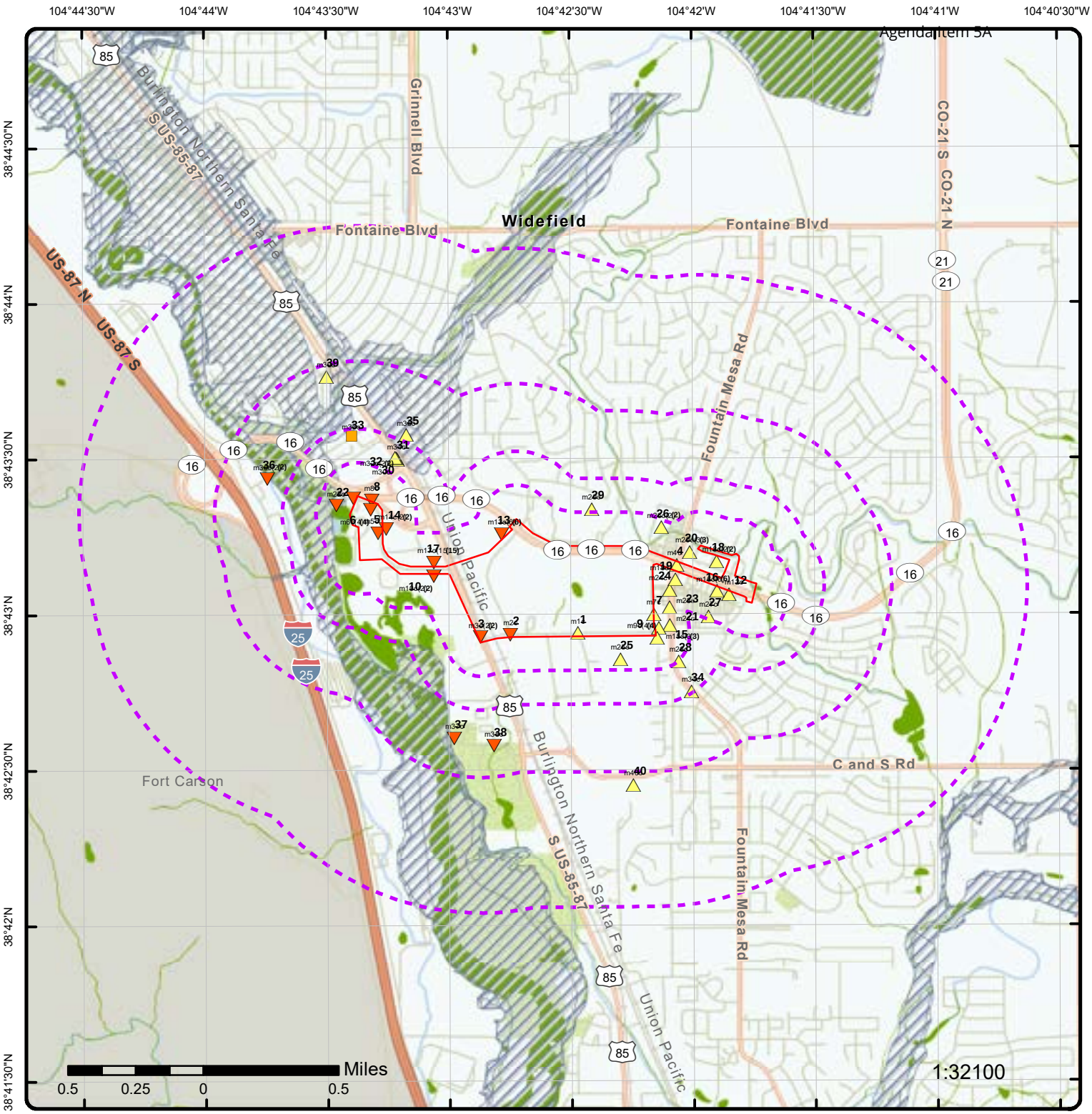
Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
MAVERIK-MAVERIK STORE #659	MESA RDIGE & SYRACUSE ST FOUNTAIN CO 80817	NW	0.01 / 73.33	13
SCOTT'S COMPANY - HYPONEX CORP #1023	3 ASSEMBLY CT FOUNTAIN CO 80817	W	0.02 / 83.39	17

PDES - Permitted Facilities Listing

A search of the PDES database, dated May 1, 2023 has found that there are 8 PDES site(s) within approximately 0.02 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
Fountain Industrial Park, LLC	N of Syracuse St and Mesa Rd Fountain CO 80817	SW	0.00 / 0.00	2

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
Widefield WSD WWTF	450 Willow Springs Rd Fountain CO 80817	WNW	0.00 / 0.00	6
Widefield WSD WWTF	450 Willow Springs Rd Fountain CO 80817	WNW	0.00 / 0.00	6
Mesa Ridge Crossing	Syracuse Street and Mesa Ridge Parkway Fountain CO 80903	NW	0.01 / 73.33	13
Hyponex Corp	3 Assembly Ct Fountain CO 80817	W	0.02 / 83.39	17
Hyponex Corp	3 Assembly Ct Fountain CO 80817	W	0.02 / 83.39	17
Hyponex Corp	3 Assembly Ct Fountain CO 80817	W	0.02 / 83.39	17
Hyponex Corp	3 Assembly Ct Fountain CO 80817	W	0.02 / 83.39	17



Map: 1.0 Mile Radius

Order Number: 23082200786

Address: Jimmy Camp Wastewater Line Alternatives, Widefield, CO

- Project Property
- Buffer Outline
- Sites with Higher Elevation
- Sites with Same Elevation
- Sites with Lower Elevation
- Sites with Unknown Elevation
- Areas with Higher Elevation
- Areas with Same Elevation
- Areas with Lower Elevation
- Areas with Unknown Elevation
- Freeways; Highways
- Traffic Circle; Ramp
- Major & Minor Arterial
- Traffic Circle; Ramp
- Local Road
- Rail
- State
- Country
- National Wetland
- Indian Reserve Land
- Plume
- 100 Year Flood Zone
- 500 Year Flood Zone
- FWS Special Designation Areas
- National Priorities List (Active, Delisted, Proposed, Institutional Control)

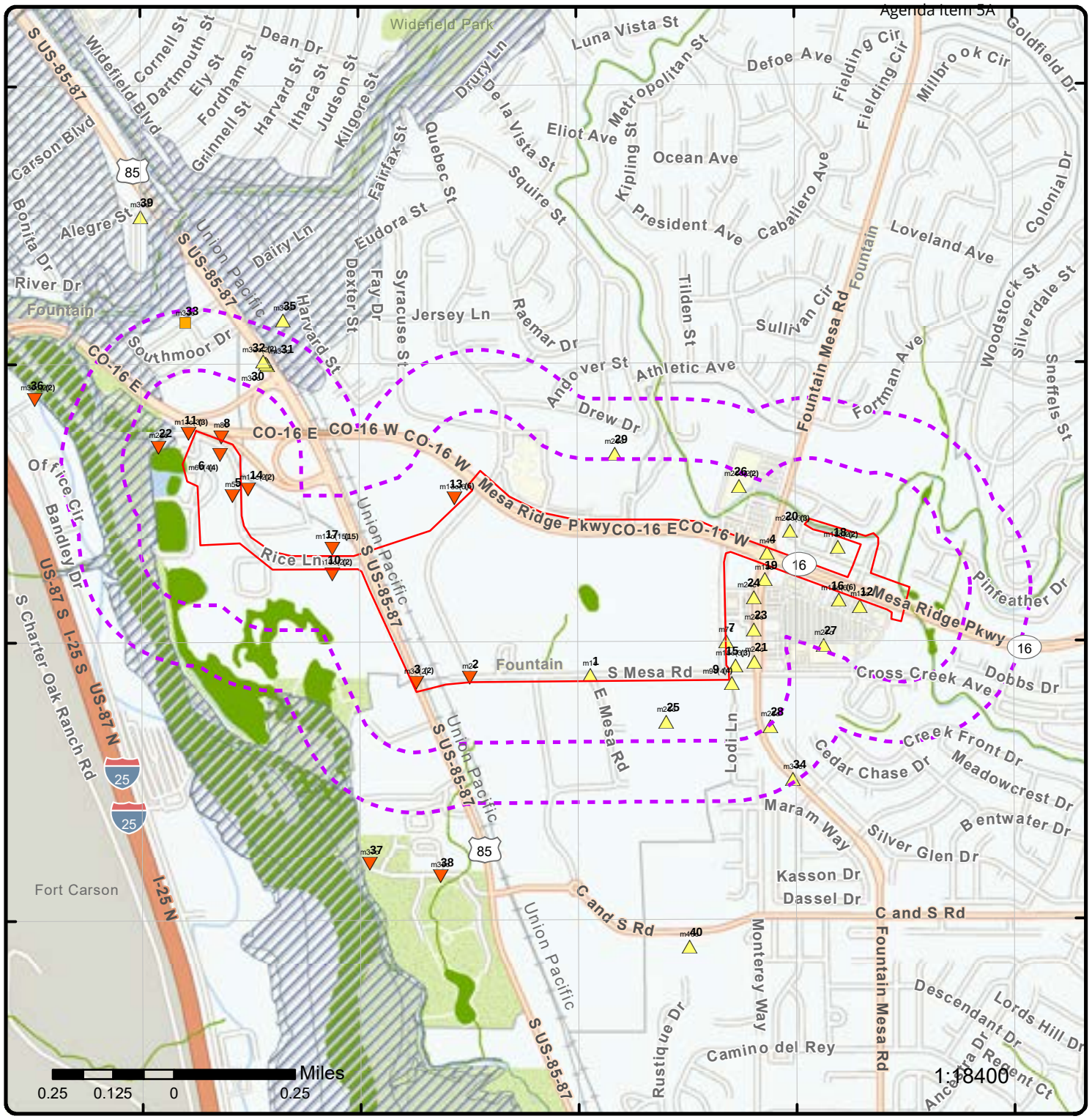


Map: 0.5 Mile Radius

Order Number: 23082200786

Address: Jimmy Camp Wastewater Line Alternatives, Widefield, CO

- Project Property
- Buffer Outline
- Sites with Higher Elevation
- Sites with Same Elevation
- Sites with Lower Elevation
- Sites with Unknown Elevation
- Areas with Higher Elevation
- Areas with Same Elevation
- Areas with Lower Elevation
- Areas with Unknown Elevation
- Freeways; Highways
- Traffic Circle; Ramp
- Major & Minor Arterial
- Traffic Circle; Ramp
- Local Road
- Rail
- State
- Country
- National Wetland
- Indian Reserve Land
- Plume
- 100 Year Flood Zone
- 500 Year Flood Zone
- FWS Special Designation Areas
- National Priorities List (Active, Delisted, Proposed, Institutional Control)



Map: 0.25 Mile Radius

Order Number: 23082200786

Address: Jimmy Camp Wastewater Line Alternatives, Widefield, CO

- Project Property
- Buffer Outline
- Sites with Higher Elevation
- Sites with Same Elevation
- Sites with Lower Elevation
- Sites with Unknown Elevation
- Areas with Higher Elevation
- Areas with Same Elevation
- Areas with Lower Elevation
- Areas with Unknown Elevation
- Freeways; Highways
- Traffic Circle; Ramp
- Major & Minor Arterial
- Traffic Circle; Ramp
- Local Road
- Rail
- State
- Country
- National Wetland
- Indian Reserve Land
- Plume
- 100 Year Flood Zone
- 500 Year Flood Zone
- FWS Special Designation Areas
- National Priorities List (Active, Delisted, Proposed, Institutional Control)



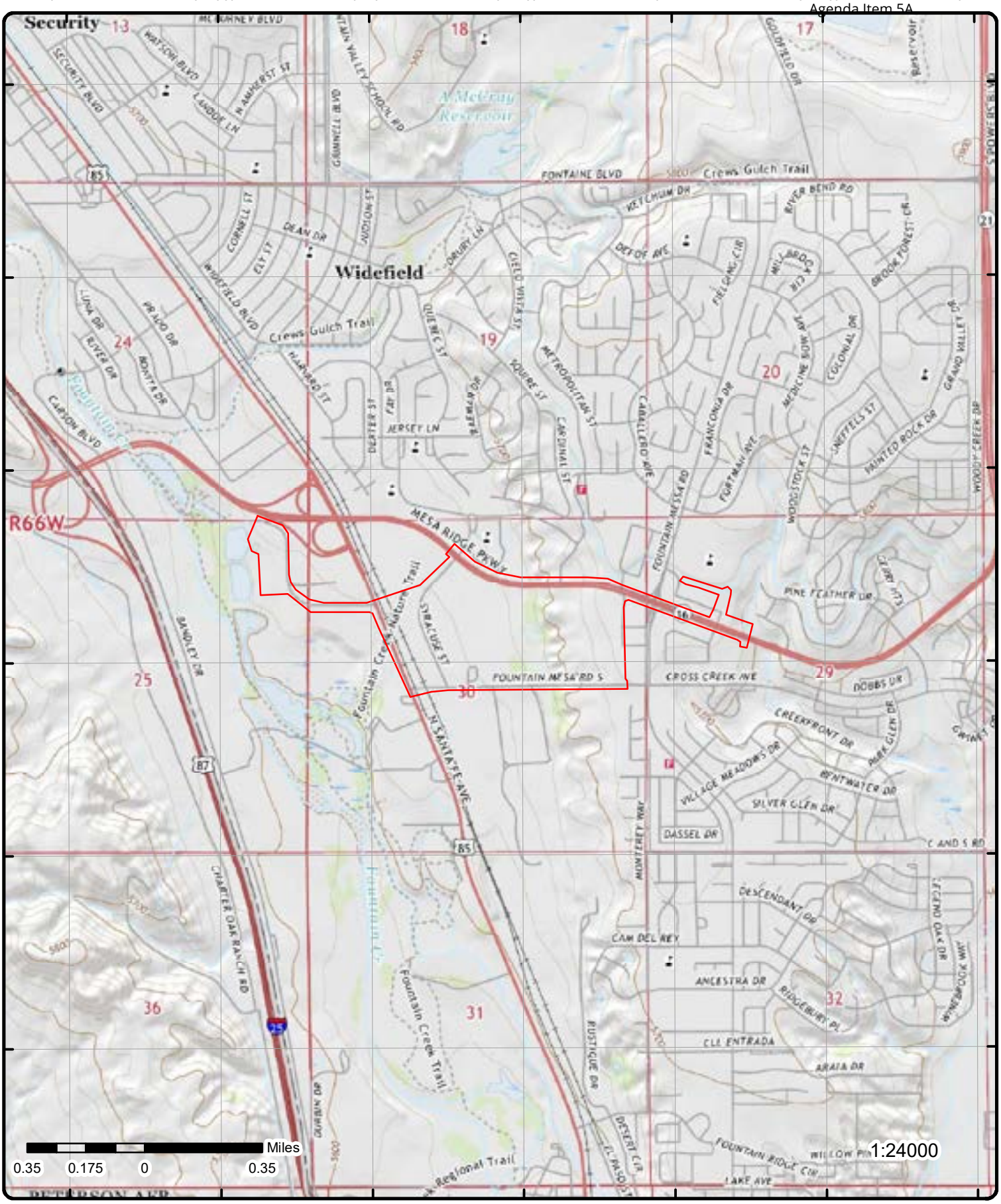
Aerial **Year: 2022**

Order Number: 23082200786

Address: Jimmy Camp Wastewater Line Alternatives, Widefield, CO

Source: ESRI World Imagery

© ERIS Information Inc.



Topographic Map **Year: 2019**

Order Number: 23082200786

Address: Jimmy Camp Wastewater Line Alternatives, CO

Quadrangle(s): Elsmere CO, Fountain CO, Cheyenne Mountain CO

Source: USGS Topographic Map

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Detail Report

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
1	1 of 1	SE	0.00 / 0.00	5,662.63 / 8	Widefield Homes Fountain Mesa Rd West Of Widefield Colorado Springs 80911 CO	UST

Facility ID: 7032
FacilityName(OPS): Widefield Homes
FacilityType(OPS): Non-Retail
Fac Category (OPS): Other
Address (OPS): Fountain Mesa Rd West Of Widefield
City (OPS): Colorado Springs
Zip Code (OPS): 80911
County (OPS): El Paso
LatLong (OPS): 38.715649, -104.707866
FacName (CDLE): Widefield Homes
Address (CDLE): Fountain Mesa Rd West Of Widefield
State (CDLE):
Fac Name (COSTIS): Widefield Homes
Address (COSTIS): Fountain Mesa Rd
West Of Widefield
Colorado Springs 80911
County (COSTIS): El Paso
Latitude (CDLE): 38.715649
Longitude (CDLE): -104.707866
Fac Type (CDLE): Non-Retail
FacCategry(CDLE): Other
State (OPS): CO
City (CDLE): Colorado Springs
Zip (CDLE): 80911
County (CDLE): El Paso
Data Source(s): Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks

Facility Information (CDLE)

Count of Tank Tag: 0
No. Dispensers: 0
Owner ID: OWNR-9999
Accnt Holdr Name: larry lyster
Type: Non-Retail

Owner Information (CDLE)

Contact Name: Unknown
First Name:
Company Name: larry lyster
Last Name: Unknown
Address:
Comment:
Middle Init:

UST Tanks (COSTIS) (As of October 2021)

Tank ID: 18667
Tank Tag: '7032-2
Tank Type Desc: UST
Tank Count: 46668
Capacity:
Facility Owner: Unknown
Facility Name Address: Widefield Homes
Fountain Mesa Rd
West Of Widefield
Colorado Springs 80911
Owner ID: 9999
Tank Owner:
County: El Paso
Product Name: Gasoline

Tank ID: 18666
Tank Tag: '7032-1
Tank Type Desc: UST
Tank Count: 46668
Capacity:
Facility Owner: Unknown
Facility Name Address: Widefield Homes
Fountain Mesa Rd
West Of Widefield
Colorado Springs 80911
Owner ID: 9999
Tank Owner:
County: El Paso
Product Name: Gasoline

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

UST Tanks 1 (CDLE)

Tank Tag:	7032-1	***Overfill Preven:***	
Tank Type:	UST	***Product Type/Name:***	Gasoline
Tank Status:	Permanently Closed	***Piping Wall Type:***	None
Capacity:		***Tank Wall Type:***	
Install Date:		***Piping System:***	
Date Closed:	2/1/1995	***Piping Type:***	Other
Tank Material:	Unknown		
Piping Material:	Unknown		

UST Tanks 2 (CDLE)

Closure Meth ID:		***No Fee:***	No
Unregulated:	FALSE	***Anch Method Desc:***	
Last Used Date:	2/1/1995	***Pipe Reld Meth1 ID:***	
Del Prohib Date:		***Pipe Reldet Date:***	
Spill Protected:		***Backfill Mat Desc:***	
Spl Container Size:		***Bfill DrtCvr Amt:***	
Spl Protection Dt:		***Manifold:***	No
Spl Container Mfg:		***Registration Date:***	
Spl Container Mdel:		***Compartment:***	FALSE
Tank Reld Meth1 ID:		***Cpmet:***	No
Tank Lining Date:		***Invault:***	FALSE
CP Test Date:			

UST Tanks 1 (CDLE)

Tank Tag:	7032-2	***Overfill Preven:***	
Tank Type:	UST	***Product Type/Name:***	Gasoline
Tank Status:	Permanently Closed	***Piping Wall Type:***	None
Capacity:		***Tank Wall Type:***	
Install Date:		***Piping System:***	
Date Closed:	2/1/1995	***Piping Type:***	Other
Tank Material:	Unknown		
Piping Material:	Unknown		

UST Tanks 2 (CDLE)

Closure Meth ID:		***No Fee:***	No
Unregulated:	FALSE	***Anch Method Desc:***	
Last Used Date:	2/1/1995	***Pipe Reld Meth1 ID:***	
Del Prohib Date:		***Pipe Reldet Date:***	
Spill Protected:		***Backfill Mat Desc:***	
Spl Container Size:		***Bfill DrtCvr Amt:***	
Spl Protection Dt:		***Manifold:***	No
Spl Container Mfg:		***Registration Date:***	
Spl Container Mdel:		***Compartment:***	FALSE
Tank Reld Meth1 ID:		***Cpmet:***	No
Tank Lining Date:		***Invault:***	FALSE
CP Test Date:			

Oil & Public Safety Regulated Storage Tanks (COSTIS)

Tank Tag:	7032-1	***Leak Detector Type:***	
Tank Status:	Permanently Closed	***Capacity Gallons :***	
Tank Type:	UST	***Product:***	Gasoline
Tank Name:	TNK-014415	***Piping Type:***	Other
Installation Date:		***Piping System:***	
Closure Date:	2/1/1995	***Piping Material:***	Unknown
Tank Material:	Unknown	***Piping Wall Type:***	None
Tank Wall Type:		***Address:***	Fountain Mesa Rd West Of Widefield
Facility Name:	Widefield Homes	***City:***	Colorado Springs

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Facility Type: Non-Retail
Facility Category: Other
Overfill Preven:
Tank Corsn Protection Meth:
Tank Rel Detn Mthd Primary:
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP):
PCP at Tank:
PCP at Dispenser:
Piping Rel Detn Mthd Primary:
Piping Rel Detn Mthd Secondary:
County: El Paso
ZIP Code: 80911

Tank Tag: 7032-2
Tank Status: Permanently Closed
Tank Type: UST
Tank Name: TNK-014416
Installation Date:
Closure Date: 2/1/1995
Tank Material: Unknown
Tank Wall Type:
Facility Name: Widefield Homes
Facility Type: Non-Retail
Facility Category: Other
Overfill Preven:
Tank Corsn Protection Meth:
Tank Rel Detn Mthd Primary:
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP):
PCP at Tank:
PCP at Dispenser:
Piping Rel Detn Mthd Primary:
Piping Rel Detn Mthd Secondary:
Leak Detector Type:
Capacity Gallons :
Product: Gasoline
Piping Type: Other
Piping System:
Piping Material: Unknown
Piping Wall Type: None
Address: Fountain Mesa Rd West Of Widefield
City: Colorado Springs
County: El Paso
ZIP Code: 80911

UST Owner (COSTIS) (As of October 2021)

Owner ID: 9999
First Name:
Middle Init:
Last Name: Unknown
Full Name: Unknown;
Address1: Unknown
City: Zipcode Unknown
State: XX
County:
Zip Code: 99999

Oil & Public Safety Regulated Storage Tank Details

No of Tanks: 0

Facility Contact Details (CDLE)

Contact ID: 0033h00000mtdlz
Costis ID: FACOWN-7032-6741-Apr 4 1997 12:00AM
Active: TRUE
Role: Facility Owner
Fac Contact Name: FCON-030387
Contact Last Name: Unknown

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
2	1 of 1	SW	0.00 / 0.00	5,630.09 / -24	Fountain Industrial Park, LLC N of Syracuse St and Mesa Rd Fountain CO 80817	PDES

Permit ID: COR419235
Permit Status: Effective
Permit Sector: Construction
Previous Permit ID:
Regulation ID:
Facility Name: Fountain Industrial Park, LLC
Facility Address: N of Syracuse St and Mesa Rd
SW Constr Activity: Highway
SW Constr End Date: 1/24/2025
Permit SIC 1: 6552
Permit SIC 2:
Permit SIC 3:
Permit SIC 4:
Permittee: Thompson Thrift Construction

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Facility Address 2:		***Former Permittee:***	
Facility City:	Fountain	***Activity Desc:***	
Facility State:	CO	***Issue Date:***	1/23/2023
Facility ZIP:	80817	***Effective Date:***	1/23/2023
Facility County:	El Paso	***Expiration Date:***	3/31/2024
Facility Latitude:	38.717426	***Permit Sector1:***	
Facility Longitude:	-104.707765	***Permit Sector2:***	
Facility SIC Code:	6552	***Use category:***	
Facility Type:		***Termination Date:***	
Water Category:		***Issuing Org Type:***	
Immediate Water:		***App Received Date:***	1/13/2023
Receiving Water:		***Ct Status Start Date:***	
Stream Segment:	COARFO02a	***Ct Status End Date:***	
Fee Category:	II-J	***Ct Status Reason:***	
Add Fee Category 1:		***Workplan Year:***	
Add Fee Category 2:		***UDF3:***	
Add Fee Category 3:			

General Permit Tye:	COR400000-Stormwater discharge associated with construction activities
Compliance Tracking Status:	
SW Constr Start Date:	1/24/2023
Reuse Treater:	
Facility Class First:	
Facility Description:	
Fac Horizontal Coll. Method:	
Facility ICIS Ownership Type:	
Associated Pot W:	
SW Constr Total Acres:	3.778
Reuse Treater ID:	
SW Constr Disturb Acres:	3.778
Facility Class Second:	
Facility Reference Point:	
Major Minor:	Minor
Major River Basin:	
Total App on Average Flow No:	
Total App Design Flow No:	
Apprvd for Eltrnc Sub:	

Facility Contact

Facility Contact Org:	Thompson Thrift Construction
Facility Contact First Name:	Sterling
Facility Contact Last Name:	Bremner
Facility Contact Title:	Project Executive
Facility Contact Address:	12000 N Pecos Suite 250
Facility Contact City:	Westminster
Facility Contact State:	CO
Facility Contact ZIP code:	80234
Facility Contact Phone:	3035245872
Facility Contact Email:	bremner@thompsonthrift.com

Billing

Billing Organization:	Thompson Thrift Construction
Billing First Name:	Shane
Billing Last Name:	Slusser
Billing Title:	Owner's Representative
Billing Address:	111 Monument Circle Suite 1500
Billing City:	Indianapolis
Billing State:	IN
Billing ZIP Code:	46204
Billing Phone:	5743556583
Billing Email:	sslusser@thompsonthrift.com
Billing Country:	

Legal

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Legal First Name: Sterling
Legal Last Name: Bremner
Legal Title: Project Executive
Legal Address: 12000 N Pecos Suite 250
Legal City: Westminster
Legal State: CO
Legal ZIP Code: 80234
Legal Phone: 3035245872
Legal Email: bremner@thompsonthrift.com
Legal Country:

Property Owner

Property Owner Org: Thompson Thrift Construction
Property Owner First Name: Paul
Property Owner Last Name: Madden
Property Owner Title: Director of Construction
Property Owner Address: 111 Monument Circle Suite 1500
Property Owner City: Indianapolis
Property Owner State: IN
Property Owner ZIP Code: 46204
Property Owner Phone: 3174471452
Property Owner Email: pmadden@thompsonthrift.com

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
3	1 of 2	WSW	0.00 / 0.00	5,627.11 / -27	HIGHWAY 85 OUTFALL SEWER HWY 85 AND MESA RD FOUNTAIN CO 80817	FINDS/FRS

Registry ID: 110040433046
FIPS Code: CO041
HUC Code: 11020003
Site Type Name: STATIONARY
Location Description:
Supplemental Location:
Create Date: 18-FEB-10
Update Date: 11-JAN-16
Interest Types: ICIS-NPDES NON-MAJOR
SIC Codes: 1629
SIC Code Descriptions: HEAVY CONSTRUCTION, NOT ELSEWHERE CLASSIFIED
NAICS Codes:
NAICS Code Descriptions:
Conveyor: ICIS
Federal Facility Code:
Federal Agency Name:
Tribal Land Code:
Tribal Land Name:
Congressional Dist No: 05
Census Block Code: 080410045082006
EPA Region Code: 08
County Name: EL PASO
US/Mexico Border Ind:
Latitude: 38.7097
Longitude: -104.7109
Reference Point:
Coord Collection Method:
Accuracy Value:
Datum: NAD83
Source:
Facility Detail Rprt URL: https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110040433046
Data Source: Facility Registry Service - Single File
Program Acronyms:

NPDES:COG073255

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
3	2 of 2	WSW	0.00 / 0.00	5,627.11 / -27	HIGHWAY 85 OUTFALL SEWER HWY 85 AND MESA RD FOUNTAIN CO 80817	ICIS

EPA Region: 08
Registry ID: 110040433046
Pgm Sys ID: COG073255
Pgm Sys Acrnm: NPDES
Permit Type: General Permit Covered Facility
Federal Fac ID:
Tribal Land Code:
County: El Paso
Latitude 83: 38.7097
Longitude 83: -104.7109

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
4	1 of 1	E	0.00 / 0.00	5,750.05 / 96	MESA RIDGE ROAD AND FONTAIN BLVD FOUNTAIN CO 80817	SPILLS

Case No: 2011-0328
Main ID:
NRC No:
Dt of Spl or Rel: 6/2/2011
Event Time: 9:00:00 AM
1st Rep Event Dt: 6/2/2011
Date Reported: 6/2/2011
Time Reported: 9:53:00 AM
Date Entered: 6/2/2011
Time Entered: 10:00:42 AM
Land: TRUE
Air: FALSE
Surface Water: FALSE
Ground Water: FALSE
Material Type: SOLID WASTE
Quantity 1: 1000
Unit Measure 1: POUNDS
H2O Quantity 1:
H2O Unit Measure 1:
Material 2:
Quantity 2:
Unit Measure 2:
H2O Quantity 2:
Source Desc:
H2O Unit Measure 2:
Quantity 3:
Unit Measure 3:
H2O quantity 3:
H2O Unit Measure 3:
Cause: TRANSPORTATION ACCIDENT
Death: 0
Injury: 0
Evacuation: N
Evacuation No: 0
PRP City: FOUNTAIN
PRP County: EL PASO
PRP State: CO
PRP Zip: 80817
PRP Phone: 719-382-5303
PRP Extension:
Mile Marker:
Who Took Report: GARY LAURA
Fixed Facility: FALSE
Event County: EL PASO
Latitude:
Longitude:

Source: X
Source Type: Truck
Medium: LAND
Waterway:
Material 1: CAKE BIO-SOLIDS
Material 3:
PRP: FOUNTAIN WATER AND SANITATION DIST
PRP Contact: JIM HECKMAN
PRP Street: 901 S SANTA FE AVE
PRP Fax:
Responder 1:
Responder 2:
Responder 3:
Response Comments:
Notified Name: HMWMD - Charles Johnson, Walter Avramenko, Robert Beierle; CDOT- Andy Flurkey; EPA **Note: Many records provided by the department have a truncated [Notified Name] field.

Additional Comments:
Comments:
Cause Info: Truck was forced to brake hard to avoid a possible traffic accident causing the spill.
Action: CDOT has responded with a loader and truck to remove material. Parker Agg Services will send a team to perform final clean-up of material **Note: Many records provided by the department have a truncated [Action] field.

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
5	1 of 1	WNW	0.00 / 0.00	5,636.22 / -18	480 WILLOW SPRINGS RD. FOUNTAIN CO 80817	SPILLS

Case No: 2018-0278
H2O Unit Measure 2:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Main ID:		**Quantity 3:**	
NRC No:		**Unit Measure 3:**	
Dt of Spl or Rel:	6/13/2018	**H2O quantity 3:**	
Event Time:	2:30:00 AM	**H2O Unit Measure 3:**	
1st Rep Event Dt:	6/13/2018	**Cause:**	FAILURE EQUIPMENT
Date Reported:	6/13/2018	**Death:**	
Time Reported:	8:05:00 AM	**Injury:**	
Date Entered:	6/13/2018	**Evacuation:**	
Time Entered:	8:11:32 AM	**Evacuation No:**	
Land:	FALSE	**PRP City:**	FOUNTAIN
Air:	FALSE	**PRP County:**	
Surface Water:	FALSE	**PRP State:**	CO
Ground Water:	FALSE	**PRP Zip:**	80817
Material Type:	SANITARY SEWER OVERFLOW	**PRP Phone:**	719-491-0216
Quantity 1:		**PRP Extension:**	
Unit Measure 1:	UNKNOWN	**Mile Marker:**	
H2O Quantity 1:		**Who Took Report:**	GREG STASINOS
H2O Unit Measure 1:	U	**Fixed Facility:**	TRUE
Material 2:		**Event County:**	EL PASO
Quantity 2:		**Latitude:**	
Unit Measure 2:		**Longitude:**	
H2O Quantity 2:			

Source Desc:	
Source:	F
Source Type:	RETURN ACTIVATED SLUDGE BLDG
Medium:	FIXED FACILITY
Waterway:	
Material 1:	SLUDGE
Material 3:	
PRP:	WIDEFIELD WATER AND SANITATION
PRP Contact:	JASON DRESSEN
PRP Street:	480 WILLOW SPRINGS RD.
PRP Fax:	
Responder 1:	WIDEFIELD WATER AND SANITATION
Responder 2:	
Responder 3:	
Response Comments:	FOUNTAIN CREEK HAS NOT BEEN IMPACTED AS OF YET, HOWEVER, THERE IS POTENTIAL FOR UNTREATED WASTEWATER TO FLOW TO THE WATERWAY DUE TO THE PUMPS NOT WORKING.
Notified Name:	WQCD-CAROL KEEVER, MICHELLE THIEBAUD, DAVID KURZ, HEATHER DRISSEL, PAUL HANSON, CHARLES ROUBODIOUX **Note: Many records provided by the department have a truncated [Notified Name] field.
Additional Comments:	
Comments:	EL PASO COUNTY PH
Cause Info:	DUE TO A THUNDER/HAIL STORM IN THE AREA POWER WAS LOST THE RAS BUILDING AT THIS WASTEWATER TREATMENT PLANT. THE BUIDLING FLOODED AND ELECTRIC RAS PUMPS ARE EMERSED IN WATER AND NOT WORKING.
Action:	WIDEFIELD WATER AND SANITATION CREWS ARE WORKING TO PUMP OUT THE BUILDING IN ORDER TO EVALUATE THE PUMPS.

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
6	1 of 4	WNW	0.00 / 0.00	5,643.65 / -11	WIDEFIELD WSD 450 WILLOW SPRINGS RD FOUNTAIN CO 80817	FINDS/FRS

Registry ID:	110055989649
FIPS Code:	08041
HUC Code:	11020003
Site Type Name:	STATIONARY
Location Description:	
Supplemental Location:	
Create Date:	26-SEP-13
Update Date:	22-FEB-21
Interest Types:	BIOSOLIDS, COMMUNITY WATER SYSTEM, ICIS-NPDES MAJOR, ICIS-NPDES NON-MAJOR, POTW, WATER TREATMENT PLANT
SIC Codes:	4952
SIC Code Descriptions:	SEWERAGE SYSTEMS
NAICS Codes:	
NAICS Code Descriptions:	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Conveyor:	FRS-GEOCODE
Federal Facility Code:	
Federal Agency Name:	
Tribal Land Code:	
Tribal Land Name:	
Congressional Dist No:	05
Census Block Code:	080410045083001
EPA Region Code:	08
County Name:	EL PASO
US/Mexico Border Ind:	
Latitude:	38.72264
Longitude:	-104.72222
Reference Point:	CENTER OF A FACILITY OR STATION
Coord Collection Method:	ADDRESS MATCHING-HOUSE NUMBER
Accuracy Value:	30
Datum:	NAD83
Source:	
Facility Detail Rprt URL:	https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110055989649
Data Source:	Facility Registry Service - Single File
Program Acronyms:	

NPDES:CO0021067, NPDES:COG650057, NPDES:CONOX0151, SFDW:CO0121900, SFDW:CO0121900 20045, SFDW:CO0121900 20046, SFDW:CO0121900 20047, SFDW:CO0121900 3776, SFDW:CO0121900 3777, SFDW:CO0121900 3778, SFDW:CO0121900 3779, SFDW:CO0121900 3780, SFDW:CO0121900 3781, SFDW:CO0121900 3782, SFDW:CO0121900 3783, SFDW:CO0121900 3784, SFDW:CO0121900 3785, SFDW:CO0121900 3786, SFDW:CO0121900 3787, SFDW:CO0121900 3788

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
6	2 of 4	WNW	0.00 / 0.00	5,643.65 / -11	WIDEFIELD WSD WWTF 450 WILLOW SPRINGS RD WIDEFIELD CO 80817	ICIS

EPA Region:	08	**Federal Fac ID:**	
Registry ID:	110055989649	**Tribal Land Code:**	
Pgm Sys ID:	CO0021067	**County:**	El Paso
Pgm Sys Acrnm:	NPDES	**Latitude 83:**	38.721111
Permit Type:	NPDES Individual Permit	**Longitude 83:**	-104.722778

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
6	3 of 4	WNW	0.00 / 0.00	5,643.65 / -11	Widefield WSD WWTF 450 Willow Springs Rd Fountain CO 80817	PDES

Permit ID:	CO0021067	**SW Constr Activity:**	
Permit Status:	Admin continued	**SW Constr End Date:**	
Permit Sector:	Public and private utilities	**Permit SIC 1:**	4952
Previous Permit ID:		**Permit SIC 2:**	
Regulation ID:	32	**Permit SIC 3:**	
Facility Name:	Widefield WSD WWTF	**Permit SIC 4:**	
Facility Address:	450 Willow Springs Rd	**Permittee:**	Widefield Water and Sanitation District
Facility Address 2:		**Former Permittee:**	
Facility City:	Fountain	**Activity Desc:**	
Facility State:	CO	**Issue Date:**	3/25/2015
Facility ZIP:	80817	**Effective Date:**	5/1/2015
Facility County:	El Paso	**Expiration Date:**	4/30/2020
Facility Latitude:	38.721111	**Permit Sector1:**	
Facility Longitude:	-104.722778	**Permit Sector2:**	
Facility SIC Code:	4952	**Use category:**	
Facility Type:		**Termination Date:**	
Water Category:		**Issuing Org Type:**	ST6
Immediate Water:		**App Received Date:**	9/28/2020
Receiving Water:	Fountain Creek	**Ct Status Start Date:**	
Stream Segment:	COARFO02a	**Ct Status End Date:**	
Fee Category:	IV-G	**Ct Status Reason:**	
Add Fee Category 1:	XI-G	**Workplan Year:**	
Add Fee Category 2:		**UDF3:**	
Add Fee Category 3:			
General Permit Tye:	CO-Individual permit		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Compliance Tracking Status: Y
SW Constr Start Date:
Reuse Treater:
Facility Class First:
Facility Description:
Fac Horizontal Coll. Method:
Facility ICIS Ownership Type:
Associated Pot W:
SW Constr Total Acres:
Reuse Treater ID:
SW Constr Disturb Acres:
Facility Class Second:
Facility Reference Point:
Major Minor: Major
Major River Basin: Arkansas basin
Total App on Average Flow No:
Total App Design Flow No:
Apprvd for Eltrnc Sub: Yes

Facility Contact

Facility Contact Org: Widefield Water and Sanitation District
Facility Contact First Name: Mike
Facility Contact Last Name: Morgan
Facility Contact Title: ORC13200
Facility Contact Address: 8495 Fontaine Blvd
Facility Contact City: Colorado Springs
Facility Contact State: CO
Facility Contact ZIP code: 80925
Facility Contact Phone: 719-491-1153
Facility Contact Email: mike@wwsdonline.com

Billing

Billing Organization: Widefield Water and Sanitation District
Billing First Name: Kelly
Billing Last Name: Smith
Billing Title: Adm Svcs Dir
Billing Address: 8495 Fontaine Blvd
Billing City: Colorado Springs
Billing State: CO
Billing ZIP Code: 80925
Billing Phone: 719-390-7111
Billing Email: accounting@wwsdonline.com
Billing Country: USA

Collection Operator

Collection Operator Org: Widefield Water and Sanitation District
Collection Operator First Name: Travis
Collection Operator Last Name: Jones
Collection Operator Title: ORC 102457
Collection Operator Address: 8495 Fontaine Blvd
Collection Operator City: Colorado Springs
Collection Operator State: CO
Collection Operator ZIP Code: 80925
Collection Operator Phone: 719-491-0216
Collection Operator Email: travis@wwsdonline.com

DMR

DMR Org: Widefield Water and Sanitation District
DMR First Name: Mike
DMR Last Name: Morgan

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

DMR Title: ORC13200
DMR Address: 8495 Fontaine Blvd
DMR City: Colorado Springs
DMR State: CO
DMR ZIP Code: 80925
DMR Phone: 719-491-1153
DMR Email: mike@wwsdonline.com
Dmr Country: USA

Legal

Legal First Name: Mike
Legal Last Name: Morgan
Legal Title: WW Dept Mgr
Legal Address: 8495 Fontaine Blvd
Legal City: Colorado Springs
Legal State: CO
Legal ZIP Code: 80925
Legal Phone: 719-799-3728
Legal Email: mike@wwsdonline.com
Legal Country: USA

Operator

Operator Org: Widefield Water and Sanitation District
Operator First Name: Travis
Operator Last Name: Jones
Operator Title: ORC 102457
Operator Address: 8495 Fontaine Blvd
Operator City: Colorado Springs
Operator State: CO
Operator ZIP Code: 80925
Operator Phone: 719-491-0216
Operator Email: travis@wwsdonline.com

Other

Other Org: Widefield Water and Sanitation District
Other First Name: Rob
Other Last Name: Bannister
Other Title: Dist Engr
Other Address: 8495 Fontaine Blvd
Other City: Colorado Springs
Other State: CO
Other ZIP Code: 80925
Other Phone: 719-390-7111
Other Email: rob@wwsdonline.com

OUT

Out 5 long:
Out 4 lat:
Out 6 long:
Out 6 lat:
Out 7 long:
Out 7 lat:
Out 8 long:
Out 8 lat:
Out 9 long:
Out 9 lat:
Out 1 long: -104.7245
Out 10 long:
Out 10 lat:
Out 11 long:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
Out 11 lat:						
Out 12 long:						
Out 12 lat:						
Out 1 lat:		38.7194				
Out 2 long:		-104.7258				
Out 2 lat:		38.7208				
Out 3 long:						
Out 3 lat:						
Out 4 long:						
Out 5 lat:						

6	4 of 4	WNW	0.00 / 0.00	5,643.65 / -11	Widefield WSD WWTF 450 Willow Springs Rd Fountain CO 80817	PDES

Permit ID:	CONOX0151	SW Constr Activity:	
Permit Status:	Effective	SW Constr End Date:	
Permit Sector:	Commerce and Industry	Permit SIC 1:	
Previous Permit ID:		Permit SIC 2:	
Regulation ID:		Permit SIC 3:	
Facility Name:	Widefield WSD WWTF	Permit SIC 4:	
Facility Address:	450 Willow Springs Rd	Permittee:	Widefield Water and Sanitation District
Facility Address 2:		Former Permittee:	
Facility City:	Fountain	Activity Desc:	Wastewater Treatment Facility
Facility State:	CO	Issue Date:	2/10/2021
Facility ZIP:	80817	Effective Date:	2/11/2021
Facility County:	El Paso	Expiration Date:	2/10/2026
Facility Latitude:	38.721111	Permit Sector1:	
Facility Longitude:	-104.722778	Permit Sector2:	
Facility SIC Code:	1715	Use category:	
Facility Type:		Termination Date:	
Water Category:		Issuing Org Type:	
Immediate Water:		App Received Date:	12/4/2020
Receiving Water:		Ct Status Start Date:	
Stream Segment:		Ct Status End Date:	
Fee Category:	00-00	Ct Status Reason:	
Add Fee Category 1:		Workplan Year:	
Add Fee Category 2:		UDF3:	
Add Fee Category 3:			
General Permit Tye:	CONOX000 -No Exposure Exclusion		
Compliance Tracking Status:			
SW Constr Start Date:			
Reuse Treater:			
Facility Class First:			
Facility Description:			
Fac Horizontal Coll. Method:			
Facility ICIS Ownership Type:			
Associated Pot W:			
SW Constr Total Acres:			
Reuse Treater ID:			
SW Constr Disturb Acres:			
Facility Class Second:			
Facility Reference Point:			
Major Minor:			
Major River Basin:			
Total App on Average Flow No:			
Total App Design Flow No:			
Apprvd for Eltrnc Sub:			

Facility Contact

Facility Contact Org:	Widefield Water and Sanitation District
Facility Contact First Name:	Mark
Facility Contact Last Name:	McCormack
Facility Contact Title:	Wastewater Manager
Facility Contact Address:	37 Widefield Boulevard
Facility Contact City:	Colorado Springs

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Facility Contact State: CO
Facility Contact ZIP code: 80911
Facility Contact Phone: 7194910128
Facility Contact Email: mark@wwsdonline.com

Legal

Legal First Name: Lucas
Legal Last Name: Hale
Legal Title: Dist Mgr
Legal Address: 8495 Fontaine Blvd
Legal City: Colorado Springs
Legal State: CO
Legal ZIP Code: 80925
Legal Phone: 719-390-7111
Legal Email: lucas@wwsdonline.com
Legal Country: USA

7	1 of 1	ESE	0.00 / 7.46	5,744.99 / 91	MR. CAR WASH 7980 FOUNTAIN MESA ROAD FOUNTAIN CO 80817	FINDS/FRS

Registry ID: 110070668495
FIPS Code: CO041
HUC Code: 11020003
Site Type Name: STATIONARY
Location Description:
Supplemental Location:
Create Date: 09-DEC-19
Update Date:
Interest Types: ICIS-NPDES NON-MAJOR
SIC Codes: 1542
SIC Code Descriptions: GENERAL CONTRACTORS-NONRESIDENTIAL BUILDINGS, OTHER THAN INDUSTRIAL BUILDINGS AND WAREHOUSES
NAICS Codes:
NAICS Code Descriptions:
Conveyor: FRS-GEOCODE
Federal Facility Code:
Federal Agency Name:
Tribal Land Code:
Tribal Land Name:
Congressional Dist No: 05
Census Block Code: 080410045073042
EPA Region Code: 08
County Name: EL PASO
US/Mexico Border Ind:
Latitude: 38.716194
Longitude: -104.70155
Reference Point: ENTRANCE POINT OF A FACILITY OR STATION
Coord Collection Method: ADDRESS MATCHING-HOUSE NUMBER
Accuracy Value: 50
Datum: NAD83
Source:
Facility Detail Rprt URL: https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110070668495
Data Source: Facility Registry Service - Single File
Program Acronyms:

NPDES:COR406856

8	1 of 1	WNW	0.01 / 27.09	5,645.55 / -9	DATA GENERAL SERVICE INC 702 FRONTAGE RD FOUNTAIN CO 80817	RCRA NON GEN

EPA Handler ID: COD982648487

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Gen Status Universe: No Report
Contact Name: LEE LAWSON
Contact Address: 702 FRONTAGE RD , , FOUNTAIN , CO, 80817 , US
Contact Phone No and Ext: 719-382-6259
Contact Email:
Contact Country: US
County Name: EL PASO
EPA Region: 08
Land Type:
Receive Date: 19880817
Location Latitude:
Location Longitude:

Violation/Evaluation Summary

Note: VIOLATION or UNDETERMINED: There are VIOLATION or UNDETERMINED details or records associated with this facility (EPA ID) in the Compliance Monitoring and Enforcement table dated Apr, 2023.

Violation Details

Found Violation: Yes
Citation:
Violation Short Description: Generators - General
Violation Type: 262.A
Violation Determined Date: 19901115
Scheduled Compliance Date: 19901210
Return to Compliance: Observed
Actual Return to Compl: 19901231
Violation Responsible Agency: State

Enforcement Details

Enforcement Type: 120
Enforcement Type Description: WRITTEN INFORMAL
Enforcement Action Date: 19901120
Enf Disposition Status:
Disposition Status Date:
Enforcement Lead Agency: State
Proposed Penalty Amount:
Final Amount:
Paid Amount:

Evaluation Details

Evaluation Start Date: 19901115
Evaluation Type Description: NON-FINANCIAL RECORD REVIEW
Violation Short Description: Generators - General
Return to Compliance Date: 19901231
Evaluation Agency: State

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No
Onsite Burner Exemption: No
Furnace Exemption: No
Underground Injection Activity: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 19880817
Handler Name: DATA GENERAL SERVICE INC
Source Type: Notification
Federal Waste Generator Code: N
Generator Code Description: Not a Generator, Verified

Waste Code Details

Hazardous Waste Code: F003
Waste Code Description: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Owner/Operator Details

Owner/Operator Ind: Current Owner
Type: Private
Name: DATA GENERAL CORP
Date Became Current:
Date Ended Current:
Phone: 999-999-9999
Source Type: Notification
Street No:
Street 1: DATA NOT REQUESTED
Street 2:
City: DATA NOT REQUESTED
State: CO
Country:
Zip Code: 99999

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
9	1 of 4	ESE	0.01 / 43.26	5,735.51 / 81	Kum & Go #670 8050 Fountain Mesa Rd Fountain 80817 CO	UST

Facility ID: 19326
FacilityName(OPS): Kum & Go #670
FacilityType(OPS): Retail
Fac Category (OPS): Retail Gas Station
Address (OPS): 8050 Fountain Mesa Rd
City (OPS): Fountain
Zip Code (OPS): 80817
County (OPS): El Paso
LatLong (OPS): 38.7155, -104.701461
FacName (CDLE): Kum & Go #670
Address (CDLE): 8050 Fountain Mesa Rd
State (CDLE):
Fac Name (COSTIS): Kum & Go #670
Address (COSTIS): 8050 Fountain Mesa Rd
Fountain 80817
County (COSTIS): El Paso
Latitude (CDLE): 38.7155
Longitude (CDLE): -104.701461
Fac Type (CDLE): Retail
FacCategry(CDLE): Retail Gas Station
State (OPS): CO
City (CDLE): Fountain
Zip (CDLE): 80817
County (CDLE): El Paso
Data Source(s): Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks

Facility Information (CDLE)

Count of Tank Tag: 5
No. Dispensers: 64
Owner ID: OWNR-991
Accnt Holdr Name: Kum & Go, L.C.
Type: Retail

Owner Information (CDLE)

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Contact Name: Anthony Grajeda **Middle Init:**
First Name: Anthony
Company Name:
Last Name: Grajeda
Address:
Comment: JENNIFER CARPENTER-SENECA COMPLIANCE MANAGER AT 515-261-7750; Tim Lakers 515-457-6237

UST Tanks (COSTIS) (As of October 2021)

Tank ID: 44008 **Owner ID:** 991
Tank Tag: '19326-2 **Tank Owner:**
Tank Type Desc: UST **County:** El Paso
Tank Count: 46668 **Product Name:** Unleaded Mid-Grade (MUL)
Capacity: 12000
Facility Owner: Kum and Go LC
Facility Name Address: Kum & Go #670
8050 Fountain Mesa Rd
Fountain 80817

Tank ID: 44013 **Owner ID:** 991
Tank Tag: '19326-3 **Tank Owner:**
Tank Type Desc: UST **County:** El Paso
Tank Count: 46668 **Product Name:** Diesel
Capacity: 12000
Facility Owner: Kum and Go LC
Facility Name Address: Kum & Go #670
8050 Fountain Mesa Rd
Fountain 80817

Tank ID: 44015 **Owner ID:** 991
Tank Tag: '19326-5 **Tank Owner:**
Tank Type Desc: UST **County:** El Paso
Tank Count: 46668 **Product Name:** E-85
Capacity: 8000
Facility Owner: Kum and Go LC
Facility Name Address: Kum & Go #670
8050 Fountain Mesa Rd
Fountain 80817

Tank ID: 44006 **Owner ID:** 991
Tank Tag: '19326-1 **Tank Owner:**
Tank Type Desc: UST **County:** El Paso
Tank Count: 46668 **Product Name:** Unleaded Regular (RUL)
Capacity: 20000
Facility Owner: Kum and Go LC
Facility Name Address: Kum & Go #670
8050 Fountain Mesa Rd
Fountain 80817

Tank ID: 44014 **Owner ID:** 991
Tank Tag: '19326-4 **Tank Owner:**
Tank Type Desc: UST **County:** El Paso
Tank Count: 46668 **Product Name:** Unleaded Premium (PUL)
Capacity: 8000
Facility Owner: Kum and Go LC
Facility Name Address: Kum & Go #670
8050 Fountain Mesa Rd
Fountain 80817

UST Tanks 1 (CDLE)

Tank Tag: 19326-1 **Overfill Preven:** FV: Fill Tube Valve
Tank Type: UST **Product Type/Name:** Unleaded Regular (RUL)
Tank Status: Currently In Use **Piping Wall Type:** Double-Walled
Capacity: 20000 **Tank Wall Type:**
Install Date: 11/1/2012 **Piping System:**
Date Closed: **Piping Type:** UG: Underground
Tank Material: FRP: Fiberglass Reinforced Plastic
Piping Material: FLEX: Flexible Plastic

UST Tanks 2 (CDLE)

Closure Meth ID: **No Fee:** No
Unregulated: FALSE **Anch Method Desc:** DM: Deadman

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Last Used Date:		***Pipe Reld Meth1 ID:***	L2: Dbl-Wall & Sumps w/ Sensor
Del Prohib Date:		***Pipe Reldet Date:***	
Spill Protected:		***Backfill Mat Desc:***	Pea Gravel
Spl Container Size:	5	***Bfill DrtCvr Amt:***	30
Spl Protection Dt:		***Manifold:***	No
Spl Container Mfg:	OPW	***Registration Date:***	4/8/2022
Spl Container Mdel:	1SC-2100	***Compartment:***	FALSE
Tank Reld Meth1 ID:		***Cpmet:***	Yes
Tank Lining Date:		***Invault:***	FALSE
CP Test Date:			

UST Tanks 1 (CDLE)

Tank Tag:	19326-3	***Overfill Preven:***	FV: Fill Tube Valve
Tank Type:	UST	***Product Type/Name:***	Diesel
Tank Status:	Currently In Use	***Piping Wall Type:***	Double-Walled
Capacity:	12000	***Tank Wall Type:***	
Install Date:	11/1/2012	***Piping System:***	
Date Closed:		***Piping Type:***	UG: Underground
Tank Material:	FRP: Fiberglass Reinforced Plastic		
Piping Material:	FLEX: Flexible Plastic		

UST Tanks 2 (CDLE)

Closure Meth ID:		***No Fee:***	No
Unregulated:	FALSE	***Anch Method Desc:***	DM: Deadman
Last Used Date:		***Pipe Reld Meth1 ID:***	L2: Dbl-Wall & Sumps w/ Sensor
Del Prohib Date:		***Pipe Reldet Date:***	
Spill Protected:		***Backfill Mat Desc:***	Pea Gravel
Spl Container Size:	5	***Bfill DrtCvr Amt:***	30
Spl Protection Dt:		***Manifold:***	No
Spl Container Mfg:	OPW	***Registration Date:***	4/8/2022
Spl Container Mdel:	1SC-2100	***Compartment:***	FALSE
Tank Reld Meth1 ID:		***Cpmet:***	Yes
Tank Lining Date:		***Invault:***	FALSE
CP Test Date:			

UST Tanks 1 (CDLE)

Tank Tag:	19326-5	***Overfill Preven:***	FV: Fill Tube Valve
Tank Type:	UST	***Product Type/Name:***	E-85
Tank Status:	Currently In Use	***Piping Wall Type:***	Double-Walled
Capacity:	8000	***Tank Wall Type:***	
Install Date:	11/1/2012	***Piping System:***	
Date Closed:		***Piping Type:***	UG: Underground
Tank Material:	FRP: Fiberglass Reinforced Plastic		
Piping Material:	FLEX: Flexible Plastic		

UST Tanks 2 (CDLE)

Closure Meth ID:		***No Fee:***	No
Unregulated:	FALSE	***Anch Method Desc:***	DM: Deadman
Last Used Date:		***Pipe Reld Meth1 ID:***	L2: Dbl-Wall & Sumps w/ Sensor
Del Prohib Date:		***Pipe Reldet Date:***	
Spill Protected:		***Backfill Mat Desc:***	Pea Gravel
Spl Container Size:	5	***Bfill DrtCvr Amt:***	30
Spl Protection Dt:		***Manifold:***	No
Spl Container Mfg:	OPW	***Registration Date:***	4/8/2022
Spl Container Mdel:	1SC-2100	***Compartment:***	FALSE
Tank Reld Meth1 ID:		***Cpmet:***	Yes
Tank Lining Date:		***Invault:***	FALSE
CP Test Date:			

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

UST Tanks 1 (CDLE)

Tank Tag:	19326-2	***Overfill Preven:***	FV: Fill Tube Valve
Tank Type:	UST	***Product Type/Name:***	Unleaded Mid-Grade (MUL)
Tank Status:	Currently In Use	***Piping Wall Type:***	Double-Walled
Capacity:	12000	***Tank Wall Type:***	
Install Date:	11/1/2012	***Piping System:***	
Date Closed:		***Piping Type:***	UG: Underground
Tank Material:	FRP: Fiberglass Reinforced Plastic		
Piping Material:	FLEX: Flexible Plastic		

UST Tanks 2 (CDLE)

Closure Meth ID:		***No Fee:***	No
Unregulated:	FALSE	***Anch Method Desc:***	DM: Deadman
Last Used Date:		***Pipe Reld Meth1 ID:***	L2: Dbl-Wall & Sumps w/ Sensor
Del Prohib Date:		***Pipe Reldet Date:***	
Spill Protected:		***Backfill Mat Desc:***	Pea Gravel
Spl Container Size:	5	***Bfill DrtCvr Amt:***	30
Spl Protection Dt:		***Manifold:***	No
Spl Container Mfg:	OPW	***Registration Date:***	4/8/2022
Spl Container Mdel:	1SC-2100	***Compartment:***	FALSE
Tank Reld Meth1 ID:		***Cpmet:***	Yes
Tank Lining Date:		***Invault:***	FALSE
CP Test Date:			

UST Tanks 1 (CDLE)

Tank Tag:	19326-4	***Overfill Preven:***	FV: Fill Tube Valve
Tank Type:	UST	***Product Type/Name:***	Unleaded Premium (PUL)
Tank Status:	Currently In Use	***Piping Wall Type:***	Double-Walled
Capacity:	8000	***Tank Wall Type:***	
Install Date:	11/1/2012	***Piping System:***	
Date Closed:		***Piping Type:***	UG: Underground
Tank Material:	FRP: Fiberglass Reinforced Plastic		
Piping Material:	FLEX: Flexible Plastic		

UST Tanks 2 (CDLE)

Closure Meth ID:		***No Fee:***	No
Unregulated:	FALSE	***Anch Method Desc:***	DM: Deadman
Last Used Date:		***Pipe Reld Meth1 ID:***	L2: Dbl-Wall & Sumps w/ Sensor
Del Prohib Date:		***Pipe Reldet Date:***	
Spill Protected:		***Backfill Mat Desc:***	Pea Gravel
Spl Container Size:	5	***Bfill DrtCvr Amt:***	30
Spl Protection Dt:		***Manifold:***	No
Spl Container Mfg:	OPW	***Registration Date:***	4/8/2022
Spl Container Mdel:	1SC-2100	***Compartment:***	FALSE
Tank Reld Meth1 ID:		***Cpmet:***	Yes
Tank Lining Date:		***Invault:***	FALSE
CP Test Date:			

Oil & Public Safety Regulated Storage Tanks (COSTIS)

Tank Tag:	19326-1	***Leak Detector Type:***	E: Electronic
Tank Status:	Currently In Use	***Capacity Gallons :***	20000
Tank Type:	UST	***Product:***	Unleaded Regular (RUL)
Tank Name:	TNK-044854	***Piping Type:***	UG: Underground
Installation Date:	11/1/2012	***Piping System:***	
Closure Date:		***Piping Material:***	FLEX: Flexible Plastic
Tank Material:	FRP: Fiberglass Reinforced Plastic	***Piping Wall Type:***	Double-Walled
Tank Wall Type:		***Address:***	8050 Fountain Mesa Rd
Facility Name:	Kum & Go #670	***City:***	Fountain
Facility Type:	Retail	***County:***	El Paso

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Facility Category: Retail Gas Station
Overfill Preven: FV: Fill Tube Valve
Tank Corsn Protection Meth: Fiberglass (n/a)
Tank Rel Detn Mthd Primary: T2: Inter Mntrg w/ Sensor
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP): Non-metallic
PCP at Tank: No Electrolyte Contact (n/a)
PCP at Dispenser: No Electrolyte Contact (n/a)
Piping Rel Detn Mthd Primary: L2: Dbl-Wall & Sumps w/ Sensor
Piping Rel Detn Mthd Secondary: L1: ATG .2/.1gph Mthly Mntrg
ZIP Code: 80817

Tank Tag: 19326-4
Tank Status: Currently In Use
Tank Type: UST
Tank Name: TNK-044857
Installation Date: 11/1/2012
Closure Date:
Tank Material: FRP: Fiberglass Reinforced Plastic
Tank Wall Type:
Facility Name: Kum & Go #670
Facility Type: Retail
Facility Category: Retail Gas Station
Overfill Preven: FV: Fill Tube Valve
Tank Corsn Protection Meth: Fiberglass (n/a)
Tank Rel Detn Mthd Primary: T2: Inter Mntrg w/ Sensor
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP): Non-metallic
PCP at Tank: No Electrolyte Contact (n/a)
PCP at Dispenser: No Electrolyte Contact (n/a)
Piping Rel Detn Mthd Primary: L2: Dbl-Wall & Sumps w/ Sensor
Piping Rel Detn Mthd Secondary:
Leak Detector Type: E: Electronic
Capacity Gallons : 8000
Product: Unleaded Premium (PUL)
Piping Type: UG: Underground
Piping System:
Piping Material: FLEX: Flexible Plastic
Piping Wall Type: Double-Walled
Address: 8050 Fountain Mesa Rd
City: Fountain
County: El Paso
ZIP Code: 80817

Tank Tag: 19326-5
Tank Status: Currently In Use
Tank Type: UST
Tank Name: TNK-044858
Installation Date: 11/1/2012
Closure Date:
Tank Material: FRP: Fiberglass Reinforced Plastic
Tank Wall Type:
Facility Name: Kum & Go #670
Facility Type: Retail
Facility Category: Retail Gas Station
Overfill Preven: FV: Fill Tube Valve
Tank Corsn Protection Meth: Fiberglass (n/a)
Tank Rel Detn Mthd Primary: T2: Inter Mntrg w/ Sensor
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP): Non-metallic
PCP at Tank: No Electrolyte Contact (n/a)
PCP at Dispenser: No Electrolyte Contact (n/a)
Piping Rel Detn Mthd Primary: L2: Dbl-Wall & Sumps w/ Sensor
Piping Rel Detn Mthd Secondary:
Leak Detector Type: E: Electronic
Capacity Gallons : 8000
Product: E-85
Piping Type: UG: Underground
Piping System:
Piping Material: FLEX: Flexible Plastic
Piping Wall Type: Double-Walled
Address: 8050 Fountain Mesa Rd
City: Fountain
County: El Paso
ZIP Code: 80817

Tank Tag: 19326-3
Tank Status: Currently In Use
Tank Type: UST
Tank Name: TNK-044856
Installation Date: 11/1/2012
Closure Date:
Tank Material: FRP: Fiberglass Reinforced Plastic
Tank Wall Type:
Facility Name: Kum & Go #670
Facility Type: Retail
Facility Category: Retail Gas Station
Overfill Preven: FV: Fill Tube Valve
Tank Corsn Protection Meth: Fiberglass (n/a)
Leak Detector Type: E: Electronic
Capacity Gallons : 12000
Product: Diesel
Piping Type: UG: Underground
Piping System:
Piping Material: FLEX: Flexible Plastic
Piping Wall Type: Double-Walled
Address: 8050 Fountain Mesa Rd
City: Fountain
County: El Paso
ZIP Code: 80817

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Tank Rel Detn Mthd Primary: T2: Inter Mntrg w/ Sensor
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP): Non-metallic
PCP at Tank: No Electrolyte Contact (n/a)
PCP at Dispenser: No Electrolyte Contact (n/a)
Piping Rel Detn Mthd Primary: L2: Dbl-Wall & Sumps w/ Sensor
Piping Rel Detn Mthd Secondary:

Tank Tag: 19326-2
Tank Status: Currently In Use
Tank Type: UST
Tank Name: TNK-044855
Installation Date: 11/1/2012
Closure Date:
Tank Material: FRP: Fiberglass Reinforced Plastic
Tank Wall Type:
Facility Name: Kum & Go #670
Facility Type: Retail
Facility Category: Retail Gas Station
Overfill Preven: FV: Fill Tube Valve
Tank Corsn Protection Meth: Fiberglass (n/a)
Tank Rel Detn Mthd Primary: T2: Inter Mntrg w/ Sensor
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP): Non-metallic
PCP at Tank: No Electrolyte Contact (n/a)
PCP at Dispenser: No Electrolyte Contact (n/a)
Piping Rel Detn Mthd Primary: L2: Dbl-Wall & Sumps w/ Sensor
Piping Rel Detn Mthd Secondary:

Leak Detector Type: E: Electronic
Capacity Gallons : 12000
Product: Unleaded Mid-Grade (MUL)
Piping Type: UG: Underground
Piping System:
Piping Material: FLEX: Flexible Plastic
Piping Wall Type: Double-Walled
Address: 8050 Fountain Mesa Rd
City: Fountain
County: El Paso
ZIP Code: 80817

UST Owner (COSTIS) (As of October 2021)

Owner ID: 991
First Name:
Middle Init:
Last Name: Kum and Go LC
Full Name:

Address1: 1459 Grand Ave
City: Des Moines
State: IA
County: Polk
Zip Code: 50309

Oil & Public Safety Regulated Storage Tank Details

No of Tanks: 5

Facility Contact Details (CDLE)

Contact ID: 0033h00000mtWeF
Costis ID: FACOWN-19326-1265-Aug 13 2012 2:15PM
Active: TRUE

Role: Facility Owner
Fac Contact Name: FCON-045341
Contact Last Name: Kum and Go LC

Contact ID: 0033h00000lL0vd
Costis ID: ABOP-19326-5337
Active: TRUE

Role: A/B Operator
Fac Contact Name: FCON-020569
Contact Last Name: Renaud

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
9	2 of 4	ESE	0.01 / 43.26	5,735.51 / 81	Kum & Go #670 8050 Fountain Mesa Rd Fountain CO 80817	ALT FUELS

ID: 50304
Fuel Type Code: E85: E85 Ethanol
Station Phone: 719-382-9018
Expected Date:
BD Blends:
NG PSI:
Federal Agency ID:
Open Date: 2012-12-14

CNG Dispenser No:
CNG Site Renew Src:
CNG Tot Compr Cap:
CNG Storage Cap:
CNG Fill Type Code:
CNG PSI:
CNG Vehicle Class:
LNG Site Renew Src:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Hydrogen is Retail:		***LNG Vehicle Class:***	
Federal Agency:		***LPG Nozzle Types:***	
Facility Type:	CONVENIENCE_STORE	***Hydrogen Pressures:***	
Dt Last Confirmed:	2023-03-08	***Hydrogen Standards:***	
Updated at:	2023-03-08 17:16:33 UTC	***Latitude:***	38.715239
Access Code:	public	***Longitude:***	-104.701984
Access Detail Code:			
Groups with Access Code:	Public		
Groups with Access Code Fr:	Public		
Fed Agency Name:			
Hydrogen Status Link:			
E85 Other Ethanol Blends:	["E15"]		
NPS Unit Name:			
Cards Accepted:	A Cash Checks D FuelMan M V Voyager Wright_Exp		
CNG Statn Sells Renewable Na:			
LNG Statn Sells Renewable Na:			
Maximum Vehicle Class:			
RD Blended With Biodiesel:			
RD Blends:			
RD Blends French:			
RD Maximum Biodiesel Level:			
Status:	Open: The station is open.		
Owner Type Desc:	Privately owned		
E85 Blender Pump Desc:	In addition to E85, the station has a blender pump capable of providing mid-level ethanol blends.		
NG Fill Type Desc:			
NG Vehicle Class Desc:			
Geocode Status Desc:	Premise (building name, property name, shopping center, etc.) level accuracy.		
Group with Access Desc:	Publicly available to all customers.		
LPG Primary Desc:			
Intersection Directions:			
Access Days Time:	24 hours daily		
Restricted Access:	false		

9	***3 of 4***	***ESE***	***0.01 / 43.26***	***5,735.51 / 81***	***Kum & Go #670 8050 Fountain Mesa Rd Fountain 80817 CO***	***LST***

Facility ID:	19326	***Fac Name(CDLE):***	Kum & Go #670
Event ID:		***Address(CDLE):***	8050 Fountain Mesa Rd
Facility Name(OPS):	Kum & Go #670	***Fac Type(CDLE):***	Retail
Facility Type(OPS):	Retail	***Fac Category(CDLE):***	Retail Gas Station
Fac Category(OPS):	Retail Gas Station	***City(CDLE):***	Fountain
Address(OPS):	8050 Fountain Mesa Rd	***Zip(CDLE):***	80817
City(OPS):	Fountain	***County(CDLE):***	El Paso
Zip Code(OPS):	80817	***State(CDLE):***	
County(OPS):	El Paso	***Latitude(CDLE):***	38.7155
State(OPS):	CO	***Longitude(CDLE):***	-104.701461
Lat Long(OPS):	38.7155, -104.701461		
Fac Name(COSTIS):	Kum & Go #670		
Address (COSTIS):	8050 Fountain Mesa Rd Fountain 80817		
County (COSTIS):	El Paso		
Original Source:	Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks; OPS Petroleum Release Events in Colorado - Petroleum Release Events		
Owner ID:	991		
Owner Name:			

Events (CDLE)

Event ID:	13316	***Proj. Closure Date:***	
Alt Event ID:		***Category:***	
Status:	Closed	***Sardonyx ID:***	
UST Tank Count:	5	***MTBE Classifica:***	
AST Tank Count:	0	***Sum of Reimbur Amt:***	1561.16

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Source of Release:
Cause of Release: Physical Damage
Confirm Rel Dt: 5/23/2019
Site Name: Kum & Go #670
Loc Addr:
Loc Addr2:
Loc Addr3:
Aka Name:
Aka Loc Addr:
Reviewer Full Name: Hannah Williams
Logged On: 5/23/2019
Logged By:

Reimbursement Application (CDLE)

Rap ID: RAP-35403
Protest ID:
Rap Status: Paid
Application Type: Original
User Group Name:
FPR Date: 2/22/2021
Protest Amount:
Payee: Kum and Go LC
Spec Cond:
Note: Colorado Department of Labor and Employment (CDLE)
Eligibil Type Desc: Tank Owner/Operator
Rap Payee Type ID: Other
Reimbursement Req: 11661.16
Total Reimburse: 11545.7
Max Amt Reduction: 2000000
PSTC Date: 2/19/2021

Facility (CDLE)

Owner Costis ID: OWNR-991
No of Active Tanks: 5
No of Metred Prod: 64
Type: Retail
Facility Owner: Kum & Go, L.C.

Events (COSTIS) (As of October 2021)

Event ID: 13316
Process Status Name: Closed
Site Name: Kum & Go #670
Facility Name:
Address: 8050 Fountain Mesa Rd Fountain CO 80817
Loc Address: 8050 Fountain Mesa Rd
Fountain 80817
Loc City: Fountain
Loc County: El Paso
Log Date: 5/23/2019 2:03:48 PM

Reimbursement Application (COSTIS) (As of October 2021)

RAP ID: 35403
Facility ID: 19326
Payee Name: Kum and Go LC
Event ID: 13316
PSTC Date: 2/19/2021

OPS Regulated Storage Tanks

No of Tanks: 5

OPS Petroleum Release Events in Colorado - Petroleum Release Events

Event ID: 13316
Release No: REL-007449
Status: Closed
Release Date: 5/23/2019
Closure Date: 8/28/2019
NFA Type: Tier I
Release Cause: Physical Damage
Reimbursement Total:
Contact: Hannah Williams
Release Source:
Phone: (303) 318-8519
City: Fountain
Zip: 80817
State: CO
County: El Paso
Latitude: 38.7155
Longitude: -104.701461
Latitude Longitude: 38.7155, -104.701461

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Site Name: Kum & Go #670
Address: 8050 Fountain Mesa Rd
Email: hannah.williams@state.co.us
Link : https://socgov18.force.com/s/release/a183h000003KXC7

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9 | **4 of 4** | **ESE** | **0.01 / 43.26** | **5,735.51 / 81** | **Kum & Go #670**
8050 Fountain Mesa Rd
Fountain CO 80817 | **LUST TRUST**

Facility ID: 19326
TtlAmtAppvdForReim : 11545.7
County: El Paso
Event ID: 13316
Release Date: 5/23/2019

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10 | **1 of 2** | **W** | **0.01 / 51.71** | **5,633.05 / -21** | **COLJEN LEASING LTD ELPASO ASPHALT**
8050 S US HWY 85 & 87
COLORADO SPRINGS CO 80901 | **FINDS/FRS**

Registry ID: 110038648489
FIPS Code: 08041
HUC Code:
Site Type Name: STATIONARY
Location Description:
Supplemental Location:
Create Date: 23-JUN-09
Update Date: 07-OCT-16
Interest Types: AIR MINOR
SIC Codes: 2951
SIC Code Descriptions: ASPHALT PAVING MIXTURES AND BLOCKS
NAICS Codes: 324121
NAICS Code Descriptions: ASPHALT PAVING MIXTURE AND BLOCK MANUFACTURING.
Conveyor:
Federal Facility Code:
Federal Agency Name:
Tribal Land Code:
Tribal Land Name:
Congressional Dist No:
Census Block Code:
EPA Region Code: 08
County Name: EL PASO
US/Mexico Border Ind:
Latitude:
Longitude:
Reference Point:
Coord Collection Method:
Accuracy Value:
Datum: NAD83
Source:
Facility Detail Rprt URL: https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110038648489
Data Source: Facility Registry Service - Single File
Program Acronyms:

AIR:CO0000000804100311, AIRS/AFS:0804100311

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10 | **2 of 2** | **W** | **0.01 / 51.71** | **5,633.05 / -21** | **COLJEN LEASING LTD ELPASO ASPHALT**
8050 S US HWY 85 & 87
COLORADO SPRINGS CO
000000000 | **AFS**

Afs ID: 0804100311
Plant ID: 802728
Epa Region: 08
Fed Reportable: No
Current Hpv:
Loc Contrl Region:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Plant County:	El Paso	**Afs Gov Fac Code:**	0
State No:	08	**Operating Status:**	X
Primary Sic Code:	2951	**Epa Class Code:**	B
Secondary Sic Code:	2951	**Epa Complian Stat:**	9
Naics Code:	324121	**State Comp Status:**	9

Afs Gov Facility Des: PRIVATELY OWNED/OPERATED
Operating Status Def: Permanently Closed
Epa Classification Des: Potential uncontrolled emissions <100 tons/year
Epa Compliance Status: In Compliance - Shut Down
State Compliance Status: In Compliance - Shut Down

Historical Compliance - Air Program Level

Air Program Code: 0
Air Program Code Ref: SIP Source
Historical Compliance Date: 0604, 0701, 0702, 0703, 0704, 0801, 0802, 0803, 0804, 0901, 0902, 0903, 0904, 1001, 1002, 1003, 1004, 1101, 1102, 1103, 1104, 1201, 1202, 1203, 1204, 1301, 1302, 1303, 1304, 1401, 1402, 1403
Historical Compliance Status: 9
Historical Compliance Stat Ref: In Compliance - Shut Down

Air Program

Plant ID:	802728	**Poll Classificatn:**	B
Air Program Code:	0	**Poll Compli Status:**	9
Air Program Status:	X	**Epa Class Code:**	B
Pollutant Code:	PT	**Epa Compli Status:**	9

Chemical Abstract Service Nmbr:
Air Program Code Subparts:
Air Program Code Ref: SIP Source
Epa Classification Code Ref: Potential uncontrolled emissions <100 tons/year
Epa Compliance Status Ref: In Compliance - Shut Down
Pollutant Code Ref:
Pollutant Classification Ref: Potential uncontrolled emissions <100 tons/year
Pollutant Complian Status Ref: In Compliance - Shut Down

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
11	1 of 3	WNW	0.01 / 59.68	5,642.86 / -11	EL PASO FOUNTAIN CREEK WILLOW SPRINGS 430 WILLOW SPRINGS ROAD FOUNTAIN CO 80817	FINDS/FRS

Registry ID: 110032601628
FIPS Code: 08041
HUC Code: 11020003
Site Type Name: STATIONARY
Location Description:
Supplemental Location:
Create Date: 15-NOV-07
Update Date: 05-MAR-13
Interest Types: ENFORCEMENT/COMPLIANCE ACTIVITY
SIC Codes:
SIC Code Descriptions:
NAICS Codes:
NAICS Code Descriptions:
Conveyor: FRS-GEOCODE
Federal Facility Code:
Federal Agency Name:
Tribal Land Code:
Tribal Land Name:
Congressional Dist No: 05
Census Block Code: 080410045083001
EPA Region Code: 08
County Name: EL PASO
US/Mexico Border Ind:
Latitude: 38.722918
Longitude: -104.723116

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Reference Point: ENTRANCE POINT OF A FACILITY OR STATION
Coord Collection Method: ADDRESS MATCHING-HOUSE NUMBER
Accuracy Value: 50
Datum: NAD83
Source:
Facility Detail Rprt URL: https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110032601628
Data Source: Facility Registry Service - Single File
Program Acronyms:

ICIS:600031310, ICIS:600031314

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
11	2 of 3	WNW	0.01 / 59.68	5,642.86 / -11	EL PASO FOUNTAIN CREEK WILLOW SPRINGS 430 WILLOW SPRINGS ROAD FOUNTAIN CO 80817	ICIS

EPA Region:
Registry ID: 110032601628
Pgm Sys ID: 600031314
Pgm Sys Acrnm: ICIS
Permit Type:
Federal Fac ID:
Tribal Land Code:
County: EL PASO
Latitude 83: 38.722918
Longitude 83: -104.723116

Details

Interest Type: ENFORCEMENT/COMPLIANCE ACTIVITY
Active Status:
Accuracy Value: 50
Pgm Report URL: no data yet
Federal Agency Name:
Federal Land Ind:
Fed Facility Code:
Public Ind: Y
FIPS Code: 08041
HUC 8 Code: 11020003
HUC 12:
Ref Point Desc: ENTRANCE POINT OF A FACILITY OR STATION
Collect Mth Desc: ADDRESS MATCHING-HOUSE NUMBER
Fac URL: https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110032601628
Program URL:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
11	3 of 3	WNW	0.01 / 59.68	5,642.86 / -11	EL PASO FOUNTAIN CREEK WILLOW SPRINGS 430 WILLOW SPRINGS ROAD FOUNTAIN CO 80817	ICIS

EPA Region:
Registry ID: 110032601628
Pgm Sys ID: 600031310
Pgm Sys Acrnm: ICIS
Permit Type:
Federal Fac ID:
Tribal Land Code:
County: EL PASO
Latitude 83: 38.722918
Longitude 83: -104.723116

Details

Interest Type: ENFORCEMENT/COMPLIANCE ACTIVITY
Active Status:
Accuracy Value: 50
Pgm Report URL: no data yet
Federal Agency Name:
Federal Land Ind:
Fed Facility Code:
Public Ind: Y
FIPS Code: 08041
HUC 8 Code: 11020003
HUC 12:
Ref Point Desc: ENTRANCE POINT OF A FACILITY OR STATION
Collect Mth Desc: ADDRESS MATCHING-HOUSE NUMBER
Fac URL: https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110032601628
Program URL:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
12	1 of 1	E	0.01 / 62.07	5,741.96 / 88	7005 MESA RIDGE PKWY FOUNTAIN CO	SPILLS

Case No:	2019-0399	**H2O Unit Measure 2:**	
Main ID:		**Quantity 3:**	
NRC No:		**Unit Measure 3:**	
Dt of Spl or Rel:	7/22/2019	**H2O quantity 3:**	
Event Time:	1:30:00 PM	**H2O Unit Measure 3:**	
1st Rep Event Dt:	7/22/2019	**Cause:**	OTHER
Date Reported:	7/22/2019	**Death:**	
Time Reported:	2:00:00 PM	**Injury:**	
Date Entered:	7/22/2019	**Evacuation:**	
Time Entered:	2:13:58 PM	**Evacuation No:**	
Land:	TRUE	**PRP City:**	FOUNTAIN
Air:	FALSE	**PRP County:**	
Surface Water:	TRUE	**PRP State:**	CO
Ground Water:	FALSE	**PRP Zip:**	80817
Material Type:	OIL	**PRP Phone:**	719-322-9783
Quantity 1:		**PRP Extension:**	
Unit Measure 1:		**Mile Marker:**	
H2O Quantity 1:		**Who Took Report:**	ANN NEDROW
H2O Unit Measure 1:		**Fixed Facility:**	FALSE
Material 2:		**Event County:**	EL PASO
Quantity 2:		**Latitude:**	
Unit Measure 2:		**Longitude:**	
H2O Quantity 2:			

Source Desc:
Source: X
Source Type: used grease bin
Medium: WATER AND LAND
Waterway: storm drain
Material 1: COOKING OIL
Material 3:
PRP: SONIC DRIVE IN
PRP Contact: UNKNOWN
PRP Street: 7005 MESA RIDGE PKWY
PRP Fax:
Responder 1:
Responder 2:
Responder 3:
Response Comments:
Notified Name: WQCD: Michelle Thiebaud, David Kurz, Heather Drissel, Paul Hanson, Carol Keever; HMWMD: Rob Beierle, Richard Mruz, Ed Smith, Caren Johannes, Susan Newton, Laura Gurule, David Foster; **Note: Many records provided by the department have a truncated [Notified Name] field.
Additional Comments:
Comments: EL PASO COUNTY EH; PUEBLO COUNTY EH
Cause Info: Inspector for Fountain Sanitation District observed the grease bin for the Sonic to be overflowing and reaching the nearby storm drain. They do not know how much was involved in the release.
Action:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
13	1 of 6	NW	0.01 / 73.33	5,646.18 / -8	Mesa Ridge Crossing Syracuse Street and Mesa Ridge Parkway Fountain CO 80903	PDES

Permit ID:	COR410596	**SW Constr Activity:**	Commercial
Permit Status:	Effective	**SW Constr End Date:**	8/27/2021
Permit Sector:	Construction	**Permit SIC 1:**	1542
Previous Permit ID:		**Permit SIC 2:**	
Regulation ID:		**Permit SIC 3:**	
Facility Name:	Mesa Ridge Crossing	**Permit SIC 4:**	
Facility Address:	Syracuse Street and Mesa Ridge Parkway	**Permittee:**	Evergreen – Mesa Ridge + Syracuse, LLC
Facility Address 2:		**Former Permittee:**	
Facility City:	Fountain	**Activity Desc:**	
Facility State:	CO	**Issue Date:**	10/27/2020
Facility ZIP:	80903	**Effective Date:**	10/27/2020

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Facility County:	El Paso	**Expiration Date:**	3/31/2024
Facility Latitude:	38.721184	**Permit Sector1:**	
Facility Longitude:	-104.712295	**Permit Sector2:**	
Facility SIC Code:	1542	**Use category:**	
Facility Type:		**Termination Date:**	
Water Category:		**Issuing Org Type:**	
Immediate Water:		**App Received Date:**	10/26/2020
Receiving Water:		**Ct Status Start Date:**	
Stream Segment:	COARFO02a	**Ct Status End Date:**	
Fee Category:	II-J	**Ct Status Reason:**	
Add Fee Category 1:		**Workplan Year:**	
Add Fee Category 2:		**UDF3:**	
Add Fee Category 3:			

General Permit Tye: COR400000-Stormwater discharge associated with construction activities
Compliance Tracking Status:
SW Constr Start Date: 11/2/2020
Reuse Treater:
Facility Class First:
Facility Description:
Fac Horizontal Coll. Method:
Facility ICIS Ownership Type:
Associated Pot W:
SW Constr Total Acres: 5.37
Reuse Treater ID:
SW Constr Disturb Acres: 5.37
Facility Class Second:
Facility Reference Point:
Major Minor:
Major River Basin:
Total App on Average Flow No:
Total App Design Flow No:
Apprvd for Eltrnc Sub:

Facility Contact

Facility Contact Org: Evergreen – Mesa Ridge + Syracuse, LLC
Facility Contact First Name: Mitchell
Facility Contact Last Name: Lorenz
Facility Contact Title: Director Retail Construction
Facility Contact Address: 2390 East Camelback Road, Suite 410
Facility Contact City: Phoenix
Facility Contact State: AZ
Facility Contact ZIP code: 85016
Facility Contact Phone: 6025677164
Facility Contact Email: mlorenz@evgre.com

Billing

Billing Organization: Evergreen – Mesa Ridge + Syracuse, LLC
Billing First Name: Mitchell
Billing Last Name: Lorenz
Billing Title: Director Retail Construction
Billing Address: 2390 East Camelback Road, Suite 410
Billing City: Phoenix
Billing State: AZ
Billing ZIP Code: 85016
Billing Phone: 6025677164
Billing Email: mlorenz@evgre.com
Billing Country: USA

Legal

Legal First Name: Mitchell
Legal Last Name: Lorenz
Legal Title: Director Retail Construction

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Legal Address: 2390 East Camelback Road, Suite 410
Legal City: Phoenix
Legal State: AZ
Legal ZIP Code: 85016
Legal Phone: 6025677164
Legal Email: mlorenz@evgre.com
Legal Country: USA

Property Owner

Property Owner Org: Evergreen – Mesa Ridge + Syracuse, LLC
Property Owner First Name: Mitchell
Property Owner Last Name: Lorenz
Property Owner Title: Director Retail Construction
Property Owner Address: 2390 East Camelback Road, Suite 410
Property Owner City: Phoenix
Property Owner State: AZ
Property Owner ZIP Code: 85016
Property Owner Phone: 6025677164
Property Owner Email: mlorenz@evgre.com

13	2 of 6	NW	0.01 / 73.33	5,646.18 / -8	Maverik #659 Mesa Ridge PKWY & Syracuse Security 80911 CO	UST

Facility ID: 20721
FacilityName(OPS): Maverik #659
FacilityType(OPS): Retail
Fac Category (OPS): Retail Gas Station
Address (OPS): 6180 Timber Rail Point
City (OPS): Security
Zip Code (OPS): 80911
County (OPS): El Paso
LatLong (OPS): 0, 0
FacName (CDLE): Maverik #659
Address (CDLE): 6180 Timber Rail Point
State (CDLE):
Fac Name (COSTIS): Maverik #659
Address (COSTIS): Mesa Ridge PKWY & Syracuse
Security 80911
County (COSTIS): El Paso
Latitude (CDLE): 0
Longitude (CDLE): 0
Fac Type (CDLE): Retail
FacCategry(CDLE): Retail Gas Station
State (OPS): CO
City (CDLE): Security
Zip (CDLE): 80911
County (CDLE): El Paso
Data Source(s): Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks

Facility Information (CDLE)

Count of Tank Tag: 2
No. Dispensers: 50
Owner ID: OWNR-829
Accnt Holdr Name: Maverik Inc
Type: Retail

Owner Information (CDLE)

Contact Name: Dennis Riding
First Name:
Middle Init:
Company Name: Maverik Inc
Last Name: Dennis Riding
Address: 185 S State St Ste 800, Salt Lake City, UT 84111
Comment:

UST Tanks (COSTIS) (As of October 2021)

Tank ID: 49936
Tank Tag: '20721-1
Tank Type Desc: UST
Tank Count: 46668
Owner ID: 829
Tank Owner:
County: El Paso
Product Name: Gas/Gas (Multi-Comp)

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Capacity: 25000
Facility Owner: Maverik Inc
Facility Name Address: Maverik #659
Mesa Ridge PKWY & Syracuse
Security 80911

Tank ID: 49937
Tank Tag: '20721-2
Tank Type Desc: UST
Tank Count: 46668
Capacity: 25000
Facility Owner: Maverik Inc
Facility Name Address: Maverik #659
Mesa Ridge PKWY & Syracuse
Security 80911
Owner ID: 829
Tank Owner:
County: El Paso
Product Name: Gas/Gas (Multi-Comp)

UST Tanks 1 (CDLE)

Tank Tag: 20721-1
Tank Type: UST
Tank Status: Currently In Use
Capacity: 25000
Install Date: 7/22/2021
Date Closed:
Tank Material: FRP: Fiberglass Reinforced Plastic
Piping Material: FLEX: Flexible Plastic
Overfill Preven: AL: External Aud/Vis Alarm
Product Type/Name: Unleaded Regular (RUL)
Piping Wall Type: Double-Walled
Tank Wall Type: Double-Walled
Piping System:
Piping Type: UG: Underground

UST Tanks 2 (CDLE)

Closure Meth ID:
Unregulated: FALSE
Last Used Date:
Del Prohib Date:
Spill Protected:
Spl Container Size: 5
Spl Protection Dt:
Spl Container Mfg: OPW
Spl Container Mdel:
Tank Reld Meth1 ID:
Tank Lining Date:
CP Test Date:
No Fee: No
Anch Method Desc: DM: Deadman
Pipe Reld Meth1 ID: L2: Dbl-Wall & Sumps w/ Sensor
Pipe Reldet Date:
Backfill Mat Desc: Pea Gravel
Bfill DrtCvr Amt: 36
Manifold: No
Registration Date: 12/1/2021
Compartment: TRUE
Cpmet: Yes
Invault: FALSE

UST Tanks 1 (CDLE)

Tank Tag: 20721-2
Tank Type: UST
Tank Status: Currently In Use
Capacity: 25000
Install Date: 7/22/2021
Date Closed:
Tank Material: FRP: Fiberglass Reinforced Plastic
Piping Material: FLEX: Flexible Plastic
Overfill Preven: AL: External Aud/Vis Alarm
Product Type/Name: Ethanol-Free Gasoline
Piping Wall Type: Double-Walled
Tank Wall Type: Double-Walled
Piping System:
Piping Type: UG: Underground

UST Tanks 2 (CDLE)

Closure Meth ID:
Unregulated: FALSE
Last Used Date:
Del Prohib Date:
Spill Protected:
Spl Container Size: 5
Spl Protection Dt:
Spl Container Mfg: OPW
Spl Container Mdel:
Tank Reld Meth1 ID:
Tank Lining Date:
CP Test Date:
No Fee: No
Anch Method Desc: DM: Deadman
Pipe Reld Meth1 ID: L2: Dbl-Wall & Sumps w/ Sensor
Pipe Reldet Date:
Backfill Mat Desc: Pea Gravel
Bfill DrtCvr Amt: 36
Manifold: No
Registration Date: 12/1/2021
Compartment: TRUE
Cpmet: Yes
Invault: FALSE

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

UST Tanks 1 (CDLE)

Tank Tag:	20721-2	***Overfill Preven:***	AL: External Aud/Vis Alarm
Tank Type:	UST	***Product Type/Name:***	Diesel #2
Tank Status:	Currently In Use	***Piping Wall Type:***	Double-Walled
Capacity:	25000	***Tank Wall Type:***	Double-Walled
Install Date:	7/22/2021	***Piping System:***	
Date Closed:		***Piping Type:***	UG: Underground
Tank Material:	FRP: Fiberglass Reinforced Plastic		
Piping Material:	FLEX: Flexible Plastic		

UST Tanks 2 (CDLE)

Closure Meth ID:		***No Fee:***	No
Unregulated:	FALSE	***Anch Method Desc:***	DM: Deadman
Last Used Date:		***Pipe Reld Meth1 ID:***	L2: Dbl-Wall & Sumps w/ Sensor
Del Prohib Date:		***Pipe Reldet Date:***	
Spill Protected:		***Backfill Mat Desc:***	Pea Gravel
Spl Container Size:	5	***Bfill DrtCvr Amt:***	36
Spl Protection Dt:		***Manifold:***	No
Spl Container Mfg:	OPW	***Registration Date:***	12/1/2021
Spl Container Mdel:		***Compartment:***	TRUE
Tank Reld Meth1 ID:		***Cpmet:***	Yes
Tank Lining Date:		***Invault:***	FALSE
CP Test Date:			

UST Tanks 1 (CDLE)

Tank Tag:	20721-2	***Overfill Preven:***	AL: External Aud/Vis Alarm
Tank Type:	UST	***Product Type/Name:***	Unleaded Premium (PUL)
Tank Status:	Currently In Use	***Piping Wall Type:***	Double-Walled
Capacity:	25000	***Tank Wall Type:***	Double-Walled
Install Date:	7/22/2021	***Piping System:***	
Date Closed:		***Piping Type:***	UG: Underground
Tank Material:	FRP: Fiberglass Reinforced Plastic		
Piping Material:	FLEX: Flexible Plastic		

UST Tanks 2 (CDLE)

Closure Meth ID:		***No Fee:***	No
Unregulated:	FALSE	***Anch Method Desc:***	DM: Deadman
Last Used Date:		***Pipe Reld Meth1 ID:***	L2: Dbl-Wall & Sumps w/ Sensor
Del Prohib Date:		***Pipe Reldet Date:***	
Spill Protected:		***Backfill Mat Desc:***	Pea Gravel
Spl Container Size:	5	***Bfill DrtCvr Amt:***	36
Spl Protection Dt:		***Manifold:***	No
Spl Container Mfg:	OPW	***Registration Date:***	12/1/2021
Spl Container Mdel:		***Compartment:***	TRUE
Tank Reld Meth1 ID:		***Cpmet:***	Yes
Tank Lining Date:		***Invault:***	FALSE
CP Test Date:			

Oil & Public Safety Regulated Storage Tanks (COSTIS)

Tank Tag:	20721-2	***Leak Detector Type:***	E: Electronic
Tank Status:	Currently In Use	***Capacity Gallons :***	25000
Tank Type:	UST	***Product:***	Diesel #2
Tank Name:	TNK-044445	***Piping Type:***	UG: Underground
Installation Date:	7/22/2021	***Piping System:***	
Closure Date:		***Piping Material:***	FLEX: Flexible Plastic
Tank Material:	FRP: Fiberglass Reinforced Plastic	***Piping Wall Type:***	Double-Walled
Tank Wall Type:	Double-Walled	***Address:***	6180 Timber Rail Point
Facility Name:	Maverik #659	***City:***	Security

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Facility Type: Retail
Facility Category: Retail Gas Station
Overfill Preven: AL: External Aud/Vis Alarm
Tank Corsn Protection Meth: Fiberglass (n/a)
Tank Rel Detn Mthd Primary: T2: Inter Mntrg w/ Sensor
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP): Non-metallic
PCP at Tank: No Electrolyte Contact (n/a)
PCP at Dispenser: No Electrolyte Contact (n/a)
Piping Rel Detn Mthd Primary: L2: Dbl-Wall & Sumps w/ Sensor
Piping Rel Detn Mthd Secondary:
County: El Paso
ZIP Code: 80911

Tank Tag: 20721-2
Tank Status: Currently In Use
Tank Type: UST
Tank Name: TNK-044445
Installation Date: 7/22/2021
Closure Date:
Tank Material: FRP: Fiberglass Reinforced Plastic
Tank Wall Type: Double-Walled
Facility Name: Maverik #659
Facility Type: Retail
Facility Category: Retail Gas Station
Overfill Preven: AL: External Aud/Vis Alarm
Tank Corsn Protection Meth: Fiberglass (n/a)
Tank Rel Detn Mthd Primary: T2: Inter Mntrg w/ Sensor
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP): Non-metallic
PCP at Tank: No Electrolyte Contact (n/a)
PCP at Dispenser: No Electrolyte Contact (n/a)
Piping Rel Detn Mthd Primary: L2: Dbl-Wall & Sumps w/ Sensor
Piping Rel Detn Mthd Secondary:
Leak Detector Type: E: Electronic
Capacity Gallons : 25000
Product: Ethanol-Free Gasoline
Piping Type: UG: Underground
Piping System:
Piping Material: FLEX: Flexible Plastic
Piping Wall Type: Double-Walled
Address: 6180 Timber Rail Point
City: Security
County: El Paso
ZIP Code: 80911

Tank Tag: 20721-1
Tank Status: Currently In Use
Tank Type: UST
Tank Name: TNK-044444
Installation Date: 7/22/2021
Closure Date:
Tank Material: FRP: Fiberglass Reinforced Plastic
Tank Wall Type: Double-Walled
Facility Name: Maverik #659
Facility Type: Retail
Facility Category: Retail Gas Station
Overfill Preven: AL: External Aud/Vis Alarm
Tank Corsn Protection Meth: Fiberglass (n/a)
Tank Rel Detn Mthd Primary: T2: Inter Mntrg w/ Sensor
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP): Non-metallic
PCP at Tank: No Electrolyte Contact (n/a)
PCP at Dispenser: No Electrolyte Contact (n/a)
Piping Rel Detn Mthd Primary: L2: Dbl-Wall & Sumps w/ Sensor
Piping Rel Detn Mthd Secondary:
Leak Detector Type: E: Electronic
Capacity Gallons : 25000
Product: Unleaded Regular (RUL)
Piping Type: UG: Underground
Piping System:
Piping Material: FLEX: Flexible Plastic
Piping Wall Type: Double-Walled
Address: 6180 Timber Rail Point
City: Security
County: El Paso
ZIP Code: 80911

Tank Tag: 20721-2
Tank Status: Currently In Use
Tank Type: UST
Tank Name: TNK-044445
Installation Date: 7/22/2021
Closure Date:
Tank Material: FRP: Fiberglass Reinforced Plastic
Tank Wall Type: Double-Walled
Facility Name: Maverik #659
Facility Type: Retail
Facility Category: Retail Gas Station
Overfill Preven: AL: External Aud/Vis Alarm
Leak Detector Type: E: Electronic
Capacity Gallons : 25000
Product: Unleaded Premium (PUL)
Piping Type: UG: Underground
Piping System:
Piping Material: FLEX: Flexible Plastic
Piping Wall Type: Double-Walled
Address: 6180 Timber Rail Point
City: Security
County: El Paso
ZIP Code: 80911

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Tank Corsn Protection Meth:	Fiberglass (n/a)
Tank Rel Detn Mthd Primary:	T2: Inter Mntrg w/ Sensor
Tank Rel Detn Mthd Secondary:	
Piping Corsn Protection (PCP):	Non-metallic
PCP at Tank:	No Electrolyte Contact (n/a)
PCP at Dispenser:	No Electrolyte Contact (n/a)
Piping Rel Detn Mthd Primary:	L2: Dbl-Wall & Sumps w/ Sensor
Piping Rel Detn Mthd Secondary:	

UST Owner (COSTIS) (As of October 2021)

Owner ID:	829	**Address1:**	185 S State St Ste 800
First Name:		**City:**	Salt Lake City
Middle Init:		**State:**	UT
Last Name:	Maverik Inc	**County:**	Salt Lake
Full Name:		**Zip Code:**	84111

Oil & Public Safety Regulated Storage Tank Details

No of Tanks:	2

Facility Contact Details (CDLE)

Contact ID:	0033h00000mtXC3	**Role:**	Facility Owner
Costis ID:	FACOWN-20721-1107-Apr 15 2021 2:57PM	**Fac Contact Name:**	FCON-047886
Active:	TRUE	**Contact Last Name:**	Maverik Inc

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
13	3 of 6	NW	0.01 / 73.33	5,646.18 / -8	MAVERIK-MAVERIK STORE #659 MESA RDIGE & SYRACUSE ST FOUNTAIN CO 80817	AIR PERMITS

APCD Site ID:	041-2187	**Sip Status Co:**	FALSE
Site ID:	2187	**Sip Status O3:**	FALSE
Fed Facility ID:		**Site Cont Company:**	
County:	EL PASO	**Descriptn Category:**	PC
Addr County Name:	EL PASO	**Site First Name:**	MARK
Address Type:	STREET	**Site Full Name:**	MARK STEWART
Air Program:	B	**Site Last Name:**	STEWART
Air Acid Precip:		**Site Title:**	
Class Apen Exempt:		**Site Phone:**	(385)489-6202
Class CFC:		**Site Fax:**	
Class Condensate :		**No Employees:**	0.0
Class Fesop:		**Site Geocode Date:**	10-Feb-2022 13:50:29
Class Mact:		**Pt Lin Are:**	P
Class Neshap:		**Src Scale:**	2
Class Non Fed Rpt:		**Verification:**	
NSPS Federal:		**NAICS Prime:**	457110
Class NSPS State:		**NAICS Second:**	
Class NSR:		**Sic Prime:**	5541
Class PSD:		**Sic Second:**	
Sip Fed Jd:		**Site Operat Stat:**	O
Class Sip Federal:	B	**Owner Cust:**	9920109337
Air Title:		**Method Code:**	I2
Class Tribal:		**Site Lat:**	384316.7421
CMS Category:		**Site Long:**	1044245.8971
CMS Frequency:	0	**UTM Horiz:**	524.97
Cpts Bogus Ind:	FALSE	**UTM Vert:**	4285.89
Govt Fac Classifi:	0	**UTM Zone:**	13.0
Hap Classifi:		**Vert Dat:**	1
NAA NSR Classifi:		**Vert Meas:**	1721.73
Op Classification:		**Vert Meas Acc:**	3.0
Property Area:	0.0	**Vert Meth Coll:**	OT
PSD Classifi:		**Site Horiz Dat:**	2
City FIPS Code:	27865	**Acc Units:**	METERS

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

State FIPS:	08	**Accuracy:**	40.0
County FIPS:	041	**Date Coll:**	10-Feb-2022 13:50:29
Addr County FIPS:	041		
Permit App:	MAVERIK-MAVERIK STORE #659		
SIC Sec Desc:			
Site Email:	MARK.STEWART@MAVERIK.COM		
SIC Pri Desc:	AUTOMOTIVE DEALERS AND GASOLINE SERVICE STATIONS - Gasoline Service Station		
Site Description:	SERVICE STATION		
Site LL Description:	Elevation source: 3DEP 1/3 arc-second		
Sip Prog1:		**Sip Prog3 Area:**	
Sip Prog1 Area:		**Sip Prog4:**	
Sip Prog2:		**Sip Prog4 Area:**	
Sip Prog2 Area:		**Sip Prog5:**	
Sip Prog3:			

Site Owner

Owner Bill Cycle:	4	**Mail Fax:**	
Owner Description:	RETAIL FUEL STATION	**Mail Full Name:**	UTAHNA ARCHULETA
Mail Addr 1:	185 SOUTH STATE STREET	**Mail First Name:**	UTAHNA
Mail Addr 2:	SUITE 800	**Mail Last Name:**	ARCHULETA
Mail Type:	STREET	**Mail Phone:**	(801)683-3628
Mail City:	SALT LAKE CITY	**Mail Province:**	
Mail City Cd:		**Mail State:**	49
Mail Company:		**Mail Title:**	
Mail Country Cd:		**Mail Zip:**	84111-
Owner Name:	MAVERIK, INC		
Owner Mail Email:	UTAHNA.ARCHULETA@MAVERIK.COM		

Site Pollutant

Site ID:	2187	**Pk Co:**	
State FIPS:	08	**Pk Co Mc:**	Z
County FIPS:	041	**Pk Co Re:**	
Data Year:	2021	**Pk Co Re Mc:**	Z
Inventory Year:	2023	**Pk Co Re Units:**	PD
Inventory Year 2:	23	**Pk Co Unc:**	
Pollutant Code:	108883	**Pk Co Units:**	PD
Is Colorado Hap:	FALSE	**Pk O3:**	
Is Criteria:	FALSE	**Pk O3 Mc:**	Z
Is EPCRA Only:	FALSE	**Pk O3 Re:**	
Is Hap:	TRUE	**Pk O3 Re Mc:**	Z
NEI Pollutant ID:	108883	**Pk O3 Re Units:**	PD
Ozone Depleting:	FALSE	**Pk O3 Unc:**	
Estim:	0.003746	**Pk O3 Units:**	PD
Estim Mc:	Z	**EMIS Pot:**	
Estim Unc:	0.143524	**Pot Mc:**	
Estim Units:	TY	**Pot Unc:**	
Limit1:		**Pot Unc Mc:**	
Limit1 Mc:		**Pot Unc Units:**	
Limit1 Units:		**Pot Units:**	
Limit2:		**Re Estim:**	0.0
Limit2 Mc:		**Re Estim Mc:**	Z
Limit2 Units:		**Re ESTIM Units:**	TY
Pollutant Name:	TOLUENE		

Site Pollutant

Site ID:	2187	**Pk Co:**	
State FIPS:	08	**Pk Co Mc:**	Z
County FIPS:	041	**Pk Co Re:**	
Data Year:	2021	**Pk Co Re Mc:**	Z
Inventory Year:	2023	**Pk Co Re Units:**	PD
Inventory Year 2:	23	**Pk Co Unc:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Pollutant Code:	VOC	**Pk Co Units:**	PD
Is Colorado Hap:	FALSE	**Pk O3:**	
Is Criteria:	TRUE	**Pk O3 Mc:**	Z
Is EPCRA Only:	FALSE	**Pk O3 Re:**	
Is Hap:	FALSE	**Pk O3 Re Mc:**	Z
NEI Pollutant ID:	VOC	**Pk O3 Re Units:**	PD
Ozone Depleting:	FALSE	**Pk O3 Unc:**	
Estim:	4.60824	**Pk O3 Units:**	PD
Estim Mc:	Z	**EMIS Pot:**	
Estim Unc:	22.528	**Pot Mc:**	
Estim Units:	TY	**Pot Unc:**	
Limit1:		**Pot Unc Mc:**	
Limit1 Mc:		**Pot Unc Units:**	
Limit1 Units:		**Pot Units:**	
Limit2:		**Re Estim:**	0.0
Limit2 Mc:		**Re Estim Mc:**	Z
Limit2 Units:		**Re ESTIM Units:**	TY
Pollutant Name:	VOLATILE ORGANIC COMPOUNDS		

Site Pollutant

Site ID:	2187	**Pk Co:**	
State FIPS:	08	**Pk Co Mc:**	Z
County FIPS:	041	**Pk Co Re:**	
Data Year:	2021	**Pk Co Re Mc:**	Z
Inventory Year:	2023	**Pk Co Re Units:**	PD
Inventory Year 2:	23	**Pk Co Unc:**	
Pollutant Code:	110543	**Pk Co Units:**	PD
Is Colorado Hap:	FALSE	**Pk O3:**	
Is Criteria:	FALSE	**Pk O3 Mc:**	Z
Is EPCRA Only:	FALSE	**Pk O3 Re:**	
Is Hap:	TRUE	**Pk O3 Re Mc:**	Z
NEI Pollutant ID:	110543	**Pk O3 Re Units:**	PD
Ozone Depleting:	FALSE	**Pk O3 Unc:**	
Estim:	0.003266	**Pk O3 Units:**	PD
Estim Mc:	Z	**EMIS Pot:**	
Estim Unc:	0.125134	**Pot Mc:**	
Estim Units:	TY	**Pot Unc:**	
Limit1:		**Pot Unc Mc:**	
Limit1 Mc:		**Pot Unc Units:**	
Limit1 Units:		**Pot Units:**	
Limit2:		**Re Estim:**	0.0
Limit2 Mc:		**Re Estim Mc:**	Z
Limit2 Units:		**Re ESTIM Units:**	TY
Pollutant Name:	HEXANE,N-		

Stack

Site ID:	2187	**Plume Height:**	10
Stack ID:	001	**Rough Terrain Ind:**	N
State FIPS:	08	**Diameter:**	0.0
County FIPS:	041	**Diameter Meter:**	0.0
Data Year:	2021	**Geo Origin:**	plant
Inventory Year:	2023	**Height:**	0.0
Inventory Year 2:	23	**Height Meter:**	0.0
Apcd Stack ID:	041-2187-S001	**Horiz Dat:**	2
Cem Recorder Flag:	No	**Lining Code:**	1
Distance:		**Acc Units:**	4
Exit Gas Flow Rate:	0.0	**Accuracy:**	40.0
Exit Gas Temp:	70.0	**Method Code:**	I2
Exit Gas Kelvin:	294.0	**Pt Lin Area:**	P
Gas Velocity:	0.0	**Src Scale:**	2
Gas Meters Sec:	0.0	**Latitude:**	384316.7421
Bldg Height:	0	**Longitude:**	1044245.8971
Bldg Length:	0	**Type Code:**	F
Bldg Width:	0	**UTM Horiz:**	524.97
Stack Height:	0	**UTM Vert:**	4285.89

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

NEI Em Rls Pt Typ:	1	**Vert Meas:**	1721.73
NEI Exit Gas Flow:	0.0	**UTM Zone:**	13.0
NEI Horiz Mc:	019	**X Coord:**	-104.71274919444444
NEI Ref Pt Code:	105	**Y Coord:**	38.72131725
Emission Release Desc:	UNDERGROUND GASOLINE TANKS		
Description:	Elevation source: 3DEP 1/3 arc-second		
Description Category:	PC		
Stack Type:	FUGITIVE EMISSIONS, NO STACK EXISTS		

Stack Pollutant

Site ID:	2187	**Pk Co:**	
Stack ID:	001	**Pk Co Mc:**	Z
State Fips:	08	**Pk Co Re:**	
County Fip:	041	**Pk Co Re Mc:**	Z
Data Year:	2021	**Pk Co Re Units:**	PD
Inventory Year:	2023	**Pk Co Unc:**	
Inventory Year 2:	23	**Pk Co Units:**	PD
Pollutant Code:	108883	**Pk O3:**	
Is Colorado Hap:	FALSE	**Pk O3 Mc:**	Z
Is Criteria:	FALSE	**Pk O3 Re:**	
Is Epcra Only:	FALSE	**Pk O3 Re Mc:**	Z
Is Hap:	TRUE	**Pk O3 Re Units:**	PD
Ozone Depleting:	FALSE	**Pk O3 Unc:**	
Estim:	0.003746	**Pk O3 Units:**	PD
Estim Mc:	Z	**Pot:**	
Estim Unc:	0.143524	**Pot Mc:**	
Estim Units:	TY	**Pot Unc:**	
Limit1:		**Pot Unc Mc:**	
Limit1 Mc:		**Pot Unc Units:**	
Limit1 Units:		**Pot Units:**	
Limit2:		**Re Estim:**	0.0
Limit2 Mc:		**Re Estim Mc:**	Z
Limit2 Units:		**Re Estim Units:**	TY
Pollutant Name:	TOLUENE		

Stack Pollutant

Site ID:	2187	**Pk Co:**	
Stack ID:	001	**Pk Co Mc:**	Z
State Fips:	08	**Pk Co Re:**	
County Fip:	041	**Pk Co Re Mc:**	Z
Data Year:	2021	**Pk Co Re Units:**	PD
Inventory Year:	2023	**Pk Co Unc:**	
Inventory Year 2:	23	**Pk Co Units:**	PD
Pollutant Code:	VOC	**Pk O3:**	
Is Colorado Hap:	FALSE	**Pk O3 Mc:**	Z
Is Criteria:	TRUE	**Pk O3 Re:**	
Is Epcra Only:	FALSE	**Pk O3 Re Mc:**	Z
Is Hap:	FALSE	**Pk O3 Re Units:**	PD
Ozone Depleting:	FALSE	**Pk O3 Unc:**	
Estim:	4.60824	**Pk O3 Units:**	PD
Estim Mc:	Z	**Pot:**	
Estim Unc:	22.528	**Pot Mc:**	
Estim Units:	TY	**Pot Unc:**	
Limit1:		**Pot Unc Mc:**	
Limit1 Mc:		**Pot Unc Units:**	
Limit1 Units:		**Pot Units:**	
Limit2:		**Re Estim:**	0.0
Limit2 Mc:		**Re Estim Mc:**	Z
Limit2 Units:		**Re Estim Units:**	TY
Pollutant Name:	VOLATILE ORGANIC COMPOUNDS		

Stack Pollutant

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Site ID:	2187	**Pk Co:**	
Stack ID:	001	**Pk Co Mc:**	Z
State Fips:	08	**Pk Co Re:**	
County Fip:	041	**Pk Co Re Mc:**	Z
Data Year:	2021	**Pk Co Re Units:**	PD
Inventory Year:	2023	**Pk Co Unc:**	
Inventory Year 2:	23	**Pk Co Units:**	PD
Pollutant Code:	110543	**Pk O3:**	
Is Colorado Hap:	FALSE	**Pk O3 Mc:**	Z
Is Criteria:	FALSE	**Pk O3 Re:**	
Is Epcra Only:	FALSE	**Pk O3 Re Mc:**	Z
Is Hap:	TRUE	**Pk O3 Re Units:**	PD
Ozone Depleting:	FALSE	**Pk O3 Unc:**	
Estim:	0.003266	**Pk O3 Units:**	PD
Estim Mc:	Z	**Pot:**	
Estim Unc:	0.125134	**Pot Mc:**	
Estim Units:	TY	**Pot Unc:**	
Limit1:		**Pot Unc Mc:**	
Limit1 Mc:		**Pot Unc Units:**	
Limit1 Units:		**Pot Units:**	
Limit2:		**Re Estim:**	0.0
Limit2 Mc:		**Re Estim Mc:**	Z
Limit2 Units:		**Re Estim Units:**	TY
Pollutant Name:	HEXANE,N-		

13	*4 of 6*	*NW*	*0.01 / 73.33*	*5,646.18 / -8*	***MESA RIDGE CROSSING SYRACUSE STREET AND MESA RIDGE PARKWAY FOUNTAIN CO 80903***	***FINDS/FRS***

Registry ID:	110070875060
FIPS Code:	CO041
HUC Code:	11020003
Site Type Name:	STATIONARY
Location Description:	
Supplemental Location:	
Create Date:	04-DEC-20
Update Date:	
Interest Types:	ICIS-NPDES NON-MAJOR
SIC Codes:	1542
SIC Code Descriptions:	GENERAL CONTRACTORS-NONRESIDENTIAL BUILDINGS, OTHER THAN INDUSTRIAL BUILDINGS AND WAREHOUSES
NAICS Codes:	
NAICS Code Descriptions:	
Conveyor:	ICIS
Federal Facility Code:	
Federal Agency Name:	
Tribal Land Code:	
Tribal Land Name:	
Congressional Dist No:	05
Census Block Code:	080410045063023
EPA Region Code:	08
County Name:	EL PASO
US/Mexico Border Ind:	
Latitude:	38.721184
Longitude:	-104.712295
Reference Point:	CENTER OF A FACILITY OR STATION
Coord Collection Method:	GPS - UNSPECIFIED
Accuracy Value:	
Datum:	NAD83
Source:	
Facility Detail Rprt URL:	https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110070875060
Data Source:	Facility Registry Service - Single File
Program Acronyms:	

NPDES:COR410596

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
13	5 of 6	NW	0.01 / 73.33	5,646.18 / -8	MAVERIK AT MESA RIDGE (LOT 1, MESA RIDGE CROSSING FILING 1) MESA RIDGE PARKWAY AND SYRACUSE STREET FOUNTAIN CO 80903	FINDS/FRS

Registry ID: 110071066162
FIPS Code: CO041
HUC Code: 11020003
Site Type Name: STATIONARY
Location Description:
Supplemental Location:
Create Date: 09-JUL-21
Update Date:
Interest Types: ICIS-NPDES NON-MAJOR
SIC Codes: 1542
SIC Code Descriptions: GENERAL CONTRACTORS-NONRESIDENTIAL BUILDINGS, OTHER THAN INDUSTRIAL BUILDINGS AND WAREHOUSES
NAICS Codes:
NAICS Code Descriptions:
Conveyor: ICIS
Federal Facility Code:
Federal Agency Name:
Tribal Land Code:
Tribal Land Name:
Congressional Dist No: 05
Census Block Code: 080410045063023
EPA Region Code: 08
County Name: EL PASO
US/Mexico Border Ind:
Latitude: 38.721167
Longitude: -104.712365
Reference Point: CENTER OF A FACILITY OR STATION
Coord Collection Method: GPS - UNSPECIFIED
Accuracy Value:
Datum: NAD83
Source:
Facility Detail Rprt URL: https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110071066162
Data Source: Facility Registry Service - Single File
Program Acronyms:

NPDES:COR412638

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
13	6 of 6	NW	0.01 / 73.33	5,646.18 / -8	MAVERIK-MAVERIK STORE #659 MESA RDIGE & SYRACUSE ST FOUNTAIN CO 80817	FINDS/FRS

Registry ID: 110071092165
FIPS Code: CO041
HUC Code:
Site Type Name: STATIONARY
Location Description: SERVICE STATION
Supplemental Location:
Create Date: 08-OCT-21
Update Date:
Interest Types: AIR MINOR
SIC Codes: 5541
SIC Code Descriptions: GASOLINE SERVICE STATIONS
NAICS Codes: 447110
NAICS Code Descriptions: GASOLINE STATIONS WITH CONVENIENCE STORES.
Conveyor:
Federal Facility Code:
Federal Agency Name:
Tribal Land Code:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Tribal Land Name:
Congressional Dist No:
Census Block Code:
EPA Region Code: 08
County Name: EL PASO COUNTY
US/Mexico Border Ind:
Latitude:
Longitude:
Reference Point:
Coord Collection Method:
Accuracy Value:
Datum: NAD83
Source:
Facility Detail Rprt URL: https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110071092165
Data Source: Facility Registry Service - Single File
Program Acronyms:

AIR:CO0000000804102187

14	*1 of 2*	*WNW*	*0.01 / 77.52*	*5,638.63 / -16*	***FIRST FLEET (FORMERLY AFC)*** ***500 WILLOW SPRINGS ROAD*** ***COLORADO SPRINGS CO 80911***	***FINDS/FRS***

Registry ID: 110042344852
FIPS Code:
HUC Code: 11020003
Site Type Name: STATIONARY
Location Description:
Supplemental Location:
Create Date: 24-NOV-10
Update Date: 03-MAY-15
Interest Types: ENFORCEMENT/COMPLIANCE ACTIVITY
SIC Codes:
SIC Code Descriptions:
NAICS Codes:
NAICS Code Descriptions:
Conveyor: ICIS
Federal Facility Code:
Federal Agency Name:
Tribal Land Code:
Tribal Land Name:
Congressional Dist No: 05
Census Block Code: 080410045083001
EPA Region Code: 08
County Name: EL PASO
US/Mexico Border Ind:
Latitude: 38.722155
Longitude: -104.721151
Reference Point:
Coord Collection Method:
Accuracy Value: 30
Datum: NAD83
Source:
Facility Detail Rprt URL: https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110042344852
Data Source: Facility Registry Service - Single File
Program Acronyms:

ICIS:2200009621

14	*2 of 2*	*WNW*	*0.01 / 77.52*	*5,638.63 / -16*	***FIRST FLEET (FORMERLY AFC)*** ***500 WILLOW SPRINGS ROAD*** ***COLORADO SPRINGS CO 80911***	***ICIS***

EPA Region: ***Federal Fac ID:***

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Registry ID:	110042344852	**Tribal Land Code:**	
Pgm Sys ID:	2200009621	**County:**	EL PASO
Pgm Sys Acrnm:	ICIS	**Latitude 83:**	38.722155
Permit Type:		**Longitude 83:**	-104.721151

Details

Interest Type:	ENFORCEMENT/COMPLIANCE ACTIVITY	**Public Ind:**	Y
Active Status:		**FIPS Code:**	
Accuracy Value:	30	**HUC 8 Code:**	11020003
Pgm Report URL:	no data yet	**HUC 12:**	
Federal Agency Name:			
Federal Land Ind:			
Fed Facility Code:			
Ref Point Desc:			
Collect Mth Desc:			
Fac URL:	https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110042344852		
Program URL:			

15	1 of 3	ESE	0.02 / 80.39	5,742.19 / 88	**LES SCHWAB TIRE CENTER FOUNTAIN** **7996 FOUNTAIN MESA RD** **FOUNTAIN CO 80817**	FINDS/FRS

Registry ID:	110064783195
FIPS Code:	CO041
HUC Code:	11020003
Site Type Name:	STATIONARY
Location Description:	
Supplemental Location:	
Create Date:	11-SEP-15
Update Date:	01-APR-16
Interest Types:	ICIS-NPDES NON-MAJOR
SIC Codes:	5014
SIC Code Descriptions:	TIRES AND TUBES
NAICS Codes:	
NAICS Code Descriptions:	
Conveyor:	FRS-GEOCODE
Federal Facility Code:	
Federal Agency Name:	
Tribal Land Code:	
Tribal Land Name:	
Congressional Dist No:	05
Census Block Code:	080410045073036
EPA Region Code:	08
County Name:	EL PASO
US/Mexico Border Ind:	
Latitude:	38.715724
Longitude:	-104.701495
Reference Point:	ENTRANCE POINT OF A FACILITY OR STATION
Coord Collection Method:	ADDRESS MATCHING-HOUSE NUMBER
Accuracy Value:	50
Datum:	NAD83
Source:	
Facility Detail Rprt URL:	https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110064783195
Data Source:	Facility Registry Service - Single File
Program Acronyms:	

NPDES:COR03N434

15	2 of 3	ESE	0.02 / 80.39	5,742.19 / 88	**LES SCHWAB TIRE CENTER FOUNTAIN** **7996 FOUNTAIN MESA RD** **FOUNTAIN CO 80817**	ICIS

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

EPA Region:	08	**Federal Fac ID:**	
Registry ID:	110064783195	**Tribal Land Code:**	
Pgm Sys ID:	COR03N434	**County:**	El Paso
Pgm Sys Acrnm:	NPDES	**Latitude 83:**	38.715747
Permit Type:	General Permit Covered Facility	**Longitude 83:**	-104.701459

15	3 of 3	ESE	0.02 / 80.39	5,742.19 / 88	**Les Schwab Tire Center** **7996 Fountain Mesa Road** **Fountain CO**	SWF/LF

Loc ID: ELP191
Cert of Reg ID:

Facility Detail Info

Location ID: ELP191
Facility Name: Les Schwab Tire Center
Location Address: 7996 Fountain Mesa Road
City: Fountain
Zip: 80817
County Name: EL PASO
Latitude: 38.71598
Longitude: -104.701477

Facility Map Info (REST)

Location ID: ELP191
FID: 1355
Primary AC: Generator of Motor Vehicle and Trailer Waste Tires
Facility Name: Les Schwab Tire Center
Address: 7990 Fountain Mesa Road
City: Fountain
Zip: 80817
County Name: EL PASO
Latitude: 38.715981
Longitude: -104.701477
Y: 38.71598100000173
X: -104.7014770000024

Activity Info

Activity Type: Generator of Motor Vehicle and Trailer Waste Tires
Closure Units: FALSE
Post Closure Units: FALSE
Post Closure Ended: FALSE
Clean Closed Units: FALSE

16	1 of 6	E	0.02 / 81.34	5,744.85 / 91	**SAFEWAY INC. # 1975** **6949 MESA RIDGE PKWY** **FOUNTAIN CO 80817**	FINDS/FRS

Registry ID: 110041440296
FIPS Code: 08041
HUC Code: 11020003
Site Type Name: STATIONARY
Location Description:
Supplemental Location:
Create Date: 06-JUL-10
Update Date: 01-JUN-17
Interest Types: AIR MINOR
SIC Codes: 5541
SIC Code Descriptions: GASOLINE SERVICE STATIONS
NAICS Codes: 447190

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

NAICS Code Descriptions:	OTHER GASOLINE STATIONS.
Conveyor:	FRS-GEOCODE
Federal Facility Code:	
Federal Agency Name:	
Tribal Land Code:	
Tribal Land Name:	
Congressional Dist No:	05
Census Block Code:	080410045034035
EPA Region Code:	08
County Name:	EL PASO
US/Mexico Border Ind:	
Latitude:	38.718302
Longitude:	-104.698277
Reference Point:	ENTRANCE POINT OF A FACILITY OR STATION
Coord Collection Method:	ADDRESS MATCHING-HOUSE NUMBER
Accuracy Value:	50
Datum:	NAD83
Source:	
Facility Detail Rprt URL:	https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110041440296
Data Source:	Facility Registry Service - Single File
Program Acronyms:	

AIR:CO0000000804101622, AIRS/AFS:0804101622, EIS:13036511

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
16	2 of 6	E	0.02 / 81.34	5,744.85 / 91	Safeway Fuel Center 6949 Mesa Ridge Rd Fountain 80817 CO	UST

Facility ID:	17892	**Fac Name (COSTIS):**	Safeway Fuel Center
FacilityName(OPS):	Safeway Fuel Center	**Address (COSTIS):**	6949 Mesa Ridge Rd Fountain 80817
FacilityType(OPS):	Retail	**County (COSTIS):**	El Paso
Fac Category (OPS):	Retail Gas Station	**Latitude (CDLE):**	38.718676
Address (OPS):	6949 Mesa Ridge Rd	**Longitude (CDLE):**	-104.69904
City (OPS):	Fountain	**Fac Type (CDLE):**	Retail
Zip Code (OPS):	80817	**FacCategry(CDLE):**	Retail Gas Station
County (OPS):	El Paso	**State (OPS):**	CO
LatLong (OPS):	38.718676, -104.69904	**City (CDLE):**	Fountain
FacName (CDLE):	Safeway Fuel Center	**Zip (CDLE):**	80817
Address (CDLE):	6949 Mesa Ridge Rd	**County (CDLE):**	El Paso
State (CDLE):			
Data Source(s):	Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks		

Facility Information (CDLE)

Count of Tank Tag:	2	**Accnt Holdr Name:**	Safeway Stores 45 Inc.
No. Dispensers:	40	**Type:**	Retail
Owner ID:	OWNR-18457		

Owner Information (CDLE)

Contact Name:	Safeway Stores 45 Inc.	**Middle Init:**	
First Name:			
Company Name:	Safeway Stores 45 Inc.		
Last Name:	Safeway Stores 45 Inc.		
Address:	6900 S Yosemite St, Englewood, CO 80112		
Comment:	2006 INVOICE REQUESTED A CHANGE OF THE OWNER ADDRESS. SEE FILES FOR 06-64 1-17-06. ENFORCEMENT COORDINATOR OID 20958 PAUL GOFF AT 303-843-7740 OR 1-800-749-4974 AT 6900 S YOSEMITE CENTENNIAL CO 80112 SEE FID 13767 FOR OID UPDATE 7/1/07; Billing: Jacqui Ru **Note: data in the [Comment] field for some records is truncated from the source.		

UST Tanks (COSTIS) (As of October 2021)

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Tank ID: 39224 **Owner ID:** 18457
Tank Tag: '17892-2 **Tank Owner:**
Tank Type Desc: UST **County:** El Paso
Tank Count: 46668 **Product Name:** Diesel/Gas (Multi-Comp)
Capacity: 20000
Facility Owner: Safeway Stores 45 Inc.
Facility Name Address: Safeway Fuel Center
6949 Mesa Ridge Rd
Fountain 80817

Tank ID: 39223 **Owner ID:** 18457
Tank Tag: '17892-1 **Tank Owner:**
Tank Type Desc: UST **County:** El Paso
Tank Count: 46668 **Product Name:** Unleaded Regular (RUL)
Capacity: 20000
Facility Owner: Safeway Stores 45 Inc.
Facility Name Address: Safeway Fuel Center
6949 Mesa Ridge Rd
Fountain 80817

UST Tanks 1 (CDLE)

Tank Tag: 17892-2 **Overfill Preven:** FV: Fill Tube Valve
Tank Type: UST **Product Type/Name:** Diesel #2
Tank Status: Currently In Use **Piping Wall Type:** Double-Walled
Capacity: 20000 **Tank Wall Type:**
Install Date: 1/10/2006 **Piping System:**
Date Closed: **Piping Type:** UG: Underground
Tank Material: COMP: Steel/FRP Composite
Piping Material: FLEX: Flexible Plastic

UST Tanks 2 (CDLE)

Closure Meth ID: **No Fee:** No
Unregulated: FALSE **Anch Method Desc:** DM: Deadman
Last Used Date: **Pipe Reld Meth1 ID:** L1: ATG .2/.1gph Mthly Mntrg
Del Prohib Date: **Pipe Reldet Date:**
Spill Protected: **Backfill Mat Desc:**
Spl Container Size: 5 **Bfill DrtCvr Amt:** 36
Spl Protection Dt: **Manifold:** No
Spl Container Mfg: CNI and EBW **Registration Date:** 8/6/2021
Spl Container Mdel: 104 A and 705 **Compartment:** TRUE
Tank Reld Meth1 ID: **Cpmet:** Yes
Tank Lining Date: **Invault:** FALSE
CP Test Date:

UST Tanks 1 (CDLE)

Tank Tag: 17892-2 **Overfill Preven:** FV: Fill Tube Valve
Tank Type: UST **Product Type/Name:** Unleaded Premium (PUL)
Tank Status: Currently In Use **Piping Wall Type:** Double-Walled
Capacity: 20000 **Tank Wall Type:**
Install Date: 1/10/2006 **Piping System:**
Date Closed: **Piping Type:** UG: Underground
Tank Material: COMP: Steel/FRP Composite
Piping Material: FLEX: Flexible Plastic

UST Tanks 2 (CDLE)

Closure Meth ID: **No Fee:** No
Unregulated: FALSE **Anch Method Desc:** DM: Deadman
Last Used Date: **Pipe Reld Meth1 ID:** L1: ATG .2/.1gph Mthly Mntrg
Del Prohib Date: **Pipe Reldet Date:**
Spill Protected: **Backfill Mat Desc:**
Spl Container Size: 5 **Bfill DrtCvr Amt:** 36
Spl Protection Dt: **Manifold:** No
Spl Container Mfg: CNI and EBW **Registration Date:** 8/6/2021

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Spl Container Mdel:	104 A and 705	***Compartment:***	TRUE
Tank Reld Meth1 ID:		***Cpmet:***	Yes
Tank Lining Date:		***Invault:***	FALSE
CP Test Date:			

UST Tanks 1 (CDLE)

Tank Tag:	17892-1	***Overfill Preven:***	FV: Fill Tube Valve
Tank Type:	UST	***Product Type/Name:***	Unleaded Regular (RUL)
Tank Status:	Currently In Use	***Piping Wall Type:***	Double-Walled
Capacity:	20000	***Tank Wall Type:***	
Install Date:	1/10/2006	***Piping System:***	
Date Closed:		***Piping Type:***	UG: Underground
Tank Material:	COMP: Steel/FRP Composite		
Piping Material:	FLEX: Flexible Plastic		

UST Tanks 2 (CDLE)

Closure Meth ID:		***No Fee:***	No
Unregulated:	FALSE	***Anch Method Desc:***	DM: Deadman
Last Used Date:		***Pipe Reld Meth1 ID:***	L1: ATG .2/.1gph Mthly Mntrg
Del Prohib Date:		***Pipe Reldet Date:***	
Spill Protected:		***Backfill Mat Desc:***	Pea Gravel
Spl Container Size:	5	***Bfill DrtCvr Amt:***	36
Spl Protection Dt:		***Manifold:***	No
Spl Container Mfg:	CNI	***Registration Date:***	8/6/2021
Spl Container Mdel:	104 A	***Compartment:***	FALSE
Tank Reld Meth1 ID:		***Cpmet:***	Yes
Tank Lining Date:		***Invault:***	FALSE
CP Test Date:			

Oil & Public Safety Regulated Storage Tanks (COSTIS)

Tank Tag:	17892-2	***Leak Detector Type:***	E: Electronic
Tank Status:	Currently In Use	***Capacity Gallons :***	20000
Tank Type:	UST	***Product:***	Diesel #2
Tank Name:	TNK-039746	***Piping Type:***	UG: Underground
Installation Date:	1/10/2006	***Piping System:***	
Closure Date:		***Piping Material:***	FLEX: Flexible Plastic
Tank Material:	COMP: Steel/FRP Composite	***Piping Wall Type:***	Double-Walled
Tank Wall Type:		***Address:***	6949 Mesa Ridge Rd
Facility Name:	Safeway Fuel Center	***City:***	Fountain
Facility Type:	Retail	***County:***	El Paso
Facility Category:	Retail Gas Station	***ZIP Code:***	80817
Overfill Preven:	FV: Fill Tube Valve		
Tank Corsn Protection Meth:	Steel/Fiberglass Composite		
Tank Rel Detn Mthd Primary:	T2: Inter Mntrg w/ Sensor		
Tank Rel Detn Mthd Secondary:			
Piping Corsn Protection (PCP):	Non-metallic		
PCP at Tank:	No Electrolyte Contact (n/a)		
PCP at Dispenser:	No Electrolyte Contact (n/a)		
Piping Rel Detn Mthd Primary:	L1: ATG .2/.1gph Mthly Mntrg		
Piping Rel Detn Mthd Secondary:	L2: Dbl-Wall & Sumps w/ Sensor		

Tank Tag:	17892-2	***Leak Detector Type:***	E: Electronic
Tank Status:	Currently In Use	***Capacity Gallons :***	20000
Tank Type:	UST	***Product:***	Unleaded Premium (PUL)
Tank Name:	TNK-039746	***Piping Type:***	UG: Underground
Installation Date:	1/10/2006	***Piping System:***	
Closure Date:		***Piping Material:***	FLEX: Flexible Plastic
Tank Material:	COMP: Steel/FRP Composite	***Piping Wall Type:***	Double-Walled
Tank Wall Type:		***Address:***	6949 Mesa Ridge Rd
Facility Name:	Safeway Fuel Center	***City:***	Fountain
Facility Type:	Retail	***County:***	El Paso

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Facility Category: Retail Gas Station
Overfill Preven: FV: Fill Tube Valve
Tank Corsn Protection Meth: Steel/Fiberglass Composite
Tank Rel Detn Mthd Primary: T2: Inter Mntrg w/ Sensor
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP): Non-metallic
PCP at Tank: No Electrolyte Contact (n/a)
PCP at Dispenser: No Electrolyte Contact (n/a)
Piping Rel Detn Mthd Primary: L1: ATG .2/.1gph Mthly Mntrg
Piping Rel Detn Mthd Secondary: L2: Dbl-Wall & Sumps w/ Sensor
ZIP Code: 80817

Tank Tag: 17892-1
Tank Status: Currently In Use
Tank Type: UST
Tank Name: TNK-039745
Installation Date: 1/10/2006
Closure Date:
Tank Material: COMP: Steel/FRP Composite
Tank Wall Type:
Facility Name: Safeway Fuel Center
Facility Type: Retail
Facility Category: Retail Gas Station
Overfill Preven: FV: Fill Tube Valve
Tank Corsn Protection Meth: Steel/Fiberglass Composite
Tank Rel Detn Mthd Primary: T2: Inter Mntrg w/ Sensor
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP): Non-metallic
PCP at Tank: No Electrolyte Contact (n/a)
PCP at Dispenser: No Electrolyte Contact (n/a)
Piping Rel Detn Mthd Primary: L1: ATG .2/.1gph Mthly Mntrg
Piping Rel Detn Mthd Secondary: L2: Dbl-Wall & Sumps w/ Sensor
Leak Detector Type: E: Electronic
Capacity Gallons : 20000
Product: Unleaded Regular (RUL)
Piping Type: UG: Underground
Piping System:
Piping Material: FLEX: Flexible Plastic
Piping Wall Type: Double-Walled
Address: 6949 Mesa Ridge Rd
City: Fountain
County: El Paso
ZIP Code: 80817

UST Owner (COSTIS) (As of October 2021)

Owner ID: 18457
First Name:
Middle Init:
Last Name: Safeway Stores 45 Inc.
Full Name:
Address1: 6900 S Yosemite St
City: Englewood
State: CO
County: Arapahoe
Zip Code: 80112

Oil & Public Safety Regulated Storage Tank Details

No of Tanks: 2

Facility Contact Details (CDLE)

Contact ID: 0033h00000lKyid
Costis ID: ABOP-17892-7962
Active: TRUE
Role: A/B Operator
Fac Contact Name: FCON-011076
Contact Last Name: Corbin Reid

Contact ID: 0033h00000mtYhD
Costis ID: FACOWN-17892-34229-Feb 6 2006 3:08PM
Active: TRUE
Role: Facility Owner
Fac Contact Name: FCON-051595
Contact Last Name: Safeway Stores 45 Inc.

Contact ID: 0033h00000mtYh7
Costis ID: FACOWN-17892-35059-Aug 9 2005 12:51PM
Active: FALSE
Role: Facility Owner
Fac Contact Name: FCON-051522
Contact Last Name: Safeway Inc

16	3 of 6	E	0.02 / 81.34	5,744.85 / 91	SAFEWAY INC. # 1975 6941 MESA RIDGE PKWY FOUNTAIN CO 80817	AIR PERMITS

APCD Site ID: 041-1622
Sip Status Co: FALSE

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Site ID:	1622	**Sip Status O3:**	FALSE
Fed Facility ID:	13036511	**Site Cont Company:**	
County:	EL PASO	**Descriptn Category:**	PC
Addr County Name:	EL PASO	**Site First Name:**	CORBIN
Address Type:	STREET	**Site Full Name:**	CORBIN REID
Air Program:	B	**Site Last Name:**	REID
Air Acid Precip:		**Site Title:**	
Class Apen Exempt:		**Site Phone:**	(720)512-1229
Class CFC:		**Site Fax:**	
Class Condensate :	B	**No Employees:**	0.0
Class Fesop:		**Site Geocode Date:**	13-Feb-2020 15:44:10
Class Mact:		**Pt Lin Are:**	P
Class Neshap:		**Src Scale:**	2
Class Non Fed Rpt:		**Verification:**	
NSPS Federal:		**NAICS Prime:**	457110
Class NSPS State:		**NAICS Second:**	
Class NSR:		**Sic Prime:**	5541
Class PSD:		**Sic Second:**	
Sip Fed Jd:		**Site Operat Stat:**	O
Class Sip Federal:	B	**Owner Cust:**	9920105401
Air Title:		**Method Code:**	I2
Class Tribal:		**Site Lat:**	384304.4616
CMS Category:		**Site Long:**	1044153.9062
CMS Frequency:	0	**UTM Horiz:**	526.227
Cpts Bogus Ind:	FALSE	**UTM Vert:**	4285.516
Govt Fac Classifi:	0	**UTM Zone:**	13.0
Hap Classifi:	TBD	**Vert Dat:**	1
NAA NSR Classifi:	TBD	**Vert Meas:**	1751.03
Op Classification:	TBD	**Vert Meas Acc:**	3.0
Property Area:	0.0	**Vert Meth Coll:**	OT
PSD Classifi:	TBD	**Site Horiz Dat:**	2
City FIPS Code:	27865	**Acc Units:**	METERS
State FIPS:	08	**Accuracy:**	20.0
County FIPS:	041	**Date Coll:**	13-Feb-2020 15:44:10
Addr County FIPS:	041		
Permit App:	SAFEWAY INC. # 1975		
SIC Sec Desc:			
Site Email:	CORBIN.REID@RANDALLS.COM		
SIC Pri Desc:	AUTOMOTIVE DEALERS AND GASOLINE SERVICE STATIONS - Gasoline Service Station		
Site Description:	RETAIL FUEL DISPENSING SERVICE STATION		
Site LL Description:	Elevation source: 3DEP 1/3 arc-second		

Sip Prog1:		**Sip Prog3 Area:**	
Sip Prog1 Area:		**Sip Prog4:**	
Sip Prog2:		**Sip Prog4 Area:**	
Sip Prog2 Area:		**Sip Prog5:**	
Sip Prog3:			

Site Owner

Owner Bill Cycle:	4	**Mail Fax:**	
Owner Description:	FOOD STORE AND FUEL DISPENSING	**Mail Full Name:**	JACQUI RUSH
Mail Addr 1:	PO BOX 29096	**Mail First Name:**	JACQUI
Mail Addr 2:	MS #6531	**Mail Last Name:**	RUSH
Mail Type:	POBOX	**Mail Phone:**	(623)869-3765
Mail City:	PHOENIX	**Mail Province:**	
Mail City Cd:		**Mail State:**	04
Mail Company:		**Mail Title:**	
Mail Country Cd:		**Mail Zip:**	85038-
Owner Name:	SAFEWAY INC.		
Owner Mail Email:			

Site Pollutant

Site ID:	1622	**Pk Co:**	
State FIPS:	08	**Pk Co Mc:**	Z
County FIPS:	041	**Pk Co Re:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Data Year:	2019	**Pk Co Re Mc:**	Z
Inventory Year:	2023	**Pk Co Re Units:**	PD
Inventory Year 2:	23	**Pk Co Unc:**	
Pollutant Code:	VOC	**Pk Co Units:**	PD
Is Colorado Hap:	FALSE	**Pk O3:**	
Is Criteria:	TRUE	**Pk O3 Mc:**	Z
Is EPCRA Only:	FALSE	**Pk O3 Re:**	
Is Hap:	FALSE	**Pk O3 Re Mc:**	Z
NEI Pollutant ID:	VOC	**Pk O3 Re Units:**	PD
Ozone Depleting:	FALSE	**Pk O3 Unc:**	
Estim:	4.338182	**Pk O3 Units:**	PD
Estim Mc:	Z	**EMIS Pot:**	
Estim Unc:	21.173964	**Pot Mc:**	
Estim Units:	TY	**Pot Unc:**	
Limit1:		**Pot Unc Mc:**	
Limit1 Mc:		**Pot Unc Units:**	
Limit1 Units:		**Pot Units:**	
Limit2:		**Re Estim:**	0.0
Limit2 Mc:		**Re Estim Mc:**	Z
Limit2 Units:		**Re ESTIM Units:**	TY
Pollutant Name:	VOLATILE ORGANIC COMPOUNDS		

Stack

Site ID:	1622	**Plume Height:**	30
Stack ID:	001	**Rough Terrain Ind:**	N
State FIPS:	08	**Diameter:**	0.0
County FIPS:	041	**Diameter Meter:**	0.0
Data Year:	2019	**Geo Origin:**	plant
Inventory Year:	2023	**Height:**	0.0
Inventory Year 2:	23	**Height Meter:**	0.0
Apcd Stack ID:	041-1622-S001	**Horiz Dat:**	2
Cem Recorder Flag:	No	**Lining Code:**	1
Distance:		**Acc Units:**	4
Exit Gas Flow Rate:	0.0	**Accuracy:**	20.0
Exit Gas Temp:	70.0	**Method Code:**	I2
Exit Gas Kelvin:	294.0	**Pt Lin Area:**	P
Gas Velocity:	0.0	**Src Scale:**	2
Gas Meters Sec:	0.0	**Latitude:**	384304.4616
Bldg Height:	0	**Longitude:**	1044153.9062
Bldg Length:	0	**Type Code:**	V
Bldg Width:	0	**UTM Horiz:**	526.227
Stack Height:	0	**UTM Vert:**	4285.516
NEI Em Rls Pt Typ:	2	**Vert Meas:**	1751.03
NEI Exit Gas Flow:	0.0	**UTM Zone:**	13.0
NEI Horiz Mc:	019	**X Coord:**	-104.69830727777779
NEI Ref Pt Code:	105	**Y Coord:**	38.717906
Emission Release Desc:	(3) UNDERGROUND GASOLINE TANKS		
Description:	Elevation source: 3DEP 1/3 arc-second		
Description Category:	PC		
Stack Type:	A STACK WITH AN UNOBSTRUCTED OPENING DISCHARGING IN A VERTICAL DIRECTION		

Stack Pollutant

Site ID:	1622	**Pk Co:**	
Stack ID:	001	**Pk Co Mc:**	Z
State Fips:	08	**Pk Co Re:**	
County Fip:	041	**Pk Co Re Mc:**	Z
Data Year:	2019	**Pk Co Re Units:**	PD
Inventory Year:	2023	**Pk Co Unc:**	
Inventory Year 2:	23	**Pk Co Units:**	PD
Pollutant Code:	VOC	**Pk O3:**	
Is Colorado Hap:	FALSE	**Pk O3 Mc:**	Z
Is Criteria:	TRUE	**Pk O3 Re:**	
Is Epcra Only:	FALSE	**Pk O3 Re Mc:**	Z
Is Hap:	FALSE	**Pk O3 Re Units:**	PD
Ozone Depleting:	FALSE	**Pk O3 Unc:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Estim:	4.338182	**Pk O3 Units:**	PD
Estim Mc:	Z	**Pot:**	
Estim Unc:	21.173964	**Pot Mc:**	
Estim Units:	TY	**Pot Unc:**	
Limit1:		**Pot Unc Mc:**	
Limit1 Mc:		**Pot Unc Units:**	
Limit1 Units:		**Pot Units:**	
Limit2:		**Re Estim:**	0.0
Limit2 Mc:		**Re Estim Mc:**	Z
Limit2 Units:		**Re Estim Units:**	TY
Pollutant Name:	VOLATILE ORGANIC COMPOUNDS		

16	4 of 6	E	0.02 / 81.34	5,744.85 / 91	6949 MESA RIDGE PARKWAY FOUNTAIN CO 80817	ERNS

NRC Report No:	1300134	**Latitude Degrees:**	
Type of Incident:	STORAGE TANK	**Latitude Minutes:**	
Incident Cause:	EQUIPMENT FAILURE	**Latitude Seconds:**	
Incident Date:	3/11/2021 20:40	**Longitude Degrees:**	
Incident Location:		**Longitude Minutes:**	
Incident Dtg:	OCCURRED	**Longitude Seconds:**	
Distance from City:		**Lat Quad:**	
Distance Units:		**Long Quad:**	
Direction from City:		**Location Section:**	
Location County:	EL PASO	**Location Township:**	
Potential Flag:	No	**Location Range:**	
Year:	Year 2021 Reports		

Description of Incident: CALLER REPORTED A RELEASE OF GASOLINE FROM A PORTABLE GAS CONTAINER WHILE IT WAS BEING FILLED AT A GAS STATION.

Material Spill Information

Chris Code:	GAS	**Unit of Measure:**	GALLON(S)
CAS No:	000000-00-0	**If Reached Water:**	NO
UN No:		**Amount in Water:**	
Name of Material:	GASOLINE: AUTOMOTIVE (UNLEADED)	**Unit Reach Water:**	
Amount of Material:	0.5		

Calls Information

Date Time Received:	11-Mar-2021 23:01:00	**Responsible City:**	COLORADO SPRINGS
Date Time Complete:	11-Mar-2021 23:11:00	**Responsible State:**	CO
Call Type:	INC	**Responsible Zip:**	80925
Resp Company:		**Source:**	TELEPHONE
Resp Org Type:	PRIVATE CITIZEN		

Incident Information

Tank ID:		**Building ID:**	
Tank Regulated:	U	**Location Area ID:**	
Tank Regulated By:		**Location Block ID:**	
Capacity of Tank:	3	**OCSG No:**	
Capacity Tank Units:	GALLON(S)	**OCSP No:**	
Description of Tank:	PLASTIC GAS CONTAINER	**State Lease No:**	
Actual Amount:	3	**Pier Dock No:**	
Actual Amount Units:	GALLON(S)	**Berth Slip No:**	
Tank Above Ground:	ABOVE	**Brake Failure:**	U
NPDES:		**Airbag Deployed:**	U
NPDES Compliance:	U	**Transport Contain:**	Y
Init Contin Rel No:		**Location Subdiv:**	
Contin Rel Permit:		**Platform Rig Name:**	
Contin Release Type:		**Platform Letter:**	
Aircraft ID:		**Allision:**	U
Aircraft Runway No:		**Type of Structure:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Aircraft Spot No:		**Structure Name:**	
Aircraft Type:		**Structure Oper:**	U
Aircraft Model:		**Transit Bus Flag:**	
Aircraft Fuel Cap:		**Date Time Norm Serv:**	
Aircraft Fuel Cap U:		**Serv Disrupt Time:**	
Aircraft Fuel on Brd:		**Serv Disrupt Units:**	
Aircraft Fuel OB U:		**CR Begin Date:**	
Aircraft Hanger:		**CR End Date:**	
Road Mile Marker:		**CR Change Date:**	
Power Gen Facility:	U	**FBI Contact:**	
Generating Capacity:		**FBI Contact Dt Tm:**	
Type of Fixed Obj:		**Passenger Handling:**	
Type of Fuel:		**Passenger Route:**	XXX
DOT Crossing No:		**Passenger Delay:**	XXX
DOT Regulated:	U	**Sub Part C Test Req:**	XXX
Pipeline Type:		**Conductor Test:**	
Pipeline Abv Ground:	ABOVE	**Engineer Test:**	
Pipeline Covered:	U	**Trainman Test:**	
Exposed Underwater:	N	**Yard Foreman Test:**	
Railroad Hotline:		**RCL Operator Test:**	
Railroad Milepost:		**Brakeman Test:**	
Grade Crossing:	U	**Train Dispat Test:**	
Crossing Device Ty:		**Signalman Test:**	
Ty Vehicle Involved:		**Oth Employee Test:**	
Device Operational:	U	**Unknown Test:**	

Incident Details Information

Release Secured:	Y	**State Agen Report No:**	
Release Rate:		**State Agen on Scene:**	
Release Rate Unit:		**State Agen Notified:**	
Release Rate Rate:		**Fed Agency Notified:**	
Est Duration of Rel:		**Oth Agency Notified:**	
Desc Remedial Act:	CALLER STATED ABSORBANTS WERE DEPLOYED AT THE INCIDENT LOCATION.	**Body of Water:**	
Fire Involved:	N	**Tributary of:**	
Fire Extinguished:	U	**Near River Mile Make:**	
Any Evacuations:	N	**Near River Mile Mark:**	
No Evacuated:		**Offshore:**	N
Who Evacuated:		**Weather Conditions:**	CLEAR
Radius of Evac:		**Air Temperature:**	
Any Injuries:	N	**Wind Direction:**	
No. Injured:		**Wind Speed:**	
No. Hospitalized:		**Wind Speed Unit:**	
No. Fatalities:		**Water Supp Contam:**	U
Any Fatalities:	N	**Water Temperature:**	
Any Damages:	N	**Wave Condition:**	
Damage Amount:		**Current Speed:**	
Air Corridor Closed:	N	**Current Direction:**	
Air Corridor Desc:		**Current Speed Unit:**	
Air Closure Time:		**EMPL Fatality:**	
Waterway Closed:	N	**Pass Fatality:**	
Waterway Desc:		**Community Impact:**	
Waterway Close Time:		**Passengers Transfer:**	NO
Road Closed:	N	**Passenger Injuries:**	
Road Desc:		**Employee Injuries:**	
Road Closure Time:		**Occupant Fatality:**	
Road Closure Units:		**Sheen Size:**	
Closure Direction:		**Sheen Size Units:**	
Major Artery:	No	**Sheen Size Length:**	
Track Closed:	N	**Sheen Size Length U:**	
Track Desc:		**Sheen Size Width:**	
Track Closure Time:		**Sheen Size Width U:**	
Track Closure Units:		**Sheen Color:**	
Track Close Dir:		**Dir of Sheen Travel:**	
Media Interest:	NONE	**Sheen Odor Desc:**	
Medium Desc:	LAND	**Duration Unit:**	
Addl Medium Info:	GAS STATION PROPERTY	**Additional Info:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
16	5 of 6	E	0.02 / 81.34	5,744.85 / 91	SAFEWAY INC. # 1975 6949 MESA RIDGE PKWY FOUNTAIN CO 808171543	AFS

Afs ID: 0804101622
Plant ID: 1044769
Epa Region: 08
Plant County: El Paso
State No: 08
Primary Sic Code: 5541
Secondary Sic Code:
Naics Code: 447190
Afs Gov Facility Des: PRIVATELY OWNED/OPERATED
Operating Status Def: Operating
Epa Classification Des: Potential uncontrolled emissions <100 tons/year
Epa Compliance Status: In Compliance With Procedural Requirements
State Compliance Status: In Compliance With Procedural Requirements
Fed Reportable: No
Current Hpv:
Loc Contrl Region:
Afs Gov Fac Code: 0
Operating Status: O
Epa Class Code: B
Epa Complian Stat: C
State Comp Status: C

Actions

Plant ID: 1044769
Anu1: 1
Date Achieved: 20080514
Penalty Amount: 0
Record Updated Dt: 20080604
Creation Date: 20080604
Key Action No:
Regional Data Element:
National Action Desc: NOTIFICATION RECEIVED
All Air Program Def: 0-SIP Source
Result Def:
Pollutant Def:
All Violating Poll Def:
All Violation Type Def:
National Actn Type: 2J
All Air Prog Codes: 0
Result Code:
Pollutant Code:
Violating Poll Cds:
Violation Type Cds:

Historical Compliance - Air Program Level

Air Program Code: 0
Air Program Code Ref: SIP Source
Historical Compliance Date: 0701, 0702, 0703, 0704, 0801, 0802, 0803, 0804, 0901, 0902, 0903, 0904, 1001, 1002, 1003, 1004, 1101, 1102, 1103, 1104, 1201, 1202, 1203, 1204, 1301, 1302, 1303, 1304, 1401, 1402, 1403
Historical Compliance Status: C
Historical Compliance Stat Ref: In Compliance With Procedural Requirements

Air Program

Plant ID: 1044769
Air Program Code: 0
Air Program Status: O
Pollutant Code: VOC
Chemical Abstract Service Nmbr:
Air Program Code Subparts:
Air Program Code Ref: SIP Source
Epa Classification Code Ref: Potential uncontrolled emissions <100 tons/year
Epa Compliance Status Ref: In Compliance With Procedural Requirements
Pollutant Code Ref:
Pollutant Classification Ref: Potential uncontrolled emissions <100 tons/year
Pollutant Complian Status Ref: In Compliance With Procedural Requirements
Poll Classificatn: B
Poll Compli Status: C
Epa Class Code: B
Epa Compli Status: C

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
16	6 of 6	E	0.02 / 81.34	5,744.85 / 91	6945 MESA RIDGE RETAIL 6945 MESA RIDGE PARKWAY FOUNTAIN CO 80817	FINDS/FRS

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Registry ID: 110071204685
FIPS Code: CO041
HUC Code: 11020003
Site Type Name: STATIONARY
Location Description:
Supplemental Location:
Create Date: 04-FEB-22
Update Date:
Interest Types: ICIS-NPDES NON-MAJOR
SIC Codes:
SIC Code Descriptions:
NAICS Codes:
NAICS Code Descriptions:
Conveyor: ICIS
Federal Facility Code:
Federal Agency Name:
Tribal Land Code:
Tribal Land Name:
Congressional Dist No: 05
Census Block Code: 080410045034036
EPA Region Code: 08
County Name: EL PASO
US/Mexico Border Ind:
Latitude: 38.716382
Longitude: -104.69823
Reference Point: CENTER OF A FACILITY OR STATION
Coord Collection Method: GPS - UNSPECIFIED
Accuracy Value:
Datum: NAD83
Source:
Facility Detail Rprt URL: https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110071204685
Data Source: Facility Registry Service - Single File
Program Acronyms:

NPDES:COR415048

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
17	1 of 15	W	0.02 / 83.39	5,640.70 / -14	SCOTT'S COMPANY - HYPONEX CORP #1023 3 ASSEMBLY CT FOUNTAIN CO 808170000	FINDS/FRS

Registry ID: 110001434742
FIPS Code: 08041
HUC Code: 11020003
Site Type Name: STATIONARY
Location Description:
Supplemental Location:
Create Date: 01-MAR-00
Update Date: 01-JUN-17
Interest Types: AIR MINOR, ICIS-NPDES NON-MAJOR, STORM WATER INDUSTRIAL
SIC Codes: 2875, 5261
SIC Code Descriptions: FERTILIZERS, MIXING ONLY, RETAIL NURSERIES, LAWN AND GARDEN SUPPLY STORES
NAICS Codes: 453998
NAICS Code Descriptions: ALL OTHER MISCELLANEOUS STORE RETAILERS (EXCEPT TOBACCO STORES).
Conveyor: FRS-GEOCODE
Federal Facility Code:
Federal Agency Name:
Tribal Land Code:
Tribal Land Name:
Congressional Dist No: 05
Census Block Code: 080410045083006
EPA Region Code: 08
County Name: EL PASO
US/Mexico Border Ind:
Latitude: 38.72019

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Longitude:	-104.71858
Reference Point:	CENTER OF A FACILITY OR STATION
Coord Collection Method:	ADDRESS MATCHING-HOUSE NUMBER
Accuracy Value:	30
Datum:	NAD83
Source:	
Facility Detail Rprt URL:	https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110001434742
Data Source:	Facility Registry Service - Single File
Program Acronyms:	

AIR:CO0000000804100326, AIRS/AFS:0804100326, EIS:4258411, NPDES:CONOX0736, NPDES:CONOX0737, NPDES:CONOX0738, NPDES:COR900688

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
17	2 of 15	W	0.02 / 83.39	5,640.70 / -14	SCOTT COMPANY 3 ASSEMBLY CT FOUNTAIN CO 808170000	FINDS/FRS

Registry ID:	110010684232
FIPS Code:	08041
HUC Code:	11020003
Site Type Name:	STATIONARY
Location Description:	
Supplemental Location:	
Create Date:	01-MAR-00
Update Date:	05-MAR-13
Interest Types:	BROWNFIELDS PROPERTY, ENFORCEMENT/COMPLIANCE ACTIVITY, FORMAL ENFORCEMENT ACTION
SIC Codes:	
SIC Code Descriptions:	
NAICS Codes:	
NAICS Code Descriptions:	
Conveyor:	FRS-GEOCODE
Federal Facility Code:	
Federal Agency Name:	
Tribal Land Code:	
Tribal Land Name:	
Congressional Dist No:	05
Census Block Code:	080410045083006
EPA Region Code:	08
County Name:	EL PASO
US/Mexico Border Ind:	
Latitude:	38.72019
Longitude:	-104.71858
Reference Point:	CENTER OF A FACILITY OR STATION
Coord Collection Method:	ADDRESS MATCHING-HOUSE NUMBER
Accuracy Value:	30
Datum:	NAD83
Source:	
Facility Detail Rprt URL:	https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110010684232
Data Source:	Facility Registry Service - Single File
Program Acronyms:	

ACRES:251466, ICIS:15347

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
17	3 of 15	W	0.02 / 83.39	5,640.70 / -14	The Scotts Company (Hyponex Corp) 3 Assembly Ct Fountain 80817 CO	AST

Facility ID:	10116	**Fac Name (CDLE):**	The Scotts Company (Hyponex Corp)
FacName (OPS):	The Scotts Company (Hyponex Corp)	**Address (CDLE):**	3 Assembly Ct
FacType (OPS):	Non-Retail	**City (CDLE):**	Fountain
Fac Category (OPS):	Commercial/Industrial	**Zip (CDLE):**	80817
Lat/Long (OPS):	38.719724, -104.717878	**County (CDLE):**	El Paso
Address (OPS):	3 Assembly Ct	**State (CDLE):**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

City (OPS):	Fountain	**Latitude (CDLE):**	38.719724
County (OPS):	El Paso	**Longitude (CDLE):**	-104.717878
Fac Name (COSTIS):	The Scotts Company (Hyponex Corp)	**County (COSTIS):**	El Paso
Fac Type (CDLE):	Non-Retail	**Zip Code (OPS):**	80817
FacCategry(CDLE):	Commercial/Industrial	**State (OPS):**	CO
Address (COSTIS):	3 Assembly Ct Fountain 80817		
Data Source(s):	Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks		

Facility Information (CDLE)

Count of Tank Tag:	1	**Accnt Holdr Name:**	Hyponex Corp Aka The Scotts Company LLC
No. Dispensers:	0	**Type:**	Non-Retail
Owner ID:	OWNR-2878		

Owner Information (CDLE)

Contact Name:	Hyponex Corp Aka The Scotts Company LLC	**Last Name:**	Hyponex Corp Aka The Scotts Company LLC
First Name:		**Company Name:**	Hyponex Corp Aka The Scotts Company LLC
Middle Init:			
Address:	3 Assembly Ct, Fountain, CO 80817		
Comment:	Hyponex Corp is a wholly owned company of The Scotts Company LLC. Plant Mgr: Dave Rowell; Billing: Carol Haddix		

AST Tanks (COSTIS) (As of October 2021)

Tank ID:	43003	**Owner ID:**	2878
Tank Tag:	'10116-4	**Tank Owner:**	
Tank Type Desc:	AST	**County:**	El Paso
Tank Count:	46668	**Product Name:**	Diesel
Capacity:	2000		
Facility Owner:	Hyponex Corp Aka The Scotts Company LLC		
Facility Name Address:	The Scotts Company (Hyponex Corp) 3 Assembly Ct Fountain 80817		

AST Tanks 1 (CDLE)

Tank Tag:	10116-4	**Tank Wall Type:**	
Tank Type:	AST	**Piping System:**	
Tank Status:	Currently In Use	**Piping Type:**	AG: Aboveground
Capacity:	2000	**Piping Wall Type:**	Double-Walled
Install Date:	12/20/2011	**Tank Material:**	AST: UL2085/Equiv. (Protected)
Date Closed:		**Piping Material:**	AG: Aboveground Lines
Product Type/Name:	Diesel	**Overfill Preven:**	FV: Fill Tube Valve

AST Tanks 2 (CDLE)

Closure Meth ID:		**No Fee:**	No
Unregulated:	FALSE	**Pipe Reldet Date:**	
Last Used Date:		**Backfill Mat Desc:**	
Del Prohib Date:		**Bfill DrtCvr Amt:**	0
Spill Protected:		**Manifold:**	No
Spl Container Size:	7	**Tm Name:**	
Spl Protection Dt:		**Registration Date:**	4/13/2012
Spl Container Mfg:	Pomeco	**Compartment:**	FALSE
Spl Container Mdel:	800C	**Cpmet:**	Yes
Tank Reld Meth1 ID:	Double Wall Tank	**Invault:**	FALSE
Tank Lining Date:		**Serial No:**	28203-horizontal
CP Test Date:			
Anch Method Desc:			
Pipe Reld Meth1 ID:	T11/L11: Mthly Visual Insp (AST)		

AST Tanks 1 (CDLE)

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Tank Tag: 10116-3
Tank Type: AST
Tank Status: Not Regulated
Capacity: 500
Install Date:
Date Closed:
Product Type/Name: Unleaded Regular (RUL)
Tank Wall Type:
Piping System:
Piping Type:
Piping Wall Type:
Tank Material:
Piping Material:
Overfill Preven:

AST Tanks 2 (CDLE)

Closure Meth ID:
Unregulated: TRUE
Last Used Date:
Del Prohib Date:
Spill Protected:
Spl Container Size: 0
Spl Protection Dt:
Spl Container Mfg:
Spl Container Mdel:
Tank Reld Meth1 ID:
Tank Lining Date:
CP Test Date:
Anch Method Desc:
Pipe Reld Meth1 ID:
No Fee: Yes
Pipe Reldet Date:
Backfill Mat Desc:
Bfill DrtCvr Amt: 0
Manifold: No
Tm Name:
Registration Date:
Compartment: FALSE
Cpmet: No
Invault: FALSE
Serial No:

Oil & Public Safety Regulated Storage Tank Details

No of Tanks: 1

Oil & Public Safety Regulated Storage Tanks (COSTIS)

Tank Tag: 10116-4
Tank Status: Currently In Use
Tank Type: AST
Tank Name: TNK-038276
Installation Date: 12/20/2011
Closure Date:
Tank Material: AST: UL2085/Equiv. (Protected)
Tank Wall Type:
Facility Name: The Scotts Company (Hyponex Corp)
Facility Type: Non-Retail
Facility Category: Commercial/Industrial
Overfill Preven: FV: Fill Tube Valve
Tank Corsn Protection Meth: No Electrolyte Contact
Tank Rel Detn Mthd Primary: T11/L11: Mthly Visual Insp (AST)
Tank Rel Detn Mthd Secondary: T2: Inter Mntrg w/ Sensor
Piping Corsn Protection (PCP): Aboveground Line (n/a)
PCP at Tank: Aboveground Line (n/a)
PCP at Dispenser: Aboveground Line (n/a)
Piping Rel Detn Mthd Primary: T11/L11: Mthly Visual Insp (AST)
Piping Rel Detn Mthd Secondary:
Leak Detector Type:
Capacity Gallons : 2000
Product: Diesel
Piping Type: AG: Aboveground
Piping System:
Piping Material: AG: Aboveground Lines
Piping Wall Type: Double-Walled
Address: 3 Assembly Ct
City: Fountain
County: El Paso
ZIP Code: 80817

AST Owner (COSTIS) (As of October 2021)

Owner ID: 2878
First Name:
Middle Init:
Last Name: Hyponex Corp Aka The Scotts Company LLC
Full Name:
Address1: 3 Assembly Ct
City: Fountain
State: CO
County: El Paso
Zip Code: 80817

Facility Contact Details (CDLE)

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Contact ID:	0033h00000lL0jy	**Role:**	A/B Operator
Costis ID:	ABOP-10116-438	**Fac Contact Name:**	FCON-013352
Active:	FALSE	**Contact Last Name:**	Hayhurst
Contact ID:	0033h00000lL0T0	**Role:**	Facility Owner
Costis ID:	FACOWN-10116-43574-May 25 1986 12: 00AM	**Fac Contact Name:**	FCON-013680
Active:	TRUE	**Contact Last Name:**	Hyponex Corp Aka The Scotts Company LLC

17	4 of 15	W	0.02 / 83.39	5,640.70 / -14	**The Scotts Company (Hyponex Corp)** **3 Assembly Ct Fountain 80817 CO**	UST

Facility ID:	10116	**Fac Name (COSTIS):**	The Scotts Company (Hyponex Corp)
FacilityName(OPS):	The Scotts Company (Hyponex Corp)	**Address (COSTIS):**	3 Assembly Ct Fountain 80817
FacilityType(OPS):	Non-Retail	**County (COSTIS):**	El Paso
Fac Category (OPS):	Commercial/Industrial	**Latitude (CDLE):**	38.719724
Address (OPS):	3 Assembly Ct	**Longitude (CDLE):**	-104.717878
City (OPS):	Fountain	**Fac Type (CDLE):**	Non-Retail
Zip Code (OPS):	80817	**FacCategry(CDLE):**	Commercial/Industrial
County (OPS):	El Paso	**State (OPS):**	CO
LatLong (OPS):	38.719724, -104.717878	**City (CDLE):**	Fountain
FacName (CDLE):	The Scotts Company (Hyponex Corp)	**Zip (CDLE):**	80817
Address (CDLE):	3 Assembly Ct	**County (CDLE):**	El Paso
State (CDLE):			

Data Source(s): Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks

Facility Information (CDLE)

Count of Tank Tag:	1	**Accnt Holdr Name:**	Hyponex Corp Aka The Scotts Company LLC
No. Dispensers:	0	**Type:**	Non-Retail
Owner ID:	OWNR-2878		

Owner Information (CDLE)

Contact Name: Hyponex Corp Aka The Scotts Company LLC **Middle Init:**
First Name:
Company Name: Hyponex Corp Aka The Scotts Company LLC
Last Name: Hyponex Corp Aka The Scotts Company LLC
Address: 3 Assembly Ct, Fountain, CO 80817
Comment: Hyponex Corp is a wholly owned company of The Scotts Company LLC. Plant Mgr: Dave Rowell; Billing: Carol Haddix

UST Tanks (COSTIS) (As of October 2021)

Tank ID:	27225	**Owner ID:**	2878
Tank Tag:	'10116-2	**Tank Owner:**	
Tank Type Desc:	UST	**County:**	El Paso
Tank Count:	46668	**Product Name:**	Gasoline
Capacity:	2000		
Facility Owner:	Hyponex Corp Aka The Scotts Company LLC		
Facility Name Address:	The Scotts Company (Hyponex Corp) 3 Assembly Ct Fountain 80817		

Tank ID:	27224	**Owner ID:**	2878
Tank Tag:	'10116-1	**Tank Owner:**	
Tank Type Desc:	UST	**County:**	El Paso
Tank Count:	46668	**Product Name:**	Diesel
Capacity:	10000		
Facility Owner:	Hyponex Corp Aka The Scotts Company LLC		
Facility Name Address:	The Scotts Company (Hyponex Corp) 3 Assembly Ct Fountain 80817		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

UST Tanks 1 (CDLE)

Tank Tag:	10116-2	***Overfill Preven:***	FV: Fill Tube Valve
Tank Type:	UST	***Product Type/Name:***	Gasoline
Tank Status:	Permanently Closed	***Piping Wall Type:***	None
Capacity:	2000	***Tank Wall Type:***	
Install Date:	5/23/1985	***Piping System:***	
Date Closed:	9/8/1999	***Piping Type:***	Other
Tank Material:	ST: Cathodically Protected Steel		
Piping Material:	Galvanized Steel		

UST Tanks 2 (CDLE)

Closure Meth ID:	Removed	***No Fee:***	No
Unregulated:	FALSE	***Anch Method Desc:***	
Last Used Date:		***Pipe Reld Meth1 ID:***	
Del Prohib Date:		***Pipe Reldet Date:***	
Spill Protected:		***Backfill Mat Desc:***	
Spl Container Size:	0	***Bfill DrtCvr Amt:***	0
Spl Protection Dt:		***Manifold:***	No
Spl Container Mfg:		***Registration Date:***	
Spl Container Mdel:		***Compartment:***	FALSE
Tank Reld Meth1 ID:		***Cpmet:***	Yes
Tank Lining Date:		***Invault:***	FALSE
CP Test Date:			

UST Tanks 1 (CDLE)

Tank Tag:	10116-1	***Overfill Preven:***	FV: Fill Tube Valve
Tank Type:	UST	***Product Type/Name:***	Diesel
Tank Status:	Permanently Closed	***Piping Wall Type:***	None
Capacity:	10000	***Tank Wall Type:***	
Install Date:	5/23/1985	***Piping System:***	
Date Closed:	9/29/2011	***Piping Type:***	UG: Underground
Tank Material:	ST: Cathodically Protected Steel		
Piping Material:	FRP: Fiberglass Reinforced Plastic		

UST Tanks 2 (CDLE)

Closure Meth ID:	Removed	***No Fee:***	No
Unregulated:	FALSE	***Anch Method Desc:***	
Last Used Date:		***Pipe Reld Meth1 ID:***	L5: Annual Tightness Testing
Del Prohib Date:		***Pipe Reldet Date:***	
Spill Protected:		***Backfill Mat Desc:***	
Spl Container Size:	5	***Bfill DrtCvr Amt:***	0
Spl Protection Dt:		***Manifold:***	No
Spl Container Mfg:	OPW	***Registration Date:***	
Spl Container Mdel:	NO 1	***Compartment:***	FALSE
Tank Reld Meth1 ID:		***Cpmet:***	Yes
Tank Lining Date:		***Invault:***	FALSE
CP Test Date:	5/23/1985		

Oil & Public Safety Regulated Storage Tanks (COSTIS)

Tank Tag:	10116-2	***Leak Detector Type:***	
Tank Status:	Permanently Closed	***Capacity Gallons :***	2000
Tank Type:	UST	***Product:***	Gasoline
Tank Name:	TNK-038274	***Piping Type:***	Other
Installation Date:	5/23/1985	***Piping System:***	
Closure Date:	9/8/1999	***Piping Material:***	Galvanized Steel
Tank Material:	ST: Cathodically Protected Steel	***Piping Wall Type:***	None
Tank Wall Type:		***Address:***	3 Assembly Ct
Facility Name:	The Scotts Company (Hyponex Corp)	***City:***	Fountain
Facility Type:	Non-Retail	***County:***	El Paso

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Facility Category: Commercial/Industrial
ZIP Code: 80817
Overfill Preven: FV: Fill Tube Valve
Tank Corsn Protection Meth:
Tank Rel Detn Mthd Primary:
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP):
PCP at Tank:
PCP at Dispenser:
Piping Rel Detn Mthd Primary:
Piping Rel Detn Mthd Secondary:

Tank Tag: 10116-1
Tank Status: Permanently Closed
Tank Type: UST
Tank Name: TNK-038273
Installation Date: 5/23/1985
Closure Date: 9/29/2011
Tank Material: ST: Cathodically Protected Steel
Tank Wall Type:
Facility Name: The Scotts Company (Hyponex Corp)
Facility Type: Non-Retail
Facility Category: Commercial/Industrial
Overfill Preven: FV: Fill Tube Valve
Tank Corsn Protection Meth: STI-P3
Tank Rel Detn Mthd Primary: T1: ATG .2/.1gph Mthly Mntrg
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP): Non-metallic
PCP at Tank: No Electrolyte Contact (n/a)
PCP at Dispenser: No Electrolyte Contact (n/a)
Piping Rel Detn Mthd Primary: L5: Annual Tightness Testing
Piping Rel Detn Mthd Secondary:
Leak Detector Type: M: Mechanical
Capacity Gallons : 10000
Product: Diesel
Piping Type: UG: Underground
Piping System:
Piping Material: FRP: Fiberglass Reinforced Plastic
Piping Wall Type: None
Address: 3 Assembly Ct
City: Fountain
County: El Paso
ZIP Code: 80817

UST Owner (COSTIS) (As of October 2021)

Owner ID: 2878
First Name:
Middle Init:
Last Name: Hyponex Corp Aka The Scotts Company LLC
Full Name:
Address1: 3 Assembly Ct
City: Fountain
State: CO
County: El Paso
Zip Code: 80817

Oil & Public Safety Regulated Storage Tank Details

No of Tanks: 1

Facility Contact Details (CDLE)

Contact ID: 0033h00000lL0jy
Costis ID: ABOP-10116-438
Active: FALSE
Role: A/B Operator
Fac Contact Name: FCON-013352
Contact Last Name: Hayhurst

Contact ID: 0033h00000lL0T0
Costis ID: FACOWN-10116-43574-May 25 1986 12:00AM
Active: TRUE
Role: Facility Owner
Fac Contact Name: FCON-013680
Contact Last Name: Hyponex Corp Aka The Scotts Company LLC

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Facility ID: 10116
Event ID:
Facility Name(OPS): The Scotts Company (Hyponex Corp)
Fac Name(CDLE): The Scotts Company (Hyponex Corp)
Address(CDLE): 3 Assembly Ct
Fac Type(CDLE): Non-Retail

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Facility Type(OPS):	Non-Retail	**Fac Category(CDLE):**	Commercial/Industrial
Fac Category(OPS):	Commercial/Industrial	**City(CDLE):**	Fountain
Address(OPS):	3 Assembly Ct	**Zip(CDLE):**	80817
City(OPS):	Fountain	**County(CDLE):**	El Paso
Zip Code(OPS):	80817	**State(CDLE):**	
County(OPS):	El Paso	**Latitude(CDLE):**	38.719724
State(OPS):	CO	**Longitude(CDLE):**	-104.717878
Lat Long(OPS):	38.719724, -104.717878		
Fac Name(COSTIS):	The Scotts Company (Hyponex Corp)		
Address (COSTIS):	3 Assembly Ct Fountain 80817		
County (COSTIS):	El Paso		
Original Source:	Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks; OPS Petroleum Release Events in Colorado - Petroleum Release Events		
Owner ID:	2878		
Owner Name:			

Events (CDLE)

Event ID:	11634	**Proj. Closure Date:**	
Alt Event ID:		**Category:**	
Status:	Closed	**Sardonyx ID:**	
UST Tank Count:	2	**MTBE Classifica:**	
AST Tank Count:	2	**Sum of Reimbur Amt:**	
Source of Release:		**Reviewer Full Name:**	Tim Kelley
Cause of Release:		**Logged On:**	4/16/2012
Confirm Rel Dt:	4/16/2012	**Logged By:**	
Site Name:	The Scotts Company (Hyponex Corp)		
Loc Addr:			
Loc Addr2:			
Loc Addr3:			
Aka Name:			
Aka Loc Addr:			

Events (CDLE)

Event ID:	3541	**Proj. Closure Date:**	
Alt Event ID:	7242-1	**Category:**	
Status:	Closed	**Sardonyx ID:**	
UST Tank Count:	2	**MTBE Classifica:**	
AST Tank Count:	2	**Sum of Reimbur Amt:**	
Source of Release:		**Reviewer Full Name:**	Dennis Hotovec
Cause of Release:		**Logged On:**	3/23/1990
Confirm Rel Dt:		**Logged By:**	
Site Name:	The Scotts Company (Hyponex Corp)		
Loc Addr:			
Loc Addr2:			
Loc Addr3:			
Aka Name:			
Aka Loc Addr:			

Facility (CDLE)

Owner Costis ID:	OWNR-2878	**Type:**	Non-Retail
No of Active Tanks:	1	**Facility Owner:**	Hyponex Corp Aka The Scotts Company LLC
No of Metred Prod:	0		

Events (COSTIS) (As of October 2021)

Event ID:	11634	**Log Date:**	4/16/2012 1:46:27 PM
Process Status Name:	Closed		
Site Name:	The Scotts Company (hyponex Corp)		
Facility Name:	The Scotts Company (Hyponex Corp)		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Address: 3 Assembly Ct Fountain CO 80817
Loc Address: 3 Assembly Ct
Fountain 80817
Loc City: Fountain
Loc County: El Paso

Events (COSTIS) (As of October 2021)

Event ID: 3541
Log Date: 3/23/1990
Process Status Name: Closed
Site Name: Hyponex Corp
Facility Name: The Scotts Company (Hyponex Corp)
Address: 3 Assembly Ct Fountain CO 80817
Loc Address: 3 Assembly Ct
Fountain 80817
Loc City: Fountain
Loc County: El Paso

OPS Regulated Storage Tanks

No of Tanks: 1

OPS Petroleum Release Events in Colorado - Petroleum Release Events

Event ID: 3541
Release No: REL-006836
Status: Closed
Release Date:
Closure Date: 10/19/1999
NFA Type: Pre-RBCA
Release Cause:
Reimbursement Total:
Contact: Dennis Hotovec
Release Source:
Phone: (303) 318-4357
City: Fountain
Zip: 80817
State: CO
County: El Paso
Latitude: 38.719724
Longitude: -104.717878
Latitude Longitude: 38.719724, -104.717878
Site Name: The Scotts Company (Hyponex Corp)
Address: 3 Assembly Ct
Email: cdle_ops_public_record_center@state.co.us
Link : https://socgov18.force.com/s/release/a183h000003KX2E

OPS Petroleum Release Events in Colorado - Petroleum Release Events

Event ID: 11634
Release No: REL-011630
Status: Closed
Release Date: 4/16/2012
Closure Date: 5/1/2012
NFA Type: Tier I
Release Cause:
Reimbursement Total:
Contact: Tim Kelley
Release Source:
Phone: (303) 318-4357
City: Fountain
Zip: 80817
State: CO
County: El Paso
Latitude: 38.719724
Longitude: -104.717878
Latitude Longitude: 38.719724, -104.717878
Site Name: The Scotts Company (Hyponex Corp)
Address: 3 Assembly Ct
Email: cdle_ops_public_record_center@state.co.us
Link : https://socgov18.force.com/s/release/a183h000003KYHY

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EPA Region:
Registry ID: 110010684232
Pgm Sys ID: 15347
Pgm Sys Acrnm: ICIS
Permit Type:
Federal Fac ID:
Tribal Land Code:
County: EL PASO
Latitude 83: 38.720189999999995
Longitude 83: -104.71858

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Details

Interest Type:	ENFORCEMENT/COMPLIANCE ACTIVITY	***Public Ind:***	Y
Active Status:		***FIPS Code:***	08041
Accuracy Value:	30	***HUC 8 Code:***	11020003
Pgm Report URL:	no data yet	***HUC 12:***	
Federal Agency Name:			
Federal Land Ind:			
Fed Facility Code:			
Ref Point Desc:	CENTER OF A FACILITY OR STATION		
Collect Mth Desc:	ADDRESS MATCHING-HOUSE NUMBER		
Fac URL:	https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110010684232		
Program URL:			

Details

Interest Type:	FORMAL ENFORCEMENT ACTION	***Public Ind:***	Y
Active Status:		***FIPS Code:***	08041
Accuracy Value:	30	***HUC 8 Code:***	11020003
Pgm Report URL:	no data yet	***HUC 12:***	
Federal Agency Name:			
Federal Land Ind:			
Fed Facility Code:			
Ref Point Desc:	CENTER OF A FACILITY OR STATION		
Collect Mth Desc:	ADDRESS MATCHING-HOUSE NUMBER		
Fac URL:	https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110010684232		
Program URL:			

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
17	7 of 15	W	0.02 / 83.39	5,640.70 / -14	HYPONEX CO 3 ASSEMBLY CT FOUNTAIN CO 808172710	ICIS

EPA Region:	08	***Federal Fac ID:***	
Registry ID:	110001434742	***Tribal Land Code:***	
Pgm Sys ID:	CO0000000804100326	***County:***	El Paso
Pgm Sys Acrnm:	AIR	***Latitude 83:***	38.72019
Permit Type:		***Longitude 83:***	-104.71858

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
17	8 of 15	W	0.02 / 83.39	5,640.70 / -14	HYPONEX CORP 3 ASSEMBLY CT FOUNTAIN CO 80817	ICIS

EPA Region:	08	***Federal Fac ID:***	
Registry ID:	110001434742	***Tribal Land Code:***	
Pgm Sys ID:	COR900688	***County:***	El Paso
Pgm Sys Acrnm:	NPDES	***Latitude 83:***	38.725
Permit Type:	General Permit Covered Facility	***Longitude 83:***	-104.716666

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
17	9 of 15	W	0.02 / 83.39	5,640.70 / -14	Hyponex Corp 3 Assembly Ct Fountain CO 80817	PDES

Permit ID:	COR900688	***SW Constr Activity:***	
Permit Status:	Admin continued	***SW Constr End Date:***	
Permit Sector:	Commerce and industry	***Permit SIC 1:***	2875
Previous Permit ID:	COR020434	***Permit SIC 2:***	
Regulation ID:	32	***Permit SIC 3:***	
Facility Name:	Hyponex Corp	***Permit SIC 4:***	
Facility Address:	3 Assembly Ct	***Permittee:***	Hyponex Corp a Subs of Scotts Co
Facility Address 2:		***Former Permittee:***	
Facility City:	Fountain	***Activity Desc:***	This site handles composted manures, soils, composted and screened yard waste, and composted bark.

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Facility State:	CO	**Issue Date:**	5/31/2012
Facility ZIP:	80817	**Effective Date:**	7/1/2012
Facility County:	El Paso	**Expiration Date:**	6/30/2017
Facility Latitude:	38.725	**Permit Sector1:**	
Facility Longitude:	-104.716666	**Permit Sector2:**	
Facility SIC Code:	2875	**Use category:**	
Facility Type:		**Termination Date:**	
Water Category:		**Issuing Org Type:**	ST6
Immediate Water:	Fountain Creek	**App Received Date:**	5/29/2018
Receiving Water:	Arkansas River	**Ct Status Start Date:**	
Stream Segment:	COARFO02a	**Ct Status End Date:**	
Fee Category:	V-E	**Ct Status Reason:**	
Add Fee Category 1:		**Workplan Year:**	
Add Fee Category 2:		**UDF3:**	
Add Fee Category 3:			

General Permit Tye:	COR900000-Industrial stormwater
Compliance Tracking Status:	Y
SW Constr Start Date:	
Reuse Treater:	
Facility Class First:	
Facility Description:	
Fac Horizontal Coll. Method:	
Facility ICIS Ownership Type:	
Associated Pot W:	
SW Constr Total Acres:	
Reuse Treater ID:	
SW Constr Disturb Acres:	
Facility Class Second:	
Facility Reference Point:	
Major Minor:	Minor
Major River Basin:	Arkansas basin
Total App on Average Flow No:	
Total App Design Flow No:	
Apprvd for Eltrnc Sub:	Yes

Facility Contact

Facility Contact Org:	Hyponex Corp a Subs of Scotts Co
Facility Contact First Name:	Keith
Facility Contact Last Name:	Lee
Facility Contact Title:	Production Sup
Facility Contact Address:	3 Assembly Ct
Facility Contact City:	Fountain
Facility Contact State:	CO
Facility Contact ZIP code:	80817
Facility Contact Phone:	719-390-5431
Facility Contact Email:	keith.lee@scotts.com

Billing

Billing Organization:	Hyponex Corp a Subs of Scotts Co
Billing First Name:	Gerald
Billing Last Name:	Struttmann
Billing Title:	Plant Mgr
Billing Address:	3 Assembly Ct
Billing City:	Fountain
Billing State:	CO
Billing ZIP Code:	80817
Billing Phone:	719-390-5431
Billing Email:	gerald.struttmann@scotts.com
Billing Country:	USA

DMR

DMR Org:	The Scotts Co

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

DMR First Name:	Gustavo
DMR Last Name:	Lemus
DMR Title:	Reg EHS Mgr
DMR Address:	23390 E Flood Road
DMR City:	Linden
DMR State:	CA
DMR ZIP Code:	95236
DMR Phone:	916-549-9450
DMR Email:	gustavo.lemus@scotts.com
Dmr Country:	USA

Environmental

Environmental Org:	Hyponex Corp a Subs of Scotts Co
Environmental First Name:	Bryan
Environmental Last Name:	Allen
Environmental Title:	Reg EHS Mgr
Environmental Address:	824 Cambridge Bend
Environmental City:	Tyler
Environmental State:	TX
Environmental ZIP Code:	75703
Environmental Phone:	903-651-6064
Environmental Email:	bryan.allen@scotts.com

Legal

Legal First Name:	Gerald
Legal Last Name:	Struttmann
Legal Title:	Plant Mgr
Legal Address:	3 Assembly Ct
Legal City:	Fountain
Legal State:	CO
Legal ZIP Code:	80817
Legal Phone:	719-390-5431
Legal Email:	gerald.struttmann@scotts.com
Legal Country:	USA

OUT

Out 5 long:	
Out 4 lat:	
Out 6 long:	
Out 6 lat:	
Out 7 long:	
Out 7 lat:	
Out 8 long:	
Out 8 lat:	
Out 9 long:	
Out 9 lat:	
Out 1 long:	-104.716666
Out 10 long:	
Out 10 lat:	
Out 11 long:	
Out 11 lat:	
Out 12 long:	
Out 12 lat:	
Out 1 lat:	38.725
Out 2 long:	
Out 2 lat:	
Out 3 long:	
Out 3 lat:	
Out 4 long:	
Out 5 lat:	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
17	10 of 15	W	0.02 / 83.39	5,640.70 / -14	Hyponex Corp 3 Assembly Ct Fountain CO 80817	PDES

Permit ID:	CONOX0736	**SW Constr Activity:**	
Permit Status:	Effective	**SW Constr End Date:**	
Permit Sector:	Commerce and Industry	**Permit SIC 1:**	
Previous Permit ID:		**Permit SIC 2:**	
Regulation ID:		**Permit SIC 3:**	
Facility Name:	Hyponex Corp	**Permit SIC 4:**	
Facility Address:	3 Assembly Ct	**Permittee:**	Hyponex Corp a Subs of Scotts Co
Facility Address 2:		**Former Permittee:**	
Facility City:	Fountain	**Activity Desc:**	Parcel E 625000006 processes soil products for distribution to retail distributors.
Facility State:	CO	**Issue Date:**	2/10/2021
Facility ZIP:	80817	**Effective Date:**	2/11/2021
Facility County:	El Paso	**Expiration Date:**	2/10/2026
Facility Latitude:	38.725	**Permit Sector1:**	
Facility Longitude:	-104.716666	**Permit Sector2:**	
Facility SIC Code:	1375	**Use category:**	
Facility Type:		**Termination Date:**	
Water Category:		**Issuing Org Type:**	
Immediate Water:		**App Received Date:**	10/1/2020
Receiving Water:		**Ct Status Start Date:**	
Stream Segment:		**Ct Status End Date:**	
Fee Category:	00-00	**Ct Status Reason:**	
Add Fee Category 1:		**Workplan Year:**	
Add Fee Category 2:		**UDF3:**	
Add Fee Category 3:			
General Permit Tye:	CONOX000 -No Exposure Exclusion		
Compliance Tracking Status:			
SW Constr Start Date:			
Reuse Treater:			
Facility Class First:			
Facility Description:			
Fac Horizontal Coll. Method:			
Facility ICIS Ownership Type:			
Associated Pot W:			
SW Constr Total Acres:			
Reuse Treater ID:			
SW Constr Disturb Acres:			
Facility Class Second:			
Facility Reference Point:			
Major Minor:			
Major River Basin:			
Total App on Average Flow No:			
Total App Design Flow No:			
Apprvd for Eltrnc Sub:			

Facility Contact

Facility Contact Org:	Hyponex Corp a Subs of Scotts Co
Facility Contact First Name:	Brian
Facility Contact Last Name:	Maisch
Facility Contact Title:	Plant Mgr
Facility Contact Address:	3 Assembly Ct
Facility Contact City:	Fountain
Facility Contact State:	CO
Facility Contact ZIP code:	80817
Facility Contact Phone:	7193905431
Facility Contact Email:	brian.maisch@scotts.com

Legal

Legal First Name:	Brian
Legal Last Name:	Maisch
Legal Title:	Plant Mgr

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Legal Address: 3 Assembly Ct
Legal City: Fountain
Legal State: CO
Legal ZIP Code: 80817
Legal Phone: 719-390-5431
Legal Email: brian.maisch@scotts.com
Legal Country: USA

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17 | 11 of 15 | W | 0.02 / 83.39 | 5,640.70 / -14 | Hyponex Corp, 3 Assembly Ct, Fountain CO 80817 | PDES

Permit ID: CONOX0738
Permit Status: Effective
Permit Sector: Commerce and Industry
Previous Permit ID:
Regulation ID:
Facility Name: Hyponex Corp
Facility Address: 3 Assembly Ct
Facility Address 2:
Facility City: Fountain
Facility State: CO
Facility ZIP: 80817
Facility County: El Paso
Facility Latitude: 38.725
Facility Longitude: -104.716666
Facility SIC Code: 1377
Facility Type:
Water Category:
Immediate Water:
Receiving Water:
Stream Segment:
Fee Category: 00-00
Add Fee Category 1:
Add Fee Category 2:
Add Fee Category 3:
General Permit Tye: CONOX000 -No Exposure Exclusion
Compliance Tracking Status:
SW Constr Start Date:
Reuse Treater:
Facility Class First:
Facility Description:
Fac Horizontal Coll. Method:
Facility ICIS Ownership Type:
Associated Pot W:
SW Constr Total Acres:
Reuse Treater ID:
SW Constr Disturb Acres:
Facility Class Second:
Facility Reference Point:
Major Minor:
Major River Basin:
Total App on Average Flow No:
Total App Design Flow No:
Apprvd for Eltrnc Sub:

SW Constr Activity:
SW Constr End Date:
Permit SIC 1:
Permit SIC 2:
Permit SIC 3:
Permit SIC 4:
Permittee: Hyponex Corp a Subs of Scotts Co
Former Permittee:
Activity Desc: Lab production and monitoring services for BSL 1 sterility assurance biological indicators
Issue Date: 2/10/2021
Effective Date: 2/11/2021
Expiration Date: 2/10/2026
Permit Sector1:
Permit Sector2:
Use category:
Termination Date:
Issuing Org Type:
App Received Date: 10/1/2020
Ct Status Start Date:
Ct Status End Date:
Ct Status Reason:
Workplan Year:
UDF3:

Facility Contact

Facility Contact Org: Hyponex Corp a Subs of Scotts Co
Facility Contact First Name: Brian
Facility Contact Last Name: Maisch
Facility Contact Title: Plant Mgr
Facility Contact Address: 3 Assembly Ct
Facility Contact City: Fountain
Facility Contact State: CO
Facility Contact ZIP code: 80817

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Facility Contact Phone: 7193905431
Facility Contact Email: brian.maisch@scotts.com

Legal

Legal First Name: Brian
Legal Last Name: Maisch
Legal Title: Plant Mgr
Legal Address: 3 Assembly Ct
Legal City: Fountain
Legal State: CO
Legal ZIP Code: 80817
Legal Phone: 719-390-5431
Legal Email: brian.maisch@scotts.com
Legal Country: USA

17	12 of 15	W	0.02 / 83.39	5,640.70 / -14	Hyponex Corp 3 Assembly Ct Fountain CO 80817	PDES

Permit ID: CONOX0737
Permit Status: Effective
Permit Sector: Commerce and Industry
Previous Permit ID:
Regulation ID:
Facility Name: Hyponex Corp
Facility Address: 3 Assembly Ct
Facility Address 2:
Facility City: Fountain
Facility State: CO
Facility ZIP: 80817
Facility County: El Paso
Facility Latitude: 38.725
Facility Longitude: -104.716666
Facility SIC Code: 1376
Facility Type:
Water Category:
Immediate Water:
Receiving Water:
Stream Segment:
Fee Category: 00-00
Add Fee Category 1:
Add Fee Category 2:
Add Fee Category 3:
General Permit Tye: CONOX000 -No Exposure Exclusion
Compliance Tracking Status:
SW Constr Start Date:
Reuse Treater:
Facility Class First:
Facility Description:
Fac Horizontal Coll. Method:
Facility ICIS Ownership Type:
Associated Pot W:
SW Constr Total Acres:
Reuse Treater ID:
SW Constr Disturb Acres:
Facility Class Second:
Facility Reference Point:
Major Minor:
Major River Basin:
Total App on Average Flow No:
Total App Design Flow No:
Apprvd for Eltrnc Sub:

SW Constr Activity:
SW Constr End Date:
Permit SIC 1:
Permit SIC 2:
Permit SIC 3:
Permit SIC 4:
Permittee: Hyponex Corp a Subs of Scotts Co
Former Permittee:
Activity Desc: Trucking
Issue Date: 2/10/2021
Effective Date: 2/11/2021
Expiration Date: 2/10/2026
Permit Sector1:
Permit Sector2:
Use category:
Termination Date:
Issuing Org Type:
App Received Date: 10/1/2020
Ct Status Start Date:
Ct Status End Date:
Ct Status Reason:
Workplan Year:
UDF3:

Facility Contact

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Facility Contact Org:	Hyponex Corp a Subs of Scotts Co
Facility Contact First Name:	Brian
Facility Contact Last Name:	Maisch
Facility Contact Title:	Plant Mgr
Facility Contact Address:	3 Assembly Ct
Facility Contact City:	Fountain
Facility Contact State:	CO
Facility Contact ZIP code:	80817
Facility Contact Phone:	7193905431
Facility Contact Email:	brian.maisch@scotts.com

Legal

Legal First Name:	Brian
Legal Last Name:	Maisch
Legal Title:	Plant Mgr
Legal Address:	3 Assembly Ct
Legal City:	Fountain
Legal State:	CO
Legal ZIP Code:	80817
Legal Phone:	719-390-5431
Legal Email:	brian.maisch@scotts.com
Legal Country:	USA

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
17	13 of 15	W	0.02 / 83.39	5,640.70 / -14	SCOTT'S COMPANY - HYPONEX CORP #1023 3 ASSEMBLY CT FOUNTAIN CO 80817	AIR PERMITS

APCD Site ID:	041-0326	**Sip Status Co:**	FALSE
Site ID:	0326	**Sip Status O3:**	FALSE
Fed Facility ID:	4258411	**Site Cont Company:**	
County:	EL PASO	**Descriptn Category:**	PC
Addr County Name:	EL PASO	**Site First Name:**	BRIAN
Address Type:	STREET	**Site Full Name:**	BRIAN MAISCH
Air Program:	B	**Site Last Name:**	MAISCH
Air Acid Precip:		**Site Title:**	
Class Apen Exempt:		**Site Phone:**	(719)390-5431
Class CFC:		**Site Fax:**	
Class Condensate :		**No Employees:**	0.0
Class Fesop:		**Site Geocode Date:**	15-Jun-2018 14:39:59
Class Mact:		**Pt Lin Are:**	P
Class Neshap:		**Src Scale:**	2
Class Non Fed Rpt:		**Verification:**	
NSPS Federal:		**NAICS Prime:**	424910
Class NSPS State:		**NAICS Second:**	
Class NSR:		**Sic Prime:**	5261
Class PSD:		**Sic Second:**	
Sip Fed Jd:		**Site Operat Stat:**	O
Class Sip Federal:	B	**Owner Cust:**	9920109554
Air Title:		**Method Code:**	I2
Class Tribal:		**Site Lat:**	384311.3178
CMS Category:		**Site Long:**	1044303.6842
CMS Frequency:	0	**UTM Horiz:**	524.541
Cpts Bogus Ind:	FALSE	**UTM Vert:**	4285.722
Govt Fac Classifi:	0	**UTM Zone:**	13.0
Hap Classifi:		**Vert Dat:**	1
NAA NSR Classifi:		**Vert Meas:**	1719.9
Op Classification:		**Vert Meas Acc:**	3.0
Property Area:	238.0	**Vert Meth Coll:**	OT
PSD Classifi:		**Site Horiz Dat:**	2
City FIPS Code:	27865	**Acc Units:**	METERS
State FIPS:	08	**Accuracy:**	60.0
County FIPS:	041	**Date Coll:**	15-Jun-2018 14:39:58
Addr County FIPS:	041		
Permit App:	SCOTT'S COMPANY - HYPONEX CORP #1023		
SIC Sec Desc:			

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Site Email: BRIAN,MAISCH.COM
SIC Pri Desc: BUILDING MATERIALS HARDWARE GARDEN SUPPLY MOBIL - Retail Nurseries, Lawn and Garden Supply Stores
Site Description: NURSERY
Site LL Description: Elevation source: 3DEP 1/3 arc-second

Sip Prog1:
Sip Prog1 Area:
Sip Prog2:
Sip Prog2 Area:
Sip Prog3:
Sip Prog3 Area:
Sip Prog4:
Sip Prog4 Area:
Sip Prog5:

Site Owner

Owner Bill Cycle: 4
Owner Description: MATERIAL HANDLING
Mail Addr 1: 3 ASSEMBLY COURT
Mail Addr 2:
Mail Type: STREET
Mail City: FOUNTAIN
Mail City Cd: 27865
Mail Company:
Mail Country Cd:
Owner Name: SCOTT'S COMPANY LLC
Owner Mail Email: RYAN.TANN@SCOTTS.COM
Mail Fax:
Mail Full Name: RYAN TANN
Mail First Name: RYAN
Mail Last Name: TANN
Mail Phone: (719)390-5431
Mail Province:
Mail State: 08
Mail Title:
Mail Zip: 80817-

Site Pollutant

Site ID: 0326
State FIPS: 08
County FIPS: 041
Data Year: 2019
Inventory Year: 2023
Inventory Year 2: 23
Pollutant Code: PM2.5
Is Colorado Hap: FALSE
Is Criteria: TRUE
Is EPCRA Only: FALSE
Is Hap: FALSE
NEI Pollutant ID: PM25-PRI
Ozone Depleting: FALSE
Estim: 2.56
Estim Mc: Z
Estim Unc: 2.56
Estim Units: TY
Limit1:
Limit1 Mc:
Limit1 Units:
Limit2:
Limit2 Mc:
Limit2 Units:
Pollutant Name: PARTICULATE MATTER < 2.5 UM
Pk Co:
Pk Co Mc: Z
Pk Co Re:
Pk Co Re Mc: Z
Pk Co Re Units: PD
Pk Co Unc:
Pk Co Units: PD
Pk O3:
Pk O3 Mc: Z
Pk O3 Re:
Pk O3 Re Mc: Z
Pk O3 Re Units: PD
Pk O3 Unc:
Pk O3 Units: PD
EMIS Pot:
Pot Mc:
Pot Unc:
Pot Unc Mc:
Pot Unc Units:
Pot Units:
Re Estim: 0.0
Re Estim Mc: Z
Re ESTIM Units: TY

Site Pollutant

Site ID: 0326
State FIPS: 08
County FIPS: 041
Data Year: 2019
Inventory Year: 2023
Inventory Year 2: 23
Pollutant Code: PT
Is Colorado Hap: FALSE
Is Criteria: TRUE
Is EPCRA Only: FALSE
Is Hap: FALSE
Pk Co:
Pk Co Mc: Z
Pk Co Re:
Pk Co Re Mc: Z
Pk Co Re Units: PD
Pk Co Unc:
Pk Co Units: PD
Pk O3:
Pk O3 Mc: Z
Pk O3 Re:
Pk O3 Re Mc: Z

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

NEI Pollutant ID:		**Pk O3 Re Units:**	PD
Ozone Depleting:	FALSE	**Pk O3 Unc:**	
Estim:	0.49	**Pk O3 Units:**	PD
Estim Mc:	Z	**EMIS Pot:**	
Estim Unc:	0.49	**Pot Mc:**	
Estim Units:	TY	**Pot Unc:**	
Limit1:		**Pot Unc Mc:**	
Limit1 Mc:		**Pot Unc Units:**	
Limit1 Units:		**Pot Units:**	
Limit2:		**Re Estim:**	0.0
Limit2 Mc:		**Re Estim Mc:**	Z
Limit2 Units:		**Re ESTIM Units:**	TY
Pollutant Name:	TOTAL PARTICULATE MATTER		

Site Pollutant

Site ID:	0326	**Pk Co:**	
State FIPS:	08	**Pk Co Mc:**	Z
County FIPS:	041	**Pk Co Re:**	
Data Year:	2019	**Pk Co Re Mc:**	Z
Inventory Year:	2023	**Pk Co Re Units:**	PD
Inventory Year 2:	23	**Pk Co Unc:**	
Pollutant Code:	PM10	**Pk Co Units:**	PD
Is Colorado Hap:	FALSE	**Pk O3:**	
Is Criteria:	TRUE	**Pk O3 Mc:**	Z
Is EPCRA Only:	FALSE	**Pk O3 Re:**	
Is Hap:	FALSE	**Pk O3 Re Mc:**	Z
NEI Pollutant ID:	PM10-PRI	**Pk O3 Re Units:**	PD
Ozone Depleting:	FALSE	**Pk O3 Unc:**	
Estim:	2.75	**Pk O3 Units:**	PD
Estim Mc:	Z	**EMIS Pot:**	
Estim Unc:	2.75	**Pot Mc:**	
Estim Units:	TY	**Pot Unc:**	
Limit1:		**Pot Unc Mc:**	
Limit1 Mc:		**Pot Unc Units:**	
Limit1 Units:		**Pot Units:**	
Limit2:		**Re Estim:**	0.0
Limit2 Mc:		**Re Estim Mc:**	Z
Limit2 Units:		**Re ESTIM Units:**	TY
Pollutant Name:	PARTICULATE MATTER < 10 UM		

Stack

Site ID:	0326	**Plume Height:**	30
Stack ID:	003	**Rough Terrain Ind:**	
State FIPS:	08	**Diameter:**	0.0
County FIPS:	041	**Diameter Meter:**	0.0
Data Year:	2019	**Geo Origin:**	plant
Inventory Year:	2023	**Height:**	0.0
Inventory Year 2:	23	**Height Meter:**	0.0
Apcd Stack ID:	041-0326-S003	**Horiz Dat:**	2
Cem Recorder Flag:		**Lining Code:**	
Distance:		**Acc Units:**	4
Exit Gas Flow Rate:	0.0	**Accuracy:**	60.0
Exit Gas Temp:	70.0	**Method Code:**	I2
Exit Gas Kelvin:	294.0	**Pt Lin Area:**	P
Gas Velocity:	0.0	**Src Scale:**	2
Gas Meters Sec:	0.0	**Latitude:**	384311.3178
Bldg Height:	0	**Longitude:**	1044303.6842
Bldg Length:	0	**Type Code:**	F
Bldg Width:	0	**UTM Horiz:**	524.541
Stack Height:	0	**UTM Vert:**	4285.722
NEI Em Rls Pt Typ:	1	**Vert Meas:**	1719.9
NEI Exit Gas Flow:	0.0	**UTM Zone:**	13.0
NEI Horiz Mc:	019	**X Coord:**	-104.71769005555555
NEI Ref Pt Code:	105	**Y Coord:**	38.7198105
Emission Release Desc:	topsoil piles		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Description: Elevation source: 3DEP 1/3 arc-second
Description Category: PC
Stack Type: FUGITIVE EMISSIONS, NO STACK EXISTS

Stack

Site ID:	0326	**Plume Height:**	20
Stack ID:	002	**Rough Terrain Ind:**	
State FIPS:	08	**Diameter:**	0.0
County FIPS:	041	**Diameter Meter:**	0.0
Data Year:	2019	**Geo Origin:**	plant
Inventory Year:	2023	**Height:**	0.0
Inventory Year 2:	23	**Height Meter:**	0.0
Apcd Stack ID:	041-0326-S002	**Horiz Dat:**	2
Cem Recorder Flag:		**Lining Code:**	
Distance:		**Acc Units:**	4
Exit Gas Flow Rate:	0.0	**Accuracy:**	60.0
Exit Gas Temp:	70.0	**Method Code:**	I2
Exit Gas Kelvin:	294.0	**Pt Lin Area:**	P
Gas Velocity:	0.0	**Src Scale:**	2
Gas Meters Sec:	0.0	**Latitude:**	384311.3178
Bldg Height:	0	**Longitude:**	1044303.6842
Bldg Length:	0	**Type Code:**	F
Bldg Width:	0	**UTM Horiz:**	524.541
Stack Height:	0	**UTM Vert:**	4285.722
NEI Em Rls Pt Typ:	1	**Vert Meas:**	1719.9
NEI Exit Gas Flow:	0.0	**UTM Zone:**	13.0
NEI Horiz Mc:	019	**X Coord:**	-104.71769005555555
NEI Ref Pt Code:	105	**Y Coord:**	38.7198105

Emission Release Desc:
Description: Elevation source: 3DEP 1/3 arc-second
Description Category: PC
Stack Type: FUGITIVE EMISSIONS, NO STACK EXISTS

Stack

Site ID:	0326	**Plume Height:**	20
Stack ID:	001	**Rough Terrain Ind:**	
State FIPS:	08	**Diameter:**	0.0
County FIPS:	041	**Diameter Meter:**	0.0
Data Year:	2019	**Geo Origin:**	plant
Inventory Year:	2023	**Height:**	0.0
Inventory Year 2:	23	**Height Meter:**	0.0
Apcd Stack ID:	041-0326-S001	**Horiz Dat:**	2
Cem Recorder Flag:		**Lining Code:**	
Distance:		**Acc Units:**	4
Exit Gas Flow Rate:	0.0	**Accuracy:**	60.0
Exit Gas Temp:	70.0	**Method Code:**	I2
Exit Gas Kelvin:	294.0	**Pt Lin Area:**	P
Gas Velocity:	0.0	**Src Scale:**	2
Gas Meters Sec:	0.0	**Latitude:**	384311.3178
Bldg Height:	0	**Longitude:**	1044303.6842
Bldg Length:	0	**Type Code:**	F
Bldg Width:	0	**UTM Horiz:**	524.541
Stack Height:	0	**UTM Vert:**	4285.722
NEI Em Rls Pt Typ:	1	**Vert Meas:**	1719.9
NEI Exit Gas Flow:	0.0	**UTM Zone:**	13.0
NEI Horiz Mc:	019	**X Coord:**	-104.71769005555555
NEI Ref Pt Code:	105	**Y Coord:**	38.7198105

Emission Release Desc:
Description: Elevation source: 3DEP 1/3 arc-second
Description Category: PC
Stack Type: FUGITIVE EMISSIONS, NO STACK EXISTS

Stack Pollutant

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Site ID:	0326	**Pk Co:**	
Stack ID:	001	**Pk Co Mc:**	Z
State Fips:	08	**Pk Co Re:**	
County Fip:	041	**Pk Co Re Mc:**	Z
Data Year:	2019	**Pk Co Re Units:**	PD
Inventory Year:	2023	**Pk Co Unc:**	
Inventory Year 2:	23	**Pk Co Units:**	PD
Pollutant Code:	PM2.5	**Pk O3:**	
Is Colorado Hap:	FALSE	**Pk O3 Mc:**	Z
Is Criteria:	TRUE	**Pk O3 Re:**	
Is Epcra Only:	FALSE	**Pk O3 Re Mc:**	Z
Is Hap:	FALSE	**Pk O3 Re Units:**	PD
Ozone Depleting:	FALSE	**Pk O3 Unc:**	
Estim:	0.252	**Pk O3 Units:**	PD
Estim Mc:	Z	**Pot:**	
Estim Unc:	0.252	**Pot Mc:**	
Estim Units:	TY	**Pot Unc:**	
Limit1:		**Pot Unc Mc:**	
Limit1 Mc:		**Pot Unc Units:**	
Limit1 Units:		**Pot Units:**	
Limit2:		**Re Estim:**	0.0
Limit2 Mc:		**Re Estim Mc:**	Z
Limit2 Units:		**Re Estim Units:**	TY
Pollutant Name:	PARTICULATE MATTER < 2.5 UM		

Stack Pollutant

Site ID:	0326	**Pk Co:**	
Stack ID:	003	**Pk Co Mc:**	Z
State Fips:	08	**Pk Co Re:**	
County Fip:	041	**Pk Co Re Mc:**	Z
Data Year:	2019	**Pk Co Re Units:**	PD
Inventory Year:	2023	**Pk Co Unc:**	
Inventory Year 2:	23	**Pk Co Units:**	PD
Pollutant Code:	PM10	**Pk O3:**	
Is Colorado Hap:	FALSE	**Pk O3 Mc:**	Z
Is Criteria:	TRUE	**Pk O3 Re:**	
Is Epcra Only:	FALSE	**Pk O3 Re Mc:**	Z
Is Hap:	FALSE	**Pk O3 Re Units:**	PD
Ozone Depleting:	FALSE	**Pk O3 Unc:**	
Estim:	0.23	**Pk O3 Units:**	PD
Estim Mc:	Z	**Pot:**	
Estim Unc:	0.23	**Pot Mc:**	
Estim Units:	TY	**Pot Unc:**	
Limit1:		**Pot Unc Mc:**	
Limit1 Mc:		**Pot Unc Units:**	
Limit1 Units:		**Pot Units:**	
Limit2:		**Re Estim:**	0.0
Limit2 Mc:		**Re Estim Mc:**	Z
Limit2 Units:		**Re Estim Units:**	TY
Pollutant Name:	PARTICULATE MATTER < 10 UM		

Stack Pollutant

Site ID:	0326	**Pk Co:**	
Stack ID:	003	**Pk Co Mc:**	Z
State Fips:	08	**Pk Co Re:**	
County Fip:	041	**Pk Co Re Mc:**	Z
Data Year:	2019	**Pk Co Re Units:**	PD
Inventory Year:	2023	**Pk Co Unc:**	
Inventory Year 2:	23	**Pk Co Units:**	PD
Pollutant Code:	PM2.5	**Pk O3:**	
Is Colorado Hap:	FALSE	**Pk O3 Mc:**	Z
Is Criteria:	TRUE	**Pk O3 Re:**	
Is Epcra Only:	FALSE	**Pk O3 Re Mc:**	Z
Is Hap:	FALSE	**Pk O3 Re Units:**	PD

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Ozone Depleting:	FALSE	**Pk O3 Unc:**	
Estim:	0.04	**Pk O3 Units:**	PD
Estim Mc:	Z	**Pot:**	
Estim Unc:	0.04	**Pot Mc:**	
Estim Units:	TY	**Pot Unc:**	
Limit1:		**Pot Unc Mc:**	
Limit1 Mc:		**Pot Unc Units:**	
Limit1 Units:		**Pot Units:**	
Limit2:		**Re Estim:**	0.0
Limit2 Mc:		**Re Estim Mc:**	Z
Limit2 Units:		**Re Estim Units:**	TY
Pollutant Name:	PARTICULATE MATTER < 2.5 UM		

Stack Pollutant

Site ID:	0326	**Pk Co:**	
Stack ID:	002	**Pk Co Mc:**	Z
State Fips:	08	**Pk Co Re:**	
County Fip:	041	**Pk Co Re Mc:**	Z
Data Year:	2019	**Pk Co Re Units:**	PD
Inventory Year:	2023	**Pk Co Unc:**	
Inventory Year 2:	23	**Pk Co Units:**	PD
Pollutant Code:	PM10	**Pk O3:**	
Is Colorado Hap:	FALSE	**Pk O3 Mc:**	Z
Is Criteria:	TRUE	**Pk O3 Re:**	
Is Epcra Only:	FALSE	**Pk O3 Re Mc:**	Z
Is Hap:	FALSE	**Pk O3 Re Units:**	PD
Ozone Depleting:	FALSE	**Pk O3 Unc:**	
Estim:	2.268	**Pk O3 Units:**	PD
Estim Mc:	Z	**Pot:**	
Estim Unc:	2.268	**Pot Mc:**	
Estim Units:	TY	**Pot Unc:**	
Limit1:		**Pot Unc Mc:**	
Limit1 Mc:		**Pot Unc Units:**	
Limit1 Units:		**Pot Units:**	
Limit2:		**Re Estim:**	0.0
Limit2 Mc:		**Re Estim Mc:**	Z
Limit2 Units:		**Re Estim Units:**	TY
Pollutant Name:	PARTICULATE MATTER < 10 UM		

Stack Pollutant

Site ID:	0326	**Pk Co:**	
Stack ID:	002	**Pk Co Mc:**	Z
State Fips:	08	**Pk Co Re:**	
County Fip:	041	**Pk Co Re Mc:**	Z
Data Year:	2019	**Pk Co Re Units:**	PD
Inventory Year:	2023	**Pk Co Unc:**	
Inventory Year 2:	23	**Pk Co Units:**	PD
Pollutant Code:	PM2.5	**Pk O3:**	
Is Colorado Hap:	FALSE	**Pk O3 Mc:**	Z
Is Criteria:	TRUE	**Pk O3 Re:**	
Is Epcra Only:	FALSE	**Pk O3 Re Mc:**	Z
Is Hap:	FALSE	**Pk O3 Re Units:**	PD
Ozone Depleting:	FALSE	**Pk O3 Unc:**	
Estim:	2.268	**Pk O3 Units:**	PD
Estim Mc:	Z	**Pot:**	
Estim Unc:	2.268	**Pot Mc:**	
Estim Units:	TY	**Pot Unc:**	
Limit1:		**Pot Unc Mc:**	
Limit1 Mc:		**Pot Unc Units:**	
Limit1 Units:		**Pot Units:**	
Limit2:		**Re Estim:**	0.0
Limit2 Mc:		**Re Estim Mc:**	Z
Limit2 Units:		**Re Estim Units:**	TY
Pollutant Name:	PARTICULATE MATTER < 2.5 UM		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Stack Pollutant

Site ID:	0326	***Pk Co:***	
Stack ID:	001	***Pk Co Mc:***	Z
State Fips:	08	***Pk Co Re:***	
County Fip:	041	***Pk Co Re Mc:***	Z
Data Year:	2019	***Pk Co Re Units:***	PD
Inventory Year:	2023	***Pk Co Unc:***	
Inventory Year 2:	23	***Pk Co Units:***	PD
Pollutant Code:	PM10	***Pk O3:***	
Is Colorado Hap:	FALSE	***Pk O3 Mc:***	Z
Is Criteria:	TRUE	***Pk O3 Re:***	
Is Epcra Only:	FALSE	***Pk O3 Re Mc:***	Z
Is Hap:	FALSE	***Pk O3 Re Units:***	PD
Ozone Depleting:	FALSE	***Pk O3 Unc:***	
Estim:	0.252	***Pk O3 Units:***	PD
Estim Mc:	Z	***Pot:***	
Estim Unc:	0.252	***Pot Mc:***	
Estim Units:	TY	***Pot Unc:***	
Limit1:		***Pot Unc Mc:***	
Limit1 Mc:		***Pot Unc Units:***	
Limit1 Units:		***Pot Units:***	
Limit2:		***Re Estim:***	0.0
Limit2 Mc:		***Re Estim Mc:***	Z
Limit2 Units:		***Re Estim Units:***	TY
Pollutant Name:	PARTICULATE MATTER < 10 UM		

Stack Pollutant

Site ID:	0326	***Pk Co:***	
Stack ID:	003	***Pk Co Mc:***	Z
State Fips:	08	***Pk Co Re:***	
County Fip:	041	***Pk Co Re Mc:***	Z
Data Year:	2019	***Pk Co Re Units:***	PD
Inventory Year:	2023	***Pk Co Unc:***	
Inventory Year 2:	23	***Pk Co Units:***	PD
Pollutant Code:	PT	***Pk O3:***	
Is Colorado Hap:	FALSE	***Pk O3 Mc:***	Z
Is Criteria:	TRUE	***Pk O3 Re:***	
Is Epcra Only:	FALSE	***Pk O3 Re Mc:***	Z
Is Hap:	FALSE	***Pk O3 Re Units:***	PD
Ozone Depleting:	FALSE	***Pk O3 Unc:***	
Estim:	0.49	***Pk O3 Units:***	PD
Estim Mc:	Z	***Pot:***	
Estim Unc:	0.49	***Pot Mc:***	
Estim Units:	TY	***Pot Unc:***	
Limit1:		***Pot Unc Mc:***	
Limit1 Mc:		***Pot Unc Units:***	
Limit1 Units:		***Pot Units:***	
Limit2:		***Re Estim:***	0.0
Limit2 Mc:		***Re Estim Mc:***	Z
Limit2 Units:		***Re Estim Units:***	TY
Pollutant Name:	TOTAL PARTICULATE MATTER		

17	***14 of 15***	***W***	***0.02 / 83.39***	***5,640.70 / -14***	***HYPONEX CO 3 ASSEMBLY CT FOUNTAIN CO 808172710***	***AFS***

Afs ID:	0804100326	***Fed Reportable:***	No
Plant ID:	802740	***Current Hpv:***	
Epa Region:	08	***Loc Contrl Region:***	
Plant County:	El Paso	***Afs Gov Fac Code:***	0
State No:	08	***Operating Status:***	O
Primary Sic Code:	5261	***Epa Class Code:***	B
Secondary Sic Code:	5261	***Epa Complian Stat:***	C
Naics Code:	453998	***State Comp Status:***	C

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Afs Gov Facility Des: PRIVATELY OWNED/OPERATED
Operating Status Def: Operating
Epa Classification Des: Potential uncontrolled emissions <100 tons/year
Epa Compliance Status: In Compliance With Procedural Requirements
State Compliance Status: In Compliance With Procedural Requirements

Actions

Plant ID: 802740
Anu1: 2
Date Achieved: 20000420
Penalty Amount: 0
Record Updated Dt: 20000718
Creation Date:
Key Action No:
Regional Data Element:
National Action Desc: STATE INSPECTION - LEVEL 2 OR GREATER
All Air Program Def: 0-SIP Source
Result Def: IN COMPLIANCE
Pollutant Def:
All Violating Poll Def:
All Violation Type Def:
National Actn Type: 5C
All Air Prog Codes: 0
Result Code: MC
Pollutant Code: PT
Violating Poll Cds:
Violation Type Cds:

Actions

Plant ID: 802740
Anu1: 1
Date Achieved: 19970422
Penalty Amount: 0
Record Updated Dt: 19970623
Creation Date:
Key Action No:
Regional Data Element:
National Action Desc: STATE INSPECTION - LEVEL 2 OR GREATER
All Air Program Def: 0-SIP Source
Result Def: IN COMPLIANCE
Pollutant Def:
All Violating Poll Def:
All Violation Type Def:
National Actn Type: 5C
All Air Prog Codes: 0
Result Code: MC
Pollutant Code: PT
Violating Poll Cds:
Violation Type Cds:

Actions

Plant ID: 802740
Anu1: 3
Date Achieved: 20040908
Penalty Amount: 0
Record Updated Dt: 20060502
Creation Date:
Key Action No:
Regional Data Element:
National Action Desc: STATE CONDUCTED FCE/ON-SITE
All Air Program Def: 0-SIP Source
Result Def: IN VIOLATION
Pollutant Def:
All Violating Poll Def:
All Violation Type Def:
National Actn Type: FS
All Air Prog Codes: 0
Result Code: MV
Pollutant Code:
Violating Poll Cds:
Violation Type Cds:

Historical Compliance - Air Program Level

Air Program Code: 0
Air Program Code Ref: SIP Source
Historical Compliance Date: 0604, 0701, 0702, 0703, 0704, 0801, 0802, 0803, 0804, 0901, 0902, 0903, 0904, 1001, 1002, 1003, 1004, 1101, 1102, 1103, 1104, 1201, 1202, 1203, 1204, 1301, 1302, 1303, 1304, 1401, 1402, 1403
Historical Compliance Status: C

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Historical Compliance Stat Ref: In Compliance With Procedural Requirements

Air Program

Plant ID:	802740	**Poll Classificatn:**	B
Air Program Code:	0	**Poll Compli Status:**	C
Air Program Status:	O	**Epa Class Code:**	B
Pollutant Code:	PM10	**Epa Compli Status:**	C
Chemical Abstract Service Nmbr:			
Air Program Code Subparts:			

Air Program Code Ref: SIP Source
Epa Classification Code Ref: Potential uncontrolled emissions <100 tons/year
Epa Compliance Status Ref: In Compliance With Procedural Requirements
Pollutant Code Ref: Particulate Matter < 10 Um
Pollutant Classification Ref: Potential uncontrolled emissions <100 tons/year
Pollutant Complian Status Ref: In Compliance With Procedural Requirements

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17	15 of 15	W	0.02 / 83.39	5,640.70 / -14	Scott's Fertilizer 3 Assembly Court FOUNTAIN CO 80817	FED BROWNFIELDS

Property ID:	251466	**BF Property (Map):**	251466
Lat Measure:	38.720104991793676	**Latitude (Map):**	38.7201049918
Long Measure:	-104.7177580114071	**Longitude (Map):**	-104.717758011
Property Name:	Scott's Fertilizer		
Address:	3 Assembly Court		
City:	FOUNTAIN		
State Code:	CO		
Zip Code:	80817		
Primary Name (Map):	SCOTT COMPANY		
Location Address (Map):	3 ASSEMBLY CT		
City Name (Map):	FOUNTAIN		
County Name (Map):	EL PASO		
State Code (Map):	CO		
Postal Code (Map):	80817		

Brownfields Details

Registry I:	110010684232	**EPA ID:**	
EPA Region:	08	**BF RLF Gra:**	
Cat No:	11020003	**BF RLF Pil:**	
RCRA Handl:		**BF Assess :**	
RCRA Curre:		**BF Cleanup:**	
RCRA Remed:		**BF Tba Ind:**	
RCRA Const:		**BF 128a In:**	
RCRA El He:		**BF IC Code:**	U
RCRA El Gm:		**BF IC Gc I:**	U
RCRA Rem 1:		**BF IC Ep I:**	U
RCRA Ec Gw:		**BF IC ID I:**	U
RCRA Ec Ng:		**BF IC Pr I:**	U
RCRA IC Ep:		**FF Brac In:**	
RCRA IC Gc:		**BF RLF Ind:**	
RCRA IC ID:		**BF Assess1:**	Y
RCRA IC Pr:		**BF Multipu:**	
FF RCRA In:		**BF Awp Ind:**	
RCRA Trans:		**BF Showcas:**	
RCRA Tra 1:		**BF 128a P :**	
RCRA Ec Co:		**LUST Relea:**	
RCRA IC Co:		**LUST Award:**	
RCRA Gpra :		**LUST State:**	
RCRA Rem 2:		**Congressio:**	CO-05
RCRA Dru 1:		**FD Agency :**	
SF Site ID:		**FD Listing:**	
SF Ec Ind:		**FD Non NPL:**	
SF El Gm C:		**FD RCRA Ha:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

SF El He C:		**FD RCRA Ca:**	
SF IC Ind:		**FD SF NPL :**	
SF NPL Cod:		**FD FF Ind:**	
SF NPL C 1:		**FD Ej Code:**	
SF Admin F:		**FD Brac In:**	
FF And Sit:		**FD Federal:**	
FF SF Ind:		**FD Hrs Sco:**	
Map Symbol:	B	**FD Ongoing:**	
Data Refre:	29-Jul-2022	**FD NPL Sta:**	
GIS Refres:		**FD Non N 1:**	
New Site:		**FD RCRA Gw:**	
Repow Ref :		**FD RCRA He:**	
EPAOSC Sit:		**FD GMS Sur:**	
EPAOSC Res:		**FD Hes Sur:**	
EPAOSC R 1:		**FD SF Site:**	
EPAOSC Sta:		**FD Brac Ro:**	
EPAOSC Inc:		**Stimulus S:**	
Desc :		**Stimulus B:**	
Ind Name:			
Cat Name:	Fountain		
Sub Name:	Fountain		
Primary Name:	SCOTT COMPANY		
RCRA Drupa:			
Url:	https://obipublic11.epa.gov/analytics/saw.dll?PortalPages&Action=Navigate&col1=ACRES_GRANT_EXPORT.PROPERTY_ID&val1=%22251466.0%22&PortalPath=/shared/CIMC/_portal/CIMC&Page=Profile+Page		
Census Url:	https://ejscreen.epa.gov/mapper/demogreportpdf.aspx?report=census2010sf1&coords=-104.71775801140701%2C38.7201049917937&feattype=point&radius=1.0		
ACS Url:	https://ejscreen.epa.gov/mapper/demogreportpdf.aspx?report=acs2017&coords=-104.71775801140701%2C38.7201049917937&feattype=point&radius=1.0		

SF Site Na:		**UST Status:**	
SF Non Npl:		**UST Substa:**	
SF Non N 1:		**UST Landus:**	
SF Non N 3:		**UST SPA Wa:**	
ERR Lat Lo:		**UST SPA Fa:**	
REPOW BF:		**UST WHPA W:**	
REPOW SF:		**UST WHPA F:**	
REPOW RCRA:		**UST Open:**	
REPOW Ref1:		**UST Closed:**	
RCRA Han 1:		**LUST ID:**	
RCRA Rau I:		**Saa Site:**	
BF Propert:	251466-		
REPOW Re 1:			
BF Prope 1:	Scott's Fertilizer		
SF Non N 2:			

Cleanups In My Community (CIMC)

Grant ID:	69605299	**ASMT Cntrl Sub :**	
Grant Type:	Assessment	**Cleanup Cntrl Sub :**	
EPA Region:	08	**ASMT Asbestos :**	
Ownership Entity:		**Cleanup Asbestos :**	
Latitude Measure:	38.720104991793676	**ASMT Pcbs :**	
Longitude Measure:	-104.7177580114071	**Cleanup Pcbs :**	
Flag Cleanup Reqd:	U	**ASMT Vocs :**	
Flag IC Required:		**Cleanup Vocs :**	
Stcntrbg:		**ASMT Lead :**	
Property Size:	4.91	**Cleanup Lead :**	
Flag IC in Place:		**ASMT Oth Metal :**	
IC in Place Date:		**Cleanup Oth Metal :**	
Prop Cntrl :		**ASMT Pahs :**	
Gov Cntrl :		**Cleanup Pahs :**	
Permit Tools :		**ASMT Oth Cont:**	
Info DevlCes :		**Cleanup Oth Cont:**	
Prop Fnding Type Cd:	Hazardous	**ASMT Air :**	
Ownshp Changed :		**Cleanup Air :**	
Sfllp Factor :		**ASMT Drk Wat:**	
Source Mapscale No:		**Cleanup Drk Wat:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Past Cml Acres:	4.91	**ASMT Grd Water:**	
Future Cml Acres:		**Cleanup Grd Water:**	
Past Grnspc Acres:		**ASMT Sediments :**	
Future Grnspc Acres:		**Cleanup Sediments :**	
Past Acres:		**ASMT Soil :**	
Future Acres:		**Cleanup Soil :**	
Past Res Acres:		**ASMT Srf Water :**	
Future Res Acres:		**Cleanup Srf Water :**	
St Enrollment Dt:		**Other Media :**	
St Enrollment ID:		**Unknown Media :**	
St NFA Dt:		**Ready For Reuse :**	N
Assess Petrol Prod :		**Assess Amount:**	
Cleanup Petrol Prod :		**Assess Fnd Ent Nm:**	
Assess Start Dt:		**Photo Available :**	
Assess Cmpltn Dt:		**Video Available :**	
Cleanup Start Dt:		**Cleanup Acres:**	
Cleanup Cmpltn Dt:		**Cleanup Amount:**	
Redev Start Dt:		**Redev Acres:**	
Redev Cleanup Jobs:		**Redev Amount:**	
Grant Recipient Nm:	Colorado Springs City Government		
PropertyNm:	Scott's Fertilizer		
Address:	3 Assembly Court		
City:	FOUNTAIN		
State Code:	CO		
Zip Code:	80817		
Local Parcel No:	5530003007		
Current Owner:			
IC Data Address:			
Horizontal Collection Method:			
Reference Point:			
Horizontal Reference Datum:			
Other Description:			
Other Desc Cleaned Up:			
Assess Type:			
Assess Fund Entity:			
Cleanup Funding EntityNm:			
Cleanup Fund Entity:			
Redev Funding Entity Nm:			
Desc Hist:			

Accmplisht Cnt Flag:		**Vacant Housing:**	
Coop Agreement No:	96896301	**Vacant Housing Pct:**	
Past Mltistry Acres:		**Total Unemployed:**	
Ftr Multistory Acres:		**Unemployed Pct:**	
Assess Cadmium :		**Radius:**	
Clnup Cadmium :		**Actvy Funded:**	
Assess Chromium :		**Redev Lvrgd Srcs:**	
Clnup Chromium :		**AA Amt Funding:**	
Assess Copper :		**Flag Clnup Trmt Tech:**	
Clnup Copper :		**Excavation Disposal:**	
Assess Iron :		**Extrctn of Cntmnts:**	
Clnup Iron :		**Removal of Mats:**	
Assess Nickel :		**Rdctn of Cntmnts:**	
Clnup Nickel :		**Clnup of Structures:**	
Assess Selenium :		**Env EC Required:**	U
Clnup Selenium :		**Flag EC Cover Tech:**	
Assess Mercury :		**Flag EC Security:**	
Clnup Mercury :		**Flag EC Immblztn:**	
Assess ArsenIC :		**Flag EC Eng Barriers:**	
Clnup ArsenIC :		**Flag EC Other:**	
Assess Bldg Mats :		**Env IC in Place:**	
Clnup Bldg Mats :		**Env EC in Place:**	
Assess oorair :		**Env Clnup Jobs:**	
Clnup oorair :		**Sect 128 A State Trbl:**	
Assess None :		**Multipurpose:**	
Clnup None :		**Clnup Cst Shr Amt:**	
Assess Pesticides :		**RLF Loan Amount:**	
Clnup Pesticides :		**RLF Ln Cst Shr Amt:**	
Assess Unknown :		**Pro Income Amt:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Clnup Unknown :		***Dt RLF Loan Signed:***	
Assess Svocs :		***Repayment Period:***	
Clnup Svocs :		***Interest Rate:***	
Clnup Unkn Media :		***RLF Subgrant Amt:***	
Redev Cmpltn Date:		***Cost Share Amt:***	
Pro Code:	BF	***Env Pro Income Amt:***	
FCA Fy:		***Dt RLF Sbgrnt Signd:***	
Flag EC in Place:		***Clnup Actvy Funded:***	
Flag EC Required:	U	***Below Poverty:***	
RFR Notation:		***Below Poverty Pct:***	
Gpa Type ID:	6	***Median Income:***	
Clnup Doc:		***Low Income:***	
Awp Catalyst Yn:		***Low Income Pct:***	
Flag Prop Not Enrld:	Y		
Redev Fund Entity:			
Gpa Type Desc:	Acres Cleaned Up		
AA Actvy Funded:			
AA Source of Funding:			
Clnup Trmt Tech Info:			
EC Data Address:			
EC Addl Info:			
Env IC Data Address:			
Other Forms of Doc:			
IC Addl Info:			
Highlights:	This property is in a highly visible, developing commercial area near Fountain Creek. The facility processes and packages soil/mulch products for distribution to retail distributors. Raw materials including peat moss, bark fines, wood fiber, yard compost, compost manure, coir, rice hulls, topsoil, humus, and wood chips are received at the Property and stockpiled outdoors. All bagged and drummed raw materials such as dyes and fertilizer additives are received into the warehouse. The mulch/soil materials are screened to remove rocks and debris and are then placed in machines outside the processing building where they are mixed with water-based biodegradable dyes and fertilizers. A conveyor then transports the mixture into the building where it is bagged and palletized. The packaged product is placed on pallets and shrink-wrapped for storage on-site. The potential for residual concentrations of fertilizers from years of outdoor mixing and storage on the property was identified as a Business Environmental Risk (BER) as defined in ASTM E1527.		
Property Alias:			
Ctmnt Found:			
Ctmnt Cleanedup:			
Ctmnt Rec:			
Media Afffected:			

Cleanups In My Community (CIMC)

Grant ID:	69605299	***ASMT Cntrl Sub :***	
Grant Type:	Assessment	***Cleanup Cntrl Sub :***	
EPA Region:	08	***ASMT Asbestos :***	
Ownership Entity:		***Cleanup Asbestos :***	
Latitude Measure:	38.720104991793676	***ASMT Pcbs :***	
Longitude Measure:	-104.7177580114071	***Cleanup Pcbs :***	
Flag Cleanup Reqd:	U	***ASMT Vocs :***	
Flag IC Required:		***Cleanup Vocs :***	
Stcntrbg:		***ASMT Lead :***	
Property Size:	4.91	***Cleanup Lead :***	
Flag IC in Place:		***ASMT Oth Metal :***	
IC in Place Date:		***Cleanup Oth Metal :***	
Prop Cntrl :		***ASMT Pahs :***	
Gov Cntrl :		***Cleanup Pahs :***	
Permit Tools :		***ASMT Oth Cont:***	
Info DevlCes :		***Cleanup Oth Cont:***	
Prop Fnding Type Cd:	Hazardous	***ASMT Air :***	
Ownshp Changed :		***Cleanup Air :***	
Sfllp Factor :		***ASMT Drk Wat:***	
Source Mapscale No:		***Cleanup Drk Wat:***	
Past Cml Acres:	4.91	***ASMT Grd Water:***	
Future Cml Acres:		***Cleanup Grd Water:***	
Past Grnspc Acres:		***ASMT Sediments :***	
Future Grnspc Acres:		***Cleanup Sediments :***	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Past Acres:		**ASMT Soil :**	
Future Acres:		**Cleanup Soil :**	
Past Res Acres:		**ASMT Srf Water :**	
Future Res Acres:		**Cleanup Srf Water :**	
St Enrollment Dt:		**Other Media :**	
St Enrollment ID:		**Unknown Media :**	
St NFA Dt:		**Ready For Reuse :**	N
Assess Petrol Prod :		**Assess Amount:**	
Cleanup Petrol Prod :		**Assess Fnd Ent Nm:**	
Assess Start Dt:		**Photo Available :**	
Assess Cmpltn Dt:		**Video Available :**	
Cleanup Start Dt:		**Cleanup Acres:**	
Cleanup Cmpltn Dt:		**Cleanup Amount:**	
Redev Start Dt:		**Redev Acres:**	
Redev Cleanup Jobs:		**Redev Amount:**	
Grant Recipient Nm:	Colorado Springs City Government		
PropertyNm:	Scott's Fertilizer		
Address:	3 Assembly Court		
City:	FOUNTAIN		
State Code:	CO		
Zip Code:	80817		
Local Parcel No:	5530003007		
Current Owner:			
IC Data Address:			
Horizontal Collection Method:			
Reference Point:			
Horizontal Reference Datum:			
Other Description:			
Other Desc Cleaned Up:			
Assess Type:			
Assess Fund Entity:			
Cleanup Funding EntityNm:			
Cleanup Fund Entity:			
Redev Funding Entity Nm:			
Desc Hist:			

Accmplisht Cnt Flag:		**Vacant Housing:**	
Coop Agreement No:	96896301	**Vacant Housing Pct:**	
Past Mltistry Acres:		**Total Unemployed:**	
Ftr Multistory Acres:		**Unemployed Pct:**	
Assess Cadmium :		**Radius:**	
Clnup Cadmium :		**Actvy Funded:**	
Assess Chromium :		**Redev Lvrgd Srcs:**	
Clnup Chromium :		**AA Amt Funding:**	
Assess Copper :		**Flag Clnup Trmt Tech:**	
Clnup Copper :		**Excavation Disposal:**	
Assess Iron :		**Extrctn of Cntmnts:**	
Clnup Iron :		**Removal of Mats:**	
Assess Nickel :		**Rdctn of Cntmnts:**	
Clnup Nickel :		**Clnup of Structures:**	
Assess Selenium :		**Env EC Required:**	U
Clnup Selenium :		**Flag EC Cover Tech:**	
Assess Mercury :		**Flag EC Security:**	
Clnup Mercury :		**Flag EC Immblztn:**	
Assess ArsenIC :		**Flag EC Eng Barriers:**	
Clnup ArsenIC :		**Flag EC Other:**	
Assess Bldg Mats :		**Env IC in Place:**	
Clnup Bldg Mats :		**Env EC in Place:**	
Assess oorair :		**Env Clnup Jobs:**	
Clnup oorair :		**Sect 128 A State Trbl:**	
Assess None :		**Multipurpose:**	
Clnup None :		**Clnup Cst Shr Amt:**	
Assess Pesticides :		**RLF Loan Amount:**	
Clnup Pesticides :		**RLF Ln Cst Shr Amt:**	
Assess Unknown :		**Pro Income Amt:**	
Clnup Unknown :		**Dt RLF Loan Signed:**	
Assess Svocs :		**Repayment Period:**	
Clnup Svocs :		**Interest Rate:**	
Clnup Unkn Media :		**RLF Subgrant Amt:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Redev Cmpltn Date:			**Cost Share Amt:**
Pro Code:	BF		**Env Pro Income Amt:**
FCA Fy:			**Dt RLF Sbgrnt Signd:**
Flag EC in Place:			**Clnup Actvy Funded:**
Flag EC Required:	U		**Below Poverty:**
RFR Notation:			**Below Poverty Pct:**
Gpa Type ID:	5		**Median Income:**
Clnup Doc:	N		**Low Income:**
Awp Catalyst Yn:			**Low Income Pct:**
Flag Prop Not Enrld:	Y		
Redev Fund Entity:			
Gpa Type Desc:		Cleanup Activity	
AA Actvy Funded:			
AA Source of Funding:			
Clnup Trmt Tech Info:			
EC Data Address:			
EC Addl Info:			
Env IC Data Address:			
Other Forms of Doc:			
IC Addl Info:			

Highlights: This property is in a highly visible, developing commercial area near Fountain Creek. The facility processes and packages soil/mulch products for distribution to retail distributors. Raw materials including peat moss, bark fines, wood fiber, yard compost, compost manure, coir, rice hulls, topsoil, humus, and wood chips are received at the Property and stockpiled outdoors. All bagged and drummed raw materials such as dyes and fertilizer additives are received into the warehouse. The mulch/soil materials are screened to remove rocks and debris and are then placed in machines outside the processing building where they are mixed with water-based biodegradable dyes and fertilizers. A conveyor then transports the mixture into the building where it is bagged and palletized. The packaged product is placed on pallets and shrink-wrapped for storage on-site. The potential for residual concentrations of fertilizers from years of outdoor mixing and storage on the property was identified as a Business Environmental Risk (BER) as defined in ASTM E1527.

Property Alias:	
Ctmnt Found:	
Ctmnt Cleanedup:	
Ctmnt Rec:	
Media Afffected:	

Cleanups In My Community (CIMC)

Grant ID:	69605299	**ASMT Cntrl Sub :**	
Grant Type:	Assessment	**Cleanup Cntrl Sub :**	
EPA Region:	08	**ASMT Asbestos :**	
Ownership Entity:		**Cleanup Asbestos :**	
Latitude Measure:	38.720104991793676	**ASMT Pcbs :**	
Longitude Measure:	-104.7177580114071	**Cleanup Pcbs :**	
Flag Cleanup Reqd:	U	**ASMT Vocs :**	
Flag IC Required:		**Cleanup Vocs :**	
Stcntrbg:		**ASMT Lead :**	
Property Size:	4.91	**Cleanup Lead :**	
Flag IC in Place:		**ASMT Oth Metal :**	
IC in Place Date:		**Cleanup Oth Metal :**	
Prop Cntrl :		**ASMT Pahs :**	
Gov Cntrl :		**Cleanup Pahs :**	
Permit Tools :		**ASMT Oth Cont:**	
Info DevlCes :		**Cleanup Oth Cont:**	
Prop Fnding Type Cd:	Hazardous	**ASMT Air :**	
Ownshp Changed :		**Cleanup Air :**	
Sfllp Factor :		**ASMT Drk Wat:**	
Source Mapscale No:		**Cleanup Drk Wat:**	
Past Cml Acres:	4.91	**ASMT Grd Water:**	
Future Cml Acres:		**Cleanup Grd Water:**	
Past Grnspc Acres:		**ASMT Sediments :**	
Future Grnspc Acres:		**Cleanup Sediments :**	
Past Acres:		**ASMT Soil :**	
Future Acres:		**Cleanup Soil :**	
Past Res Acres:		**ASMT Srf Water :**	
Future Res Acres:		**Cleanup Srf Water :**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

St Enrollment Dt:		**Other Media :**	
St Enrollment ID:		**Unknown Media :**	
St NFA Dt:		**Ready For Reuse :**	N
Assess Petrol Prod :		**Assess Amount:**	
Cleanup Petrol Prod :		**Assess Fnd Ent Nm:**	
Assess Start Dt:		**Photo Available :**	
Assess Cmpltn Dt:		**Video Available :**	
Cleanup Start Dt:		**Cleanup Acres:**	
Cleanup Cmpltn Dt:		**Cleanup Amount:**	
Redev Start Dt:		**Redev Acres:**	
Redev Cleanup Jobs:		**Redev Amount:**	
Grant Recipient Nm:	Colorado Springs City Government		
PropertyNm:	Scott's Fertilizer		
Address:	3 Assembly Court		
City:	FOUNTAIN		
State Code:	CO		
Zip Code:	80817		
Local Parcel No:	5530003007		
Current Owner:			
IC Data Address:			
Horizontal Collection Method:			
Reference Point:			
Horizontal Reference Datum:			
Other Description:			
Other Desc Cleaned Up:			
Assess Type:			
Assess Fund Entity:			
Cleanup Funding EntityNm:			
Cleanup Fund Entity:			
Redev Funding Entity Nm:			
Desc Hist:			

Accmplisht Cnt Flag:		**Vacant Housing:**	
Coop Agreement No:	96896301	**Vacant Housing Pct:**	
Past Mltistry Acres:		**Total Unemployed:**	
Ftr Multistory Acres:		**Unemployed Pct:**	
Assess Cadmium :		**Radius:**	
Clnup Cadmium :		**Actvy Funded:**	
Assess Chromium :		**Redev Lvrgd Srcs:**	
Clnup Chromium :		**AA Amt Funding:**	
Assess Copper :		**Flag Clnup Trmt Tech:**	
Clnup Copper :		**Excavation Disposal:**	
Assess Iron :		**Extrctn of Cntmnts:**	
Clnup Iron :		**Removal of Mats:**	
Assess Nickel :		**Rdctn of Cntmnts:**	
Clnup Nickel :		**Clnup of Structures:**	
Assess Selenium :		**Env EC Required:**	U
Clnup Selenium :		**Flag EC Cover Tech:**	
Assess Mercury :		**Flag EC Security:**	
Clnup Mercury :		**Flag EC Immblztn:**	
Assess ArsenIC :		**Flag EC Eng Barriers:**	
Clnup ArsenIC :		**Flag EC Other:**	
Assess Bldg Mats :		**Env IC in Place:**	
Clnup Bldg Mats :		**Env EC in Place:**	
Assess oorair :		**Env Clnup Jobs:**	
Clnup oorair :		**Sect 128 A State Trbl:**	
Assess None :		**Multipurpose:**	
Clnup None :		**Clnup Cst Shr Amt:**	
Assess Pesticides :		**RLF Loan Amount:**	
Clnup Pesticides :		**RLF Ln Cst Shr Amt:**	
Assess Unknown :		**Pro Income Amt:**	
Clnup Unknown :		**Dt RLF Loan Signed:**	
Assess Svocs :		**Repayment Period:**	
Clnup Svocs :		**Interest Rate:**	
Clnup Unkn Media :		**RLF Subgrant Amt:**	
Redev Cmpltn Date:		**Cost Share Amt:**	
Pro Code:	BF	**Env Pro Income Amt:**	
FCA Fy:		**Dt RLF Sbgrnt Signd:**	
Flag EC in Place:		**Clnup Actvy Funded:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Flag EC Required:	U	**Below Poverty:**	
RFR Notation:		**Below Poverty Pct:**	
Gpa Type ID:	11	**Median Income:**	
Clnup Doc:		**Low Income:**	
Awp Catalyst Yn:		**Low Income Pct:**	
Flag Prop Not Enrld:	Y		
Redev Fund Entity:			
Gpa Type Desc:	Cleanup Jobs Leveraged		
AA Actvy Funded:			
AA Source of Funding:			
Clnup Trmt Tech Info:			
EC Data Address:			
EC Addl Info:			
Env IC Data Address:			
Other Forms of Doc:			
IC Addl Info:			

Highlights: This property is in a highly visible, developing commercial area near Fountain Creek. The facility processes and packages soil/mulch products for distribution to retail distributors. Raw materials including peat moss, bark fines, wood fiber, yard compost, compost manure, coir, rice hulls, topsoil, humus, and wood chips are received at the Property and stockpiled outdoors. All bagged and drummed raw materials such as dyes and fertilizer additives are received into the warehouse. The mulch/soil materials are screened to remove rocks and debris and are then placed in machines outside the processing building where they are mixed with water-based biodegradable dyes and fertilizers. A conveyor then transports the mixture into the building where it is bagged and palletized. The packaged product is placed on pallets and shrink-wrapped for storage on-site. The potential for residual concentrations of fertilizers from years of outdoor mixing and storage on the property was identified as a Business Environmental Risk (BER) as defined in ASTM E1527.

Property Alias:	
Ctmnt Found:	
Ctmnt Cleanedup:	
Ctmnt Rec:	
Media Afffected:	

Cleanups In My Community (CIMC)

Grant ID:	69605299	**ASMT Cntrl Sub :**	
Grant Type:	Assessment	**Cleanup Cntrl Sub :**	
EPA Region:	08	**ASMT Asbestos :**	
Ownership Entity:		**Cleanup Asbestos :**	
Latitude Measure:	38.720104991793676	**ASMT Pcbs :**	
Longitude Measure:	-104.7177580114071	**Cleanup Pcbs :**	
Flag Cleanup Reqd:	U	**ASMT Vocs :**	
Flag IC Required:		**Cleanup Vocs :**	
Stcntrbg:		**ASMT Lead :**	
Property Size:	4.91	**Cleanup Lead :**	
Flag IC in Place:		**ASMT Oth Metal :**	
IC in Place Date:		**Cleanup Oth Metal :**	
Prop Cntrl :		**ASMT Pahs :**	
Gov Cntrl :		**Cleanup Pahs :**	
Permit Tools :		**ASMT Oth Cont:**	
Info DevlCes :		**Cleanup Oth Cont:**	
Prop Fnding Type Cd:	Hazardous	**ASMT Air :**	
Ownshp Changed :		**Cleanup Air :**	
Sfllp Factor :		**ASMT Drk Wat:**	
Source Mapscale No:		**Cleanup Drk Wat:**	
Past Cml Acres:	4.91	**ASMT Grd Water:**	
Future Cml Acres:		**Cleanup Grd Water:**	
Past Grnspc Acres:		**ASMT Sediments :**	
Future Grnspc Acres:		**Cleanup Sediments :**	
Past Acres:		**ASMT Soil :**	
Future Acres:		**Cleanup Soil :**	
Past Res Acres:		**ASMT Srf Water :**	
Future Res Acres:		**Cleanup Srf Water :**	
St Enrollment Dt:		**Other Media :**	
St Enrollment ID:		**Unknown Media :**	
St NFA Dt:		**Ready For Reuse :**	N
Assess Petrol Prod :		**Assess Amount:**	5900

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Cleanup Petrol Prod :		**Assess Fnd Ent Nm:**	EPA
Assess Start Dt:	08/16/2021	**Photo Available :**	
Assess Cmpltn Dt:	12/10/2021	**Video Available :**	
Cleanup Start Dt:		**Cleanup Acres:**	
Cleanup Cmpltn Dt:		**Cleanup Amount:**	
Redev Start Dt:		**Redev Acres:**	
Redev Cleanup Jobs:		**Redev Amount:**	
Grant Recipient Nm:	Colorado Springs City Government		
PropertyNm:	Scott's Fertilizer		
Address:	3 Assembly Court		
City:	FOUNTAIN		
State Code:	CO		
Zip Code:	80817		
Local Parcel No:	5530003007		
Current Owner:			
IC Data Address:			
Horizontal Collection Method:			
Reference Point:			
Horizontal Reference Datum:			
Other Description:			
Other Desc Cleaned Up:			
Assess Type:	Phase I Environmental Assessment		
Assess Fund Entity:	US EPA - Brownfields Assessment Cooperative Agreement		
Cleanup Funding EntityNm:			
Cleanup Fund Entity:			
Redev Funding Entity Nm:			
Desc Hist:			

Accmplisht Cnt Flag:	Y	**Vacant Housing:**	
Coop Agreement No:	96896301	**Vacant Housing Pct:**	
Past Mltistry Acres:		**Total Unemployed:**	
Ftr Multistory Acres:		**Unemployed Pct:**	
Assess Cadmium :		**Radius:**	
Clnup Cadmium :		**Actvy Funded:**	
Assess Chromium :		**Redev Lvrgd Srcs:**	
Clnup Chromium :		**AA Amt Funding:**	
Assess Copper :		**Flag Clnup Trmt Tech:**	
Clnup Copper :		**Excavation Disposal:**	
Assess Iron :		**Extrctn of Cntmnts:**	
Clnup Iron :		**Removal of Mats:**	
Assess Nickel :		**Rdctn of Cntmnts:**	
Clnup Nickel :		**Clnup of Structures:**	
Assess Selenium :		**Env EC Required:**	U
Clnup Selenium :		**Flag EC Cover Tech:**	
Assess Mercury :		**Flag EC Security:**	
Clnup Mercury :		**Flag EC Immblztn:**	
Assess ArsenIC :		**Flag EC Eng Barriers:**	
Clnup ArsenIC :		**Flag EC Other:**	
Assess Bldg Mats :		**Env IC in Place:**	
Clnup Bldg Mats :		**Env EC in Place:**	
Assess oorair :		**Env Clnup Jobs:**	
Clnup oorair :		**Sect 128 A State Trbl:**	
Assess None :		**Multipurpose:**	
Clnup None :		**Clnup Cst Shr Amt:**	
Assess Pesticides :		**RLF Loan Amount:**	
Clnup Pesticides :		**RLF Ln Cst Shr Amt:**	
Assess Unknown :		**Pro Income Amt:**	
Clnup Unknown :		**Dt RLF Loan Signed:**	
Assess Svocs :		**Repayment Period:**	
Clnup Svocs :		**Interest Rate:**	
Clnup Unkn Media :		**RLF Subgrant Amt:**	
Redev Cmpltn Date:		**Cost Share Amt:**	
Pro Code:	BF	**Env Pro Income Amt:**	
FCA Fy:	FY22	**Dt RLF Sbgrnt Signd:**	
Flag EC in Place:		**Clnup Actvy Funded:**	
Flag EC Required:	U	**Below Poverty:**	
RFR Notation:		**Below Poverty Pct:**	
Gpa Type ID:	1	**Median Income:**	
Clnup Doc:		**Low Income:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Awp Catalyst Yn:		***Low Income Pct:***	
Flag Prop Not Enrld:	Y		
Redev Fund Entity:			
Gpa Type Desc:	Phase I Environmental Assessment		
AA Actvy Funded:	Phase I Environmental Assessment		
AA Source of Funding:			
Clnup Trmt Tech Info:			
EC Data Address:			
EC Addl Info:			
Env IC Data Address:			
Other Forms of Doc:			
IC Addl Info:			

Highlights: This property is in a highly visible, developing commercial area near Fountain Creek. The facility processes and packages soil/mulch products for distribution to retail distributors. Raw materials including peat moss, bark fines, wood fiber, yard compost, compost manure, coir, rice hulls, topsoil, humus, and wood chips are received at the Property and stockpiled outdoors. All bagged and drummed raw materials such as dyes and fertilizer additives are received into the warehouse. The mulch/soil materials are screened to remove rocks and debris and are then placed in machines outside the processing building where they are mixed with water-based biodegradable dyes and fertilizers. A conveyor then transports the mixture into the building where it is bagged and palletized. The packaged product is placed on pallets and shrink-wrapped for storage on-site. The potential for residual concentrations of fertilizers from years of outdoor mixing and storage on the property was identified as a Business Environmental Risk (BER) as defined in ASTM E1527.

Property Alias:	
Ctmnt Found:	
Ctmnt Cleanedup:	
Ctmnt Rec:	
Media Afffected:	

Cleanups In My Community (CIMC)

Grant ID:	69605299	***ASMT Cntrl Sub :***	
Grant Type:	Assessment	***Cleanup Cntrl Sub :***	
EPA Region:	08	***ASMT Asbestos :***	
Ownership Entity:		***Cleanup Asbestos :***	
Latitude Measure:	38.720104991793676	***ASMT Pcbs :***	
Longitude Measure:	-104.7177580114071	***Cleanup Pcbs :***	
Flag Cleanup Reqd:	U	***ASMT Vocs :***	
Flag IC Required:		***Cleanup Vocs :***	
Stcntrbg:		***ASMT Lead :***	
Property Size:	4.91	***Cleanup Lead :***	
Flag IC in Place:		***ASMT Oth Metal :***	
IC in Place Date:		***Cleanup Oth Metal :***	
Prop Cntrl :		***ASMT Pahs :***	
Gov Cntrl :		***Cleanup Pahs :***	
Permit Tools :		***ASMT Oth Cont:***	
Info DevlCes :		***Cleanup Oth Cont:***	
Prop Fnding Type Cd:	Hazardous	***ASMT Air :***	
Ownshp Changed :		***Cleanup Air :***	
Sfllp Factor :		***ASMT Drk Wat:***	
Source Mapscale No:		***Cleanup Drk Wat:***	
Past Cml Acres:	4.91	***ASMT Grd Water:***	
Future Cml Acres:		***Cleanup Grd Water:***	
Past Grnspc Acres:		***ASMT Sediments :***	
Future Grnspc Acres:		***Cleanup Sediments :***	
Past Acres:		***ASMT Soil :***	
Future Acres:		***Cleanup Soil :***	
Past Res Acres:		***ASMT Srf Water :***	
Future Res Acres:		***Cleanup Srf Water :***	
St Enrollment Dt:		***Other Media :***	
St Enrollment ID:		***Unknown Media :***	
St NFA Dt:		***Ready For Reuse :***	N
Assess Petrol Prod :		***Assess Amount:***	
Cleanup Petrol Prod :		***Assess Fnd Ent Nm:***	
Assess Start Dt:		***Photo Available :***	
Assess Cmpltn Dt:		***Video Available :***	
Cleanup Start Dt:		***Cleanup Acres:***	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Cleanup Cmpltn Dt:		***Cleanup Amount:***	
Redev Start Dt:		***Redev Acres:***	
Redev Cleanup Jobs:		***Redev Amount:***	
Grant Recipient Nm:	Colorado Springs City Government		
PropertyNm:	Scott's Fertilizer		
Address:	3 Assembly Court		
City:	FOUNTAIN		
State Code:	CO		
Zip Code:	80817		
Local Parcel No:	5530003007		
Current Owner:			
IC Data Address:			
Horizontal Collection Method:			
Reference Point:			
Horizontal Reference Datum:			
Other Description:			
Other Desc Cleaned Up:			
Assess Type:			
Assess Fund Entity:			
Cleanup Funding EntityNm:			
Cleanup Fund Entity:			
Redev Funding Entity Nm:			
Desc Hist:			

Accmplisht Cnt Flag:		***Vacant Housing:***	
Coop Agreement No:	96896301	***Vacant Housing Pct:***	
Past Mltistry Acres:		***Total Unemployed:***	
Ftr Multistory Acres:		***Unemployed Pct:***	
Assess Cadmium :		***Radius:***	
Clnup Cadmium :		***Actvy Funded:***	
Assess Chromium :		***Redev Lvrgd Srcs:***	
Clnup Chromium :		***AA Amt Funding:***	
Assess Copper :		***Flag Clnup Trmt Tech:***	
Clnup Copper :		***Excavation Disposal:***	
Assess Iron :		***Extrctn of Cntmnts:***	
Clnup Iron :		***Removal of Mats:***	
Assess Nickel :		***Rdctn of Cntmnts:***	
Clnup Nickel :		***Clnup of Structures:***	
Assess Selenium :		***Env EC Required:***	U
Clnup Selenium :		***Flag EC Cover Tech:***	
Assess Mercury :		***Flag EC Security:***	
Clnup Mercury :		***Flag EC Immblztn:***	
Assess ArsenIC :		***Flag EC Eng Barriers:***	
Clnup ArsenIC :		***Flag EC Other:***	
Assess Bldg Mats :		***Env IC in Place:***	
Clnup Bldg Mats :		***Env EC in Place:***	
Assess oorair :		***Env Clnup Jobs:***	
Clnup oorair :		***Sect 128 A State Trbl:***	
Assess None :		***Multipurpose:***	
Clnup None :		***Clnup Cst Shr Amt:***	
Assess Pesticides :		***RLF Loan Amount:***	
Clnup Pesticides :		***RLF Ln Cst Shr Amt:***	
Assess Unknown :		***Pro Income Amt:***	
Clnup Unknown :		***Dt RLF Loan Signed:***	
Assess Svocs :		***Repayment Period:***	
Clnup Svocs :		***Interest Rate:***	
Clnup Unkn Media :		***RLF Subgrant Amt:***	
Redev Cmpltn Date:		***Cost Share Amt:***	
Pro Code:	BF	***Env Pro Income Amt:***	
FCA Fy:		***Dt RLF Sbgrnt Signd:***	
Flag EC in Place:		***Clnup Actvy Funded:***	
Flag EC Required:	U	***Below Poverty:***	
RFR Notation:		***Below Poverty Pct:***	
Gpa Type ID:	10	***Median Income:***	
Clnup Doc:		***Low Income:***	
Awp Catalyst Yn:		***Low Income Pct:***	
Flag Prop Not Enrld:	Y		
Redev Fund Entity:			
Gpa Type Desc:	Redevelopment Jobs Leveraged		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

AA Actvy Funded:
AA Source of Funding:
Clnup Trmt Tech Info:
EC Data Address:
EC Addl Info:
Env IC Data Address:
Other Forms of Doc:
IC Addl Info:
Highlights: This property is in a highly visible, developing commercial area near Fountain Creek. The facility processes and packages soil/mulch products for distribution to retail distributors. Raw materials including peat moss, bark fines, wood fiber, yard compost, compost manure, coir, rice hulls, topsoil, humus, and wood chips are received at the Property and stockpiled outdoors. All bagged and drummed raw materials such as dyes and fertilizer additives are received into the warehouse. The mulch/soil materials are screened to remove rocks and debris and are then placed in machines outside the processing building where they are mixed with water-based biodegradable dyes and fertilizers. A conveyor then transports the mixture into the building where it is bagged and palletized. The packaged product is placed on pallets and shrink-wrapped for storage on-site. The potential for residual concentrations of fertilizers from years of outdoor mixing and storage on the property was identified as a Business Environmental Risk (BER) as defined in ASTM E1527.
Property Alias:
Ctmnt Found:
Ctmnt Cleanedup:
Ctmnt Rec:

Media Afffected:

18	*1 of 2*	*E*	*0.02 / 101.45*	*5,752.04 / 98*	***FAMILY DOLLAR #8650 6960 MESA RIDGE PKWY FOUNTAIN CO 80817***	***FINDS/FRS***

Registry ID: 110064376410
FIPS Code: 08041
HUC Code: 11020003
Site Type Name: STATIONARY
Location Description:
Supplemental Location:
Create Date: 29-MAY-15
Update Date:
Interest Types: UNSPECIFIED UNIVERSE
SIC Codes:
SIC Code Descriptions:
NAICS Codes:
NAICS Code Descriptions:
Conveyor: FRS-GEOCODE
Federal Facility Code:
Federal Agency Name:
Tribal Land Code:
Tribal Land Name:
Congressional Dist No: 05
Census Block Code: 080410045034035
EPA Region Code: 08
County Name: EL PASO
US/Mexico Border Ind:
Latitude: 38.71856
Longitude: -104.698673
Reference Point: ENTRANCE POINT OF A FACILITY OR STATION
Coord Collection Method: ADDRESS MATCHING-HOUSE NUMBER
Accuracy Value: 50
Datum: NAD83
Source:
Facility Detail Rprt URL: https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110064376410
Data Source: Facility Registry Service - Single File
Program Acronyms:

RCRAINFO:COR000238022

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
18	2 of 2	E	0.02 / 101.45	5,752.04 / 98	FAMILY DOLLAR #8650 6960 MESA RIDGE PKWY FOUNTAIN CO 80817	RCRA VSQG

EPA Handler ID: COR000238022
Gen Status Universe: VSG
Contact Name: KEVIN STRAIGHT
Contact Address: P O BOX 1017 , , CHARLOTTE , NC, 28201 , US
Contact Phone No and Ext: 704-708-1909
Contact Email: KSTRAIGHT@FAMILYDOLLAR.COM
Contact Country: US
County Name: EL PASO
EPA Region: 08
Land Type: Private
Receive Date: 20150323
Location Latitude: 38.720381
Location Longitude: -104.682724

Violation/Evaluation Summary

Note: NO RECORDS: As of Apr 2023, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No
Onsite Burner Exemption: No
Furnace Exemption: No
Underground Injection Activity: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20150323
Handler Name: FAMILY DOLLAR #8650
Federal Waste Generator Code: 3
Generator Code Description: Very Small Quantity Generator
Source Type: Notification

Waste Code Details

Hazardous Waste Code: D005
Waste Code Description: BARIUM

Hazardous Waste Code: U002
Waste Code Description: 2-PROPANONE (I) (OR) ACETONE (I)

Hazardous Waste Code: D004
Waste Code Description: ARSENIC

Hazardous Waste Code: D009
Waste Code Description: MERCURY

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Hazardous Waste Code: D016
Waste Code Description: 2,4-D (2,4-DICHLOROPHENOXYACETIC ACID)

Hazardous Waste Code: D008
Waste Code Description: LEAD

Hazardous Waste Code: D035
Waste Code Description: METHYL ETHYL KETONE

Hazardous Waste Code: D002
Waste Code Description: CORROSIVE WASTE

Hazardous Waste Code: D007
Waste Code Description: CHROMIUM

Hazardous Waste Code: D011
Waste Code Description: SILVER

Hazardous Waste Code: D001
Waste Code Description: IGNITABLE WASTE

Hazardous Waste Code: D010
Waste Code Description: SELENIUM

Owner/Operator Details

Owner/Operator Ind:	Current Operator	**Street No:**	6960
Type:	Private	**Street 1:**	MESA RIDGE PKWY
Name:	FAMILY DOLLAR #8650	**Street 2:**	
Date Became Current:	20150323	**City:**	FOUNTAIN
Date Ended Current:		**State:**	CO
Phone:		**Country:**	US
Source Type:	Notification	**Zip Code:**	80817
Owner/Operator Ind:	Current Owner	**Street No:**	121
Type:	Private	**Street 1:**	S TEJON ST #201
Name:	MMR RETAIL G-1 LLC	**Street 2:**	
Date Became Current:	20150323	**City:**	COLORADO SPRINGS
Date Ended Current:		**State:**	CO
Phone:	719-573-1122	**Country:**	US
Source Type:	Notification	**Zip Code:**	80903

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
19	1 of 1	E	0.03 / 151.65	5,746.68 / 92	7841 FOUNTAIN MESA RD. FOUNTAIN CO 80817-	SPILLS

Case No:	2002-004	**H2O Unit Measure 2:**	
Main ID:		**Quantity 3:**	
NRC No:		**Unit Measure 3:**	
Dt of Spl or Rel:	1/2/2002	**H2O quantity 3:**	
Event Time:	11:00:00 PM	**H2O Unit Measure 3:**	
1st Rep Event Dt:	1/2/2002	**Cause:**	O
Date Reported:	1/3/2002	**Death:**	0
Time Reported:	10:30:00 AM	**Injury:**	0
Date Entered:	1/4/2002	**Evacuation:**	Y
Time Entered:	2:09:41 PM	**Evacuation No:**	200
Land:	FALSE	**PRP City:**	
Air:	FALSE	**PRP County:**	
Surface Water:	FALSE	**PRP State:**	CO
Ground Water:	FALSE	**PRP Zip:**	
Material Type:	HAZARDOUS	**PRP Phone:**	
Quantity 1:	30000	**PRP Extension:**	
Unit Measure 1:	O	**Mile Marker:**	
H2O Quantity 1:	0	**Who Took Report:**	MIKE MORELAND
H2O Unit Measure 1:	U	**Fixed Facility:**	TRUE
Material 2:		**Event County:**	EL PASO
Quantity 2:		**Latitude:**	0

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Unit Measure 2:
Longitude: 0
H2O Quantity 2:
Source Desc:
Source: F
Source Type: AIRPORT HANGERS
Medium: FIXED FACILITY
Waterway:
Material 1: TIRES
Material 3:
PRP: UNKNOWN
PRP Contact:
PRP Street:
PRP Fax:
Responder 1: FOUNTAIN FIRE DEPT.
Responder 2: FOUNTAIN POLICE DEPT.
Responder 3: EL PASO CTY HEALTH DEPT.
Response Comments: TOM STEWART OF CDPHE-EMP RECEIVED A PHONE CALL FROM DAVE OUIMETTE OF CDPHE-APCD AT 10:30 AM REQUESTING STEWART CALL JOHN JAMES OF EL PASO COUNTY HEALTH DEPT. WHO WAS REQUESTING ASSISTANCE WITH PUBLIC HEALTH ISSUES REGARDING TIRE FIRE NEAR THE CITY OF FOUNTAIN.
Notified Name: APCD-DAVE OUIMETTE **Note: Many records provided by the department have a truncated [Notified Name] field.
Additional Comments: OTHER AGENCIES NOTIFIED WERE- AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY (ATSDR) AND ENVIRONMENTAL PROTECTION AGENCY(EPA).
Comments: ALL RUNOFF OF WATER USED TO COMBAT FIRE WAS CONTAINED ON SITE.
Cause Info: FIRE - UNKNOWN CAUSE **Note: Many records provided by the department have a truncated [Cause Info] field.
Action: FIRE CREWS DEMOLISHED ONE BUILDING TO SMOTHER FLAMES AND USED GRAVEL AND WATER TO TRY AND EXTINGUISH FIRE.

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
20	1 of 3	E	0.03 / 175.28	5,752.76 / 99	SEJ #33043 7725 Fountain Mesa Rd Fountain 80817 CO	UST

Facility ID: 15472
FacilityName(OPS): SEJ #33043
FacilityType(OPS): Retail
Fac Category (OPS): Retail Gas Station
Address (OPS): 7725 Fountain Mesa Rd
City (OPS): Fountain
Zip Code (OPS): 80817
County (OPS): El Paso
LatLong (OPS): 38.720101, -104.700167
FacName (CDLE): SEJ #33043
Address (CDLE): 7725 Fountain Mesa Rd
State (CDLE):
Fac Name (COSTIS): SEJ #33043
Address (COSTIS): 7725 Fountain Mesa Rd
Fountain 80817
County (COSTIS): El Paso
Latitude (CDLE): 38.720101
Longitude (CDLE): -104.700167
Fac Type (CDLE): Retail
FacCategry(CDLE): Retail Gas Station
State (OPS): CO
City (CDLE): Fountain
Zip (CDLE): 80817
County (CDLE): El Paso
Data Source(s): Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks

Facility Information (CDLE)

Count of Tank Tag: 2
No. Dispensers: 30
Owner ID: OWNR-22315
Accnt Holdr Name: SEJ Asset Management & Investment Company
Type: Retail

Owner Information (CDLE)

Contact Name: SEJ Asset Management & Investment Company
Middle Init:
First Name:
Company Name: SEJ Asset Management & Investment Company
Last Name: SEJ Asset Management & Investment Company
Address: 1722 Routh St, Dallas, TX 75221
Comment:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

UST Tanks (COSTIS) (As of October 2021)

Tank ID:	34115	***Owner ID:***	22315
Tank Tag:	'15472-1	***Tank Owner:***	
Tank Type Desc:	UST	***County:***	El Paso
Tank Count:	46668	***Product Name:***	Unleaded Regular (RUL)
Capacity:	15000		
Facility Owner:	SEJ Asset Management & Investment Company		
Facility Name Address:	SEJ #33043 7725 Fountain Mesa Rd Fountain 80817		

Tank ID:	34116	***Owner ID:***	22315
Tank Tag:	'15472-2	***Tank Owner:***	
Tank Type Desc:	UST	***County:***	El Paso
Tank Count:	46668	***Product Name:***	Unleaded Premium (PUL)
Capacity:	10000		
Facility Owner:	SEJ Asset Management & Investment Company		
Facility Name Address:	SEJ #33043 7725 Fountain Mesa Rd Fountain 80817		

UST Tanks 1 (CDLE)

Tank Tag:	15472-1	***Overfill Preven:***	FV: Fill Tube Valve
Tank Type:	UST	***Product Type/Name:***	Unleaded Regular (RUL)
Tank Status:	Currently In Use	***Piping Wall Type:***	Double-Walled
Capacity:	15000	***Tank Wall Type:***	
Install Date:	6/14/2001	***Piping System:***	
Date Closed:		***Piping Type:***	UG: Underground
Tank Material:	FRP: Fiberglass Reinforced Plastic		
Piping Material:	FLEX: Flexible Plastic		

UST Tanks 2 (CDLE)

Closure Meth ID:		***No Fee:***	No
Unregulated:	FALSE	***Anch Method Desc:***	
Last Used Date:		***Pipe Reld Meth1 ID:***	L5: Annual Tightness Testing
Del Prohib Date:		***Pipe Reldet Date:***	
Spill Protected:		***Backfill Mat Desc:***	
Spl Container Size:	5	***Bfill DrtCvr Amt:***	0
Spl Protection Dt:		***Manifold:***	No
Spl Container Mfg:	OPW	***Registration Date:***	7/20/2022
Spl Container Mdel:	1C-2100	***Compartment:***	FALSE
Tank Reld Meth1 ID:		***Cpmet:***	Yes
Tank Lining Date:		***Invault:***	FALSE
CP Test Date:	5/4/2001		

UST Tanks 1 (CDLE)

Tank Tag:	15472-2	***Overfill Preven:***	FV: Fill Tube Valve
Tank Type:	UST	***Product Type/Name:***	Unleaded Premium (PUL)
Tank Status:	Currently In Use	***Piping Wall Type:***	Double-Walled
Capacity:	10000	***Tank Wall Type:***	
Install Date:	6/14/2001	***Piping System:***	
Date Closed:		***Piping Type:***	UG: Underground
Tank Material:	FRP: Fiberglass Reinforced Plastic		
Piping Material:	FLEX: Flexible Plastic		

UST Tanks 2 (CDLE)

Closure Meth ID:		***No Fee:***	No
Unregulated:	FALSE	***Anch Method Desc:***	
Last Used Date:		***Pipe Reld Meth1 ID:***	L5: Annual Tightness Testing
Del Prohib Date:		***Pipe Reldet Date:***	
Spill Protected:		***Backfill Mat Desc:***	
Spl Container Size:	5	***Bfill DrtCvr Amt:***	0

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Spl Protection Dt:		***Manifold:***	No
Spl Container Mfg:	OPW	***Registration Date:***	7/20/2022
Spl Container Mdel:	1C-2100	***Compartment:***	FALSE
Tank Reld Meth1 ID:		***Cpmet:***	Yes
Tank Lining Date:		***Invault:***	FALSE
CP Test Date:	5/4/2001		

Oil & Public Safety Regulated Storage Tanks (COSTIS)

Tank Tag:	15472-2	***Leak Detector Type:***	M: Mechanical
Tank Status:	Currently In Use	***Capacity Gallons :***	10000
Tank Type:	UST	***Product:***	Unleaded Premium (PUL)
Tank Name:	TNK-030652	***Piping Type:***	UG: Underground
Installation Date:	6/14/2001	***Piping System:***	
Closure Date:		***Piping Material:***	FLEX: Flexible Plastic
Tank Material:	FRP: Fiberglass Reinforced Plastic	***Piping Wall Type:***	Double-Walled
Tank Wall Type:		***Address:***	7725 Fountain Mesa Rd
Facility Name:	SEJ #33043	***City:***	Fountain
Facility Type:	Retail	***County:***	El Paso
Facility Category:	Retail Gas Station	***ZIP Code:***	80817
Overfill Preven:	FV: Fill Tube Valve		
Tank Corsn Protection Meth:	Fiberglass (n/a)		
Tank Rel Detn Mthd Primary:	T2: Inter Mntrg w/ Sensor		
Tank Rel Detn Mthd Secondary:			
Piping Corsn Protection (PCP):	Non-metallic		
PCP at Tank:	No Electrolyte Contact (n/a)		
PCP at Dispenser:	No Electrolyte Contact (n/a)		
Piping Rel Detn Mthd Primary:	L5: Annual Tightness Testing		
Piping Rel Detn Mthd Secondary:			

Tank Tag:	15472-1	***Leak Detector Type:***	M: Mechanical
Tank Status:	Currently In Use	***Capacity Gallons :***	15000
Tank Type:	UST	***Product:***	Unleaded Regular (RUL)
Tank Name:	TNK-030651	***Piping Type:***	UG: Underground
Installation Date:	6/14/2001	***Piping System:***	
Closure Date:		***Piping Material:***	FLEX: Flexible Plastic
Tank Material:	FRP: Fiberglass Reinforced Plastic	***Piping Wall Type:***	Double-Walled
Tank Wall Type:		***Address:***	7725 Fountain Mesa Rd
Facility Name:	SEJ #33043	***City:***	Fountain
Facility Type:	Retail	***County:***	El Paso
Facility Category:	Retail Gas Station	***ZIP Code:***	80817
Overfill Preven:	FV: Fill Tube Valve		
Tank Corsn Protection Meth:	Fiberglass (n/a)		
Tank Rel Detn Mthd Primary:	T2: Inter Mntrg w/ Sensor		
Tank Rel Detn Mthd Secondary:			
Piping Corsn Protection (PCP):	Non-metallic		
PCP at Tank:	No Electrolyte Contact (n/a)		
PCP at Dispenser:	No Electrolyte Contact (n/a)		
Piping Rel Detn Mthd Primary:	L5: Annual Tightness Testing		
Piping Rel Detn Mthd Secondary:			

UST Owner (COSTIS) (As of October 2021)

Owner ID:	22315	***Address1:***	1722 Routh St
First Name:		***City:***	Dallas
Middle Init:		***State:***	TX
Last Name:	SEJ Asset Management & Investment Company	***County:***	Dallas
Full Name:		***Zip Code:***	75221

Oil & Public Safety Regulated Storage Tank Details

No of Tanks: 2

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Facility Contact Details (CDLE)

Contact ID:	0033h00000lKyBC	***Role:***	Facility Owner
Costis ID:	FACOWN-15472-10331-Dec 12 2001 9:20AM	***Fac Contact Name:***	FCON-001498
Active:	FALSE	***Contact Last Name:***	7-Eleven Inc
Contact ID:	0033h00000lKyBF	***Role:***	Facility Owner
Costis ID:	FACOWN-15472-34526-May 10 2001 3:52PM	***Fac Contact Name:***	FCON-006195
Active:	FALSE	***Contact Last Name:***	7-Eleven Inc
Contact ID:	0033h00000mtYqV	***Role:***	Facility Owner
Costis ID:	FACOWN-15472-47737-Oct 15 2013 10:37AM	***Fac Contact Name:***	FCON-052271
Active:	TRUE	***Contact Last Name:***	SEJ Asset Management & Investment Company
Contact ID:	0033h00000lKyBI	***Role:***	Facility Owner
Costis ID:	FACOWN-15472-5403-Jan 15 2002 9:09AM	***Fac Contact Name:***	FCON-001593
Active:	FALSE	***Contact Last Name:***	7-Eleven Inc
Contact ID:	0033h00000mtX4Z	***Role:***	A/B Operator
Costis ID:	ABOP-15472-1148	***Fac Contact Name:***	FCON-047501
Active:	TRUE	***Contact Last Name:***	Marc Westfall

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
20	2 of 3	E	0.03 / 175.28	5,752.76 / 99	SEJ #33043 7725 Fountain Mesa Rd Fountain 80817 CO	LST

Facility ID:	15472	***Fac Name(CDLE):***	SEJ #33043
Event ID:		***Address(CDLE):***	7725 Fountain Mesa Rd
Facility Name(OPS):	SEJ #33043	***Fac Type(CDLE):***	Retail
Facility Type(OPS):	Retail	***Fac Category(CDLE):***	Retail Gas Station
Fac Category(OPS):	Retail Gas Station	***City(CDLE):***	Fountain
Address(OPS):	7725 Fountain Mesa Rd	***Zip(CDLE):***	80817
City(OPS):	Fountain	***County(CDLE):***	El Paso
Zip Code(OPS):	80817	***State(CDLE):***	
County(OPS):	El Paso	***Latitude(CDLE):***	38.720101
State(OPS):	CO	***Longitude(CDLE):***	-104.700167
Lat Long(OPS):	38.720101, -104.700167		
Fac Name(COSTIS):	SEJ #33043		
Address (COSTIS):	7725 Fountain Mesa Rd Fountain 80817		
County (COSTIS):	El Paso		
Original Source:	Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks; OPS Petroleum Release Events in Colorado - Petroleum Release Events		
Owner ID:	22315		
Owner Name:			

Events (CDLE)

Event ID:	9039	***Proj. Closure Date:***	
Alt Event ID:		***Category:***	
Status:	Closed	***Sardonyx ID:***	
UST Tank Count:	2	***MTBE Classifica:***	
AST Tank Count:	0	***Sum of Reimbur Amt:***	
Source of Release:		***Reviewer Full Name:***	John Gould
Cause of Release:		***Logged On:***	9/18/2002
Confirm Rel Dt:	9/13/2002	***Logged By:***	
Site Name:	SEJ #33043		
Loc Addr:			
Loc Addr2:			
Loc Addr3:			
Aka Name:			
Aka Loc Addr:			

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Facility (CDLE)

Owner Costis ID:	OWNR-22315	***Type:***	Retail
No of Active Tanks:	2	***Facility Owner:***	SEJ Asset Management & Investment Company
No of Metred Prod:	30		

Events (COSTIS) (As of October 2021)

Event ID:	9039	***Log Date:***	9/18/2002 3:44:54 PM
Process Status Name:	Closed		
Site Name:	7-Eleven #33043		
Facility Name:			
Address:	7725 Fountain Mesa Rd Fountain CO 80817		
Loc Address:	7725 Fountain Mesa Rd Fountain 80817		
Loc City:	Fountain		
Loc County:	El Paso		

OPS Regulated Storage Tanks

No of Tanks:	2

OPS Petroleum Release Events in Colorado - Petroleum Release Events

Event ID:	9039	***Phone:***	(303) 318-4357
Release No:	REL-005209	***City:***	Fountain
Status:	Closed	***Zip:***	80817
Release Date:	9/13/2002	***State:***	CO
Closure Date:		***County:***	El Paso
NFA Type:	Administrative	***Latitude:***	38.720101
Release Cause:		***Longitude:***	-104.700167
Reimbursement Total:		***Latitude Longitude:***	38.720101, -104.700167
Contact:	John Gould		
Release Source:			
Site Name:	SEJ #33043		
Address:	7725 Fountain Mesa Rd		
Email:	cdle_ops_public_record_center@state.co.us		
Link :	https://socgov18.force.com/s/release/a183h000003KWbz		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
20	3 of 3	E	0.03 / 175.28	5,752.76 / 99	SEJ ASSET MANAGEMENT - 7-ELEVEN #33043 7725 FOUNTAIN MESA RD FOUNTAIN CO 80817	AIR PERMITS

APCD Site ID:	041-1554	***Sip Status Co:***	FALSE
Site ID:	1554	***Sip Status O3:***	FALSE
Fed Facility ID:	4387411	***Site Cont Company:***	7-ELEVEN INC
County:	EL PASO	***Descriptn Category:***	PC
Addr County Name:	EL PASO	***Site First Name:***	Marc
Address Type:	STREET	***Site Full Name:***	Marc Westfall
Air Program:	SM	***Site Last Name:***	Westfall
Air Acid Precip:		***Site Title:***	
Class Apen Exempt:		***Site Phone:***	(214)415-0146
Class CFC:		***Site Fax:***	(208)342-5353
Class Condensate :		***No Employees:***	0.0
Class Fesop:		***Site Geocode Date:***	28-Nov-2018 15:16:43
Class Mact:		***Pt Lin Are:***	P
Class Neshap:		***Src Scale:***	2
Class Non Fed Rpt:		***Verification:***	
NSPS Federal:		***NAICS Prime:***	457110
Class NSPS State:		***NAICS Second:***	
Class NSR:		***Sic Prime:***	5541
Class PSD:		***Sic Second:***	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Sip Fed Jd:		**Site Operat Stat:**	O
Class Sip Federal:	SM	**Owner Cust:**	9920108246
Air Title:		**Method Code:**	I2
Class Tribal:		**Site Lat:**	384312.3794
CMS Category:		**Site Long:**	1044201.2573
CMS Frequency:	0	**UTM Horiz:**	526.049
Cpts Bogus Ind:	FALSE	**UTM Vert:**	4285.759
Govt Fac Classifi:	0	**UTM Zone:**	13.0
Hap Classifi:	TBD	**Vert Dat:**	1
NAA NSR Classifi:	TBD	**Vert Meas:**	1753.6
Op Classification:	TBD	**Vert Meas Acc:**	3.0
Property Area:	0.0	**Vert Meth Coll:**	OT
PSD Classifi:	TBD	**Site Horiz Dat:**	2
City FIPS Code:	27865	**Acc Units:**	METERS
State FIPS:	08	**Accuracy:**	30.0
County FIPS:	041	**Date Coll:**	28-Nov-2018 15:16:43
Addr County FIPS:	041		
Permit App:	SEJ ASSET MANAGEMENT - 7-ELEVEN #33043		
SIC Sec Desc:			
Site Email:	marc.westfall@7-11.com		
SIC Pri Desc:	AUTOMOTIVE DEALERS AND GASOLINE SERVICE STATIONS - Gasoline Service Station		
Site Description:	CONVENIENCE STORE WITH GASOLINE		
Site LL Description:	Elevation source: 3DEP 1/3 arc-second		

Sip Prog1:		**Sip Prog3 Area:**	
Sip Prog1 Area:		**Sip Prog4:**	
Sip Prog2:		**Sip Prog4 Area:**	
Sip Prog2 Area:		**Sip Prog5:**	
Sip Prog3:			

Site Owner

Owner Bill Cycle:	3	**Mail Fax:**	(972)828-1011
Owner Description:	FUEL DISPENSING STATIONS	**Mail Full Name:**	RANKIN GASAWAY
Mail Addr 1:	1722 ROUTH STREET	**Mail First Name:**	RANKIN
Mail Addr 2:	SUITE 1000	**Mail Last Name:**	GASAWAY
Mail Type:	STREET	**Mail Phone:**	(972)828-0711
Mail City:	DALLAS	**Mail Province:**	
Mail City Cd:		**Mail State:**	48
Mail Company:		**Mail Title:**	
Mail Country Cd:	US	**Mail Zip:**	75221-
Owner Name:	SEJ ASSET MANAGEMENT & INVESTMENT COMPANY		
Owner Mail Email:	rankin.gasaway@7-11.com		

Site Pollutant

Site ID:	1554	**Pk Co:**	
State FIPS:	08	**Pk Co Mc:**	Z
County FIPS:	041	**Pk Co Re:**	
Data Year:	2018	**Pk Co Re Mc:**	Z
Inventory Year:	2023	**Pk Co Re Units:**	PD
Inventory Year 2:	23	**Pk Co Unc:**	
Pollutant Code:	VOC	**Pk Co Units:**	PD
Is Colorado Hap:	FALSE	**Pk O3:**	
Is Criteria:	TRUE	**Pk O3 Mc:**	Z
Is EPCRA Only:	FALSE	**Pk O3 Re:**	
Is Hap:	FALSE	**Pk O3 Re Mc:**	Z
NEI Pollutant ID:	VOC	**Pk O3 Re Units:**	PD
Ozone Depleting:	FALSE	**Pk O3 Unc:**	
Estim:	3.305627	**Pk O3 Units:**	PD
Estim Mc:	Z	**EMIS Pot:**	
Estim Unc:	3.305627	**Pot Mc:**	
Estim Units:	TY	**Pot Unc:**	
Limit1:		**Pot Unc Mc:**	
Limit1 Mc:		**Pot Unc Units:**	
Limit1 Units:		**Pot Units:**	
Limit2:		**Re Estim:**	0.0

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Limit2 Mc:		**Re Estim Mc:**	Z
Limit2 Units:		**Re ESTIM Units:**	TY
Pollutant Name:	VOLATILE ORGANIC COMPOUNDS		

Stack

Site ID:	1554	**Plume Height:**	30
Stack ID:	001	**Rough Terrain Ind:**	N
State FIPS:	08	**Diameter:**	0.0
County FIPS:	041	**Diameter Meter:**	0.0
Data Year:	2018	**Geo Origin:**	plant
Inventory Year:	2023	**Height:**	0.0
Inventory Year 2:	23	**Height Meter:**	0.0
Apcd Stack ID:	041-1554-S001	**Horiz Dat:**	2
Cem Recorder Flag:	No	**Lining Code:**	
Distance:		**Acc Units:**	4
Exit Gas Flow Rate:	0.0	**Accuracy:**	30.0
Exit Gas Temp:	70.0	**Method Code:**	I2
Exit Gas Kelvin:	294.0	**Pt Lin Area:**	P
Gas Velocity:	0.0	**Src Scale:**	2
Gas Meters Sec:	0.0	**Latitude:**	384312.3794
Bldg Height:	0	**Longitude:**	1044201.2573
Bldg Length:	0	**Type Code:**	F
Bldg Width:	0	**UTM Horiz:**	526.049
Stack Height:	0	**UTM Vert:**	4285.759
NEI Em Rls Pt Typ:	1	**Vert Meas:**	1753.6
NEI Exit Gas Flow:	0.0	**UTM Zone:**	13.0
NEI Horiz Mc:	019	**X Coord:**	-104.70034925
NEI Ref Pt Code:	105	**Y Coord:**	38.720105388888896
Emission Release Desc:	2 GASOLINE UST		
Description:	Elevation source: 3DEP 1/3 arc-second		
Description Category:	PC		
Stack Type:	FUGITIVE EMISSIONS, NO STACK EXISTS		

Stack Pollutant

Site ID:	1554	**Pk Co:**	
Stack ID:	001	**Pk Co Mc:**	Z
State Fips:	08	**Pk Co Re:**	
County Fip:	041	**Pk Co Re Mc:**	Z
Data Year:	2018	**Pk Co Re Units:**	PD
Inventory Year:	2023	**Pk Co Unc:**	
Inventory Year 2:	23	**Pk Co Units:**	PD
Pollutant Code:	VOC	**Pk O3:**	
Is Colorado Hap:	FALSE	**Pk O3 Mc:**	Z
Is Criteria:	TRUE	**Pk O3 Re:**	
Is Epcra Only:	FALSE	**Pk O3 Re Mc:**	Z
Is Hap:	FALSE	**Pk O3 Re Units:**	PD
Ozone Depleting:	FALSE	**Pk O3 Unc:**	
Estim:	3.305627	**Pk O3 Units:**	PD
Estim Mc:	Z	**Pot:**	
Estim Unc:	3.305627	**Pot Mc:**	
Estim Units:	TY	**Pot Unc:**	
Limit1:		**Pot Unc Mc:**	
Limit1 Mc:		**Pot Unc Units:**	
Limit1 Units:		**Pot Units:**	
Limit2:		**Re Estim:**	0.0
Limit2 Mc:		**Re Estim Mc:**	Z
Limit2 Units:		**Re Estim Units:**	TY
Pollutant Name:	VOLATILE ORGANIC COMPOUNDS		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
21	1 of 1	ESE	0.06 / 291.50	5,741.00 / 87	Les Schwab Tire Center #164 7990 Fountain Mesa Rd Fountain CO	SWF/LF

Loc ID:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Cert of Reg ID: 2313

Waste Tire Registrants Info

County:	El Paso	**Processor:**	No
Business Phone:	541-416-5514	**Mobile Proc:**	No
Generator:	Yes	**End User:**	No
Hauler:	No	**Monofill:**	No
Collection Facility:	No		
Doing Business As:			

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22 | **1 of 1** | **WNW** | **0.06 / 307.16** | **5,628.46 / -26** | **702 FRONTAGE ROAD SOUTH FOUNTAIN CO** | **SPILLS**

Case No:	CO96-360	**H2O Unit Measure 2:**	
Main ID:		**Quantity 3:**	0
NRC No:	360801	**Unit Measure 3:**	
Dt of Spl or Rel:	9/11/1996	**H2O quantity 3:**	0
Event Time:	4:00:00 PM	**H2O Unit Measure 3:**	
1st Rep Event Dt:	9/11/1996	**Cause:**	F
Date Reported:	9/11/1996	**Death:**	0
Time Reported:	4:50:00 PM	**Injury:**	0
Date Entered:	10/8/1996	**Evacuation:**	N
Time Entered:	11:46:56 AM	**Evacuation No:**	0
Land:	TRUE	**PRP City:**	COLORADO SPRINGS
Air:	FALSE	**PRP County:**	EL PASO
Surface Water:	FALSE	**PRP State:**	CO
Ground Water:	FALSE	**PRP Zip:**	80903-
Material Type:	OIL	**PRP Phone:**	719-634-8874-
Quantity 1:	230	**PRP Extension:**	
Unit Measure 1:	G	**Mile Marker:**	
H2O Quantity 1:	0	**Who Took Report:**	STEWART, TOM
H2O Unit Measure 1:		**Fixed Facility:**	FALSE
Material 2:		**Event County:**	EL PASO
Quantity 2:	0	**Latitude:**	0
Unit Measure 2:		**Longitude:**	0
H2O Quantity 2:	0		

Source Desc:	
Source:	H
Source Type:	TANK WAGON
Medium:	LAND
Waterway:	
Material 1:	OILS,DIESEL
Material 3:	
PRP:	ACORN PETROLEUM
PRP Contact:	RONALD SPRINGSTEEN
PRP Street:	529 SOUTH SAHWATCH
PRP Fax:	
Responder 1:	
Responder 2:	
Responder 3:	
Response Comments:	
Notified Name:	CDPHE/HMWMD/SW **Note: Many records provided by the department have a truncated [Notified Name] field.
Additional Comments:	
Comments:	
Cause Info:	BROKEN PTO HOSE **Note: Many records provided by the department have a truncated [Cause Info] field.
Action:	RELEASE STOPPED AND CLEAN UP CREW EN ROUTE **Note: Many records provided by the department have a truncated [Action] field.

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23 | **1 of 1** | **E** | **0.06 / 313.16** | **5,745.44 / 91** | **ADVANCE AUTO #6425 7960 FOUNTAIN MESA RD FOUNTAIN CO 80817** | **RCRA NON GEN**

EPA Handler ID: COR000254318

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Gen Status Universe: No Report
Contact Name: AMANDA SANDIDGE
Contact Address: 5008 , AIRPORT RD , , ROANOKE , VA, 24012 , US
Contact Phone No and Ext: 540-561-8303
Contact Email: AMANDA.SANDIDGE@ADVANCE-AUTO.COM
Contact Country: US
County Name: EL PASO
EPA Region: 08
Land Type: Private
Receive Date: 20210604
Location Latitude:
Location Longitude:

Violation/Evaluation Summary

Note: NO RECORDS: As of Apr 2023, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No
Onsite Burner Exemption: No
Furnace Exemption: No
Underground Injection Activity: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20210604
Handler Name: ADVANCE AUTO #6425
Source Type: Notification
Federal Waste Generator Code: N
Generator Code Description: Not a Generator, Verified

Waste Code Details

Hazardous Waste Code: F001
Waste Code Description: THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING: TETRACHLOROETHYLENE, TRICHLORETHYLENE, METHYLENE CHLORIDE, 1,1,1-TRICHLOROETHANE, CARBON TETRACHLORIDE AND CHLORINATED FLUOROCARBONS; ALL SPENT SOLVENT MIXTURES/BLENDS USED IN DEGREASING CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Owner/Operator Details

Owner/Operator Ind: Current Operator
Type: Private
Name: ADVANCE STORES COMPANY INC
Date Became Current: 20040610
Date Ended Current:
Phone:
Street No: 5008
Street 1: AIRPORT RD
Street 2:
City: ROANOKE
State: VA
Country: US

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Source Type:	Notification			**Zip Code:**	24012	
Owner/Operator Ind:	Current Owner			**Street No:**	7089	
Type:	Private			**Street 1:**	FIRENZA PL	
Name:	MALIK PROPERTIES LLC			**Street 2:**		
Date Became Current:	20040128			**City:**	DUBLIN	
Date Ended Current:				**State:**	OH	
Phone:				**Country:**	US	
Source Type:	Notification			**Zip Code:**	43016	

24	1 of 1	E	0.06 / 317.22	5,746.49 / 92	**UCHealth Fountain Freestanding ED** **7890 Fountain Mesa Road** **Fountain CO 80817**	ALT FUELS

ID:	213867	**CNG Dispenser No:**	
Fuel Type Code:	ELEC: Electric	**CNG Site Renew Src:**	
Station Phone:	800-663-5633	**CNG Tot Compr Cap:**	
Expected Date:		**CNG Storage Cap:**	
BD Blends:		**CNG Fill Type Code:**	
NG PSI:		**CNG PSI:**	
Federal Agency ID:		**CNG Vehicle Class:**	
Open Date:	2022-04-13	**LNG Site Renew Src:**	
Hydrogen is Retail:		**LNG Vehicle Class:**	
Federal Agency:		**LPG Nozzle Types:**	
Facility Type:		**Hydrogen Pressures:**	
Dt Last Confirmed:	2023-06-05	**Hydrogen Standards:**	
Updated at:	2023-06-05 00:01:32 UTC	**Latitude:**	38.718698
Access Code:	public	**Longitude:**	-104.702013
Access Detail Code:			
Groups with Access Code:	Public		
Groups with Access Code Fr:	Public		
Fed Agency Name:			
Hydrogen Status Link:			
E85 Other Ethanol Blends:			
NPS Unit Name:			
Cards Accepted:			
CNG Statn Sells Renewable Na:			
LNG Statn Sells Renewable Na:			
Maximum Vehicle Class:			
RD Blended With Biodiesel:			
RD Blends:			
RD Blends French:			
RD Maximum Biodiesel Level:			
Status:	Open: The station is open.		
Owner Type Desc:			
E85 Blender Pump Desc:			
NG Fill Type Desc:			
NG Vehicle Class Desc:			
Geocode Status Desc:	The location is from a real GPS readout at the station.		
Group with Access Desc:	Publicly available to all customers.		
LPG Primary Desc:			
Intersection Directions:			
Access Days Time:			
Restricted Access:			

25	1 of 1	SE	0.08 / 446.00	5,705.08 / 51	**Former John Janitell Property** **6525 Mesa Rd Fountain 80817 CO**	UST

Facility ID:	18992	**Fac Name (COSTIS):**	Former John Janitell Property
FacilityName(OPS):	Former John Janitell Property	**Address (COSTIS):**	6525 Mesa Rd Fountain 80817
FacilityType(OPS):	Non-Retail	**County (COSTIS):**	El Paso
Fac Category (OPS):	Other	**Latitude (CDLE):**	38.713932
Address (OPS):	6525 Mesa Rd	**Longitude (CDLE):**	-104.705011
City (OPS):	Fountain	**Fac Type (CDLE):**	Non-Retail

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Zip Code (OPS):	80817	**FacCategry(CDLE):**	Other
County (OPS):	El Paso	**State (OPS):**	CO
LatLong (OPS):	38.713932, -104.705011	**City (CDLE):**	Fountain
FacName (CDLE):	Former John Janitell Property	**Zip (CDLE):**	80817
Address (CDLE):	6525 Mesa Rd	**County (CDLE):**	El Paso
State (CDLE):			

Data Source(s): Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks

Facility Information (CDLE)

Count of Tank Tag:	0	**Accnt Holdr Name:**	Classic Communities
No. Dispensers:	0	**Type:**	Non-Retail
Owner ID:	OWNR-21830		

Owner Information (CDLE)

Contact Name:	Classic Communities	**Middle Init:**	
First Name:			
Company Name:	Classic Communities		
Last Name:	Classic Communities		
Address:	6385 Corporate Dr Ste 200, Colorado Springs, CO 80919		
Comment:			

UST Tanks 1 (CDLE)

Tank Tag:	18992-1	**Overfill Preven:**	
Tank Type:	UST	**Product Type/Name:**	Unleaded Regular (RUL)
Tank Status:	Permanently Closed	**Piping Wall Type:**	
Capacity:	560	**Tank Wall Type:**	
Install Date:		**Piping System:**	
Date Closed:		**Piping Type:**	
Tank Material:			
Piping Material:			

UST Tanks 2 (CDLE)

Closure Meth ID:		**No Fee:**	No
Unregulated:	TRUE	**Anch Method Desc:**	
Last Used Date:		**Pipe Reld Meth1 ID:**	
Del Prohib Date:		**Pipe Reldet Date:**	
Spill Protected:		**Backfill Mat Desc:**	
Spl Container Size:	0	**Bfill DrtCvr Amt:**	0
Spl Protection Dt:		**Manifold:**	No
Spl Container Mfg:		**Registration Date:**	
Spl Container Mdel:		**Compartment:**	FALSE
Tank Reld Meth1 ID:		**Cpmet:**	No
Tank Lining Date:		**Invault:**	FALSE
CP Test Date:			

UST Tanks 1 (CDLE)

Tank Tag:	18992-2	**Overfill Preven:**	
Tank Type:	UST	**Product Type/Name:**	Unleaded Regular (RUL)
Tank Status:	Permanently Closed	**Piping Wall Type:**	
Capacity:	560	**Tank Wall Type:**	
Install Date:		**Piping System:**	
Date Closed:		**Piping Type:**	
Tank Material:			
Piping Material:			

UST Tanks 2 (CDLE)

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Closure Meth ID:
Unregulated: TRUE
Last Used Date:
Del Prohib Date:
Spill Protected:
Spl Container Size: 0
Spl Protection Dt:
Spl Container Mfg:
Spl Container Mdel:
Tank Reld Meth1 ID:
Tank Lining Date:
CP Test Date:
No Fee: No
Anch Method Desc:
Pipe Reld Meth1 ID:
Pipe Reldet Date:
Backfill Mat Desc:
Bfill DrtCvr Amt: 0
Manifold: No
Registration Date:
Compartment: FALSE
Cpmet: No
Invault: FALSE

Oil & Public Safety Regulated Storage Tanks (COSTIS)

Tank Tag: 18992-2
Tank Status: Permanently Closed
Tank Type: UST
Tank Name: TNK-043493
Installation Date:
Closure Date:
Tank Material:
Tank Wall Type:
Facility Name: Former John Janitell Property
Facility Type: Non-Retail
Facility Category: Other
Overfill Preven:
Tank Corsn Protection Meth:
Tank Rel Detn Mthd Primary:
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP):
PCP at Tank:
PCP at Dispenser:
Piping Rel Detn Mthd Primary:
Piping Rel Detn Mthd Secondary:
Leak Detector Type:
Capacity Gallons : 560
Product: Unleaded Regular (RUL)
Piping Type:
Piping System:
Piping Material:
Piping Wall Type:
Address: 6525 Mesa Rd
City: Fountain
County: El Paso
ZIP Code: 80817

Tank Tag: 18992-1
Tank Status: Permanently Closed
Tank Type: UST
Tank Name: TNK-043492
Installation Date:
Closure Date:
Tank Material:
Tank Wall Type:
Facility Name: Former John Janitell Property
Facility Type: Non-Retail
Facility Category: Other
Overfill Preven:
Tank Corsn Protection Meth:
Tank Rel Detn Mthd Primary:
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP):
PCP at Tank:
PCP at Dispenser:
Piping Rel Detn Mthd Primary:
Piping Rel Detn Mthd Secondary:
Leak Detector Type:
Capacity Gallons : 560
Product: Unleaded Regular (RUL)
Piping Type:
Piping System:
Piping Material:
Piping Wall Type:
Address: 6525 Mesa Rd
City: Fountain
County: El Paso
ZIP Code: 80817

UST Owner (COSTIS) (As of October 2021)

Owner ID: 21830
First Name:
Middle Init:
Last Name: Classic Communities
Full Name:
Address1: 6385 Corporate Dr Ste 200
City: Colorado Springs
State: CO
County: El Paso
Zip Code: 80919

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Oil & Public Safety Regulated Storage Tank Details

No of Tanks: 0

Facility Contact Details (CDLE)

Contact ID: 0033h00000lKyVq
Costis ID: FACOWN-18992-46496-Aug 27 2010 12: 09PM
Active: TRUE
Role: Facility Owner
Fac Contact Name: FCON-008612
Contact Last Name: Classic Communities

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26 | ***1 of 2*** | ***ENE*** | ***0.10 / 521.22*** | ***5,766.00 / 112*** | ***Lowes #2607 7710 Fountain Mesa Rd Fountain 80817 CO*** | ***AST***

Facility ID: 18594
FacName (OPS): Lowes #2607
FacType (OPS): Non-Retail
Fac Category (OPS): Emergency Generator Only
Lat/Long (OPS): 38.721117, -104.701991
Address (OPS): 7710 Fountain Mesa Rd
City (OPS): Fountain
County (OPS): El Paso
Fac Name (COSTIS): Lowes #2607
Fac Type (CDLE): Non-Retail
FacCategry(CDLE): Emergency Generator Only
Address (COSTIS): 7710 Fountain Mesa Rd
Fountain 80817
Data Source(s): Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks

Fac Name (CDLE): Lowes #2607
Address (CDLE): 7710 Fountain Mesa Rd
City (CDLE): Fountain
Zip (CDLE): 80817
County (CDLE): El Paso
State (CDLE):
Latitude (CDLE): 38.721117
Longitude (CDLE): -104.701991
County (COSTIS): El Paso
Zip Code (OPS): 80817
State (OPS): CO

Facility Information (CDLE)

Count of Tank Tag: 1
No. Dispensers: 0
Owner ID: OWNR-21296
Accnt Holdr Name: Lowes Compliance RFS-92
Type: Non-Retail

Owner Information (CDLE)

Contact Name: Lowes Compliance RFS-92
First Name:
Middle Init:
Address: 1000 Lowes Blvd, Mooresville, NC 28115
Comment: MELISSA CALL ENERGY SYSTEM SUPERVISOR (RDR contact)facility aka Lowes Home Improvement Warehouse Inc.
Last Name: Lowes Compliance RFS-92
Company Name: Lowes Compliance RFS-92

AST Tanks (COSTIS) (As of October 2021)

Tank ID: 41439
Tank Tag: '18594-1
Tank Type Desc: AST
Tank Count: 46668
Capacity: 1500
Facility Owner: Lowes Compliance RFS-92
Facility Name Address: Lowes #2607
7710 Fountain Mesa Rd
Fountain 80817
Owner ID: 21296
Tank Owner:
County: El Paso
Product Name: Diesel

AST Tanks 1 (CDLE)

Tank Tag: 18594-1
Tank Type: AST
Tank Wall Type:
Piping System:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Tank Status:	Currently In Use	**Piping Type:**	AG: Aboveground
Capacity:	1500	**Piping Wall Type:**	Double-Walled
Install Date:	1/1/2009	**Tank Material:**	AST: UL142/Equiv.
Date Closed:		**Piping Material:**	AG: Aboveground Lines
Product Type/Name:	Diesel	**Overfill Preven:**	ULL: AL: External Aud/Vis Alarm

AST Tanks 2 (CDLE)

Closure Meth ID:		**No Fee:**	No
Unregulated:	FALSE	**Pipe Reldet Date:**	
Last Used Date:		**Backfill Mat Desc:**	
Del Prohib Date:		**Bfill DrtCvr Amt:**	0
Spill Protected:		**Manifold:**	No
Spl Container Size:	0	**Tm Name:**	
Spl Protection Dt:		**Registration Date:**	12/22/2021
Spl Container Mfg:	Morrison	**Compartment:**	FALSE
Spl Container Mdel:	517	**Cpmet:**	Yes
Tank Reld Meth1 ID:	Double Wall Tank	**Invault:**	FALSE
Tank Lining Date:		**Serial No:**	none-rectangle
CP Test Date:			
Anch Method Desc:			
Pipe Reld Meth1 ID:	T11/L11: Mthly Visual Insp (AST)		

Oil & Public Safety Regulated Storage Tank Details

No of Tanks: 1

Oil & Public Safety Regulated Storage Tanks (COSTIS)

Tank Tag:	18594-1	**Leak Detector Type:**	
Tank Status:	Currently In Use	**Capacity Gallons :**	1500
Tank Type:	AST	**Product:**	Diesel
Tank Name:	TNK-041838	**Piping Type:**	AG: Aboveground
Installation Date:	1/1/2009	**Piping System:**	
Closure Date:		**Piping Material:**	AG: Aboveground Lines
Tank Material:	AST: UL142/Equiv.	**Piping Wall Type:**	Double-Walled
Tank Wall Type:		**Address:**	7710 Fountain Mesa Rd
Facility Name:	Lowes #2607	**City:**	Fountain
Facility Type:	Non-Retail	**County:**	El Paso
Facility Category:	Emergency Generator Only	**ZIP Code:**	80817
Overfill Preven:	ULL: AL: External Aud/Vis Alarm		
Tank Corsn Protection Meth:	No Electrolyte Contact		
Tank Rel Detn Mthd Primary:	T11/L11: Mthly Visual Insp (AST)		
Tank Rel Detn Mthd Secondary:	T2: Inter Mntrg w/ Sensor		
Piping Corsn Protection (PCP):	Aboveground Line (n/a)		
PCP at Tank:	Aboveground Line (n/a)		
PCP at Dispenser:	Aboveground Line (n/a)		
Piping Rel Detn Mthd Primary:	T11/L11: Mthly Visual Insp (AST)		
Piping Rel Detn Mthd Secondary:			

AST Owner (COSTIS) (As of October 2021)

Owner ID:	21296	**Address1:**	1000 Lowes Blvd
First Name:		**City:**	Mooresville
Middle Init:		**State:**	NC
Last Name:	Lowes Compliance RFS-92	**County:**	Iredell
Full Name:		**Zip Code:**	28115

Facility Contact Details (CDLE)

Contact ID:	0033h00000mtWyg	**Role:**	Facility Owner
Costis ID:	FACOWN-18594-43112-Jul 28 2008 2:42PM	**Fac Contact Name:**	FCON-051718

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
Active:	TRUE			Contact Last Name:	Lowes Compliance RFS-92	
26	2 of 2	ENE	0.10 / 521.22	5,766.00 / 112	LOWE'S OF FOUNTAIN CO #2607 7710 FOUNTAIN MESA RD FOUNTAIN CO 80817	RCRA SQG

EPA Handler ID: COR000247684
Gen Status Universe: Small Quantity Generator
Contact Name: BOBBI TENBORG
Contact Address: 1000 , LOWES BLVD , , MOORESVILLE , NC, 28117 , US
Contact Phone No and Ext: 704-993-1564
Contact Email: BOBBI.L.TENBORG@LOWES.COM
Contact Country: US
County Name: EL PASO
EPA Region: 08
Land Type: Private
Receive Date: 20220527
Location Latitude: 38.727039
Location Longitude: -104.698073

Violation/Evaluation Summary

Note: NO VIOLATIONS: All of the compliance records associated with this facility (EPA ID) indicate NO VIOLATIONS; Compliance Monitoring and Enforcement table dated Apr, 2023.

Evaluation Details

Evaluation Start Date: 20210527
Evaluation Type Description: FACILITY SELF DISCLOSURE
Violation Short Description:
Return to Compliance Date:
Evaluation Agency: State

Evaluation Start Date: 20220519
Evaluation Type Description: FACILITY SELF DISCLOSURE
Violation Short Description:
Return to Compliance Date:
Evaluation Agency: State

Evaluation Start Date: 20200611
Evaluation Type Description: FACILITY SELF DISCLOSURE
Violation Short Description:
Return to Compliance Date:
Evaluation Agency: State

Evaluation Start Date: 20190626
Evaluation Type Description: FACILITY SELF DISCLOSURE
Violation Short Description:
Return to Compliance Date:
Evaluation Agency: State

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No
Onsite Burner Exemption: No
Furnace Exemption: No
Underground Injection Activity: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20180730
Handler Name: LOWES OF FOUNTAIN CO #2607
Federal Waste Generator Code: 2
Generator Code Description: Small Quantity Generator
Source Type: Notification

Waste Code Details

Hazardous Waste Code: D001
Waste Code Description: IGNITABLE WASTE

Hazardous Waste Code: U154
Waste Code Description: METHANOL (I) (OR) METHYL ALCOHOL (I)

Hazardous Waste Code: D005
Waste Code Description: BARIUM

Hazardous Waste Code: D006
Waste Code Description: CADMIUM

Hazardous Waste Code: D018
Waste Code Description: BENZENE

Hazardous Waste Code: D002
Waste Code Description: CORROSIVE WASTE

Hazardous Waste Code: D007
Waste Code Description: CHROMIUM

Hazardous Waste Code: D011
Waste Code Description: SILVER

Hazardous Waste Code: D009
Waste Code Description: MERCURY

Hazardous Waste Code: D016
Waste Code Description: 2,4-D (2,4-DICHLOROPHENOXYACETIC ACID)

Hazardous Waste Code: D035
Waste Code Description: METHYL ETHYL KETONE

Hazardous Waste Code: D008
Waste Code Description: LEAD

Hazardous Waste Handler Details

Sequence No: 2
Receive Date: 20201029
Handler Name: LOWES OF FOUNTAIN CO #2607
Federal Waste Generator Code: 2
Generator Code Description: Small Quantity Generator
Source Type: Notification

Waste Code Details

Hazardous Waste Code: D039
Waste Code Description: TETRACHLOROETHYLENE

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Hazardous Waste Code: U159
Waste Code Description: 2-BUTANONE (I,T) (OR) METHYL ETHYL KETONE (MEK) (I,T)

Hazardous Waste Code: D001
Waste Code Description: IGNITABLE WASTE

Hazardous Waste Code: D027
Waste Code Description: 1,4-DICHLOROBENZENE

Hazardous Waste Code: U154
Waste Code Description: METHANOL (I) (OR) METHYL ALCOHOL (I)

Hazardous Waste Code: U279
Waste Code Description: CARBARYL (OR) 1-NAPHTHALENOL, METHYLCARBAMATE

Hazardous Waste Code: D018
Waste Code Description: BENZENE

Hazardous Waste Code: U165
Waste Code Description: NAPHTHALENE

Hazardous Waste Code: D002
Waste Code Description: CORROSIVE WASTE

Hazardous Waste Code: D007
Waste Code Description: CHROMIUM

Hazardous Waste Code: D011
Waste Code Description: SILVER

Hazardous Waste Code: U072
Waste Code Description: BENZENE, 1,4-DICHLORO- (OR) P-DICHLOROBENZENE

Hazardous Waste Code: U240
Waste Code Description: 2,4-D, SALTS & ESTERS (OR) ACETIC ACID, (2,4-DICHLOROPHENOXY)-, SALTS & ESTERS (OR) DICHLOROPHENOXYACETIC ACID 2,4-D

Hazardous Waste Code: D005
Waste Code Description: BARIUM

Hazardous Waste Code: U002
Waste Code Description: 2-PROPANONE (I) (OR) ACETONE (I)

Hazardous Waste Code: U210
Waste Code Description: ETHENE, TETRACHLORO- (OR) TETRACHLOROETHYLENE

Hazardous Waste Code: U411
Waste Code Description: PHENOL, 2-(1-METHYLETHOXY)-, METHYLCARBAMATE (OR) PROPOXUR

Hazardous Waste Code: D009
Waste Code Description: MERCURY

Hazardous Waste Code: D016
Waste Code Description: 2,4-D (2,4-DICHLOROPHENOXYACETIC ACID)

Hazardous Waste Code: D004
Waste Code Description: ARSENIC

Hazardous Waste Code: U134
Waste Code Description: HYDROFLUORIC ACID (C,T) (OR) HYDROGEN FLUORIDE (C,T)

Hazardous Waste Code: U249
Waste Code Description: ZINC PHOSPHIDE ZN3P2, WHEN PRESENT AT CONCENTRATIONS OF 10% OR LESS

Hazardous Waste Code: D035
Waste Code Description: METHYL ETHYL KETONE

Hazardous Waste Code: D008

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Waste Code Description: LEAD

Hazardous Waste Handler Details

Sequence No: 3
Receive Date: 20220527
Handler Name: LOWE'S OF FOUNTAIN CO #2607
Federal Waste Generator Code: 2
Generator Code Description: Small Quantity Generator
Source Type: Notification

Waste Code Details

Hazardous Waste Code: D005
Waste Code Description: BARIUM

Hazardous Waste Code: U002
Waste Code Description: 2-PROPANONE (I) (OR) ACETONE (I)

Hazardous Waste Code: D039
Waste Code Description: TETRACHLOROETHYLENE

Hazardous Waste Code: U159
Waste Code Description: 2-BUTANONE (I,T) (OR) METHYL ETHYL KETONE (MEK) (I,T)

Hazardous Waste Code: D001
Waste Code Description: IGNITABLE WASTE

Hazardous Waste Code: D027
Waste Code Description: 1,4-DICHLOROBENZENE

Hazardous Waste Code: U154
Waste Code Description: METHANOL (I) (OR) METHYL ALCOHOL (I)

Hazardous Waste Code: U279
Waste Code Description: CARBARYL (OR) 1-NAPHTHALENOL, METHYLCARBAMATE

Hazardous Waste Code: D018
Waste Code Description: BENZENE

Hazardous Waste Code: U165
Waste Code Description: NAPHTHALENE

Hazardous Waste Code: D002
Waste Code Description: CORROSIVE WASTE

Hazardous Waste Code: D007
Waste Code Description: CHROMIUM

Hazardous Waste Code: D011
Waste Code Description: SILVER

Hazardous Waste Code: U072
Waste Code Description: BENZENE, 1,4-DICHLORO- (OR) P-DICHLOROBENZENE

Hazardous Waste Code: U240
Waste Code Description: 2,4-D, SALTS & ESTERS (OR) ACETIC ACID, (2,4-DICHLOROPHENOXY)-, SALTS & ESTERS (OR) DICHLOROPHENOXYACETIC ACID 2,4-D

Hazardous Waste Code: U210
Waste Code Description: ETHENE, TETRACHLORO- (OR) TETRACHLOROETHYLENE

Hazardous Waste Code: U134
Waste Code Description: HYDROFLUORIC ACID (C,T) (OR) HYDROGEN FLUORIDE (C,T)

Hazardous Waste Code: U411
Waste Code Description: PHENOL, 2-(1-METHYLETHOXY)-, METHYLCARBAMATE (OR) PROPOXUR

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Hazardous Waste Code: D009
Waste Code Description: MERCURY

Hazardous Waste Code: D016
Waste Code Description: 2,4-D (2,4-DICHLOROPHENOXYACETIC ACID)

Hazardous Waste Code: D004
Waste Code Description: ARSENIC

Hazardous Waste Code: U249
Waste Code Description: ZINC PHOSPHIDE ZN3P2, WHEN PRESENT AT CONCENTRATIONS OF 10% OR LESS

Hazardous Waste Code: D035
Waste Code Description: METHYL ETHYL KETONE

Hazardous Waste Code: D008
Waste Code Description: LEAD

Owner/Operator Details

Owner/Operator Ind: Current Operator
Type: Private
Name: LOWE'S HOME CENTERS LLC
Date Became Current: 20060203
Date Ended Current:
Phone: 704-993-1564
Source Type: Notification
Street No: 1000
Street 1: LOWES BLVD
Street 2:
City: MOORESVILLE
State: NC
Country: US
Zip Code: 28117

Owner/Operator Ind: Current Owner
Type: Private
Name: LOWES HOME CENTERS LLC
Date Became Current: 20060203
Date Ended Current:
Phone: 704-758-2955
Source Type: Notification
Street No: 1000
Street 1: LOWES BLVD
Street 2:
City: MOORESVILLE
State: NC
Country: US
Zip Code: 28117

Owner/Operator Ind: Current Owner
Type: Private
Name: LOWES HOME CENTERS LLC
Date Became Current: 20180730
Date Ended Current:
Phone: 704-758-2955
Source Type: Notification
Street No: 1605
Street 1: CURTIS BRIDGE RD
Street 2:
City: WILKESBORO
State: NC
Country: US
Zip Code: 28697

Owner/Operator Ind: Current Operator
Type: Private
Name: LOWES OF FOUNTAIN CO #2607
Date Became Current: 20180730
Date Ended Current:
Phone:
Source Type: Notification
Street No: 7710
Street 1: FOUNTAIN MESA RD
Street 2:
City: FOUNTAIN
State: CO
Country: US
Zip Code: 80817

Owner/Operator Ind: Current Owner
Type: Private
Name: LOWE'S HOME CENTERS LLC
Date Became Current: 20060203
Date Ended Current:
Phone: 704-993-1564
Source Type: Notification
Street No: 1000
Street 1: LOWES BLVD
Street 2:
City: MOORESVILLE
State: NC
Country: US
Zip Code: 28117

Owner/Operator Ind: Current Operator
Type: Private
Name: LOWES HOME CENTERS LLC
Date Became Current: 20060203
Date Ended Current:
Phone: 704-758-2955
Source Type: Notification
Street No: 1000
Street 1: LOWES BLVD
Street 2:
City: MOORESVILLE
State: NC
Country: US
Zip Code: 28117

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Historical Handler Details

Receive Dt:	20201029
Generator Code Description:	Small Quantity Generator
Handler Name:	LOWES OF FOUNTAIN CO #2607
Receive Dt:	20180730
Generator Code Description:	Small Quantity Generator
Handler Name:	LOWES OF FOUNTAIN CO #2607

27	1 of 1	E	0.11 / 599.90	5,725.69 / 71	SAFEWAY STORE #1975 6925 MESA RIDGE PKWY FOUNTAIN CO 80817	RCRA VSQG

EPA Handler ID:	COR000228155
Gen Status Universe:	VSG
Contact Name:	KEITH B POWERS
Contact Address:	5918 , STONERIDGE MALL RD , , PLEASANTON , CA, 94588 , US
Contact Phone No and Ext:	510-246-0358
Contact Email:	KEITH.POWERS@SAFEWAY.COM
Contact Country:	US
County Name:	EL PASO
EPA Region:	08
Land Type:	Private
Receive Date:	20201229
Location Latitude:	38.720381
Location Longitude:	-104.682724

Violation/Evaluation Summary

Note:	NO RECORDS: As of Apr 2023, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility:	No
Onsite Burner Exemption:	No
Furnace Exemption:	No
Underground Injection Activity:	No
Commercial TSD:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Burner:	No
Used Oil Market Burner:	No
Used Oil Spec Marketer:	No

Hazardous Waste Handler Details

Sequence No:	2
Receive Date:	20201229
Handler Name:	SAFEWAY STORE #1975
Federal Waste Generator Code:	3
Generator Code Description:	Very Small Quantity Generator
Source Type:	Notification

Waste Code Details

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Hazardous Waste Code: P075
Waste Code Description: NICOTINE, & SALTS (OR) PYRIDINE, 3-(1-METHYL-2-PYRROLIDINYL)-,(S)-, & SALTS

Hazardous Waste Code: D002
Waste Code Description: CORROSIVE WASTE

Hazardous Waste Code: P001
Waste Code Description: 2H-1-BENZOPYRAN-2-ONE, 4-HYDROXY-3-(3-OXO-1-PHENYLBUTYL)-, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3% (OR) WARFARIN, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3%

Hazardous Waste Code: D001
Waste Code Description: IGNITABLE WASTE

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20120810
Handler Name: SAFEWAY STORE #1975
Federal Waste Generator Code: 3
Generator Code Description: Very Small Quantity Generator
Source Type: Notification

Waste Code Details

Hazardous Waste Code: P075
Waste Code Description: NICOTINE, & SALTS (OR) PYRIDINE, 3-(1-METHYL-2-PYRROLIDINYL)-,(S)-, & SALTS

Owner/Operator Details

Owner/Operator Ind:	Current Owner	**Street No:**	71
Type:	Private	**Street 1:**	CASCADE KEY
Name:	SUN COLORADO INVESTMENTS LLC	**Street 2:**	
Date Became Current:	20000101	**City:**	BELLEVUE
Date Ended Current:		**State:**	WA
Phone:		**Country:**	US
Source Type:	Notification	**Zip Code:**	98006
Owner/Operator Ind:	Current Operator	**Street No:**	
Type:	Private	**Street 1:**	
Name:	SAFEWAY STORE #1975	**Street 2:**	
Date Became Current:	20000101	**City:**	
Date Ended Current:		**State:**	
Phone:		**Country:**	US
Source Type:	Notification	**Zip Code:**	
Owner/Operator Ind:	Current Operator	**Street No:**	6925
Type:	Private	**Street 1:**	MESA RIDGE PKWY
Name:	SAFEWAY STORE #1975	**Street 2:**	
Date Became Current:	20000101	**City:**	FOUNTAIN
Date Ended Current:		**State:**	CO
Phone:		**Country:**	US
Source Type:	Notification	**Zip Code:**	80817

Historical Handler Details

Receive Dt: 20120810
Generator Code Description: Very Small Quantity Generator
Handler Name: SAFEWAY STORE #1975

28	*1 of 1*	*ESE*	*0.13 / 670.43*	*5,735.10 / 81*	***Snack Shack II 8005 Fountain Mesa Rd Fountain***	***UST***

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
					80817 CO	

Facility ID:	20380	**Fac Name (COSTIS):**	Snack Shack II
FacilityName(OPS):	Snack Shack II	**Address (COSTIS):**	8005 Fountain Mesa Rd Fountain 80817
FacilityType(OPS):	Retail	**County (COSTIS):**	El Paso
Fac Category (OPS):	Retail Gas Station	**Latitude (CDLE):**	38.714079
Address (OPS):	8005 Fountain Mesa Rd	**Longitude (CDLE):**	-104.70076
City (OPS):	Fountain	**Fac Type (CDLE):**	Retail
Zip Code (OPS):	80817	**FacCategry(CDLE):**	Retail Gas Station
County (OPS):	El Paso	**State (OPS):**	CO
LatLong (OPS):	38.714079, -104.70076	**City (CDLE):**	Fountain
FacName (CDLE):	Snack Shack II	**Zip (CDLE):**	80817
Address (CDLE):	8005 Fountain Mesa Rd	**County (CDLE):**	El Paso
State (CDLE):			

Data Source(s): Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks

Facility Information (CDLE)

Count of Tank Tag:	2	**Accnt Holdr Name:**	Jumar Inc
No. Dispensers:	28	**Type:**	Retail
Owner ID:	OWNR-22193		

Owner Information (CDLE)

Contact Name:	Jumar Inc
Middle Init:	
First Name:	
Company Name:	Jumar Inc
Last Name:	Jumar Inc
Address:	3725 Twisted Oak Cr, Colorado Springs, CO 80904
Comment:	

UST Tanks (COSTIS) (As of October 2021)

Tank ID:	47873	**Owner ID:**	22193
Tank Tag:	'20380-2	**Tank Owner:**	
Tank Type Desc:	UST	**County:**	El Paso
Tank Count:	46668	**Product Name:**	Diesel/Gas (Multi-Comp)
Capacity:	15000		
Facility Owner:	Jumar Inc		
Facility Name Address:	Snack Shack II 8005 Fountain Mesa Rd Fountain 80817		

Tank ID:	47872	**Owner ID:**	22193
Tank Tag:	'20380-1	**Tank Owner:**	
Tank Type Desc:	UST	**County:**	El Paso
Tank Count:	46668	**Product Name:**	Unleaded Regular (RUL)
Capacity:	15000		
Facility Owner:	Jumar Inc		
Facility Name Address:	Snack Shack II 8005 Fountain Mesa Rd Fountain 80817		

UST Tanks 1 (CDLE)

Tank Tag:	20380-2	**Overfill Preven:**	FV: Fill Tube Valve
Tank Type:	UST	**Product Type/Name:**	Diesel
Tank Status:	Currently In Use	**Piping Wall Type:**	Double-Walled
Capacity:	15000	**Tank Wall Type:**	
Install Date:	2/11/2019	**Piping System:**	
Date Closed:		**Piping Type:**	UG: Underground
Tank Material:	JKT: Jacketed Steel Tank		
Piping Material:	FLEX: Flexible Plastic		

UST Tanks 2 (CDLE)

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Closure Meth ID:
Unregulated: FALSE
Last Used Date:
Del Prohib Date:
Spill Protected:
Spl Container Size: 5
Spl Protection Dt:
Spl Container Mfg: OPW
Spl Container Mdel: 1C-311 2d
Tank Reld Meth1 ID:
Tank Lining Date:
CP Test Date:
No Fee: No
Anch Method Desc: DM: Deadman
Pipe Reld Meth1 ID: L2: Dbl-Wall & Sumps w/ Sensor
Pipe Reldet Date:
Backfill Mat Desc: Other
Bfill DrtCvr Amt: 0
Manifold: No
Registration Date: 8/30/2021
Compartment: TRUE
Cpmet: No
Invault: FALSE

UST Tanks 1 (CDLE)

Tank Tag: 20380-1
Tank Type: UST
Tank Status: Currently In Use
Capacity: 15000
Install Date: 2/11/2019
Date Closed:
Tank Material: JKT: Jacketed Steel Tank
Piping Material: FLEX: Flexible Plastic
Overfill Preven: FV: Fill Tube Valve
Product Type/Name: Unleaded Regular (RUL)
Piping Wall Type: Double-Walled
Tank Wall Type:
Piping System:
Piping Type: UG: Underground

UST Tanks 2 (CDLE)

Closure Meth ID:
Unregulated: FALSE
Last Used Date:
Del Prohib Date:
Spill Protected:
Spl Container Size: 5
Spl Protection Dt:
Spl Container Mfg: OPW
Spl Container Mdel: 1C-311 2d
Tank Reld Meth1 ID:
Tank Lining Date:
CP Test Date:
No Fee: No
Anch Method Desc: DM: Deadman
Pipe Reld Meth1 ID: L2: Dbl-Wall & Sumps w/ Sensor
Pipe Reldet Date:
Backfill Mat Desc: Other
Bfill DrtCvr Amt: 0
Manifold: No
Registration Date: 8/30/2021
Compartment: FALSE
Cpmet: No
Invault: FALSE

UST Tanks 1 (CDLE)

Tank Tag: 20380-2
Tank Type: UST
Tank Status: Currently In Use
Capacity: 15000
Install Date: 2/11/2019
Date Closed:
Tank Material: JKT: Jacketed Steel Tank
Piping Material: FLEX: Flexible Plastic
Overfill Preven: FV: Fill Tube Valve
Product Type/Name: Unleaded Premium (PUL)
Piping Wall Type: Double-Walled
Tank Wall Type:
Piping System:
Piping Type: UG: Underground

UST Tanks 2 (CDLE)

Closure Meth ID:
Unregulated: FALSE
Last Used Date:
Del Prohib Date:
Spill Protected:
Spl Container Size: 5
Spl Protection Dt:
Spl Container Mfg: OPW
Spl Container Mdel: 1C-311 2d
Tank Reld Meth1 ID:
Tank Lining Date:
No Fee: No
Anch Method Desc: DM: Deadman
Pipe Reld Meth1 ID: L2: Dbl-Wall & Sumps w/ Sensor
Pipe Reldet Date:
Backfill Mat Desc: Other
Bfill DrtCvr Amt: 0
Manifold: No
Registration Date: 8/30/2021
Compartment: TRUE
Cpmet: No
Invault: FALSE

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

CP Test Date:

Oil & Public Safety Regulated Storage Tanks (COSTIS)

Tank Tag: 20380-2
Tank Status: Currently In Use
Tank Type: UST
Tank Name: TNK-042914
Installation Date: 2/11/2019
Closure Date:
Tank Material: JKT: Jacketed Steel Tank
Tank Wall Type:
Facility Name: Snack Shack II
Facility Type: Retail
Facility Category: Retail Gas Station
Overfill Preven: FV: Fill Tube Valve
Tank Corsn Protection Meth: Jacketed Steel Tank
Tank Rel Detn Mthd Primary: T2: Inter Mntrg w/ Sensor
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP): Non-metallic
PCP at Tank: No Electrolyte Contact (n/a)
PCP at Dispenser: No Electrolyte Contact (n/a)
Piping Rel Detn Mthd Primary: L2: Dbl-Wall & Sumps w/ Sensor
Piping Rel Detn Mthd Secondary:

Leak Detector Type: E: Electronic
Capacity Gallons : 15000
Product: Diesel
Piping Type: UG: Underground
Piping System:
Piping Material: FLEX: Flexible Plastic
Piping Wall Type: Double-Walled
Address: 8005 Fountain Mesa Rd
City: Fountain
County: El Paso
ZIP Code: 80817

Tank Tag: 20380-1
Tank Status: Currently In Use
Tank Type: UST
Tank Name: TNK-042913
Installation Date: 2/11/2019
Closure Date:
Tank Material: JKT: Jacketed Steel Tank
Tank Wall Type:
Facility Name: Snack Shack II
Facility Type: Retail
Facility Category: Retail Gas Station
Overfill Preven: FV: Fill Tube Valve
Tank Corsn Protection Meth: Jacketed Steel Tank
Tank Rel Detn Mthd Primary: T2: Inter Mntrg w/ Sensor
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP): Non-metallic
PCP at Tank: No Electrolyte Contact (n/a)
PCP at Dispenser: No Electrolyte Contact (n/a)
Piping Rel Detn Mthd Primary: L2: Dbl-Wall & Sumps w/ Sensor
Piping Rel Detn Mthd Secondary:

Leak Detector Type: E: Electronic
Capacity Gallons : 15000
Product: Unleaded Regular (RUL)
Piping Type: UG: Underground
Piping System:
Piping Material: FLEX: Flexible Plastic
Piping Wall Type: Double-Walled
Address: 8005 Fountain Mesa Rd
City: Fountain
County: El Paso
ZIP Code: 80817

Tank Tag: 20380-2
Tank Status: Currently In Use
Tank Type: UST
Tank Name: TNK-042914
Installation Date: 2/11/2019
Closure Date:
Tank Material: JKT: Jacketed Steel Tank
Tank Wall Type:
Facility Name: Snack Shack II
Facility Type: Retail
Facility Category: Retail Gas Station
Overfill Preven: FV: Fill Tube Valve
Tank Corsn Protection Meth: Jacketed Steel Tank
Tank Rel Detn Mthd Primary: T2: Inter Mntrg w/ Sensor
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP): Non-metallic
PCP at Tank: No Electrolyte Contact (n/a)
PCP at Dispenser: No Electrolyte Contact (n/a)
Piping Rel Detn Mthd Primary: L2: Dbl-Wall & Sumps w/ Sensor
Piping Rel Detn Mthd

Leak Detector Type: E: Electronic
Capacity Gallons : 15000
Product: Unleaded Premium (PUL)
Piping Type: UG: Underground
Piping System:
Piping Material: FLEX: Flexible Plastic
Piping Wall Type: Double-Walled
Address: 8005 Fountain Mesa Rd
City: Fountain
County: El Paso
ZIP Code: 80817

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Secondary:

UST Owner (COSTIS) (As of October 2021)

Owner ID:	22193	***Address1:***	3725 Twisted Oak Cr
First Name:		***City:***	Colorado Springs
Middle Init:		***State:***	CO
Last Name:	Jumar Inc	***County:***	El Paso
Full Name:	Jumar Inc;	***Zip Code:***	80904

Oil & Public Safety Regulated Storage Tank Details

No of Tanks: 2

Facility Contact Details (CDLE)

Contact ID:	0033h00000mtcDH	***Role:***	Facility Owner
Costis ID:	FACOWN-20380-47419-Oct 10 2018 2:46PM	***Fac Contact Name:***	FCON-030460
Active:	TRUE	***Contact Last Name:***	Jumar Inc

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29 | ***1 of 1*** | ***NE*** | ***0.14 / 720.31*** | ***5,705.26 / 51*** | ***GRAVEL PIT***
EL PASO COUNTY
COLORADO SPRINGS CO 80911 | ***MRDS***

Dep ID:	10215412	***I1:***	17
Dev Status:	PRODUCER	***Latitude:***	38.72229
Code List:	SDG	***Longitude:***	-104.706909
Url:	http://mrdata.usgs.gov/mrds/show-mrds.php?dep_id=10215412		

Commodity

I1:	23	***Line:***	1
Code:	SDG	***Inserted By:***	MAS migration
Commodity:	Sand and Gravel, Cons	***Insert Date:***	29-OCT-2002 09:00:24
Commodity Type:	Non-metallic	***Updated By:***	USGS
Commodity Group:	Sand and Gravel	***Update Date:***	29-OCT-2002 09:01:57
Importance:	Primary		

Names

I1:	38	***Inserted By:***	MAS migration
Status:	Current	***Insert Date:***	29-OCT-02
Site Name:	Gravel Pit	***Updated By:***	USGS
Line:	1	***Update Date:***	29-OCT-02

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30 | ***1 of 1*** | ***WNW*** | ***0.18 / 942.26*** | ***5,659.47 / 5*** | ***A & C COLLISION CENTER***
7390 S HWY 85 - 87
FOUNTAIN CO 80817 | ***RCRA NON GEN***

EPA Handler ID:	COR000200303
Gen Status Universe:	No Report
Contact Name:	MONTE SISSON
Contact Address:	7390 S HWY 85 - 87 , , FOUNTAIN , CO, 80817 , US
Contact Phone No and Ext:	719-391-2068
Contact Email:	
Contact Country:	US
County Name:	EL PASO
EPA Region:	08
Land Type:	Private
Receive Date:	20070213
Location Latitude:	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Location Longitude:

Violation/Evaluation Summary

Note: NO RECORDS: As of Apr 2023, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No
Onsite Burner Exemption: No
Furnace Exemption: No
Underground Injection Activity: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20070213
Handler Name: A & C COLLISION CENTER
Source Type: Implementer
Federal Waste Generator Code: N
Generator Code Description: Not a Generator, Verified

Waste Code Details

Hazardous Waste Code: D008
Waste Code Description: LEAD

Hazardous Waste Code: D035
Waste Code Description: METHYL ETHYL KETONE

Hazardous Waste Code: D001
Waste Code Description: IGNITABLE WASTE

Hazardous Waste Code: F001
Waste Code Description: THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING: TETRACHLOROETHYLENE, TRICHLORETHYLENE, METHYLENE CHLORIDE, 1,1,1-TRICHLOROETHANE, CARBON TETRACHLORIDE AND CHLORINATED FLUOROCARBONS; ALL SPENT SOLVENT MIXTURES/BLENDS USED IN DEGREASING CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Hazardous Waste Code: D006
Waste Code Description: CADMIUM

Hazardous Waste Code: D002
Waste Code Description: CORROSIVE WASTE

Hazardous Waste Code: D039
Waste Code Description: TETRACHLOROETHYLENE

Hazardous Waste Code: F003
Waste Code Description: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Hazardous Waste Code: F005
Waste Code Description: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Hazardous Waste Code: D018
Waste Code Description: BENZENE

Hazardous Waste Code: D040
Waste Code Description: TRICHLORETHYLENE

Hazardous Waste Handler Details

Sequence No: 3
Receive Date: 20020221
Handler Name: A & C COLLISION CENTER
Source Type: Notification
Federal Waste Generator Code: 3
Generator Code Description: Very Small Quantity Generator

Waste Code Details

Hazardous Waste Code: D008
Waste Code Description: LEAD

Hazardous Waste Code: D035
Waste Code Description: METHYL ETHYL KETONE

Hazardous Waste Code: D001
Waste Code Description: IGNITABLE WASTE

Hazardous Waste Code: F001
Waste Code Description: THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING: TETRACHLOROETHYLENE, TRICHLORETHYLENE, METHYLENE CHLORIDE, 1,1,1-TRICHLOROETHANE, CARBON TETRACHLORIDE AND CHLORINATED FLUOROCARBONS; ALL SPENT SOLVENT MIXTURES/BLENDS USED IN DEGREASING CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Hazardous Waste Code: D006
Waste Code Description: CADMIUM

Hazardous Waste Code: D002
Waste Code Description: CORROSIVE WASTE

Hazardous Waste Code: D039
Waste Code Description: TETRACHLOROETHYLENE

Hazardous Waste Code: F003
Waste Code Description: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Hazardous Waste Code: F005
Waste Code Description: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Hazardous Waste Code: D018
Waste Code Description: BENZENE

Hazardous Waste Code: D040
Waste Code Description: TRICHLORETHYLENE

Hazardous Waste Handler Details

Sequence No: 2
Receive Date: 20020219
Handler Name: A & C COLLISION CENTER
Source Type: Notification
Federal Waste Generator Code: N
Generator Code Description: Not a Generator, Verified

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20001109
Handler Name: A & C COLLISION CENTER
Source Type: Notification
Federal Waste Generator Code: 2
Generator Code Description: Small Quantity Generator

Owner/Operator Details

Owner/Operator Ind: Current Owner
Type: Private
Name: MONTE R SISSON
Date Became Current: 20010901
Date Ended Current:
Phone: 719-391-2068
Source Type: Implementer
Street No:
Street 1: 7390 S HWY 85 - 87
Street 2:
City: FOUNTAIN
State: CO
Country:
Zip Code: 80817

Owner/Operator Ind: Current Owner
Type: Private
Name: MONTE R SISSON
Date Became Current: 20010901
Date Ended Current:
Phone: 719-391-2068
Source Type: Notification
Street No:
Street 1: 7390 S HWY 85 - 87
Street 2:
City: FOUNTAIN
State: CO
Country:
Zip Code: 80817

Historical Handler Details

Receive Dt: 20001109
Generator Code Description: Small Quantity Generator
Handler Name: A & C COLLISION CENTER

Receive Dt: 20020219
Generator Code Description: Not a Generator, Verified
Handler Name: A & C COLLISION CENTER

Receive Dt: 20020221
Generator Code Description: Very Small Quantity Generator
Handler Name: A & C COLLISION CENTER

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
31	1 of 1	WNW	0.18 / 956.47	5,659.72 / 5	PEOPLE'S CHOICE 7370 S HWY 85-87 FOUNTAIN CO 80917	RCRA NON GEN

EPA Handler ID: COD982648057
Gen Status Universe: No Report
Contact Name:
Contact Address: 7370 , S HWY 85-87 , , FOUNTAIN , CO, 80917 , US
Contact Phone No and Ext:
Contact Email:
Contact Country: US
County Name: EL PASO
EPA Region: 08
Land Type:
Receive Date: 20030605
Location Latitude:
Location Longitude:

Violation/Evaluation Summary

Note: NO VIOLATIONS: All of the compliance records associated with this facility (EPA ID) indicate NO VIOLATIONS; Compliance Monitoring and Enforcement table dated Apr, 2023.

Evaluation Details

Evaluation Start Date: 20030605
Evaluation Type Description: FOCUSED COMPLIANCE INSPECTION
Violation Short Description:
Return to Compliance Date:
Evaluation Agency: State

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No
Onsite Burner Exemption: No
Furnace Exemption: No
Underground Injection Activity: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20030605
Handler Name: PEOPLE'S CHOICE
Source Type: Implementer
Federal Waste Generator Code: N
Generator Code Description: Not a Generator, Verified

Hazardous Waste Handler Details

Sequence No: 1

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Receive Date: 19880721
Handler Name: PEOPLE'S CHOICE
Source Type: Notification
Federal Waste Generator Code: 2
Generator Code Description: Small Quantity Generator

Waste Code Details

Hazardous Waste Code: D001
Waste Code Description: IGNITABLE WASTE

Hazardous Waste Code: F003
Waste Code Description: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Hazardous Waste Code: F005
Waste Code Description: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Owner/Operator Details

Owner/Operator Ind: Current Owner
Type: Private
Name: MABLE HENDERSON
Date Became Current:
Date Ended Current:
Phone: 999-999-9999
Source Type: Notification
Street No:
Street 1: DATA NOT REQUESTED
Street 2:
City: DATA NOT REQUESTED
State: CO
Country:
Zip Code: 99999

Owner/Operator Ind: Current Owner
Type: Private
Name: MABLE HENDERSON
Date Became Current: 18000101
Date Ended Current:
Phone: 999-999-9999
Source Type: Implementer
Street No:
Street 1: DATA NOT REQUESTED
Street 2:
City: DATA NOT REQUESTED
State: CO
Country:
Zip Code: 99999

Historical Handler Details

Receive Dt: 19880721
Generator Code Description: Small Quantity Generator
Handler Name: PEOPLE'S CHOICE

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
32	1 of 2	WNW	0.18 / 962.18	5,659.45 / 5	Colorado Auto Auction 7360-7390 Hwy 85 And 87 Fountain 80817 CO	UST

Facility ID: 15267
FacilityName(OPS): Colorado Auto Auction
FacilityType(OPS): Non-Retail
Fac Category (OPS): Other
Address (OPS): 7360-7390 Hwy 85 And 87
City (OPS): Fountain
Zip Code (OPS): 80817
Fac Name (COSTIS): Colorado Auto Auction
Address (COSTIS): 7360-7390 Hwy 85 And 87
Fountain 80817
County (COSTIS): El Paso
Latitude (CDLE): 38.725097
Longitude (CDLE): -104.720267
Fac Type (CDLE): Non-Retail
FacCategry(CDLE): Other

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

County (OPS):	El Paso	**State (OPS):**	CO
LatLong (OPS):	38.725097, -104.720267	**City (CDLE):**	Fountain
FacName (CDLE):	Colorado Auto Auction	**Zip (CDLE):**	80817
Address (CDLE):	7360-7390 Hwy 85 And 87	**County (CDLE):**	El Paso
State (CDLE):			

Data Source(s): Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks

Facility Information (CDLE)

Count of Tank Tag:	0	**Accnt Holdr Name:**	Colorado Auto Auction
No. Dispensers:	0	**Type:**	Non-Retail
Owner ID:	OWNR-18433		

Owner Information (CDLE)

Contact Name:	Colorado Auto Auction	**Middle Init:**	
First Name:			
Company Name:	Colorado Auto Auction		
Last Name:	Colorado Auto Auction		
Address:	7360-7390 Hwy 85 And 87, Fountain, CO 80817		
Comment:			

UST Tanks (COSTIS) (As of October 2021)

Tank ID:	33368	**Owner ID:**	18433
Tank Tag:	'15267-1	**Tank Owner:**	
Tank Type Desc:	UST	**County:**	El Paso
Tank Count:	46668	**Product Name:**	Used Oil (Waste Oil)
Capacity:	500		
Facility Owner:	Colorado Auto Auction		
Facility Name Address:	Colorado Auto Auction 7360-7390 Hwy 85 And 87 Fountain 80817		

UST Tanks 1 (CDLE)

Tank Tag:	15267-1	**Overfill Preven:**	
Tank Type:	UST	**Product Type/Name:**	Used Oil (Waste Oil)
Tank Status:	Permanently Closed	**Piping Wall Type:**	None
Capacity:	500	**Tank Wall Type:**	
Install Date:		**Piping System:**	
Date Closed:	9/29/2000	**Piping Type:**	Other
Tank Material:	Not Listed		
Piping Material:	Not Listed		

UST Tanks 2 (CDLE)

Closure Meth ID:		**No Fee:**	No
Unregulated:	FALSE	**Anch Method Desc:**	
Last Used Date:		**Pipe Reld Meth1 ID:**	T13/L13: Not Listed
Del Prohib Date:		**Pipe Reldet Date:**	
Spill Protected:		**Backfill Mat Desc:**	
Spl Container Size:		**Bfill DrtCvr Amt:**	
Spl Protection Dt:		**Manifold:**	No
Spl Container Mfg:		**Registration Date:**	
Spl Container Mdel:		**Compartment:**	FALSE
Tank Reld Meth1 ID:		**Cpmet:**	No
Tank Lining Date:		**Invault:**	FALSE
CP Test Date:			

Oil & Public Safety Regulated Storage Tanks (COSTIS)

Tank Tag:	15267-1	**Leak Detector Type:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Tank Status:	Permanently Closed	**Capacity Gallons :**	500
Tank Type:	UST	**Product:**	Used Oil (Waste Oil)
Tank Name:	TNK-027688	**Piping Type:**	Other
Installation Date:		**Piping System:**	
Closure Date:	9/29/2000	**Piping Material:**	Not Listed
Tank Material:	Not Listed	**Piping Wall Type:**	None
Tank Wall Type:		**Address:**	7360-7390 Hwy 85 And 87
Facility Name:	Colorado Auto Auction	**City:**	Fountain
Facility Type:	Non-Retail	**County:**	El Paso
Facility Category:	Other	**ZIP Code:**	80817
Overfill Preven:			
Tank Corsn Protection Meth:			
Tank Rel Detn Mthd Primary:	T13/L13: Not Listed		
Tank Rel Detn Mthd Secondary:			
Piping Corsn Protection (PCP):			
PCP at Tank:			
PCP at Dispenser:			
Piping Rel Detn Mthd Primary:	T13/L13: Not Listed		
Piping Rel Detn Mthd Secondary:			

UST Owner (COSTIS) (As of October 2021)

Owner ID:	18433	**Address1:**	7360-7390 Hwy 85 And 87
First Name:		**City:**	Fountain
Middle Init:		**State:**	CO
Last Name:	Colorado Auto Auction	**County:**	El Paso
Full Name:	Colorado Auto Auction;	**Zip Code:**	80817

Oil & Public Safety Regulated Storage Tank Details

No of Tanks: 0

Facility Contact Details (CDLE)

Contact ID:	0033h00000mtbAJ	**Role:**	Facility Owner
Costis ID:	FACOWN-15267-43943-Sep 27 2000 12:00AM	**Fac Contact Name:**	FCON-019182
Active:	TRUE	**Contact Last Name:**	Colorado Auto Auction

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32 | **2 of 2** | **WNW** | **0.18 / 962.18** | **5,659.45 / 5** | **Colorado Auto Auction
7360-7390 Hwy 85 And 87
Fountain 80817
CO** | **LST**

Facility ID:	15267	**Fac Name(CDLE):**	Colorado Auto Auction
Event ID:		**Address(CDLE):**	7360-7390 Hwy 85 And 87
Facility Name(OPS):	Colorado Auto Auction	**Fac Type(CDLE):**	Non-Retail
Facility Type(OPS):	Non-Retail	**Fac Category(CDLE):**	Other
Fac Category(OPS):	Other	**City(CDLE):**	Fountain
Address(OPS):	7360-7390 Hwy 85 And 87	**Zip(CDLE):**	80817
City(OPS):	Fountain	**County(CDLE):**	El Paso
Zip Code(OPS):	80817	**State(CDLE):**	
County(OPS):	El Paso	**Latitude(CDLE):**	38.725097
State(OPS):	CO	**Longitude(CDLE):**	-104.720267
Lat Long(OPS):	38.725097, -104.720267		
Fac Name(COSTIS):	Colorado Auto Auction		
Address (COSTIS):	7360-7390 Hwy 85 And 87 Fountain 80817		
County (COSTIS):	El Paso		
Original Source:	Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks; OPS Petroleum Release Events in Colorado - Petroleum Release Events		
Owner ID:	18433		
Owner Name:	Colorado Auto Auction;		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Events (CDLE)

Event ID:	8385	***Proj. Closure Date:***	
Alt Event ID:		***Category:***	
Status:	Closed	***Sardonyx ID:***	
UST Tank Count:	1	***MTBE Classifica:***	
AST Tank Count:	0	***Sum of Reimbur Amt:***	
Source of Release:	Tank	***Reviewer Full Name:***	Tim Kelley
Cause of Release:		***Logged On:***	12/5/2000
Confirm Rel Dt:	10/3/2000	***Logged By:***	
Site Name:	Colorado Auto Auction		
Loc Addr:			
Loc Addr2:			
Loc Addr3:			
Aka Name:			
Aka Loc Addr:			

Facility (CDLE)

Owner Costis ID:	OWNR-18433	***Type:***	Non-Retail
No of Active Tanks:	0	***Facility Owner:***	Colorado Auto Auction
No of Metred Prod:	0		

Events (COSTIS) (As of October 2021)

Event ID:	8385	***Log Date:***	12/5/2000
Process Status Name:	Closed		
Site Name:	Colorado Auto Auction		
Facility Name:			
Address:	7360-7390 Hwy 85 And 87 Fountain CO 80817		
Loc Address:	7360 Hwy 85 And 87 Fountain 80817		
Loc City:	Fountain		
Loc County:	El Paso		

OPS Regulated Storage Tanks

No of Tanks:	0

OPS Petroleum Release Events in Colorado - Petroleum Release Events

Event ID:	8385	***Phone:***	(303) 318-4357
Release No:	REL-001142	***City:***	Fountain
Status:	Closed	***Zip:***	80817
Release Date:	10/3/2000	***State:***	CO
Closure Date:	10/21/2004	***County:***	El Paso
NFA Type:	Tier I	***Latitude:***	38.725097
Release Cause:		***Longitude:***	-104.720267
Reimbursement Total:		***Latitude Longitude:***	38.725097, -104.720267
Contact:	Tim Kelley		
Release Source:	Tank		
Site Name:	Colorado Auto Auction		
Address:	7360-7390 Hwy 85 And 87		
Email:	cdle_ops_public_record_center@state.co.us		
Link :	https://socgov18.force.com/s/release/a183h000003KVYO		

33	*1 of 1*	*WNW*	*0.22 / 1,179.99*	*5,653.80 / 0*	***A-1 Emergency Mobile Inc*** ***5620 Southmoor Lane*** ***Fountain CO***	***SWF/LF***

Loc ID:	
Cert of Reg ID:	2831

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Waste Tire Registrants Info

County:	El Paso	***Processor:***	No
Business Phone:	7193931328	***Mobile Proc:***	No
Generator:	Yes	***End User:***	No
Hauler:	No	***Monofill:***	No
Collection Facility:	No		
Doing Business As:			

34	*1 of 1*	*ESE*	*0.24 / 1,280.51*	*5,732.91 / 79*	***Fountain Valley Fire Department #2 8201 Fountain Mesa Rd Fountain 80817 CO***	***UST***

Facility ID:	3294	***Fac Name (COSTIS):***	Fountain Valley Fire Department #2
FacilityName(OPS):	Fountain Valley Fire Department #2	***Address (COSTIS):***	8201 Fountain Mesa Rd Fountain 80817
FacilityType(OPS):	Non-Retail	***County (COSTIS):***	El Paso
Fac Category (OPS):	State/Local Government	***Latitude (CDLE):***	38.712304
Address (OPS):	8201 Fountain Mesa Rd	***Longitude (CDLE):***	-104.700294
City (OPS):	Fountain	***Fac Type (CDLE):***	Non-Retail
Zip Code (OPS):	80817	***FacCategry(CDLE):***	State/Local Government
County (OPS):	El Paso	***State (OPS):***	CO
LatLong (OPS):	38.712304, -104.700294	***City (CDLE):***	Fountain
FacName (CDLE):	Fountain Valley Fire Department #2	***Zip (CDLE):***	80817
Address (CDLE):	8201 Fountain Mesa Rd	***County (CDLE):***	El Paso
State (CDLE):			
Data Source(s):	Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks		

Facility Information (CDLE)

Count of Tank Tag:	0	***Accnt Holdr Name:***	City Of Fountain
No. Dispensers:	0	***Type:***	Non-Retail
Owner ID:	OWNR-1130		

Owner Information (CDLE)

Contact Name:	City Of Fountain	***Middle Init:***	
First Name:			
Company Name:	City Of Fountain		
Last Name:	City Of Fountain		
Address:	116 S Main St, Fountain, CO 80817		
Comment:			

UST Tanks (COSTIS) (As of October 2021)

Tank ID:	9118	***Owner ID:***	1130
Tank Tag:	'3294-2	***Tank Owner:***	
Tank Type Desc:	UST	***County:***	El Paso
Tank Count:	46668	***Product Name:***	Diesel
Capacity:	560		
Facility Owner:	City Of Fountain		
Facility Name Address:	Fountain Valley Fire Department #2 8201 Fountain Mesa Rd Fountain 80817		

Tank ID:	9117	***Owner ID:***	1130
Tank Tag:	'3294-1	***Tank Owner:***	
Tank Type Desc:	UST	***County:***	El Paso
Tank Count:	46668	***Product Name:***	Gasoline
Capacity:	560		
Facility Owner:	City Of Fountain		
Facility Name Address:	Fountain Valley Fire Department #2 8201 Fountain Mesa Rd Fountain 80817		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

UST Tanks 1 (CDLE)

Tank Tag:	3294-2	***Overfill Preven:***	
Tank Type:	UST	***Product Type/Name:***	Diesel
Tank Status:	Permanently Closed	***Piping Wall Type:***	None
Capacity:	560	***Tank Wall Type:***	
Install Date:	1/1/1981	***Piping System:***	
Date Closed:	11/25/1997	***Piping Type:***	UG: Underground
Tank Material:	Asphalt Coated or Bare Steel		
Piping Material:	Galvanized Steel		

UST Tanks 2 (CDLE)

Closure Meth ID:		***No Fee:***	No
Unregulated:	FALSE	***Anch Method Desc:***	
Last Used Date:	10/1/1997	***Pipe Reld Meth1 ID:***	
Del Prohib Date:		***Pipe Reldet Date:***	
Spill Protected:		***Backfill Mat Desc:***	
Spl Container Size:		***Bfill DrtCvr Amt:***	
Spl Protection Dt:		***Manifold:***	No
Spl Container Mfg:		***Registration Date:***	
Spl Container Mdel:		***Compartment:***	FALSE
Tank Reld Meth1 ID:		***Cpmet:***	No
Tank Lining Date:		***Invault:***	FALSE
CP Test Date:			

UST Tanks 1 (CDLE)

Tank Tag:	3294-1	***Overfill Preven:***	
Tank Type:	UST	***Product Type/Name:***	Gasoline
Tank Status:	Permanently Closed	***Piping Wall Type:***	None
Capacity:	560	***Tank Wall Type:***	
Install Date:	1/1/1981	***Piping System:***	
Date Closed:	11/25/1997	***Piping Type:***	UG: Underground
Tank Material:	Asphalt Coated or Bare Steel		
Piping Material:	Galvanized Steel		

UST Tanks 2 (CDLE)

Closure Meth ID:		***No Fee:***	No
Unregulated:	FALSE	***Anch Method Desc:***	
Last Used Date:	10/1/1997	***Pipe Reld Meth1 ID:***	
Del Prohib Date:		***Pipe Reldet Date:***	
Spill Protected:		***Backfill Mat Desc:***	
Spl Container Size:		***Bfill DrtCvr Amt:***	
Spl Protection Dt:		***Manifold:***	No
Spl Container Mfg:		***Registration Date:***	
Spl Container Mdel:		***Compartment:***	FALSE
Tank Reld Meth1 ID:		***Cpmet:***	No
Tank Lining Date:		***Invault:***	FALSE
CP Test Date:			

Oil & Public Safety Regulated Storage Tanks (COSTIS)

Tank Tag:	3294-2	***Leak Detector Type:***	
Tank Status:	Permanently Closed	***Capacity Gallons :***	560
Tank Type:	UST	***Product:***	Diesel
Tank Name:	TNK-004313	***Piping Type:***	UG: Underground
Installation Date:	1/1/1981	***Piping System:***	
Closure Date:	11/25/1997	***Piping Material:***	Galvanized Steel
Tank Material:	Asphalt Coated or Bare Steel	***Piping Wall Type:***	None
Tank Wall Type:		***Address:***	8201 Fountain Mesa Rd

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Facility Name:	Fountain Valley Fire Department #2	**City:**	Fountain
Facility Type:	Non-Retail	**County:**	El Paso
Facility Category:	State/Local Government	**ZIP Code:**	80817
Overfill Preven:			
Tank Corsn Protection Meth:			
Tank Rel Detn Mthd Primary:			
Tank Rel Detn Mthd Secondary:			
Piping Corsn Protection (PCP):			
PCP at Tank:			
PCP at Dispenser:			
Piping Rel Detn Mthd Primary:			
Piping Rel Detn Mthd Secondary:			

Tank Tag:	3294-1	**Leak Detector Type:**	
Tank Status:	Permanently Closed	**Capacity Gallons :**	560
Tank Type:	UST	**Product:**	Gasoline
Tank Name:	TNK-004312	**Piping Type:**	UG: Underground
Installation Date:	1/1/1981	**Piping System:**	
Closure Date:	11/25/1997	**Piping Material:**	Galvanized Steel
Tank Material:	Asphalt Coated or Bare Steel	**Piping Wall Type:**	None
Tank Wall Type:		**Address:**	8201 Fountain Mesa Rd
Facility Name:	Fountain Valley Fire Department #2	**City:**	Fountain
Facility Type:	Non-Retail	**County:**	El Paso
Facility Category:	State/Local Government	**ZIP Code:**	80817
Overfill Preven:			
Tank Corsn Protection Meth:			
Tank Rel Detn Mthd Primary:			
Tank Rel Detn Mthd Secondary:			
Piping Corsn Protection (PCP):			
PCP at Tank:			
PCP at Dispenser:			
Piping Rel Detn Mthd Primary:			
Piping Rel Detn Mthd Secondary:			

UST Owner (COSTIS) (As of October 2021)

Owner ID:	1130	**Address1:**	116 S Main St
First Name:		**City:**	Fountain
Middle Init:		**State:**	CO
Last Name:	City Of Fountain	**County:**	El Paso
Full Name:	City Of Fountain;	**Zip Code:**	80817

Oil & Public Safety Regulated Storage Tank Details

No of Tanks: 0

Facility Contact Details (CDLE)

Contact ID:	0033h00000mtb6W	**Role:**	Facility Owner
Costis ID:	FACOWN-3294-1399-Dec 26 1997 12:00AM	**Fac Contact Name:**	FCON-018908
Active:	TRUE	**Contact Last Name:**	City Of Fountain

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
35	1 of 1	NW	0.28 / 1,458.28	5,662.63 / 8	Glen Investment Group 1-12 LLC 18 Jersey Ln Colorado Springs 80911 CO	LST

Facility ID:	4503	**Fac Name(CDLE):**	Glen Investment Group 1-12 LLC
Event ID:		**Address(CDLE):**	18 Jersey Ln
Facility Name(OPS):	Glen Investment Group 1-12 LLC	**Fac Type(CDLE):**	Non-Retail
Facility Type(OPS):	Non-Retail	**Fac Category(CDLE):**	Other
Fac Category(OPS):	Other	**City(CDLE):**	Colorado Springs
Address(OPS):	18 Jersey Ln	**Zip(CDLE):**	80911

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

City(OPS):	Colorado Springs	***County(CDLE):***	El Paso
Zip Code(OPS):	80911	***State(CDLE):***	
County(OPS):	El Paso	***Latitude(CDLE):***	38.726919
State(OPS):	CO	***Longitude(CDLE):***	-104.72018
Lat Long(OPS):	38.726919, -104.72018		

Fac Name(COSTIS): Glen Investment Group 1-12 LLC
Address (COSTIS): 18 Jersey Ln
Colorado Springs 80911
County (COSTIS): El Paso
Original Source: Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks; OPS Petroleum Release Events in Colorado - Petroleum Release Events

Owner ID: 22834
Owner Name:

Events (CDLE)

Event ID:	2907	***Proj. Closure Date:***	
Alt Event ID:	5499-1	***Category:***	
Status:	Closed	***Sardonyx ID:***	
UST Tank Count:	4	***MTBE Classifica:***	
AST Tank Count:	2	***Sum of Reimbur Amt:***	
Source of Release:		***Reviewer Full Name:***	Mark Walker
Cause of Release:		***Logged On:***	4/26/1994
Confirm Rel Dt:		***Logged By:***	

Site Name: Glen Investment Group 1-12 LLC
Loc Addr:
Loc Addr2:
Loc Addr3:
Aka Name:
Aka Loc Addr:

Facility (CDLE)

Owner Costis ID:	OWNR-22834	***Type:***	Non-Retail
No of Active Tanks:	2	***Facility Owner:***	Glen Investment Group 1-12 LLC
No of Metred Prod:	0		

Events (COSTIS) (As of October 2021)

Event ID:	2907	***Log Date:***	4/26/1994

Process Status Name: Closed
Site Name: Widefield Supply
Facility Name:
Address: 18 Jersey Ln Colorado Springs CO 80911
Loc Address: 18 Jersey Ln
Colorado Springs 80911
Loc City: Colorado Springs
Loc County: El Paso

OPS Regulated Storage Tanks

No of Tanks: 2

OPS Petroleum Release Events in Colorado - Petroleum Release Events

Event ID:	2907	***Phone:***	(303) 318-4357
Release No:	REL-012917	***City:***	Colorado Springs
Status:	Closed	***Zip:***	80911
Release Date:		***State:***	CO
Closure Date:	1/4/1995	***County:***	El Paso
NFA Type:	Pre-RBCA	***Latitude:***	38.726919
Release Cause:		***Longitude:***	-104.72018
Reimbursement Total:		***Latitude Longitude:***	38.726919, -104.72018

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Contact: Mark Walker
Release Source:
Site Name: Glen Investment Group 1-12 LLC
Address: 18 Jersey Ln
Email: cdle_ops_public_record_center@state.co.us
Link : https://socgov18.force.com/s/release/a183h000003KYcJ

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
36	1 of 2	WNW	0.33 / 1,753.32	5,623.98 / -30	Loves Travel Stop #357 5505 Travel Plaza Dr Fountain 80817 CO	LST

Facility ID: 18115
Event ID:
Facility Name(OPS): Loves Travel Stop #357
Facility Type(OPS): Retail
Fac Category(OPS): Retail Gas Station
Address(OPS): 5505 Travel Plaza Dr
City(OPS): Fountain
Zip Code(OPS): 80817
County(OPS): El Paso
State(OPS): CO
Lat Long(OPS): 38.723328, -104.729391
Fac Name(CDLE): Loves Travel Stop #357
Address(CDLE): 5505 Travel Plaza Dr
Fac Type(CDLE): Retail
Fac Category(CDLE): Retail Gas Station
City(CDLE): Fountain
Zip(CDLE): 80817
County(CDLE): El Paso
State(CDLE):
Latitude(CDLE): 38.723328
Longitude(CDLE): -104.729391
Fac Name(COSTIS): Loves Travel Stop #357
Address (COSTIS): 5505 Travel Plaza Dr
Fountain 80817
County (COSTIS): El Paso
Original Source: Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks; OPS Petroleum Release Events in Colorado - Petroleum Release Events

Owner ID: 3860
Owner Name:

Events (CDLE)

Event ID: 13423
Alt Event ID:
Status: Closed
UST Tank Count: 2
AST Tank Count: 0
Source of Release:
Cause of Release: Physical Damage
Confirm Rel Dt: 7/24/2019
Site Name: Loves Travel Stop #357
Loc Addr:
Loc Addr2:
Loc Addr3:
Aka Name:
Aka Loc Addr:
Proj. Closure Date:
Category:
Sardonyx ID:
MTBE Classifica:
Sum of Reimbur Amt: 5613.33
Reviewer Full Name: Jane Bral
Logged On: 7/25/2019
Logged By:

Reimbursement Application (CDLE)

Rap ID: RAP-35487
Protest ID:
Rap Status: Paid
Application Type: Original
User Group Name:
FPR Date: 4/22/2021
Protest Amount:
Payee: Loves Travel Stops & Country Stores Inc
Spec Cond:
Note: Colorado Department of Labor and Employment (CDLE)
Eligibil Type Desc: Tank Owner/Operator
Rap Payee Type ID: Corporation
Reimbursement Req: 15613.33
Total Reimburse: 15613.33
Max Amt Reduction: 2000000
PSTC Date:

Facility (CDLE)

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Owner Costis ID: OWNR-3860 **Type:** Retail
No of Active Tanks: 2 **Facility Owner:** Love's Travel Stops & Country Stores
No of Metred Prod: 80

Events (COSTIS) (As of October 2021)

Event ID: 13423 **Log Date:** 7/25/2019 12:33:12 PM
Process Status Name: Closed
Site Name: Loves Travel Stop #357
Facility Name: Loves Travel Stop #357
Address: 5505 Travel Plaza Dr Fountain CO 80817
Loc Address: 5505 Travel Plaza Dr
Fountain 80817
Loc City: Fountain
Loc County: El Paso

Reimbursement Application (COSTIS) (As of October 2021)

RAP ID: 35487 **Event ID:** 13423
Facility ID: 18115 **PSTC Date:**
Payee Name: Loves Travel Stops & Country Stores Inc

OPS Regulated Storage Tanks

No of Tanks: 2

OPS Petroleum Release Events in Colorado - Petroleum Release Events

Event ID: 13423 **Phone:** (303) 318-8510
Release No: REL-008076 **City:** Fountain
Status: Closed **Zip:** 80817
Release Date: 7/24/2019 **State:** CO
Closure Date: 1/22/2020 **County:** El Paso
NFA Type: Tier I **Latitude:** 38.723328
Release Cause: Physical Damage **Longitude:** -104.729391
Reimbursement Total: **Latitude Longitude:** 38.723328, -104.729391
Contact: Jane Bral
Release Source:
Site Name: Loves Travel Stop #357
Address: 5505 Travel Plaza Dr
Email: jane.bral@state.co.us
Link : https://socgov18.force.com/s/release/a183h000003KXME

36	2 of 2	WNW	0.33 / 1,753.32	5,623.98 / -30	Loves Travel Stop #357 5505 Travel Plaza Dr Fountain CO 80817	LUST TRUST

Facility ID: 18115 **Event ID:** 13423
TtlAmtAppvdForReim : 15613.33 **Release Date:** 7/24/2019
County: El Paso

37	1 of 1	SW	0.37 / 1,943.91	5,595.63 / -59	Fountain Valley Maint Shop 310 Duckwood Rd Fountain 80817 CO	LST

Facility ID: 5010 **Fac Name(CDLE):** Fountain Valley Maint Shop
Event ID: **Address(CDLE):** 310 Duckwood Rd
Facility Name(OPS): Fountain Valley Maint Shop **Fac Type(CDLE):** Non-Retail
Facility Type(OPS): Non-Retail **Fac Category(CDLE):** State/Local Government
Fac Category(OPS): State/Local Government **City(CDLE):** Fountain
Address(OPS): 310 Duckwood Rd **Zip(CDLE):** 80817
City(OPS): Fountain **County(CDLE):** El Paso

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Zip Code(OPS):	80817	**State(CDLE):**	
County(OPS):	El Paso	**Latitude(CDLE):**	38.710313
State(OPS):	CO	**Longitude(CDLE):**	-104.715677
Lat Long(OPS):	38.710313, -104.715677		
Fac Name(COSTIS):	Fountain Valley Maint Shop		
Address (COSTIS):	310 Duckwood Rd Fountain 80817		
County (COSTIS):	El Paso		
Original Source:	Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks; OPS Petroleum Release Events in Colorado - Petroleum Release Events		
Owner ID:	20154		
Owner Name:			

Events (CDLE)

Event ID:	8972	**Proj. Closure Date:**	
Alt Event ID:		**Category:**	
Status:	Closed	**Sardonyx ID:**	
UST Tank Count:	2	**MTBE Classifica:**	
AST Tank Count:	1	**Sum of Reimbur Amt:**	
Source of Release:		**Reviewer Full Name:**	Tina Sandoval
Cause of Release:		**Logged On:**	6/20/2002
Confirm Rel Dt:		**Logged By:**	
Site Name:	Fountain Valley Maint Shop		
Loc Addr:			
Loc Addr2:			
Loc Addr3:			
Aka Name:			
Aka Loc Addr:			

Facility (CDLE)

Owner Costis ID:	OWNR-20154	**Type:**	Non-Retail
No of Active Tanks:	1	**Facility Owner:**	El Paso County Fleet Management
No of Metred Prod:	0		

Events (COSTIS) (As of October 2021)

Event ID:	8972	**Log Date:**	6/20/2002 4:08:34 PM
Process Status Name:	Closed		
Site Name:	Fountain Valley Maint Shop		
Facility Name:	Fountain Valley Maint Shop		
Address:	310 Duckwood Rd Fountain CO 80817		
Loc Address:	310 Duckwood Rd Fountain 80817		
Loc City:	Fountain		
Loc County:	El Paso		

OPS Regulated Storage Tanks

No of Tanks:	1

OPS Petroleum Release Events in Colorado - Petroleum Release Events

Event ID:	8972	**Phone:**	(303) 318-4357
Release No:	REL-005805	**City:**	Fountain
Status:	Closed	**Zip:**	80817
Release Date:		**State:**	CO
Closure Date:	11/15/2002	**County:**	El Paso
NFA Type:	Pre-RBCA	**Latitude:**	38.710313
Release Cause:		**Longitude:**	-104.715677
Reimbursement Total:		**Latitude Longitude:**	38.710313, -104.715677
Contact:	Tina Sandoval		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Release Source:
Site Name: Fountain Valley Maint Shop
Address: 310 Duckwood Rd
Email: cdle_ops_public_record_center@state.co.us
Link : https://socgov18.force.com/s/release/a183h000003KWlb

38	1 of 1	SSW	0.38 / 2,031.95	5,607.41 / -47	Duckwood Property 200 Duckwood Road Fountain, CO 80817 (18 adjoining tax lots) FOUNTAIN CO 80817	FED BROWNFIELDS

Property ID: 250136
Lat Measure: 38.71018000051183
Long Measure: -104.71630826665717
Property Name: Duckwood Property
Address: 200 Duckwood Road Fountain, CO 80817 (18 adjoining tax lots)
City: FOUNTAIN
State Code: CO
Zip Code: 80817
Primary Name (Map): DUCKWOOD PROPERTY
Location Address (Map): 200 DUCKWOOD ROAD FOUNTAIN, CO 80817 (18 ADJOINING
City Name (Map): FOUNTAIN
County Name (Map): EL PASO
State Code (Map): CO
Postal Code (Map): 80817
BF Property (Map): 250136
Latitude (Map): 38.7101800005
Longitude (Map): -104.716308267

Brownfields Details

Registry I: 110071089162
EPA Region: 08
Cat No: 11020003
Map Symbol: B
Data Refre: 29-Jul-2022
BF IC Code: U
BF IC Gc I: U
BF IC Ep I: U
BF IC ID I: U
BF IC Pr I: U
BF Assess1: Y
Congressio: CO-05

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

EPAOSC Sit:		**FD GMS Sur:**	
EPAOSC Res:		**FD Hes Sur:**	
EPAOSC R 1:		**FD SF Site:**	
EPAOSC Sta:		**FD Brac Ro:**	
EPAOSC Inc:		**Stimulus S:**	
Desc :		**Stimulus B:**	
Ind Name:			
Cat Name:	Fountain		
Sub Name:	Fountain		
Primary Name:	DUCKWOOD PROPERTY		
RCRA Drupa:			
Url:	https://obipublic11.epa.gov/analytics/saw.dll?PortalPages&Action=Navigate&col1=ACRES_GRANT_EXPORT.PROPERTY_ID&val1=%22250136.0%22&PortalPath=/shared/CIMC/_portal/CIMC&Page=Profile+Page		
Census Url:	https://ejscreen.epa.gov/mapper/demogreportpdf.aspx?report=census2010sf1&coords=-104.71630826665701%2C38.7101800005118&feattype=point&radius=1.0		
ACS Url:	https://ejscreen.epa.gov/mapper/demogreportpdf.aspx?report=acs2017&coords=-104.71630826665701%2C38.7101800005118&feattype=point&radius=1.0		

SF Site Na:		**UST Status:**	
SF Non Npl:		**UST Substa:**	
SF Non N 1:		**UST Landus:**	
SF Non N 3:		**UST SPA Wa:**	
ERR Lat Lo:		**UST SPA Fa:**	
REPOW BF:		**UST WHPA W:**	
REPOW SF:		**UST WHPA F:**	
REPOW RCRA:		**UST Open:**	
REPOW Ref1:		**UST Closed:**	
RCRA Han 1:		**LUST ID:**	
RCRA Rau I:		**Saa Site:**	
BF Propert:	250136-		
REPOW Re 1:			
BF Prope 1:	Duckwood Property		
SF Non N 2:			

Cleanups In My Community (CIMC)

Grant ID:	69605299	**ASMT Cntrl Sub :**	
Grant Type:	Assessment	**Cleanup Cntrl Sub :**	
EPA Region:	08	**ASMT Asbestos :**	
Ownership Entity:	Private	**Cleanup Asbestos :**	
Latitude Measure:	38.71018000051183	**ASMT Pcbs :**	
Longitude Measure:	-104.71630826665717	**Cleanup Pcbs :**	
Flag Cleanup Reqd:	U	**ASMT Vocs :**	
Flag IC Required:		**Cleanup Vocs :**	
Stcntrbg:		**ASMT Lead :**	
Property Size:	41	**Cleanup Lead :**	
Flag IC in Place:		**ASMT Oth Metal :**	
IC in Place Date:		**Cleanup Oth Metal :**	
Prop Cntrl :		**ASMT Pahs :**	
Gov Cntrl :		**Cleanup Pahs :**	
Permit Tools :		**ASMT Oth Cont:**	
Info DevlCes :		**Cleanup Oth Cont:**	
Prop Fnding Type Cd:	Hazardous	**ASMT Air :**	
Ownshp Changed :		**Cleanup Air :**	
Sfllp Factor :		**ASMT Drk Wat:**	
Source Mapscale No:		**Cleanup Drk Wat:**	
Past Cml Acres:	19	**ASMT Grd Water:**	
Future Cml Acres:		**Cleanup Grd Water:**	
Past Grnspc Acres:	5	**ASMT Sediments :**	
Future Grnspc Acres:		**Cleanup Sediments :**	
Past Acres:		**ASMT Soil :**	
Future Acres:		**Cleanup Soil :**	
Past Res Acres:	17	**ASMT Srf Water :**	
Future Res Acres:		**Cleanup Srf Water :**	
St Enrollment Dt:		**Other Media :**	
St Enrollment ID:		**Unknown Media :**	
St NFA Dt:		**Ready For Reuse :**	N
Assess Petrol Prod :		**Assess Amount:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Cleanup Petrol Prod :		**Assess Fnd Ent Nm:**	
Assess Start Dt:		**Photo Available :**	
Assess Cmpltn Dt:		**Video Available :**	
Cleanup Start Dt:		**Cleanup Acres:**	
Cleanup Cmpltn Dt:		**Cleanup Amount:**	
Redev Start Dt:		**Redev Acres:**	
Redev Cleanup Jobs:		**Redev Amount:**	
Grant Recipient Nm:	Colorado Springs City Government		
PropertyNm:	Duckwood Property		
Address:	200 Duckwood Road Fountain, CO 80817 (18 adjoining tax lots)		
City:	FOUNTAIN		
State Code:	CO		
Zip Code:	80817		
Local Parcel No:	Multiple		
Current Owner:			
IC Data Address:			
Horizontal Collection Method:			
Reference Point:			
Horizontal Reference Datum:			
Other Description:			
Other Desc Cleaned Up:			
Assess Type:			
Assess Fund Entity:			
Cleanup Funding EntityNm:			
Cleanup Fund Entity:			
Redev Funding Entity Nm:			
Desc Hist:			

Accmplisht Cnt Flag:		**Vacant Housing:**	
Coop Agreement No:	96896301	**Vacant Housing Pct:**	
Past Mltistry Acres:		**Total Unemployed:**	
Ftr Multistory Acres:		**Unemployed Pct:**	
Assess Cadmium :		**Radius:**	
Clnup Cadmium :		**Actvy Funded:**	
Assess Chromium :		**Redev Lvrgd Srcs:**	
Clnup Chromium :		**AA Amt Funding:**	
Assess Copper :		**Flag Clnup Trmt Tech:**	
Clnup Copper :		**Excavation Disposal:**	
Assess Iron :		**Extrctn of Cntmnts:**	
Clnup Iron :		**Removal of Mats:**	
Assess Nickel :		**Rdctn of Cntmnts:**	
Clnup Nickel :		**Clnup of Structures:**	
Assess Selenium :		**Env EC Required:**	
Clnup Selenium :		**Flag EC Cover Tech:**	
Assess Mercury :		**Flag EC Security:**	
Clnup Mercury :		**Flag EC Immblztn:**	
Assess ArsenIC :		**Flag EC Eng Barriers:**	
Clnup ArsenIC :		**Flag EC Other:**	
Assess Bldg Mats :		**Env IC in Place:**	
Clnup Bldg Mats :		**Env EC in Place:**	
Assess oorair :		**Env Clnup Jobs:**	
Clnup oorair :		**Sect 128 A State Trbl:**	
Assess None :		**Multipurpose:**	
Clnup None :		**Clnup Cst Shr Amt:**	
Assess Pesticides :		**RLF Loan Amount:**	
Clnup Pesticides :		**RLF Ln Cst Shr Amt:**	
Assess Unknown :		**Pro Income Amt:**	
Clnup Unknown :		**Dt RLF Loan Signed:**	
Assess Svocs :		**Repayment Period:**	
Clnup Svocs :		**Interest Rate:**	
Clnup Unkn Media :		**RLF Subgrant Amt:**	
Redev Cmpltn Date:		**Cost Share Amt:**	
Pro Code:	BF	**Env Pro Income Amt:**	
FCA Fy:		**Dt RLF Sbgrnt Signd:**	
Flag EC in Place:		**Clnup Actvy Funded:**	
Flag EC Required:		**Below Poverty:**	
RFR Notation:		**Below Poverty Pct:**	
Gpa Type ID:	5	**Median Income:**	
Clnup Doc:	N	**Low Income:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Awp Catalyst Yn:
Flag Prop Not Enrld: Y
Redev Fund Entity:
Gpa Type Desc: Cleanup Activity
AA Actvy Funded:
AA Source of Funding:
Clnup Trmt Tech Info:
EC Data Address:
EC Addl Info:
Env IC Data Address:
Other Forms of Doc:
IC Addl Info:
Highlights: At the time of the Phase I ESA reconnaissance, most of the Property was vacant and unimproved except for a single-family residence on tax parcel 5530001087 in the southwestern area of the Property. Indications of past development (former building pads/paved areas and a feature that may be a water supply well) were observed on parcel 5530000023. Cattail Marsh Road divides the three northernmost tax parcels of the Property (tax parcels 5530001015, 5530001016, and 5530001017) from the rest of the Property. Historical aerial photographs and city directories indicate that portions of the Property have been used for vehicle storage and salvage. The potential for petroleum and hazardous substances to be released as a result of these operations represents a REC and a potential vapor encroachment condition (VEC) for the Property.
Property Alias:
Ctmnt Found:
Ctmnt Cleanedup:
Ctmnt Rec:

Media Afffected:

Low Income Pct:

Cleanups In My Community (CIMC)

Grant ID: 69605299
Grant Type: Assessment
EPA Region: 08
Ownership Entity: Private
Latitude Measure: 38.71018000051183
Longitude Measure: -104.71630826665717
Flag Cleanup Reqd: U
Flag IC Required:
Stcntrbg:
Property Size: 41
Flag IC in Place:
IC in Place Date:
Prop Cntrl :
Gov Cntrl :
Permit Tools :
Info DevlCes :
Prop Fnding Type Cd: Hazardous
Ownshp Changed :
Sfllp Factor :
Source Mapscale No:
Past Cml Acres: 19
Future Cml Acres:
Past Grnspc Acres: 5
Future Grnspc Acres:
Past Acres:
Future Acres:
Past Res Acres: 17
Future Res Acres:
St Enrollment Dt:
St Enrollment ID:
St NFA Dt:
Assess Petrol Prod :
Cleanup Petrol Prod :
Assess Start Dt:
Assess Cmpltn Dt:
Cleanup Start Dt:
Cleanup Cmpltn Dt:
Redev Start Dt:

ASMT Cntrl Sub :
Cleanup Cntrl Sub :
ASMT Asbestos :
Cleanup Asbestos :
ASMT Pcbs :
Cleanup Pcbs :
ASMT Vocs :
Cleanup Vocs :
ASMT Lead :
Cleanup Lead :
ASMT Oth Metal :
Cleanup Oth Metal :
ASMT Pahs :
Cleanup Pahs :
ASMT Oth Cont:
Cleanup Oth Cont:
ASMT Air :
Cleanup Air :
ASMT Drk Wat:
Cleanup Drk Wat:
ASMT Grd Water:
Cleanup Grd Water:
ASMT Sediments :
Cleanup Sediments :
ASMT Soil :
Cleanup Soil :
ASMT Srf Water :
Cleanup Srf Water :
Other Media :
Unknown Media :
Ready For Reuse : N
Assess Amount:
Assess Fnd Ent Nm:
Photo Available :
Video Available :
Cleanup Acres:
Cleanup Amount:
Redev Acres:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Redev Cleanup Jobs: **Redev Amount:**
Grant Recipient Nm: Colorado Springs City Government
PropertyNm: Duckwood Property
Address: 200 Duckwood Road Fountain, CO 80817 (18 adjoining tax lots)
City: FOUNTAIN
State Code: CO
Zip Code: 80817
Local Parcel No: Multiple
Current Owner:
IC Data Address:
Horizontal Collection Method:
Reference Point:
Horizontal Reference Datum:
Other Description:
Other Desc Cleaned Up:
Assess Type:
Assess Fund Entity:
Cleanup Funding EntityNm:
Cleanup Fund Entity:
Redev Funding Entity Nm:
Desc Hist:

Accmplisht Cnt Flag:
Coop Agreement No: 96896301
Past Mltistry Acres:
Ftr Multistory Acres:
Assess Cadmium :
Clnup Cadmium :
Assess Chromium :
Clnup Chromium :
Assess Copper :
Clnup Copper :
Assess Iron :
Clnup Iron :
Assess Nickel :
Clnup Nickel :
Assess Selenium :
Clnup Selenium :
Assess Mercury :
Clnup Mercury :
Assess ArsenIC :
Clnup ArsenIC :
Assess Bldg Mats :
Clnup Bldg Mats :
Assess oorair :
Clnup oorair :
Assess None :
Clnup None :
Assess Pesticides :
Clnup Pesticides :
Assess Unknown :
Clnup Unknown :
Assess Svocs :
Clnup Svocs :
Clnup Unkn Media :
Redev Cmpltn Date:
Pro Code: BF
FCA Fy:
Flag EC in Place:
Flag EC Required:
RFR Notation:
Gpa Type ID: 11
Clnup Doc:
Awp Catalyst Yn:
Flag Prop Not Enrld: Y
Redev Fund Entity:
Gpa Type Desc: Cleanup Jobs Leveraged
AA Actvy Funded:
AA Source of Funding:

Vacant Housing:
Vacant Housing Pct:
Total Unemployed:
Unemployed Pct:
Radius:
Actvy Funded:
Redev Lvrgd Srcs:
AA Amt Funding:
Flag Clnup Trmt Tech:
Excavation Disposal:
Extrctn of Cntmnts:
Removal of Mats:
Rdctn of Cntmnts:
Clnup of Structures:
Env EC Required:
Flag EC Cover Tech:
Flag EC Security:
Flag EC Immblztn:
Flag EC Eng Barriers:
Flag EC Other:
Env IC in Place:
Env EC in Place:
Env Clnup Jobs:
Sect 128 A State Trbl:
Multipurpose:
Clnup Cst Shr Amt:
RLF Loan Amount:
RLF Ln Cst Shr Amt:
Pro Income Amt:
Dt RLF Loan Signed:
Repayment Period:
Interest Rate:
RLF Subgrant Amt:
Cost Share Amt:
Env Pro Income Amt:
Dt RLF Sbgrnt Signd:
Clnup Actvy Funded:
Below Poverty:
Below Poverty Pct:
Median Income:
Low Income:
Low Income Pct:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Clnup Trmt Tech Info:
EC Data Address:
EC Addl Info:
Env IC Data Address:
Other Forms of Doc:
IC Addl Info:
Highlights: At the time of the Phase I ESA reconnaissance, most of the Property was vacant and unimproved except for a single-family residence on tax parcel 5530001087 in the southwestern area of the Property. Indications of past development (former building pads/paved areas and a feature that may be a water supply well) were observed on parcel 5530000023. Cattail Marsh Road divides the three northernmost tax parcels of the Property (tax parcels 5530001015, 5530001016, and 5530001017) from the rest of the Property. Historical aerial photographs and city directories indicate that portions of the Property have been used for vehicle storage and salvage. The potential for petroleum and hazardous substances to be released as a result of these operations represents a REC and a potential vapor encroachment condition (VEC) for the Property.
Property Alias:
Ctmnt Found:
Ctmnt Cleanedup:
Ctmnt Rec:

Media Afffected:

Cleanups In My Community (CIMC)

Grant ID:	69605299	***ASMT Cntrl Sub :***	
Grant Type:	Assessment	***Cleanup Cntrl Sub :***	
EPA Region:	08	***ASMT Asbestos :***	
Ownership Entity:	Private	***Cleanup Asbestos :***	
Latitude Measure:	38.71018000051183	***ASMT Pcbs :***	
Longitude Measure:	-104.71630826665717	***Cleanup Pcbs :***	
Flag Cleanup Reqd:	U	***ASMT Vocs :***	
Flag IC Required:		***Cleanup Vocs :***	
Stcntrbg:		***ASMT Lead :***	
Property Size:	41	***Cleanup Lead :***	
Flag IC in Place:		***ASMT Oth Metal :***	
IC in Place Date:		***Cleanup Oth Metal :***	
Prop Cntrl :		***ASMT Pahs :***	
Gov Cntrl :		***Cleanup Pahs :***	
Permit Tools :		***ASMT Oth Cont:***	
Info DevlCes :		***Cleanup Oth Cont:***	
Prop Fnding Type Cd:	Hazardous	***ASMT Air :***	
Ownshp Changed :		***Cleanup Air :***	
Sfllp Factor :		***ASMT Drk Wat:***	
Source Mapscale No:		***Cleanup Drk Wat:***	
Past Cml Acres:	19	***ASMT Grd Water:***	
Future Cml Acres:		***Cleanup Grd Water:***	
Past Grnspc Acres:	5	***ASMT Sediments :***	
Future Grnspc Acres:		***Cleanup Sediments :***	
Past Acres:		***ASMT Soil :***	
Future Acres:		***Cleanup Soil :***	
Past Res Acres:	17	***ASMT Srf Water :***	
Future Res Acres:		***Cleanup Srf Water :***	
St Enrollment Dt:		***Other Media :***	
St Enrollment ID:		***Unknown Media :***	
St NFA Dt:		***Ready For Reuse :***	N
Assess Petrol Prod :		***Assess Amount:***	4783
Cleanup Petrol Prod :		***Assess Fnd Ent Nm:***	EPA
Assess Start Dt:	01/15/2021	***Photo Available :***	
Assess Cmpltn Dt:	03/22/2021	***Video Available :***	
Cleanup Start Dt:		***Cleanup Acres:***	
Cleanup Cmpltn Dt:		***Cleanup Amount:***	
Redev Start Dt:		***Redev Acres:***	
Redev Cleanup Jobs:		***Redev Amount:***	

Grant Recipient Nm: Colorado Springs City Government
PropertyNm: Duckwood Property
Address: 200 Duckwood Road Fountain, CO 80817 (18 adjoining tax lots)
City: FOUNTAIN
State Code: CO

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Zip Code: 80817
Local Parcel No: Multiple
Current Owner:
IC Data Address:
Horizontal Collection Method:
Reference Point:
Horizontal Reference Datum:
Other Description:
Other Desc Cleaned Up:
Assess Type: Phase I Environmental Assessment
Assess Fund Entity: US EPA - Brownfields Assessment Cooperative Agreement
Cleanup Funding EntityNm:
Cleanup Fund Entity:
Redev Funding Entity Nm:
Desc Hist:

Accmplisht Cnt Flag: Y
Coop Agreement No: 96896301
Past Mltistry Acres:
Ftr Multistory Acres:
Assess Cadmium :
Clnup Cadmium :
Assess Chromium :
Clnup Chromium :
Assess Copper :
Clnup Copper :
Assess Iron :
Clnup Iron :
Assess Nickel :
Clnup Nickel :
Assess Selenium :
Clnup Selenium :
Assess Mercury :
Clnup Mercury :
Assess ArsenIC :
Clnup ArsenIC :
Assess Bldg Mats :
Clnup Bldg Mats :
Assess oorair :
Clnup oorair :
Assess None :
Clnup None :
Assess Pesticides :
Clnup Pesticides :
Assess Unknown :
Clnup Unknown :
Assess Svocs :
Clnup Svocs :
Clnup Unkn Media :
Redev Cmpltn Date:
Pro Code: BF
FCA Fy: FY21
Flag EC in Place:
Flag EC Required:
RFR Notation:
Gpa Type ID: 1
Clnup Doc:
Awp Catalyst Yn:
Flag Prop Not Enrld: Y
Redev Fund Entity:
Gpa Type Desc: Phase I Environmental Assessment
AA Actvy Funded: Phase I Environmental Assessment
AA Source of Funding:
Clnup Trmt Tech Info:
EC Data Address:
EC Addl Info:
Env IC Data Address:
Other Forms of Doc:
IC Addl Info:

Vacant Housing:
Vacant Housing Pct:
Total Unemployed:
Unemployed Pct:
Radius:
Actvy Funded:
Redev Lvrgd Srcs:
AA Amt Funding:
Flag Clnup Trmt Tech:
Excavation Disposal:
Extrctn of Cntmnts:
Removal of Mats:
Rdctn of Cntmnts:
Clnup of Structures:
Env EC Required:
Flag EC Cover Tech:
Flag EC Security:
Flag EC Immblztn:
Flag EC Eng Barriers:
Flag EC Other:
Env IC in Place:
Env EC in Place:
Env Clnup Jobs:
Sect 128 A State Trbl:
Multipurpose:
Clnup Cst Shr Amt:
RLF Loan Amount:
RLF Ln Cst Shr Amt:
Pro Income Amt:
Dt RLF Loan Signed:
Repayment Period:
Interest Rate:
RLF Subgrant Amt:
Cost Share Amt:
Env Pro Income Amt:
Dt RLF Sbgrnt Signd:
Clnup Actvy Funded:
Below Poverty:
Below Poverty Pct:
Median Income:
Low Income:
Low Income Pct:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Highlights: At the time of the Phase I ESA reconnaissance, most of the Property was vacant and unimproved except for a single-family residence on tax parcel 5530001087 in the southwestern area of the Property. Indications of past development (former building pads/paved areas and a feature that may be a water supply well) were observed on parcel 5530000023. Cattail Marsh Road divides the three northernmost tax parcels of the Property (tax parcels 5530001015, 5530001016, and 5530001017) from the rest of the Property. Historical aerial photographs and city directories indicate that portions of the Property have been used for vehicle storage and salvage. The potential for petroleum and hazardous substances to be released as a result of these operations represents a REC and a potential vapor encroachment condition (VEC) for the Property.

Property Alias:
Ctmnt Found:
Ctmnt Cleanedup:
Ctmnt Rec:

Media Afffected:

Cleanups In My Community (CIMC)

Grant ID:	69605299	**ASMT Cntrl Sub :**	
Grant Type:	Assessment	**Cleanup Cntrl Sub :**	
EPA Region:	08	**ASMT Asbestos :**	
Ownership Entity:	Private	**Cleanup Asbestos :**	
Latitude Measure:	38.71018000051183	**ASMT Pcbs :**	
Longitude Measure:	-104.71630826665717	**Cleanup Pcbs :**	
Flag Cleanup Reqd:	U	**ASMT Vocs :**	
Flag IC Required:		**Cleanup Vocs :**	
Stcntrbg:		**ASMT Lead :**	
Property Size:	41	**Cleanup Lead :**	
Flag IC in Place:		**ASMT Oth Metal :**	
IC in Place Date:		**Cleanup Oth Metal :**	
Prop Cntrl :		**ASMT Pahs :**	
Gov Cntrl :		**Cleanup Pahs :**	
Permit Tools :		**ASMT Oth Cont:**	
Info DevlCes :		**Cleanup Oth Cont:**	
Prop Fnding Type Cd:	Hazardous	**ASMT Air :**	
Ownshp Changed :		**Cleanup Air :**	
Sfllp Factor :		**ASMT Drk Wat:**	
Source Mapscale No:		**Cleanup Drk Wat:**	
Past Cml Acres:	19	**ASMT Grd Water:**	
Future Cml Acres:		**Cleanup Grd Water:**	
Past Grnspc Acres:	5	**ASMT Sediments :**	
Future Grnspc Acres:		**Cleanup Sediments :**	
Past Acres:		**ASMT Soil :**	
Future Acres:		**Cleanup Soil :**	
Past Res Acres:	17	**ASMT Srf Water :**	
Future Res Acres:		**Cleanup Srf Water :**	
St Enrollment Dt:		**Other Media :**	
St Enrollment ID:		**Unknown Media :**	
St NFA Dt:		**Ready For Reuse :**	N
Assess Petrol Prod :		**Assess Amount:**	
Cleanup Petrol Prod :		**Assess Fnd Ent Nm:**	
Assess Start Dt:		**Photo Available :**	
Assess Cmpltn Dt:		**Video Available :**	
Cleanup Start Dt:		**Cleanup Acres:**	
Cleanup Cmpltn Dt:		**Cleanup Amount:**	
Redev Start Dt:		**Redev Acres:**	
Redev Cleanup Jobs:		**Redev Amount:**	
Grant Recipient Nm:	Colorado Springs City Government		
PropertyNm:	Duckwood Property		
Address:	200 Duckwood Road Fountain, CO 80817 (18 adjoining tax lots)		
City:	FOUNTAIN		
State Code:	CO		
Zip Code:	80817		
Local Parcel No:	Multiple		
Current Owner:			
IC Data Address:			
Horizontal Collection Method:			
Reference Point:			

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Horizontal Reference Datum:
Other Description:
Other Desc Cleaned Up:
Assess Type:
Assess Fund Entity:
Cleanup Funding EntityNm:
Cleanup Fund Entity:
Redev Funding Entity Nm:
Desc Hist:

Accmplisht Cnt Flag:
Coop Agreement No: 96896301
Past Mltistry Acres:
Ftr Multistory Acres:
Assess Cadmium :
Clnup Cadmium :
Assess Chromium :
Clnup Chromium :
Assess Copper :
Clnup Copper :
Assess Iron :
Clnup Iron :
Assess Nickel :
Clnup Nickel :
Assess Selenium :
Clnup Selenium :
Assess Mercury :
Clnup Mercury :
Assess ArsenIC :
Clnup ArsenIC :
Assess Bldg Mats :
Clnup Bldg Mats :
Assess oorair :
Clnup oorair :
Assess None :
Clnup None :
Assess Pesticides :
Clnup Pesticides :
Assess Unknown :
Clnup Unknown :
Assess Svocs :
Clnup Svocs :
Clnup Unkn Media :
Redev Cmpltn Date:
Pro Code: BF
FCA Fy:
Flag EC in Place:
Flag EC Required:
RFR Notation:
Gpa Type ID: 6
Clnup Doc:
Awp Catalyst Yn:
Flag Prop Not Enrld: Y
Redev Fund Entity:
Gpa Type Desc: Acres Cleaned Up
AA Actvy Funded:
AA Source of Funding:
Clnup Trmt Tech Info:
EC Data Address:
EC Addl Info:
Env IC Data Address:
Other Forms of Doc:
IC Addl Info:

Vacant Housing:
Vacant Housing Pct:
Total Unemployed:
Unemployed Pct:
Radius:
Actvy Funded:
Redev Lvrgd Srcs:
AA Amt Funding:
Flag Clnup Trmt Tech:
Excavation Disposal:
Extrctn of Cntmnts:
Removal of Mats:
Rdctn of Cntmnts:
Clnup of Structures:
Env EC Required:
Flag EC Cover Tech:
Flag EC Security:
Flag EC Immblztn:
Flag EC Eng Barriers:
Flag EC Other:
Env IC in Place:
Env EC in Place:
Env Clnup Jobs:
Sect 128 A State Trbl:
Multipurpose:
Clnup Cst Shr Amt:
RLF Loan Amount:
RLF Ln Cst Shr Amt:
Pro Income Amt:
Dt RLF Loan Signed:
Repayment Period:
Interest Rate:
RLF Subgrant Amt:
Cost Share Amt:
Env Pro Income Amt:
Dt RLF Sbgrnt Signd:
Clnup Actvy Funded:
Below Poverty:
Below Poverty Pct:
Median Income:
Low Income:
Low Income Pct:

Highlights: At the time of the Phase I ESA reconnaissance, most of the Property was vacant and unimproved except for a single-family residence on tax parcel 5530001087 in the southwestern area of the Property. Indications of past development (former building pads/paved areas and a feature that may be a water supply well) were observed on parcel 5530000023. Cattail Marsh Road divides the three northernmost tax parcels of the Property (tax parcels 5530001015, 5530001016, and 5530001017) from the rest of the Property. Historical aerial photographs and city directories indicate that portions of the Property have been used for vehicle storage and salvage. The potential for

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

petroleum and hazardous substances to be released as a result of these operations represents a REC and a potential vapor encroachment condition (VEC) for the Property.

Property Alias:
Ctmnt Found:
Ctmnt Cleanedup:
Ctmnt Rec:

Media Afffected:

Cleanups In My Community (CIMC)

Grant ID:	69605299	***ASMT Cntrl Sub :***	
Grant Type:	Assessment	***Cleanup Cntrl Sub :***	
EPA Region:	08	***ASMT Asbestos :***	
Ownership Entity:	Private	***Cleanup Asbestos :***	
Latitude Measure:	38.71018000051183	***ASMT Pcbs :***	
Longitude Measure:	-104.71630826665717	***Cleanup Pcbs :***	
Flag Cleanup Reqd:	U	***ASMT Vocs :***	
Flag IC Required:		***Cleanup Vocs :***	
Stcntrbg:		***ASMT Lead :***	
Property Size:	41	***Cleanup Lead :***	
Flag IC in Place:		***ASMT Oth Metal :***	
IC in Place Date:		***Cleanup Oth Metal :***	
Prop Cntrl :		***ASMT Pahs :***	
Gov Cntrl :		***Cleanup Pahs :***	
Permit Tools :		***ASMT Oth Cont:***	
Info DevlCes :		***Cleanup Oth Cont:***	
Prop Fnding Type Cd:	Hazardous	***ASMT Air :***	
Ownshp Changed :		***Cleanup Air :***	
Sfllp Factor :		***ASMT Drk Wat:***	
Source Mapscale No:		***Cleanup Drk Wat:***	
Past Cml Acres:	19	***ASMT Grd Water:***	
Future Cml Acres:		***Cleanup Grd Water:***	
Past Grnspc Acres:	5	***ASMT Sediments :***	
Future Grnspc Acres:		***Cleanup Sediments :***	
Past Acres:		***ASMT Soil :***	
Future Acres:		***Cleanup Soil :***	
Past Res Acres:	17	***ASMT Srf Water :***	
Future Res Acres:		***Cleanup Srf Water :***	
St Enrollment Dt:		***Other Media :***	
St Enrollment ID:		***Unknown Media :***	
St NFA Dt:		***Ready For Reuse :***	N
Assess Petrol Prod :		***Assess Amount:***	
Cleanup Petrol Prod :		***Assess Fnd Ent Nm:***	
Assess Start Dt:		***Photo Available :***	
Assess Cmpltn Dt:		***Video Available :***	
Cleanup Start Dt:		***Cleanup Acres:***	
Cleanup Cmpltn Dt:		***Cleanup Amount:***	
Redev Start Dt:		***Redev Acres:***	
Redev Cleanup Jobs:		***Redev Amount:***	
Grant Recipient Nm:	Colorado Springs City Government		
PropertyNm:	Duckwood Property		
Address:	200 Duckwood Road Fountain, CO 80817 (18 adjoining tax lots)		
City:	FOUNTAIN		
State Code:	CO		
Zip Code:	80817		
Local Parcel No:	Multiple		
Current Owner:			
IC Data Address:			
Horizontal Collection Method:			
Reference Point:			
Horizontal Reference Datum:			
Other Description:			
Other Desc Cleaned Up:			
Assess Type:			
Assess Fund Entity:			
Cleanup Funding EntityNm:			

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Cleanup Fund Entity:
Redev Funding Entity Nm:
Desc Hist:

Accmplisht Cnt Flag:
Coop Agreement No: 96896301
Past Mltistry Acres:
Ftr Multistory Acres:
Assess Cadmium :
Clnup Cadmium :
Assess Chromium :
Clnup Chromium :
Assess Copper :
Clnup Copper :
Assess Iron :
Clnup Iron :
Assess Nickel :
Clnup Nickel :
Assess Selenium :
Clnup Selenium :
Assess Mercury :
Clnup Mercury :
Assess ArsenIC :
Clnup ArsenIC :
Assess Bldg Mats :
Clnup Bldg Mats :
Assess oorair :
Clnup oorair :
Assess None :
Clnup None :
Assess Pesticides :
Clnup Pesticides :
Assess Unknown :
Clnup Unknown :
Assess Svocs :
Clnup Svocs :
Clnup Unkn Media :
Redev Cmpltn Date:
Pro Code: BF
FCA Fy:
Flag EC in Place:
Flag EC Required:
RFR Notation:
Gpa Type ID: 10
Clnup Doc:
Awp Catalyst Yn:
Flag Prop Not Enrld: Y
Redev Fund Entity:
Gpa Type Desc: Redevelopment Jobs Leveraged
AA Actvy Funded:
AA Source of Funding:
Clnup Trmt Tech Info:
EC Data Address:
EC Addl Info:
Env IC Data Address:
Other Forms of Doc:
IC Addl Info:

Vacant Housing:
Vacant Housing Pct:
Total Unemployed:
Unemployed Pct:
Radius:
Actvy Funded:
Redev Lvrgd Srcs:
AA Amt Funding:
Flag Clnup Trmt Tech:
Excavation Disposal:
Extrctn of Cntmnts:
Removal of Mats:
Rdctn of Cntmnts:
Clnup of Structures:
Env EC Required:
Flag EC Cover Tech:
Flag EC Security:
Flag EC Immblztn:
Flag EC Eng Barriers:
Flag EC Other:
Env IC in Place:
Env EC in Place:
Env Clnup Jobs:
Sect 128 A State Trbl:
Multipurpose:
Clnup Cst Shr Amt:
RLF Loan Amount:
RLF Ln Cst Shr Amt:
Pro Income Amt:
Dt RLF Loan Signed:
Repayment Period:
Interest Rate:
RLF Subgrant Amt:
Cost Share Amt:
Env Pro Income Amt:
Dt RLF Sbgrnt Signd:
Clnup Actvy Funded:
Below Poverty:
Below Poverty Pct:
Median Income:
Low Income:
Low Income Pct:

Highlights: At the time of the Phase I ESA reconnaissance, most of the Property was vacant and unimproved except for a single-family residence on tax parcel 5530001087 in the southwestern area of the Property. Indications of past development (former building pads/paved areas and a feature that may be a water supply well) were observed on parcel 5530000023. Cattail Marsh Road divides the three northernmost tax parcels of the Property (tax parcels 5530001015, 5530001016, and 5530001017) from the rest of the Property. Historical aerial photographs and city directories indicate that portions of the Property have been used for vehicle storage and salvage. The potential for petroleum and hazardous substances to be released as a result of these operations represents a REC and a potential vapor encroachment condition (VEC) for the Property.

Property Alias:
Ctmnt Found:
Ctmnt Cleanedup:
Ctmnt Rec:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Media Afffected:

39	1 of 1	NW	0.46 / 2,410.38	5,664.85 / 11	Loaf N Jug #18 7055 Alegre Cir Fountain 80817 CO	LST

Facility ID:	2226	***Fac Name(CDLE):***	Loaf N Jug #18
Event ID:		***Address(CDLE):***	7055 Alegre Cir
Facility Name(OPS):	Loaf N Jug #18	***Fac Type(CDLE):***	Retail
Facility Type(OPS):	Retail	***Fac Category(CDLE):***	Retail Gas Station
Fac Category(OPS):	Retail Gas Station	***City(CDLE):***	Fountain
Address(OPS):	7055 Alegre Cir	***Zip(CDLE):***	80817
City(OPS):	Fountain	***County(CDLE):***	El Paso
Zip Code(OPS):	80817	***State(CDLE):***	
County(OPS):	El Paso	***Latitude(CDLE):***	38.729431
State(OPS):	CO	***Longitude(CDLE):***	-104.724982
Lat Long(OPS):	38.729431, -104.724982		
Fac Name(COSTIS):	Loaf N Jug #18		
Address (COSTIS):	7055 Alegre Cir Fountain 80817		
County (COSTIS):	El Paso		
Original Source:	Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks; OPS Petroleum Release Events in Colorado - Petroleum Release Events		
Owner ID:	3561		
Owner Name:			

Events (CDLE)

Event ID:	7978	***Proj. Closure Date:***	
Alt Event ID:		***Category:***	
Status:	Closed	***Sardonyx ID:***	
UST Tank Count:	3	***MTBE Classifica:***	
AST Tank Count:	0	***Sum of Reimbur Amt:***	
Source of Release:		***Reviewer Full Name:***	Larry Delin
Cause of Release:		***Logged On:***	12/21/1999
Confirm Rel Dt:		***Logged By:***	
Site Name:	Loaf N Jug #18		
Loc Addr:			
Loc Addr2:			
Loc Addr3:			
Aka Name:			
Aka Loc Addr:			

Facility (CDLE)

Owner Costis ID:	OWNR-3561	***Type:***	Retail
No of Active Tanks:	0	***Facility Owner:***	Black Diamond Petroleum Inc
No of Metred Prod:	0		

Events (COSTIS) (As of October 2021)

Event ID:	7978	***Log Date:***	12/21/1999
Process Status Name:	Closed		
Site Name:	Black Diamond Petroleum Fka Loaf N Jug		
Facility Name:			
Address:	7055 Alegre Cir Fountain CO 80817		
Loc Address:	7055 Alegre Cir Fountain 80817		
Loc City:	Fountain		
Loc County:	El Paso		

OPS Regulated Storage Tanks

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

No of Tanks: 0

OPS Petroleum Release Events in Colorado - Petroleum Release Events

Event ID: 7978
Release No: REL-004113
Status: Closed
Release Date:
Closure Date: 1/20/2000
NFA Type: Pre-RBCA
Release Cause:
Reimbursement Total:
Contact: Larry Delin
Release Source:
Site Name: Loaf N Jug #18
Address: 7055 Alegre Cir
Email: cdle_ops_public_record_center@state.co.us
Link : https://socgov18.force.com/s/release/a183h000003KWKJ
Phone: (303) 318-4357
City: Fountain
Zip: 80817
State: CO
County: El Paso
Latitude: 38.729431
Longitude: -104.724982
Latitude Longitude: 38.729431, -104.724982

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
40	1 of 1	SSE	0.55 / 2,900.33	5,676.29 / 22	GRAVEL PIT EL PASO COUNTY FOUNTAIN CO 80817	MRDS

Dep ID: 10263607
Dev Status: PRODUCER
Code List: SDG
Url: http://mrdata.usgs.gov/mrds/show-mrds.php?dep_id=10263607
I1: 24
Latitude: 38.70752
Longitude: -104.704102

Commodity

I1: 36
Code: SDG
Commodity: Sand and Gravel, Cons
Commodity Type: Non-metallic
Commodity Group: Sand and Gravel
Importance: Primary
Line: 1
Inserted By: MAS migration
Insert Date: 29-OCT-2002 09:00:24
Updated By: USGS
Update Date: 29-OCT-2002 09:02:20

Names

I1: 38
Status: Current
Site Name: Gravel Pit
Line: 1
Inserted By: MAS migration
Insert Date: 29-OCT-02
Updated By: USGS
Update Date: 29-OCT-02

Unplottable Summary

Total: 2 Unplottable sites

DB	Company Name/Site Name	Address	City	Zip	ERIS ID
ERNS		FOUNTAIN MESA RD ***NRC Report No:*** 243588	FOUNTAIN CO		806998819
SPILLS		NEAR FOUNTAIN MESA ROAD ***Case No:*** CO94-207	FOUNTAIN CO		820846478

Unplottable Report

Site:

FOUNTAIN MESA RD FOUNTAIN CO

ERNS

NRC Report No:	243588	***Latitude Degrees:***	
Type of Incident:	UNKNOWN SHEEN	***Latitude Minutes:***	
Incident Cause:	UNKNOWN	***Latitude Seconds:***	
Incident Date:	12-Jun-1994 13:00:00	***Longitude Degrees:***	
Incident Location:		***Longitude Minutes:***	
Incident Dtg:	DISCOVERED	***Longitude Seconds:***	
Distance from City:		***Lat Quad:***	
Distance Units:		***Long Quad:***	
Direction from City:		***Location Section:***	
Location County:	EL PASO	***Location Township:***	
Potential Flag:		***Location Range:***	
Year:	Year 1994 Reports		

Description of Incident: CALLER CAN SEE A TIRE FIRE 3-4 MILES AWAY/ LARGE PLUME OF SMOKE

Material Spill Information

Chris Code:	UNK	***Unit of Measure:***	UNKNOWN AMOUNT
CAS No:		***If Reached Water:***	YES
UN No:		***Amount in Water:***	0
Name of Material:	UNKNOWN MATERIAL/ TIRES BURNING	***Unit Reach Water:***	UNKNOWN AMOUNT
Amount of Material:	0		

Calls Information

Date Time Received:	12-Jun-1994 15:45:41	***Responsible City:***	
Date Time Complete:	12-Jun-1994 15:48:19	***Responsible State:***	XX
Call Type:	INC	***Responsible Zip:***	
Resp Company:		***Source:***	UNAVAILABLE
Resp Org Type:	UNKNOWN		

Incident Information

Tank ID:		***Building ID:***	
Tank Regulated:	U	***Location Area ID:***	
Tank Regulated By:		***Location Block ID:***	
Capacity of Tank:		***OCSG No:***	
Capacity Tank Units:		***OCSP No:***	
Description of Tank:		***State Lease No:***	
Actual Amount:		***Pier Dock No:***	
Actual Amount Units:		***Berth Slip No:***	
Tank Above Ground:	ABOVE	***Brake Failure:***	N
NPDES:		***Airbag Deployed:***	
NPDES Compliance:	U	***Transport Contain:***	U
Init Contin Rel No:		***Location Subdiv:***	
Contin Rel Permit:		***Platform Rig Name:***	
Contin Release Type:		***Platform Letter:***	
Aircraft ID:		***Allision:***	N
Aircraft Runway No:		***Type of Structure:***	
Aircraft Spot No:		***Structure Name:***	
Aircraft Type:	UNKNOWN	***Structure Oper:***	Y
Aircraft Model:		***Transit Bus Flag:***	
Aircraft Fuel Cap:		***Date Time Norm Serv:***	
Aircraft Fuel Cap U:		***Serv Disrupt Time:***	
Aircraft Fuel on Brd:		***Serv Disrupt Units:***	
Aircraft Fuel OB U:		***CR Begin Date:***	
Aircraft Hanger:		***CR End Date:***	

Road Mile Marker:		***CR Change Date:***	
Power Gen Facility:	U	***FBI Contact:***	
Generating Capacity:		***FBI Contact Dt Tm:***	
Type of Fixed Obj:	UNKNOWN	***Passenger Handling:***	
Type of Fuel:		***Passenger Route:***	XXX
DOT Crossing No:		***Passenger Delay:***	XXX
DOT Regulated:	U	***Sub Part C Test Req:***	XXX
Pipeline Type:	UNKNOWN	***Conductor Test:***	
Pipeline Abv Ground:	ABOVE	***Engineer Test:***	
Pipeline Covered:	U	***Trainman Test:***	
Exposed Underwater:	U	***Yard Foreman Test:***	
Railroad Hotline:	No	***RCL Operator Test:***	
Railroad Milepost:	UNKNOWN	***Brakeman Test:***	
Grade Crossing:	N	***Train Dispat Test:***	
Crossing Device Ty:		***Signalman Test:***	
Ty Vehicle Involved:	UNKNOWN	***Oth Employee Test:***	
Device Operational:	Y	***Unknown Test:***	

Incident Details Information

Release Secured:		***State Agen Report No:***	
Release Rate:		***State Agen on Scene:***	
Release Rate Unit:		***State Agen Notified:***	
Release Rate Rate:		***Fed Agency Notified:***	
Est Duration of Rel:		***Oth Agency Notified:***	
Desc Remedial Act:	NONE	***Body of Water:***	
Fire Involved:	N	***Tributary of:***	
Fire Extinguished:		***Near River Mile Make:***	
Any Evacuations:	N	***Near River Mile Mark:***	
No Evacuated:		***Offshore:***	
Who Evacuated:		***Weather Conditions:***	
Radius of Evac:		***Air Temperature:***	
Any Injuries:	U	***Wind Direction:***	
No. Injured:		***Wind Speed:***	
No. Hospitalized:		***Wind Speed Unit:***	
No. Fatalities:		***Water Supp Contam:***	
Any Fatalities:	U	***Water Temperature:***	
Any Damages:	N	***Wave Condition:***	
Damage Amount:		***Current Speed:***	
Air Corridor Closed:		***Current Direction:***	
Air Corridor Desc:		***Current Speed Unit:***	
Air Closure Time:		***EMPL Fatality:***	
Waterway Closed:		***Pass Fatality:***	
Waterway Desc:		***Community Impact:***	
Waterway Close Time:		***Passengers Transfer:***	UNK
Road Closed:		***Passenger Injuries:***	
Road Desc:		***Employee Injuries:***	
Road Closure Time:		***Occupant Fatality:***	
Road Closure Units:		***Sheen Size:***	
Closure Direction:		***Sheen Size Units:***	
Major Artery:		***Sheen Size Length:***	
Track Closed:		***Sheen Size Length U:***	
Track Desc:		***Sheen Size Width:***	
Track Closure Time:		***Sheen Size Width U:***	
Track Closure Units:		***Sheen Color:***	
Track Close Dir:		***Dir of Sheen Travel:***	
Media Interest:		***Sheen Odor Desc:***	
Medium Desc:	AIR	***Duration Unit:***	
Addl Medium Info:	ATMOSPHERE	***Additional Info:***	

Site:

NEAR FOUNTAIN MESA ROAD FOUNTAIN CO

SPILLS

Case No:	CO94-207	***H2O Unit Measure 2:***	
Main ID:		***Quantity 3:***	0
NRC No:	NONE	***Unit Measure 3:***	
Dt of Spl or Rel:	6/12/1994	***H2O quantity 3:***	0
Event Time:	12:00:00 AM	***H2O Unit Measure 3:***	
1st Rep Event Dt:	6/12/1994	***Cause:***	O

Date Reported:	6/12/1994	***Death:***	
Time Reported:	2:12:00 PM	***Injury:***	
Date Entered:	1/5/1995	***Evacuation:***	N
Time Entered:	4:34:56 PM	***Evacuation No:***	0
Land:	TRUE	***PRP City:***	
Air:	TRUE	***PRP County:***	
Surface Water:	FALSE	***PRP State:***	
Ground Water:	FALSE	***PRP Zip:***	
Material Type:	OTHER	***PRP Phone:***	
Quantity 1:	0	***PRP Extension:***	
Unit Measure 1:		***Mile Marker:***	
H2O Quantity 1:	0	***Who Took Report:***	GUNDERSON, STEVE
H2O Unit Measure 1:		***Fixed Facility:***	FALSE
Material 2:		***Event County:***	EL PASO
Quantity 2:	0	***Latitude:***	0
Unit Measure 2:		***Longitude:***	0
H2O Quantity 2:	0		

Source Desc:	
Source:	F
Source Type:	ILLEGAL TIRE DUMP
Medium:	AIR AND LAND
Waterway:	NONE
Material 1:	TIRES
Material 3:	
PRP:	POTTER, BOB
PRP Contact:	
PRP Street:	
PRP Fax:	
Responder 1:	FORT CARSON FIRE DEPARTMENT
Responder 2:	FOUNTAIN FIRE DEPARTMENT
Responder 3:	HANOVER & SECURITY FIRE DEPT
Response Comments:	
Notified Name:	CDH/EMU **Note: Many records provided by the department have a truncated [Notified Name] field.
Additional Comments:	
Comments:	ESTIMATED 10 MILLION TIRES OVER 40 ACRES, 2 ACRES BURNING.
Cause Info:	FIRE STARTED BY LIGHTENING **Note: Many records provided by the department have a truncated [Cause Info] field.
Action:	BERMS BUILT WITH BULLDOZERS; SMOTHERING FIRE W/DIRT & FOAM.

Appendix: Database Descriptions

Environmental Risk Information Services (ERIS) can search the following databases. The extent of historical information varies with each database and current information is determined by what is publicly available to ERIS at the time of update. ERIS updates databases as set out in ASTM Standard E1527-13 and E1527-21, Section 8.1.8 Sources of Standard Source Information:

"Government information from nongovernmental sources may be considered current if the source updates the information at least every 90 days, or, for information that is updated less frequently than quarterly by the government agency, within 90 days of the date the government agency makes the information available to the public."

Standard Environmental Record Sources

Federal

National Priority List: NPL

Sites on the United States Environmental Protection Agency (EPA)'s National Priorities List of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under the Superfund program. The NPL, which EPA is required to update at least once a year, is based primarily on the score a site receives from EPA's Hazard Ranking System. A site must be on the NPL to receive money from the Superfund Trust Fund for remedial action. Sites are represented by boundaries where available in the EPA Superfund Site Boundaries maintained by the Shared Enterprise Geodata and Services (SEGS). Site boundaries represent the footprint of a whole site, the sum of all of the Operable Units and the current understanding of the full extent of contamination; for Federal Facility sites, the total site polygon may be the Facility boundary. Where there is no polygon boundary data available for a given site, the site is represented as a point.

Government Publication Date: May 25, 2023

National Priority List - Proposed: PROPOSED NPL

Sites proposed by the United States Environmental Protection Agency (EPA), the state agency, or concerned citizens for addition to the National Priorities List (NPL) due to contamination by hazardous waste and identified by the EPA as a candidate for cleanup because it poses a risk to human health and/or the environment. Sites are represented by boundaries where available in the EPA Superfund Site Boundaries maintained by the Shared Enterprise Geodata and Services (SEGS). Site boundaries represent the footprint of a whole site, the sum of all of the Operable Units and the current understanding of the full extent of contamination; for Federal Facility sites, the total site polygon may be the Facility boundary. Where there is no polygon boundary data available for a given site, the site is represented as a point.

Government Publication Date: May 25, 2023

Deleted NPL: DELETED NPL

Sites deleted from the United States Environmental Protection Agency (EPA)'s National Priorities List. The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate. Sites are represented by boundaries where available in the EPA Superfund Site Boundaries maintained by the Shared Enterprise Geodata and Services (SEGS). Site boundaries represent the footprint of a whole site, the sum of all of the Operable Units and the current understanding of the full extent of contamination; for Federal Facility sites, the total site polygon may be the Facility boundary. Where there is no polygon boundary data available for a given site, the site is represented as a point.

Government Publication Date: May 25, 2023

SEMS List 8R Active Site Inventory: SEMS

The U.S. Environmental Protection Agency's (EPA) Superfund Program has deployed the Superfund Enterprise Management System (SEMS), which integrates multiple legacy systems into a comprehensive tracking and reporting tool. This inventory contains active sites evaluated by the Superfund program that are either proposed to be or are on the National Priorities List (NPL) as well as sites that are in the screening and assessment phase for possible inclusion on the NPL. The Active Site Inventory Report displays site and location information at active SEMS sites. An active site is one at which site assessment, removal, remedial, enforcement, cost recovery, or oversight activities are being planned or conducted. This data includes SEMS sites from the List 8R Active file as well as applicable sites from the SEMS GIS/REST file layer obtained from EPA's Facility Registry Service.

Government Publication Date: Mar 23, 2023

SEMS List 8R Archive Sites: SEMS ARCHIVE

The U.S. Environmental Protection Agency's (EPA) Superfund Enterprise Management System (SEMS) Archived Site Inventory displays site and location information at sites archived from SEMS. An archived site is one at which EPA has determined that assessment has been completed and no further remedial action is planned under the Superfund program at this time. This data includes sites from the List 8R Archived site file.

Government Publication Date: Mar 23, 2023

Inventory of Open Dumps, June 1985: ODI

The Resource Conservation and Recovery Act (RCRA) provides for publication of an inventory of open dumps. The Act defines "open dumps" as facilities which do not comply with EPA's "Criteria for Classification of Solid Waste Disposal Facilities and Practices" (40 CFR 257).

Government Publication Date: Jun 1985

Comprehensive Environmental Response, Compensation and Liability Information System - CERCLIS: CERCLIS

Superfund is a program administered by the United States Environmental Protection Agency (EPA) to locate, investigate, and clean up the worst hazardous waste sites throughout the United States. CERCLIS is a database of potential and confirmed hazardous waste sites at which the EPA Superfund program has some involvement. It contains sites that are either proposed to be or are on the National Priorities List (NPL) as well as sites that are in the screening and assessment phase for possible inclusion on the NPL. The EPA administers the Superfund program in cooperation with individual states and tribal governments; this database is made available by the EPA.

Government Publication Date: Oct 25, 2013

EPA Report on the Status of Open Dumps on Indian Lands: IODI

Public Law 103-399, The Indian Lands Open Dump Cleanup Act of 1994, enacted October 22, 1994, identified congressional concerns that solid waste open dump sites located on American Indian or Alaska Native (AI/AN) lands threaten the health and safety of residents of those lands and contiguous areas. The purpose of the Act is to identify the location of open dumps on Indian lands, assess the relative health and environment hazards posed by those sites, and provide financial and technical assistance to Indian tribal governments to close such dumps in compliance with Federal standards and regulations or standards promulgated by Indian Tribal governments or Alaska Native entities.

Government Publication Date: Dec 31, 1998

CERCLIS - No Further Remedial Action Planned: CERCLIS NFRAP

An archived site is one at which EPA has determined that assessment has been completed and no further remedial action is planned under the Superfund program at this time. The Archive designation means that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL). This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Government Publication Date: Oct 25, 2013

CERCLIS Liens: CERCLIS LIENS

A Federal Superfund lien exists at any property where EPA has incurred Superfund costs to address contamination ("Superfund site") and has provided notice of liability to the property owner. A Federal CERCLA ("Superfund") lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. This database is made available by the United States Environmental Protection Agency (EPA). This database was provided by the United States Environmental Protection Agency (EPA). Refer to SEMS LIEN as the current data source for Superfund Liens.

Government Publication Date: Jan 30, 2014

RCRA CORRACTS-Corrective Action: RCRA CORRACTS

RCRA Info is the U.S. Environmental Protection Agency's (EPA) comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. At these sites, the Corrective Action Program ensures that cleanups occur. EPA and state regulators work with facilities and communities to design remedies based on the contamination, geology, and anticipated use unique to each site.

Government Publication Date: Apr 24, 2023

RCRA non-CORRACTS TSD Facilities: RCRA TSD

RCRA Info is the U.S. Environmental Protection Agency's (EPA) comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. This database includes Non-Corrective Action sites listed as treatment, storage and/or disposal facilities of hazardous waste as defined by RCRA.

Government Publication Date: Apr 24, 2023

RCRA Generator List: RCRA LQG

RCRA Info is the U.S. Environmental Protection Agency's (EPA) comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Large Quantity Generators (LQGs) generate 1,000 kilograms per month or more of hazardous waste or more than one kilogram per month of acutely hazardous waste.

Government Publication Date: Apr 24, 2023

RCRA Small Quantity Generators List: RCRA SQG

RCRA Info is the U.S. Environmental Protection Agency's (EPA) comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Small Quantity Generators (SQGs) generate more than 100 kilograms, but less than 1,000 kilograms, of hazardous waste per month.

Government Publication Date: Apr 24, 2023

RCRA Very Small Quantity Generators List: RCRA VSQG

RCRA Info is the U.S. Environmental Protection Agency's (EPA) comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Very Small Quantity Generators (VSQG) generate 100 kilograms or less per month of hazardous waste, or one kilogram or less per month of acutely hazardous waste. Additionally, VSQG may not accumulate more than 1,000 kilograms of hazardous waste at any time.

Government Publication Date: Apr 24, 2023

RCRA Non-Generators: RCRA NON GEN

RCRA Info is the U.S. Environmental Protection Agency's (EPA) comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Non-Generators do not presently generate hazardous waste.

Government Publication Date: Apr 24, 2023

RCRA Sites with Controls: RCRA CONTROLS

List of Resource Conservation and Recovery Act (RCRA) facilities with institutional controls in place. RCRA gives the U.S. Environmental Protection Agency (EPA) the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances.

Government Publication Date: Apr 24, 2023

Federal Engineering Controls-ECs: FED ENG

This list of Engineering controls (ECs) is provided by the United States Environmental Protection Agency (EPA). ECs encompass a variety of engineered and constructed physical barriers (e.g., soil capping, sub-surface venting systems, mitigation barriers, fences) to contain and/or prevent exposure to contamination on a property. The EC listing includes remedy component data from Superfund decision documents issued in fiscal years 1982-2021 for applicable sites on the final or deleted on the National Priorities List (NPL); and sites with a Superfund Alternative Approach (SAA) Agreement in place. The only sites included that are not on the NPL; proposed for NPL; or removed from proposed NPL, are those with an SAA Agreement in place.

Government Publication Date: Jun 22, 2023

Federal Institutional Controls- ICs: FED INST

This list of Institutional controls (ICs) is provided by the United States Environmental Protection Agency (EPA). ICs are non-engineered instruments, such as administrative and legal controls, that help minimize the potential for human exposure to contamination and/or protect the integrity of the remedy. Although it is EPA's expectation that treatment or engineering controls will be used to address principal threat wastes and that groundwater will be returned to its beneficial use whenever practicable, ICs play an important role in site remedies because they reduce exposure to contamination by limiting land or resource use and guide human behavior at a site. The IC listing includes remedy component data from Superfund decision documents issued in fiscal years 1982-2021 for applicable sites on the final or deleted on the National Priorities List (NPL); and sites with a Superfund Alternative Approach (SAA) Agreement in place. The only sites included that are not on the NPL; proposed for NPL; or removed from proposed NPL, are those with an SAA Agreement in place.

Government Publication Date: Jun 22, 2023

Land Use Control Information System: LUCIS

The LUCIS database is maintained by the U.S. Department of the Navy and contains information for former Base Realignment and Closure (BRAC) properties across the United States.

Government Publication Date: Sep 1, 2006

Institutional Control Boundaries at NPL sites: NPL IC

Boundaries of Institutional Control areas at sites on the United States Environmental Protection Agency (EPA)'s National Priorities List, or Proposed or Deleted, made available by the EPA's Shared Enterprise Geodata and Services (SEGS). United States Environmental Protection Agency (EPA)'s National Priorities List of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under the Superfund program. Institutional controls are non-engineered instruments such as administrative and legal controls that help minimize the potential for human exposure to contamination and/or protect the integrity of the remedy.

Government Publication Date: May 25, 2023

Emergency Response Notification System: ERNS 1982 TO 1986

Database of oil and hazardous substances spill reports controlled by the National Response Center. The primary function of the National Response Center is to serve as the sole national point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories.

Government Publication Date: 1982-1986

Emergency Response Notification System: ERNS 1987 TO 1989

Database of oil and hazardous substances spill reports controlled by the National Response Center. The primary function of the National Response Center is to serve as the sole national point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories.

Government Publication Date: 1987-1989

Emergency Response Notification System: ERNS

Database of oil and hazardous substances spill reports made available by the United States Coast Guard National Response Center (NRC). The NRC fields initial reports for pollution and railroad incidents and forwards that information to appropriate federal/state agencies for response. These data contain initial incident data that has not been validated or investigated by a federal/state response agency.

Government Publication Date: Apr 3, 2023

The Assessment, Cleanup and Redevelopment Exchange System (ACRES) Brownfield Database: FED BROWNFIELDS

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties protects the environment, reduces blight, and takes development pressures off greenspaces and working lands. This data is provided by the United States Environmental Protection Agency (EPA) and includes Brownfield sites from the Cleanups in My Community (CIMC) web application.

Government Publication Date: Sep 13, 2022

FEMA Underground Storage Tank Listing: FEMA UST

The Federal Emergency Management Agency (FEMA) of the Department of Homeland Security maintains a list of FEMA owned underground storage tanks.

Government Publication Date: Dec 31, 2017

Facility Response Plan: FRP

This listing contains facilities that have submitted Facility Response Plans (FRPs) to the U.S. Environmental Protection Agency (EPA). Facilities that could reasonably be expected to cause "substantial harm" to the environment by discharging oil into or on navigable waters are required to prepare and submit FRPs. Harm is determined based on total oil storage capacity, secondary containment and age of tanks, oil transfer activities, history of discharges, proximity to a public drinking water intake or sensitive environments. This listing includes FRP facilities from an applicable EPA FOIA file and Homeland Infrastructure Foundation-Level Data (HIFLD) data file.

Government Publication Date: May 2, 2023

Delisted Facility Response Plans: DELISTED FRP

Facilities that once appeared in - and have since been removed from - the list of facilities that have submitted Facility Response Plans (FRP) to EPA. Facilities that could reasonably be expected to cause "substantial harm" to the environment by discharging oil into or on navigable waters are required to prepare and submit Facility Response Plans (FRPs). Harm is determined based on total oil storage capacity, secondary containment and age of tanks, oil transfer activities, history of discharges, proximity to a public drinking water intake or sensitive environments.

Government Publication Date: May 2, 2023

Historical Gas Stations: HIST GAS STATIONS

This historic directory of service stations is provided by the Cities Service Company. The directory includes Cities Service filling stations that were located throughout the United States in 1930.

Government Publication Date: Jul 1, 1930

Petroleum Refineries: REFN

List of petroleum refineries from the U.S. Energy Information Administration (EIA) Refinery Capacity Report. Includes operating and idle petroleum refineries (including new refineries under construction) and refineries shut down during the previous year located in the 50 States, the District of Columbia, Puerto Rico, the Virgin Islands, Guam, and other U.S. possessions. Survey locations adjusted using public data.

Government Publication Date: Aug 30, 2022

Petroleum Product and Crude Oil Rail Terminals: BULK TERMINAL

List of petroleum product and crude oil rail terminals made available by the U.S. Energy Information Administration (EIA). Includes operable bulk petroleum product terminals located in the 50 States and the District of Columbia with a total bulk shell storage capacity of 50,000 barrels or more, and/or the ability to receive volumes from tanker, barge, or pipeline; also rail terminals handling the loading and unloading of crude oil that were active between 2017 and 2018. Petroleum product terminals comes from the EIA-815 Bulk Terminal and Blender Report, which includes working, shell in operation, and shell idle for several major product groupings. Survey locations adjusted using public data.

Government Publication Date: Jun 29, 2022

LIEN on Property: SEMS LIEN

The U.S. Environmental Protection Agency's (EPA) Superfund Enterprise Management System (SEMS) provides Lien details on applicable properties, such as the Superfund lien on property activity, the lien property information, and the parties associated with the lien.

Government Publication Date: Mar 23, 2023

Superfund Decision Documents: SUPERFUND ROD

This database contains a list of decision documents for Superfund sites. Decision documents serve to provide the reasoning for the choice of (or) changes to a Superfund Site cleanup plan. The decision documents include completed Records of Decision (ROD), ROD Amendments, Explanations of Significant Differences (ESD) for active and archived sites stored in the Superfund Enterprise Management System (SEMS), along with other associated memos and files. This information is maintained and made available by the U.S. Environmental Protection Agency.

Government Publication Date: Mar 23, 2023

Formerly Utilized Sites Remedial Action Program: DOE FUSRAP

The U.S. Department of Energy (DOE) established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from the Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations. The DOE Office of Legacy Management (LM) established long-term surveillance and maintenance (LTS&M) requirements for remediated FUSRAP sites. DOE evaluates the final site conditions of a remediated site on the basis of risk for different future uses. DOE then confirms that LTS&M requirements will maintain protectiveness.

Government Publication Date: Mar 4, 2017

State

Environmental Covenants and Use Restrictions: COVENANTS

Boundaries of environmental covenant/environmental use restriction sites made available by the Colorado Deparment of Public Health & Environment (CDPHE). CPDHE has the authority to approve requests to restrict the future use of a property using an enforceable agreement called an environmental covenant. Land use restrictions may be used to ensure the cleanup remedy adequately protects human health and the environment when a contaminated site isn't cleaned up completely.

Government Publication Date: Apr 20, 2023

Superfund National Priorities List and Natural Resource Damages sites: SUPERFUND NRD

Boundaries of Superfund National Priorities List sites and Natural Resource Damages sites in Colorado made available by the Colorado Department of Public Health and Environment (CDPHE).

Government Publication Date: Apr 14, 2023

Methane Gas Study Sites: LANDFILL METHANE

This Investigation of Methane Gas Hazards report was prepared by the Denver Office of Emergency Preparedness in 1981. The purpose of this study was to assess the actual and potential generation, migration, explosive and related problems associated with specified landfills, and to identify existing and potential problems, suggested strategies to prevent, abate, and control such problems and recommend investigative and monitoring functions as may be deemed necessary. The Colorado Department of Health selected eight landfills as priorities due to population density and potential hazards to population and property.

Government Publication Date: Jan 2, 1981

Superfund Sites: SHWS

A list of Superfund sites in Colorado made available by the Colorado Department of Public Health and Environment (CDPHE). In Colorado, the cleanup of Superfund sites is overseen by the CDPHE or the Environmental Protection Agency (EPA). This list includes active Superfund sites, deleted sites, proposed sites, and natural resource damage sites.

Government Publication Date: Jun 29, 2022

Delisted Superfund Sites: DELISTED SHWS

Sites which once appeared on - but have since been removed from - the list of Superfund sites in Colorado made available by the Colorado Department of Public Health and Environment (CDPHE). In Colorado, the cleanup of Superfund sites is overseen by the CDPHE or the Environmental Protection Agency (EPA).

Government Publication Date: Jun 29, 2022

Solid Waste Facilities and Landfills: SWF/LF

The Colorado Department of Public Health and Environment (CDPHE) regulates the management and disposal of solid waste, landfill facilities, waste tire registrants, and waste tire haulers. Solid waste and landfills data is provided by the CDPHE's Hazardous Materials and Waste Management Division's Solid Waste Report and the Environmental Sites Search Map Application. Waste tire data is made available by the CDPHE.

Government Publication Date: May 4, 2023

Historical Solid Waste (Closed or Abandoned Landfills): HIST LF

In the early 1980s the Hazardous Materials Waste Management Division of the Colorado Department of Public Health and Environment (CDPHE) conducted a survey of staff members and local agencies. The information gathered was compiled in 1984 for sites that were known or thought to have waste issues. The information is not complete and generally not very definitive or verifiable. This data became the Solid Waste Historical Data. The data is not maintained and has not been since the late 1980s.

Government Publication Date: 1984

Tri-County Historic Landfills: HIST LANDFILLS

A list of historical landfills made available by the Tri-County Health Department (TCHD). The TCHD serves Adams, Arapahoe, and Douglas Counties.

Government Publication Date: Jun 1, 2022

Registered Recycling Facilities: RECYCLING

This list of registered recycling facilities in Colorado is maintained by the Colorado Department of Public Health & Environment (CDPHE). This list includes primarily processing facilities for recyclable materials, such as material recovery facilities, industrial recycling operations, and recyclable material end user sites. Collection centers/drop-off locations are not included unless the site is also processing recyclable materials (separating, sorting, dismantling, grinding, baling, etc.).

Government Publication Date: Mar 13, 2023

Leaking Storage Tanks: LST

A list of leaking storage tank locations from the Colorado Storage Tank Information System (COSTIS) database, including those which have applied for reimbursement from the Petroleum Storage Tank Fund. This list is made available by the Division of Oil and Public Safety (OPS) of the Colorado Department of Labor and Employment (CDLE) and includes data compiled from applicable FOIA files, COSTIS files and other OPS datasets. Classified military tanks are excluded from this data.

Government Publication Date: Jun 1, 2023

LUST Trust Sites: LUST TRUST

The Division of Oil and Public Safety of the Colorado Department of Labor and Employment (CDLE) manages a Petroleum Storage Tank Fund (The Fund) that receives and processes applications to the Fund for reimbursement of costs related to assessment and cleanup of petroleum contaminated sites. Classified military tanks are excluded from this data.

Government Publication Date: Jun 1, 2023

Delisted Leaking Storage Tanks: DELISTED LST

This database contains a list of leaking storage tank sites and their Funds for reimbursement of costs related to assessment and cleanup that were removed from the Colorado Department of Labor and Employment (CDLE) database.

Government Publication Date: Jun 1, 2023

Underground Storage Tanks: UST

A list of underground storage tanks from the Colorado Storage Tank Information System (COSTIS) database. This database is made available by the Division of Oil and Public Safety (OPS) of the Colorado Department of Labor and Employment (CDLE). Data is compiled from applicable FOIA files, COSTIS files and other OPS datasets. Classified military tanks are excluded from this data.

Government Publication Date: Jun 1, 2023

Aboveground Storage Tanks: AST

A list of aboveground storage tanks from the Colorado Storage Tank Information System (COSTIS) database. This list is made available by the Division of Oil and Public Safety (OPS) of the Colorado Department of Labor and Employment (CDLE). Data is compiled from applicable FOIA files, COSTIS files and other OPS datasets. Classified military tanks are excluded from this data.

Government Publication Date: Jun 1, 2023

Storage Tank Information System (COSTIS): TANKS

This storage tank listing is provided by the Colorado Department of Labor and Employment, Division of Oil and Public Safety (OPS). The OPS manages the Colorado Storage Tank Information System (COSTIS) database which stores information on these facilities. This tank data includes facilities with liquefied petroleum gas, liquefied natural gas, and compressed natural gas tanks which are not classified as either underground storage tanks or aboveground storage tanks. Data is compiled from applicable FOIA files, COSTIS files and other OPS datasets. Classified military tanks are excluded from this data.

Government Publication Date: Jun 1, 2023

Delisted Storage Tanks: DTNK

This database contains a list of closed storage tank sites that were removed from the Division of Oil and Public Safety of the Colorado Department of Labor and Employment (CDLE) Tank Information System.

Government Publication Date: Jun 1, 2023

Environmental Covenants and Environmental Use Restrictions List: AUL

The Colorado Department of Public Health and Environment (CDPHE) maintains a list of sites that have environmental covenants and use restrictions in place. Land use restrictions may be used to ensure the cleanup remedy adequately protects human health and the environment when a contaminated site is not cleaned up completely.

Government Publication Date: Apr 20, 2023

Voluntary Cleanup and Redevelopment Program Sites: VCP

The Voluntary Cleanup and Redevelopment Program (VCUP) of the Colorado Department of Public Health and Environment (CDPHE) was created in 1994 with the objective to facilitate the redevelopment and transfer of contaminated properties. This VCUP site listing includes applicable active and inactive sites from the CDPHE Voluntary Cleanup Open Records data file and map layer.

Government Publication Date: Mar 20, 2023

Brownfield Sites: BROWNFIELDS

A list of Brownfields Program sites from the Hazardous Materials and Waste Management Division and the Colorado Environmental Records Search Interactive Map made available by the Colorado Department of Public Health and Environment (CDPHE). Sites which go untouched because of their real or perceived contamination can be rehabilitated using the CDPHE Brownfields Program.

Government Publication Date: Apr 3, 2023

Tribal

Leaking Underground Storage Tanks on Tribal/Indian Lands: INDIAN LUST

This list of leaking underground storage tanks (LUSTs) on Tribal/Indian Lands in Region 8, which includes Colorado, is made available by the United States Environmental Protection Agency (EPA).

Government Publication Date: Apr 20, 2023

Underground Storage Tanks on Tribal/Indian Lands: INDIAN UST

This list of underground storage tanks (USTs) on Tribal/Indian Lands in Region 8, which includes Colorado, is made available by the United States Environmental Protection Agency (EPA).

Government Publication Date: Apr 20, 2023

Delisted Tribal Leaking Storage Tanks: DELISTED INDIAN LST

Leaking Underground Storage Tank (LUST) facilities which once appeared on - and have since been removed from - the Regional Tribal/Indian LUST lists made available by the United States Environmental Protection Agency (EPA).

Government Publication Date: Apr 26, 2023

Delisted Tribal Underground Storage Tanks: DELISTED INDIAN UST

Underground Storage Tank (UST) facilities which once appeared on - and have since been removed from - the Regional Tribal/Indian UST lists made available by the United States Environmental Protection Agency (EPA).

Government Publication Date: Apr 26, 2023

County

No County databases were selected to be included in the search.

Additional Environmental Record Sources

Federal

Facility Registry Service/Facility Index: FINDS/FRS

The Facility Registry Service (FRS) is a centrally managed database that identifies facilities, sites, or places subject to environmental regulations or of environmental interest. FRS creates high-quality, accurate, and authoritative facility identification records through rigorous verification and management procedures that incorporate information from program national systems, state master facility records, and data collected from EPA's Central Data Exchange registrations and data management personnel. This list is made available by the Environmental Protection Agency (US EPA).

Government Publication Date: Aug 18, 2022

Toxics Release Inventory (TRI) Program: TRIS

The U.S. Environmental Protection Agency's Toxics Release Inventory (TRI) is a database containing data on disposal or other releases of toxic chemicals from U.S. facilities and information about how facilities manage those chemicals through recycling, energy recovery, and treatment. There are currently 770 individually listed chemicals and 33 chemical categories covered by the TRI Program. Facilities that manufacture, process or otherwise use these chemicals in amounts above established levels must submit annual reporting forms for each chemical. Note that the TRI chemical list does not include all toxic chemicals used in the U.S. One of TRI's primary purposes is to inform communities about toxic chemical releases to the environment.

Government Publication Date: Oct 19, 2022

PFOA/PFOS Contaminated Sites: PFAS NPL

This list of National Priorities List (NPL) and related Superfund Alternative Agreement (SAA) sites where PFOA or PFOS contaminants have been detected in water and/or soil is provided by the U.S. Environmental Protection Agency (EPA). EPA Disclaimer with FOIA file: Inclusion on the list does not necessarily mean that drinking water has been affected, nor does inclusion mean that anyone at the site has been exposed or is at risk for detrimental health effects.

Government Publication Date: Jun 15, 2023

Federal Agency Locations with Known or Suspected PFAS Detections: PFAS FED SITES

List of Federal agency locations with known or suspected detections of Per- and Polyfluoroalkyl Substances (PFAS), made available by the U.S. Environmental Protection Agency (EPA) in their PFAS Analytic Tools data. EPA outlines that these data are gathered from several federal entities, such as the Federal Superfund program, Department of Defense (DOD), National Aeronautics and Space Administration, Department of Transportation, and Department of Energy. The dates this data was extracted for the PFAS Analytic Tools range from March 2022 to April 2023. Sites on this list do not necessarily reflect the source/s of PFAS contamination and detections do not indicate level of risk or human exposure at the site. Agricultural notifications in this data are limited to DOD sites only. At this time, the EPA is aware that this list is not comprehensive of all Federal agencies.

Government Publication Date: Apr 24, 2023

SSEHRI PFAS Contamination Sites: PFAS SSEHRI

This PFAS Contamination Site Tracker database is compiled by the Social Science Environmental Health Research Institute (SSEHRI) at Northeastern University. According to the SSEHRI, the database records qualitative and quantitative data from each known site of PFAS contamination, including timeline of discovery, sources, levels, health impacts, community response, and government response. The goal of this database is to compile information and support public understanding of the rapidly unfolding issue of PFAS contamination. All data presented was extracted from government websites, news articles, or publicly available documents, and this is cited in the tracker. Locations for the Known PFAS Contamination Sites are sourced from the PFAS Sites and Community Resources Map, credited to the Northeastern University's PFAS Project Lab, Silent Spring Institute, and the PFAS-REACH team. Disclaimer: The source conveys the data undergoes regular updates as new information becomes available, some sites may be missing and/or contain information that is incorrect or outdated, as well as their information represents all contamination sites SSEHRI is aware of, not all possible contamination sites. This data is not intended to be used for legal purposes. Access the following source link for the most current information: https://pfasproject.com/pfas-sites-and-community-resources/

Government Publication Date: Oct 9, 2022

National Response Center PFAS Spills: ERNS PFAS

This Per- and Poly-Fluoroalkyl Substances (PFAS) Spills dataset is made available via the U.S. Environmental Protection Agency's (EPA) PFAS Analytic Tools. The National Response Center (NRC), operated by the U.S. Coast Guard, serves as an emergency call center that fields initial reports for pollution and railroad incidents and forwards that information to appropriate federal/state agencies for response. Response center calls from 1990 to the most recent complete calendar year where there was indication of Aqueous Film Forming Foam (AFFF) usage are included in this dataset. NRC calls may reference AFFF usage in the "Material Involved" or "Incident Description" fields. Limitations: The data from the NRC website contain initial incident data that has not been validated or investigated by a federal/state response agency. Keyword searches may misidentify some incident reports that do not contain PFAS. This dataset should also not be considered to be exhaustive of all PFAS spills/release incidents.

Government Publication Date: Apr 15, 2023

PFAS NPDES Discharge Monitoring: PFAS NPDES

This list of National Pollutant Discharge Elimination System (NPDES) permitted facilities with required monitoring for Per- and Polyfluoroalkyl (PFAS) Substances is made available via the U.S. Environmental Protection Agency (EPA)'s PFAS Analytic Tools. Any point-source wastewater discharger to waters of the United States must have a NPDES permit, which defines a set of parameters for pollutants and monitoring to ensure that the discharge does not degrade water quality or impair human health. This list includes NPDES permitted facilities associated with permits that monitor for Per- and Polyfluoroalkyl Substances (PFAS), limited to the years 2007 - present. EPA further advises the following regarding these data: currently, fewer than half of states have required PFAS monitoring for at least one of their permittees, and fewer states have established PFAS effluent limits for permittees. For states that may have required monitoring, some reporting and data transfer issues may exist on a state-by-state basis.

Government Publication Date: Feb 19, 2023

Perfluorinated Alkyl Substances (PFAS) from Toxic Release Inventory: PFAS TRI

List of Toxics Release Inventory (TRI) facilities at which the reported chemical is a per- or polyfluoroalkyl (PFAS) substance included in the U.S. Environmental Protection Agency's (EPA) consolidated PFAS Master List of PFAS Substances. Encompasses Toxics Release Inventory records included in the EPA PFAS Analytic Tools. The EPA's TRI database currently tracks information on disposal or releases of 770 individually listed toxic chemicals and 33 chemical categories from thousands of U.S. facilities and details about how facilities manage those chemicals through recycling, energy recovery, and treatment.

Government Publication Date: Oct 19, 2022

Perfluorinated Alkyl Substances (PFAS) Water Quality: PFAS WATER

The Water Quality Portal (WQP) is a cooperative service sponsored by the United States Geological Survey (USGS), the Environmental Protection Agency (EPA), and the National Water Quality Monitoring Council (NWQMC). This listing includes records from the Water Quality Portal where the characteristic (environmental measurement) is in the Environmental Protection Agency (EPA)'s consolidated Master List of PFAS Substances.

Government Publication Date: Jul 20, 2020

PFAS TSCA Manufacture and Import Facilities: PFAS TSCA

The U.S. Environmental Protection Agency (EPA) issued the Chemical Data Reporting (CDR) Rule under the Toxic Substances Control Act (TSCA) and requires chemical manufacturers and facilities that manufacture or import chemical substances to report data to EPA. This list is specific only to TSCA Manufacture and Import Facilities with reported per- and poly-fluoroalkyl (PFAS) substances. Data file is sourced from EPA's PFAS Analytic Tools TSCA dataset which includes CDR/Inventory Update Reporting data from 1998 up to 2020. Disclaimer: This data file includes production and importation data for chemicals identified in EPA's CompTox Chemicals Dashboard list of PFAS without explicit structures and list of PFAS structures in DSSTox. Note that some regulations have specific chemical structure requirements that define PFAS differently than the lists in EPA's CompTox Chemicals Dashboard. Reporting information on manufactured or imported chemical substance amounts should not be compared between facilities, as some companies claim Chemical Data Reporting Rule data fields for PFAS information as Confidential Business Information.

Government Publication Date: Jan 5, 2023

PFAS Waste Transfers from RCRA e-Manifest : PFAS E-MANIFEST

This Per- and Poly-Fluoroalkyl Substances (PFAS) Waste Transfers dataset is made available via the U.S. Environmental Protection Agency's (EPA) PFAS Analytic Tools. Every shipment of hazardous waste in the U.S. must be accompanied by a shipment manifest, which is a critical component of the cradle-to-grave tracking of wastes mandated by the Resource Conservation and Recovery Act (RCRA). According to the EPA, currently no Federal Waste Code exists for any PFAS compounds. To work around the lack of PFAS waste codes in the RCRA database, EPA developed the PFAS Transfers dataset by mining e-Manifest records containing at least one of these common PFAS keywords: • PFAS • PFOA • PFOS • PERFL • AFFF • GENX • GEN-X (plus the Vermont state-specific waste codes). Limitations: Amount or concentration of PFAS being transferred cannot be determined from the manifest information. Keyword searches may misidentify some manifest records that do not contain PFAS. This dataset should also not be considered to be exhaustive of all PFAS waste transfers.

Government Publication Date: Apr 9, 2023

PFAS Industry Sectors: PFAS IND

This Per- and Poly-Fluoroalkyl Substances (PFAS) Industry Sectors dataset is made available via the U.S. Environmental Protection Agency's (EPA) PFAS Analytic Tools. The EPA developed the dataset from various sources that show which industries may be handling PFAS including: EPA's Enforcement and Compliance History Online (ECHO) records restricted to potential PFAS-handling industry sectors; ECHO records for Fire Training Sites identified where fire-fighting foam may have been used in training exercises; and 14 CFR Part 139 Airports compiled from historic and current records from the FAA Airport Data and Information Portal. Since July 2006, all certificated Part 139 Airports are required to have fire-fighting foam onsite that meet certain military specifications, which to date have been fluorinated (Aqueous Film Forming Foam). Limitations: Inclusion in this dataset does not indicate that PFAS are being manufactured, processed, used, or released by the facility. Listed facilities potentially handle PFAS based on their industrial profile, but are unconfirmed by the EPA. Keyword searches in ECHO for Fire Training sites may misidentify some facilities and should not be considered to be an exhaustive list of fire training facilities in the U.S.

Government Publication Date: Apr 16, 2023

Hazardous Materials Information Reporting System: HMIRS

US DOT - Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) Incidents Reports Database taken from Hazmat Intelligence Portal, U.S. Department of Transportation.

Government Publication Date: Sep 1, 2020

National Clandestine Drug Labs: NCDL

The U.S. Department of Justice ("the Department"), Drug Enforcement Administration (DEA), provides this data as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy.

Government Publication Date: Feb 8, 2023

Toxic Substances Control Act: TSCA

The Environmental Protection Agency (EPA) is amending the Toxic Substances Control Act (TSCA) section 8(a) Inventory Update Reporting (IUR) rule and changing its name to the Chemical Data Reporting (CDR) rule.
The CDR enables EPA to collect and publish information on the manufacturing, processing, and use of commercial chemical substances and mixtures (referred to hereafter as chemical substances) on the TSCA Chemical Substance Inventory (TSCA Inventory). This includes current information on chemical substance production volumes, manufacturing sites, and how the chemical substances are used. This information helps the Agency determine whether people or the environment are potentially exposed to reported chemical substances. EPA publishes submitted CDR data that is not Confidential Business Information (CBI).

Government Publication Date: Apr 11, 2019

Hist TSCA: HIST TSCA

The Environmental Protection Agency (EPA) is amending the Toxic Substances Control Act (TSCA) section 8(a) Inventory Update Reporting (IUR) rule and changing its name to the Chemical Data Reporting (CDR) rule.
The 2006 IUR data summary report includes information about chemicals manufactured or imported in quantities of 25,000 pounds or more at a single site during calendar year 2005. In addition to the basic manufacturing information collected in previous reporting cycles, the 2006 cycle is the first time EPA collected information to characterize exposure during manufacturing, processing and use of organic chemicals. The 2006 cycle also is the first time manufacturers of inorganic chemicals were required to report basic manufacturing information.

Government Publication Date: Dec 31, 2006

FTTS Administrative Case Listing: FTTS ADMIN

An administrative case listing from the Federal Insecticide, Fungicide, & Rodenticide Act (FIFRA) and Toxic Substances Control Act (TSCA), together known as FTTS. This database was obtained from the Environmental Protection Agency's (EPA) National Compliance Database (NCDB). The FTTS and NCDB was shut down in 2006.

Government Publication Date: Jan 19, 2007

FTTS Inspection Case Listing: FTTS INSP

An inspection case listing from the Federal Insecticide, Fungicide, & Rodenticide Act (FIFRA) and Toxic Substances Control Act (TSCA), together known as FTTS. This database was obtained from the Environmental Protection Agency's (EPA) National Compliance Database (NCDB). The FTTS and NCDB was shut down in 2006.

Government Publication Date: Jan 19, 2007

Potentially Responsible Parties List: PRP

Early in the site cleanup process, the U.S. Environmental Protection Agency (EPA) conducts a search to find the Potentially Responsible Parties (PRPs). The EPA looks for evidence to determine liability by matching wastes found at the site with parties that may have contributed wastes to the site. This listing contains PRPs, Noticed Parties, at sites in the EPA's Superfund Enterprise Management System (SEMS).

Government Publication Date: Jan 25, 2023

State Coalition for Remediation of Drycleaners Listing: SCRD DRYCLEANER

The State Coalition for Remediation of Drycleaners (SCRD) was established in 1998, with support from the U.S. Environmental Protection Agency (EPA) Office of Superfund Remediation and Technology Innovation. Coalition members are states with mandated programs and funding for drycleaner site remediation. Current members are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin. Since 2017, the SCRD no longer maintains this data, refer to applicable state source data where available.

Government Publication Date: Nov 08, 2017

Integrated Compliance Information System (ICIS): ICIS

The U.S. Environmental Protection Agency's Enforcement and Compliance History Online system incorporates data from the Integrated Compliance Information System - National Pollutant Discharge Elimination System (ICIS-NPDES). ICIS-NPDES is an information management system maintained by the Office of Compliance to track permit compliance and enforcement status of facilities regulated by the NPDES under the Clean Water Act. This data includes permit, inspection, violation and enforcement action information for applicable ICIS records.

Government Publication Date: Oct 15, 2022

Drycleaner Facilities: FED DRYCLEANERS

A list of drycleaner facilities from Enforcement and Compliance History Online (ECHO) data as made available by the U.S. Environmental Protection Agency (EPA), sourced from the ECHO Exporter file. The EPA tracks facilities that possess NAIC and SIC codes that classify businesses as drycleaner establishments.

Government Publication Date: Apr 15, 2023

Delisted Drycleaner Facilities: DELISTED FED DRY

List of sites removed from the list of Drycleaner Facilities (sites in the EPA's Integrated Compliance Information System (ICIS) with NAIC or SIC codes identifying the business as a drycleaner establishment).

Government Publication Date: Apr 15, 2023

Formerly Used Defense Sites: FUDS

Formerly Used Defense Sites (FUDS) are properties that were formerly owned by, leased to, or otherwise possessed by and under the jurisdiction of the Secretary of Defense prior to October 1986, where the Department of Defense (DOD) is responsible for an environmental restoration. The FUDS Annual Report to Congress (ARC) is published by the U.S. Army Corps of Engineers (USACE). This data is compiled from the USACE's Geospatial FUDS data layers and Homeland Infrastructure Foundation-Level Data (HIFLD) FUDS dataset.

Government Publication Date: Jul 12, 2022

FUDS Munitions Response Sites: FUDS MRS

Boundaries of Munitions Response Sites (MRS), published with the Formerly Used Defense Sites (FUDS) Annual Report to Congress (ARC) by the U.S. Army Corps of Engineers (USACE). An MRS is a discrete location within a Munitions response area (MRA) that is known to require a munitions response. An MRA means any area on a defense site that is known or suspected to contain unexploded ordnance (UXO), discarded military munitions (DMM), or munitions constituents (MC). This data is compiled from the USACE's Geospatial MRS data layers and Homeland Infrastructure Foundation-Level Data (HIFLD) MRS dataset.

Government Publication Date: Jul 12, 2022

Former Military Nike Missile Sites: FORMER NIKE

This information was taken from report DRXTH-AS-IA-83A016 (Historical Overview of the Nike Missile System, 12/1984) which was performed by Environmental Science and Engineering, Inc. for the U.S. Army Toxic and Hazardous Materials Agency Assessment Division. The Nike system was deployed between 1954 and the mid-1970's. Among the substances used or stored on Nike sites were liquid missile fuel (JP-4); starter fluids (UDKH, aniline, and furfuryl alcohol); oxidizer (IRFNA); hydrocarbons (motor oil, hydraulic fluid, diesel fuel, gasoline, heating oil); solvents (carbon tetrachloride, trichloroethylene, trichloroethane, stoddard solvent); and battery electrolyte. The quantities of material a disposed of and procedures for disposal are not documented in published reports. Virtually all information concerning the potential for contamination at Nike sites is confined to personnel who were assigned to Nike sites. During deactivation most hardware was shipped to depot-level supply points. There were reportedly instances where excess materials were disposed of on or near the site itself at closure. There was reportedly no routine site decontamination.

Government Publication Date: Dec 2, 1984

PHMSA Pipeline Safety Flagged Incidents: PIPELINE INCIDENT

A list of flagged pipeline incidents made available by the U.S. Department of Transportation (US DOT) Pipeline and Hazardous Materials Safety Administration (PHMSA). PHMSA regulations require incident and accident reports for five different pipeline system types.

Government Publication Date: Dec 30, 2022

Material Licensing Tracking System (MLTS): MLTS

A list of sites that store radioactive material subject to the Nuclear Regulatory Commission (NRC) licensing requirements. This list is maintained by the NRC. As of September 2016, the NRC no longer releases location information for sites. Site locations were last received in July 2016.

Government Publication Date: May 11, 2021

Historic Material Licensing Tracking System (MLTS) sites: HIST MLTS

A historic list of sites that have inactive licenses and/or removed from the Material Licensing Tracking System (MLTS). In some cases, a site is removed from the MLTS when the state becomes an "Agreement State". An Agreement State is a State that has signed an agreement with the Nuclear Regulatory Commission (NRC) authorizing the State to regulate certain uses of radioactive materials within the State.

Government Publication Date: Jan 31, 2010

Mines Master Index File: MINES

The Master Index File (MIF) is provided by the United State Department of Labor, Mine Safety and Health Administration (MSHA). This file, which was originally created in the 1970's, contained many Mine-IDs that were invalid. MSHA removes invalid IDs from the MIF upon discovery. MSHA applicable data includes the following: all Coal and Metal/Non-Metal mines under MSHA's jurisdiction since 1/1/1970; mine addresses for all mines in the database except for Abandoned mines prior to 1998 from MSHA's legacy system (addresses may or may not correspond with the physical location of the mine itself); violations that have been assessed penalties as a result of MSHA inspections beginning on 1/1/2000; and violations issued as a result of MSHA inspections conducted beginning on 1/1/2000.

Government Publication Date: Nov 7, 2022

Surface Mining Control and Reclamation Act Sites: SMCRA

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by the Office of Surface Mining Reclamation and Enforcement (OSMRE) to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of Abandoned Mine Land (AML) impacts, as well as information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Government Publication Date: Aug 18, 2022

Mineral Resource Data System: MRDS

The Mineral Resource Data System (MRDS) is a collection of reports describing metallic and nonmetallic mineral resources throughout the world. Included are deposit name, location, commodity, deposit description, geologic characteristics, production, reserves, resources, and references. This database contains the records previously provided in the Mineral Resource Data System (MRDS) of USGS and the Mineral Availability System/Mineral Industry Locator System (MAS/MILS) originated in the U.S. Bureau of Mines, which is now part of USGS. The USGS has ceased systematic updates of the MRDS database with their focus more recently on deposits of critical minerals while providing a well-documented baseline of historical mine locations from USGS topographic maps.

Government Publication Date: Mar 15, 2016

DOE Legacy Management Sites: LM SITES

The U.S. Department of Energy (DOE) Office of Legacy Management (LM) currently manages radioactive and chemical waste, environmental contamination, and hazardous material at over 100 sites across the U.S. The LM manages sites with diverse regulatory drivers (statutes or programs that direct cleanup and management requirements at DOE sites) or as part of internal DOE or congressionally-recognized programs, such as but not limited to: Formerly Utilized Sites Remedial Action Program (FUSRAP), Uranium Mill Tailings Radiation Control Act (UMTRCA Title I, Tile II), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Resource Conservation and Recovery Act (RCRA), Decontamination and Decommissioning (D&D), Nuclear Waste Policy Act (NWPA). This site listing includes data exported from the DOE Office of LM's Geospatial Environmental Mapping System (GEMS). GEMS Data disclaimer: The DOE Office of LM makes no representation or warranty, expressed or implied, regarding the use, accuracy, availability, or completeness of the data presented herein.

Government Publication Date: May 25, 2023

Alternative Fueling Stations: ALT FUELS

This list of alternative fueling stations is sourced from the Alternative Fuels Data Center (AFDC). The U.S. Department of Energy's Office of Energy Efficiency & Renewable Energy launched the AFDC in 1991 as a repository for alternative fuel vehicle performance data, which provides a wealth of information and data on alternative and renewable fuels, advanced vehicles, fuel-saving strategies, and emerging transportation technologies. The data includes Biodiesel (B20 and above), Compressed Natural Gas (CNG), Electric, Ethanol (E85), Hydrogen, Liquefied Natural Gas (LNG), Propane (LPG), and Renewable Diesel (R20 and above) fuel type locations.

Government Publication Date: Jun 5, 2023

Superfunds Consent Decrees: CONSENT DECREES

This list of Superfund consent decrees is provided by the Department of Justice, Environment & Natural Resources Division (ENRD) through a Freedom of Information Act (FOIA) applicable file. This listing includes Consent Decrees for CERCLA or Superfund Sites filed and/or as proposed within the ENRD's Case Management System (CMS) since 2010. CMS may not reflect the latest developments in a case nor can the agency guarantee the accuracy of the data. ENRD Disclaimer: Congress excluded three discrete categories of law enforcement and national security records from the requirements of the FOIA; response is limited to those records that are subject to the requirements of the FOIA; however, this should not be taken as an indication that excluded records do, or do not, exist.

Government Publication Date: Apr 19, 2023

Air Facility System: AFS

This EPA retired Air Facility System (AFS) dataset contains emissions, compliance, and enforcement data on stationary sources of air pollution. Regulated sources cover a wide spectrum; from large industrial facilities to relatively small operations such as dry cleaners. AFS does not contain data on facilities that are solely asbestos demolition and/or renovation contractors, or landfills. ECHO Clean Air Act data from AFS are frozen and reflect data as of October 17, 2014; the EPA retired this system for Clean Air Act stationary sources and transitioned to ICIS-Air.

Government Publication Date: Oct 17, 2014

Registered Pesticide Establishments: SSTS

This national list of active EPA-registered foreign and domestic pesticide and/or device-producing establishments is based on data from the Section Seven Tracking System (SSTS). The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Section 7 requires that each producing establishment must place its EPA establishment number on the label or immediate container of each pesticide, active ingredient or device produced. An EPA establishment number on a pesticide product label identifies the EPA registered location where the product was produced. The list of establishments is made available by the U.S. Environmental Protection Agency (EPA).

Government Publication Date: Mar 1, 2023

Polychlorinated Biphenyl (PCB) Transformers: PCBT

Locations of Transformers Containing Polychlorinated Biphenyls (PCBs) registered with the United States Environmental Protection Agency. PCB transformer owners must register their transformer(s) with EPA. Although not required, PCB transformer owners who have removed and properly disposed of a registered PCB transformer may notify EPA to have their PCB transformer de-registered. Data made available by EPA.

Government Publication Date: Oct 15, 2019

Polychlorinated Biphenyl (PCB) Notifiers: PCB

Facilities included in the national list of facilities that have notified the United States Environmental Protection Agency (EPA) of Polychlorinated Biphenyl (PCB) activities. Any company or person storing, transporting or disposing of PCBs or conducting PCB research and development must notify the EPA and receive an identification number.

Government Publication Date: Mar 20, 2023

State

Spills: SPILLS

A list of hazardous material spills and releases (including Meth Labs) that were reported to the Colorado Department of Public Health and Environment (CDPHE).
Government Publication Date: Apr 8, 2022

Colorado Oil and Gas Conservation Commission Spills: OG SPILLS
A list of spills made available by the Colorado Oil and Gas Conservation Commission (COGCC).
Government Publication Date: Jun 7, 2023

Dry Cleaning Facilities: DRYCLEANERS
A list of dry cleaners provided by the Colorado Department of Public Health and Environment (CDPHE) Hazardous Waste Compliance Assurance Unit and Stationary Sources Program.
Government Publication Date: Mar 14, 2023

Delisted Dry Cleaning Facilities: DELISTED DRYCLEANERS
List of sites removed from the drycleaners database made available by the Department of Public Health & Environment.
Government Publication Date: Mar 14, 2023

Air Pollution Control Division Permitted Facilities: AIR PERMITS
This list of Air Pollution Control Division Permitted Facilities is maintained by the Colorado Department of Public Health and Environment. The Stationary Sources Program evaluates and develops air permits for stationary sources in Colorado. The program inspects sources to determine compliance with air regulations and permit conditions and maintains an inventory of air pollution emissions throughout the state.
Government Publication Date: Feb 13, 2023

Per- and Polyfluoroalkyl Substances (PFAS): PFAS
A list of facilities that reported storing or using AFFF or Class B firefighting foam, other PFAS chemicals, have reported PFAS passthrough, or have detectable limits of PFAS in their discharge.
Government Publication Date: Dec 8, 2020

Asbestos Abatement and Demolition Projects: ASBESTOS
A list of Asbestos Abatement and Demolition Projects made available by the Colorado Department of Public Health and Environment (CDPHE), Air Pollution Control Division.
Government Publication Date: Dec 28, 2017

Hazardous Waste Sites- Generator: HAZ GEN
A list of hazardous waste generators.This list is made available by the Colorado Department of Public Health and Environment (CDPHE).
Government Publication Date: Jun 30, 2003

Permitted Facilities Listing: PDES
A list of permitted facilities tracked by the Water Quality Control Division of the Department of Public Health & Environment (DPHE). This list is the state version of the NPDES (National Pollution Discharge Elimination System).
Government Publication Date: May 1, 2023

Hazardous Waste Sites- Treatment, Storage & Disposal: HAZ TSD
A list of facilities that treat, store, dispose, or recycle hazardous waste on-site. This list is made available by the Colorado Department of Public Health and Environment (CDPHE).
Government Publication Date: Jun 30, 2003

Hazardous Waste Sites- Corrective Action: HAZ CORRACT
A list of hazardous waste generators with corrective actions. This list is made available by the Colorado Department of Public Health and Environment (CDPHE).
Government Publication Date: Jun 30, 2003

Uranium Mill Tailings Sites: UMTRA
This list of former uranium mill sites in Colorado, with cleanup authorized by the Uranium Mill Tailings Remedial Action (UMTRA) program, was provided by the Colorado Department of Public Health and Environment. Because much of the cleanup is complete, the focus has shifted to primarily "Post-UMTRA issues," or the discovery of new uranium mill tailings material by private citizens, utility companies or local governments.
Government Publication Date: Sep 26, 2022

Tribal

No Tribal additional environmental record sources available for this State.

County

No County additional environmental databases were selected to be included in the search.

Definitions

Database Descriptions: This section provides a detailed explanation for each database including: source, information available, time coverage, and acronyms used. They are listed in alphabetic order.

Detail Report: This is the section of the report which provides the most detail for each individual record. Records are summarized by location, starting with the project property followed by records in closest proximity.

Distance: The distance value is the distance between plotted points, not necessarily the distance between the sites' boundaries. All values are an approximation.

Direction: The direction value is the compass direction of the site in respect to the project property and/or center point of the report.

Elevation: The elevation value is taken from the location at which the records for the site address have been plotted. All values are an approximation. Source: Google Elevation API.

Executive Summary: This portion of the report is divided into 3 sections:

'Report Summary'- Displays a chart indicating how many records fall on the project property and, within the report search radii.

'Site Report Summary'-Project Property'- This section lists all the records which fall on the project property. For more details, see the 'Detail Report' section.

'Site Report Summary-Surrounding Properties'- This section summarizes all records on adjacent properties, listing them in order of proximity from the project property. For more details, see the 'Detail Report' section.

Map Key: The map key number is assigned according to closest proximity from the project property. Map Key numbers always start at #1. The project property will always have a map key of '1' if records are available. If there is a number in brackets beside the main number, this will indicate the number of records on that specific property. If there is no number in brackets, there is only one record for that property.

The symbol and colour used indicates 'elevation': the red inverted triangle will dictate 'ERIS Sites with Lower Elevation', the yellow triangle will dictate 'ERIS Sites with Higher Elevation' and the orange square will dictate 'ERIS Sites with Same Elevation.'

Unplottables: These are records that could not be mapped due to various reasons, including limited geographic information. These records may or may not be in your study area, and are included as reference.

TECHNICAL SPECIFICATIONS

Widefield Water and Sanitation District

For the Construction of

WWSD JIMMY CAMP LIFT STATION FORCE MAIN EXTENSION

WIDEFIELD, COLORADO

90% SUBMITTAL

Garver Project No. 22W23080

Prepared For:

Widefield Water and Sanitation District

May 2025

GARVER

GarverUSA.com

WIDEFIELD WATER AND SANITATION DISTRICT

JIMMY CAMP LIFT STATION FORCE MAIN EXTENSION

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REPORT FOR ENVIRONMENTAL STUDY BY ECOPOINT, INC.

THE FOLLOWING DOCUMENTS ARE INCLUDED BY REFERENCE ONLY AND ARE CONSIDERED PART OF THE CONTRACT DOCUMENTS:

WIDEFIELD WATER AND SANITATION DISTRICT WATER AND WASTEWATER SYSTEM STANDARD SPECIFICATIONS (REVISED JULY 2023)

COLORADO SPRINGS UTILITIES WASTEWATER LINE EXTENSION AND SERVICE STANDARDS (*WASTEWATER LESS*, 2023 EDITION)

EL PASO COUNTY ENGINEERING CRITERIA MANUAL (REVISED DECEMBER 13, 2016) AND DEPARTMENT OF PUBLIC WORKS ENGINEERING DEVISION STANDARD DRAWINGS (ADOPTED FOR USE JULY 18, 2023)

CITY OF COLORADO SPRINGS STANDARD SPECIFICATIONS MANUAL (REVISED MARCH 2005)

CITY OF FOUNTAIN DESIGN AND CONSTRUCTION SPECIFICATIONS MANUAL (ADOPTED FEBRUARY 15, 2016)

FOUNTAIN SANITATION DISTRICT SPECIFICATIONS AND REGULATION MANUAL (ADOPTED FEBRUARY 8, 2024)

In case of conflict between Contract documents, priority of interpretation shall be in the following order:

Signed Agreement (or Contract)

Project Drawings

Project Technical Specifications

Widefield Water and Sanitation District Water and Wastewater System Standard Specifications (Revised July 2023)

Colorado Department of Public Health and Environment Design Criteria for Wastewater Systems (Effective June 7, 2022)

Colorado Springs Utilities Wastewater Line Extension and Service Standards (2023 Edition)

El Paso County Engineering Criteria Manual (Effective July 18, 2023)

City of Fountain Design and Construction Specifications Manual (Adopted February 15, 2016)

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This document is released for the purpose of interim review under the authority of Wesley Lozano, CO PE 0065534 on May 19, 2025. It is not to be used for bidding or construction purposes. Wesley Lozano, CO PE 0065534 Garver, LLC	This document is released for the purpose of interim review under the authority of Harry Elliott, CO PE 0044888 on May 19, 2025. It is not to be used for bidding or construction purposes. Harry Elliott, CO PE 0044888 Garver, LLC

END OF SECTION

90% SUBMITTAL - NOT FOR CONSTRUCTION

SECTION 00610

PAYMENT, PERFORMANCE AND WARRANTY BOND

THE STATE OF)
) ss. KNOW ALL PERSONS BY THESE PRESENTS:
COUNTY OF)

That we, _____ , of the City of _____County of_____, and State of _____(hereinafter called "Principal") as Principal, and _____ (hereinafter called "Surety") as Surety, authorized under the laws of the State of Colorado to act as surety on bonds for principals, are held and firmly bound unto **Widefield Water and Sanitation District** (hereinafter called "**OWNER**") as obligee, in the penal sum of _____ _____ Dollars($ _____), for the payment of which sum well and truly to be made, we bind ourselves, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal has, on _____ , 20__, entered into a written Agreement with **OWNER** for construction of "the Project" as defined in said Agreement and which Agreement is by this reference made a part hereof and is hereinafter referred to as the "Agreement."

NOW, THEREFORE, the condition of this obligation is such that, if the Principal shall (1) faithfully perform all covenants, obligations and provisions of said Agreement on Principal's part and satisfy all claims and demands incurred for the same; (2) fully indemnify and save harmless the **OWNER** from all costs and damages which said **OWNER** may suffer by reason of failure so to do; and (3) fully reimburse and repay said **OWNER** all outlay and expenses which said **OWNER** may incur in making good any default; and (4) if the Principal shall pay all persons, firms and corporations all just claims due them for the payment of all laborers and mechanics for labor performed, for all materials and equipment furnished, and for all materials and equipment used or rented in the performance of the Agreement; and (5) if the Principal shall keep the Work constructed under this Agreement in good repair for a period of two years from the date of initial acceptance by the Owner, then this obligation is null and void; otherwise it shall remain in full force and effect.

The Principal shall pay all persons, firms and corporations all just claims due them for the payment of all laborers and mechanics for labor performed, for all materials and equipment furnished, and for all materials and equipment used or rented in the performance of Principal's Agreement.

The Principal shall keep the Work constructed under this Agreement in good repair for a period of two years from date of final acceptance by said Owner.

Whenever Principal shall be, and is declared by **OWNER** to be, in default under the Agreement, the **OWNER** having performed **OWNER's** obligations thereunder, the Surety shall promptly remedy the default, or shall promptly, subject to **OWNER's** concurrence, perform and complete the Agreement in accordance with its terms and conditions, which may include obtaining a Bid or Bids for completing the Project and the execution of a new contract between the **OWNER** and a new contractor approved by **OWNER**. The Surety shall pay the costs of completion of the Project up to an amount equal to the amount of this Bond, as increased or decreased by change orders which increase or decrease the Agreement Price.

If the Principal fails to pay for any labor performed, for any materials and equipment furnished, and for any materials and equipment used or rented in the performance of the Agreement, the Surety will pay the same in an amount not exceeding the Agreement Price together with interest at eight percent (8%) per annum.

Any suit under this Bond must be instituted before the expiration of two years from the date on which final payment under the Agreement falls due.

No right of action shall accrue on this Bond to or for the use of any person or corporation other than the **OWNER** named herein or the successors and assigns of **OWNER** or any persons, firms and corporations for all just claims due them for the payment of all laborers and mechanics for labor performed, for all materials and equipment furnished, and for all materials and equipment used or rented in the performance of Principal's Agreement.

The Surety hereby waives the right to special notification of any notification of or alterations, omissions or reductions, extra or additional work, extensions of time, change orders or any other act or acts of **OWNER** or its authorized agents under the terms of the Agreement; and failure to notify Surety of such shall in no way relieve Surety of its obligations.

SIGNED AND SEALED this _____ day of_____ , 20___ .

PRINCIPAL:

_____ By: _____
Witness _____
_____
(Address)

SURETY:

_____ By: _____
Witness _____
_____
Surety's Telephone No. _____

END OF SECTION

SECTION 00670

NOTICE TO PROCEED

Colorado Springs, Colorado

Date _____

TO: _____
_____
_____

You are hereby authorized to proceed on the Jimmy Camp Lift Station Force Main Extension, or within ten (10) consecutive calendar days thereafter, with the Work as set forth in the Contract Documents.

You are to notify the **ENGINEER** forty-eight (48) hours before starting Work.

Widefield Water and Sanitation District

By: _____

Title: ___GENERAL MANAGER_____

ACKNOWLEDGEMENT OF RECEIPT OF NOTICE TO PROCEED:

Receipt of the above Notice to Proceed is hereby acknowledged this _____day of_____, 20____.

CONTRACTOR:_____

BY:_____

TITLE: _____

END OF SECTION

SECTION 00680

CHANGE ORDER

Project: WWSD Jimmy Camp Lift Station Force Main Extension **Date of Issuance:** _____

Owner: Widefield Water and Sanitation District **Change Order No.** _____
Address: 8495 Fontaine Blvd.
Colorado Springs, Colorado 80925

Contractor: _____ **Engineer:** _____

You are directed to make the following changes in the Contract Documents:

Description: _____
_____
_____

Purpose of Change Order: _____
_____
_____

Attachments (List Documents Supporting Change): _____
_____
_____

THIS CHANGE ORDER CONSTITUTES FULL AND FINAL SETTLEMENT FOR ALL COSTS AND TIME ASSOCIATED WITH THE WORK DESCRIBED HEREIN. COSTS ARE DEFINED TO INCLUDE ALL DIRECT AND INDIRECT LABOR COSTS RELATED TO, AND/OR OCCASIONED BY THE WORK DESCRIBED HEREIN; ALL MATERIAL AND EQUIPMENT COSTS RELATED HERETO; ANY AND ALL IMPACT COSTS RELATED TO AND/OR OCCASIONED BY THE PERFORMANCE OF THIS WORK; AS WELL AS ALL APPLICABLE TAXES, INSURANCE, BONDS, AND PROFIT. ALL OTHER TERMS AND CONDITIONS OF THIS CONTRACT REMAIN IN FULL FORCE AND EFFECT.

CHANGE IN CONTRACT PRICE:	**CHANGE IN CONTRACT TIME:**
Original Contract Price: $	Original Contract Time: (days or date)
Previous Change Orders No. _____ to No. _____: $	Net Change from Previous Change Order: (days)
Contract Price Prior to this Change Order: $	Contract Time Prior to this Change Order: (days or date)
Net Increase of this Change Order: $	Net Increase of the Change Order: (days)
Net Decrease of this Change Order: $	Net Decrease of this Change Order: (days)
Net Change of this Change Order: $	Net Change of this Change Order: (days)
Contract Price with all approved Change Orders: $	Contract Time with all approved Change Orders: (days or date)

RECOMMENDED:

By: _____
Engineer

APPROVED:

By: _____
Owner

APPROVED:

By: _____
Contractor

END OF SECTION

SECTION 00681

REQUEST FOR INFORMATION

Project: WWSD Jimmy Camp Lift Station Force Main Extension

Date of Issuance: _____

Owner: Widefield Water and Sanitation District
Address: 8495 Fontaine Blvd.
Colorado Springs, Colorado 80925

RFI No._____

Request Reply Date:_____

Contractor: _____

Engineer: _____

Request for Information from Contractor:

RFI Description *(fully describe the question or type of information requested)*: _____

Attachments/Reverences *(List all specific documents researched when seeking the information requested)*: _____

Requester's Recommendation *(If RFI concerns a site or construction condition, the requester may recommend solution, including cost and/or schedule considerations)*: _____

Receiver's Reply *(Provide answer to RFI, including accost and/or schedule considerations)*:_____

_____

_____

_____

_____

_____

_____

_____

By: _____ By: _____ By: _____

Engineer Owner Contractor

Note: This reply is not an authorization to proceed with work involving additional cost, time, or both. If any reply requires a change to the Contract Documents, and Change Order (Specification Section 00680) in the work must be executed in accordance with the Contract Documents.

END OF SECTION

SECTION 00682

WORK CHANGE DIRECTIVE

Project: WWSD Jimmy Camp Lift Station Force Main Extension **Date of Issuance:** _____

Owner: Widefield Water and Sanitation District **WDC No.** _____
Address: 8495 Fontaine Blvd.
Colorado Springs, Colorado 80925 **Effective Date:** _____

Contractor: _____ **Engineer:** _____

You are directed to proceed promptly with the following change(s):

WCD Description: _____

Purpose of Work Change Directive: _____

Attachments *(List documents supporting change)*: _____

If a claim is made that the above change(s) have affected Contract Price or Contract Times, any claim for a Change Order based thereon will involve one or more of the following methods of determining the effect of the change(s).

Method of determining change in Contract Price:

___ Unit Price

___ Lump Sum

___ Other _____

Estimated increase (decrease) in Contract Price:

$ _____

If the change involves and increase, the estimated amount not to be exceeded without further authorization

Method of determining change in Contract Time:

___ Contractor's Record

___ Engineer's Record

___ Other _____

Estimated increase (decrease) in Contract Time

Substantial Completion _____

Final Completion _____

If the change involves an increase, the estimated times are not to be exceeded without further authorization

By: _____ By: _____ By: _____

Engineer Owner Contractor

Note: This Work Change Directive is not an authorization to proceed with work involving additional cost, time, or both. If any reply requires a change to the Contract Documents, and Change Order (Specification Section 00680) in the work must be executed in accordance with the Contract Documents.

END OF SECTION

SECTION 00685

LIEN WAIVER

Name of Owner: Widefield Water and Sanitation District
Name of Contractor: _____
Date of Agreement: _____
Name of Project: WWSD Jimmy Camp Lift Station Force Main Extension
Location of Project: Colorado Springs, CO (the "Premises")

1. The undersigned has performed the following work at the Premises:
   _____
   _____
   _____
   _____
   _____

2. In consideration of Owner's payment of $_____, receipt of which is acknowledged, the undersigned waives any right it may have to claim any lien against the Premises for labor performed on and/or materials furnished to the Premises up to and including the date of _____, 20___, excepting only retention applicable thereto.

3. The undersigned executes this lien waiver voluntarily and with full knowledge of its significance under the laws of the state of Colorado.

_____,
a _____

Date: _____By: _____
Title: _____

STATE OF COLORADO)
)ss.
COUNTY OF)

The foregoing instrument was acknowledged before me this _____ day of _____, 20____, by _____.

Witness my hand and official seal.

My commission expires: _____

_____
Notary Public

END OF SECTION

SECTION 00690

NOTICE OF FINAL PAYMENT

NOTICE is hereby given that Widefield Water and Sanitation District of El Paso County, Colorado, will make final payment at the District Office, 8495 Fontaine Blvd., Colorado Springs, Colorado, 80925 on _____, at the hour of 10 A.M. to _____of _____ for all equipment supplied and services rendered in construction or work on Jimmy Camp Lift Station Force Main Extension, performed within the Widefield Water and Sanitation District, County of El Paso, State of Colorado.

Any person, co-partnership, association of persons, company or corporation that has furnished labor, materials, team hire, sustenance, provisions, provender, or other supplies used or consumed by such contractors or their subcontractors, in or about the performance of the work contracted to be done or that supplies rental machinery, tools, or equipment to the extent used in the prosecution of the work, and whose claim therefor has not been paid by the contractors or their subcontractors, at any time up to and including the time of final settlement for the work contracted to be done, is required to file a verified statement of the amount due and unpaid, and an account of such claim, to the Widefield Water and Sanitation District, on or before the date and time hereinabove shown for final payment. Failure on the part of any claimant to file such verified statement of claim prior to such final settlement will release Widefield Water and Sanitation District, its directors, officers, agents, and employees, of and from any and all liability for such claim.

BY ORDER OF THE BOARD OF DIRECTORS
WIDEFIELD WATER AND SANITATION DISTRICT

By: /s/_____

First Publication: _____, 20

Last Publication: _____, 20

_____
Fountain Valley News

END OF SECTION

SECTION 00700

GENERAL CONDITIONS

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PART 1 DEFINITIONS

Wherever used in these General Conditions or in the other Contract Documents, the following terms have the meanings indicated which are applicable to both the singular and plural thereof:

Addendum or Addenda - Written or graphic instrument(s) which clarifies, corrects or changes the bidding documents or the Contract Documents.

Agreement - The written agreement between **OWNER** and **CONTRACTOR** covering the Work to be performed.

Agreement Price - The moneys payable by **OWNER** to **CONTRACTOR** under the Contract Documents as stated in the Agreement for the Work or discrete portions thereof.

Application for Partial Payment - The form designated by **ENGINEER** which is to be used by **CONTRACTOR** in requesting progress or final payment and which is to include such supporting documentation as is required by the Contract Documents.

Bid - Comprised of all Bidding Documents.

Bidder - The person or entity submitting the Bidding Documents to **OWNER** for the performance of the Work.

Bidding Documents - All documents and supporting documentation submitted to **OWNER** in accordance with this Invitation to Bid.

Bid Form - The offer or proposal of the Bidder attached to the Agreement as Exhibit A.

Bid Price - The price submitted by Bid Form to perform the Work.

Bid Security - A security required to be paid in the amount and in the manner as set forth in Part 8 of the Instruction to Bidders.

Change Order - A written order to **CONTRACTOR** signed by **OWNER** authorizing an addition, deletion, or revision in the Work, or an adjustment in the Agreement Price or the Contract Time issued after the effective date of the Agreement.

Contract Documents - As defined in the Agreement.

Contract Time - The number of days stated in the Agreement for the completion of the Work.

CONTRACTOR - The person or entity with whom **OWNER** has entered into the Agreement to perform field construction.

Day - A calendar day of twenty-four hours measured from midnight to the next midnight.

Defective - An adjective which when modifying the word "work" refers to Work that is unsatisfactory, faulty or deficient, or does not conform to the Contract Documents or does not meet the requirements of any inspection, test or approval referred to in the Contract Documents, or has been damaged prior to **ENGINEER**'s recommendation for final payment.

Drawings - The drawings which show the character and scope of the Work to be performed and which have been prepared or approved by **ENGINEER** and are referred to in the Contract Documents.

Effective Date of the Agreement - The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the parties to sign and deliver.

ENGINEER - Named as "**ENGINEER**" in the Agreement.

Field Order - A written order issued by **ENGINEER** which orders minor changes in the Work in accordance with paragraph 10.01.B but which does not involve a change in the Agreement Price or the Contract Time.

Modification - (a) a written amendment of the Contract Documents signed by both parties, (b) a Change Order, or (c) a Field Order. A modification may only be issued after the effective date of the Agreement.

Notice of Award - The written notice by **OWNER** to the apparent successful Bidder stating that upon compliance by the apparent successful Bidder with the conditions precedent enumerated therein, within the time specified, **OWNER** will sign and deliver the Agreement.

Notice to Proceed - A written notice given by the **OWNER** to **CONTRACTOR** (with a copy to **ENGINEER**) fixing the date on which the Contract Time will commence to run and on which **CONTRACTOR** shall start to perform its obligations under the Contract Documents.

OWNER – Widefield Water and Sanitation District, with whom **CONTRACTOR** has entered into the Agreement and for whom the Work is to be provided.

Project - The total construction required under the Contract Documents, of which the Work to be provided under the Contract Documents may be the whole or part.

Resident Project Representative - The authorized representative of **ENGINEER** who is assigned to the site or any part thereof on a temporary or permanent basis.

Part - Section(s) of these General Conditions.

Plans - The official plans, working drawings, or supplemental drawings or exact reproductions thereof, prepared by or approved in concept by the **ENGINEER** which show the location, character, dimensions, and details of the Work to be done and which are to be considered as part of the Contract Documents, supplemental to these Specifications.

Shop Drawings - All drawings, diagrams, illustrations, schedules and other data which are specifically prepared by **CONTRACTOR**, a Sub**CONTRACTOR**, manufacturer, fabricator, supplier or distributor to illustrate some portion of the Work, and all illustrations, brochures, standard schedules, performance charts, instructions, diagrams and other information prepared by a manufacturer, fabricator, supplier or distributor and submitted by **CONTRACTOR** to illustrate material or equipment for some portion of the Work.

Specifications - Those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the Work and certain administrative details applicable thereto.

SubCONTRACTOR - A person or entity having a direct contract with **CONTRACTOR** or with any other Sub**CONTRACTOR** for the performance of a part of the Work at the site.

Substantial Completion - The date when Work has progressed to the point where, in the opinion of **ENGINEER** as evidenced by its definitive certificate of Substantial Completion, it is sufficiently complete, in accordance with the Contract Documents, so that the Work can be utilized for the purposes for which it was intended and it is ready for punch listing.

Work - The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. The term "Work" shall be understood to mean the furnishing of all labor, materials, equipment, and other incidentals necessary or convenient to the successful completion of the Project and the carrying out of all the duties and obligations imposed by the Contract Documents and the entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents.

PART 2 PRELIMINARY MATTERS

2.01 DELIVERY OF BONDS

A. When **CONTRACTOR** delivers the executed Agreement to **OWNER**'s Representative, **CONTRACTOR** shall also deliver to **OWNER**'s Representative the Payment, Performance and Warranty Bond.

2.02 EXECUTION AND TRANSMISSION OF DOCUMENTS

A. At least four (4) copies of the Contract Documents will be prepared by **OWNER**'s Representative. All copies will be submitted to **CONTRACTOR** and **CONTRACTOR** shall execute the Agreement, insert all Certificates of Insurance, and submit all copies to **OWNER**'s Representative within ten days of Notice of Award. The date on the Agreement and Bond forms and the Certification Date on the Power of Attorney shall be left blank for completion by **OWNER**.

B. **OWNER** will execute all copies, insert the date on the Agreement and Bond forms and the Certification Date on the Power of Attorney, and transmit all copies to **OWNER**'s Representative within ten (10) days for review and distribution. Distribution of signed copies will be one copy each to **OWNER**, **CONTRACTOR**, and **ENGINEER**. **CONTRACTOR** shall be responsible for distribution of copies to the Surety.

2.03 COPIES OF DOCUMENTS

A. **OWNER** shall furnish to **CONTRACTOR** three (3) complete sets of the Contract Documents for use in the execution of the Work. Additional copies will be furnished, upon request, at the cost of the reproduction.

2.04 COMMENCEMENT OF CONTRACT TIME; NOTICE TO PROCEED

A. The Contract Time shall commence to run on the day indicated in the Notice to Proceed.

2.05 STARTING THE PROJECT

A. **CONTRACTOR** shall start to perform the Work on the date when the Contract Time commences to run, but no Work shall be done at the site prior to the date on which the Contract Time commences to run.

2.06 BEFORE STARTING CONSTRUCTION

A. Before undertaking each part of the Work, **CONTRACTOR** shall carefully study and compare the Contract Documents and check and verify pertinent figures shown thereon and all applicable field measurements.

CONTRACTOR shall promptly report in writing to **ENGINEER** any conflict, error or discrepancy which **CONTRACTOR** may discover; however, **CONTRACTOR** shall not be liable to **OWNER** or **ENGINEER** for failure to report any conflict, error or discrepancy in the Drawings or Specifications, unless **CONTRACTOR** had actual knowledge thereof or should reasonably have known thereof.

B. Before any Work under this Agreement is started, **CONTRACTOR** shall deliver to **OWNER**'s Representative, with a copy to **ENGINEER**, certificates of insurance (and other evidence of insurance requested by **OWNER**) which **CONTRACTOR** is required to purchase and maintain in accordance with Part 5.

2.07 PRECONSTRUCTION CONFERENCE

A. Within ten (10) days after the Effective Date of the Agreement, but before **CONTRACTOR** starts the Work at the site, a conference will be held for review and acceptance of the schedules referred to in Section 6.13 to establish procedures for handling Shop Drawings and other submittals and for processing Applications for Partial Payment, and to establish a working understanding among the parties as to the Work.

PART 3 CONTRACT DOCUMENTS: INTENT AND REUSE

3.01 INTENT

A. The Contract Documents comprise the entire Agreement between **OWNER** and **CONTRACTOR** concerning the Work. They may be altered only by a Modification.

B. The Contract Documents are complementary; what is called for by one is as binding as if called for by all. If, during the performance of the Work, **CONTRACTOR** finds a conflict, error or discrepancy in the Contract Documents, it shall report it to **ENGINEER** in writing at once and before proceeding with the Work affected thereby; however, **CONTRACTOR** shall not be liable to **OWNER** or **ENGINEER** for failure to report any conflict, error or discrepancy in the Specifications or Drawings unless **CONTRACTOR** had actual knowledge thereof or should reasonably have known thereof.

C. It is the intent of the Specifications and Drawings to describe a complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any Work that may reasonably be inferred from the Specifications or Drawings as being required to produce the intended result shall be supplied whether or not it is specifically called for. When words which have a well known technical or trade meaning are used to describe Work, materials or equipment, such words shall be interpreted in accordance with such meaning. Reference to standard specifications, manuals or codes of any technical society, organization or association, or to the code of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual or code in effect at the time of opening of Bids (or, on the effective date of the Agreement if there were no Bids), except as may be otherwise specifically stated. However, no provision of any referenced standard specification manual or code (whether or not specifically incorporated by reference in the Contract Documents) shall change the duties and responsibilities of **OWNER**, **CONTRACTOR** or **ENGINEER**, or any of their agents or employees from those set forth in the Contract Documents. Clarifications and interpretations of the Contract Documents shall be issued by **ENGINEER** as provided for in paragraph 9.03.A.

D. The Contract Documents have been made, executed, and delivered in the State of Colorado and shall be governed and construed for all purposes under and in accordance with the laws of the State of Colorado.

E. The Project Manual consists of Bid Form, Agreement, Payment, Performance and Warranty Bond, General Conditions, Supplementary Conditions, if any, and Specifications. Should any construction or conditions which are not thoroughly or satisfactorily stipulated or set forth by the Specifications be anticipated on any proposed project, Supplementary Conditions for such Work may be prepared and attached to the Bid Proposal Form and Agreement, and shall be considered as part of the Specifications, the same as though contained fully therein. Should any Supplementary Condition conflict with the General Conditions, the Supplementary Condition will govern.

3.02 REUSE OF DOCUMENTS

A. Neither **CONTRACTOR** nor any Sub**CONTRACTOR**, manufacturer, fabricator, supplier or distributor shall have or acquire any title to or ownership rights in any of the Drawings, Specifications or other documents (or copies of any thereof) prepared by or bearing the seal of **ENGINEER**; and they shall not reuse any of them on extensions of the Project or any other project without written consent of **OWNER** and **ENGINEER** and specific written verification or adoption by **ENGINEER**.

PART 4 AVAILABILITY OF LANDS; PHYSICAL CONDITIONS; REFERENCE POINTS

4.01 AVAILABILITY OF LANDS

A. **OWNER** shall furnish, as indicated in the Contract Documents, the lands upon which the Work is to be performed, rights-of-way for access thereto, and such other lands which are designated for the use of the **CONTRACTOR**. Easements for permanent structures or permanent changes in existing facilities will be obtained and paid for by **OWNER**, unless otherwise provided in the Contract Documents. In acquiring easements or rights-of-way, the **OWNER** shall proceed as expeditiously as possible, but in the event all easements or rights-of-way are not acquired prior to the beginning of construction, the **CONTRACTOR** shall begin Work on such easements and rights-of-way that have been acquired. In the event a delay in the acquisition of rights-of-way causes unavoidable delay in **CONTRACTOR**'s prosecution of the Work, then **CONTRACTOR** may make a claim for an extension of Contract Time, as provided in Part 12.

CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 PHYSICAL CONDITIONS - INVESTIGATIONS AND REPORTS

A. **OWNER** shall identify and make available to **CONTRACTOR** copies of those reports of investigations and tests of subsurface and latent physical conditions at the site or otherwise affecting cost, progress or performance of the Work which have been relied upon by **ENGINEER** in preparation of the Drawings and Specifications. Such reports are not guaranteed as to accuracy or completeness and are not part of the Contract Documents.

4.03 UNFORESEEN PHYSICAL CONDITIONS

A. **CONTRACTOR** shall promptly notify **OWNER** and **ENGINEER** in writing of any latent physical conditions at the site or in an existing structure differing materially from those indicated or referred to in the Contract Documents. **ENGINEER** will promptly review those conditions and advise **OWNER** in writing if further investigation or tests are necessary. Promptly thereafter, **OWNER** shall obtain the necessary additional investigations and tests and furnish copies to **ENGINEER** and **CONTRACTOR**. If **ENGINEER** finds that the results of such investigations or tests indicate that there are latent physical conditions which differ materially from those intended in the Contract Documents, and which could not reasonably have been anticipated by **CONTRACTOR**, a Change Order shall be issued incorporating the necessary revisions.

B. Rock encountered during excavation, and dewatering of soils, shall not constitute unforeseen physical conditions pursuant to paragraph 4.03.A. **CONTRACTOR** shall not be entitled to a Change Order for expense and delay resulting from greater than anticipated rock excavation or dewatering.

4.04 REFERENCE POINTS

A. **OWNER** shall provide engineering surveys for construction to establish reference points which in its judgment are necessary to enable **CONTRACTOR** to proceed with the Work. **CONTRACTOR** shall be responsible for laying out the Work, shall protect and preserve the established reference points and shall make no changes or relocations without the prior written approval of **OWNER**. **CONTRACTOR** shall report to **ENGINEER** whenever any reference point is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for replacement or relocation of such reference points by professionally qualified personnel.

PART 5 BONDS AND INSURANCE

5.01 PERFORMANCE AND OTHER BONDS

A. **CONTRACTOR** shall furnish a Payment, Performance and Warranty Bond in an amount at least equal to the Agreement Price as security for the faithful performance and payment of all **CONTRACTOR**'s obligations under the Contract Documents, and for maintaining the Work constructed under the Agreement in good repair for a period of one year from the date of initial acceptance by the **OWNER**. The Performance and Payment portion of the Bond shall remain in effect until the final payment has been submitted by the **OWNER**. The Warranty portion of the Bond shall remain in effect at least until one (1) year after the date when final payment becomes due, or until the one-year correction period in Paragraph 13.07 is over, except as otherwise provided by law or regulation or by the Contract Documents. **CONTRACTOR** shall also furnish such other Bonds as are required herein by the Supplementary Conditions. All Bonds shall be on the forms prescribed by the Contract Documents and be executed by such Sureties authorized to do business in the State of Colorado as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts, U.S. Treasury Department. Each Bond shall be accompanied by a "Power of Attorney" authorizing the attorney-in-fact to bind the Surety and certified to include the date of the Bond.

B. If the Surety on any Bond furnished by **CONTRACTOR** is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of paragraph 5.01.A **CONTRACTOR** shall, within five (5) days thereafter, substitute another Bond and Surety acceptable to **OWNER**.

C. The Payment, Performance and Warranty Bond shall be in an amount equal to one hundred percent (100%) of the Agreement Price, as indicated by Change Orders and all Modifications, as security for payment of all wages and bills contracted for materials, supplies, and equipment used in the

performance of the contract. Following the date when Final Payment becomes due, the Warranty Bond shall be in an amount equal to fifteen percent (15%) of the Agreement Price.

5.02 CONTRACTOR'S INSURANCE REQUIREMENTS

A. **CONTRACTOR** shall purchase and maintain during the entire term of this Agreement, including any extensions of the Contract Time through Change Orders, and as provided in Paragraph 5.02.B., such commercial general liability and other insurance as will provide protection from claims set forth below which may arise out of or result from **CONTRACTOR**'s performance of the Work and **CONTRACTOR**'s other obligations under the Contract Documents, whether such performance is by **CONTRACTOR**, by any Sub**CONTRACTOR**, by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

1. Claims under workers' or workmen's compensation, disability benefits and other similar employee benefit acts;

2. Claims for damages because of bodily injury, occupational sickness or disease, or death of **CONTRACTOR**'s employees;

3. Claims for damages because of bodily injury, sickness or disease, or death of any person other than **CONTRACTOR**'s employees;

4. Claims for damages insured by personal injury liability coverage which are sustained (i) by any person directly or indirectly resulting from the employment of such person by **CONTRACTOR**, or (ii) by any person for any other reason;

5. Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom; and

6. Claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The insurance required of **CONTRACTOR** shall include the specific coverages and corresponding limits of liability provided in paragraph 5.02.C, or as required by law, whichever is greater, and shall meet all requirements specified herein. All coverages shall be underwritten by carriers authorized to do business in Colorado and acceptable to **OWNER**. All such insurance shall contain a provision that the coverage afforded will not be canceled, materially changed or renewal refused until at least sixty (60) days' prior written notice has been given to **OWNER** and **ENGINEER**. All such insurance shall remain in effect until final payment and at all times thereafter when **CONTRACTOR** may be correcting, removing or replacing defective Work in accordance with Paragraph 13.07.A. In addition, **CONTRACTOR** shall maintain the Completed Operations insurance as shown in Paragraph 5.02.C for at least two (2) years after final payment and furnish **OWNER** with evidence of continuation of such insurance at final payment and one (1) year thereafter.

C. **CONTRACTOR** shall obtain and maintain insurance coverage as provided herein, including the following:

1. Workers' Compensation Insurance in accordance with applicable law and Employers' Liability Insurance, in the amount of $ 600,000.00, general aggregate.

2. Commercial general liability insurance in the amount of $1,000,000 combined single limit bodily injury and property damage, each occurrence; $1,000,000.00 general aggregate. Such coverage shall include all major divisions of coverage and be on a comprehensive basis, including:

a. Premises operations (including X, C, and U coverages as applicable, which coverages shall be expressly shown on the certificate of insurance).

b. Independent Contractors' Protective.

c. Products and Completed Operations.

d. Personal Injury Liability with Employment Exclusion.

e. Contractual, including specified provision for Contractor's indemnification obligations under Paragraph 5.05.

f. Broad Form Property Damage including Completed Operations.

3. Automobile liability insurance in the amount of $1,000,000.00 combined single limit bodily injury and property damage, each accident, for owned, non-owned and hired motor vehicles.

4. Builders Risk Insurance.

(The specified limits for the liability policies can be satisfied through the combination of primary policies and excess or umbrella liability policies.)

D. To the extent that **CONTRACTOR'S** work, or work under its direction, may require blasting, explosive conditions, or underground operations, the commercial general liability coverage shall contain no exclusion relative to blasting, explosion, collapse of buildings, or damage to underground property.

E. Builder's Risk Insurance.

1. The builder's risk insurance policy shall on an "all risk" basis for the entire Project include (1) coverage for any ensuing loss from faulty workmanship, defective materials, and omission or deficiency in design or specifications, (2) coverage against damage or loss caused by earth movement, flood, fire, theft, vandalism and malicious mischief and machinery accidents and operational testing, (3) coverage for removal of debris, and insuring the buildings, structures, machinery, equipment, facilities, fixtures and all other properties constituting a part of the Project, (4) transit coverage, with sub-limits sufficient to insure the full replacement value of any key equipment item and (5) coverage with sub-limits sufficient to insure the full replacement value of any property or equipment stored either on or off the Site. The policy shall provide for coverage in the event an occupancy or use permit is issued for any portion or portions of the Work prior to Substantial Completion of the Work. Builder's risk insurance shall be written in completed value form and shall protect **CONTRACTOR** and **OWNER**. The amount of such insurance shall be not less than the insurable value of the Work at completion less the value of the materials and equipment insured under installation floater insurance and shall provide for recovery on a "replacement cost" basis.

2. Builder's risk insurance shall provide for losses to be payable to **CONTRACTOR** and **OWNER** as their interests may appear. The policy shall contain a provision that in the event of payment for any loss under the coverage provided the insurance company shall have no rights of recovery against the **CONTRACTOR** or **OWNER**.

F. Insured losses under policies of insurance which include **OWNER**'s interests shall be adjusted with **OWNER** and made payable to **OWNER** as trustee for the insureds, as their interests may appear, subject to the requirements of any applicable mortgage clause, and any direction by arbitrators. **OWNER** as trustee shall have the right to adjust and settle losses with the insurers unless one of the parties in interest shall object in writing within 5 days after the occurrence of loss to **OWNER**'s exercise of this power and, if such objection be made, arbitrators shall be chosen as provided in the General Conditions. **OWNER** as trustee shall, in that case, make settlement with the insurers in accordance with the direction of such arbitrators. If distribution of the insurance proceeds by arbitration is required, the arbitrators will direct such distribution. **OWNER** waives all rights against **CONTRACTOR** and **ENGINEER** for damage caused by fire or other perils but only to the extent that such damage is covered by insurance and only to the extent that such damage does not fall within the indemnification given by **CONTRACTOR** in Paragraph 5.05. **OWNER** shall have no liability for damages caused by fire or other perils.

5.03 INSURANCE CERTIFICATES

A. Prior to the commencement of any Work under these Contract Documents, the **CONTRACTOR** shall furnish to the **OWNER**'s Representative certificates of insurance and policy endorsements to prove that all required insurance is in force. Insurance obtained by the **CONTRACTOR** shall be subject to approval by the **OWNER** for adequacy of protection. Neither approval by the **OWNER** of any insurance supplied by **CONTRACTOR**, nor failure to disapprove such insurance shall relieve the **CONTRACTOR** of its obligation to maintain in full force during the life of the Contract Documents all required insurance as set forth herein.

5.04 ADDITIONAL REQUIREMENTS

A. No insurance coverages required to be obtained by **CONTRACTOR** pursuant to this Part 5 shall have a deductible greater than $1,000 or as reasonably approved by **OWNER**. The **CONTRACTOR** is solely responsible for the payment of any deductible(s).

B. If any policy required under this Part 5 is a claims made policy, the policy shall provide the **CONTRACTOR** the right to purchase, upon cancellation or termination by refusal to renew the policy, an extended reporting period of not less than one year. The **CONTRACTOR** agrees to purchase such an extended reporting period. The **CONTRACTOR**'s failure to purchase such an extended reporting period as required by this Paragraph 5.04 shall not relieve it of any liability under this Agreement. If the policy is a claims made policy, the retroactive date of any such renewal of such policy shall be not later than the date this Agreement is executed by the parties hereto. If the **CONTRACTOR** purchases a subsequent claims made policy in place of any prior policy, the retroactive date of such subsequent policy shall be no later than the date this Agreement is executed by the Parties hereto.

C. The **OWNER** and its directors, officers, agents and employees and the **OWNER**'s Representative shall be designated as additional insureds on the **CONTRACTOR**'s commercial general liability insurance and the automobile liability insurance and the same shall be clearly indicated on the applicable certificates of insurance provided to comply with the requirements of this Part 5.

D. For any claims related to the provision of services by the **CONTRACTOR**, **CONTRACTOR**'s insurance shall be primary insurance with respect to the **OWNER** and its directors, officers, employees and agents. Any insurance maintained by the **OWNER** (or its directors, officers, employees and agents) shall be excess of **CONTRACTOR**'s insurance and shall not contribute with it.

E. **CONTRACTOR**'s insurance shall apply separately to each insured against whom a claim is made or suit is brought, except with respect to the limits of the insurer's liability.

F. Each commercial general liability policy and, though not a general liability policy, any worker's compensation policy, shall waive any right of subrogation against the **OWNER** and its directors, officers, employees and agents.

G. Any failure on the part of the **CONTRACTOR** to comply with reporting provisions or other conditions of the policies shall not affect the obligation of the **CONTRACTOR** to provide the required coverage to the **OWNER** and its directors, officers, employees and agents. If the **CONTRACTOR** fails to obtain or maintain the required coverages, the **OWNER** may obtain such coverage and charge back the **CONTRACTOR**.

5.05 INDEMNIFICATION

A. **CONTRACTOR** shall indemnify save harmless and defend the **OWNER**, the **ENGINEER** and all of their consultants, directors, officers, agents and employees, from any and all claims, demands, losses, liabilities, actions, lawsuits and expenses (including reasonable attorney's fees), arising directly or indirectly, in whole or in part, out of the negligence or any criminal or tortious act or omission of the **CONTRACTOR** or any of its employees, agents, Sub**CONTRACTOR**s or any person for whom **CONTRACTOR** is responsible, in connection with this Agreement and the scope of services hereunder, whether any such negligence or any criminal or tortious act or omission is within or beyond the scope of its duties or authority. **CONTRACTOR** agrees that the policy limits of the Commercial General Liability, the Automobile Liability and Property Damage Insurance, which the **CONTRACTOR** is required to maintain pursuant to the Contract Documents shall not act as a limitation on the **CONTRACTOR**'s obligation to indemnify the **OWNER**, the **ENGINEER** and all of their consultants, directors, officers, agents, and employees.

B. In any and all claims against **OWNER** or **ENGINEER** or any of their agents or employees or the **OWNER**'s Representative by any employee of **CONTRACTOR**, any Sub**CONTRACTOR**, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation under paragraph 5.05.A shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for **CONTRACTOR** or any Sub**CONTRACTOR** under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts.

C. The obligations of **CONTRACTOR** under paragraph 5.05.A shall not extend to the liability of **ENGINEER**, its agents or employees arising out of the preparation or approval of maps, drawings, opinions, reports, surveys, Change Orders, designs or Specifications.

PART 6 CONTRACTOR'S RESPONSIBILITIES

6.01 SUPERVISION AND SUPERINTENDENCE

A. The **CONTRACTOR** is an independent **CONTRACTOR** and nothing herein contained shall constitute or designate the **CONTRACTOR** or any of its employees or agents as employees of the **OWNER**. The Work to be performed by the **CONTRACTOR** shall be at its sole cost, risk and expense, and no part of the cost thereof shall be charged to the **OWNER**, except the payments to be made by the **OWNER** to the **CONTRACTOR** for the Work performed as provided herein. **OWNER**, **ENGINEER**, or **OWNER**'s Representative shall not be responsible for **CONTRACTOR**'s means, methods, techniques, sequences or procedures of construction or for safety precautions and programs incident thereto.

B. **CONTRACTOR** shall supervise and direct the Work competently and efficiently giving the Work the constant attention necessary to facilitate its progress and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. **CONTRACTOR** shall be solely responsible for the means, methods, techniques, sequences and procedures of construction. **CONTRACTOR** shall be responsible to see that the finished Work complies accurately with the Contract Documents.

C. **CONTRACTOR** shall employ at all times during its work progress a competent resident superintendent, who shall not be replaced without written notice to **OWNER** or **OWNER**'s Representative except under extraordinary circumstances. Such superintendent shall be capable of reading and thoroughly understanding the Plans and Specifications and shall receive and fulfill instructions, suggestions and communications from the **ENGINEER**, or its authorized representative. The superintendent shall have full authority to execute the Work specified in the Contract Documents without delay and to promptly supply materials, tools, plant equipment and labor as may be required to perform such Work. Such superintendent shall be furnished irrespective of the amount of Work sublet. The superintendent will be **CONTRACTOR**'s representative at the site and shall have authority to act on behalf of **CONTRACTOR**. All communications given to the superintendent shall be as binding as if given to **CONTRACTOR**.

D. The **CONTRACTOR** shall employ such superintendent and foremen, as are careful and competent, and the **OWNER**'s Representative may request the dismissal of any person or persons employed by the **CONTRACTOR** in, about, or upon the Work who shall misconduct itself or be incompetent or negligent in the proper performance of its or their duties, or neglects or refuses to comply with the Contract Documents given and such person or persons shall not be employed again thereon without the written consent of the **OWNER**'s Representative. Should the **CONTRACTOR** continue to employ, or again employ, such person or persons, the **ENGINEER** may withhold all pay estimates which are or may become due, or the **ENGINEER** may suspend the Work until such orders are complied with.

All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instructions of the applicable manufacturer, fabricator, supplier or distributor, except as otherwise provided in the Contract Documents.

E. The **CONTRACTOR** shall notify the **OWNER**'s Representative at least forty-eight (48) hours in advance of the time it intends to start Work on the site. The **CONTRACTOR** shall operate at such points as the **OWNER** through the **OWNER**'s Representative may direct. The **CONTRACTOR** shall conduct the Work in such a manner and with sufficient materials, equipment, and labor as is considered necessary to insure its completion within the time limit set forth in the Agreement. Should

the prosecution of Work for any reason be discontinued by the **CONTRACTOR**, it shall notify the **OWNER**'s Representative at least forty-eight (48) hours in advance of resuming operations.

6.02 LABOR, MATERIALS, AND EQUIPMENT

A. **CONTRACTOR** shall provide competent, suitable qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. **CONTRACTOR** shall at all times maintain good discipline and order at the site. Except in connection with the safety or protection of persons or the Work or property at the site or adjacent thereto, and except as otherwise indicated in the Supplementary Conditions, all Work at the site shall be performed during regular working hours, and **CONTRACTOR** will not permit overtime work or the performance of Work on Saturday, Sunday or any legal holiday without **OWNER**'s written consent given after prior written notice to **OWNER**'s Representative.

B. **CONTRACTOR** shall furnish all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water and sanitary facilities and all other facilities and incidentals necessary for the execution, testing, initial operation and completion of the Work. The **CONTRACTOR** shall furnish such equipment as is considered necessary for the prosecution of the Work in an acceptable manner and at a satisfactory rate of progress. All equipment, tools, and machinery used for handling materials and executing any part of the Work shall be subject to the approval of the **ENGINEER** and shall be maintained in a satisfactory working condition. Equipment used on any portion of the Work shall be such that no damage to the Work, roadways, adjacent property, or other objects will result from its use. The Agreement may be terminated if the **CONTRACTOR** fails to provide adequate equipment for the Work.

C. The source of supply of each of the materials required shall be reviewed and accepted by the **ENGINEER** before delivery is started. Representative preliminary samples of the character and quality specified may be submitted by the **CONTRACTOR** or producer for examination and testing. The results obtained from testing such samples may be used for preliminary review but will not be used as a final acceptance of the materials. All materials proposed to be used may be inspected or tested at any time during their preparation and use. If, after testing, it is found that sources of supply which have been reviewed and accepted do not furnish a uniform product, or of the product from any source proves unacceptable at any time, the **CONTRACTOR** shall furnish acceptable material from other sources acceptable to **ENGINEER**.

Samples of all materials for test upon which is to be based the acceptance or rejection, shall be taken by the **ENGINEER** or its authorized representative at the discretion of the **ENGINEER**. Materials may be sampled either prior to shipment or after being received at the place of construction. All sampling, inspection, and testing shall be done in accordance with the methods hereinafter prescribed. The **CONTRACTOR** shall provide such facilities as the **ENGINEER** or its representative may require for conducting filed tests and for collecting and forwarding samples. The **CONTRACTOR** shall not use or incorporate into the Work any materials represented by the samples until tests have been made and the material found to be acceptable. Only materials confirming to the requirements of these specifications and which have been accepted by the **ENGINEER** or its authorized agents shall be used in the Work. Any material which, after acceptance, has for any reason become unfit for use shall no be incorporated into the Work. Additionally, **CONTRACTOR** and **ENGINEER** shall be subject to the procedures and responsibilities set forth in paragraph 6.13 as it pertains to samples.

Except as otherwise provided herein, sampling and testing of all materials, and the laboratory methods and testing equipment required under these Specifications, shall be in accordance with the most current edition of the standards set forth in Technical Specifications. The testing of all samples shall be done at the expense of the **CONTRACTOR** at an independent laboratory accepted by the **ENGINEER**. Laboratory sieves shall have square openings of the sizes specified. The **CONTRACTOR** shall furnish the required samples without charge. All samples shall have been checked and stamped with the approval of the **CONTRACTOR**, identified clearly as to material, manufacturer, any pertinent catalog numbers and the use for which intended. The **CONTRACTOR** shall give sufficient notification to the **ENGINEER** of the placing of orders for materials to permit testing.

D. All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instructions of the applicable manufacturer, fabricator, supplier or distributor, except as otherwise provided in the Contract Documents.

E. Materials shall be stored so as to insure the preservation of their quality and fitness for the Work. When considered necessary by the **ENGINEER**, they shall be placed on wooden platforms, or other hard, clean surfaces and not on the ground, and shall be placed under cover or otherwise protected when requested by the **ENGINEER**. Stored materials shall be located so as to facilitate prompt inspection. **CONTRACTOR** is responsible for the safety of any of its materials, tools, possessions, and rented items stored on the job site, and for protection of the project and shall hold **OWNER** and **OWNER**'s authorized representative harmless for any damages or loss incurred thereto.

F. No material, equipment, tools, supplies, or instruments other than those belonging to or leased by **CONTRACTOR** will be removed from the project site by **CONTRACTOR** without the prior written approval of **OWNER**'s Representative.

G. All materials not conforming to the requirements of these Specifications shall be considered defective. Whether in place or not, such material shall be removed immediately from the site of the Work, unless otherwise permitted by the **ENGINEER**. No rejected material, the defects of which have been subsequently corrected, shall be used until approval has been given. Upon failure of the **CONTRACTOR** to comply promptly with any order of the **ENGINEER** or **OWNER**'s Representative made under the provisions of this article, the **ENGINEER** or **OWNER**'s Representative shall have authority to remove defective materials and to deduct the cost of removal and replacement with specified materials from any moneys due or to become due the **CONTRACTOR**.

6.03 EQUIVALENT MATERIALS AND EQUIPMENT

A. Whenever materials or equipment are specified or described in the Drawings or Specifications by using the name of a proprietary item or the name of a particular manufacturer, fabricator, supplier or distributor, the naming of the item is intended to establish the type, function and quality required. Unless the name is followed by words indicating that a substitution is permitted, materials or equipment of other manufacturers, fabricators, suppliers, or distributors may be accepted by **ENGINEER** if sufficient information is submitted by **CONTRACTOR** to allow **ENGINEER** to determine that the material or equipment proposed is equivalent to that named. The procedure for review by **ENGINEER** will be as set forth in paragraphs 6.03.A.1 and 6.03.A.2 below as supplemented in the other Contract Documents.

1. Requests for review of substitute items of material and equipment will not be accepted by **ENGINEER** from anyone other than **CONTRACTOR**. If **CONTRACTOR** wishes to furnish or use a substitute item of material or equipment **CONTRACTOR** shall make written application to **ENGINEER** for acceptance thereof, certifying that the proposed substitute will perform adequately the functions called for by the general design, be similar and of equal substance to that specified and be suited to the same use and capable of performing the same function as that specified. The Application shall state whether or not acceptance of the substitute for use in the Work will require a change in the Drawings or Specifications to adapt the design to the substitute and whether or not incorporation or use of the substitute in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute from that specified shall be identified in the Application and available maintenance, repair and replacement service will be indicated. The Application shall also contain an itemized estimate of all costs that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other **CONTRACTOR**s affected by the resulting change, all of which shall be considered by **ENGINEER** in evaluating the proposed substitute. **ENGINEER** will be the sole judge of acceptability, and no substitute will be ordered or installed without **ENGINEER**'s prior written acceptance. **OWNER** may require **CONTRACTOR** to furnish at **CONTRACTOR**'s expense a special performance guarantee or other Surety with respect to any substitute.

2. **ENGINEER** will record time required by **ENGINEER** and **ENGINEER**'s consultants in evaluating substitutions proposed by **CONTRACTOR** and in making changes in the Drawings or Specifications occasioned thereby. Whether or not **ENGINEER** accepts a proposed substitute, **CONTRACTOR** shall reimburse **OWNER** for the charges of **ENGINEER** and **ENGINEER**'s consultants for evaluating any proposed substitute.

3. In case of a difference in price, the **OWNER** shall receive all benefit of the difference for any substitutions, and the contract amount shall be altered by Change Order to credit the **OWNER** with any savings so obtained.

6.04 CONCERNING SUBCONTRACTORS

A. **CONTRACTOR** shall not employ any Sub**CONTRACTOR** or other person or organization (including those who are to furnish the principal items of materials or equipment), whether initially or as a substitute, against whom **OWNER** or **ENGINEER** may have reasonable objection. A Sub**CONTRACTOR** or other person or organization identified in writing to **OWNER** and **ENGINEER** by **CONTRACTOR** prior to the Notice of Award and not objected to in writing by **OWNER** or **ENGINEER** prior to the Notice of Award will be deemed acceptable to **OWNER** and **ENGINEER**. Acceptance of any Sub**CONTRACTOR**, other person or organization by **OWNER** or **ENGINEER** shall not constitute a waiver of any right of **OWNER** or **ENGINEER** to reject defective Work. If **OWNER** or **ENGINEER** after due investigation has reasonable objection to any Sub**CONTRACTOR**, other person or organization proposed by **CONTRACTOR** after the Notice of Award, **CONTRACTOR** shall submit an acceptable substitute and the Agreement Price shall be increased or decreased by the difference in cost occasioned by such substitution, and an appropriate Change Order shall be issued. **CONTRACTOR** shall not be required to employ any Sub**CONTRACTOR**, other person or organization against whom **CONTRACTOR** has reasonable objection.

B. **CONTRACTOR** shall be fully responsible for all acts and omissions of its Sub**CONTRACTOR**s and of persons and organizations directly or indirectly employed by them and of persons and organizations for whose acts any of them may be liable to the same extent that **CONTRACTOR** is responsible for the acts and omissions of persons directly employed by **CONTRACTOR**. Nothing in the Contract Documents shall create any contractual relationship between **OWNER** or **ENGINEER** and any Sub**CONTRACTOR** or other person or organization having a direct contact with **CONTRACTOR**, nor shall it create any obligation on the part of **OWNER** or **ENGINEER** to pay or to see to the payment of any moneys due any Sub**CONTRACTOR** or other person or organization, except as may otherwise be required by law. **OWNER** or **ENGINEER** may furnish to any Sub**CONTRACTOR** or other person or organization, to the extent practicable, evidence of amounts paid to **CONTRACTOR** on account of specific Work done.

C. The divisions and sections of the Specifications and the identifications of any Drawings shall not control **CONTRACTOR** in dividing the Work among Sub**CONTRACTOR**s or delineating the Work to be performed by any specific trade.

D. All Work performed for **CONTRACTOR** by a Sub**CONTRACTOR** will be pursuant to an appropriate agreement between **CONTRACTOR** and the Sub**CONTRACTOR** which specifically binds the Sub**CONTRACTOR** to the applicable terms and conditions of the Contract Documents for the benefit of **OWNER** and **ENGINEER** and contains waiver provisions as required by the Contract Documents. **CONTRACTOR** shall pay each Sub**CONTRACTOR** a just share of any insurance moneys received by **CONTRACTOR** on account of losses under policies issued pursuant to the Contract Documents.

E. **CONTRACTOR** shall fully cooperate with **OWNER** and such other **CONTRACTOR**s or Sub**CONTRACTOR**s as may be performing work or supplying materials in connection with the project and shall carefully fit its work in with that of all such other persons or entities. **CONTRACTOR** shall neither commit nor permit any act which will interfere with the performance of the project by any such person or entity.

F. **CONTRACTOR** shall promptly pay in full for any and all damages caused to the project site by **CONTRACTOR** or by any Sub**CONTRACTOR** or other person or entity of any nature furnishing materials, equipment, machinery, supplies, labor, skilled services or instruments for whose actions the **CONTRACTOR** is responsible hereunder.

6.05 PATENT FEES AND ROYALTIES

A. If the **CONTRACTOR** is required or desires to use any design, device, invention, product, materials, or process covered by letters of patent or copyright, it shall provide for such use by suitable legal agreement with the patentee or patent **OWNER** and shall pay all license fees and royalties and assume all costs incident to said use in performance of the Work or incorporation of the Work. The **CONTRACTOR** and the surety shall indemnify and hold harmless the **OWNER** and **ENGINEER** from any and all claims for infringement by reason of the use of any such patented design, device, invention, product, material, or process or any trademark or copyright in connection with the Work

agreed to be performed under this contract, and shall indemnify the **OWNER** and **ENGINEER** for any costs, expense, and damages, including attorney's fees, which it may be obliged to pay for reason of any such infringement at any time during the prosecution, or after the completion of the Work.

6.06 PERMITS

A. Unless otherwise provided in the Contract Documents, **CONTRACTOR** shall obtain all permits and licenses, pay all charges and fees, including but not limited to all inspection charges of agencies having appropriate jurisdiction and give all notices necessary and incidental to the due and lawful prosecution of the Work. **OWNER** and **ENGINEER** shall assist **CONTRACTOR**, when necessary, in obtaining such permits and licenses. **CONTRACTOR** shall pay all charges of utility service companies for connections to the Work, and **OWNER** shall pay all charges of such companies for capital costs related thereto. A copy of all permits and licenses procured by **CONTRACTOR** shall be supplied to **ENGINEER** within a reasonable period of time.

6.07 LAWS AND REGULATIONS

A. **CONTRACTOR** shall be familiar with all federal, state and local laws, ordinances, rules and regulations which in any manner affect those engaged or employed in the Work or the material or equipment used in or on the site, or in any way affect the conduct of the Work, including rules and regulations that **OWNER** may promulgate at any time for the safe, orderly and efficient conduct of all Work on the Project ("the applicable regulations"). If **CONTRACTOR** observes that the Specifications or Drawings are at variance therewith, **CONTRACTOR** shall give **ENGINEER** or **OWNER**'s Representative prompt written notice thereof, and any necessary changes shall be adjusted by an appropriate Modification. The **CONTRACTOR**, at all times, shall observe and comply with all applicable federal, state and local regulations and the Contract Documents and its surety shall indemnify and hold harmless the **OWNER**, the **ENGINEER** and their consultants, agents and employees, against any claim or liability arising from or based on the violation of any applicable regulations, by anyone for whom **CONTRACTOR** is responsible.

6.08 TAXES

A. **CONTRACTOR** shall pay all sales, consumer, use and other similar taxes required to be paid by him.

B. **OWNER** is a public entity that is exempt from Colorado State sales and use taxes. Accordingly, taxes from which **OWNER** is exempt shall not be included in the Agreement Price. **CONTRACTOR** shall obtain **OWNER**s tax-exempt identification number to be used for all purchases including labor costs, material and equipment. Taxes and other governmentally imposed fees, rates, tolls and charges that could have been awarded by use of **OWNER**s status as a tax exempt entity shall not be reimbursable.

6.09 USE OF PREMISES

A. **CONTRACTOR** shall confine construction equipment, the storage of materials and equipment and the operations of workmen to areas permitted by law, ordinances, permits and the requirements of the Contract Documents.

B. During the progress of the Work, **CONTRACTOR** shall keep the premises free from accumulations of waste materials, rubbish and other debris resulting from the Work. At the completion of the Work **CONTRACTOR** shall remove all waste materials, rubbish and debris from and about the premises as well as all tools, appliances, construction equipment and machinery, temporary structures, stumps or portions of trees and surplus materials, and shall restore to their original condition those portions of the site not designated for alteration by the Contract Documents. Materials cleared from the site and deposited on property adjacent will not be considered as having been disposed of satisfactorily.

C. **CONTRACTOR** shall not load or permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall **CONTRACTOR** subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

D. All structures or obstructions found on the site and shown on the Contract Drawings which are not to remain in place or which are not to be used in the new construction shall be removed to the satisfaction of the **ENGINEER**. Unless specified in the Bid Proposal, this Work will not be paid for separately but will be included in the price Bid for that portion of the Work requiring the removal of the obstruction.

All material found on the site or removed therefrom shall remain the property of the **OWNER** unless otherwise indicated.

E. The **CONTRACTOR**, with the consent of the **ENGINEER**, may use in the proposed construction any stone, sand, or gravel found on the site. The **CONTRACTOR** will not be paid for such excavation unless specifically stated in the Bid Proposal, and it shall replace with other suitable material, without compensation, all of that portion of the material so removed and used. If it was intended by the **ENGINEER** and indicated in the Specification that any or all of the material so excavated and used was to have been wasted, then the **CONTRACTOR** will not be required to replace it. The **CONTRACTOR** shall not excavate outside of the proposed slope and grade lines as indicated on the Drawings, without prior consent by the **ENGINEER**.

F. **CONTRACTOR** shall protect all existing erosion control measures installed by others and shall promptly replace all items disturbed during his work.

6.10 RECORD DOCUMENTS

A. **CONTRACTOR** shall keep one record of all Specifications, Drawings, Addenda, Modifications, Shop Drawings and samples at the site, in good order and annotated and updated weekly to show all changes made during the construction process. These shall not be used for construction purposes, shall be available to **ENGINEER** or **OWNER**'s Representative at all times for examination and shall be delivered to **ENGINEER** or **OWNER**'s Representative for **OWNER** upon completion of the Work. All changes or drawings from the original drawings shall be neatly marked thereon in brightly contrasting color.

6.11 SAFETY AND PROTECTION

A. **CONTRACTOR** shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. **CONTRACTOR** shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. All employees on the Work or other persons who may be affected thereby;

2. All the Work and all materials or equipment to be incorporated therein, whether in storage on or off the site; and

3. Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

The **CONTRACTOR** shall be required to assume sole and complete responsibility for job site conditions during the course of construction of the project, including the safety of all persons who may enter on the job site for any reason and the security of all properly located on the job site. This requirement shall apply at all times during the course of the contract and not only to normal work hours.

B. **CONTRACTOR** shall comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection. **CONTRACTOR** shall notify **OWNER**s of adjacent property and utilities when prosecution of the Work may affect them. All damage, injury or loss to any property referred to in paragraphs 6.11.A.2 or 6.11.A.3 caused, directly or indirectly, in whole or in part, by **CONTRACTOR**, any Sub**CONTRACTOR** or anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, shall be remedied by **CONTRACTOR** (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of **OWNER** or **ENGINEER** or anyone employed by either of them or anyone for whose acts either of them may be liable). **CONTRACTOR**'s duties and responsibilities for the safety and protection of the Work shall until continue such time as all the Work is completed and final payment has been made.

C. **CONTRACTOR** shall designate a responsible member of its organization at the site whose duty shall be the prevention of accidents. This person shall be **CONTRACTOR**'s superintendent unless otherwise designated in writing by **CONTRACTOR** to **OWNER**.

D. **CONTRACTOR** has the affirmative duty of ensuring compliance with all Occupational Safety and Health Administration (OSHA) regulations, of designating a representative who is a competent person for purposes of identifying existing or predictable hazards at the site, of providing required safety instruction for **CONTRACTOR**'s Sub**CONTRACTOR**s and employees, and of immediately taking precautionary measures when necessary and remedying all identified OSHA violations. Daily, and other, inspections of the work site, including of excavations, adjacent areas and protective systems, shall be the sole responsibility of **CONTRACTOR**. **CONTRACTOR**'s obligation to indemnify **OWNER** pursuant to paragraphs 5.05 shall include failure of **CONTRACTOR** to effect full compliance with OSHA regulations.

E. The **CONTRACTOR** shall at all times conduct the Work in such manner as will incur the least practicable interference with traffic and existing utility systems. No section of any road shall be closed to the public, nor any utility system put out of service except after permission has been granted by the **ENGINEER** or **OWNER**'s Representative. Each item of Work shall be prosecuted to completion without delay and in no instance will the **CONTRACTOR** be permitted to transfer its forces from uncompleted Work to new Work without prior written notification of the **CONTRACTOR** to the **ENGINEER** or **OWNER**'s Representative. The **CONTRACTOR** shall not open up Work to the prejudice of Work already started.

Unless the Contract Documents specifically provide for the closing to traffic of any local road or highway while construction is in progress, such road or highway shall be kept open to all traffic by the **CONTRACTOR**. The **CONTRACTOR** shall also provide and maintain in a safe condition temporary approaches, crossings, or intersections with roads and highway. The **CONTRACTOR** shall bear all expense of maintaining traffic over the section of road affected by the Work to be done under this Contract, and of constructing and maintaining such approaches, crossing, intersections and any necessary features without direct compensation, except as otherwise provided.

The **CONTRACTOR** shall not close any road to the public except by express permission of the appropriate engineering authority. When the road under construction is being used by the traveling public, special attention shall be paid to keeping the subgrade and surfacing in such condition that the public can travel over same in comfort and safety. The **CONTRACTOR** shall cooperate with the appropriate officials in the regulation of traffic. If the **CONTRACTOR** constructs temporary bridges or temporary stream crossings, its responsibility for accidents shall include the roadway approaches as well as the structures of such crossings.

The **CONTRACTOR** shall provide, erect and maintain all necessary barricades, signs, danger signals and lights to protect the Work and the safety of the public. **CONTRACTOR** shall comply with the provisions of any and all applicable Traffic Safety Manuals which may be published by a governmental entity having jurisdiction over the project area. All barricades, signs and obstructions erected by the **CONTRACTOR** shall be illuminated at night and all devices for this purpose shall be kept burning from sunset to sunrise. The **CONTRACTOR** shall be held responsible for all damage to the Work due to failure of barricades, signs, lights and watchmen to protect it, and whenever evidence of such damage is found prior to acceptance, the **ENGINEER** or **OWNER**'s Representative may order the damaged portion immediately removed and replaced by the **CONTRACTOR** without cost to the **OWNER** if, in its opinion, such action is justified. The **CONTRACTOR**'s responsibility for necessary barricades, signs and lights shall not cease until the Project shall have been accepted.

F. The **CONTRACTOR** shall provide and maintain in a neat, sanitary condition such accommodations for the use of its employees as may be necessary to comply with the requirements and regulations of the State Department of Health or of other authorities having jurisdiction thereover.

G. When the use of explosives is necessary for the prosecution of the Work, the **CONTRACTOR** shall use the utmost care so as not to endanger life or property, and whenever directed, the number and size of the charges shall be reduced. The **CONTRACTOR** shall notify the proper representative of any public service corporation, any company, or any individual, at least 8 hours in advance of any blasting which may damage its or their property, on along, or adjacent to the site. All explosives shall be stored in a secure manner and all storage places shall be marked clearly "DANGEROUS EXPLOSIVES," and shall be in care of competent watchmen at all times.

6.12 EMERGENCIES

A. In emergencies affecting the safety or protection of persons or the Work or property at the site or adjacent thereto, **CONTRACTOR**, without special instruction or authorization from **ENGINEER** or **OWNER**, is obligated to act to prevent threatened damage, injury or loss. **CONTRACTOR** shall give **ENGINEER** prompt written Notice of any significant changes in the Work or deviations from the Contract Documents caused thereby.

6.13 PLANS AND SHOP DRAWINGS

A. The approved Plans will show details of all structures; lines and grade of roadways and utility systems, typical cross-sections of roadways; character of foundation; location and designation of all structures; and the general arrangement of circuits and outlets, location of switches, panels and other Work.

B. Drawings and Specifications are complementary each to the other, and what is called for by one shall be as binding as if called for by both. Data presented on Drawings are as accurate as planning can determine, but accuracy is not guaranteed and field verification of all dimensions, locations, levels, etc., to suit field conditions is directed. The **CONTRACTOR** shall review all structural and mechanical plans and adjust all Work to confirm to all conditions shown therein. The mechanical Drawings shall take precedence over all other Drawings.

C. Discrepancies between different Plans, or between Plans and Specifications, or regulations and codes governing the installation shall be brought to the attention of the **ENGINEER** in writing as soon as said discrepancies are noticed. In the event such discrepancies exist and the **ENGINEER** is not so notified, the **ENGINEER** shall reserve the right to exercise sole authority in making final decisions in resolution of such a conflict. It is mutually agreed that all authorized alterations affecting the requirements and information given on the Approved Plans shall be in writing and approved by the **ENGINEER**. When at any time reference is made to "The Plans", the interpretation shall be the Plans as affected by all authorized alterations then in effect. Plans will be supplemented by such Shop Drawings to be prepared by **CONTRACTOR** as are necessary to adequately control the Work.

D. After checking and verifying all field measurements and approving of Shop Drawings, **CONTRACTOR** shall submit to **ENGINEER** for review, in accordance with the accepted schedule of Shop Drawing submissions, six copies (unless otherwise specified in the Special Conditions) of all Shop Drawings, which shall have been checked by and stamped with the approval of **CONTRACTOR** and identified as **ENGINEER** may require. The date shown on the Shop Drawings will be complete with respect to dimensions, design criteria, materials of construction and like information to enable **ENGINEER** to review the information as required.

E. At the time of each submission, **CONTRACTOR** shall in writing call **ENGINEER**'s attention to any deviations that the Shop Drawings or samples may have from the requirements of the Contract Documents.

F. **ENGINEER** will review with reasonable promptness Shop Drawings and samples, but **ENGINEER**'s review shall be only for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents and shall not extend to means, methods, sequences, techniques or procedures of construction or to satisfy precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions. **CONTRACTOR** shall make any corrections required by **ENGINEER** and shall return the required number of corrected copies of Shop Drawings and resubmit new samples for **ENGINEER**'s review. **CONTRACTOR** shall direct specific attention in writing to revisions other than the corrections called for by **ENGINEER** on previous submittals. **CONTRACTOR**'s stamp of approval on any shop Drawing or sample shall constitute a representation to **OWNER** and **ENGINEER** that **CONTRACTOR** has either determined and verified all quantities, dimensions, field construction criteria, materials, catalog numbers, and similar data or assumes full responsibility for doing so, and that **CONTRACTOR** has reviewed or coordinated each Shop Drawing or sample with the requirements of the Work and the Contract Documents.

G. Where a Shop Drawing or sample is required by the Specifications, no related Work shall be commenced until the submittal has been reviewed by **ENGINEER**.

H. **ENGINEER**'s review of Shop Drawings or samples shall not relieve **CONTRACTOR** from responsibility for any deviations from the Contract Documents unless **CONTRACTOR** has in writing called **ENGINEER**'s attention to such deviation at the time of submission and **ENGINEER** has given written concurrence and approval to the specific deviation, nor shall any concurrence or approval by

ENGINEER relieve **CONTRACTOR** from responsibility for errors or omissions in the Shop Drawings.

I. The cost of furnishing all shop drawings shall be borne by the **CONTRACTOR**.

J. Finished surfaces in all cases shall conform with lines, grade, cross-sections and dimensions shown on the Approved Plans. Any deviations from the Plans and working Drawings, as may be required by the demands of construction, will in all cases be determined by the **ENGINEER** and authorized in writing.

K. The Plan and Specifications, and all supplementary plans and documents, are essential parts of the Contract, and a requirement occurring in one is just as binding as though occurring in all. They are intended to be cooperative to describe and provide for a complete Work. The **CONTRACTOR** shall not take advance of any apparent error of omission in the Plans or Specifications. In the event the **CONTRACTOR** discovers any apparent conflict, error or discrepancy, it shall immediately call upon the **ENGINEER** for its interpretation and decision shall be final. Any apparent error or discrepancy must be resolved before **CONTRACTOR** proceeds with the Work affected thereby.

6.14 PRIVATE PROPERTY AND EXCAVATION

A. The **CONTRACTOR** shall not enter upon private property for any purpose without first obtaining permission, and it shall be responsible for the preservation of all public and private property, trees, fences, monuments, underground structures, etc., on and adjacent to the site and shall use every precaution necessary to prevent damage or injury thereto. It shall protect carefully, from disturbance or damage, all land monuments and property marks until an authorized agent has witnessed or otherwise referenced their location, and shall not remove them until directed. It shall be responsible for all damage or injury to property or any character resulting from any act, omission, neglect or misconduct in its or any sub**CONTRACTOR**'s manner, or method of executing said Work, or due to its or any sub**CONTRACTOR**'s non-execution of said Work, or at any time due to defective Work or materials, and said responsibility shall not be released until the Work has been completed and accepted. The **CONTRACTOR**'s attention is directed to the importance of protecting all public utilities encountered on all projects. These may include telephone, telegraph and power lines, water lines, sewer lines, gas lines, railroad tracks, and other overhead and underground utilities. Before any excavation is begun in the vicinity of water lines, railroad tracks or structures, sewer lines, gas lines, or telephone conduits, each utility company concerned must be notified in advance of such excavation, and such excavation shall not be made until an authorized representative of the utility company concerned is on the ground and has designated the location of their facilities. When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the Work, or in consequence of the non-execution thereof on the part of the **CONTRACTOR** or sub**CONTRACTOR**, **CONTRACTOR** shall restore, at its own expense, such property to a condition similar or equal to that existing before such damage or injury was done by repairing, rebuilding, or otherwise restoring, as may be directed, or it shall make good such damage or injury in an acceptable manner. In case of the failure on the part of the **CONTRACTOR** to restore such property or to have started action to make good such damage or injury, the **ENGINEER** or **OWNER**'s Representative may, upon forty-eight (48) hours' notice, proceed to direct the repair, rebuilding of or otherwise restore such property as may be deemed necessary and the cost thereof will be deducted for any moneys due or which may become due the **CONTRACTOR** under the Contract. The cost of damages due to **CONTRACTOR**'s operation or cost of protecting utilities where required to permit construction under these Contract Documents shall be included in the original Contract prices for the Project.

PART 7 COORDINATION OF WORK

7.01 OWNER'S RIGHT TO PERFORM

A. **OWNER** may perform additional Work related to the Project by itself, or have additional Work performed by utility service companies, or let other direct contracts therefore which shall contain General Conditions similar to these. **CONTRACTOR** shall afford the utility service companies and the other **CONTRACTOR**s who are parties to such direct contracts (or **OWNER**, if **OWNER** is performing the additional Work with **OWNER**'s employees) reasonable opportunity for the introduction and storage of materials and equipment and the execution of Work, and shall properly connect and coordinate its Work with theirs, and shall conduct its operations as to minimize the interference with theirs, as directed by **ENGINEER**.

7.02 CONTRACTOR TO COORDINATE

A. If any part of **CONTRACTOR**'s Work depends for proper execution or results upon the Work of any such other **CONTRACTOR** or utility service company (or **OWNER**), **CONTRACTOR** shall inspect and promptly report to **ENGINEER** in writing any patent or apparent defects or deficiencies in such Work that render it unsuitable for such proper execution and results. **CONTRACTOR**'s failure so to report shall constitute an acceptance of the other Work as fit and proper for integration with **CONTRACTOR**'s Work except for latent or non-apparent defects and deficiencies in the other Work. Such acceptance by **CONTRACTOR** shall render him responsible for subsequent correction of any such Work.

B. **CONTRACTOR** shall do all cutting, fitting and patching of its Work that may be required to make its several parts come together properly and integrate with such other Work. **CONTRACTOR** shall not endanger any Work of others by cutting, excavating or otherwise altering their work and will only cut or alter their work with the written consent of **ENGINEER** and the others whose work will be affected.

C. If the performance of additional Work by other contractors or utility service companies or **OWNER** was not noted in the Contract Documents, written notice thereof shall be given to **CONTRACTOR** prior to starting any such additional Work. If the performance of such additional Work not noted in the Contract Documents causes unavoidable additional expense to **CONTRACTOR** or causes unavoidable delay in **CONTRACTOR**'s prosecution of the Work, **CONTRACTOR** may make a claim therefore as provided in Parts 11 and 12 respectively.

PART 8 OWNER'S RESPONSIBILITIES

8.01 OWNER TO COMMUNICATE THROUGH ENGINEER OR OWNER'S REPRESENTATIVE

A. **OWNER** shall issue all communications to **CONTRACTOR** through **ENGINEER** or the **OWNER**'s Representative.

PART 9 STATUS OF ENGINEER DURING CONSTRUCTION

9.01 DUTIES OF ENGINEER

A. The duties and responsibilities and the limitations of authority of **ENGINEER** during construction are set forth in the Contract Documents and shall not be extended without written consent of **OWNER** and **ENGINEER**.

9.02 VISITS TO SITE

A. **ENGINEER** will make visits to the site at intervals appropriate to the various stages of construction to observe the progress and quality of the executed Work and to determine, in general, if the Work is proceeding in accordance with the Contract Documents. **ENGINEER** will not be required to make exhaustive or continuous onsite inspections to check the quality or quantity of the Work. **ENGINEER**'s efforts will be directed toward providing for **OWNER** a greater degree of confidence that the completed Work will conform to the Contract Documents. On the basis of such visits and onsite observations as an experienced and qualified design professional, **ENGINEER** will keep **OWNER** informed of the progress of the Work and will endeavor to guard **OWNER** against defects and deficiencies in the Work.

9.03 CLARIFICATIONS AND INTERPRETATIONS

A. **ENGINEER** will issue with reasonable promptness such written clarifications or interpretations of the Contract Documents (in the form of Drawings or otherwise) as **ENGINEER** may determine necessary, which shall be consistent with or reasonably inferable from the overall intent of the Contract Documents.

9.04 REJECTING DEFECTIVE WORK

A. **ENGINEER** will have authority to disapprove or reject Work which is defective, and will also have authority to require special inspection or testing of the Work as provided in paragraph 13.04.B, whether or not the Work is fabricated, installed or completed.

9.05 NOT USED

9.06 DECISIONS ON DISAGREEMENTS

A. **ENGINEER** will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. Claims, disputes and other matters relating to the acceptability of the Work or the interpretation of the requirements of the Contract Documents pertaining to the execution and progress of the Work shall be referred initially to **ENGINEER** in writing with a request for a formal decision in accordance with this paragraph, which **ENGINEER** will render in writing within a reasonable time. Written Notice of each such claim, dispute and other matter shall be delivered by the claimant to **ENGINEER** and the other party to the Agreement within fifteen (15) days of the occurrence of the event giving rise thereto, and written supporting data will be submitted to **ENGINEER** and the other party within forty-five (45) days of such occurrence unless **ENGINEER** allows an additional period of time to ascertain more accurate data. In its capacity as interpreter and judge **ENGINEER** will not show partiality to **OWNER** or **CONTRACTOR** and will not be liable in connection with any interpretation or decision rendered in good faith and in accord with professional standards in such capacity.

B. Notwithstanding Paragraph E of Part 10 of the **OWNER-CONTRACTOR** Agreement, the rendering of a decision by **ENGINEER** pursuant to paragraph 9.06.A with respect to any such claim, dispute or other matter (except any which have been waived by the making or acceptance of final payment as provided in paragraph 14.11.A) or the determination by **ENGINEER** that it shall not render a decision with respect thereto, will be a condition precedent to any exercise by **OWNER** or **CONTRACTOR** of such rights or remedies as either may otherwise have under the Contract Documents or at law in respect of any such claim, dispute or other matter.

9.07 LIMITATIONS ON ENGINEER'S AND OWNER'S RESPONSIBILITIES

A. Neither **ENGINEER**'s nor **OWNER**'s authority to act under this Part 9 or elsewhere in the Contract Documents nor any decision made by **ENGINEER** or **OWNER** in good faith either to exercise or not exercise such authority shall give rise to any duty or responsibility of **ENGINEER** or **OWNER** to **CONTRACTOR**, any Sub**CONTRACTOR**, any manufacturer, fabricator, supplier, or distributor, or any of their agents or employees or any other person performing any of the Work.

B. Whenever in the Contract Documents the terms "as ordered," "as directed," "as required," "as allowed" or terms of like effect or import are used, or the adjectives "reasonable," "suitable," "acceptable," "proper" or "satisfactory" or adjectives of like effect or import are used, to describe requirement, direction, review or judgment of **ENGINEER** as to the Work, it is intended that such requirement, direction, review or judgment will be solely to evaluate the Work for compliance with the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective never indicates that **ENGINEER** shall have authority to supervise or direct performance of the Work or authority to undertake responsibility contrary to the provisions of paragraphs 9.07.C or 9.07.D.

C. **ENGINEER** will not be responsible for **CONTRACTOR**'s means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, and **ENGINEER** will not be responsible for **CONTRACTOR**'s failure to perform the Work in accordance with the Contract Documents.

D. Neither **ENGINEER**, nor **OWNER**, nor **OWNER**'s Representative will not be responsible for the acts or omissions of **CONTRACTOR** or of any Sub**CONTRACTOR**s, or of the agents or employees of

any **CONTRACTOR** of Sub**CONTRACTOR**, or of any other persons at the site or otherwise performing any of the Work.

PART 10 CHANGES IN THE WORK

10.01 OWNER MAY ORDER CHANGES

A. Without invalidating the Agreement, **OWNER** may, at any time or from time to time, order additions, deletions, or revisions in the Work; these will be authorized by Field Orders or Change Orders. Upon receipt of a Field Order or Change Order, **CONTRACTOR** shall proceed with the Work involved. All such Work shall be executed under the applicable conditions of the Contract Documents. If any Change Order causes an increase or decrease in the Agreement Price or an extension or shortening of the Contract Time, an equitable adjustment will be made as provided in Part 11 or Part 12 on the basis of a claim made by either party.

B. The **ENGINEER**, by Field Order only, may authorize minor changes in the Work which do not require an adjustment in the Agreement Price or the Contract Time and which are consistent with the overall intent of the Contract Documents. Only changes authorized by a Change Order or Field Order shall be binding on the **OWNER**. The **CONTRACTOR** shall perform changes authorized by a Field Order in a timely fashion and as specified in the Field Order. If, notwithstanding this Paragraph 10.01 B., a Field Order causes unavoidable additional expense or unavoidable delay in **CONTRACTOR**'s prosecution of the Work, **CONTRACTOR** may make a claim therefore as provided in Part 11 or Part 12, respectively.

C. Additional Work performed without authorization of a Change Order will not entitle **CONTRACTOR** to an increase in the Agreement Price or an extension of the Contract Time, except in the case of an emergency, as provided in paragraph 6.12 A.

D. If Notice of any change affecting the general scope of the Work or change in the Agreement Price is required by the provisions of any Bond to be given to the Surety, it will be **CONTRACTOR**'s responsibility to so notify the Surety, and the amount of each applicable Bond shall be adjusted accordingly. **CONTRACTOR** shall furnish proof of such adjustment to **OWNER**.

E. If **OWNER** and **CONTRACTOR** are unable to agree to an adjustment in the Agreement Price or Contract Time of a Change Order, as provided in Parts 11 and 12 herein, the **OWNER** may issue the Change Order without an adjustment and the Parties may proceed to Dispute Resolution. The **CONTRACTOR** shall promptly perform any such Change Order. Alternatively, the **OWNER** reserves the right to perform the Work described in the Change Order directly or to hire other **CONTRACTOR**(s) to perform said Work. In this case, the **CONTRACTOR** shall not be entitled to any increase in the Agreement Price, nor to any additional cost or fees, nor to any extension of the Contract Time, and the **CONTRACTOR** shall permit free access to the site by the **OWNER** or any other **CONTRACTOR** engaged by **OWNER** to perform said Work.

PART 11 CHANGE OF AGREEMENT PRICE

11.01 AGREEMENT PRICE CHANGED ONLY BY CHANGE ORDER

A. The Agreement Price constitutes the total compensation (subject to authorized adjustments by Change Order) payable to **CONTRACTOR** for performing the Work and is based on unit prices. All duties, responsibilities and obligations assigned to or undertaken by **CONTRACTOR** shall be at its expense without change in the Agreement Price.

B. The Agreement Price may only be changed by a Change Order signed and approved by **CONTRACTOR** and **OWNER**. When **CONTRACTOR** and **OWNER** agree upon a price for extra or changed Work by way of a Change Order, **CONTRACTOR** and **OWNER** agree that the price set forth in the Change Order shall be based on unit prices set forth in the Agreement.

C. The **OWNER**, through the **ENGINEER** or **OWNER**'s Representative, may request changes to the Agreement for additional Work or a reduction in the Work or in response to claims by **CONTRACTOR** not quantifiable by unit prices set forth in the Agreement. In such case, Change Order pricing and time extension analysis shall be in accordance with the following:

1. The **ENGINEER** or **OWNER**'s Representative shall submit to the **CONTRACTOR** a "Request for Proposal" outlining the scope of Work contemplated for said construction changes.

2. The **CONTRACTOR** shall submit within fourteen (14) days of receipt of a "Request for Proposal" (or within such shorter period of time as may be reasonably designated by the **OWNER**) a complete cost and fee and time extension analysis for the proposed change which shall include:

a. Detailed itemization of materials and labor estimated for said Work;

b. Detailed itemization from all Sub**CONTRACTOR**s for their respective labor and materials for said Work;

c. Copies of quotations from suppliers substantiating all materials and equipment costs;

d. Itemization of overhead and fees in accordance with Paragraph 11.03A;

e. Any request for Contract Time extension with all substantiating rationale therefore.

D. **CONTRACTOR** shall be entitled to submit a claim for additional compensation for changes ordered by **OWNER** through a Change Order, if such Change Order does not contain an agreed-upon adjustment or quantifiable by unit prices, and for changes ordered by **ENGINEER** through a Field Order, subject to the provisions of this Agreement. If the **CONTRACTOR** believes extra compensation is due him for Work or materials not clearly covered in the Agreement, or not ordered in writing by the **OWNER** or **ENGINEER**, it must, prior to beginning the Work on which it bases the claim, submit in writing to the **ENGINEER** and the **OWNER** its intention to make a claim for such extra compensation and must afford the **ENGINEER** every facility for keeping track of the actual cost of the Work. Failure on the part of the **CONTRACTOR** to give such notification or to afford the **ENGINEER** proper facilities for keeping strict account of actual cost shall constitute a waiver of the claim for such extra compensation. The filing of such notice by **CONTRACTOR** and the keeping account of costs by the **ENGINEER** shall not in any way be construed to provide the validity of the claim. When such Work has been completed, the **CONTRACTOR** shall within fifteen days file its claim for extra compensation with the **ENGINEER**, including an itemization of all items for which extra compensation is requested and documentation reasonably satisfactory to **OWNER**. **ENGINEER** shall present the claim to **OWNER** with **ENGINEER**'s recommendations.

E. The value of any Work covered by a Change Order or of any claim for an increase or decrease in the Agreement Price shall be determined in one of the following ways:

1. On a unit price basis

2. On the basis of the estimated Cost of the Work (determined as provided in Paragraph 11.02) plus a **CONTRACTOR**'s Fee for overhead and profit (determined as provided in paragraph 11.03.A);

3. By mutual acceptance of a lump sum.

11.02 COST OF THE WORK

A. The term "Cost of the Work" means the sum of all costs necessarily incurred and paid by **CONTRACTOR** in the proper performance of the Work. Except as otherwise may be agreed to in writing by **OWNER**, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items, and shall not include any of the costs itemized in paragraph 11.02.B. Whenever the cost of any Work is to be determined pursuant to paragraphs 11.02.A and 11.02.B, **CONTRACTOR** will submit in form acceptable to **ENGINEER** an itemized cost breakdown together with supporting data.

1. Payroll costs for employees in the direct employ of **CONTRACTOR** in the performance of the Work under schedules of job classifications agreed upon by **OWNER** and **CONTRACTOR**. Payroll cost for employees not employed full time on the Work shall be

apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not limited to, salaries and wages plus the cost of fringe benefits which shall include social security contributions, unemployment, excise and payroll taxes, workers' or workmen's compensation.

Such employees shall include superintendents and foremen at the site. The expenses of performing Work after regular working hours, on Sunday or legal holidays shall be included in the above to the extent authorized by **OWNER**.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and manufacturers' field services required in connection therewith. All cash discounts shall accrue to **CONTRACTOR** unless **OWNER** deposits funds with **CONTRACTOR** with which to make payments, in which case the cash discounts shall accrue to **OWNER**. All trade discounts, rebates and refunds, and all returns from sale of surplus materials and equipment shall accrue to **OWNER** and **CONTRACTOR** shall make provisions so that they may be obtained.

3. Payments made by **CONTRACTOR** to the Sub**CONTRACTOR**s for Work performed by Sub**CONTRACTOR**s. If required by **OWNER**, **CONTRACTOR** shall obtain competitive bids from Sub**CONTRACTOR**s acceptable to **CONTRACTOR** and shall deliver such bids to **OWNER** who will then determine, with the advice of **ENGINEER**, which bids will be accepted. If a subcontract provides that the Sub**CONTRACTOR** is to be paid on the basis of Cost of the Work plus a fee, the Sub**CONTRACTOR**'s Cost of the Work shall be determined in the same manner as **CONTRACTOR**'s Cost of the Work. All Sub**CONTRACTOR**s shall be subject to the other provisions of the Contract Documents insofar as applicable.

4. Costs of special consultants (including, but not limited to, **ENGINEER**s, testing laboratories, surveyors, lawyers and accountants) employed or services specifically related to the Work.

5. Supplementary costs include the following:

a. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, and hand tools not owned by the workmen, which are consumed in the performance of the Work, and cost less market value of such items used but not consumed which remain the property of **CONTRACTOR**.

b. Rentals of all construction equipment and machinery and the parts thereof whether rented from **CONTRACTOR** or others in accordance with rental agreements approved by **OWNER** with the advice of **ENGINEER**, and the costs of transportation, loading, unloading, installation, dismantling and removal thereof all in accordance with terms of said rental agreements. The rental of any such equipment, machinery or parts shall cease when the use thereof is no longer necessary for the Work.

c. Any sales, use or similar taxes related to the Work, and for which **CONTRACTOR** is liable, imposed by any governmental authority.

d. Deposits lost for causes other than **CONTRACTOR**'s negligence, royalty payments and fees for permits and licenses.

e. Losses and damages (and related expenses), not compensated by insurance or otherwise, to the Work or otherwise sustained by **CONTRACTOR** or in connection with the execution of the Work, provided they have resulted from causes other than the negligence of **CONTRACTOR**, any Sub**CONTRACTOR**, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of **OWNER**. No such losses, damages and expenses shall be included in the Cost of the Work for the purpose of determining **CONTRACTOR**'s Fee. If, however, any such loss or damage requires reconstruction and **CONTRACTOR** is placed in charge thereof, **CONTRACTOR** shall be paid for services a fee proportionate to that stated in paragraph 11.03.A.

f. Cost of premiums for additional Bonds and insurance required because of changes in the Work.

g. The proportion of necessary transportation, travel and subsistence expenses of **CONTRACTOR**'s employees incurred in discharge of duties connected with the Work.

h. The cost of utilities, fuel and sanitary facilities at the site.

i. Minor expenses such as telegrams, long distance telephone calls, telephone service at the site, expressage and similar petty cash items in connection with the Work.

B. The term Cost of the Work shall not include any of the following:

1. Payroll costs and other compensation of **CONTRACTOR**'s officers, executives, principals (of partnership and sole proprietorships), general managers, **ENGINEER**s, estimators, lawyers, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks and other personnel employed by **CONTRACTOR** whether at the site or in its principal or a branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in subparagraph 11.02.A.1-all of which are to be considered administrative costs covered by the **CONTRACTOR**'s Fee.

2. Expenses of **CONTRACTOR**'s principal and branch offices other than **CONTRACTOR**'s office at the site.

3. Any part of **CONTRACTOR**'s capital expenses, including interest on **CONTRACTOR**'s capital employed for the Work and charges against **CONTRACTOR** for delinquent payments.

4. Cost of premiums for all Bonds and for all insurance whether or not **CONTRACTOR** is required by the Contract Documents to purchase and maintain the same (except for additional Bonds and insurance required because of changes in the Work).

5. Costs due to the negligence of **CONTRACTOR**, any Sub**CONTRACTOR**, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied and making good any damage to property.

6. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in paragraph 11.02.A.

11.03 CONTRACTOR'S FEE

A. The **CONTRACTOR**'s Fee allowed to **CONTRACTOR** for overhead and profit shall be determined as follows:

1. A fee based on the following percentages of the various portions of the Cost of the Work:

a. For costs incurred under paragraphs 11.02.A.1 and 11.02.A.2, the **CONTRACTOR**'s Fee shall be ten percent (10%); and

b. For costs incurred under paragraph 11.02.A.3, the **CONTRACTOR**'s Fee shall be five percent (5%); and if a subcontract is on the basis of Cost of the Work Plus a Fee, the maximum allowable to the Sub**CONTRACTOR** as a fee for overhead and profit shall be ten percent (10%) as set forth in Paragraph 11.03A.1.a; and

c. No fee shall be payable on the basis of costs itemized under paragraphs 11.02.A.4, 11.02.-A.5, and 11.02.B.

B. The amount of credit to be allowed by **CONTRACTOR** to **OWNER** for any such change which results in a net decrease in cost will be the amount of the actual net decrease. When both additions and credits are involved in any one change, the combined fee shall be figured on the basis of the net increase if any.

11.04 ADJUSTMENT OF THE UNIT PRICE

A. Where the quantity of Work with respect to any item that is covered by a unit price differs materially and significantly (more than a 25% increase or decrease) from the quantity of such Work indicated in the Contract Documents, an appropriate Change Order shall be issued on recommendation of **ENGINEER** to adjust the unit price.

PART 12 CONTRACT TIME AND CHANGES

12.01 DETERMINATION AND EXTENSION OF CONTRACT TIME

A. The **CONTRACTOR** shall perform fully, entirely, and in a satisfactory and acceptable manner the Work contracted, within the number of calendar days stipulated in the Agreement. Time will be assessed against the **CONTRACTOR** in accordance with the Notice to Proceed. If the **CONTRACTOR** does not begin the Work within the limit designated in the Notice to Proceed, the calendar days shall start on the first calendar day after the last permissible starting date as set forth in the Notice to Proceed. If the satisfactory execution and completion of the Work shall require Work or materials in greater amounts or quantities than those set forth in the Contract Documents, then the Contract Time may be increased as negotiated between **CONTRACTOR** and **ENGINEER** or **OWNER**'s Representative and accepted by **OWNER** as set forth in a Change Order. In general, extensions to the completion period for the Contract Documents will not be approved, regardless of cause for claim.

No allowances will be made for delays or suspensions of the prosecution of the Work due to the fault of the **CONTRACTOR**. In order to secure an extension of time for delays beyond its control, the **CONTRACTOR** shall within ten (10) days from the beginning of any such delay notify the **ENGINEER** or **OWNER**'s Representative in writing of the causes of delay, whereupon the **ENGINEER** shall ascertain the facts and the extent of the delay and extend the time for completing the Work in an amount equal to time lost due to said delay when, in its judgment, the findings of fact justify such an extension, and its finding of fact thereon shall be final and conclusive. The Contract Time may only be changed by a Modification.

12.02 CONTRACT TIME CHANGED ONLY BY CHANGE ORDER

A. The Contract Time may only be changed by a Change Order. If **CONTRACTOR** desires to make any claim for an extension in the Contract Time, it shall give immediate verbal notification to **ENGINEER** followed by written notice delivered to **OWNER**'s Representative and **ENGINEER** within five days of the occurrence of the event giving rise to the Claim. Notice of the extent of the claim with supporting data shall be delivered within fifteen (15) days of such occurrence unless **ENGINEER** or **OWNER**'s Representative allows an additional period of time to ascertain more accurate data. All claims for adjustment in the Contract Time shall be determined by **ENGINEER** if **OWNER** and **CONTRACTOR** cannot otherwise agree. Any change in the Contract Time resulting from any such claim shall be incorporated in a Change Order.

B. Where, due to delays beyond the control of **CONTRACTOR** which cause unavoidable delay to the **CONTRACTOR**'s prosecution of the Work, **CONTRACTOR** is prevented from completing any part of the Work within the Contract Time or within scheduled milestones, **CONTRACTOR** shall be entitled to request an extension of time equal to the time unavoidably lost if **CONTRACTOR** makes a claim therefore as provided in Paragraph 12.01.A. Such delays may be caused by acts or omissions of the **OWNER** or others performing Work as contemplated by Part 7, or to fires, floods, labor disputes, epidemics, acts of God, or to abnormally inclement weather conditions. Weather conditions shall only be considered abnormally inclement if there was greater than normal inclement weather considering the term of the contract and the ten-year average of accumulated record mean values from data compiled by the U.S. Department of Commerce National Oceanic and Atmospheric Administration for the locale of the Work.

C. All the time limits stated in the Contract Documents are of the essence of the Agreement. The provisions of this Part 12 shall not exclude recovery for damages (including compensation for additional professional services) for delay by either party.

PART 13 WARRANTY AND GUARANTEE; TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 WARRANTY AND GUARANTEE

A. **CONTRACTOR** warrants and guarantees to **OWNER** and **ENGINEER** that, without exception, all Work will be in accordance with the Contract Documents and will not be defective. Four copies of all manufacturer's guaranties or certificates that are required by the Contract Documents shall be submitted to **OWNER** through **ENGINEER** prior to acceptance of the Work. No exceptions to Contract Documents and guarantee or warranty requirements are permitted. Prompt notice of all defects shall be given to **CONTRACTOR**. All defective Work, whether or not in place, may be rejected, corrected or accepted as provided in this Part 13.

13.02 ACCESS TO WORK

A. **ENGINEER** and **ENGINEER**'s representatives, other representatives of **OWNER**, testing agencies and governmental agencies with jurisdictional interests will have access to the Work at reasonable times for their observation, inspection and testing. **CONTRACTOR** shall provide proper and safe conditions for such access.

13.03 TESTS AND INSPECTIONS

A. **CONTRACTOR** shall give **ENGINEER** timely Notice of Readiness of the Work for all required inspections, tests or approvals.

B. If any law, ordinance, rule, regulation, code, or order of any public body having jurisdiction requires any Work (or part thereof) specifically to be inspected, tested or approved, **CONTRACTOR** shall assume full responsibility therefore, pay all costs in connection therewith and furnish **ENGINEER** the required certificates of inspection, testing or approval. **CONTRACTOR** shall also be responsible for and shall pay all costs in connection with **OWNER**'s or **ENGINEER**'s acceptance of a manufacturer, fabricator, supplier or distributor of materials or equipment proposed to be incorporated in the Work, or of materials or equipment submitted for approval prior to **CONTRACTOR**'s purchase thereof for incorporation in the Work. The cost of all other inspections, tests and approvals required by the Contract Documents shall be paid by **OWNER** (unless otherwise specified), except that the cost of retesting of materials and equipment as a direct result of a failure to pass a specified test shall be paid by **CONTRACTOR**.

C. All inspections, tests or approvals other than those required by law, ordinance, rule, regulation, code or order of any public body having jurisdiction shall be performed by organizations acceptable to **OWNER** and **CONTRACTOR** (or by **ENGINEER**, if so specified).

D. If any Work that is to be inspected, tested or approved is covered without written concurrence of **ENGINEER**, it must, if requested by **ENGINEER**, be uncovered for observation. Such uncovering shall be at **CONTRACTOR**'s expense unless **CONTRACTOR** has given **ENGINEER** timely Notice of **CONTRACTOR**'s intention to cover such Work and **ENGINEER** has not acted with reasonable promptness in response to such notice.

E. Neither observations by **ENGINEER** or inspections, tests or approvals by others shall relieve **CONTRACTOR** from its obligations to perform the Work in accordance with the Contract Documents.

F. Any Work outside the normal five (5) day, forty (40) hour week may require that the Resident Project Representative be on the job. All inspection so required shall be done at the **CONTRACTOR**'s expense at Resident Project Representative's current billable rates and the cost thereof shall be deducted from any funds due **CONTRACTOR**. The **CONTRACTOR** shall notify the **ENGINEER** at least 24 hours in advance of starting any such overtime Work.

13.04 UNCOVERING WORK

A. If any Work is covered contrary to the written request of **ENGINEER**, it must, if requested by **ENGINEER**, be uncovered for **ENGINEER**'s observation and replaced at **CONTRACTOR**'s expense.

B. If **ENGINEER** considers it necessary or advisable that covered Work be observed by **ENGINEER** or inspected or tested by others, **ENGINEER** shall issue a Field Order so directing and **CONTRACTOR** shall thereupon uncover, expose or otherwise make available for observation, inspection or testing, as

ENGINEER may require, that portion of the Work in question, furnishing all necessary labor, material and equipment. If it is found that such Work is defective, **CONTRACTOR** shall bear all the expenses of such uncovering, exposure, observation, inspection and testing, and all expenses for satisfactory correction or reconstruction of the defective Work, including, for all of the foregoing tasks, compensation for additional professional services required. **CONTRACTOR** shall not request payment for, nor shall **CONTRACTOR** be entitled to compensation for such expenses. If the Work is found not to be defective, **CONTRACTOR** shall be allowed an increase in the Agreement Price or an extension of the Contract Time, or both, for any expense or delay directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction, provided that **CONTRACTOR** submits a verified claim as provided in Parts 11 and 12 within 20 days of performing any such tasks.

13.05 OWNER MAY STOP THE WORK

A. If the Work is defective, or **CONTRACTOR** fails to supply sufficient skilled workmen or suitable materials or equipment, or fails to furnish or perform the Work in such a way that the completed Work will conform to the Contract Documents, **OWNER** may order **CONTRACTOR** to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of **OWNER** to stop the Work shall not give rise to any duty on the part of **OWNER** to exercise this right for the benefit of **CONTRACTOR** or any other party.

13.06 CORRECTION OR REMOVAL OF DEFECTIVE AND UNAUTHORIZED WORK

A. If required by **ENGINEER**, **CONTRACTOR** shall promptly, without cost to **OWNER** and as specified by **ENGINEER**, either correct any defective Work, whether or not fabricated, installed or completed, or, if the Work has been rejected by **ENGINEER**, remove it from the site and replace it with non-defective Work. Work done without lines and grades having been given, Work done beyond the lines and grades shown on the Plans, or as given, except as herein provided, Work done without proper inspection, or any extra or unclassified Work done without written authority and prior agreement in writing as to prices, will be done at the **CONTRACTOR**'s risk and will be considered unauthorized and, at the option of the **ENGINEER**, may not be measured and paid for and may be ordered removed and replaced at the **CONTRACTOR**'s expense.

13.07 ONE YEAR CORRECTION PERIOD

A. If within one (1) year after the date of initial acceptance by the **OWNER** or such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any Work is found to be defective, **CONTRACTOR** shall promptly, without cost to **OWNER** and in accordance with **OWNER**'s written instructions within seven (7) days after **OWNER**'s issuance of written instructions, correct the defective Work at **CONTRACTOR**'s cost. If **CONTRACTOR** does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, **OWNER** may have the defective Work corrected or the rejected Work removed and replaced, and all direct and indirect costs of such removal and replacement, including compensation for additional professional services, shall be paid by **CONTRACTOR**. **CONTRACTOR** shall also pay for any damage done to other Work, other property or persons which occurred as a result of the defective Work within the correction period. **CONTRACTOR** shall provide **OWNER** with a Warranty Bond in the amount of 10% of the cost of the Work, effective upon commencement of the initial acceptance, to serve as security or any corrections required during this period.

13.08 ACCEPTANCE OF DEFECTIVE WORK

A. If, instead of requiring correction or removal and replacement of defective Work, **OWNER** prefers to accept it, **OWNER** may do so. In such case, if acceptance occurs prior to **ENGINEER**'s recommendation of final payment, a Change Order shall be issued incorporating the necessary revisions in the Contract Documents, including appropriate reduction in the Agreement Price; or, if the acceptance occurs after such recommendation, an appropriate amount shall be paid by **CONTRACTOR** to **OWNER**.

13.09 OWNER MAY CORRECT DEFECTIVE WORK

A. If **CONTRACTOR** fails within a reasonable time after written notice to proceed to correct and to correct defective Work or to remove and replace rejected Work as required by **ENGINEER** or

OWNER's Representative in accordance with paragraph 13.06.A, or in accordance with paragraph 13.07.A, or if **CONTRACTOR** fails to perform the Work in accordance with the Contract Documents (including any requirements of the progress schedule), **OWNER** may, after seven days' written notice to **CONTRACTOR**, correct and remedy any such deficiency. In exercising its rights under this paragraph **OWNER** shall proceed expeditiously. To the extent necessary to complete corrective and remedial action, **OWNER** may exclude **CONTRACTOR** from all or part of the site, take possession of all or part of the Work, and suspend **CONTRACTOR**'s services related thereto, take possession of **CONTRACTOR**'s tools, appliances, construction equipment and machinery at the site and incorporate in the Work all materials and equipment stored at the site or for which **OWNER** has paid **CONTRACTOR** but which are stored elsewhere. **CONTRACTOR** shall allow **OWNER**, **OWNER**'s representatives, agents and employees such access to the site as may be necessary to enable **OWNER** to exercise its rights under this paragraph. All direct and indirect costs of **OWNER** in exercising such rights shall be charged against **CONTRACTOR** in an amount verified by **ENGINEER**, and a Change Order shall be issued incorporating the necessary revisions in the Contract Documents and a reduction in the Agreement Price. Such direct and indirect costs shall include, in particular but without limitation, compensation for additional professional services required and all costs of repair and replacement of work of others destroyed or damaged by correction, removal or replacement of **CONTRACTOR**'s defective Work. **CONTRACTOR** shall not be allowed an extension of the Contract Time because of any delay in performance of the Work attributable to the exercise by **OWNER** of **OWNER**'s rights hereunder.

PART 14 CONSTRUCTION SCHEDULE, PAYMENTS TO CONTRACTORS AND COMPLETION

14.01 SCHEDULES

A. Within ten (10) days after issuance of the Notice to Proceed and at least ten days prior to submitting the first application for a progress payment, the **CONTRACTOR** shall prepare and submit to **OWNER** the progress schedule listing all Work tasks required, duration of tasks, sequence of Work, and significant milestone events; a schedule for Shop Drawing submission. These schedules shall be satisfactory in form and substance to the **OWNER** and the **ENGINEER** and shall employ the CPM or PERT method if so directed in the Supplementary Conditions. The progress schedule shall be an accurate reflection of the Work to be performed by **CONTRACTOR**. The progress schedule shall be subject to the review and concurrence of **OWNER**, but **OWNER**'s concurrence shall not constitute any guarantee or warranty by **OWNER** that the Work can be performed as scheduled. Notwithstanding **OWNER**'s review and concurrence of the progress schedule, **CONTRACTOR** shall be paid only according to its completion of the items contained in the Bid Form and not according to the progress schedule. The **CONTRACTOR** shall revise the progress schedule if so requested by **OWNER**.

B. The schedules contained in the Bid Form shall be incorporated into the form for Application for Partial Payment. The **CONTRACTOR** shall revise the schedule contained in the Bid Form if requested by **OWNER**. The **CONTRACTOR** may include on its Application for Partial Payment, payment for materials stored at the construction site, provided that title to such materials will pass to the **OWNER** at the time of payment free and clear of all claims, security interests and encumbrances, are insured and properly stored and protected.

14.02 APPLICATION FOR PROGRESS PAYMENTS

A. At least ten (10) days before each progress payment falls due (but not more often than once a month), **CONTRACTOR** shall submit to **OWNER**'s Representative for review an Application for Partial Payment completed and signed by **CONTRACTOR** covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents and also as **OWNER**'s Representative may reasonably require. Each subsequent Application for Partial Payment shall include an affidavit of **CONTRACTOR** stating that all previous progress payments received on account of the Work have been applied to discharge in full all of **CONTRACTOR**'s obligations reflected in prior Applications for Partial Payment. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. The determination of quantities of Work acceptable completed under the terms of the Contract Documents, will be made by the **ENGINEER** and based on measurements taken by him or its assistants. These measurements will be taken according to the United States standard measure. All surface and linear measurements will be taken horizontally unless otherwise shown on plans or

specified. Structures shall be measured as shown on the plans. When base course, topsoil, surface course, or any materials are measured by the cubic yard in the vehicle, such measurement shall be taken at the point of delivery. The capacity of all vehicles shall be plainly marked on said vehicle and the capacity or marking shall not be changed without permission of the **ENGINEER**. The **ENGINEER** may require all vehicles to have uniform capacity.

C. No progress payment except final payment will be made for a sum of less than $1,000.00. The estimates will be approximate only, and all partial or monthly estimates and payments shall be subject to correction in the estimate rendered following discovery of an error in any previous estimates. Should any defective Work or material be discovered, or should a reasonable doubt arise as to the integrity of any part of the Work completed previous to the final payment, there will be deducted from the first estimate rendered after the discovery of such Work an amount equal in value to the defective or questioned Work, and this Work will not be included in a subsequent estimate until the defects have been remedied or the causes for doubt removed.

14.03 CONTRACTOR'S WARRANTY OF TITLE

A. **CONTRACTOR** warrants and guarantees that title to all Work, materials and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to **OWNER** at the time of payment free and clear of all claims, security interests and encumbrances (hereafter in these General Conditions referred to as "Claims").

14.04 REVIEW OF APPLICATIONS FOR PROGRESS PAYMENT

A. **OWNER**'s Representative will, within ten (10) days after receipt of each Application for Partial Payment either indicate in writing a recommendation of payment and present the Application to **OWNER**, or return the Application to **CONTRACTOR** indicating in writing **OWNER**'s Representative reasons for refusing to recommend payment. In latter case, **CONTRACTOR** may make the necessary corrections and resubmit the Application.

B. **OWNER**'s Representative's recommendation of any payment requested in an Application for Partial Payment will constitute a representation by **OWNER**'s Representative to **OWNER**, based on **OWNER**'s Representative's onsite observations of the Work in progress as an experienced and qualified design professional, and on **OWNER**'s Representative's review of the Application for Partial Payment and the accompanying data and schedules that the Work has progressed to the point indicated; that, to the best of **OWNER**'s Representative's knowledge, information, and belief, the quality of the Work is in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning Project upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents and any qualifications stated in the recommendation). However, by recommending any such payment, **OWNER**'s Representative will not thereby be deemed to have represented that exhaustive or continuous onsite inspections have been made to check the quality or the quantity of the Work, or that the means methods, techniques, sequences, and procedures of construction have been reviewed or that any examination has been made to ascertain how or for what purpose **CONTRACTOR** has used the moneys paid or to be paid to **CONTRACTOR** on account of the Agreement Price, or that title to any Work, materials or equipment has passed to **OWNER** free and clear of any Claims.

C. **OWNER**'s Representative may refuse to recommend, and **OWNER** may refuse to pay, the whole or any part of any payment if, in their opinion, it would be incorrect to make such payment. They may also refuse to recommend to make any such payment, or because of subsequently discovered evidence or the results of subsequent inspections or tests, nullify any such payment previously recommended, to such extent as may be necessary in **ENGINEER**'s or **OWNER**'s opinion to protect **OWNER** from loss because:

1. The Work is defective, or completed Work has been damaged requiring correction or replacement,

2. Written Claims have been made against **OWNER** or Claims have been filed in connection with the Work,

3. The Agreement Price has been reduced because of modifications,

4. **OWNER** has been required to correct defective Work or complete the Work in accordance with paragraph 13.09.A,

5. Of **CONTRACTOR**'s unsatisfactory prosecution of the Work in accordance with the Contract Documents, or

6. Of **CONTRACTOR**'s failure to make payment to Sub**CONTRACTOR**s for labor, materials or equipment.

14.05 SUBSTANTIAL COMPLETION

A. When **CONTRACTOR** considers the entire Work ready for its intended use, **CONTRACTOR** shall, in writing to **OWNER** and **ENGINEER**, certify that the entire Work is substantially complete and request that **ENGINEER** issue a certificate of Substantial Completion. Within a reasonable time thereafter, **OWNER**, **CONTRACTOR**, and **ENGINEER** shall make an inspection of the Work to determine the status of completion. If **ENGINEER** does not consider the Work substantially complete, **ENGINEER** will notify **CONTRACTOR** in writing giving its reasons therefore. If **ENGINEER** considers the Work substantially complete, **ENGINEER** will prepare and deliver to **OWNER** a tentative certificate of Substantial Completion. There shall be attached to the certificate a punch list of items to be completed or corrected before Project completion and final payment.

14.06 PARTIAL UTILIZATION

A. Use by **OWNER** of completed portions of the Work may be accomplished prior to Substantial Completion of all the Work subject to the following:

1. **OWNER** at any time may request **CONTRACTOR** in writing to permit **OWNER** to use any part of the Work which **OWNER** believes to be substantially complete and which may be so used without significant interference with construction of the other parts of the Work. If **CONTRACTOR** agrees, **CONTRACTOR** will certify to **OWNER** and **ENGINEER** that said part of the Work is substantially complete. Within a reasonable time thereafter, **OWNER**, **CONTRACTOR** and **ENGINEER** shall make an inspection of that part of the Work to determine its status of completion. Prior to **OWNER**'s use, **ENGINEER** will deliver to **OWNER** and **CONTRACTOR** a written recommendation as to the division of responsibilities pending final payment between **OWNER** and **CONTRACTOR** with respect to security, operation, safety, maintenance, utilities, insurance and correction periods for that part of the Work which is binding upon **OWNER** and **CONTRACTOR** as to that part of the Work, unless **OWNER** and **CONTRACTOR** shall have otherwise agreed in writing or shall object to the **ENGINEER** in writing with fifteen (15) days of receiving **ENGINEER**'s recommendations. **OWNER** shall have the right to exclude **CONTRACTOR** from any part of the Work which **OWNER** uses, but **OWNER** shall allow **CONTRACTOR** reasonable access to complete or correct items on the tentative list.

2. In lieu of the provisions of paragraph 14.06.A.1, **OWNER** may take over operation of a facility constituting part of the Work whether or not it is substantially complete if such facility is functionally and separately useable; provided that prior to any such takeover, **OWNER** and **CONTRACTOR** have agreed as to the division of responsibilities between **OWNER** and **CONTRACTOR** for security, operation, safety, maintenance, correction period, heat, utilities and insurance with respect to such facility.

3. No occupancy of part of the Work or taking over of operations of a facility will be accomplished prior to acknowledgment from the insurers providing the property insurance on the Work that notice of such occupancy has been received and that said insurers, in writing, have effected the changes in coverage necessitated thereby. The insurers providing the property insurance shall consent to such use or occupancy by endorsement on the policy or policies, but the property insurance shall not be canceled or lapse on account of any such partial use or occupancy.

14.07 FINAL INSPECTION

A. Upon written notice from **CONTRACTOR** that the Work is complete and that all items on the punch list have been completed, **ENGINEER** will make a final inspection with **OWNER** and **CONTRACTOR** and will notify **CONTRACTOR** in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. **CONTRACTOR** shall immediately take such measures as are necessary to remedy such deficiencies.

14.08 FINAL APPLICATION FOR PAYMENT

A. After **CONTRACTOR** has completed all such corrections to the satisfaction of **ENGINEER** and delivered all maintenance and operating instructions, schedules, guarantees, Bonds, certificates of inspection, marked-up record documents and other documents-all as required by the Contract Documents, and after **ENGINEER** has indicated that the Work is acceptable (subject to the provisions of paragraph 14.11.A), **CONTRACTOR** may make application for final payment following the procedure for progress payments. The final Application for Payment shall be accompanied by all documentation called for in the Contract Documents and such other data and schedules as **ENGINEER** may reasonably require, together with complete and legally effective releases or waivers (satisfactory to **OWNER**) of all Claims arising out of or filed in connection with the Work. In lieu thereof and as approved by **OWNER**, **CONTRACTOR** may furnish receipts or releases in full; an affidavit of **CONTRACTOR** that the releases and receipts include all labor, services, material and equipment for which a Claim could be filed, and that all payrolls, material and equipment bills, and other indebtedness connected with the Work for which **OWNER** or its property might in any way be responsible, have been paid or otherwise satisfied; and consent of the Surety, if any, to final payment. If any Sub**CONTRACTOR**, manufacturer, fabricator, supplier or distributor fails to furnish a release or receipt in full, **CONTRACTOR** may furnish a Bond or other collateral satisfactory to **OWNER** to indemnify **OWNER** against any Claim.

14.09 FINAL PAYMENT AND ACCEPTANCE

A. If, on the basis of **ENGINEER**'s observation of the Work during construction and final inspection, and **OWNER**'s Representative's review of the final Application for Payment and accompanying documentation all as required by the Contract Documents, **OWNER**'s Representative is satisfied that the Work has been completed and **CONTRACTOR** has fulfilled all of its obligations under the Contract Documents, **OWNER**'s Representative will, within ten (10) days after receipt of the final Application for Payment, indicate in writing its recommendation of payment and present the Application to **OWNER** for payment. Thereupon, **ENGINEER** will give written notice to **OWNER** and **CONTRACTOR** that the Work is acceptable subject to the provisions of paragraph 14.11.A. Otherwise, **ENGINEER** will return the Application to **CONTRACTOR**, indicating in writing the reasons for refusing to recommend final payment, in which case **CONTRACTOR** shall make the necessary corrections and resubmit the Application. If the Application and accompanying documentation are appropriate as to form and substance, and acceptable to **OWNER**, **OWNER** shall, within thirty (30) days after receipt thereof, cause publication to commence of Notice of Final Settlement in accordance with statutory requirements applicable to **OWNER**. In the event no claims are made against **CONTRACTOR** in response to said publication, **OWNER** shall pay **CONTRACTOR** the amount of final payment recommended by the **ENGINEER** in accordance with the Notice of Final Settlement. In the event any claim(s) is made against **CONTRACTOR**, **OWNER** may withhold up to twice the amount of any asserted claim against **CONTRACTOR** until said claim(s) has been resolved together with other amounts permitted by the Agreement and Part 18 hereof; however, **OWNER** shall pay **CONTRACTOR** the balance of the final payment net of the withheld amount.

B. If, through no fault of **CONTRACTOR**, final completion of the Work is significantly delayed and if **ENGINEER** so confirms, **OWNER** shall, upon receipt of **CONTRACTOR**'s final Application for Payment and recommendation of **ENGINEER**, and without terminating the Agreement, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by **OWNER** for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if Bonds have been furnished, the written consent of the Surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by **CONTRACTOR** to **ENGINEER** with the Application for such payment. Payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

14.10 CONTRACTOR'S CONTINUING OBLIGATION

A. The Contract Documents will be considered complete when all Work has been finished, the final inspection made and the Work finally accepted by the **ENGINEER** all claims for payment of labor, materials, or services of any kind used in connection with the Work have been settled by the **CONTRACTOR** or its Surety and final payment has been made by **OWNER**. The Surety Bond executed from performance of the Contract Documents shall be in full effect for a period equal to the warranty correction period following the date of initial acceptance.

B. Notwithstanding the provisions of Paragraph 14.10 A., **CONTRACTOR**'s obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. Neither recommendation of any progress or final payment by **ENGINEER**, nor the issuance of a certificate of Substantial Completion, nor any payment by **OWNER** to **CONTRACTOR** under the Contract Documents, nor any use or occupancy of the Work or any part thereof by **OWNER**, nor any act of acceptance by **OWNER** nor any failure to do so, nor the issuance of a Notice of Acceptability by **ENGINEER** pursuant to paragraph 14.09.A, nor any correction of defective Work by **OWNER** shall constitute an acceptance of Work not in accordance with the Contract Documents or a release of **CONTRACTOR**'s obligation to perform the Work in accordance with the Contract Documents.

PART 15 SUSPENSION OF WORK AND TERMINATION

15.01 ENGINEER OR OWNER MAY SUSPEND WORK

A. The **ENGINEER**, in consultation with **OWNER** when time permits, shall have the authority to suspend the Work wholly or in part because of unfavorable weather or other essential conditions, or because of the failure on the part of the **CONTRACTOR** to properly prosecute the Work in accordance with the Contract, to carry out orders or to remove defective material or Work. The **CONTRACTOR** shall not suspend the Work without written authority from **OWNER** or **ENGINEER**. Prior to resuming Work, **CONTRACTOR** shall give the **ENGINEER** adequate notice to afford opportunity to re-establish observation and inspection of Work being performed.

B. In the event the **CONTRACTOR** is ordered by the **ENGINEER**, in writing, to suspend Work for some unforeseen cause not provided for in the Specifications, and over which the **CONTRACTOR** has no control, the **CONTRACTOR** may be reimbursed for actual money expended on the job during the period of suspension. No allowance will be made for anticipated profits. The period of suspension shall be computed from the date set out in the written order for Work to cease until the date of the order for Work to resume. Claims for such compensation shall be filed with the **ENGINEER** within ten (10) days after date of the order to resume Work or such claims will not be considered. The **CONTRACTOR** shall submit with its claims, substantiating papers covering the entire amount shown on the claim. After receiving relevant information from the **ENGINEER**, the **OWNER** shall take the claim under consideration, and may make such investigations as are deemed necessary, and shall be the sole judge as to the equitability of such claim and such decision shall be final. No provision of this article shall be construed as entitling the **CONTRACTOR** to compensation for delays due to inclement weather, delays due to failure for surety, for suspensions made at the request of the **CONTRACTOR**, or for any other delay provided for in the Specifications.

C. **OWNER** may at any time suspend the Work or any portion thereof without cause for a period of not more than ninety (90) days by notice in writing to **CONTRACTOR** and **ENGINEER** which shall fix the date on which Work shall be resumed. **CONTRACTOR** shall resume the Work on the date so fixed. **CONTRACTOR** will be allowed an increase in the Agreement Price or an extension of the Contract Time, or both, directly attributable to such suspension if it makes a claim therefore as provided in Parts 11 and 12.

15.02 OWNER MAY TERMINATE

A. Upon the occurrence of any one or more of the following events, **OWNER** may terminate the Agreement:

1. If **CONTRACTOR** is adjudged a bankrupt or insolvent,

2. If **CONTRACTOR** makes a general assignment for the benefit of creditors,

3. If a trustee or receiver is appointed for **CONTRACTOR** or for any of **CONTRACTOR**'s property,

4. If **CONTRACTOR** files a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or similar laws,

5. If **CONTRACTOR** repeatedly fails to supply sufficient skilled workmen or suitable materials or equipment,

6. If **CONTRACTOR** repeatedly fails to make prompt payments to Sub**CONTRACTOR**s for labor, materials or equipment,

7. If **CONTRACTOR** disregards laws, ordinances, rules, regulations or orders of any public body having jurisdiction,

8. If **CONTRACTOR** disregards the authority of **ENGINEER**,

9. Failure of the **CONTRACTOR** to start the Work on the date given in the Notice to Proceed,

10. Substantial evidence that progress being made by the **CONTRACTOR** is insufficient to complete the Work within the specified time,

11. Deliberate failure on the part of the **CONTRACTOR** to observe any requirement of these Specifications,

12. Failure of the **CONTRACTOR** to promptly make good any defects in materials or Work or any defects of any other nature, the correction of which has been directed in writing by the **ENGINEER**,

13. If **CONTRACTOR** fails to remedy any default under the Contract Documents within seven (7) days of receipt of Notice of such default from **OWNER**, or

14. If **CONTRACTOR** otherwise violates in any substantial way any provisions of the Contract Documents.

B. Before the Agreement is terminated, the **CONTRACTOR** and its Surety will first be notified in writing by the **ENGINEER** of the conditions which make termination of the Agreement imminent. Seven (7) days after this is given, if a satisfactory effort has not been made by the **CONTRACTOR** or its Surety to correct the conditions, the **OWNER** may declare the Agreement terminated and notify the **CONTRACTOR** and its Surety accordingly. Upon receipt of notice from the **OWNER** that the Agreement has been terminated, the **CONTRACTOR** shall immediately discontinue all operations. The **OWNER** may then proceed with the Work in any lawful manner that it may elect until it is finally completed. **OWNER** may exclude **CONTRACTOR** from the site and take possession of the Work and all **CONTRACTOR**'s tools, appliances, construction equipment and machinery at the site and use the same to the full extent they could be used by **CONTRACTOR** (without liability to **CONTRACTOR** for trespass or conversion), incorporate in the Work all materials and equipment stored at the site or for which **OWNER** has paid **CONTRACTOR** but which are stored elsewhere, and finish the Work as **OWNER** may deem expedient. In such case **CONTRACTOR** shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Agreement Price exceeds the direct and indirect costs of completing the Work, including compensation for additional professional services, including but not limited to fees and charges of **ENGINEER**s and attorneys and any court or arbitration costs, such excess shall be paid to the **CONTRACTOR**. If such costs exceed such unpaid balance, **CONTRACTOR** shall pay the difference to **OWNER**. Such costs incurred by **OWNER** shall be verified by **ENGINEER** and incorporated in a Change Order, but in finishing the Work, **OWNER** shall not be required to obtain the lowest figure for the Work performed.

C. Where **CONTRACTOR**'s services have been so terminated by **OWNER**, the termination shall not affect any rights of **OWNER** against **CONTRACTOR** then existing or which may thereafter accrue. Any retention or payment of moneys due **CONTRACTOR** by **OWNER** will not release **CONTRACTOR** from liability.

15.03 CONTRACTOR MAY STOP WORK OR TERMINATE

A. If, through no act or fault of **CONTRACTOR**, the Work is suspended for a period of more than ninety (90) days by **OWNER** or under an order of court or other public authority, or **ENGINEER** fails to act on any Application for Partial Payment within thirty (30) days after it is submitted, or **OWNER** fails

for forty-five (45) days to pay **CONTRACTOR** any sum finally determined to be due, then **CONTRACTOR** may, upon seven (7) days' written notice to **OWNER** and **ENGINEER**, terminate the Agreement and recover from **OWNER** payment for all Work executed and any expense sustained plus reasonable termination expenses. In addition and in lieu of terminating the Agreement, if **ENGINEER** has failed to act on an Application for Payment or **OWNER** has failed to make any payment as aforesaid, **CONTRACTOR** may upon seven (7) days' notice to **OWNER** and **ENGINEER** stop the Work until payment of all amounts then due. The provisions of this paragraph shall not relieve **CONTRACTOR** of its obligations under paragraph 21.01 C. to carry on the Work in accordance with the progress schedule and without delay during disputes and disagreements with **OWNER**.

15.04 OWNER MAY TERMINATE FOR CONVENIENCE

A. The **OWNER** may terminate the performance of Work under the Contract Documents in accordance with this section without cause and in the **OWNER**'s sole and absolute discretion. Such termination may be in whole, or from time to time, in part. Any such termination shall be effected by delivery of a written Notice of Termination to the **CONTRACTOR** specifying the extent to which performance of Work under the Contract Documents is terminated and the date upon which termination becomes effective.

B. After receipt of a Notice of Termination, and except as otherwise directed by the **OWNER**, the **CONTRACTOR** shall:

1. Stop Work under the Contract Documents on the date and to the extent specified in the Notice of Termination.

2. Place no further orders or subcontracts for materials, services, or facilities except as necessary to complete the portion of the Work under the Contract Documents which is not terminated.

3. Terminate all orders and subcontracts to the extent that they relate to the performance of Work terminated by the Notice of Termination.

4. Assign to the **OWNER**, in the manner, at the times, and to the extent directed by the **OWNER**, all of the right, title, and interest of the **CONTRACTOR** under the orders and subcontracts so terminated. The **OWNER** shall have the right, in its discretion, to settle or pay any or all claims arising out of the termination of such orders and subcontracts.

5. Settle all outstanding liabilities and all claims arising out of such termination of orders and subcontracts, with the approval or ratification of the **OWNER** to the extent it may require. Its approval or ratification shall be final for all purposes of this clause.

6. Transfer to the **OWNER**, and delivery in this manner, at the times, and to the extent, if any directed by the **OWNER**:

a. The fabricated or unfabricated parts, Work in process, completed Work, supplies, and other material produced as a part of, or acquired in connection with the performance of, the Work terminated by the Notice of Termination; and

b. The completed or partially completed plans, drawings, information, and other property which, if the Project had been completed would have been required to be furnished to the **OWNER**.

7. Use its best efforts to sell, in the manner, at the times, to the extent, and at the price or prices that the **OWNER** directs or authorizes, any property of the types referred to in Paragraph 15.04.B.6, but the **CONTRACTOR**:

a. shall not be required to extend credit to any purchaser; and

b. may acquire any such property under the conditions prescribed and at a price or prices approved by the **OWNER**. The proceeds of any such transfer or disposition shall be applied in reduction of any payments to be made by the **OWNER** to the **CONTRACTOR** under the Contract Documents or shall otherwise be credited to the Agreement Price or cost of the Work covered by the Contract Documents or paid in such other manner as the **OWNER** may direct.

8. Complete performance of such part of the Work as shall not have been terminated by the Notice of Termination.

9. Take such action as may be necessary, or as the **OWNER** may direct, for the protection and preservation of the property related to the Project which is in the possession of the **CONTRACTOR** and in which the **OWNER** has or may acquire an interest.

C. After receipt of a Notice of Termination, the **CONTRACTOR** shall submit to the **OWNER** its termination claim, in the form and with the certification the **OWNER** prescribes. Such claim shall be submitted promptly, but in no event later than sixty (60) days from the effective date of the termination, unless one or more extensions in writing are granted by the **OWNER** upon request of the **CONTRACTOR** made in writing within such one (1) year period or authorized extension. However, if the **OWNER** determines that the facts justify such action, it may receive and act upon any such termination claim at any time after such sixty (60) day period or extension. If the **CONTRACTOR** fails to submit its termination claim within the time allowed, the **OWNER** may determine, on the basis of information available to him, the amount, if any, due to **CONTRACTOR** because of the termination. The **OWNER** shall then pay to the **CONTRACTOR** the amount so determined.

D. Subject to the provisions of this paragraph, the **CONTRACTOR** and the **OWNER** may agree upon the whole or any part of the amount or amounts to be paid to the **CONTRACTOR** because of the total or partial termination of Work under this subsection. The amount or amounts may include a reasonable allowance for profit on Work done if acceptable to **OWNER**. However, such agreed amount or amounts, exclusive of settlement costs, shall not exceed the total Agreement Price as reduced by the amount of payments otherwise made and as further reduced by the Agreement Price of the portion of the Work not terminated. The Contract Documents shall be amended accordingly, and the **CONTRACTOR** shall be paid the agreed amount. Nothing in this paragraph prescribing the amount to be paid to the **CONTRACTOR** in the event of the failure of the **CONTRACTOR** and the **OWNER** to agree upon the whole amount to be paid to the **CONTRACTOR** because of termination of Work under this Section, shall be deemed to limit, restrict, or otherwise determine or affect the amount or amounts which may be agreed upon to be paid to the **CONTRACTOR** pursuant to this paragraph.

E. If the **CONTRACTOR** and the **OWNER** fail to agree on the whole amount to be paid to the **CONTRACTOR** because of the termination of Work under this section, the **OWNER** shall determine, on the basis of information available to him, the amount, if any, due to the **CONTRACTOR** by reason of the termination and shall pay the **CONTRACTOR** the amounts determined as follows:

1. For all Contract Work performed before the effective date of the Notice of Termination the total (without duplication of any items) of:

a. The cost of such Work.

b. The cost of settling and paying claims arising out of the termination of Work under subcontracts or orders as paragraph 15.04.B.3 above provides. This cost is exclusive of the amounts paid or payable on account of supplies or materials delivered or services furnished by the Sub**CONTRACTOR** before the effective date of the Notice of Termination. These amounts shall be included in the cost on account of which payment is made.

c. The reasonable cost of the preservation and protection of property incurred and any other reasonable costs incidental to termination of the Work under the Contract Documents, including expenses incidental to the determination of the amount due to the **CONTRACTOR** as a result of the termination of Work under the Contract Documents.

2. The total sum to be paid to the **CONTRACTOR** shall not exceed the total Agreement Price as reduced by the amount of payments otherwise made and as further reduced by the Agreement Price of Work not terminated. Except for normal spoilage, and except to the extent that the **OWNER** shall have otherwise expressly assumed the risk of loss, there shall be excluded from the amounts payable to the **CONTRACTOR** the fair value, as determined by the **OWNER**, of property to the extent that it is undeliverable to the **OWNER**, or to a Buyer under paragraph 15.04.B.7 of this Part 15. If the parties do not reach agreement under Paragraph 15.04.D and the **OWNER** utilizes this Paragraph 15.04.E, no allowance for profit shall be included in the calculation of the sum to be paid to **CONTRACTOR**.

F. The **CONTRACTOR** shall have the right to dispute under the Disputes provision hereof any determination the **OWNER** makes under this Part 15. But, if the **CONTRACTOR** has failed to submit its claim within the time provided in paragraph 15.04.C and has failed to request an extension of time, it shall have no such right of appeal. In any case where the **OWNER** has determined the amount due, the **OWNER** shall pay to the **CONTRACTOR** the following:

1. If there is no right of appeal hereunder or if no timely appeal has been made, the amounts so determined by the **OWNER**; or

2. If a dispute proceeding is initiated, the amount finally determined in such dispute proceeding.

G. In arriving at the amount due to the **CONTRACTOR** under this clause there shall be deducted:

1. All unliquidated advance or other payments on account therefore made to the **CONTRACTOR**, applicable to the terminated portion of the Work.

2. Any claim which the **OWNER** may have against the **CONTRACTOR** in connection with the Contract Documents.

3. The agreed price for, or the proceeds of sale of, any materials, supplies or other things kept by the **CONTRACTOR** or sold, under the provisions of this section, and not otherwise recovered by or credited to the **OWNER**.

H. If the termination hereunder is partial, before the settlement of the terminated portion of the Contract Documents, the **CONTRACTOR** may file with the **OWNER** or request in writing for an equitable adjustment of the price or prices specified in the Contract Documents relating to the continuing portion of the Work (the portion not terminated by the Notice of Termination). Such equitable adjustment as may be agreed upon shall be made in the price or prices. Nothing contained herein shall limit the right of the **OWNER** and the **CONTRACTOR** to agree upon the amount or amounts to be paid to the **CONTRACTOR** for the completion of the continued portion of the Work when the Contract Documents do not contain an established Price for the continued portion.

PART 16 MISCELLANEOUS

16.01 GIVING NOTICE

A. Whenever any provision of the Contract Documents requires the giving of written notice it shall be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

Notice may also be given by facsimile, providing the notice is also immediately sent by first class mail, except in those cases which require an original to confirm the validity of a signature or other element of the document.

16.02 COMPUTATION OF TIME

A. When any period of time is referred to in the Contract Documents by days, it shall be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day shall be omitted from the computation.

16.03 CORRECTION PERIOD

A. Nothing in the General Conditions concerning the correction period shall establish a period of limitation with respect to any other obligation which **CONTRACTOR** has under the Contract Documents. The establishment of time period relates only to the specific obligations under the Contract Documents which may be sought to be enforced, not to the time within which proceedings may be commenced to establish **CONTRACTOR**'s liability with respect to its obligations other than specifically to correct the Work.

16.04 GENERAL

A. Should **OWNER** or **CONTRACTOR** suffer injury or damage to its person or property because of any error, omission or act of the other party or of any of the other party's employees or agents or others for whose acts the other party is responsible, the injured party shall notify the other party within a reasonable time of the first observance of such injury or damage.

B. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto, and, in particular but without limitation, the warranties, guarantees and obligations imposed upon **CONTRACTOR** by paragraphs 5.05, 13.01.A, 13.06.A, 13.09.A, 14.03.A, and 15.02.A and all of the rights and remedies available to **OWNER** and **ENGINEER** under the Contract Documents, shall be in addition to, and shall not be construed in any way as a limitation of, any rights and remedies available to any of or all of them which are otherwise imposed or available by law or contract, by special warranty or guarantee, or by other provisions of the Contract Documents, and the provisions of this paragraph shall be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right and remedy to which they apply. All representations, warranties, and guarantees made in the Contract Documents shall survive final payment and termination or completion of this Agreement.

C. Should **OWNER** determine that **CONTRACTOR** is performing in such a fashion that **CONTRACTOR** will not complete the Project timely, **OWNER** shall give **CONTRACTOR** notice of **OWNER**'s determination and **CONTRACTOR** shall have fifteen (15) days from the issuance of **OWNER**'s notice within which to correct its performance and to furnish evidence satisfactory to **OWNER** that the Project will be completed timely. In the event that **CONTRACTOR** does not within said fifteen (15) days correct its performance and furnish evidence satisfactory to **OWNER** that the Project will be completed timely, **OWNER** shall have the right to remove the **CONTRACTOR** and retain a replacement **CONTRACTOR** to complete the Project. **OWNER** may thereupon withhold all payments to **CONTRACTOR** until the replacement **CONTRACTOR** has completed the Project and then determine what amounts, if any, are due **CONTRACTOR**.

PART 17 ADDRESSES

17.01 OWNER

A. **OWNER** is the District named in the Agreement acting through its duly authorized agents. All notices, letters and communications directed to **OWNER** shall be addressed and delivered to **OWNER** at the address indicated in the Agreement, with one (1) copy to **ENGINEER**.

17.02 ENGINEER

A. All duties and responsibilities assigned to **ENGINEER** in the Contract Documents, with the corresponding rights and authority will be assumed by the **ENGINEER** named in the Agreement and its duly authorized agents. All notices, letters and communication directed to **ENGINEER** shall be addressed and delivered to **ENGINEER** at the address indicated in the Agreement.

17.03 CONTRACTOR

A. The business addresses of **CONTRACTOR** given in the Bid Form and **CONTRACTOR**'s office at the site of the Work are hereby designated as the places to which all notices, letters, and other communication to **CONTRACTOR** will be delivered.

17.04 CHANGE OF ADDRESS

A. Either **OWNER**, **CONTRACTOR**, or **ENGINEER** may change its address at any time by an instrument in writing delivered to the other two.

PART 18 LIQUIDATED DAMAGES

A. Time is an essential condition of the Contract. In case the **CONTRACTOR** shall fail to fully perform and complete the Work in conformity to the provisions and conditions of the Contract Documents within the specified time limits set forth in Part 5 of the Agreement for such performance and completion or within such further time as, in accordance with the provisions of this Contract, shall be fixed or allowed for such performance and completion, the **CONTRACTOR** shall and will pay to the **OWNER** for each and every day of the additional time in excess of the specified time limits and any granted extension thereof, the sum set forth in Part 5 of the Agreement as liquidated damages and not as a penalty. The parties agree that **OWNER** will suffer loss and damage; however, due to the uncertainty and difficulty of measuring actual damages for every day the Work remains uncompleted and unfinished, the parties agree that said sum is a reasonable forecast of compensatory damages. The **OWNER** shall recover said damages by deducting the amount thereof out of any moneys which may be due or become due the **CONTRACTOR**, or by an action at law against the **CONTRACTOR** or its surety, or by either or both of these methods. Should the entire completion and final acceptance of the Work herein embraced, together with any modifications or additions, be delayed beyond the time herein set, it is understood and agreed that aside from any other penalty or damage, all costs of the **ENGINEER**ing, observation and inspection on behalf of the **OWNER** which are incurred after the specified time limits have elapsed may be charged to the **CONTRACTOR** and be deducted from any estimate or payment otherwise due and payable to him.

B. In case of joint responsibility for delay in the final completion of the Work, where two or more separate contracts are in force at the same time and cover work at the same site, liquidated damages assessed against any one **CONTRACTOR** for the delay shall be determined by, and in the judgment of, **ENGINEER**.

PART 19 EXISTING UNDERGROUND INSTALLATIONS

A. Existing underground installations such as water lines, gas lines, sewers, telephone lines, power lines, or similar concealed structures in the vicinity of the Work are indicated on the Drawings only to the extent such information was made available to or discovered by **ENGINEER** in preparing the Drawings. There is no guarantee as to the accuracy or completeness of such information, and all responsibility for the accuracy and completeness thereof is expressly disclaimed. Generally, service connections are not indicated on the Drawings.

B. **CONTRACTOR** shall be solely responsible for locating all existing underground installations, including service connections, in advance of excavating or trenching, by contacting the **OWNER**s thereof and prospecting. **CONTRACTOR** shall use its own information and shall not rely upon any information indicated on the Drawings concerning existing underground installations.

C. The General Conditions provisions regarding Unforeseen Physical Conditions do not apply to the existing underground installations indicated in the preceding paragraphs. Any delay, additional Work, or extra cost to **CONTRACTOR** caused by underground existing installations shall not constitute a claim for extra Work, additional payment, or damages.

PART 20 STREAMLINED SPECIFICATIONS

A. These Specifications are written in the streamlined or declarative style, utilizing incomplete sentences. Omissions of such words and phrases "The **CONTRACTOR** shall," "in conformity therewith," "shall be," "as shown on the Drawings," "a," "an," "the," and "all" are intentional in streamlined sections. Omitted words shall be supplied by inference in the same manner as when a note appears on the Drawings. The omission of such words shall not relieve the **CONTRACTOR** from providing all items and work described herein or indicated on the Drawings.

PART 21 HANDLING OF DISPUTES

21.01 DISPUTES

A. Any claim, dispute, or other matter in question between the **CONTRACTOR** and the **OWNER** and relating to the acceptability of the Work or the interpretation of the Contract Documents pertaining to the execution and progress of the Work shall be referred initially to **ENGINEER**, as specified in Section 9.06. Any such claim for which **ENGINEER** has rendered a decision, or any other claim between the **OWNER** and **CONTRACTOR**, may be submitted to alternative dispute resolution, including arbitration or mediation, or any other dispute resolution process, excluding litigation, upon the mutual consent of the parties. The parties shall determine whether any such arbitration shall be binding or non-binding. Neither party shall be compelled to participate in any alternative dispute resolution process and nothing in this paragraph shall preclude either party from pursuing any legal remedy available to it, subject to the conditions of Paragraph 9.06.B of the **OWNER-CONTRACTOR** Agreement.

B. If the parties agree to submit a claim, dispute, or other matter to arbitration, the Construction Industry Arbitration rules of the American Arbitration Association then obtaining shall be used, unless the parties mutually agree otherwise. An award rendered by an arbitrator or arbitrators in a binding arbitration shall be final and binding on all parties to the extent and in the manner provided by the Colorado Rules of Civil Procedure. All awards may be filed with the clerk of one or more courts, State or Federal, having jurisdiction over the party or parties against whom such award is rendered or its property, as a basis of judgment and of the issuance of execution for its collection.

C. The **CONTRACTOR** shall continue to perform the Work and adhere to the **CONTRACTOR**'s construction schedule during all disputes or disagreements with the **OWNER**. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as **CONTRACTOR** and **OWNER** may otherwise agree in writing.

21.02 DISPUTES WITH THIRD PARTIES

A. All disputes which involve parties in addition to the **OWNER**, **ENGINEER** and **CONTRACTOR** shall not be the subject of arbitration, except by the mutual consent of all of the parties involved in the dispute.

B. **ENGINEER** shall not be deemed or considered a third party beneficiary of the Agreement or Contract Documents, nor a party thereto.

PART 22 DUTIES, RESPONSIBILITIES, AND LIMITATIONS OF THE AUTHORITY OF THE OWNER'S REPRESENTATIVE

22.01 DESCRIPTION

A. The **OWNER**'s Representative, if any, is the **OWNER**'s agent and shall act as directed by and under the supervision of **OWNER**. It shall confer with **OWNER** regarding its actions. Its dealings in matters pertaining to the on-site work will in general be only with **ENGINEER** and **CONTRACTOR**. Its dealings with Sub**CONTRACTOR**s will only be through **CONTRACTOR** or its superintendent.

22.02 DUTIES AND RESPONSIBILITIES

A. CONFERENCES:

1. Attend Preconstruction Conferences and regular project meetings. Arrange a schedule of progress meetings and other job conferences as required and notify in advance those expected to attend. Conduct meetings and maintain and circulate copies of minutes thereof.

B. LIAISON:

1. Serve as **OWNER**'s liaison with **CONTRACTOR** and **ENGINEER**, working to help expedite the project to assure the scheduling requirements are met.

C. MODIFICATIONS:

1. Consider **CONTRACTOR**'s suggestions for modifications in Drawings or Specifications and report them with recommendations to **ENGINEER**.

D. REPORTS:

1. Furnish **OWNER** with periodic reports of progress of work and of **CONTRACTOR**'s compliance with the approved progress schedule, schedule of Shop Drawing submissions and other schedules.

2. Consult with **OWNER** in advance of scheduled major tests, inspections, or start of important phases of work.

E. PAYMENT REQUISITIONS:

1. In cooperation with **ENGINEER**, review Application for Payment with the **CONTRACTOR** for compliance with the established procedure for its submission and forward it with recommendation to the **OWNER** for payment.

22.03 LIMITATIONS OF AUTHORITY

A. **OWNER**'s Representative shall be limited in authority except upon written instructions of **OWNER** as follows:

1. Shall not authorize any deviation from the Contract Documents or approve any substitute materials or equipment, modifications or Change Orders.

2. Shall not undertake any of the responsibilities of **CONTRACTOR**, Sub**CONTRACTOR** or **CONTRACTOR**'s superintendent.

3. Shall not advise on or issue directions as to safety precautions and programs in connection with the Work.

END OF SECTION

SECTION 00810

SUPPLEMENTARY CONDITIONS

(Modifications to General Conditions)

PART 1 - GENERAL

1.01 DESCRIPTION

These Supplemental Conditions amend or supplement the Standard General Conditions of the Construction Contract (Section 00700) and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

1.02 AMENDMENTS

The modifications to the General Conditions are as follows:

Part 1 -- Definitions

A. Add the following definitions:

1. Add -- to include in the paragraph, subparagraph or article specifically named and at the place specifically stated that which immediately follows.

2. Amend -- To delete the paragraph, subparagraph or article specifically named and insert in its place that which immediately follows.

3. Bad Weather Day -- A day in which work was suspended for more than four (4) hours during a normal working day because weather conditions limited work.

B. Add the following to existing definitions:

1. Substantial Completion -- The work will be considered substantially complete when all work specified as part of the contract documents is functionally, complete, all tests have been performed, and the project is ready for use by the **OWNER**.

Part 2 -- Preliminary Matters

A. Delete paragraph 2.02 in its entirety and replace with the following:

The **CONTRACTOR** will be furnished without charge up to six (6) copies of the project specifications and six (6) copies of the drawings. The **CONTRACTOR** shall keep at least one copy of all specifications and plans at the job site at all times.

Additional copies of such drawings and specifications in excess of the number furnished without charge may be obtained from the **ENGINEER** for the cost of printing.

Part 3 -- Contract Documents: Intent and Reuse

A. Delete paragraph 3.01.B. in its entirety and replace with the following:

B. The Contract Documents are complementary; what is called for by one is as binding as if called for by all. Any discrepancies between the Drawings and Specifications and site conditions or any inconsistencies or ambiguities in the Drawings and Specifications shall be immediately reported to the **ENGINEER** in writing, who shall promptly correct such inconsistencies or ambiguities in writing. Work done by the **CONTRACTOR** after his discovery of such discrepancies, inconsistencies or ambiguities shall be done at the **CONTRACTOR's** risk if done prior to receipt of the **ENGINEER's** corrections.

B. Add the following as a new paragraph 3.01.F.:

F. In case of conflict between the drawings and contract Technical Specifications, the drawings shall govern. Figure dimensions on drawings shall govern over scale dimensions, and detailed drawings shall govern over general drawings. Project specifications shall govern over **OWNER**'s engineering specifications.

Part 4 -- Availability of Lands; Physical Conditions; Reference Points:

A. Add the following as a new paragraph 4.01.B.:

B. The **CONTRACTOR** shall not enter upon private property for any purpose without first obtaining permission, and he shall be responsible for the preservation of all public and private property, trees, fences, monuments, underground structures, etc. on and adjacent to the site and shall use every precaution necessary to prevent damage or injury thereto. He shall protect carefully from disturbance or damage, all land monuments and property corners until an authorized agent has witnessed or otherwise referenced their location, and shall not remove them until directed. He shall be responsible for all damage or injury to property of any character resulting from any act, omission, neglect or misconduct in his or any subcontractor's manner, or method of executing said Work, due to this or any subcontractor's non-execution of said Work, or at any time due to defective work or materials, and said responsibility shall not be released until the Work shall have been completed and warranty period expired.

B. Add the following to the end of paragraph 4.02.A.:

All utility locations shown on the plans are approximate and represent the **ENGINEER's** best efforts with the information given to the **ENGINEER**. **CONTRACTOR** should check with all utility companies prior to bidding. **CONTRACTOR** shall call for field location of all utilities prior to construction.

C. Add the following to the end of paragraph 4.03.A.:

If the cost to remedy such subsurface or latent physical conditions exceed the amount appropriated for this project, the **OWNER** retains the right, after giving **CONTRACTOR** seven days written notice, to terminate the Agreement. In such case, **CONTRACTOR** shall be paid for all Work executed and any expense sustained plus reasonable termination expenses.

D. Add the following to paragraph 4.04.A.:

Professionally qualified personnel means a Professional Land Surveyor registered in the State of Colorado. The P.L.S. is to provide stamped documentation of the replacement or relocation at the **CONTRACTOR's** expense.

Part 5 -- Bonds and Insurance:

A. In accordance with Part 5 of the General Conditions, the **CONTRACTOR** shall provide the following coverages and shall submit satisfactory documentation of such to the **OWNER** prior to commencing work at the site. All provisions of Part 5 of the General Conditions not amended by the following remain in full force and effect.

1. Worker's Compensation and Employers Liability: The **CONTRACTOR** shall be protected from all claims by employees which for any reason may not fall within the provisions of a workmen's compensation law. The limits of liability shall be not less than:

Workmen's' Compensation:	Statutory
Employers' Liability:	$100,000 per person

2. Comprehensive General Liability: The **CONTRACTOR** shall provide comprehensive general liability insurance which shall include protection against claims insured by usual personal injury liability coverage, an "all states" endorsement to insure the contractual liability assumed by **CONTRACTOR** under the indemnification provisions of the General Conditions. The **CONTRACTOR** shall also provide "Completed Operations and Products Liability" coverage for a period of not less than two years after the final payment. To the degree that the **CONTRACTOR's** Work or Work under his direction may include blasting, explosive conditions

or underground operations, the comprehensive general liability shall not exclude blasting, explosion, collapse of buildings or damage to underground property. Such liability limits shall not be less than:

Bodily Injury:	$1,000,000.00 each person $1,000,000.00 each occurrence
Property Damage:	$1,000,000.00 each occurrence $1,000,000.00 aggregate

3. Comprehensive Automobile Liability: **CONTRACTOR** shall provide comprehensive protection against all claims for injuries to members of the public and damage to property of others arising from the use of motor vehicles. The policy shall cover operation on or off the site of all vehicles licensed for highway use, whether they are owned, non-owned or hired. The liability limits shall not be less than:

Bodily Injury:	$1,000,000.00 each person $1,000,000.00 each occurrence
Property Damage:	$1,000,000.00 each occurrence $1,000,000.00 aggregate

4. Additional Coverages: The CONTRACTOR shall provide any additional coverages required by outside agencies such as railroads which may be above and over coverages required by the OWNER and shall submit satisfactory documentation of such to the OWNER prior to commencing work at the site.

Part 6 -- **CONTRACTOR's** Responsibilities:

A. Add the following to the end of paragraph 6.02.A.:

Regular working hours shall be defined as the daytime hours, Monday thru Friday, between 6:30 a.m. and 5:30 p.m. Mountain Standard Time.

B. Add the following as a new paragraph 6.01.F.:

F. The **CONTRACTOR** and subcontractor must hold a valid Contractor's License in the applicable jurisdictions. No substitutions will be accepted.

C. Add the following as a new paragraph 6.13.L.:

L. Record or as-built drawings shall be submitted to and approved by **ENGINEER** prior to the **CONTRACTOR**'s application for final payment. Drawings and documents shall be in the form as described in the Technical Specifications to the Contract.

Part 9 -- **ENGINEER's** Status During Construction:

A. Add the following as section 9.05:

9.05 RESIDENT PROJECT REPRESENTATIVE

A. General:

ENGINEER shall furnish a Resident Project Representative (RPR), assistants and other field staff to assist **ENGINEER** in observing performance of the work of **CONTRACTOR**.

Through more extensive on-site observations of the work in progress and field checks of materials and equipment by the RPR and assistants, **ENGINEER** shall take reasonable measures to provide further protection for **OWNER** against defects and deficiencies in the work of **CONTRACTOR**; but, the furnishing of such services will not make **ENGINEER** responsible for or give **ENGINEER** control over construction means, methods, techniques, sequences, or procedures or for safety precautions or programs, or responsibility for **CONTRACTOR's** failure to perform the Work in accordance with the Contract Documents and in particular the specific limitations set forth in paragraph 1.6 of the Agreement are applicable.

The duties and responsibilities of the RPR are limited to those of **ENGINEER** in **ENGINEER's** agreement with the **OWNER** and in the construction Contract Documents, and are further limited and described as follows:

1. RPR is **ENGINEER's** agent at the site, will act as directed by and under the supervision of **ENGINEER**, and will confer with **ENGINEER** regarding RPR's actions. RPR's dealings in matters pertaining to the on-site work shall in general be with **ENGINEER** and **CONTRACTOR** keeping **OWNER** advised as necessary. RPR's dealings with subcontractors shall only be through or with the full knowledge and approval of **CONTRACTOR**. RPR shall generally communicate with **OWNER** with the knowledge of and under the direction of **ENGINEER**.

B. Duties and Responsibilities of RPR:

1. Schedules: Review the progress schedule, schedule of Shop Drawing submittals and schedule of values prepared by **CONTRACTOR** and consult with **ENGINEER** concerning acceptability.

2. Conferences and Meetings: Attend meetings with **CONTRACTOR**, such as preconstruction conferences, progress meetings, job conferences, and other project-related meetings, and prepare and circulate copies of minutes thereof.

3. Liaison:

   a. Serve as **ENGINEER's** liaison with **CONTRACTOR**, working principally through **CONTRACTOR's** superintendent and assist in understanding the intent of the Contract Documents; and assist **ENGINEER** in serving as **OWNER's** liaison with **CONTRACTOR** when **CONTRACTOR's** operations affect **OWNER's** on-site operations.

   b. Assist in obtaining from **OWNER** additional details or information, when required for proper execution of the Work.

4. Shop Drawings and Samples:

   a. Record date of receipt of Shop Drawings and samples.

   b. Receive samples which are furnished at the site by **CONTRACTOR**, and notify **ENGINEER** of availability of samples for examination.

   c. Advise **ENGINEER** and **CONTRACTOR** of the commencement of any Work requiring a Shop Drawing of sample if the submittal has not been approved by **ENGINEER**.

5. Review of Work, Rejection of Defective Work, Inspections, and Tests:

   a. Conduct on-site observations of the Work in progress to assist **ENGINEER** in determining if the Work is in general proceeding in accordance with the Contract Documents.

   b. Report to **ENGINEER** whenever RPR believes that any Work is unsatisfactory, faulty or defective or does not conform to the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise **ENGINEER** of Work that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.

   c. Verify that tests, equipment and systems startups and operating and maintenance training are conducted in the presence of appropriate personnel and that **CONTRACTOR** maintains adequate records thereof; and observe, record and report to **ENGINEER** appropriate details relative to the test procedures and startups.

   d. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the results of these inspections and report to **ENGINEER**.

6. Interpretation of Contract Documents: Report to **ENGINEER** when clarifications and interpretations of the Contract Documents are needed and transmit to **CONTRACTOR** clarifications and interpretations as issued by **ENGINEER**.

7. Modifications: Consider and evaluate **CONTRACTOR's** suggestions for modifications in drawings or specifications and report with RPR's recommendations to **ENGINEER**. Transmit to **CONTRACTOR** and **OWNER** decisions as determined by the **ENGINEER** or the Partnering Team.

8. Records:

   a. Maintain orderly files for correspondence, reports of job conferences, Shop Drawings and samples, reproductions of original Contract Documents including all Work Directive Changes, Addenda, Change Orders, Field Orders, additional Drawings issued subsequent to the execution of the Contract, **ENGINEER's** clarifications and interpretations of the Contract Documents, progress reports, and other Project related documents.

   b. Keep a diary or log book, recording **CONTRACTOR** hours on the job site, weather conditions, data relative to questions of Work Directive Changes, Change Order or changed conditions, list of job site visitors, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to **ENGINEER**.

   c. Record names, addresses and telephone numbers of all **CONTRACTORS**, subcontractors and major suppliers of materials and equipment.

9. Reports:

   a. Furnish **ENGINEER** periodic reports as required of progress of the Work and of **CONTRACTOR's** compliance with the progress schedule and schedule of Shop Drawing and sample submittals.

   b. Consult with **ENGINEER** in advance of scheduled major tests, inspections or start of important phases of the Work.

   c. Draft proposed Change Orders and Work Directive Changes, obtaining backup material from **CONTRACTOR** and recommend to **ENGINEER** Change Orders, Work Directive Changes, and Field Orders.

   d. Report immediately to **ENGINEER** and **OWNER** upon the occurrence of any accident.

10. Payment Requests: Review applications for payment with **CONTRACTOR** for compliance with the established procedure for their submission and forward with recommendations to **ENGINEER**, noting particularly the relationship of the payment requested to the schedule of values, Work completed and materials and equipment delivered at the site but not incorporated in the Work.

11. Certificates, Maintenance and Operation Manuals: During the course of the Work, verify that certificates, maintenance and operation manuals and other data required to be assembled and furnished by **CONTRACTOR** are applicable to the items actually installed and in accordance with the Contract Documents, and have this material delivered to **ENGINEER** for review and forwarding to **OWNER** prior to final payment for the Work.

12. Completion:

   a. Before **ENGINEER** issues a Certificate of Substantial Completion, submit to **CONTRACTOR** a list of observed items requiring completion or correction.

   b. Conduct final inspection in the company of **ENGINEER**, **OWNER** and **CONTRACTOR** and prepare a final list of items to be completed or corrected.

c. Observe that all items on final list have been completed or corrected and make recommendations to **ENGINEER** concerning acceptance.

C. Limitations of Authority:

Resident Project Representative:

1. Shall not authorize any deviation from the Contract Documents or substitution of materials or equipment, unless authorized by **ENGINEER**.
2. Shall not exceed limitations of **ENGINEER's** authority as set forth in the Agreement or the Contract Documents.
3. Shall not undertake any of the responsibilities of **CONTRACTOR**, subcontractors or **CONTRACTOR's** superintendent.
4. Shall not advise on, issue directions relative to or assume control over any aspect of the means, methods, techniques, sequences, or procedures of construction unless such advice or directions are specifically required by the Contract Documents.
5. Shall not advise on, issue directions regarding or assume control over safety precautions and programs in connection with the Work.
6. Shall not accept Shop Drawing or sample submittals from anyone other than **CONTRACTOR**.
7. Shall not authorize **OWNER** to occupy the Project in whole or in part.
8. Shall not participate in specialized field or laboratory tests or inspections conducted by others except as specifically authorized by **ENGINEER**.

B. Delete paragraph 9.06.B in its entirety.

Part 10 -- Changes in the Work:

A. Delete paragraph 10.01.A. in its entirety and replace with the following:

A. Without invalidating the Agreement, **OWNER** may, at any time or from time to time, order additions, deletions, or revisions in the Work; these will be authorized by Field Orders or Change Orders. Upon receipt of a Field Order or Change Order, **CONTRACTOR** shall proceed with the Work involved. All such Work shall be executed under the applicable conditions of the Contract Documents. If any Change Order causes an increase or decrease in the Agreement Price or an extension or shortening of the Contract Time, an adjustment may be made as provided in Part 11 or Part 12.

Part 11 -- Change of Agreement Price:

A. In accordance with Part 11 of the General Conditions, the Agreement Price may be changed by a Change Order duly signed and approved by the **CONTRACTOR** and **OWNER**. All provisions of Part 11 of the General Conditions not amended by the following remain in full force and effect.

1. It is the intent of the Contract Documents that all payment for services of the **CONTRACTOR** shall be based on the Contract prices, except as modified by Change Order. No work shall be performed by the **CONTRACTOR** for which he intends to request a change in the Contract Price until such time as a Change Order has been executed for the work, unless an emergency condition exists requiring the **CONTRACTOR** to perform such work prior to execution of a Change Order. If such an emergency condition exists, then the **CONTRACTOR** shall keep accurate records of all labor, materials and equipment employed on such emergency work. A representative of the **ENGINEER** or **OWNER** shall validate all records of such work as near the time of the emergency work as possible. If an emergency condition exists the contractor should notify the **ENGINEER** and **OWNER** as quickly as practical of the condition and the work being performed.

2. If the **CONTRACTOR** is required by the **ENGINEER** or **OWNER** to perform work for which the **CONTRACTOR** feels additional compensation is due but a Change Order is not executed, then the **CONTRACTOR** shall formally notify the **ENGINEER** in writing of such prior to commencing the work and shall keep accurate records of all labor, materials and equipment employed for such work. All records shall be validated by a representative of the **ENGINEER** or **OWNER** as the work in question proceeds. The decision as to the validity of such additional compensation shall be accomplished in accordance with Section 11 of the General Conditions.

3. A fully executed Change Order represents full and final settlement for all costs (including all impact costs) and time relating to the work included in the change order. The following language shall be typed on the face of each Change Order:

   THIS CHANGE ORDER CONSTITUTES FULL AND FINAL SETTLEMENT FOR ALL COSTS AND TIME ASSOCIATED WITH THE WORK DESCRIBED HEREIN. COSTS ARE DEFINED TO INCLUDE ALL DIRECT AND INDIRECT LABOR COSTS RELATED TO, AND/OR OCCASIONED BY THE WORK DESCRIBED HEREIN; ALL MATERIAL AND EQUIPMENT COSTS RELATED HERETO; ANY AND ALL IMPACT COSTS RELATED TO AND/OR OCCASIONED BY THE PERFORMANCE OF THIS WORK; AS WELL AS ALL APPLICABLE TAXES, INSURANCE, BONDS, AND PROFIT. ALL OTHER TERMS AND CONDITIONS OF THIS CONTRACT REMAIN IN FULL FORCE AND EFFECT.

4. The Contract Documents are subject to Section 24-91-103.6, C.R.S., and in accordance therewith:

   a. **OWNER** shall not issue any Change Order or other directive (other than a clarification) requiring additional compensable Work to be performed that will cause the aggregate amount payable under the Agreement to exceed the amount appropriated for the original Agreement Price and any subsequent appropriations, unless: (1) **CONTRACTOR** is given written assurance by **OWNER** that lawful appropriations to cover the costs of the additional Work have been made and are available prior to performance of the additional Work; or (2) the additional Work is covered by the following remedy-granting provision: **CONTRACTOR** may request, in writing, a letter from **OWNER** explaining the expected sources of funding for the additional Work. In the event **OWNER** does not provide such written assurance reasonably satisfactory to **CONTRACTOR** within five (5) days of **CONTRACTOR**'s request, **CONTRACTOR** may stop Work until such time as **OWNER** provides satisfactory assurances. **CONTRACTOR**'s acceptance of a Change Order in accordance with any assurances provided under this Paragraph shall not limit or restrict **CONTRACTOR** from making a Claim under the Contract Documents for an adjustment in the Agreement Price or Contract Times or otherwise for expenses or damages directly attributable to **CONTRACTOR**'s stoppage of the Work as permitted hereunder.

   b. For any Change Order or other directive (other than a clarification) that requires additional compensable Work to be performed, **OWNER** shall reimburse **CONTRACTOR** for **CONTRACTOR**'s costs on the periodic basis set forth in the Contract Documents for all additional directed Work performed until the Change Order is finalized. In no instance shall the periodic reimbursement be required before **CONTRACTOR** has submitted an estimate of cost to **OWNER** for the additional compensable Work to be performed.

   c. If the Work is financed in whole or in part by a federal grant, any provision of this Part 11 that is in conflict with the terms of such grant shall be inapplicable.

Part 12 -- Contract Time and Changes:

A. Delete the last two sentences of paragraph 12.02.A.

B. Add the following to the end of paragraph 12.02.B.:

   Extension of Contract Time due to bad weather days will be considered only when the total number of such days exceeds ten (10) percent of the Contract Time.

Part 13 -- Warranty and Guarantee; Tests and Inspections; Correction, Removal or Acceptance of Defective Work:

A. Add the following as a new paragraph 13.01.B.:

B. A two (2) year warranty correction period will be required of the **CONTRACTOR** after the date of initial acceptance. The effective start date of the two year warranty period is the date that **OWNER** accepts improvements for the required warranty period. (See General Conditions paragraph 14.10.A)

B. Add the following to the end of paragraph 13.03.A.:

CONTRACTOR is to give **ENGINEER** twenty-four (24) hours notice prior to all required tests and inspections. In the event or rescheduling of the test or inspection, it is the **CONTRACTOR's** responsibility to notify the **ENGINEER** as to the reason for the rescheduling and the rescheduled time.

C. The reference to 10% in the last sentence of paragraph 13.07.A. shall be changed to 15%.

Part 15 -- Suspension of Work and Termination:

A. Delete the last sentence of paragraph 15.01.C. and replace with the following:

CONTRACTOR may be allowed an increase in the Agreement Price or an extension of the Contract Time, or both, directly attributable to such suspension if it makes a claim therefore as provided in Parts 11 and 12 which is duly approved by **OWNER**.

B. Delete the following language from paragraph 15.03.A.: "plus reasonable termination expenses".

Part 16 -- Miscellaneous:

A. Add the following new paragraphs:

16.05 The **CONTRACTOR** agrees to comply, and require all subcontractors to comply, with all provisions of the Colorado Anti-discrimination Act of 1957, as amended, C.R.S., Section 24-34-301 to 308, as amended, and all provisions of any other federal or state statute regarding equal employment opportunity in the performance of this Contract, including Executive Order 11246, as amended.

16.06 ILLEGAL ALIENS

A. Pursuant to the requirements established by §§ 8-17.5-101, *et seq.*, C.R.S.:

1. Contractor acknowledges that, prior to executing the Agreement, Contractor has certified that it does not knowingly employ or contract with an illegal alien to perform work under the Agreement and that the Contractor has participated in the E-Verify Program (formerly known as the Basic Pilot Program[1]) (the "E-Verify Program") or the Colorado Department of Labor and Employment (the "Department") program established by § 8-17.5-102(5)(c), C.R.S. (the "Department Program") in order to confirm the employment eligibility of all employees who are newly hired for employment to perform work under the Agreement.

2. Contractor shall not:

   (a) Knowingly employ or contract with an illegal alien to perform work under the Agreement; or

   (b) Enter into a contract with a subcontractor who fails to certify to the Contractor that the subcontractor shall not knowingly employ or contract with an illegal alien to perform work under the Agreement.

[1] "Basic Pilot Program" is described in § 8-17.5-101(1), C.R.S., as amended, and further defined as the Basic Pilot Employment Verification Program created in Public Law 208, 104th Congress, as amended, and expanded in Public Law 156, 108th Congress, as amended, that is administered by the United States Department of Homeland Security.

3. The Contractor has confirmed the employment eligibility of all employees who are newly hired for employment to perform work under the Agreement through participation in the E-Verify Program or the Department Program.

   (a) In the event the Contractor uses the Department Program for the employment verification described herein, the Contractor shall comply with the requirements mandated by § 8-17.5-102(5)(c), C.R.S. including:

      i. The Contractor shall comply with the provisions of § 8-17.5-102(5)(c), C.R.S.; and

      ii. Contractor shall notify the Owner of its determination to participate in the Department Program, and

      iii. The Contractor must, within twenty days after hiring an employee who is newly hired to perform work under the Agreement, affirm that the Contractor has examined the legal work status of the employee, retained file copies of the documents required by 8 U.S.C. § 1324a and not altered or falsified the identification documents for the employee, and the Contractor must provide a written, notarized copy of the affirmation of compliance with § 8-17.5-102(5)(c), C.R.S. to the Owner.

      iv. The Contractor shall indemnify and hold harmless the Owner, its directors, officials, agents and employees, from and against any and all claims, demands, suits, actions, proceedings, judgments, losses, damages, injuries, penalties, costs, expenses (including attorney's fees) and liabilities of, by or with respect to third parties, arising from the Contractor's failure to comply with the provisions of the Department Program and §§ 8-17.5-102(5)(c), C.R.S., arising under this Section or in any way related to performance hereof. The obligations of this indemnification shall survive the termination or expiration of this Section and the Agreement.

4. Contractor is prohibited from using E-Verify Program or the Department Program procedures to undertake pre-employment screening of job applicants while the Agreement is in effect.

5. If the Contractor obtains actual knowledge that a subcontractor performing work under the Agreement knowingly employs or contracts with an illegal alien, the Contractor shall:

   (a) Notify the subcontractor and the Owner within three days that the Contractor has actual knowledge that the subcontractor is employing or contracting with an illegal alien; and

   (b) Terminate the subcontract with the subcontractor if within three days of receiving the notice the subcontractor does not stop employing or contracting with the illegal alien; except that the Contractor shall not terminate the contract with the subcontractor if during such three days the subcontractor provides information to establish that the subcontractor has not knowingly employed or contracted with an illegal alien.

6. Contractor shall comply with any reasonable request by the Department made in the course of an investigation that the Department is undertaking, pursuant to the law.

7. If the Contractor violates any of the provisions under this Section, the Owner may terminate the Agreement for breach of contract. The Contractor shall be liable for actual and consequential damages to the Owner.

END OF SECTION

SECTION 01010

SUMMARY OF WORK

PART 1 - GENERAL

1.01 WORK COVERED BY THE CONTRACT DOCUMENTS

The proposed Jimmy Camp Lift Station Force Main Extension project will extend the existing force main pipeline to the Owner's wastewater treatment facility.

1.02 SUBSURFACE INFORMATION

A. A geotechnical investigation is available for the pipeline alignment. The report is included in the Appendix A of the Construction Specifications.

1.03 SEQUENCE OF WORK

A. The **CONTRACTOR** shall coordinate his efforts with the **OWNER** so as to minimize disruption of existing service and inconvenience to adjacent property owners.

1. Refer to Section 01014 for the Construction Sequence.

B. Procedures and methods other than those specified will be considered by **ENGINEER** and **OWNER**, provided they afford equivalent continuity of operations.

C. Inspection by Public Agencies

Authorized representatives of the **Widefield Water and Sanitation District** shall have access to the work wherever it is in preparation or progress.

D. It will be the **CONTRACTOR's** responsibility to schedule and sequence his activities so as to best meet environmental conditions imposed by winter weather.

1.04 CONTRACTOR'S RESPONSIBILITIES

A. Supervision - The **CONTRACTOR** will supervise and direct the work. He will be solely responsible for the means and methods, techniques, and procedures of construction. The **CONTRACTOR** will employ and maintain on the work a qualified Supervisor or Superintendent who shall have been designated in writing by the **CONTRACTOR** and the **CONTRACTOR's** representative at the site. The Supervisor shall have full authority to act on behalf of the **CONTRACTOR**, and all communications given to the Supervisor shall be as binding as if given to the **CONTRACTOR**. The Supervisor shall be present on the site at all times as required to perform adequate supervision and coordination of the work. The Supervisor shall not be changed except with the consent of the **ENGINEER**, unless the Supervisor has proven to be unsatisfactory to the **CONTRACTOR** and ceases to be in his employ.

B. Subcontracting:

1. The **CONTRACTOR** may utilize the services of specialty Subcontractors on those parts of the work which, under normal contracting practices, are performed by specialty Subcontractors.

2. The **CONTRACTOR** shall not award work to Subcontractor(s) in excess of fifty (50%) percent of the Contract Price without prior written approval of the **OWNER**.

3. The **CONTRACTOR** shall be fully responsible to the **OWNER** for the acts and omissions of his Subcontractors, and or persons either directly or indirectly employed by them, as he is for the acts of persons directly employed by him.

4. The **CONTRACTOR** shall cause appropriate provisions to be inserted in all Subcontracts relative to the work to bind Subcontractors to the **CONTRACTOR** insofar as applicable to the work of Subcontractors and to give the **CONTRACTOR** the same power as regards terminating any subcontract that the **OWNER** may exercise over the **CONTRACTOR** under any provision of the Contract Documents.

5. Nothing contained in this Contract shall create any contractual relations between any Subcontractor and the **OWNER**.

C. Safety and Protection

1. **CONTRACTOR** shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the work. **CONTRACTOR** shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

-- All employees on the work and other persons who may be affected thereby;

-- All the work and all materials or equipment to be incorporated therein, whether in storage on or off the site; and

-- Other property at the site or adjacent thereto, including, but not limited to trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation or replacement in the course of construction.

2. **CONTRACTOR** shall comply with all applicable laws, ordinances, rules, regulations, and orders of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection.

D. Contractor's Use of Premises

1. **OWNER** controls all lands upon which the work is to take place. The **CONTRACTOR** shall not enter upon private property for any purpose without first obtaining permission, and he shall be responsible for the preservation of all public and private property, trees, fences, monuments, underground structures, etc., on and adjacent to the site and shall use every precaution necessary to prevent damage or injury thereto. He shall protect carefully from disturbance or damage, all land monuments and property corners until an authorized agent has witnessed or otherwise referenced their location, and shall not remove them until directed. He shall be responsible for all damage or injury to property of any character resulting from any act, omission, neglect or misconduct in his or any Subcontractor's manner, or method or executing said work, due to this or any Subcontractor's non-execution of said work, or at any time due to defective work or materials, and said responsibility shall not be released until the work shall have been completed and warranty period expired.

2. Necessary sanitary conveniences for the use of laborers shall be properly secluded from public observation, shall be erected and maintained by the **CONTRACTOR** at such points acceptable to the **ENGINEER**.

1.05 CONSTRUCTION OBSERVATION

A. The **OWNER** and **ENGINEER** will supply construction observation services as described in the Supplementary Conditions. Observation will be provided at no additional cost to the **CONTRACTOR** between the hours of 8:00 a.m. and 5:00 p.m. (or such hours as previously agreed to during the Preconstruction Meeting not to exceed ten (10) hours per day, Monday through Friday, excluding **OWNER's** holidays. Any observation time required outside of the

above indicated hours will be billed to the **CONTRACTOR**, or withheld from payments due the **CONTRACTOR**, at a rate of 1.5 times the **ENGINEER's** billing rate for observation plus a twenty (20%) percent administrative charge.

1.06 COORDINATION WITH OTHER CONTRACTORS

A. The **CONTRACTOR** shall coordinate as necessary with other contractors at the site who may be providing facilities under separate contracts.

B. Alterations of the start, duration, and/or completion dates for work of other contractors shall not relieve the **CONTRACTOR** of the responsibility of completing the Work of this Contract in the time specified herein.

C. Any conflicts or potential conflicts between the Work and the work provided by other contractors shall be immediately brought to the attention of the **ENGINEER** for resolution in accordance with the Contract documents.

1.07 PERMITS

A. The **CONTRACTOR** shall contact all Federal, State, and Local agencies to determine permitting requirements for construction-related activities under their jurisdiction. **CONTRACTOR** shall obtain and pay for all permits required for completion of the Work. The mention of specific permits in the Contract Documents shall not imply that those are the only permits required, and shall not relieve the **CONTRACTOR** from obtaining any and all permits required for construction. **CONTRACTOR** shall coordinate with appropriate permit authorities to arrange for progress inspections of the Work, as required.

1.08 OSHA STANDARDS

The **CONTRACTOR** shall be bound to at least the latest provisions of Subpart F, Section 1926, of the OSHA Safety and Health Standards for Construction.

1.09 ATTACHED PLANS AND SPECIFICATIONS

A. Drawings

The design drawings are bound herewith and/or furnished separately and are made a part of these specifications and show the detailed work to be completed. The design drawings herewith indicate approximate routing of proposed pipelines and facilities and schematically show the work to be completed. Existing utilities are shown based on the best current information. Final staking may not reflect exactly the drawings, and staking changes due to existing utilities and conditions do not constitute design changes and are not extras or change orders except for additional fittings, pipe, valves, base course, asphalt, etc. required to complete the physical and intent of the project.

B. Specifications

The Specifications furnished and bound herewith are separated into several Divisions, generally according to the Construction Specifications Institute (CSI). The Specifications provide the technical and general guidelines governing the progress of the work on the project.

Computed or written dimensions shall govern over scaled dimensions. In the event of discovery of discrepancies or any type of error whatsoever in the specifications, plans, and drawings, the **CONTRACTOR** shall not adjust them, save at his own risk and expense, but shall immediately request in writing, and the **ENGINEER** shall give in writing, an interpretation of the intent of the Contract, which interpretation shall govern. If the **CONTRACTOR**, as the work progresses, finds any discrepancies between the drawings and the physical conditions, it shall be his duty to

immediately inform the **ENGINEER** in writing. The **ENGINEER** shall promptly interpret the intent of the contract and, in its sole judgment, authorize the **CONTRACTOR** to proceed to the extent allowed herein and in accordance with the Contract documents. Any work done after such discovery, until authorized, will be done at the Contractor's risk.

1.10 COMMENCEMENT OF CONSTRUCTION

The **CONTRACTOR** shall not commence construction on the approved projects until:

A. **CONTRACTOR** has fulfilled all applicable requirements relating to permits and licenses.

B. 48-hour written notice of intention to commence construction is given to the **ENGINEER** stating date, time, and location of construction commencement.

C. A mandatory preconstruction conference is attended by, but not limited to, the **ENGINEER** or designated representative, the **CONTRACTOR**, the **CONTRACTOR**'s Foreman or Superintendent assigned to the project, the **OWNER** 's representative, and representatives of all utility companies affected by the proposed construction.

D. The **CONTRACTOR** has submitted written notice of the date of construction commencement.

E. Compliance with any and all other applicable requirements in these specifications not specially mentioned in this section.

END OF SECTION

SECTION 01014

SEQUENCE OF WORK

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work Included: This Section covers the organizing, staging and sequencing of the Work.

B. Related Work Specified Elsewhere:

1. Section 01010 - Summary of Work
2. Section 01310 - Construction Schedules
3. Section 01560 - Temporary Controls

1.02 SUBMITTALS

A. Schedules; Submit Schedules in accordance with Section 01310 Construction Schedules

PART 3 - EXECUTION

3.01 GENERAL

A. The **CONTRACTOR** shall coordinate his efforts with the **OWNER** so as to minimize disruption of use of existing facilities.

B. Procedures and methods other than those specified will be considered by **ENGINEER** and **OWNER**, provided they afford equivalent continuity of operations.

C. Submit and update Progress Schedules and subschedules.

D. Discuss Sequence of Work and Notice Required at Progress Meetings.

1. Review with and obtain **ENGINEER**'s and **OWNER**'s input to **CONTRACTOR**'s initial scheduling of Work sequence during Preconstruction Conference.

2. Review any changes in scheduling at regularly scheduled Progress Meetings.

3. Schedule additional construction meetings required to discuss work sequence.

E. Inspection by Public Agencies

Authorized representatives of the **Widefield Water and Sanitation District** shall have access to the work wherever it is in preparation or progress.

Additionally, El Paso County DOT and other agencies of jurisdiction shall have access to the work wherever it is in preparation or progress.

Provide proper facilities for such access and inspection.

F. It will be the **CONTRACTOR's** responsibility to schedule and sequence his activities so as to best meet environmental conditions imposed by inclement weather.

3.02 WORK SEQUENCE

A. **CONTRACTOR** to coordinate all tie-ins and startup with Owner staff. All planned tie-ins and shutdowns to be coordinated a minimum of 72 hours prior to actual implementation.

3.03 COMPLETION SCHEDULE

A. Substantial Completion

1. The Work will be considered Substantially Complete after all pipeline and appurtenances pass all respective tests and are operational.

   a. Substantial Completion: On or before July 30, 2025

B. Final Completion:

1. The Work will be considered Final after all asphalt road replacement, recovery, revegitation, stabilization, and clean up has been completed at the site.

   a. Final Completion : On or before September 30, 2025

END OF SECTION

SECTION 01040

COORDINATION

PART I - GENERAL

1.01 DESCRIPTION

A. Coordinate job operations to achieve the most efficient work progress.

B. Coordinate efforts with **OWNER** to minimize utility disruptions and customer inconveniences.

1.02 GENERAL

A. Work included in these Contract Documents is to be performed under the responsibility of a single prime contract.

B. **CONTRACTOR** is responsible for coordination of all Work, whether performed by his own personnel or his subcontractors.

C. **CONTRACTOR** shall maintain procedures necessary to keep his workmen and suppliers informed of project progress so as not to unnecessarily delay completion of the Work.

1.03 COORDINATION WITH UTILITIES

A. The **CONTRACTOR** is to coordinate construction activities with affected utilities.

B. The **CONTRACTOR** is to coordinate and keep in contact with the **Widefield Water and Sanitation District** at all times in regard to each days construction activities. This can be accomplished through regular interface with the **OWNER'S** field representative. The **CONTRACTOR** is to coordinate all tie-ins as described in the Contract Drawings with the **Widefield Water and Sanitation District**.

1.04 COORDINATION WITH OTHERS

A. The **CONTRACTOR** is responsible for acquiring the appropriate permits for construction within El Paso County right-of-ways, City of Fountain right-of-ways, BNSF right-of-ways, and UP right-of-ways.

B. El Paso County Stormwater Permits (if required) will be the responsibility of the **CONTRACTOR**. The **CONTRACTOR** will be listed on the final permit and will be required to meet the terms and conditions as describe within the permit.

END OF SECTION

SECTION 01070

ABBREVIATIONS

PART I - GENERAL

1.01 DESCRIPTION:

A. This Section defines abbreviations used in the Specifications.

1. AASHTO: American Association of State Highway and Transportation Officials
2. ACI: American Concrete Institute
3. AFBMA: Antifriction Bearing Manufacturers Association
4. AGA: American Gas Association
5. AGMA: American Gear Manufacturers Association
6. AI: Asphalt Institute
7. AIA: American Institute of Architects
8. AISC : American Institute of Steel Construction
9. AISI: American Iron and Steel Institute
10. ANSI: American National Standards Institute
11. APA: American Plywood Association
12. ASCE: American Society of Civil Engineers
13. ASTM: American Society for Testing and Materials
14. AWPA: American Wood Preservers Association
15. AWS: American Welding Society
16. AWWA: American Water Works Association
17. BHMA: Builders Hardware Manufacturers Association
18. cfm: Cubic Feet per Minute
19. cfs: Cubic Feet per Second
20. CISPI: Cast Iron Soil Pipe Institute
21. CMP: Corrugated Metal Pipe
22. CRSI: Concrete Reinforcing Steel Institute
23. CS: U.S. Department of Commerce, Commercial Standard

24. cu: Cubic
25. dia: Diameter
26. E.F.: Each Face
27. ELEV./EL: Elevation
28. E.W.: Each Way
29. Fed. Spec. (FS): Federal Specifications
30. FES: Flared End Section
31. ft: Foot
32. ga: Gage
33. gal: Gallon
34. gpm: Gallons per Minute
35. hr: Hour
36. I.D.: Inside Diameter
37. IEEE: Institute Electrical and Electronics Engineers
38. in: Inch
39. KW: Kilowatt
40. lf: Lineal Foot
41. lb: Pound
42. max: Maximum
43. MH: Manhole
44. MIL: Military Specifications
45. min: Minimum
46. mgl: milligrams per liter
47. MUTCD: Manual on Uniform Traffic Control Devices
48. NAAMM: National Association of Architectural Metal Manufacturers
49. NBS: National Bureau of Standards
50. NEC: National Electric Code
51. NEMA: National Electrical Manufacturers Association

52. NPT: National Pipe Thread
53. O.C.: On Center
54. O.D.: Outside Diameter
55. PCI: Prestressed Concrete Institute
56. PS: U.S. Department of Commerce, Product Standard
57. ppd: pounds per day
58. ppm: parts per million
59. psig: pounds per square inch (gauge)
60. PVC: Polyvinyl Chloride
61. RCP: Reinforced Concrete Pipe
62. RPM: Revolutions per Minute
63. sq: Square
64. SSPC: Steel Structures Painting Council
65. UBC: Uniform Building Code
66. UL: Underwriter's Laboratory
67. UMC: Uniform Mechanical Code
68. UPC: Uniform Plumbing Code
69. USBR: U.S. Bureau of Reclamation
70. USBS: U.S. Bureau of Standards
71. yd: Yard

END OF SECTION

SECTION 01150

MEASUREMENT AND PAYMENT

PART I - GENERAL

1.01 DESCRIPTION

A. Review Applications for Payment as prepared by **ENGINEER** in accordance with the General and Supplemental General Conditions and the Agreement between **OWNER** and **CONTRACTOR**.

B. Additional Requirements Specified Elsewhere.

1. Progress Payments, Retainage and Final Payment: General Conditions and Supplemental General Conditions, Standard Specifications, and Agreement between Owner and Contractor.

2. Construction Schedules: Section 01310.

3. Contract Closeout: Section 01700.

1.02 FORMAT AND DATA REQUIRED

A. Application for Payment prepared by the **ENGINEER** with itemized data typed on white paper continuation sheets.

B. Itemized data on continuation sheets

Format, schedules, line times, and values: Those of the approved Schedule of Values.

1.03 PREPARATION OF APPLICATION FOR EACH PROGRESS PAYMENT

A. Application Form Prepared by **ENGINEER**.

1. Required information completed, including that for Change Orders executed prior to the date of submittal of application.

2. Summary of dollar values to agree with the respective totals indicated on the continuation sheets.

B. Continuation Sheets:

1. Total list of all scheduled component items of Work, with item number and scheduled dollar value for each item.

2. Dollar value in each column for each scheduled line item when work has been performed.

3. Each Change Order executed prior to the date of submission shall be listed at the end of the continuation sheets.

List by Change Order number and description as for an original component item of work.

C. **CONTRACTOR** shall execute certification with the signature of responsible officer of the **CONTRACOR's** firm.

1.04 SUBSTANTIATING DATA FOR PROGRESS PAYEMENTS

A. When **OWNER** or **ENGINEER** requires substantiating data, **CONTRACTOR** shall submit suitable information with a cover letter identifying:

1. Project name and number.

2. Application number and date.

3. Detailed list of enclosures.

B. Submit one (1) copy of data and cover letter for each copy of application.

1.05 SCHEDULE OF VALUES

A. Refer to General Conditions for requirements.

B. Where payment is to be based on fixed price correlate Schedule of Values with divisions and section of specification unless otherwise approved by the **ENGINEER**.

1.06 PREPARATION OF APPLICATION FOR FINAL PAYMENT

A. **ENGINEER** shall complete Application form as specified for progress payments

B. Continuation sheets used for presenting the final statement of accounting as specified in Section 01700-Contract Closeout.

1.07 SUBMITTAL PROCEDURE

A. Review Applications for Payment as prepared by **ENGINEER** as stipulated in the Contract Documents and specified in the pre-construction conference.

CONTRACTOR shall execute certification with the signature of a responsible officer of the **CONTRACTOR's** firm.

B. When certification by **CONTRACTOR** is completed, **ENGINEER** will transmit a Certification for Payment to **OWNER**, with a copy to **CONTRACTOR**.

END OF SECTION

SECTION 01300

SUBMITTALS

PART I - GENERAL

1.01 REQUIREMENTS INCLUDED

The **CONTRACTOR** shall submit to the **ENGINEER** for approval all submittals required by the General Conditions and these Specification sections. Submittal shall be submitted on form 01300-A.

1.02 INSURANCE CERTIFICATES

Refer to General Conditions for submittal requirements. Submit updated certificates as necessary to verify current coverage.

1.03 SCHEDULE OF VALUES

Refer to General Conditions for requirements.

1.04 CONSTRUCTION SCHEDULE

(See Section 01310 for Construction Schedule Submittal details).

1.05 SHOP DRAWINGS

(See Section 01340 for Shop Drawing Submittal details).

1.06 PROJECT RECORD DOCUMENTS

A. Maintenance of Documents:

1. Maintain at job site one record copy of Contract Drawings, Specifications, Addenda, approved Shop Drawings, Change Orders, other modifications to the Contract, field test records, and other approved documents submitted by **CONTRACTOR** in compliance with specification requirements.

2. Maintain documents at the project site apart from documents used for construction. Do not use record documents for construction purposes. Maintain records in clean, legible condition. Make documents available at all times for inspection by the **ENGINEER** and **OWNER**.

B. Recording: Label each document **"PROJECT RECORD COPY"** in 2-inch-high printed letters. Keep record documents current. Do not permanently conceal any work until required information has been recorded.

1. Contract Documents: Legibly mark most appropriate drawing to record, where applicable:
   -- Depths of various elements of foundations in relation to existing ground surfaces.

   -- Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements.

   -- Location of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of structure.

   -- Field changes of dimension and detail made during construction process.

-- Changes made by Change Order or Field Order.

-- Details not on original Contract Drawings.

2. Specifications and Addenda: Legibly mark up each section to record:

-- Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.

-- Changes made by Change Order or Field Order.

-- Other matters not originally specified.

3. Submittal:

-- At completion of project, deliver record documents to the **ENGINEER**.

-- Accompany submittal with transmittal letter, in duplicate, containing date; project title and number; **CONTRACTOR**'s name and address; title and number of each record document; certification that each document has been prepared and approved by either the **CONTRACTOR** or his authorized representative.

END OF SECTION

01300-A. **SUBMITTAL TRANSMITTAL**

Submittal Description: _____ Submittal No.: _____

Spec. Section: _____

	Routing	Date Sent	Date Received
OWNER:	Contractor/Engineer		
PROJECT:	Engineer/Contractor		
CONTRACTOR:			

We are sending you:
- ☐ Attached
- ☐ Under separate cover via _____
- ☐ Submittals for review and comment
- ☐ Product data for information only

Remarks: _____

Item	Copies	Date	Section No.	Description	Review action [a]	Reviewer initials	Review comments attached

[a] **Note: NET = No exceptions taken; MCN = Make corrections noted; A&R = Amend and resubmit; R = Rejected, Develop Replacement**
Attach additional sheets if necessary.

Contractor

Certify either A or B:

☐ A. We have verified that the material or equipment contained in this submittal meets all the requirements, including coordination with all related work, specified (no exceptions).

☐ B. We have verified that the material or equipment contained in this submittal meets all the requirements specified except for the attached deviations.

No. Deviation

_____

_____

Certified by: _____
Contractor's Signature

SECTION 01310

CONSTRUCTION SCHEDULES

PART I

1.01 GENERAL

A. Within ten (10) days after EFFECTIVE DATE OF AGREEMENT or by the pre-construction conference, the **CONTRACTOR** shall prepare and submit to the **ENGINEER** estimated construction progress schedules for the Work, with sub-schedules of related activities which are essential to the progress of the Work.

B. Submit revised progress schedules periodically.

C. **OWNER** may require **CONTRACTOR** to add to his plant, equipment or construction forces, as well as increase the working hours, if operations fall behind schedule at any time during the construction period.

D. Related Requirements Specified Elsewhere.

1. General Conditions.

2. Supplemental General Conditions.

3. Standard Specifications.

E. Additional Requirements Specified Elsewhere.

1. Summary of Work: Section 01010.

2. Measurement and Payment: Section 01150.

3. Shop Drawings: Section 01340.

1.02 FORM OF SCHEDULES

A. Prepare schedules in the form of a horizontal bar chart.

1. Provide separate horizontal bar for each trade or operation.

2. Horizontal time scale: Identify the first work day of each week.

3. Scale and spacing: To allow space for notations and future revisions.

4. Maximum sheet size: 24" x 36".

B. Computer generated schedule.

1. Network analysis system may be utilized in lieu of bar chart.

C. Format of Listings.

1. The chronological order of the start of each item of work.

1.03 CONTENT OF SCHEDULES

A. Construction Progress Schedules to include:

1. The complete sequence of construction by activity.

2. The dates for the beginning, and completion of, each major element in each major area of construction, including but not limited to:

a. Shop Drawing Submittal

b. Excavation and subgrade preparation

c. Pipeline, Hydrant, Service Lines, Metering Pits installation

d. Facility installation

e. Testing

f. Landscaping and re-vegetation

g. Substantial Completion

h. Start-up

i. Final Completion

3. Projected percentage of completion for each item, as of the date on which each scheduled Application for Payment is due.

4. Complete projected progress payment schedule.

B. Schedule of Submittals for Shop Drawings and Product Data to include:

1. The dates for **CONTRACTOR**'s submittals.

2. The dates approved submittals will be required from the **ENGINEER**.

Extensions of time for delays in submittal review and distribution will only be allowed as provided for in Section 01340.

C. Products Delivery Schedule.

Show delivery dates for all major items of material and equipment.

1.04 PROGRESS REVISIONS

A. Indicate progress of each activity to date of submission.

B. Show changes occurring since previous submission of schedule.

1. Major changes in scope.

2. Activities modified since previous submission.

3. Revised projections of progress and completion.

4. Revisions to projected progress payment schedule.

5. Other identifiable changes.

C. Provide a narrative report as needed to define:

1. Problem areas, anticipated delays, and the impact on the schedule.

2. Corrective action recommended and its effect.

1.05 SUBMISSIONS

A. Submit initial schedules within ten (10) days after effective date of Agreement.

1. **ENGINEER** will review Schedules and return review copy within ten (10) days after receipt.

2. If required, resubmit within seven (7) days after return of review copy.

B. Submit revised progress schedules with each Application for Payment.

C. Number of copies required at each submission:

1. The number of opaque reproductions required by the **CONTRACTOR** plus three (3) copies which will be retained or distributed by the **ENGINEER**.

2. Do not submit fewer than five (5) copies.

1.06 DISTRIBUTION

A. After review, **ENGINEER** will distribute copies of schedules to:

1. Two (2) copies to **OWNER**.

2. One (1) copy to Resident Project Representative.

3. One (1) copy to be retained in **ENGINEER**'s file.

4. One (1) copy to **CONTRACTOR** to be kept on file at **CONTRACTOR**'s field office.

5. Remainder to **CONTRACTOR** for his distribution following modifications if required.

B. Schedule recipients will report promptly to **ENGINEER** and **CONTRACTOR**, in writing, any problems anticipated by the projections shown on the schedules.

END OF SECTION

SECTION 01320

PRODUCT DELIVERY, STORAGE AND HANDLING

PART I – GENERAL

1.01 RELATED REQUIREMENTS

A. General and Supplementary Conditions

1.02 PRODUCTS

A. Products include material, equipment and systems.

B. Comply with Specifications and referenced standards as minimum requirements.

1.03 TRANSPORTATION AND HANDLING

A. Transport products by methods to avoid product damage; deliver in undamaged condition in manufacturer's unopened containers or packaging, dry.

B. Provide equipment and personnel to handle products by methods to prevent soiling or damage.

C. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.

1.04 STORAGE AND PROTECTION

A. Store products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather tight enclosures; maintain within temperature and humidity ranges required by manufacturer's instructions.

B. For exterior storage of fabricated products, place on sloped supports above ground. Cover products subject to deterioration with impervious sheet covering; provide ventilation to avoid condensation.

C. Store loose granular materials on solid surfaces in a well drained area; prevent mixing with foreign matter.

D. Arrange storage to provide access for inspection. Periodically inspect to assure products are undamaged and are maintained under required conditions.

END OF SECTION

SECTION 01330

SURVEY DATA

PART I - GENERAL

1.01 REQUIREMENTS INCLUDED

A. The **CONTRACTOR** will be responsible for all staking required for construction.

B. The **CONTRACTOR** will be responsible for the maintenance of control points, bench marks and construction stakes. Re-staking will be at the **CONTRACTOR's** expense.

END OF SECTION

SECTION 01340

SHOP DRAWINGS

PART I - GENERAL

1.01 REQUIREMENTS INCLUDED

A. The **CONTRACTOR** shall submit to the **ENGINEER** for approval all shop drawings required by the specification sections.

1.02 SHOP DRAWINGS

A. Shop drawings shall be prepared by a qualified detailer for **CONTRACTOR**, subcontractor, supplier, or manufacturer, and shall illustrate some portion of the work, showing fabrication, layout, setting, or erection details.

B. Identify details by reference to sheet and detail numbers shown on Contract Drawings. Use same symbols used on Contract Drawings to identify shop drawing details wherever practicable.

1.03 PRODUCT DATA

A. Submit manufacturer's standard schematic drawings:

1. Modify drawings to delete information which is not applicable to the project.

2. Supplement standard information to provide additional information applicable to project.

B. Submit manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations, and other standard descriptive data.

1. Clearly mark each copy to identify pertinent materials, products or models.

2. Show dimensions and clearances required, performance characteristics and capabilities, wiring diagrams and controls, and any other pertinent data applicable to the project.

C. Submit manufacturer's certificate of compliance certifying to compliance with specification requirements, applicable reference standards and test data requirements. Include reference to the specification section and paragraph with which the product or materials is intended to comply.

1.04 CONTRACTOR RESPONSIBILITIES

A. **CONTRACTOR** shall submit five (5) copies of each shop drawing required.

B. Submittals shall be made by **CONTRACTOR** to the **ENGINEER** with a transmittal form or letter and not by subcontractors, suppliers or manufacturers. **CONTRACTOR** shall review, stamp with his approval, and submit in orderly sequence all submittals required by the specifications. By approving and submitting items, **CONTRACTOR** represents that he has verified all field measurements, field construction criteria, materials, catalog numbers, and similar data, and has coordinated each shop drawing with requirements of the project.

C. The **CONTRACTOR** shall not begin work which requires submittals until the **ENGINEER** reviews and approves submittals. The **ENGINEER** will return an approved copy of the submittal to the **CONTRACTOR**.

D. **CONTRACTOR's** responsibility for errors and omissions in submittals, or for deviations in submittals from requirements of the Contract Documents, shall not be relieved by review of submittals unless **ENGINEER** gives written acceptance of specific deviations. The **CONTRACTOR** shall notify **ENGINEER** in writing at time of submission of deviations in submittals from requirements of the Contract Documents.

END OF SECTION

SECTION 01400

QUALITY CONTROL

1.01 RELATED REQUIREMENTS

A. General Conditions

B. Supplementary Conditions

C. Testing Laboratory Services

1.02 TESTING - GENERAL

A. Provide such equipment and facilities as the **ENGINEER** may require for conducting field tests and for collecting and forwarding samples. Do not use any materials or equipment represented by samples until tests, if required, have been made and the materials or equipment found to be acceptable. Any product which becomes unfit for use after approval thereof shall not be incorporated into the work.

B. All materials or equipment proposed to be used may be tested at any time during their preparation or use. Furnish the required samples without charge and give sufficient notice of the placing of orders to permit the testing. Products may be sampled either prior to shipment or after being received at the site of the work.

C. Tests shall be made by an accredited testing laboratory selected by the **OWNER**. Except as otherwise provided, sampling and testing of all materials and the laboratory methods and testing equipment shall be in accordance with the latest standards and tentative methods of the American Society for Testing Materials (ASTM).

D. Where additional or specific information concerning testing methods, sample sizes, etc., is required, such information is included under the applicable sections of the Specifications. Any modification of, or elaboration on, these test procedures which may be included for specific materials under their respective sections in the Specifications shall take precedence over these procedures.

E. Failed tests shall be paid for by the **CONTRACTOR**, as per paragraph 1.06, A.3 in this section.

1.03 FILL AND BACKFILL TESTS

Control test of fill and backfill shall be paid for by the **OWNER**.

1.04 CONCRETE TESTS

Control tests of concrete work shall be made at such times and in such number as specified in Section 03300, "Cast-in-Place Concrete". Testing will be paid for by the **CONTRACTOR**.

1.05 PRISM TESTS

Prism tests, if required, shall be performed on Mortar as specified in Sections 04100. One prism test shall be performed for block installed and shall be performed in a manner which will duplicate the completed wall by combining the masonry units, the mortar and grout, to verify the f'm of the masonry assemblage. Testing will be paid for by the **CONTRACTOR.**

1.06 OTHER TESTING

A. If required, the following testing shall be performed at the expense of the **CONTRACTOR** installing the material being tested:

1. Material Substitution: Any tests of basic material or fabrication equipment offered as a substitute for specified item on which a test may be required in order to prove its compliance with the Specifications.

2. Mechanical/Electrical: Tests on mechanical or electrical systems required to insure their proper installation and operation.

3. Any test that fails shall be paid for by the installing **CONTRACTOR** subject to the following conditions:

   a. Quantity and nature of tests will be determined by the **ENGINEER**.

   b. All tests shall be taken in the presence of the **ENGINEER** or his representative.

   c. Proof of noncompliance will make the installing **CONTRACTOR** liable for any corrective action which the **ENGINEER** feels is prudent, including complete removal and replacement of defective material.

B. Nothing contained herein is intended to imply that the installing **CONTRACTOR** does not have the right to have tests performed on any material at any time for his own information and job control so long as the **OWNER** does not assume responsibility for costs or for giving them consideration when appraising quality of materials.

1.07 TEST REPORTS

Reports of all tests made by testing laboratories shall be distributed by the testing laboratory as follows:

1 copy	-	**CONTRACTOR**
1 copy	-	**OWNER**
1 copy	-	**ENGINEER**
1 copy	-	**RESIDENT PROJECT REPRESENTATIVE**
Other copies	-	As Directed

1.08 CONTRACTOR'S QUALITY CONTROL SYSTEM

A. General: Establish a quality control system to perform sufficient inspection and tests of all items of work, including that of subcontractors, to ensure conformance to the Contract Documents for materials, workmanship, construction, finish, functional performance and identification. Establish this control for all construction except where the Contract Documents provide for specific compliance tests by testing laboratories or engineers employed by the **OWNER**. **CONTRACTOR**'s control system shall specifically include all testing required by the various sections of the Specifications.

B. **CONTRACTOR**'s quality control system is the means by which he assures himself that his construction complies with the requirements of the Contract Documents. Controls shall be adequate to cover all construction operations and shall be keyed to the proposed construction schedule.

C. Records: Maintain correct records on an appropriate form for all inspections and tests performed, instructions received from the **ENGINEER** and actions taken as a result of those instructions. These records shall include evidence that the required inspections or tests have been performed (including type and number of inspections or tests, nature of defects, causes for rejection, etc.) proposed or directed remedial action, and corrective action taken. Document inspections and tests as required by each section of the Specifications.

END OF SECTION

SECTION 01410

TESTING LABORATORY SERVICES

PART I - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Cooperation with testing laboratory services employed by the **OWNER**.

B. Provision of specified testing laboratory services.

1.02 DESCRIPTION

A. **OWNER** will employ and pay for services of an independent testing laboratory through the **ENGINEER** who shall perform specified field tests.

B. Employment of testing laboratory shall in no way relieve **CONTRACTOR** of obligation to perform work in accordance with requirements of Contract Documents.

1.03 REFERENCES

A. ANSI/ASTM D-3640 - Practice for Evaluation of Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.

B. ANSI/ASTM E-329 - Standard Recommended Practice for Inspection and Testing Agencies for Concrete, Steel and Bituminous Materials as Used in Construction.

1.04 LABORATORY REQUIREMENTS

A. Test samples of mixes submitted by **CONTRACTOR**.

B. Provide qualified personnel at site after due notice; cooperate with **ENGINEER** and **CONTRACTOR** in performance of services.

C. Perform specified inspection, sampling and testing of products in accordance with specified standards.

D. Ascertain compliance of materials and mixes with requirements of Contract Documents.

E. Promptly notify **ENGINEER** and **CONTRACTOR** of observed irregularities or non-conformance work or products.

F. Perform additional inspections and tests required by **ENGINEER**.

G. Attend preconstruction conferences and progress meetings, as needed.

1.05 LABORATORY REPORTS

After each inspection and test, promptly submit one copy of laboratory report to **ENGINEER**, **OWNER**, **CONTRACTOR**, **RESIDENT PROJECT REPRESENTATIVE**, and Record Documents file. Include date issued, project title, number and name of inspector, date and time of sampling or inspection, identification of product and specifications section, location in the project, type of inspection or test, date of test, results of tests, and conformance with Contract Documents. When requested by **ENGINEER**, provide interpretation of test results.

1.06 LIMITS ON TESTING LABORATORY AUTHORITY

A. Laboratory may not release, evoke, alter, or enlarge on requirements of Contract Documents.

B. Laboratory may not approve or accept any portion of the work.

C. Laboratory may not assume any duties of **CONTRACTOR**.

D. Laboratory has no authority to stop work.

1.07 CONTRACTOR RESPONSIBILITIES

A. Cooperate with laboratory personnel; provide access to work and to manufacturer's operations.

B. Secure and deliver to the laboratory adequate quantities of representational samples of materials proposed to be used and which require testing.

C. Provide to the laboratory the preliminary design mix proposed to be used for concrete and other materials mixes which require control by the testing laboratory.

D. Furnish copies of product test reports as required.

E. Furnish incidental labor and facilities:

1. To provide access to work to be tested.

2. To obtain and handle samples at the project site or at the source of the product to be tested.

3. To facilitate inspections and tests.

4. For storage and curing of test samples of concrete cylinders.

F. Notify laboratory sufficiently in advance of operations to allow for laboratory assignment of personnel and scheduling of tests.

G. Pay for the services of the independent testing laboratory to perform additional inspections, sampling and testing required: When initial tests indicate work does not comply with Contract Documents.

H. Make arrangements with laboratory and pay for additional samples and tests required for **CONTRACTOR**'s convenience.

END OF SECTION

SECTION 01560

TEMPORARY CONTROLS

PART I - GENERAL

1.01 NOISE CONTROL

A. Take precautions against unnecessary construction noise levels when in inhabited areas.

B. Provide and maintain appropriate mufflers on construction equipment.

1.02 DUST CONTROL

Where construction activities expose earth surfaces allowing dusting, water shall be used in controlling dust.

1.03 POLLUTION CONTROL

A. Protect waterways from pollution by debris, sanitary wastes, runoff, and spills.

B. Protect water systems from any contamination.

C. Protect storm sewers from sanitary wastes, sediment or other substance except storm water.

D. Protect sanitary sewers from runoff or any other substance except sanitary sewer wastewater.

1.04 DRAINAGE CONTROL

Provide site grading which shall prevent excess runoff from entering construction area.

1.05 SANITARY FACILITIES

CONTRACTOR shall provide and maintain, throughout project duration, adequate temporary toilet facilities in a neat and sanitary condition for all employees and authorized visitors at the site. Place facilities at approved locations near the work at each location.

1.06 TEMPORARY UTILITIES

A. Electric Power and Lighting:

1. The **CONTRACTOR** shall be responsible for locating a temporary source of electrical energy for use during the construction period, and for providing needed power to the site.

2. Temporary electrical work shall meet the requirements of the National Electrical Code (NEC 70), latest edition.

3. **CONTRACTOR** may use permanent electrical system for construction purposes provided that use is regulated to prevent interference with orderly progress of the work or adjacent facilities in use, and permanent system (including lamps) is restored to a condition as good as new upon completion of construction.

B. Temporary Heat and Protection:

1. **CONTRACTOR** shall provide and maintain temporary enclosures, weather barriers, heat and ventilation as necessary to properly protect and cure all portions of the work, whether or not

permanently incorporated into the project, at all times during the construction period. Do not use solid fuel burning space heaters or use or leave unattended any equipment or apparatus which might create an unsafe condition.

1.07 FENCING AND BARRIERS

A. Refer to General Conditions for responsibilities with respect to protection of persons and property.

B. Provide and maintain temporary fences, barricades, lights, and guardrails as indicated in the Contract Documents or as necessary to regulate vehicular and pedestrian traffic, to secure the Work and adjacent property, and to protect persons, animals and property.

1. Obtain necessary approvals and permits and provide temporary expedients as necessary to accommodate controls.

2. All barricading and traffic controls shall be in accordance with a traffic control plan prepared and submitted by the **CONTRACTOR** in accordance with the Manual on Uniform Traffic Control Devices.

1.08 FIELD OFFICES AND STORAGE FACILITIES

A. Provide and maintain storage sheds, trailers or other facilities as necessary to store and protect materials, tools and equipment.

END OF SECTION

SECTION 01650

STARTING OF SYSTEM

PART I - GENERAL

1.01 DESCRIPTION

A. Work Included: This section covers the initial startup of systems, **OWNER** training and operations of all systems.

B. Related Work: Refer to Section 01010, Summary of Work.

1.02 GENERAL

A. The **CONTRACTOR,** after initial startup, will operate the system for a period of two weeks to adjust equipment and demonstrate its readiness for the uses intended.

B. Startup:

1. The **CONTRACTOR** will schedule with **OWNER** and **ENGINEER** the times at which systems are ready for operation as designed.

2. On the date of startup, the **CONTRACTOR** shall provide a two day training session for **OWNER's personnel**. The training session shall discuss all aspects of the operation and maintenance of facilities and equipment.

   b. The training sessions shall include a demonstration of all alarms if applicable and operating conditions.

C. Two (2) Week Operation and Training Period:

1. After startup, the **CONTRACTOR** shall operate the system for a period of two (2) week.

2. During the two (2) week period, the **CONTRACTOR** shall make any minor adjustments necessary in the facilities for the existing conditions.

3. During the period, the **OWNER's** personnel will attend operational activities with the **CONTRACTOR** to further gain an understating of the system.

4. At the end of the two (2) week operational phase, the **CONTRACTOR** must continue operations while making the necessary corrections until satisfactory demonstration is shown.

5. If operating conditions cannot be successfully demonstrated, the **CONTRACTOR** must continue operations while making the necessary corrections until satisfactory demonstration is shown.

6. Upon successful completion of this phase, **OWNER** will assume operational responsibility.

D. Post Start-up Training Period:

1. Following the assumption of operational responsibility by the OWNER, the contractor will provide a (1) day post start-up training session to OWNER's personnel lasting a minimum of (4) hours.

END OF SECTION

SECTION 01666

TESTING PRESSURE PIPE SYSTEMS

PART 1 - GENERAL

1.01 DESCRIPTION

This section covers the pressure and leakage testing of force mains.

1.02 QUALITY ASSURANCE

A. Pressure Test Criteria

1. The minimum test pressure shall not be less than the rated pressure class of the specified pipe or 150 psig, whichever is greater.

2. Once the line is pressurized to the specified test pressure, the line must maintain the test pressure within 5 psig for at least three (3) hours.

B. Leakage Test Criteria

1. A leakage test can be conducted concurrently with the pressure test.

2. Leakage is the quantity of water that must be added to the section being tested in order to return the section to the test pressure at the conclusion of the pressure test.

3. Allowable leakage (that amount used to re-fill the pipeline), gallons per hour per one thousand feet (1,000') of pipe, for each section between line valves for mechanical joint or push-on joint pipe shall not exceed the following rates:

Avg. Test Pressure	**Pipe Size – Inches (Gallons)**						
PSI	**3**	**6**	**8**	**12**	**16**	**20**	**24**
250	0.47	0.71	0.95	1.42	1.90	2.37	2.85
225	0.45	0.68	0.90	1.35	1.80	2.25	2.70
200	0.43	0.64	0.85	1.28	1.70	2.12	2.55
175	0.40	0.59	0.80	1.19	1.59	1.98	2.38
150	0.37	0.55	0.74	1.10	1.47	1.84	2.21

4. If testing indicates a leakage rate in excess of the rates above, the pipeline will not be accepted. The pipeline shall be repaired, re-chlorinated, and re-tested as described in this section until all test requirements are met.

1.03 PERFORMANCE

A. Preparation and Testing:

1. Provide equipment, materials and personnel to maintain internal pipe pressure as required and accurately measure leakage from the pipe over a three (3) hour, minimum, test period.

2. Pressure and leakage tests shall take place only after the pipeline is adequately blocked or cast-in-place thrust blocks have had sufficient time to cure.

3. After pipeline completion, conduct pressure test and leakage test concurrently.

4. If not already filled, slowly fill pipe with water.

5. Remove all air.

   -- Install corporation cocks at high points to evacuate the air if permanent air vents are not located there. Remove and plug after filling.

6. Leave pipe filled with water for a minimum of 24 hours prior to the hydrostatic pressure test if mortar lined pipe is being tested.

7. No allowance shall be made for pressure reductions accomplished by means of pressure reducing valves or other mechanical means.

8. Record times, leakage readings and pressure over test period.

B. Inspection:

1. Notify **ENGINEER** at least 48 hours in advance of testing.

2. **ENGINEER** or representative must be present during testing.

C. Acceptance:

1. Acceptance shall be on the basis of maximum allowable leakage.

2. Locate and repair defective materials and joints if the tests disclose leakage greater than that specified.

3. Repeat tests until the leakage is within the permitted allowance.

END OF SECTION

SECTION 01700

CONTRACT CLOSEOUT

PART I - ADMINISTRATIVE PROCEDURES

1.01 GENERAL

A. Comply with requirements stated in general conditions and in Specifications for administrative procedures in closing out the Work.

B. Additional Requirements Specified Elsewhere.

1. Fiscal provisions, legal submittals, and additional administrative requirements: General Conditions, Supplemental General Conditions, Standard Specifications, and the Agreement.

2. Measurement and Payment: Section 01150.

1.02 SUBSTANTIAL COMPLETION

A. When **CONTRACTOR** considers the Work is substantially complete, he shall submit to **ENGINEER**.

1. A written notice that the Work is substantially complete.

2. A list of items to be completed or corrected.

B. Within a reasonable time after receipt of such notice, **ENGINEER** will make an inspection to determine the status of completion.

C. Should **ENGINEER** determine that the Work is not substantially complete:

1. **ENGINEER** will promptly notify the **CONTRACTOR** in working, give the reasons therefore;

2. **CONTRACTOR** shall remedy the deficiencies in the Work and send a second written notice of substantial completion to **ENGINEER**.

3. **ENGINEER** will reinspect the Work.

D. When **ENGINEER** finds that the Work is substantially complete, he will

1. Prepare and deliver to **OWNER** a tentative Certificate of Substantial Completion with a tentative list of times to be completed or corrected before final payment.

2. After consideration of any objections made by the **OWNER** as provided in General Conditions and when **ENGINEER** considers the Work substantially compete, he will execute and deliver to the **OWNER** and the **CONTRACTOR** a definite Certificate of Substantial Completion with a revised list of items to be completed or corrected.

1.03 FINAL INSPECTION

A. When **CONTRACTOR** considers the Work is complete, he shall submit written certification that

1. Contract Documents have been reviewed

2. Work has been inspected for compliance with Contract Documents

3. Work has been completed in accordance with Contract Documents

4. Systems have been tested and are operational

5. Work is completed and ready for final inspection

B. **ENGINEER** will make an inspection to verify the status of completion with reasonable promptness after receipt of such certification

C. Should **ENGINEER** consider that the Work is incomplete or defective

1. Engineer will promptly notify the **CONTRACTOR** in writing, listing the incomplete or defective work

2. **CONTRACTOR** shall take immediate steps to remedy the stated deficiencies, and send a second written certification to **ENGINEER** that the Work is complete

3. **ENGINEER** will reinspect the Work

D. When the **ENGINEER** finds that the Work is acceptable under the Contract Documents, he shall request the **CONTRACTOR** to make closeout submittals.

1.04 CONTRACTOR'S CLOSEOUT SUBMITTALS TO ENGINEER

A. Project Record Documents

B. Certificates of Compliance: As specified in individual sections

1.05 FINAL ADJUSTMENT OF ACCOUNTS

A. Review the Final Statement of Accounting as prepared by the **ENGINEER**

1. Refer to Section 01150 - Measurement and Payment, for additional requirements

B. Statement will reflect all adjustments to the contract sum

1. The original Contract Sum

2. Additions and deductions resulting from

a. Previous Change Orders

b. Deductions for uncorrected work

c. Deductions for liquidated damages

d. Deduction for retesting payment, Section 01400 - Quality Control.

e. Deduction for additional review of Shop Drawing or Product Data Submittals, Section 01340 - Shop Drawings.

f. Other adjustments

3. Total Contract Sum, as adjusted

4. Previous payments

5. Sum remaining due

1.06 FINAL APPLICATION FOR PAYMENT

Contract shall review and certify the final Application for Payment as prepared by the **ENGINEER** in accordance with procedures and requirements stated in the General Conditions, Standard Specifications, and Section 01150 - Measurement and Payment

PART III - FINAL PAYMENT

3.01 GENERAL

Final payment will not be made until the **OWNER** has completed the statutorily required public advertisement of a notice of final payment and any claims filed with the **OWNER** have been resolved to the satisfaction of the **OWNER** and the applicable governing agency.

PART IV - POST-CONSTRUCTION INSPECTION

4.01 GENERAL

A. Prior to expiration of one year from date of Substantial Completion, **ENGINEER** will make visual inspection of project site in company with the **OWNER** to determine whether correction of work is required.

B. **CONTRACTOR** to attend inspection if requested by the **ENGINEER**.

END OF SECTION

SECTION 01710

CLEANUP

PART I - GENERAL

1.01 DESCRIPTION

A. Scope

1. Maintain premises and public properties free from accumulations of wastewater and debris caused by work on this project.

2. At project completion, leave all new and existing facilities affected by the Work clean and ready for occupancy.

B. Related Requirements Specified Elsewhere

1. Cleaning of certain parts of the Work described in various sections of the Specifications.

C. Failure by **CONTRACTOR** to maintain project site and facilities in a state of cleanliness shall be adequate reason for **ENGINEER** to recommend that **OWNER** withhold any present and future progress payments until **CONTRACTOR** complies with specification requirements.

1.02 STIPULATIONS

A. Hazards Control: As required by regulatory agencies.

B. Conduct cleaning and disposal operations in compliance with laws and safety orders of governing authorities including anti-pollution laws.

PART II - PRODUCTS

2.01 CLEANING MATERIALS

A. Use only cleaning materials recommended by manufacturer of surface to be cleaned or finish to be applied.

B. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

PART III - EXECUTION

3.01 DURING CONSTRUCTION

A. Prevent dust nuisance attributable to this work.

B. Provide trash receptacles

1. Strategically located around site.

2. Fifty-five (55) gallon drums, minimum.

3. Promptly empty when full, do not allow trash to overflow, keep surrounding area free from trash accumulation.

C. At reasonable intervals during progress of work, legally dispose of waste materials, debris, and rubbish off the site.

1. Waste materials shall not be burned or buried on site or disposed of into storm drains, sanitary sewers, streams, or waterways.

D. Handle materials in a controlled manner with as few handlings as possible.

E. Neatly stack construction materials such as concrete forms when not in use.

3.02 FINAL CLEANING

A. Repair, patch, and touch-up marred surfaces to specified finish to match adjacent surfaces.

B. Broom clean paved surfaces, rake clean other surfaces of grounds.

C. Restore site to condition equal to or better than that which existed prior to commencement of Work.

END OF SECTION

SECTION 01730

OPERATION AND MAINTENANCE INFORMATION

PART 1 GENERAL

1.1 SCOPE OF WORK

A. Operation and maintenance (O&M) instructions shall be provided in accordance with this section and as required in the technical sections of this project manual. O&M information shall be provided for each maintainable piece of equipment, equipment assembly or subassembly, and material provided or modified under this contract.

B. O&M instructions must be submitted and accepted before on-site training may start.

PART 2 PRODUCTS

2.1 TYPES OF INFORMATION REQUIRED

A. GENERAL: O&M information shall contain the names, addresses, and telephone numbers of the manufacturer, the nearest representative of the manufacturer, and the nearest supplier of the manufacturer's equipment and parts. In addition, one or more of the following items of information shall be provided as applicable.

B. OPERATING INSTRUCTIONS: Specific instructions, procedures, and illustrations shall be provided for the following phases of operations:

1. SAFETY PRECAUTIONS: List personnel hazards for equipment and list safety precautions for all operating conditions.

2. OPERATOR PRESTART: Provide requirements to set up and prepare each system for use.

3. STARTUP, SHUTDOWN, AND POSTSHUTDOWN PROCEDURES: Provide a control sequence for each of these operations.

4. NORMAL OPERATIONS: Provide control diagrams with data to explain operation and control of systems and specific equipment.

5. EMERGENCY OPERATIONS: Provide emergency procedures for equipment malfunctions to permit a short period of continued operation or to shut down the equipment to prevent further damage to systems and equipment. Include emergency shutdown instructions for fire, explosion, spills, or other foreseeable contingencies. Provide guidance on emergency operations of all utility systems including valve locations and portions of systems controlled.

6. OPERATOR SERVICE REQUIREMENTS: Provide instructions for services to be performed by the operator such as lubrication, adjustments, and inspection.

7. ENVIRONMENTAL CONDITIONS: Provide a list of environmental conditions (temperature, humidity, and other relevant data) which are best suited for each product or piece of equipment and describe conditions under which equipment should not be allowed to run.

C. PREVENTIVE MAINTENANCE: The following information shall be provided for preventive and scheduled maintenance to minimize corrective maintenance and repair:

1. LUBRICATION DATA: Provide lubrication data, other than instructions for lubrication in accordance with paragraph 2.0-B6.

   a. A table showing recommended lubricants for specific temperature ranges and applications;

   b. Charts with a schematic diagram of the equipment showing lubrication points, recommended types and grades of lubricants, and capacities; and

   c. A lubrication schedule showing service interval frequency.

2. PREVENTIVE MAINTENANCE PLAN AND SCHEDULE: Provide manufacturer's schedule for routine preventive maintenance, inspections, tests, and adjustments required to ensure proper and economical operation and to minimize corrective maintenance and repair. Provide manufacturer's projection of preventive maintenance man-hours on a daily, weekly, monthly, and annual basis including craft requirements by type of craft.

D. CORRECTIVE MAINTENANCE: Manufacturer's recommendations shall be provided on procedures and instructions for correcting problems and making repairs.

1. TROUBLESHOOTING GUIDES AND DIAGNOSTIC TECHNIQUES: Provide step-by-step procedures to promptly isolate the cause of typical malfunctions. Describe clearly why the checkout is performed and what conditions are to be sought. Identify tests or inspections and test equipment required to determine whether parts and equipment may be reused or require replacement.

2. WIRING DIAGRAMS AND CONTROL DIAGRAMS: Wiring diagrams and control diagrams shall be point-to-point drawings of wiring and control circuits including factory-field interfaces. Provide a complete and accurate depiction of the actual job-specific wiring and control work. On diagrams, number electrical and electronic wiring and pneumatic control tubing and the terminals for each type identically to actual installation numbering.

3. MAINTENANCE AND REPAIR PROCEDURES: Provide instructions and list tools required to restore product or equipment to proper condition or operating standards.

4. REMOVAL AND REPLACEMENT INSTRUCTIONS: Provide step-by-step procedures and list required tools and supplies for removal, replacement, disassembly, and assembly of components, assemblies, subassemblies, accessories, and attachments. Provide tolerances, dimensions, settings, and adjustments required. Instructions shall include a combination of test and illustrations.

5. SPARE PARTS AND SUPPLY LISTS: Provide lists of spare parts and supplies required for maintenance and repair to ensure continued service or operation without unreasonably delays. Special consideration is required for facilities at remote locations. List spare parts and supplies that have a long lead time to obtain.

6. CORRECTIVE MAINTENANCE MANHOURS: Provide manufacturer's projection of corrective maintenance manhours including craft requirements by type of craft. Corrective maintenance that requires participation of the equipment manufacturer shall be identified and tabulated separately.

E. APPENDICES: The following information shall be provided; include information not specified in the preceding paragraphs but pertinent to the maintenance or operation of the product or equipment.

1. PARTS IDENTIFICATION: Provide identification and coverage for all parts of each component, assembly, subassembly, and accessory of the end items subject to replacement. Include special hardware requirements, such as requirement to use high-strength bolts and nuts. Identify parts by make, model, serial number, and source of supply to allow reordering without further identification.

Provide clear and legible illustrations, drawings, and exploded views to enable easy identification of the items. When illustrations omit the part numbers and description, both the illustrations and separate listing shall show the index, reference, or key number which will cross-reference the illustrated part to the listed part. Parts shown in the listings shall be grouped by components, assemblies, and subassemblies.

2. WARRANTY INFORMATION: List and explain the various warranties and include the servicing and technical precautions prescribed by the manufacturers or contract documents to keep warranties in force.

3. PERSONNEL TRAINING REQUIREMENTS: Provide information available from the manufacturers to use in training designated personnel to operate and maintain the equipment and systems properly.

4. TESTING EQUIPMENT AND SPECIAL TOOL INFORMATION: Provide information on test equipment required to perform specified tests and on special tools needed for the operation, maintenance, and repair of components.

PART 3 EXECUTION

3.1 TRANSMITTAL PROCEDURE

A. Unless otherwise specified, O&M manuals, information, and data shall be transmitted in accordance with Section 01300 accompanied by Transmittal Form 01730-A and Equipment Record Forms 01730-B and/or 01730-C, as appropriate. The transmittal form shall be used as a checklist to ensure the manual is complete. Only complete sets of O&M instructions will be reviewed for acceptance.

B. Six (6) copies of the specified O&M information shall be provided. For ease of identification, each manufacturer's brochure and manual shall be appropriately labeled with the equipment name and equipment number as it appears in the project manual. The information shall be organized in the binders in numerical order by the equipment numbers assigned in the project manual. The binders shall be provided with a table of contents and tab sheets to permit easy location of desired information.

C. If manufacturers' standard brochures and manuals are used to describe O&M procedures, such brochures and manuals shall be modified to reflect only the model or series of equipment used on this project. Extraneous material shall be crossed out neatly or otherwise annotated or eliminated.

3.2 FIELD CHANGES

A. Following the acceptable installation and operation of an equipment item, the item’s instructions and procedures shall be modified and supplemented by the Contractor to reflect any field changes or information requiring field data.

END OF SECTION

01730-A. OPERATION AND MAINTENANCE TRANSMITTAL FORM

Date: _____ Submittal No. _____

To: _____ Contract No: _____

_____ Spec. Section: _____

_____ Submittal Description: _____

_____ From: _____

Attention: _____ _____

Checklist	Contractor		Construction manager	
	Satisfactory	N/A	Accept	Deficient
1. Table of contents				
2. Equipment record forms				
3. Manufacturer information				
4. Vendor information				
5. Safety precautions				
6. Operator prestart				
7. Startup, shutdown, and post shut down procedures				
8. Normal operations				
9. Emergency operations				
10. Operator service requirements				
11. Environmental conditions				
12. Lubrication data				
13. Preventive maintenance plan and schedule				
14. Trouble-shooting guides and diagnostic techniques				
15. Wiring diagrams and control diagrams				
16. Maintenance and repair procedures				
17. Removal and replacement instructions				
18. Spare parts and supply list				
19. Corrective maintenance manhours				
20. Parts identification				
21. Warranty information				
22. Personnel training requirements				
23. Testing equipment and special tool information				

Remarks: _____

_____

_____

Contractor's Signature

[a] See paragraph 01300-1.4 A, Transmittal Procedure.

01730-B. EQUIPMENT RECORD FORM

EQUIP DESCRIP		EQUIP LOC	
EQUIP NO.	SHOP DWG NO.	DATE INST	COST
MFGR		MFGR CONTACT	
MFGR ADDRESS			PHONE
VENDOR		VENDOR CONTACT	
VENDOR ADDRESS			PHONE

MAINTENANCE REQUIREMENTS	D	W	M	Q	S	A	HOURS

LUBRICANTS RECOMMENDED:

ALTERNATIVE:

MISC. NOTES:

RECOMMENDED SPARE PARTS				ELECTRICAL NAMEPLATE DATA			
PART NO.	QUAN.	PART NAME	COST	EQUIP			
				MAKE			
				SERIAL NO.		ID NO.	
				MODEL NO.		FRAME NO.	
				HP	V	AMP	HZ
				PH	RPM	SF	DUTY
				CODE	INSL CL	DES	TYPE
				NEMA DES	C AMB	TEMP RISE	RATING
				MISC			
				MECHANICAL NAMEPLATE DATA			
				EQUIP			
				MAKE			
				SERIAL NO.		ID NO.	
				MODEL NO.		FRAME NO.	
				HP	RPM	CAP	SIZE
				TDH	IMP SZ	BELT NO.	CFM
				PSI	ASSY NO.	CASE NO.	
				MISC			

01730-C. EQUIPMENT RECORD FORM

EQUIP DESCRIP		EQUIP LOC	
EQUIP NO.	SHOP DWG NO.	DATE INST	COST
MFGR		MFGR CONTACT	
MFGR ADDRESS			PHONE
VENDOR		VENDOR CONTACT	
VENDOR ADDRESS			PHONE

MAINTENANCE REQUIREMENTS	D	W	M	Q	S	A	HOURS

DIVISION 3

CONCRETE

SECTION 03 10 00 – CONCRETE FORMING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section Includes:
   1. The Work required for furnishing Concrete Forming.

B. Related Sections:
   1. Section 03 35 00 – Concrete Finishing
   2. Section 03 62 00 – Non-Shrink Grouting

1.2 REFERENCES

A. ACI:
   1. 117 – Standard Specifications for Tolerances for Concrete Construction and Materials.
   2. 350 – Code Requirements for Environmental Engineering Concrete Structures
   3. 347 – Formwork for Concrete.

B. NSF International:
   1. 61 – Drinking Water System Components – Health Effects.

1.3 DESIGN REQUIREMENTS

A. Design formwork as specified in ACI 301, ACI 347, and ACI 350 to provide concrete finishes specified in Section 03 30 00 – Cast-In-Place Concrete.

B. When high range water reducer (superplasticizer) is used in concrete mix, forms shall be designed for full hydrostatic pressure per ACI 347.

C. Make joints in forms watertight.

D. Limit panel deflection to 1/360th of each component span to achieve tolerances specified.

E. Ensure compatibility between form liner and concrete mixture with manufacturer and concrete producer.

1.4 SUBMITTALS

A. Subject to the requirements of Section 01300 – Submittals.

B. Action Submittals:
   1. Shop Drawings:
      a. Form Ties-Tapered Through-Bolts:
         1) Proposed method of sealing form tie hole.
         2) Coordinate with details shown.
      b. Manufacturer’s Data for:
         1) Form-release agent.
         2) Form liners.
   2. Samples:
      a. Form ties.

C. Information Submittals:
   1. Statement of qualification for formwork designer.

2. Statement of qualification for form liner designer and installer.
3. Mockup Panel – for each form liner type.

1.5 QUALIFICATIONS

A. Formwork Designer:
1. Formwork, falsework, and shoring design shall be by an Engineer licensed in the State of the project site.

B. Form liner designer shall have previous experience with the design and installation of similar form liners.

C. Form liner installer shall be approved by the manufacturer.

1.6 WARRANTY

A. See Section 00610 – Payment, Performance and Warranty Bond for requirements.

PART 2 - PRODUCTS

2.1 FORM MATERIALS

A. Wall Forms and Underside of Slabs:
1. Materials: Plywood, hard plastic finished plywood, overlaid waterproof particle board, or steel in “new and undamaged” condition, of sufficient strength and surface smoothness to produce specified finish.
2. Circular Structures:
a. Conform forms to circular shape of structure.
b. Straight panels may be substituted for circular forms provided panels DO NOT exceed 2 ft in horizontal width and angular deflection is no greater than 3 1/2 degrees per joint.

B. Painted Surface Forms:
1. High density overlay plywood for flat concrete surfaces to be painted.

C. Form Liners:
1. Elastomeric FRP, ABS or PVC.

D. All Other Forms:
1. Materials as specified for wall forms.

E. Form-Release Agent:
1. Material: Release agent shall NOT bond with, stain, or adversely affect concrete surfaces, and shall NOT impair subsequent treatments of concrete surfaces when applied to forms or form liners. A “ready to use” water-based material formulated to reduce or eliminate surface imperfections, containing no mineral oil or organic solvents. Environmentally safe, meeting local, state, and federal regulations and can be used in potable water facilities. Certified as complying with NSF 61.
2. Manufacturers and Products:
a. Atlas Construction Supply; Bio-Guard
b. Cresset Chemical Company; Crete-Lease 20-VOC.
c. Hill and Griffith; Grifcote LV-50 Plus

F. Rustication Grooves and Beveled Edge Corner Strips:

1. Nonabsorbent material, compatible with form surface, fully sealed on all sides prohibiting loss of paste or water between the two surfaces.

G. Form Ties:
   1. Material: Steel
   2. Spreader Inserts:
      a. Conical or spherical type.
      b. Design to maintain positive contact with forming material.
      c. Furnish units that shall leave no metal closer than 1” to concrete surface when forms, inserts, and tie ends are removed.
   3. Wire ties NOT permitted.
   4. Flat bar ties for panel forms furnish plastic or rubber inserts with minimum 1” depth and sufficient dimensions to permit patching of tie hole.
   5. Water Stop Ties: For water-holding structures, basements, pipe galleries, and accessible spaces below finish grade, furnish one of the following:
      a. Integral steel water stop 0.103 in. thick and 0.625 in. in diameter tightly and continuously welded to tie.
      b. Neoprene water stop 3/16 in. thick and 15/16 in. diameter whose center hole is 1/2 the diameter of tie, or molded plastic water stop of comparable size.
      c. Orient water stop perpendicular to tie and symmetrical about center of tie.
      d. Design ties to prevent rotation or disturbance of center portion of tie during removal of ends and to prevent water leaking along tie.
   6. Through-Bolts: Tapered minimum 1 in. diameter at smallest end.
   7. Elastic Vinyl Plug:
      a. Design and size of plug to allow insertion with tool to enable plug to elongate and return to original length, and diameter upon removal forming watertight seal.
      b. Manufacturer and Product:
         1) Dayton/Richmond Co.
            Miamisburg, OH
            A58 Sure Plug.
      c. Sika Corporation
         X-Plug
      d. Recess plug 1 in. minimum and grout over hole. See Section 03 62 00 – Non-Shrink Grouting.

PART 3 - EXECUTION

3.1 FORM SURFACE PREPARATION

A. Thoroughly clean form surfaces that shall be in contact with concrete or that have been in contact with previously cast concrete, dirt, and other surface contaminants prior to coating surface.

B. Exposed Wood Forms in Contact with Concrete:
   1. Apply form-release agent as recommended by the manufacturer.

C. Steel Forms:
   1. Apply form-release agent to steel forms as soon as they are cleaned to prevent discoloration of concrete from rust.

D. Form Liner Forms:
   1. Prepare forms as recommended by the manufacturer.
   2. Provide liners in full sheets and locate seams as specified on approved shop drawings.
   3. Clean form liner after each use and use only form-release agents approved by the manufacturer.

3.2 ERECTION

A. General:
1. Unless specified otherwise, follow applicable recommendations of ACI347.

B. Beveled Edges (Chamfer):
1. Form 3/4” bevels at concrete edges, unless otherwise shown.
2. Where beveled edges on existing adjacent structures are other than 3/4”, obtain Engineer’s approval of size prior to placement of beveled edge.

C. Wall Forms:
1. DO NOT reuse forms with damaged surfaces.
2. Locate form ties and joints in an uninterrupted uniform pattern.
3. Inspect form surfaces prior to installation to assure conformance with specified tolerances.

D. Forms Supporting Form Liners:
1. Construct to withstand the high hydraulic pressures associated with rapid filling and heavy high-frequency vibration.

E. Form Liner Installation:
1. Protect form liners from extended exposure to sunlight and high surface temperatures during installation.
2. Install form liners per manufacturer’s written instructions.
3. Place form liners in accordance with specified patterns and joints.
4. Maintain required concrete cover between form liner and reinforcement.

F. Forms for Curbs and Sidewalks:
1. Provide standard steel or wood forms.
2. Set forms to true lines and grades, and securely stake in position.

G. Form Tolerances:
1. Provide forms in accordance with ACI 117, 347 and 318.
2. Wall Tolerances:
    a. Straight Vertical or Horizontal Wall Surface: Flat planes within tolerance specified.
    b. Wall Type W-A:
        1) Plumb within 1/4 in. in 10 ft or within 1 in. from top to bottom for walls over 40 ft high.
        2) Depressions in Wall Surface: Maximum 5/16 in. when 10 ft straightedge is placed on high points in all directions.
    c. Wall Type W-B:
        1) Plumb within 1/8 in. in 10 ft or within 1/2 in. from top to bottom for walls over 40 ft high.
        2) Depressions in Wall Surface: Maximum 1/8 in. when 10 ft straightedge is placed on high points in all directions.
3. Thickness: Maximum minus 1/4 in. or plus 1/2 in. from dimension shown.
4. Form Offset: Between adjacent pieces of form work, facing material shall NOT exceed 1/8 in. where exposed to public view and 1/4 in. maximum for all other conditions.

3.3 ADDITIONAL REQUIREMENTS

A. Construct forms tight enough to prevent loss of concrete mortar.

B. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
   1. Install keyways, reglets, recesses and the like for easy removal.
   2. DO NOT use rust-stained steel form-facing material.
   3. Use only form or form-tying methods which DO NOT cause spalling of the concrete upon form stripping or tie removal.

C. Elevated Structural Slabs and Beams:
   1. DO NOT strip forms until concrete has reached 80% of the specified 28-day strength as determined by test cylinder breaks.

D. Forms with Form Liners:
   1. Remove per manufacturer's recommendations.
   2. Use consistent removal timing to avoid variations in concrete color.
   3. Avoid damaging formed profiles.

E. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.

F. Provide temporary 12 in. wide by 18 in. high openings for cleanouts and inspection ports every 7 ft at the bottom of each lift form and where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations, where possible.

G. Chamfer exterior corners and edges of permanently exposed concrete.

H. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds and bulkheads required in the Work.
   1. Determine sizes and locations from trades providing such items.
   2. Openings shall be of sufficient size to permit final alignment of pipes or other items without deflection or offsets of any kind. Allow space for packing where items pass through the wall to ensure watertightness. Provide openings with continuous keyways and waterstops. Provide a slight flare to facilitate grouting and the escape of entrained air during grouting. Provide formed openings with reinforcement as indicated in the typical structural details. Reinforcing shall be at least 2 in. clear from the opening surfaces and encased items.

I. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

J. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

K. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions before placing reinforcement.

L. Embedded Items:
   1. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
   2. Install anchor bolts/rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and Bridges."

3. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles and other conditions.
4. Check special castings, channels or other metal parts that are to be embedded in the concrete prior to and again after placing the concrete.
5. Check nailing blocks, plugs and strips necessary for the attachment of trim, finish, and similar work prior to placing the concrete.

M. Pipes and wall spools cast in concrete:
1. Install wall spools, wall flanges, and wall anchors before placing concrete. DO NOT weld, tie or otherwise connect the wall spools or anchors to the reinforcing steel.
2. Support pipe and fabricated fittings to be encased in concrete-on-concrete piers or pedestals. Carry concrete supports to firm foundations so that no settlement shall occur during construction.
3. Pipes or spools located below operating water level shall have waterstop ring collars and shall be cast in place. DO NOT block out such piping and grout after the concrete section is cast. Pipes fitted with thrust rings shall be cast in place.

N. Removing and reusing forms:
1. DO NOT remove forms from concrete which has been placed with outside temperature below 50°F without first determining and verifying with Engineer if the concrete has properly set without regard for time. DO NOT apply loading on green concrete. Immediately after forms are removed, the surface of the concrete shall be carefully examined and any irregularities in the surface shall be repaired and finished as specified.
2. Leave formwork for beam soffits, joists, structural slabs, beams, girders, and other structural elements that support weight of concrete in place until concrete has achieved 100 percent its 28-day design compressive strength.
3. Formwork for sides of beams, walls, columns, and similar parts of the Work that does NOT support weight of concrete may be removed after cumulatively curing at NOT less than 50°F (10°C) for 48 hours after placing concrete, if concrete is hard enough to NOT be damaged by form-removal operations and curing and protection operations are maintained.
4. Leave bracing for walls until the top or roof slab concrete reaches 100% of its 28-day design compressive strength.
5. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.
6. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material shall NOT be acceptable for exposed surfaces. Apply new form-release agent.
7. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. DO NOT use patched forms for exposed concrete surfaces.

O. Aluminum surfaces in contact with concrete:
1. Aluminum surfaces in contact with concrete or grout or dissimilar metals shall be protected with a Mylar isolator, bituminous paint or other material approved by Engineer.

P. Shores and reshores:
1. Comply with ACI 318 and ACI 301 for design, installation and removal of shoring and reshoring.
   a. DO NOT remove shoring or reshoring until measurement of slab tolerances is complete.
2. In multistory construction, extend shoring or reshoring over enough stories to distribute loads in such a manner that no floor or member shall be excessively loaded or shall induce tensile stress in concrete members without sufficient steel reinforcement.

3. For multi-storied structures, the shoring and reshoring diagrams and procedures shall be signed and sealed by a Registered Professional Engineer in the state where the construction is being undertaken. These diagrams and procedures shall consider the effect of the loads on the uncured concrete and the construction load on each floor.
4. Plan sequence of removal of shores and reshore to avoid damage to concrete. Locate and provide adequate reshoring to support construction without excessive stress or deflection.

END OF SECTION

SECTION 03 20 00 – CONCRETE REINFORCING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section Includes:
   1. Reinforcing steel and related items required for cast-in-place concrete.

B. Related Sections:
   1. Section 03 10 00 – Concrete Forming.
   2. Section 03 30 00 – Cast-In-Place Concrete.

1.2 REFERENCES

A. ACI (American Concrete Institute):
   1. SP-66 – Detailing Manual.
   2. 318 – Building Code Requirements for Structural Concrete.
   3. 350 – Code Requirements for Environmental Engineering Concrete Structures.

B. ASTM International:
   1. A615 – Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
   2. A1064 – Standard Specification for Carbon Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.

C. CRSI (Concrete Reinforcing Steel Institute):
   1. Manual of Standard Practice.

1.3 SUBMITTALS

A. Subject to the requirements of Section 01 33 00 – Submittal Procedures.

B. Shop Drawings:
   1. Shop drawings shall be prepared for all reinforcement required by the project. Shop drawings shall be logically and legibly prepared to permit reasonable ease of sorting, selecting, placing reinforcement as well as checking drawings. Preparer and fabricator shall be identified on the drawings.
   2. Reinforcement shall NOT be fabricated until the shop drawings have been processed, approved, and returned.
   3. Check all shop drawings to verify reinforcement dimensions required by drawings are satisfied.
   4. Provide bar sizes, bar lengths, bar material, bar grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and lap lengths, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.

C. Reinforcement h m 0:
   1. Review of reinforcement shop drawings by the Engineer shall be limited to general compliance with the Contract Documents.
   2. Submit reinforcement shop drawings in a complete package for each specific structure. Partial submittals shall be rejected.

D. Changes to Reinforcing Steel Contract Drawing Requirements:
   1. Specify in separate letter submitted with shop drawings any changes of requirements specified in Drawings for reinforcing steel.

2. Such changes shall NOT be acceptable unless the Engineer has accepted such changes in writing.

1.4 SUPERVISION

A. Workmanship:
1. Always provide qualified supervision reinforcing work is in progress. Workmen shall be experienced iron workers.

B. Codes:
1. Reinforcement placement and detailing shall comply with practice specified in the ACI SP-66 – Detailing Manual – latest edition of the American Concrete Institute or its latest revision, unless otherwise specified in this section.

1.5 WARRANTY

A. See Section 00610 – Payment, Performance and Warranty Bond for requirements.

PART 2 - PRODUCTS

2.1 CONCRETE REINFORCEMENT

A. General:
1. All reinforcement shall be free from rust, loose mill scale, and other contaminants.

B. All bars shall be billet steel bars for concrete reinforcement ASTM A615 Grade 60.

C. Wire bar supports located between reinforcing bars and face of concrete:
1. Stainless steel. Type 304 stainless steel bar supports.
2. Support reinforcing for concrete placed on ground using bar support chairs with Type 304 stainless steel plates for resting on ground welded to the chairs.

D. Concrete Bar Supports Located Between Reinforcing Bars and Face of Concrete:
1. Manufactured expressly for supporting reinforcing bars.
2. Manufactured with two annealed steel wires to securely tie concrete bar support to reinforcing steel.
3. Manufactured with minimum f'_c = 5,000 psi concrete.

2.2 WWR (WELDED WIRE REINFORCEMENT):

A. See ASTM A185 (withdrawn in 2013, replaced by A1064), 75 ksi minimum tensile strength.

B. WWR may NOT be used in place of reinforcing bars unless accepted in writing by the Engineer.

C. Provide WWR in flat sheet form.

D. If WWR is used, provide WWR having cross-sectional area per linear foot of NOT less than cross-sectional area per linear foot of reinforcing bars specified in Drawings.

2.3 ACCESSORIES

A. General:
1. Accessories shall be subject to Engineer's approval.
2. Tie wire – 18 GA annealed steel wire.
3. Number of chairs shall be adequate to prevent sag during steel and concrete placement.

4. Wall layer spacers shall be 1/4 in. round "Z" bar.
5. Horizontal layer spacers shall be wire bar supports or reinforcing bars bent to support top layer.
6. Dowel bar splicer:
   a. Dowel bar splicer shall be Richmond or approved equal, manufactured from standard specified rebar material, with NC threads and shop fabricated to specified dowel configurations.
7. Mechanical Connectors:
   a. Approved Manufacturers: Dayton Superior, Erico, or approved equal.
   b. The mechanical connection shall meet the code requirements of developing in tension and compression as required by the referenced codes. Install per the manufacturer's approved procedures.

PART 3 - EXECUTION

3.1 GENERAL

A. Reinforcing bars and welded wire fabric reinforcement:
   1. Verify that reinforcement is new stock free from rust scale, loose mill scale, excessive rust, dirt, oil, and other coatings which adversely affect bonding capacity when placed in the work.

B. Other trades:
   1. Coordinate all work of other trades to avoid conflict with reinforcement.

C. Shop Drawings:
   1. Check all shop drawings to verify dimensions required.

3.2 FABRICATING

A. General:
   1. Fabricate steel reinforcement as specified in CRSI's "Manual of Standard Practice."
   2. Reinforcement shall be shop fabricated except where straight bars No. 5 or smaller are required.

B. Bending:
   1. All bending shall be by using bending jigs and mandrels. All bars shall be bent cold.

C. Cutting:
   1. Bars shall be cut by cold shearing. Torch cutting in the field may be permitted in special situations.

3.3 PREPARATION

A. Surface Preparation:
   1. Reinforcing bars: thin coating of red rust resulting from short exposure shall NOT be considered objectionable. Thoroughly clean any bars having rust scale, loose mill scale, or thick rust coat.
   2. Cleaning of reinforcement materials: Remove concrete or other deleterious coatings from dowels and other projecting bars by wire brushing or sandblasting before bars are embedded in subsequent concrete placement.

3.4 PLACING

A. General:

1. Accurately place all bars to meet tolerances as outlined in ACI 318 and tie in place before placing concrete, include dowels. Tie with 18 GA steel wire.
2. Corner bars required for horizontal reinforcing. Unless otherwise noted on plans corner bars shall be same size and spacing as horizontal bar.
3. No field bending of bars shall be allowed.

B. Clearance:
1. Preserve clearance between bars of 1 in. minimum, NOT less than one bar diameter or 1 1/3 times large aggregate, whichever is larger.
2. Provide concrete coverage over reinforcing steel unless otherwise specified on plans:
   a. 3 in. above subgrade – in excavation.
   b. 2 in. above subgrade – slab on fill.
   c. 2 in. from form – walls exposed to water or earth and for slab over water.
   d. 1 1/2 in. from form – normal cover interior walls, beams, columns, etc.
   e. 3/4 in. on top steel – interior slabs.
   f. 1 1/2 in. on top and bottom – exterior slab.
3. Lap all reinforcing bars as required by ACI 318-latest edition Class B as specified in Drawings except where otherwise required by ACI.
4. Stagger splices except where otherwise specified.
5. Welded splices are NOT permitted.
6. Lap welded wire reinforcement a minimum of two spaces.

C. Dowels:
1. All dowels shall be placed and securely anchored before placing concrete.

D. Supports:
1. Provide enough to prevent sagging, to prevent shifting, and to support loads during construction; but in no case less than quantities and at locations as specified in ACI 315 (SP-66).
2. DO NOT use brick, broken concrete masonry units, spalls, rocks, wood, or similar materials for supporting reinforcing steel.
3. DO NOT use reinforcing bars that have less cover than required by the Contract Documents.
4. DO NOT adjust location of reinforcement required by the Contract Documents to provide cover to these bars.
5. Wire chairs shall NOT be accepted to hold reinforcing clearance on walls.

E. Tying of bar reinforcement:
1. Fasten bars securely in place with wire ties.
2. Tie bars sufficiently often to prevent shifting.
3. Provide at least 3 ties in each bar length.
4. DO NOT apply to dowel lap splices or to bars shorter than 4 ft, unless necessary for rigidity.
5. Tie slab bars at every intersection around periphery of slab.
6. Tie wall bars and slab bar intersections other than around periphery at NOT less than every fourth intersection, but at NOT greater than following maximum spacings:

Bar Size	Slab Bar Spacing (in.)	Wall Bar Spacing (in.)
Bars Number 5 and Smaller	60	48
Bars Number 6 – Number 9	96	60
Bars Number 10 – Number 11	120	96

7. After tying wire ties, bend ends of wire ties in towards the center of the concrete section.

a. The cover for wire ties shall be the same as the cover requirements for reinforcing bars.

F. Openings and Obstructions:
1. Place additional reinforcing around openings as shown on the drawings and standard details.
2. Bend reinforcing around obstructions. Place extra reinforcing where cutting is authorized. Engineer's approval required before cutting steel.
3. Consult Engineer on special situations.

G. Welded Wire Reinforcement:
1. Install necessary wiring, spacing chairs, or supports to keep welded wire fabric in place while concrete is being placed.
2. Bend fabric as specified in Drawings or required to fit work.
3. Unroll or otherwise straighten fabric to make flat sheet before placing in the Work.
4. Lap splice welded wire fabric as specified in Drawings.
5. If lap splice length is NOT specified in Drawings, splice fabric as specified in ACI 318 and ACI 350.

H. Certification:
1. Certify material and type of deformation.

I. Condition:
1. All reinforcement shall be free from loose rust, dirt coating, oil, paint, or any foreign substance.

END OF SECTION

SECTION 03 30 00 – CAST–IN–PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. This Section Includes:
1. Hydraulic (liquid containing) structures.
2. Beams and columns.
3. Building walls.
4. Retaining walls.
5. Foundation walls.
6. Footings.
7. Suspended slabs.
8. Slabs on grade.
9. Equipment pads.

B. Related Sections:
1. Section 03 15 00 – Concrete Joints and Accessories
2. Section 03 35 00 – Concrete Finishing
3. Section 03 39 00 – Concrete Curing

1.2 REFERENCES

A. ACI (American Concrete Institute):
1. ACI 117 – Specification for Tolerances for Concrete Construction and Materials
2. ACI 301 – Specifications for Structural Concrete
3. ACI 305R – Guide to Hot Weather Concreting
4. ACI 306.1 – Standard Specification for Cold Weather Concreting
5. ACI 308.1 – Specification for Curing Concrete
6. ACI 318 – Building Code Requirements for Structural Concrete
7. ACI 350 – Code Requirements for Environmental Engineering Concrete Structures
8. ACI 350.1 – Specification for Tightness Testing of Environmental Engineering Concrete Containment Structures
    a. Manual of Concrete Practice

B. ASTM International:
1. C31 – Standard Practice for Making and Curing Concrete Test Specimens in the Field
2. C33 – Standard Specification for Concrete Aggregates
3. C39 – Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
4. C42 – Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete
5. C94 – Standard Specification for Ready-Mixed Concrete
6. C143 – Standard Test Method for Slump of Hydraulic-Cement Concrete
7. C150 – Standard Specification for Portland Cement
8. C172 – Standard Practice for Sampling Freshly Mixed Concrete
9. C173 – Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method
10. C227 – Standard Test Method for Potential Alkali Reactivity of Cement-Aggregate Combinations (Mortar-Bar Method)
11. C231 – Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
12. C260 – Standard Specification for Air-Entraining Admixtures for Concrete
13. C309 – Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete

14. C330 – Standard Specification for Lightweight Aggregates for Structural Concrete
15. C494 – Standard Specification for Chemical Admixtures for Concrete
16. C595 – Standard Specification for Blended Hydraulic Cements
17. C618 – Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
18. C881 – Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete
19. C989 – Standard Specification for Slag Cement for Use in Concrete and Mortars
20. C1012 – Standard Test Method for Length Change of Hydraulic-Cement Mortars Exposed to a Sulfate Solution
21. C1017 – Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete
22. C1064 – Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete
23. C1077 – Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation
24. C1107 – Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Non-Shrink)
25. C1116 – Standard Specification for Fiber-Reinforced Concrete
26. C1218 – Standard Test Method for Water-Soluble Chloride in Mortar and Concrete
27. C1240 – Standard Specification for Silica Fume Used in Cementitious Mixtures
28. C1260 – Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)
29. C1315 – Standard Specification for Liquid Membrane-Forming Compounds Having Special Properties for Curing and Sealing Concrete
30. D994 – Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type)
31. D1751 – Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Non-Extruding and Resilient Bituminous Types)
32. D1752 – Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction
33. E96 – Standard Test Methods for Water Vapor Transmission of Materials
34. E329 – Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection
35. E1155 – Standard Test Method for Determining F_F Floor Flatness and F_L Floor Levelness Numbers
36. E1643 – Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs
37. E1745 – Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs.

1.3 DEFINITIONS

A. Cementitious Materials:
   1. Portland cement alone or in combination with one or more of:
      a. Blended hydraulic cement
      b. Fly ash and other pozzolans
      c. Ground granulated blast-furnace slag
      d. Silica fume
   2. Subject to requirements.

B. Cold Weather:
   1. Ambient temperature below 40°F or approaching 40°F and falling.

C. Defective Area:
   1. Surface defects, Including:
      a. Honeycomb
      b. Rock pockets

c. Indentations
d. Surface voids greater than 3/16 in. deep

2. Surface voids greater than 3/4 in. diameter
3. Cracks in liquid containment structures and below-grade habitable spaces that are 0.010 in. wide and wider.
4. Cracks in other structures that are 0.015 in. wide and wider.
5. Spalls, chips, embedded debris, lift lines, sand lines, deviations that exceed specified tolerances and include, but are NOT limited to, fins, form popouts, and other projections, stains, and other color variations that can NOT be removed by cleaning.

D. Exposed Concrete:
1. Concrete surface that can be seen inside or outside of structure regardless of whether concrete is above water, dry at all times, or can be seen when the structure is drained.

E. Hot Weather:
1. As defined in ACI 305R.

F. Hydraulic Structure:
1. Liquid containment structure.

G. New Concrete:
1. Less than 60 days old.

1.4 SUBMITTALS

A. Subject to the requirements of Section 01300 – Submittals.

B. Product Data:
1. Submit data for each type of product indicated.

C. Design Data:
1. Submit concrete mix design for each mix included in the Supplement at the end of this Section.
a. Proportions of all materials in the mix, signed by the mix designer.
b. Average strength per ACI 301.
c. Manufacturer’s Certificate of Compliance as specified in Section 01320 – Product Storage, Delivery, and Handling.
d. Cementitious materials.
e. Admixtures.
f. Test Reports – chemical analysis, chloride-ion content, shrinkage test results.
g. Coarse and fine aggregate gradations.
h. Water to be withheld for later addition at Project site.
2. Detailed plan for placing and curing concrete in cold weather.
3. Detailed plan for placing and curing concrete in hot weather.
a. Thermal control plan for concrete sections greater than 2 ft 6 in.
b. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
c. Manufacturer Instructions: Submit installation procedures and interfacing required with adjacent Work.
d. Field Quality requirements Submittals: Indicate results of Contractor-furnished tests and inspections, including tightness test results and floor surface flatness and levelness measurements.

D. Ready-Mix Concrete Delivery Tickets
a. Record the amount of water added at the Project site on the delivery ticket.

1.5 CLOSEOUT SUBMITTALS

A. Section 01700 – Contract Closeout specifies requirements for closeout submittals.

B. Project Record Documents:
1. Record actual locations of embedded utilities and components concealed from view in finished construction.

1.6 QUALITY ASSURANCE

A. Include this Article to specify compliance with overall reference standards affecting products and installation included in this Section.

B. Perform Work as specified in ACI 301 and ACI 117.

C. See ACI 305R when placing concrete during hot weather.

D. See ACI 306.1 when placing concrete during cold weather.

E. Obtain each type or class of cementitious material from a single source, obtain aggregate from a single source and obtain admixtures from a single supplier for the Project. If any of these sources need to, by necessity, change, notify the Engineer.

F. Installer Qualifications:
1. Project personnel qualified as an ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician. If an ACI-certified Technician is NOT available, submit flatwork installer qualifications to the Engineer.

G. Manufacturer Qualifications:
1. A firm with a minimum of 5 years of experience in manufacturing ready-mix concrete products and that complies with ASTM C94 requirements for production facilities and equipment.
2. Manufacturer certified as specified in NRMCA – “Certification of Ready-Mixed Concrete Production Facilities” or equivalent program.
3. Mix Designer: Certified as NRMCA Concrete Technologist Level 2 or Licensed Engineer. If neither, the Mix Designer’s qualifications shall be submitted to the Engineer.

H. Testing Agency Qualifications:
1. An independent agency, acceptable to the Authority Having Jurisdiction, qualified as specified in ASTM C1077 and ASTM E329 for the testing indicated.
2. Personnel conducting field tests shall be qualified as ACI Concrete Field-Testing Technician, Grade 1, as specified in ACI CP-1 or an equivalent certification program.
3. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician – Grade I. Testing Agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician – Grade II.

I. Concrete Preinstallation Conference:
1. Schedule and conduct at Project site prior to submitting mix designs.
2. Required meeting attendees:
   a. Contractor’s superintendent.
   b. Structural Engineer in responsible charge or designee.
   c. Independent testing agency.
   d. Ready-mix producer.
   e. Concrete Subcontractor.

f. Admixture representative.

3. Agenda shall include:
   a. Concrete testing and special inspection.
   b. Mix designs and admixtures.
   c. Formwork and formwork removal.
   d. Reinforcement.
   e. Placement methods.
   f. Concrete finishing.
   g. Curing procedures.
   h. Hot and cold weather placement protections.
   i. Joints.
   j. Placement of anchors and miscellaneous embeds.
   k. Tolerances including floor and slab flatness and levelness.
   l. Concrete repair procedures.

1.7 AMBIENT CONDITIONS

A. Section 01 50 00 – Temporary Facilities and Controls, specifies requirements for ambient condition control facilities for product storage and installation.

B. Maintain concrete temperature after installation at minimum 50°F for minimum seven days.

1.8 WARRANTY

A. See Section 00610 – Payment, Performance and Warranty Bond for requirements.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Concrete:
   1. Cement:
      a. Comply with ASTM C150, for cement type, see Supplement at End of Section.
      b. Type: Portland.
   2. Blended Cement:
      a. Comply with ASTM C595.
      b. For sulfate resistance option, see Supplement at End of Section.
      c. Color: Gray.
   3. Normal Weight Aggregates:
      a. Comply with ASTM C33.
      b. Coarse Aggregate Maximum Size: 1 in. nominal.
      c. Coarse Aggregate – NOT more than 15% by weight of thin or elongated pieces having a length of five times the average thickness.
      d. Fine Aggregate – consisting of clean natural sand or of sand prepared from crushed stone or crushed gravel.
   4. Water:
      a. Comply with ACI 318.
      b. Potable, without deleterious amounts of chloride ions.

B. Admixtures:
   1. Manufacturers:
      a. BASF Admixtures, Inc, Shakopee, MN.
      b. Euclid Chemical Co., Cleveland, OH.
      c. W.R. Grace & Co., Cambridge, MA.
      d. Substitutions: As specified in Section 01 60 00 – Product Requirements.

2. Air Entrainment: Comply with ASTM C260.
3. Chemical:
   a. Comply with ASTM C494.
   b. Type A – Water-Reducing.Type B – Retarding.
   d. Type C – Accelerating.
   e. Type D – Water-Reducing and Retarding.
   f. Type E – Water-Reducing and Accelerating.
   g. Type F – Water-Reducing, High Range.
   h. Type G – Water-Reducing, High Range, and Retarding.
4. Fly Ash: Comply with ASTM C618, Class F.
5. Silica Fume: Comply with ASTM C1240.
6. Slag:
   a. Description: Ground-granulated blast-furnace slag.
   b. Comply with ASTM C989.
   c. Grade 100 or 120.
7. Plasticizing:
   a. Comply with ASTM C1017.
   b. Type I or Type II.
8. Shrinkage Reducing Admixture:
   a. BASF; Tetraguard AS20.
   b. Euclid; Eucon SRA Series.
   c. W.R. Grace; Eclipse Series.

2.2 CONCRETE MIX

A. See Supplement at the End of this Section for design requirements for each concrete mix.

B. Select proportions for concrete as specified in ACI 318.

C. Use water-reducing admixture in concrete that is part of a Hydraulic Structure or with a water-cementitious ratio below 0.50.

D. Where fly ash is used, it shall be limited to 25% of total cementitious materials, unless approved in writing by the Engineer.

E. Limit water-soluble chloride-ion content in hardened concrete to 0.15% by weight of cement for nonhydraulic structures and 0.10% for hydraulic structures.

F. Fine aggregate shall be in the range of 36 – 40 % of total aggregate weight.

G. Concrete Shrinkage Limits:
   1. See Subsection 3.5.J.

H. Target Slump:
   1. Without high-range water reducers – 4 in.
      a. With high-range water reducers – 2 in. prior to the addition of the admixture, 8 in. maximum at point of delivery, unless otherwise permitted.
      b. Target slump for drilled pier – 6 in. – 8 in.

I. Admixtures:
   1. Include admixture types and quantities indicated in concrete mix designs only if approved by Architect/Engineer.
   2. Cold Weather:
      a. Use accelerating admixtures in cold weather.
      b. Use of admixtures shall NOT relax cold weather placement requirements.

3. Hot Weather: Use set-retarding admixtures.
4. DO NOT use calcium chloride or admixtures containing calcium chloride.
    a. Add air entrainment admixture to concrete mix for Work exposed to freezing and thawing.
    b. Average Compressive Strength Reduction: NOT permitted.

J. Ready-Mixed Concrete:
1. Mix and deliver concrete as specified in ASTM C94 and deliver batch ticket information.
2. When air temperature is between 85°F – 90°F, reduce mixing and delivery time from 90 minutes to 75 minutes; when air temperature is above 90°F, reduce mixing and delivery time to 60 minutes.
    a. Contractor may coordinate with the concrete producer and admixture manufacturer to demonstrate the efficacy of using a retarding admixture to extend placement times during hot weather.

K. Site-Mixed Concrete:
1. Mix concrete as specified in ACI 318.

2.3 ACCESSORIES

A. Bonding Agent:
1. Manufacturers:
    a. BASF Building Systems Inc.
    b. Euclid Chemical Co.
    c. Prime Resins
    d. Sika Chemical Corp.
2. Substitutions: As specified in Section 01 60 00 – Product Requirements.
3. Furnish materials as specified in ASTM C881, Type V standards.Description: Two-component moisture insensitive, 100% solids epoxy resin.

B. Vapor Retarder:
1. Manufacturers:
    a. Fortifiber Corp.
    b. Revan Industries, Inc.
    c. Stego Industries, LLC
2. Substitutions: As specified in Section 01 60 00 – Product Requirements.
3. Furnish materials as specified in E1745, Class B standards.Description: Clear polyethylene film.
5. Thickness: 10 mils min.
6. Type: As recommended for below-grade application.
    a. Joint Tape: As recommended by manufacturer.

C. Bond Breaker:
1. Manufacturers:
    a. Dayton Superior: EDOCO Clean Lift Bond Breaker
2. Substitutions: As specified in Section 01 60 00 – Product Requirements.
3. Description: Nonstaining, providing positive bond prevention.

D. Concrete Reinforcing Fibers:
1. Manufacturers:
    a. Euclid Chemical Co.
    b. Propex Concrete Systems Corp.
    c. Substitutions: As specified in Section 01 60 00 – Product Requirements.
2. Description: High-strength industrial-grade fibers specifically engineered for secondary reinforcement of concrete.
3. Comply with ASTM C1116.

4. Tensile Strength: 130 ksi.
5. Toughness: 15 ksi.
6. Fiber Length: 3/4 in.
7. Fiber Count: 34 million/lb.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 01700 – Contract Closeout specifies requirements for installation examination.

B. Verify requirements for concrete cover over reinforcement.

C. Verify that anchors, seats, plates, reinforcement, and other items to be cast into concrete are accurately placed, positioned securely, and shall NOT interfere with placing concrete.

3.2 PREPARATION

A. Section 01700 – Contract Closeout specifies requirements for installation preparation.

B. Previously Placed Concrete:
1. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent.
a. Remove laitance, coatings, and unsound materials.
b. Doweled Joints: Install dowel bars and support assemblies at joints as indicated on drawings.
c. Remove debris and ice from formwork, reinforcement, and concrete substrates.

C. Remove water from areas receiving concrete before concrete is placed.

3.3 INSTALLATION

A. Placing Concrete:
1. Place concrete as specified in ACI 301.
2. Notify testing laboratory Engineer minimum 24 hrs. prior to commencement of operations.
3. Make sure reinforcement, inserts, embedded parts, formed expansion and contraction joints, and waterstop are NOT disturbed during concrete placement.
4. Install vapor retarder under interior slabs on grade as specified in ASTM E1643.Lap joints minimum 6 in. and seal watertight by taping edges and ends as specified in manufacturer’s instructions.
a. Repairs:
1) Repair vapor retarder damaged during placement of concrete reinforcement.
2) Using vapor retarder material, lap over damaged areas minimum 6 in. and seal watertight.
5) Joint Filler:
b. Separate slabs on grade from vertical surfaces with 1/2 in. thick joint filler.
c. Place joint filler in floor slab pattern placement sequence; set top to required elevations; secure to resist movement by wet concrete.
d. Extend joint filler from bottom of slab to within 1/2 in. of finished slab surface.
6. Deposit concrete at final position, preventing segregation of mix. Limit vertical free fall to 5 ft.
7. Place concrete in continuous operation for each panel or section as determined by predetermined expansion, control and construction joints.
a. Place in horizontal layers NOT to exceed 2.0 ft in depth, except for slabs which shall be placed full depth.

b. DO NOT exceed formwork design pressures.

8. DO NOT use aluminum conveying devices.
9. Retempering of concrete is NOT permitted where cement has partially hydrated.
10. Pumping of Concrete:
    a. Provide standby pump, conveyor system or other system onsite during pumping to ensure completion of concrete placement without cold joints in case of equipment failure.
11. Consolidate concrete using mechanical vibrating equipment per ACI 301
    a. DO NOT use vibrators to transport concrete within formwork. Insert and withdraw vibrators vertically at uniform spacing to quickly penetrate placed layer and at least 6 in. into preceding layer. DO NOT insert vibrators into lower layers that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement, waterstop and other items without causing segregation.
    b. Slabs with horizontal waterstop: limit concrete placement to elevation of waterstop in first pass, ensure space beneath waterstop completely fills with concrete, vibrate under waterstop, then place remaining concrete to full height of slab.
    c. Maintain at least one standby vibrator prior to placing concrete.
12. Maintain records of concrete placement, including date, location, quantity, air temperature, and test samples taken.
13. Maximum Size of Concrete Placements:
    a. Locate expansion, control and contraction joints where shown on drawings.
    b. Locate construction joints where shown on drawings or where approved in joint location submittal per Section 03 15 00 – Concrete Joints and Accessories.
    c. Provide vertical construction joints in walls and slabs at maximum spacing of 40 feet, unless shown or approved otherwise.
    d. Place joints to avoid penetrations.
14. DO NOT interrupt successive placement and DO NOT permit cold joints to occur.
15. Minimum Time Between Adjacent Placements:
    a. Construction or Control Joints: 7 days unless otherwise specified.
    b. Construction joint between top of footing or slab and column or wall: NOT less than 24 hrs.
    c. Expansion or Contraction Joints: NOT less than 24 hrs.
16. Hot Weather Placement:
    a. Comply with ACI 305.1
    b. Maintain concrete temperature below 95°F at time of placement. If chilled water or ice are used to maintain concrete temperature, that water equivalent shall be included in the total water used to calculate the water-cement ratio.
    c. Fog-spray forms, reinforcement, and subgrade just before placing concrete, without creating standing water or dry areas.
17. Cold Weather Placement:
    a. Comply with ACI 306.1
    b. DO NOT place concrete on frozen subgrade or subgrade containing frozen materials. Top 12 in. of subgrade shall be thawed prior to concrete placement.
    c. DO NOT place concrete in contact with reinforcement or embedment with surfaces less than 35°F.
    d. Provide supplemental heat when other means of thermal protection are insufficient. Vent carbon-based fuel heaters away from concrete surface to avoid concrete carbonation.
    e. Provide temperature sensors placed on the concrete surfaces throughout the work. Record surface temperature at least once every 12 hrs.
    f. Protect concrete from freezing until the end of the curing period.
18. Saw-Cut Joints (where permitted):
    a. Saw-cut joints within 12 hrs after placing.
    b. Use 3/16 in. thick blade.
    c. Cut into 1/4 depth of slab thickness.

19. Screeding:
    a. Screed floors and slabs to elevations and slopes shown on drawings.
    b. Surface Flatness: FF 20 (conventional slab).

B. Concrete Finishing:
    a. Per Section 03 35 00 – Concrete Finishing.

C. Curing and Protection:
    1. Per Section 03 39 00 – Concrete Curing.

3.4 BACKFILL AGAINST STRUCTURES

A. DO NOT backfill against walls until the concrete has reached the design 28-day strength as demonstrated by concrete cylinder breaks.

B. For structures with top slabs or diaphragms, the top slab shall reach design strength, or the diaphragm shall be secured per the contract documents prior to backfill.

C. Unless otherwise permitted, backfill evenly around structure to prevent differential horizontal pressures.

3.5 FIELD QUALITY REQUIREMENTS

A. Section 01400 – Quality Control, specifies requirements for inspecting and testing.

B. Inspection and Testing:
    1. Performed by testing laboratory as specified in ACI 318.

C. Provide unrestricted access to Work and cooperate with appointed testing and inspection firm.

D. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of Work.

E. Concrete Inspections:
    1. Continuous Placement Inspection: Inspect for proper installation procedures.
    2. Periodic Curing Inspection: Inspect for specified curing temperature and procedures.
        a. Samples for testing air content in pumped concrete shall be taken at point of placement and point of delivery to establish a correlation to estimate air content at point of placement. All other samples shall be taken at point of delivery.
        b. Provide adequate facilities for safe storage and proper curing of concrete test specimens onsite for first 24 hrs.

F. Strength Test Samples:
    1. Sampling Procedures: Comply with ASTM C172.
    2. Cylinder Molding and Curing Procedures:Comply with ASTM C31.
        b. Cylinder Specimens: Standard cured.
    3. Sample concrete and make one set of four 4 in. diameter test cylinders for every 50 yd^3 or less of each class of concrete placed each day, and for every 5,000 ft^2 of surface area for slabs and walls.
    4. If volume of concrete for a class of concrete would provide less than five sets of cylinders, take samples from five random batches, or from every batch if less than five batches are used.
        a. Make one additional cylinder during cold weather concreting and field cure.

G. Field Testing:

1. Slump Test Method: Comply with ASTM C143.
2. Air Content Test Method: Comply with ASTM C173 or C231.
3. Temperature Test Method: Comply with ASTM C1064.
4. Frequency of Testing:
    a. Measure slump and temperature for each sample.
    b. Measure air content in air-entrained concrete for each sample.

H. Cylinder Compressive Strength Testing:
1. Test Method: See ASTM C39.
2. Test Acceptance: See ACI 318.
3. Test one cylinder at seven days.
4. Test two cylinders at 28 days.Retain one cylinder for 56 days for testing when requested by Engineer.
    a. Dispose of remaining cylinders if testing is NOT required.

I. Core Compressive Strength Testing:
1. Sampling and Testing Procedures: Comply with ASTM C42.
2. Test Acceptance: As specified in ACI 318.
    a. Drill three cores for each failed strength test from failed concrete.

J. Shrinkage Testing:
1. As specified in ASTM C157 with modifications:
    a. Prisms shall be moist cured for 7 days prior to the 28-day drying period.
    b. Measurement at the end of the 7-day moist cure shall be considered the initial length.
    c. The reported results shall be the average of three prisms.
2. If the drying shrinkage measurement of a specimen varies from the average by more than.004%, disregard the results from that specimen.
3. Test shrinkage characteristics every 5,000 yd^3 and every 3 months during construction of hydraulic structures.
4. Results at the end of the 28-day drying period shall NOT exceed 0.04% if 3 in. prisms are used or 0.038% if 4 in. prisms are used.
    a. If the 7-day or 14-day field shrinkage tests exceed the limits established by testing of the mix design, furnish an additional 14 days of water cure beyond the original curing period for hydraulic structures. Modify the mix design to reduce shrinkage.

K. Liquid Tightness Tests:
1. As specified in ACI 350.1.
2. Purpose:
    a. To determine the integrity and water tightness of finished concrete surfaces of liquid containment structures.
    b. Contractor shall perform and pay for all costs associated with liquid tightness tests.
    c. Report all test results to the Engineer.
3. For All Water-Holding Structures:
    a. Perform tightness tests after the concrete structure is complete and capable of resisting the hydrostatic pressure of the water test. The concrete shall have achieved its full design strength.
    b. Perform tightness tests before backfill, brick facing, or other work that shall cover the concrete wall surfaces has begun.
    c. Install all temporary bulkheads, cofferdams and pipe blind flanges and close all valves. Inspect each to assure that it provides a complete seal.
    d. Fill with water to test level shown, or maximum liquid level if no test level is given. Maintain this level for 72 hrs. prior to the start of the test to allow for water absorption, structural deflection, and temperature to stabilize.
    e. Measure evaporation and precipitation by floating a partially filled, transparent, calibrated, open top container.

f. Measure the water surface at two points 180 degrees apart, when possible where attachments such as ladders exist, at 24 hr. intervals. Use a sharp pointed hook gage and fixed metal measure capable of reading to 1/100 in. Continue the test for a period sufficient to produce at least 1/2 in. drop in the water surface based on the assumption that leakage would occur at the maximum allowable rate specified or for 72 hrs, whichever is the lesser time.

4. Acceptance Criteria:
   a. Volume loss shall NOT exceed 0.075% of contained liquid volume in a 24-hr. period, correcting for evaporation, participation, and settlement.
   b. No damp spots or seepage visible on exterior surfaces. A damp spot is defined as sufficient moisture to be transferred to a dry hand upon touching.
5. Repairs when test fails:
   a. Dewater the structure; fill leaking cracks with crack repair epoxy as specified in Section 03 64 00 – Concrete Repair Crack Injection. Patch areas of damp spots previously recorded and repeat tightness test in its entirety until the structure successfully passes the test.

L. Water-Soluble Chloride-Ion Concentration Test Method:
1. Comply with ASTM C1218.
2. Test at 28 days.
   a. Maximum Chloride-Ion Concentration: As permitted by applicable code.

M. Patching:
1. Allow Engineer to inspect concrete surfaces immediately upon removal of forms.
2. Honeycombing or Embedded Debris in Concrete:
   a. NOT acceptable.
   b. Notify Engineer upon discovery..

N. Defective Concrete:
1. Description: See Definitions.
2. Repair or replacement of defective concrete shall be determined by Engineer.
3. DO NOT patch, fill, touch up, repair, or replace exposed concrete except upon express direction of Engineer for each individual area.

3.6 SUPPLEMENTS

A. Requirements of concrete mix designs after “End of Section” are a part of this section.

END OF SECTION

5000 PSI CONCRETE MIX

A. Use for Hydraulic Structures exposed to freezing and thawing cycles, severe sulfate exposure and requiring low permeability. Typically used in wastewater treatment.

B. Mix Design Properties:
   1. Maximum water / cementitious ratio of 0.40.
   2. Minimum compressive strength at 28 days of 5,000 psi.
   3. Conform to shrinkage limits.
   4. Air content of 4.5% to 7.0%, assuming 3/4 in. or 1 in. maximum aggregate size.
   5. Provide Cementitious Materials as Specified in Either:
      a. ASTM C150 Type V – type F fly ash may be included as an option
   6. Minimum cementitious materials content in the mix shall be:
      a. 560 lbs/yd^3 for 3/4 in. maximum aggregate size.
      b. 535 lbs/yd^3 for 1 in. maximum aggregate size.
      c. Limit maximum cementitious content to 100 lbs/yd^3 greater than specified minimums.
   7. Limit water-soluble, chloride-ion content in hardened concrete to 0.10%.
      a. Test if total chloride-ion content of individual ingredients, calculated on the basis of concrete proportions, exceeds 0.10%.
      b. Refer to this Section for additional requirements.

4500 PSI CONCRETE MIX

A. Use for Hydraulic Structures exposed to freezing and thawing cycles, moderate sulfate exposure and requiring low permeability. Typically used in water treatment.

B. Mix Design Properties:
   1. Maximum water / cementitious ratio of 0.42.
   2. Minimum compressive strength at 28 days of 4,500 psi.
   3. Conform to shrinkage limits.
   4. Air content of 4.5 – 7.0%, assuming 3/4 in. or 1 in. maximum aggregate size.
   5. Provide Cementitious Materials Per as Specified in Either:
      a. ASTM C150 Type II – type F fly ash may be included as an option.
      b. ASTM C595 Type IP – complies with moderate sulfate resistance option.
   6. Minimum cementitious materials content in the mix shall be:
      a. 560 lbs/yd^3 for 3/4 in. maximum aggregate size
      b. 535 lbs/yd^3 for 1 in. maximum aggregate size
      c. Limit maximum cementitious content to 100 lbs/yd^3 greater than specified minimums.
   7. Limit water-soluble, chloride-ion content in hardened concrete to 0.10%.
      a. Test if total chloride-ion content of individual ingredients, calculated on the basis of concrete proportions, exceeds 0.10%.
      b. Refer to this section for additional requirements.

4500 PSI CONCRETE MIX

A. Use for nonhydraulic structural concrete exposed to freezing and thawing cycles, moderate sulfate exposure and requiring low permeability. Typically used for buildings.

B. Mix Design Properties:
   1. Maximum water / cementitious ratio of 0.45.
   2. Minimum compressive strength at 28 days of 4,500 psi.
   3. Air content of 5.5% – 7.0% for 3/4 in. and 1 in. maximum aggregate size.
   4. Provide Cementitious Materials as Specified in Either:
      a. ASTM C150 Type II – type F fly ash may be included as an option.
      b. ASTM C595 Type IP – complies with moderate sulfate resistance option.
   5. Limit water-soluble, chloride-ion content in hardened concrete to 0.30%.
      a. Test if total chloride-ion content of individual ingredients, calculated on the basis of concrete proportions, exceeds 0.30%.
      b. Refer to this section for additional requirements.

4000 PSI CONCRETE MIX

A. Use for secondary elements NOT exposed to freezing and thawing cycles, with moderate sulfate exposure. Typically used below grade for electrical duct banks, pipe encasements NOT cast monolithically with structural slabs, thrust blocks, and drilled piers.

B. Mix Design Properties:
   1. Maximum water / cementitious ratio of 0.50.
   2. Minimum compressive strength at 28 days of 4,000 psi.
   3. Air content of 1.5% – 4.5% for 3/4 in. and 1 in. maximum aggregate size.
   4. Provide Cementitious Materials as Specified in Either:
      a. ASTM C150 Type II – type F fly ash may be included as an option.
      b. ASTM C595 Type IP – complies with moderate sulfate resistance option.
   5. Limit water-soluble, chloride-ion content in hardened concrete to 0.30%.
      a. Test if total chloride-ion content of individual ingredients, calculated on the basis of concrete proportions, exceeds 0.30%.
      b. Refer to this section for additional requirements.

SECTION 03 39 00 – CONCRETE CURING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section Includes:
   1. Curing Methods.
   2. Curing Products.

1.2 REFERENCES

A. ASTM International:
   1. C309 – Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.

B. American Concrete Institute:
   1. 308.1 – Specification for Curing Concrete.

C. NSF International:
   1. 61 – Drinking Water Components – Health Effects.

1.3 SUBMITTALS

A. Subject to the requirements of Section 01300 – Submittals.

B. Manufacturer's Product Data:
   1. Curing Compound.
   2. Evaporation Retardant.
   3. Penetrating Water Repellant Sealer.

C. Curing Methods:
   1. For each type of element in the facility such as slabs, walls, beams, or columns.

1.4 WARRANTY
   1. See Section 00610 - Payment, Performance and Warranty Bond for requirements.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Curing Compound:
   1. Water-based, high-solids, white pigmented, nonyellowing curing compound meeting the requirements of ASTM C309, Type 2, Class A.
   2. Manufacturers:
      a. Euclid Chemical; Kurez VOX White Pigmented.
      b. WR Meadows; 1640 – White.
      c. Vexcon; Certi-Vex Envio Cure White.

B. Evaporation Retardant:
   1. Manufacturers:
      a. BASF; MasterKure ER 50.
      b. Euclid Chemical; Eucobar.

C. Penetrating Water Repellant Sealer:

1. Water-based, single component, silane/siloxane, penetrating, clear water repellant sealer.
2. Manufacturers:
   a. BASF; MasterProtect H 400.
   b. Euclid Chemical; Baracade WB 244.

PART 3 - EXECUTION

3.1 CONCRETE CURING

A. General:
   1. Cure all concrete per project specifications and ACI 308.1.
   2. Use only water curing procedures where surfaces are to receive paint or other coatings.
   3. Use only water curing procedures on potable water structures.
   4. If the result of the 7-day concrete strength test is less than 50 percent of the specified 28-day strength, extend the moist curing period for an additional 7 days.
   5. Protect concrete from freezing during curing period.

B. Use one of the curing methods below as approved by the Engineer:
   1. Vertical Surfaces:
      a. Method 1 – leave concrete forms in place and keep surfaces of forms and concrete wet for 7 days.
      b. Method 2 – apply curing compound, where allowed, immediately after removal of forms.
   2. Horizontal Surfaces:
      a. Method 1 – water pond surface for 7 days.
      b. Method 2 – continuously sprinkle surface for 7 days.
      c. Method 3 – cover surface with material that will retain moisture such as burlap or cotton mats, sand or sawdust and keep continuously wet for 7 days.
      d. Method 4 – apply curing compound, where allowed, immediately after final finishing.

C. All slabs for structures defined as Environmental Structures per ACI 350 – Code Requirements for Environmental Engineering Concrete Structures shall be cured per the Horizontal Surfaces Methods 1, 2 or 3.

3.2 EVAPORATION RETARDANT APPLICATION

A. Use when environmental conditions will cause rapid drying of the concrete surface. DO NOT use on potable water structures unless NSF 61 approved.

B. Apply and reapply as required per manufacturer’s written instructions.

3.3 PENETRATING WATER REPELLENT SEALER APPLICATION

A. Apply as specified in Drawings.

B. Water cure concrete to receive sealer. DO NOT use membrane curing compounds. Keep surface clean and unpainted.

C. Apply per manufacturer’s recommendations for coverage and curing time.

END OF SECTION

SECTION 03 41 00 – PRECAST STRUCTURAL CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Precast concrete required for this Project.
   2. Reinforcing.
   3. Accessories.

B. Related Sections
   1. Section 03 20 00 – Concrete Reinforcing
   2. Section 03 30 00 – Cast-In-Place Concrete
   3. Section 03 39 00 – Concrete Curing

1.2 REFERENCES

A. ACI (American Concrete Institute):
   1. 304R – Guide for Measuring, Mixing, Transporting and Placing Concrete.

B. ASTM International:
   1. A36 – Standard Specification for Structural Steel.
   2. A416 – Standard Specification for Steel Strand, Uncoated Seven-Wire for Prestressed Concrete.
   3. C31 – Standard Practice for Making and Curing Concrete Test Specimens in the Field.

C. PCI (Precast/Prestressed Concrete Institute):
   1. MNL-117 – Manual for Quality requirements for Plants and Production of Architectural Precast Concrete Products.
   2. MNL-120 – Design Handbook for Precast and Prestressed Concrete.

1.3 SUBMITTALS

A. Subject to the requirements of Section 01300 – Submittals.

B. Sealer for Exterior Surfaces:
   1. Product data with mixing and application instructions.

C. Form Liners:
   1. Manufacturer’s literature and product data.

D. Calculations and Technical Data:
   1. Proposed design calculations and details for all loading conditions including transportation, handling, and erection.

1.4 QUALITY ASSURANCE

A. Qualifications of Precasting Manufacturers:
   1. Minimum of 3 years of experience producing the products specified.
   2. PCI-certified precast plant with current certification.
   3. Calculations sealed by an Engineer registered in the same state as the project.

B. Qualifications of Workmen:

1. Provide at least one person to always be present during execution of this portion of the work and who shall be thoroughly trained and experienced in placing and erecting the type of concrete described in this section and who shall direct all work performed under this Section.
2. Precast Subcontractor shall be experienced in constructing the type of precast material required for the project. Submit data for approval.
3. For finishing of exposed surfaces of the concrete, use only thoroughly trained and experienced journeyman concrete finishers.
4. Approval required in advance as specified in Section 01 33 00 – Submittal Procedures.

C. Mockup Panels for Architectural Precast Panels:
1. Construct one mockup panel for each different type of color or finish as specified in detail shown using the materials, forming systems, reinforcing details, and mix proportions that will be used for the final product.
2. The panel shall constitute the standard of quality required for the completed work.

1.5 PRODUCT HANDLING

A. Protection:
1. Use all means necessary to protect the materials of this Section before, during, and after installation and to protect the installed work and materials of all other trades.

B. Replacements:
1. In the event of damage, immediately make all repairs and replacements necessary to the approval of the Engineer and at no additional cost to the Owner.

1.6 DESIGN

A. All design of prestressed members shall be done as specified in procedures set forth in the current edition of ACI 318 – "Building Code Requirements for Reinforced Concrete" and applicable sections of PCI MNL-120.

B. All precast structural concrete members shall be designed to meet requirements of the Building Code.

1.7 WARRANTY
1. See Section 00610 - Payment, Performance and Warranty Bond for requirements.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Concrete:
1. Cement shall be Portland Cement conforming to ASTM C150, Portland Cement.
2. Aggregates shall conform in quality to ASTM C33 for heavyweight aggregate.
3. Heavyweight aggregates shall be graded crushed stone with a resulting unit weight of concrete of up to 155 lbs/ft^3.
4. Water shall be clean and free of injurious and deleterious substances.
5. Concrete strength shall be minimum 5,000 psi at 28 days.
6. Water/Cement Ratio: 0.38 maximum.

B. Steel:
1. Prestressing steel shall be:
a. High tensile strength uncoated seven wire strand which is low-relaxation strand or has been stress-relieved as a unit after the wires have been formed into a strand.

b. Manufactured and tested as specified in ASTM A416.
c. Either 250K or 270K strand may be used.

2. All reinforcing bars shall conform to the requirements of ASTM A615, Grade 60 as required.
3. Welded wire fabric shall conform to the requirements of ASTM A185.
4. Cast in plates shall conform to the requirement of ASTM A36, or A572 as required.

2.2 OTHER MATERIALS

A. All other materials NOT specifically described but required for a complete and proper installation of the work of this Section, shall be as selected by the Contractor subject to the approval of the Engineer.

2.3 FABRICATION

A. Comply with PCI MNL-117

B. Pretensioning Force, if used:
1. Determine by elongation and gauge pressure per PCI.
2. Release strength minimum 4,000 psi, unless otherwise approved.

C. Coordinate quantity, size, and location of required embedded items.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Inspections:
1. Prior to all work of this Section, carefully inspect the installed work of all other trades, and verify that all such work is complete to the point where this installation may properly commence.
2. Verify that the work of this Section may be performed as specified in all pertinent codes and regulations, the original design, and the manufacturer's recommendations for the items being installed.

B. Discrepancies:
1. In the event of discrepancy, immediately notify the Engineer.
2. DO NOT proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

3.2 QUALITY

A. Manufacturer of precast concrete shall be adequately equipped to form, place, and cure the required precast concrete, and shall have experience to produce precast concrete of required strength and water resistance.

3.3 PLACEMENT OF REINFORCEMENT

A. Place all standard reinforcement as specified in Drawings and with the provisions of Section 03 20 00 – Concrete Reinforcing.

3.4 PLACEMENT OF CONCRETE

A. General:

1. Concrete shall be placed and compacted by tamping or vibrating to produce a dense waterproof product.
2. Finish all concrete surfaces in smooth finish to the tolerances specified in Section 03 30 00 – Cast-In-Place Concrete.

B. Curing:
1. Cure all concrete of this section as specified in the methods specified in Section 03 39 00 – Concrete Curing, or approved alternative.

3.5 OPENINGS

A. Locations and sizes of all openings 3 in. wide or larger to be cast into the members, if NOT shown on the contract drawings, shall be supplied when shop drawings are submitted for approval. All other openings NOT so located shall be job cut by the various trades requiring them. All holes less than 3 in. in dimension through precast members are to be made by drilling or cutting in the field, by the various trades requiring them. However, field holes or cuts may NOT be made in the precast members without prior approval of the manufacturer.

3.6 ERECTION

A. Responsibility:
1. The entire method and sequence of erection shall be the responsibility of the Contractor.

B. Alignment:
1. Set all units in true alignment in all directions.
2. Verify that anchorage inserts are in the correct location.

C. All precast concrete items with cracks or other flaws that will detract from the appearance, shall be replaced.

D. Grind to remove sharp edges.

E. Field cutting is NOT allowed without prior approval.

3.7 FIELD QUALITY REQUIREMENTS

A. Inspect precast panels for chips, cracks, and discoloration.

B. Compare to approved mockup panel.

C. Record location of damage.

D. Repair or replace panels with damage determined to be unacceptable.

END OF SECTION

SECTION 03 62 00 – NON–SHRINK GROUTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Cementitious non-shrink grout.
   2. Epoxy non-shrink grout.

1.2 REFERENCES

A. ASTM International:
   1. C307 – Standard Test Method for Tensile Strength of Chemical-Resistant Mortar, Grouts and Monolithic Surfacings.
   2. C579 – Standard Test Methods for Compressive Grout Strength of Chemical-Resistant Mortars, Grouts, Monolithic Surfacings and Polymer Concretes.
   3. C882 – Standard Test Method for Bond Strength of Epoxy-Resin Systems Used with Concrete by Slant Shear.
   4. C939 – Standard Test Method for Flow of Grout for Preplaced-Aggregate Concrete (Flow Cone Method).
   5. C1107 – Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Non-shrink).

1.3 SUBMITTALS

A. Subject to the requirements of Section 01300 – Submittals.

B. Product data and manufacturer's written instructions.

C. Forming method for fluid grout placements under machinery base plates.

D. Curing methods.

E. Qualifications of grout installers for specific grout type(s) selected.

1.4 QUALITY ASSURANCE

A. Evaluation and Acceptance of Non-Shrink Grout:
   1. Inspect the concrete substrates and formwork for conformance with the manufacturer's recommendations.
   2. Make three 2 in^3 for every 25 ft^3 of grout used to perform flow cone tests per ASTM C939.
   3. An independent testing laboratory shall prepare, store, cure, and test cubes per ASTM C1107.
   4. Grout cubes shall meet specified strength requirements – grout that fails strength test shall be removed and replaced at no additional cost to the Owner.

B. Evaluation and Acceptance of Epoxy Grout:
   1. Inspect the concrete substrates and formwork for conformance with the manufacturer's recommendations.
   2. Verify that the consistency of the epoxy grout mix is appropriate for proper field placement at the installed temperatures.
   3. Record that the "pot life" of the epoxy grout has NOT been exceeded.
   4. A set of (3) shall be made for testing at 7 days per ASTM C579.
   5. Grout cubes shall meet specified strength requirements – grout that fails strength test shall be removed and replaced at no additional cost to the Owner.

C. Qualification of Grout NOT Listed Herein
1. Provide independent laboratory test results conducted within the last 18 months.

1.5 WARRANTY
1. See Section 00610 - Payment, Performance and Warranty Bond for requirements.

PART 2 - PRODUCTS

2.1 CEMENTITIOUS NON–SHRINK GROUT

A. Use For:
1. Column baseplates
2. Precast joints
3. Machine bases 25 hp or less
4. Tank foundations
5. Form tie and through bolt patching

B. Shall Have the Following Properties:
1. Ready to use, requiring only the addition of water.
2. Nonmetallic and non-gas generating.
3. Test as specified in ASTM C1107.
4. Fluid consistency as specified in ASTM C939.

C. Manufacturers and Products:
1. BASF Building Systems; MasterFlow 928
2. Five Star Products; Five Star Fluid Grout 100
3. Euclid Chemical Co.; Hi Flow Grout

2.2 EPOXY GROUT

A. Use For:
1. Machine bases over 25 hp
2. Machine baseplates that are anticipated to have vibration or thermal movement.

B. Shall Have the Following Properties:
1. Premeasured, prepackaged system.
2. 100 percent solids two-component epoxy resin system.
3. Flowable, noncorrosive, moisture insensitive.
4. Minimum compressive strength per ASTM C579 of 9,500 psi at 7 days, 11,000 psi fully cured.
5. Minimum bond strength per ASTM C882 of 2,000 psi.
6. Minimum tensile strength per ASTM C307 of 2,000 psi.
7. Minimum working time of 1.0 hours at 70°F.

C. Manufacturers and Products:
1. Euclid Chemical Co; E^3 Flowable
2. BASF Building Systems; MasterFlow 648
3. Five Star Products, Inc.; DP Epoxy Grout

PART 3 - EXECUTION

3.1 GENERAL

A. All areas to be grouted shall be clean and free of oil, grease, dirt, and contaminants. All metal components in contact with grout shall be free of rust, paint, and oils.

B. All concrete slabs shall be fully cured for a minimum of 28 days. Concrete shall be in saturated surface dry condition when placing grout.

C. Machinery and Tank Foundations:
   1. Prepare concrete surface by sandblasting or chipping to remove loose material. Create surface roughness per manufacturer's instructions.
   2. Form with watertight forms at least 2 in. higher than the bottom of the plate. Treat any form materials that could absorb water.
   3. Place grout at one edge and flow to the opposite edge, if possible. Otherwise, create air vents in plate to prevent air entrapment.

3.2 MIXING AND PLACING

A. Grout shall be mixed with a paddle-type or other mechanical mixer. DO NOT mix more grout than can be placed within the manufacturer's allotted work time.

B. Place grout immediately after mixing at a temperature range between 45°F – 75°F. Place grout per manufacturer's written instructions.

3.3 CURING

A. Per manufacturer's written instructions.

END OF SECTION

DIVISION 8

OPENINGS

SECTION 08 31 00 – ALUMINUM HATCHES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section Includes:
   1. The Work to furnish aluminum hatches:
      a. Either single-leaf or double-leaf hatches.
      b. Flush-type.

1.2 SUBMITTALS

A. Subject to the requirements of Section 01300 – Submittals.

B. Submit aluminum hatch location, identification number and specification number.

C. Submit drawing plan and cross sections of equipment.

D. Materials and manufacturing specifications.

E. Equipment Booklet:
   1. Descriptive literature and bulletins.
   2. Customer contact list with telephone numbers (minimum of ten contacts from similar size facility)

F. Detailed list of any exceptions taken to these Specifications. Include specification reference and proposed alternative with reason stated for exception.

1.3 QUALITY ASSURANCE

A. All aluminum hatches furnished under this Section shall be of a design and manufacture that has been used in similar applications and it shall be demonstrated to the satisfaction of the Owner that the quality is equal to equipment made by that manufacturer specifically named herein.

B. Unit Responsibility:
   1. Aluminum hatches, complete with frame and all other specified accessories and appurtenances, shall be furnished by the aluminum hatch manufacturer to ensure compatibility and integrity of the individual components and provide the specified warranty for all components.

C. The aluminum hatches specified in this Section, complete with frame and all other specified accessories and appurtenances, shall be furnished by and be the product of one manufacturer.

1.4 ALUMINUM HATCH DESIGN

A. Aluminum hatches specified in this Section shall be designed for a 300 psf live load.

B. Aluminum hatches specified as gutter-type shall be designed to be watertight when a 2 in. head of water is present over the hatch.

C. Aluminum hatches shall be designed to open a minimum of 90 degrees.

D. Aluminum hatches shall be designed for easy opening from both inside and outside.

E. Unless otherwise indicated, hinges shall be located on the longer dimension side.

1.5 WARRANTY

A. Warrant all parts to be free from defects in materials and workmanship for a period of five years after Substantial Completion.

B. Furnish replacement parts to the Owner for any items found to be defective within the five-year warranty period.

C. See Section 00610 - Payment, Performance and Warranty Bond for additional requirements.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Experience in design and manufacture of aluminum hatches is required for this project. Submit references for a minimum of ten installations of similar design as specified, having yielded successful performance for a period of NOT less than five years.

B. Manufacturers are subject to requirements.

C. Acceptable Manufacturers:
1. Bilco
2. Syracuse Castings
3. Thompson Fabricating
4. Halliday

2.2 MATERIALS

A. Hatches shall be fabricated from aluminum 6061-T6, unless otherwise indicated. Aluminum hatch hardware shall be Type 316 stainless steel, unless otherwise indicated.

B. Cover Leafs:
1. Shall be 1/4 in. 5086 aluminum checkered plate reinforced with structural aluminum channels capable of withstanding a 300 psf uniform live load with minimal deflection.

C. Hardware:
1. Cover shall be equipped with the following features: Gas spring assist, heavy-duty hinges, tamperproof attaching hardware, automatic hold-open arm with latch.
2. Gas Spring Assist: Type 316 stainless steel.
3. Hold-Open Arm with Aluminum Release Handle: Type 316 stainless steel. Shall automatically lock in the open 90-degree position. Hold-Open arm shall be fastened to the frame with a 1/2 in. 316 stainless steel bolt.
4. Heavy-Duty Hinges: Type 316 stainless steel. Each hinge shall have a grade 316 stainless steel 3/8 in. diameter hinge pin. Hinge shall be fastened to angle and diamond plate with 316 stainless steel bolts and ny-lock nuts.
5. All fasteners which penetrate into the dry area of the hatch shall be sealed with O-ring seals to prevent incidental leakage.

D. The gutter-type frame shall be 1/4 in. aluminum channel with continuous anchor flange and shall incorporate a neoprene gasket between the frame and the cover leaf when in the closed position. The gutter-type frame shall be provided with a 1 1/2 in. threaded drainage coupling located on the Drawings.

E. The gutterless-type frame shall be 1/4 in. aluminum angle with continuous anchor flange and shall incorporate a neoprene gasket between the frame and the cover leaf when in the closed position.

F. Frame Coating:
   1. The portion of the frame in contact with concrete shall receive a protective bituminous coating.

G. Locking system:
   1. type 316 stainless steel slam lock with one T-wrench provided per unit.

H. Built-in neoprene gasket shall reduce air leakage to less than 1 cfm/LF of frame when the interior of the hatch is subjected to a 2 in. water column vacuum.

I. All double-leaf hatches shall have two interconnected slam locks which latch at both ends of the plate and can be unlatched from a single point.

J. Units shall be supplied with hinged safety grates to provide protection against fall through and to control access to the confined space.

K. Each hatch shall be equipped with an aluminum lift handle. The lift handle shall be flush with the top of the 1/4 in. diamond plate.

PART 3 - EXECUTION

3.1 INSTALLATION PROCEDURE

A. Follow equipment manufacturer's recommendations for equipment installation.

B. Fasteners and Anchors to Concrete
   1. Expansion and wedge anchors shall NOT be allowed.
   2. All fasteners and anchors which are NOT integrally cast within the concrete shall be adhesive anchor systems.
   3. Adhesive Anchor System: A hybrid adhesive mortar used in conjunction with threaded steel rods or deformed steel reinforcement bars. The adhesive shall be a manufactured product combining urethane methacrylate resin, hardener, Portland cement and water.
      a. Design Requirements:
         1) Adhesive anchors shall be designed based upon the more stringent of the manufacturer's recommendation or the International Council of Building Officials Evaluation Service Report, as applicable.
      b. Available Products
         1) Hilti HIT HY-150 by Hilti Corporation for concrete and grout filled CMU.
         2) Or approved equal.
   4. Material for Anchor Rods/Bolts: Alloy Group 2 (A4) (316) stainless steel bolts complying with ASTM F593 and nuts complying with ASTM F594. Alloy Group 2 (A4) (316) flat washers, as required.

C. All threads on stainless steel rods/bolts shall be protected with an anti-seize lubricant suitable for submerged stainless bolts and complying with Federal Specification MILI-A-907E.

END OF SECTION

DIVISION 9

FINISHES

SECTION 09 90 00 – PAINTING AND PROTECTIVE COATINGS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section Includes:
   1. Surface preparation and field application of paints, and other coatings.

1.2 DEFINITIONS

A. See ASTM D16 for definitions of terms used in this Section.

1.3 REFERENCES

A. ASTM International:
   1. D16 – Standard Terminology for Paint, Related Coatings, Materials, and Applications.
   2. D4442 – Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials.
   3. E84 – Standard Test Method for Surface Burning Characteristics of Building Materials.

B. MPI (Master Painters Institute):
   1. Approved Products List.
   2. Architectural Painting Manual.

1.4 PREINSTALLATION MEETINGS

A. Convene minimum one week prior to commencing Work of this Section.

1.5 SEQUENCING

A. Do not apply finish coats until paintable sealant is applied.

B. Back prime wood trim before installation of trim.

1.6 SUBMITTALS

A. Subject to the requirements of Section 01300 – Submittals.

B. Product Data:
   1. Submit manufacturer data on finishing products, special coatings.
   2. Include MPI – Approved Products Lists with proposed products highlighted.

C. Samples:
   1. Submit two paper chip samples, 10 in. by 10 in. in size, illustrating range of colors and textures available for each surface finishing product as scheduled.
   2. Painted Samples:
      a. Submit two painted samples, illustrating selected colors and textures for each selected color and system with specified coats cascaded.
      b. Submit on tempered hardboard 2, 10 in. by 10 in. in size.

D. Manufacturer's Certificate:
   1. Certify that products meet or exceed specified requirements.

E. Manufacturer Instructions:

1. Submit special surface preparation procedures, substrate conditions requiring special attention.

F. Field Quality-Control Submittals:
1. Indicate results of Contractor-furnished tests and inspections.

G. Qualifications Statements:
1. Submit qualifications for manufacturer and applicator.
2. Submit manufacturer's approval of applicator.

H. Closeout Submittals:
1. Section 01700 – Contract Closeout: Requirements for submittals.
2. Operation and Maintenance Data: Submit information on cleaning, touchup, and repair of painted and coated surfaces.

I. Maintenance Material Submittals:
1. Section 01700 – Contract Closeout: Requirements for maintenance materials.
2. Extra Stock Materials:
   a. Furnish [1] gal. of each color, type, and surface texture as provided for Project.
   b. Label each container with manufacturer's label, color, type, texture, room number, and site location.
   c. Store where directed by Owner.

1.7 QUALITY ASSURANCE

A. MPI Standards:
1. See indicated MPI standards.
2. Products: Listed in MPI – Approved Products List.

B. Surface Burning Characteristics:
1. Fire-Retardant Finishes: Maximum 25/450 flame-spread/smoke-developed index when tested as specified in ASTM E84.

C. Perform Work as specified in ASTM standards.

1.8 QUALIFICATIONS

A. Manufacturer:
1. Company specializing in manufacturing products specified in this Section with minimum three years of documented experience.

B. Applicator:
1. Company specializing in performing Work of this Section with minimum three years of documented experience and approved by manufacturer.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Section 01 60 00 – Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Container Labeling:
1. Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

C. Inspection:
1. Accept materials on Site in manufacturer's sealed and labeled containers.
2. Inspect for damage and to verify acceptability.

D. Store materials in ventilated area and otherwise as specified in manufacturer instructions.

E. Protection:
1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
2. Provide additional protection as specified in manufacturer instructions.

1.10 AMBIENT CONDITIONS

A. Section 01560 – Temporary Controls: Requirements for ambient condition control facilities for product storage and installation.

B. Storage Conditions:
1. Minimum Ambient Temperature: 45°F.
2. Maximum Ambient Temperature: 90°F

C. Application Conditions:
1. Do not apply materials when surface and ambient temperatures are outside temperature ranges required by paint manufacturer.
2. Do not apply exterior coatings during rain or snow, when relative humidity is outside humidity ranges, or when moisture content of surfaces exceeds those required by paint manufacturer.
3. Minimum Application Temperatures for Latex Paints: 45°F for interiors and 50°F for exteriors, unless otherwise indicated by manufacturer instructions.
4. Minimum Application Temperature for Varnish and Finishes: 65°F for interiors and exteriors, unless otherwise indicated by manufacturer instructions.
5. Lighting Level: 80 fc measured mid-height at substrate surface.

1.11 WARRANTY

A. Furnish five-year manufacturer's warranty for paint and coatings.

B. See Section 00610 - Payment, Performance and Warranty Bond for additional requirements.

PART 2 - PRODUCTS

2.1 PAINTS AND COATINGS

A. Manufacturers:
1. Sherwin Williams
2. Raven 405
3. Or Approved Equal.

B. Substitutional Manufacturers:
1. Furnish materials as specified in ASTM standards.

C. Materials:
1. Coatings:
a. Ready mixed, except field-catalyzed coatings.
b. Capable of drying or curing free of streaks or sags.
2. Patching Materials: Latex filler.

3. Fastener Head Cover Materials: Latex filler.
4. Accessories:
    a. Grade: Commercial.
    b. Linseed oil.
    c. Shellac.
    d. Turpentine.
    e. Paint thinners.
    f. Other materials not specifically indicated but required to achieve specified finishes.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 01700 – Contract Closeout: Requirements for application examination.

B. Verify that surfaces and or substrate conditions are ready to receive Work as recommended by product manufacturer.

C. Examine surfaces scheduled to be finished prior to commencement of Work, and report conditions capable of affecting proper application to Engineer.

D. Test shop-applied primer for compatibility with subsequent cover materials.

E. Moisture Content:
1. Measure moisture content of surfaces using electronic moisture meter.
2. Do not apply finishes unless moisture content of surfaces is below following maximums:
    a. Gypsum Wallboard: 12%.
    b. Masonry, Concrete, and Concrete Unit Masonry: 12%.
    c. Interior Wood: 15%, measured as specified in ASTM D4442.
    d. Exterior Wood: 15%, measured as specified in ASTM D4442.
    e. Concrete Floors: 8%.

3.2 PREPARATION

A. Section 01700 – Contract Closeout: Requirements for application preparation.

B. Prepare coatings as follows:
1. To soft paste consistency, capable of being readily and uniformly dispersed to homogeneous coating.
2. For smooth flow and brushing properties.

C. Surface Appurtenances:
1. Remove electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to preparing surfaces or finishing.

D. Defects:
1. Correct defects and clean surfaces capable of affecting Work of this Section.

E. Marks:
1. Seal marks that may bleed through surface finishes with shellac.

F. Impervious Surfaces:
1. Remove mildew by scrubbing with solution of tetra-sodium phosphate and bleach.
2. Rinse with clean water and allow surface to dry.

G. Aluminum Surfaces Scheduled for Paint Finish:
   1. Remove surface contamination by steam or high-pressure water.
   2. Remove oxidation with acid etch and solvent washing.
   3. Apply etching primer immediately following cleaning.

H. Asphalt, Creosote, or Bituminous Surfaces Scheduled for Paint Finish:
   1. Remove foreign particles to permit adhesion of finishing materials.
   2. Apply latex-based sealer or primer.

I. Insulated Coverings: Remove dirt, grease, and oil from canvas and cotton.

J. Concrete Floors:
   1. Remove contamination, acid etch, and rinse floors with clear water.
   2. Verify that required acid-alkali balance is achieved.
   3. Allow to dry.

K. Gypsum Board Surfaces:
   1. Fill minor defects with filler compound.
   2. Spot-prime defects after repair.

L. Galvanized Surfaces:
   1. Remove surface contamination and oils, and wash with solvent.
   2. Apply coat of etching primer.

M. Concrete and Unit Masonry Surfaces Scheduled to Receive Paint Finish:
   1. Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter.
   2. Remove oil and grease with solution of trisodium phosphate, rinse well, and allow to dry.
   3. Remove stains caused by weathering of corroding metals with solution of sodium metasilicate after thoroughly wetting with water and allow to dry.

N. Uncoated Steel and Iron Surfaces:
   1. Remove grease, mill scale, weld splatter, dirt, and rust.
   2. If heavy coatings of scale are evident, remove by hand wire brushing or by sandblasting.
   3. Clean by washing with solvent.
   4. Apply treatment of phosphoric acid solution, ensuring that weld joints, bolts, and nuts are similarly cleaned.
   5. Spot-prime paint after repairs.

O. Shop-Primed Steel Surfaces:
   1. Sand and scrape to remove loose primer and rust.
   2. Feather edges to make touchup patches inconspicuous.
   3. Clean surfaces with solvent.
   4. Prime metal items, including shop-primed items.

P. Interior Wood Items Scheduled to Receive Paint Finish:
   1. Wipe off dust and grit prior to priming.
   2. Seal knots, pitch streaks, and sappy sections with sealer.
   3. Fill nail holes and cracks after primer has dried.
   4. Sand between coats.

Q. Interior Wood Items Scheduled to Receive Transparent Finish:
   1. Wipe off dust and grit prior to sealing.
   2. Seal knots, pitch streaks, and sappy sections with sealer.
   3. Fill nail holes and cracks after sealer has dried.
   4. Sand lightly between coats.

R. Exterior Wood Scheduled to Receive Paint Finish:
1. Remove dust, grit, and foreign matter.
2. Seal knots, pitch streaks, and sappy sections.
3. Fill nail holes with tinted exterior paintable calking compound after prime coat has been applied.

S. Exterior Wood Scheduled to Receive Transparent Finish:
1. Remove dust, grit, and foreign matter.
2. Seal knots, pitch streaks, and sappy sections with sealer.
3. Fill nail holes with tinted exterior calking compound after sealer has been applied.

T. Glued-Laminated Beams:
1. Prior to finishing, wash surfaces with solvent, and remove grease and dirt.

U. Metal Doors Scheduled for Painting:
1. Prime metal door at top and bottom edge surfaces.

V. Existing Work:
1. Extend existing paint and coatings installations using materials and methods compatible with existing installations and as specified.

3.3 APPLICATION

A. See MPI – Architectural Painting Manual.

B. DO NOT apply finishes to surfaces that are not dry.

C. Apply each coat to uniform appearance.

D. Apply each coat of paint slightly darker than preceding coat, unless specified otherwise.

E. Sand wood and metal surfaces lightly between coats to achieve required finish.

F. Cleaning:
1. Vacuum surfaces to remove loose particles.
2. Use tack cloth to remove dust and particles just prior to applying next coat.

G. Fillers:
1. If clear finishes are required, tint fillers to match wood.
2. Work fillers into grain before set, and wipe excess from surface.

H. Concealed Surfaces:
1. Prime concealed surfaces of interior and exterior woodwork with primer paint.
2. Prime concealed surfaces of interior wood surfaces scheduled to receive stain or varnish finish with gloss varnish reduced 25 percent with thinner.

I. Finishing Mechanical and Electrical Equipment:

1. Paint shop-primed equipment.
2. Paint shop-finished items installed in interior areas.
3. Remove unfinished louvers, covers, and access panels on mechanical and electrical components, and paint separately.
4. Prime and paint insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, except where these items are shop finished.

5. Paint interior surfaces of air ducts visible through grilles and louvers with one coat of flat black paint to visible surfaces.
6. Paint dampers exposed behind louvers, grilles, to match face panels.
7. Paint exposed conduit and electrical equipment installed in finished areas.
8. Paint both sides and edges of plywood backboards for electrical and telephone equipment before installing equipment.
9. Color-Coding:
    a. Color-code equipment, piping, conduit, and exposed duct work as specified in indicated requirements.
    b. Color band and identify with flow arrows, names, and numbering.
10. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings that were removed prior to finishing.

3.4 FIELD QUALITY CONTROL

A. Section 01700 – Contract Closeout: Requirements for testing, adjusting, and balancing.

B. Inspecting and Testing:
    1. See MPI – Architectural Painting Manual.

3.5 CLEANING

A. Section 01700 – Contract Closeout: Requirements for cleaning.

B. Collect waste material that may constitute fire hazards, place in closed metal containers, and remove daily from Site.

3.6 PAINTING SCHEDULE

A. Shop-Primed Items for Site Finishing:
    a. Exposed surfaces of lintels, elevator pit ladders.
    b. Alkyd System MPI EXT 5.1D:
        1) Shop Prime Coat: Primer, alkyd, anticorrosive for metal, MPI #79.
        2) Intermediate Coat: Matching topcoat.
        3) Topcoat: Alkyd, exterior, semigloss (MPI Gloss Level 5), MPI #94.
        4) Topcoat: Alkyd, exterior, gloss (MPI Gloss Level 6), MPI #9.
        5) Water-Based Light Industrial Coating System MPI EXT 5.1C:
        6) Shop Prime Coat: Primer, alkyd, anticorrosive for metal, MPI #79.
        7) Intermediate Coat: Matching topcoat.
        8) Topcoat: Light industrial coating, exterior, water based, semigloss (MPI Gloss Level 5), MPI #163.
        9) Topcoat: Light industrial coating, exterior, water based, gloss (MPI Gloss Level 6), MPI #164.

B. Exterior Surfaces:
    1. Wood – Painted (Opaque):
        a. Latex System MPI EXT 6.3L:
            1) Prime Coat: Primer, latex for exterior wood, MPI #6.
            2) Intermediate Coat: Matching topcoat.
            3) Topcoat: Latex, exterior, low sheen (MPI Gloss Level 3-4), MPI #15.
            4) Topcoat: Latex, exterior semigloss (MPI Gloss Level 5), MPI #11.
        b. Latex System, Alkyd Primer MPI EXT 6.3A:
            1) Prime Coat: Primer, alkyd for exterior wood, MPI #5.
            2) Intermediate Coat: Matching topcoat.
            3) Topcoat: Latex, exterior, low sheen (MPI Gloss Level 3-4), MPI #15.

4) Topcoat: Latex, exterior semigloss (MPI Gloss Level 5), MPI #11.

c. Alkyd System MPI EXT 6.3B:
1) Prime Coat: Primer, alkyd for exterior wood[, MPI #5.
2) Intermediate Coat: Matching topcoat.
3) Topcoat: Alkyd, exterior, semigloss (MPI Gloss Level 5), MPI #94.
4) Topcoat: Alkyd, exterior, gloss (MPI Gloss Level 6), MPI #9.

2. Wood – Transparent:
a. Solid-Color, Water-Based Stain System MPI EXT 6.3K.
1) Prime Coat: Primer, alkyd for exterior wood, MPI #5
2) Intermediate Coat: Matching topcoat.
3) Topcoat: Stain, exterior, water based, solid hide, MPI #16.
b. Semitransparent Stain System MPI EXT 6.3D:
1) Prime Coat: Matching topcoat.
2) Topcoat: Stain, exterior, solvent based, semitransparent, MPI #13
3. Glued-Laminated Wood, Wood Timber Members:
a. One coat of stain, sealer.
b. Two coats of varnish , gloss, or semigloss.
4. Pavement Markings: Two coats of paint, yellow or white.
5. Concrete, Concrete Block:
a. One coat of block primer.
b. Two coats of latex.
6. Gypsum Board Soffits:
a. One coat of primer sealer latex.
b. Two coats of latex.
7. Steel – Unprimed:
a. Water-Based Light Industrial Coating System MPI EXT 5.1M:
1) Prime Coat: Primer, rust-inhibitive, water based MPI #107.
2) Intermediate Coat: Matching topcoat.
3) Topcoat: Light industrial coating, exterior, water based, semigloss (MPI Gloss Level 5), MPI #163.
4) Topcoat: Light industrial coating, exterior, water based, gloss (MPI Gloss Level 6), MPI #164.
b. Water-Based Light Industrial Coating System MPI EXT 5.1C:
1) Prime Coat: Primer, alkyd, anticorrosive for metal, MPI #79
2) Intermediate Coat: Matching topcoat.
3) Topcoat: Light industrial coating, exterior, water based, semigloss (MPI Gloss Level 5), MPI #163.
4) Topcoat: Light industrial coating, exterior, water based, gloss (MPI Gloss Level 6), MPI #164.
c. Alkyd System MPI EXT 5.1D:
1) Prime Coat: Primer, alkyd, anticorrosive, for metal, MPI #79.
2) Intermediate Coat: Matching topcoat.
3) Topcoat: Light industrial coating, exterior, water based, semigloss (MPI Gloss Level 5), MPI #163;
4) Topcoat: Light industrial coating, exterior, water based, gloss (MPI Gloss Level 6), MPI #164.
8. Steel – Shop Primed:
a. Touch up with zinc chromate primer.
b. Two coats of alkyd enamel, semigloss.
9. Steel – Galvanized:
a. One coat galvanize primer.
b. Two coats of alkyd enamel, semigloss.
10. Aluminum – Mill Finish:
a. One coat etching primer.
b. Two coats of alkyd enamel, gloss.
11. Copper:

a. One coat etching primer.
b. Two coats of alkyd enamel, gloss.

C. Interior Surfaces:
1. Wood – Painted:
a. One coat of latex prime sealer.
b. Two coats latex enamel, eggshell.
2. Wood – Transparent:
a. Semitransparent Stain System MPI INT 6.4C:
1) Prime Coat: Paste wood filler/stain.
2) Intermediate and Topcoat: Polyurethane varnish, MPI #56 or #57 as required.
3. Concrete:
a. Latex System MPI INT 3.1A, MPI INT 3.1E:
1) Prime Coat: Primer, alkali resistant, water based, MPI #3.
2) Prime Coat: Matching topcoat.
3) Intermediate Coat: Matching topcoat.
4) Topcoat: Latex, interior, flat, (MPI Gloss Level 1), MPI #53.
5) Topcoat: Latex, interior, semigloss, (MPI Gloss Level 5), MPI #54.
b. Institutional Low-Odor/VOC Latex System MPI INT 3.1M:
1) Prime Coat: Primer sealer, interior, institutional low odor/VOC, MPI #149.
2) Intermediate Coat: Matching topcoat.
3) Topcoat: Latex, interior, institutional low odor/VOC, flat (MPI Gloss Level 1), MPI #143.
4) Topcoat: Latex, interior, institutional low odor/VOC, semigloss (MPI Gloss Level 5), MPI #147.
c. Alkyd System MPI INT 3.1D:
1) Prime Coat: Primer, alkali resistant, water based, MPI #3.
2) Intermediate Coat: Matching topcoat.
3) Topcoat: Alkyd, interior, flat (MPI Gloss Level 1), MPI #49.
4) Topcoat: Alkyd, interior, semigloss (MPI Gloss Level 5), MPI #47.
4. Concrete Block:
a. Latex System MPI INT 4.2A:
1) Block Filler: Block filler, latex, interior/exterior, MPI #4.
2) Intermediate Coat: Matching topcoat.
3) Topcoat: Latex, interior, flat, (MPI Gloss Level 1), MPI #53.
4) Topcoat: Latex, interior, semigloss, (MPI Gloss Level 5), MPI #54.
b. Institutional Low-Odor/VOC Latex System MPI INT 4.2E:
1) Block Filler: Block filler, latex, interior/exterior, MPI #4.
2) Intermediate Coat: Matching topcoat.
3) Topcoat: Latex, interior, institutional low odor/VOC, flat (MPI Gloss Level 1), MPI #143.
4) Topcoat: Latex, interior, institutional low odor/VOC, semigloss (MPI Gloss Level 5), MPI #147.
c. Alkyd System MPI INT 4.2C:
1) Block Filler: Block filler, latex, interior/exterior, MPI #4.
2) Intermediate Coat: Matching topcoat.
3) Topcoat: Alkyd, interior, flat (MPI Gloss Level 1), MPI #49.
4) Topcoat: Alkyd, interior, semigloss (MPI Gloss Level 5), MPI #47.
5. Steel – Unprimed:
a. One coat of alkyd primer.
b. Two coats of alkyd enamel, semigloss.
6. Steel – Primed:
a. Touch up with alkyd primer.
b. Two coats of alkyd enamel, semigloss.
7. Steel – Galvanized:

a. One coat galvanize primer.
b. Two coats of alkyd enamel, semigloss.

8. Aluminum – Mill Finish:
   a. One coat etching primer.
   b. Two coats of alkyd enamel, gloss.
9. Concrete Floors:
   a. One coat of catalyzed epoxy primer.
   b. Two coats of catalyzed epoxy enamel, gloss.
10. Gypsum Board Walls:
   a. One coat of alkyd.
   b. Two coats of latex enamel, eggshell.
11. Gypsum Board Ceilings:
   a. One coat of alkyd primer sealer.
   b. Two coats latex enamel, eggshell.
12. Fire-Retardant Finish:
   a. Fire-Retardant Coating, Pigmented, Solvent-Based System MPI INT 9.2H:
      1) Prime Coat and Intermediate Coat: As recommended by topcoat manufacturer.
      2) Topcoat: Fire-retardant coating, alkyd, interior, flat MPI #63.
   b. Fire-Retardant Coating, Pigmented, Water-Based System MPI INT 9.2J:
      1) Prime Coat and Intermediate Coat: As recommended by topcoat manufacturer.
      2) Topcoat: Fire-retardant coating, latex, interior, flat MPI #64.
      3) Topcoat: Fire-retardant topcoat, latex, interior MPI #67.
13. Insulated Coverings – Canvas and Cotton:
   a. One coat of alkyd primer sealer.
   b. Two coats of alkyd enamel, eggshell.

D. Colors:
   1. As indicated on drawings.

END OF SECTION

DIVISION 31

EARTHWORK

SECTION 31 05 19.13 – GEOTEXTILE FILTER FABRIC

PART 1 - GENERAL

1.1 SUMMARY

A. This Section Includes:
   1. This work shall consist of the installation of a nonwoven geotextile fabric below the riprap.

B. Related Sections:
   1. Section 31 37 00 – Riprap

1.2 REFERENCES

A. ASTM International:
   1. D3786 – Standard Test Method for Bursting Strength of Textile Fabrics – Diaphragm Bursting Strength Tester Method
   2. D4355 – Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc Type Apparatus
   3. D4491 – Standard Test Methods for Water Permeability of Geotextiles by Permittivity
   4. D4632 – Standard Test Method for Grab Breaking Load and Elongation of Geotextiles
   5. D4833 – Standard Test Method for Index Puncture Resistance of Geomembranes and Related Products
   6. D4751 – Standard Test Method for Determining Apparent Opening Size of a Geotextile
   7. D4886 – Standard Test Method for Abrasion Resistance of Geotextiles (Sandpaper/Sliding block Method)
   8. D4533 – Standard Test Method for Trapezoid Tearing Strength of Geotextiles
   9. D5261 – Standard Test Method for Measuring Mass per Unit Area of Geotextiles
   10. D6241 – Standard Test Method for Static Puncture Strength of Geotextiles and Related Products Using a 50mm Probe

1.3 SUBMITTALS

A. See Section 01300– Submittals.

B. Certificates:
   1. Certify that products meet or exceed specified requirements.

1.4 QUALITY ASSURANCE

A. Installation shall be performed as specified in manufacturer's recommendations and by Engineer.

1.5 WARRANTY

A. See Section 00610 - Payment, Performance and Warranty Bond for requirements.

PART 2 - PRODUCTS

2.1 MATERIAL

A. The nonwoven geotextile fabric shall be an 8 oz fabric, US Fabrics US 205NW or equal. The fabric shall be of nonwoven needle punched construction and consist of long-chain polymeric filaments or fibers composed of polypropylene, polyethylene, or polyamide. The filaments and

fibers shall be oriented whereby they retain their relative positions with each other and allow the passage of water as specified.

B. The fabric shall be mildew, insect and rodent resistant and shall be inert to chemicals commonly found in soil. The nonwoven fabric shall conform to the physical property requirements below:

Physical Property	Test Method	Test Results
Weight	ASTM D5261	8 oz/sy
Tensile Strength, wet (lbs.)	ASTM D4632	205 lbs.
Elongation, wet, (%)	ASTM D4632	50%
Permittivity	ASTM D4491	1.35 sec-1
Puncture Strength, (lbs.)	ASTM D4833	130 lbs.
CBR Puncture	ASTM D6241	535 lbs.
Mullen Burst Strength, (psi)	ASTM D3786	350 psi
Abrasion Resistance, (% Strength Retained)	ASTM D4886	90
Apparent Opening Size (AOS)	ASTM D4751	80 US Sieve
Ultraviolet Resistance, (% Strength Retention)	ASTM D4355 (After 500 Xenon Weatherometer hrs.)	70%
Trapezoidal Tear	ASTM D4533	85 lbs.
Water Flow Rate	ASTM D4491	90 gal/min/sf

C. The nonwoven geotextile fabric shall be furnished in a protective wrapping which shall protect the fabric from ultraviolet radiation and from abrasion due to shipping and handling.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Fabric Exposure Following Placement:
1. Exposure of the geotextile filter fabric to the elements, particularly the sun, between lay down and cover shall be a maximum of 7 days.

B. Nonwoven Geotextile Fabric:
1. Place in the manner and at the locations shown in Drawings or as directed by Engineer. The surface to receive the fabric shall be prepared to a smooth condition free of obstructions, depressions, and debris. The fabric shall be placed loosely, NOT in a stretched condition.

C. The Contractor shall anchor the geotextile fabric at outer edges of the riprap courses by embedding the fabric down, across, and up a 1 ft deep by 1 ft wide trench. The fabric shall be centered on the pipe. The anchoring trench shall be backfilled with rock material approved by Engineer. There shall be no separate payment for Geotextile Fabric; it shall be subsidiary to other items.

D. Where necessary, the fabric shall be placed to provide a minimum 24 in. overlap. The fabric shall be placed transverse to the direction of the flow with the upstream panel overlapping the downstream panel. All installations shall be subject to approval by Engineer.

E. Repairs:
1. A geotextile patch, of the same material, shall be placed over any damaged area and shall extend 12 in. beyond the perimeter of the tear or damaged area. Patch shall be either glued or sewn to the mother fabric or as approved by Engineer.

END OF SECTION

SECTION 31 11 00 – SITE PREPARATION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section Includes:
   1. The Work required for site preparation.

1.2 DEFINITIONS

A. Interfering or Objectionable Material:
   1. Trash, rubbish, and junk; vegetation and other organic matter, whether alive, dead, or decaying; topsoil.

B. Clearing:
   1. Removal of interfering or objectionable material lying on or protruding above ground surface.

C. Grubbing:
   1. Removal of vegetation and other organic matter including stumps, buried logs, and roots greater than 2 in. caliper to a depth of 12 in. below subgrade.

D. Scalping:
   1. Removal of sod without removing more than upper 3 in. of topsoil.

E. Stripping:
   1. Removal of topsoil remaining after applicable scalping is completed.

F. Project Limits:
   1. Areas, as shown or specified, within which Work is to be performed.

1.3 SUBMITTALS

A. Subject to the requirements of Section 01300 – Submittals.

B. Shop Drawings:
   1. Drawings clearly showing clearing, grubbing, and stripping limits.

1.4 QUALITY ASSURANCE

A. Obtain Engineer’s approval of staked clearing, grubbing, and stripping limits, prior to commencing clearing, grubbing, and stripping.

1.5 SCHEDULING AND SEQUENCING

A. Prepare site only after adequate erosion and sediment controls are in place. Limit areas exposed uncontrolled to erosion during installation of temporary erosion and sediment controls to maximum of 5 acres.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 GENERAL

A. Clear, grub, and strip areas needed for waste disposal, borrow, or site improvements within limits shown or specified.

B. DO NOT injure or deface vegetation that is NOT designated for removal.

3.2 LIMITS

A. DO NOT extend beyond Project limits:
   1. Excavation, including trenches, 5 ft beyond top of cut slopes or shored walls.
   2. Fill:
      a. Clearing and Grubbing: 5 ft beyond toe of permanent fill.
      b. Stripping and Scalping: 2 ft beyond toe of permanent fill.
   3. Structures: 15 ft outside of new structures.
   4. Roadways: Clearing, grubbing, scalping, and stripping 15 ft from centerline.
   5. Other Areas: As shown.

B. Remove rubbish, trash, and junk from entire area within Project limits.

3.3 CLEARING

A. Clear areas within limits shown or specified.

B. Fell trees so that they fall away from facilities and vegetation NOT designated for removal.

C. Cut stumps NOT designated for grubbing to within 6 in. of ground surface.

D. Cut off shrubs, brush, weeds, and grasses to within 2 in. of ground surface.

3.4 GRUBBING

A. Grub areas within limits shown or specified.

3.5 SCALPING

A. DO NOT remove sod until after clearing and grubbing is completed and resulting debris is removed.

B. Scalp areas within limits shown or specified.

3.6 STRIPPING

A. DO NOT remove topsoil until after scalping is completed.

B. Strip areas within limits to minimum depths shown or specified. DO NOT remove subsoil with topsoil.

C. Stockpile strippings, meeting requirements for topsoil, separately from other excavated material.

3.7 TOPSOIL

A. Natural, friable, sandy loam, obtained from well-drained areas, free from objects larger than 1 1/2 in. maximum dimension, and free of subsoil, roots, grass, other foreign matter, hazardous or toxic substances, and deleterious material that may be harmful to plant growth or may hinder grading, planting, or maintenance.

3.8 DISPOSAL

A. Clearing and Grubbing Debris:
   1. Dispose of debris
   2. Burning of debris shall NOT be allowed.
   3. Woody debris may be chipped. Chips may be sold to Contractor's benefit or used for landscaping as mulch or uniformly mixed with topsoil, provided that resulting mix will be fertile and NOT support combustion. Maximum dimensions of chipped material used shall be 1/4 in. by 2 in. Dispose of chips that are unsaleable or unsuitable for landscaping or other uses with unchipped debris.
   4. Limit disposal of clearing and grubbing debris to locations that are approved by federal, state, and local authorities, and that will NOT be visible from Project.

B. Scalpings:
   1. As specified for clearing and grubbing debris.

C. Strippings:
   1. Dispose of strippings that are unsuitable for topsoil or that exceed quantity required for topsoil.
   2. Stockpile topsoil in sufficient quantity to meet Project needs. Dispose of excess strippings as specified for clearing and grubbing.

END OF SECTION

SECTION 31 22 13 – SUBGRADE PREPARATION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section Includes:
   1. Work and testing required for preparing subgrade.

B. Related Sections:
   1. Section 31 11 00 – Site Preparation
   2. Section 31 23 16 – Excavation
   3. Section 31 23 23.13 – Fill and Backfill

1.2 REFERENCES

A. ASTM International:
   1. D1557 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3)
   2. D698 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3)

1.3 DEFINITIONS

A. Optimum Moisture Content:
   1. See Section 31 23 23.13 – Fill and Backfill.

B. Prepared Ground Surface:
   1. Ground surface after completion of clearing and grubbing, scalping of sod, stripping of topsoil, excavation to grade, and scarification and compaction of subgrade.

C. Relative Compaction:
   1. See Section 31 23 23.13 – Fill and Backfill.

D. Relative Density:
   1. See Section 31 23 23.13 – Fill and Backfill.

E. Subgrade:
   1. Layer of existing soil after completion of clearing, grubbing, scalping of topsoil prior to placement of fill, roadway structure or base for floor slab.

F. Standard Specifications:
   1. The latest edition, including supplements of the [insert appropriate State Options:] [Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction] [Oklahoma Department of Transportation Standard Specifications for Highway Construction] or [TxDOT Standard Specifications] [Other].

1.4 SEQUENCING AND SCHEDULING

A. Prior to preparation, complete applicable Work specified in:
   1. Section 31 11 00 – Site Preparation
   2. Section 31 23 16 – Excavation

1.5 QUALITY ASSURANCE

A. Notify Engineer when subgrade is ready for compaction or whenever compaction is resumed after a period of extended inactivity.

1.6 ENVIRONMENTAL REQUIREMENTS

A. Prepare subgrade when unfrozen and free of ice and snow.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 GENERAL

A. Keep subgrade free of water, debris, and foreign matter during compaction or proof-rolling.

B. Bring subgrade to proper grade and cross-section and uniformly compact surface.

C. DO NOT use sections of prepared ground surface as haul roads. Protect prepared from traffic.

D. Maintain prepared ground surface in finished condition until next course is placed.

3.2 MOISTURE CONDITIONING

A. Dry Subgrade:
   1. Add water, then mix to make moisture content uniform throughout.

B. Wet Subgrade:
   1. Aerate material by blading, discing, harrowing, or other methods, to hasten drying process.

3.3 TESTING

A. Test roll subgrade as specified in Standard Specifications to detect soft or loose subgrade or unsuitable material, as determined by Engineer.

3.4 CORRECTION

A. Soft or Loose Subgrade:
   1. Adjust moisture content and recompact,
      Or
   2. Over excavate as specified in Section 31 23 16 – Excavation, and replace with suitable material from the excavation, as specified in Section 31 23 23.13 – Fill and Backfill

END OF SECTION

SECTION 31 22 19 – GRADING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Removal and storage of topsoil.
   2. Rough grading the site for site structures, building pads, and drive and parking isles.
   3. Finish grading for planting.

B. Related Sections:
   1. Section 31 23 16 – Excavation
   2. Section 31 23 23.13 – Fill and Backfill
   3. Section 31 23 16.13 – Trenching for Site Utilities

1.2 SUBMITTALS

A. Subject to the requirements of Section 01300– Submittals.

B. Project Record Documents:
   1. Accurately record actual locations of utilities remaining by horizontal dimensions, elevations or inverts, and slope gradients.

1.3 QUALITY ASSURANCE

A. Perform Work as specified in State of Colorado Highway Department standards.
   1. Maintain one copy on site.

1.4 PROJECT CONDITIONS

A. Protect above – and below – grade utilities that remain.

B. Protect plants, lawns, rock outcroppings, and other features to remain as a portion of final landscaping.

C. Protect benchmarks, survey control points, existing structures, fences, sidewalks, paving and curbs from grading equipment and vehicular traffic.

1.5 WARRANTY

A. See Section 00610 - Payment, Performance and Warranty Bond for requirements.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Topsoil:
   1. Shall be soil suitable for sustaining grass and vegetation and shall NOT have any particles larger than 3/4 in. in diameter and shall be free of any trash, debris, or deleterious material. See Section 900 of City of Colardo Springs Standard Specification Manual.

B. Other Fill Materials:
   1. See Section 31 23 23.13 – Fill and Backfill.

PART 3 - EXECUTIONS

3.1 EXAMINATION

A. Verify that survey benchmark and intended elevations for the Work are as specified.

3.2 PREPARATION

A. Identify required lines, levels, contours, and datum.

B. Stake and flag locations of known utilities.

C. Locate, identify, and protect utilities that remain from damage.

D. Notify utility company to remove and relocate utilities.

3.3 ROUGH GRADING

A. Remove topsoil from areas to be further excavated, relandscaped, or regraded without mixing with foreign materials.

B. DO NOT remove topsoil when wet.

C. Remove subsoil from areas to be further excavated, relandscaped, or regraded.

D. DO NOT remove wet subsoil, unless it is subsequently processed to obtain optimum moisture content.

E. When excavating through roots, perform work by hand and cut roots with sharp axe.

F. Stability:
1. Replace damaged or displaced subsoil to same requirements as for specified fill.

3.4 SOIL REMOVAL

A. Stockpile excavated topsoil on site.

B. Stockpile excavated subsoil on site.

C. Stockpiles:
1. Use areas designated on site; pile depth NOT to exceed 8 ft; protect from erosion.

3.5 FINISH GRADING

A. Before Finish Grading:
1. Verify building and trench backfilling have been inspected.
2. Verify subgrade has been contoured and compacted.

B. Remove debris, roots, branches, stones, more than 1/2 in. in size. Remove soil contaminated with petroleum products.

C. In areas where vehicles or equipment have compacted soil, scarify surface to depth of 3 in.

D. Place topsoil in areas where seeding is specified.

E. Place topsoil in compacted thicknesses:
   1. Areas to be Seeded with Grass:
      a. 6 in.
   2. Areas to be Sodded:
      a. 4 in.
   3. Shrub Beds:
      a. 18 in.
   4. Flower Beds:
      a. 12 in.
   5. Planter Boxes:
      a. To within 3 in. of box rim

F. Place topsoil during dry weather.

G. Remove roots, weeds, rocks, and foreign material while spreading.

H. Near plants spread topsoil manually to prevent damage.

I. Fine grade topsoil to eliminate uneven areas and low spots. Maintain profiles and contour of subgrade.

J. Lightly compact placed topsoil.

3.6 TOLERANCES

A. Top Surface of Subgrade:
   1. Plus or minus 1/10 ft from required elevation.

B. Top Surface of Finish Grade:
   1. Plus or minus 1/2 in.

3.7 FIELD QUALITY REQUIREMENTS

A. See Section 31 23 23.13 – Fill and Backfill for compaction density testing.

3.8 CLEANING AND PROTECTION

A. Remove unused stockpiled topsoil and subsoil. Grade stockpile area to prevent standing water.

B. Leave site clean and raked, ready to receive landscaping.

END OF SECTION

SECTION 31 23 16 – EXCAVATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Work and materials associated with excavation.

B. Related Sections:
   1. Section 31 11 00 – Site Preparation
   2. Section 31 23 19 – Dewatering
   3. Section 31 50 00 – Excavation Support Systems

1.2 SUBMITTALS

A. Subject to the requirements of Section 01300– Submittals.

B. Shop Drawings:
   1. Excavation Plan, Detailing:
      a. Methods and sequencing of excavation.
      b. Proposed locations of stockpiled excavated material.
      c. Proposed and spoil disposal sites.
      d. Numbers, types, and sizes of equipment proposed to perform excavations.

1.3 QUALITY ASSURANCE

A. Provide adequate survey control to avoid unauthorized over-excavation.

1.4 WEATHER LIMITATIONS

A. Material excavated when frozen or when air temperature is less than 32°F shall NOT be used as fill or backfill until material completely thaws.

B. Material excavated during inclement weather shall NOT be used as fill or backfill until after material drains and dries sufficiently for proper compaction.

1.5 SEQUENCING AND SCHEDULING

A. Clearing, Grubbing, and Stripping:
   1. Complete applicable Work as specified in Section 31 11 00 – Site Preparation, prior to excavating.

B. Dewatering:
   1. See Section 31 23 19 – Dewatering, prior to initiating excavation.

C. Excavation Support:
   1. Install and maintain, as specified in Section 31 50 00 – Excavation Support Systems, as necessary to support sides of excavations and prevent detrimental settlement and lateral movement of existing facilities, adjacent property, and completed Work.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 GENERAL

A. Excavate to lines, grades, and dimensions specified and as necessary to accomplish Work. Excavate to within tolerance of plus or minus 0.1 ft except where dimensions or grades are shown or specified as maximum or minimum. Allow for forms, working space, granular base, topsoil, and similar items, wherever applicable. Trim to neat lines where concrete is to be deposited against earth.

B. DO NOT over excavate without written authorization of Engineer.

C. Remove or protect obstructions as shown and as specified in Section 01560 - Temporary Controls.

3.2 UNCLASSIFIED EXCAVATION

A. Excavation is unclassified. Complete all excavation regardless of the type, nature, or condition of the materials encountered.

3.3 TRENCH WIDTH

A. Minimum Width of Trenches:
   1. Single Pipes, Conduits, Direct-Buried Cables, and Duct Banks:
      a. Less than 4 in. Outside Diameter or Width: 18 in.
      b. Greater than 4 in. and up to 18 in. Outside Diameter or Width: 12 in. greater than outside diameter or width of pipe, conduit, direct-buried cable, or duct bank.
      c. Greater than 18 in. Diameter or Width: 24 in. greater than outside diameter or width of pipe, conduit, direct-buried cable, or duct bank.
   2. Multiple Pipes, Conduits, Cables, or Duct Banks in Single Trench: 18 in. greater than aggregate width of pipes, conduits, cables, duct banks, plus space between.
   3. Increase trench widths by thicknesses of sheeting.

B. Maximum Trench Width:
   1. Unlimited, unless otherwise shown or specified, or unless excess width will cause damage to existing facilities, adjacent property, or completed Work.

3.4 PIPE BEDDING GROOVES FOR NONPERFORATED DRAIN LINES

A. Semicircular, trapezoidal, or 90-degree-V.

B. Excavated or plowed into trench bottom. Forming groove by compaction shall NOT be acceptable.

3.5 STOCKPILING EXCAVATED MATERIAL

A. Stockpile excavated material that is suitable for use as fill or backfill until material is needed.

B. Post signs indicating proposed use of material stockpiled. Post signs that are readable from all directions of approach to each stockpile. Signs should be clearly worded and readable by equipment operators from their normal seated position.

C. Confine stockpiles to within easements, rights-of-way, and approved work areas. DO NOT obstruct roads or streets.

D. DO NOT stockpile excavated material adjacent to trenches and other excavations unless excavation side slopes and excavation support systems are designed, constructed, and maintained for stockpile loads.

E. DO NOT stockpile excavated materials near or over existing facilities, adjacent property, or completed Work, if weight of stockpiled material could induce excessive settlement.

3.6 DISPOSAL OF SPOIL

A. Dispose of excavated materials, which are unsuitable or exceed quantity needed for fill or backfill.

B. Dispose of debris resulting from removal of organic matter, trash, refuse, and junk as specified in Section 31 11 00 – Site Preparation, for clearing and grubbing debris.

3.7 EXCAVATION SAFETY

A. Seel applicable federal, state, and local regulations for requirements.

3.8 SUBGRADE PREPARATION

A. The excavation for all structures and facilities shall be in dewatered, firm, undisturbed earth. If, in the Engineer's opinion, the subgrade has been disturbed, corrective measures may include:
   1. Scarification and recompaction to 95% relative compaction
      Or,
   2. Over-excavation and replacement with compacted granular fill.

B. If the source of disturbance is determined to be the result of the actions, or inactions of the Contractor, (for example, inadequate dewatering, disturbance by excavating or hauling equipment) the cost of additional subgrade preparation shall be at the Contractor's expense.

END OF SECTION

SECTION 31 23 16.16 – TRENCHING FOR WATER AND SEWER LINES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section Includes:
   1. Excavation required for the construction of water and sewer pipes and appurtenances.

B. Related Sections:
   1. Section 31 23 23.16 – Trench Backfill
   2. Section 33 41 19 – Pipe Laying

1.2 WARRANTY

A. See Section 00610 - Payment, Performance and Warranty Bond for requirements.

PART 2 - PRODUCTS

2.1 UTILITIES

A. Contractor shall call "COLORADO ONE CALL" two working days before starting excavation. The ONE CALL phone number is 1-800-922-1987.

B. The location and/or elevation of existing utilities as shown on these plans is based on records of the various utility companies and, where possible, measurements taken in the field. The information is not to be relied upon as being exact or complete. The Contractor must call each utility owner at least two working days before any excavation to request exact field location of utilities.

C. Protect utilities encountered during excavation.

D. DO NOT interrupt service in utilities encountered during excavation without approval of the utility owner.

E. If utilities are damaged or utility service is interrupted by work under this section, the utility owner has the first right to repair. If public health or safety is at risk, Contractor shall take appropriate prudent action to repair damage and service interruption. Costs of utility protection and repair shall be at no additional cost to the Owner.

F. If existing utilities are found to interfere with the permanent facility being constructed, notify the Engineer for instructions. Do not proceed with permanent relocation of utilities without written instructions from the Engineer.

2.2 FILL MATERIALS

A. Shall be as specified in Section 31 23 23.16 – Trench Backfill.

PART 3 - EXECUTION

3.1 GENERAL

A. Requirements:
   1. Provide and install trench bracing and shoring as specified in 29 CFR Part 1926 Subpart P of the OSHA Standards. Bracing shall be so arranged as not to place any strain on

portions of completed work until the construction has proceeded far enough to provide ample strength.

2. Over-excavation, whether by Contractor's negligence or at direction of the Engineer, shall be repaired to required lines and grades.
3. Trenches shall be dug to the alignment and depth required and shall not advance more than 100 ft ahead of the completed pipe, unless otherwise permitted by the Engineer.

B. Notify property residents two working days prior to beginning excavation on property.

C. Excavated materials not suitable for backfill or embankment shall not be incorporated into the project but shall be disposed of by Contractor.

D. Excavate with caution so that structures and underground conduits can be protected.

E. Excavate every type of material encountered to the lines and elevations necessary to complete the project.

F. Reroute surface water before excavating and protect excavated trench from entrance of surface water.

G. In general, the sheeting and bracing shall be removed as the trench or excavation is backfilled, and in such a manner as to avoid the caving in of the bank or disturbance of adjacent areas or structures. The voids left by the withdrawal of sheeting shall be backfilled the same as trench excavations.

H. Provide "before and after" color photographs of lawns and gardens to Engineer.

I. Comply with Section 33 41 19 – Pipe Laying.

3.2 TRENCH DEPTH

A. Excavate to the elevation necessary to provide the depth of bedding material under the barrel of the pipe, noted on the plans or in these specifications, whichever is greater.

B. All over-excavation up to 2 ft shall be backfilled with bedding material in 6 in. layers and tamped to a bearing capacity equal to the adjacent undisturbed earth. Over excavation greater than 2 ft will require excavation operation to stop until an engineered backfill is determined. Over excavation shall not proceed until approved by Engineer. Contractor shall bear all expense involved if he fails to obtain prior approval from the Engineer.

3.3 TRENCH WIDTH

A. Excavate to the width shown in detail drawings. Specified width dimensions must be maintained from trench bottom to an elevation 12 in. above barrel of pipe. Over-width excavation will require excavation operation to stop until additional earth loads can be compared to strength of pipe. Costs of unauthorized deviation from the specified width will be borne by the Contractor.

3.4 TRENCH LENGTH

A. Excavate to a maximum distance of 100 ft from the pipe jointing operation. Longer distances will be considered when conditions warrant.

3.5 EXCAVATION IN ROCK

A. When rock is encountered, excavate to an elevation 6 in. below the pipe and to the trench width as shown in the details at no additional cost to Owner.

3.6 EXCAVATION IN UNSUITABLE SOIL

A. Where, in the judgment of the Engineer, the planned bottom of trench is found to be unstable, excavation shall stop until an engineered subgrade stabilization method is determined.

3.7 EXCAVATION IN WET CONDITIONS

A. Where the planned bottom of trench contains water or the trench bottom is soft from excess water, excavation depth shall increase a minimum of 6 in. or as directed by the Engineer.

3.8 EXCAVATION IN UNFORESEEN STRUCTURE

A. Preserve unforeseen structures encountered in excavation.

B. Advise the Engineer when unforeseen structure interferes with planned work. Engineer will determine if plan changes or if structure will be abandoned.

3.9 UNAUTHORIZED EXCAVATION

A. Unauthorized excavation is removal of materials beyond specified elevations or dimensions without the Engineer or Owner’s specific prior approval.

3.10 UNSUITABLE AND EXCESS EXCAVATED MATERIAL:

A. Excavated material not suitable for backfill and excess excavated material shall be disposed of by Contractor in a manner approved by the Engineer and applicable governmental regulations.

3.11 EXCAVATION DEWATERING

A. Wellpointing or deep wells, where required to keep the excavation dry and the subgrade stable, shall be installed when the excavation extends to within 2 ft of the water table, except as herein provided, and shall be in continuous operation until backfill is completed to this level.

B. When construction equipment is to be operated in an area that has been excavated, and wellpointing or deep wells are required to keep the excavation dry and the subgrade stable, the wellpointing or deep wells shall be installed when the excavation extends to within 5 ft of the water table.

C. There shall be sufficient pumping equipment, in good working order, readily available at all times to remove any water that accumulates in excavations to the extent that a stable subgrade is obtained.

D. Where the excavation crosses natural drainage channels, the work shall be conducted in such a manner that unnecessary damage or delays in the prosecution of the work will be prevented.

E. Trench dewatering shall discharge to an approved location as specified in the Stormwater Pollution Prevention Plan.

F. Wellpoint dewatering for the sewer line construction will not be mandatory where a properly stabilized subgrade can be obtained by use of granular bedding. If granular bedding is utilized

by the Contractor for stabilization of the trench bottom in lieu of wellpointing, such bedding material will not be measured for separate payment but will be considered subsidiary to the pipe installation.

G. Where dewatering might be necessary to properly install the sewer line, such as at drainage channel crossings and tunnel or boring locations, the Contractor shall submit his proposal for this dewatering to the Owner for approval.

H. Dewatering operations shall continue until pipe has been backfilled and a sufficient cover depth has been reached to prevent flotation of pipe.

END OF SECTION

SECTION 31 23 16.20 – ROCK EXCAVATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Furnishing all labor, material, and equipment to excavate rock and dispose of rock as specified herein. The following applies to all trenched construction including, but NOT limited to, water mains, sanitary sewer mains, gas mains, and other pipelines.

B. Requirements of Regulatory Agencies:
   1. Observe all municipal ordinances and State and Federal laws relating to the transportation, storage, handling, and use of explosives.
   2. Blasters shall be duly licensed and shall always have their license on the work site during blasting activities.

1.2 DEFINITION

A. At sites of utility relocation projects, rock excavation is hereby defined as material that cannot be removed with the normal excavation equipment used on the project. It is further defined as material requiring drilling and/or blasting prior to its removal from the trench site. The following DO NOT qualify for rock excavation: soft or disintegrated rock that can be removed with a hand pick, power-operated excavator, or shovel; loose, broken, or previously blasted rock or broken stone in rock fills or elsewhere; and rock which has fallen into the excavation from outside of the minimum limits of measurement allowed.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 EXCAVATION

A. Excavate rock to the lines and grades specified in Drawings. Dispose of excavated material NOT suitable for backfill in a location approved by the Owner.

B. In rock, excavations shall be carried 6 in. below the bottom of the pipe. Loose earth or gravel NOT larger than 3/4 in. in size shall be used for backfill, tamped thoroughly, and rounded to receive pipe as above.

C. Excavate rock in structure excavations to 6 in. below the bottom of the foundation.

3.2 MEASUREMENT AND PAYMENT

A. The Contractor shall notify the Owner when rock measurements can be performed. If backfill commences before measurement is made, the Contractor shall NOT be paid for that portion of the rock removed. Maximum measurement for rock excavation in pipe trenches shall be to 6 in. below bottom of pipe with the width of trench at 2 ft 0 in. plus the interior diameter of pipe, regardless of the excess width excavated. Maximum measurement for precast and cast-in-place structures shall be structure width plus 4 ft; structure length plus 4 ft; and base of structure. Payment shall be the price bid per cubic yard and is to include aggregate fill to bring the ditch to plan grade.

END OF SECTION

SECTION 31 23 19 – DEWATERING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Work required to dewater excavations.

1.2 WATER CONTROL PLAN

A. As a Minimum, Include:
   1. Descriptions of proposed groundwater and surface water control facilities including, but NOT limited to, equipment; methods; standby equipment and power supply, pollution control facilities, discharge locations to be utilized, and provisions for immediate temporary water supply as required by this section.
   2. Drawings showing locations, dimensions, and relationships of elements of dewatering system.

B. If system is modified during installation or operation revise or amend and resubmit Water Control Plan.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 GENERAL

A. Remove and control surface and subsurface water during periods when necessary to properly accomplish Work.

3.2 SURFACE WATER CONTROL

A. See Section 01560 – Temporary Controls.

B. Remove surface runoff controls when no longer needed.

3.3 DEWATERING SYSTEMS

A. Provide, operate, and maintain dewatering systems of sufficient size and capacity to permit excavation and subsequent construction in dry and to lower and maintain groundwater level a minimum of 2 ft below the lowest point of excavation. Continuously maintain excavations free of water, regardless of source, and until backfilled to final grade.

B. Design and Operate Dewatering Systems:
   1. To prevent loss of ground as water is removed.
   2. To avoid inducing settlement or damage to existing facilities, completed Work, or adjacent property.
   3. To relieve artesian pressures and resultant uplift of excavation bottom.
   4. Prevent softening, loosening or otherwise disturbing the excavation subgrade.

C. Provide sufficient redundancy in each system to keep excavation free of water in event of component failure.

D. Provide supplemental ditches and sumps only as necessary to collect water from local seeps.

3.4 DISPOSAL OF WATER

A. Obtain discharge permit for water disposal from authorities having jurisdiction.

B. Treat water collected by dewatering operations, as required by regulatory agencies, prior to discharge.

C. Discharge water as required by discharge permit and in manner that will NOT cause erosion or flooding, or otherwise damage existing facilities, completed Work, or adjacent property.

D. The discharge of ground water into treatment facilities shall NOT be permitted unless specifically authorized by the Owner. Remove solids from treatment facilities and perform other maintenance of treatment facilities as necessary to maintain their efficiency. If Owner allows groundwater discharge into facilities.

3.5 PROTECTION OF PROPERTY

A. Make assessment of potential for dewatering induced settlement. Provide and operate devices or systems, including but NOT limited to reinjection wells, infiltration trenches and cutoff walls, necessary to prevent damage to existing facilities, completed Work, and adjacent property.

B. Securely support existing facilities, completed Work, and adjacent property vulnerable to settlement due to dewatering operations. Support shall include, but NOT be limited to, sheeting bracing, underpinning, or compaction grouting.

3.6 REMEDIATION OF GROUNDWATER AFTER DEPLETION

A. If dewatering reduces quantity or quality of water produced by existing wells, temporarily supply water to affected well Owners from other sources. Furnish water of a quality and quantity equal to or exceeding the quality and quantity available to the well Owner prior to beginning Work or as satisfactory to each well Owner.

END OF SECTION

SECTION 31 23 23.13 – FILL AND BACKFILL

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Work and materials required for fill and backfill for all excavations other than trench type excavations.

B. Related Sections:
1. Section 03 30 00 – Cast-In-Place Concrete
2. Section 31 11 00 – Site Preparation
3. Section 31 22 13 – Subgrade Preparation
4. Section 31 23 16 – Excavation
5. Section 31 23 23.16 – Trench Backfill

1.2 REFERENCES

A. The following is a list of standards which may be referenced in this section:
1. American Society for Testing and Materials (ASTM):
a. C117 – Standard Test Method for Materials Finer Than 75 µm (No. 200) Sieve in Mineral Aggregates by Washing.
b. C136 – Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
c. D75 – Standard Practice for Sampling Aggregates.
d. D698 – Standard Test Methods for Laboratory Characteristics of Soil Using Modified Effort (12,400 ft-lbf/ft^3).
e. D1556 – Standard Test Method for Density of Soil in Place by the Sand Cone Method.
f. D1557 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3).
g. D6938 – Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
h. D4253 – Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table.
i. D4254 – Standard Test Methods for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density.

1.3 DEFINITIONS

A. Relative Compaction:
1. Ratio, in percent, of as-compacted field dry density to laboratory maximum dry density as determined as specified in ASTM D698.
2. Apply corrections for oversize material to either as-compacted field dry density or maximum dry density, as determined by Engineer.

B. Optimum Moisture Content:
1. Determined as specified in ASTM D698 specified to maximum dry density for relative compaction.
2. Determine field moisture content on basis of fraction passing 3/4 in. sieve.

C. Relative Density: Calculated as specified in ASTM D4254 based on maximum index density determined as specified in ASTM D4253 and minimum index density determined as specified in ASTM D4254.

D. Prepared Ground Surface: Ground surface after completion of required demolition, clearing and grubbing, scalping of sod, stripping of topsoil, excavation to grade, and preparation.

E. Completed Course: A course or layer that is ready for next layer or next phase of Work.

F. Lift: Loose (uncompacted) layer of material.

G. Geosynthetics: Geotextiles, geogrids, or geomembranes.

H. Well-Graded:
1. A mixture of particle sizes with no specific concentration or lack thereof of one or more sizes.
2. Does NOT define numerical value that shall be placed on coefficient of uniformity, coefficient of curvature, or other specific grain size distribution parameters.
3. Used to define material type that, when compacted, produces a strong and relatively incompressible soil mass free from detrimental voids.

I. Influence Area: Area within planes sloped downward and outward at 60 degrees from horizontal measured from:
1. 1 ft outside outermost edge at base of foundations or slabs.
2. 1 ft outside outermost edge at surface of roadways or shoulder.
3. 0.5 ft outside exterior at spring line of pipes or culverts.

J. Borrow Material: Material from required excavations or from designated borrow areas on or near site.

K. Selected Backfill Material/Select Fill: Materials available onsite that Engineer determines to be suitable for specific use.

L. Imported Material: Materials obtained from sources suitable for specified use.

M. Structural Fill: Fill materials as required under structures, pavements, and other facilities.

N. Embankment Material: Fill materials required to raise existing grade in areas other than under structures.

O. Standard Specification: The latest edition, including supplements of the Colorado Department of Transportation Standard Specifications for Highway Construction, El Paso County, and City of Fountain.

1.4 SUBMITTALS

A. Quality Control Submittals:
1. Catalog and manufacturer's data sheets for compaction equipment.
2. Certified test results from independent testing agency.

1.5 QUALITY ASSURANCE

A. Notify Engineer when:
1. Structure is ready for backfilling, and whenever backfilling operations are resumed after a period of inactivity.
2. Soft or loose subgrade materials are encountered wherever embankment or site fill is to be placed.
3. Fill material appears to be deviating from sections.

1.6 SEQUENCING AND SCHEDULING

A. Complete applicable Work specified in Section 31 23 16, EXCAVATION prior to placing fill or backfill.

B. Backfill against concrete structures only after concrete has attained compressive strength, specified in Section 03 30 00 – Cast-In-Place Concrete. Obtain acceptance of concrete work and attained strength prior to placing backfill.

C. Backfill around water-holding structures only after completion of satisfactory leakage tests as specified in Section 03 30 00 – Cast-In-Place Concrete.

D. DO NOT place granular base, subbase, or surfacing until after subgrade has been prepared as specified in Section 31 22 13 – Subgrade Preparation.

PART 2 - PRODUCTS

2.1 SOURCE QUALITY REQUIREMENTS

A. Gradation Tests: It shall be the Contractor’s responsibility to conduct testing as necessary to locate acceptable sources of imported material.

2.2 EARTH FILL

A. Excavated material from required excavations, free from rocks larger than 3 in, from roots and other organic matter, ashes, cinders, trash, debris, and other deleterious materials.

2.3 GRANULAR FILL

A. Structural Backfill Class 1 aggregate meeting all the requirements of Subsection 703.08 (a) of the Colorado Department of Transportation Standard Specifications.

2.4 WATER FOR MOISTURE CONDITIONING

A. Free of hazardous or toxic contaminates, or contaminants deleterious to proper compaction.

2.5 FOUNDATION STABILIZATION ROCK

A. Crushed rock or pit run rock.

B. Uniformly graded from coarse to fine.

C. Free from excessive dirt and other organic material.

D. Maximum 2 1/2 in. particle size.

PART 3 - EXECUTION

3.1 GENERAL

A. Keep placement surfaces free of water, debris, and foreign material during placement and compaction of fill and backfill materials.

B. Place and spread fill and backfill materials in horizontal lifts of uniform thickness, in a manner that avoids segregation, and compact each lift to specified densities prior to placing succeeding

lifts. Slope lifts only where necessary to conform to final grades or as necessary to keep placement surfaces drained of water.

C. During filling and backfilling, keep level of fill and backfill around each structure and buried tank even.

D. DO NOT place fill or backfill, if fill or backfill material is frozen, or if surface upon which fill or backfill is to be placed is frozen.

E. If pipe, conduit, duct bank, or cable is to be laid within fill or backfill:
1. Fill or backfill to an elevation 2 ft above top of item to be laid.
2. Excavate trench for installation of item.
3. Install bedding, if applicable, as specified in Section 31 23 23.16 – Trench Backfill.
4. Install item.
5. Backfill envelope zone and remaining trench, as specified in Section 31 23 23.16 – Trench Backfill, before resuming filling or backfilling specified in this section.

F. Tolerances:
1. Final Lines and Grades: Within a tolerance of 0.1 ft, unless dimensions or grades are specified otherwise.
2. Grade to establish and maintain slopes and drainage as specified. Reverse slopes are NOT permitted.

G. Settlement: Correct and repair any subsequent damage to structures, pavements, curbs, slabs, piping, and other facilities, caused by settlement of fill or backfill material.

H. Fill and backfill materials shall be conditioned to a water content that is within plus or minus 2% of the optimum required for compaction as determined by ASTM D698.

3.2 BACKFILL UNDER AND AROUND STRUCTURES

A. Under Facilities: Within influence area beneath structures, slabs, pavements, curbs, piping, conduits, duct banks, and other facilities, backfill with granular fill, unless otherwise specified. Place granular fill in lifts of 6 in. maximum thickness and compact each lift to minimum of 95% relative compaction as determined as specified in ASTM D698, Method C.

B. Subsurface Drainage: Backfill with granular drain material where specified. Place granular drain material in lifts of 6 in. maximum thickness and compact each lift to minimum of 90% relative density.

C. Other Areas: Backfill with select fill to lines and grades specified, with proper allowance for topsoil thickness where specified. Place in lifts of 6 in. maximum thickness and compact each lift to minimum 95% relative compaction as determined as specified in ASTM D698, Method C.

3.3 FILL

A. Outside Influence Areas Beneath Structures, Tanks, Pavements, Curbs, Slabs, Piping, and Other Facilities:
1. Unless otherwise specified, place select fill.
2. Allow for 6 in. thickness of topsoil where required.
3. Maximum 9 in. thick lifts.
4. Place and compact fill across full width of embankment.
5. Compact to minimum 95% relative compaction as determined as specified in ASTM D698, Method C.

6. Dress completed embankment with allowance for topsoil, crest surfacing, and slope protection, where applicable.

3.4 SITE TESTING

A. Gradation:
   1. One sample from each 400 tons of finished product or more often as determined by Engineer, if variation in gradation is occurring, or if material appears to depart from Specifications.
   2. If test results specify material does NOT meet section requirements, terminate material placement until corrective measures are taken.
   3. Remove material placed in Work that does NOT meet Specification requirements.

B. In-Place Density Tests:
   1. As specified in ASTM.
   2. During placement of materials, test:
      a. One test per every other lift per 200 LF of roadway or trench.
      b. A minimum of two tests on granular fill beneath structures.
      c. A minimum of two tests per 300 yds^3 during backfilling of walls.

C. Testing shall be the Contractor's responsibility and conducted by persons experienced in such work.

3.5 REPLACING OVEREXCAVATED MATERIAL

A. Replace excavation carried below grade lines specified or established by Engineer:
   1. Beneath Footings: Concrete of strength equal to that of respective footing.
   2. Beneath Fill or Backfill: Same material as specified for overlying fill or backfill.
   3. Beneath Slabs-On-Grade: Granular fill.
   4. Trenches:
      a. Unauthorized Over-excavation: Either trench stabilization material or granular pipe base material, as specified in Section 31 23 23.16 – Trench Backfill.
      b. Authorized Over-excavation: Trench stabilization material, as specified in Section 31 23 23.16 – Trench Backfill.
   5. Permanent Cut Slopes (Where Overlying Area is NOT to Receive Fill or Backfill):
      a. Flat to Moderate Steep Slopes (3:1, Horizontal Run: Vertical Rise or Flatter): Select Fill.
      b. Steep Slopes (Steeper than 3:1):
         1) Correct over-excavation by transitioning between areas and designed slope adjoining areas, provided such cutting does NOT extend offsite or outside easements and right-of-ways, or adversely impacts existing facilities, adjacent property, or completed Work.
         2) Backfilling over-excavated areas is prohibited unless, in opinion, backfill will remain stable, and over-excavated material is replaced as compacted select fill.

B. Correct overexcavation by transitioning between areas and designed slope adjoining areas, provided such cutting does not extend offsite or outside easements and right-of-ways, or adversely impacts existing facilities, adjacent property, or completed Work.

C. Backfilling overexcavated areas is prohibited unless, in opinion, backfill will remain stable, and overexcavated material is replaced as compacted earth fill.

END OF SECTION

SECTION 31 23 23.16 – TRENCH BACKFILL

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Installation materials and Installation methods for open trench installation of utility lines.
2. Trench Excavation Safety Systems.

B. Related Sections:
1. Section 03 30 00 – Cast-in-Place Concrete
2. Section 31 23 23.13 – Fill and Backfill
3. Section 31 23 19 – Dewatering
4. Section 31 50 00 – Excavation Support Systems
5. Section 32 12 16 – Asphalt Concrete Pavement

1.2 REFERENCES

A. ANSI:
1. 253.1, Safety Color Code.

B. APWA:
1. Uniform Color Code for Temporary Marking of Underground Utility Locations.

C. ASTM International:
1. D448 – Standard Classification for Sizes of Aggregate for Road and Bridge Construction.
2. C33 – Standard Specification for Concrete Aggregates
3. C94 – Specification for Ready-Mixed Concrete.
4. C117 – Standard Test Method for Materials Finer than 75 micrometer (No. 200) Sieve in Mineral Aggregates by Washing.
5. C136 – Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
6. C150 – Standard Specification for Portland Cement.
7. C618 – Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.
8. D698 – Standard Test Methods for Laboratory Compaction Characteristics of Soil using Standard Effort (12,400 ft-lbf/cubic ft).
9. D1140 – Standard Test Methods for Amount of Material in Soils Finer than the No. 200 (75 micrometer) Sieve in Soils by Washing.
10. D1557 – Standard Test Methods for Laboratory Compaction Characteristics of Soil using Modified Effort (56,000 ft-lbf).
11. D3776 – Standard Test Methods for Mass per Unit Area (Weight) of Fabric.
12. D3786 – Standard Test Method for Bursting Strength of Textile Fabrics: Diaphragm Bursting Strength Tester Method.
13. D4253 – Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table.
14. D4254 – Standard Test Methods for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density.
15. D4318 – Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
16. D4533 – Standard Test Method for Trapezoid Tearing Strength of Geotextiles.
17. D4832 – Standard Test Method for Preparation and Testing of Controlled Low Strength Material (CLSM) Test Cylinders.
18. D4991 – Standard Test Method for Leakage Testing of Empty Rigid Containers by Vacuum Method.

19. D5034 – Standard Test Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test).

1.3 DEFINITIONS

A. Base Rock:
1. Granular material upon which manhole bases and other structures are placed.

B. Bedding Material:
1. Granular material upon which pipes, conduits, cables, or duct banks are placed.

C. Imported Material:
1. Material obtained by the Contractor from source(s) offsite.

D. Lift:
1. Loose (uncompacted) layer of material.

E. Pipe Zone:
1. Backfill zone that includes full trench width and extends from prepared trench bottom to an upper limit above top outside surface of pipe, conduit, cable, or duct bank.

F. Prepared Trench Bottom:
1. Graded trench bottom after stabilization and installation of bedding material.

G. Relative Compaction:
1. The ratio, in percent, of the as-compacted field dry density to the laboratory maximum dry density as determined by ASTM D698. Corrections for oversize material may be applied to either the as-compacted field dry density or the maximum dry density, as determined by the Engineer.

H. Relative Density:
1. As specified by ASTM D4253 and ASTM D4254.

I. Selected Backfill Material:
1. Material available that the Engineer determines to be suitable for a specific use.

J. Well-Graded:
1. A mixture of particle sizes that has no specific concentration or lack thereof of one or more sizes producing a material type that, when compacted, produces a strong and relatively incompressible soil mass free from detrimental voids. Well-Graded does NOT define any numerical value that shall be placed on the coefficient of uniformity, coefficient of curvature, or other specific grain size distribution parameters.

1.4 SUBMITTALS

A. Subject to the requirements of Section 01300 - Submittals.

B. Shop Drawings:
1. Manufacturer's descriptive literature for marking tapes.

C. Samples:
1. Trench stabilization material.
2. Bedding and pipe zone material.
3. Granular drain.
4. Granular backfill.

5. Select backfill.
6. Sand(s).
7. Geotextile.

D. Quality requirements Submittals:
1. Catalog and manufacturer's data sheets for compaction equipment.

E. Certified Gradation Analysis:
1. Submit NOT less than 30 days prior to delivery for imported materials or anticipated use for excavated materials, except for trench stabilization material that will be submitted prior to material delivery to site.

F. Controlled Low Strength Material:
1. Certified mix design and test results. Include material types and weight per cubic yard for each component of mix.

1.5 WARRANTY

A. See Section 00610 - Payment, Performance and Warranty Bond for requirements.

PART 2 - PRODUCTS

2.1 MARKING TAPE

A. Plastic:
1. Inert polyethylene, impervious to known alkalis, acids, chemical reagents, and solvents likely to be encountered in soil.
2. Thickness: Minimum 4 mils.
3. Width: 12 in.
4. Identifying Lettering: Minimum 1 in. high, permanent black lettering imprinted continuously over entire length.
5. Manufacturers and Products:
a. Reef Industries; Terra Tape.
b. Allen Precision Equipment; Markline.

B. Metallic:
1. Solid aluminum foil, visible on unprinted side, encased in a protective high visibility, inert polyethylene plastic jacket.
2. Thickness: Minimum 5 mils.
3. Width: 12 in.
4. Identifying Lettering: Minimum 1 in. high, permanent black lettering imprinted continuously over entire length.
5. Joining Clips: Tin or nickel-coated, furnished by tape manufacturer.
6. Manufacturers and Products:
a. Reef Industries; Terra Tape Sentry Line.
b. Allen Precision Equipment; Detectatape.

C. Color:
1. As specified in APWA Uniform Color Code for Temporary Marking of Underground Facilities.

Color[1]	Facility
Red	Electric power lines, cables, conduit, and lightning cables
Orange	Communicating alarm or signal lines, cables, or conduit
Yellow	Gas, oil, steam, petroleum, or gaseous materials

Green	Sewers and drain lines
Blue	Water, irrigation, and slurry lines
Notes: **1. As specified in ANSI Z53.1, Safety Color Code.**	

2.2 TRENCH STABILIZATION MATERIAL

A. Clean, hard, durable 3 in. minus crushed rock gravel, or pit run, free from clay balls, other organic materials, or debris.

B. Uniformly graded from coarse to fine, less than 8% by weight passing the 1/4 in. sieve.

2.3 BEDDING MATERIAL AND PIPE ZONE MATERIAL

A. Unfrozen, friable, and no clay balls, roots, or other organic material.

B. Clean or gravelly sand with less than 5% passing No. 200 sieve, as determined as specified in ASTM D1140, or gravel or crushed rock within maximum particle size and other requirements as follows unless otherwise specified.
1. Duct Banks: 3/4 in. maximum particle size.
2. PVC Irrigation System Piping, and Ductile Iron Pipe with Polyethylene Wrap: 3/8 in. maximum particle size.
3. Pipe Under 18 in. Diameter: 3/4 in. maximum particle size, except 1/4 in. for stainless steel pipe, copper pipe, tubing, and plastic pipe under 3 in. diameter.
4. Pipe Greater than 18 in. Diameter: 1 1/2 in. maximum particle size for ductile iron pipe, concrete pipe, welded steel pipe, and pretensioned or prestressed concrete cylinder pipe. 3/4 in maximum particle size for PVC, FRP, or HDPE Pipe.
5. Perforated Pipe: Granular drain material.
6. Conduit and Direct-Buried Cable:
    a. Sand, clean or clean to silty, less than 12% passing the No. 200 sieve.
    b. Individual Particles: Free of sharp edges.
    c. Maximum Size Particle: Pass a No. 4 sieve.
    d. If more than 5% passes No. 200 sieve, the fraction that passes No. 40 sieve shall be nonplastic as determined as specified in ASTM D4318.

2.4 SELECT FILL

A. As specified in Section 31 23 23.13 – Fill and Backfill.

2.5 CONTROLLED LOW STRENGTH FILL

A. Select and proportion ingredients to obtain compressive strength between 50 psi – 150 psi at 28 days as specified in ASTM D4832.

B. Materials:
1. Cement: ASTM C150, Type I or II.
2. Aggregate: ASTM C33, Size 7.
3. Fly Ash (if used): ASTM C618, Class C.
4. Water: Clean, potable, containing less than 500 ppm of chlorides.

2.6 CONCRETE BACKFILL

A. Provide as specified in Section 03 30 00 – Cast-In-Place Concrete.

2.7 TOPSOIL

A. Topsoil removed and stockpiled from onsite excavation.

2.8 SOURCE QUALITY REQUIREMENTS

A. Perform gradation analysis as specified in ASTM C136 for:
   1. Select backfill, including specified class(es).
   2. Trench stabilization material.
   3. Bedding and pipe zone material.

B. Certify Laboratory Performance of Mix Designs:
   1. Controlled low strength fill.
   2. Concrete.

PART 3 - EXECUTION

3.1 TRENCH PREPARATION

A. Water Control:
   1. As specified in Section 31 23 19 – Dewatering.
   2. Promptly remove and dispose of water entering trench as necessary to grade trench bottom and to compact backfill and install manholes, pipe, conduit, direct-buried cable, or duct bank. DO NOT place concrete, lay pipe, conduit, direct-buried cable, or duct bank in water.
   3. Remove water in a manner that minimizes soil erosion from trench sides and bottom.
   4. Provide continuous water control until trench backfill is complete.

B. Remove foreign material and backfill contaminated with foreign material that falls into trench.

3.2 TRENCH BOTTOM

A. Firm Subgrade:
   1. Grade with hand tools, remove loose and disturbed material, and trim off high areas and ridges left by excavating bucket teeth. Allow space for bedding material if specified.

B. Soft Subgrade:
   1. If it is encountered that it may require removal to prevent pipe settlement, notify Engineer. Engineer shall determine the depth of over-excavation, if any, required.

3.3 TRENCH STABILIZATION MATERIAL INSTALLATION

A. Rebuild trench bottom with trench stabilization material.

B. Place material over full width of trench in 6 in. lifts to required grade, providing allowance for bedding thickness.

C. Compact each lift to provide a firm, unyielding support for the bedding material prior to placing succeeding lifts.

3.4 BEDDING

A. Furnish imported bedding material where, in the opinion of the Engineer, excavated material unsuitable for bedding or insufficient in quantity.

B. Place over the full width of the prepared trench bottom in two equal lifts when the required depth exceeds 8 in.

C. Hand grade and compact each lift to provide a firm, unyielding surface.

D. Minimum Thickness:
   1. Pipe, 15 in. and Smaller:
      a. 4 in.
   2. Pipe, 18 in. – 36 in:
      a. 6 in.
   3. Pipe, 42 in. and Larger:
      a. 12 in.
   4. Conduit:
      a. 3 in.
   5. Direct-Buried Cable:
      a. 3 in.
   6. Duct Banks:
      a. 3 in.

E. Check grade and correct irregularities in bedding material. Loosen top 1 in. – 2 in. of compacted bedding material with a rake or by other means to provide a cushion before laying each section of pipe, conduit, direct-buried cable, or duct bank.

F. Install to form continuous and uniform support except at bell holes, if applicable, or minor disturbances resulting from removal of lifting tackle.

G. Bell or Coupling Holes:
   1. Excavate in bedding at each joint to permit proper assembly and inspection of joint and to provide uniform bearing along barrel of pipe or conduit.

3.5 BACKFILL PIPE ZONE

A. Upper limit of pipe zone shall NOT be less than:
   1. Pipe: 12 in. above top of pipe, unless specified otherwise.
   2. Conduit: 3 in. above top of conduit, unless specified otherwise.
   3. Direct-Buried Cable: 3 in. above top of cable, unless specified otherwise.
   4. Duct Bank: 3 in. above top of duct bank, unless specified otherwise.

B. Restrain pipe, conduit, cables, and duct banks as necessary to prevent their movement during backfill operations.

C. Place material simultaneously in lifts on both sides of pipe and, if applicable, between pipes, conduit, cables, and duct banks installed in same trench.
   1. Pipes 10 in. and Smaller Diameter: First lift less than or equal to pipe-diameter.
   2. Pipes Over 10 in. Diameter: Maximum 6 in. lifts.

D. Thoroughly tamp each lift, including area under haunches, with handheld tamping bars supplemented by "walking in" and slicing material under haunches with a shovel to ensure that voids are filled before placing each succeeding lift.

E. After the full depth of the pipe zone material has been placed as specified, compact the material by a minimum of three passes with a vibratory plate compactor only over the area between the sides of the pipe and the trench walls.

F. DO NOT use power-driven impact compactors to compact pipe zone material.

3.6 MARKING TAPE INSTALLATION

A. Continuously install marking tape along centerline of all buried piping, at depth of 2 ft. Coordinate with Piping Installation Drawings.
   1. Metallic Marking Tape: Install with nonmetallic piping.
   2. Plastic Marking Tape: Install with metallic piping.

3.7 BACKFILL ABOVE PIPE ZONE

A. General:
   1. Process excavated material to meet specified gradation requirements.
   2. Adjust moisture content as necessary to obtain specified compaction.
   3. DO NOT allow backfill to free fall into the trench or allow heavy, sharp pieces of material to be placed as backfill until after at least 2 ft of backfill has been provided over the top of pipe.
   4. DO NOT use power driven impact type compactors for compaction until at least 4 ft of backfill is placed over top of pipe.
   5. Backfill to grade with proper allowances for topsoil, crushed rock surfacing, and pavement thicknesses, wherever applicable.
   6. Backfill around structures with same class backfill as specified for adjacent trench unless otherwise specified.

B. Select Excavated Backfill:
   1. Place in lifts NOT exceeding 9 in. thickness.
   2. Mechanically compact each lift to a minimum of 95% relative compaction prior to placing succeeding lifts.

C. Excavated Backfill:
   1. Backfill trench above the pipe zone with granular backfill in lifts NOT exceeding 8 in. Compact each lift to a minimum of 95% relative compaction prior to placing succeeding lifts.

D. Concrete Backfill:
   1. Place above bedding.
   2. Minimum Concrete Thickness: 6 in. on top and sides of pipe.
   3. DO NOT allow dirt or foreign material to become mixed with concrete during placement.
   4. Allow sufficient time for concrete to reach initial set before additional backfill material is placed in trench.
   5. Prevent flotation of pipe.
   6. Begin and end concrete backfill within 4 in. of a pipe joint on each end.
   7. DO NOT encase pipe joints except within the limits of the concrete backfill.

E. Controlled Low Strength Fill:
   1. Discharge from truck mounted drum type mixer into trench.
   2. Place in lifts as necessary to prevent uplift (flotation) of new and existing facilities.

3.8 REPLACEMENT OF TOPSOIL

A. Replace topsoil in top 6 in. of backfilled trench.

B. Maintain the finished grade of topsoil even with adjacent area and grade as necessary to restore drainage.

3.9 MAINTENANCE OF TRENCH BACKFILL

A. After each section of trench is backfilled, maintain the surface of the backfilled trench even with the adjacent ground surface until final surface restoration is completed.

B. Gravel Surfacing Rock:
   1. Add gravel surfacing rock where applicable and as necessary to keep the surface of the backfilled trench even with the adjacent ground surface, and grade and compact as necessary to keep the surface of backfilled trenches smooth, free from ruts and potholes, and suitable for normal traffic flow.

C. Topsoil:
   1. Add topsoil where applicable and as necessary to maintain the surface of the backfilled trench level with the adjacent ground surface.

D. Asphaltic Pavement:
   1. Replace settled areas or fill with asphalt as specified in Section 32 12 16 – Asphalt Concrete Pavement.

E. Other Areas:
   1. Add excavated material where applicable and keep the surface of the backfilled trench level with the adjacent ground surface.

3.10 SETTLEMENT OF BACKFILL

A. Settlement of trench backfill, or of fill or facilities constructed over trench backfill, shall be considered a result of defective compaction of trench backfill.

END OF SECTION

SECTION 31 23 23.19 – TRENCH BEDDING AND BACKFILL FOR WATER AND SEWER LINES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section Includes:
   1. Materials and work required for placing bedding and backfilling of water and sewer pipelines and appurtenances.

B. Related Sections:
   1. Section 31 23 16.16 – Trenching for Water and Sewer Lines
   2. Section 32 12 16 – Asphalt Concrete Pavement
   3. Section 33 31 13 – Testing Sanitary Sewer Systems
   4. Section 33 34 13 – Ductile Iron Force Main Pipe and Fittings
   5. Section 33 34 16 – Solid Wall PVC Force Main Pipe and Fittings
   6. Section 33 39 13 – Concrete Manholes
   7. Section 33 41 16 – Ductile Iron Gravity Sewer Pipe and Fittings
   8. Section 33 41 19 – Pipe Laying
   9. Section 33 41 20 – Solid Wall PVC Gravity Sewer Pipe and Fittings

1.2 DEFINITIONS

A. Base Rock:
   1. Granular material upon which manhole bases and other structures are placed.

B. Bedding Material:
   1. Granular material which is used as fill material in the pipe zone of the trench.

C. Backfill Material:
   1. Material used to fill pipe trench from the upper surface of the pipe zone to existing grade or bottom of prosed pavement section.

D. Imported Material:
   1. Material obtained by the Contractor from source(s) offsite.

E. Lift:
   1. Loose (uncompacted) layer of material.

F. Pipe Zone:
   1. Backfill zone that includes full trench width and extends from prepared trench bottom to an upper limit above top outside surface of pipe or bedding material.

G. Prepared Trench Bottom:
   1. Graded trench bottom after stabilization and installation of bedding material.

H. Relative Compaction:
   1. The ratio, in percent, of the as-compacted field dry density to the laboratory maximum dry density as specified in ASTM D698, Corrections for oversize material may be applied to either the as-compacted field dry density or the maximum dry density, as determined by the Engineer.

I. Relative Density:
   1. As defined by ASTM D4253 and ASTM D4254.

J. Selected Backfill Material:
1. Material available that the Engineer determines to be suitable for a specific use.

K. Well-Graded:
1. A mixture of particle sizes that has no specific concentration or lack thereof of one or more sizes producing a material type that, when compacted, produces a strong and relatively incompressible soil mass free from detrimental voids. Well-Graded does not define any numerical value that must be placed on the coefficient of uniformity, coefficient of curvature, or other specific grain size distribution parameters.

1.3 SUBMITTALS

A. Subject to the requirements of Section 01300 - Submittals.

B. Quality Control Submittals:
1. Catalog and manufacturer's data sheets for compaction equipment.
2. Certified test results from independent testing agency.
3. Certified Gradation Analysis: Submit not less than 30 days prior to delivery for imported materials or anticipated use for excavated materials, except for trench stabilization material that will be submitted prior to material delivery to site.

1.4 QUALITY ASSURANCE

A. Notify Engineer when:
1. Soft or loose subgrade materials are encountered wherever pipe bedding is to be placed.
2. Fill material appears to be deviating from Specifications.

1.5 WARRANTY

A. See Section 00610 - Payment, Performance and Warranty Bond for requirements.

PART 2 - PRODUCTS

2.1 GENERAL

A. Backfill materials shall be obtained from excavated materials or approved borrow sources.

B. Backfill material shall be free of trash, debris, cinders, organic matter, or other deleterious materials.

C. All backfill materials shall be subject to the Engineer's approval.

2.2 TRENCH STABILIZATION MATERIAL

A. Clean, hard, durable 3 in. minus crushed rock gravel, or pit run, free from clay balls, other organic materials, or debris.

B. Uniformly graded from coarse to fine, less than 8% by weight passing the 1/4 in. sieve.

2.3 BEDDING MATERIAL AND PIPE ZONE MATERIAL

A. Unfrozen, friable, and no clay balls, roots, or other organic material.

B. Pipe bedding shall be as specified in ASTM D2321, Class IA, manufactured aggregates, open-graded, clean, non-plastic.

1. The gradation shall be:

ASTM D2321, Class IA	
Sieve Size	**Percent Passing**
1 1/2 in.	100%
No. 4	≤10%
No. 200	<5%

C. Alternative bedding materials may be considered at the discretion of the Engineer. Alternate bedding materials shall be crushed rock classified as GP as specified in ASTM D2487 with 15% sand or less, a maximum of 25% passing 3/8 in. sieve, and a maximum of 5% fines.

2.4 TRENCH BACKFILL – GENERAL

A. Excavated material from required excavations, free from rocks larger than 3 in, from roots and other organic matter, ashes, cinders, trash, debris, and other deleterious materials.

2.5 TRENCH BACKFILL – GRANULAR

A. Granular backfill shall be placed under all existing or proposed driving surfaces and/or as specified on the Plans.

B. Granular backfill shall be Type 1 aggregate meeting all the requirements of Section 703.01 of the Colorado Department of Transportation Standard Specifications.

2.6 TOPSOIL

A. Topsoil removed and stockpiled from onsite excavation.

B. Should the Contractor dispose of existing topsoil the Contractor shall acquire and place topsoil to a minimum 6 in. depth at no additional cost to the Owner.

PART 3 - EXECUTION

3.1 GENERAL

A. All bedding material shall be placed as specified in:
1. Section 31 23 16.16 – Trenching for Water and Sewer Lines.
2. Section 33 41 19 – Pipe Laying.

B. Process excavated material to meet specified gradation requirements.

C. Adjust moisture content as necessary to obtain specified compaction.

D. DO NOT allow backfill to free fall into the trench or allow heavy, sharp pieces of material to be placed as backfill until after at least 2 ft of backfill has been provided over the top of pipe.

E. DO NOT use power driven impact type compactors for compaction until at least 4 ft of backfill is placed over top of pipe.

F. Backfill to grade with proper allowances for topsoil, crushed rock surfacing, and pavement thicknesses, wherever applicable.

G. Backfill around structures with same class backfill as specified for adjacent trench unless otherwise specified.

3.2 TRENCH BACKFILL – GENERAL

A. Trench backfill shall be placed in a lift not exceeding 9 in. thickness.

B. Each lift shall be mechanically compacted to a minimum of 95% relative compaction prior to placing succeeding lifts.

3.3 TRENCH BACKFILL – GRANULAR

A. Granular backfill shall be used under all existing or prosed driving surfaces and at locations specified on the Plans.

B. Granular backfill shall be placed in lifts not exceeding 8 in. thickness.

C. Each lift shall be mechanically compacted to 95% relative compaction prior to placing succeeding lifts.

3.4 REPLACEMENT OF TOPSOIL

A. Replace topsoil in top 6 in. of backfilled trench.

B. Maintain the finished grade of topsoil even with adjacent area and grade as necessary to restore drainage.

3.5 MAINTENANCE OF TRENCH BACKFILL

A. After each section of trench is backfilled, maintain the surface of the backfilled trench even with the adjacent ground surface until final surface restoration is completed.

B. Gravel Surfacing Rock:
1. Add gravel surfacing rock where applicable and as necessary to keep the surface of the backfilled trench even with the adjacent ground surface, and grade and compact as necessary to keep the surface of backfilled trenches smooth, free from ruts and potholes, and suitable for normal traffic flow.

C. Topsoil:
1. Add topsoil where applicable and as necessary to maintain the surface of the backfilled trench level with the adjacent ground surface.

D. Asphaltic Pavement:
1. Replace settled areas or fill with asphalt as specified in Section 32 12 16 – Asphalt Concrete Pavement.

E. Other Areas:
1. Add excavated material where applicable and keep the surface of the backfilled trench level with the adjacent ground surface.

3.6 SETTLEMENT OF BACKFILL

A. Settlement of trench backfill, or of fill or facilities constructed over trench backfill will be considered a result of defective compaction of trench backfill.

END OF SECTION

SECTION 31 23 23.33 – FLOWABLE FILL

PART 1 - GENERAL

1.1 SUMMARY

A. This Section Includes:
   1. Controlled low strength concrete flowable fill.

B. Related Sections:
   1. Section 03 30 00 – Cast-In-Place Concrete.

1.2 DEFINITIONS

A. Flowable Fill:
   1. Controlled low strength concrete ready mix.

1.3 SUBMITTALS

A. As specified in Section 01300 - Submittals.

1.4 QUALITY ASSURANCE

A. As specified in Section 03 30 00 – Cast-In-Place Concrete.

PART 2 - PRODUCTS

2.1 PRODUCTS

A. As specified in Section 03 30 00 – Cast-In-Place Concrete.

B. Concrete Mixture for Flowable Fill only:
   1. Compressive strength 75 psi – 100 psi.
   2. Cement 80 lbs. – 100 lbs. per CY.
   3. Fly Ash 200 lbs. – 300 lbs. per CY.
   4. Sand variable to equal 1 CY.
   5. Water 65 gal – 199 gal per CY.
   6. Unit weight approximately 110 lbs/CY.

PART 3 - EXECUTION

3.1 EXECUTION

A. As specified in Section 03 30 00 – Cast-In-Place Concrete.

END OF SECTION

SECTION 31 32 00 – SOIL EROSION STABILIZATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Work and materials required to minimize erosion and comply with Storm Water Pollution Prevention Plan.

1.2 REFERENCES

A. ASTM
   1. D3776 – Standard Test Methods for Mass Per Unit Area (Weight) of Fabric
   2. D4632 – Standard Test Method for Grab Breaking Load and Elongation of Geotextiles
   3. D5035 – Standard Test Method for Breaking Force and Elongation of Textile Fabrics (Strip Method)
   4. D3786 – Standard Test Method for Bursting Strength of Textile Fabrics—Diaphragm Bursting Strength Tester Method
   5. D4355 – Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture, and Heat in a Xenon Arc-Type Apparatus
   6. D4491 – Standard Test Methods for Water Permeability of Geotextiles by Permittivity

1.3 SUBMITTALS

A. Subject to the requirements of Section 01300 - Submittals.

B. Shop Drawings/Product Data:
   1. Erosion control rock.
   2. Fertilizer.
   3. Seed.
   4. Mulch.
   5. Erosion control rock.
   6. Soil tackifier.
   7. Reinforced plastic covering.
   8. Silt fence.
   9. Straw bales.
   10. Posts for straw bales.
   11. Dust controller.
   12. Wire mesh.

1.4 STABILIZATION

A. Soil Erosion Stabilization:
   1. Ground surfaces exposed during the wet weather conditions:
   2. Areas which shall NOT be subjected to heavy wear by ongoing construction traffic.
   3. Temporary and long-term stabilization of new or disturbed ditches, swales, detention ponds, or disturbed ground with intermittence construction traffic.

B. Permanent Stabilization:
   1. Permanently stabilize exposed soil surfaces at finished grades.
   2. Permanent stabilization methods include, but are NOT limited to, seeding (permanent), mulching, and landscaping.
   3. Immediately perform permanent stabilization at each completed excavation and areas except for areas that are scheduled to be re-disturbed.

4. Incorporate all permanent erosion control features into the project at the earliest practical time.

C. Buffer Zone:
1. Undisturbed area or strip of natural vegetation or an established suitable planting adjacent to a disturbed area that reduces erosion and runoff.

D. Standard Specification:
1. The latest edition, including supplements of the Colorado Department of Transportation (CDOT) Standard Specifications for Highway Construction, El Paso County, and City of Fountain.

1.5 DELIVERY, STORAGE, AND PROTECTION

A. General:
1. Prevent or reduce the discharge of pollutants to stormwater from all material delivery and storage by minimizing the storage of hazardous materials storing materials in a designated area, installing Secondary containment, conducting regular inspection, and training employees and Subcontractors.

B. Seed:
1. Furnish in standard containers with seed name, lot number, net weight, percentages of purity, germination, and hard seed and maximum weed seed content, clearly marked for each container of seed.
2. Keep dry during storage.

C. Hydroseeding Mulch:
1. Mark package of wood fiber mulch to show air dry weight.

1.6 SEQUENCING AND SCHEDULING

A. Install erosion and sediment control devices before starting earth disturbance activities and as drainage facilities get constructed.

B. Complete Soil Preparation:
1. Seeding, fertilizing, mulching, and matting on disturbed areas that shall require stabilization either because the area has reached final grade (permanent landscaping) or because the area shall remain unworked for over 14 days (temporary seeding) during the wet season.

C. Notify Engineer at least 3 days in advance of:
1. Materials delivery.
2. Start of stabilization activity.

D. Seeding:
1. Perform between March 15 and September 15.

1.7 MAINTENANCE

A. Operations:
1. Seeded Areas: Perform during maintenance period to include:
a. Watering: Keep seeded surface moist.
b. Washouts: Repair by filling with topsoil, fertilizing, seeding, and mulching.
c. Mulch: Replace wherever and whenever washed or blown away.

d. Reseed unsatisfactory areas or portions thereof immediately at the end of the maintenance period if a satisfactory stand has NOT been produced.
e. Reseed during next planting season if scheduled end of maintenance period falls after September 15.
f. Reseed entire area if satisfactory stand does NOT develop by July 1 of the following year.
g. Mowing: Mow to 2 in. after grass height reaches 3 in, and mow to maintain grass height from exceeding 3 1/2 in.

2. Inspect, repair, and replace as necessary all erosion control measures during the time period from start of construction to completion of construction.
3. Inspect a minimum of at least once every 7 days or after a 1/2 in. storm event in a 24-hr period.
4. Furnish and install a rain gauge at the project site to monitor rainfall. At no time shall more than 1 ft depth of sediment be allowed to accumulate in any erosion control device.

B. Sediment Removal:
1. Remove sediment from erosion control devices and work into the grading plan at least once a week as required to maintain proper operation of devices. The cleaning operation shall NOT dispose of sediment offsite.
2. Sediment shall be removed, and the controls upgraded or repaired as soon as practicable, but NOT later than 2 days after the surrounding exposed ground has dried sufficiently to prevent further damage from equipment needed for repair operations.
3. In the event of continuous rainfall over a 24-hr. period, or other circumstances that preclude equipment operation in the area, hand carry and install additional sediment controls as approved by the Engineer.

1.8 WARRANTY

A. See Section 00610 - Payment, Performance and Warranty Bond for requirements.

PART 2 - PRODUCTS

2.1 FERTILIZER

A. Commercial, uniform in composition, free-flowing, suitable for application with equipment designed for that purpose.

B. Fertilizer shall have the following minimum percentage of plant food by weight:
1. Summer Hydroseed Mix:
a. Nitrogen:
1) 20%.
b. Phosphoric Acid:
1) 10%.
c. Potash:
1) 10%.
2. Winter Hydroseed Mix:
a. Nitrogen:
1) 16%.
b. Phosphoric Acid:
1) 8%.
c. Potash:
1) 0%.

2.2 SEED

A. In accordance with the El Paso County Engineering Criteria Manual and Land Development Code.

2.3 MULCH

A. Wood Cellulose Fiber Mulch:
1. Specially processed wood fiber containing no growth or germination inhibiting factors.
2. Dyed a suitable color to facilitate inspection of material placement.
3. Manufactured such that after addition and agitation in slurry tanks with water, the material fibers shall become uniformly suspended to form a homogenous slurry.
4. When hydraulically sprayed on ground, material shall allow absorption and percolation of moisture.

B. Straw:
1. Clean salt hay or threshed straw of oats, wheat, barley, or rye, free from seed of noxious weeds. Suitable for spreading with mulch blower equipment.
2. Average Stalk Length: 6 in.
3. Seasoned before baling or loading.

2.4 EROSION CONTROL MATTING

A. Excelsior mat or straw blanket; staples as recommended by matting manufacturer.

B. Manufacturers and Products:
1. American Excelsior Company,
Arlington, TX;
Curlex Mat.
2. North American Green,
Evansville, IN;
S150 blanket.
3. Other Approved Equal.

2.5 REINFORCED PLASTIC COVERING

A. Coextruded, copolymer laminate reinforced with a nonwoven grid of high strength nylon cord submersed in a permanently flexible adhesive media allowing for equal tear resistance in all directions.

B. Black in color and ultraviolet stabilized.

C. Physical Requirement (Minimum Average Roll Values):
1. Tear Strength: 130 pounds.
2. Elongation: 620%.
3. Minimum Thickness: 6 mil.

D. Manufacturers:
1. Reef Industries, Inc./Griffolyn Co,
Houston, TX.
2. Other Approved Equal.

2.6 SILT FENCE

A. Support Posts:

1. As recommended by manufacturer of geotextile.

B. Fasteners:
1. Heavy-duty wire staples at least 1 in. long, tie wires, or hog rings, as recommended by manufacturer of geotextile.

C. Filter Fabric:
1. Polyester, polypropylene, or nylon filaments, woven into a uniform pattern, distinct and measurable openings.
2. Filaments: Resistant to damage from exposure to ultraviolet rays and heat.
3. Material Edges: Finish so that, filaments retain their relative positions under stress.

D. Filter Fabric Table:

Table No. 1 – Filter Fabric

Physical Property	Required Value	Test Method
Weight, oz/yd^2, min.	4	ASTM D3776
Equivalent Opening Size, max	50 – 70	U.S. Standard Sieve
Grab Tensile Strength, lb, min. ARV	160	ASTM D4632
Elongation, % max.	25	ASTM D5035
Mullen Burst Strength, psi, min. ARV	200	ASTM D3786
Ultraviolet Radiation Resistance, % Strength Retention	70	ASTM D4355
Flow Rate, gpm/sf, min. ARV	30 – 50	ASTM D4491

E. Manufacturers:
1. Dupont Co.
Wilmington, DE.
2. Tencate Mirafi, Inc.
Pendergrass,GA.

2.7 STRAW BALES

A. Machine baled clean salt hay or straw of oats, wheat, barley, or rye, free from seed of noxious weeds, using standard baling wire or string.

2.8 POSTS FOR STRAW BALES

A. 2 in. by 2 in. untreated wood or commercially manufactured metal.

2.9 DUST CONTROLLER

A. Nontoxic materials that DO NOT have an adverse effect on soil structure or establishment and growth of vegetation.

PART 3 - EXECUTION

3.1 GENERAL

A. Erosion control measures are required during all construction and site disturbance activity and shall remain until permanent site ground covers are in place.

B. The implementation of the erosion control plan and the construction maintenance, replacement and upgrading the erosion control devices are the responsibility of the Contractor until all construction is completed and landscaping established and approved. During the construction

period, the erosion control devices shall be upgraded for unexpected storm events and to ensure that sediment and sediment laden water DO NOT leave the site.

C. Maintain existing buffer zones adjacent to project limits. Keep all construction equipment, debris and soils out of the natural buffer zone.

3.2 GRAVEL CONSTRUCTION ENTRANCES

A. Provide a graveled construction access at each access point between the site and any public or private road or other paved surface.

B. Place subgrade geotextile, as specified, on the ground prior to erosion control rock placement.

C. Place erosion control rock over the geotextile to a minimum thickness of 8 in.

D. Minimum dimensions for construction entrances are 50 ft in length by 16 ft width.

E. Contractor shall provide a minimum of 4 in. of erosion control rock for each entrance three times during the project at times directed by the Engineer to maintain proper function. More frequent applications of rock may be required, and if so, shall be considered as incidental work.

3.3 SOIL PREPARATION

A. Before start of hydroseeding, and after surface has been shaped and graded, and lightly compacted to uniform grade, scarify soil surface to minimum depth of 1 in.

3.4 FERTILIZER

A. Apply evenly over area in accordance with manufacturer's instructions. Mix into top 1 in. of soil.

B. Application Rate:
1. 5 lbs. per 1,000 ft^2 over areas to be seeded. Use of approved hydraulic equipment to sow seed and distribute fertilizer at the same time shall be acceptable.

3.5 SEEDING

A. Prepare 1 in. depth seed bed; obtain Engineer’s acceptance prior to proceeding.

B. Apply by hydroseeding method on moist soil, but only after free surface water has drained away. Prevent drift and displacement of mixture into other areas.

C. Summer Application:
1. Prepare and apply slurry:

Item	Rate
Seed Mix	200 pounds per acre
Fertilizer	750 pounds per acre
Wood Cellulose Fiber Mulch	As recommended by manufacturer
Water	As necessary

2. Irrigation: 1 in. per week to seeded areas.

3.6 MULCHING

A. Apply uniformly on disturbed areas that shall remain undisturbed for 7 days or more, as requested by Engineer, and on all seeded areas.

B. Application:
1. Sufficiently loose to permit penetration of sunlight and air circulation, and sufficiently dense to shade ground, reduce evaporation rate, and prevent or materially reduce erosion of underlying soil.
2. Straw: Apply by hand or mechanical means to minimum depth of 2 in.
3. Wood Cellulose Fiber: 1,000 lbs. – 1,500 lbs. per acre.

3.7 EROSION CONTROL MATTING

A. Place on seeded slopes 4H:1V and steeper.

B. Apply seed and fertilizer prior to matting.

C. At top of slope, entrench material in a 6 in. by 6 in. trench and staple at 1 ft intervals. At the bottom of the slope, extend the mat 2 ft beyond the toe of slope, turn material under 4 in. and staple at 1 ft intervals.

D. Mats shall be stapled in place as they are installed down the slope face. The mat shall have direct contact with the soil surface.

E. Overlap:
1. Lengthwise: 1 ft minimum.
2. Crosswise: 6 in. minimum.

3.8 REINFORCED PLASTIC COVERING

A. Place on areas where hydroseeding and erosion control matting have NOT controlled erosion and over all temporary stockpiles.

B. Install in single thickness, strips parallel to direction of drainage. Anchor plastic in 6 in. by 6 in. trench backfilled with compacted native materials.

C. Maintain tightly in place by using sandbags on ropes with a maximum 10 ft grid spacing in all directions.

D. Tape or weight down full length, overlap seams at least 12 in.

E. Remove at final acceptance unless notified otherwise by Engineer.

3.9 SILT FENCE

A. Install prior to starting earth disturbing activities upslope of fence.

B. One-piece filter fabric or continuously sewn to make one-piece filter fabric for full height of the fence, including portion buried in the toe trench.

C. When joints are necessary, splice filter fabric together only at a support post, with a minimum 6 in. overlap, and securely fasten both ends to support post.

D. Filter fabric shall NOT extend more than 24 in. above the ground surface. Securely fasten to upslope side of each support post using ties. Filter fabric shall NOT be stapled to existing trees.

E. Fasten wire mesh material support fence securely to upslope side of post fasteners. Extend wire into the trench a minimum of 4 in, and NOT more than 36 in. above the ground surface.

F. Take precaution NOT to puncture filter fabric during installation. Repair or replace damaged area.

G. Remove silt fence after upslope area has been permanently stabilized. Immediately dress sediment deposits remaining after the silt fence has been removed to conform to existing grade. Prepare and seed graded area.

3.10 TEMPORARY SOIL STOCKPILES

A. Cover with reinforced plastic covering, as directed in Paragraph 2.5 REINFORCED PLASTIC COVERING.

B. Protect perimeter of stockpile from erosion with ditches.

3.11 STRAW BALES

A. Embed minimum of 4 in. in flat-bottomed trench. Place across swales or ditches to reduce velocities of concentrated flows. Space bales a minimum of 100 ft spacing.

B. Place with ends tightly abutting or overlapped. Corner abutment is NOT acceptable.

C. Install so that bale bindings are oriented around the sides and NOT over the top and bottom of the bale.

D. Use two posts for each bale. Drive posts through the bale until top of post is flush with top of bale.

E. Wedge loose straws in any gaps between bales.

3.12 DUST CONTROL

A. Apply appropriate dust control measures on a continuous basis until permanent stabilization measures are in place.

B. Apply on construction routes and other disturbed areas subject to surface dust movement and where offsite damage may occur if dust is NOT controlled.

C. Avoid creating erosion when using water as a dust controller.

3.13 CLEANUP

A. Sediment trapped in erosion control devices shall be regraded into the slopes onsite. DO NOT flush sediment-laden water into the drainage system.

B. After site restoration is complete and when approved by the Engineer, all temporary erosion control measures shall be completely removed. Immediately shape and permanently stabilize areas affected by the removal process.

C. Silt fence, straw bales, reinforced plastic covering, and any other erosion control devices shall be disposed of offsite to locations that are approved by federal, state, and local authorities.

END OF SECTION

SECTION 31 37 00 – RIPRAP

PART 1 - GENERAL

1.1 SUMMARY

A. This Section Includes:
   1. The procurement and installation of riprap.

B. Related Sections:
   1. Section 31 23 16 – Excavation.
   2. Section 31 23 23.16 – Trench and Backfill.
   3. Section 31 05 19.13 – Geotextile Filter Fabric.

1.2 REFERENCES:

A. ASTM International:
   1. C97 – Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone.
   2. D4992 – Standard Practice for Evaluation of Rock to Be Used for Erosion Control.
   3. D5240 – Standard Test Method for Evaluation of Durability of Rock for Erosion Control Using Sodium Sulfate or Magnesium Sulfate.
   4. D5312 – Standard Test Method for Evaluation of Durability of Rock for Erosion Control Under Freezing and Thawing Conditions.
   5. D5313 – Standard Test Method for Evaluation of Durability of Rock for Erosion Control Under Wetting and Drying Conditions.
   6. D5779 – Standard Test Method for Field Determination of Apparent Specific Gravity of Rock and Manmade Materials for Erosion Control.

1.3 SUBMITTALS

A. Provide as specified in Section 01300 - Submittals.

B. Certificates:
   1. Certify that products meet or exceed specified requirements.

PART 2 - PRODUCTS

2.1 MATERIALS

A. The riprap shall be hard, sound, and durable. It shall be reasonably free of fines and shall be well graded between the maximum and minimum rock sizes to produce a minimum of voids. No riprap shall be placed on the project until it has been accepted by Engineer.

B. The minimum density of stone shall be 130 lbs/ft^3 and the maximum absorption shall be 6%.

C. The maximum size shall NOT be greater than 12 in. in any dimension and approximately 50% of the material shall consist of pieces weighing 20 lbs. or more. The stones shall be predominantly angular in shape with NOT more than 25% having a length more than 2.5 times its breadth or thickness and none having a length exceeding 3.0 times its breadth or thickness.

D. Geotextile fabric shall be as specified or equal.

E. Contractor shall obtain and submit certification that the proposed rock meets density and absorption requirements specified in this section. Testing for certification shall be as specified in

ASTM C97. Certified test results shall be submitted to Engineer prior to the use of the proposed material as riprap.

PART 3 - EXECUTION

3.1 INSTALLATION

A. The riprap layer shall be a minimum of 24 in. thick when placed over the geotextile fabric.

B. When placed on the embankment, the smaller stones shall be well distributed throughout the mass. Hand placing may be required to obtain the results specified above.

C. The areas to be protected with riprap shall be dressed to the lines and grades shown on the Drawings and covered with the geotextile fabric prior to placing the riprap.

D. Riprap graded so that the smaller stones are uniformly distributed throughout the mass shall then be placed, starting at the toe of the slope, with a maximum vertical drop onto the geotextile fabric of 2 ft. In no case shall stones be allowed to roll down the fabric covered slope. Placement of the riprap over the fabric shall proceed so that the upper boundary of the riprap layer is at essentially the same level for the entire length of the fabric.

E. Care shall be taken so that the geotextile fabric is NOT damaged during riprap installation. Any rips or tears shall be repaired by Contractor, as specified in Section 31 05 19.13 – Geotextile Filter Fabric, before proceeding with further riprap installation.

END OF SECTION

SECTION 31 50 00 – EXCAVATION SUPPORT SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Work required to install and remove excavation support systems.

B. Related Sections:
   1. Section 31 23 23.13 – Fill and Backfill.

1.2 SUBMITTALS

A. Subject to the requirements of Section 01300 - Submittals.

B. Shop Drawings:
   1. Excavation support plan.
   2. Movement monitoring plan.

C. Quality requirements Submittals:
   1. Movement measurement data and reduced results specifying movement trends.

1.3 QUALITY ASSURANCE

A. Provide surveys to monitor movements of critical facilities.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 GENERAL

A. Design, provide, and maintain shoring, sheeting, and bracing as necessary and where shown to support the sides of excavations and to prevent detrimental settlement and lateral movement of existing facilities, adjacent property, and completed Work.

B. Minimum areas for sharing, sheeting, and bracing are shown on the Drawings. It shall be the Contractor’s responsibility to determine if areas shall require excavation slope retention to protect existing structures and facilities from damage resulting from the Contractor’s excavation or excavation methods.

C. The Contractor shall also be responsible for providing shoring, sheeting, and bracing of excavations as needed for worker safety and as may be required by federal, state, and local regulations.

3.2 EXCAVATION SUPPORT PLAN

A. Prepare Excavation Support Plan Addressing Following Topics:
   1. Details of shoring, bracing, sloping, or other provisions for worker protection of existing structures or facilities.
   2. Design assumptions and calculations.
   3. Methods and sequencing of installing excavation support.
   4. Proposed locations of stockpiled excavated material.

5. Minimum lateral distance from the crest of slopes for vehicles and stockpiled excavated materials.

3.3 MOVEMENT MONITORING PLAN

A. Prepare Movement Monitoring Plan Addressing Following Topics:
   1. Survey control.
   2. Locations of monitoring points (at least one every 50 ft).
   3. Plots of data trends.
   4. Interval between surveys (not to exceed 5 working days).

B. Movement monitoring shall be done on every existing structure that is adjacent to the Contractor's excavations.

C. Results of movement monitoring shall be delivered for the Engineer at least once a week.

3.4 REMOVAL OF EXCAVATION SUPPORT

A. DO NOT begin to remove excavation support until it can be removed without damage to existing facilities, completed Work, or adjacent property.

B. Remove excavation support and protection systems when construction has progressed sufficiently to support excavation and earth and hydrostatic pressures. Remove in stages to avoid disturbing underlying soils and rock or damaging structures, pavements, facilities, and utilities. Maintain soil wall support as excavation is backfilled.

C. Fill voids immediately with approved backfill compacted to density specified in Section 31 23 23.13 – Fill and Backfill.

END OF SECTION

SECTION 31 70 19 – BORED EXCAVATION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section Includes:
   1. Boring under streams, highways, roads, and railroads.
   2. Casing pipe.

B. Related Sections:
   1. Section 31 22 13 – Subgrade Preparation
   2. Section 31 23 23.16 – Trench Backfill

1.2 SUPERVISION AND QUALITY

A. Contractor's work shall comply with all codes governing and all insurance requirements. Work shall be undertaken only when the construction superintendent is present and supervising the work.

1.3 REQUIREMENTS OF REGULATORY AGENCIES

A. Crossings shall be completed as specified in applicable federal, state, and local regulations.

B. In the case of railroad crossings, the project shall be as specified in regulations established by the railroad company.

1.4 WARRANTY

A. See Section 00610 - Payment, Performance and Warranty Bond for requirements.

PART 2 - PRODUCTS

2.1 CASING PIPE

A. Smooth wall casing pipe shall be of welded steel construction and shall be new material with a minimum yield point of 35,000 psi. The pipe shall have a wall thickness as noted on the plans. The casing pipe shall be cleaned and coated both inside and outside with two coats of coal tar paint, Koppers "Bitumastic Super Service Black," Tnemec "450 Heavy Tnemecol," or USS Chemicals "Pitt Chem 103."
   1. Carrier Pipe 16 in.
   2. Casing 30 in.

B. Casing wall thickness shall be 1/4 in. thick for casing pipe 10 in. – 16 in, 3/8 in. thick for casing pipe 18 in. – 24 in, 1/2 in. thick for 30 in. Casing wall thickness for any railroad bores shall be specified by the railroad.

2.2 CARRIER PIPE

A. Carrier pipe shall be as shown on plans.

2.3 CASING SPACERS

A. Spacers shall be made of injection molded high density polyethylene. The spacers shall be of a projection type that has a minimum number of projections around the circumference totaling the

number of diameter inches. Spacers shall be spaced a maximum of 10 ft apart. Spacers shall be fastened tightly to the barrel of the carrier pipe to prevent slippage. Spacers shall provide sufficient height to permit clearance between the pipe bell and the casing. Spacers shall be ISO 9002 certified for strength and quality.

2.4 CASING FILL MATERIAL

A. Sand fill shall be clean pea gravel with uniform gradation of 1/8 in. – 3/8 in. for blowing into casing pipe.

PART 3 - EXECUTION

3.1 GENERAL

A. Crossings under highways, roads and railroads shall be continuously encased under the through roadways, median, ramps and shoulder area to the limits called for or required by the federal, state, and local regulations. Railroad crossings shall conform to the requirements of the regulations established by the railroad company.

B. Work shall be performed in a safe and proper manner, with suitable precautions being taken against hazards of every kind. All crossings shall be bored, unless rock formations or other obstructions are encountered that prevents boring or pushing operations. If such conditions are encountered, excavation shall be performed by standard tunneling methods.

C. Excavations shall provide adequate clearance for installation of and removal of equipment.

D. Backfilling and construction of fills and embankments during freezing weather shall NOT be done except by permission of the Engineer. No backfill, fill or embankment materials shall be installed on frozen surfaces, nor shall frozen materials, snow, or ice be placed in any backfill, fill or embankments.

E. When operating on pavements or walks all equipment shall be rubber tired, except for excavation equipment. Excavating equipment, in such cases, shall NOT have grousers, cleats or lugs on the tracks. The Contractor shall take all reasonable precautions to protect the existing pavements and walks.

F. No classification of excavated materials shall be made. Boring excavation and trenching work shall include the removal and subsequent handling of all materials excavated or otherwise removed in performance of the contract work, regardless of the type, character, composition, or condition thereof.

G. Pipelines and other existing underground installations and structures in the vicinity of the work to be done hereunder are specified in the Plans according to the best information available to the Owner. The Owner does NOT guarantee the accuracy of such information. The Contractor shall make every effort to locate all underground pipelines, conduits, and structures by contacting Owners of underground utilities and by prospecting in advance of excavation and boring. Damage to any existing underground installation caused by the Contractor's operation shall be repaired at the Contractor's expense.

H. Any delays or extra cost to the Contractor caused by pipelines or other underground structures or obstructions NOT shown by the plans, or found in locations different than those specified, shall NOT constitute a claim for extra work, additional payment, or damages.

I. Erosion control of disturbed areas shall be required during the construction period using check dams, siltation pools, mulching, etc.

J. The Contractor shall meet the specific requirements of the Highway Department or Railroad. The Contractor shall obtain all necessary permits and insurance.

K. Operation:
1. Use all means necessary to control dust or mud that may interfere with operation.

L. Protection:
1. Use all means necessary to protect material and preserve specification requirements.
2. Replace all damaged material or material that has lost specification requirements.

3.2 EXCAVATION

A. The Contractor shall, during the entire period of construction, provide and maintain any necessary equipment as will, whenever practicable, keep his excavations reasonably free from water pending construction. When necessary to use pumps the Contractor shall dispose of the water without detriment to adjacent properties.

3.3 SHEETING AND SHORING

A. General:
1. Except where banks may be cut back on a stable slope, excavation for trenches shall be properly and substantially sheeted, braced, and shored, as necessary, to prevent caving or sliding, to provide protection for the workmen and the work, and to provide protection for existing structures and facilities. Sheeting, bracing, and shoring shall be designed and built to withstand all loads that might be caused by earth movement or pressure, and shall be rigid, maintaining its shape and position under all circumstances.

3.4 CASING AND CARRIER PIPE INSTALLATION

A. Casing pipe:
1. Before starting work on borings, complete details of the method of operation and casing to be used shall be submitted to the Engineer for review. All permits shall be obtained by the Contractor.
2. Casing pipes shall have a clear inside diameter NOT smaller than the size specified in schedule.
3. The casing pipe shall be installed by jacking into place. Earth displaced by the casing pipe shall be removed through the interior of the casing by hand, by auger, or by other acceptable means. Sections of the casing pipe shall be welded together to form a continuous casing capable of resisting all stresses, including jacking stresses. The casing pipe in its final position shall be straight and true in alignment and grade. There shall be no space between the earth and the outside of the casing.

B. Carrier pipe:
1. Polyethylene casing insulators shall be strapped to each end of each piece of pipe. The pipe shall then be pushed into the casing pipe with care being taken to ensure the joints are NOT displaced. The joints in the installed pipe within the casing shall be tested for leakage before the backfill is installed.

C. Casing Backfill:
1. Following the installation of the carrier pipe in the casing pipe, the entire annular space between the pipe and the casing walls shall be filled. The ends of the casing shall then be closed with a concrete or masonry plug 8 in. thick.

D. Casing Backfill:

1. Following the installation of the carrier pipe in the casing pipe, the ends of the casing pipe shall then be closed with wrap around or pull-on end seals.

3.5 FINAL GRADING AND DISPOSAL OF EXCESS EXCAVATED MATERIALS

A. General:
   1. Except as otherwise specified, all excess excavated materials shall be disposed of by the Contractor away from the site of the work.
   2. Excavated rock, junk and debris encountered in excavation work, and other similar waste materials shall be disposed of away from the site of the work.
   3. The disposal of waste and excess excavated materials, including hauling, handling, leveling, and surfacing, shall be at the Contractor's expense.

B. Restoration of disturbed earth:
   1. The Contractor shall restore all earth areas disturbed from the original condition by his operations. Restoration shall be by seeding, fertilizing, and mulching to obtain an established cover or by appropriate pavement and street repair.

3.6 RESPONSIBILITY OF CONTRACTOR FOR BACKFILL SETTLEMENT

A. The Contractor shall be responsible financially and otherwise, for:
   1. All settlement of trench and other backfill which may occur from time of original backfilling until the expiration of 1 year after the date of final payment for the entire contract under which the backfilling work was performed.
   2. The refilling and repair of all backfill settlement and the repair or replacement to the original or a better condition of all pavements, top surfacings, driveways, walks, surface structures, utilities, drainage facilities and sod which may have been damaged because of backfill settlement or which have been removed or destroyed in connection with backfill replacement operations.
   3. All damage claims or court actions against the Owner for any damage directly or indirectly caused by backfill settlement.

B. The Contractor shall make all necessary backfill replacements and repairs, or replacements appurtenant thereto, within 30 days after notification by the Owner or Engineer. Upon the Contractor's failure to do so, the Owner may do, or have done, the necessary work and charge the cost to the Contractor.

3.7 MAINTENANCE OF TRAFFIC

A. Contractor shall work with minimal interference with public travel, vehicular or pedestrian.

B. If interference is necessary, Contractor shall, at own expense, provide and maintain suitable detours for accommodation of travel, and shall give reasonable notice to Owners of private drives beforehand.

C. Maintenance of traffic NOT required where Contractor obtains permission from Owner and tenant of private property, or from authority in charge of residing public property, and shall NOT obstruct traffic beyond designated spot and time agreed upon.

END OF SECTION

DIVISION 32

EXTERIOR IMPROVEMENTS

SECTION 32 10 00 – CONCRETE SIDEWALKS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Work and materials required to install concrete sidewalk.

B. Related Sections:
   1. Section 03 30 00 – Cast-In-Place Concrete.

1.2 REFERENCES

A. ASTM International:
   1. C94 – Standard Specification for Ready Mixed Concrete
   2. C309 – Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete
   3. D994 – Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type)

B. AASHTO:
   1. T 99 – The Moisture-Density Relations of Soils Using a 5.5 lb. (2.5 kg) Rammer and a 12 in. (305 mm) Drop.

C. ACI:
   1. 304R – Guide for Measuring, Mixing, Transporting, and Placing Concrete.

D. Standard Specification:
   1. The latest edition, including supplements from the Colorado Department of Transportation.

1.3 SUBMITTALS

A. Subject to the requirements of Section 01300 - Submittals.

B. Shop Drawings:
   1. Form Material: Information on metal forms, if used, including type, condition, surface finish, and intended function.
   2. Complete data on concrete mix, including aggregate gradations and admixtures as specified in ASTM C94.

C. Quality Requirements Submittals:
   1. Curing Compound: Manufacturer’s Certificate of Compliance and application instructions.
   2. Ready-mix delivery ticket for each truck as specified in ASTM C94.

1.4 WARRANTY

A. See Section 00610 - Payment, Performance and Warranty Bond for requirements.

PART 2 - PRODUCTS

2.1 EXPANSION JOINT FILLER

A. 1/2 in. thick, preformed asphalt-impregnated, expansion joint material meeting ASTM D994.

2.2 CONCRETE

A. As specified in Section 03 30 00 – Cast-In-Place Concrete.

B. Maximum Aggregate Size:
1. 1 1/2 in.

C. Slump:
1. 2 in. – 4 in.

2.3 CURING COMPOUND

A. Liquid membrane-forming, clear or translucent, suitable for and as specified in ASTM C309, Type 1.

PART 3 - EXECUTION

3.1 FORMWORK

A. Lumber Materials:
1. 2 in. dressed dimension lumber, or metal of equal strength, straight, free from defects that would impair appearance or structural quality of completed sidewalk.
2. 1 in. dressed lumber or plywood may be used where short-radius forms are required.

B. Metals:
1. Steel in new undamaged condition.

C. Setting Forms:
1. Construct forms to shape, lines, grades, and dimensions.
2. Stake securely in place.

D. Bracing:
1. Brace forms to prevent change of shape or movement resulting from placement.
2. Construct short-radius curved forms to exact radius.

E. Tolerances:
1. DO NOT vary tops of forms from gradeline more than 1/8 in. when checked with 10 ft straightedge.
2. DO NOT vary alignment of straight sections more than 1/8 in. in 10 ft.

3.2 PLACING CONCRETE

A. Prior to placing concrete, remove water from excavation and debris and foreign material from forms.

B. Place concrete as soon as possible, and within 1 1/2 hrs. after adding cement to mix without segregation or loss of ingredients, and without splashing.

C. Place, process, finish, and cure concrete as specified in ACI 304 and in this section. Wherever requirements differ, the more stringent shall govern.

D. To compact, vibrate until concrete becomes uniformly plastic.

3.3 SIDEWALK CONSTRUCTION

A. Thickness:
   1. 4 in. in walk areas.
   2. 6 in. in driveway areas.

B. Connection to Existing Sidewalk:
   1. Remove old concrete back to an existing contraction joint.
   2. Clean the surface.
   3. Apply a neat cement paste immediately prior to placing new sidewalk.

C. Expansion Joints:
   1. Place at building corners and changes in sidewalk width around posts, poles, or other objects penetrating sidewalk. Install expansion joint filler at each joint.

D. Contraction Joints:
   1. Provide transversely to walks at locations opposite contraction joints in curb.
   2. Dimensions: 3/16 in. by 1 in. weakened plane joints.
   3. Construct straight and at right angles to surface of walk.

E. Finish:
   1. Broom surface with fine-hair broom at right angles to length of walk and tool at edges, joints, and markings.
   2. Mark walks transversely at 5 ft intervals with jointing tool; finish edges with rounded steel edging tool.
   3. Apply curing compound to exposed surfaces upon completion of finishing.
   4. Protect sidewalk from damage and allow to cure for at least 7 days.

3.4 SLAB CONSTRUCTION ON GRADE

A. Thickness:
   1. 4 in. or as specified.

B. Contraction Joints:
   1. As specified in Drawings.
   2. Dimensions: 3/16 in. by 1 in. weakened plane joints.
   3. Construct straight and at right angles to surface of slab.

C. Finish:
   1. Broom surface with fine-hair broom and tool of edges, joints, and markings.
   2. Apply curing compound to exposed surfaces upon completion of finishing.
   3. Protect sidewalk from damage and allow to cure for at least 7 days.

END OF SECTION

SECTION 32 11 00 – BASE COURSE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Work and materials required to install base course.

B. Related Sections:
1. Section 31 22 13 – Subgrade Preparation.

1.2 REFERENCES

A. AASHTO (American Association of State Highway and Transportation Officials):
1. T 89 – Standard Method for Determining the Liquid Limit of Soils.
2. T 90 – Determining the Plastic Limit and Plasticity Index of Soils.
3. T 96/ASTM C131 – Standard Test Method for Resistance to Degradation of Small Size Course Aggregate by Abrasion and Impact in the Los Angeles Machine.
4. T 99 – Standard Methods of Test for the Moisture-Density Relations of Soils Using a 5.5 lb. (2.5 kg) Rammer and a 12 in. (305 mm) Drop.
5. T 180 – Standard Methods of Test for the Moisture-Density Relations of Soils Using a 10 lb. (4.54 kg) Rammer and an 18 in. (457 mm) Drop.
6. T 191 – Standard Method of Test for Density of Soil In-Place by the Sand-Cone Method.

1.3 DEFINITIONS

A. Completed Course:
1. Compacted, unyielding, free from irregularities, with smooth, tight, even surface, true to grade, line, and cross-section.

B. Completed Lift:
1. Compacted with uniform surface reasonably true to cross-section.

C. Standard Specification:
1. The latest edition, including supplements of the [insert appropriate state].

1.4 SUBMITTALS

A. Quality requirements Submittals:
1. Certified Test Results on Source Materials: Submit copies from commercial testing laboratory 20 days prior to delivery of materials to project.
2. Certified Results of In-Place Density Tests from independent testing agency.

1.5 WARRANTY

A. See Section 00610 - Payment, Performance and Warranty Bond for requirements.

PART 2 - PRODUCTS

2.1 BASE COURSE ROCK

A. The aggregate for the base or sub-base course material shall be composed of crushed stone, crushed slag, crushed gravel, or natural gravel which conforms to the quality requirements of

AASHTO M-147 (latest revision). The material shall conform to the requirements set forth in the City of Fountain's Standard Specifications Manual Section 300.

2.2 SOURCE QUALITY REQUIREMENTS

A. Contractor:
   1. Tests necessary to locate acceptable source of materials as specified in requirements.

B. Final approval of aggregate material shall be based on materials' test results on installed materials.

C. Should separation of course from fine materials occur during processing or stockpiling, immediately change methods of handling materials to correct uniformity in grading.

PART 3 - EXECUTION

3.1 PREPARATION

A. As specified in Section 31 22 13 – Subgrade Preparation.

B. Obtain Engineer’s acceptance of subgrade before placement of base course rock.

C. DO NOT place base materials in snow or on soft, muddy, or frozen subgrade.

3.2 EQUIPMENT

A. Compaction Equipment:
   1. Adequate in design and number to provide compaction and obtain the specified density for each layer.

3.3 HAULING AND SPREADING

A. Hauling Materials:
   1. DO NOT haul over surfacing in process of construction.
   2. Loads: Of uniform capacity.
   3. Measure capacity of truck to determine vehicle load and quantity.
   4. Maintain consistent gradation of material delivered; loads of widely varying gradations shall be cause for rejection.

B. Spreading Materials:
   1. Distribute material to provide required density, depth, grade and dimensions with allowance for subsequent lifts.
   2. Produce even distribution of material upon roadway without segregation.
   3. Should segregation of coarse from fine materials occur during placing, immediately change methods of handling materials to correct uniformity in grading.

3.4 CONSTRUCTION OF COURSES

A. General:
   1. Complete each lift in advance of laying succeeding lift to provide required results and adequate inspection.

B. Base Course:
   1. Maximum Completed Lift Thickness: 6 in.
   2. Completed Course Total Thickness: As specified.

3. Spread lift on preceding course to required cross-section.
4. Lightly blade and roll surface until thoroughly compacted.
5. Add keystone to achieve compaction and as required when aggregate does NOT compact readily due to lack of fines or natural cementing properties:
    a. Use base 1/4 minus crushed aggregate material as keystone.
    b. Spread evenly on top of crushed base course, using spreader boxes or chip spreaders.
    c. Roll surface until keystone is worked into interstices of crushed base course without excessive displacement.
    d. Continue operation until course has become thoroughly keyed, compacted, and shall NOT creep or move under roller.
6. Blade or broom surface to maintain true line, grade, and cross-section.

3.5 ROLLING AND COMPACTION

A. Blade or otherwise work existing surface as necessary to achieve a smooth and thoroughly compacted surface.

B. Commence compaction of each layer of base after spreading operations and continue until density of 100% of maximum density has been achieved as determined by AASHTO T 99.

C. Commence rolling at outer edges of surfacing and continue toward center; DO NOT roll center of road first.

D. Apply water as needed to obtain densities.

E. Place and compact each lift to required density before succeeding lift is placed.

F. Bind up preceding course before placing leveling course. Remove floating or loose stone from surface.

G. Blade or otherwise work surfacing as necessary to always maintain grade and cross-section, and to keep surface smooth and thoroughly compacted.

H. Surface Defects:
1. Remedy surface defects by loosening and rerolling entire area, including surrounding surface, until thoroughly compacted.
2. Finished Surface: True to grade and crown before proceeding with surfacing.

3.6 SURFACE TOLERANCES

A. Finished Surface of Base Course:
1. Within plus or minus 0.04 ft of grade specified at any individual point.

B. Overall Average:
1. Within plus or minus 0.01 ft from crown and grade specified.

3.7 FIELD QUALITY REQUIREMENTS

A. In-Place Density Tests:
1. Construct base course so areas shall be ready for testing.
2. Allow reasonable length of time for testing laboratory to perform tests and obtain results during normal working hours.
3. Prove areas meet specified requirements before identifying density test locations.

4. Perform a minimum of 2 tests on completed course per 200 yds^3 of material placed as specified in T 191, or T 238 at locations acceptable to Engineer.

B. Cleaning
1. Remove excess material, clean stockpile areas of aggregate.

END OF SECTION

SECTION 32 31 13 – CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section Includes:
   1. Labor, materials, equipment, and incidentals required to furnish and install the chain link fence and gates.
   2. The security fencing around the site and access gates to control entry and exit of the facility.

B. Related Sections:
   1. Section 03 30 00 – Cast-In-Place Concrete.

1.2 REFERENCES

A. ASTM International:
   1. A121 – Standard Specification for Metallic-Coated Carbon Steel Barbed Wire.
   2. A392 – Standard Specification for Zinc-Coated Steel Chain-Link Fence Fabric.
   3. A491 – Standard Specification for Aluminum-Coated Steel Chain-Link Fence Fabric.
   4. A1018 – Standard Specification for Steel, Sheet and Strip, Heavy-Thickness Coils, Hot-Rolled, Carbon, Commercial, Drawing, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength.
   5. A824 – Standard Specification for Metallic-Coated Steel Marcelled Tension Wire for Use with Chain Link Fence.
   6. B6 – Standard Specification for Zinc.
   7. C94 – Standard Specification for Ready-Mixed Concrete.
   8. C143 – Standard Test Method for Slump of Hydraulic-Cement Concrete.
   9. C387 – Standard Specifications for Packaged, Dry, Combined Materials for Concrete and High Strength Mortar.
   10. F552 – Standard Terminology Relating to Chain Link Fencing.
   11. F567 – Standard Practice for Installation of Chain-Link Fence.
   12. F626 – Standard Specification for Fence Fittings.
   13. F668 – Standard Specification for Polyvinyl Chloride (PVC) and Other Organic Polymer-Coated Steel Chain-Link Fence Fabric.
   14. F900 – Standard Specification for Industrial and Commercial Swing Gates.
   15. F1043 – Standard Specification for Strength and Protective Coatings on Steel Industrial Chain Link Fence Framework.
   16. F1083 – Standard Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures.
   17. F1183 – Standard Specifications for Aluminum Alloy Chain Link Fence Fabric.
   18. F1184 – Standard Specifications for Industrial and Commercial Horizontal Slide Gates.
   19. IEEE, Inc:
      a. National Electrical Safety Code.
   20. NEMA:
      a. 250, Enclosures for Electrical Equipment (1,000 volts max.).

1.3 SUBMITTALS

A. Subject to the requirements of Section 01300 - Submittals.

B. Action Submittal:
   1. Shop Drawings:
      a. Detailed information and specifications for materials, finishes, and dimensions.

b. Card access system serial communication interface card code message format.

2. Samples:
   a. Approximately 6 in^2, or 6 in. long of posts, rails, braces, fabric, wire, ties, and fittings.

C. Informational Submittals:
1. Quality requirements Submittals:
   a. Manufacturer's recommended installation instructions.
   b. Evidence of Supplier and installer qualifications.

1.4 SCHEDULING AND SEQUENCING

A. Complete necessary site preparation and grading before installing chain link fence and gates.

1.5 WARRANTY

A. See Section 00610 - Payment, Performance and Warranty Bond for requirements.

PART 2 - PRODUCTS

2.1 GENERAL

A. Match style, finish, and color of each fence component with that of other fence components.

2.2 CHAIN LINK FENCE FABRIC

A. Galvanized fabric as specified in ASTM, Class 1; galvanized after weaving.

B. Height:
1. 72 in, unless otherwise shown.

C. Wire Gauge:
1. No. 9, barewire.

D. Pattern:
1. 2 in. diamond-mesh.

E. Diamond Count:
1. Manufacturer's standard and consistent for fabric furnished of same height.

F. Loops of Knuckled Selvages:
1. Closed or nearly closed with space NOT exceeding diameter of wire.

G. Wires of Twisted Selvages:
1. Twisted in a closed helix three full turns.
2. Cut at an angle to provide sharp barbs that extend minimum 1/4 in. beyond twist.

2.3 POSTS

A. General:
1. Strength and Stiffness Requirements:
   a. ASTM F1043, Light Industrial Fence, except as modified in this section.
2. Steel Pipe: ASTM F1083.
3. Roll-Formed Steel Shapes: from ASTM A1018, Grade 45, Steel.

4. Lengths: Manufacturer's standard with allowance for minimum embedment below finished grade of 22 in. plus 3 in. for each 1 ft of fence height greater than 4 ft.
5. Protective Coatings:
   a. Zinc Coating: ASTM F1043, Type A external and internal coating.

B. Line Posts:
1. Steel Pipe:
   a. Outside Diameter: 2.375 in.
   b. Weight: 3.65 lbs/ft.

C. End, Corner, Angle, and Pull Posts:
1. Steel Pipe:
   a. Outside Diameter: 2.875 in.
   b. Weight: 5.79 lbs/ft.

D. Posts for Swing Gates:
1. ASTM F900.
   a. Outside Dimensions: 4 in. diameter.
   b. Weight: 6.56 lbs/ft.

2.4 TOP RAILS AND BRACE RAILS
1. Galvanized steel pipe.
2. Protective Coatings: As specified for posts.
3. Strength and Stiffness Requirements: ASTM F1043, Top Rail, Heavy or Light Industrial Fence.
4. Steel Pipe:
   a. ASTM F1083.
   b. Outside Diameter: 1.66 in.
   c. Weight: 2.27 lbs/ft.

2.5 FENCE FITTINGS

A. General:
1. As specified in ASTM F626, except as modified by this article.

B. Post and Line Caps:
1. Designed to accommodate passage of top rail through cap, where top rail required.

C. Tension and Brace Bands:
1. No exceptions to ASTM.

D. Tension Bars:
1. One-piece, no exceptions to ASTM F626.
2. Equal in length to full height of fabric.

E. Truss Rod Assembly:
1. 3/8 in. diameter.

F. Barb Arms:
1. 45 degrees arms for supporting three strands of barbed wire.

2.6 TENSION WIRE

A. Zinc-coated steel marcelled tension wire as specified in ASTM A824, Type II, Class 2.

2.7 BARBED WIRE

A. Zinc-Coated Barbed Wire:
1. ASTM A121, Chain Link Fence Grade:
2. Line Wire: Two strands of No. 12 GA – 112 GA.
3. Barbs:
   a. Number of Points: Four.
   b. Length: 318 in. minimum.
   c. Shape: Round.
   d. Diameter: No. 14 GA.
   e. Spacing: 5 in.

2.8 GATES

A. General:
1. Gate Operation: Opened and closed easily by one person.
2. Welded Steel Joints: Paint with zinc-based paint.
3. Chain Link Fabric: Attached securely to gate frame at intervals NOT exceeding 15 in.

B. Swing Gates:
1. ASTM F900.
2. Hinges:
   a. Furnished with large bearing surfaces for clamping in position.
   b. Designed to swing either 180 degrees outward, 180 degrees inward, or 90 degrees in or out, as shown, and NOT twist or turn under action of gate.
3. Latches: Plunger bar arranged to engage stop, except single gates of openings less than 10 ft wide may each have forked latch.
4. Gate Stops: Mushroom type or flush plate with anchors, suitable for setting in concrete.
5. Locking Device and Padlock Eyes: Integral part of latch, requiring one padlock for locking both gate leaves of double gates.
6. Hold-Open Keepers: Designed to automatically engage gate leaf and hold it in open position until manually released.

2.9 CONCRETE

A. Provide as specified in Section 03 30 00 – Cast-In-Place Concrete.

2.10 REPAIR AND SALVAGE OF EXISTING FENCE

A. Non-Salvageable or Nonreusable Parts:
1. Fence posts.
2. Gate posts.
3. End, corner angle, and pull posts.
4. Tension and brace bands.
5. Tension wire.

B. Salvageable or Reusable Items:
1. Fence fabric.
2. Post caps.
3. Top rails and brace rails.
4. Truss rod assemblies.
5. Barb arms.
6. Barbwire.

C. All items specified as salvageable shall NOT be bent, twisted, dented, or damaged in any way. Any such items shall NOT be considered for reuse.

D. All items NOT considered for salvage or reuse shall be disposed of offsite at the Contractor's expense.

PART 3 - EXECUTION

3.1 GENERAL

A. Install chain link fences and gates as specified in ASTM F567, except as modified in this section, and as specified in fence manufacturer's recommendations, as approved by Engineer. Erect fencing in straight lines between angle points.

B. Provide all necessary hardware for a complete fence and gate installation.

3.2 PREPARATION

A. Establish locations of fence lines, gates, and terminal posts.

3.3 POST SETTING

A. Driven posts are NOT acceptable.

B. Post Hole Depth:
1. Minimum 3 ft below finished grade.
2. 2 in. deeper than post embedment depth below finish grade.

C. Backfill post holes with concrete to 2 in. above finished grade.

D. Before concrete sets, crown, and finish top of concrete to readily shed water.

3.4 BRACING

A. Brace gate and corner posts diagonally to adjacent line posts to ensure stability.

3.5 TOP RAILS

A. Install top rail sleeves with springs at 105 ft maximum spacing to permit expansion in rail.

3.6 CHAIN LINK FABRIC

A. DO NOT install fabric until concrete has cured minimum 7 days.

B. Install fabric with twisted and barbed selvage at top.

3.7 BARBED WIRE

A. Install three strands of barbed wire on brackets, tighten, and secure at each bracket.

3.8 GATES

A. Hang gates and adjust hardware so gates operate satisfactorily from open or closed position.

B. Set gate stops in concrete to engage center drop rod or plunger bar.

3.9 FIELD QUALITY REQUIREMENTS

A. Gate Tests:
1. Prior to acceptance of installed gates and gate operator systems, demonstrate proper operation of gates under each possible open and close condition specified.

3.10 REUSE OF EXISTING FENCE MATERIAL

A. Existing fence material shall be installed on new posts using new tension bars, brace bands, and tension wire.

B. Existing fence fabric shall NOT be spliced to new fence fabric at mid-length between posts where the existing fence fabric ends. A pull post shall be installed with new brace bands, tension bands, and tension wire. Provide a knuckled selvage at the cut portion of the fence as shown on the Drawings.

END OF SECTION

SECTION 32 92 19 – SEEDING, FERTILIZING, AND MULCHING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section Includes:
   1. Fertilizer.
   2. Mulch.
   3. Seed.
   4. Preparation.
   5. Maintenance.

B. Related Sections:
   1. Section 31 22 19 – Grading
   2. Section 31 23 16 – Excavation
   3. Section 31 11 00 – Site Preparation

C. Alternate Methods and Products:
   1. Alternate methods from those specified shall be considered for use, provided that in the Engineer's opinion the product shall be equal to or exceed that which would result from the specified methods and products.

1.2 DEFINITIONS

A. Weeds:
   1. Includes Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wold Garlic, Perennial Sorrel, and Brome Grass.

1.3 REGULATORY REQUIREMENTS

A. See regulatory agencies for fertilizer and herbicide composition.

1.4 QUALITY ASSURANCE

A. Provide seed mixture in containers showing percentage of seed mix, year of production, net weight, date of packaging, and location of packaging.

1.5 MAINTENANCE DATA

A. Submit maintenance data for continuing Owner maintenance.

B. Include maintenance instruction, cutting method, maximum grass height, types, application frequency, and recommended coverage of fertilizer.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is NOT acceptable.

B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

1.7 WARRANTY

A. See Section 00610 - Payment, Performance and Warranty Bond for requirements.

PART 2 - PRODUCTS

2.1 AGRICULTURAL LIMESTONE

A. Shall be agricultural limestone with NOT less than 90% passing the No. 4 sieve and containing NOT less than 40% calcium carbonate equivalent. Lime shall be applied at the rate recommended by soil test.

2.2 FERTILIZER, MULCH, & SEED

A. Shall be in conformance with City of Colorado Springs Standard Specification Section 900.

PART 3 - EXECUTION

3.1 GENERAL

A. The application of fertilizer, seed, and mulch shall follow each other in successive sequence as closely as possible. Seeding shall be accomplished in the first of the following two periods after completion of earthwork.
   1. Spring thaw to June 15th
   2. September 1st until consistent ground freeze

B. Seeding outside the specified seeding periods may be permitted at the Engineer's option, provided the Contractor is willing to make appropriate modifications to his seeding operations, and will guarantee the crop.

3.2 INSPECTION

A. Contractor shall request that Engineer inspect site grading, cleanup, and surface preparation to determine if site is ready for the seeding, fertilizing and mulching operations.

B. Upon Engineer’s approval operations may begin.

3.3 SURFACE PREPARATION

A. Immediately in advance of fertilizing, the surface to be seeded shall be repaired, if necessary, to eliminate all damage from erosion or construction operations. The surface shall then be loosened and thoroughly pulverized by discing, harrowing, and raking or other approved methods, to such an extent that it is free from sod, stones, clods, or roots. All growth of vegetation that will seriously interfere with planting operations shall be removed and disposed of as directed. The final surface shall be smooth, uniform, and left in such a condition as to prevent formation of low places and pockets.

B. Following fertilization and seeding, erosion matting shall be installed as specified in City of Colorado Springs Standard Specification Section 900.

3.4 FERTILIZING

A. Fertilizer and lime shall be dressed evenly over the areas to be seeded using approved mechanical type spreading equipment.

B. Fertilizer and lime after spreading shall be immediately incorporated into the soil to a depth of approximately 2 in, by chisel, spike tooth harrow, or other approved methods.

3.5 SEEDING METHODS

A. General methods:
1. The Contractor shall employ a satisfactory method of sowing by use of either approved mechanical hand seeders or mechanical power-driven drills. When delays in operation carry the work beyond the specified planting seasons, or when conditions are such that by reason of drought, high winds, excessive moisture, or other factors, satisfactory results are NOT likely to be obtained, seeding shall stop. It shall be resumed only where the desired results are probable or when approved alternate procedures have been adopted.

B. Broadcast seeding:
1. When broadcast seeding is utilized, the seed shall be uniformly broadcast by mechanical hand seeder, in two directions at right-angles to each other and at 1/2 of the specified rate per acre in each direction. After the seed is broadcast it shall be covered by an approved method to a depth of 1/3 in. – 3/4 in. Broadcast seeding shall NOT be done in windy weather.

C. Drill seeding:
1. When drilling is utilized, it shall be done with approved equipment best suited to perform the work under prevailing conditions. The seed shall be uniformly drilled to a depth of 1/3 in. – 3/4 in. at the rate per acre specified. Drill seeding may be required in windy weather.

D. Prior to start of seeding, the Contractor shall demonstrate that the application of seed is being made at the specified rate. A final check of the total quantity of seed used shall be made against the area seeded. If the check shows that the Contractor has NOT applied seed at the specified rate, he shall uniformly distribute seed at a rate calculated to meet the shortage.

E. The Contractor shall maintain the seeded areas until all fertilizing, seeding, and mulching is complete and the work accepted by the Engineer. Areas damaged from the Contractor's own operations shall be repaired at his expense. After acceptance of the work the Contractor shall NOT be held responsible for erosion due to weather, or conditions NOT due to the Contractor's own operations or negligence. The Contractor is NOT required to guarantee a crop, if seeding is done during the specified seeding periods.

3.6 MULCHING

A. Immediately after seeding, the Contractor shall apply vegetative mulch at a rate of 1.5 tons – 2.5 tons per acre to all seeded areas. Quantity of mulch shall be adjusted within the above limits, as directed by the Engineer, to the area or slope being mulched. Total application of mulch for the project shall average approximately 2 tons per acre. Mulch shall be applied by mechanical mulch spreaders equipped to eject by means of a constant air stream-controlled quantities of the vegetative mulch.

B. Mulch shall be embedded by a disc type roller having flat serrated discs spaced NOT more than 10 in. apart, with cleaning scrapers for each disc.

C. Where specified, or in areas of the project where soil conditions are NOT suitable for satisfactory crimping, asphalt emulsion shall be applied with the mulching operation. The normal rate of application shall be 100 gallons per ton of straw; however, this rate may be varied as directed by the Engineer to suit the area or slope conditions.

D. All mulch shall be distributed evenly over the areas to be mulched within 24 hours after the seeding operation. Following the mulching operation, suitable precautions shall be taken to prohibit traffic over mulched areas. Displaced mulch shall be replaced immediately, including repair of the underlying seed bed, if damaged as well.

3.7 MAINTENANCE

A. The Contractor shall maintain all seeded areas until the grass is properly established (not less than 90 days) until satisfactory development. Maintenance shall be continued until final acceptance of the work.

B. Maintenance of seeded areas shall include protecting, watering, mowing, fertilizing, and such other work as may be necessary to establish a permanent lawn. The Contractor shall reseed those seeded areas in which a satisfactory growth is NOT obtained, and shall refill any areas which become eroded prior to final acceptance of the work.

C. Paved areas shall be kept clean while maintenance operations are in progress.

3.8 REPLACEMENT

A. The Contractor shall replace all trees, shrubs, and flowers damaged by construction activities in the areas designated on the construction plans. The replacement trees and shrubs shall be equal in size to the damaged or removed specimen.

END OF SECTION

DIVISION 33
UTILITIES

SECTION 33 01 30.71 – PIPE CLEANING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Defining machinery used, responsibilities, and results of pipeline cleaning.
   2. The Contractor is to remove foreign materials including, but NOT limited to, grease, debris, mud, rock, sand, and other materials that would block accurate inspection of the line or of installation of pipeline rehabilitation materials. Since the success of CCTV inspection and pipeline rehabilitation work depends on the cleanliness of the pipelines, the importance of this phase of the operation is emphasized.
   3. High-velocity hydraulic cleaning equipment or mechanically powered equipment may be used to remove the foreign material from the pipeline.

1.2 SUBMITTALS

A. Subject to the requirements of Section 01300 - Submittals.

B. Submit documentation that equipment planned for use on the project as specified in the requirements listed.

C. Prepare and submit a detailed progress schedule in graphic form showing proposed dates of starting and completing each major division of work, monthly completion percentages, and anticipated monthly payment requests. The schedule shall be consistent with the sequence requirements of the specifications. Submit three copies to the Engineer within 10 days after notice to proceed. Submit a revised schedule with each pay request.

D. The Contractor shall submit preconstruction photos, either still or video, of the area within a 20 ft radius of any work area and shall submit them to the Engineer prior to the start of construction in any work area. Photo documentation shall NOT be performed more than 7 days prior to the start of construction at any individual work site.

1.3 PROJECT/SITE CONDITIONS

A. Notify Owner and Engineer no less than 72 hours prior to starting work.

B. Verify site conditions prior to start of work. Starting work constitutes acceptance of existing conditions.

1.4 PRECAUTIONS

A. During pipeline cleaning operations, satisfactory precautions shall be taken in the use of cleaning equipment. When using hydraulically propelled cleaning tools (that depend upon water pressure to provide their cleaning force), the Contractor shall take necessary precautions to ensure that damage or flooding of public or private property does NOT occur.

B. The Contractor shall be responsible for any damage caused by his actions during this project.

1.5 CONTRACTOR RESPONSIBILITIES

A. The Contractor shall be responsible for any damage to public or private property resulting from his work and shall repair to a condition equivalent to or better than that existing prior to this work or otherwise make whole such damage at no cost to Owner subject to the Engineer’s approval.

B. The Contractor shall be solely responsible for safety during the performance of all Work and shall perform all work as specified in the latest OSHA confined space entry regulations. Contractor shall coordinate his work with local fire, police, and emergency rescue units.

C. The Contractor shall obtain municipal and other governmental licenses and permits, approvals or consent from utilities or carriers, such as, the telephone companies or other persons or organizations upon whose performance of work under the contract might impinge. The Contractor shall request written release from responsibility for the performance of work under the contract, if and to the extent such work is precluded by the inability to obtain such approvals or consent.

D. The Contractor shall review all available information pertinent to the site of the project including reports prepared under previous accomplished studies or surveys and any other data relating to the design of the project, including maps, drawings, construction specifications, pipeline system records, etc., as provided by Owner.

E. The Contractor shall provide all access points as necessary for CCTV and cleaning.

F. The Contractor shall obtain all fresh water necessary for performance of work under the contract from suitable designated sources approved by the Owner. All costs associated with obtaining fresh water for performance of work are the responsibility of the Contractor.

G. The Contractor shall notify third parties (such as public utilities and the telephone company) of the Contractor's intent to perform work in an area where such parties may have rights to underground property or facilities and request for maps or other descriptive information as to the nature and location of such underground facilities or property and assurance of the Contractor's ability to enter upon any public or private lands to which access is required for performance of the work under the contract.

H. The Contractor shall obtain a secure storage area of a size adequate to accommodate the required equipment, vehicles, and materials for the period of performance of the agreement.

I. The Contractor shall arrange traffic control when the safety of work or the public requires such protection or as may be otherwise specified.

J. The Contractor shall dispose of all materials removed from the cleaning and TV operations conducted by the Contractor at an approved facility. Costs associated with the removal, transport, and discharge of such materials shall be considered incidental to the project and shall be the responsibility of the Contractor.

K. The Contractor shall have the ability to always communicate with all crews and the Engineer. The Contractor shall have a cellular telephone and a pager at which the superintendent can be reached at any time while the work is under way.

L. The Contractor shall provide daily notification of work locations to the Owner and the Engineer. Contractor shall also notify the Owner and Engineer if a point repair is to be made or if equipment becomes lodged.

M. The Contractor shall maintain a log of incidents and customer complaints. The log shall include date and time of call or incident, nature of complaint and resolution, if any. Logs shall be made available to Owner or Engineer upon request.

N. The Contractor shall document all cleaning and CCTV inspections on forms approved by the Engineer.

O. The Contractor shall route all requests for Owner action through the Engineer.

P. The Contractor shall obtain written permission to cross private property for access to the pipeline segment where easements are inadequate.

1.6 OWNER'S RESPONSIBILITIES

A. The Owner shall provide any available records for all areas of the project.

B. The Owner shall provide authorization to perform work that shall be performed during nighttime hours or weekends or on holidays.

C. The Owner shall review and respond to all submittals and written requests submitted by the Contractor.

1.7 WARRANTY

A. See Section 00610 - Payment, Performance and Warranty Bond for requirements.

PART 2 - PRODUCTS

2.1 CLEANING EQUIPMENT

A. HIGH-VELOCITY JET (HYDROCLEANING) EQUIPMENT:
1. All high-velocity pipeline cleaning equipment shall be constructed for ease and safety of operation.
2. The Contractor shall have a selection of two or more high-velocity nozzles which shall be capable of producing a scouring action from 10 degrees to 45 degrees in all sizes of pipelines designated to be cleaned.
3. The equipment shall carry its own water tank, auxiliary engines, pumps, and hydraulically driven hose reel.
4. For pipelines of 18 in. in diameter or greater, a minimum operating pressure of 2,300 psi @ 80 gpm is required.
5. Equipment shall also include a high-velocity gun for washing and scouring designated areas. The gun shall be capable of producing flow from a fine spray to a solid stream.
6. The equipment shall be satisfactory to the Engineer and shall be capable of removing dirt, grease, rocks, sand, and other materials or obstructions from the pipelines.

B. MECHANICALLY POWERED EQUIPMENT:
1. Bucket machines shall be in pairs with sufficient power to perform the work in an efficient manner.
2. Machines shall be belt operated or have an overload device.
3. Machines with direct drive that could cause damage to the pipe shall NOT be allowed.
4. A power rodding machine shall be either sectional or continuous rod type capable of holding a minimum of 750 ft of rod.
5. The rod shall be specifically heat-treated steel.
6. To ensure safe operation the machine shall be fully enclosed and have an automatic safety clutch or relief valve.
7. Mechanically powered equipment shall only be used when authorized by the Engineer and shall be done only when other cleaning methods are shown to be ineffective.

PART 3 - EXECUTION

3.1 PREPARATION

A. The Contractor shall locate the to-be-cleaned line by use of Ground Penetrating Radar, radio frequency transmitter located on cleaning equipment, and/or by exposing the line by digging.

B. The Contractor shall provide to the Engineer records showing horizontal and vertical datum for the exposed pipeline.

C. The Contractor shall place hunter-orange painted T-posts every 1,000 ft along the center of the pipe and at access points.

D. The Contractor shall make all provisions for access of cleaning equipment to the individual line access point locations. The number of and the location of the line access points shall be as agreed upon between the Owner, Engineer, and Contractor.

3.2 CLEANING

A. The pipeline shall be cleaned using approved equipment.

B. Access points at each end of the line segment shall be constructed as necessary for cleaning and removal of debris.

C. The Contractor shall provide a mechanism to prevent debris from moving downstream from the line segment being cleaned.

D. Roots shall be removed where root intrusion is a problem and shall be considered part of cleaning procedures. Procedures may include the use of mechanical equipment, such as rodding machines, bucket machines and winches using root cutters and porcupines, and equipment such as high-velocity jet cleaners.

E. All sludge, dirt, sand, rocks, grease, broken pipe, and other solid or semisolid material shall be removed at either the upstream or downstream access points of the pipeline section being cleaned. Passing material from line segment to line segment shall NOT be permitted.

F. All solids or semisolids resulting from the cleaning operations shall become the property of Contractor and shall be removed by the Contractor from the pipeline and disposed of at a location approved by the Owner. All materials shall be removed from the site no less often than at the end of each workday. Under NO circumstances shall the Contractor be allowed to accumulate disposal material on the site of work beyond the stated time, except in totally enclosed containers and as approved by the Engineer. The Contractor’s trucks shall have permits as specified in all applicable State and Local regulations.

G. Contractor shall provide Owner and Engineer with a detailed plan for disposal of material removed from the pipeline. This plan shall include, but shall NOT be limited to name and address of disposal site and vehicle permit numbers.

3.3 FINAL ACCEPTANCE

A. Acceptance of pipeline cleaning shall be made upon the successful completion of cleaning and shall be to the satisfaction of the Engineer. Verification of adequate cleaning shall be obtained by pulling a double squeegee, matching the pipe diameter, through each pipe section.

B. If later CCTV inspection shows the cleaning to be unsatisfactory, the Contractor shall be required to reclean and reinspect the line segment until the cleaning is shown to be satisfactory. There shall be no additional cost to the Owner because of inadequate cleaning.

C. The Contractor shall restore access routes and access point locations to a condition equivalent to or better than that initially encountered.

END OF SECTION

SECTION 33 05 23.13 - UTILITY HORIZONTAL DIRECTIONAL DRILLING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Provide and install underground High-Density Polyethylene (HDPE) pipeline using the horizontal directional drilling (HDD) method of installation. This Work shall include all services, equipment, materials, labor, and geotechnical investigation for HDD crossings for the complete and proper installation, testing, restoration of underground utilities and erosion and sedimentation control and restoration.
2. It is acknowledged that the successful design and construction of HDDs of the size shown in the plans requires specialized and proprietary knowledge and skills. Therefore, it is the express intent of this Section to create a singular responsibility for the design and construction of this integrated system required for a successful installation of the pipeline via HDD methods. The design and construction of all aspects, including but not limited to, excavation of entry/exit pits, entry/exit pipe angles, pipe material capable of withstanding the pressures indicated in the contract documents, pipe bending radius, drilling system, guidance system, drilling fluid system plus containment, pipe reaming system, connections to open-cut pipe sections, and backfilling of excavations must be performed by the Installation Contractor and their selected engineer of record to obtain a complete and operational system.

1.2 STANDARDS

A. The applicable provisions of the following standards shall apply as if written here in their entirety:
1. American National Standards Institute (ANSI) / NSF Standards:

ANSI/NSF 6	Drinking Water System Components – Health Effects

2. American Society for Testing and Materials (ASTM) Standards:

ASTM D1598	Standard Test Method for Time-to-Failure of Plastic Pipe Under Constant Internal Pressure
ASTM D2837	Standard Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials
ASTM D3139	Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals
ASTM F477	Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pressure Pipe
ASTM F714	Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter
ASTM D1248	Specification for Polyethylene Plastics Molding and Extrusion Materials
ASTM D3350	Specification for Polyethylene Plastics Pipe and Fittings Material

3. American Water Works Associations (AWWA) Standards:

AWWA C901	Standard Specification for Polyethylene (PE) Pressure Pipe and Tubing, 1/2 through 3 Inches, for Water Service
AWWA C906	Standard for Polyethylene (PE) Pressure Pipe and Fittings, 4 through 63 inches, for Water Distribution and Transmission

4. Pipeline Research Committee International (PRCI):

PR-277-144507-Z01	Installation of Pipelines by Horizontal Directional Drilling Engineering Design Guide

1.3 COORDINATION

A. Section 01040 - Coordination: Requirements for coordination.

B. Coordinate Work of this Section with piping and equipment connections specified in other Sections and indicated on Drawings.

1.4 PREINSTALLATION MEETINGS

A. Section 01040 - Coordination: Requirements for preinstallation meeting.

B. Convene minimum one week prior to commencing Work of this Section.

1.5 SUBMITTALS

A. Section 01300 - Submittals.
1. Work Plan: At least 30 days prior to beginning the Work, the HDD Contractor shall submit to the Owner and Engineer a work plan as Record Data detailing the procedure and schedule to be used to execute the Project. Work plan should be comprehensive, specific, and based on actual working conditions for the Project. The work plan should include:
   a. description of all equipment to be used including years of ownership of drill rig, down-hole tools, drill rod inspection reports, etc.
   b. list of personnel and their qualifications and experience (including back-up personnel in the event that an individual is unavailable),
   c. list of Subcontractors including fluid design and management, pipe fusion and steering (if applicable), a schedule of work activity,
   d. safety plan (including MSDS of any potentially hazardous substances to be used),
   e. traffic control plan (if applicable),
   f. all excavation locations,
   g. interfering utilities,
   h. source of water to be used for drilling, and flow bypass,
   i. erosion and sedimentation control plan, and
   j. contingency plans for possible problems.
   k. Include drawings and written descriptions identifying details of the method of construction and the sequence of operations to be performed during construction:

1) Plan and profile drawing, which includes:
   a) Details the locations of items of equipment, piping, tanks, pumps, pipe assembly and layout area, materials storage, noise provisions, and other considerations affecting public and private use of lands near the work.
   b) Depiction of the changing nature of the equipment during the work.
   c) Both entry and exit locations.
2) Detailed description of methods, equipment, and materials to be used for the HDD pipeline installation:
   a) Descriptions of drilling fluid additives shall be accompanied by Materials Safety Data Sheets (MSDS) and manufacturers' descriptions and warranties.
   b) Descriptions of equipment shall include manufacturers' specifications, calibrations, appropriate drawings, photographs, and descriptions of modifications since manufacture.

l. Tracking equipment:
   1) Detailed description of the tracking equipment including accuracy and precision of the steering tool.
   2) Include records of equipment calibrations and certifications for down-hole surveys and tracking of the drill bit.
   3) Describe procedures for operating the down-hole survey tools including measures to verify the accuracy of the equipment readings.
   4) Surface monitoring system:
      a) Tensor Tru Tracker Guidance System.
      b) Para Track Guidance System.
      c) Gyroscopic Steering Tool.

m. Detailed description of the pump and cleaning plant. Include dimensions, manufacturer's specifications, and pump capacity.

n. Maximum anticipated drilling rates, reaming rates, and drilling fluid weight for the pilot hole and each reaming pass for each soil unit identified in the geotechnical report through which the HDD will traverse. Demonstrate and confirm that pump capacity is adequate for these anticipated drilling rates.

o. Calculations:
   1) Pullback loads for the conditions and operating practices anticipated as per the appropriate methodology: ASTM F1962 and PRCI PR-227-9424. Provide basis for calculations.
   2) Pipe stresses expected to result from loads from: the pullback, pipe bending, fluid buckling, earth, and groundwater; break-over stresses during entry into the hole. Provide assumptions used in the calculations.
   3) Deflecting and bending loads should be considered when selecting a pipe dimension ratio (DR) using safety factors established under ASTM D1598 and ASTM 2837, which consists of the ratio of the pipe's ultimate strength or resistance applied to the load. The pipe selected shall have the adequate ring stiffness to resist the net external pressure applied to the pipe, without the support of the surrounding soil. Engineer of record shall clearly confirm that the pipe selection is within acceptable loading capacity at depth of final design determined by the Installation Contractor.
   4) If buoyancy control will be used, describe how this will be accomplished including how the pipe is to be filled with water during pull back and how this is accounted for in the calculations.
   5) Calculations shall be signed sealed by a Professional Engineer licensed in Colorado. Engineer of record must have completed at least 5 (five) projects of similar length, size, diameter, pipe type and geotechnical conditions. Provide references for five most appropriate crossings completed as the Engineer of Record.

p. Confirm that the project can be completed using the radius of curvature shown on the Drawings along with calculations showing that installation stresses do not exceed allowable pipe stresses.
q. Waste disposal:
    1) Provide plans for disposal of waste materials resulting from the pipeline construction including drilling fluids, cuttings, waste oil, fuel, discharge water, etc.
    2) Identify the disposal site and provide a letter indicating authorization and legal authority to accept the described and anticipated waste products.
r. Noise attenuation (if required by owner or permitting agency): Identify for each piece of equipment the methods and materials required to meet the applicable noise requirements and the noise requirements per the permit conditions or Owner requirements.
s. Pipe assembly:
    1) Identify selected area for pipe assembly.
    2) Provide layout drawings showing lengths and number of pipe segments to be stored in pipe assembly area.
    3) Provide access diagrams detailing pipe delivery and off-loading.
    4) Provide details and layout of equipment to be used in pipe assembly area.
    5) Provide layout of rollers and cribbing.
    6) Provide estimated time that pipe shall be stored in chosen layout area.
    7) Provide estimated time to assemble pipeline, including provisions for welding and installation field coatings & linings.
        a) Contingency plans: For remediation of problems that may be encountered during the drilling operations. Address both the observations that would lead to the discovery of the problem and the methods that would be used to mitigate the problem. Potential problems to be addressed include:
            i. Natural and man-made obstructions encountered (such as wood pilings, boulders, etc.).
            ii. Loss of circulation.
            iii. Deviation from planned drill path.
            iv. Inability to advance drill bit or product pipe.
            v. Drill or product pipe twisted off or broken off in hole.
            vi. Inadvertent drilling fluid returns.
            vii. Details on measures to be taken to monitor and protect adjacent utilities, structures, and roadways.
            viii. Pullback buoyancy modification procedures including method of filling the pipe with clean potable water during pullback.
            ix. Reports - submit example of daily report form, drilling log form, drilling fluid report, and steering report for review and approval.
            x. Pilot hole survey and as-built drawing - submit within 24 hrs. of completion of pilot hole for review and approval prior to beginning reaming.

2. Equipment: Installation Contractor shall submit specifications on directional drilling equipment as Record Data. Equipment shall include but not be limited to: drilling rig, mud system, mud motors (if applicable), down-hole tools, guidance system, rig safety systems. Calibration records for guidance equipment shall be included. Drill pipe with inspection report (DS-1 Cat. 4) performed immediately prior to project start. Specifications for all drilling fluid additives that Installation Contractor intends to use will be submitted.
3. Material: Provide Shop Drawings of the pipe with material specifications, including size, type, diameter and Manufacturer's data and certifications on piping and jointing methods. The shop drawing shall include a Certificate of Adequacy of Design stating the pipe and fittings are satisfactory for the loads which will be imposed during for all loading conditions.

4. Daily Report: Installation Contractor shall maintain a daily project log of drilling operations and a guidance system log along with a fusion report for joints with a copy given to Owner at completion of the Project.
   a. Complete printout of the down-hole survey data and surface tracking data that includes the calculated 3-dimensional coordinates, inclination measurement, azimuth measurement, type of survey, and corresponding measured drilled radius for each survey point. These items shall be listed as measured distance along the drill path for each survey point and shall be formatted in such a manner as to permit independent calculation of the pilot-hole profile.
   b. Maximum torque values for each pilot joint run
   c. Note reasoning for any excessive torque values beyond normal operating conditions.
   d. The date and start and stop times for each joint drilled.
   e. Drill fluid data, minimum of three sets of data per shift
   f. Results of visual inspection for drill fluid emission at the ground surface or into a waterway and times of the inspections, minimum three per shift.
   g. Any observations and resulting actions relating to inadvertent drill fluid returns
   h. Include down time of all major equipment that delays project advancement.
5. The following Record Data are required to be submitted prior to the start of drilling operations:
   a. Signed and sealed construction drawings.
   b. Construction Process: Provide shop and field welding procedures for all pipe joints on the pipeline.
   c. Design Data: Provide a summary of the design and design calculations for the HDD geometry and other components sealed and signed by the Installation Contractor or the Installation Contractor's Engineer of Record. Document the codes and standards, methods of analysis, design coefficients, and resultant forces utilized.
6. Key Staff Qualifications
   a. Provide resumes of key staff that will be assigned to this project. Key staff shall demonstrate on their resumes that they meet the following qualifications:
      1) Driller: Minimum 5 years' experience as a horizontal directional driller and have completed at least 5 (five) projects of similar length, diameter, pipe type and conditions.
      2) Superintendent: Minimum 10 years' experience in HDD field operations including 3 years as a superintendent and have completed at least 5 (five) projects of similar length, diameter, pipe type and conditions.
      3) Drill fluid specialists: Minimum 7 years' experience and training in drill fluid management for HDD applications.
      4) Datalogger specialists: Minimum 7 years' experience with the rig and downhole instrumentation installation and maintenance proposed for this project.

1.6 CLOSEOUT SUBMITTALS

A. Section 01700 - Contract Closeout: Requirements for submittals.

B. Project Record Documents: Record actual locations of pipe and invert elevations.

C. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

D. Record at least one data point (X, Y, and Z axes) per joint of pipe.

E. Show depth and location of abandoned bores.

F. Record depth and location of drill bits and drill stems not removed from bore.

1.7 QUALITY ASSURANCE

A. Reference Documents
   1. NASST - Horizontal Directional Drilling Good Practices Guidelines.
   2. ASTM F1962.

B. Design: Layouts in the Contract Documents are illustrative and intended to provide general guidance for the geometry of the bore. The installation contractor must finalize the HDD design, so it prevents hydraulic fracture and release of drilling fluid. The design must be sealed by a Professional Engineer licensed in the state of Colorado, with a minimum 10 years cumulative experience in the design and construction of HDD installations of similar or greater size for this Project. The sealing engineer shall be in responsible engineering charge of the Work.

C. The requirements set forth in this document specify a wide range of procedural precautions necessary to provide the very basic, essential aspects of a proper directional drilling installation and are adequately controlled. Strict adherence shall be required under specifically covered conditions outlined in this Section. Adherence to the specifications contained herein, or the Owner approval of any aspect of any directional drilling operation covered by this Section, shall in no way relieve the Installation Contractor of their ultimate responsibility for the satisfactory completion of the Work authorized under the Contract.
   1. Performance Requirements: Lateral or vertical variation in the final position of the carrier pipe from the line and grade established by the Drawings shall be permitted ±5 feet vertically and horizontally for water lines, provided that such variation shall be regular and only in the direction that will not detrimentally affect the function of the carrier pipe.
   2. Certification: Pipe products shall have been tested and approved by an independent third-party laboratory for continuous use at rated pressures. Pipe and couplings intended for contact with potable water shall be evaluated, tested, and certified for conformance with NSF Standard 61 by an acceptable certifying organization.

D. The Installation Contractor shall not proceed with Work before the Owner approves the list of the engineer, supervisor, driller, mud technician, subcontractors, Drilling Schedule, and a Site-Specific Work Plan.

1.8 QUALIFICATIONS

A. Installation Contractor’s Qualifications: Installation shall be by competent individuals with at least 10 years’ experience in similar work of equal scope on water transmission projects. If patented processes are involved based on the pipe selection, the Installer shall be licensed, trained and in good standing with the pipe Manufacturer.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Section 01320 - Product Delivery, Storage, and Handling: Requirements for transporting, handling, storing, and protecting products.

B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.

C. Handling:
   1. Use shipping braces between layers of stacked pipe.
   2. Support pipes with nylon slings during handling.

D. Storage:
   1. According to manufacturer instructions.
   2. Stack piping lengths no more than three layers high.
   3. Store field joint materials in original shipping containers in dry area indoors.

E. Protection:
   1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations area, if storage is required prior to the start of drilling activities.
   2. Protect pipe from entry of foreign materials and water by installing temporary covers, completing sections of Work, and isolating parts of completed system.
   3. Provide additional protection according to manufacturer instructions.

1.10 AMBIENT CONDITIONS

A. Section 01560 - Temporary Controls: Requirements for ambient condition control facilities for product storage and installation.

1.11 EXISTING CONDITIONS

A. Field Measurements:
   1. Verify field measurements prior to fabrication.
   2. Indicate field measurements on Shop Drawings.

B. No additional geotechnical information will be provided by the Owner. It will be the complete responsibility of the Installation Contractor to satisfy themselves of the geotechnical conditions at the proposed site(s). If the Installation Contractor deems it necessary for additional geotechnical investigations and analysis, such investigations and analysis must be provided by the Installation Contractor at no additional cost to the Owner and no additional time will be added to the contract for such investigations. All changes to the Installation Contractor's design based on any additional geotechnical information acquired after the project is bid is to be included in the project cost and no additional payment or time is due to the Contractor.

1.12 GEOTECHNICAL INVESTIGATION FOR HDD CROSSINGS

A. Calculation of formation limit pressure, where applicable, in accordance with HDD Good Practices Guidelines or similar industry standard methodology.

B. Rate of Penetration for drilling pilot hole and all subsequent ream stages.

C. Effects of abrasivity on tooling and drill pipe.

D. Equipment selection sufficient to drill suitable hole for specified pipe, supply adequate drilling fluid to mud motor, drill bits, reamers, hole openers and other tooling.

E. Develop site specific drilling fluid program for each HDD crossing.

F. Select fluid cleaning equipment suitable for conditions.

1.13 JOB CONDITIONS; PERMITS AND EASEMENT REQUIREMENTS

A. Owner will secure the appropriate easements and right-of-way property for the pipeline as shown on the design plans. The Installation Contractor shall observe regulations and instructions of the easement or right-of-way owner as to the methods of performing the Work and take precautions for the safety of the property and the public. The Installation Contractor shall coordinate with the easement or right-of-way owners not less than five (5) days prior to the start of Work within that parcel.

B. Work within the county road right-of-way must comply with the County's requirements. Acquire a permit, agreement, or work order from the right-of-way owner as required.

C. Installation Contractor shall obtain Protective Liability Insurance in the amount required by the particular company or other insurance as is specified in the permit at no cost to the Owner.

D. Perform construction along roads, railroads, and public areas to not interfere with the operations of the roads, driveways, sidewalks, pedestrian traffic and railroads.

E. Barricades, warning signs, and flagmen, when necessary and specified, shall be provided by the Contractor.

F. No blasting shall be allowed.

G. Protect existing pipelines and underground conduits. Verify location and elevation of existing underground facilities and utilities before proceeding with the construction and prevent damage to the existing pipelines or telephone cables. Verification of location (vertical and horizontal) of existing underground facilities and utilities.

PART 2 - PRODUCTS

2.1 GENERAL

A. The directional drilling equipment shall consist of:
1. directional drilling rig of sufficient capacity to perform all drilling activities and pullback the pipe,
2. drilling fluid mixing,
3. delivery and recovery system of sufficient capacity to successfully complete the crossing,
4. drilling fluid recycling system to remove solids from the drilling fluid so that the fluid can be re-used,
5. guidance system to accurately guide boring operations,
6. vacuum truck of sufficient capacity to handle the drilling fluid volume,
7. trained and competent personnel to operate the system.

B. Equipment must be in good, safe operating condition. Maintain adequate supplies, materials and spare parts on hand to maintain the system in good working order for the duration of this Project.

2.2 DRILLING SYSTEM

A. Drilling Rig: The directional drilling machine must consist of:
   1. hydraulically powered system to rotate, push and pull hollow drill pipe into the ground at a variable angle while delivering a pressurized fluid mixture to a guidable drill (bore) head,
   2. anchored to the ground to withstand the pulling, pushing and rotating pressure required to complete the crossing,
   3. hydraulic power system must be self-contained with sufficient pressure and volume to power drilling operations,
   4. Hydraulic system must be free of leaks,
   5. system to monitor and record maximum pull-back pressure and force during pullback operations,
   6. grounded during drilling and pull-back operations, and
   7. system to detect electrical current from the drill string and an audible alarm which automatically sounds when an electrical current is detected.

B. Drill Bit: The drill bit must be steerable by changing its rotation and must provide the necessary cutting surfaces and drilling fluid jets.

C. Mud Motors (if required): Mud motors must be of adequate power to turn the required drilling tools.

D. Drill Pipe: must be premium grade or new and suitable for the anticipated torque, axial forces, and corresponding stresses (bending, tensile, torsional, compression, and hoop). Inspect drill pipe immediately prior to this Project using Standard DS-1 Category 3, 4 or 5 to verify premium grade.

2.3 GUIDANCE SYSTEM

A. Magnetic Guidance System (MGS) or proven gyroscopic system must be used to provide a continuous and accurate determination of the location of the drill path during the drilling operation. The guidance shall be capable of tracking at all depths up to 100 feet and in any soil condition, including hard rock. It shall enable the driller to guide the drill bit by providing immediate information on the tool face, azimuth (horizontal direction), and inclination (vertical direction). The guidance system shall be accurate to plus or minus 2 percent of the vertical depth of the bore hole.

B. Use a proven type guidance system operated by personnel trained and experienced with this system. The Installation Contractor’s operator must be alerted to magnetic anomalies on the surface of the drill path and shall consider such influences in the operation of the guidance system if using a magnetic system.

2.4 DRILLING FLUID MUD SYSTEM

A. Mixing System: Provide a self-contained, closed, drilling fluid mixing system of sufficient size to mix and deliver drilling fluid for the proposed length and diameter of the crossing. Mixing system must continually agitate the drilling fluid during drilling operations.

B. Drilling Fluids: Drilling fluid shall be composed of clean water, bentonite, and appropriate additives based on the soil and rock conditions determined in the geotechnical investigation. Water shall be from an approved source. The pH of the water shall be adjusted in accordance

with the bentonite supplier's requirements. The water and additives shall be mixed thoroughly and be absent of any clumps or clods. No potentially hazardous material may be used in drilling fluid.

C. Delivery System: The mud pumping system shall have a minimum capacity to maintain correct drilling alignment and be capable of delivering the drilling fluid at a constant pressure. The delivery system shall have filters in-line to prevent solids from being pumped into the drill pipe. Connections between the pump and drill pipe shall be relatively leak-free. Used drilling fluid and drilling fluid spilled during drilling operations shall be contained and conveyed to the drilling fluid recycling system. A berm, minimum of 12 inches high, shall be maintained around drill rigs, drilling fluid mixing system, entry and exit pits and drilling fluid recycling system to prevent spills into the surrounding environment. Pumps and or vacuum truck(s) of sufficient size shall be in place to convey excess drilling fluid from containment areas to storage and recycling facilities.

D. Drilling Fluid Recycling System: The drilling fluid recycling system shall separate sand, dirt and other solids from the drilling fluid to render the drilling fluid reusable. The system shall be capable of cleaning the fluid, resulting in a sand content of less than 1% and a unit weight in compliance with the approved drilling fluid program. Spoils separated from the drilling fluid will be stockpiled for later use or disposal.

2.5 OTHER EQUIPMENT

A. Pipe Rammers: Hydraulic or pneumatic pipe rammers may be used for installation of the carrier pipe.

B. Restrictions: Other devices or utility placement systems for providing horizontal thrust other than those previously defined in the preceding sections shall not be used unless approved by the Engineer prior to commencement of the Work. Consideration for approval will be made on an individual basis for each specified location. The proposed device or system will be evaluated prior to approval or rejection on its potential ability to complete the utility placement satisfactorily without undue stoppage and to maintain line and grade within the tolerances prescribed by the conditions of the Project.

2.6 PIPING MATERIALS

A. Water Line Materials:
   1. HDPE pipe shall be AWWA C906 with fused joints.

B. Pipe Markings: Pipe shall be legibly marked in permanent ink with the manufacturer and trade name, nominal size and DR rating/pressure class, hydrostatic proof test pressure, NSF 61 if applicable, manufacturer date code. Pipe and couplings shall also bear the mark of the certifying agency which have tested and approved the product for use in fire protection applications.

PART 3 - EXECUTION

3.1 GENERAL

A. The Engineer and Owner must be notified 48 hours in advance of starting the Work. The work shall not begin until the Owner's Representative is present at the Site and agrees that proper preparations for the operation have been made, accordance with the contract documents and approved work plan.

B. The approval for beginning the installation shall in no way relieve the Installation Contractor of the ultimate responsibility for the satisfactory completion of the Work as authorized under the Contract. It shall be the responsibility of Owner to provide inspection personnel at such times as appropriate without causing undue hardship by reason of delay to the Installation Contractor.

3.2 PERSONNEL REQUIREMENTS

A. All personnel shall be fully trained in their respective duties as part of the directional drilling crew and in safety. A responsible representative who is thoroughly familiar with the equipment and type work to be performed, must be always in direct charge and control of the operation. In all cases the supervisor must be continually present at the Site during the actual directional drilling operation. Provide a sufficient number of competent workers on the job at all times to ensure the directional drilling is made in accordance with the contract documents.

3.3 EXAMINATION

A. Section 01700 - Contract Closeout: Requirements for installation examination.

B. Verify that connections, sizes, locations, and invert elevations are according to Drawings.

3.4 PREPARATION

A. Section 01040 - Coordination: Requirements for installation preparation.

B. Local Utility:
1. Call local utility line information service at 811 not less than three working days before performing Work.
2. Request underground utilities to be located and marked within and surrounding construction areas.

C. Maintain access to existing facilities indicated to remain; modify pipe installation to maintain access to existing facilities.

D. Locate and identify utilities indicated to remain and protect from damage.

E. Identify required lines, levels, contours, and data locations.

F. Protect plant life, lawns, rock outcroppings, and other features remaining as portion of final landscaping.

G. Protect benchmarks, such as: existing structures, fences, sidewalks, paving, and survey control points from excavating equipment and vehicular traffic.

H. Establish pipe elevations with not less than 4-feet of cover.

3.5 DRILLING PROCEDURES

A. SITE PREPARATION: prior to any alterations to work site, installation contractor shall photograph or video tape entire work area, including entry and exit points, one copy of which shall be given to owner and one copy to remain with installation contractor for a period of 1 year following the completion of the project. Work sites shall be within right-of-way and shall be graded or filled to provide a level working area. No alterations beyond what is required for operations are to be made. Installation contractor shall confine all activities to designated work areas.

B. Drill Path Survey: Entire drill path shall be accurately surveyed by the Installation Contractor with entry and exit stakes placed in the appropriate locations within the areas determined in the field with the Owner Locate existing utilities in advance of boring operations. The Installation Contractor shall be responsible for repairing damage to existing utilities at no additional cost to the Owner. Repair of existing utilities shall proceed until complete and the existing utility is back in service. If Installation Contractor is using a magnetic guidance system, drill path will be surveyed by the Installation Contractor for any surface magnetic variations, interference, or anomalies.

C. Environmental Protection: Installation Contractor shall provide environmental protection in accordance with contract documents and all applicable state, federal and local safety requirements.

D. Safety: Contractor shall adhere to all applicable state, federal and local safety regulations and all operations shall be conducted in a safe manner.

E. Pilot Hole:
1. Pilot hole shall be drilled on drill path with no deviations greater than ±5 feet horizontal and vertical for the entire crossing. In the event that pilot hole does deviate from drill path more than ±5 feet, Contractor shall notify Owner immediately and require Installation Contractor to pull-back and re-drill from the location along bore path before the deviation. Installation Contractor shall correct the deviation and resume drilling along the approved drill path. In the event that a drilling fluid fracture, inadvertent returns or returns loss occurs during pilot hole drilling operations, Installation Contractor shall cease drilling and follow the approved procedure detailed in the HDD Execution Plan.
2. The Installation Contractor shall expect fluid loss to the formation in shale, limestone, and weathered conditions.
3. If mud fracture or returns loss continues, Contractor will cease operations and notify Owner. Owner, Engineer, and Installation Contractor will discuss additional options and Work will then proceed accordingly.
4. Drill pilot hole along drill path shown on plan and profile drawing to specified tolerances.
5. Design radius - as shown on drawings.
6. Minimum radius - The minimum radius shall be based on a 3-Joint radius that accounts for azimuth and inclination.
7. During pilot hole drilling, reaming, swabbing, and pipe pullback, record the following information for each joint of drill pipe: location of bit or reamer, rate of penetration, torque, thrust/pull force, pumping rate, RPM, annular pressure (pilot hole only), observed circulation, drill pipe length.

F. Drilling Obstructions:
1. If obstructions are encountered during drilling, notify Engineer immediately.

2. Do not proceed around obstruction without approval of Engineer.
3. For conditions requiring more than 3 feet of deviation in horizontal alignment, submit revised Shop Drawings to Engineer for approval before resuming Work.
4. Maintain adjusted drill path within easement or right-of-way.

G. Reaming: Upon successful completion of pilot hole, Installation Contractor will ream pilot hole to a minimum of 12 inches greater than outside diameter of pipe using suitable reamers or hole openers in one or more sizes until the desired diameter hole is drilled. Installation Contractor will not attempt to ream at one time more than the drilling equipment and mud system are designed to safely handle.

H. Swabbing: After the final ream pass, a swab consisting of a barrel reamer or other reaming tool, will be pulled through the reamed hole to confirm that the hole is suitable for pipe installation.

I. Pull-Back:
1. After successfully reaming and swabbing bore hole to the required diameter, Installation Contractor will pull the pipe through the bore hole. In front of the pipe will be a swivel and reamer. Pull loads shall not exceed the limits established in the approved submittal. Once pull-back operations have commenced, operations must continue without interruption until pipe is completely pulled into bore hole.
2. During pull-back operations, Contractor shall not apply more than the approved tensile load established in the approved submittal, measured at the drill rig, at any time In the event that pipe becomes stuck, Installation Contractor will cease pulling operations. If pipe remains stuck, Contractor will notify Owner to discuss options and then Work will proceed accordingly.

3.6 HDPE PIPE JOINING

A. The pipe shall be assembled and joined at the site using the thermal butt-fusion method to provide a leak proof joint. Threaded or solvent-cement joints and connections are not permitted. All equipment and procedures used shall be used in strict compliance with the manufacturer's recommendations. Fusing shall be accomplished by personnel certified as fusion technicians by a manufacturer of the pipe and/or fusing equipment.

B. The butt-fused joint shall be true alignment and shall have uniform roll-back beads resulting from the use of proper temperature and pressure. The joint shall be allowed adequate cooling time before removal of pressure. When cool, all weld beads shall then be removed from the outside and interior surfaces such that the joint surfaces shall be smooth. The fused joint shall be watertight and shall have tensile strength equal to that of the pipe. All joints shall be subject to acceptance by the Engineer prior to pull-back. All defective joints shall be cut out and replaced at no cost to the Owner. Any section of the pipe with a gash, blister, abrasion, nick, scar or other deleterious fault greater in depth than 10 percent of the wall thickness, shall not be used and must be removed from the site. However, a defective area of the pipe may be cut out and the joint fused in accordance with the procedures stated above. In addition, any section of pipe having other defects such as concentrated ridges, discoloration, excessive spot roughness, pitting, variable wall thickness or any other defect of manufacturing or handling as determined by the Engineer shall be discarded and not used.

C. Terminal sections pipe that are joined within the insertion pit shall be connected with a full circle pipe repair clamp. The butt gap between pipe ends shall not exceed 1/2 inch.

3.7 SLURRY REMOVAL AND DISPOSAL

A. Contain excess drilling fluids at entry and exit points until recycled or removed from Site; provide recovery system to remove drilling spoils from access pits.

B. Drilling Spoils:
   1. Remove, transport, and legally dispose of drilling spoils.
   2. Do not discharge drilling spoils in sanitary sewers, storm sewers, or other drainage systems.
   3. When drilling in suspected contaminated soil, test drilling fluid for contamination before disposal.

C. If drilling fluid leaks to surface, immediately contain leak and barricade area from vehicular and pedestrian travel before resuming drilling operations.

D. Complete cleanup of drilling fluid at end of each working day.

3.8 SITE RESTORATION

A. Following drilling operations, Installation Contractor will de-mobilize equipment and restore the work site to original condition. All excavations will be backfilled and compacted to 95 percent of original density. Provide landscaping services from a local professional landscaping company.

3.9 TOLERANCES

A. Section 01400 - Quality Control: Requirements for tolerances.
   1. Pilot drill shall follow the path shown on the Design Drawings within the following tolerances:
      a. Pilot entry angle: Increase in angle up to 1 degree, no decrease in angle
      b. Pilot entry location: As specified on the Drawings, no change without Owner permission
      c. Pilot exit angle: No increase in exit angle. Decrease up to 2 degrees
      d. Pilot exit location: Up to 25 feet longer or 20 feet shorter than the Drawings
      e. Pilot depth: Up to 5 feet shallower and 5 feet deeper allowed
      f. Pilot Alignment: Between 5 feet right or left of design centerline but not within 5 feet of the right of way boundary.

B. Minimum Horizontal and Vertical Clearance from Other Utilities: 10 feet.

C. See Paragraph 3.5.E for radius requirements.

D. Deviation:
   1. If pipe installation deviates beyond specified tolerances, abandon bore, remove installed pipe, rebore, and reinstall pipe in correct alignment.
   2. Fill abandoned bores greater than 3 inches in diameter with grout or flowable fill material.

3.10 FIELD QUALITY CONTROL

A. Section 01700 - Contract Closeout: Requirements for testing, adjusting, and balancing.

B. Following successful pull-back of pipe, Installation Contractor will test pipe in accordance with Section 33 31 23 – Testing Sanitary Sewer Systems. A calibrated pressure recorder will be used to record the pressure during the test period. This record will be presented to Owner.

C. Before the Owner accepts the installation, the Contractor shall verify the integrity of the HDPE pipe by successfully passing an appropriate standard diameter pig through the pipe and completing a pressure test on the installed pipe. The pig shall be sized accordingly to verify the maximum allowable pipe deflection has not been exceeded.

3.11 CLEANING

A. Section 01700 - Contract Closeout: Requirements for cleaning.

B. Upon completion of drilling and pipe installation, remove drilling spoils, debris, and unacceptable material from approach trenches and pits.

C. Clean up excess slurry from ground.

D. Restore approach trenches and pits to original condition.

E. Remove temporary facilities for drilling operations as specified in Section 01560 - Temporary Controls.

END OF SECTION

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SECTION 33 31 13 – STEEL ENCASEMENT PIPE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. The Work necessary to provide and install steel encasement pipe for water and sewer lines.

B. Related Sections:
   1. Section 31 23 16.16 – Trenching for Water and Sewer Lines
   2. Section 31 23 23.19 – Trenching Bedding and Backfill for Water and Sewer Lines
   3. Section 33 41 19 – Pipe Laying

1.2 REFERENCES

A. ASTM
   1. A139 – Standard Specification for Electric-Fusion (Arc)-Welded Steel Pipe (NPS 4 and Over)

1.3 SUBMITTALS

A. Subject to the requirements of Section 01300 - Submittals.

B. Quality Requirements Submittals:
   1. Steel encasement diameter, and thickness.
   2. End seal shop drawings.
   3. Casing spacer shop drawings.
   4. Special shipping, storage and protection, and handling instructions.
   5. Test procedures.
   6. Test results, reports, and certifications.

PART 2 - PRODUCTS

2.1 ENCASEMENT PIPE

A. Encasement pipe shall be used to provide a conduit for the carrier pipe passing below roadways, railroads, or other surfaces where the encasement pipe shall be installed by jack and boring or at times open cut. Details for steel encasement are specified in the Plans.

B. Encasement pipe shall also be used to isolate new water lines in the proximity of existing sewer line to prevent possible sewage contamination of the water system. The locations, lengths and diameters are specified in the Plans.

C. Encasement Pipe Measurements:
   1. The encasement pipe shall be new. USED PIPE NOT ALLOWED.
   2. Shall be the lengths specified in Drawings and in this section.
   3. Shall be a smooth wall, welded steel pipe as specified in :
      a. ASTM A139, Grade B, ASTM A211 or ASSA C202, Grade B with minimum yield strength of 35,000 psi.
   4. Minimum diameter wall thickness for various nominal diameters of carrier pipes:

Carrier Pipe Nominal Diameter (inches)	Steel Encasement Pipe Diameter (inches)	Steel Encasement Pipe Minimum Wall Thickness (inches)
6	12	0.2500
8	16	0.3125
10	20	0.3750
12	20	0.3750
14	24	0.4375
16	24	0.4375
18	30	0.5000
20	30	0.5000
24	36	0.5625

D. In instances where encasement pipe is being used to isolate the water line, the minimum length of encasement pipe shall be 20 LF. The encasement pipe shall be centered on the crossing water or sewer line.

2.2 CASING SPACERS

A. Spacers hall be stainless steel.

B. Manufacturers:
1. Cascade Waterworks Mfg. Co.
2. Or Approved Equal.

C. Restrained Joints:
1. Shall have restrained joint type stainless steel casing spacers.
2. Manufacturers:
   a. Cascade Waterworks Mfg. Co.
      Cascade Model CCS-JR
   b. Or Approved Equal.

D. Spacers shall be designed to support the carrier within the casing and to maintain a maximum clearance of 1 in. between the casing pipe and runner. Spacers shall be 8 in. wide for carrier pipes up to 14 in. in diameter and 12 in. wide for carrier pipes greater than 14 in. in diameter.

E. The quantity of runners shall be dependent on the carrier pipe diameter, unless otherwise approved:

Carrier Pipe Nominal Diameter	Quantity of Runners
≤ 14 in.	4
16 in. – 36 in.	6
42 in. – 48 in.	8

F. Runners shall be abrasion resistant glass-filled polymer or ultrahigh weight molecular polyethylene, with a minimum length of 7 in. and a minimum width of 1 in. Risers, when required, shall be stainless steel and welded to the band. Interior surfaces of the circular stainless-steel band shall be lined with a minimum thickness of 0.09 in. of EPDM or PVC, or approved alternative.

2.3 RUBBER END SEALS

A. Rubber end seals shall be installed on both ends of the encasement pipe. They shall be the Pull-On type secured to the encasement pipe and the carrier pipe via T-304 stainless steel worm gear bands.

B. Rubber End Seal Manufacturers:
1. CCI Piping Systems
Model ESC.
2. Cascade Waterworks Mfg. Co.
Model CCES.
3. Or approved equal.

PART 3 - EXECUTION

3.1 EXCAVATION

A. Highway Bore:
1. DO NOT set up equipment or begin excavating pit on state highway Right-of-Way without permission of Colorado Department of Transportation Division Engineer or his authorized representative.

B. Railroad Bore:
1. DO NOT set up equipment or begin excavating pit on or near railroad property without permission of the respective railroad company.

C. Highway and railroad permits shall be obtained by the Owner. Contractor shall coordinate with Engineer on obtaining Right-of-Way permit from railroad and shall conform to all requirements there in.

3.2 INSTALLATION, ENCASEMENT PIPE

A. General:
1. Install encasement pipe at grade and alignment specified in Plans. Allow for height of casement spacers when establishing grade for gravity line encasement pipe.
2. Refer to Standard Details.

B. Bores:
1. Excavate pits and trenches required at each side of crossing to minimum width and length necessary for boring and jacking operation and carrier pipe installation.
2. Carefully set steel guide rails in pit to attain specified grade and alignment.
3. Keep pit pumped free of standing water. Maintain pit bottom to provide stable base for rails and equipment and firm footing for workmen. Granular material used in bottom of pit shall NOT be paid for as extra work, it is subsidiary to encasement pipe.
4. Provide temporary sheeting and bracing as necessary to prevent earth slides.
5. Bore tunnel and simultaneously jack encasement pipe forward one section at a time. Connect sections by full penetration butt welding performed as specified in AWS D1.1.
6. Remove excavated soil from boring operation as it enters pit and dispose of it offsite.
7. All bored encasement pipe shall be installed by the dry boring and jacking method. Wet boring shall NOT be allowed.
8. Installation of the encasement shall be carried out in such manner that there shall be no settlement of the ground surface above the encasement. The Contractor shall take all precautions to prevent caving of the soils ahead of the pipe. During encasement installation, the Contractor shall use all care to minimize annular space (voids) between the outside of the encasement pipe and the surrounding ground. Therefore, the outside of

encasement pipe installed by boring and jacking shall be pressure grouted to eliminate voids as specified below, unless excepted therein. Only the dry bore method shall be used. WATER JETTING OR SIMILAR METHODS USING WATER ARE STRICTLY PROHIBITED.

9. The Contractor shall inspect the locations where the encasement pipe and bore pits are to be installed and familiarize himself with the conditions under which the work shall be performed and with all necessary details for the orderly prosecution of the work. The omission of any details in the Plans and/or herein for installation of the encasement and carrier pipe shall NOT relieve the Contractor of full responsibility for the proper execution and integrity of the work.
10. The Contractor shall satisfy himself of soils condition by any means he deems necessary, i.e., exploratory boring or exploratory pit excavations at bore ends. Any such exploratory work shall be done in such manner as to NOT jeopardize railroad or highway roadbeds and Rights-of-Way and shall be backfilled and cleaned up to the satisfaction of the Right-of-Way Owner. The Contractor shall be responsible to obtain his own permission and to furnish bonds, etc. as may be required by private landowners or the public authority having jurisdiction at the site of any such exploratory work unless otherwise specified in the Plans or by Owner/Engineer.
11. The Contractor shall perform all excavation required to complete the work regardless of the material encountered. Excavation from the access shafts (bore pits) more than that required to backfill the access shafts and open cut portion of the line shall be disposed of by the Contractor outside the limits of the construction site and at an approved location. Pits and trenches shall be properly shored, sheeted, and braced as specified in Section 31 50 00 – Excavation Support Systems, of these Specifications.
12. Any damage to the encasement pipe coating during shipment or handling shall be repaired by the Contractor. Boring and installation of smooth wall pipe shall be by competent supervisors and workmen specializing in this type of work.
13. IN ORDER TO MAINTAIN THE DESIGNED SLOPE OF THE SEWER GRADIENT, the horizontal and vertical alignment at all points on the encasement pipe shall be held to a tolerance of 0.10 ft of the designed line and grade. encasement pipes not meeting this tolerance shall be subject to removal and replacement at the contractor’s expense.

C. Open-Cut:
1. Steel encasement shall be installed in an open-cut trench as specified in Section 31 23 16.16 – Trenching for Water and Sewer Lines and shall be backfilled as specified in Section 31 23 23.19 – Trench Bedding and Backfill for Water and Sewer Lines.
2. Steel encasement installed by open-cut shall conform to this specification.
3. When practical, the carrier pipe, the end seals, the casing spacers, and the encasement pipe shall be assembled outside of the trench and shall be installed as a single unit.
4. Extreme care shall be used by the Contractor to assure that the rubber end caps are NOT damaged during installation and backfilling. It is essential that a water-tight seal exist where the rubber end seals contact the carrier pipe and the encasement pipe.

3.3 INSTALLATION, CARRIER PIPE

A. Installation of the carrier pipe in the encasement shall be accomplished in such manner that neither the pipe nor the encasement is damaged. Care shall be exercised to assure that the joints of the pipe are NOT over-deflected or pulled out during the process. The pipe shall be jointed and pushed or jacked through the encasement. Cables, chains, jacks or other equipment or devices used shall NOT be in direct contact with the pipe unless thoroughly padded.

B. The carrier pipe barrel, regardless of its diameter, shall be centered diametrically in the encasement pipe by the use of casing spacers compatible with the material of the carrier pipe. Also, all carrier pipe bell/spigot joints inside the encasement shall be restrained from movement in the axial direction by the use restrained casing spacers. There shall be a restrained casing spacer installed at each carrier pipe joint and another casing spacer without axial restraint (non-

restrained) installed at the midpoint of each carrier pipe barrel or at a maximum interval of 10 ft. All casing spacers, whether restrained or non-restrained, shall also function as hold-down jacks to prevent the carrier pipe from floating.

C. If, after installation of the carrier pipe, adequate stability has NOT been provided, in the opinion of the Owner, the annular space between the carrier pipe and the inside of the encasement pipe shall be filled with sand or other material approved by the Owner.

D. After the carrier pipe has been installed in the encasement pipe, both ends of the encasement pipe shall be sealed with end seals.

3.4 PRESSURE GROUTING

A. During installation of bored encasement pipe, care shall be exercised to prevent voids between the encasement and the surrounding ground.

B. Encasement Pipes:
1. 12 in. and larger nominal diameter, the annular space between the encasement pipe and the ground shall be pressure grouted to eliminate all voids.
2. smaller than 12 in. shall also be grouted if directed by the owner depending on soil conditions at the bore site identified at the time of encasement installation.

C. When grouting encasement pipes of such diameter that entry by a worker is possible, the grout shall be injected through the encasement pipe wall through 1.5 in. diameter holes from the inside at one location for each 5.0 ft linear interval over the entire length of the encasement pipe. The sequence for grout injection locations shall be:

*Locations (5 ft Spaces)	"Clock" Positions
1st	12:00
2nd	3:00
3rd	12:00
4th	9:00
5th	12:00

** Repeat 2nd through 5th locations at 5 ft intervals for each location to the end of the encasement pipe.*

D. NOTE:
1. The contractor shall be responsible to see that all requirements of OSHA concerning entry of workers into confined spaces are followed as well as any other requirements for this type of work.

E. For encasement pipes too small to be entered for grouting as addressed above, the annular space may be pressure grouted by means of an external grout pipe attached to the outside of the encasement pipe. After the encasement pipe and the grout pipe are in place, the grout pipe shall be withdrawn as the grout is introduced into the annular space.

3.5 Bore pits excavation and backfill shall be as specified in Sections 31 23 16.16 – Trenching for Water and Sewer Lines and 31 23 23.19 – Trench Bedding and Backfill for Water and Sewer Lines.

A. The bore pits or access shafts for encasement installation shall be rectangular in plain view, approximately 20 ft by 10 ft, with the longer dimension being in the direction of the encasement pipe. The bore pits shall be sheeted, shored, and braced on all sides as addressed herein.

Sheeting shall be timber or steel piling of ample strength to safely withstand all structural loading of whatever nature due to site and soil condition. The top of the sheeting shall be at a minimum elevation equal to the natural ground line as it existed prior to construction.

END OF SECTION

SECTION 33 31 23 – TESTING SANITARY SEWER SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. The Work necessary to test gravity sewer pipe, force main pipe, manholes and appurtenances.

B. Related Sections:
   1. Section 33 39 13.13 – Pre-Cast Concrete Manholes

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 GENERAL

A. The Contractor is responsible for supplying all equipment required to conduct testing and all testing shall be conducted by the Contractor.

B. All testing shall be conducted in the presence of the Engineer.

3.2 GRAVITY SEWER TESTING

A. The Contractor shall have the option of verifying water tightness by either air testing or water testing. The Engineer shall have the option to require testing by both methods to verify marginal results.

B. Gravity Sewers – Air Testing:
   1. After gravity sanitary sewer and service pipe have been laid, all newly laid sewer main pipe shall be subject to an air pressure test to determine watertightness from air loss.
   2. Test Equipment:
      a. Equipment specified in this section to perform the air test shall be provided by the Contractor. The test gauge shall have incremental divisions of 0.10 psi and have an accuracy of at least plus or minus 0.04 psi. In no case shall a test gauge be used which has incremental divisions of greater than 0.25 psi. The gauge shall be of sufficient size to determine accuracy.
   3. Procedure:
      a. As each section of sewer is completed between manholes, each section shall be air tested. When practical, house connections in each section shall be completed. Air test shall be low pressure air test based on the principle of air pressure loss per period. Contractor shall prepare a log of testing and submit this to the Engineer as each section is completed and tested. All tests shall be accomplished in the presence of the Engineer.
      b. The test section of the sewer line is plugged at each end. One of the plugs used at the manhole shall be tapped and equipped for air inlet connection for filling the line from the air compressor.
      c. All service laterals, stubs and fittings into the sewer test section shall be properly capped or plugged, and carefully braced against the internal pressure to prevent air leakage by slippage and blowouts.
      d. Connect air hose to tapped plug selected for the air inlet. Then connect the other end of the air hose to the portable air control equipment, which consists of valves and pressure gauge used, to:

1) Control air entry rate to the sewer test section.
2) Monitor the air pressure in the pipeline.

e. More specifically, the air control equipment includes a shutoff valve, pressure regulating valve, pressure reduction valve and a monitoring pressure gauge having a pressure range from 0 psi – 5 psi. The gauge shall have minimum divisions of 0.10 psi and an accuracy of 0.04 psi.

f. Connect another air hose between the air compressor (or other source of compressed air) and the air control equipment. This completes the test equipment setup. Test operations may commence.

g. Supply air to the test section slowly, filling the pipeline until a constant pressure of 4.0 psig is maintained. The air pressure shall be regulated to prevent the pressure inside the pipe from exceeding 5.0 psig.

h. When constant pressure of 4.0 psig is reached, throttle the air supply to maintain the internal pressure between 3.5 psig – 4.0 psig for at least 5 minutes. This time permits the temperature of the entering air to equalize with the temperature of the pipe wall. If leakage is detected at any cap or plug, release the pressure in the line and tighten all leaky caps and plugs.

i. Then start the test operation again by supplying air. When it is necessary to bleed off the air to tighten or repair a faulty plug, a new 5-minute interval shall be allowed after the pipeline has been refilled.

j. After the stabilization period, adjust the air pressure to 3.5 psig and shutoff or disconnect the air supply. Observe the gauge until the air pressure reaches 3.5 psig. At 3.5 psig commence timing with a stopwatch which is allowed to run until the line pressure drops to 2.5 psig at which time the stopwatch is stopped. The time required, as shown on the stopwatch for a pressure loss of 1.0 psig, is used to compute the air loss.

k. If the time in minutes and seconds for the air pressure to drop from 3.5 psig – 2.5 psig is greater than that specified in the table for the designated pipe size, the section undergoing test shall have passed and shall be presumed to be free of defects. The test may be discontinued at that time.

l. If the time in minutes and seconds for the 1.0 psig drop is less than that specified in the table for the designated pipe size, the section of pipe shall NOT have passed the test; therefore, adequate repairs shall be made and the line retested.

m. Pipe sizes with their respective recommended minimum times, in minutes and seconds, for acceptance by the air test method:

Minimum Time for a 1.0 psig Pressure Drop (Min:Secs)										
Distance Between Manholes (Feet)	**Nominal Diameter (Inches)**									
	8	**10**	**12**	**15**	**18**	**21**	**24**	**30**	**36**	**42**
100	7:33	9:26	11:20	14:10	17:00	19:50	22:47	35:37	51:17	69:48
150	7:33	9:26	11:20	14:10	17:00	26:11	34:11	53:25	76:55	104:42
200	7:33	9:26	11:23	17:48	25:38	34:54	45:34	71:13	102:34	139:37
250	7:33	9:53	14:14	22:15	32:03	43:38	56:58	89:02	128:12	174:30
300	7:35	11:52	17:05	26:42	38:27	52:21	68:22	106:50	153:50	209:24
350	8:51	13:51	19:56	31:09	44:52	61:08	79:46	124:38	179:29	244:19
400	10:07	15:49	22:47	35:36	51:17	69:48	91:10	142:26	205:07	279:13
450	11:23	17:48	25:38	40:04	57:41	78:32	102:33	160:15	230:46	314:07
500	12:39	19:47	28:29	44:31	64:06	87:15	113:57	178:03	256:24	349:01
Times for distances NOT listed in the table can be obtained by calculating the straight-line ratio between distances given.										

n. For testing of long sections or sections of larger diameter pipes, or both, a timed-pressure drop of 0.5 psig may be used in lieu of a 1.0 psig timed-pressure drop as

approved by the Owner or Engineer. If a 0.5 psig pressure drop is used, the appropriate required test time shall be exactly 1/2 the values specified in the table.

o. An air pressure correction is required when the prevailing ground water is above the sewer line being tested. Under this condition, the air test pressure shall be increased 0.433 psi for each foot the ground water level is above the invert of the pipe.

p. Height of ground water above sewer pipe shall be determined by a method approved by the Engineer.

q. Any leaks in the system shall be repaired immediately upon discovery. Costs for repairing faulty work, including excavating and re-backfilling and for making tests, shall be paid for by the Contractor.

4. Safety Precautions:

a. The low-pressure air test may be dangerous to personnel if, through lack of understanding or carelessness, a line is over pressurized or plugs are installed improperly. It is extremely important that the various plugs be installed to prevent the sudden expulsion of a poorly inflated plug. As an example of the hazard, a force of 250 lbs. is exerted on an 8 in. plug by an internal pressure of 5 psi. Observe the following safety precautions.

1) No one shall be allowed in the manholes during the test or when a plugged pipe is under pressure.

2) Gauges, air piping manifolds, and valves shall be located at the top of the ground.

3) Install and brace all plugs securely.

4) DO NOT over pressurize the lines.

C. Gravity Sewers – Water Testing:

1. Water testing shall be by either the infiltration method or by the exfiltration method if approved by the Engineer. Testing for water tightness shall be made by the Contractor in the presence of the Engineer. The Contractor shall provide all equipment, plugs, bulkheads, fittings, water, etc. needed for the testing. The water used for testing shall be paid for by the Contractor.

2. The Engineer shall have the right to direct that either the infiltration or the exfiltration water testing be performed based on groundwater conditions at the time.

3. The tests and measurements of the infiltration method shall be as approved by the Engineer. In all cases, the pipeline shall NOT leak under exterior ground water pressure more than 100 gal/in. of nominal pipe diameter per mile of pipe per 24 hours. Leaks causing any sewer to fail such test shall be repaired until infiltration meets the allowable limit.

4. If, in the opinion of the Engineer, the ground water table at the time of testing is too low to produce dependable infiltration measurement results, the Contractor shall perform the exfiltration method test. The allowable limit shall be as given above including any manholes in the section(s) being tested. Water required for exfiltration test shall be obtained at the Contractor's expense.

5. Where the exfiltration test method is used:

a. The downstream end of the pipe section being tested shall be plugged and the plug shall be braced and blocked securely. No one shall be allowed to enter a manhole where a plugged pipe is under pressure. Any other pipe entrances to the upstream manhole shall likewise be securely plugged.

b. Only water from a source approved by the Engineer shall be used to perform the test. Wastewater shall NOT be used to perform exfiltration testing.

c. Water shall be added through the upstream manhole of the line section being tested to a depth of 2.0 ft above the inside top of the outgoing pipe (or 2.0 ft above the ground water level – see d. below). The water shall be maintained at this level for 24 hours prior to beginning the exfiltration test measurement.

d. There shall be a minimum of 2.0 ft positive head above the inside top of the pipe at the high end of the section being tested. This means, if the ground water in the

trench is at (or above) the top of the pipe, then the manhole shall be filled to a point at least 2.0 ft above the ground water level.

e. The test shall be conducted for two hours. The leakage shall be determined by the calculated change in total volume of water used in the test.

3.3 PIPE DEFLECTION TESTING

A. General:
1. All PVC, FRP, and Ductile Iron gravity sewer lines shall be mandrel tested as specified in these sections prior to acceptance.

B. Allowable Deflection:
1. The maximum allowable pipe deflection shall NOT exceed 5% of the inside diameter.

C. Mandrel:
1. The mandrel shall be hand-pulled by the Contractor through all PVC, FRP, and Ductile Iron gravity sewer lines no earlier than 30 days after the trench has been completely backfilled. Any sections of the sewer NOT passing the mandrel shall be uncovered and the Contractor shall rebed, reround, or replace the sewer to the satisfaction of the Engineer. Any repaired section shall be retested after a sufficient time has elapsed to ensure that trench settlement has stopped. This retest time shall be totally dependent upon method of repair. If the trench has been opened, the retest shall have the same requirements as the original installation. If the pipe has been rerounded, retest shall NOT occur sooner than seven days after rerounding.
2. The mandrel (Go/No-Go) device shall be cylindrical in shape and constructed with either 9 or 16 evenly spaced arms or prongs. Mandrels with fewer arms shall be rejected as NOT sufficiently accurate. The contact length of the mandrel's arms shall equal or exceed the nominal diameter of the sewer to be inspected. Critical mandrel dimensions shall carry a tolerance of plus or minus 0.01 in. The mandrel and all necessary equipment for the mandrel test shall be provided by the Contractor.
3. The Owner reserves the right to mandrel test any PVC, FRP, or Ductile Iron sewer pipe before acceptance, and also prior to expiration of the first year of operation. If a previously accepted line fails a mandrel test performed during the first year of operation, the defects shall be corrected at the Contractor's expense.

3.4 TELEVISION INSPECTION

A. The Contractor shall televise all newly installed sewer mains as follows:

B. The Contractor shall clean all lines thoroughly prior to the start of televising.
The Contractor shall televise each segment of pipe.

C. The camera shall be moved through the line in either direction at a uniform slow rate NOT to exceed 60 ft/min, by means of cable winches, or similar mechanisms. UNDER NO CIRCUMSTANCES SHALL THE CAMERA BE TETHERED TO A HYDRAULICALLY PROPELLED OR HIGH-VELOCITY JET CLEANING DEVICE WHILE THE CLEANING DEVICE IS ON.

D. The Contractor shall review the video for possible defects in material or workmanship.

E. The Contractor shall correct any defects discovered during the television inspection at the Contractor’s expense.

F. The Contractor shall deliver to the Engineer final video in DVD format and logs after all defects have been repaired.

3.5 INSPECTION OF SERVICE LINES

A. All building sewer lines shall be installed and tested as specified in all state, regional, and local plumbing codes.

B. All building sewer installations shall be inspected and approved by an authorized local governing agency inspector.

C. Backfill may only be placed on the completed portions of a building sewer following inspection. No approval certificate shall be issued until all portions of a building sewer from the main connection to the building foundation have been inspected and approved by an authorized inspector. At the time of inspection, the pipe should be in place in the trench and "safed-up", but the top half of the pipe barrel exposed. No approval shall be given for building sewers all or a portion of which are covered at the time of inspection.

D. All building sewers are subject to testing to insure water tightness. All tests shall be performed in the presence of the Engineer. Tests may be either by:
   1. Water Loss Test Procedure; or,
   2. Low Pressure Air Loss Procedure.

E. If, in the opinion of the Engineer, the line in question is properly installed and free from open joints and breaks, building sewers constructed entirely of cast iron soil pipe may be connected to the sewer without testing.

F. Water Loss Test Procedure
   1. Plug the section of line to be tested at the lower end and fill section with water so that at least 4 ft of head is obtained.
   2. The maximum acceptable water loss while so filled is NOT more than 100 gal per 24 hrs. per inch of pipe diameter per mile of pipe. This is approximately 3/16 gal for a 100 ft long section of 4 in. pipe tested 30 minutes.

G. Low Pressure Air Loss Procedure
   1. Plug securely both ends of the line to be tested.
   2. Charge the line with air to a pressure of 4.5 psig.
   3. Allow at least five minutes for the temperature in the pipe to stabilize.
   4. Measure the time required for a 1.0 psi drop in pressure.
   5. The minimum time for a 1 psi loss is 28.5 x d sec where d = the nominal diameter in inches of the pipe being tested.

3.6 MANHOLE TESTING

A. Testing, Observations and Guarantee Period:
   1. The testing required shall be performed by the Contractor at all manholes and documented to the satisfaction of the Engineer.
   2. Testing shall NOT be performed on a specific manhole until all work has been completed for that specific manhole.
   3. Any manholes that are observed to be leaking by the Engineer shall be subject to additional repairs and retested by the Contractor at no additional cost to the Owner.

B. Inflow Testing:
   1. All rehabilitated manholes and new manholes shall be dye tested. Manholes shall be dye water tested in the presence of the Engineer. The dye test shall consist of applying a concentrated dye solution around the manhole frame. Dyed water shall be applied for at least ten minutes.

2. Manholes observed to be actively leaking shall have failed the test and shall NOT be acceptable. Manholes failing the test shall require additional rehabilitation by the Contractor at no additional compensation. The manhole shall then be retested as described above until a successful test is made.

C. Vacuum Testing:
1. All new and rehabilitated manholes shall be vacuum tested by the Contractor in the presence of the Engineer for sources of infiltration. Testing shall be made during high groundwater conditions, wherever possible.
2. Manholes shall be tested after installation with all connections (existing and/or proposed) in place. Drop-connections and gas sealing connections shall be installed prior to testing. The lines entering the manhole shall be temporarily plugged with the plugs braced to prevent them from being drawn into the manhole. The plugs shall be installed in the lines beyond drop-connections, gas sealing connections, etc. The test head shall be placed inside the frame at the top of the manhole and inflated as specified in manufacturer's recommendations. Plate type test heads that rest on top of the frame are also acceptable. A vacuum of 10 in. of mercury shall be drawn, and the vacuum pump shall be turned off. With the valve closed, the level of vacuum shall be read after the required test time. If the drop in the level is less than 1 in. of mercury (final vacuum greater than 9 in. of mercury), the manhole shall have passed the vacuum test. After a successful test, the temporary plugs shall be removed. The required test time is determined from the table below.

Minimum Time Required for a Vacuum Drop of 1 in. H_g (10 in. H_g – 9 in. H_g) (min:sec)				
Depth of Manhole (feet)	**Manhole Inside Diameter (inches)**			
	48 in.	**60 in.**	**72 in.**	**96 in.**
8	:20	:26	:32	:45
10	:25	:33	:40	1:00
12	:30	:39	:48	1:07
14	:35	:46	:57	1:18
16	:40	:52	1:05	1:29
18	:45	:59	1:13	1:40
20	:50	1:05	1:21	1:52
22	:55	1:12	1:29	2:03
24	:60	1:19	1:37	2:14
26	1:05	1:25	1:45	2:25
28	1:10	1:32	1:53	2:36
30	1:15	1:38	1:01	2:47
Add for each Additional 2 ft	:05	:07	:08	:11

3. Manhole vacuum levels observed to drop greater than 1 in. of mercury (Final vacuum less than 9 in. of mercury) shall have failed the test and shall require additional rehabilitation. The Contractor shall make the necessary repairs at no additional compensation for only those work items completed by the Contractor. The manhole shall then be retested as described above until a successful test is made.

3.7 PRESSURE TEST FOR FORCE MAINS

A. Perform hydrostatic leakage tests for force mains by filling the force main with water and increasing the pressure to a testing pressure of 150% of the working pressure with a minimum of 100 psi.

B. The duration of the leakage test shall be two hours or as specified by the Engineer.

C. The force main shall NOT be accepted until the actual leakage is equal to or less than the allowable. In addition, all obvious leaks shall be repaired.

D. The allowable leakage rate per hour for ductile iron, PVC, FRP or concrete pipe shall be calculated by:

$$L = \frac{ND \times P^5}{7400}$$

L = Allowable Leakage (gallons per hour)
N = Number of Joints in Pipeline Tested
D = Nominal Diameter (inches)
P = Test Pressure (psi)

3.8 SYSTEM COORDINATION

A. Maintain existing sewer flow through new connecting manholes until new sewer is approved by Engineer.

B. Reshape manhole bottom to divert sewer flow into new sewer after new sewer is approved by Engineer.

C. Locate sewer services before completing the first manhole downstream from the sewer service.

END OF SECTION

SECTION 33 34 13 – DUCTILE–IRON FORCE MAIN PIPE AND FITTINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. The Work necessary to completely furnish and install Ductile-Iron force main pipe and fittings.

B. Related Sections:
   1. Section 31 23 16.16 – Trenching for Water and Sewer Lines.
   2. Section 31 23 23.19 – Trench Bedding and Backfill for Water and Sewer Lines.
   3. Section 33 31 13 – Steel Encasement Pipe.
   4. Section 33 31 23 – Testing Sanitary Sewer Systems.
   5. Section 33 39 13.13 – Pre-Cast Concrete Manholes.
   6. Section 33 41 19 – Pipe Laying.

C. General Requirements:
   1. Like items of ductile-iron pipe provided hereinafter shall be the end products of one manufacturer to achieve standardization of appearance, operation, maintenance, and manufacturer’s services.
   2. All pipes shall be circular and shall be of the sizes shown on the Plans and/or listed in the Unit Price Schedule. All pipes shall be new. Used pipe is prohibited.
   3. At the discretion of the Engineer, all pipeline and materials are subject to inspection and approval at the plant of the manufacturer.
   4. All materials shall equal or exceed the standards specified herein.
   5. During the process of unloading, all pipe materials shall be inspected by the Contractor and any damaged pipe set aside.
   6. After pipelines are laid, the Contractor shall test for defects and leakage as specified in Section 33 31 23 – Testing Sanitary Sewer Systems of these specifications.
   7. Inspection of pipe at the manufacturer's plant, at the point of delivery, on the job site, or in place shall NOT relieve the Contractor of his responsibility and the material may be subject to rejection until final acceptance of the completed project.

1.2 REFERENCES

A. ANSI/AWWA:
   1. C115/A21.15 – American National Standard for Flanged Ductile-Iron and Gray-Iron Pipe with Threaded Flanges
   2. C150/A21 – Thickness Design of Ductile-Iron Pipe
   3. C151/A21.51 – Ductile-Iron Pipe, Centrifugally-Cast
   4. C116/A21.16 – Protective Fusion-Bonded Coatings for The Interior and Exterior Surfaces of Ductile-Iron and Gray-Iron Fittings
   5. C111/A21.11 – Rubber Gasket Joints for Ductile-Iron Pressure Pipe and Fittings

B. ANSI/ASME:
   1. B16.1 – Gray-Iron Pipe Flanges and Flanged Fittings Classes 25, 125, and 250

C. AWWA:
   1. C153 – Ductile-Iron Compact Fittings

1.3 SUBMITTALS

A. Subject to the requirements of Section 01300 - Submittals.

B. Quality Requirements Submittals:
   1. Pipe size, class, and thickness.
   2. Special shipping, storage and protection, and handling instructions.
   3. Test procedures.
   4. Test results, reports, and certifications.

1.4 WARRANTY

A. See Section 00610 - Payment, Performance and Warranty Bond for requirements.

PART 2 - PRODUCTS

2.1 GENERAL

A. Ductile-iron force main pipe shall be provided to conform to materials of construction specified in this section.

B. All force mains shall be installed with tracer wire as specified in Section 33 41 19 – Pipe Laying.

C. Weights and Marking:
   1. Weights of pipe and fittings shall be as specified in ANSI Specifications. The class designations for the various classes of pipe and fittings shall be cast onto fittings in raised numerals, and cast or stamped on the outside of each joint of pipe. Weights shall be plainly and conspicuously painted in white on the outside of each joint of pipe and each fitting after the exterior coating has hardened.

D. Certification:
   1. The Contractor shall upon request furnish the Engineer with certified reports stating that inspection and specified tests have been made and that the results are as specified in ANSI Specifications for each.

2.2 DUCTILE–IRON FORCE MAIN PIPE

A. All pipe and pipe fittings furnished for underground sewer piping shall have either push-on or mechanical type joints.

B. Flanges:
   1. Flanged DIP and DI fittings shall be used only as specified in the Plans.
   2. Flanged pipe and pipe fittings as specified in ANSI/AWWA C115/21.15, Class 250 psi.
   3. Flanged drilling as specified in ANSI B16.1, Class 125 flange.

C. All DIP, 4 in. – 36 in, as specified in:
   1. ANSI/AWWA C150/A21.50 (Thickness Design of Ductile-Iron Pipe).
   2. ANSI/AWWA C151/A21.51 (Ductile-Iron, Centrifugally-Cast for Water).

D. Ductile-iron pipe for force mains shall have a minimum Pressure Class of 350.

E. Standard laying lengths shall be 20 ft plus or minus 1 in, unless otherwise specified.

2.3 FITTINGS FOR DUCTILE–IRON FORCE MAIN

A. All fittings over 3 in. shall be ductile-iron, mechanical joint fittings and shall be as specified in AWWA C153. All fittings shall have a minimum pressure rating of 350 psi and shall be lightweight (compact) fittings unless otherwise shown on the Plans.

B. All fittings shall be furnished with gaskets. MJ fittings shall also be furnished with bolts, nuts, and iron glands. All plugs, caps, tees, and bends deflecting 22 1/2 degrees or more shall be provided with reaction backing.

C. All casting and mating surfaces shall be smooth and of a workmanlike quality, free from cracks, holes, scale, shrinkage, distortion, grooves, scratches, and other defects. Fittings and other castings may be rejected if found to be unacceptable by the Engineer as specified in these sections.

D. Joints shall be mechanical joint, shall be as specified in AWWA C111, and shall be furnished with Mega-lug type retainer glands and gaskets.

E. Special fittings shall be as specified in the pipe manufacturer's recommendations and as approved by the Engineer.

F. All fittings and appurtenances placed on sanitary sewer lines shall meet with the requirements of the type of pipe used and shall be installed as specified in manufacturer's recommendations and as approved by the Engineer.

G. Connections between different kinds of pipe shall be detailed on the Plans and provide self-cleansing sanitary flow and watertight joints and connections.

H. All fittings shall be fusion-bonded epoxy coated inside and outside as specified in ANSI/AWWA C116/A21.16.

I. All valves and fittings (including in-line valves) shall have Megalug style retainer glands or approved equal. Valves, bends, reducers and other hardware near bends shall be positively bolted, all-threaded, or mechanically joined to each other. Bolted includes single and double flanged adapters (such as Foster Adapters or Swivel Adapters) which provide a solid bolted or mechanical joint type connection.

2.4 DUCTILE–IRON PIPE JOINTS

A. Joints shall be mechanical joints (MJ) or push-on type joints as specified in ANSI/AWWA C111/A21.11 (Rubber Gasket Joints for Ductile-Iron Pressure Pipe and Fittings), unless otherwise specified.

B. Joints shall have the same pressure rating of the pipe or fittings of which they are a part.

C. All pipe joints other than those specified herein shall be made as specified in the manufacturer's recommendations and as approved.

D. All joints shall be made watertight as specified in AWWA and ASTM standards.

2.5 GASKETS FOR DUCTILE–IRON JOINTS AND FITTINGS

A. Gaskets shall be made of vulcanized styrene butadiene rubber (SBR).

B. Gaskets shall be marked for nominal pipe size, manufacturer, and year of manufacture.

C. Gaskets shall be as specified in AWWA C111 (Rubber Gasket joints for Ductile-Iron Pressure Pipe and Fittings).

2.6 DUCTILE–IRON JOINT AND FITTING LUBRICANT

A. Lubricant shall be provided by the pipe manufacturer and applied as per the manufacturer's recommendations as specified in ANSI/AWWA C111/A21.11 (Rubber Gasket Joints for Ductile-Iron Pressure Pipe and Fittings).

B. Lubricant shall be nontoxic and shall NOT support the growth of bacteria and have no deteriorating effects on the gasket or pipe material.

C. Lubricant containers shall be appropriately identified and labeled with the manufacturer's name.

D. Each lubricant container shall have printed instructions for usage and joint assembly.

2.7 COATINGS

A. Interior Coatings
1. All ductile-iron pipe for force mains shall receive the following interior lining treatment:
   a. Epoxy Lining:
      1) All DIP and DI fittings shall be lined with a high-build, multicomponent amine-cured novalac epoxy lining, containing at least 20% ceramic quartz pigment, by volume.
      2) The lining system shall be Protecto 401 Ceramic Epoxy as manufactured by Vulcan Painters, Inc.
      3) The lining Applicator shall have a successful history of applying linings to the interior of DIP.
   b. Condition of Ductile-Iron Prior to Surface Preparation:
      1) All DIP and DI fittings shall have a high-build protective lining on the interior. All DIP and DI fittings shall be delivered to the application facility without any lining on the interior surface. As removal of old linings may NOT be possible, the intent of this Specification is that the entire interior of DIP and DI fittings shall NOT have been lined with any substance prior to the application of the lining specified herein.
   c. Surface Preparation:
      1) Prior to abrasive blasting, the entire area to receive the protective compound shall be inspected for oil, grease, and other substances. Any areas where oil, grease, or another substance is detected and can be removed by solvent shall be solvent-cleaned using the guidelines outlined in SSPC-SP-1 (Solvent Cleaning).
      2) After the surface has been made free of grease, oil, and other substances, all areas to receive the protective compounds shall be abrasive blasted with sand or grit abrasive media.
      3) The entire surface to be lined shall be struck with the blast media so that all rust, loose oxides, and other sources of roughness shall be removed from the surface. If rust reappears before coating, the affected areas shall be reblasted.
   d. Lining:
      1) Within eight (8) hours after surface preparation, the interior of the pipe shall receive approximately 40 mils dry film thickness of the protective lining.
      2) Lining shall NOT occur if the substrate or ambient temperature is below 40°F.
      3) The surface shall be dry and dustfree before lining.
      4) The linings shall NOT be used on the face of any flanged pipe or fitting, unless otherwise specified.
      5) All fittings shall be lined with approximately 40 mils of the protective lining. The 40 mils system shall NOT be applied in the gasket grooves.
   e. Coating Gasket and End Spigots:

1) Due to the tolerances involved, the gasket area and exterior spigot end, up to 6 in. back from the end of the spigot end, shall be coated with 6 mils nominal, 10 mils maximum Protecto Joint Compound, or approved equal.
2) This coating shall be applied by brush to ensure coverage. Care shall be taken so the coating is smooth, without excess buildup in the gasket groove or on the spigot end.
3) All materials for the gasket groove and spigot end shall be applied after the application of the lining.

f. Number of Coats:
1) The number of coats of lining material applied shall be as recommended by the lining manufacturer. However, in no case shall this material be applied above the dry thickness per coat recommended by the lining manufacturer in printed literature. The time between coats shall never exceed that time recommended by the lining material manufacturer. No material shall be used for lining which is NOT indefinitely recoatable without roughening of the surface.

g. Touchup and Repair:
1) Protecto Joint Compound, or approved equal, shall be used for touchup or repair. Procedures for touchup and repair shall be as specified in manufacturer's recommendations.

h. Inspection and Certification:
1) Inspection.
2) All DIP and DI fitting linings shall be checked for thickness using a magnetic film thickness gage. The thickness testing shall be as set forth in SSPC-PA-2 (Measurement of Dry Coating Thickness with Magnetic Gages).
3) The interior lining of all pipe and fittings shall be tested for pinholes with a nondestructive 2,500 V test. Any defects shall be repaired prior to shipment.
4) Each pipe joint and fitting shall be marked with the date of application of the lining system and the numerical sequence of application on that date.
5) Certification.
6) The pipe or fitting manufacturer shall supply a certificate attesting that the Applicator met the requirements of these Specifications, the material used was as specified, and the material was applied as required.

B. Exterior Coatings:
1. All ductile-iron pipe shall have an exterior coating as set forth below.
a. Factory Primed Pipe:
1) Unless otherwise shown on the Plans, all exposed pipe and fittings within the limits of structure walls or exposed pipe and fittings located aboveground shall be delivered to the job site factory-blasted, cleaned, and primed with one (1) coat of Tnemec Series N140 Pota-Pox Plus, or approved equal compatible paint system.

b. Bituminous Coating:
1) All pipe and fittings specified for buried service shall have a petroleum asphaltic coating approximately 1 mil thick factory-applied to the outside of all pipe and fittings. The finished coating shall be continuous, smooth, neither brittle when exposed to the cold nor sticky when exposed to the sun, and shall be strongly adherent to the pipe or fitting. The bituminous coating shall NOT be applied to the first 6 in. of the exterior of the spigot ends.

PART 3 - EXECUTION

3.1 GENERAL

A. All pipe and fittings shall be installed as specified in these sections and the Plans.

3.2 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Delivery of Materials:
   1. Products shall be delivered in original, unbroken packages, containers, or bundles bearing the name of the manufacturer.

B. Storage:
   1. Products shall be carefully stored in a manner that shall prevent damage and in an area that is protected from the elements.

C. See Section 01320 - Product Delivery, Storage, and Handling for additional requirements.

3.3 FIELD QUALITY REQUIREMENTS

A. Contractor shall visually inspect all pipe and fittings upon delivery and set aside and damaged or flawed materials and shall NOT install any damaged or flawed material.

B. Contractor shall test for defects and leakage as specified in Section 33 31 23 – Testing Sanitary Sewer Systems.

3.4 INSTALLATION

A. Installation shall be as specified in Section 33 41 19 – Pipe Laying.

B. Pipe trenching as specified in Section 31 23 16.16 – Trenching for Water and Sewer Lines.

C. Pipe bedding and backfill as specified in Section 31 23 23.19 – Trench Bedding and Backfill for Water and Sewer Lines.

D. Pipe connections to concrete manholes and other concrete structures as specified in Section 33 39 13.13 – Pre-Cast Concrete Manholes.

E. Pipe installed within steel encasement as specified Section 33 31 13 – Steel Encasement Pipe.

END OF SECTION

SECTION 33 34 16 – SOLID WALL POLYVINYL CHLORIDE FORCE MAIN PIPE AND FITTINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. The Work necessary to completely furnish and install Polyvinyl Chloride (PVC) force main pipe and related fittings.

B. Related Sections:
   1. Section 31 23 16.16 – Trenching for Water and Sewer Lines
   2. Section 31 23 23.19 – Trench Bedding and Backfill for Water and Sewer Lines
   3. Section 33 31 23 – Testing Sanitary Sewer Systems
   4. Section 33 39 13.13 – Pre-Cast Concrete Manholes
   5. Section 33 31 13 – Steel Encasement Pipe
   6. Section 33 41 19 – Pipe Laying

C. GENERAL
   1. Like items of PVC pipe provided hereinafter shall be the end products of one manufacturer to achieve standardization of appearance, operation, maintenance, and manufacturer's services.
   2. All pipes shall be circular and shall be of the sizes shown on the Plans and/or listed in the Unit Price Schedule. All pipes shall be new. Used pipe is prohibited.
   3. At the discretion of the Engineer, all pipeline and materials are subject to inspection and approval at the plant of the manufacturer.
   4. All materials shall equal or exceed the standards specified herein.
   5. During the process of unloading, all pipe materials shall be inspected by the Contractor and any damaged pipe set aside.
   6. After pipelines are laid, the Contractor shall test for defects and leakage as specified in Section 33 31 23 – Testing Sanitary Sewer Systems.
   7. Inspection of pipe at the manufacturer's plant, at the point of delivery, on the job site, or in place shall NOT relieve the Contractor of his responsibility and the material may be subject to rejection until final acceptance of the completed project.

1.2 REFERENCES

A. AWWA:
   1. C900 – Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings
   2. C905 – Standard for Polyvinyl Chloride (PVC) Water

B. ASTM International:
   1. D1784 – Standard Classification System and Basis for Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds
   2. D3139 – Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals

1.3 SUBMITTALS

A. Subject to the requirements of Section 01300 - Submittals.

B. Quality Requirements Submittals:
   1. Pipe size, class, and thickness.
   2. Special shipping, storage and protection, and handling instructions.
   3. Test procedures.

4. Test results, reports, and certifications.

1.4 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Comply with Section 01320 - Product Delivery, Storage, and Handling.

B. Delivery of Materials:
1. Products shall be delivered in original, unbroken packages, containers, or bundles bearing the name of the manufacturer.

C. Storage:
1. Products shall be carefully stored in a manner that shall prevent damage and in an area that is protected from the elements.

1.5 WARRANTY

A. See Section 00610 - Payment, Performance and Warranty Bond for requirements.

PART 2 - PRODUCTS

2.1 GENERAL

A. PVC force main pipe shall be provided as specified in materials of construction and in this section.

B. All force mains shall be installed with tracer wire as specified in Section 33 41 19 – Pipe Laying.

C. All plastic pipe and couplings shall bear identification markings as specified in AWWA C-900 or C-905 as applicable, which shall include the National Sanitation Foundation seal of approval. In addition, the plain end of each pipe length shall have two rings, 1 in. apart, painted around the pipe at the proper location to allow field checking of the correct setting depth of the pipe in the bell or coupling.

2.2 PVC FORCE MAIN PIPE

A. The material used in making the pipe shall be clean, virgin, Cell Classification 12454 PVC compound as specified in ASTM D1784, Standard Specification of Rigid Polyvinyl Chloride Compounds and Chlorinated Polyvinyl Chloride Compounds.

B. All PVC force main pipe, 4 in. – 48 in, as specified in ANSI/AWWA C900, PVC Pressure Pipe and Fabricated Fitting, 4 in. – 48 in, for Water Distribution.

C. All PVC force main pipe shall a minimum DR of 14 (Pressure-Rated 305 psi).

D. Standard laying lengths shall be 20 ft plus or minus 1 in, unless otherwise specified.

E. Each PVC sewer pipe length shall be clearly marked with the manufacturer’s name, nominal pipe size, cell classification, AWWA/ASTM designation, and SDR.

2.3 FITTINGS FOR PVC FORCE MAIN

A. Shall be as specified in Section 33 34 13 – Ductile Iron Force Main Pipe and Fittings.

2.4 PVC PIPE JOINTS

A. Joints shall be of the push-on, elastomeric gasket type, as specified in ASTM D3139 (Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals), and/or Uni-Bell UNI-B-01 (Recommended Specification for Thermoplastic Pipe Joints, Pressure and Non-Pressure Applications).

B. All bells shall be formed integrally with the pipe and shall contain a positively retained, factory installed elastomeric gasket and have a raceway or groove specially formed to accept and retain the gasket.

C. Wall thickness of the bell at any point shall NOT be less than the required minimum for the pipe barrel. Pipe spigots shall be beveled and have insertion stop marks.

D. The use of solvent cement or chemically welded joints shall NOT be permitted in field construction, except as specifically authorized by the Engineer.

E. All pipe joints other than those specified herein shall be made as specified in manufacturer’s recommendations and by the Engineer.

F. All joints shall be made watertight as specified in the latest applicable AWWA and ASTM standards.

2.5 GASKETS FOR PVC JOINTS AND FITTINGS

A. Gaskets shall be molded or extruded from a high grade, vulcanized, elastomeric compound consisting of either a basic natural or synthetic rubber.

B. Gaskets shall be marked for nominal pipe size, manufacturer, and year of manufacture.

C. Gaskets as specified in ASTM F477 (Elastomeric Seals (Gaskets) for Joining Plastic Pipe) and ASTM D3139.

2.6 PVC JOINT AND FITTING LUBRICANT

A. Lubricant shall be provided by the pipe manufacturer and applied as per the manufacturer’s recommendations.

B. Lubricant shall be nontoxic and shall NOT support the growth of bacteria and have no deteriorating effects on the gasket or pipe material.

C. Lubricant containers shall be appropriately identified and labeled with the manufacturer's name.

D. Each lubricant container shall have printed instructions for usage and joint assembly.

PART 3 - EXECUTION

3.1 GENERAL

A. All pipe and fittings shall be installed as specified in these sections and the Plans.

3.2 FIELD QUALITY REQUIREMENTS

A. Contractor shall visually inspect all pipe and fittings upon delivery and set aside and damaged or flawed materials and shall NOT install any damaged or flawed material.

B. Contractor shall test for defects and leakage as specified in Section 33 31 23 – Testing Sanitary Sewer Systems.

3.3 INSTALLATION

A. Installation shall be as specified in Section 33 41 13 – Pipe Laying.

B. Pipe trenching shall be as specified in Section 31 23 16.16 – Trenching for Water and Sewer Lines.

C. Pipe bedding and backfill shall be as specified in Section 31 23 23.19 – Trench Bedding and Backfill for Water and Sewer Lines.

D. Pipe connections to concrete manholes and other concrete structures shall be as specified in Section 33 39 13.13 – Pre-Cast Concrete Manholes.

E. Pipe installed within steel encasement as specified in Section 33 31 13 – Steel Encasement Pipe.

END OF SECTION

SECTION 33 39 13.13 – PRECAST CONCRETE MANHOLES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Work for the construction of precast manholes. The Contractor shall be responsible for the correct final elevations and slopes of manholes and the proper setting and elevations of manhole rings and covers.

B. Related Sections:
1. Section 03 30 00 – Cast-In-Place Concrete
2. Section 03 60 00 – Grout
3. Section 09 97 26.13 – Interior Coatings
4. Section 09 97 26.23 – Exterior Coatings
5. Section 31 23 16 – Excavation
6. Section 31 22 19 – Grading
7. Section 31 23 23.13 – Fill and Backfill
8. Section 33 31 23 – Testing Sanitary Sewer Systems

C. General Requirements:
1. Manholes of different diameters are required on this project. See the Plans for manhole locations and sizes.
2. The top surface of the barrel shall be constructed truly plumb and level, except where located within roadway limits where it shall match existing slopes and grades, and shall have a light broom finish. There shall be no exposed aggregate on the top edge of the barrel.
3. Manholes where the top elevation is greater than 2 ft above adjacent ground shall use frames and covers as specified in Paragraph 2.5 of this section. Manholes where the top elevation is less than 2 ft above adjacent ground shall use frames and covers as specified in either Paragraph 2.4 or 2.5 of this section, at the Contractor’s discretion.

1.2 REFERENCES:

A. ASTM International:
1. A48 – Standard Specification for Gray Iron Castings
2. C361 – Standard Specification for Reinforced Concrete Low-Head Pressure Pipe
3. C443 – Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets
4. C478 – Standard Specification for Precast Reinforced Concrete Manhole Sections
5. D1248 – Standard Specification for Polyethylene Plastics Extrusion Materials For Wire and Cable
6. C990 – Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants

1.3 SUBMITTALS

A. Section 01300 - Submittals: Procedures for submittals.

B. Certificates:
1. Certify that products meet or exceed specified requirements.

C. Submit design calculations supporting reinforcing, thicknesses, and dimensions proposed for use on this project.

1.4 QUALITY ASSURANCE:

A. Manhole testing is specified in Section 33 31 23 – Testing Sanitary Sewer Systems.

B. Concrete testing is specified in Section 03 30 00 – Cast-In-Place Concrete.

PART 2 - PRODUCTS

2.1 PRECAST MANHOLES

A. Precast manholes as specified in ASTM C478 – Standard Specifications for Precast Reinforced Concrete Manhole Sections

B. The top section shall be an eccentric cone section as specified in ASTM C478.

C. All manhole joints exposed to soil shall be sealed with an external joint wrap material, six 8 in. minimum width. Manhole joints NOT exposed to soil shall be patched with concrete.

D. Manufacturer and Product:
   1. Sealing Systems Inc.; Infi-Shield Seal Wrap
   2. Or Approved Equal.

E. Integral precast floors shall be allowed, subject to the approval of Engineer. Cast-in-place floors shall be allowed.

F. Inverts may be precast or field formed into the base section of the manhole, but in either case, shall meet the proper sewer line gradient and alignment shown in the Plans.

G. Precast concrete manhole sections shall NOT be delivered to the site until the sections are at least ten days old. Two lift holes shall be cast into each cone or riser section for the purpose of handling and placing. The Contractor shall provide and install water plugs into lift holes after laying the sections.

H. Cutouts in the bottom sections shall be appropriate for the pipe being laid:
   1. Bottom sections shall have clear identifying markings to assure they are being used in the right locations.
   2. Suitable openings for the inlet and outlet pipe shall be cored into the base section (and into the riser sections for drop or "pass-through" manholes).
   3. These openings shall be true size, circular, and located as needed to maintain the proper sewer gradient for each manhole.

I. Manufactured pipe-to-manhole connectors shall be installed at each opening to assure a flexible watertight seal of the pipe to the manhole.
   1. The connector shall be specifically designed for the pipe material and size being used on the project.
   2. No adhesives or lubricants shall be employed in the installation of the connector into the manhole.
   3. All stainless-steel parts of the connector shall be totally nonmagnetic Series 304 Stainless except the worm screw for tightening the steel band which shall be Series 305 Stainless. The worm screw shall be torqued by a break-away type torque wrench set for 60 – 70 in/lbs.
   4. The connector shall be installed in the manhole so that it shall have a minimum cover of 3 in. of concrete at all points and as strictly specified in the manufacturer's recommendations.

J. Each manhole shall be made up with as few risers as possible. The joints between risers shall be leak proofed with a mechanical water stop seal as approved by the Engineer and meeting the requirements of ASTM C443 and C361. There shall be a suitable spigot cast into the tongue of each component to contain the seal. The seal shall consist of a supporting compression section and a thin sliding flap which has been pre-lubricated. When the sections are fitted together, the edge of the bell shall encounter the flap which then slides towards the compression section.

K. No more than 8 in. of concentric rings shall be allowed to bring the manhole to finished grade.

2.2 INVERTS

A. Inverts shall be formed as shown on the detail drawings to the grades specified. Manholes with inverts NOT as specified in these grades may be subject to removal and replacement at the Contractor's expense.

B. Concrete for inverts shall be Class A as specified in Section 03 30 00 – Cast-In-Place Concrete.

2.3 STEPS

A. Manhole steps are NOT required and shall NOT be accepted.

2.4 NON–BOLTED FRAMES AND COVERS

A. Frames:
1. Frame material shall be cast iron or ductile iron as specified in ASTM A48, Class 35 or better. The frame shall exhibit a tensile strength of NOT less than 35,000 psi.
2. Frames for standard manholes shall be Deeter 1266 for nontraffic areas and Deeter 1235 A for traffic areas, or approved equal(s), and shall have 4 3/4 in. diameter holes drilled in the bottom flange. The holes shall be centered in the flange and shall be equally spaced 90 degrees apart.
3. Bearing surfaces between the ring and cover shall be machine finished or ground to assure non-rocking fit in any position, and interchangeability.

B. Covers:
1. The cover shall form a water-resistant seal between the frame and manhole cover surface. The cover shall have concealed pick holes and a machined bearing surface on the bottom of the casting. As specified in ASTM A48, Class 35 or better, for Gray Iron. The cover shall have a tensile strength of 35,000 psi.
2. A typical standard manhole cover design shall be Deeter 1266 for nontraffic areas and Deeter 1235-A for traffic areas, or approved equal(s).
3. Covers shall set flush with the rim of the frame and shall have no larger than a 1/8 in. gap between the frame and cover.
4. Bearing surfaces shall be machine finished.
5. Lids shall have "SANITARY SEWER" cast on the surface.

2.5 WATERTIGHT MANHOLE INSERTS

A. This standard covers the furnishing and installation of watertight gasketed manhole inserts in the sanitary sewer collection system.
1. Materials (Stainless Steel)
   a. Stainless steel inserts shall be installed at locations with outfall pipe diameters greater than 15 in. and as directed by the Engineer.
   b. Stainless steel inserts:

1) TETHERLOK stainless steel Rainstopper
by Southwestern Packing and Seals, Inc.
2) Or Approved Equal.

c. Insert shall be constructed of 304 stainless steel

2.6 HINGED MANHOLE FRAMES AND COVERS

A. Covers and frames as specified in ASTM A48, Class 35 or better, for Gray Iron or equivalent ISO standard. Contractor shall provide verification of equivalency.

B. Covers shall be hinged and incorporate a 90-degree blocking system to prevent accidental closure.

C. Covers shall be one man operable using standard tools.

D. Frames shall be circular with a 22 in. clear opening.

E. The frame depth shall NOT exceed 4 in, and the flange shall incorporate bedding slots, bolt holes and lifting eyes.

F. Lids shall be lockable and lock/unlock hardware and tools shall be provided with each lid.

G. Lids shall have "SANITARY SEWER" cast on the surface.

2.7 COATING

A. The manhole shall be coated as specified in the Owner's Standard Construction Specifications.

2.8 MANHOLE FRAME SEALS:

A. The material for the seals between the frames and concrete shall be a bitumastic gasket material, meeting, or exceeding ASTM C990. Bitumastic gasket material shall be Ram-Nek, EZ-STIK, or approved equal.

2.9 PIPE CONNECTIONS

A. Manufactured pipe-to-manhole connectors shall be installed at each opening to assure a flexible watertight seal of the pipe to the manhole.

B. The connector shall be capable of a 7-degree pipe deflection after installation without loss of sealing.

C. The connector shall be manufactured expressly for embedment in the wall of concrete manholes and shall be specifically designed for the pipe material and size being utilized on the project.

D. No adhesives or lubricants shall be employed in the installation of the connector into the manhole.

E. All stainless-steel parts of the connector shall be totally nonmagnetic Series 304 Stainless except the worm screw for tightening the steel band which shall be Series 305 Stainless. The worm screw shall be torqued by a break-away type torque wrench set for 60 in/lbs. – 70 in/lbs.

F. The connector shall be installed in the manhole so that it shall have a minimum cover of 3 in. of concrete at all points and as strictly specified in the manufacturer's recommendations.

2.10 STRUCTURAL GROUT

A. Grout proposed for use to adjust manhole rings to critical grades, such as those located in streets or parking lots, as specified in Section 03 60 00 – Grout.

PART 3 - EXECUTION

3.1 MANHOLE CONSTRUCTION

A. Excavate to planned depth as specified in Section 31 23 16 – Excavation.

B. Place and compact 8 in. of Class 7, Type A aggregate.

C. Place Concrete Base.

D. Place precast manhole as specified in manufacturer's recommendations, plumb, and to grade.

E. Plug lifting holes on inside and outside. Grout lift holes on both sides.

F. Manhole ring may be cast into top section or may be cast-in-place.

G. Place Concrete and Form Invert.

H. Bolt manhole frame to manhole as specified in Details.

I. Install Exterior Manhole Coating.

J. Backfill as specified in Section 31 23 23.13 – Fill and Backfill.

K. Test manhole as specified in Section 33 31 23 – Testing Sanitary Sewer Systems.

L. Install manhole coating as specified in Section 09 97 26.13 – Interior Coatings and in Section 09 97 26.23 – External Coatings.

M. Clean the manhole frame of all dirt and debris before placing the manhole insert on the rim. The manhole insert shall be fully seated around the manhole frame rim to retard water from seeping between the cover and the manhole frame rim.

END OF SECTION

SECTION 33 39 23.13 – SANITARY WASTE AND VENT PIPING

PART 1 - GENERAL

1.1 SUMMARY

A. Soil, waste, and vent piping inside the building:
   1. Pipe, tube, and fittings.
   2. Special pipe fittings.
   3. Cleanouts.
   4. Floor drains.
   5. Mud Valves
   6. Miscellaneous sanitary drainage piping specialties.
   7. Flashing materials.

B. Related Sections:
   1. Section 31 23 16 – Excavation
   2. Section 31 23 16.13 – Trenching for Site Utilities
   3. Section 31 23 23.13 – Fill and Backfill

1.2 REFERECNCES

A. ASTM International:
   1. D2665 – Standard Specification for Polyvinyl Chloride Plastic Drain, Waste, and Vent Pipe and Fittings
   2. D3311 – Standard Specification for Drain, Waste, and Vent Plastic Fittings Patterns
   3. A74 – Standard Specification for Cast-Iron Soil-Pipe and Fittings
   4. C564 – Standard Specification for Rubber Gaskets for Cast-Iron Soil-Pipe and Fittings
   5. B749 – Standard Specification for Lead and Lead Alloy Strip, Sheet, and Plate Products
   6. B152/B152M – Standard Specification for Copper Sheet, Strip, Plate, and Rolled Bar
   7. A653/A653M – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
   8. D4068 – Standard Specification for Chlorinated Polyethylene Sheeting for Concealed Water-Containment Membrane
   9. B32 – Standard Specification for Solder Metal

B. AWWA:
   1. C110 – Ductile-Iron and Gray-Iron Fittings
   2. C153 – Ductile-Iron Compact Fittings
   3. C111 – Rubber-Gasket Joints for Ductile-Iron

C. ASME:
   1. A112.36.2M – Cleanouts

1.3 DEFINITIONS

A. LLDPE: Linear, low-density polyethylene plastic.

B. PE: Polyethylene plastic.

C. PVC: Polyvinyl chloride plastic.

1.4 SUBMITTALS

A. Subject to the requirements of Section 01300 - Submittals.

B. Product Data:
   1. For pipe, tube, fittings, and couplings.
   2. Cleanouts
   3. Floor Drains
   4. Mud Valves
   5. Gradation Plan as specified in Drawings
   6. Field quality requirements inspection and test reports

C. Quality Assurance
   1. Piping materials shall bear label, stamp, or other markings of specified testing agency.
   2. Comply with NSF 14, "Plastics Piping Systems Components and Related Materials," for plastic piping components. Include marking with "NSF-dwv" for plastic drain, waste, and vent piping; "NSF-drain" for plastic drain piping; "NSF-tubular" for plastic continuous waste piping; and "NSF-sewer" for plastic sewer piping.

1.5 PERFORMANCE REQUIREMENTS

A. Components and installation shall be capable of withstanding a minimum working pressure of, unless otherwise specified:
   1. Soil, Waste, and Vent Piping: 10 ft head of water.

1.6 COORDINATION

A. Coordinate size and location of roof penetrations.

1.7 WARRANTIES

A. See Section 00610 - Bonds for requirements.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers are subject to compliance with requirements, provide products by ONE of the manufacturers specified.

B. Acceptable Manufacturers:
   1. Charlotte Pipe
   2. Or approved equal.

2.2 PIPING MATERIALS

A. Refer to Part 3 "Piping Applications" Article for applications of pipe, tube, fitting, and joining materials.

2.3 PVC PIPE AND FITTINGS

A. Solid-Wall PVC Pipe:
   1. ASTM D2665, drain, waste, and vent.
   2. PVC Socket Fittings: ASTM D2665, socket type, made to ASTM D3311, drain, waste, and vent patterns.

B. Cellular-Core PVC Pipe:
   1. ASTM F891, Schedule 40.

2. PVC Socket Fittings: ASTM D2665, made to ASTM D3311, drain, waste, and vent patterns and to fit Schedule 40 pipe.

C. Solvent Cement and Adhesive Primer:
1. Use PVC solvent cement that has a VOC content of 510 g/L or less when calculated as specified in 40 CFR 59, Subpart D (EPA Method 24).
2. Use adhesive primer that has a VOC content of 550 g/L or less when calculated as specified in 40 CFR 59, Subpart D (EPA Method 24).

2.4 SPECIAL PIPE FITTINGS

A. Wall-Penetration Fittings:
1. Compound, ductile-iron coupling fitting with sleeve and flexing sections for up to 20 degrees of deflection, gaskets, and restrained-joint ends as specified in AWWA C110 or AWWA C153. Include AWWA C111, ductile-iron glands, rubber gaskets, and steel bolts.
2. Manufacturers:
a. SIGMA Corp.

2.5 CLEANOUTS

A. Exposed Plastic Cleanouts:
1. Manufacturers:
a. Josam Company; Josam Div
b. MIFAB, Inc
c. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc
d. Tyler Pipe; Wade Div
e. Watts Drainage Products Inc
f. Zurn Plumbing Products Group; Specification Drainage Operation
2. Size:
a. Same as connected drainage piping.
3. Body Material: PVC to match connected piping.
4. Closure: Countersunk, brass plug.
5. Closure Plug Size: Same as or NOT more than one size smaller than cleanout size.

B. Metal Floor Cleanouts:
1. Manufacturers:
a. Josam Company; Josam Div.
b. Oatey.
c. Sioux Chief Manufacturing Company, Inc.
d. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.
e. Tyler Pipe; Wade Div.
f. Watts Drainage Products Inc.
g. Zurn Plumbing Products Group; Light Commercial Operation.
h. Zurn Plumbing Products Group; Specification Drainage Operation.
2. Standard: ASME A112.36.2M for threaded, adjustable housing cleanout.
3. Size: Same as connected branch.
4. Type: Threaded, adjustable housing.
5. Body or Ferrule: Cast-iron.
6. Clamping Device: NOT required.
7. Outlet Connection: Threaded.
8. Closure: Brass plug with straight threads and gasket.
9. Adjustable Housing Material: Cast-iron with threads.
10. Frame and Cover Material and Finish: Nickel-bronze, copper alloy.
11. Frame and Cover Shape: Round.
12. Top Loading Classification: Medium Duty.
13. Riser: ASTM A74, Service class, cast-iron drainage pipe fitting and riser to cleanout.

2.6 FLOOR DRAINS

A. Cast-Iron Floor Drains:
   1. Manufacturers:
      a. Commercial Enameling Co.
      b. Josam Company; Josam Div.
      c. MIFAB, Inc.
      d. Prier Products, Inc.
      e. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.
      f. Tyler Pipe; Wade Div.
      g. Watts Drainage Products Inc.
      h. Zurn Plumbing Products Group; Light Commercial Operation.
      i. Zurn Plumbing Products Group; Specification Drainage Operation.
   2. Floor Drain Design: See Schedule on Drawings

2.7 MUD VALVES

A. Cast-Iron Mud Valves:
   1. Manufacturers:
      a. Troy Valve
   2. Mud Valve Design: Flanged frame style with cast-Iron body, bronze disk ring, resilient seat ring, and non-rising stem.

2.8 MISCELLANEOUS SANITARY DRAINAGE PIPING SPECIALTIES

A. Open Drains:
   1. Description: Shop or field fabricate from ASTM A74, Service class, hub-and-spigot, cast-iron, soil-pipe fittings. Include P-trap, hub-and-spigot riser section; and where required, increaser fitting joined with ASTM C564, rubber gaskets.
   2. Size: Same as connected waste piping.

B. Deep-Seal Traps:
   1. Description: With inlet and outlet matching connected piping and cleanout trap-seal primer valve connection.
   2. Size: Same as connected waste piping.
      a. NPS 2: 4 in. minimum water seal.
      b. NPS 2 1/2 and Larger: 5 in. minimum water seal.

C. Floor Drain, Trap-Seal Primer Fittings:
   1. Description: With threaded inlet and threaded or spigot outlet, and trap-seal primer valve connection.
   2. Size: Same as floor drain outlet with NPS 1/2 side inlet.

D. Airgap Fittings:
   1. Standard: ASME A112.1.2, for fitting designed to ensure fixed, positive airgap between installed inlet and outlet piping.
   2. Body: Bronze or cast-iron.
   3. Inlet: Opening in top of body.
   4. Outlet: Larger than inlet.
   5. Size: Same as connected waste piping and with inlet large enough for associated indirect waste piping.

2.9 FLASHING MATERIALS

A. Lead Sheet:

1. ASTM B749, Type L51121, copper bearing, with the following minimum weights and thicknesses, unless otherwise specified:
2. General Use: 4.0 psi, 0.0625 in. thickness.
3. Vent Pipe Flashing: 3.0 psi, 0.0469 in. thickness.
4. Burning: 6 lb. psi, 0.0938 in. thickness.

B. Copper Sheet:
1. ASTM B152, of the following minimum weights and thicknesses, unless otherwise specified:
   a. General Applications: 12 oz./ft^2.
   b. Vent Pipe Flashing: 8 oz./ft^2.

C. Zinc-Coated Steel Sheet:
1. ASTM A653, with 0.20% copper content and 0.04 in. minimum thickness, unless otherwise specified. Include G90 hot-dip galvanized, mill-phosphatized finish for painting if specified.

D. Elastic Membrane Sheet:
1. ASTM D4068, flexible, chlorinated polyethylene, 40 mil minimum thickness.

E. Fasteners:
1. Metal compatible with material and substrate being fastened.

F. Metal Accessories:
1. Sheet metal strips, clamps, anchoring devices, and similar accessory units required for installation; matching or compatible with material being installed.

G. Solder:
1. ASTM B32, lead-free alloy.

H. Bituminous Coating:
1. SSPC-Paint 12, solvent-type, bituminous mastic.

PART 3 - EXECUTION

3.1 EXCAVATION

A. Refer to Division 31 – Earthwork for excavating, trenching, and backfilling.

3.2 PIPING APPLICATIONS

A. Flanges and unions may be used on aboveground pressure piping, unless otherwise specified.

B. Aboveground, soil and waste piping shall be any of the following:
1. Cellular-core or Solid-wall PVC pipe, PVC socket fittings, and solvent-cemented joints.

C. Aboveground, vent piping shall be any of the following:
1. Cellular-core or Solid-wall PVC pipe, PVC socket fittings, and solvent-cemented joints.

D. Underground, soil, waste, and vent piping shall be any of the following:
1. Cellular-core or Solid-wall PVC pipe, PVC socket fittings, and solvent-cemented joints.

3.3 PIPING INSTALLATION

A. Sanitary sewer piping outside the building is specified in Division 31.

B. Basic piping installation requirements are specified in Section 23 05 00 – Common Work Results for Mechanical.

C. Install cleanouts at grade and extend to where building sanitary drains connect to building sanitary sewers.

D. Install cast-iron sleeve with water stop and mechanical sleeve seal at each service pipe penetration through foundation wall. Select number of interlocking rubber links required to make installation watertight. Sleeves and mechanical sleeve seals are specified in Section 23 05 00 – Common Work Results for Mechanical.

E. Install wall-penetration fitting at each service pipe penetration through foundation wall. Make installation watertight.

F. Make changes in direction for soil and waste drainage and vent piping using appropriate branches, bends, and long-sweep bends. Sanitary tees and short-sweep 1/4 bends may be used on vertical stacks if change in direction of flow is from horizontal to vertical. Use long-turn, double Y-branch and 1/8 bend fittings if 2 fixtures are installed back to back or side by side with common drain pipe. Straight tees, elbows, and crosses may be used on vent lines. DO NOT change direction of flow more than 90 degrees. Use proper size of standard increasers and reducers if pipes of different sizes are connected. Reducing size of drainage piping in direction of flow is prohibited.

G. Lay buried building drainage piping beginning at low point of each system. Install true to grades and alignment specified, with unbroken continuity of invert. Place hub ends of piping upstream. Install required gaskets as specified in manufacturer's written instructions for use of lubricants, cements, and other installation requirements. Maintain swab in piping and pull past each joint as completed.

H. Install soil and waste drainage and vent piping at the following minimum slopes, unless otherwise specified:
   1. Horizontal piping NPS 3 and smaller: 1/4 in/ft downward in the direction of flow.
   2. Horizontal piping NPS 4 and larger: 1/8 in/ft downward in the direction of flow.
   3. Vent Piping: 1 percent down toward vertical fixture vent or toward vent stack.

I. Install PVC soil and waste drainage and vent piping as specified in ASTM D2665.

J. Install underground PVC soil and waste drainage piping as specified in ASTM D2321.

K. DO NOT install PVC piping in return or supply plenums.

L. DO NOT enclose, cover, or put piping into operation until it is inspected and approved by authorities having jurisdiction.

M. Install cleanouts in aboveground piping and building drain piping, unless otherwise specified:
   1. Size same as drainage piping up to NPS 4. Use NPS 4 for larger drainage piping unless larger cleanout is specified.
   2. Locate at each change in direction of piping greater than 45 degrees.
   3. Locate at minimum intervals of 80 feet for piping NPS 4 and smaller and 200 feet for larger piping.
   4. Locate at base of each vertical soil and waste stack.

N. For floor cleanouts for piping below floors, install cleanout deck plates with top flush with finished floor or as specified in Drawings.

O. For cleanouts located in concealed piping, install cleanout wall access covers, of types specified, with frame and cover flush with finished wall.

P. Install floor drains at low points of surface areas to be drained. Set grates of drains flush with finished floor, unless otherwise specified.
   1. Position floor drains for easy access and maintenance.
   2. Set floor drains below elevation of surrounding finished floor to allow floor drainage. Set with grates depressed as specified in drainage area radii:
   3. Install floor drain flashing collar or flange so no leakage occurs between drain and adjoining flooring. Maintain integrity of waterproof membranes where penetrated.
   4. Install individual traps for floor drains connected to sanitary building drain, unless otherwise specified.

Q. Install roof flashing assemblies on sanitary stack vents and vent stacks that extend through roof.

R. Install deep-seal traps on floor drains and other waste outlets, if specified.

S. Install floor drain, trap-seal primer fittings on inlet to floor drains that require trap-seal primer connection.

T. Install airgap fittings on draining-type backflow preventers and on indirect waste piping discharge into sanitary and roof drainage systems.

U. Install treated wood-blocking reinforcement for wall-mounting-type specialties.

V. Install traps on plumbing specialty drain outlets. Omit traps on indirect wastes unless trap is specified.

W. Install escutcheons at wall, floor, and ceiling penetrations in exposed finished locations and within cabinets and millwork. Use deep-pattern escutcheons if required to conceal protruding pipe fittings.

3.4 JOINT CONSTRUCTION

A. Basic piping joint construction requirements are specified in Section 23 05 00 – Common Work Results for Mechanical.

B. PVC Non-pressure Piping Joints:
   1. Join piping as specified in ASTM D2665.

3.5 HANGER AND SUPPORT INSTALLATION

A. Install:
   1. Vertical Piping: MSS Type 8 or Type 42, clamps.
   2. Install individual, straight, horizontal piping runs as specified:
      a. 100 Feet and Less: MSS Type 1, adjustable, steel clevis hangers.
      b. Longer Than 100 Feet: MSS Type 43, adjustable roller hangers.
      c. Longer Than 100 Feet, if specified: MSS Type 49, spring cushion rolls.
   3. Multiple, Straight, Horizontal Piping Runs 100 Feet or Longer: MSS Type 44, pipe rolls. Support pipe rolls on trapeze.
   4. Base of Vertical Piping: MSS Type 52, spring hangers.

B. Support vertical piping and tubing at base and at each floor.

C. Rod diameter may be reduced 1 size for double-rod hangers, with 3/8 in. minimum rods.

D. Install hangers for PVC piping with the following maximum horizontal spacing and minimum rod diameters:
   1. NPS 1 1/2 and NPS 2: 48 in. with 3/8 in. rod.
   2. NPS 3: 48 in. with 1/2 in. rod.
   3. NPS 4 and 5: 48 in. with 5/8 in. rod.
   4. NPS 6: 48 in. with 3/4 in. rod.
   5. NPS 8 to NPS 12: 48 in. with 7/8 in. rod.

E. Install supports for vertical PVC piping every 48 in.

F. Support piping and tubing NOT listed above as specified in MSS SP-69 and manufacturer's written instructions.

3.6 CONNECTIONS

A. Drawings specify general arrangement of piping, fittings, and specialties.

B. Connect soil and waste piping to exterior sanitary sewerage piping. Use transition fitting to join dissimilar piping materials.

C. Connect drainage and vent piping to the following:
   1. Plumbing Fixtures: Connect drainage piping in sizes specified, but NOT smaller than required by plumbing code.
   2. Plumbing Fixtures and Equipment: Connect atmospheric vent piping in sizes specified, but NOT smaller than required by authorities having jurisdiction.
   3. Plumbing Specialties: Connect drainage and vent piping in sizes specified, but NOT smaller than required by plumbing code.
   4. Equipment: Connect drainage piping as specified. Provide shutoff valve, if specified, and union for each connection. Use flanges instead of unions for connections NPS 2 1/2 and larger.

3.7 FLASHING INSTALLATION

A. Fabricate flashing from single piece unless large pans, sumps, or other drainage shapes are required. Join flashing as specified, if required:
   1. Lead Sheets: Burn joints of lead sheets 6.0 psi, 0.0938 in. thickness or thicker. Solder joints of lead sheets 4.0 psi., 0.0625 in. thickness or thinner.
   2. Copper Sheets: Solder joints of copper sheets.

B. Install sheet flashing on pipes, sleeves, and specialties passing through or embedded in floors and roofs with waterproof membrane.
   1. Pipe Flashing: Sleeve type, matching pipe size, with minimum length of 10 in, and skirt or flange extending at least 8 in. around pipe.
   2. Sleeve Flashing: Flat sheet, with skirt or flange extending at least 8 in. around sleeve.
   3. Embedded Specialty Flashing: Flat sheet, with skirt or flange extending at least 8 in. around specialty.

C. Set flashing on floors and roofs in solid coating of bituminous cement if required.

D. Secure flashing into sleeve and specialty clamping ring or device.

E. Extend flashing up vent pipe passing through roofs and turn down into pipe, or secure flashing into cast-iron sleeve having calking recess.

3.8 PROTECTION

A. Protect drains during remainder of construction period to avoid clogging with dirt or debris and to prevent damage from traffic or construction work.

B. Place plugs in ends of uncompleted piping at end of each day or when work stops.

3.9 FIELD QUALITY REQUIREMENTS

A. During installation, notify authorities having jurisdiction at least 24 hours before inspection shall be made. Perform tests specified below in presence of authorities having jurisdiction.
   1. Roughing-in Inspection: Arrange for inspection of piping before concealing or closing-in after roughing-in and before setting fixtures.
   2. Final Inspection: Arrange for final inspection by authorities having jurisdiction to observe tests specified below and to ensure compliance with requirements.

B. Reinspection:
   1. If authorities having jurisdiction find that piping shall NOT pass test or inspection, make required corrections, and arrange for reinspection.

C. Reports:
   1. Prepare inspection reports and have them signed by authorities having jurisdiction.

D. Test sanitary drainage and vent piping as specified procedures of authorities having jurisdiction or, in absence of published procedures:
   1. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired. If testing is performed in segments, submit separate report for each test, complete with diagram of portion of piping tested.
   2. Leave uncovered and unconcealed new, altered, extended, or replaced drainage and vent piping until it has been tested and approved. Expose work that was covered or concealed before it was tested.
   3. Roughing-in Plumbing Test Procedure: Test drainage and vent piping, except outside leaders, on completion of roughing-in. Close openings in piping system and fill with water to point of overflow, but NOT less than 10 ft head of water. From 15 minutes before inspection starts to completion of inspection, water level shall NOT drop. Inspect joints for leaks.
   4. Finished Plumbing Test Procedure: After plumbing fixtures have been set and traps filled with water, test connections and prove they are gastight and watertight. Plug vent-stack openings on roof and building drains where they leave building. Introduce air into piping system equal to pressure of 1 in. wg. Use U-tube or manometer inserted in trap of water closet to measure this pressure. Air pressure shall remain constant without introducing additional air throughout period of inspection. Inspect plumbing fixture connections for gas and water leaks.
   5. Repair leaks and defects with new materials and retest piping, or portion thereof, until satisfactory results are obtained.
   6. Prepare reports for tests and required corrective action.

3.10 CLEANING

A. Clean Interior of Piping:
   1. Remove dirt and debris as work progresses.

B. Protect drains during remainder of construction period to avoid clogging with dirt and debris and to prevent damage from traffic and construction work.

C. Place plugs in ends of uncompleted piping at end of day and when work stops.

END OF SECTION

SECTION 33 41 19 – PIPE LAYING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section Includes:
   1. the Work necessary to install gravity sewer, force main pipe, water pipe and appurtenances.

B. Related Sections:
   1. Section 31 23 16.16 – Trenching for Water and Sewer Lines
   2. Section 31 23 23.19 – Trench Bedding and Backfill for Water and Sewer Lines
   3. Section 33 31 23 – Testing Sanitary Sewer Systems
   4. Section 33 39 13.13 – Pre-Cast Concrete Manholes
   5. Section 33 31 13 – Steel Encasement Pipe
   6. Section 33 34 13 – Ductile Iron Force Main Pipe and Fittings
   7. Section 33 34 16 – Solid Wall PVC Force Main Pipe and Fittings

1.2 WARRANTIES

A. See Section 00610 - Bonds for requirements.

PART 2 - PRODUCTS

2.1 GENERAL

A. All pipe materials shall be as specified on the Plans and conforming to these specifications.

2.2 WARNING TAPE

A. Nonmetallic sanitary sewer marking tape shall be warning tape.

B. Acceptable Manufacturer:
   1. Rhino Marking and Protection Systems
   2. Harris Industries, Inc.
   3. Or Approved Equal.

C. Tape shall have a minimum thickness of 4 mils and manufactured with heavy metal-free polyethylene tape that is impervious to all known alkalis, acids, chemical reagents, and solvents found in soil. The minimum overall width of the tape shall NOT be less than 3 in. Standard rolls shall be 1000’ length.

D. The tape for sewer lines shall be color coded GREEN and imprinted with the message:
   1. Caution Buried Sewer Line Below.

E. The tape for water lines shall be color coded BLUE and imprinted with the message:
   1. Caution Buried Water Line Below.

2.3 TRACER WIRE

A. Tracer wire shall be 12 GA, stranded coated copper for underground burial.

B. Jacket color shall be GREEN, and made of High Density Polyethylene (HDPE) or High Molecular Weight Polyethylene (HMWPE) designed for direct burial.

C. Connectors shall be used for all splices or repairs. Connectors shall be moisture displacement style.

D. Acceptable Manufacturer:
   1. 3M Co.; 3M DBR
   2. Or Approved Equal.

E. A locate or conductivity test shall be performed prior to signing off on the project.

2.4 PIPE BEDDING AND BACKFILL

A. Shall be as specified in 31 23 23.19 – Trench Bedding and Backfill for Water and Sewer Lines.

PART 3 - EXECUTION

3.1 GENERAL

A. All pipe, fittings, bedding, backfill, and all other appurtenances shall be installed as specified in these sections and the Plans.

3.2 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Comply with Section 01320 - Product Delivery, Storage, and Handling.

B. Delivery of Materials:
   1. Products shall be delivered in original, unbroken packages, containers, or bundles bearing the name of the manufacturer.

C. Storage:
   1. Products shall be carefully stored in a manner that will prevent damage and in an area that is protected from the elements.

D. Pipe and accessories shall be handled in such a manner that will ensure their condition after installation to be sound and undamaged. Equipment, tools, and methods used in unloading, reloading, hauling, and laying pipe and fittings shall be such that they are NOT damaged. Under no circumstances shall loading forks, or other equipment, be inserted into the barrel of the pipe or fitting.

E. Pipe having pre-molded joint rings shall be handled in such a manner that no weight, including the weight of the pipe itself, will bear on or be supported by the spigot rings at any time. Care shall be taken to avoid dragging the spigot ring on the ground or allowing it to encounter gravel, crushed stone, rocks, or other hard objects. Joint rings which have been damaged in any way will NOT be accepted and shall NOT be incorporated in the work.

3.3 FIELD QUALITY REQUIREMENTS

A. Provide skilled workmen to insure embedment of pipe.

B. Contractor shall test for defects and leakage as specified in Section 33 31 23 – Testing Sanitary Sewer Systems.

3.4 TRACE WIRE

A. Regardless of pipe material, a trace wire shall be laid on top of the pipe and shall be looped around the pipe at least once every 10 ft and connected to all valves and fittings. At valves, the

trace wire shall be brought up into the valve box as specified in the Plans. A tracing test of trace wire will be required prior to final acceptance.

3.5 PIPE DETECTION TAPE

A. Pipe detection tape shall be provided in all trenches for force main and water line construction. Installation shall be per manufacturer's recommendations and shall be as close as practical to finished grade while maintaining a required minimum of 18 in. between the detection tape and the top of any pipe.

3.6 LAYING PIPE

A. Proper means and equipment shall be used for lowering pipe into the trenches.

B. The Contractor shall have full responsibility for any diversion of drainage and for dewatering trenches.

C. Recesses for the pipe bells are mandatory and shall be hand excavated so that the entire pipe barrel is uniformly supported by the bedding material.

D. Pipe shall be protected from lateral displacement by means of pipe embedment material installed as provided in this specification. Under no circumstances shall pipe be laid in water and no pipe shall be laid under unsuitable weather or trench conditions.

E. When jointed in the trench, the pipe shall form a true and smooth line. Pipe shall NOT be trimmed except for closures, and pipe NOT making a good fit shall be removed.

F. Unless otherwise approved by the Engineer, the laying of pipe shall begin at the lowest point, and the pipe shall be installed so that the spigot ends point in the direction of flow.

G. Pipe which is a part of a gravity sewer line shall be aligned and constructed to grades as specified in the plans. Lines NOT conforming to theses grades shall be subject to removal and replacement at the Contractor’s expense. Force main pipe shall match the horizontal alignment and shall closely match the grades specified in the Plans.

H. Pipe lines or runs intended to be straight shall be laid straight.

I. During installation, each pipe and fitting shall be inspected for defects. All defective, damaged, or unsound pipe and fittings shall be rejected and removed from the site of the work.

J. Dependent on type of application, gravity or pressure, place thrust blocking at all pipe fittings, including bends and reducers, as specified in the Plans.

K. Prior to joining the pipe, the plain ends of the pipe and the bells of the pipe shall be thoroughly cleaned using a soapy water and cloth, removing all foreign materials from the bells, especially the gasket seats. Any burrs or imperfections in that part of the plain end or bell which will be in contact with the gasket shall be removed.

L. The clean gasket shall be inserted in the bell and a thin film of lubricant shall be applied to the inside surface of the gasket.

M. The cleaned plain end shall initially be entered in the bell straight. The plain end shall be forced inside the gasket and bell until the limit mark is just visible. The pipe may then be deflected as allowed by the manufacturer.

N. Lubricants shall be supplied by the pipe manufacturer in sufficient quantities. No substitutes shall be made.

O. The Contractor shall furnish such jacks, or other devices as are necessary for forcing the pipe into the bell and gasket. Care shall be exercised to avoid damage to the pipe where the pushing device or machine part contacts the pipe. A wood block or suitable pad shall be placed between the pipe and that part of the pushing device which contacts the pipe.

P. All plain ends that enter a push on bell shall be beveled at 30 degrees for at least 1/8 in. All cut pieces or ends of pipe of other classifications shall be so beveled.

3.7 PIPE BEDDING NONFERROUS PIPE

A. Nonferrous pipes include PVC, Polyethylene, and FRP.

B. Bedding material shall be as specified in Section 31 23 23.19 – Trench Bedding and Backfill for Water and Sewer Lines.

C. Place 6 in, minimum, of bedding between excavated trench bottom or stabilized trench bottom and bottom of pipe or fitting. Provide depression in bedding for joints so that barrel of pipe or fitting rests on bedding. Place bedding in 6 in. maximum layers, compacted to 95% standard maximum density, to 6 in. over the top of pipe and fittings.

D. Ensure bedding is contacted with the pipe in all directions, and no portion of the bedding is compacted to less than specified density, particularly the area below the springline of the pipe.

E. Place bedding a minimum of 6 in. over the top of pipe and fittings. Bedding shall be compacted to 95% maximum density.

F. For areas undercut, whether by Contractor’s negligence or by direction of Engineer, provide and place crushed aggregate, compacted to 95% standard maximum density, to bottom elevation of pipe bedding.

G. When used, the bottom of trench boxes will be above the level of pipe bedding before bedding is compacted. In no case shall pipe bedding be compacted against the trench box or before the trench box is raised to allow compaction of bedding.

3.8 PIPE BEDDING DUCTILE IRON PIPE

A. Bedding material shall be as specified in Section 31 23 23.19 – Trench Bedding and Backfill for Water and Sewer Lines.

B. Place 6 in, minimum, of bedding between excavated trench bottom or stabilized trench bottom and bottom of pipe or fitting. Provide depression in bedding for joints so that barrel of pipe or fitting rests on bedding. Place bedding in 6 in. maximum layers, compacted to 95% standard maximum density, to a minimum total depth of 3/4 (75%) of the outside diameter of the pipe as specified in Drawings.

C. Bedding is an integral part of the pipe installation. Therefore, particular care shall be given to insure that bedding is in intimate contact with the pipe in all directions and that no portion of the bedding shall be compacted to less than the specified density, particularly the area below the springline of the pipe.

D. For areas undercut, whether by Contractor's negligence or by direction of Engineer, provide and place crushed aggregate, compacted to 95% standard maximum density, to bottom elevation of pipe bedding.

E. When used, the bottom of trench boxes will be above the level of pipe bedding before bedding is compacted. In no case shall pipe bedding be compacted against the trench box or before the trench box is raised to allow compaction of bedding.

3.9 TRENCH BACKFILL

A. Shall be as specified in Section 31 23 23.19 – Trench Bedding and Backfill for Water and Sewer Lines.

3.10 ALIGNMENT AND GRADE

A. All pipe shall be laid straight between changes in alignment, except as specified in the Plans, and at a uniform grade between changes in grade. All lines shall be laid so that each section between manholes will lamp.

3.11 JOINTING

A. Boltless Gasketed Joints:
1. All instructions and recommendations of the pipe manufacturer, relative to gasket installation and other jointing operations, shall be observed and followed by the Contractor. All joint surfaces shall be lubricated as recommended by the manufacturer immediately before the joint is completed.

B. Mechanical Joints:
1. Mechanical joints shall be carefully assembled as specified in manufacturer's recommendations. If effective sealing is NOT obtained, the joint shall be disassembled, thoroughly cleaned, and reassembled. Overtightening bolts to compensate for poor installation practice shall NOT be permitted.

3.12 CUTTING PIPE

A. Cutting of pipe shall be done in a neat manner, without damage to the pipe or to the lining. Pipe cuts shall be smooth, straight and at right angles to the pipe axis. All cutting of pipe shall be done with mechanical pipe cutters of an approved type except that in locations where the use of mechanical cutters would be difficult or impracticable, existing pipe may be cut with diamond point chisels, saws, or other tools which will cut the pipe without damaging impact or shock.

3.13 CLEANING

A. The interior of all pipe shall be cleaned of all foreign matter before being installed and shall be kept clean until the work has been accepted. All lumps, blisters and excess coating shall be removed from exterior spigot and interior bell surfaces. Such surfaces shall be wire brushed and wiped clean, dry, and free from oil and grease before placing the spigot in the bell. All joint contact surfaces shall be kept clean until the jointing is completed.

B. Every precaution shall be taken to prevent foreign material from entering the pipe while it is being installed. No debris, tools, clothing, or other materials shall be placed in the pipe.

C. Whenever pipe laying is stopped, the open end of the line shall be sealed with a watertight plug.

3.14 WATER AND SEWER LINE CROSSINGS

A. Water and sewer lines crossing one another shall have a minimum 24 in. vertical separation.

B. In general water lines shall be above sewer lines, however if water line cannot be above sewer line because of cover limitations or other obstructions. The water line may be below the sewer line but either the water or sewer line shall be encased 10 ft either side of the crossing line in steel encasement as specified in Section 33 31 13 – Steel Encasement Pipe.

C. Water lines shall NOT pass through manholes.

3.15 PARALLEL WATER AND SEWER LINES

A. Water and sewer line shall have a minimum 10 ft horizontal separation.

B. Water and sewer lines shall NOT be installed within the same trench.

3.16 TESTING

A. Acceptance testing for gravity lines and force mains as specified in Section 33 31 23 - Testing Sanitary Sewer Systems.

3.17 CONNECTION OF NEW SEWER PIPELINES TO EXISTING SANITARY SEWERS

A. Construct, clean, test, and obtain Engineer's approval for pipelines and manholes before connecting new pipeline to the existing sewer.

B. If, in the opinion of the Engineer, conditions exist which require connection prior to final line acceptance, plug all lines entering the manhole connecting to the existing system until the new system is accepted. In addition, plug the line leaving the first manhole upstream. Never allow water being used to flush the new lines to enter the existing system.

C. All new pipelines shall connect to the existing system at a new or existing manhole. If a new manhole is built over an existing sewer line, DO NOT break out the top of the existing pipe until the new line is accepted.
   1. Flexible pipe couplings may be used to connect existing gravity sewer line to new gravity sewer lines as approved by the Engineer.
   2. Acceptable Manufacturers:
      a. Fernco
      b. Or Approved Equal.

D. If a new pipeline is to discharge into an existing manhole, divert the sewage flow around the existing manhole while the tie-in is under construction. Intercept the sewage flow at the existing manhole first upstream from the tie-in construction. Provide suitable pumping equipment and rerouting conduit to pump the sewage around the tie-in construction. Discharge into an appropriate manhole downstream from the construction.

E. Connection to an existing manhole shall be made by core drilling. A concrete manhole adapter, A-LOK G3 boot system or equal, shall be installed on the sewer pipe, and the annular space grouted.

F. Connect new pipelines to existing manholes in a neat, workmanlike manner, to ensure a watertight connection.

3.18 TRENCHING

A. Pipe trenching shall be as specified in Section 31 23 16.16 – Trenching for Water and Sewer Lines.

3.19 CONNECTIONS TO MANHOLES

A. Pipe connections to concrete manholes and other concrete structures shall be as specified in Section 33 39 13 – Concrete Manholes.

3.20 STEEL ENCASEMENT

A. Pipe installed within steel encasement shall be as specified in Section 33 31 13 – Steel Encasement Pipe.

END OF SECTION

DIVISION 40

PROCESS INTEGRATION

SECTION 40 05 61 – GATE VALVES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. V140 – General duty gate valves smaller than 3 in.
2. V141 – Buried Resilient-seated gate valves.
3. V142 – Exposed Resilient-seated gate valves.
4. V145 – Resilient Seated Knife Gate Valve, 2 in. – 36 in.

B. Related Sections:
1. Section 40 05 51 – Common Requirements for Process Valves.
2. Section 40 05 57 – Actuators for Process Valves and Gates.

1.2 REFERENCES

A. AWWA (American Water Works Association):
1. C500 – Metal-Seated Gate Valves for Water Supply Service.
2. C509 – Resilient-Seated Gate Valves for Water Supply Service.
3. C515 – Resilient-Seated Gate Valves for Water Supply Service.

B. ASME International:
1. B16.1 – Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250.
2. B16.5 – Pipe Flanges and Flanged Fittings: NPS 1/2 through NPS 24 Metric/Inch Standard.
3. B16.42 – Ductile Iron Pipe Flanges and Flanged Fittings: Classes 150 and 300.
4. B1.20.1 – Pipe Threads, General Purpose, Inch.

C. ASTM International:
1. A126 – Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.
2. A536 – Standard Specification for Ductile Iron Castings.
3. B62 – Standard Specification for Composition Bronze or Ounce Metal Castings.
4. B584 – Standard Specification for Copper Alloy Sand Castings for General Applications.
5. D1784 – Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds.
6. D2000 – Standard Classification System for Rubber Products in Automotive Applications.

D. MSS (Manufacturers Standardization Society of the Valve and Fittings Industry):
1. SP-70 – Gray Iron Gate Valves, Flanged and Threaded Ends.
2. SP-80 – Bronze Gate, Globe, Angle and Check Valves.

E. NSF (National Science Foundation):
1. 61 – Health Effects for Drinking Water System Components.
2. 372 – Lead Content for Drinking Water System Components.

1.3 SUBMITTALS

A. Subject to the requirements of Section 01300 - Submittals.

B. Product Data:
1. Submit manufacturer information for system materials and component equipment.

C. Shop Drawings:
   1. Specify system materials and component equipment.
   2. Submit installation and anchoring requirements, fasteners, and other details.
   3. Specify valve identification number, location, service, type, size, design pressure, operator details, stem details, and loads.

D. Manufacturer's Certificate:
   1. Certify that products meet or exceed specified requirements.

E. Delegated Design Submittals:
   1. Submit signed and sealed Shop Drawings with design calculations and assumptions for seating and unseating pressure.

F. Manufacturer Instructions:
   1. Submit detailed instructions on installation requirements, including storage and handling procedures.

G. Source Quality-Control Submittals:
   1. Specify results of factory tests and inspections.

H. Field Quality-Control Submittals:
   1. Specify results of Contractor-furnished tests and inspections.

I. Manufacturer Reports:
   1. Certify that equipment has been installed as specified in manufacturer instructions.
   2. Specify activities on Site, adverse findings, and recommendations.

J. Closeout Submittals:
   1. Project Record Documents:
      a. Record actual locations of installed valve and components.
   2. See Section 01 77 00 – Closeout Procedures for additional requirements.

1.4 QUALITY ASSURANCE

A. Materials in Contact with Potable Water:
   1. Certified to NSF Standard 61 and NSF Standard 372.

1.5 QUALIFICATIONS

A. Manufacturer:
   1. Company specializing in manufacturing products specified in this Section with minimum five years of experience.

1.6 DELIVERY, STORAGE, AND HANDLING

A. See Section 01320 - Product Delivery, Storage, and Handling for transporting, handling, storing, and protecting products.

B. Inspection:
   1. Accept materials on Site in manufacturer's original packaging and inspect for damage.

C. Store materials as specified in manufacturer instructions.

D. Protection:

1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
2. Provide additional protection as specified in manufacturer instructions.

1.7 WARRANTY

A. Furnish three-year manufacturer's warranty for valves.

B. See Section 00610 - Payment, Performance and Warranty Bond for additional requirements.

PART 2 - PRODUCTS

2.1 TYPE V140: GENERAL–DUTY GATE VALVES – SMALLER THAN 3 IN.

A. Manufacturers:
1. M&H/Kennedy Valve Company
2. Mueller
3. American

B. General:
1. Service: Aboveground, clean water and air.
2. Comply with MSS SP-80, Class 150.
3. Maximum Process Fluid Temperature: 150°F.
4. Body and Trim: Bronze, ASTM B62.
5. Rising Stem Type
6. Bonnet: Threaded.
7. Operation: Handwheel
8. Wedge Disc:
   a. Type: Solid.
   b. Bronze, ASTM B62.
9. End Connections: threaded.

2.2 TYPE V141: BURIED RESILIENT–SEATED GATE VALVES, 3 IN. AND LARGER

A. Manufacturers:
1. Mueller
2. M&H/Kennedy Valve Company
3. American

B. General:
1. Comply with AWWA C515.
2. Minimum Working Pressure: 250 psig.
3. Maximum Process Fluid Temperature: 100°F.
4. End Connections: Mechanical joint, except tapping valves may be flanged by mechanical joint.
5. Gear Actuators for Manual Valves: Comply with AWWA C509.
6. Stem shall be sealed by three O-Rings. O-Rings set in a cartridge shall not be allowed.
7. Each valve shall have maker’s name, pressure rating, and year in which it was manufactured cast in the body. Country of origin to be clearly cast into body & cover castings.
8. Valves 14 in. and larger shall be equipped with geared actuators. Valves to be installed in the standard vertical position shall have spur gear actuators. Valve to be installed in the horizontal position shall have bevel gear actuators. Valves shall only be installed in the horizontal position if noted on the plans or if instructed by the Engineer.

C. Operation:
1. Stem: Non-rising.

D. Materials:
1. Disc: Resilient ASTM A536, ductile iron, fully encapsulated with ASTM D2000, SBR or EPDM.
2. Body: ASTM A536, ductile iron, coated.
3. Stem: Cast copper alloy with integral collars in full compliance with AWWA. All stems shall operate with copper alloy stem nuts independent of wedge and of stem.
4. Connecting Hardware: Type 304 stainless steel.
5. Provide standard AWWA 2 in. operating nut, matching valve key, and valve box for operating stem.

E. Finishes:
1. NSF 61 & 372 compliant fusion bond epoxy.

2.3 TYPE V142: EXPOSED RESILIENT SEAT GATE VALVE, 3 IN. AND LARGER

A. Manufacturers and Products:
1. M&H/Kennedy Valve Company.
2. Mueller.
3. American.

B. General:
1. Comply with AWWA C515.
2. Minimum Working Pressure: 250 psig.
3. Maximum Process Fluid Temperature: 100°F.
4. End Connections: Flanged.
5. Gear Actuators for Manual Valves: Comply with AWWA C509.
6. Stem shall be sealed by three O-Rings. O-Rings set in a cartridge shall not be allowed.
7. Each valve shall have maker’s name, pressure rating, and year in which it was manufactured cast in the body. Country of origin to be clearly cast into body & cover castings.
8. Valves 14 in. and larger shall be equipped with geared actuators. Valves to be installed in the standard vertical position shall have spur gear actuators. Valve to be installed in the horizontal position shall have bevel gear actuators. Valves shall only be installed in the horizontal position if noted on the plans or if instructed by the Engineer.

C. Operation:
1. Stem: Non-rising.

D. Materials:
1. Disc: Resilient ASTM A536, ductile iron, fully encapsulated with ASTM D2000, SBR or EPDM.
2. Body: ASTM A536, ductile iron, coated.
3. Stem: Cast copper alloy with integral collars in full compliance with AWWA. All stems shall operate with copper alloy stem nuts independent of wedge and of stem.
4. Connecting Hardware: Type 304 stainless steel.
5. Provide handwheel, or chainwheel, unless noted as 2 in. nut, or actuator on the drawings or specified in the valve schedule.

E. Finishes:
1. NSF 61 & 372 compliant.
2. Finish coat: Match adjoining pipe.

2.4 TYPE V145: KNIFE GATE VALVE, 2 IN. – 36 IN.

A. Manufacturers and Products:
1. DeZurik.
2. Henry Pratt.
3. Wey Valve.
4. Red Valve.

B. General:
1. Suitable for service under pressures equal to and less than 150 psi.
2. Full round port, metal seated, raised face design.
3. Flanged wafer design, drilled and tapped to ANSI Class 125/150 standard.
4. Founded gate with beveled edge, finish-ground to 32 RMS, maximum, on both sides.
5. Body to incorporate guides and jams to assist in seating.

C. Materials:
1. Body: Cast or ductile iron or cast steel, with Type 316 stainless steel lining or cast Type 316 stainless steel.
2. Wetted Components (including gate): Type 316 stainless steel.
3. Yoke Sleeve: Acid resisting bronze or aluminum bronze.
4. Packing: PTFE.
5. Outside screw and yoke (OS&Y) with handwheel operator.

D. Finishes:
1. Finish coat: Match adjoining pipe.

2.5 SOURCE QUALITY CONTROL

A. Section 01400 - Quality Control for testing, inspection, and analysis requirements.

B. Testing:
1. Test gate valves as specified in AWWA C509.

PART 3 - EXECUTION

3.1 INSTALLATION

A. As specified in AWWA C509.

3.2 TESTS AND INSPECTION

A. Valve may be either tested while testing pipelines, or as a separate step.

B. Test that valves open and close smoothly with operating pressure on one side and atmospheric pressure on the other, in both directions for two-way valve and applications.

C. Count and record number of turns to open and close valve; account for any discrepancies with Manufacturer’s data.

3.3 MANUFACTURER’S SERVICES

A. A Manufacturer’s representative for the equipment specified in this section shall be present at the jobsite for the minimum person-days listed for the services below, travel time excluded:
1. 2 person-days for installation assistance, inspection, and certification of the installation. Provide certificate.

2. 2 person-days for functional and performance testing.
3. 2 person-days for pre-startup classroom or jobsite training of Owner's personnel.

B. Training of Owner's personnel shall be at such times and locations requested by Owner.

C. See Section 01650 Starting of System– Startup Testing and Training.

3.4 MANUFACTURER'S CERTIFICATE(S)

A. Provide as specified in Section 01650 - Starting of System .

END OF SECTION

SECTION 40 05 62 – PLUG VALVES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Type V404: Eccentric Plug Valve, 1/2 in. – 3 in.
2. Type V405: Eccentric Plug Valve, 4 in. – 12 in.
3. Type V406: Eccentric Plug Valve, 14 in. and Larger.

B. Related Sections:
1. Section 40 05 51 – Common Requirements for Process Valves.
2. Section 40 05 57 – Actuators for Process Valves and Gates.

1.2 REFERENCES

A. AWWA (American Water Works Association):
1. C517 – Resilient-Seated Cast-Iron Eccentric Plug Valves.
2. C550 – Protective Interior Coatings for Valves and Hydrants.
3. C606 – Grooved and Shouldered Joints.

B. ASME International:
1. B16.1 – Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250.
2. B16.5 – Pipe Flanges and Flanged Fittings: NPS 1/2 – NPS 24 Metric/Inch Standard.
3. B16.42 – Ductile Iron Pipe Flanges and Flanged Fittings: Classes 150 and 300.
4. B1.20.1 – Pipe Threads, General Purpose, Inch.

C. ASTM International:
1. A126 – Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.
2. A536 – Standard Specification for Ductile Iron Castings.
3. B62 – Standard Specification for Composition Bronze or Ounce Metal Castings.

D. NSF (National Science Foundation):
1. 61 – Health Effects for Drinking Water System Components.
2. 372 – Lead Content for Drinking Water System Components.

1.3 SUBMITTALS

A. See Section 01300 - Submittals for general submittal requirements.

B. Product Data:
1. Submit manufacturer information for system materials and component equipment.

C. Shop Drawings:
1. Specify system materials and component equipment.
2. Submit installation and anchoring requirements, fasteners, and other details.
3. Specify valve identification number, location, service, type, size, design pressure, operator details, stem details, and loads.

D. Manufacturer's Certificate:
1. Certify that products meet or exceed specified requirements.

E. Delegated Design Submittals:

1. Submit signed and sealed Shop Drawings with design calculations and assumptions for seating and unseating pressure.

F. Manufacturer Instructions:
1. Submit detailed instructions on installation requirements, including storage and handling procedures.

G. Source Quality-Control Submittals:
1. Specify results of factory tests and inspections.

H. Field Quality-Control Submittals:
1. Specify results of Contractor-furnished tests and inspections.

I. Manufacturer Reports:
1. Certify that equipment has been installed as specified in manufacturer instructions.
2. Specify activities on Site, adverse findings, and recommendations.

J. Closeout Submittals
1. Project Record Documents:
a. Record actual locations of installed valves and components.
2. See Section 01700 - Contract Closeout for additional requirements.

1.4 QUALITY ASSURANCE

A. Materials in Contact with Potable Water:
1. Certified to NSF Standard 61 and NSF Standard 372.

1.5 QUALIFICATIONS

A. Manufacturer:
1. Company specializing in manufacturing products specified in this section with minimum five years of experience.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Section 01320 - Product Delivery, Storage, and Handling for transporting, handling, storing, and protecting products.

B. Inspection:
1. Accept materials on Site in manufacturer's original packaging and inspect for damage.

C. Store materials as specified in manufacturer instructions.

D. Protection:
1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
2. Provide additional protection as specified in manufacturer instructions.

1.7 WARRANTY

A. Furnish three-year manufacturer's warranty for valves.

B. See Section 00610 - Payment, Performance and Warranty Bond for additional requirements.

PART 2 - PRODUCTS

2.1 TYPE V404: ECCENTRIC PLUG VALVE, 1/2 IN. – 3 IN.

A. Manufacturers:
1. DeZURIK.
2. Henry Pratt.

B. General:
1. Type:
a. Nonlubricated.
b. Eccentric.
2. Working Pressure: 175 psig CWP
3. Maximum Process Fluid Temperature: 300°F.
4. Ports:
a. Configuration: Rectangular.
b. Minimum Port Area: 80% of nominal pipe area.
5. Stem Bearings: Self-lubricating.
6. Stem Seals:
a. Type: V-ring.
b. Material: Buna-N or NBR.
7. Packing and Gland: Accessible and externally adjustable.
8. End Connections:
a. Threaded NPT full size inlets
b. Hexagonal for a wrench connection

C. Operation:
1. Provide valves with wrench level manual operator.

D. Materials:
1. Body:
a. Cast iron, ASTM A126 Class B or stainless steel where specified.
b. Lining: Epoxy, as specified in AWWA C550 unless otherwise specified.
2. Plug:
a. Plug cast iron with round or rectangular port of no less than 80% of connecting pipe area and coated with Buna-N or Hycar.
3. Seats: Nickel.
4. Stem: Type 316 stainless steel.
5. Stem Bearings: Stainless steel.
6. Seals: PTFE.
7. Connecting Hardware: Type 316 stainless steel.

E. Finishes:
1. Match adjoining pipe.

2.2 TYPE V405: ECCENTRIC PLUG VALVE, 4 IN. – 12 IN.

A. Manufacturers:
1. DeZURIK.
2. Val-Matic.
3. Henry Pratt.

B. General:
1. Type:
a. Nonlubricated.

b. Eccentric.
2. Working Pressure: 175 psig CWP
3. Maximum Process Fluid Temperature: 300°F.
4. Ports:
   a. Configuration: Rectangular.
   b. Minimum Port Area: 80% of nominal pipe area.
5. Stem Bearings: Self-lubricating.
6. Stem Seals:
   a. Type: V-ring.
   b. Material: Buna-N or NBR.
7. Packing and Gland: Accessible and externally adjustable.
8. End Connections:
   a. Flanged: Comply with ASME B16.1, or
   b. Grooved ends as specified in AWWA C606 for rigid joints,
   c. Mechanical joint ends for buried valve.

C. Operation:
1. 4 in. valve with wrench lever manual operator and 6 in. – 12 in. valve with totally enclosed, geared, manual operator with hand wheel, 2 in. nut, or chain wheel.

D. Materials:
1. Body:
   a. Cast iron, ASTM A126 Class B or stainless steel where specified.
   b. Lining: Epoxy, as specified in AWWA C550 unless otherwise specified.
2. Plug:
   a. Plug cast iron with round or rectangular port of no less than 80% of connecting pipe area and coated with Buna-N or Hycar.
3. Seats: Nickel.
4. Stem: Type 316 stainless steel.
5. Stem Bearings: Stainless steel.
6. Seals: PTFE.
7. Connecting Hardware: Type 316 stainless steel.

E. Finishes:
1. Lining: as specified in AWWA C550 unless otherwise specified.
2. Coating: Either two-part liquid material or heat-activated (fusion) material except only heat-activated material if specified as “fusion” or “fusion boded” epoxy.
3. Finish Coat: Match adjoining pipe.

2.3 TYPE V406: ECCENTRIC PLUG VALVE, 14 IN. AND LARGER

A. Manufacturers:
1. DeZURIK
2. Val-Matic
3. Henry Pratt

B. Nonlubricated type rated 150 psig CWP, drip-tight shutoff with pressure from either direction, cast iron body with flanged ends or grooved ends as specified in AWWA C606 for rigid joints, mechanical joint ends for buried valve. Plug cast iron with round or rectangular port of no less than 80% of connecting pipe area and coated with Buna-N or Hycar, seats nickel, stem bearing self-lubricating stainless steel, stem seal multiple V -rings or V-cups of nitrile rubber, grit seals on stem.

C. Manufacturers and Products:
1. DeZurik.
2. Henry Pratt.

3. Val-Matic.

D. General:
1. Type:
   a. Nonlubricated.
   b. Eccentric.
2. Working Pressure: 150 psig
3. Maximum Process Fluid Temperature: 300°F.
4. Ports:
   a. Configuration: Rectangular.
   b. Minimum Port Area: 80% of nominal pipe area.
5. Stem Bearings: Self-lubricating.
6. Stem Seals:
   a. Type: V-ring.
   b. Material: Buna-N or NBR.
7. Packing and Gland: Accessible and externally adjustable.
8. End Connections:
   a. Mechanical joint ends for buried valve.

E. Operation:
1. Provide with totally enclosed, geared, manual operator with hand wheel, 2 in. nut, or chain wheel.

F. Materials:
1. Body:
   a. Cast iron, ASTM A126 Class B.
   b. Lining: Epoxy, as specified in AWWA C550 unless otherwise specified.
2. Plug:
   a. Ductile iron, ASTM A536.
3. Seats: Nickel.
4. Stem: Type 316 stainless steel.
5. Stem Bearings: Stainless steel.
6. Seals: PTFE.
7. Connecting Hardware: Type 316 stainless steel.

G. Finishes:
1. Lining: As specified in AWWA C550 unless otherwise specified.
2. Coating: Either two-part liquid material or heat-activated (fusion) material except only heat-activated material if specified as “fusion” or “fusion boded” epoxy.
3. Finish Coat: Match adjoining pipe.

PART 3 - EXECUTION

3.1 INSTALLATION

A. As specified in AWWA C517.

B. Horizontal Piping:
1. Stem horizontal.

C. Vertical Piping:
1. Plug at top when closed.

D. Plugs:
1. On top when open and on pressure side when closed.

3.2 TESTS AND INSPECTION

A. Valve may be either tested while testing pipelines, or as a separate step.

B. Test that valves open and close smoothly with operating pressure on one side and atmospheric pressure on the other, in both directions for two-way valve and applications.

C. Count and record number of turns to open and close valve; account for any discrepancies with Manufacturer's data.

3.3 MANUFACTURER'S SERVICES

A. A Manufacturer's representative for the equipment specified in this section shall be present at the jobsite for the minimum person-days listed for the services below, travel time excluded:
   1. 2 person-days for installation assistance, inspection, and certification of the installation. Provide certificate.
   2. 2 person-days for functional and performance testing.
   3. 2 person-days for pre-startup classroom or jobsite training of Owner's personnel.

B. Training of Owner's personnel shall be at times and locations specified by Owner.

C. See Section 01650 - Starting of System.

3.4 MANUFACTURER'S CERTIFICATE(S)

A. Provide as specified in Section 01650 – Starting of System.

END OF SECTION

SECTION 40 05 63 – BALL VALVES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section Includes:
   1. V300 – Metal Body Ball Valve, less than 6 in.
   2. V302 – Metal Body Ball Valve, 6 in. and Larger.
   3. V303 – Instrumentation Ball Valves.
   4. V330 – PVC/CPVC Ball Valves.
   5. V331 – 3-Way PVC Ball Valve.

1.2 REFERENCES

A. AWWA (American Water Works Association):
   1. C507 – Ball Valves, 6 in. – 60 in. (150 mm – 1,500 mm).

B. ASME International:
   1. B16.1 – Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250.
   2. B16.5 – Pipe Flanges and Flanged Fittings: NPS 1/2 – NPS 24 Metric/Inch Standard.
   3. B16.11 – Forged Fittings, Socket-Welding and Threaded.
   4. B16.42 – Ductile Iron Pipe Flanges and Flanged Fittings: Classes 150 and 300.
   5. B1.20.1 – Pipe Threads, General Purpose, Inch.

C. ASTM International:
   1. A48 – Standard Specification for Gray Iron Castings.
   2. D1784 – Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds.
   3. D3222 – Standard Specification for Unmodified Poly(Vinylidene Fluoride) (PVDF) Molding Extrusion and Coating Materials.
   4. D4101 – Standard Specification for Polypropylene Injection and Extrusion Materials.

D. Manufacturers Standardization Society of the Valve and Fittings Industry:
   1. MSS SP-110 – Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends.

1.3 SUBMITTALS

A. See Section 01300 - Submittals for general submittal requirements.

B. Product Data:
   1. Submit manufacturer information for system materials and component equipment.

C. Shop Drawings:
   1. Specify system materials and component equipment.
   2. Submit installation and anchoring requirements, fasteners, and other details.
   3. Specify valve identification number, location, service, type, size, design pressure, operator details, stem details, and loads.

D. Manufacturer's Certificate:
   1. Certify that products meet or exceed specified requirements.

E. Delegated Design Submittals:

1. Submit signed and sealed Shop Drawings with design calculations and assumptions for seating and unseating pressure.

F. Manufacturer Instructions:
1. Submit detailed instructions on installation requirements, including storage and handling procedures.

G. Source Quality-Control Submittals:
1. Specify results of factory tests and inspections.

H. Field Quality-Control Submittals:
1. Specify results of Contractor-furnished tests and inspections.

I. Manufacturer Reports:
1. Certify that equipment has been installed as specified in manufacturer instructions.
2. Specify activities on Site, adverse findings, and recommendations.

J. Closeout Submittals:
1. See Section 01700 - Contract Closeout.
2. Project Record Documents:
a. Record actual locations of installed valve and components.

1.4 QUALITY ASSURANCE

A. Materials in Contact with Potable Water:
1. Certified to NSF Standard 61 and NSF Standard 372.

1.5 QUALIFICATIONS

A. Manufacturer:
1. Company specializing in manufacturing products specified in this Section with minimum five years of experience.

1.6 SOURCE QUALITY CONTROL

A. See Section 01400 - Quality Control for testing, inspection, and analysis requirements.

B. Test and install butterfly valves as specified in AWWA C507.

1.7 WARRANTY

A. Furnish minimum three-year manufacturer's warranty for valves.

B. See Section 00610 - Payment, Performance and Warranty Bond for additional requirements.

PART 2 - PRODUCTS

2.1 GENERAL

A. Where a manufacturer's standard equipment name and/or model number is listed, the equipment system shall be provided and modified as specified in the performance, functions, features, and materials of construction.

B. Like items of equipment provided in this section shall be the end products of one manufacturer to achieve standardization of appearance, operation, maintenance, spare parts, and manufacturer's services.

C. Design Requirements:
1. Valve class shall meet the connecting line requirements or be as specified in the valve schedule or in Drawings.
2. Bubble-tight at rated pressure, or any pressure lower than rated, applied from either side with the valve mounted in any orientation.
3. Suitable for applications involving frequent throttling and applications requiring valve actuation after long periods of inactivity.

2.2 TYPE V300: METAL BODY BALL VALVE, LESS THAN 6 IN.

A. Manufacturers:
1. NIBCO:
a. T-585-S6-R-66-LL (available in 1/4 in. – 2 in.) for threaded connections.
b. F-515-S6-F-66-FS (available in 1/2 in. – 12 in.) for flanged connections.
2. Apollo – 76 Series.
3. Milwaukee Valve – F20 Series (available in 1 in. – 12 in.) for flanged connections.

B. Typical Service:
1. Water
2. Drain
3. Sample locations
4. Compressed Air
5. RO Sample Panel

C. General:
1. See MSS SP 110 (threaded or socket-welded valves)
2. Type: Nonlubricated and capable of sealing in either flow direction.
3. Minimum Working Pressure: As specified in Section 40 23 39.1 – Process Piping Schedule.
4. Port: Full.
5. End Connections:
a. Threaded or socket weld for 2 in. and smaller.
b. Class 150 flanged for sizes 3 in. and larger. Flanges shall be as specified ANSI/ASME B16.1 standards.

D. Operation:
1. Operator: Hand lever

E. Materials:
1. Body:
a. Type: Two piece.
b. Materials:
1) All 316 Stainless steel compatible with service designated.
2) Ball: Type 316 Stainless steel.
2. Seats: PTFE.
3. Stem: [Stainless steel].
4. Stem Seals: PTFE or Viton
5. Bearings: Self-lubricated, corrosion resistant material that will not contaminate potable water.

F. Finishes:
1. Finish coat: Match adjoining pipe

2.3 TYPE V302: METAL BODY BALL VALVE, 6 IN. AND LARGER

A. Manufacturers and Products:
1. Henry Pratt - AWWA Rubber Seated Ball Valve (available in 4" - 60")
2. Val-Matic - Ener-G (available in 4" - 60")
3. McCANNA/MARPAC

B. General:
1. Type: Nonlubricated and capable of sealing in either flow direction.
2. See AWWA C507.
3. Stem packing: Manually adjustable while valve is under pressure.
a. End Connections:
1) Flanged ends.
2) Flanges shall be as specified ANSI/ASME B16.1 standards.

C. Operation:
1. Manually operated ball valves shall have self-locking worm gear type actuator with position indicator. Gearing shall be permanently lubricated. Provide adjustable screws to stop travel at both Open and Closed positions.
2. Operator: Hand lever

D. Materials:
1. Body: ASTM A48 cast iron and integrally cast bronze bushed trunnions.
2. Ball: [Stainless steel].
3. Seats: TFE
4. Stem Seals: TFE or Viton.

E. Finishes:
1. Finish coat: Match adjoining pipe.

2.4 TYPE V303: INSTRUMENTATION BALL VALVES

A. Manufacturers and Products:
1. Swagelok – 40G Series (available in 1/8 in. – 3/4 in.)
2. Parker – B Series (available in 1/16 in. – 1/2 in.)

B. General:
1. Stainless steel body ball valve, nylon handle.

2.5 TYPE V330: PVC/CPVC BALL VALVES

A. Manufacturers:
1. Georg Fischer – 546 Pro (available in 3/8 in. – 4 in.)
2. Asahi/America, Inc.
3. NIBCO/Chemtrol –
a. PVC – U-45TB-V (available in 1/2 in. – 2 in.)
or
S-45TB-V (available in 3 in. – 6 in.)
b. CPVC – U-51TB-V (available in 1/2 in. – 2 in.)
or
S-51TB-V (available in 3 in. – 6 in.)
4. Hayward Flow Control – TBH Series True Union (available in 1/4 in. – 6 in.)
5. Spears – True Union 2000 (available in 1/2 in. – 8 in.)

B. Typical Service:

1. Water
2. Chemicals
3. Drain
4. Sample locations

C. General:
1. Type: Nonlubricated and capable of sealing in either flow direction.
2. Working Pressure:
   a. 1/2 in. – 2 in. – 250 psi.
   b. 2 1/2 in. – 6 in. – 150 psi.
3. Ports: Full size.
4. All ball valves on sodium hypochlorite lines and/or chlorine dioxide lines shall be venting type valves.
5. End Connections:
   a. True Union:
      1) Solvent or heat welded to piping.
      2) Defer to manufacturer's recommendation for installation.

D. Operation:
1. Operator: Hand lever

E. Materials:
1. Body and Ball:
   a. PVC, ASTM D1784 when adjoining to PVC pipe.
   b. CPVC, ASTM D1784 when adjoining to CPVC pipe.
2. Seats: PTFE.
3. O-rings: Viton (FKM)

2.6 TYPE V331: 3-WAY PVC/CPVC BALL VALVES

A. Manufacturers:
1. Georg Fischer – 543 Pro (available in 3/8 in. – 2 in.)
2. Asahi/America, Inc.
3. NIBCO/Chemtrol –
   a. S45M3-V for PVC (available in 1/2 in. – 2 in.)
   b. S51M3-V for CPVC (available in 1/2 in. – 2 in.)
4. Hayward Flow Control – TW Series True Union (available in 1/2 in. – 2 in.)
5. Spears – True Union 2000 (available in 1/2 in. – 4 in.)

B. Typical Service:
1. Water
2. RO Permeate Probing Connections
3. Chemicals

C. General:
1. Type: Nonlubricated and capable of sealing in either flow direction.
2. Working Pressure:
   a. 1/2 in. – 2 in. – 150 psi.
   b. 2 1/2 in. – 4 in. – 235 psi.
3. Ports: Full size.
4. End Connections:
   a. True union: solvent or heat welded to piping.

D. Operation:
1. Operator: Hand lever

E. Materials:
   1. Body and Ball:
      a. PVC, ASTM D1784 when adjoining to PVC pipe.
      b. CPVC, ASTM D1784 when adjoining to CPVC pipe.
   2. Seats: PTFE.
   3. O-rings: Viton (FKM)

PART 3 - EXECUTION

3.1 DELIVERY, STORAGE, AND HANDLING

A. Section 01320 - Product Delivery, Storage, and Handling for transporting, handling, storing, and protecting products requirements.

B. Inspection:
   1. Accept materials on Site in manufacturer's original packaging and inspect for damage.

C. Store materials as specified in manufacturer instructions.

D. Protection:
   1. Protect materials from moisture and dust by storing them in clean, dry location remote from construction operations areas.
   2. Provide additional protection as specified in manufacturer instructions.

3.2 INSTALLATION

A. Install valves as specified in AWWA C507.

3.3 TESTS AND INSPECTION

A. Valve may be either tested while testing pipelines, or as a separate step.

B. Test that valves open and close smoothly with operating pressure on one side and atmospheric pressure on the other, in both directions for two-way valve and applications.

C. Count and record number of turns to open and close valve, account for any discrepancies with Manufacturer’s data.

3.4 MANUFACTURER’S SERVICES

A. A Manufacturer’s representative for the equipment specified in this section shall be present at the jobsite for the minimum person-days listed for the services below, travel time excluded:
   1. 1 person-day for installation assistance, inspection, and certification of the installation. Provide certificate.
   2. 1/2 person-day for functional and performance testing.
   3. 1 person-day for pre-startup classroom or jobsite training of Owner’s personnel.

B. Training of Owner’s personnel shall be at times and locations specified by Owner.

C. See Section 01650 Starting of System – Startup Testing and Training.

3.5 MANUFACTURER’S CERTIFICATE(S)

A. Provide as specified in Section 01650 - Starting of System.

END OF SECTION

SECTION 40 05 78 – AIR RELEASE VALVES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section Includes:
1. Type V750: Well Service Air Valve, 1/2 in. and Larger.
2. Type V752: Wastewater Combination Air Valves, 1 in. and Larger.
3. Type V755: Clean Water Combination Air Valve, 1 in. and Larger.
4. Type V757: Air Release Valves for Water Service.
5. Type V780: Safety Relief Valve for Air Service, 1 1/2 in. – 3 in.
6. Type V785: Safety Relief Valve for Air Service, 3 in. And Larger.

1.2 REFERENCES

A. AWWA (American Water Works Association):
1. C512 – Air-Release, Air/Vacuum, and Combination Air Valves for Waterworks Service.

B. NSF International:
1. 61 – Drinking Water System Components – Health Effects.
2. 372 – Drinking Water System Components – Lead Content.

1.3 SUBMITTALS

A. See Section 01300 - Submittals for general submittal requirements.

B. Product Data:
1. Submit manufacturer information for system materials and component equipment.

C. Shop Drawings:
1. Specify system materials and component equipment.
2. Submit installation and anchoring requirements, fasteners, and other details.
3. Specify valve identification number, location, service, type, size, design pressure, operator details, stem details, and loads.

D. Manufacturer's Certificate:
1. Certify that products meet or exceed specified requirements.

E. Delegated Design Submittals:
1. Submit signed and sealed Shop Drawings with design calculations and assumptions for seating and unseating pressure.

F. Manufacturer Instructions:
1. Submit detailed instructions on installation requirements, including storage and handling procedures.

G. Source Quality-Control Submittals:
1. Specify results of factory tests and inspections.

H. Field Quality-Control Submittals:
1. Specify results of Contractor-furnished tests and inspections.

I. Manufacturer Reports:
1. Certify that equipment has been installed as specified in manufacturer instructions.

2. Specify activities on Site, adverse findings, and recommendations.

J. Closeout Submittals:
1. Project Record Documents:
a. Record actual locations of installed valve and components.
2. See Section 01700 - Contract Closeout for additional requirements.

1.4 COORDINATION

A. Coordinate Work of this Section with installation of process piping.

1.5 QUALITY ASSURANCE

A. Materials in Contact with Potable Water:
1. Certified to NSF Standard 61 and NSF Standard 372.

1.6 QUALIFICATIONS

A. Manufacturer:
1. Company specializing in manufacturing products specified in this section with minimum five years of experience.

1.7 SOURCE QUALITY CONTROL

A. See Section 01400 - Quality Control for testing, inspection, and analysis requirements.

B. Test and install valves as specified in AWWA C512.

1.8 WARRANTY

A. See Section 00610 - Payment, Performance and Warranty Bond for requirements.

PART 2 - PRODUCTS

2.1 GENERAL

A. Where a manufacturer's standard equipment name and/or model number is listed, the equipment system shall be provided and modified as required to conform to the performance, functions, features, and materials of construction as specified in this section.

B. Like items of equipment provided in this section shall be the end products of one manufacturer to achieve standardization of appearance, operation, maintenance, spare parts, and manufacturer’s services.

C. Design Requirements:
1. Valve class shall meet the requirements of the connecting line or as specified in the valve schedule or in Drawings.

2.2 TYPE V750: WELL SERVICE AIR VALVE, 1/2 IN. AND LARGER

A. Manufacturers:
1. Val-Matic - Well Service Air Valve (1/2 in. – 20 in.)
2. DeZurik.

B. General:

1. Fully automatic float operated valve,
2. Suitable for vertical turbine pump discharge service,
3. Designed to exhaust air which is present in pump column on pump startup and allow air to re-enter the column on pump shutdown, should a negative pressure occur.
4. NSF/ANSI 61 certified.
5. Valves 3 in. and smaller shall be equipped with a dual port throttling device to provide adjustable control of the exhaust rate and allow free air to flow into the valve through a separate inlet port.
6. Valves 4 in. larger shall be equipped with a regulated exhaust device, which shall allow free airflow in and out of the valve, close upon rapid air exchange, and control the air exhaust rate to reduce pressure surges.
7. Connections:
    a. Inlet:
        1) Valve sizes 3 in. and smaller shall have full size NPT inlets and outlets equal to the nominal valve size. The body inlet connection shall be hexagonal for a wrench connection.
        2) Valve sizes 4 in. and larger shall have bolted flange inlets equal to the valve size. Flanges shall be as specified in ANSI B16.1 for Class 125 or Class 250 iron flanges and ANSI B16.42 for Class 300 ductile iron flanges.
    b. Outlets:
        1) Valve sizes 6 in. and smaller shall have NPT outlets;
        2) Valves 8 in. and larger shall have ANSI B16.1 Class 125 outlet flanges.
        3) The valve shall have two additional NPT connections for the addition of Air Release Valves, gauges, testing, and draining.
8. Working Pressure: As specified in pipe schedule.

C. Materials:
1. Body, cover, and baffle:
    a. Class 125 and 250 Valves: ASTM A126 Class B cast iron.
    b. Class 300 Valves: Ductile iron valves shall be constructed of ASTM A536 Grade 65-45-12 cast ductile iron.
2. Float, guide shafts, and bushings: Type 316 stainless steel. Nonmetallic guides and bushings are not acceptable.
3. Seats: Buna-N.

D. Finish:
1. NSF/ANSI 61 certified fusion bonded epoxy as specified in AWWA C550.

2.3 TYPE V752: WASTEWATER COMBINATION AIR VALVES, 1 IN. AND LARGER

A. Manufacturers:
1. Val-Matic - Combination Wastewater Valve (1 in. – 8 in.)
2. DeZurik - APCO High Performance Combination Air Valve (1 in. - 6 in.)
3. ARI

B. General:
1. Valve shall be automatic float operated valve designed to exhaust large quantities of air during the filling of a piping system and close upon liquid entry.
2. The valve shall open during draining or if a negative pressure occurs.
3. The valve shall also release accumulated air from a piping system while the system is in operation and under pressure.
4. Valve shall perform functions of both air release and Air/Vacuum valves and be furnished as a single body.
5. Valve shall be suitable for use with domestic sewage
6. Connections:
    a. Inlet:

1) Valve sizes 3 in. and smaller shall have full size NPT inlets and outlets equal to the nominal valve size. The body inlet connection shall be hexagonal for a wrench connection.
2) Valve sizes 4 in. and larger shall have bolted flange inlets equal to the valve size. Flanges shall be as specified in ANSI B16.1 for Class 125 or Class 250 iron flanges and ANSI B16.42 for Class 300 ductile iron flanges.

b. Outlets:
1) Valve sizes 6 in. and smaller shall have NPT outlets;
2) Valves 8 in. and larger shall have ANSI B16.1 Class 125 outlet flanges.
3) The valve shall have two additional NPT connections for the addition of Air Release Valves, gauges, testing, and draining.

7. Working Pressure: As specified in pipe schedule.

C. Materials:
1. Body: [Cast iron or ductile iron or Stainless Steel]
2. Float, guide shafts and bushings: Type 316 stainless steel.

D. Finish: NSF/ANSI 61 certified fusion bonded epoxy as specified in AWWA C550.

2.4 TYPE V755: CLEAN WATER COMBINATION AIR VALVE, 1 IN. AND LARGER

A. Manufacturers:
1. Val-Matic - Combination Clean Water Valve (1 in. – 20 in.)
2. DeZurik - APCO Single Body Combination Air Valve (1 in. - 8 in.)

B. General:
1. Valve shall be automatic float operated valve designed to exhaust large quantities of air during the filling of a piping system and close upon liquid entry.
2. Valve shall open during draining or if negative pressures occur.
3. Valve shall also release accumulated air from a piping system while system is in operation and under pressure.
4. Valve shall perform functions of both air release and Air/Vacuum valves and be furnished as a single body.
5. Valves used in potable water shall be NSF/ANSI certified.
6. Connections:
a. Inlet:
1) Valve sizes 3 in. and smaller shall have full size NPT inlets and outlets equal to the nominal valve size. The body inlet connection shall be hexagonal for a wrench connection.
2) Valve sizes 4 in. and larger shall have bolted flange inlets equal to the valve size. Flanges shall be as specified in ANSI B16.1 for Class 125 or Class 250 iron flanges and ANSI B16.42 for Class 300 ductile iron flanges.

b. Outlets:
1) Valve sizes 6 in. and smaller shall have NPT outlets;
2) Valves 8 in. and larger shall have ANSI B16.1 Class 125 outlet flanges.
3) The valve shall have two additional NPT connections for the addition of Air Release Valves, gauges, testing, and draining.

7. Working Pressure: As specified in pipe schedule.

C. Materials:
1. Body: Constructed of cast iron or ductile iron.
2. Float, guide shafts and bushings: Type 316 stainless steel.

D. Finish:
1. NSF/ANSI 61 certified fusion bonded epoxy as specified in AWWA C550.

2.5 TYPE V757: AIR RELEASE VALVES FOR WATER SERVICE

A. Manufacturers:
1. Val-Matic - Air Release Clean Water Valve (1/2 in. – 6 in.)
2. Dezurik - APCO Clean Water Air Release Valve (1/2 in. – 6 in.)

B. Description:
1. Valve shall be automatic float operated valve designed to release accumulated air from a piping system while system is in operation and under pressure.
2. Comply with AWWA C512.
3. Furnish blowoff valve, quick-disconnect couplings, and minimum 6 ft of hose.
4. End Connections:
   a. Inlet Valve End Connections Size 1/2 to 3 in.: NPT.
   b. Inlet Valve End Connections Size 4 in. and Larger: Flanged. ANSI B16.1 for Class 150 and ANSI B16.42 for Class 300.
   c. Outlet Valve End Connections Size 6 in. and smaller: NPT.
   d. Outlet Valve End Connections Size 8 in. and Larger: Flanged ANSI B16.1
5. Working Pressure: As specified in pipe schedule.
6. Size: As specified in Drawings.

C. Materials:
1. Body and Cover: Cast iron or Ductile iron.
2. Float, Seat, and Trim: Type 316 stainless steel.
3. Valve interiors and exteriors shall be coated with an NSF/ANSI 61 certified fusion bonded epoxy as specified in AWWA C550.

2.6 TYPE V780: SAFETY RELIEF VALVE FOR AIR SERVICE, 1/2 IN. – 3 IN.

A. Manufacturers:
1. Kunkle – 900 Series (1/2 in. – 2 in.)
2. Apollo Valve

B. Description:
1. Spring loaded, adjustable pressure relief valve for process air service
2. Test pull ring or lever.

C. Materials:
1. Trim: Stainless Steel
2. Seat: Material suitable for elevated temperatures above 300°F.

2.7 TYPE V785: SAFETY RELIEF VALVE FOR AIR SERVICE, 3 IN. AND LARGER

A. Manufacturers:
1. Kunkle – 300/600 Series (1.25 in. – 6 in.)

B. Description:
1. Exposed spring, full nozzle design

C. Materials:
1. Body: Cast Steel
2. Trim: Stainless Steel
3. Seat: Material suitable for elevated temperatures above 300°F.

2.8 INSULATION

A. As specified in pipe schedule.

2.9 SOURCE QUALITY CONTROL

A. Provide shop inspection and testing of completed assembly.

PART 3 - EXECUTION

3.1 DELIVERY, STORAGE, AND HANDLING

A. Section 01320 - Product Storage, Delivery, and Handling for transporting, handling, storing, and protecting products.

B. Inspection:
1. Accept materials on site in manufacturer's original packaging and inspect for damage.

C. Store materials as specified in manufacturer instructions.

D. Protection:
1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
2. Provide additional protection as specified in manufacturer instructions.

3.2 EXAMINATION

A. Verify that field dimensions are as specified in Shop Drawings.

B. Inspect existing flanges for nonstandard bolt hole configurations or design and verify that new pipe and flanges mate properly.

3.3 PREPARATION

A. Section 01040 - Coordination for installation preparation requirements.

B. Thoroughly clean end connections before installation.

C. Close pipe and equipment openings with caps or plugs during installation.

D. Cleaning:
1. Clean surfaces to remove foreign substances.

3.4 INSTALLATION

A. As specified in manufacturer instructions.

B. Provide access for operation, removal, and maintenance, and to avoid discharge to occupied areas or other equipment.

C. Installation Standards:
1. Install Work as specified in AWWA C512 standards.

3.5 FIELD QUALITY CONTROL

A. Section 01400 - Quality Control for inspection and testing requirements.

B. Inspect for interferences and proper supports.

C. Testing:
1. Demonstrate operation without undue noise or vibration.

D. Manufacturer Services:
1. Furnish services of manufacturer's representative experienced in installation of products furnished under this section for not less than 2 days onsite for installation, inspection, startup, field testing, and instructing Owner's personnel in operation and maintenance of equipment.

E. Equipment Acceptance:
1. Adjust, repair, modify, or replace components failing to perform as specified and rerun tests.
2. Make final adjustments to equipment under direction of manufacturer's representative.
3. Repair damaged coatings with material equal to original coating.

F. Furnish installation certificate from equipment manufacturer's representative attesting that equipment has been properly installed and is ready for startup and testing.

3.6 CLEANING

A. Keep interior of air release valves clean as installation progresses.

3.7 DEMONSTRATION

A. Section 01650 - Starting of System for demonstration and training requirements.

B. Demonstrate equipment startup, shutdown, routine maintenance, and emergency repair procedures to Owner's personnel.

END OF SECTION

Appendix A

A-1: Report for Geotechnical Engineering

A-2: Report for Subsurface Engineering

A-3: Plans for Subsurface Engineering

A-4: Report for Environmental Study

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Geotechnical Engineering Study

Widefield Water and Sanitation District (WWSD)

Jimmy Camp Lift Station Force Main Extension Project

Fountain, Colorado

Yeh Project No.: 224-104

October 18, 2024

Prepared for:

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Yeh and Associates, Inc.
Geotechnical • Geological • Construction Services

Draft

Geotechnical Engineering Study

Widefield Water and Sanitation District (WWSD)

Jimmy Camp Lift Station Force Main Extension Project

Fountain, Colorado

Yeh Project No.: 224-104

October 18, 2024

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1. PURPOSE AND SCOPE OF STUDY

This report presents the results of Yeh and Associates, Inc. (Yeh) geotechnical engineering study for the proposed 16-inch Force Main extension of the existing 12-inch force main to varying installation depths beneath existing ground surface (BGS) in Fountain, Colorado. The proposed approximately 9,000 linear-foot (LF) force main begins at the tie-in at the existing 12-inch Force main (AA3 on Mesa Ridge Parkway) and routed to Widefield Water & Sanitation District (WWSD). The project location is presented in Figure 1, Approximate Project Location.

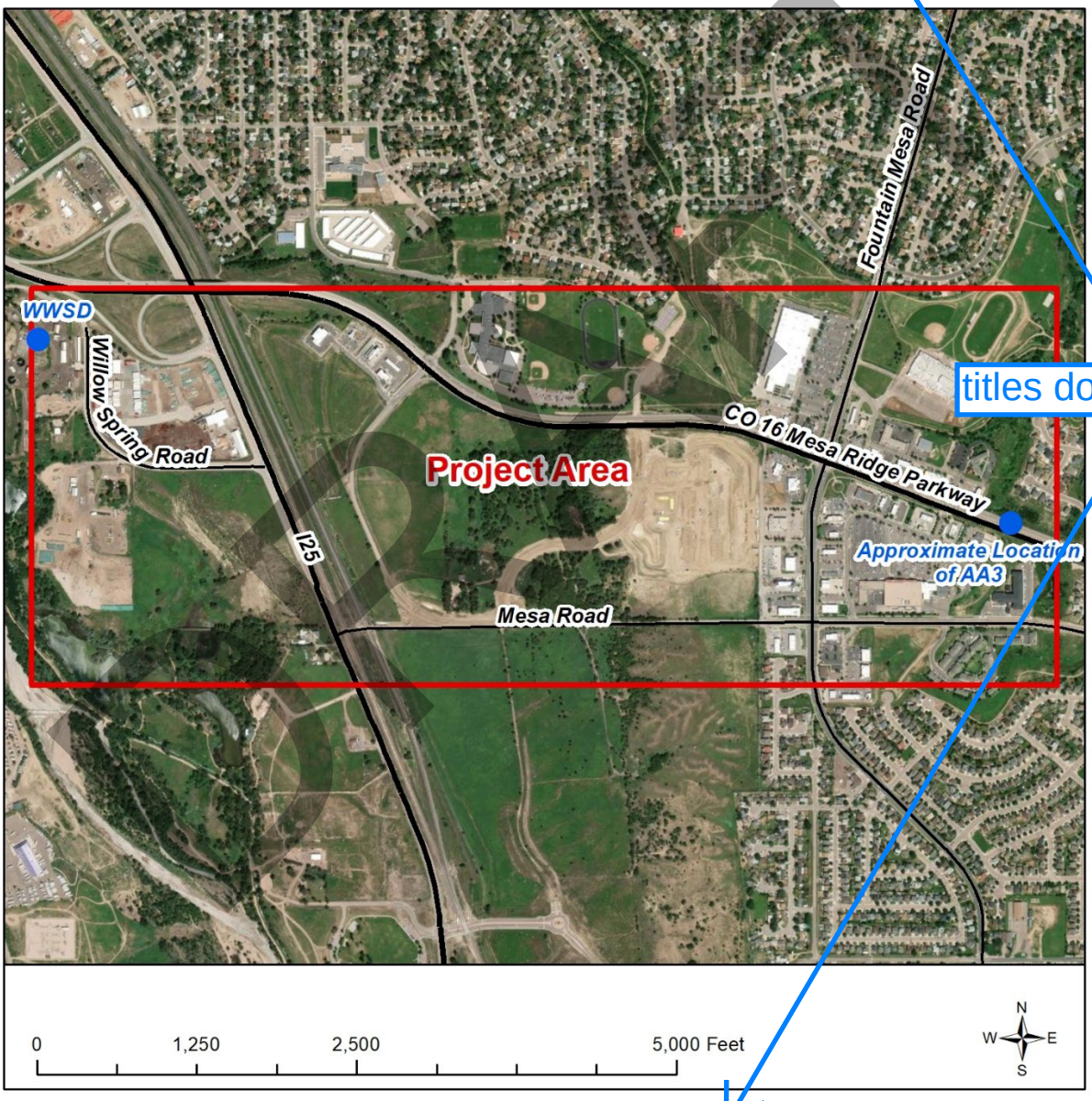


Figure 1. Project Location Map.

The purpose of our study was to evaluate the subsurface conditions along the proposed alignment and provide geotechnical engineering recommendations for design and construction of the proposed force main.

Our engineering study was completed in general accordance with our approved proposal for geotechnical engineering services, No. 224-104, dated July 21, 2024. To meet the intended purpose, we completed the following scope of services:

- Review available geological information about the site including mapped geology.
- Conduct a site observation and subsurface exploration to evaluate the existing subsurface conditions. The subsurface exploration consisted of 19 geotechnical borings performed along the force main alignment at the approximate locations presented in Appendix A.
- Perform laboratory testing on soil samples obtained during the subsurface exploration to evaluate the engineering characteristics.
- Provide boring-specific native E' values.
- Provide nominal bearing resistance equations and resistance factors for concrete reverse anchors.
- Prepare this report that presents the results of our geotechnical engineering analyses, geotechnical feasibility evaluation, encountered site and subsurface conditions, and geotechnical design and construction recommendations for the force main.

The conclusions and recommendations presented herein are based on our limited site explorations and the subsurface conditions encountered at our boring locations during the time of our exploration. Our findings, conclusions, and recommendations should not be extrapolated to other areas of the site or used for other projects without our prior review. Additionally, they should not be used if the site has been altered or if more than two years has elapsed since the date of this report without our prior review to determine if they remain valid.

1.1 Project Understanding

Based on our discussions with the project team, we understand that the project involves the installation of a proposed 16-inch diameter C900 PVC DR14 force main that spans approximately 9,000 LF along residential roads and through an open field. Current plans call for the proposed force main to be installed by both open cut trenching and trenchless methods. Anticipated pipeline

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invert depths are generally in the range of 3.5 feet, with a potential minimum soil cover of ~~up to~~ 4 ~~feet~~. to 12 feet for open cut trench areas and 10 to 20 feet for trenchless crossing areas.

If the proposed construction methodology is different than described above, we should be contacted and provided the opportunity to evaluate our recommendations presented h evaluate if they remain valid based on the proposed construction procedures.

Borings were completed in 2024 but report is dated 2022?

2. SUBSURFACE EXPLORATION

2.1 Field Exploration

Our site observation and subsurface exploration was completed in August and September of 2024 and consisted of advancing 19 exploratory borings to various depths below the existing ground surface (BGS) ranging from approximately 15 feet BGS to a maximum depth of approximately 25 feet BGS. The locations and required depths of these borings were designated by Garver, LLC. Approximate boring locations are shown in Appendix A.

The borings were advanced using truck mounted Simco 2800 and CME 75 drill rigs equipped with solid- and hollow-stem continuous flight augers. Soil samples were collected at regular intervals by driving a Modified California (MC) sampler into the strata with either an automatic or manual, 140-pound hammer falling 30-inches. The hammer type used in the sampling process is indicated on the respective boring logs provided in Appendix B.

The Modified California (MC) Sampler is a 2.5-inch O.D., 2.0-inch ID (1.95-inch ID with liners), split barrel sampler with internal liners, following ASTM D3550. The MC Sampler “Penetration Resistance” refers to the sum of all blows required to drive the sampler the drive length of 12-inches or portion thereof. The MC penetration resistance represents the consistency or relative density of the strata. The borings were logged and sampled by a qualified representative of Yeh. The boring logs and the legend of the boring logs are presented in Appendix B.

2.2 Laboratory Testing

Representative soil samples were selected for geotechnical and analytical laboratory testing. Laboratory testing was performed following industry standards and local practice. Laboratory soil testing included the following:

- Natural moisture-density
- Gradation analysis
- Atterberg limits

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- Unconfined compressive strength
- Swell/Consolidation
- Analytical tests including water soluble sulfates and chlorides, soil resistivity, and pH

Results of the laboratory testing are shown on the boring logs and presented in the Laboratory Summary in Appendix C.

3. SITE AND SUBSURFACE CONDITIONS

3.1 Site Conditions

The project site is located in Fountain, Colorado and the proposed alignment travels adjacent to and across several streets and open fields. Development is industrial along the western portion of the alignment, residential near the eastern portion, and vacant land with residential development potential near the central portion. The photographs below show the site conditions at several locations at the time of our exploration.

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Picture 1. Drilling at Widefield Water & Sanitation

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Picture 2. Drilling at Willow Spring Road



Picture 3. Drilling near Mesa Road.

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Picture 4. Drilling near Mesa Road.



Picture 5. Drilling along Cross Creek.

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For the borings drilled through existing pavement, the thickness of the asphalt and road base was measured during the field investigation. A summary of asphalt and road base thicknesses is presented in Table 1.

Table 1. Summary of Asphalt and Road Base Thickness

Boring ID	Roadway	Asphalt Thickness (inches)	Road Base Thickness (inches)
B-14	Cross Creek	9.5	N/A
B-15	Cross Creek	9.5	N/A
B-16	Cross Creek	8.75	N/A
B-17	Cross Creek	9.0	N/A
B-18	CO 16/Mesa Ridge Parkway	5.0	15.0
B-19	CO 16/Mesa Ridge Parkway	5.0	18.0

Note: All thicknesses are approximate and represent conditions at the time of field investigation.

3.2 Geologic Setting

The project area has been mapped by the Colorado Geological Survey as shown in Figure 2. Much of the project area is mapped as various gravel deposits including Alluvial gravel one of upper to middle Holocene age (Qag1), Alluvial gravel five of Upper Pleistocene age (Qag5), Alluvial gravel six of lower Upper Pleistocene to upper Middle Pleistocene age (Qag6). These three units consist of glaciofluvial gravels that were episodically deposited and downcut in the Fountain Creek valley. All the alluvial gravel units in the project area generally consist of reddish, well rounded ovoid pebbles and cobbles in a very coarse sand to fine pebble matrix. Local small boulders (less than three feet diameter) may be present. Alluvial gravels one and five may vary from 3 to 15 feet thick, and Alluvial gravel six has an unknown thickness.

The central project area is mapped as Young alluvial-fan deposits of late to middle Holocene age (Qf). These fan deposits generally consist of dark gray to gray clay, gravel, and sand. This unit was deposited as episodic mudflows from tributary channels onto river terraces and floodplains. The alluvial fans typically form coalescing aprons that mantle the transition from shale bedrock hills to floodplains. This unit contains clay derived from nearby Pierre Shale and may be expansive. This unit may vary from less than five feet to approximately 30 feet thick.

An east-central portion of the project area is mapped as Eolian loess of lower Holocene to Upper Pleistocene age (Qlo). This tan to light brown loamy silt, clay, and very fine-grained sand was deposited by wind and may have a local reddish hue and weak calcic soil development. Some areas may include reworked bedrock residuum, may grade into bedrock residuum, include fine

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gravel, or include Pierre Shale fragments. Loess may be prone to collapse and settlement upon wetting. Maximum thickness of this loess unit is about 20 feet.

Some of the project area, notably along existing roadways, is mapped as Artificial fill/disturbed areas (af/da). These areas may consist of gravel, sand, silt, clay, and human-made materials emplaced, disturbed, or removed by human activities. This includes roadway embankments, grading for development, uncontrolled or unsorted storage piles of varying compositions and properties, and landfills.

Valley-fill alluvium of Holocene age (Qav) is mapped in a north-south oriented valley near the eastern edge of the project area. This alluvium consists of gray, tan, to brownish gray, unsorted to poorly sorted, weakly stratified sandy to silty clay. The alluvium was deposited as valley fill in broad drainage swales on low hillsides where underlain by Pierre Shale. The alluvium often contains dispersed small crystalline gravel clasts and Pierre Shale concretion fragments. Sheetwash sediments may be present. This alluvium contains expansive clays. Thickness of this alluvium unit may vary from about five feet to 20 feet.

The Pierre Shale cone-in-cone zone of Lavington (1933) of Upper Cretaceous age (Kpc) underlies the sedimentary units in the project area, and small outcrops are notably mapped southwest of and along the eastern edge of the project area. The Pierre Shale cone-in-cone zone is typically dark gray, tan-gray, or olive-gray, blocky to finely fissile, non-calcareous shale, silty shale, or orange to buff colored very fine-grained sandstone. Thin bentonite beds may be present, as well as orange-brown stained limestone and reddish-brown siderite ironstone concretions. The concretions can be locally abundant, vary in shape, and may be large (up to six feet across). Cone-in-cone structures (secondary cone-shaped sedimentary structures formed due to burial and diagenesis) are common in tabular-shaped concretions. The Pierre Shale cone-in-cone zone is estimated to be approximately 2,290 feet thick.

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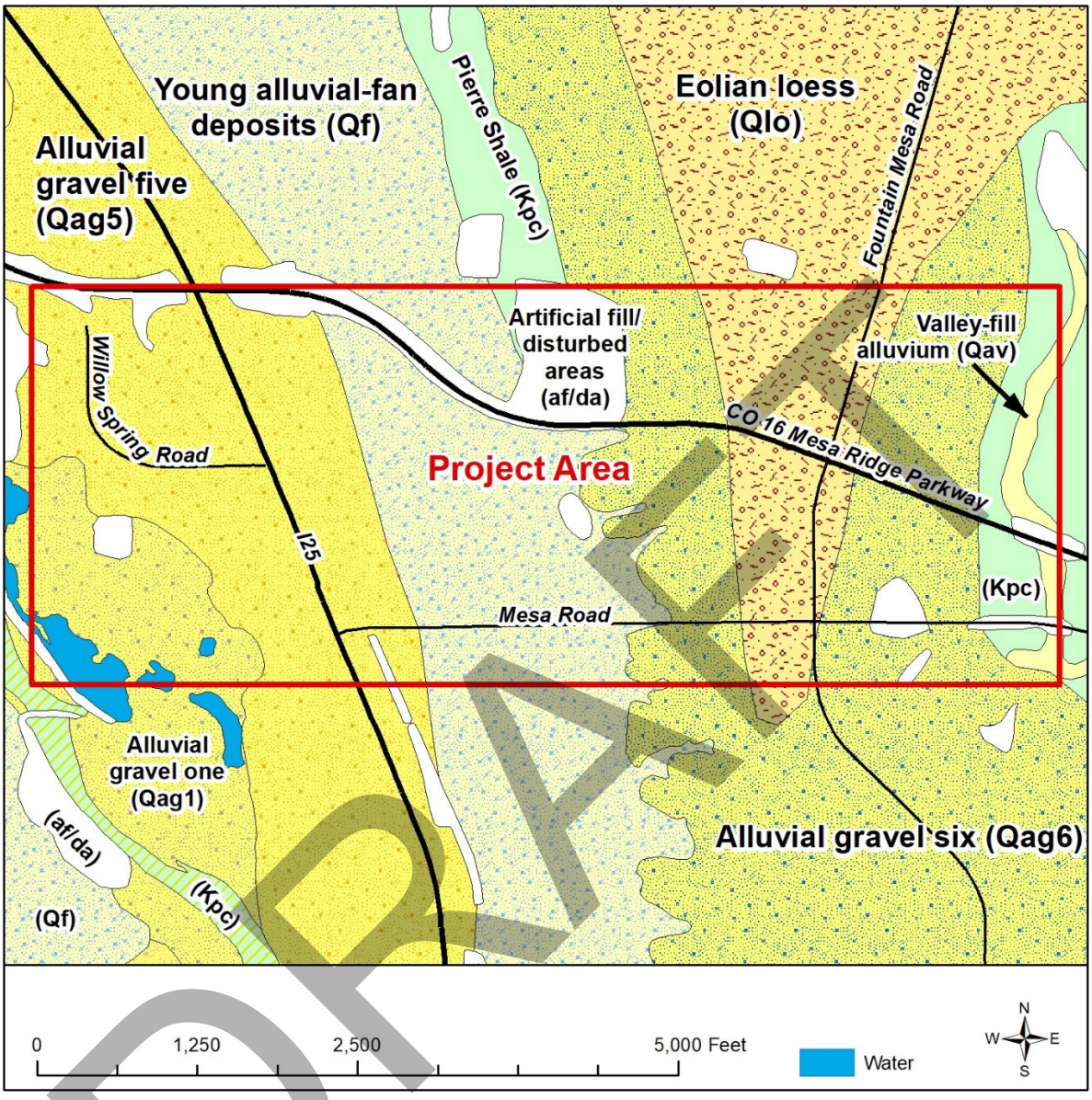


Figure 2. Geologic map of the project area. From *White, J.L., Lindsey, K.O., Morgan, M.L., and Mahan, S.A., Geologic Map of the Fountain Quadrangle, El Paso County, Colorado, 2017. Colorado Geological Survey, Open-File Report OF-17-05. Scale 1:24,000.*

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3.3 Subsurface Conditions

The subsurface earth materials encountered in our borings are generally consistent with the mapped geology. The soils encountered along the alignment from WWSD east to a newly-built unnamed roadway (Borings B-1 through B-11) generally consist of several feet of clayey sand or lean clay with varying amounts of sand over several feet of well graded sand with varying amounts of silt and gravel until shale bedrock is encountered or to the boring termination depth. Following

the alignment from the new unnamed road east and north to Mesa Ridge Parkway (Borings B-11 through B-19), the soils encountered generally consist of lean clay with varying amounts of sand from surface (or beneath pavement) to the boring termination depth. Approximately 15 to 18 feet of fill material was encountered in borings B-3, B-16, and B-18. The shale bedrock encountered in Borings B-6 through B-10 is generally dark gray and varied from firm to very hard. A summary of encountered shale depths in the borings is provided in Table 2.

Table 2. Summary of Shale Bedrock Depths

Boring ID	Shale Depth (ft BGS)
B-6	18
B-7	20
B-8	20
B-9	18
B-10	24

Note: Shale bedrock was not encountered in the following borings:
B-1, B-2, B-3, B-4, B-5, B-11, B-12, B-13, B-14, B-15, B-16, B-17, B-18, B-19

3.4 Groundwater

Groundwater was encountered in six borings during our field exploration. Groundwater was observed at approximately 14 to 21 feet BGS in the borings as summarized in Table 3 below. Groundwater was not observed at any other borings during our field exploration. Groundwater observations are representative of conditions at the time of our field exploration. Groundwater levels at other times of the year, or at other locations across the site, may fluctuate with seasonal precipitation, site grading and improvements, and local irrigation practices.

Table 3. Summary of Groundwater Depths Encountered During Drilling

Boring ID	Groundwater Depth (ft BGS)
B-6	18
B-7	14
B-8	14
B-9	14
B-10	14
B-19	21

Note: Groundwater was not encountered in borings B-1 to B-5 or borings B-11 to B-18.

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3.5 Open Trench Subsurface Conditions

Anticipated pipeline invert installation depths for open trenching are generally in the range of 3.5 feet to 12 feet BGS. Within this range, soil conditions along the western region of the alignment from borings B-1 to B-5 generally consist of clayey sand, lean clay with varying amounts of sand, and silty sand with varying amounts of gravel. At the anticipated open-trench installation depths from boring B-10 to B-17, the soils encountered generally consist of sandy lean clay and sand with clay and gravel. A summary of encountered soil conditions at the pipeline installation depths for open trenching is provided in Table 4.

Table 4. Open Trench Soil Conditions

Boring ID	Depth (ft BGS)	Subsurface Conditions
B-1	3.5 - 12	Clayey Sand, Well-graded Sand with Gravel
B-2		Sandy Lean Clay, Silty Sand
B-3		Sandy Lean Clay, Clayey Sand to Silty Clayey Sand
B-4		Sandy Lean Clay, Well-Graded to Poorly Graded Sand with Silt and Gravel
B-5		Sandy Lean Clay, Poorly Graded to Well-Graded Sand with Silt and Gravel
B-11		Sandy Lean Clay, Clayey Sand with Gravel
B-12		Sandy Lean Clay
B-13		Sandy Lean Clay
B-16		Sandy Lean Clay
B-17		Sandy Lean Clay

3.6 Trenchless Subsurface Conditions

Anticipated pipeline installation depths are generally in the range of 10 to 20 feet BGS for trenchless pipeline construction areas. Within this range, soil conditions at the trenchless crossing beneath US Highway 85 from boring B-6 to B-10, generally consist of well-graded sand with silt and gravel. Shale is encountered within this range at approximately 18 to 20 feet. The trenchless crossing at Fountain Mesa Road, at borings B-14 and B-15, generally consists of lean clay between ten and 20 feet BGS. The trenchless crossing at CO Highway 16/Mesa Ridge Parkway, at borings B-18 and B-19, generally consists of lean clay with varying amounts of sand. Groundwater was encountered during drilling in borings B-6 through B-10 at depths between 14 and 18 feet BGS, and in boring B-19 at 21 feet BGS.

A summary of encountered soil conditions at the anticipated trenchless pipeline installation depths is provided in Table 5.

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Table 5. Trenchless Soil Conditions

Boring ID	Depth (ft BGS)	Subsurface Conditions
B-6		Well-Graded Sand with Silt and Gravel, Shale (encountered at 18ft BGS)
B-7		Silty Sand with Gravel, Shale (encountered at 20ft BGS)
B-8		Well-Graded Sand with Silt and Gravel, Shale (encountered at 20ft BGS)
B-9		Well-Graded Sand with Silt and Gravel, Shale (encountered at 18ft BGS)
B-10		Well-Graded Sand with Clay and Gravel, Silty Sand with Gravel
B-14		Sandy Lean Clay
B-15		Sandy Lean Clay
B-18		Sandy Lean Clay
B-19		Sandy Lean Clay

4. Feasibility and General Recommendations

Based on the results of our subsurface exploration, laboratory testing, and our understanding of the project, the proposed waterline project is geotechnically feasible provided the geotechnical concerns presented herein are properly addressed during design and construction.

The primary geotechnical concerns at the site are the presence of variable soil conditions in the proposed trenching and trenchless areas consisting of soft to very stiff clay soils with sand layers, firm to very hard shale bedrock, and the potential for groundwater to be encountered.

The following sections present our construction and design recommendations for the project.

5. Construction Considerations

Site preparation and earthwork operations should be performed in accordance with applicable codes, safety regulations, and other local, State, or Federal guidelines. Earthwork on the project should be observed and evaluated by Yeh. The evaluation of earthwork should include observation and testing of engineered fills, subgrade preparation, foundation bearing soils, and other geotechnical conditions exposed during the construction of the project. All earthwork and excavations should be in accordance with Widefield Water and Sanitation District (WWSD) Standard Construction Specifications.

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5.1 Site and Subgrade Preparation

5.1.1 Trenchless Access Pits

Drilling/boring pit areas should be prepared following WWSD Standard Specifications. Site preparation should consist of removing any existing structures, sod, and all organic or other deleterious material from the excavation area.

Following site preparation, stripping, and initial excavation, the subgrade should be inspected and evaluated to meet the requirements of WWSD Standard Specifications, and pipe manufacturer requirements. If groundwater and soft subgrade are encountered within the excavation limits, additional improvement by remove-and-replace with crushed rock, or mechanically stabilized subgrade may be required.

5.2 Excavations and Trench Construction

5.2.1 Excavation Characteristics

Clayey and sandy soil and firm to very hard shale bedrock was encountered in the borings near the anticipated excavation depths. The soils may be excavated using conventional heavy-duty earth working equipment in good working order. We note additional effort may be required to excavate the shale bedrock based on the blowcounts recorded during sampling (refusal blowcounts in some locations).

Groundwater was encountered during our exploration as summarized previously and may be encountered during excavation of trenchless access pits and the trenchless crossing near borings B-6, B-7, B-8 B-9, B-10, and B-19.

5.2.2 Temporary Excavations

All excavations must comply with the applicable local, State, and Federal safety regulations, and particularly with the excavation standards of the Occupational Safety and Health Administration (OSHA). Construction site safety, including excavation safety, is the sole responsibility of the Contractor as part of its overall responsibility for the means, methods, and sequencing of construction operations. Yeh's recommendations for excavation support are provided for the Client's sole use in planning the project, and in no way relieve the Contractor of its responsibility to construct, support, and maintain safe slopes. Under no circumstances should the following recommendations be interpreted to mean that Yeh is assuming responsibility for either construction site safety or the Contractor's activities.

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We believe the overburden soil encountered on this site will classify as a Type C material, using OSHA criteria. OSHA requires that unsupported cuts be no steeper than 1½ horizontal:1 vertical (1½h:1v) for Type C material for unbraced excavations up to 20 feet in height, above the groundwater. In general, we believe that these slope ratios will be temporarily stable under unsaturated conditions. Flattened slopes may be required if excavations encounter groundwater, or if the slopes will be exposed for an extended period of time. Please note that the Contractor's OSHA-qualified "competent person" must make the actual determination of soil type and allowable sloping in the field.

The soils encountered by the proposed excavations may vary significantly across the site. The preliminary classifications presented above are based solely on the materials encountered in widely spaced exploratory test borings. The contractor should verify that similar conditions exist throughout the proposed area of excavation.

As a safety measure, it is recommended that all vehicles and soil piles be kept to a lateral distance equal to at least the depth of the excavation from the crest of the slope. The exposed slope face should be protected against the elements and monitored by the Contractor daily.

5.2.3 Dewatering/Shoring

Groundwater was encountered in six borings (see Table 3 and Appendix B for groundwater depths). Construction watering should be planned and designed by qualified personnel utilizing appropriate construction dewatering equipment/systems such as well points, sumps, and trenches. Design of the dewatering system will be the responsibility of the Contractor. In addition, trenching into unstable, saturated overburden soils may require temporary shoring, where construction of safe slopes is not feasible. OSHA requirements for excavation in unstable materials should be followed.

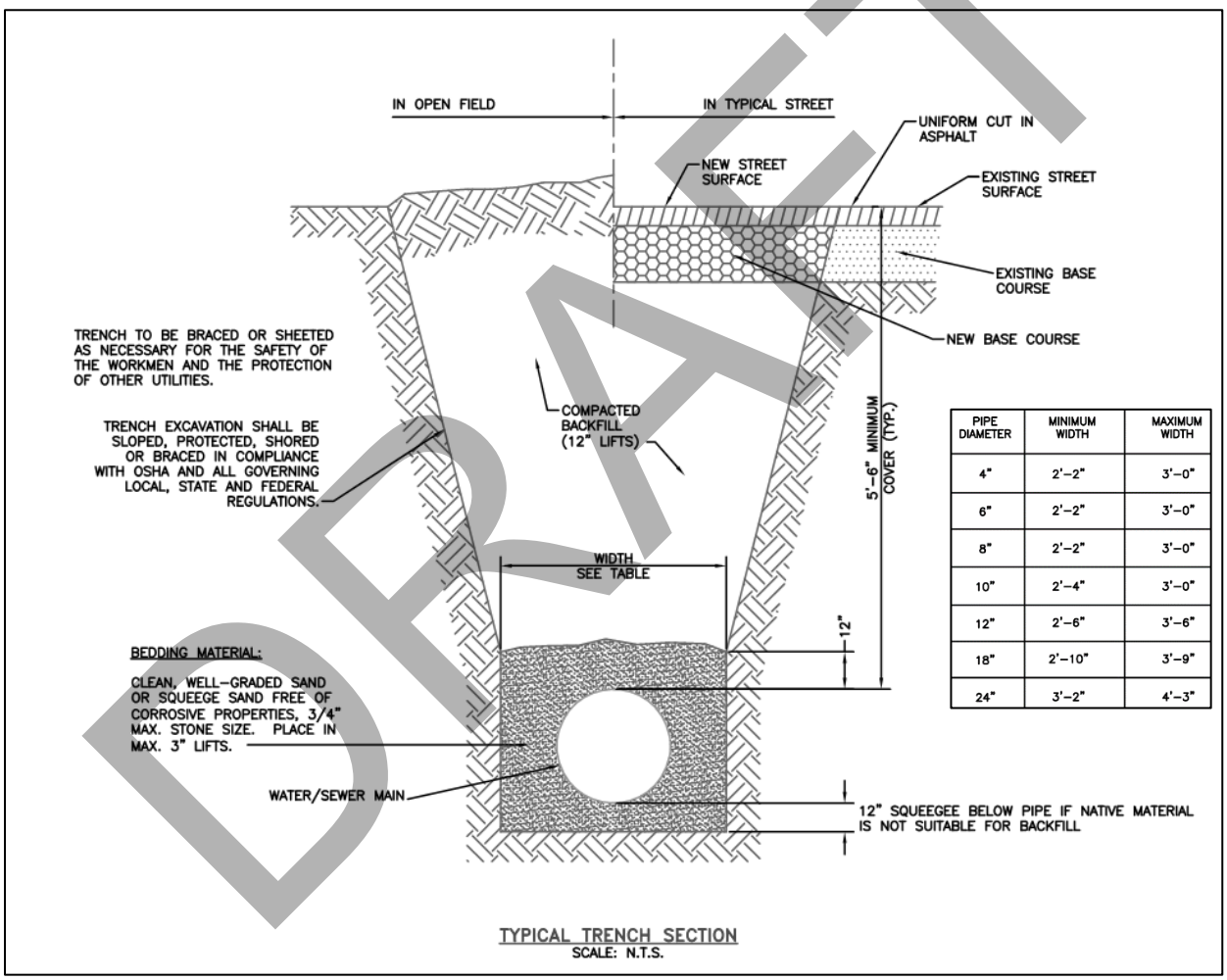
5.3 Construction in Wet or Cold Weather

No grading fill, structural fill, or other fill should be placed on frosted or frozen ground, nor should frozen material be placed as fill. Frozen ground should be allowed to thaw or be completely removed prior to placement of fill. A good practice to help limit the risk of freezing is to cover the compacted fill with a "blanket" of loose fill. Prior to commencement of additional fill, the loose fill blanket must be entirely removed and allowed to thaw before incorporating it into the fill.

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Attention to drainage conditions during construction is critical to long-term performance of the backfill and to help limit future settlement along the pipeline. During construction, grade the site so that surface water can drain readily away from the improvement areas. Ponding of water in or near excavations should be avoided. Promptly pump out or otherwise remove water that accumulates in excavations or on subgrades and allow these areas to dry-out before resuming construction. Use berms, ditches, and similar means to prevent stormwater from entering work areas and to convey it away from the work area efficiently.

5.4 Pipe Embedment, Trench Backfill Material and Placement



PIPE DIAMETER	MINIMUM WIDTH	MAXIMUM WIDTH
4"	2'-2"	3'-0"
6"	2'-2"	3'-0"
8"	2'-2"	3'-0"
10"	2'-4"	3'-0"
12"	2'-6"	3'-6"
18"	2'-10"	3'-9"
24"	3'-2"	4'-3"

Figure 3. Typical Trench Cross Section

Pipe embedment should be performed in accordance with WWSD Standard Specifications and the pipe manufacturer specifications. Trench backfill material, placement, and compaction should be performed following the requirements in WWSD Standard Specifications. In our opinion, the

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onsite sandy and clayey soils encountered in our borings are not suitable to be used for embedment materials but could be used for trench backfill one foot above the pipeline, although the fine-grained clay soil will likely need to be moisture conditioned (drying or adding moisture) prior to compaction. Figure 3 shows typical WWSD trench detail.

5.5 Concrete Reverse Anchor Bearing Resistance Equations

Estimated bearing resistance equations were developed based on the subsurface materials encountered in the borings near the proposed concrete reverse anchor locations along the proposed waterline alignment. It is our understanding that the bottom of the proposed concrete reverse anchors will be at approximately eight feet BGS with a potential minimum soil cover of up to 4 feet. The upper three feet of soil was not used for estimated bearing resistance due to the potential of possible future disturbance as depicted in Figure 3. The assumed soil parameters used for the concrete reverse anchor bearing resistance equations and resistance factors are summarized in Appendix D, Summary of Nominal Bearing Resistance Equations and Resistance Factors for Concrete Reverse Anchors.

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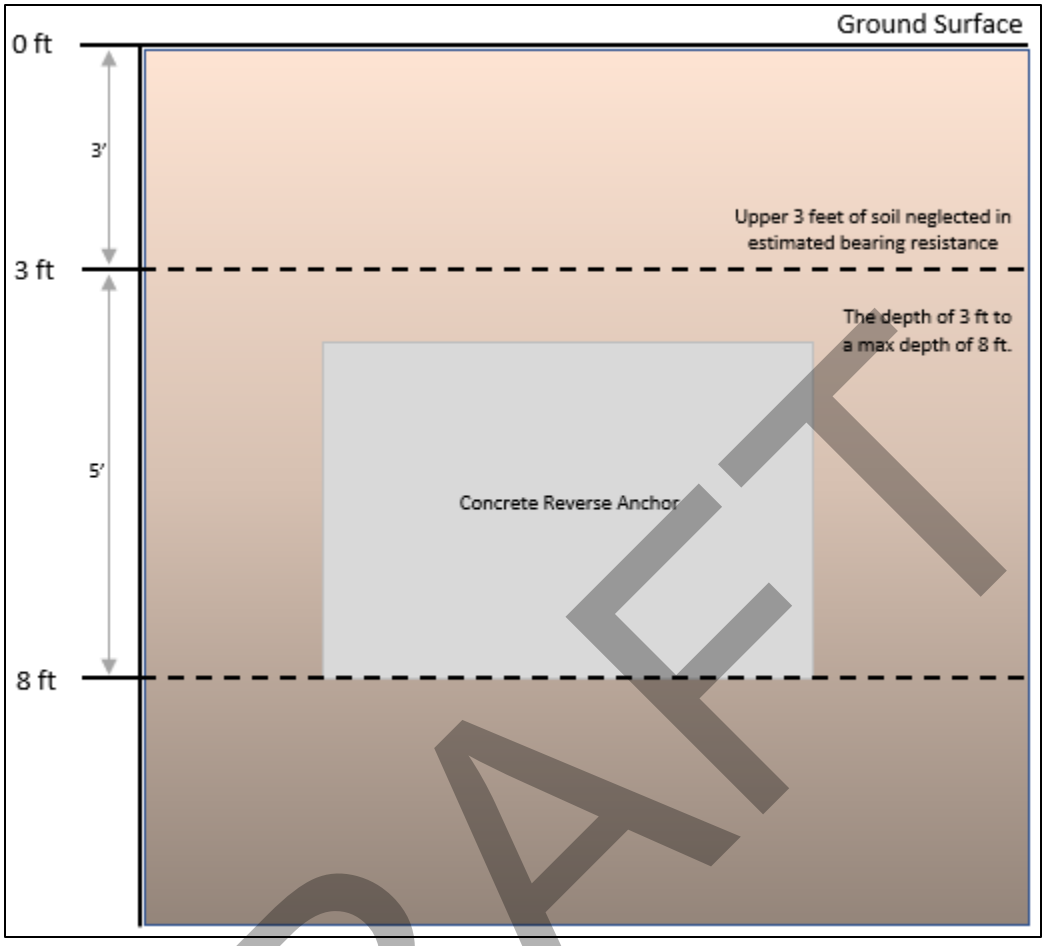


Figure 4. Concrete Reverse Anchor Embedment Depth

5.6 Imported Structural Fill Requirements

Based on our laboratory test results, the on-site clayey and sandy soils may be utilized as fill provided they are properly moisture conditioned and compacted as specified in this report. Additional imported structural fill, if required, should consist of non-expansive granular material meeting the criteria presented in Table 6. (note that onsite clay (CL) may not meet this criteria and selective stockpiling of granular clayey sand soils maybe required).

Table 6. Imported Structural Fill Criteria

Gradation Requirements	
Standard Sieve Size	Percent Passing
2 inch	100
No. 200	10 - 30

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Plasticity Requirements (Atterberg Limits)	
Liquid Limit	30 or less
Plasticity Index	6 or less

We recommend that a qualified representative of Yeh visit the site during excavation and during placement of the structural fill to verify the soils exposed in the excavations are consistent with those encountered during our subsurface exploration, and that proper foundation subgrade preparation and placement is performed.

All fill placed on this site should be compacted according to the recommendations in Section 5.6.1 of this report. A sample of any imported fill material should be submitted to our office for approval and testing at least three days prior to stockpiling at the site.

Per WWSD Standard Specifications, no rock or stone larger than allowed by sieve analysis, or any detrimental substance, shall be placed closer to the pipe than 6 inches, and WWSD reserves the right to require the use of select bedding material at any time.

5.6.1 Compaction Requirements

Fill materials should be placed in horizontal lifts compatible with the type of compaction equipment being used, moisture-conditioned, and compacted in accordance with the criteria shown in Table 7. Fill should be placed in level lifts not exceeding the maximum loose soil lift height outlined in the compaction chart in Section 3.4 of WWSD Standard Specifications and compacted to the specified percent compaction in Table 7 to produce a firm and unyielding surface. The loose soil lift height is dependent on the compaction equipment being used. If field density tests indicate the required percent compaction has not been obtained, the fill material should be reconditioned and recompacted as necessary to meet the required percent compaction before placing any additional material.

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Table 7. Compaction Requirements

Fill Location	Material Type	Percent Compaction	Moisture Content
Trench Backfill above pipe bedding zone	Onsite Sandy & Clayey Soils/ Imported Structural Fill	95 minimum (ASTM D1557)	Optimum
Aggregate Base (ABC)	Imported CDOT Class 5 or 6 ABC	95 minimum (ASTM D1557)	Optimum
Pipe Embedment Zone 6 inches below bottom of pipe extending to 12 inches above top of pipe	Import granular soils meeting WWSD Specifications	90% maximum (ASTM D1557)	Optimum

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6. PIPELINE DESIGN

6.1 Pipe Loads

Pipelines should be designed to resist vertical loads resulting from the backfill. The load on the pipe can be estimated as the prism load. The prism load is the total weight of the soil acting above the pipe and applied over a width equal to the outside diameter of the pipe. A total soil unit weight of 135 pounds per cubic foot can be used to estimate the prism load on the pipe. An effective unit weight of 72.5 pounds per cubic foot should be used where inundated conditions are expected. Loads from adjacent pipes within the same trench should be considered when designing for pipe loads

6.2 Modulus (E')

Pipes are typically designed to withstand a certain amount of deflection from applied earth loads. Procedures recommended by Howard (1996, 2006) were used to estimate the modulus of soil reaction (E') for use with deformation analyses of the pipe. A composite E' value of 760 pounds per square inch may be used for design of flexible pipe assuming a 48-inch-wide trench backfilled with a minimum of 10 inches of compacted sand. An E' value of 2,000 pounds per square inch was used for the compacted Pipe Zone Material (sand).

The recommended E' values assume that the trench will be excavated in the subsurface material described in this report and having a minimum of 3.5 feet of backfill placed over the top of the pipe.

The recommended E' values were selected based on the soil conditions encountered in the borings advanced along the pipeline alignment. If relatively soft clay or silt, or other unsuitable material is present within the pipe zone, or the pipe zone material is not properly compacted, then loads greater than those estimated could act on the pipe due to relatively poorly supported springline conditions along the pipe. Boring-specific native E' values calculated using WWSD minimum and maximum trench widths (38 inches and 52 inches, respectively) are provided in Tables 8 and 9 below. The geotechnical professional should observe the trench during construction. If unsuitable materials are encountered along the springline of the pipe, the trench detail and design of the pipe should be reviewed to evaluate if modifications to the design are needed to provide for the lower springline support.

Table 8. Summary of Soil Modulus Values Using WWSD Minimum Trench Width (38 inches)

Boring ID	Trench Width (in)	Pipe Installation Zone (ft)	SPT N Value[1]	UCCS (psi @ depth (ft))	Material Encountered	Composite E' (psi)
B-1	38	3.5-12	4	-	Clayey Sand, Sand with Gravel	355
B-2	38	3.5-12	12	-	Sandy Lean Clay, Silty Sand	1077
B-3	38	3.5-12	7	-	Sandy Lean Clay, Clayey to Silty Sand	786
B-4	38	3.5-12	7	-	Sandy Lean Clay, Sand with Silt and Gravel	786
B-5	38	3.5-12	7	-	Sandy Lean Clay, Sand with Silt and Gravel	786
B-6	38	10-20	20	-	Sand with Silt and Gravel, Claystone	1528
B-7	38	10-20	3	-	Silty Sand	355
B-8	38	10-20	5	-	Sand with Silt and Gravel	1023
B-9	38	10-20	15	-	Sand with Silt and Gravel, Claystone	1320
B-10	38	10-20	11	-	Sand with Clay and Gravel, Silty Sand	1320
B-11	38	3.5-12	15	-	Sandy Lean Clay, Clayey Sand	1077

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Boring ID	Trench Width (in)	Pipe Installation Zone (ft)	SPT N Value[1]	UCCS (psi @ depth (ft))	Material Encountered	Composite E' (psi)
B-12	38	3.5-12	9	-	Sandy Lean Clay	786
B-13	38	3.5-12	24	-	Sandy Lean Clay	1528
B-14	38	10-20	9	-	Sandy Lean Clay	786
B-15	38	10-20	12	-	Sandy Lean Clay	1077
B-16	38	3.5-12	7	27.8 @ 7	Sandy Lean Clay	786
B-17	38	3.5-12	4	23.0 @ 4	Sandy Lean Clay	355
B-18	38	10-20	14	-	Sandy Lean Clay	1077
B-19	38	10-20	3	-	Sandy Lean Clay	355

NOTE: [1]N values correlated from Modified California sampler blow counts as necessary.
Reference: Pipeline Installation 2.0, A. Howard, 2015
Typical Trench Cross Section, Widefield Water and Sanitation District, July 2011

Table 9. Summary of Soil Modulus Values Using WWSD Maximum Trench Width (52 inches)

Boring ID	Trench Width (in)	Pipe Installation Zone (ft)	SPT N Value[1]	UCCS (psi @ depth (ft))	Material Encountered	Composite E' (psi)
B-1	52	3.5-12	4	-	Clayey Sand, Sand with Gravel	524
B-2	52	3.5-12	12	-	Sandy Lean Clay, Silty Sand	1314
B-3	52	3.5-12	7	-	Sandy Lean Clay, Clayey to Silty Sand	1031
B-4	52	3.5-12	7	-	Sandy Lean Clay, Sand with Silt and Gravel	1031
B-5	52	3.5-12	7	-	Sandy Lean Clay, Sand with Silt and Gravel	1031
B-6	52	10-20	20	-	Sand with Silt and Gravel, Claystone	1684
B-7	52	10-20	3	-	Silty Sand	524
B-8	52	10-20	5	-	Sand with Silt and Gravel	1265
B-9	52	10-20	15	-	Sand with Silt and Gravel, Claystone	1523
B-10	52	10-20	11	-	Sand with Clay and Gravel, Silty Sand	1523
B-11	52	3.5-12	15	-	Sandy Lean Clay, Clayey Sand	1314
B-12	52	3.5-12	9	-	Sandy Lean Clay	1031
B-13	52	3.5-12	24	-	Sandy Lean Clay	1684
B-14	52	10-20	9	-	Sandy Lean Clay	1031

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Boring ID	Trench Width (in)	Pipe Installation Zone (ft)	SPT N Value[1]	UCCS (psi @ depth (ft))	Material Encountered	Composite E' (psi)
B-15	52	10-20	12	-	Sandy Lean Clay	1314
B-16	52	3.5-12	7	27.8 @ 7	Sandy Lean Clay	1031
B-17	52	3.5-12	4	23.0 @ 4	Sandy Lean Clay	524
B-18	52	10-20	14	-	Sandy Lean Clay	1314
B-19	52	10-20	3	-	Sandy Lean Clay	524

NOTE: [1]N values correlated from Modified California sampler blow counts as necessary.
Reference: Pipeline Installation 2.0, A. Howard, 2015
Typical Trench Cross Section, Widefield Water and Sanitation District, July 2011

6.3 Thrust Resistance

Thrust forces will develop in pressurized pipelines that can be resisted by soil pressures. The resistance to thrust forces can be provided by frictional resistance mobilized between the pipe and the surrounding soil and by passive resistance acting on thrust blocks placed within the trench to improve the lateral support for the pipe.

For PVC/HDPE pipe, a coefficient of friction of 0.25 can be used to estimate the sliding resistance that develops between the outside of the pipe and the compacted Pipe Zone Material. The geotechnical engineer should be contacted for refined coefficient of friction values if other backfill material or pipe materials are anticipated. An effective soil unit weight of 72.5 pounds per cubic foot should be used when calculating the overburden stress above the pipe or thrust blocks to account for the potential for the backfill material to be inundated with water.

Thrust block resistance can be estimated as the passive soil pressure acting on a bearing side of the block plus the frictional resistance acting on the base of the block. Thrust blocks should be designed with a minimum cover of three feet below finish grade. A net passive resistance of 300 pounds per cubic foot (equivalent fluid pressure) plus the effective overburden pressure can be used to estimate the lateral resistance acting on thrust blocks bearing against relatively undisturbed native soil. Prior to placing concrete for thrust blocks and pipe anchors, loose soil should be removed from all surfaces and the exposed soil surfaces moistened to or just above optimum. A coefficient of friction of 0.48 may be used to estimate the frictional resistance acting on the base of cast-in-place concrete thrust blocks bearing in relatively undisturbed native material.

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7. DESCRIPTION OF POTENTIAL TRENCHLESS METHODS

7.1 Jack and Bore

Jack and bore includes construction of a jacking pit and receiving pit that are excavated on either end of the crossing. The boring equipment and casing are installed from within the jacking pit and the receiving pit is where the casing terminates. The drilling equipment uses large diameter augers that are mounted to a horizontal drive shaft. Casing is pushed or jacked into the ground as the auger drills and removes the spoils. Additional pieces of casing are welded onto the exposed casing as the bore path advances. This method is typically well suited for soil conditions that can allow temporary stable open faces in dense sand with some clay and/or silt or clay soils that are above the groundwater surface. Depending on the depth of the installation, shallow, perched groundwater could be encountered that could require dewatering.

7.2 Pipe Ramming

Pipe ramming includes ramming a steel casing using vibration and impact. The equipment and casing are installed from within the jacking pit and the receiving pit is where the casing terminates. The equipment uses ramming and vibration equipment that is mounted to the casing. Casing is rammed through the ground along the desired alignment. Additional pieces of casing are welded onto the exposed casing as the path advances. Soil fills the inside of the casing and is removed during or after the ramming is completed. This method is typically well suited for soil conditions that can allow temporary stable open faces in dense sand with some clay and/or silt or clay soils that are above the groundwater surface. The subsurface material at the project site where pipe ramming could be performed appear to be generally suitable for pipe installation using pipe ramming; however, the shale bedrock material in the proposed crossing locations may cause difficult driving conditions based on the drilling and sampling conditions encountered by the respective borings. In addition, pipe ramming causes a relatively high amount of vibration that could damage nearby utilities and improvements. Depending on the depth of the installation, shallow groundwater could also be encountered that could require dewatering.

8. TRENCHLESS CROSSING RECOMMENDATIONS

8.2 Anticipated Drilling Conditions and Construction Conditions

The soil conditions encountered at the trenchless crossings between borings B-14 and B-15 and between borings B-18 and B-19 indicate that the drilling/boring operations could be advanced through medium stiff to very stiff sandy lean clay.

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Depending on the final pipeline depth and alignment, the geotechnical subsurface investigation for the proposed jack and bore construction site, based on borings B-6 through B-10, indicates potential challenges due to highly variable soil and rock conditions. The subsurface materials range from medium dense sand with gravel to medium stiff to very stiff sandy lean clay, while bedrock consists of firm to very hard shale. These variations may complicate the drilling process, making it difficult to maintain the intended alignment of the waterline. The differences in density and cohesion between the clay, sandy soils, and bedrock are likely to impact the final bore alignment.

To address these challenges, the contractor should be prepared for varying conditions and implement provisions for monitoring the cutting head during advancement. Additionally, the design should account for potential deviations from the intended alignment to ensure the successful installation of the waterline.

Groundwater was encountered in the trenchless crossing borings B-6 through B-10, and B-19. On that basis, groundwater should be anticipated and may be encountered near the bottoms of the proposed pipe and pit elevations. Contractors should be made aware of the groundwater elevations and evaluate potential impacts to constructability, and potential need for dewatering if pits/excavations extend into the groundwater.

8.3 Borehole Stability

Loose, cohesionless soils such as sand and gravel, and soft to very soft cohesive soils are generally prone to caving, slough, and running soil conditions in unsupported excavations, especially at the elevations where groundwater is present. These types of materials were encountered in Borings B-1 through B-10 and have higher potential to collapse along the drill/bore holes and sink holes can develop at ground surface. This should be considered for the installation of the pipe. The contractor should be prepared to maintain the stability of the hole during drilling/boring operations and have a mitigation plan in place in the event that settlement occurs, voids develop, or the hole collapses.

8.4 Bore Monitoring

When applying the jack and bore method, bore spoil volumes recovered from the bores should be monitored during construction to evaluate whether the excavated volume is consistent with the theoretical hole volume. Bulking of the excavated soils must be considered when comparing the spoil volumes to the theoretical hole volume. If spoil quantities (adjusted for bulking) exceed the

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theoretical hole volume, overmining of the heading may be occurring. This can result in voids along the bore path that can lead to settlement and/or sinkholes at the ground surface. If excessive voids occur, provisions should be made to fill those voids with cement grout or other suitable material to restore the integrity of the roadway subgrades.

Monitoring during drilling should be kept at the appropriate angle, and adjustments should be made to maintain design grade. Post-installation grouting of the carrier pipe, if necessary, should take place before installation of the waterline.

8.5 Jacking Resistance

The local resistance of the soil to provide resistance for jacking of casings at the crossings will depend upon the condition of the soil at the jacking location as well as the contractor's methods and equipment. The frictional resistance on the sides of the casing can be reduced by overcutting the heading to a diameter slightly larger than the casing (typically less than one-inch in diameter) using overcut banding on the lead casing, and by applying or introducing lubricants to the outside of the casing, such as slurries or drilling muds.

The reaction force for the jacking equipment will be provided by passive earth pressure developed against a plate bearing on the back of the launching pit. Soil encountered near the proposed depths of the casings at the proposed launching pits for the crossings generally consisted of medium stiff clay with varying amounts of silty to clayey sand. Weathered, soft shale bedrock could also be encountered in some jacking pit locations depending on installation depth below the ground surface. Table 10 summarizes the results of the unconfined compressive testing performed on samples from the borings. The results of the unconfined compressive testing are also presented in Appendix C, Laboratory Test Results, as well as in Appendix B, Legend and Boring Logs.

Table 10. Summary of Unconfined Compressive Strengths

Boring ID	Depth (ft BGS)	Material	Strength (psf)
B-1	1.0	Clayey Sand	7,585
B-2	1.0	Sandy Lean Clay	10,243
B-6	1.0	Clayey Sand	7,998
B-7	1.0	Clayey Sand with Gravel	15,874
B-8	1.0	Clayey Sand	6,131
B-11	1.0	Sandy Lean Clay	2,213
B-12	1.0	Sandy Lean Clay	2,972

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Boring ID	Depth (ft BGS)	Material	Strength (psf)
B-14	4.0	Sandy Lean Clay	3,766
B-15	4.0	Sandy Lean Clay	6,566
B-16	7.0	Sandy Lean Clay	3,996
B-17	4.0	Sandy Lean Clay	3,317
B-18	4.0	Sandy Lean Clay	4,306

The passive pressure for reaction blocks at the three crossings can be estimated using an allowable passive equivalent fluid pressure of 300 pounds per cubic foot for drained conditions. The estimated passive earth pressure assumes that the support soil for the jacking plate is at least four feet below the ground surface and above the groundwater. Some amount of lateral deflection will occur for the jacking force to develop the passive resistance of the soil. The size of the horizontal jacking pads and pressure area is directly related to the amount of lateral deflection.

8.6 Utility Clearance

All underground utilities near the alignment should be accurately located prior to construction and these utilities should be protected by the contractor so as not to be impacted by the proposed drilling/boring operations. The drilling/boring profile should be designed to allow sufficient clearance from all underground utilities to avoid entering into the existing utility trench or pipe zone materials.

Depending on the depth of the installation, shallow groundwater could also be encountered that could require dewatering.

9. Other Design Considerations

9.1 Chemical Test Results

Chemical testing was performed by Yeh's Denver laboratory on selected composite subsurface soil samples. The results of the analytical testing are presented in the boring logs, in Appendix C, and are summarized in Table 11.

Table 11. Chemical Test Results

Boring ID	Depth (ft)	pH	Water Soluble Sulfates (%)	Water Soluble Chlorides (%)	Resistivity (ohm-cm)
B-1	1.0	7.4	0.057	0.024	835

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Boring ID	Depth (ft)	pH	Water Soluble Sulfates (%)	Water Soluble Chlorides (%)	Resistivity (ohm-cm)
B-6	1.0	7.5	0.007	0.039	4,480
B-7	1.0	7.3	0.011	0.036	2,920
B-8	1.0	7.6	0.009	0.039	2,360
B-9	1.0	7.6	0.01	0.036	3,650
B-11+B-12	1.0	6.0	0.002	0.024	2,450
B-14	7.0	6.9	0.007	0.039	1,750
B-15	14.0	6.8	0.011	0.033	1,460
B-16	14.0	7.0	0.021	0.015	1,600
B-17	7.0	7.2	0.008	0.066	1,800
B-18	4.0	7.5	0.09	0.054	610
B-19	4.0	6.9	0.054	0.051	1,350

Note: A qualified corrosion engineer should review test results and determine the appropriate corrosion protection measures at the site.

9.2 One-Dimensional Swell or Collapse of Soils

One-dimensional swell or collapse tests were performed on select soils. The test results indicated that the on-site materials have a potential to swell when wetted. The results of the swell or collapse tests on samples are provided in Table 12.

Table 12. One-Dimensional Swell or Collapse Test Results

Boring ID	Depth (ft)	Soil Classification	Soil Description	Consolidation (-)/Swell (+), %	Applied Normal Pressure (psf)	Approx. Swell Pressure (psf)[1]
B-1	1.0	NA[2]	Clayey Sand	-1.3	500	NA[2]
B-2	5.0	A-7-6 (15)/CL	Sandy Lean Clay	0.4	500	4,000
B-7	5.0	A-2-6 (0)/SC	Clayey Sand	-0.3	500	NA[2]
B-9	1.0	NA[2]	Clayey Sand	1.7	500	2,300
B-10	1.0	A-7-6 (21)/CL	Sandy Lean Clay	1.0	500	16,000

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Boring ID	Depth (ft)	Soil Classification	Soil Description	Consolidation (-)/Swell (+), %	Applied Normal Pressure (psf)	Approx. Swell Pressure (psf)[1]
B-11	5.0	A-7-6 (24)/CL	Sandy Lean Clay	0.9	500	16,000
B-13	9.0	A-6 (13)/CL	Sandy Lean Clay	0.9	500	31,000
B-14	14.0	NA[2]	Sandy Lean Clay	0.1	500	2,000
B-19	14.0	NA[2]	Sandy Lean Clay	0.0	500	NA[2]

1. The swell pressure shown is the approximate vertical stress required to return the sample to the thickness the sample displayed at the time of wetting.
2. Not applicable

9.3 Foundation System Concrete

The highest concentration of water-soluble sulfates was observed to be 0.09 percent based on the test result from boring B-18 at four feet BGS. This concentration of water-soluble sulfates represents a Class 0 degree of sulfate attack on concrete exposed to these geologic materials. The degree of attack is based on a range of Class 0 (negligible) to Class 3 (very severe) as described in the American Concrete Institute (ACI) Standard 201.2R, “Guide to Durable Concrete”.

9.4 Corrosion Potential

Test results indicate a measured pH value ranging from 6.0 to 7.6 and resistivity ranging from 610 to 4480 ohm-cm for the tested soil samples. Corrosion of buried metal is an electrochemical process in which the amount of metal loss due to corrosion is directly proportional to the flow of electrical current (DC) from metal into the soil. As resistivity decreases, the corrosivity of the soil increases. Table 13 provides a correlation between soil resistivity and corrosivity towards ferrous metal, as recommended by “Underground Corrosion, NBS Circular 579”, Melvin Romanoff, 1957.

Table 13. Resistivity and Corrosivity Categories

Resistivity in Ohm-centimeters	Corrosivity Category
0 to 1,000	Severely Corrosive
1,000 to 2,000	Corrosive
2,000 to 10,000	Moderately Corrosive
Greater than 10,000	Mildly Corrosive

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Based on the resistivity test results, the soils encountered at the site are anticipated to be moderately to severely corrosive to unprotected buried ferrous structures. A qualified corrosion engineer should review test results and determine the appropriate corrosion protection measures at the site.

9.5 Seismicity

Based upon the geologic setting, subsurface soil, and bedrock conditions we anticipate the liquefaction potential at the site to be low. The subsurface soil profiles correspond with Site Class D of the 2021 IBC. The site class was based on the conditions encountered in our shallow exploratory soil borings and our knowledge of the soil conditions in the site vicinity. The soil characteristics extending beyond the depth of our borings were assumed for the purposes of providing this site classification.

The intermediate values from 2021 IBC used to obtain the design parameters are provided in Table 14.

Table 14. Seismic Design Parameters

S_S	F_a	S_{MS} ($S_{MS} = F_a S_s$)	S_{DS} ($S_{DS} = 2/3\ S_{MS}$)
0.172 g	1.6	0.276 g	0.184 g
S_1	F_v	S_{M1} ($S_{M1} = F_v S_1$)	S_{D1} ($S_{D1} = 2/3\ S_{M1}$)
0.06 g	2.4	0.144 g	0.096 g

S_S = The mapped spectral accelerations for short periods (U.S. Geological Survey Web Page, 2020)
F_a = Site coefficient from Table 1613.5.3(1), 2021 IBC
S_{MS} = The maximum considered earthquake spectral response accelerations for short periods
S_{DS} = 5-percent damped design spectral response acceleration at short periods
S_1 = The mapped spectral accelerations for 1-second period (U.S. Geological Survey Web Page, 2020)
F_v = Site coefficient from Table 1613.5.3(2), 2021 IBC
S_{M1} = The maximum considered earthquake spectral response accelerations for 1-second period
S_{D1} = 5-percent damped design spectral response acceleration at 1-second period

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10. LIMITATIONS

The findings and recommendations presented in this report are based upon data obtained from borings, field observations, laboratory testing, our understanding of proposed construction, and other sources of information referenced in this report. It is possible that subsurface conditions may vary between or beyond the locations explored. The nature and extent of such variations may not become evident until construction. If during construction, conditions appear to be different from those described herein, Yeh should be advised and provided the opportunity to

observe and evaluate those conditions and provide additional recommendations, as necessary. Yeh should also be contacted if the scope of construction changes from that generally described within this report. The conclusions and recommendations contained in this report shall not be considered valid unless Yeh reviews all proposed construction changes and either verifies or modifies the conclusions of this report in writing.

This report was prepared in in a manner consistent with that level of care and skill ordinarily exercised by other members of profession practicing in the same locality, under similar conditions and at the date the services are provided. Yeh makes no other representation, guarantee, or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

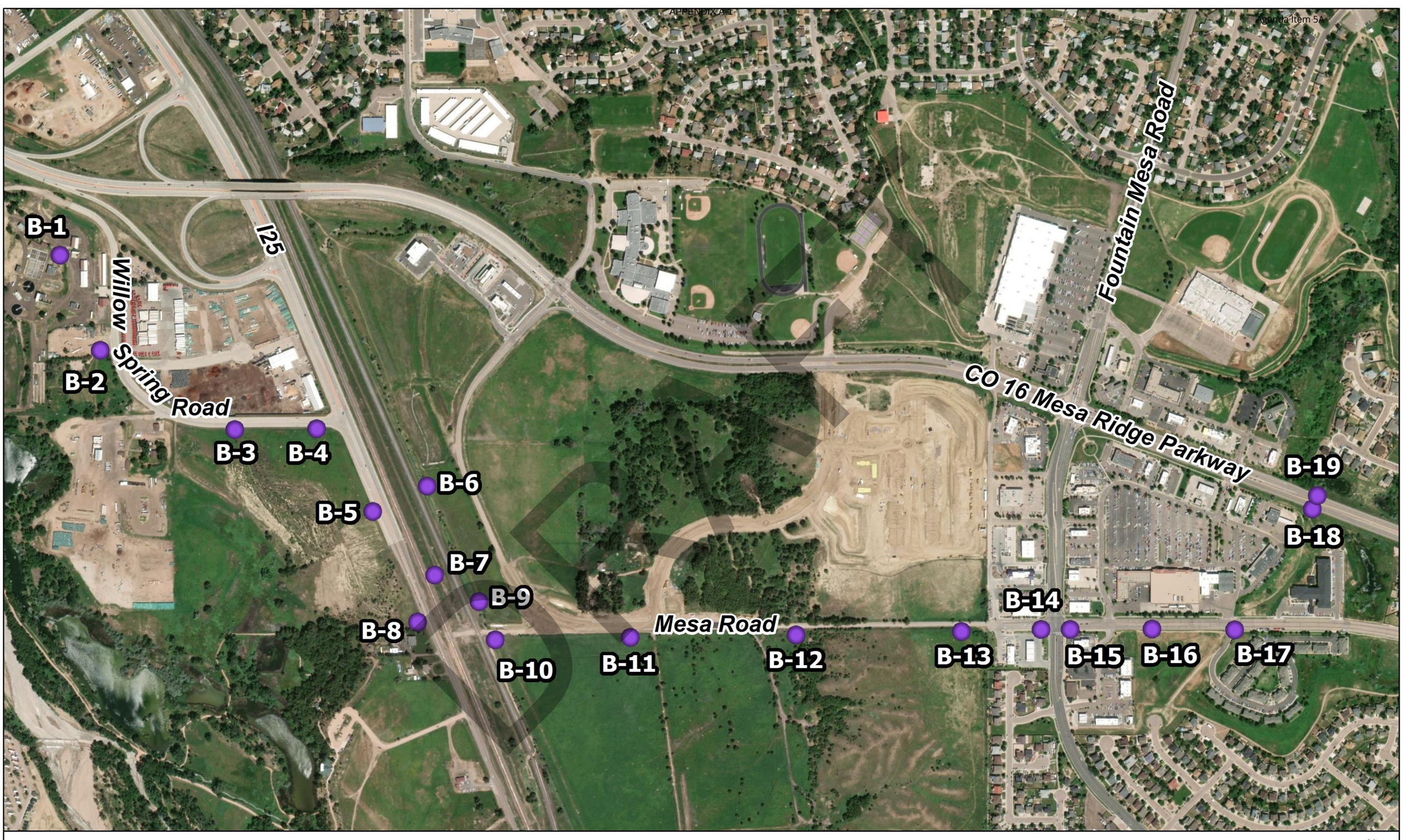
This report may be used only by the Client and the registered design professional in responsible charge and only for the purposes stated for this specific engagement within a reasonable time from its issuance, but in no event later than two (2) years from the date of the report.

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Appendix A

EXPLORATION LOCATION PLAN

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Exploration Location Plan

Appendix B

LEGEND AND BORING LOGS

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Project Number: 224-104

Legend for Symbols Used on Borehole Logs

Sample Types

Modified California Sampler (2.5 inch OD, 2.0 inch ID)

Drilling Methods

HOLLOW-STEM AUGER

SOLID-STEM AUGER

Lithology Symbols

(see Boring Logs for complete descriptions)

Fill

Asphalt

Clayey Sand (SC)

Poorly Graded Sand (SP)

Poorly Graded Sand with Silt (SP-SM)

Sandy Lean Clay (CL)

Silty Sand (SM)

Well-Graded Sand (SW)

Well-Graded Sand with Silt (SW-SM)

Shale

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Lab Test Standards

Moisture Content	ASTM D2216
Dry Density	ASTM D7263
Sand/Fines Content	ASTM D421, ASTM C136, ASTM D1140
Atterberg Limits	ASTM D4318
AASHTO Class.	AASHTO M145, ASTM D3282
USCS Class.	ASTM D2487

(Fines = % Passing #200 Sieve
Sand = % Passing #4 Sieve, and retained on the #200 Sieve)

Other Lab Test Abbreviations

pH	Soil pH (AASHTO T289-91)
S	Water-Soluble Sulfate Content (AASHTO T290-91, ASTM D4327)
Chl	Water-Soluble Chloride Content (AASHTO T291-91, ASTM D4327)
S/C	Swell/Collapse (ASTM D4546)
UCCS	Unconfined Compressive Strength (Soil - ASTM D2166, Rock - ASTM D7012)
R-Value	Resistance R-Value (ASTM D2844)
DS (C)	Direct Shear cohesion (ASTM D3080)
DS (phi)	Direct Shear friction angle (ASTM D3080)
Re	Electrical Resistivity (AASHTO T288-91)
PtL	Point Load Strength Index (ASTM D5731)

Notes

1. Visual classifications are in general accordance with ASTM D2488, "Standard Practice for Description and Identification of Soils (Visual-Manual Procedures)".
2. "Penetration Resistance" on the Boring Logs refers to the uncorrected N value for SPT samples only, as per ASTM D1586. For samples obtained with a Modified California (MC) sampler, drive depth is 12 inches, and "Penetration Resistance" refers to the sum of all blows. Where blow counts were > 50 for the 3rd increment (SPT) or 2nd increment (MC), "Penetration Resistance" combines the last and 2nd-to-last blows and lengths; for other increments with > 50 blows, the blows for the last increment are reported.
3. The Modified California sampler used to obtain samples is a 2.5-inch OD, 2.0-inch ID (1.95-inch ID with liners), split-barrel sampler with internal liners, as per ASTM D3550. Sampler is driven with a 140-pound hammer, dropped 30 inches per blow.
4. "ER" for the hammer is the Reported Calibrated Energy Transfer Ratio for that specific hammer, as provided by the drilling company.
5. Rock strength grade (R0 to R6) based on Brown (1981).

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Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension

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Project Number: 224-104 *Boring No.:* **B-1**

Boring Began: 9/9/2024
Boring Completed: 9/9/2024
Drilling Method(s): Solid-Stem Auger
Driller: RMG
Drill Rig: Simco 2800
Hammer: Cathead and rope, ER: %

Total Depth: 20.0 ft
Ground Elevation: Not Surveyed
Coordinates: Lat: 38.721853 Long: -104.722473
Location:
Logged By: D. Gruenwald
Final By: T. Yang

Weather Notes: Sunny/55°F
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels: Not Observed

Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/Depth	Drilling Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
	0						**0.0 - 9.0 ft. Clayey SAND (SC)**, brown, low plasticity, moist, loose to medium dense.									
				13-18	31			7.1	128.2							pH=7.4 S=0.057% Chl=0.024% S/C=-1.3% @ 500 psf UCCS=7585 psf Re=835ohm·cm
	5			5-3	8			8.1	106.9	9.9	50.6	39.5	25	8	A-4 (0) SC	
	10			3-4	7		**9.0 - 20.0 ft. Well-graded SAND with gravel (SW)**, light brown, moist, loose to medium dense.									
				10-15	25			1.8	98.8	21.0	74.6	4.4	NV	NP	A-1-b (0) SW	
	15															
	20			3-3	6											

Bottom of Hole at 20.0 ft.

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Project Number: 224-104 *Boring No.:* **B-2**

Boring Began: 8/14/2024
Boring Completed: 8/14/2024
Drilling Method(s): Solid-Stem Auger
Driller: WSB
Drill Rig: CME 75 Truck
Hammer: Automatic (hydraulic), ER: 80%

Total Depth: 15.0 ft
Ground Elevation: Not Surveyed
Coordinates: Lat: 38.720272 Long: -104.721626
Location:
Logged By: D. Gruenwald
Final By: T. Yang

Weather Notes: Cloudy,Sunny/60°F
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels: Not Observed

Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/Depth	Drilling Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
				4-7	11		**0.0 - 9.0 ft. Sandy lean CLAY (CL)**, light brown, medium plasticity, moist, stiff to very stiff.	13.4								UCCS=10243 psf
	5			8-14	22			9.3	109.0	0.6	32.0	67.4	43	26	A-7-6 (15) CL	S/C=0.4% @ 500 psf
	10			6-11	17		**9.0 - 15.0 ft. Silty SAND (SM)**, brown to light brown, moist, medium dense.									
	15			9-11	20			8.6	108.1	0.7	51.1	48.2				
							Bottom of Hole at 15.0 ft.									

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Project Number: 224-104 *Boring No.:* **B-3**

Boring Began: 9/20/2024
Boring Completed: 9/20/2024
Drilling Method(s): Solid-Stem Auger
Driller: RMG
Drill Rig: Simco 2800
Hammer: Cathead and rope, ER: %

Total Depth: 20.0 ft
Ground Elevation: Not Surveyed
Coordinates: Lat: 38.718958 Long: -104.718788
Location:
Logged By: D. Gruenwald
Final By: T. Yang

Weather Notes: Sunny/58°F
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels: Not Observed

Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/Depth	Drilling Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
				6-5	11		**0.0 - 5.0 ft. Sandy lean CLAY (CL) (Fill)**, brown, low plasticity, moist, stiff.									
	5			4-6	10		**5.0 - 14.0 ft. Clayey SAND (SC) to Silty, clayey SAND (SC-SM)**, brown, low to medium plasticity, moist, loose.	12.8	116.3	3.4	47.1	49.5	32	18	A-6 (5) SC	
				5-6	11			11.1	105.1	0.1	61.5	38.4	22	6	A-4 (0) SC-SM	
	10															
				6-8	14		**14.0 - 20.0 ft. Well-graded SAND with silt and gravel (SW-SM)**, light brown, moist, medium dense.									
	15															
				5-10	15			2.3		24.3	67.7	8.0	NV	NP	A-1-b (0) SW-SM	
	20						Bottom of Hole at 20.0 ft.									

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Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension

Project Number: 224-104 *Boring No.:* **B-4**

Boring Began: 9/20/2024
Boring Completed: 9/20/2024
Drilling Method(s): Solid-Stem Auger
Driller: RMG
Drill Rig: Simco 2800
Hammer: Cathead and rope, ER: %

Total Depth: 15.0 ft
Ground Elevation: Not Surveyed
Coordinates: Lat: 38.718969 Long: -104.71706
Location:
Logged By: D. Gruenwald
Final By: T. Yang

Weather Notes: Sunny/60°F
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels: Not Observed

Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/Depth	Drilling Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifications	Field Notes and Other Lab Tests
	0						**0.0 - 5.0 ft. Sandy lean CLAY (CL)**, dark brown, medium plasticity, moist, stiff.									
				8-8	16			14.6		4.6	42.1	53.3	35	19	A-6 (7) CL	
	5			4-5	9		**5.0 - 15.0 ft. Well-graded SAND with silt and gravel (SW-SM) to Poorly graded SAND with gravel (SP)**, brown, moist, loose to dense.	4.2		8.5	79.9	11.6	NV	NP	A-1-b (0) SW-SM	
				7-8	15											
	10															
				12-30	42			3.1	124.5	28.8	66.8	4.4	NV	NP	A-1-b (0) SP	
	15						Bottom of Hole at 15.0 ft.									

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Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension

Project Number: 224-104 *Boring No.:* **B-5**

Boring Began: 9/20/2024
Boring Completed: 9/20/2024
Drilling Method(s): Solid-Stem Auger
Driller: RMG
Drill Rig: Simco 2800
Hammer: Cathead and rope, ER: %

Total Depth: 15.0 ft
Ground Elevation: Not Surveyed
Coordinates: Lat: 38.717598 Long: -104.715883
Location:
Logged By: D. Gruenwald
Final By: T. Yang

Weather Notes: Sunny/61°F
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels: Not Observed

Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/Depth	Drilling Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
	0						**0.0 - 5.0 ft. Sandy lean CLAY (CL)**, dark brown, medium plasticity, moist, stiff.									
				6-9	15											
	5			4-5	9		**5.0 - 15.0 ft. Poorly graded SAND with silt and gravel (SP-SM) to well-graded SAND with silt and gravel (SW-SM)**, light brown, moist, loose to medium dense.	1.6		14.8	75.7	9.5	NV	NP	A-1-b (0) SP-SM	
				8-6	14											
	10															
				2-4	6			2.6		15.7	77.9	6.4	NV	NP	A-1-b (0) SW-SM	
	15						Bottom of Hole at 15.0 ft.									

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Project Number: 224-104 *Boring No.:* **B-6**

Boring Began: 9/9/2024
Boring Completed: 9/9/2024
Drilling Method(s): Hollow-Stem Auger
Driller: RMG
Drill Rig: Simco 2800
Hammer: Cathead and rope, ER: %

Total Depth: 24.3 ft
Ground Elevation: Not Surveyed
Coordinates: Lat: 38.718013 Long: -104.714734
Location:
Logged By: D. Gruenwald
Final By: T. Yang

Weather Notes: Sunny/58°F
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels:			
Symbol	▽		
Depth	18.0 ft	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/Depth	Drilling Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
				10-11	21		**0.0 - 6.5 ft. Clayey SAND (SC)**, brown, low to medium plasticity, moist, medium dense.	20.5								pH=7.5 S=0.007% Chl=0.039% UCCS=7998 psf Re=4480ohm·cm
5				7-6	13			4.2		4.4	54.7	40.9	28	15	A-6 (2) SC	
							6.5 - 18.0 ft. Well-graded SAND with silt and gravel (SW-SM), brown, moist, medium dense.									
10				16-19	35											
				13-16	29			3.8		16.7	76.8	6.5	NV	NP	A-1-a (0) SW-SM	
15																
	▽						**18.0 - 24.3 ft. SHALE**, dark gray, medium hard to very hard.									
				10-38	48											
20																
				50/3	50/3			12.3	121.0		0.0	100.0	50	34	A-7-6 (37) CH	
							Bottom of Hole at 24.3 ft.									

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Project Number: 224-104 *Boring No.:* **B-7**

Boring Began: 9/9/2024
Boring Completed: 9/9/2024
Drilling Method(s): Solid-Stem Auger
Driller: RMG
Drill Rig: Simco 2800
Hammer: Cathead and rope, ER: %

Total Depth: 25.0 ft
Ground Elevation: Not Surveyed
Coordinates: Lat: 38.716542 Long: -104.714581
Location:
Logged By: D. Gruenwald
Final By: T. Yang

Weather Notes: Sunny/63°F
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels:

Symbol	▽		
Depth	14.0 ft	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/Depth	Drilling Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifications	Field Notes and Other Lab Tests
							0.0 - 6.5 ft. Clayey SAND with gravel (SC), brown, low plasticity, moist, medium dense.									
				7-13	20			14.5								pH=7.3 S=0.011% Chl=0.036% UCCS=15874 psf Re=2920ohm·cm
	5			9-16	25			2.8	102.0	25.0	51.2	23.8	27	13	A-2-6 (0) SC	S/C=-0.3% @ 500 psf
							6.5 - 20.0 ft. Silty SAND with gravel (SM), brown, moist, loose.									
	10			2-3	5											
	▽ 14.0			2-3	5			3.3	110.0	15.1	67.8	17.1	NV	NP	A-1-b (0) SM	
	15															
	20			3-9	12			5.0	119.7	24.2	60.4	15.4	NV	NP	A-1-a (0) SM	
							20.0 - 25.0 ft. SHALE, dark gray, firm.									
				10-18	28											

Bottom of Hole at 25.0 ft.

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Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension

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Project Number: 224-104 *Boring No.:* **B-8**

Boring Began: 9/9/2024
Boring Completed: 9/9/2024
Drilling Method(s): Solid-Stem Auger
Driller: RMG
Drill Rig: Simco 2800
Hammer: Cathead and rope, ER: %

Total Depth: 24.0 ft
Ground Elevation: Not Surveyed
Coordinates: Lat: 38.715771 Long: -104.714952
Location:
Logged By: D. Gruenwald
Final By: T. Yang

Weather Notes: Sunny/64°F
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels:			
Symbol	▽		
Depth	14.0 ft	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/Depth	Drilling Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifications	Field Notes and Other Lab Tests
				8-11	19		**0.0 - 6.5 ft. Clayey SAND (SC)**, brown, medium plasticity, moist, very stiff.	13.5								pH=7.6 S=0.009% Chl=0.039% UCCS=6131 psf Re=2360ohm·cm
	5			8-10	18			5.7	94.6	5.9	44.8	49.3	34	17	A-6 (5) SC	
				7-20	27		**6.5 - 20.0 ft. Well-graded SAND with silt and gravel (SW-SM)**, brown, moist, loose to medium dense.									
	10															
	▽ 14															**No sample at 14 ft, boring caved at 10 ft**
	15															
	20			4-5	9			5.9		18.4	71.7	9.9	NV	NP	A-1-b (0) SW-SM	
				50/0	50/0		**20.0 - 24.0 ft. SHALE**, black-gray, very hard.									
							Bottom of Hole at 24.0 ft.									**refusal**

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Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension

Project Number: 224-104 *Boring No.:* **B-9**

Boring Began: 9/9/2024
Boring Completed: 9/9/2024
Drilling Method(s): Hollow-Stem Auger
Driller: RMG
Drill Rig: Simco 2800
Hammer: Cathead and rope, ER: %

Total Depth: 24.3 ft
Ground Elevation: Not Surveyed
Coordinates: Lat: 38.716103 Long: -104.713649
Location:
Logged By: D. Gruenwald
Final By: T. Yang

Weather Notes: Sunny/71°F
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels:			
Symbol	▽		
Depth	14.0 ft	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/Depth	Drilling Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifications	Field Notes and Other Lab Tests
				7-8	15		**0.0 - 9.0 ft. Clayey SAND with gravel (SC)**, dark brown, medium plasticity, moist, stiff to hard.									pH=7.6 S=0.01% Chl=0.036% S/C=1.7% @ 500 psf Re=3650ohm·cm
5				18-32	50			7.7		11.6	45.1	43.3	43	28	A-7-6 (7) SC	
				50/0	50/0		**9.0 - 18.0 ft. Well-graded SAND with silt and gravel (SW-SM)**, brown, moist, medium dense.									**Sample Refusal On Gravel**
10																
	▽			10-11	21			4.7		33.0	60.6	6.4	NV	NP	A-1-a (0) SW-SM	
15																
				50/6	50/6		**18.0 - 24.3 ft. SHALE**, dark gray, very hard.									
20																
				50/3	50/3			11.0			0.0	100.0	44	24	A-7-6 (26) CL	
							Bottom of Hole at 24.3 ft.									

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Geotechnical • Geological • Construction Services

Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension

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Project Number: 224-104 *Boring No.:* **B-10**

Boring Began: 8/15/2024
Boring Completed: 8/15/2024
Drilling Method(s): Solid-Stem Auger
Driller: RMG
Drill Rig: Simco 2800
Hammer: Cathead and rope, ER: %

Total Depth: 24.2 ft
Ground Elevation: Not Surveyed
Coordinates: Lat: 38.71547 Long: -104.713308
Location:
Logged By: D. Gruenwald
Final By: T. Yang

Weather Notes: Sunny/62°F
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels:

Symbol	▽		
Depth	14.0 ft	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/Depth	Drilling Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
				9-14	23		**0.0 - 5.0 ft. Sandy lean CLAY (CL)**, dark brown, medium plasticity, moist, very stiff.	12.6	109.8		19.2	80.3	45	27	A-7-6 (21) CL	S/C=1% @ 500 psf
	5			9-24	33		**5.0 - 19.0 ft. Well-graded SAND with silt and gravel (SW-SM)**, brown, moist, medium dense to dense.	1.4	121.0	21.5	71.3	7.2				
	10			13-23	36			1.4	129.8	33.8	60.7	5.5	NV	NP	A-1-a (0) SW-SM	
	15	▽		17-10	27											
	20			6-10	16		**19.0 - 24.0 ft. Silty SAND with gravel (SM)**, gray to brown, moist, medium dense.	11.2	121.3	24.1	62.0	13.9				
				50/2	50/2		**24.0 - 24.2 ft. SHALE**, dark gray, very hard.									

Bottom of Hole at 24.2 ft.

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Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension

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Project Number: 224-104 *Boring No.:* **B-11**

Boring Began: 8/15/2024
Boring Completed: 8/15/2024
Drilling Method(s): Solid-Stem Auger
Driller: RMG
Drill Rig: Simco 2800
Hammer: Cathead and rope, ER: %

Total Depth: 15.0 ft
Ground Elevation: Not Surveyed
Coordinates: Lat: 38.7155 Long: -104.710457
Location:
Logged By: D. Gruenwald
Final By: T. Yang

Weather Notes: Sunny/63°F
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels: Not Observed

Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/Depth	Drilling Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifications	Field Notes and Other Lab Tests
	0						**0.0 - 7.0 ft. Sandy lean CLAY (CL)**, brown, medium plasticity, moist, medium stiff to very stiff.									
				2-3	5			19.3								UCCS=2213 psf
	5			10-14	24			11.6	104.8	0.2	9.2	90.6	43	26	A-7-6 (24) CL	S/C=0.9% @ 500 psf
							7.0 - 14.0 ft. Clayey SAND with gravel (SC), brown, moist, dense.									
	10			24-17	41			3.3	127.1	13.2	65.4	21.4				
	15			13-17	30		**14.0 - 15.0 ft. Silty SAND with gravel (SM)**, light brown, moist, medium dense.									
							Bottom of Hole at 15.0 ft.									

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Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension

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Project Number: 224-104 *Boring No.:* **B-12**

Boring Began: 8/15/2024
Boring Completed: 8/15/2024
Drilling Method(s): Solid-Stem Auger
Driller: RMG
Drill Rig: Simco 2800
Hammer: Cathead and rope, ER: %

Total Depth: 15.0 ft
Ground Elevation: Not Surveyed
Coordinates: Lat: 38.715532 Long: -104.706967
Location:
Logged By: D. Gruenwald
Final By: T. Yang

Weather Notes: Sunny/64°F
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels: Not Observed

Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/Depth	Drilling Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
	0						**0.0 - 15.0 ft. Sandy lean CLAY (CL)**, brown to light brown, medium plasticity, moist, medium stiff to very stiff.									
				3-3	6			18.0								UCCS=2972 psf
	5			5-9	14											
				8-12	20			7.2	106.4	0.1	23.1	76.8	31	16	A-6 (10) CL	
	10															
				8-12	20			9.9	117.6	0.2	32.2	67.6				
	15						Bottom of Hole at 15.0 ft.									

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Project Number: 224-104 *Boring No.:* **B-13**

Boring Began: 8/15/2024
Boring Completed: 8/15/2024
Drilling Method(s): Solid-Stem Auger
Driller: RMG
Drill Rig: Simco 2800
Hammer: Cathead and rope, ER: %

Total Depth: 15.3 ft
Ground Elevation: Not Surveyed
Coordinates: Lat: 38.715585 Long: -104.703479
Location:
Logged By: D. Gruenwald
Final By: T. Yang

Weather Notes: Sunny/64°F
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels: Not Observed

Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/Depth	Drilling Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
	0						**0.0 - 15.3 ft. Sandy lean CLAY (CL)**, brown, medium plasticity, moist, stiff to very stiff.									
				4-9	13											
	5			12-19	31			10.5	109.9	0.9	23.2	75.9				
	10			10-26	36			9.3	121.1		26.8	72.8	35	21	A-6 (13) CL	S/C=0.9% @ 500 psf
				10-12	22											
	15			50/3	50/3											
							Bottom of Hole at 15.3 ft.									

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Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension

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Project Number: 224-104 *Boring No.:* **B-14**

Boring Began: 8/28/2024
Boring Completed: 8/28/2024
Drilling Method(s): Solid-Stem Auger
Driller: RMG
Drill Rig: Simco 2800
Hammer: Cathead and rope, ER: %

Total Depth: 25.0 ft
Ground Elevation: Not Surveyed
Coordinates: Lat: 38.715615 Long: -104.701794
Location:
Logged By: D. Gruenwald
Final By: T. Yang

Weather Notes: Sunny/60°F
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels: Not Observed

Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/Depth	Drilling Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifications	Field Notes and Other Lab Tests
							0.0 - 0.8 ft. Asphalt (9.5 inches).									
				16-8	24		**0.8 - 25.0 ft. Sandy lean CLAY (CL)**, brown to gray, low to medium plasticity, wet, medium stiff to very stiff.									
	5			3-4	7			18.5								UCCS=3766 psf
				5-5	10											pH=6.9 S=0.007% Chl=0.039% Re=1750ohm·cm
	10			3-4	7			21.7	98.9	0.1	13.6	86.3	36	19	A-6 (16) CL	
	15			6-8	14			18.5	108.7							S/C=0.1% @ 500 psf
	20			9-12	21			22.2	104.2	0.1	12.5	87.4				
				7-9	16											

Bottom of Hole at 25.0 ft.

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Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension

Project Number: 224-104 *Boring No.:* **B-15**

Boring Began: 8/28/2024
Boring Completed: 8/28/2024
Drilling Method(s): Solid-Stem Auger
Driller: RMG
Drill Rig: Simco 2800
Hammer: Cathead and rope, ER: %

Total Depth: 25.0 ft
Ground Elevation: Not Surveyed
Coordinates: Lat: 38.715613 Long: -104.701178
Location:
Logged By: D. Gruenwald
Final By: T. Yang

Weather Notes: Sunny/64°F
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels: Not Observed

Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/Depth	Drilling Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifications	Field Notes and Other Lab Tests
							0.0 - 0.8 ft. Asphalt (9.5 inches).									
				7-12	19		**0.8 - 25.0 ft. Sandy lean CLAY (CL)**, brown to gray, low to medium plasticity, moist to wet, medium stiff to very stiff.									
	5			4-5	9			15.6								UCCS=6566 psf
				3-4	7			18.4	105.9		13.4	86.5				
	10			4-5	9											
	15			7-10	17											pH=6.8 S=0.011% Chl=0.033% Re=1460ohm·cm
	20			9-14	23			17.5			17.5	82.4				
				9-15	24											

Bottom of Hole at 25.0 ft.

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Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension

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Project Number: 224-104 *Boring No.:* **B-16**

Boring Began: 8/28/2024
Boring Completed: 8/28/2024
Drilling Method(s): Solid-Stem Auger
Driller: RMG
Drill Rig: Simco 2800
Hammer: Cathead and rope, ER: %

Total Depth: 15.0 ft
Ground Elevation: Not Surveyed
Coordinates: Lat: 38.71561 Long: -104.69945
Location:
Logged By: D. Gruenwald
Final By: T. Yang

Weather Notes: Sunny/67°F
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels: Not Observed

Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/Depth	Drilling Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
							0.0 - 0.7 ft. Asphalt (8.75 inches).									
				6-8	14		**0.7 - 15.0 ft. Sandy lean CLAY (CL) (Fill)**, brown to gray, medium plasticity, moist to wet, stiff.									
	5			4-7	11			19.7	106.5	2.8	26.4	70.8				
				4-8	12			18.4								UCCS=3996 psf
	10			6-9	15			19.3	105.2	0.7	20.4	78.9	38	22	A-6 (16) CL	
	15			4-7	11											pH=7.0 S=0.021% Chl=0.015% Re=1600ohm·cm
							Bottom of Hole at 15.0 ft.									

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Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension

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Project Number: 224-104 *Boring No.:* **B-17**

Boring Began: 8/28/2024
Boring Completed: 8/28/2024
Drilling Method(s): Solid-Stem Auger
Driller: RMG
Drill Rig: Simco 2800
Hammer: Cathead and rope, ER: %

Total Depth: 15.0 ft
Ground Elevation: Not Surveyed
Coordinates: Lat: 38.715597 Long: -104.697708
Location:
Logged By: D. Gruenwald
Final By: T. Yang

Weather Notes: Sunny/64°F
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels: Not Observed

Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/Depth	Drilling Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifications	Field Notes and Other Lab Tests
							0.0 - 0.8 ft. Asphalt (9 inches).									
				5-7	12		**0.8 - 15.0 ft. Sandy lean CLAY (CL)**, brown to gray, medium plasticity, moist to wet, stiff.									
	5			4-7	11			20.7								UCCS=3317 psf
				4-4	8											pH=7.2 S=0.008% Chl=0.066% Re=1800ohm·cm
	10			3-4	7			19.9	103.6	0.2	23.3	76.5	37	22	A-6 (15) CL	
	15			5-7	12											
							Bottom of Hole at 15.0 ft.									

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Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension

Project Number: 224-104 *Boring No.:* **B-18**

Boring Began: 8/28/2024
Boring Completed: 8/28/2024
Drilling Method(s): Solid-Stem Auger
Driller: RMG
Drill Rig: Simco 2800
Hammer: Cathead and rope, ER: %

Total Depth: 25.0 ft
Ground Elevation: Not Surveyed
Coordinates: Lat: 38.717589 Long: -104.696062
Location:
Logged By: D. Gruenwald
Final By: T. Yang

Weather Notes: Sunny/80°F
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels: Not Observed

Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/Depth	Drilling Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifications	Field Notes and Other Lab Tests
							0.0 - 0.4 ft. Asphalt (5 inches).									
				4-5	9		**0.4 - 1.7 ft. Aggregate Base Course**, Poorly graded SAND with gravel, red-brown, moist, medium dense.									
							1.7 - 10.0 ft. Sandy lean CLAY (CL) (Fill), brown to gray, medium plasticity, moist, stiff to very stiff.									
	5			8-12	20			16.7								pH=7.5 S=0.09% Chl=0.054% UCCS=4306 psf Re=610ohm·cm
				6-9	15			16.4	111.3	0.3	26.4	73.3				
				6-10	16											
	10						**10.0 - 25.0 ft. Sandy lean CLAY (CL)**, bright red to gray, medium plasticity, moist, very stiff, (possible fill).									
				8-12	20			18.4	109.8	0.7	18.5	80.8	36	21	A-6 (16) CL	
	15															
	20			8-13	21											
				9-18	27											

Bottom of Hole at 25.0 ft.

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Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension

Project Number: 224-104 *Boring No.:* **B-19**

Boring Began: 8/28/2024
Boring Completed: 8/28/2024
Drilling Method(s): Solid-Stem Auger
Driller: RMG
Drill Rig: Simco 2800
Hammer: Cathead and rope, ER: %

Total Depth: 25.0 ft
Ground Elevation: Not Surveyed
Coordinates: Lat: 38.717806 Long: -104.695955
Location:
Logged By: D. Gruenwald
Final By: T. Yang

Weather Notes: Sunny/79°F
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels:			
Symbol	▽		
Depth	21.0 ft	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/Depth	Drilling Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
							0.0 - 0.4 ft. Asphalt (5 inches).									
							0.4 - 1.9 ft. Aggregate Base Course, Poorly graded SAND with gravel, red-brown, moist, medium dense.									
				3-4	7											
							1.9 - 18.0 ft. Sandy lean CLAY (CL) (Fill), light brown to tan, medium plasticity, moist, stiff to very stiff.									
				5-7	12											pH=6.9 S=0.054% Chl=0.051% Re=1350ohm·cm
	5															
				7-12	19											
				6-6	12			18.9	106.9	0.2	14.1	85.7	41	25	A-7-6 (21) CL	
	10															
				6-9	15			18.4	109.6							S/C=0% @ 500 psf
	15															
							18.0 - 25.0 ft. Sandy lean CLAY (CL), light brown to tan, medium plasticity, moist, medium stiff to stiff, (possible fill).									
				5-6	11			19.6	108.5	1.2	40.8	58.0				
	20															
	▽															
				3-2	5											

Bottom of Hole at 25.0 ft.

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Appendix C

LABORATORY TEST RESULT

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Colorado Springs Lab

Summary of Laboratory Test Results

Project No: 224-104 Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension Date: 10-18-2024

Sample Location			Natural Moisture Content (%)	Natural Dry Density (pcf)	Gradation			Atterberg			pH	Water Soluble Sulfate (%)	Water Soluble Chloride (%)	Resistivity (ohm-cm)	Swell (+) / Collapse (-) (% at Load in psf)	Unconf. Comp. Strength (psf)	R-Value	Classification	
Boring No.	Depth (ft)	Sample Type			Gravel > #4 (%)	Sand (%)	Fines < #200 (%)	LL	PL	PI								AASHTO	USCS
B-1	1.0	MC	7.1	128.2							7.4	0.057	0.024	835	-1.3 @ 500	7585			
B-1	5.0	MC	8.1	106.9	4.7	50.6	39.5	25	17	8								A-4 (0)	SC
B-1	14.0	MC	1.8	98.8	18.7	74.6	4.4	NV	NP	NP								A-1-b (0)	SW
B-2	1.0	MC	13.4													10243			
B-2	5.0	MC	9.3	109.0		32.0	67.4	43	17	26					0.4 @ 500			A-7-6 (15)	CL
B-2	14.0	MC	8.6	108.1		51.1	48.2												
B-3	5.0	MC	12.8	116.3		47.1	49.5	32	14	18								A-6 (5)	SC
B-3	9.0	MC	11.1	105.1		61.5	38.4	22	16	6								A-4 (0)	SC-SM
B-3	19.0	MC	2.3		19.3	67.7	8.0	NV	NP	NP								A-1-b (0)	SW-SM
B-4	1.0	MC	14.6		3.1	42.1	53.3	35	16	19								A-6 (7)	CL
B-4	5.0	MC	4.2			79.9	11.6	NV	NP	NP								A-1-b (0)	SW-SM
B-4	14.0	MC	3.1	124.5	21.7	66.8	4.4	NV	NP	NP								A-1-b (0)	SP
B-5	5.0	MC	1.6		13.1	75.7	9.5	NV	NP	NP								A-1-b (0)	SP-SM
B-5	14.0	MC	2.6		11.4	77.9	6.4	NV	NP	NP								A-1-b (0)	SW-SM
B-6	1.0	MC	20.5								7.5	0.007	0.039	4480		7998			
B-6	5.0	MC	4.2			54.7	40.9	28	13	15								A-6 (2)	SC
B-6	14.0	MC	3.8		14.2	76.8	6.5	NV	NP	NP								A-1-a (0)	SW-SM
B-6	24.0	MC	12.3	121.0	0.0	0.0	100.0	50	16	34								A-7-6 (37)	CH
B-7	1.0	MC	14.5								7.3	0.011	0.036	2920		15874			
B-7	5.0	MC	2.8	102.0	17.5	51.2	23.8	27	14	13					-0.3 @ 500			A-2-6 (0)	SC

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Summary of Laboratory Test Results

Project No: 224-104 Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension Date: 10-18-2024

Sample Location			Natural Moisture Content (%)	Natural Dry Density (pcf)	Gradation			Atterberg			pH	Water Soluble Sulfate (%)	Water Soluble Chloride (%)	Resistivity (ohm-cm)	Swell (+) / Collapse (-) (% at Load in psf)	Unconf. Comp. Strength (psf)	R-Value	Classification	
Boring No.	Depth (ft)	Sample Type			Gravel > #4 (%)	Sand (%)	Fines < #200 (%)	LL	PL	PI								AASHTO	USCS
B-7	14.0	MC	3.3	110.0	13.0	67.8	17.1	NV	NP	NP								A-1-b (0)	SM
B-7	19.0	MC	5	119.7	22.7	60.4	15.4	NV	NP	NP								A-1-a (0)	SM
B-8	1.0	MC	13.5								7.6	0.009	0.039	2360		6131			
B-8	5.0	MC	5.7	94.6	4.6	44.8	49.3	34	17	17								A-6 (5)	SC
B-8	19.0	MC	5.9		10.5	71.7	9.9	NV	NP	NP								A-1-b (0)	SW-SM
B-9	1.0	MC									7.6	0.01	0.036	3650	1.7 @ 500				
B-9	5.0	MC	7.7		6.3	45.1	43.3	43	15	28								A-7-6 (7)	SC
B-9	14.0	MC	4.7		28.7	60.6	6.4	NV	NP	NP								A-1-a (0)	SW-SM
B-9	24.0	MC	11		0.0	0.0	100.0	44	20	24								A-7-6 (26)	CL
B-10	1.0	MC	12.6	109.8		19.2	80.3	45	18	27					1 @ 500			A-7-6 (21)	CL
B-10	5.0	MC	1.4	121.0	18.5	71.3	7.2												
B-10	9.0	MC	1.4	129.8	25.3	60.7	5.5	NV	NP	NP								A-1-a (0)	SW-SM
B-10	19.0	MC	11.2	121.3	21.5	62.0	13.9												
B-11	1.0	MC	19.3													2213			
B-11	5.0	MC	11.6	104.8		9.2	90.6	43	17	26					0.9 @ 500			A-7-6 (24)	CL
B-11	9.0	MC	3.3	127.1	11.2	65.4	21.4												
B-11+B-12	1.0	MC									6.0	0.002	0.024	2450					
B-12	1.0	MC	18													2972			
B-12	9.0	MC	7.2	106.4		23.1	76.8	31	15	16								A-6 (10)	CL
B-12	14.0	MC	9.9	117.6		32.2	67.6												

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Summary of Laboratory Test Results

Project No: 224-104 Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension Date: 10-18-2024

Sample Location			Natural Moisture Content (%)	Natural Dry Density (pcf)	Gradation			Atterberg			pH	Water Soluble Sulfate (%)	Water Soluble Chloride (%)	Resistivity (ohm-cm)	Swell (+) / Collapse (-) (% at Load in psf)	Unconf. Comp. Strength (psf)	R-Value	Classification	
Boring No.	Depth (ft)	Sample Type			Gravel > #4 (%)	Sand (%)	Fines < #200 (%)	LL	PL	PI								AASHTO	USCS
B-13	5.0	MC	10.5	109.9		23.2	75.9												
B-13	9.0	MC	9.3	121.1		26.8	72.8	35	14	21					0.9 @ 500			A-6 (13)	CL
B-14	4.0	MC	18.5													3766			
B-14	7.0	MC									6.9	0.007	0.039	1750					
B-14	9.0	MC	21.7	98.9		13.6	86.3	36	17	19								A-6 (16)	CL
B-14	14.0	MC	18.5	108.7											0.1 @ 500				
B-14	19.0	MC	22.2	104.2		12.5	87.4												
B-15	4.0	MC	15.6													6566			
B-15	7.0	MC	18.4	105.9		13.4	86.5												
B-15	14.0	MC									6.8	0.011	0.033	1460					
B-15	19.0	MC	17.5			17.5	82.4												
B-16	4.0	MC	19.7	106.5		26.4	70.8												
B-16	7.0	MC	18.4													3996			
B-16	9.0	MC	19.3	105.2		20.4	78.9	38	16	22								A-6 (16)	CL
B-16	14.0	MC									7.0	0.021	0.015	1600					
B-17	4.0	MC	20.7													3317			
B-17	7.0	MC									7.2	0.008	0.066	1800					
B-17	9.0	MC	19.9	103.6		23.3	76.5	37	15	22								A-6 (15)	CL
B-18	4.0	MC	16.7								7.5	0.09	0.054	610		4306			
B-18	7.0	MC	16.4	111.3		26.4	73.3												

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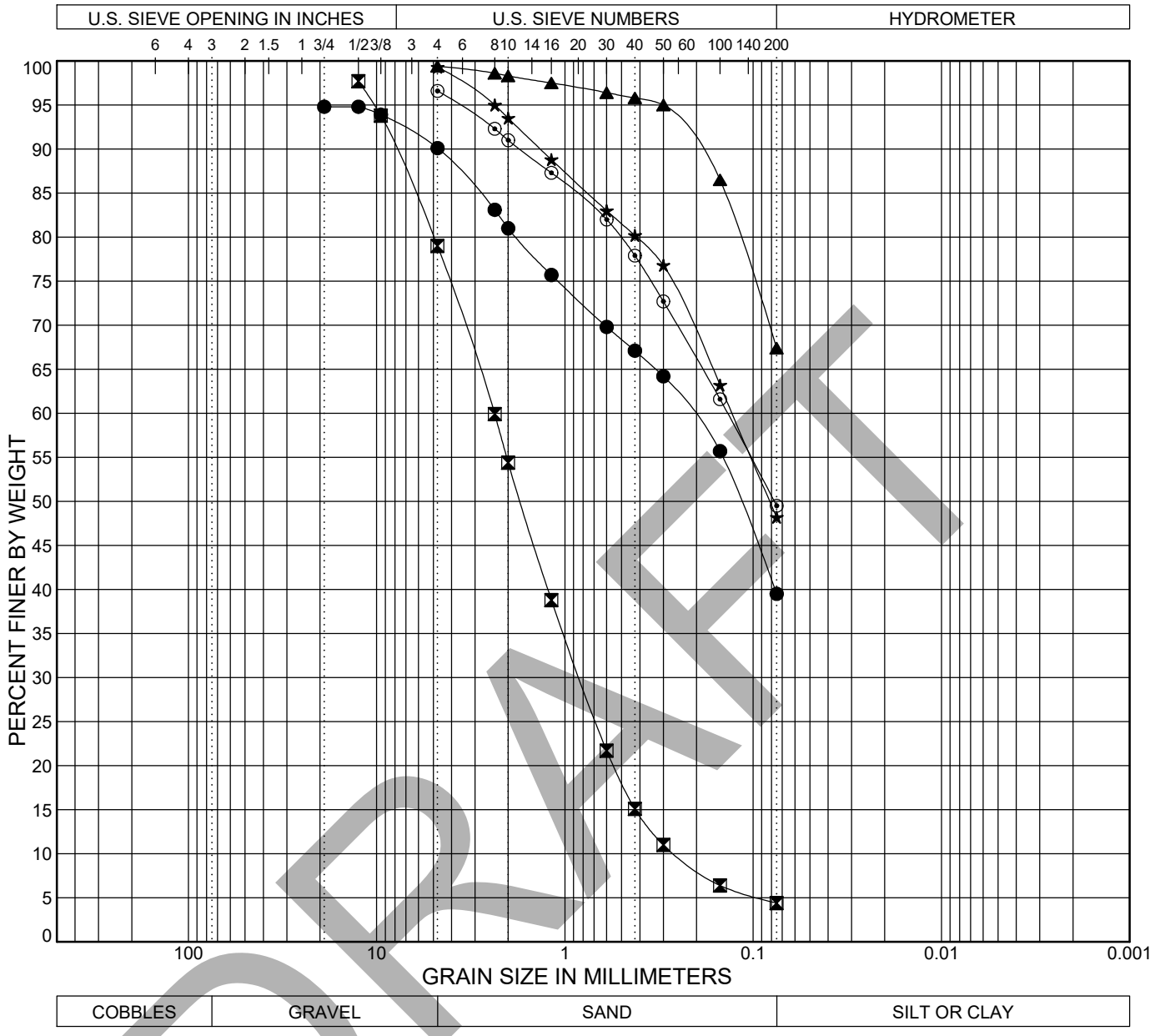
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Summary of Laboratory Test Results

Project No: 224-104 Project Name: WWSD Jimmy Camp Lift Sation Force Main Extension Date: 10-18-2024

Sample Location			Natural Moisture Content (%)	Natural Dry Density (pcf)	Gradation			Atterberg			pH	Water Soluble Sulfate (%)	Water Soluble Chloride (%)	Resistivity (ohm-cm)	Swell (+) / Collapse (-) (% at Load in psf)	Unconf. Comp. Strength (psf)	R-Value	Classification	
Boring No.	Depth (ft)	Sample Type			Gravel > #4 (%)	Sand (%)	Fines < #200 (%)	LL	PL	PI								AASHTO	USCS
B-18	14.0	MC	18.4	109.8		18.5	80.8	36	15	21								A-6 (16)	CL
B-19	4.0	MC									6.9	0.054	0.051	1350					
B-19	9.0	MC	18.9	106.9		14.1	85.7	41	16	25								A-7-6 (21)	CL
B-19	14.0	MC	18.4	109.6											0 @ 500				
B-19	19.0	MC	19.6	108.5		40.8	58.0												

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BOREHOLE		DEPTH (ft)	AASHTO Classification	USCS Classification	LL	PL	PI	%Gravel	%Sand	%Fines	
										%Silt	%Clay
●	B-1	5.0	A-4 (0)	SC	25	17	8	4.7	50.6	39.5	
⊠	B-1	14.0	A-1-b (0)	SW	NV	NP	NP	18.7	74.6	4.4	
▲	B-2	5.0	A-7-6 (15)	CL	43	17	26		32.0	67.4	
★	B-2	14.0							51.1	48.2	
⊙	B-3	5.0	A-6 (5)	SC	32	14	18		47.1	49.5	

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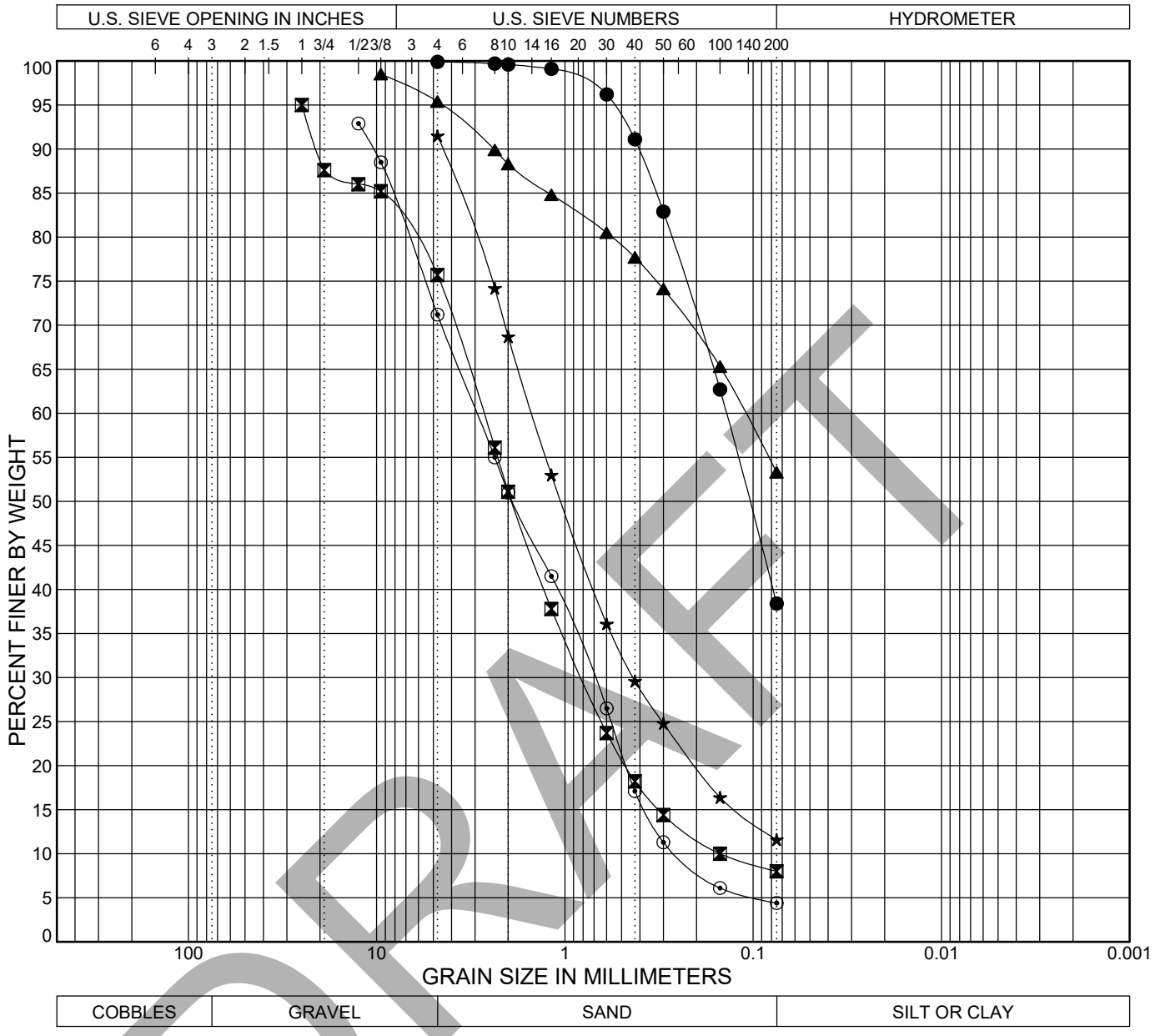
FIGURE

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Project No. 224-104 Date: 10-18-2024
Report By: D. Gruenwald Yeh Lab: Colorado Springs
Checked By: T. Yang

WWSD Jimmy Camp Lift Sation
Force Main Extension
Fountain, Colorado

03 GRAIN SIZE YEH 224-104 WWSD JCLF UPDATED FILE.GPJ 2021 YEH COLORADO TEMPLATE.GDT 2021 YEH COLORADO LIBRARY.GLB 10/18/24



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BOREHOLE		DEPTH (ft)	AASHTO Classification	USCS Classification	LL	PL	PI	%Gravel	%Sand	%Fines	
										%Silt	%Clay
●	B-3	9.0	A-4 (0)	SC-SM	22	16	6		61.5	38.4	
⊠	B-3	19.0	A-1-b (0)	SW-SM	NV	NP	NP	19.3	67.7	8.0	
▲	B-4	1.0	A-6 (7)	CL	35	16	19	3.1	42.1	53.3	
★	B-4	5.0	A-1-b (0)	SW-SM	NV	NP	NP		79.9	11.6	
⊙	B-4	14.0	A-1-b (0)	SP	NV	NP	NP	21.7	66.8	4.4	

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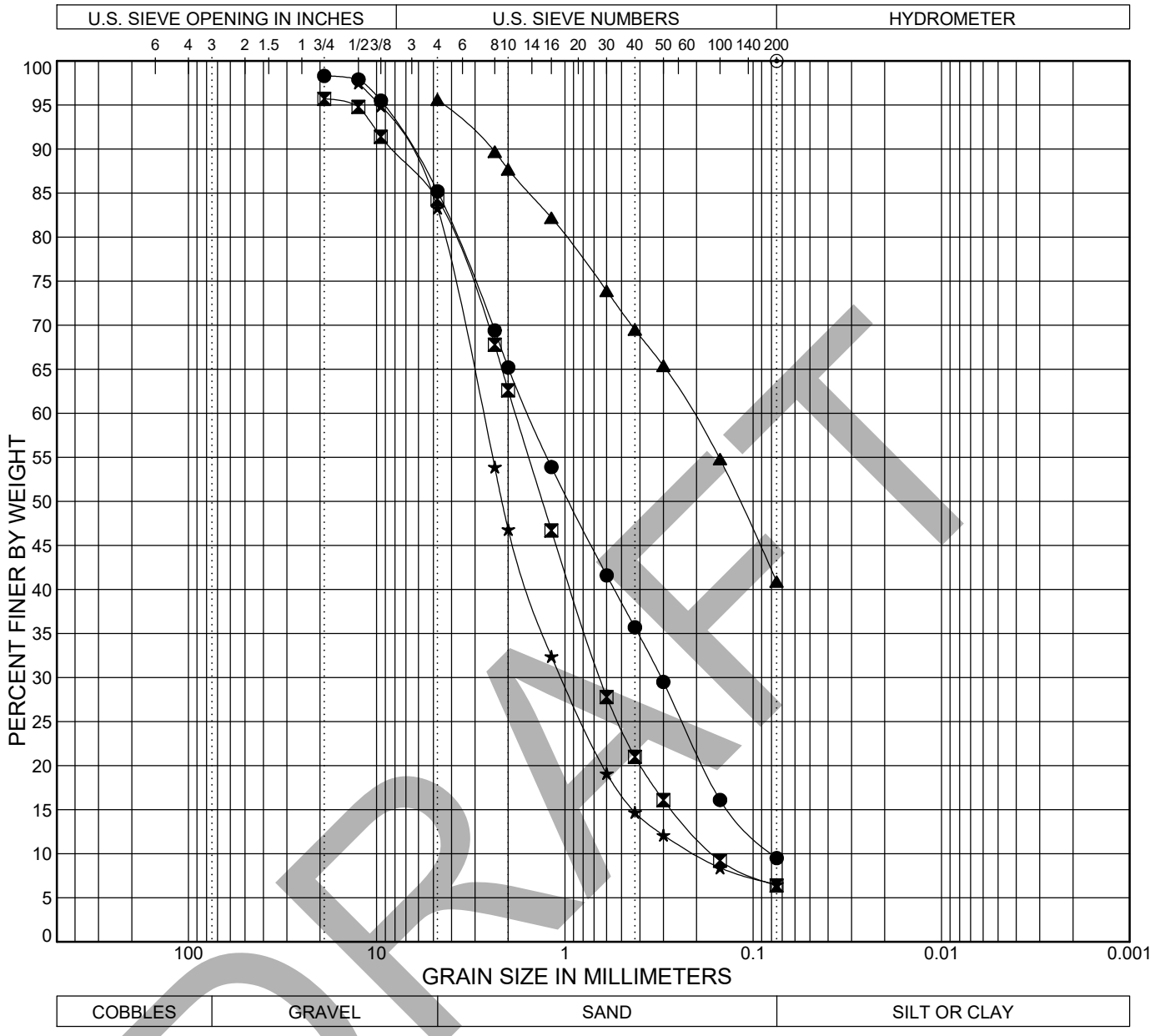
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FIGURE
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Project No. 224-104 Date: 10-18-2024
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WWSD Jimmy Camp Lift Sation
Force Main Extension
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BOREHOLE		DEPTH (ft)	AASHTO Classification	USCS Classification	LL	PL	PI	%Gravel	%Sand	%Fines	
										%Silt	%Clay
●	B-5	5.0	A-1-b (0)	SP-SM	NV	NP	NP	13.1	75.7	9.5	
⊠	B-5	14.0	A-1-b (0)	SW-SM	NV	NP	NP	11.4	77.9	6.4	
▲	B-6	5.0	A-6 (2)	SC	28	13	15		54.7	40.9	
★	B-6	14.0	A-1-a (0)	SW-SM	NV	NP	NP	14.2	76.8	6.5	
⊙	B-6	24.0	A-7-6 (37)	CH	50	16	34	0.0	0.0	100.0	

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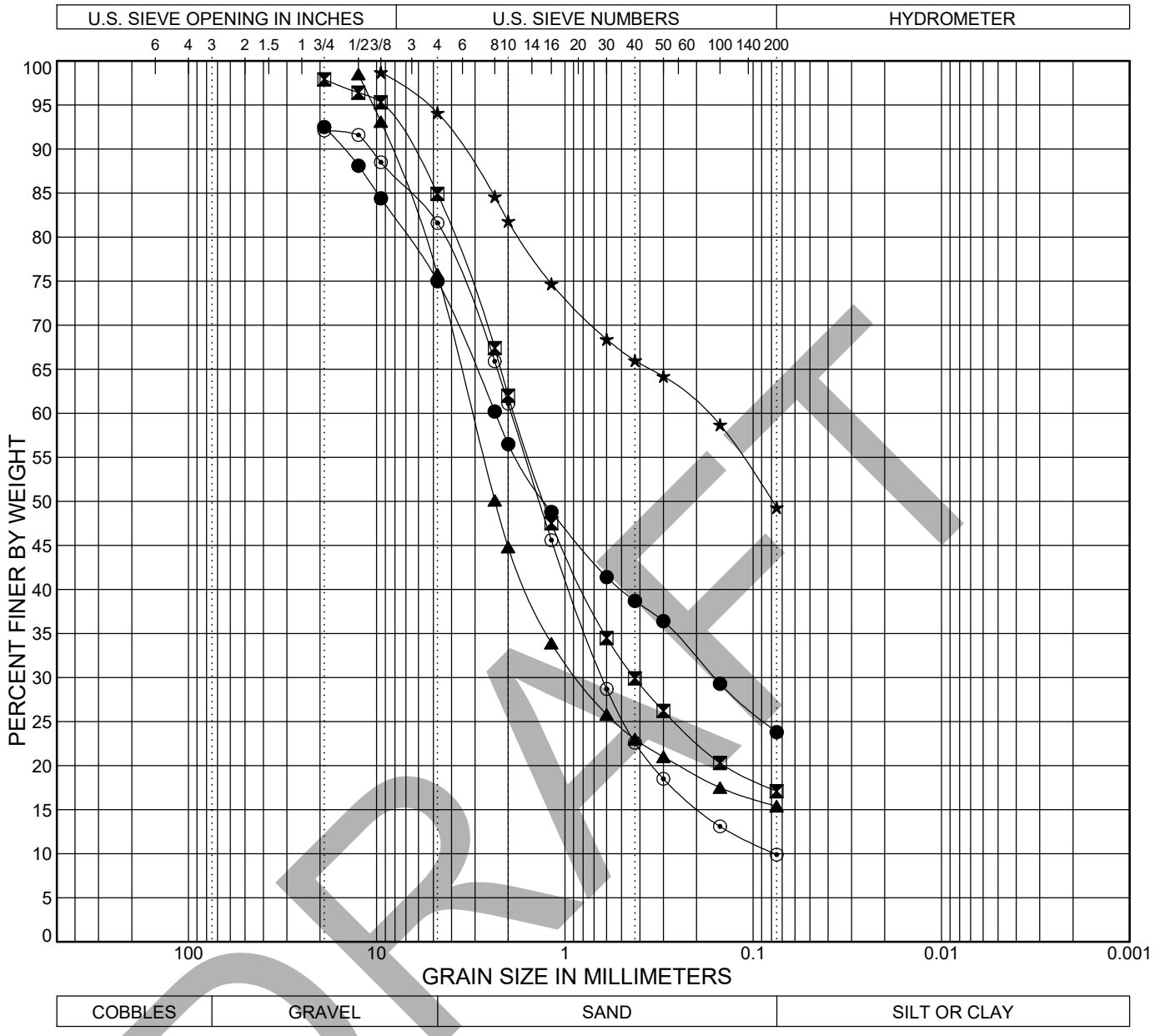
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FIGURE C- 3

Project No. 224-104 Date: 10-18-2024
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BOREHOLE		DEPTH (ft)	AASHTO Classification	USCS Classification	LL	PL	PI	%Gravel	%Sand	%Fines	
										%Silt	%Clay
●	B-7	5.0	A-2-6 (0)	SC	27	14	13	17.5	51.2	23.8	
⊠	B-7	14.0	A-1-b (0)	SM	NV	NP	NP	13.0	67.8	17.1	
▲	B-7	19.0	A-1-a (0)	SM	NV	NP	NP	22.7	60.4	15.4	
★	B-8	5.0	A-6 (5)	SC	34	17	17	4.6	44.8	49.3	
⊙	B-8	19.0	A-1-b (0)	SW-SM	NV	NP	NP	10.5	71.7	9.9	

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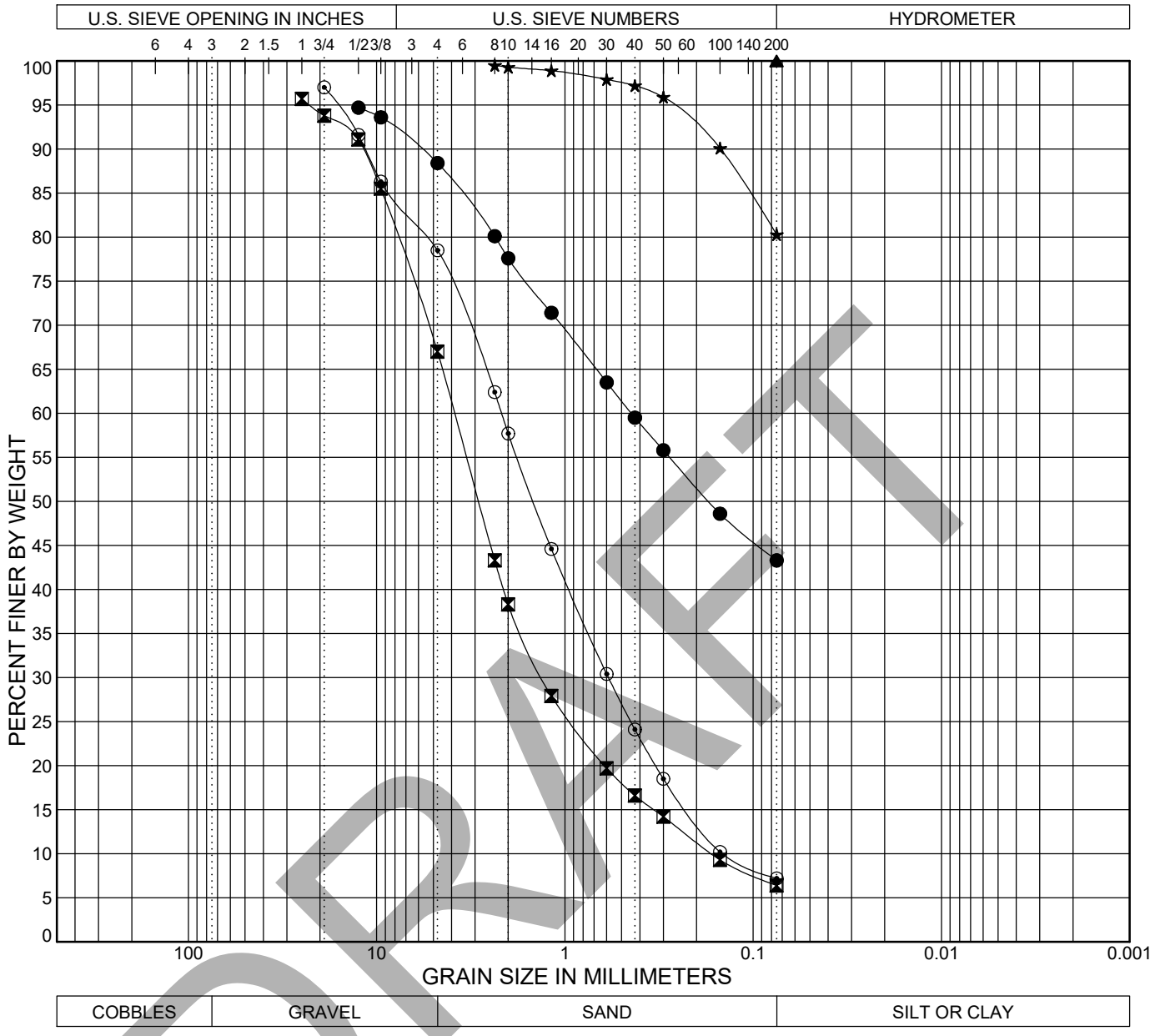
FIGURE

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Project No. 224-104 Date: 10-18-2024
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BOREHOLE		DEPTH (ft)	AASHTO Classification	USCS Classification	LL	PL	PI	%Gravel	%Sand	%Fines	
										%Silt	%Clay
●	B-9	5.0	A-7-6 (7)	SC	43	15	28	6.3	45.1	43.3	
⊠	B-9	14.0	A-1-a (0)	SW-SM	NV	NP	NP	28.7	60.6	6.4	
▲	B-9	24.0	A-7-6 (26)	CL	44	20	24	0.0	0.0	100.0	
★	B-10	1.0	A-7-6 (21)	CL	45	18	27		19.2	80.3	
⊙	B-10	5.0						18.5	71.3	7.2	

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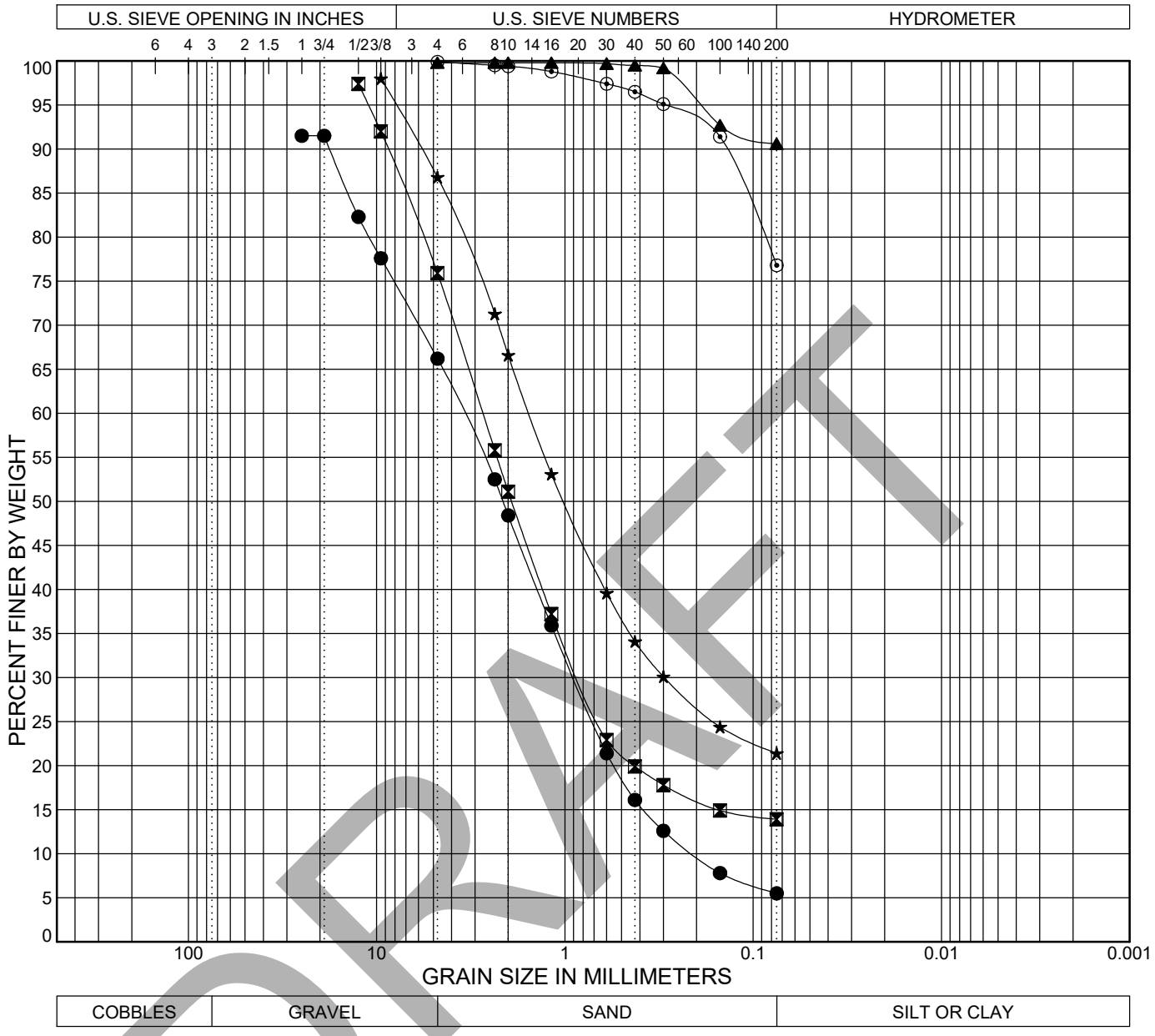
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WWSD Jimmy Camp Lift Sation
Force Main Extension
Fountain, Colorado

FIGURE

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03 GRAIN SIZE YEH 224-104 WWSD JCLF UPDATED FILE.GPJ 2021 YEH COLORADO TEMPLATE.GDT 2021 YEH COLORADO LIBRARY.GLB 10/18/24



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BOREHOLE		DEPTH (ft)	AASHTO Classification	USCS Classification	LL	PL	PI	%Gravel	%Sand	%Fines	
										%Silt	%Clay
●	B-10	9.0	A-1-a (0)	SW-SM	NV	NP	NP	25.3	60.7	5.5	
⊠	B-10	19.0						21.5	62.0	13.9	
▲	B-11	5.0	A-7-6 (24)	CL	43	17	26		9.2	90.6	
★	B-11	9.0						11.2	65.4	21.4	
⊙	B-12	9.0	A-6 (10)	CL	31	15	16		23.1	76.8	

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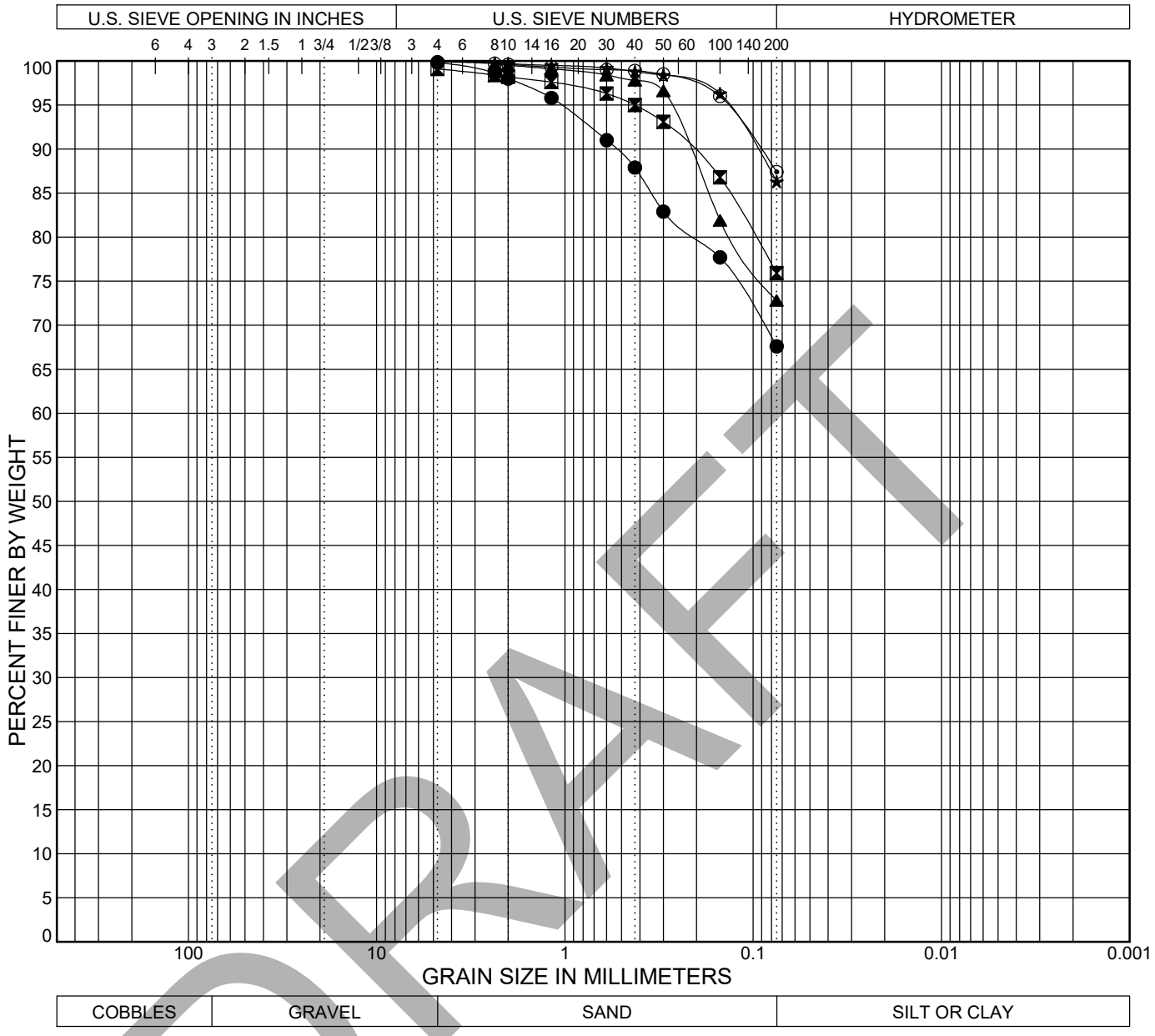
FIGURE

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Project No. 224-104 Date: 10-18-2024
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BOREHOLE		DEPTH (ft)	AASHTO Classification	USCS Classification	LL	PL	PI	%Gravel	%Sand	%Fines	
										%Silt	%Clay
●	B-12	14.0							32.2	67.6	
⊠	B-13	5.0							23.2	75.9	
▲	B-13	9.0	A-6 (13)	CL	35	14	21		26.8	72.8	
★	B-14	9.0	A-6 (16)	CL	36	17	19		13.6	86.3	
⊙	B-14	19.0							12.5	87.4	

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Project No. 224-104 Date: 10-18-2024
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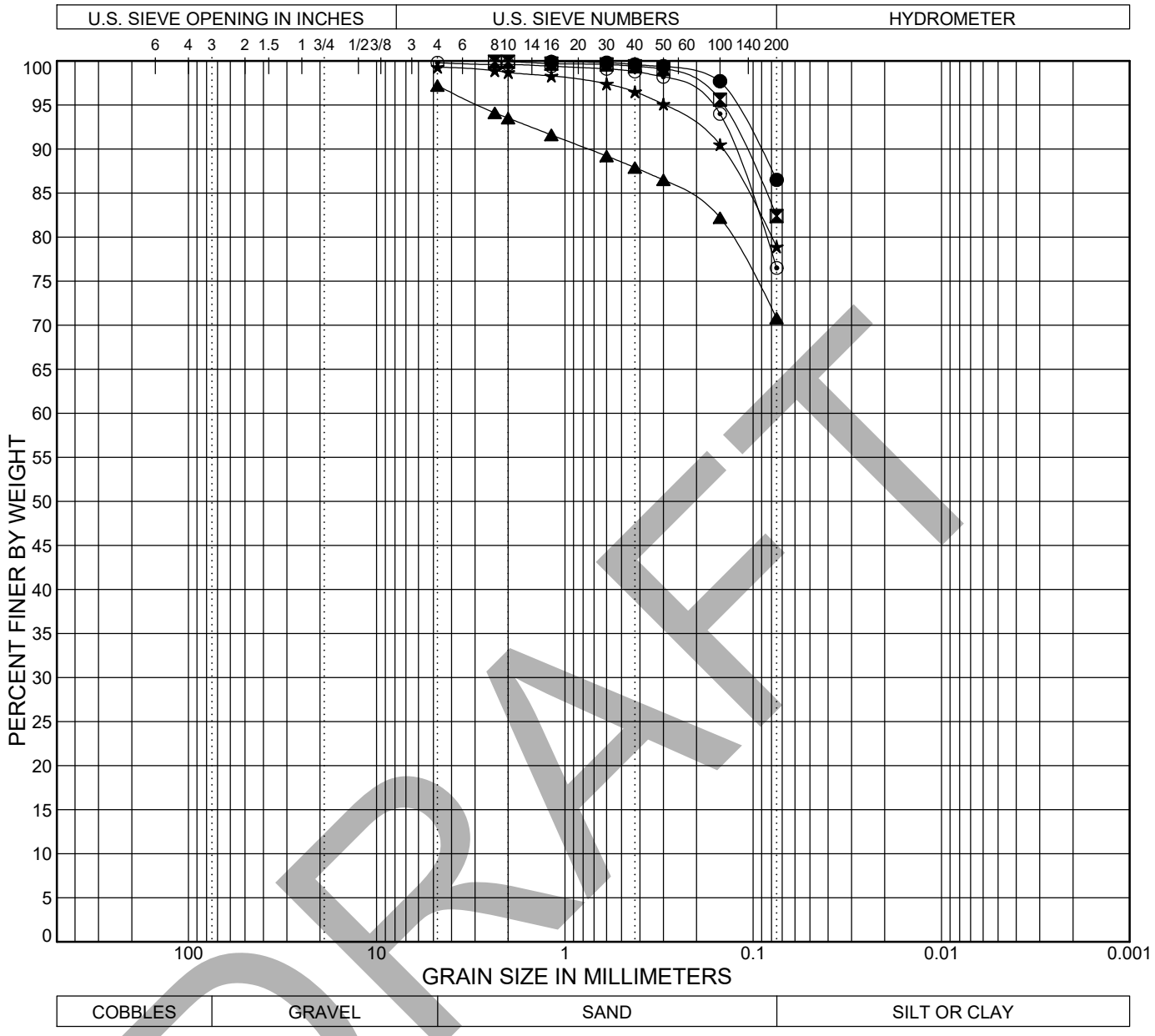
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WWSD Jimmy Camp Lift Sation
Force Main Extension
Fountain, Colorado

FIGURE

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03 GRAIN SIZE YEH 224-104 WWSD JCLF UPDATED FILE.GPJ 2021 YEH COLORADO TEMPLATE.GDT 2021 YEH COLORADO LIBRARY.GLB 10/18/24



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	BOREHOLE	DEPTH (ft)	AASHTO Classification	USCS Classification	LL	PL	PI	%Gravel	%Sand	%Fines %Silt	%Fines %Clay
●	B-15	7.0							13.4	86.5	
⊠	B-15	19.0							17.5	82.4	
▲	B-16	4.0							26.4	70.8	
★	B-16	9.0	A-6 (16)	CL	38	16	22		20.4	78.9	
⊙	B-17	9.0	A-6 (15)	CL	37	15	22		23.3	76.5	

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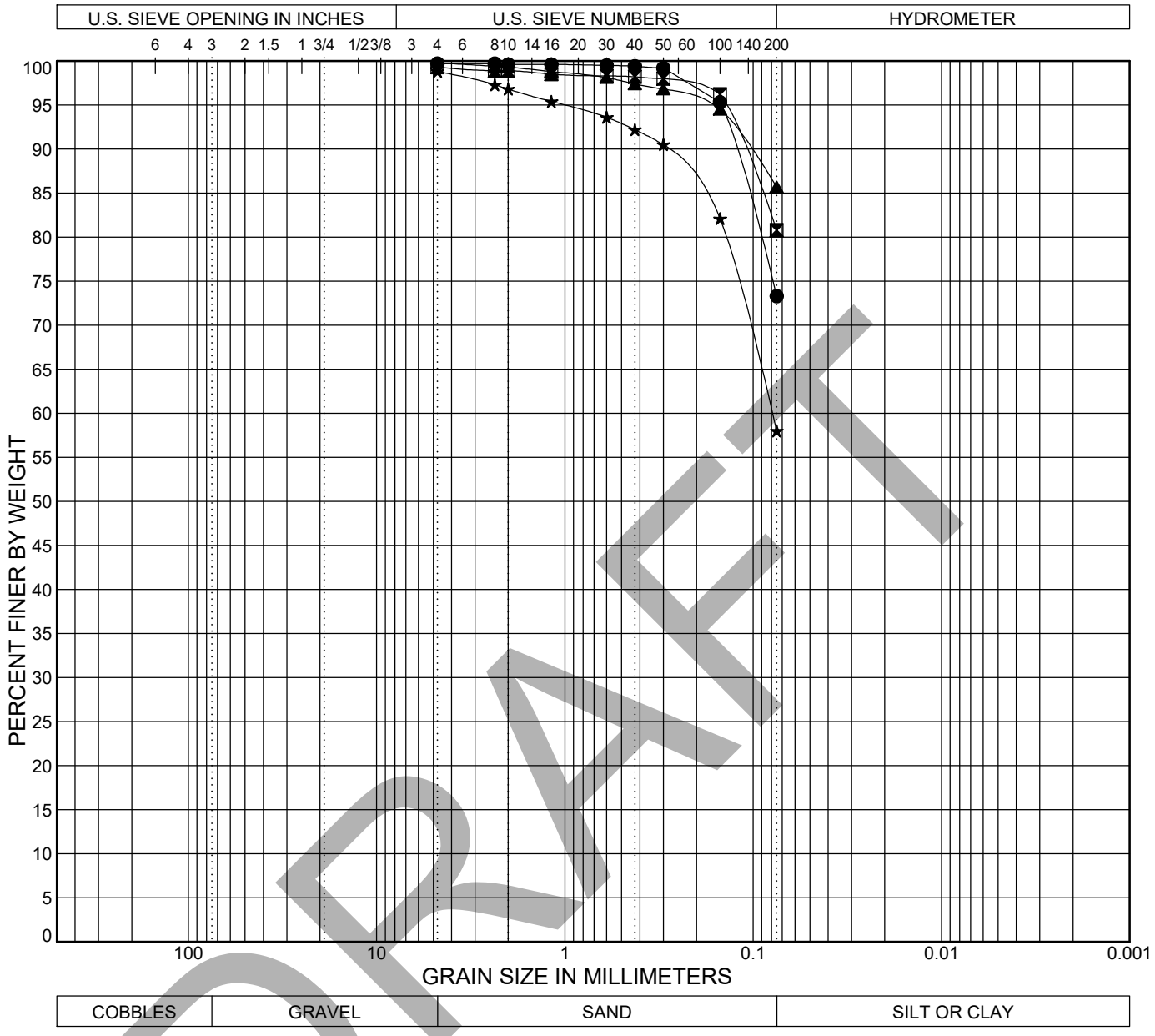
FIGURE

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Project No. 224-104 Date: 10-18-2024
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Force Main Extension
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03 GRAIN SIZE YEH 224-104 WWSD JCLF UPDATED FILE.GPJ 2021 YEH COLORADO TEMPLATE.GDT 2021 YEH COLORADO LIBRARY.GLB 10/18/24



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BOREHOLE		DEPTH (ft)	AASHTO Classification	USCS Classification	LL	PL	PI	%Gravel	%Sand	%Fines	
										%Silt	%Clay
●	B-18	7.0							26.4	73.3	
⊠	B-18	14.0	A-6 (16)	CL	36	15	21		18.5	80.8	
▲	B-19	9.0	A-7-6 (21)	CL	41	16	25		14.1	85.7	
★	B-19	19.0							40.8	58.0	

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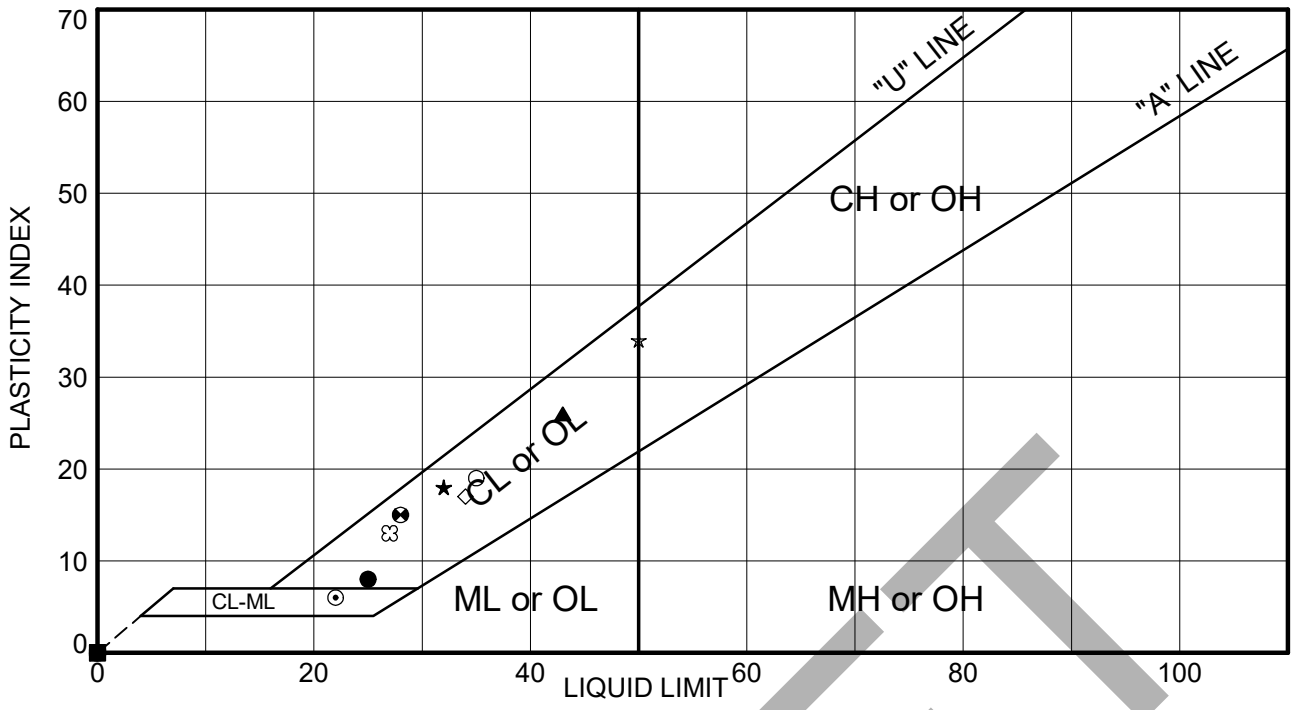
FIGURE

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Project No. 224-104 Date: 10-18-2024
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WWSD Jimmy Camp Lift Sation
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03 GRAIN SIZE YEH 224-104 WWSD JCLF UPDATED FILE.GPJ 2021 YEH COLORADO TEMPLATE.GDT 2021 YEH COLORADO LIBRARY.GLB 10/18/24



	BOREHOLE	DEPTH (ft)	LL	PL	PI	Passing #200	USCS Sample Description and Symbol	AASHTO Class.
●	B-1	5.0	25	17	8	39.5	CLAYEY SAND (SC)	A-4 (0)
⊠	B-1	14.0	NV	NP	NP	4.4	WELL-GRADED SAND with GRAVEL (SW)	A-1-b (0)
▲	B-2	5.0	43	17	26	67.4	SANDY LEAN CLAY (CL)	A-7-6 (15)
★	B-3	5.0	32	14	18	49.5	CLAYEY SAND (SC)	A-6 (5)
⊙	B-3	9.0	22	16	6	38.4	SILTY, CLAYEY SAND (SC-SM)	A-4 (0)
✿	B-3	19.0	NV	NP	NP	8.0	WELL-GRADED SAND with SILT and GRAVEL (SW-SM)	A-1-b (0)
○	B-4	1.0	35	16	19	53.3	SANDY LEAN CLAY (CL)	A-6 (7)
△	B-4	5.0	NV	NP	NP	11.6	WELL-GRADED SAND with SILT (SW-SM)	A-1-b (0)
⊗	B-4	14.0	NV	NP	NP	4.4	POORLY GRADED SAND with GRAVEL (SP)	A-1-b (0)
⊕	B-5	5.0	NV	NP	NP	9.5	POORLY GRADED SAND with SILT (SP-SM)	A-1-b (0)
□	B-5	14.0	NV	NP	NP	6.4	WELL-GRADED SAND with SILT and GRAVEL (SW-SM)	A-1-b (0)
◓	B-6	5.0	28	13	15	40.9	CLAYEY SAND (SC)	A-6 (2)
◔	B-6	14.0	NV	NP	NP	6.5	WELL-GRADED SAND with SILT and GRAVEL (SW-SM)	A-1-a (0)
☆	B-6	24.0	50	16	34	100.0	FAT CLAY (CH)	A-7-6 (37)
⊠	B-7	5.0	27	14	13	23.8	CLAYEY SAND with GRAVEL (SC)	A-2-6 (0)
■	B-7	14.0	NV	NP	NP	17.1	SILTY SAND with GRAVEL (SM)	A-1-b (0)
◆	B-7	19.0	NV	NP	NP	15.4	SILTY SAND with GRAVEL (SM)	A-1-a (0)
◇	B-8	5.0	34	17	17	49.3	CLAYEY SAND (SC)	A-6 (5)

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ATTERBERG LIMITS

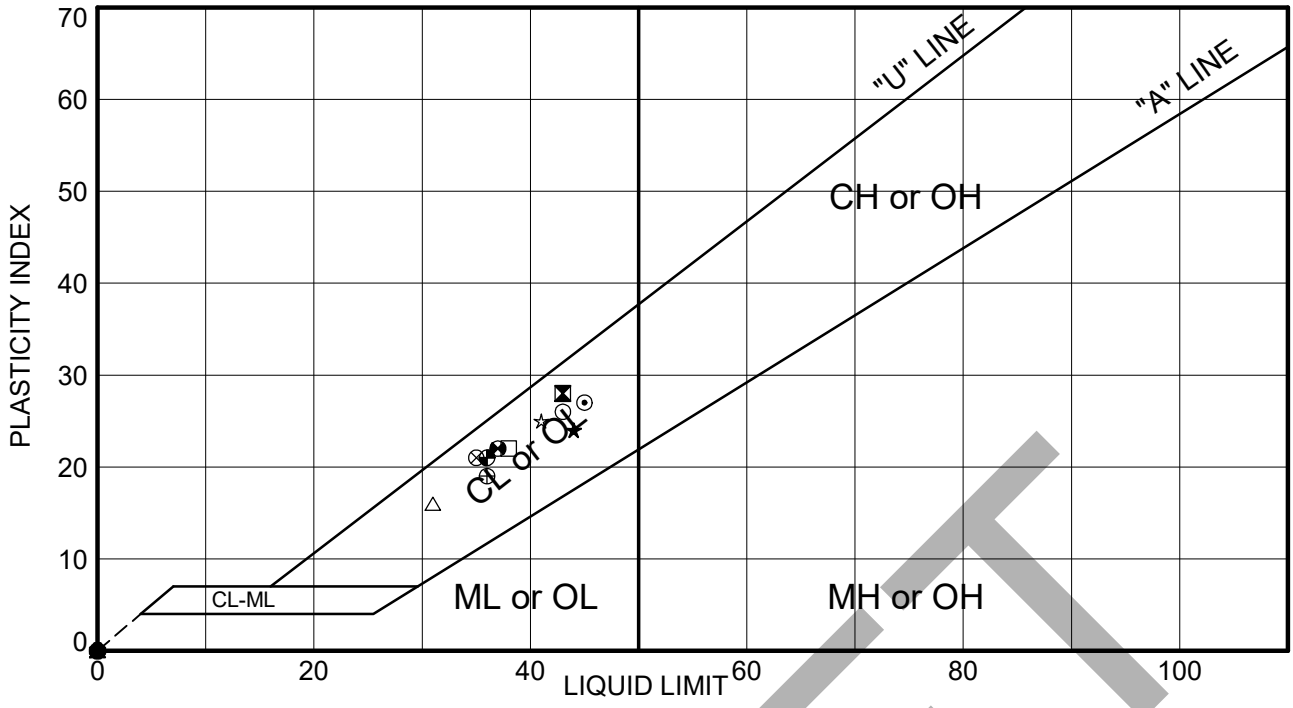
FIGURE

C - 1

Project No. 224-104 Date: 10-18-2024
Report By: D. Gruenwald Yeh Lab: Colorado Springs
Checked By: T. Yang

WWSD Jimmy Camp Lift Sation
Force Main Extension
Fountain, Colorado

01 ATTERBERG LIMITS YEH - ALL BORINGS 224-104 WWSD JCLF UPDATED FILE.GPJ 2021 YEH COLORADO TEMPLATE.GDT 2021 YEH COLORADO LIBRARY.GLB 10/18/24



	BOREHOLE	DEPTH (ft)	LL	PL	PI	Passing #200	USCS Sample Description and Symbol	AASHTO Class.
●	B-8	19.0	NV	NP	NP	9.9	WELL-GRADED SAND with SILT and GRAVEL (SW-SM)	A-1-b (0)
⧓	B-9	5.0	43	15	28	43.3	CLAYEY SAND (SC)	A-7-6 (7)
▲	B-9	14.0	NV	NP	NP	6.4	WELL-GRADED SAND with SILT and GRAVEL (SW-SM)	A-1-a (0)
★	B-9	24.0	44	20	24	100.0	LEAN CLAY (CL)	A-7-6 (26)
⊙	B-10	1.0	45	18	27	80.3	LEAN CLAY with SAND (CL)	A-7-6 (21)
✿	B-10	9.0	NV	NP	NP	5.5	WELL-GRADED SAND with SILT and GRAVEL (SW-SM)	A-1-a (0)
○	B-11	5.0	43	17	26	90.6	LEAN CLAY (CL)	A-7-6 (24)
△	B-12	9.0	31	15	16	76.8	LEAN CLAY with SAND (CL)	A-6 (10)
⊗	B-13	9.0	35	14	21	72.8	LEAN CLAY with SAND (CL)	A-6 (13)
⊕	B-14	9.0	36	17	19	86.3	LEAN CLAY (CL)	A-6 (16)
□	B-16	9.0	38	16	22	78.9	LEAN CLAY with SAND (CL)	A-6 (16)
⊛	B-17	9.0	37	15	22	76.5	LEAN CLAY with SAND (CL)	A-6 (15)
◕	B-18	14.0	36	15	21	80.8	LEAN CLAY with SAND (CL)	A-6 (16)
☆	B-19	9.0	41	16	25	85.7	LEAN CLAY (CL)	A-7-6 (21)

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ATTERBERG LIMITS

FIGURE
C - 2

Project No. 224-104 Date: 10-18-2024
Report By: D. Gruenwald Yeh Lab: Colorado Springs
Checked By: T. Yang

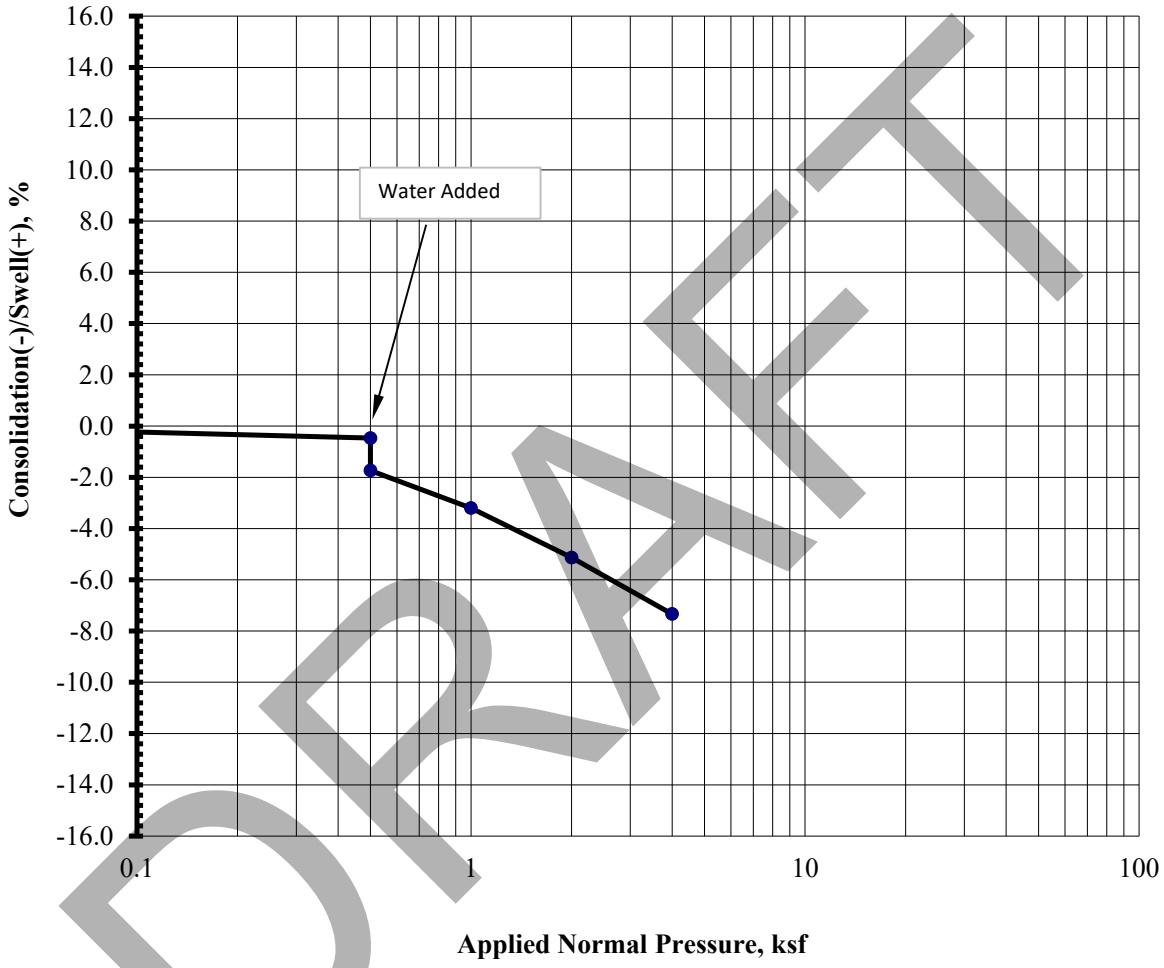
WWSD Jimmy Camp Lift Sation
Force Main Extension
Fountain, Colorado

01 ATTERBERG LIMITS YEH - ALL BORINGS 224-104 WWSD JCLF UPDATED FILE.GPJ 2021 YEH COLORADO TEMPLATE.GDT 2021 YEH COLORADO LIBRARY.GLB 10/18/24

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Clay Lab - Denver

ONE - DIMENTIONAL SWELL OR COLLAPSE OF SOILS
ASTM D4546 METHOD C



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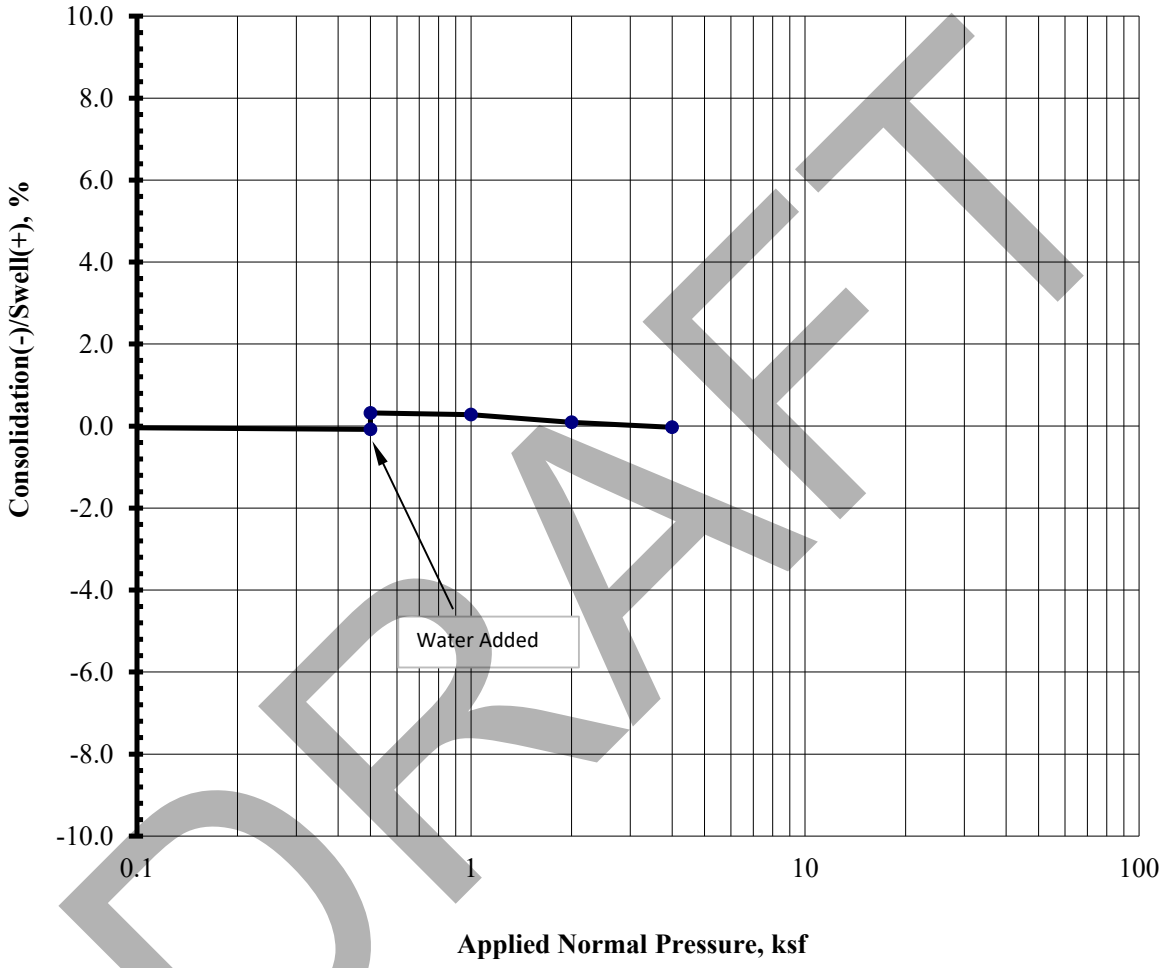
Boring Number		Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Classification	SWELL OR COLLAPSE GRAPH	
B1		1	128.2	7.1%	-1.3	Clayey Sand	Drawn By:	M.A
Job No:	224-104	**Project Name:**		**WWSD JCLS**			**Checked By:**	**Tae**

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ONE - DIMENTIONAL SWELL OR COLLAPSE OF SOILS
ASTM D4546 METHOD C



DRAFT

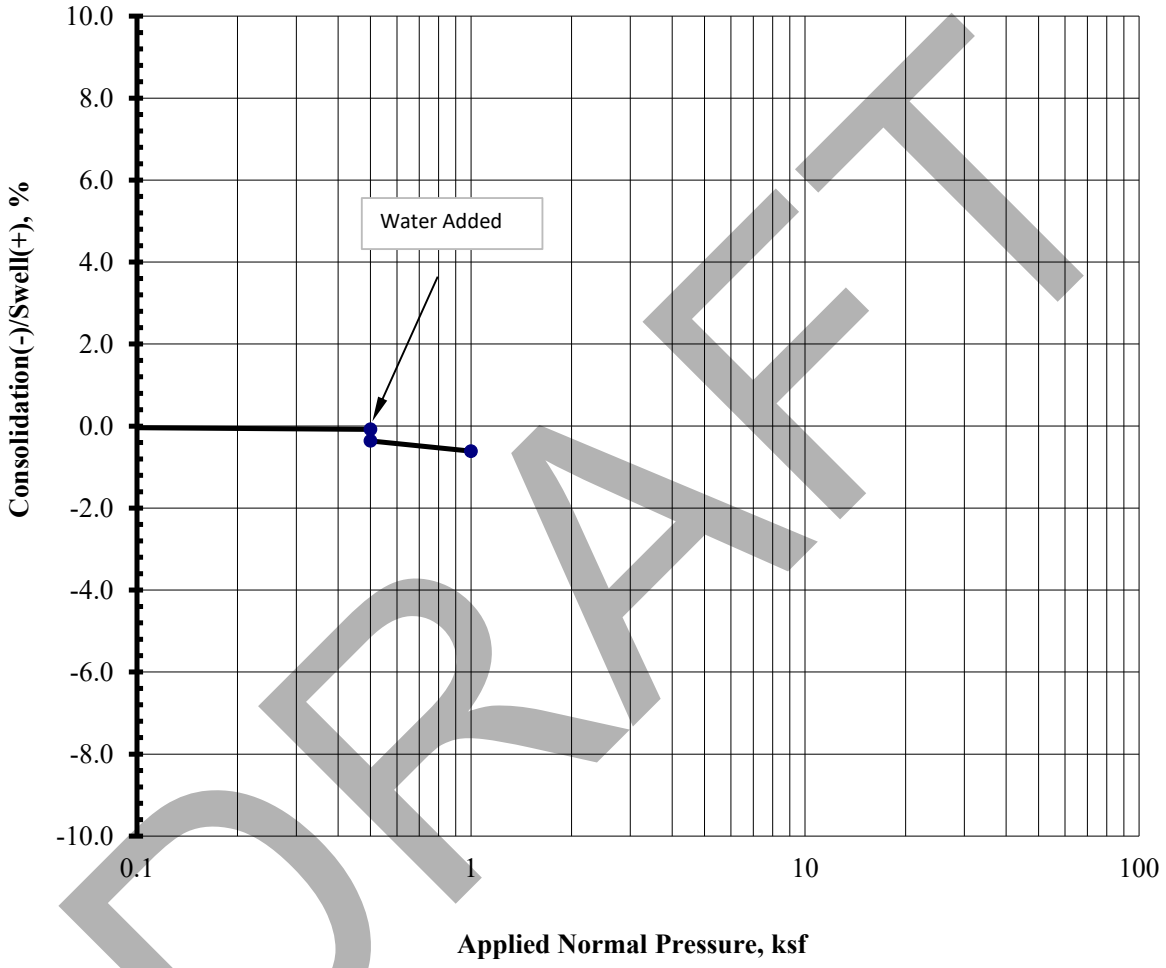
Boring Number		Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Classification	SWELL OR COLLAPSE GRAPH	
B2		5	109.0	9.3%	0.4	A-7-6 (15)/CL	Drawn By:	M.A
Job No:	224-104	**Project Name:**		**WWSD JCLS**			**Checked By:**	**Tae**

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ONE - DIMENTIONAL SWELL OR COLLAPSE OF SOILS
ASTM D4546 METHOD C



DRAFT

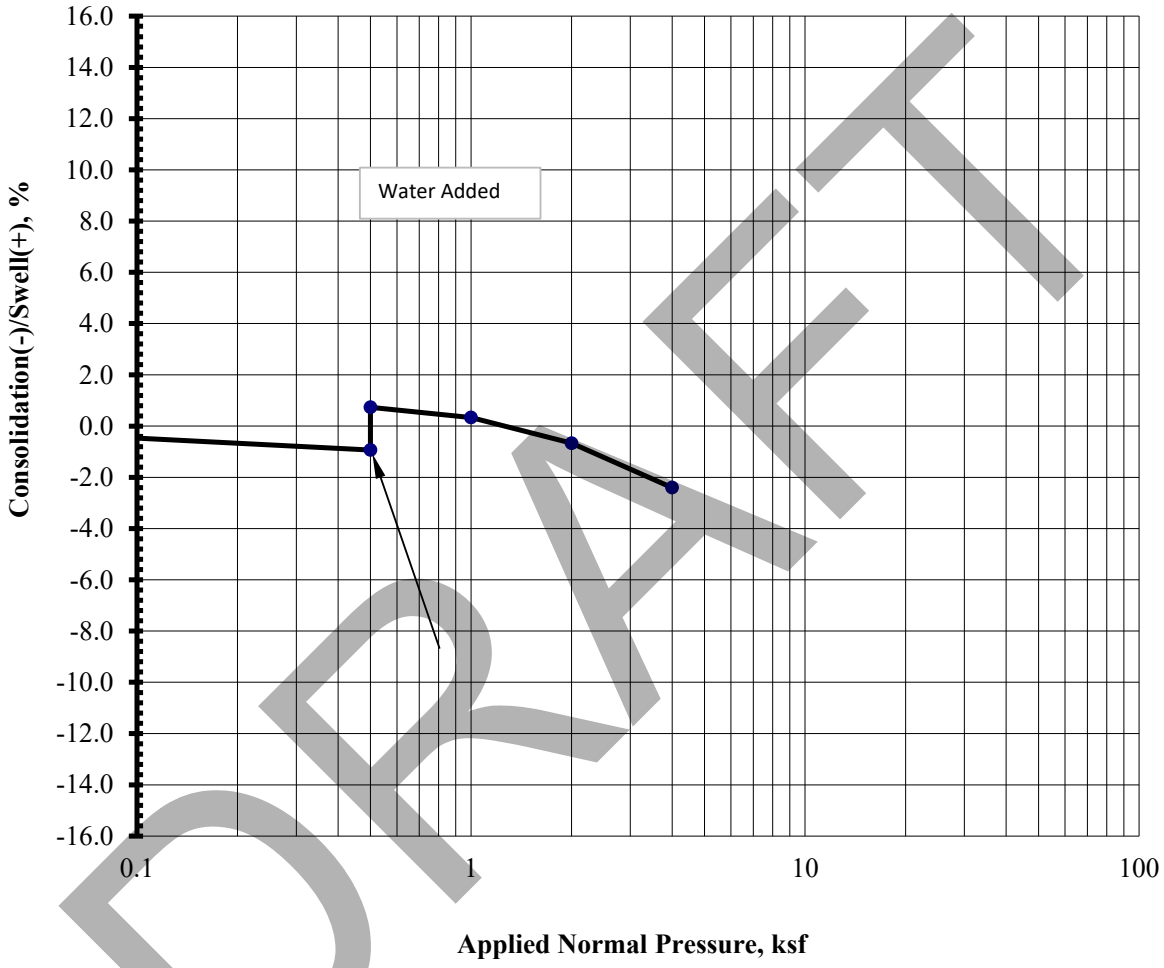
Boring Number		Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Classification	SWELL OR COLLAPSE GRAPH	
B7		5	102.0	2.8%	-0.3	A-2-6 (0)/SC	Drawn By:	M.A
Job No:	224-104	**Project Name:**		**WWSD JCLS**			**Checked By:**	**Tae**

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ONE - DIMENTIONAL SWELL OR COLLAPSE OF SOILS
ASTM D4546 METHOD C



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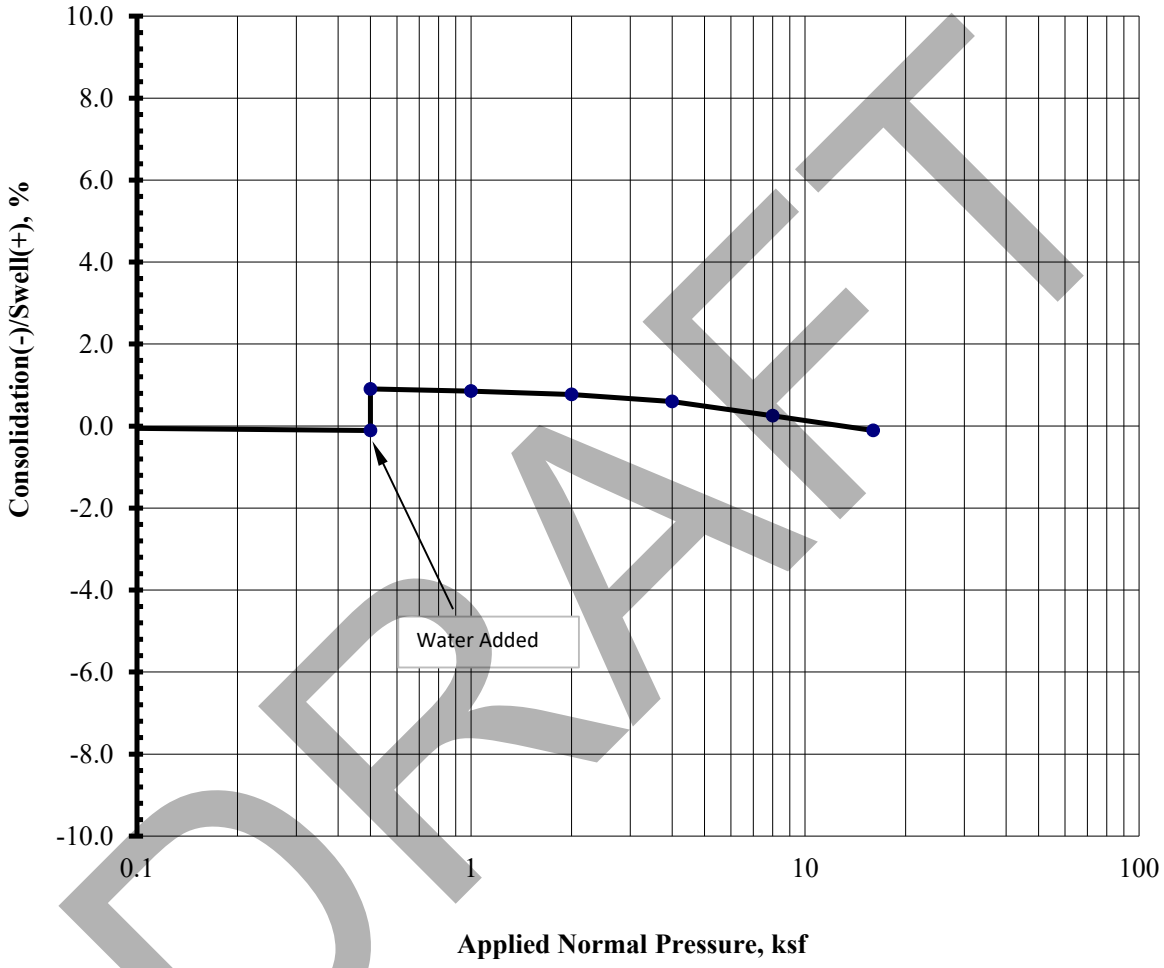
Boring Number		Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Classification	SWELL OR COLLAPSE GRAPH	
B9		1			1.7	Clayey Sand	Drawn By:	M.A
Job No:	224-104	**Project Name:**		**WWSD JCLS**			**Checked By:**	**Tae**

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ASTM D4546 METHOD C



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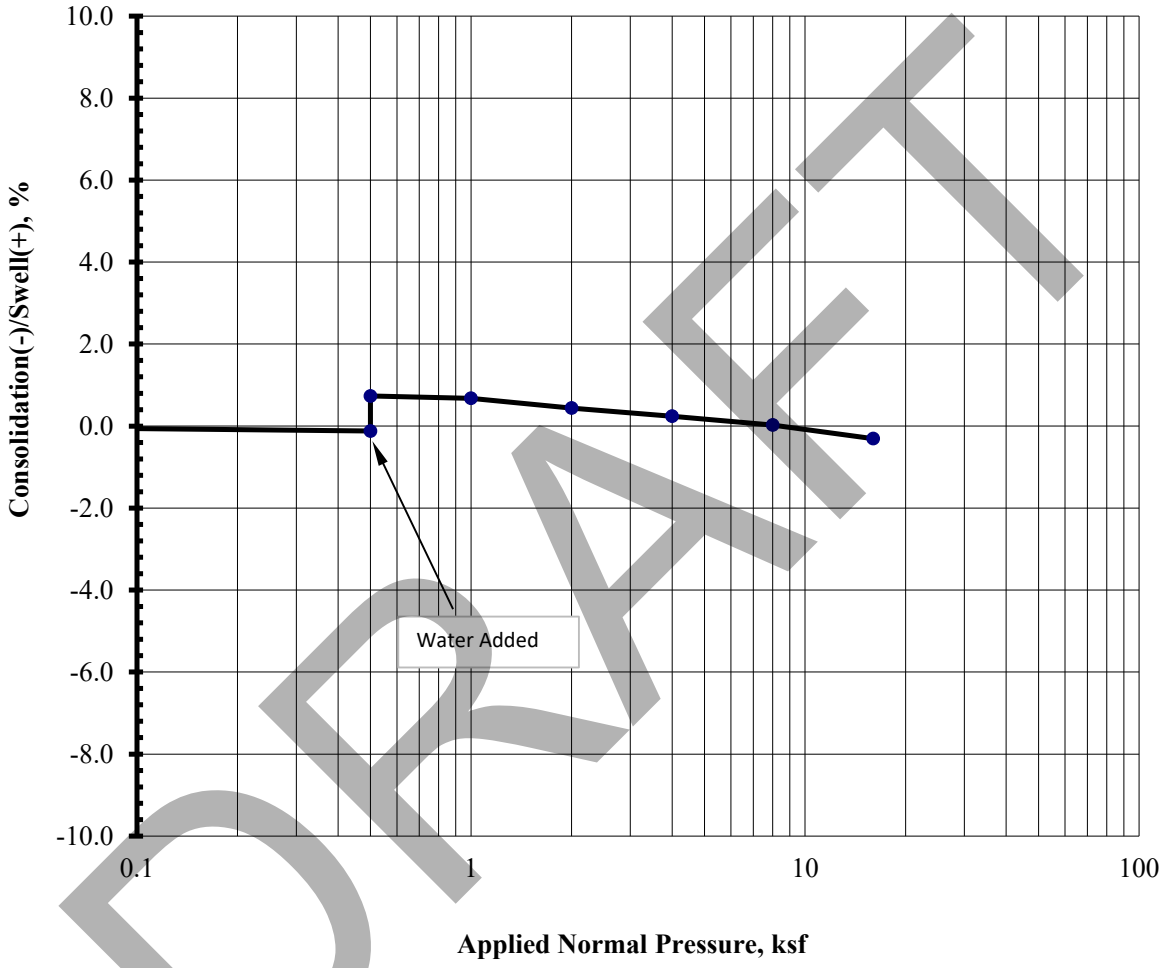
Boring Number		Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Classification	SWELL OR COLLAPSE GRAPH	
B10		1	109.8	12.6%	1.0	A-7-6 (21)/CL	Drawn By:	M.A
Job No:	224-104	**Project Name:**		**WWSD JCLS**			**Checked By:**	**Tae**

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ASTM D4546 METHOD C



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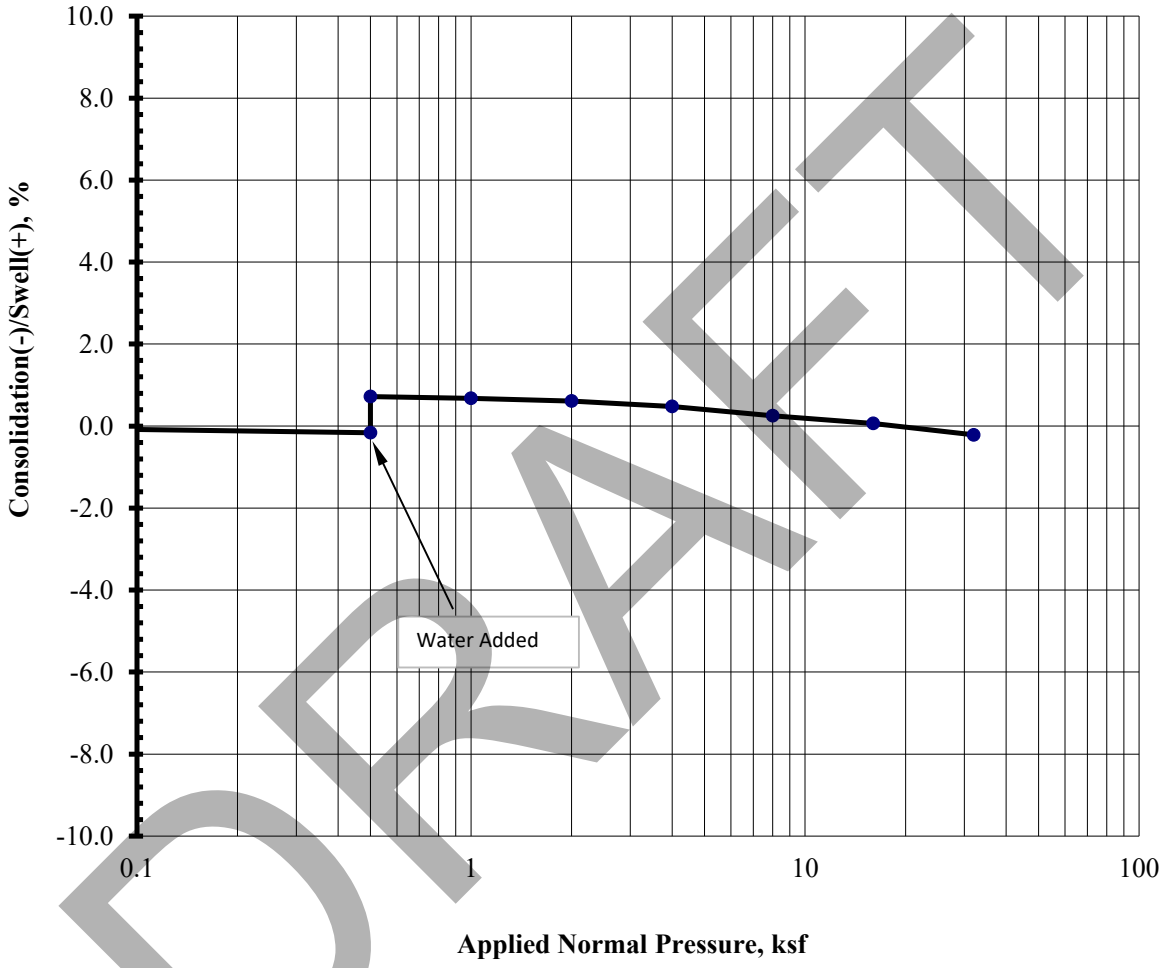
Boring Number		Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Classification	SWELL OR COLLAPSE GRAPH	
B11		5	104.8	11.6%	0.9	A-7-6 (24)/CL	Drawn By:	M.A
Job No:	224-104	**Project Name:**		**WWSD JCLS**			**Checked By:**	**Tae**

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ASTM D4546 METHOD C



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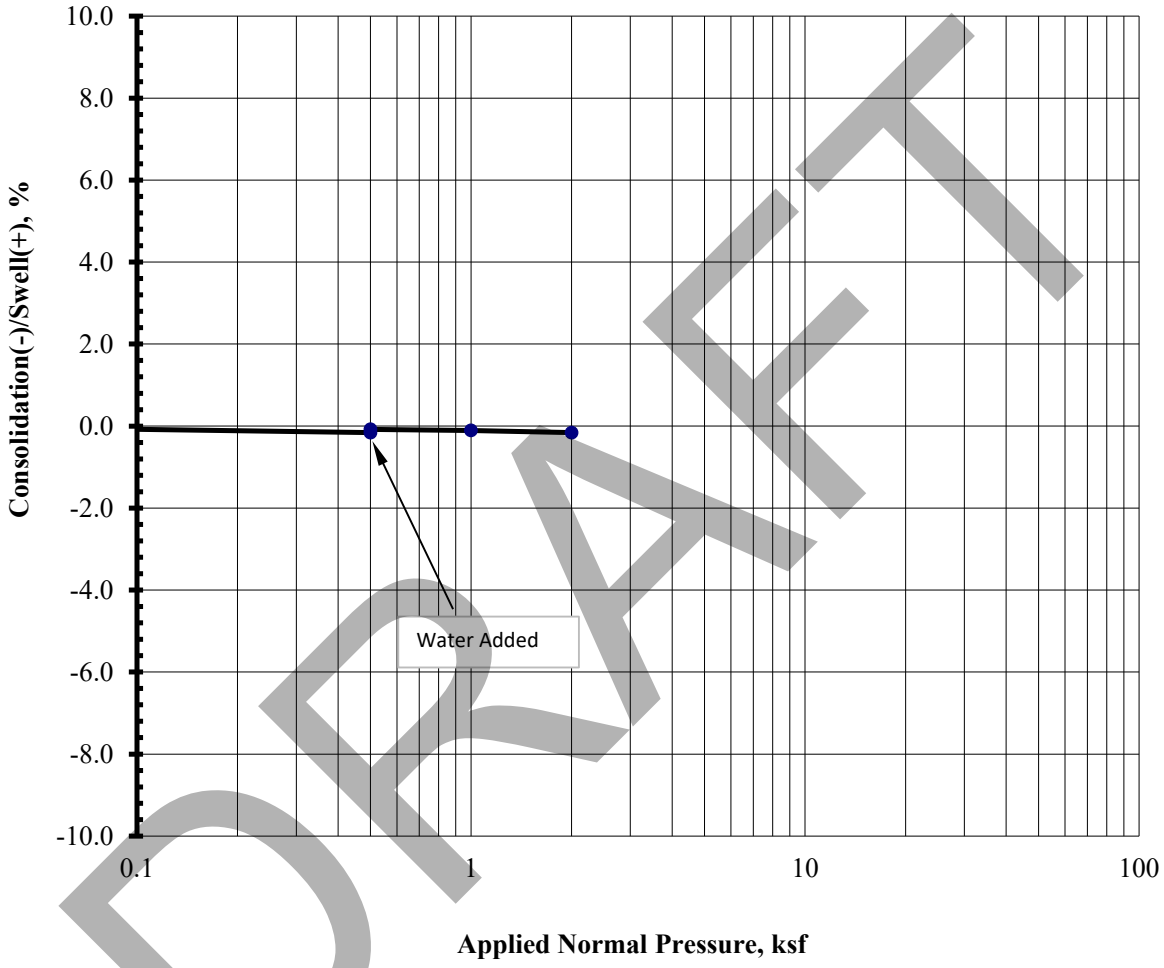
Boring Number		Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Classification	SWELL OR COLLAPSE GRAPH	
B13		9	121.1	9.3%	0.9	A-6 (13)/CL	Drawn By:	M.A
Job No:	224-104	**Project Name:**		**WWSD JCLS**			**Checked By:**	**Tae**

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ASTM D4546 METHOD C



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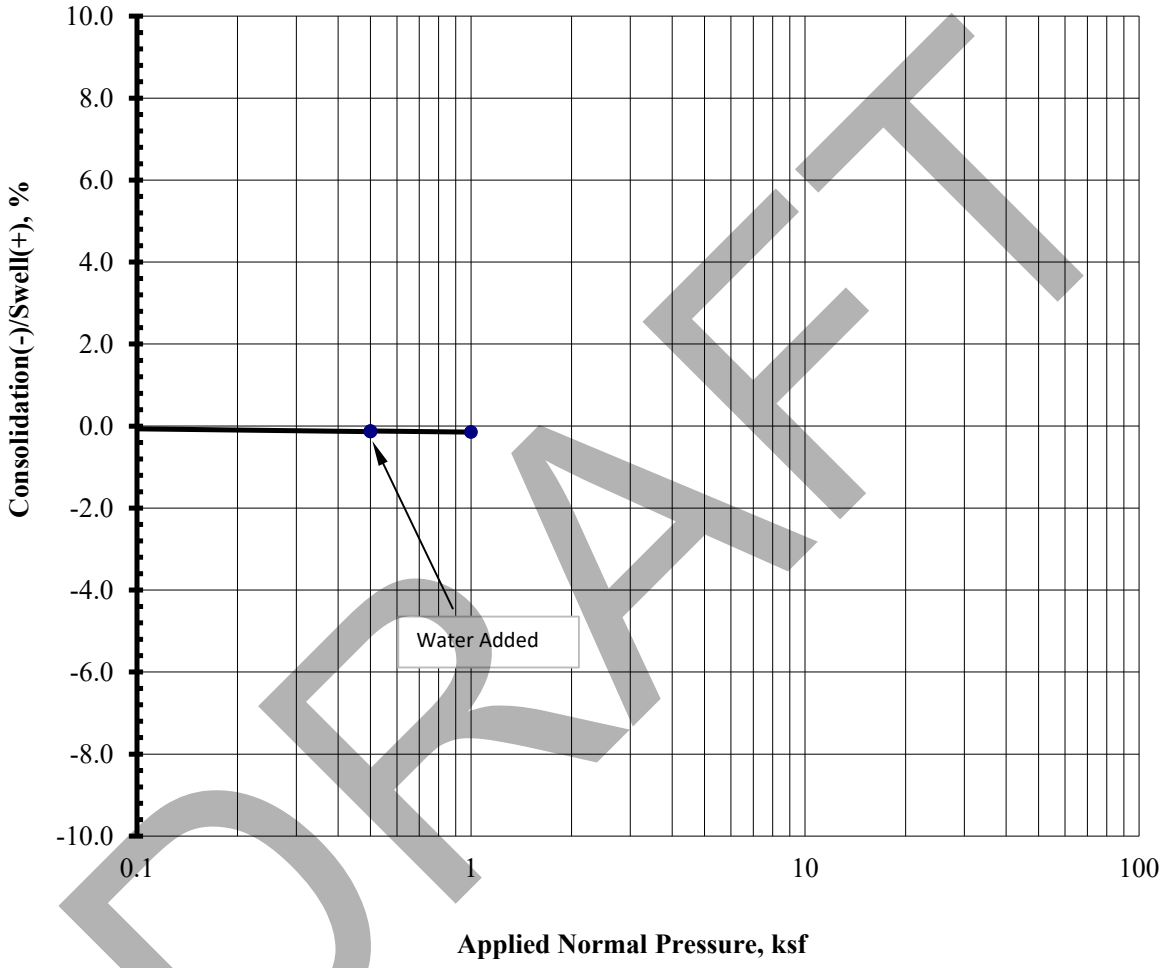
Boring Number		Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Classification	SWELL OR COLLAPSE GRAPH	
B14		14	108.7	18.5%	0.1	Sandy Lean Clay	Drawn By:	M.A
Job No:	224-104	**Project Name:**		**WWSD JCLS**			**Checked By:**	**Tae**

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ASTM D4546 METHOD C



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Boring Number		Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Classification	SWELL OR COLLAPSE GRAPH	
B19		14	109.6	18.4%	0.0	Sandy Lean Clay	Drawn By:	M.A
Job No:	224-104	**Project Name:**		**WWSD JCLS**			**Checked By:**	**Tae**

YEH & ASSOCIATES, INC

Appendix D

SUMMARY OF NOMINAL BEARING RESISTANCE

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Nominal Bearing Resistance Equations and Resistance Factors for Concrete Reverse Anchors
Widefield Water and Sanitation District Jimmy Camp Lift Station
Widefield, Colorado
Yeh & Associates Project Number: 224-104

Referenced Boring ID	Approximate Depth of CRA (ft)	USCS Soil Classification	Effective Friction Angle ϕ' (°)	Cohesion c (ksf)	Unit Weight ɣ (ksf)	Embedment Depth Used in Calculation[1] d (ft)	N_c	N_q	N_γ	Nominal Bearing Resistance (NBR) Equations AASHTO 10.6.3.1.2A-1	Sliding Resistance Factors AASHTO Table 10.5.5.2.2-1			Coefficients of Sliding Friction AASHTO 10.6.3.4-2		Bearing Resistance Factors AASHTO Table 10.5.5.2.2-1	
										$NBR^{2,3} = c(Nc) + (\gamma d)(Nq) + 0.5(B')(\gamma)(N_\gamma)$	Cast-in-Place or Precast Concrete on Clay	Cast-in-Place Concrete on Sand	Precast Concrete on Sand	Coefficient of Sliding Friction for CIP Concrete	Coefficient of Sliding Friction for Precast Concrete	Clay	Sand
B-1	7.4	SC	28	0.10	0.115	4.4	25.8	14.7	16.7	NBR = 10.0 + 0.96 (B')	--	0.80	0.90	0.53	0.43	--	0.45
B-2	7.4	CL	26	0.15	0.120	4.4	22.3	11.9	12.5	NBR = 9.6 + 0.75 (B')	0.85	--	--	0.49	0.39	0.50	--
B-3	7.4	SC	28	0.10	0.120	4.4	25.8	14.7	16.7	NBR = 10.4 + 1.00 (B')	--	0.80	0.90	0.53	0.43	--	0.45
B-4	7.4	SW-SM	28	0.00	0.120	4.4	25.8	14.7	16.7	NBR = 7.8 + 1.00 (B')	--	0.80	0.90	0.53	0.43	--	0.45
B-5	7.4	SP-SM	28	0.00	0.120	4.4	25.8	14.7	16.7	NBR = 7.8 + 1.00 (B')	--	0.80	0.90	0.53	0.43	--	0.45
B-6	7.4	SW-SM	32	0.00	0.125	4.4	35.5	23.2	30.2	NBR = 12.7 + 1.89 (B')	--	0.80	0.90	0.62	0.50	--	0.45
B-7	7.4	SM	28	0.00	0.120	4.4	25.8	14.7	16.7	NBR = 7.8 + 1.00 (B')	--	0.80	0.90	0.53	0.43	--	0.45
B-8	7.4	SW-SM	30	0.00	0.120	4.4	30.1	18.4	22.4	NBR = 9.7 + 1.34 (B')	--	0.80	0.90	0.58	0.46	--	0.45
B-9	7.4	SC	30	0.10	0.120	4.4	30.1	18.4	22.4	NBR = 12.7 + 1.34 (B')	--	0.80	0.90	0.58	0.46	--	0.45
B-10	7.4	SW-SM	32	0.00	0.130	4.4	35.5	23.2	30.2	NBR = 13.3 + 1.96 (B')	--	0.80	0.90	0.62	0.50	--	0.45
B-11	7.4	CL/SC	30	0.10	0.120	4.4	30.1	18.4	22.4	NBR = 12.7 + 1.34 (B')	0.85	0.80	0.90	0.58	0.46	0.50	0.45
B-12	7.4	CL	26	0.10	0.115	4.4	22.3	11.9	12.5	NBR = 8.2 + 0.72 (B')	0.85	--	--	0.49	0.39	0.50	--
B-13	7.4	CL	26	0.15	0.120	4.4	22.3	11.9	12.5	NBR = 9.6 + 0.75 (B')	0.85	--	--	0.49	0.39	0.50	--
B-14	7.4	CL	26	0.10	0.120	4.4	22.3	11.9	12.5	NBR = 8.5 + 0.75 (B')	0.85	--	--	0.49	0.39	0.50	--
B-15	7.4	CL	26	0.10	0.125	4.4	22.3	11.9	12.5	NBR = 8.7 + 0.78 (B')	0.85	--	--	0.49	0.39	0.50	--
B-16	7.4	CL	26	0.10	0.125	4.4	22.3	11.9	12.5	NBR = 8.7 + 0.78 (B')	0.85	--	--	0.49	0.39	0.50	--
B-17	7.4	CL	26	0.10	0.120	4.4	22.3	11.9	12.5	NBR = 8.5 + 0.75 (B')	0.85	--	--	0.49	0.39	0.50	--
B-18	7.4	CL	26	0.10	0.125	4.4	22.3	11.9	12.5	NBR = 8.7 + 0.78 (B')	0.85	--	--	0.49	0.39	0.50	--
B-19	7.4	CL	26	0.10	0.125	4.4	22.3	11.9	12.5	NBR = 8.7 + 0.78 (B')	0.85	--	--	0.49	0.39	0.50	--

Note:
(1) upper 3 feet of embedment ignored for calculation
(2) B' is the footing width in feet reduced for eccentricity (e). B' = B - 2e, where B is the nominal foundation width.
(3) Nominal bearing resistance in units of ksf. Based on a minimum foundation embedment of 7.4 feet.

DRAFT

PRELIMINARY - FOR COMMENTS

TEST HOLE DATA REPORT

TEST HOLE NO:	1
TEST HOLE DATE:	8/29/2024
PROJECT NO:	CO08200100
CLIENT:	GARVER
PROJECT:	WIDEFIELD JIMMY CAMP LIFT STATION

T2 utility engineers
a kiwa company
150 Capital Drive Suite 190
Golden, Colorado 80401
TEL:720.452.1090
www.T2ue.com

CLIENT TEST HOLE NO:	1
SUE CREW/TRUCK NO:	MR/HCD
CITY,COUNTY:	Fountain, El Paso
LOCATION/INTERSECTION:	Mesa Rd & Fountain Mesa Rd

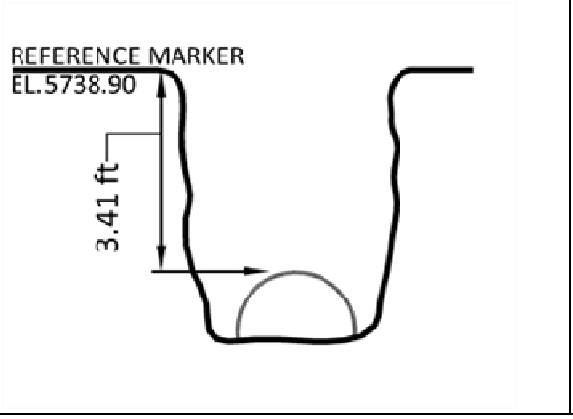
VICINITY MAP



SITE PHOTO - FACING NORTH



CROSS SECTION - NOT TO SCALE



TEST HOLE - UTILITY - FACING NORTH



DISCLAIMER: ADDITIONAL MATERIAL AND/OR UTILITIES MAY EXIST BELOW APPARENT BOTTOM

UTILITY DESCRIPTION		REFERENCE MARKER	
UTILITY TYPE	TELECOM	NORTHING	1322316.79'
UTILITY MATERIAL	PLASTIC (PVC, PE, HDPE)	EASTING	3227454.98'
UTILITY DIRECTION	EAST - WEST	ELEVATION	5738.90'
UTILITY WIDTH (FIELD)	2.00"	LOCATION	CENTER OF UTILITY
UTILITY WIDTH (RECORD)	-	MARKED BY	NAIL & DISK
APPARENT UTILITY OWNER	TELEPHONE		
DEPTH FROM REFERENCE MARKER			
TOP OF UTILITY	3.41'		
BOTTOM OF UTILITY			
ELEVATION OF UTILITY			
TOP OF UTILITY	5735.49'		
APPARENT BOTTOM OF UTILITY			
SURFACE			
TYPE	ASPHALT		
THICKNESS	12"		

REMARKS:

REVISION NOTES:

REVIEWED DATE:	9.20.24	CHECKED DATE:	REVISION DATE:
REVIEWED BY:	Stacy	CHECKED BY:	

PRELIMINARY - FOR COMMENTS

PRELIMINARY - FOR COMMENTS

TEST HOLE DATA REPORT

TEST HOLE NO:	2
TEST HOLE DATE:	8/29/2024
PROJECT NO:	CO08200100
CLIENT:	GARVER
PROJECT:	WIDEFIELD JIMMY CAMP LIFT STATION

T2 utility engineers
a kiwa company
150 Capital Drive Suite 190
Golden, Colorado 80401
TEL:720.452.1090
www.T2ue.com

CLIENT TEST HOLE NO:	2
SUE CREW/TRUCK NO:	MR/HCD
CITY,COUNTY:	Fountain, El Paso
LOCATION/INTERSECTION:	Mesa Rd & Fountain Mesa Rd

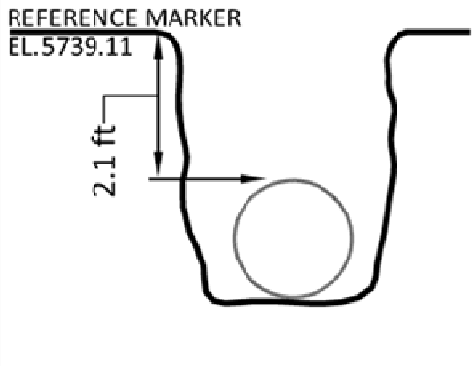
MAP



SITE PHOTO - FACING NORTH



CROSS SECTION - NOT TO SCALE



TEST HOLE - UTILITY - FACING NORTH



DISCLAIMER: ADDITIONAL MATERIAL AND/OR UTILITIES MAY EXIST BELOW APPARENT BOTTOM

UTILITY DESCRIPTION		REFERENCE MARKER	
UTILITY TYPE	FIBER OPTIC	NORTHING	1322318.59'
UTILITY MATERIAL	PLASTIC (PVC, PE, HDPE)	EASTING	3227463.22'
UTILITY DIRECTION	EAST - WEST	ELEVATION	5739.11'
UTILITY WIDTH (FIELD)	2.00"	LOCATION	
UTILITY WIDTH (RECORD)	-	MARKED BY	
APPARENT UTILITY OWNER	FIBER		
DEPTH FROM REFERENCE MARKER			
TOP OF UTILITY	2.10'		
BOTTOM OF UTILITY			
ELEVATION OF UTILITY			
TOP OF UTILITY	5737.01'		
APPARENT BOTTOM OF UTILITY			
SURFACE			
TYPE	ASPHALT		
THICKNESS	12"		

REMARKS:

REVISION NOTES:

REVIEWED DATE:	9.20.24	CHECKED DATE:	REVISION DATE:
REVIEWED BY:	Stacy	CHECKED BY:	

PRELIMINARY - FOR COMMENTS

PRELIMINARY - FOR COMMENTS

TEST HOLE DATA REPORT

TEST HOLE NO:	3
TEST HOLE DATE:	8/29/2024
PROJECT NO:	CO08200100
CLIENT:	GARVER
PROJECT:	WIDEFIELD JIMMY CAMP LIFT STATION

T2 utility engineers
a kiwa company
150 Capital Drive Suite 190
Golden, Colorado 80401
TEL:720.452.1090
www.T2ue.com

CLIENT TEST HOLE NO:	3
SUE CREW/TRUCK NO:	MR/HCD
CITY,COUNTY:	Fountain, El Paso
LOCATION/INTERSECTION:	Mesa Rd & Fountain Mesa Rd

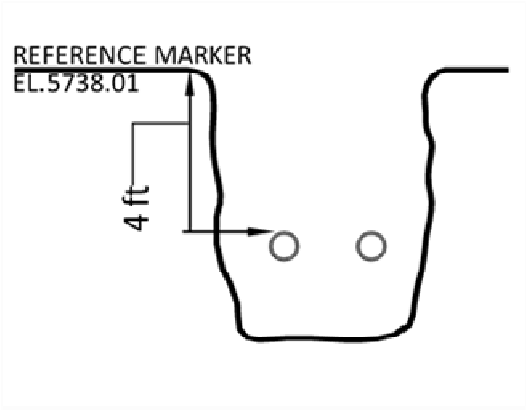
MAP



SITE PHOTO - FACING NORTH



CROSS SECTION - NOT TO SCALE



TEST HOLE - UTILITY - FACING NORTH



DISCLAIMER: ADDITIONAL MATERIAL AND/OR UTILITIES MAY EXIST BELOW APPARENT BOTTOM

UTILITY DESCRIPTION		**REFERENCE MARKER**	
UTILITY TYPE	ELECTRIC	NORTHING	1322323.41'
UTILITY MATERIAL	CONCRETE	EASTING	3227770.31'
UTILITY DIRECTION	NORTH - SOUTH	ELEVATION	5738.01'
UTILITY WIDTH (FIELD)	6.00"	LOCATION	CENTER OF UTILITY
UTILITY WIDTH (RECORD)	-	MARKED BY	NAIL & DISK
APPARENT UTILITY OWNER	POWER		
DEPTH FROM REFERENCE MARKER			
TOP OF UTILITY	4.00'		
BOTTOM OF UTILITY			
ELEVATION OF UTILITY			
TOP OF UTILITY	5734.01'		
APPARENT BOTTOM OF UTILITY			
SURFACE			
TYPE	ASPHALT		
THICKNESS	12"		

REMARKS:

REVISION NOTES:

REVIEWED DATE:	9.20.24	CHECKED DATE:	REVISION DATE:
REVIEWED BY:	Stacy	CHECKED BY:	

PRELIMINARY - FOR COMMENTS

PRELIMINARY - FOR COMMENTS

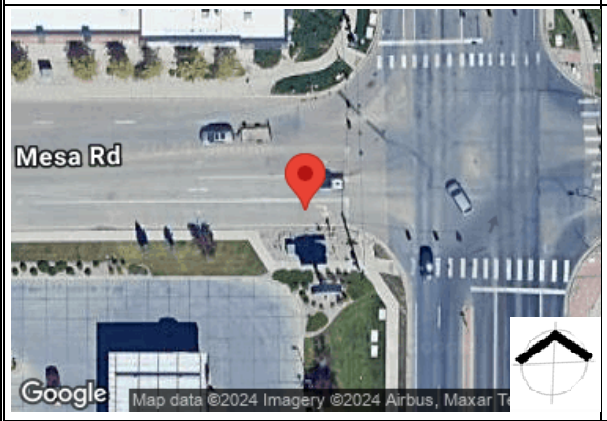
TEST HOLE DATA REPORT

TEST HOLE NO:	4
TEST HOLE DATE:	8/29/2024
PROJECT NO:	CO08200100
CLIENT:	GARVER
PROJECT:	WIDEFIELD JIMMY CAMP LIFT STATION

T2 utility engineers
a kiwa company
150 Capital Drive Suite 190
Golden, Colorado 80401
TEL:720.452.1090
www.T2ue.com

CLIENT TEST HOLE NO:	4
SUE CREW/TRUCK NO:	MR/HCD
CITY,COUNTY:	Fountain, El Paso
LOCATION/INTERSECTION:	Mesa Rd & Fountain Mesa Rd

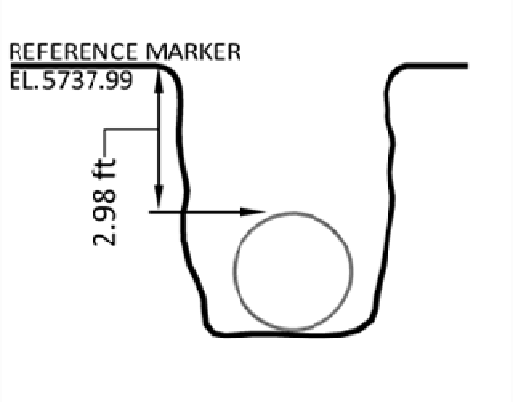
MAP



SITE PHOTO - FACING NORTH



CROSS SECTION - NOT TO SCALE



TEST HOLE - UTILITY - FACING NORTH



DISCLAIMER: ADDITIONAL MATERIAL AND/OR UTILITIES MAY EXIST BELOW APPARENT BOTTOM

UTILITY DESCRIPTION		REFERENCE MARKER	
UTILITY TYPE	GAS MAIN/PIPELINE	NORTHING	1322323.15'
UTILITY MATERIAL	PLASTIC (PVC, PE, HDPE)	EASTING	3227771.94'
UTILITY DIRECTION	NORTH - SOUTH	ELEVATION	5737.99'
UTILITY WIDTH (FIELD)	4.00"	LOCATION	CENTER OF UTILITY
UTILITY WIDTH (RECORD)	-	MARKED BY	NAIL & CAP
APPARENT UTILITY OWNER	GAS		
DEPTH FROM REFERENCE MARKER			
TOP OF UTILITY	2.98'		
BOTTOM OF UTILITY			
ELEVATION OF UTILITY			
TOP OF UTILITY	5735.01'		
APPARENT BOTTOM OF UTILITY			
SURFACE			
TYPE	ASPHALT		
THICKNESS	12"		

REMARKS:

REVISION NOTES:

REVIEWED DATE:	9.20.24	CHECKED DATE:	REVISION DATE:
REVIEWED BY:	Stacy	CHECKED BY:	

PRELIMINARY - FOR COMMENTS

PRELIMINARY - FOR COMMENTS

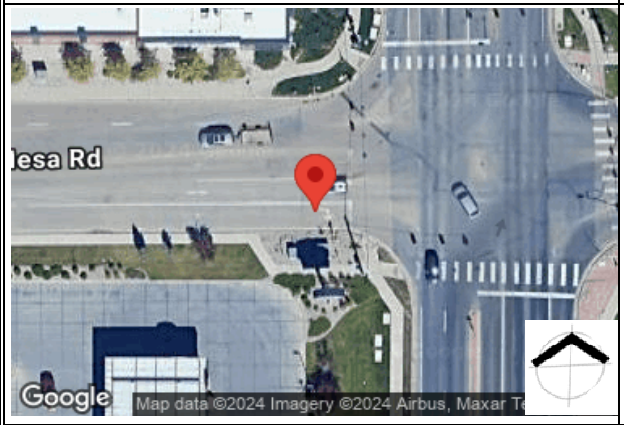
TEST HOLE DATA REPORT

TEST HOLE NO:	5
TEST HOLE DATE:	8/29/2024
PROJECT NO:	CO08200100
CLIENT:	GARVER
PROJECT:	WIDEFIELD JIMMY CAMP LIFT STATION

T2 utility engineers
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150 Capital Drive Suite 190
Golden, Colorado 80401
TEL:720.452.1090
www.T2ue.com

CLIENT TEST HOLE NO:	5
SUE CREW/TRUCK NO:	MR/HCD
CITY,COUNTY:	Fountain, El Paso
LOCATION/INTERSECTION:	Mesa Rd & Fountain Mesa Rd

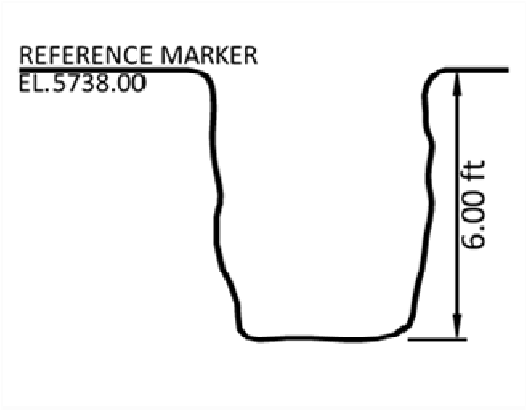
MAP



SITE PHOTO - FACING NORTH



CROSS SECTION - NOT TO SCALE



TEST HOLE - UTILITY - FACING NORTH



DISCLAIMER: ADDITIONAL MATERIAL AND/OR UTILITIES MAY EXIST BELOW APPARENT BOTTOM

UTILITY DESCRIPTION		**REFERENCE MARKER**	
UTILITY TYPE	EXPLORATORY	NORTHING	1322322.14'
UTILITY MATERIAL		EASTING	3227773.84'
UTILITY DIRECTION		ELEVATION	5738.00'
UTILITY WIDTH (FIELD)	-	LOCATION	SOUTH EDGE
UTILITY WIDTH (RECORD)	-	MARKED BY	NAIL & DISK
APPARENT UTILITY OWNER	EXPLORATORY		
DEPTH FROM REFERENCE MARKER			
TOP OF UTILITY	6.00'		
BOTTOM OF UTILITY			
ELEVATION OF UTILITY			
TOP OF UTILITY	5732.00'		
APPARENT BOTTOM OF UTILITY			
SURFACE			
TYPE	ASPHALT		
THICKNESS	12.00"		

REMARKS:

REVISION NOTES:

REVIEWED DATE:	9.20.24	CHECKED DATE:	REVISION DATE:
REVIEWED BY:	Stacy	CHECKED BY:	

PRELIMINARY - FOR COMMENTS

PRELIMINARY - FOR COMMENTS

TEST HOLE DATA REPORT

TEST HOLE NO:	6
TEST HOLE DATE:	8/29/2024
PROJECT NO:	CO08200100
CLIENT:	GARVER
PROJECT:	WIDEFIELD JIMMY CAMP LIFT STATION

T2 utility engineers
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150 Capital Drive Suite 190
Golden, Colorado 80401
TEL:720.452.1090
www.T2ue.com

CLIENT TEST HOLE NO:	6
SUE CREW/TRUCK NO:	MR/HCD
CITY,COUNTY:	Fountain, El Paso
LOCATION/INTERSECTION:	Mesa Rd & Fountain Mesa Rd

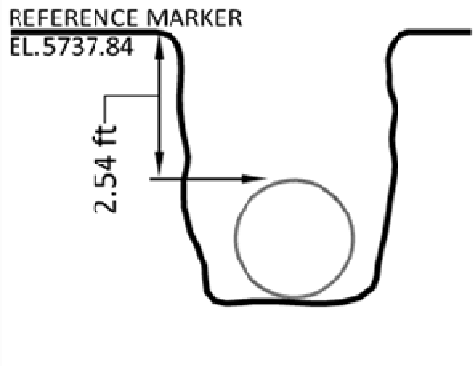
MAP



SITE PHOTO - FACING NORTH



CROSS SECTION - NOT TO SCALE



TEST HOLE - UTILITY - FACING SW



DISCLAIMER: ADDITIONAL MATERIAL AND/OR UTILITIES MAY EXIST BELOW APPARENT BOTTOM

UTILITY DESCRIPTION		REFERENCE MARKER	
UTILITY TYPE	CABLE TV	NORTHING	1322322.30'
UTILITY MATERIAL	PLASTIC (PVC, PE, HDPE)	EASTING	3227783.18'
UTILITY DIRECTION	NORTH - SOUTH	ELEVATION	5737.84'
UTILITY WIDTH (FIELD)	-	LOCATION	CENTER OF UTILITY
UTILITY WIDTH (RECORD)	-	MARKED BY	NAIL & CAP
APPARENT UTILITY OWNER	CABLE TV		
DEPTH FROM REFERENCE MARKER			
TOP OF UTILITY	2.54'		
BOTTOM OF UTILITY			
ELEVATION OF UTILITY			
TOP OF UTILITY	5735.30'		
APPARENT BOTTOM OF UTILITY			
SURFACE			
TYPE	ASPHALT		
THICKNESS	16"		

REMARKS:

REVISION NOTES:

REVIEWED DATE:	9.20.24	CHECKED DATE:	REVISION DATE:
REVIEWED BY:	Stacy	CHECKED BY:	

PRELIMINARY - FOR COMMENTS

PRELIMINARY - FOR COMMENTS

TEST HOLE DATA REPORT

TEST HOLE NO:	7
TEST HOLE DATE:	8/29/2024
PROJECT NO:	CO08200100
CLIENT:	GARVER
PROJECT:	WIDEFIELD JIMMY CAMP LIFT STATION

T2 utility engineers
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150 Capital Drive Suite 190
Golden, Colorado 80401
TEL:720.452.1090
www.T2ue.com

CLIENT TEST HOLE NO:	7
SUE CREW/TRUCK NO:	MR/HCD
CITY,COUNTY:	Fountain, El Paso
LOCATION/INTERSECTION:	Mesa Rd & Fountain Mesa Rd

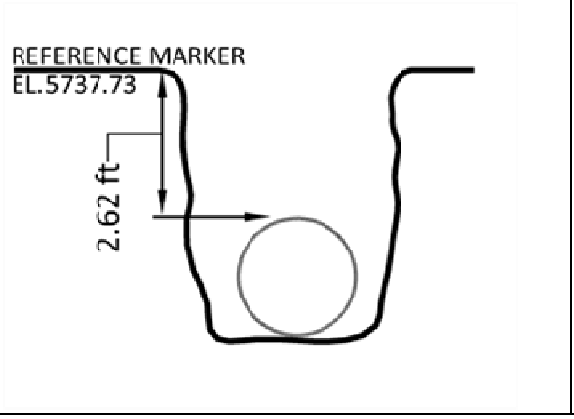
MAP



SITE PHOTO - FACING NORTH



CROSS SECTION - NOT TO SCALE



TEST HOLE - UTILITY - FACING NORTH



DISCLAIMER: ADDITIONAL MATERIAL AND/OR UTILITIES MAY EXIST BELOW APPARENT BOTTOM

UTILITY DESCRIPTION		REFERENCE MARKER	
UTILITY TYPE	FIBER OPTIC	NORTHING	1322322.33'
UTILITY MATERIAL	PLASTIC (PVC, PE, HDPE)	EASTING	3227787.71'
UTILITY DIRECTION	NORTH - SOUTH	ELEVATION	5737.73'
UTILITY WIDTH (FIELD)	2.00"	LOCATION	CENTER OF UTILITY
UTILITY WIDTH (RECORD)	-	MARKED BY	NAIL & DISK
APPARENT UTILITY OWNER	FIBER		
DEPTH FROM REFERENCE MARKER			
TOP OF UTILITY	2.62'		
BOTTOM OF UTILITY			
ELEVATION OF UTILITY			
TOP OF UTILITY	5735.11'		
APPARENT BOTTOM OF UTILITY			
SURFACE			
TYPE	ASPHALT		
THICKNESS	12"		

REMARKS:

REVISION NOTES:

REVIEWED DATE:	9.20.24	CHECKED DATE:	REVISION DATE:
REVIEWED BY:	Stacy	CHECKED BY:	

PRELIMINARY - FOR COMMENTS

PRELIMINARY - FOR COMMENTS

TEST HOLE DATA REPORT

TEST HOLE NO:	8
TEST HOLE DATE:	8/29/2024
PROJECT NO:	CO08200100
CLIENT:	GARVER
PROJECT:	WIDEFIELD JIMMY CAMP LIFT STATION

T2 utility engineers
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150 Capital Drive Suite 190
Golden, Colorado 80401
TEL:720.452.1090
www.T2ue.com

CLIENT TEST HOLE NO:	8
SUE CREW/TRUCK NO:	MR/HCD
CITY,COUNTY:	Fountain, El Paso
LOCATION/INTERSECTION:	Mesa Rd & Fountain Mesa Rd

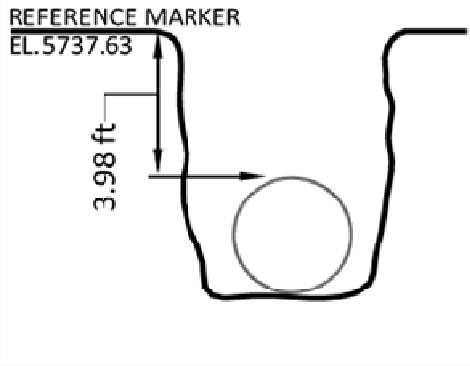
MAP



SITE PHOTO - FACING NORTH



CROSS SECTION - NOT TO SCALE



TEST HOLE - UTILITY - FACING NORTH



DISCLAIMER: ADDITIONAL MATERIAL AND/OR UTILITIES MAY EXIST BELOW APPARENT BOTTOM

UTILITY DESCRIPTION		REFERENCE MARKER	
UTILITY TYPE	FIBER OPTIC	NORTHING	1322322.48'
UTILITY MATERIAL	PLASTIC (PVC, PE, HDPE)	EASTING	3227792.31'
UTILITY DIRECTION	NORTH - SOUTH	ELEVATION	5737.63'
UTILITY WIDTH (FIELD)	-	LOCATION	CENTER OF UTILITY
UTILITY WIDTH (RECORD)	-	MARKED BY	NAIL & DISK
APPARENT UTILITY OWNER	FIBER		
DEPTH FROM REFERENCE MARKER			
TOP OF UTILITY	3.98'		
BOTTOM OF UTILITY			
ELEVATION OF UTILITY			
TOP OF UTILITY	5733.65'		
APPARENT BOTTOM OF UTILITY			
SURFACE			
TYPE	ASPHALT		
THICKNESS	12"		

REMARKS:

REVISION NOTES:

REVIEWED DATE:	9.20.24	CHECKED DATE:	REVISION DATE:
REVIEWED BY:	Stacy	CHECKED BY:	

PRELIMINARY - FOR COMMENTS

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TEST HOLE DATA REPORT

TEST HOLE NO:	9
TEST HOLE DATE:	8/29/2024
PROJECT NO:	CO08200100
CLIENT:	GARVER
PROJECT:	WIDEFIELD JIMMY CAMP LIFT STATION

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Golden, Colorado 80401
TEL:720.452.1090
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CLIENT TEST HOLE NO:	9
SUE CREW/TRUCK NO:	MR/HCD
CITY,COUNTY:	Fountain, El Paso
LOCATION/INTERSECTION:	Mesa Rd & Fountain Mesa Rd

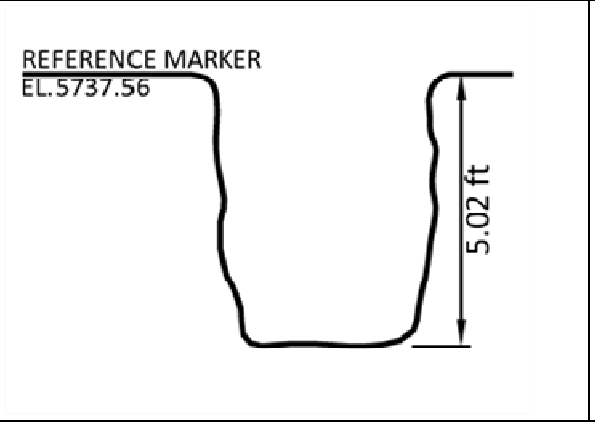
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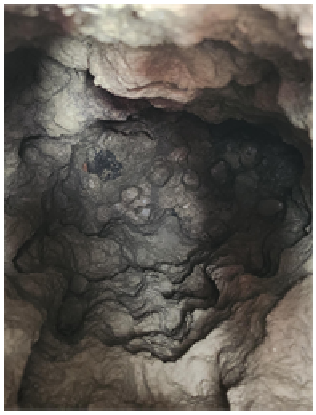
SITE PHOTO - FACING NORTH



CROSS SECTION - NOT TO SCALE



TEST HOLE - UTILITY - FACING NORTH



DISCLAIMER: ADDITIONAL MATERIAL AND/OR UTILITIES MAY EXIST BELOW APPARENT BOTTOM

UTILITY DESCRIPTION		**REFERENCE MARKER**	
UTILITY TYPE	EXPLORATORY	NORTHING	1322321.88'
UTILITY MATERIAL		EASTING	3227796.17'
UTILITY DIRECTION		ELEVATION	5737.56'
UTILITY WIDTH (FIELD)	-	LOCATION	SOUTH EDGE
UTILITY WIDTH (RECORD)	-	MARKED BY	NAIL & CAP
APPARENT UTILITY OWNER	EXPLORATORY		
DEPTH FROM REFERENCE MARKER			
TOP OF UTILITY	5.02'		
BOTTOM OF UTILITY			
ELEVATION OF UTILITY			
TOP OF UTILITY	5732.54'		
APPARENT BOTTOM OF UTILITY			
SURFACE			
TYPE	ASPHALT		
THICKNESS	12"		

REMARKS:

REVISION NOTES:

REVIEWED DATE:	9.20.24	CHECKED DATE:	REVISION DATE:
REVIEWED BY:	Stacy	CHECKED BY:	

PRELIMINARY - FOR COMMENTS

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TEST HOLE DATA REPORT

TEST HOLE NO:	10
TEST HOLE DATE:	8/29/2024
PROJECT NO:	CO08200100
CLIENT:	GARVER
PROJECT:	WIDEFIELD JIMMY CAMP LIFT STATION

T2 utility engineers
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150 Capital Drive Suite 190
Golden, Colorado 80401
TEL:720.452.1090
www.T2ue.com

CLIENT TEST HOLE NO:	10
SUE CREW/TRUCK NO:	MR/HCD
CITY,COUNTY:	Fountain, El Paso
LOCATION/INTERSECTION:	Mesa Rd & Fountain Mesa Rd

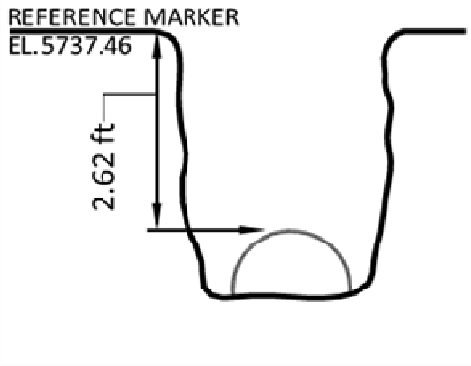
MAP



SITE PHOTO - FACING NORTH



CROSS SECTION - NOT TO SCALE



TEST HOLE - UTILITY - FACING NORTH



DISCLAIMER: ADDITIONAL MATERIAL AND/OR UTILITIES MAY EXIST BELOW APPARENT BOTTOM

UTILITY DESCRIPTION		REFERENCE MARKER	
UTILITY TYPE	FIBER OPTIC	NORTHING	1322322.82'
UTILITY MATERIAL	PLASTIC (PVC, PE, HDPE)	EASTING	3227798.36'
UTILITY DIRECTION	NORTH - SOUTH	ELEVATION	5737.46'
UTILITY WIDTH (FIELD)	-	LOCATION	CENTER OF UTILITY
UTILITY WIDTH (RECORD)	-	MARKED BY	NAIL & CAP
APPARENT UTILITY OWNER	FIBER		
DEPTH FROM REFERENCE MARKER			
TOP OF UTILITY	2.62'		
BOTTOM OF UTILITY			
ELEVATION OF UTILITY			
TOP OF UTILITY	5734.84'		
APPARENT BOTTOM OF UTILITY			
SURFACE			
TYPE	ASPHALT		
THICKNESS	12"		

REMARKS:

REVISION NOTES:

REVIEWED DATE:	9.20.24	CHECKED DATE:	REVISION DATE:
REVIEWED BY:	Stacy	CHECKED BY:	

PRELIMINARY - FOR COMMENTS

PRELIMINARY - FOR COMMENTS

TEST HOLE DATA REPORT

TEST HOLE NO:	11
TEST HOLE DATE:	8/29/2024
PROJECT NO:	CO08200100
CLIENT:	GARVER
PROJECT:	WIDEFIELD JIMMY CAMP LIFT STATION

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TEL:720.452.1090
www.T2ue.com

CLIENT TEST HOLE NO:	11
SUE CREW/TRUCK NO:	MR/HCD
CITY,COUNTY:	Fountain, El Paso
LOCATION/INTERSECTION:	Mesa Rd & Fountain Mesa Rd

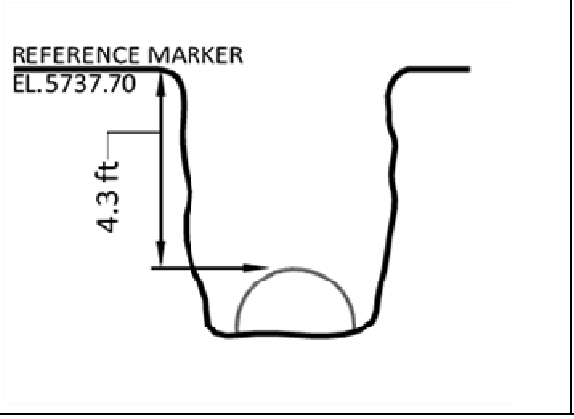
MAP



SITE PHOTO - FACING NORTH



CROSS SECTION - NOT TO SCALE



TEST HOLE - UTILITY - FACING NORTH



DISCLAIMER: ADDITIONAL MATERIAL AND/OR UTILITIES MAY EXIST BELOW APPARENT BOTTOM

UTILITY DESCRIPTION		REFERENCE MARKER	
UTILITY TYPE	GAS MAIN/PIPELINE	NORTHING	1322321.59'
UTILITY MATERIAL	METALLIC (IRON, STEEL, COATED)	EASTING	3227826.42'
UTILITY DIRECTION	NORTH - SOUTH	ELEVATION	5737.70'
UTILITY WIDTH (FIELD)	4.00"	LOCATION	CENTER OF UTILITY
UTILITY WIDTH (RECORD)	-	MARKED BY	NAIL & DISK
APPARENT UTILITY OWNER	GAS		
DEPTH FROM REFERENCE MARKER			
TOP OF UTILITY	4.30'		
BOTTOM OF UTILITY			
ELEVATION OF UTILITY			
TOP OF UTILITY	5733.40'		
APPARENT BOTTOM OF UTILITY			
SURFACE			
TYPE	ASPHALT		
THICKNESS	16"		

REMARKS:

REVISION NOTES:

REVIEWED DATE:	9.20.24	CHECKED DATE:	REVISION DATE:
REVIEWED BY:	Stacy	CHECKED BY:	

PRELIMINARY - FOR COMMENTS

PRELIMINARY - FOR COMMENTS

TEST HOLE DATA REPORT

TEST HOLE NO:	12
TEST HOLE DATE:	8/29/2024
PROJECT NO:	CO08200100
CLIENT:	GARVER
PROJECT:	WIDEFIELD JIMMY CAMP LIFT STATION

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a kiwa company

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Golden, Colorado 80401
TEL:720.452.1090
www.T2ue.com

CLIENT TEST HOLE NO:	12
SUE CREW/TRUCK NO:	MR/HCD
CITY,COUNTY:	Fountain, El Paso
LOCATION/INTERSECTION:	Mesa Rd & Fountain Mesa Rd

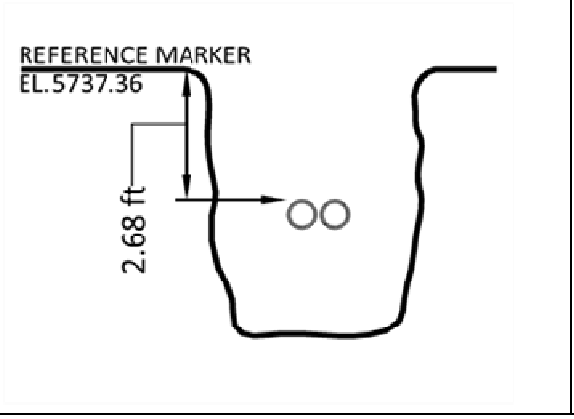
MAP



SITE PHOTO - FACING NORTH



CROSS SECTION - NOT TO SCALE



TEST HOLE - UTILITY - FACING NORTH



DISCLAIMER: ADDITIONAL MATERIAL AND/OR UTILITIES MAY EXIST BELOW APPARENT BOTTOM

UTILITY DESCRIPTION		REFERENCE MARKER	
UTILITY TYPE	FIBER OPTIC	NORTHING	1322325.54'
UTILITY MATERIAL	PLASTIC (PVC, PE, HDPE)	EASTING	3227895.24'
UTILITY DIRECTION	NORTH - SOUTH	ELEVATION	5737.36'
UTILITY WIDTH (FIELD)	2.00"	LOCATION	CENTER OF UTILITY
UTILITY WIDTH (RECORD)	-	MARKED BY	NAIL & DISK
APPARENT UTILITY OWNER	FIBER		
DEPTH FROM REFERENCE MARKER			
TOP OF UTILITY	2.68'		
BOTTOM OF UTILITY			
ELEVATION OF UTILITY			
TOP OF UTILITY	5734.68'		
APPARENT BOTTOM OF UTILITY			
SURFACE			
TYPE	ASPHALT		
THICKNESS	12"		

REMARKS:

REVISION NOTES:

REVIEWED DATE:	9.20.24	CHECKED DATE:	REVISION DATE:
REVIEWED BY:	Stacy	CHECKED BY:	

PRELIMINARY - FOR COMMENTS

PRELIMINARY - FOR COMMENTS

TEST HOLE DATA REPORT

TEST HOLE NO:	13
TEST HOLE DATE:	8/29/2024
PROJECT NO:	CO08200100
CLIENT:	GARVER
PROJECT:	WIDEFIELD JIMMY CAMP LIFT STATION

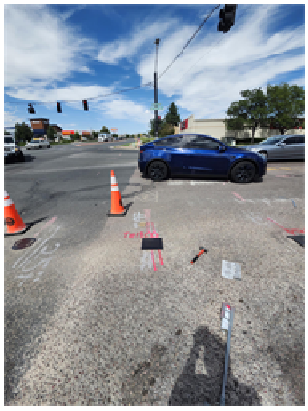
T2 utility engineers
a kiwa company
150 Capital Drive Suite 190
Golden, Colorado 80401
TEL:720.452.1090
www.T2ue.com

CLIENT TEST HOLE NO:	13
SUE CREW/TRUCK NO:	MR/HCD
CITY,COUNTY:	Fountain, El Paso
LOCATION/INTERSECTION:	Mesa Rd & Fountain Mesa Rd

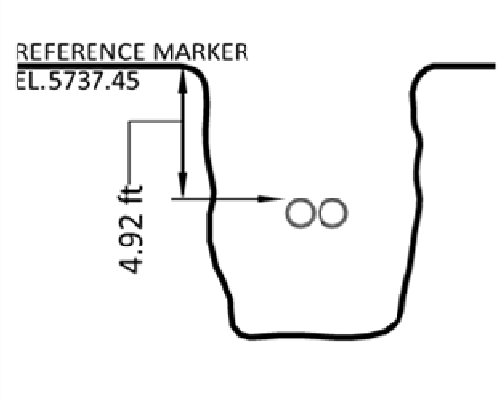
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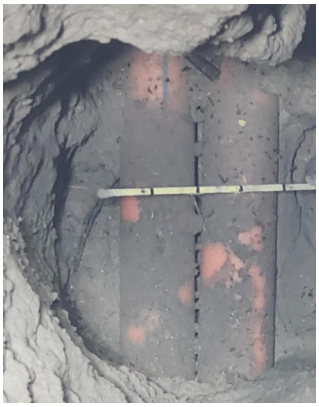
SITE PHOTO - FACING NORTH



CROSS SECTION - NOT TO SCALE



TEST HOLE - UTILITY - FACING NORTH



DISCLAIMER: ADDITIONAL MATERIAL AND/OR UTILITIES MAY EXIST BELOW APPARENT BOTTOM

UTILITY DESCRIPTION

UTILITY TYPE	FIBER OPTIC
UTILITY MATERIAL	PLASTIC (PVC, PE, HDPE)
UTILITY DIRECTION	NORTH - SOUTH
UTILITY WIDTH (FIELD)	2.00"
UTILITY WIDTH (RECORD)	-
APPARENT UTILITY OWNER	FIBER

DEPTH FROM REFERENCE MARKER

TOP OF UTILITY	4.92'
BOTTOM OF UTILITY	

ELEVATION OF UTILITY

TOP OF UTILITY	5732.53'
APPARENT BOTTOM OF UTILITY	

SURFACE

TYPE	ASPHALT
THICKNESS	12"

REFERENCE MARKER

NORTHING	1322325.50'
EASTING	3227901.47'
ELEVATION	5737.45'
LOCATION	CENTER OF UTILITY
MARKED BY	NAIL & DISK

REMARKS:

REVISION NOTES:

REVIEWED DATE:	9.20.24	CHECKED DATE:	REVISION DATE:
REVIEWED BY:	Stacy	CHECKED BY:	

PRELIMINARY - FOR COMMENTS

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TEST HOLE DATA REPORT

TEST HOLE NO:	14
TEST HOLE DATE:	8/29/2024
PROJECT NO:	CO08200100
CLIENT:	GARVER
PROJECT:	WIDEFIELD JIMMY CAMP LIFT STATION

T2 utility engineers
a kiwa company
150 Capital Drive Suite 190
Golden, Colorado 80401
TEL:720.452.1090
www.T2ue.com

CLIENT TEST HOLE NO:	14
SUE CREW/TRUCK NO:	MR/HCD
CITY,COUNTY:	Fountain, El Paso
LOCATION/INTERSECTION:	Mesa Rd & Fountain Mesa Rd

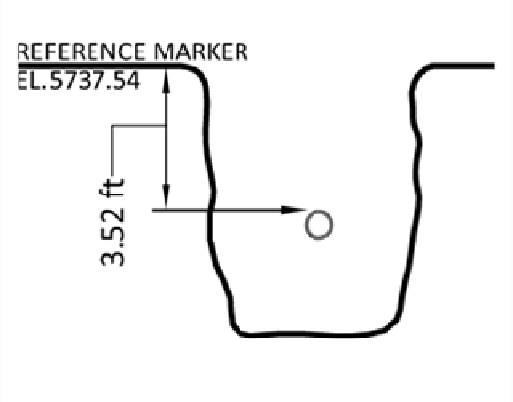
MAP



SITE PHOTO - FACING NORTH



CROSS SECTION - NOT TO SCALE



TEST HOLE - UTILITY - FACING NORTH



DISCLAIMER: ADDITIONAL MATERIAL AND/OR UTILITIES MAY EXIST BELOW APPARENT BOTTOM

UTILITY DESCRIPTION

UTILITY TYPE	TELECOM
UTILITY MATERIAL	PLASTIC (PVC, PE, HDPE)
UTILITY DIRECTION	NORTH - SOUTH
UTILITY WIDTH (FIELD)	1.00"
UTILITY WIDTH (RECORD)	-
APPARENT UTILITY OWNER	TELEPHONE

DEPTH FROM REFERENCE MARKER

TOP OF UTILITY	3.52'
BOTTOM OF UTILITY	

ELEVATION OF UTILITY

TOP OF UTILITY	5734.02'
APPARENT BOTTOM OF UTILITY	

SURFACE

TYPE	ASPHALT
THICKNESS	12"

REFERENCE MARKER

NORTHING	1322325.42'
EASTING	3227908.95'
ELEVATION	5737.54'
LOCATION	CENTER OF UTILITY
MARKED BY	NAIL & DISK

REMARKS:

REVISION NOTES:

REVIEWED DATE:	9.20.24	CHECKED DATE:	REVISION DATE:
REVIEWED BY:	Stacy	CHECKED BY:	

PRELIMINARY - FOR COMMENTS

PRELIMINARY - FOR COMMENTS

TEST HOLE DATA REPORT

TEST HOLE NO:	15
TEST HOLE DATE:	8/29/2024
PROJECT NO:	CO08200100
CLIENT:	GARVER
PROJECT:	WIDEFIELD JIMMY CAMP LIFT STATION

T2 utility engineers
a kiwa company

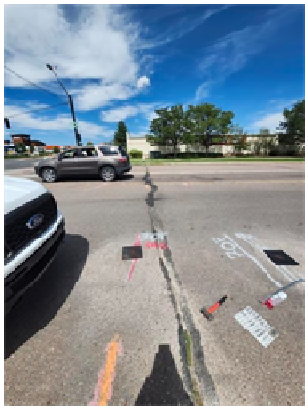
150 Capital Drive Suite 190
Golden, Colorado 80401
TEL:720.452.1090
www.T2ue.com

CLIENT TEST HOLE NO:	15
SUE CREW/TRUCK NO:	MR/HCD
CITY,COUNTY:	Fountain, El Paso
LOCATION/INTERSECTION:	Mesa Rd & Fountain Mesa Rd

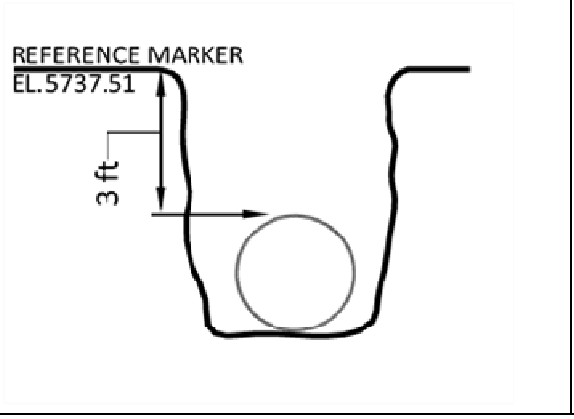
MAP



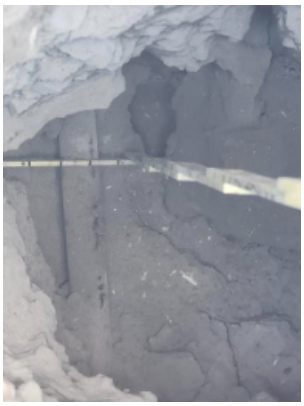
SITE PHOTO - FACING NORTH



CROSS SECTION - NOT TO SCALE



TEST HOLE - UTILITY - FACING NORTH



DISCLAIMER: ADDITIONAL MATERIAL AND/OR UTILITIES MAY EXIST BELOW APPARENT BOTTOM

UTILITY DESCRIPTION

UTILITY TYPE	TELECOM
UTILITY MATERIAL	PLASTIC (PVC, PE, HDPE)
UTILITY DIRECTION	NORTH - SOUTH
UTILITY WIDTH (FIELD)	1.50"
UTILITY WIDTH (RECORD)	-
APPARENT UTILITY OWNER	TELEPHONE

DEPTH FROM REFERENCE MARKER

TOP OF UTILITY	3.00'
BOTTOM OF UTILITY	

ELEVATION OF UTILITY

TOP OF UTILITY	5734.51'
APPARENT BOTTOM OF UTILITY	

SURFACE

TYPE	ASPHALT
THICKNESS	12"

REFERENCE MARKER

NORTHING	1322325.15'
EASTING	3227940.25'
ELEVATION	5737.51'
LOCATION	CENTER OF UTILITY
MARKED BY	NAIL & CAP

REMARKS:

REVISION NOTES:

REVIEWED DATE:	9.20.24	CHECKED DATE:	REVISION DATE:
REVIEWED BY:	Stacy	CHECKED BY:	

PRELIMINARY - FOR COMMENTS

PRELIMINARY - FOR COMMENTS

TEST HOLE DATA REPORT

TEST HOLE NO:	16
TEST HOLE DATE:	8/29/2024
PROJECT NO:	CO08200100
CLIENT:	GARVER
PROJECT:	WIDEFIELD JIMMY CAMP LIFT STATION

T2 utility engineers
a kiwa company
150 Capital Drive Suite 190
Golden, Colorado 80401
TEL:720.452.1090
www.T2ue.com

CLIENT TEST HOLE NO:	16
SUE CREW/TRUCK NO:	MR/HCD
CITY,COUNTY:	Fountain, El Paso
LOCATION/INTERSECTION:	Mesa Rd & Fountain Mesa Rd

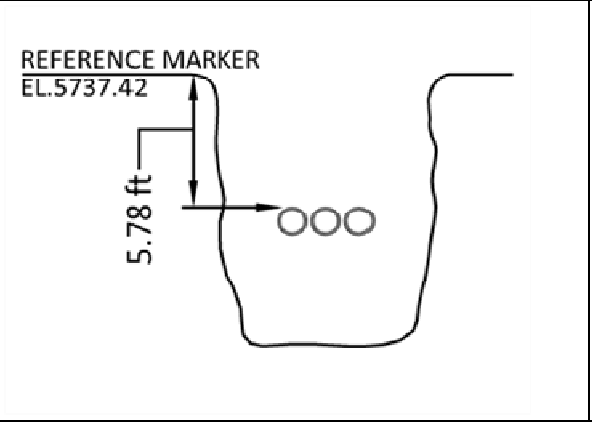
MAP



SITE PHOTO - FACING NORTH



CROSS SECTION - NOT TO SCALE



TEST HOLE - UTILITY - FACING NORTH



DISCLAIMER: ADDITIONAL MATERIAL AND/OR UTILITIES MAY EXIST BELOW APPARENT BOTTOM

UTILITY DESCRIPTION		**REFERENCE MARKER**	
UTILITY TYPE	ELECTRIC	NORTHING	1322324.94'
UTILITY MATERIAL		EASTING	3227946.61'
UTILITY DIRECTION	NORTH - SOUTH	ELEVATION	5737.42'
UTILITY WIDTH (FIELD)	1.50"	LOCATION	CENTER OF UTILITY
UTILITY WIDTH (RECORD)	-	MARKED BY	NAIL & DISK
APPARENT UTILITY OWNER	ELECTRIC		
DEPTH FROM REFERENCE MARKER			
TOP OF UTILITY	5.78'		
BOTTOM OF UTILITY			
ELEVATION OF UTILITY			
TOP OF UTILITY	5731.64'		
APPARENT BOTTOM OF UTILITY			
SURFACE			
TYPE	ASPHALT		
THICKNESS	12"		

REMARKS:

REVISION NOTES:

REVIEWED DATE:	9.20.24	CHECKED DATE:	REVISION DATE:
REVIEWED BY:	Stacy	CHECKED BY:	

PRELIMINARY - FOR COMMENTS

PRELIMINARY - FOR COMMENTS

TEST HOLE DATA REPORT

TEST HOLE NO:	17
TEST HOLE DATE:	8/29/2024
PROJECT NO:	CO08200100
CLIENT:	GARVER
PROJECT:	WIDEFIELD JIMMY CAMP LIFT STATION

T2 utility engineers
a kiwa company
150 Capital Drive Suite 190
Golden, Colorado 80401
TEL:720.452.1090
www.T2ue.com

CLIENT TEST HOLE NO:	17
SUE CREW/TRUCK NO:	MR/HCD
CITY,COUNTY:	Fountain, El Paso
LOCATION/INTERSECTION:	Mesa Rd & Fountain Mesa Rd

MAP

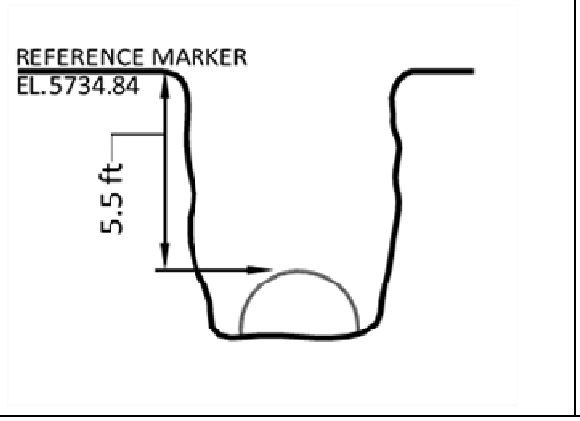


SITE PHOTO - FACING NORTH



Same location is cited on all pages. Please update throughout.

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TEST HOLE - UTILITY - FACING NORTH



DISCLAIMER: ADDITIONAL MATERIAL AND/OR UTILITIES MAY EXIST BELOW APPARENT BOTTOM

UTILITY DESCRIPTION		REFERENCE MARKER	
UTILITY TYPE	WATER MAIN	NORTHING	1322326.39'
UTILITY MATERIAL	PLASTIC (PVC, PE, HDPE)	EASTING	3228170.62'
UTILITY DIRECTION	NORTH - SOUTH	ELEVATION	5734.84'
UTILITY WIDTH (FIELD)	12.00"	LOCATION	CENTER OF UTILITY
UTILITY WIDTH (RECORD)	-	MARKED BY	NAIL & DISK
APPARENT UTILITY OWNER	WATER		
DEPTH FROM REFERENCE MARKER			
TOP OF UTILITY	5.50'		
BOTTOM OF UTILITY			
ELEVATION OF UTILITY			
TOP OF UTILITY	5729.34'		
APPARENT BOTTOM OF UTILITY			
SURFACE			
TYPE	ASPHALT		
THICKNESS	14"		

REMARKS:

REVISION NOTES:

REVIEWED DATE:	9.20.24	CHECKED DATE:	REVISION DATE:
REVIEWED BY:	Stacy	CHECKED BY:	

PRELIMINARY - FOR COMMENTS

PRELIMINARY - FOR COMMENTS

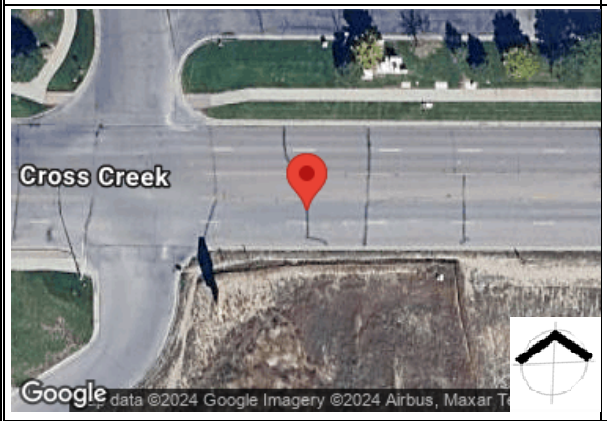
TEST HOLE DATA REPORT

TEST HOLE NO:	18
TEST HOLE DATE:	8/29/2024
PROJECT NO:	CO08200100
CLIENT:	GARVER
PROJECT:	WIDEFIELD JIMMY CAMP LIFT STATION

T2 utility engineers
a kiwa company
150 Capital Drive Suite 190
Golden, Colorado 80401
TEL:720.452.1090
www.T2ue.com

CLIENT TEST HOLE NO:	18
SUE CREW/TRUCK NO:	MR/HCD
CITY,COUNTY:	Fountain, El Paso
LOCATION/INTERSECTION:	Mesa Rd & Fountain Mesa Rd

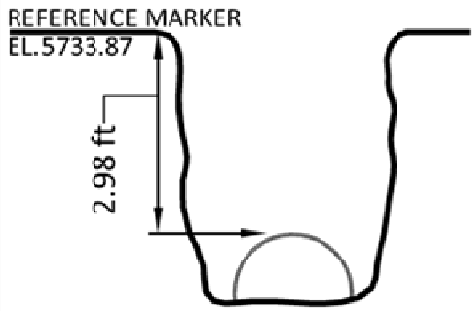
MAP



SITE PHOTO - FACING NORTH



CROSS SECTION - NOT TO SCALE



TEST HOLE - UTILITY - FACING NORTH



DISCLAIMER: ADDITIONAL MATERIAL AND/OR UTILITIES MAY EXIST BELOW APPARENT BOTTOM

UTILITY DESCRIPTION

UTILITY TYPE	TELECOM
UTILITY MATERIAL	METALLIC (IRON, STEEL, COATED)
UTILITY DIRECTION	NORTH - SOUTH
UTILITY WIDTH (FIELD)	6.00"
UTILITY WIDTH (RECORD)	-
APPARENT UTILITY OWNER	TELEPHONE

DEPTH FROM REFERENCE MARKER

TOP OF UTILITY	2.98'
BOTTOM OF UTILITY	

ELEVATION OF UTILITY

TOP OF UTILITY	5730.89'
APPARENT BOTTOM OF UTILITY	

SURFACE

TYPE	ASPHALT
THICKNESS	12"

REFERENCE MARKER

NORTHING	1322326.12'
EASTING	3228260.10'
ELEVATION	5733.87'
LOCATION	CENTER OF UTILITY
MARKED BY	NAIL & CAP

REMARKS:

REVISION NOTES:

REVIEWED DATE:	9.20.24	CHECKED DATE:	REVISION DATE:
REVIEWED BY:	Stacy	CHECKED BY:	

PRELIMINARY - FOR COMMENTS

PRELIMINARY - FOR COMMENTS

TEST HOLE DATA REPORT

TEST HOLE NO:	19
TEST HOLE DATE:	8/29/2024
PROJECT NO:	CO08200100
CLIENT:	GARVER
PROJECT:	WIDEFIELD JIMMY CAMP LIFT STATION

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a kiwa company
150 Capital Drive Suite 190
Golden, Colorado 80401
TEL:720.452.1090
www.T2ue.com

CLIENT TEST HOLE NO:	19
SUE CREW/TRUCK NO:	MR/HCD
CITY,COUNTY:	Fountain, El Paso
LOCATION/INTERSECTION:	Mesa Rd & Fountain Mesa Rd

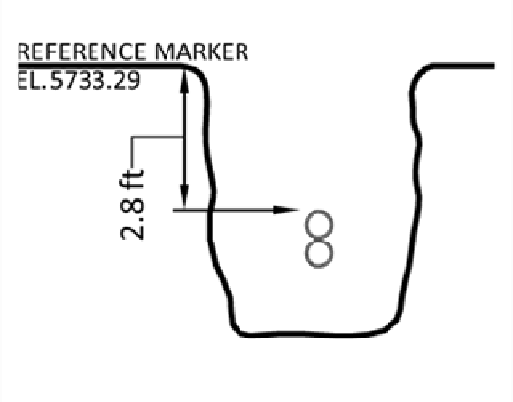
MAP



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CROSS SECTION - NOT TO SCALE



TEST HOLE - UTILITY - FACING NORTH



DISCLAIMER: ADDITIONAL MATERIAL AND/OR UTILITIES MAY EXIST BELOW APPARENT BOTTOM

UTILITY DESCRIPTION

UTILITY TYPE	CABLE TV
UTILITY MATERIAL	PLASTIC (PVC, PE, HDPE)
UTILITY DIRECTION	NORTH - SOUTH
UTILITY WIDTH (FIELD)	2.00"
UTILITY WIDTH (RECORD)	-
APPARENT UTILITY OWNER	CABLE TV

DEPTH FROM REFERENCE MARKER

TOP OF UTILITY	2.80'
BOTTOM OF UTILITY	

ELEVATION OF UTILITY

TOP OF UTILITY	5730.49'
APPARENT BOTTOM OF UTILITY	

SURFACE

TYPE	ASPHALT
THICKNESS	12"

REFERENCE MARKER

NORTHING	1322326.98'
EASTING	3228315.88'
ELEVATION	5733.29'
LOCATION	CENTER OF UTILITY
MARKED BY	NAIL & DISK

REMARKS:

REVISION NOTES:

REVIEWED DATE:	9.20.24	CHECKED DATE:	REVISION DATE:
REVIEWED BY:	Stacy	CHECKED BY:	

PRELIMINARY - FOR COMMENTS

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TEST HOLE DATA REPORT

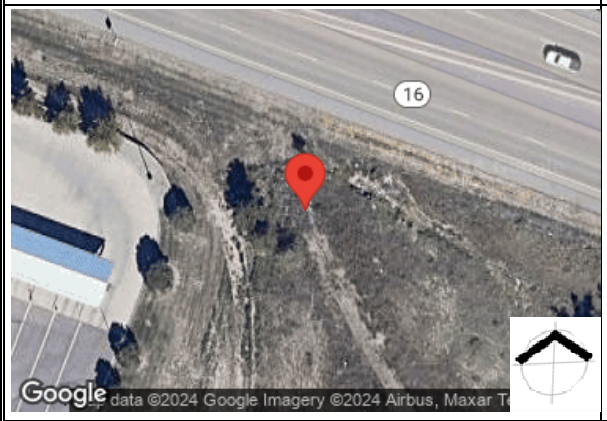
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TEST HOLE DATE:	8/29/2024
PROJECT NO:	CO08200100
CLIENT:	GARVER
PROJECT:	WIDEFIELD JIMMY CAMP LIFT STATION

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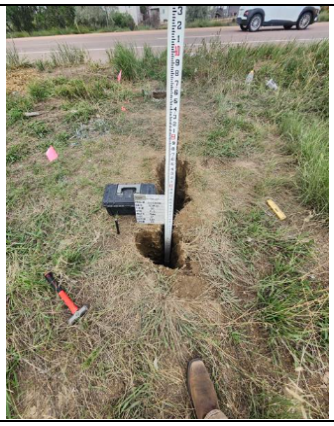
150 Capital Drive Suite 190
Golden, Colorado 80401
TEL:720.452.1090
www.T2ue.com

CLIENT TEST HOLE NO:	20
SUE CREW/TRUCK NO:	MR/HCD
CITY,COUNTY:	Fountain, El Paso
LOCATION/INTERSECTION:	Mesa Rd & Fountain Mesa Rd

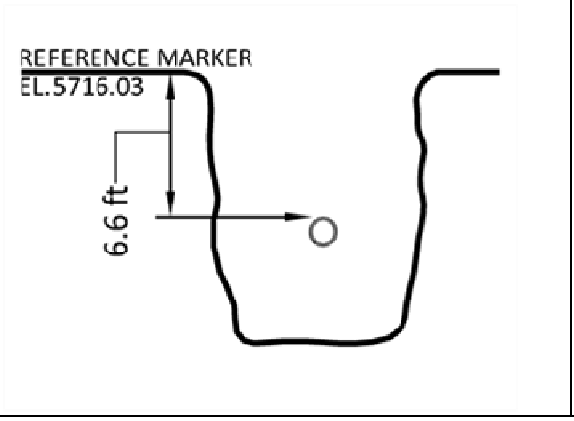
MAP



SITE PHOTO



CROSS SECTION - NOT TO SCALE



TEST HOLE - UTILITY - FACING NORTH



DISCLAIMER: ADDITIONAL MATERIAL AND/OR UTILITIES MAY EXIST BELOW APPARENT BOTTOM

UTILITY DESCRIPTION

UTILITY TYPE	FIBER OPTIC
UTILITY MATERIAL	PLASTIC (PVC, PE, HDPE)
UTILITY DIRECTION	EAST - WEST
UTILITY WIDTH (FIELD)	2.00"
UTILITY WIDTH (RECORD)	-
APPARENT UTILITY OWNER	FIBER

DEPTH FROM REFERENCE MARKER

TOP OF UTILITY	6.60'
BOTTOM OF UTILITY	

ELEVATION OF UTILITY

TOP OF UTILITY	5709.43'
APPARENT BOTTOM OF UTILITY	

SURFACE

TYPE	NATURAL GROUND
THICKNESS	-

REFERENCE MARKER

NORTHING	1323033.91'
EASTING	3229383.32'
ELEVATION	5716.03'
LOCATION	CENTER OF UTILITY
MARKED BY	ROD & CAP

REMARKS:

REVISION NOTES:

REVIEWED DATE:	9.20.24	CHECKED DATE:	REVISION DATE:
REVIEWED BY:	Stacy	CHECKED BY:	

PRELIMINARY - FOR COMMENTS

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TEST HOLE DATA REPORT

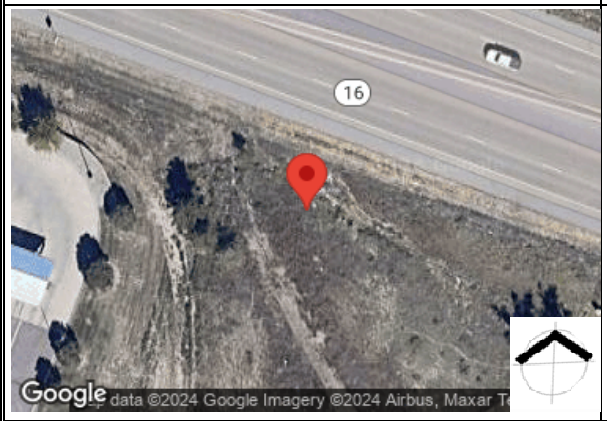
TEST HOLE NO:	21
TEST HOLE DATE:	8/29/2024
PROJECT NO:	CO08200100
CLIENT:	GARVER
PROJECT:	WIDEFIELD JIMMY CAMP LIFT STATION

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150 Capital Drive Suite 190
Golden, Colorado 80401
TEL:720.452.1090
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CLIENT TEST HOLE NO:	21
SUE CREW/TRUCK NO:	MR/HCD
CITY,COUNTY:	Fountain, El Paso
LOCATION/INTERSECTION:	Mesa Rd & Fountain Mesa Rd

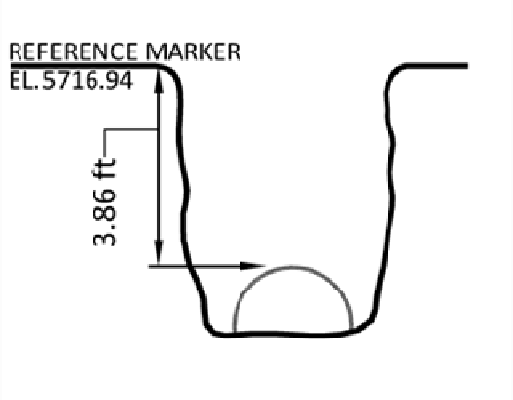
MAP



SITE PHOTO - FACING NORTH



CROSS SECTION - NOT TO SCALE



TEST HOLE - UTILITY - FACING NORTH



DISCLAIMER: ADDITIONAL MATERIAL AND/OR UTILITIES MAY EXIST BELOW APPARENT BOTTOM

UTILITY DESCRIPTION

UTILITY TYPE	GAS MAIN/PIPELINE
UTILITY MATERIAL	PLASTIC (PVC, PE, HDPE)
UTILITY DIRECTION	EAST - WEST
UTILITY WIDTH (FIELD)	4.00"
UTILITY WIDTH (RECORD)	-
APPARENT UTILITY OWNER	GAS

DEPTH FROM REFERENCE MARKER

TOP OF UTILITY	3.86'
BOTTOM OF UTILITY	

ELEVATION OF UTILITY

TOP OF UTILITY	5713.08'
APPARENT BOTTOM OF UTILITY	

SURFACE

TYPE	NATURAL GROUND
THICKNESS	-

REFERENCE MARKER

NORTHING	1323041.60'
EASTING	3229386.19'
ELEVATION	5716.94'
LOCATION	CENTER OF UTILITY
MARKED BY	ROD & CAP

REMARKS:

REVISION NOTES:

REVIEWED DATE:	9.20.24	CHECKED DATE:	REVISION DATE:
REVIEWED BY:	Stacy	CHECKED BY:	

PRELIMINARY - FOR COMMENTS

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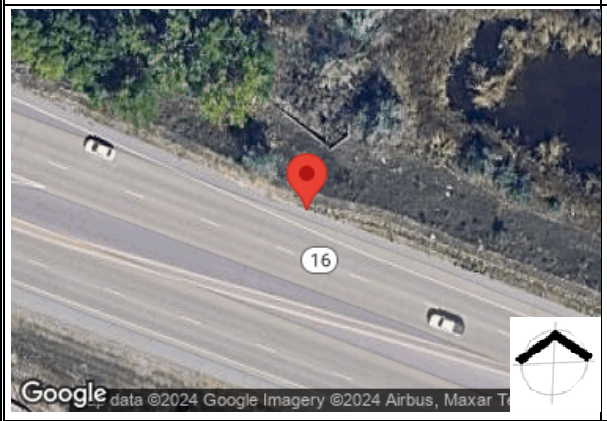
TEST HOLE DATA REPORT

TEST HOLE NO:	22
TEST HOLE DATE:	8/29/2024
PROJECT NO:	CO08200100
CLIENT:	GARVER
PROJECT:	WIDEFIELD JIMMY CAMP LIFT STATION

T2 utility engineers
a kiwa company
150 Capital Drive Suite 190
Golden, Colorado 80401
TEL:720.452.1090
www.T2ue.com

CLIENT TEST HOLE NO:	22
SUE CREW/TRUCK NO:	MR/HCD
CITY,COUNTY:	Fountain, El Paso
LOCATION/INTERSECTION:	Mesa Rd & Fountain Mesa Rd

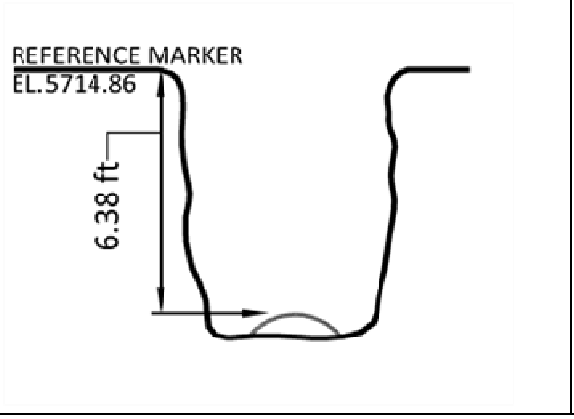
MAP



SITE PHOTO - FACING NORTH



CROSS SECTION - NOT TO SCALE



TEST HOLE - UTILITY - FACING NORTH



DISCLAIMER: ADDITIONAL MATERIAL AND/OR UTILITIES MAY EXIST BELOW APPARENT BOTTOM

UTILITY DESCRIPTION		REFERENCE MARKER	
UTILITY TYPE	SANITARY SEWER	NORTHING	1323151.41'
UTILITY MATERIAL	PLASTIC (PVC, PE, HDPE)	EASTING	3229413.30'
UTILITY DIRECTION		ELEVATION	5714.86'
UTILITY WIDTH (FIELD)	10.00"	LOCATION	CENTER OF UTILITY
UTILITY WIDTH (RECORD)	-	MARKED BY	ROD & CAP
APPARENT UTILITY OWNER	SEWER		
DEPTH FROM REFERENCE MARKER			
TOP OF UTILITY	6.38'		
BOTTOM OF UTILITY			
ELEVATION OF UTILITY			
TOP OF UTILITY	5708.48'		
APPARENT BOTTOM OF UTILITY			
SURFACE			
TYPE	NATURAL GROUND		
THICKNESS	-		

REMARKS:

REVISION NOTES:

REVIEWED DATE:	9.20.24	CHECKED DATE:	REVISION DATE:
REVIEWED BY:	Stacy	CHECKED BY:	

PRELIMINARY - FOR COMMENTS

PRELIMINARY - FOR COMMENTS

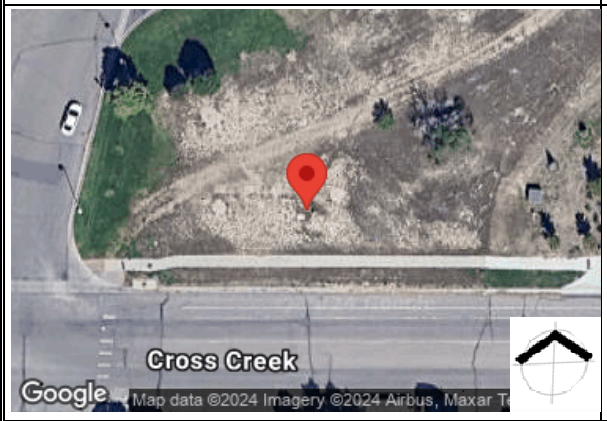
TEST HOLE DATA REPORT

TEST HOLE NO:	23
TEST HOLE DATE:	8/29/2024
PROJECT NO:	CO08200100
CLIENT:	GARVER
PROJECT:	WIDEFIELD JIMMY CAMP LIFT STATION

T2 utility engineers
a kiwa company
150 Capital Drive Suite 190
Golden, Colorado 80401
TEL:720.452.1090
www.T2ue.com

CLIENT TEST HOLE NO:	23
SUE CREW/TRUCK NO:	MR/HCD
CITY,COUNTY:	Fountain, El Paso
LOCATION/INTERSECTION:	Mesa Rd & Fountain Mesa Rd

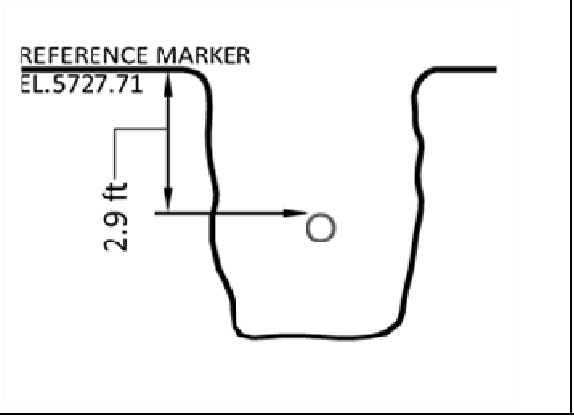
MAP



SITE PHOTO



CROSS SECTION - NOT TO SCALE



TEST HOLE - UTILITY - FACING SOUTH



DISCLAIMER: ADDITIONAL MATERIAL AND/OR UTILITIES MAY EXIST BELOW APPARENT BOTTOM

UTILITY DESCRIPTION

UTILITY TYPE	TELECOM
UTILITY MATERIAL	PLASTIC (PVC, PE, HDPE)
UTILITY DIRECTION	EAST - WEST
UTILITY WIDTH (FIELD)	2.00"
UTILITY WIDTH (RECORD)	-
APPARENT UTILITY OWNER	TELEPHONE

DEPTH FROM REFERENCE MARKER

TOP OF UTILITY	2.90'
BOTTOM OF UTILITY	

ELEVATION OF UTILITY

TOP OF UTILITY	5724.81'
APPARENT BOTTOM OF UTILITY	

SURFACE

TYPE	NATURAL GROUND
THICKNESS	-

REFERENCE MARKER

NORTHING	1322421.19'
EASTING	3228991.80'
ELEVATION	5727.71'
LOCATION	CENTER OF UTILITY
MARKED BY	ROD & CAP

REMARKS:

REVISION NOTES:

REVIEWED DATE:	9.20.24	CHECKED DATE:	REVISION DATE:
REVIEWED BY:	Stacy	CHECKED BY:	

PRELIMINARY - FOR COMMENTS

PRELIMINARY - FOR COMMENTS

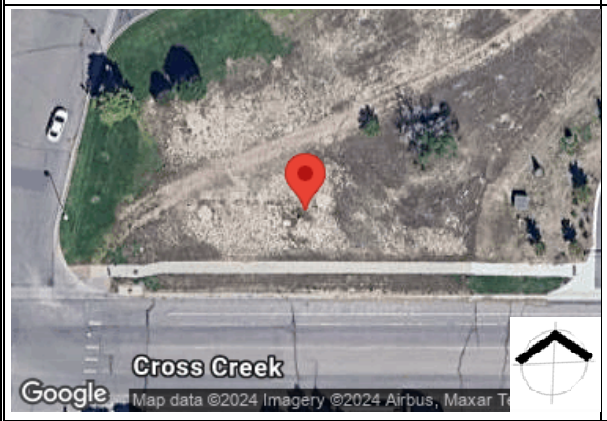
TEST HOLE DATA REPORT

TEST HOLE NO:	24
TEST HOLE DATE:	8/29/2024
PROJECT NO:	CO08200100
CLIENT:	GARVER
PROJECT:	WIDEFIELD JIMMY CAMP LIFT STATION

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a kiwa company
150 Capital Drive Suite 190
Golden, Colorado 80401
TEL:720.452.1090
www.T2ue.com

CLIENT TEST HOLE NO:	24
SUE CREW/TRUCK NO:	MR/HCD
CITY,COUNTY:	Fountain, El Paso
LOCATION/INTERSECTION:	Mesa Rd & Fountain Mesa Rd

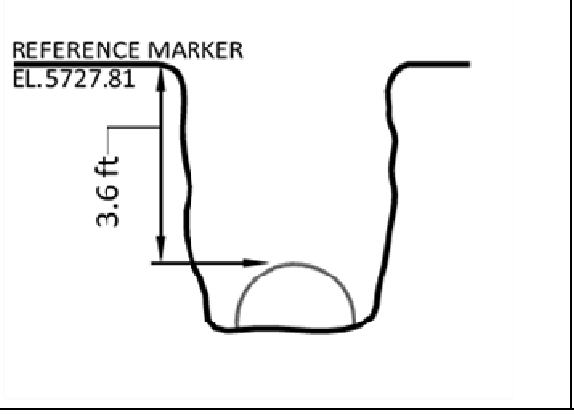
MAP



SITE PHOTO - FACING NORTH



CROSS SECTION - NOT TO SCALE



TEST HOLE - UTILITY - FACING NORTH



DISCLAIMER: ADDITIONAL MATERIAL AND/OR UTILITIES MAY EXIST BELOW APPARENT BOTTOM

UTILITY DESCRIPTION		REFERENCE MARKER	
UTILITY TYPE	GAS MAIN/PIPELINE	NORTHING	1322425.34'
UTILITY MATERIAL	PLASTIC (PVC, PE, HDPE)	EASTING	3228994.92'
UTILITY DIRECTION	EAST - WEST	ELEVATION	5727.81'
UTILITY WIDTH (FIELD)	-	LOCATION	CENTER OF UTILITY
UTILITY WIDTH (RECORD)	-	MARKED BY	NAIL & CAP
APPARENT UTILITY OWNER	GAS		
DEPTH FROM REFERENCE MARKER			
TOP OF UTILITY	3.60'		
BOTTOM OF UTILITY			
ELEVATION OF UTILITY			
TOP OF UTILITY	5724.21'		
APPARENT BOTTOM OF UTILITY			
SURFACE			
TYPE	NATURAL GROUND		
THICKNESS	-		

REMARKS:

REVISION NOTES:

REVIEWED DATE:	9.20.24	CHECKED DATE:	REVISION DATE:
REVIEWED BY:	Stacy	CHECKED BY:	

PRELIMINARY - FOR COMMENTS

PRELIMINARY - FOR COMMENTS

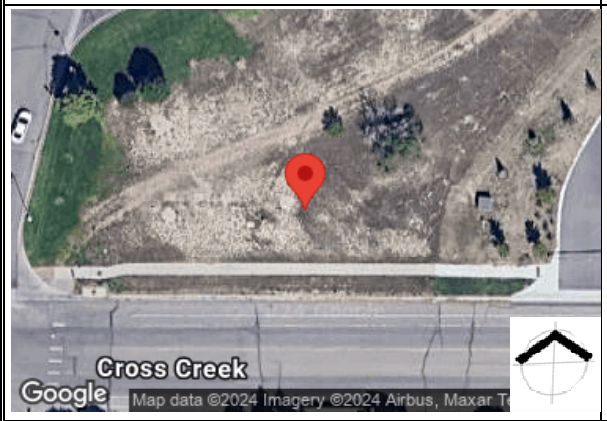
TEST HOLE DATA REPORT

TEST HOLE NO:	25
TEST HOLE DATE:	8/29/2024
PROJECT NO:	CO08200100
CLIENT:	GARVER
PROJECT:	WIDEFIELD JIMMY CAMP LIFT STATION

T2 utility engineers
a kiwa company
150 Capital Drive Suite 190
Golden, Colorado 80401
TEL:720.452.1090
www.T2ue.com

CLIENT TEST HOLE NO:	25
SUE CREW/TRUCK NO:	MR/HCD
CITY,COUNTY:	Fountain, El Paso
LOCATION/INTERSECTION:	Mesa Rd & Fountain Mesa Rd

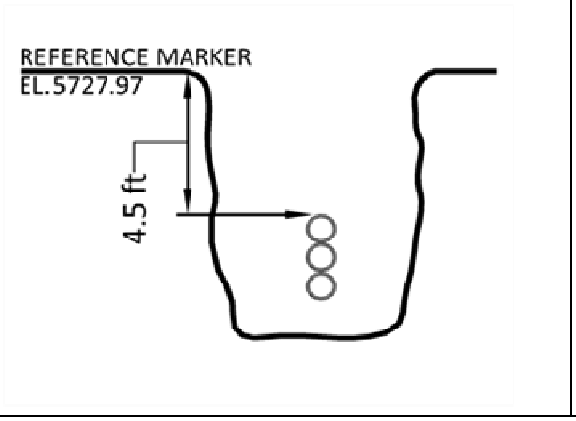
MAP



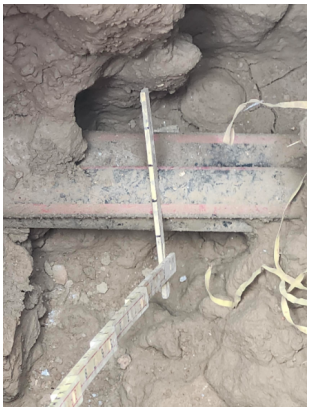
SITE PHOTO - FACING NORTH



CROSS SECTION - NOT TO SCALE



TEST HOLE - UTILITY - FACING NORTH



DISCLAIMER: ADDITIONAL MATERIAL AND/OR UTILITIES MAY EXIST BELOW APPARENT BOTTOM

UTILITY DESCRIPTION		REFERENCE MARKER	
UTILITY TYPE	ELECTRIC	NORTHING	1322429.02'
UTILITY MATERIAL	PLASTIC (PVC, PE, HDPE)	EASTING	3228996.66'
UTILITY DIRECTION	EAST - WEST	ELEVATION	5727.97'
UTILITY WIDTH (FIELD)	1.00"	LOCATION	CENTER OF UTILITY
UTILITY WIDTH (RECORD)	-	MARKED BY	NAIL & CAP
APPARENT UTILITY OWNER	ELECTRIC		
DEPTH FROM REFERENCE MARKER			
TOP OF UTILITY	4.50'		
BOTTOM OF UTILITY			
ELEVATION OF UTILITY			
TOP OF UTILITY	5723.47'		
APPARENT BOTTOM OF UTILITY			
SURFACE			
TYPE	NATURAL GROUND		
THICKNESS	-		

REMARKS:

REVISION NOTES:

REVIEWED DATE:	9.20.24	CHECKED DATE:	REVISION DATE:
REVIEWED BY:	Stacy	CHECKED BY:	

PRELIMINARY - FOR COMMENTS

PRELIMINARY - FOR COMMENTS

TEST HOLE DATA REPORT

TEST HOLE NO:	26
TEST HOLE DATE:	8/29/2024
PROJECT NO:	CO08200100
CLIENT:	GARVER
PROJECT:	WIDEFIELD JIMMY CAMP LIFT STATION

T2 utility engineers
a kiwa company
150 Capital Drive Suite 190
Golden, Colorado 80401
TEL:720.452.1090
www.T2ue.com

CLIENT TEST HOLE NO:	26
SUE CREW/TRUCK NO:	MR/HCD
CITY,COUNTY:	Fountain, El Paso
LOCATION/INTERSECTION:	Mesa Rd & Fountain Mesa Rd

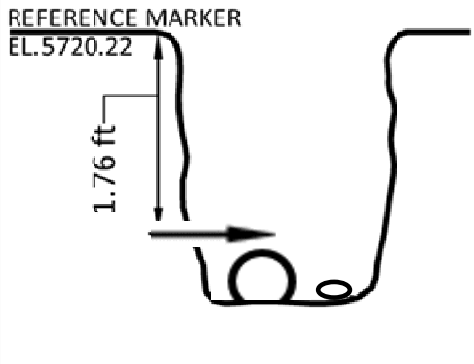
MAP



SITE PHOTO - FACING NORTH



CROSS SECTION - NOT TO SCALE



TEST HOLE - UTILITY - FACING NORTH



DISCLAIMER: ADDITIONAL MATERIAL AND/OR UTILITIES MAY EXIST BELOW APPARENT BOTTOM

UTILITY DESCRIPTION		REFERENCE MARKER	
UTILITY TYPE	UNKNOWN	NORTHING	1322873.86'
UTILITY MATERIAL	PLASTIC (PVC, PE, HDPE)	EASTING	3229317.40'
UTILITY DIRECTION	SOUTHEAST - NORTHWEST	ELEVATION	5720.22'
UTILITY WIDTH (FIELD)	3.00"	LOCATION	CENTER OF UTILITY
UTILITY WIDTH (RECORD)	-	MARKED BY	
APPARENT UTILITY OWNER	UNKOWN		
DEPTH FROM REFERENCE MARKER			
TOP OF UTILITY	1.76'		
BOTTOM OF UTILITY			
ELEVATION OF UTILITY			
TOP OF UTILITY	5718.46'		
APPARENT BOTTOM OF UTILITY			
SURFACE			
TYPE	NATURAL GROUND		
THICKNESS	-		

REMARKS:

REVISION NOTES:

REVIEWED DATE:	9.20.24	CHECKED DATE:	REVISION DATE:
REVIEWED BY:	Stacy	CHECKED BY:	

PRELIMINARY - FOR COMMENTS

PRELIMINARY - FOR COMMENTS

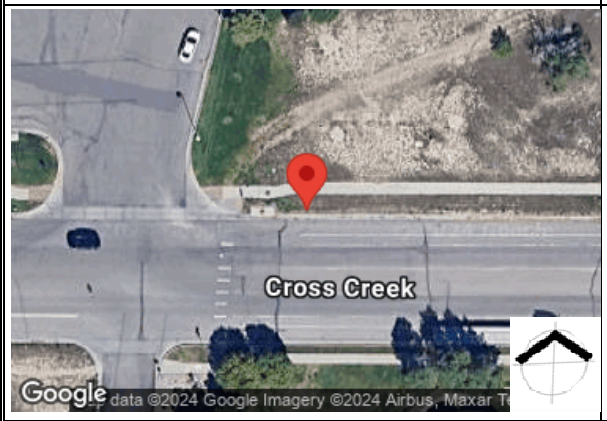
TEST HOLE DATA REPORT

TEST HOLE NO:	27
TEST HOLE DATE:	8/29/2024
PROJECT NO:	CO08200100
CLIENT:	GARVER
PROJECT:	WIDEFIELD JIMMY CAMP LIFT STATION

T2 utility engineers
a kiwa company
150 Capital Drive Suite 190
Golden, Colorado 80401
TEL:720.452.1090
www.T2ue.com

CLIENT TEST HOLE NO:	27
SUE CREW/TRUCK NO:	MR/HCD
CITY,COUNTY:	Fountain, El Paso
LOCATION/INTERSECTION:	Mesa Rd & Fountain Mesa Rd

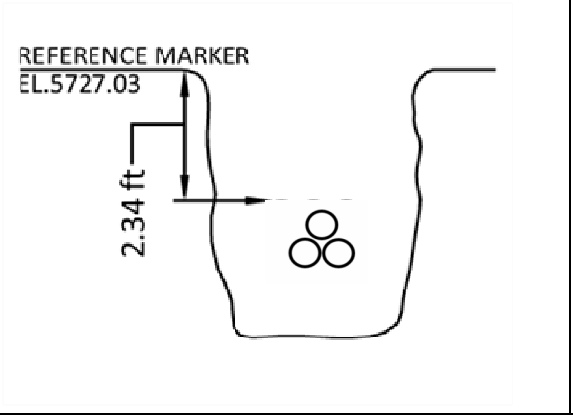
MAP



SITE PHOTO



CROSS SECTION - NOT TO SCALE



TEST HOLE - UTILITY - FACING NORTH



DISCLAIMER: ADDITIONAL MATERIAL AND/OR UTILITIES MAY EXIST BELOW APPARENT BOTTOM

UTILITY DESCRIPTION		REFERENCE MARKER	
UTILITY TYPE	CABLE TV	NORTHING	1322389.30'
UTILITY MATERIAL	PLASTIC (PVC, PE, HDPE)	EASTING	3228959.65'
UTILITY DIRECTION	EAST - WEST	ELEVATION	5727.03'
UTILITY WIDTH (FIELD)	2.00"	LOCATION	CENTER OF UTILITY
UTILITY WIDTH (RECORD)	-	MARKED BY	NAIL & CAP
APPARENT UTILITY OWNER	CABLE TV		
DEPTH FROM REFERENCE MARKER			
TOP OF UTILITY	2.34'		
BOTTOM OF UTILITY			
ELEVATION OF UTILITY			
TOP OF UTILITY	5724.69'		
APPARENT BOTTOM OF UTILITY			
SURFACE			
TYPE	NATURAL GROUND		
THICKNESS	-		

REMARKS:

REVISION NOTES:

REVIEWED DATE:	9.20.24	CHECKED DATE:	REVISION DATE:
REVIEWED BY:	Stacy	CHECKED BY:	

PRELIMINARY - FOR COMMENTS

PRELIMINARY - FOR COMMENTS

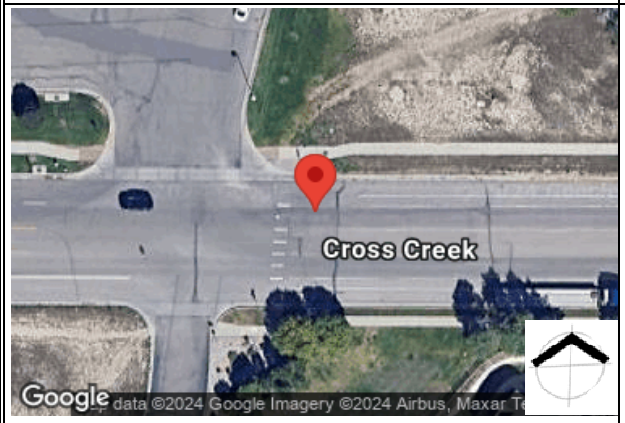
TEST HOLE DATA REPORT

TEST HOLE NO:	28
TEST HOLE DATE:	8/29/2024
PROJECT NO:	CO08200100
CLIENT:	GARVER
PROJECT:	WIDEFIELD JIMMY CAMP LIFT STATION

T2 utility engineers
a kiwa company
150 Capital Drive Suite 190
Golden, Colorado 80401
TEL:720.452.1090
www.T2ue.com

CLIENT TEST HOLE NO:	28
SUE CREW/TRUCK NO:	MR/HCD
CITY,COUNTY:	Fountain, El Paso
LOCATION/INTERSECTION:	Mesa Rd & Fountain Mesa Rd

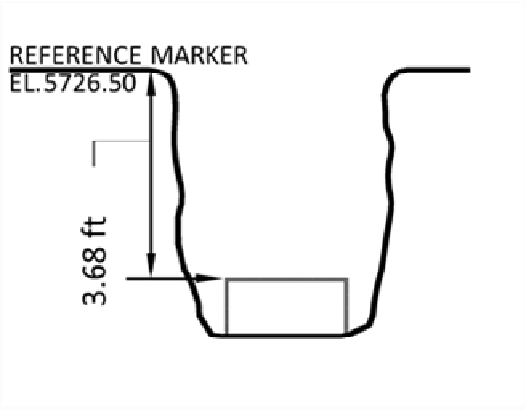
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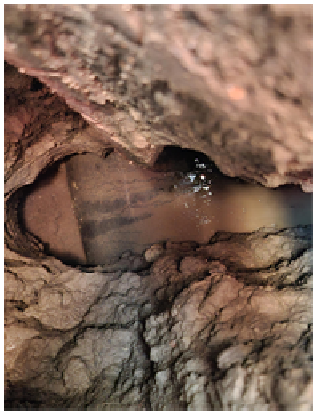
SITE PHOTO



CROSS SECTION - NOT TO SCALE



TEST HOLE - UTILITY - FACING NORTH



DISCLAIMER: ADDITIONAL MATERIAL AND/OR UTILITIES MAY EXIST BELOW APPARENT BOTTOM

UTILITY DESCRIPTION		**REFERENCE MARKER**	
UTILITY TYPE	STORM	NORTHING	1322375.79'
UTILITY MATERIAL	CONCRETE	EASTING	3228951.12'
UTILITY DIRECTION	NORTH - SOUTH	ELEVATION	5726.50'
UTILITY WIDTH (FIELD)	-	LOCATION	WEST EDGE
UTILITY WIDTH (RECORD)	-	MARKED BY	NAIL & DISK
APPARENT UTILITY OWNER	STORM DRAIN		
DEPTH FROM REFERENCE MARKER			
TOP OF UTILITY	3.68'		
BOTTOM OF UTILITY			
ELEVATION OF UTILITY			
TOP OF UTILITY	5722.82'		
APPARENT BOTTOM OF UTILITY			
SURFACE			
TYPE	ASPHALT		
THICKNESS	12"		

REMARKS:

REVISION NOTES:

REVIEWED DATE:	9.20.24	CHECKED DATE:	REVISION DATE:
REVIEWED BY:	Stacy	CHECKED BY:	

PRELIMINARY - FOR COMMENTS

PRELIMINARY - FOR COMMENTS

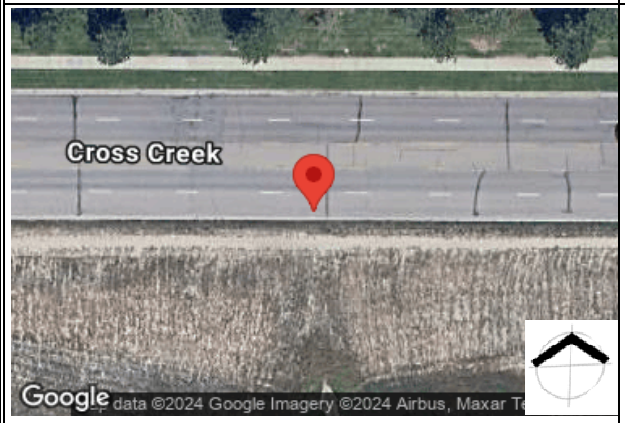
TEST HOLE DATA REPORT

TEST HOLE NO:	29
TEST HOLE DATE:	8/30/2024
PROJECT NO:	CO08200100
CLIENT:	GARVER
PROJECT:	WIDEFIELD JIMMY CAMP LIFT STATION

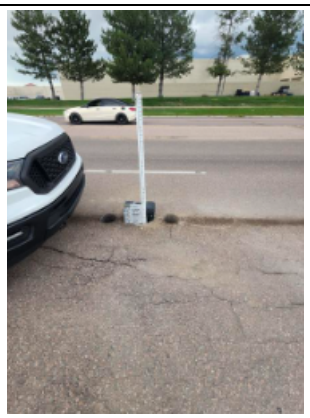
T2 utility engineers
a kiwa company
150 Capital Drive Suite 190
Golden, Colorado 80401
TEL:720.452.1090
www.T2ue.com

CLIENT TEST HOLE NO:	29
SUE CREW/TRUCK NO:	MR/HCD
CITY,COUNTY:	Fountain, El Paso
LOCATION/INTERSECTION:	Mesa Rd & Fountain Mesa Rd

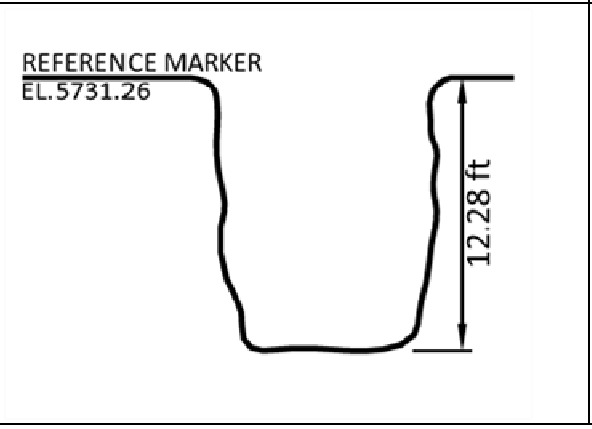
MAP



SITE PHOTO



CROSS SECTION - NOT TO SCALE



TEST HOLE - UTILITY - FACING NORTH



DISCLAIMER: ADDITIONAL MATERIAL AND/OR UTILITIES MAY EXIST BELOW APPARENT BOTTOM

UTILITY DESCRIPTION		**REFERENCE MARKER**	
UTILITY TYPE	EXPLORATORY	NORTHING	1322326.05'
UTILITY MATERIAL		EASTING	3228490.12'
UTILITY DIRECTION		ELEVATION	5731.26'
UTILITY WIDTH (FIELD)	-	LOCATION	SOUTH EDGE
UTILITY WIDTH (RECORD)	-	MARKED BY	NAIL & DISK
APPARENT UTILITY OWNER	EXPLORATORY		
DEPTH FROM REFERENCE MARKER			
TOP OF UTILITY	12.28'		
BOTTOM OF UTILITY			
ELEVATION OF UTILITY			
TOP OF UTILITY	5718.98'		
APPARENT BOTTOM OF UTILITY			
SURFACE			
TYPE	ASPHALT		
THICKNESS	12"		

REMARKS:

REVISION NOTES:

REVIEWED DATE:	9.20.24	CHECKED DATE:	REVISION DATE:
REVIEWED BY:	Stacy	CHECKED BY:	

PRELIMINARY - FOR COMMENTS

PRELIMINARY - FOR COMMENTS

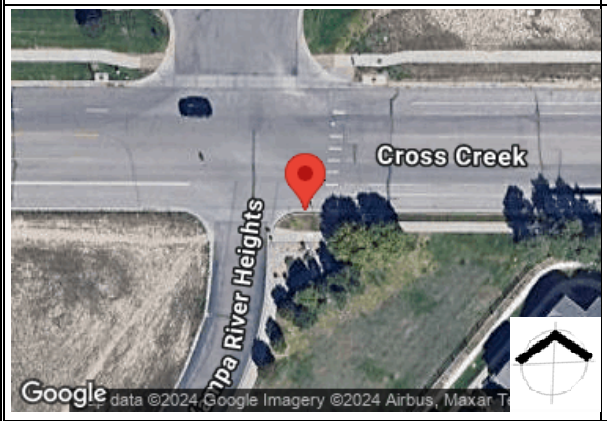
TEST HOLE DATA REPORT

TEST HOLE NO:	30
TEST HOLE DATE:	8/30/2024
PROJECT NO:	CO08200100
CLIENT:	GARVER
PROJECT:	WIDEFIELD JIMMY CAMP LIFT STATION

T2 utility engineers
a kiwa company
150 Capital Drive Suite 190
Golden, Colorado 80401
TEL:720.452.1090
www.T2ue.com

CLIENT TEST HOLE NO:	30
SUE CREW/TRUCK NO:	MR/HCD
CITY,COUNTY:	Fountain, El Paso
LOCATION/INTERSECTION:	Mesa Rd & Fountain Mesa Rd

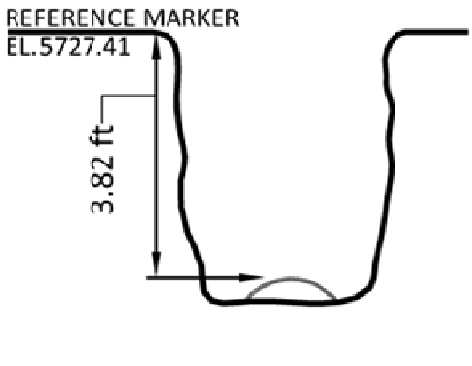
MAP



SITE PHOTO - FACING NORTH



CROSS SECTION - NOT TO SCALE



TEST HOLE - UTILITY - FACING NORTH



DISCLAIMER: ADDITIONAL MATERIAL AND/OR UTILITIES MAY EXIST BELOW APPARENT BOTTOM

UTILITY DESCRIPTION		REFERENCE MARKER	
UTILITY TYPE	WATER MAIN	NORTHING	1322326.19'
UTILITY MATERIAL	PLASTIC (PVC, PE, HDPE)	EASTING	3228894.63'
UTILITY DIRECTION	NORTH - SOUTH	ELEVATION	5727.41'
UTILITY WIDTH (FIELD)	6.00"	LOCATION	CENTER OF UTILITY
UTILITY WIDTH (RECORD)	-	MARKED BY	NAIL & DISK
APPARENT UTILITY OWNER	WATER		
DEPTH FROM REFERENCE MARKER			
TOP OF UTILITY	3.82'		
BOTTOM OF UTILITY			
ELEVATION OF UTILITY			
TOP OF UTILITY	5723.59'		
APPARENT BOTTOM OF UTILITY			
SURFACE			
TYPE	ASPHALT		
THICKNESS	12"		

REMARKS:

REVISION NOTES:

REVIEWED DATE:	9.20.24	CHECKED DATE:	REVISION DATE:
REVIEWED BY:	Stacy	CHECKED BY:	

PRELIMINARY - FOR COMMENTS

PRELIMINARY - FOR COMMENTS

TEST HOLE DATA REPORT

TEST HOLE NO:	31
TEST HOLE DATE:	8/30/2024
PROJECT NO:	CO08200100
CLIENT:	GARVER
PROJECT:	WIDEFIELD JIMMY CAMP LIFT STATION

T2 utility engineers
a kiwa company

150 Capital Drive Suite 190
Golden, Colorado 80401
TEL:720.452.1090
www.T2ue.com

CLIENT TEST HOLE NO:	31
SUE CREW/TRUCK NO:	MR/HCD
CITY,COUNTY:	Fountain, El Paso
LOCATION/INTERSECTION:	Mesa Rd & Fountain Mesa Rd

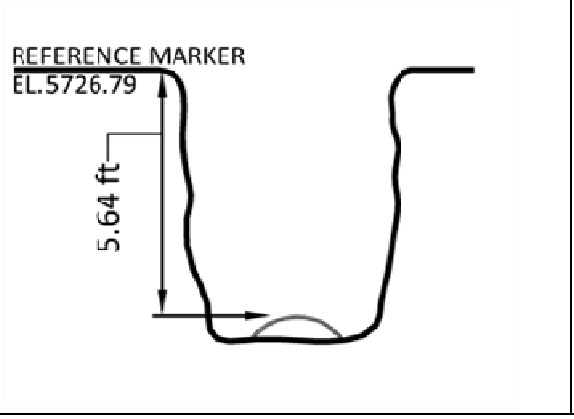
VICINITY MAP



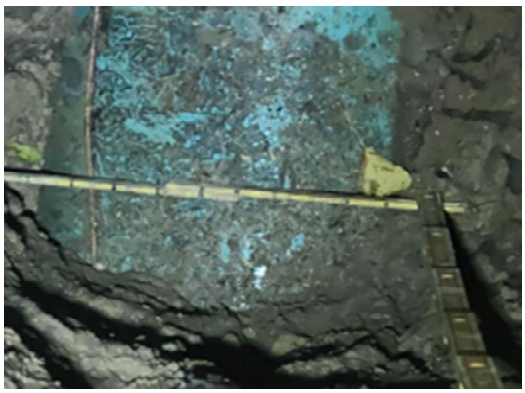
SITE PHOTO - FACING NORTH



CROSS SECTION - NOT TO SCALE



TEST HOLE - UTILITY - FACING NORTH



DISCLAIMER: ADDITIONAL MATERIAL AND/OR UTILITIES MAY EXIST BELOW APPARENT BOTTOM

UTILITY DESCRIPTION		REFERENCE MARKER	
UTILITY TYPE	WATER MAIN	NORTHING	1322362.11'
UTILITY MATERIAL	PLASTIC (PVC, PE, HDPE)	EASTING	3228940.41'
UTILITY DIRECTION	EAST - WEST	ELEVATION	5726.79'
UTILITY WIDTH (FIELD)	12.00"	LOCATION	CENTER OF UTILITY
UTILITY WIDTH (RECORD)	-	MARKED BY	NAIL & DISK
APPARENT UTILITY OWNER	WATER		
DEPTH FROM REFERENCE MARKER			
TOP OF UTILITY	5.64'		
BOTTOM OF UTILITY			
ELEVATION OF UTILITY			
TOP OF UTILITY	5721.15'		
APPARENT BOTTOM OF UTILITY			
SURFACE			
TYPE	ASPHALT		
THICKNESS	12"		

REMARKS:

REVISION NOTES:

REVIEWED DATE:	9.20.24	CHECKED DATE:	REVISION DATE:
REVIEWED BY:	Stacy	CHECKED BY:	

PRELIMINARY - FOR COMMENTS

PRELIMINARY - FOR COMMENTS

TEST HOLE DATA REPORT

TEST HOLE NO:	32
TEST HOLE DATE:	8/30/2024
PROJECT NO:	CO08200100
CLIENT:	GARVER
PROJECT:	WIDEFIELD JIMMY CAMP LIFT STATION

T2 utility engineers
a kiwa company
150 Capital Drive Suite 190
Golden, Colorado 80401
TEL:720.452.1090
www.T2ue.com

CLIENT TEST HOLE NO:	32
SUE CREW/TRUCK NO:	MR/HCD
CITY,COUNTY:	Fountain, El Paso
LOCATION/INTERSECTION:	Mesa Rd & Fountain Mesa Rd

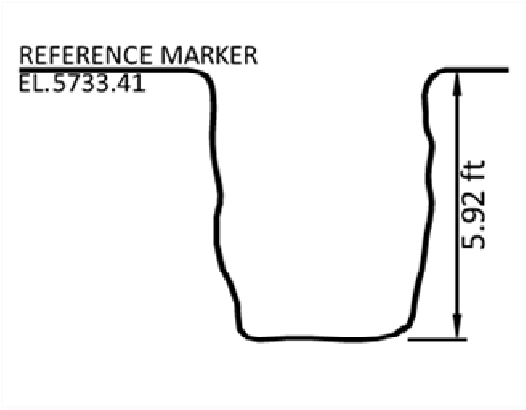
MAP



SITE PHOTO - FACING NORTH



CROSS SECTION - NOT TO SCALE



TEST HOLE - UTILITY - FACING NORTH



DISCLAIMER: ADDITIONAL MATERIAL AND/OR UTILITIES MAY EXIST BELOW APPARENT BOTTOM

UTILITY DESCRIPTION		**REFERENCE MARKER**	
UTILITY TYPE	EXPLORATORY	NORTHING	1322324.81'
UTILITY MATERIAL		EASTING	3228298.35'
UTILITY DIRECTION		ELEVATION	5733.41'
UTILITY WIDTH (FIELD)	-	LOCATION	SOUTH EDGE
UTILITY WIDTH (RECORD)	-	MARKED BY	NAIL & DISK
APPARENT UTILITY OWNER	EXPLORATORY		
DEPTH FROM REFERENCE MARKER			
TOP OF UTILITY	5.92'		
BOTTOM OF UTILITY			
ELEVATION OF UTILITY			
TOP OF UTILITY	5727.49'		
APPARENT BOTTOM OF UTILITY			
SURFACE			
TYPE	ASPHALT		
THICKNESS	12"		

REMARKS:

REVISION NOTES:

REVIEWED DATE:	9.20.24	CHECKED DATE:	REVISION DATE:
REVIEWED BY:	Stacy	CHECKED BY:	

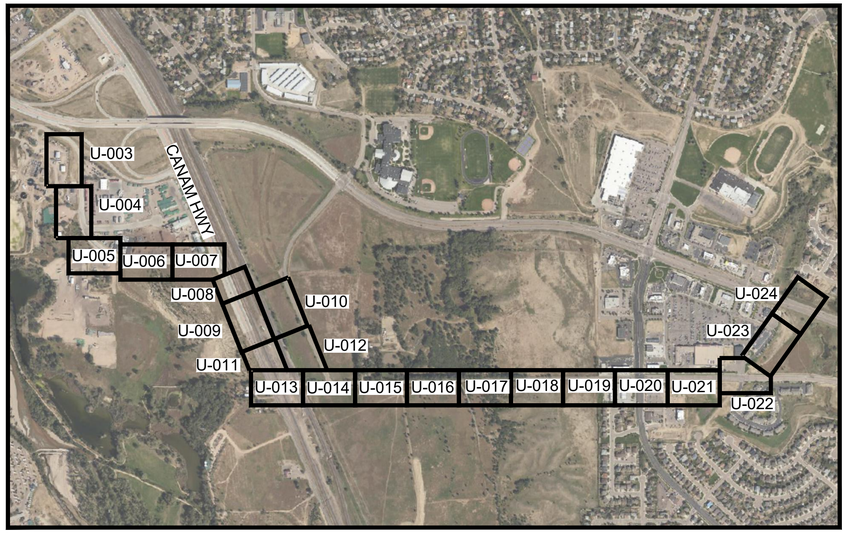
PRELIMINARY - FOR COMMENTS

SUBSURFACE UTILITY ENGINEERING INVESTIGATION

UTILITY INVESTIGATION - WIDEFIELD JIMMY CAMP FORCEMAIN
CITY OF FOUNTAIN, EL PASO COUNTY, CO

PREPARED FOR:

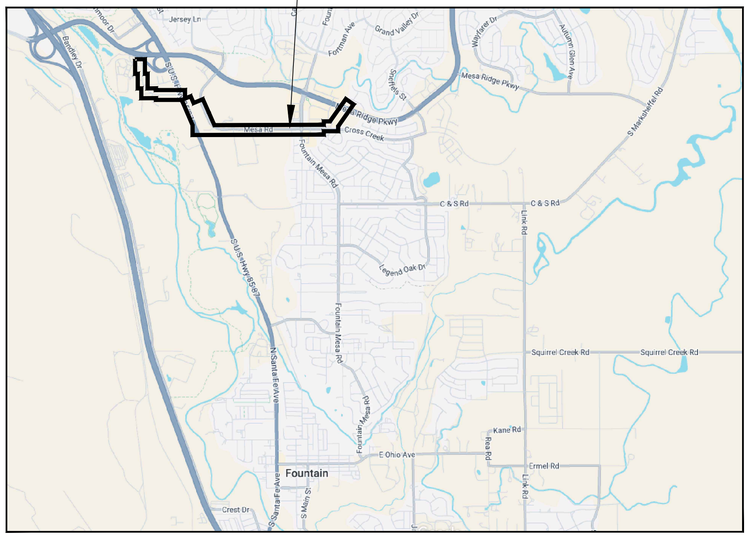
GARVER



KEY MAP
N.T.S.

SURVEY CONTROL
SURVEY CONTROL POINTS USED FALL OUTSIDE OF PROJECT LIMITS AND ARE NOT SHOWN ON KEY MAP. FOR SURVEY CONTROL LOCATIONS SEE SURVEY CONTROL TABLE.

PROJECT LOCATION



VICINITY MAP
N.T.S.

SHEET INDEX	
SHEET NO.	DESCRIPTION
U-001	COVER SHEET, KEY MAP & VICINITY MAP
U-002	GENERAL NOTES, SURVEY CONTROL, LEGEND
U-003 - U-24	UTILITY INVESTIGATION PLAN SHEET

UTILITY INVESTIGATION STATEMENT OF ASCE 38-22 COMPLIANCE
THE UTILITIES DEPICTED HAVE BEEN INVESTIGATED IN GENERAL ACCORDANCE WITH THE ASCE 38-22, "STANDARD GUIDELINE FOR INVESTIGATING AND DOCUMENTING EXISTING UTILITIES ," STANDARD AND SHOWN AT THEIR ACHIEVED QUALITY LEVELS. ALL OTHER INFORMATION HAS BEEN PROVIDED BY OTHERS AND INCLUDED AS REFERENCE ONLY.

T2 utility engineers
1-855-222-T2UE | WWW.T2UE.COM
DENVER
150 CAPITAL DR, SUITE 190
GOLDEN, CO 80401
TEL:(720) 402-9813

UTILITY INVESTIGATION PLANS
WIDEFIELD JIMMY CAMP FORCEMAIN
GARVER
FOUNTAIN, CO

NO.	DATE	DESCRIPTION	BY
1			

PRELIMINARY NOT FOR CONSTRUCTION

DATE	XX/XX/2024
DRAWN	AJM
SURVEYED	XXX
CHECKED	SB
PROJECT #	CO08200100

SHEET TITLE
COVER SHEET

SHEET NUMBER
U-001

Plot Stamp: 3/26/2025 4:09:54 PM - Andrew Muhlbeier
File: O:\Projects\Garver\CO08200100_Widefield Jimmy Camp Forcemain\2_CAD\DWG\Work\CO08200100_Widefield Jimmy Camp Forcemain.dwg

GENERAL NOTES

1. SUBSURFACE UTILITY ENGINEERING IS A PROFESSIONAL PRACTICE DEFINED BY THE AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE.) T2 UES, INC. CONDUCTS UTILITY INVESTIGATIONS IN ACCORDANCE WITH ASCE 38-22: STANDARD GUIDELINE FOR INVESTIGATING AND DOCUMENTING EXISTING UTILITIES. IDENTIFYING AND DOCUMENTING UNDERGROUND UTILITIES IS A RESULT OF GATHERING EVIDENCE FROM VARIOUS SOURCES, AND EXACT UTILITY LOCATIONS ARE NOT CONFIRMED UNLESS VISUALLY EXPOSED AND SURVEYED, AND THEN ONLY AT THOSE SPECIFIC EXPOSED LOCATIONS. ADDITIONALLY, T2 UES, INC. CANNOT GUARANTEE THAT ALL UTILITIES HAVE BEEN DISCOVERED AND DEPICTED.

2. IN ACCORDANCE WITH 2018 COLORADO REVISED STATUTES, TITLE 9, ARTICLE 1.5 T2 UES, INC. SUBMITTED A SUBSURFACE UTILITY ENGINEERING NOTIFICATION TO THE COLORADO 811 ASSOCIATION ON "X DATE".

3. T2 UES, INC. INVESTIGATED ALL UTILITIES INCLUDED WITHIN THE SCOPE OF WORK INSIDE THE PROJECT LIMITS. THOSE UTILITIES ARE DEPICTED AS INDICATED IN THE LEGEND. OTHERS PROVIDED ALL OTHER INFORMATION, NOTABLY THE BACKGROUND INFORMATION, AND T2 UES, INC. DISCLAIMS RESPONSIBILITY FOR ITS ACCURACY.

4. INVESTIGATIONS OF DEPICTED UTILITIES WERE COMPLETED ON 8/23/24. T2 UES, INC. DISCLAIMS RESPONSIBILITY FOR NEW INSTALLATIONS OR ALTERATIONS TO EXISTING UTILITIES AFTER THIS DATE. CONSIDERATION SHOULD BE GIVEN TO UPDATING THIS INVESTIGATION BEFORE THE FINAL DESIGN AND/OR CONSTRUCTION.

5. UTILITY SIZE AND MATERIAL ARE SHOWN IF AVAILABLE FROM RECORD INFORMATION. ADDITIONALLY, FIELD OBSERVATIONS WERE CONDUCTED, WHERE POSSIBLE, TO CORROBORATE AND SUPPLEMENT RECORD INFORMATION, BUT T2 UES, INC. DOES NOT GUARANTEE ITS ACCURACY OR COMPLETENESS. PIPE DIAMETERS ARE NOMINAL AND NOT EXACT UNLESS OTHERWISE NOTED.

6. PROFESSIONAL ASSISTANCE BY T2 UES, INC. IS RECOMMENDED IN SELECTING LOCATIONS FOR QUALITY LEVEL A DATA FOR SPECIFIC DESIGN DECISIONS.

7. THIS INVESTIGATION DEPICTS UTILITIES FOR PLANNING AND DESIGN PURPOSES BUT NOT FOR CONSTRUCTION. FOR DAMAGE PREVENTION DURING CONSTRUCTION, COMPLY WITH APPLICABLE ONE-CALL LAWS (CONTACT 811).

8. THESE PLANS HAVE BEEN PREPARED FOR THE USE OF T2 UES, INC.'S CLIENT AND MAY NOT BE USED, REPRODUCED, OR RELIED UPON BY THIRD PARTIES EXCEPT AS AGREED BY T2 UES, INC. AND ITS CLIENT OR AS REQUIRED BY LAW.

9. AS DEFINED BY THE PROJECT SCOPE, T2 UES, INC. ATTEMPTED TO FIND UNDOCUMENTED UTILITIES. DEPICTED AND LABELED AS UNKNOWN UTILITIES ON THE PLAN SET, AS THEY HAVE NO CORRELATED RECORDS OR VISIBLE APPURTENANCES TO DETERMINE FUNCTION OR TYPE. HOWEVER, UNDOCUMENTED UTILITIES MAY BE PRESENT IN THE PROJECT AREA THAT WERE NOT DISCOVERABLE BY THE SCOPED EFFORT AND ARE THEREFORE NOT DEPICTED.

10. AS PER THE PROJECT SCOPE, THE POSITIONING AND SIZE OF SUBSURFACE UTILITY VAULTS WERE NOT INCLUDED AS PART OF THIS INVESTIGATION. IF FOUND TO BE IN CONFLICT WITH THE PROPOSED PLANS, THE POSITIONING AND SIZE OF THE VAULTS SHOULD BE CONFIRMED.

11. UNDER THE PROJECT SCOPE, THE FOLLOWING UTILITIES WERE EXPRESSLY EXCLUDED FROM THIS INVESTIGATION: LANDSCAPE IRRIGATION SYSTEMS, TRAFFIC LOOP DETECTION DEVICES, CATHODIC PROTECTION SYSTEMS AND THEIR APPURTENCES, SEWER LATERALS, AND UNDERGROUND STORAGE TANKS / ASSOCIATED PIPING OR SEPTIC SYSTEMS.

12. UTILITIES ARE GENERALLY DEPICTED BY A SINGLE LINE. HOWEVER, LARGER UTILITIES (12" AND GREATER) MAY BE DEPICTED AT THEIR REPORTED WIDTH, CENTERED OVER THE ACTUAL QUALITY LEVEL RESULTS. THEREFORE, ANY UTILITY EDGES SHOWN ARE FOR SCHEMATIC DEPICTION ONLY AND SHOULD NOT BE CONSIDERED RELIABLE FOR DESIGN. IF EXACT EDGES OF UTILITY ARE NEEDED, QLA DATA IS REQUIRED.

13. NON-CONDUCTIVE UTILITY PIPES, WHERE TRACER WIRE IS AVAILABLE, ARE DESIGNATED AND LABELED QLB. HOWEVER, DUE TO THE UNKNOWN WIRE INSTALLATION MEANS AND METHODS DURING CONSTRUCTION, THE ALIGNMENT LOCATION OF THE TRACER WIRE MAY BE DIFFERENT FROM THE ALIGNMENT LOCATION OF THE ACTUAL UTILITY PIPE. TYPE AND QUANTITY OF NON-CONDUCTIVE PIPE MAY ALSO NOT BE ACCURATELY REFLECTED DUE TO THE NATURE OF GEOPHYSICS.

14. OVERHEAD UTILITIES ARE NOT ASSIGNED A QUALITY LEVEL UNLESS OTHERWISE NOTED.

15. T2 UES, INC. DOCUMENTED UTILITIES FOUND IN POTHOLES PERFORMED BY CLIENTS SUBCONTRACTOR. MEAUREMENTS AND DOCUMENTATION PERFORMED BY T2 UES, INC QUALIFIES THE UTILITIES FOUND AS QLA. T2 UES, INC DID NOT RECOMEND EXCAVATION LOCATIONS.

UTILITY DETECTION EQUIPMENT UTILIZED

IDS HI-MOD 200/600 DUAL FREQUENCY
RADIODETECTION RD8100PDL
VIVAX METROTECH 810
SCHONDSTEDT MAGNETIC LOCATOR
MAGNAWAND - MAGNETIC LOCATOR
JAMES DUCT HUNTER DETECTABLE RODDER
PIPEHORN 800HL

UTILITY QUALITY LEVELS

(OBTAINED FROM ASCE PUBLICATION CI/ASCE STANDARD 38-22)

- QUALITY LEVEL "D" (QLD)
  A VALUE ASSIGNED TO A UTILITY SEGMENT OR UTILITY FEATURE NOT VISIBLE AT THE GROUND SURFACE WHOSE ESTIMATED POSITION IS JUDGED THROUGH UTILITY RECORDS, INFORMATION FROM OTHERS, OR FROM VISUAL CLUES SUCH AS PAVEMENT CUTS, OBVIOUS TRENCHES, OR EXISTENCE OF SERVICE.
- QUALITY LEVEL "C" (QLC)
  A VALUE ASSIGNED TO A UTILITY SEGMENT NOT VISIBLE AT THE GROUND SURFACE WHOSE ESTIMATED POSITION IS JUDGED THROUGH CORRELATING UTILITY RECORDS OR SIMILAR EVIDENCE OF UTILITY FEATURES, VISIBLE ABOVE GROUND AND/OR UNDERGROUND. THE UTILITY ANCHOR POINT ON THE THE UTILITY FEATURES SHALL BE TIED TO THE PROJECT SURVEY DATUM WITH AN ACCURACY OF 0.2 FT (60 MM) HORIZONTAL.
- QUALITY LEVEL "B" (QLB)
  A VALUE ASSIGNED TO A UTILITY SEGMENT OR SUBSURFACE UTILITY FEATURE WHOSE EXISTENCE AND HORIZONTAL POSITION IS BASED ON GEOPHYSICAL METHODS COMBINED WITH PROFESSIONAL JUDGMENT AND WHOSE LOCATION IS TIED TO THE PROJECT SURVEY DATUM.
- QUALITY LEVEL "A" (QLA)
  A VALUE ASSIGNED TO THAT PORTION (X-,Y-, AND Z-GEOMETRY) OF A UTILITY SEGMENT OR A SUBSURFACE UTILITY FEATURE THAT IS DIRECTLY EXPOSED AND MEASURED AND WHOSE LOCATION AND DIMENSIONS ARE TIED TO THE PROJECT SURVEY DATUM. THE UTILITY SEGMENT OR SUBSURFACE UTILITY FEATURE SHALL BE TIED TO THE PROJECT SURVEY DATUM WITH AN ACCURACY OF 0.1 FT (30 MM) VERTICAL AND TO 0.2 FT (60 MM) HORIZONTAL FOR THE MEASUREMENTS OF THE OUTSIDE LIMITS OF THE UTILITY FEATURE OR UTILITY SEGMENT THAT IS EXPOSED.

LEGEND

UTILITY SYMBOLS

- TRAFFIC CONTROL MANHOLE
- TRAFFIC SIGNAL JUNCTION BOX
- TRAFFIC SIGNAL
- TRAFFIC SIGNAL LIGHT POLE
- CROSSWALK SIGNAL
- STREET LIGHT JUNCTION BOX
- UG TRAFFIC VAULT
- ELECTRIC CABINET
- ELECTRIC JUNCTION BOX
- ELECTRIC MANHOLE
- ELECTRIC METER
- UG ELECTRIC VAULT
- ELECTRIC RISER/OUTLET
- ELECTRIC TRANSFORMER
- LIGHT - ARM
- LIGHT - ROUND
- CATV MANHOLE
- CATV RISER
- CATV WARNING SIGN
- UG CATV VAULT
- TELEPHONE CABINET
- TELEPHONE MANHOLE
- TELEPHONE RISER
- TELEPHONE WARNING SIGN
- UG TELEPHONE VAULT
- FIBER OPTIC WARNING SIGN
- FIBER OPTIC RISER
- UG FIBER OPTIC VAULT
- GAS MANHOLE
- GAS METER
- GAS RISER
- GAS VALVE
- GAS WARNING SIGN
- UG GAS VAULT
- CATCH BASIN
- SANITARY SEWER CLEANOUT
- SANITARY SEWER MANHOLE
- STORM DRAIN CLEANOUT
- STORM DRAIN MANHOLE
- CURB INLET
- DITCH INLET
- DRY WELL
- AIR RELEASE VALVE
- BACKFLOW PREVENTER
- FIRE DEPT CONNECTION
- FIRE HYDRANT
- MONITORING WELL
- WATER MANHOLE
- WATER METER
- WATER VALVE
- IRRIGATION CONTROL
- UTILITY POLE
- EDGE OF CONCRETE
- POLE
- BOLLARD
- GUY ANCHOR
- TESTHOLE MARKER
- CONTROL POINT

UTILITY LINETYPES

- TS — TRAFFIC SIGNAL LINE (QUALITY LEVEL IS AS NOTED)
- SL — STREET LIGHT LINE (QUALITY LEVEL IS AS NOTED)
- OHSL — OVERHEAD STREET LIGHT LINE (QUALITY LEVEL IS AS NOTED)
- E — ELECTRIC LINE (OWNER AS NOTED) (QUALITY LEVEL IS AS NOTED)
- OHE — OVERHEAD ELECTRIC LINE (OWNER AS NOTED) (QUALITY LEVEL IS AS NOTED)
- CTV — CABLE TV LINE (OWNER AS NOTED) (QUALITY LEVEL IS AS NOTED)
- OHCTV — OVERHEAD CABLE TV LINE (OWNER AS NOTED) (QUALITY LEVEL IS AS NOTED)
- T — TELEPHONE LINE (OWNER AS NOTED) (QUALITY LEVEL IS AS NOTED)
- OHT — OVERHEAD TELEPHONE LINE (OWNER AS NOTED) (QUALITY LEVEL IS AS NOTED)
- FO — FIBER OPTIC LINE (OWNER AS NOTED) (QUALITY LEVEL IS AS NOTED)
- OHFO — OVERHEAD FIBER OPTIC LINE (OWNER AS NOTED) (QUALITY LEVEL IS AS NOTED)
- G — NATURAL GAS LINE (QUALITY LEVEL IS AS NOTED)
- SD — STORM DRAINAGE LINE (OWNER AS NOTED) (QUALITY LEVEL IS AS NOTED)
- SDL — STORM DRAINAGE LATERAL LINE (OWNER AS NOTED) (QUALITY LEVEL IS AS NOTED)
- SS — SANITARY SEWER LINE (OWNER AS NOTED) (QUALITY LEVEL IS AS NOTED)
- SSL — SANITARY SEWER LATERAL LINE (OWNER AS NOTED) (QUALITY LEVEL IS AS NOTED)
- W — WATER LINE (OWNER AS NOTED) (QUALITY LEVEL IS AS NOTED)
- RW — RECLAIMED WATER LINE (OWNER AS NOTED) (QUALITY LEVEL IS AS NOTED)
- IRR — IRRIGATION LINE (OWNER AS NOTED) (QUALITY LEVEL IS AS NOTED)
- UNK — UNKNOWN UTILITY LINE (QUALITY LEVEL IS AS NOTED)
- OH — OVERHEAD UNKNOWN UTILITY LINE (QUALITY LEVEL IS AS NOTED)
- ABAN — ABANDONED UTILITY LINE (QUALITY LEVEL IS AS NOTED)
- ASCE 38-22 INVESTIGATION BOUNDARY LINE
- END/ LOSS OF SIGNAL
- LIMITS OF ASCE 38-22 INVESTIGATION
- X — CHANGE OF ASCE 38-22 QUALITY LEVEL
- END OF UTILITY LINE
- LINE LEADS TOWARD BUILDING
- COP-36"VCP-QLD — (UTILITY OWNER)-(SIZE AND/OR TYPE)- (ASCE 38-22 QUALITY LEVEL)

811 RECORDS RESEARCH RESPONSES

OWNER	UTILITY	ABBREVIATION	CONTACT	PHONE/EMAIL	OFFICIAL 811 RESPONSE	ADDITIONAL INFORMATION OBTAINED	NOTE
BLACK HILLS ENERGY	GAS	BHE	BOB SWATEK	(719)332-5856 / BOB.SWATEK@BLACKHILLSCORP.COM	DID NOT LOCATE	YES	A
COMCAST - EL PASO COUNTY	CATV & FIBER	CMCT	USIC - COMCAST	(800)778-9140	CLEAR	NO	B
CDOT - REGION 2	ELECTRIC & FIBER	CDOT	CDOT REGION 2 LOCATES	(719)248-5715	MARKED ON SITE	YES	C
CDOT FIBER OPTIC BACKBONE	FIBER	CDOT	USIC - CDOT FIBER BACKBONE	(800)778-9140 / (720)202-6441	CLEAR	NO	D
CITY OF FOUNTAIN	ELECTRIC, WATER, & IRRIGATION	COF	MATTHEW STEPHENS - 719 UNDERGROUND LLC	(719)799-0400 / MS.719UG@GMAIL.COM / WWW.FOUNTAINCOLORADO.ORG	DID NOT LOCATE	YES	E
CITY OF FOUNTAIN STREETS DEPARTMENT	STORM & ELECTRIC	COF	CITY OF FOUNTAIN STREETS DEPARTMENT	(719)799-0400 / (719)393-4937 / FOUNTAINCO.MAPS.ARCGIS.COM	DID NOT LOCATE	YES	E
FOUNTAIN SANITATION DISTRICT	SANITARY SEWER	FNSD	WAYNE ORTEGA	(719)382-5303 / (719)491-3127 / WAYNECOLLECTIONS@FSD901.ORG / WWW.FOUNTAINSANITATION.COM	MARKED ON SITE	YES	F
FOUNTAIN VALLEY AUTHORITY	WATER & FIBER	FVA	FOUNTAIN VALLEY AUTHORITY	719-668-9090 / MAPS.CSU.ORG	DID NOT LOCATE	YES	G
MCI	FIBER	MCI	MCI RECORDS	(800)289-3427 / INVESTIGATIONS@VERIZON.COM	CLEAR	YES	H & P
CENTURY LINK	FIBER & TELEPHONE	CLN	USIC - CENTURY LINK	(800)778-9140 / NATIONALRELO@CENTURYLINK.COM	MAPS PROVIDED	NO	
WIDEFIELD WATER AND SANITATION DISTRICT	WATER	WWSD	DAVID WOOLLEY	DWOOLLEY@FOUNTAINCOLORADO.ORG	CLEAR	YES	I
WIDEFIELD WATER AND SANITATION DISTRICT	SANITARY SEWER	WWSD	DAVID WOOLLEY	DWOOLLEY@FOUNTAINCOLORADO.ORG	CLEAR	YES	I
WINDSTREAM - PAETEC	FIBER & TELEPHONE	WINDP	WINDSTREAM/PAETEC RECORDS	(800)289-1901 / LOCATE.DESK@WINDSTREAM.COM	CLEAR	NO	
PCI BROADBAND	FIBER	PCIB	PCI BROADBAND	719-264-1111	MARKED ON SITE	YES	J
SECOM	FIBER	SCOM	USIC - SECOM	(800)778-9140	CLEAR	NO	
UNDERLINE EL PASO LLC	ELECTRIC & FIBER	UEP	UNDERLINE EL PASO LLC	(719)223-7001 / SUPPORT@UNDERLINE.COM / HTTPS://WWW.UNDERLINE.COM/	CLEAR	NO	
UNITE PRIVATE NETWORKS	FIBER	UNITE	USIC - UNIT PRIVATE NETWORKS	(303)778-9140	MAPS PROVIDED	NO	
ZAYO BANDWIDTH	ELECTRIC & FIBER	ZAYO	ZAYO - SELF-SERVE PORTAL	(800)961-6500 / HTTPS://TRANZACT.ZAYO.COM	CLEAR	YES	K
FIBER EL PASO COUNTY	FIBER	EPC	FIBER EL PASO COUNTY	303-636-9999	CLEAR	YES	L
LEVEL 3 NOW LUMEN	FIBER	LVL3	LEVEL 3 NOW LUMEN	(877)366-8344 / NATIONALRELO@CENTURYLINK.COM	MAPS PROVIDED	NO	P

A. DURING THE RECORDS RESEARCH INVESTIGATION, BLACK HILLS ENERGY RESPONDED "CALL FACILITY OWNER FOR FURTHER INFO ON LOCATE". ATTEMPTS TO CONTACT THE UTILITY OWNER DID NOT PRODUCE A RESPONSE OR RECORDS. PRIME CONTRACTOR, GARVER, PROVIDED T2 UES, INC. WITH BHE RECORDS ON 08/16/2024.

B. DURING THE RECORDS RESEARCH INVESTIGATION, COMCAST REPRESENTATIVE RESPONDED "ALL CLEAR," INDICATING THAT COMCAST DOES NOT OWN UTILITIES WITHIN PROJECT LIMITS. DUE TO THEIR 811 RESPONSE, COMCAST DID NOT ISSUE ANY RECORDS FOR THIS PROJECT. HOWEVER, DURING THE INVESTIGATION, COMCAST FACILITIES WERE FOUND TO BE PRESENT WITHIN THE PROJECT LIMITS. ADDITIONAL UTILITIES MAY EXIST AND ARE NOT DEPICTED ON THESE PLANS DUE TO LIMITED UTILITY RECORD INFORMATION.

C. CDOT REPRESENTATIVE ATTACHED MAPS OF FACILITIES TO 811 TICKETS ON 07/17/2024.

D. DURING THE RECORDS RESEARCH INVESTIGATION, CDOT ITS REPRESENTATIVE RESPONDED "ALL CLEAR," INDICATING THAT CDOT ITS DOES NOT OWN UTILITIES WITHIN PROJECT LIMITS. DUE TO THEIR 811 RESPONSE, CDOT ITS DID NOT ISSUE ANY RECORDS FOR THIS PROJECT. T2 UES, INC. OBTAINED A KMZ OF THE CDOT FIBER OPTIC BACKBONE IN SEPTEMBER 2019. THIS KMZ DEPICTS CDOT FIBER LINES WITHIN THE PROJECT LIMITS. ADDITIONAL UTILITIES MAY EXIST AND ARE NOT DEPICTED ON THESE PLANS DUE TO LIMITED UTILITY RECORD INFORMATION.

E. THE CITY OF FOUNTAIN RESPONDED "CALL FACILITY OWNER FOR FURTHER INFO ON LOCATE". THE CITY OF FOUNTAIN EMAILED MAPS ON 07/30/2024. MAPS DEPICT CITY OF FOUNTAIN AND CITY OF FOUNTAIN STREETS DEPARTMENT FACILITIES.

F. FOUNTAIN SANITATION DISTRICT EMAILED MAPS ON 07/29/2024.

G. FOUNTAIN VALLEY AUTHORITY DIRECTED T2 UES, INC. TO THE CSU.ORG WEBSITE FOR MAPS. T2 UES, INC. DOWNLOADED MAPS FROM CSU'S PUBLIC GIS ON 08/13/2024 OUTSIDE OF 811 REQUEST PROCESS.

H. MAPS OF MCI FACILITIES WERE OBTAINED ON 7/17/2024 OUTSIDE OF THE 811 REQUEST PROCESS.

I. WIDEFIELD WATER AND SANITATION DISTRICT RESPONDED WITH "CALL FACILITY OWNER FOR FURTHER INFO ON LOCATE". PRIME CONTRACTOR, GARVER, PROVIDED T2 UES, INC. WITH WWSD RECORDS ON 08/16/2024.

J. PCI BROADBAND ATTACHED A MAP OF FACILITIES TO 811 TICKET ON 07/24/2024.

K. DURING THE RECORDS RESEARCH INVESTIGATION, ZAYO REPRESENTATIVE RESPONDED AS "ALL CLEAR," INDICATING THAT ZAYO DOES NOT OWN UTILITIES WITHIN PROJECT LIMITS. DUE TO THEIR 811 RESPONSE, ZAYO DID NOT ISSUE ANY RECORDS FOR THIS PROJECT. HOWEVER, DURING THE INVESTIGATION, ZAYO FACILITIES WERE FOUND TO BE PRESENT WITHIN THE PROJECT LIMITS. T2 UES, INC. OBTAINED RECORDS FROM ZAYO'S PUBLIC GIS ON 08/06/2024. ADDITIONAL UTILITIES MAY EXIST AND ARE NOT DEPICTED ON THESE PLANS DUE TO LIMITED UTILITY RECORD INFORMATION.

L. EL PASO COUNTY FIBER ATTACHED A MAP OF FACILITIES TO T2 UES, INC.'S TICKET ON 7/17/2024.

ABBREVIATIONS

ABDN	ABANDONED
ACP	ASBESTOS CONCRETE PIPE
A.P.W.A.	AMERICAN PUBLIC WORKS ASSOCIATION
CCTV	CLOSED CIRCUIT TELEVISION
CTV	CABLE TELEVISION
CBC	CONCRETE BOX CULVERT
CCP	CONCRETE CYLINDER PIPE
CIP	CAST IRON PIPE
CP	CONCRETE PIPE
CU	COPPER PIPE
DIP	DUCTILE IRON PIPE
EL	ELEVATION
FOT	FIBER OPTIC TELEPHONE
FOCT	FIBER OPTIC CABLE TELEVISION
INV	INVERT
OH	OVERHEAD
OHE	OVERHEAD ELECTRIC
OHT	OVERHEAD TELEPHONE
PE	POLYETHYLENE PIPE
PP	PLASTIC PIPE
PRI	PRIVATE
PVC	POLYVINYL CHLORIDE
RBH	RUBBER HOSE
STL	STEEL
TELE	TELEPHONE
TH	TESTHOLE
TON	TOP OF NUT ELEVATION
UNK	UNKNOWN
VCP	VITRIFIED CLAY PIPE

CONTROL STATEMENT:

HORIZONTAL DATUM:

BASIS OF BEARINGS: BEARINGS WERE ESTABLISHED BY UTILIZING THE COLORADO STATE PLANE COORDINATE SYSTEM, PUBLISHED NGS MONUMENT DATA, AND AN INDEPENDENT CHECK OF NGS MONUMENT S347 (PID JK0188) USING NOAA'S ONLINE POSITIONING USER SERVICE (OPUS). THE RESULTANT BEARING USED IN THE CALCULATION OF COORDINATES FOR THIS PROJECT OF N22°27'23"W IS A LINE BETWEEN THE PUBLISHED NAD 83(2011) POSITION FOR SAID MONUMENT S347 BEING A BRASS DISK IN CONCRETE MONUMENT STAMPED "S347 1953" AND THE SURVEYED NAD 83(2011) POSITION FOR NGS MONUMENT T347 (PID JK0186) BEING A BRASS DISK IN THE ABUTMENT OF A BRIDGE STAMPED "T347 1953".

VERTICAL DATUM:

BASIS OF ELEVATIONS: PROJECT ELEVATIONS ARE BASED ON NGS MONUMENT S347 (PID JK0188). SAID MONUMENT IS A BRASS DISK IN CONCRETE MONUMENT STAMPED "S347 1953", HAVING A PUBLISHED NAVD 88 ORTHOMETRIC HEIGHT (ELEVATION) OF 5604.70 FEET.

COORDINATE DATUM: PROJECT COORDINATES ARE MODIFIED COLORADO STATE PLANE CENTRAL ZONE NAD 83(2011) COORDINATES. THE COMBINED ELEVATION/SCALE FACTOR USED TO MODIFY THE COORDINATES FROM STATE PLANE TO PROJECT COORDINATES IS 1.000308285 AND ARE MODIFIED AT A POINT OF ORIGIN OF N1,322,326.98 E3,224,833.16. SAID POINT OF ORIGIN IS CONTROL POINT NUMBER 10.

POINT NUMBER	NAD 83(2011) GEODETIC COORDINATES		ELLIPSOID HEIGHT (FT)	COLORADO STATE PLANE		PROJECT COORDINATES			
	LATITUDE	LONGITUDE		NORTHING (US FT)	EASTING (US FT)	NORTHING (US FT)	EASTING (US FT)	NAVD 88 ELEV (FT)	DESCRIPTION
1	38°42'44.41668"N	104°42'45.46087"W	5,566.13	1,321,103.44	3,224,667.66	1,321,103.06	3,224,667.61	5,625.02	NGS T347 3.25" BRASS DISK IN ABUTMENT
2	38°41'51.85524"N	104°42'18.41709"W	5,545.55	1,315,804.99	3,226,857.64	1,315,805.01	3,226,858.27	5,604.70	NGS S347 3.25" BRASS DISK IN CONCETE
10	38°42'56.49664"N	104°42'43.23906"W	5,575.97	1,322,326.98	3,224,833.16	1,322,326.98	3,224,833.16	5,634.84	SET NO. 5 REBAR 3FEET FROM BACK OF CURB
11	38°43'08.17614"N	104°43'00.86604"W	5,580.96	1,323,496.40	3,223,425.95	1,323,496.76	3,223,425.52	5,639.72	SET NO. 5 REBAR 3FEET FROM FENCE
12	38°42'56.74818"N	104°41'49.15418"W	5,662.38	1,322,389.96	3,229,119.43	1,322,389.98	3,229,120.75	5,721.52	SET NO. 5 REBAR 3FEET FROM BACK OF CURB
13	38°43'03.12246"N	104°41'41.95691"W	5,651.25	1,323,039.83	3,229,684.14	1,323,040.05	3,229,685.63	5,710.41	SET NO. 5 REBAR 3FEET FROM EDGE OF ASPHALT
14	38°43'19.83090"N	104°43'16.63360"W	5,589.74	1,324,664.66	3,222,166.24	1,324,665.38	3,222,165.42	5,648.39	SET NO. 5 REBAR 3FEET FROM FENCE
15	38°42'56.61454"N	104°42'11.32965"W	5,677.38	1,322,360.96	3,227,362.04	1,322,360.97	3,227,362.82	5,736.41	SET NO. 5 REBAR 3FEET FROM EDGE OF ASPHALT

SURVEYOR'S STATEMENT

I, EDWARD R. FISHER, A LICENSED PROFESSIONAL LAND SURVEYOR IN THE STATE OF COLORADO, DO HEREBY STATE THAT THE NORTHINGS, EASTINGS, AND ELEVATIONS SHOWN HEREON WERE MEASURED BY ME OR UNDER MY DIRECT SUPERVISION AND ON THE BASIS OF MY KNOWLEDGE, INFORMATION, AND BELIEF IS CORRECT.

COLORADO LICENSED
EDWARD R. FISHER
9/16/2024
38042
PROFESSIONAL LAND SURVEYOR

DIRECTION OF QUALITY LEVEL AS SHOWN ON PLANS
QUALITY LEVEL CHANGE SYMBOL PER A.P.W.A. UTILITY COLOR
OWNER-X" UTILITY TYPE -QUALITY LEVEL
OWNER-X" UTILITY TYPE -QUALITY LEVEL
UTILITY QUALITY LEVEL CHANGE DETAIL

UTILITY INVESTIGATION STATEMENT OF ASCE 38-22 COMPLIANCE

THE UTILITIES DEPICTED HAVE BEEN INVESTIGATED IN GENERAL ACCORDANCE WITH THE ASCE 38-22, "STANDARD GUIDELINE FOR INVESTIGATING AND DOCUMENTING EXISTING UTILITIES ," STANDARD AND SHOWN AT THEIR ACHIEVED QUALITY LEVELS. ALL OTHER INFORMATION HAS BEEN PROVIDED BY OTHERS AND INCLUDED AS REFERENCE ONLY.

811

T2 utility engineers
1-855-222-T2UE | WWW.T2UE.COM
DENVER
150 CAPITAL DR, SUITE 190
LOVELAND, CO 80537
TEL: (720) 402-9813

UTILITY INVESTIGATION PLANS

WIDEFIELD JIMMY CAMP FORCEMAIN

GARVER — FOUNTAIN, CO

DATE	DESCRIPTION	BY

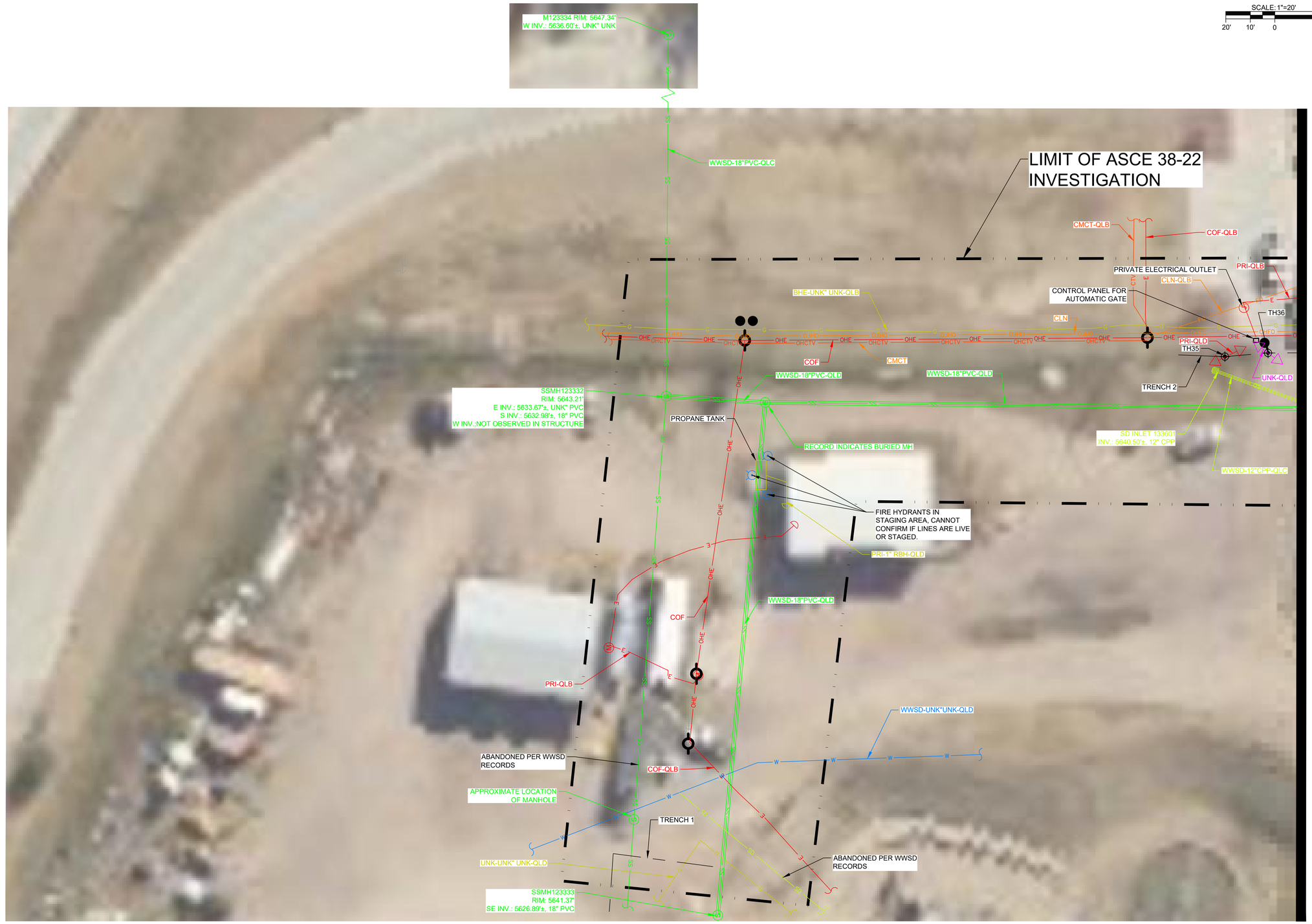
PRELIMINARY NOT FOR CONSTRUCTION

DATE	XX/XX/2024
DRAWN	AJM
SURVEYED	XXX
CHECKED	SB
PROJECT #	CO08200100

SHEET TITLE: GENERAL NOTES

SHEET NUMBER: U-002

Plot Stamp: 3/26/2025 4:09:55 PM - Andrew Muhlbeier
File: O:\Projects\Garver\CO08200100_Widefield Jimmy Camp Forcemain\2_CAD\DWG\Work\CO08200100_Widefield Jimmy Camp Forcemain.dwg



SCALE: 1"=20'

20' 10' 0 20'

T2 utility engineers
1-855-222-T2UE | WWW.T2UE.COM
DENVER
150 CAPITAL DR, SUITE 190
GOLDEN, CO 80401
TEL:(720) 402-3673

UTILITY INVESTIGATION PLANS

WIDEFIELD JIMMY CAMP FORCEMAIN

GARVER FOUNTAIN, CO

#	DATE	DESCRIPTION	BY

PRELIMINARY NOT FOR CONSTRUCTION

DATE	XX/XX/2024
DRAWN	AJM
SURVEYED	XXX
CHECKED	SB
PROJECT #	CO08200100

SHEET TITLE
PLAN SHEET

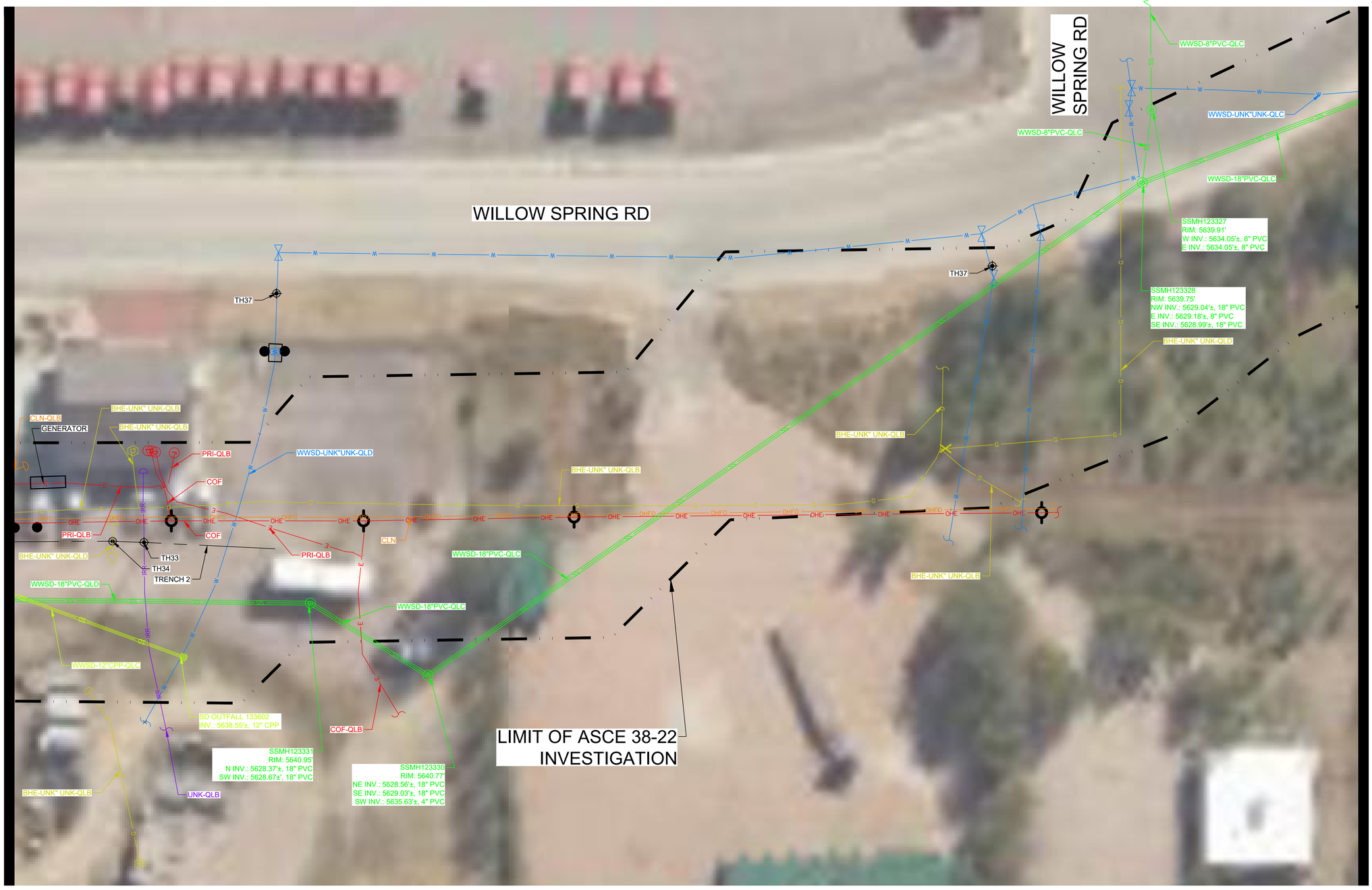
SHEET NUMBER
U-003

UTILITY INVESTIGATION STATEMENT OF ASCE 38-22 COMPLIANCE

THE UTILITIES DEPICTED HAVE BEEN INVESTIGATED IN GENERAL ACCORDANCE WITH THE ASCE 38-22, "STANDARD GUIDELINE FOR INVESTIGATING AND DOCUMENTING EXISTING UTILITIES ," STANDARD AND SHOWN AT THEIR ACHIEVED QUALITY LEVELS. ALL OTHER INFORMATION HAS BEEN PROVIDED BY OTHERS AND INCLUDED AS REFERENCE ONLY.

811

Plot Stamp: 3/26/2025 4:09:57 PM - Andrew Muhlbeier
File: O:\Projects\Garver\CO08200100_Widefield Jimmy Camp Forcemain\2_CAD\DWG\Work\CO08200100_Widefield Jimmy Camp Forcemain.dwg



UTILITY INVESTIGATION STATEMENT OF ASCE 38-22 COMPLIANCE

THE UTILITIES DEPICTED HAVE BEEN INVESTIGATED IN GENERAL ACCORDANCE WITH THE ASCE 38-22, "STANDARD GUIDELINE FOR INVESTIGATING AND DOCUMENTING EXISTING UTILITIES ," STANDARD AND SHOWN AT THEIR ACHIEVED QUALITY LEVELS. ALL OTHER INFORMATION HAS BEEN PROVIDED BY OTHERS AND INCLUDED AS REFERENCE ONLY.

T2 utility engineers
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DENVER
150 CAPITAL DR, SUITE 190
GOLDEN, CO 80401
TEL:(720) 402-9873

UTILITY INVESTIGATION PLANS

WIDEFIELD JIMMY CAMP FORCEMAIN

GARVER FOUNTAIN, CO

#	DATE	DESCRIPTION	BY

PRELIMINARY NOT FOR CONSTRUCTION

DATE	XX/XX/2024
DRAWN	AJM
SURVEYED	XXX
CHECKED	SB
PROJECT #	CO08200100

SHEET TITLE
PLAN SHEET

SHEET NUMBER
U-004

Plot Stamp: 3/26/2025 4:09:59 PM - Andrew Muhlbeier
File: O:\Projects\Garver\CO08200100_Widefield Jimmy Camp Forcemain\2_CAD\DWG\Work\CO08200100_Widefield Jimmy Camp Forcemain.dwg

MATCH LINE SEE SHEET U-004

SCALE: 1"=20'
20' 10' 0 20'

LIMIT OF ASCE 38-22 INVESTIGATION

WILLOW SPRING RD

SDMH133336
RIM: 5639.07'
NW INV.: 5628.72'±, 36" RCP
E INV.: 5632.57'±, 18" RCP
SE INV.: 5628.48'±, 36" RCP
SW INV.: 5632.55'±, 18" RCP

SDMH133337
RIM: 5639.14'
NW INV.: 5634.96'±, 18" RCP

SSMH123329
RIM: 5637.99'
NW INV.: 5629.34'±, 18" PVC
E INV.: 5631.44'±, 18" PVC

SDMH133332
RIM: 5641.43'
NW INV.: INACCESSIBLE'±, 36" RCP
E INV.: INACCESSIBLE'±, 48" RCP
S INV.: INACCESSIBLE'±, 48" RCP
CENTER BOTTOM INV.: 5619.91'±, "

SDMH133333
RIM: 5640.78'
N INV.: INACCESSIBLE, 48" RCP
E INV.: INACCESSIBLE, UNK" CPP
S INV.: INACCESSIBLE, 48" RCP
STRUCTURE CENTER BOTTOM INV.: 5620.10'±
INVERTS INACCESSIBLE DUE TO SECONDARY STRUCTURE BLOCKING ACCESS

SDMH133335
RIM: 5629.28'
N INV.: 5615.18'±, 48" RCP

WWSD-UNK"UNK-QLC
WWSD-UNK"UNK-QLC
WWSD-UNK"UNK-QLC
WWSD-18"PVC-QLC
WWSD-18"PVC-QLD
WWSD-UNK"UNK-QLC

COF-18"RCP-QLC
COF-36"RCP-QLC
COF-48"RCP-QLC
COF-48"RCP-QLC
COF-48"RCP-QLC
COF-UNK"UNK-QLC
COF
COF

BHE-UNK" UNK-QLB
BHE-UNK" UNK-QLB
BHE-UNK" UNK-QLB

CLN

STORM WATER QUALITY UNIT 133334

OHE OHFO G W SS SD

MATCH LINE SEE SHEET U-006

UTILITY INVESTIGATION STATEMENT OF ASCE 38-22 COMPLIANCE

THE UTILITIES DEPICTED HAVE BEEN INVESTIGATED IN GENERAL ACCORDANCE WITH THE ASCE 38-22, "STANDARD GUIDELINE FOR INVESTIGATING AND DOCUMENTING EXISTING UTILITIES ," STANDARD AND SHOWN AT THEIR ACHIEVED QUALITY LEVELS. ALL OTHER INFORMATION HAS BEEN PROVIDED BY OTHERS AND INCLUDED AS REFERENCE ONLY.

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UTILITY INVESTIGATION PLANS

WIDEFIELD JIMMY CAMP FORCEMAIN

GARVER

FOUNTAIN, CO

BY	DATE	DESCRIPTION

PRELIMINARY NOT FOR CONSTRUCTION

DATE	XX/XX/2024
DRAWN	AJM
SURVEYED	XXX
CHECKED	SB
PROJECT #	CO08200100

SHEET TITLE
PLAN SHEET

SHEET NUMBER
U-005

Plot Stamp: 3/26/2025 4:10:00 PM - Andrew Muhlbeier
File: O:\Projects\Garver\CO08200100_Widefield Jimmy Camp Forcemain\2_CAD\DWG\Work\CO08200100_Widefield Jimmy Camp Forcemain.dwg

SCALE: 1"=20'
20' 10' 0 20'



UTILITY INVESTIGATION STATEMENT OF ASCE 38-22 COMPLIANCE

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UTILITY INVESTIGATION PLANS

WIDEFIELD JIMMY CAMP FORCEMAIN

GARVER FOUNTAIN, CO

#	DATE	DESCRIPTION	BY

PRELIMINARY NOT FOR CONSTRUCTION

DATE	XX/XX/2024
DRAWN	AJM
SURVEYED	XXX
CHECKED	SB
PROJECT #	CO08200100

SHEET TITLE
PLAN SHEET

SHEET NUMBER
U-006

Plot Stamp: 3/26/2025 4:10:01 PM - Andrew Muhlbeier
File: O:\Projects\Garver\CO08200100_Widefield Jimmy Camp Forcemain\2_CAD\DWG\Work\CO08200100_Widefield Jimmy Camp Forcemain.dwg

SCALE: 1"=20'
20' 10' 0 20'

LIMIT OF ASCE 38-22 INVESTIGATION

WILLOW SPRING RD

SDMH133322
RIM: 5639.61
S INV.: 5628.02'±, 18" RCP

COF-18"RCP-QLC

SDMH133323
RIM: 5639.41'
N INV.: 5627.47'±, 18" RCP
S INV.: 5627.33'±, 18" RCP

COF-18"RCP-QLC

COF-24"RCP-QLC

SDMH133324
RIM: 5639.66'
N INV.: 5627.17'±, 18" RCP
W INV.: 5626.98'±, UNK" RCP

UNITE-QLB

CLN-QLB

CDOT-QLB

WWSD-UNK"UNK-QLC

BHE-UNK" UNK-QLB

CANAM HWY

N SANTA FE AVE

MATCH LINE SEE SHEET U-006

MATCH LINE SEE SHEET U-008

UTILITY INVESTIGATION STATEMENT OF ASCE 38-22 COMPLIANCE

THE UTILITIES DEPICTED HAVE BEEN INVESTIGATED IN GENERAL ACCORDANCE WITH THE ASCE 38-22, "STANDARD GUIDELINE FOR INVESTIGATING AND DOCUMENTING EXISTING UTILITIES ," STANDARD AND SHOWN AT THEIR ACHIEVED QUALITY LEVELS. ALL OTHER INFORMATION HAS BEEN PROVIDED BY OTHERS AND INCLUDED AS REFERENCE ONLY.

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UTILITY INVESTIGATION PLANS

WIDEFIELD JIMMY CAMP FORCEMAIN

GARVER

FOUNTAIN, CO

BY	DATE	DESCRIPTION

PRELIMINARY NOT FOR CONSTRUCTION

DATE	XX/XX/2024
DRAWN	AJM
SURVEYED	XXX
CHECKED	SB
PROJECT #	CO08200100

SHEET TITLE
PLAN SHEET

SHEET NUMBER
U-007

Plot Stamp: 3/26/2025 4:10:03 PM - Andrew Muhlbeier
File: O:\Projects\Garver\CO08200100_Widefield Jimmy Camp Forcemain\2_CAD\DWG\Work\CO08200100_Widefield Jimmy Camp Forcemain.dwg



SCALE: 1"=20'
20' 10' 0 20'

UTILITY INVESTIGATION STATEMENT OF ASCE 38-22 COMPLIANCE
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UTILITY INVESTIGATION PLANS

WIDEFIELD JIMMY CAMP FORCEMAIN

GARVER FOUNTAIN, CO

BY	DATE	DESCRIPTION

PRELIMINARY NOT FOR CONSTRUCTION

DATE	XX/XX/2024
DRAWN	AJM
SURVEYED	XXX
CHECKED	SB
PROJECT #	CO08200100

SHEET TITLE
PLAN SHEET

SHEET NUMBER
U-008

Plot Stamp: 3/26/2025 4:10:04 PM - Andrew Muhlbeier
File: O:\Projects\Garver\CO08200100_Widefield Jimmy Camp Forcemain\2_CAD\DWG\Work\CO08200100_Widefield Jimmy Camp Forcemain.dwg

MATCH LINE SEE SHEET U-010

SCALE: 1"=20'
20' 10' 0 20'

MATCH LINE SEE SHEET U-009

MATCH LINE SEE SHEET U-011

LIMIT OF ASCE 38-22 INVESTIGATION

MCI-QLD

MCI-QLD

LV3-QLB

EPC-QLB

STORM OUTFALL 133316
TOP OF STRUCTURE: 5634.69'

SDMH133317
RIM: 5635.28'
N INV.: INACCESSIBLE, 12" RCP
S INV.: INACCESSIBLE, 18" RCP
STRUCTURE CENTER BOTTOM: 5632.02'+/-

CDOT-18"RCP-QLC

UNK-QLB

CANAM HWY

CDOT-18"RCP-QLC

N SANTA FE AVE

SDMH133318
RIM: 5635.46'
E INV.: 5630.51'±, 18" RCP
SW INV.: 5630.59'±, 18" RCP

CDOT-QLB

BHE-UNK" UNK-QLB

CLN-QLB

UNABLE TO MEASURE PAST DEBRIS

CDOT-18"RCP-QLB

CDOT-18"RCP-QLC

SDMH133321
RIM: 5633.34'
STORM WATER QUALITY UNIT

CDOT-QLB

SDMH133319
RIM: 5633.33'
NE INV.: INACCESSIBLE,18" RCP
SE INV.: INACCESSIBLE, UNK" RCP
SW INV.: INACCESSIBLE, 18" RCP
STRUCTURE CENTER BOTTOM: 5630.25'+/-

CDOT-18"RCP-QLC

SD OUTFALL 13320

UNITE-QLB

UTILITY INVESTIGATION STATEMENT OF ASCE 38-22 COMPLIANCE

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UTILITY INVESTIGATION PLANS

WIDEFIELD JIMMY CAMP FORCEMAIN

GARVER

FOUNTAIN, CO

BY	DESCRIPTION	DATE

PRELIMINARY NOT FOR CONSTRUCTION

DATE	XX/XX/2024
DRAWN	AJM
SURVEYED	XXX
CHECKED	SB
PROJECT #	CO08200100

SHEET TITLE
PLAN SHEET

SHEET NUMBER
U-009

Plot Stamp: 3/26/2025 4:10:06 PM - Andrew Muhlbeier
File: O:\Projects\Garver\CO08200100_Widefield Jimmy Camp Forcemain\2_CAD\DWG\Work\CO08200100_Widefield Jimmy Camp Forcemain.dwg

SCALE: 1"=20'
20' 10' 0 20'

SSMH123325
RIM: 5641.08'
SE INV.: 5624.43'±, 12" PVC

FNSD-12"PVC-QLC

LIMIT OF ASCE 38-22 INVESTIGATION

MATCH LINE SEE SHEET U-012

COF

COF-QLB

LVL3-QLB

LVL3-QLB

MATCH LINE SEE SHEET U-009

UTILITY INVESTIGATION STATEMENT OF ASCE 38-22 COMPLIANCE

THE UTILITIES DEPICTED HAVE BEEN INVESTIGATED IN GENERAL ACCORDANCE WITH THE ASCE 38-22, "STANDARD GUIDELINE FOR INVESTIGATING AND DOCUMENTING EXISTING UTILITIES ," STANDARD AND SHOWN AT THEIR ACHIEVED QUALITY LEVELS. ALL OTHER INFORMATION HAS BEEN PROVIDED BY OTHERS AND INCLUDED AS REFERENCE ONLY.

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UTILITY INVESTIGATION PLANS

WIDEFIELD JIMMY CAMP FORCEMAIN

GARVER

FOUNTAIN, CO

NO.	DATE	DESCRIPTION	BY
1			

PRELIMINARY NOT FOR CONSTRUCTION

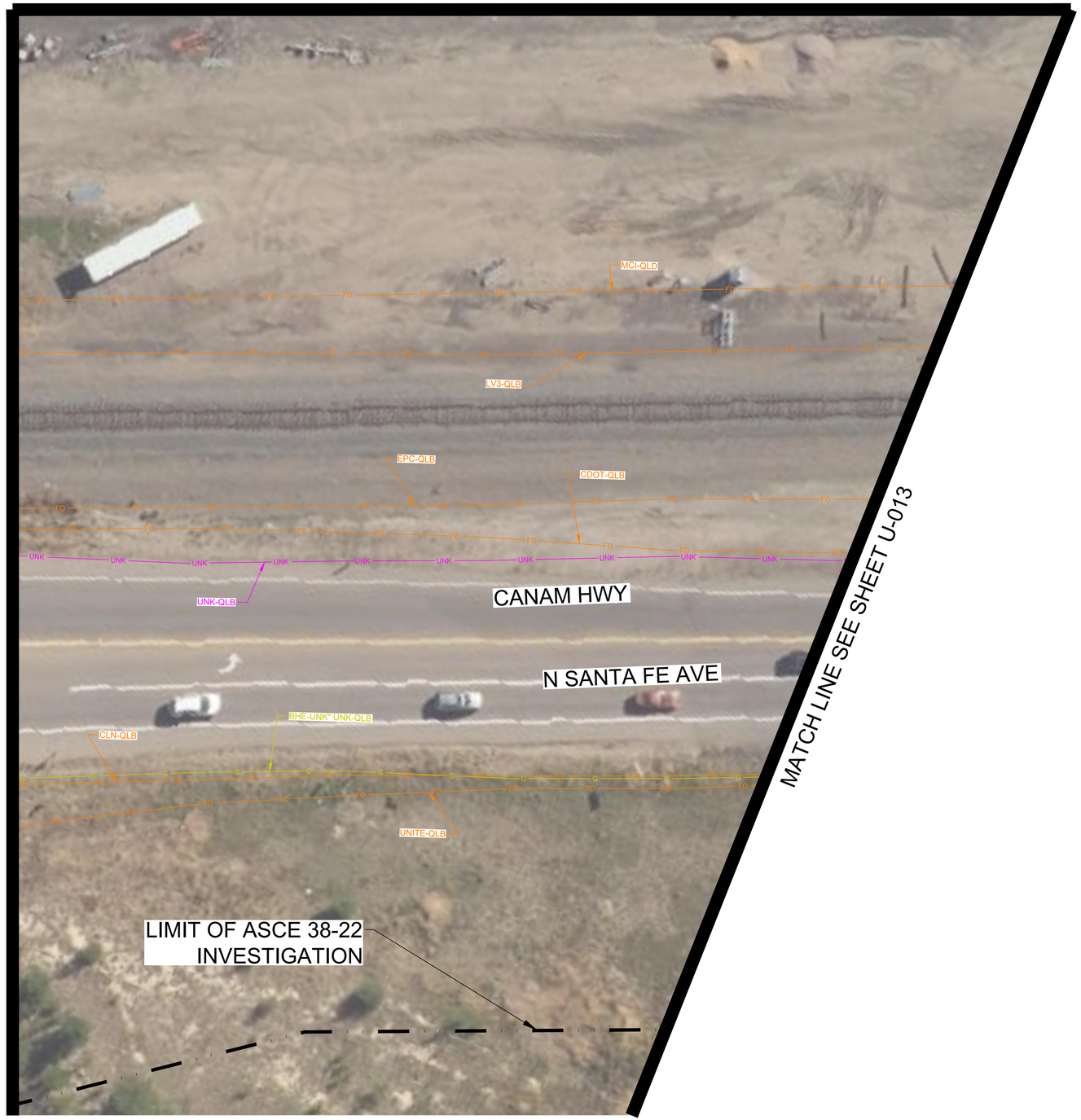
DATE	XX/XX/2024
DRAWN	AJM
SURVEYED	XXX
CHECKED	SB
PROJECT #	CO08200100

SHEET TITLE
PLAN SHEET

SHEET NUMBER
U-010

Plot Stamp: 3/26/2025 4:10:08 PM - Andrew Muhlbeier
File: O:\Projects\Garver\CO08200100_Widefield Jimmy Camp Forcemain\2_CAD\DWG\Work\CO08200100_Widefield Jimmy Camp Forcemain.dwg

MATCH LINE SEE SHEET U-012



MATCH LINE SEE SHEET U-009

MATCH LINE SEE SHEET U-013

SCALE: 1"=20'

20' 10' 0 20'

UTILITY INVESTIGATION STATEMENT OF ASCE 38-22 COMPLIANCE

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UTILITY INVESTIGATION PLANS

WIDEFIELD JIMMY CAMP FORCEMAIN

GARVER

FOUNTAIN, CO

DATE	DESCRIPTION	BY
1		

PRELIMINARY NOT FOR CONSTRUCTION

DATE	XX/XX/2024
DRAWN	AJM
SURVEYED	XXX
CHECKED	SB
PROJECT #	CO08200100

SHEET TITLE

PLAN SHEET

SHEET NUMBER

U-011

Plot Stamp: 3/26/2025 4:10:10 PM - Andrew Muhlbeier
File: O:\Projects\Garver\CO08200100_Widefield Jimmy Camp Forcemain\2_CAD\DWG\Work\CO08200100_Widefield Jimmy Camp Forcemain.dwg



UTILITY INVESTIGATION STATEMENT OF ASCE 38-22 COMPLIANCE

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UTILITY INVESTIGATION PLANS

WIDEFIELD JIMMY CAMP FORCEMAIN

GARVER

FOUNTAIN, CO

NO.	DATE	DESCRIPTION	BY
1			

PRELIMINARY NOT FOR CONSTRUCTION

DATE	XX/XX/2024
DRAWN	AJM
SURVEYED	XXX
CHECKED	SB
PROJECT #	CO08200100

SHEET TITLE
PLAN SHEET

SHEET NUMBER
U-012

Plot Stamp: 3/26/2025 4:10:12 PM - Andrew Muhlbeier
File: O:\Projects\Garver\CO08200100_Widefield Jimmy Camp Forcemain\2_CAD\DWG\Work\CO08200100_Widefield Jimmy Camp Forcemain.dwg

MATCH LINE SEE SHEET U-011

MATCH LINE SEE SHEET U-012

SCALE: 1"=20'

20' 10' 0 20'



MATCH LINE SEE SHEET U-014

UTILITY INVESTIGATION STATEMENT OF ASCE 38-22 COMPLIANCE

THE UTILITIES DEPICTED HAVE BEEN INVESTIGATED IN GENERAL ACCORDANCE WITH THE ASCE 38-22, "STANDARD GUIDELINE FOR INVESTIGATING AND DOCUMENTING EXISTING UTILITIES ," STANDARD AND SHOWN AT THEIR ACHIEVED QUALITY LEVELS. ALL OTHER INFORMATION HAS BEEN PROVIDED BY OTHERS AND INCLUDED AS REFERENCE ONLY.

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UTILITY INVESTIGATION PLANS

WIDEFIELD JIMMY CAMP FORCEMAIN

GARVER

FOUNTAIN, CO

NO.	DATE	DESCRIPTION	BY

PRELIMINARY NOT FOR CONSTRUCTION

DATE	XX/XX/2024
DRAWN	AJM
SURVEYED	XXX
CHECKED	SB
PROJECT #	CO08200100

SHEET TITLE

PLAN SHEET

SHEET NUMBER

U-013

Plot Stamp: 3/26/2025 4:10:13 PM - Andrew Muhlbeier
File: O:\Projects\Garver\CO08200100_Widefield Jimmy Camp Forcemain\2_CAD\DWG\Work\CO08200100_Widefield Jimmy Camp Forcemain.dwg

SCALE: 1"=20'
20' 10' 0 20'

MATCH LINE SEE SHEET U-012

MATCH LINE SEE SHEET U-013

MATCH LINE SEE SHEET U-015

STORM INLET 133312
INV.: 5630.17', 52"W X 32"H

COF-52"H X 32"W-QLC

STORM OUTLET 133311
INV.: 5629.76', 52"W X 32"H

FNSD-12"PVC-QLC

SSMH123320
RIM: 5633.56'
NW INV.: 5617.38'±, 12" PVC
SE INV.: 5617.59'±, 12" PVC
SW INV.: 5617.31'±, 12" PVC

UNABLE TO FIND
CONNECTING STRUCTURE

SYRACUSE ST

SYRACUSE STREET
IMPROVEMENTS HAVE
ALTERED THE LOCATION
FROM SHOWN IMAGERY

COF-18"RCP-QLB

WWSD-12"PVC-QLC

STORM OUTFALL 133310
INV.: UNKNOWN, 18" RCP

COF-30"RCP-QLC

TOP OF STRUCTURE: 5634.05'

STORM OUTFALL 133309
INV.:UNKNOWN, 30" RCP

MESA RD S

MESA RD S

COF-84"WX48"H CBC-QLC

UNITE-QLB

CMCT

COF

COF-QLB

STORM INLET 133313
TOP OF STRUCTURE: 5632.64'

FNSD-12"PVC-QLC

SSMH123321
RIM: 5630.59'
NE INV.: 5615.73'±, 12" PVC
SE INV.: 5615.64'±, 12" PVC

COF

COF-QLB

FNSD-12"PVC-QLC

COF-QLB

LVL3-QLB

LIMIT OF ASCE 38-22
INVESTIGATION

M123322
RIM: 5626.81'
NW INV.: 5613.34'±, 12"

UTILITY INVESTIGATION STATEMENT OF ASCE 38-22 COMPLIANCE

THE UTILITIES DEPICTED HAVE BEEN INVESTIGATED IN GENERAL ACCORDANCE WITH THE ASCE 38-22, "STANDARD GUIDELINE FOR INVESTIGATING AND DOCUMENTING EXISTING UTILITIES ," STANDARD AND SHOWN AT THEIR ACHIEVED QUALITY LEVELS. ALL OTHER INFORMATION HAS BEEN PROVIDED BY OTHERS AND INCLUDED AS REFERENCE ONLY.

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UTILITY INVESTIGATION PLANS

WIDEFIELD JIMMY CAMP FORCEMAIN

GARVER FOUNTAIN, CO

BY	DATE	DESCRIPTION

PRELIMINARY
NOT FOR
CONSTRUCTION

DATE	XX/XX/2024
DRAWN	AJM
SURVEYED	XXX
CHECKED	SB
PROJECT #	CO08200100

SHEET TITLE
PLAN SHEET

SHEET NUMBER
U-014

Plot Stamp: 3/26/2025 4:10:15 PM - Andrew Muhlbeier
File: O:\Projects\Garver\CO08200100_Widefield Jimmy Camp Forcemain\2_CAD\DWG\Work\CO08200100_Widefield Jimmy Camp Forcemain.dwg

MATCH LINE SEE SHEET U-014



MATCH LINE SEE SHEET U-016

UTILITY INVESTIGATION STATEMENT OF ASCE 38-22 COMPLIANCE

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UTILITY INVESTIGATION PLANS

WIDEFIELD JIMMY CAMP FORCEMAIN

GARVER

FOUNTAIN, CO

NO.	DATE	DESCRIPTION	BY

PRELIMINARY NOT FOR CONSTRUCTION

DATE	XX/XX/2024
DRAWN	AJM
SURVEYED	XXX
CHECKED	SB
PROJECT #	CO08200100

SHEET TITLE
PLAN SHEET

SHEET NUMBER
U-015

Plot Stamp: 3/26/2025 4:10:17 PM - Andrew Muhibeier
File: O:\Projects\Garver\CO08200100_Widefield Jimmy Camp Forcemain\2_CAD\DWG\Work\CO08200100_Widefield Jimmy Camp Forcemain.dwg

SCALE: 1"=20'
20' 10' 0 20'

MATCH LINE SEE SHEET U-015

MATCH LINE SEE SHEET U-017



UTILITY INVESTIGATION STATEMENT OF ASCE 38-22 COMPLIANCE

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UTILITY INVESTIGATION PLANS

WIDEFIELD JIMMY CAMP FORCEMAIN

GARVER

FOUNTAIN, CO

#	DATE	DESCRIPTION	BY
1			

PRELIMINARY NOT FOR CONSTRUCTION

DATE	XX/XX/2024
DRAWN	AJM
SURVEYED	XXX
CHECKED	SB
PROJECT #	CO08200100

SHEET TITLE
PLAN SHEET

SHEET NUMBER
U-016

Plot Stamp: 3/26/2025 4:10:18 PM - Andrew Muhlbeier
File: O:\Projects\Garver\CO08200100_Widefield Jimmy Camp Forcemain\2_CAD\DWG\Work\CO08200100_Widefield Jimmy Camp Forcemain.dwg

SCALE: 1"=20'
20' 10' 0 20'



UTILITY INVESTIGATION STATEMENT OF ASCE 38-22 COMPLIANCE
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UTILITY INVESTIGATION PLANS

WIDEFIELD JIMMY CAMP FORCEMAIN

GARVER

FOUNTAIN, CO

NO.	DATE	DESCRIPTION	BY

PRELIMINARY NOT FOR CONSTRUCTION

DATE	XX/XX/2024
DRAWN	AJM
SURVEYED	XXX
CHECKED	SB
PROJECT #	CO08200100

SHEET TITLE
PLAN SHEET

SHEET NUMBER
U-017

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20' 10' 0 20'



MATCH LINE SEE SHEET U-017

MATCH LINE SEE SHEET U-019

UTILITY INVESTIGATION STATEMENT OF ASCE 38-22 COMPLIANCE
THE UTILITIES DEPICTED HAVE BEEN INVESTIGATED IN GENERAL ACCORDANCE WITH THE ASCE 38-22, "STANDARD GUIDELINE FOR INVESTIGATING AND DOCUMENTING EXISTING UTILITIES ," STANDARD AND SHOWN AT THEIR ACHIEVED QUALITY LEVELS. ALL OTHER INFORMATION HAS BEEN PROVIDED BY OTHERS AND INCLUDED AS REFERENCE ONLY.

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DENVER
150 CAPITAL DR, SUITE 190
GOLDEN, CO 80401
TEL:(720) 402-9873

UTILITY INVESTIGATION PLANS

WIDEFIELD JIMMY CAMP FORCEMAIN

GARVER

FOUNTAIN, CO

BY	DATE	DESCRIPTION

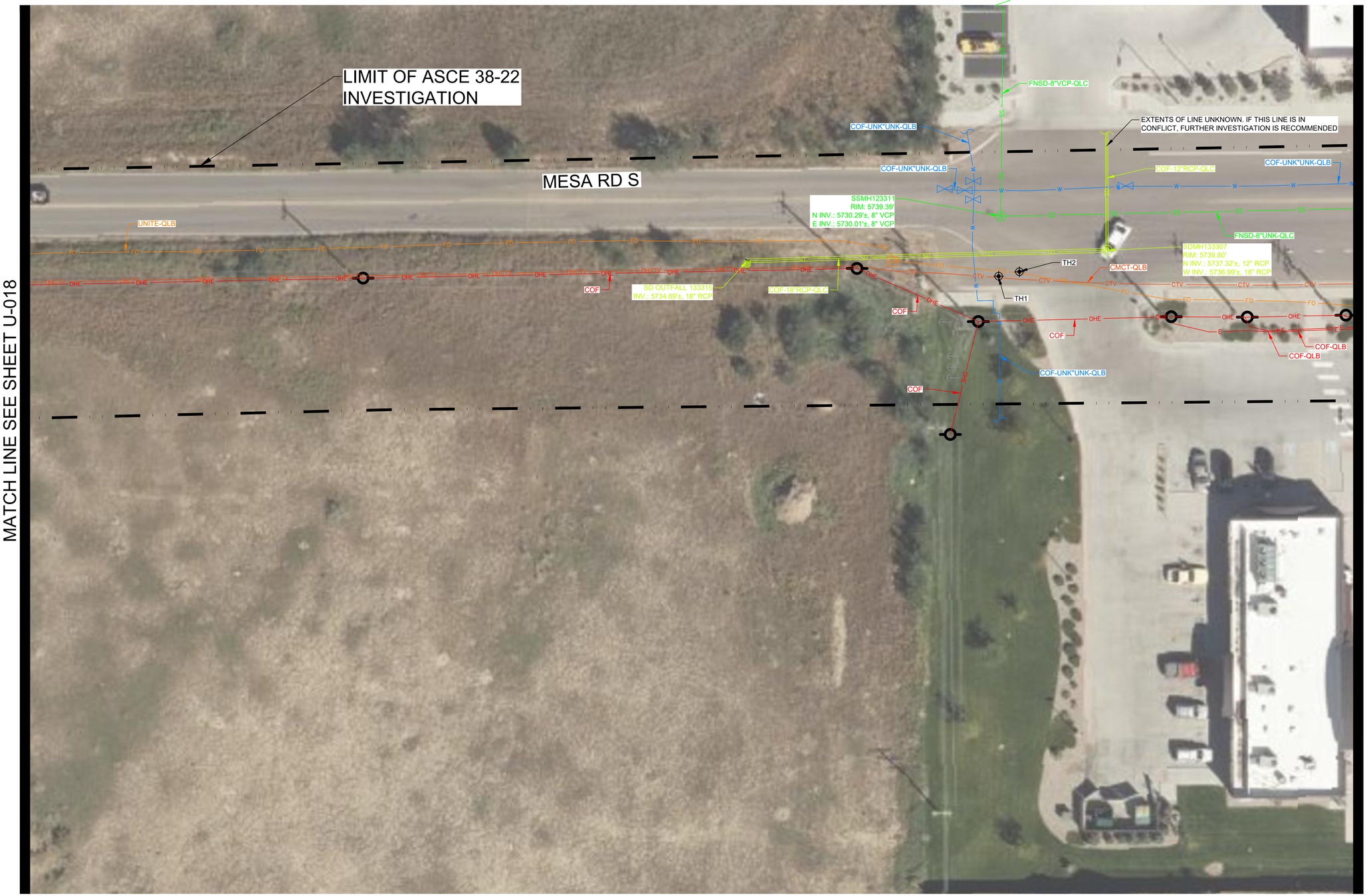
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PROJECT #	CO08200100

SHEET TITLE
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SHEET NUMBER
U-018

Plot Stamp: 3/26/2025 4:10:21 PM - Andrew Muhlbeier
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UTILITY INVESTIGATION PLANS

WIDEFIELD JIMMY CAMP FORCEMAIN

GARVER

FOUNTAIN, CO

NO.	DATE	DESCRIPTION	BY

PRELIMINARY NOT FOR CONSTRUCTION

DATE	XX/XX/2024
DRAWN	AJM
SURVEYED	XXX
CHECKED	SB
PROJECT #	CO08200100

SHEET TITLE
PLAN SHEET

SHEET NUMBER
U-019

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SCALE: 1"=20'
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MATCH LINE SEE SHEET U-019

MATCH LINE SEE SHEET U-021

MESA RD S

CROSS CREEK

FOUNTAIN MESA RD

SSMH123313
RIM: 5735.63'
S INV.: 5724.28'±, 8" PVC

SSMH123310
RIM: 5739.00'
W INV.: 5727.42'±, 8" PVC
E INV.: 5727.24'±, 8" PVC

SSMH123309
RIM: 5735.78'
W INV.: 5719.45'±, 8" PVC
N INV.: 5719.44'±, 8" PVC
E INV.: 5719.16'±, 8" PVC
S INV.: 5719.53'±, 8" PVC

SSMH123315
RIM: 5735.92'
N INV.: 5720.91'±, 8" PVC

COF-OVHD
BHE-UNK"UNK-QLC
COF-UNK"UNK-QLB
UNITE-QLB
CLN-QLD
CMCT-QLD
COF-QLD
FNSD-8"PVC-QLC
FNSD-8"UNK-QLC
CMCT-QLB
CLN-QLB
COF-QLB
MCI-QLB
ZAYO-QLB
UNK-UNK"UNK-QLB
PCIB-QLD
TH3
TH4
TH5
TH6
TH7
TH8
TH9
TH10
TH11
TH12
TH13
TH14
TH15
TH16
FVA-QLB
PRIVATE SIGN
PRI-QLB

LIMIT OF ASCE 38-22 INVESTIGATION

UTILITY INVESTIGATION STATEMENT OF ASCE 38-22 COMPLIANCE

THE UTILITIES DEPICTED HAVE BEEN INVESTIGATED IN GENERAL ACCORDANCE WITH THE ASCE 38-22, "STANDARD GUIDELINE FOR INVESTIGATING AND DOCUMENTING EXISTING UTILITIES ," STANDARD AND SHOWN AT THEIR ACHIEVED QUALITY LEVELS. ALL OTHER INFORMATION HAS BEEN PROVIDED BY OTHERS AND INCLUDED AS REFERENCE ONLY.

811

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UTILITY INVESTIGATION PLANS

WIDEFIELD JIMMY CAMP FORCEMAIN

GARVER FOUNTAIN, CO

#	DATE	DESCRIPTION	BY

PRELIMINARY NOT FOR CONSTRUCTION

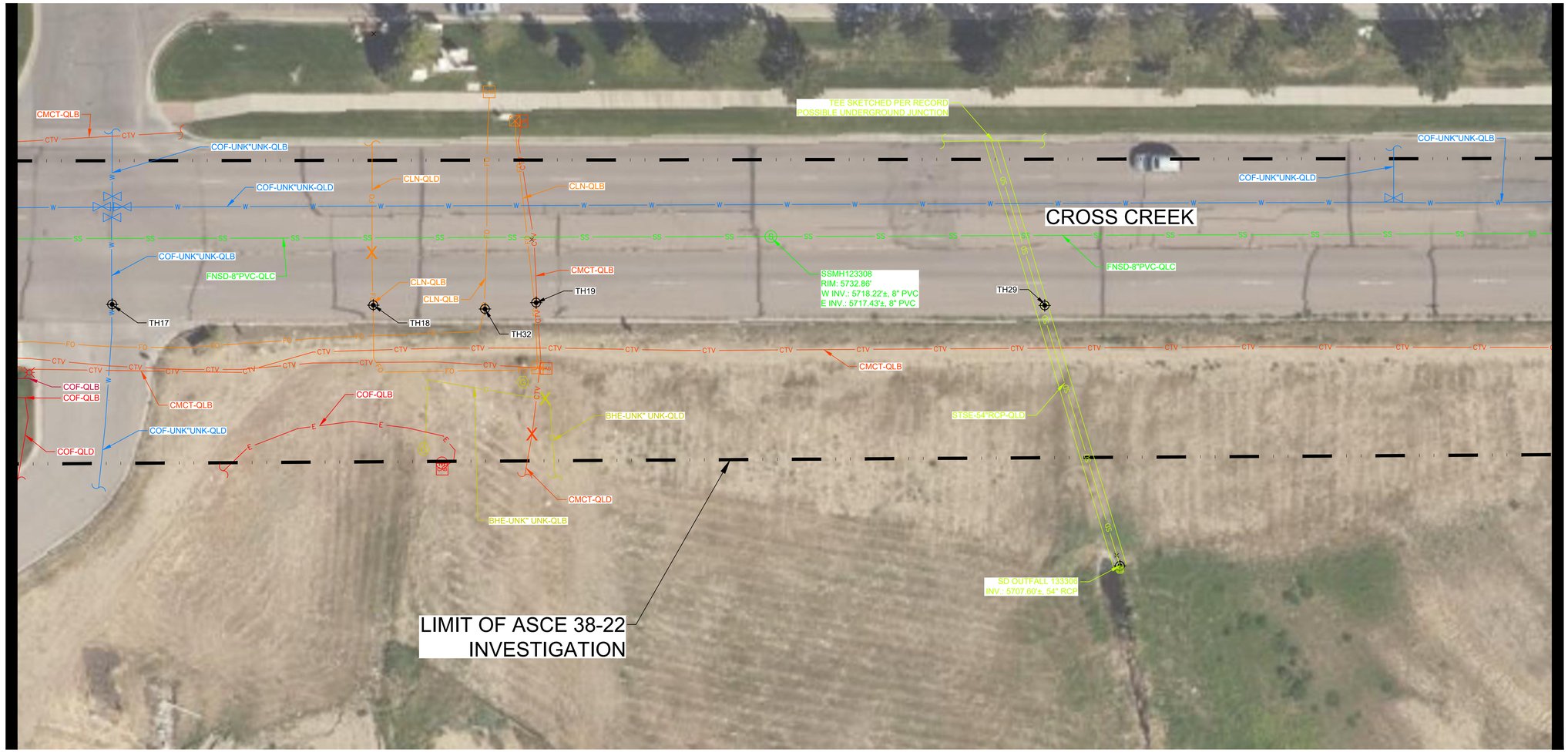
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SURVEYED	XXX
CHECKED	SB
PROJECT #	CO08200100

SHEET TITLE
PLAN SHEET

SHEET NUMBER
U-020

Plot Stamp: 3/26/2025 4:10:25 PM - Andrew Muhlbeier
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SCALE: 1"=20'
20' 10' 0 20'



UTILITY INVESTIGATION STATEMENT OF ASCE 38-22 COMPLIANCE

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UTILITY INVESTIGATION PLANS

WIDEFIELD JIMMY CAMP FORCEMAIN

GARVER

FOUNTAIN, CO

#	DATE	DESCRIPTION	BY
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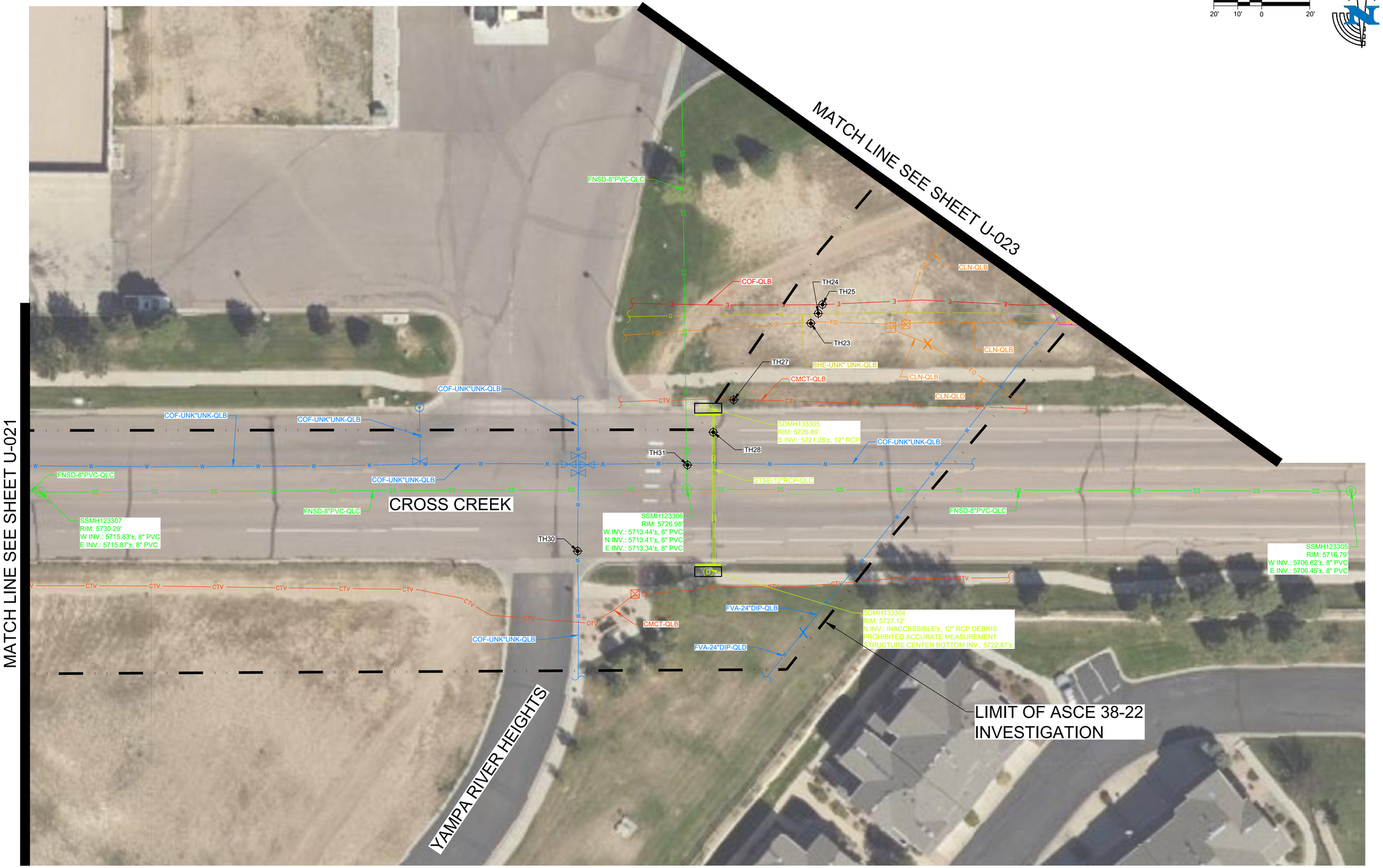
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PROJECT #	CO08200100

SHEET TITLE
PLAN SHEET

SHEET NUMBER
U-021

Plot Stamp: 3/26/2025 4:10:26 PM - Andrew Muhlbeier
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UTILITY INVESTIGATION STATEMENT OF ASCE 38-22 COMPLIANCE

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UTILITY INVESTIGATION PLANS

WIDEFIELD JIMMY CAMP FORCEMAIN

GARVER

FOUNTAIN, CO

#	DATE	DESCRIPTION	BY
1			

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DATE	XX/XX/2024
DRAWN	AJM
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PROJECT #	CO08200100

SHEET TITLE
PLAN SHEET

SHEET NUMBER
U-022

Plot Stamp: 3/26/2025 4:10:28 PM - Andrew Muhlbeier
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SCALE: 1"=20'
20' 10' 0 20'

UTILITY INVESTIGATION STATEMENT OF ASCE 38-22 COMPLIANCE

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UTILITY INVESTIGATION PLANS

WIDEFIELD JIMMY CAMP FORCEMAIN

GARVER

FOUNTAIN, CO

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DRAWN	AJM
SURVEYED	XXX
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PROJECT #	CO08200100

SHEET TITLE
PLAN SHEET

SHEET NUMBER
U-023

Plot Stamp: 3/26/2025 4:10:31 PM - Andrew Muhlbeier
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SCALE: 1"=20'
20' 10' 0 20'

SSMH123301
RIM: 5720.62'
W INV.: 5712.27'±, 8" PVC
SE INV.: 5711.92'±, 8" PVC

FSD-8"PVC-QLC

FSD-8"PVC-QLB

UNK-QLB

SSMH123302
RIM: 5718.28'
NW INV.: 5711.21'±, 8" PVC
SE INV.: 5710.98'±, 8" PVC

BHE-UNK"-UNK-QLD

CDOT-QLD

TH20

TH21

BHE-UNK"-UNK-QLB

CDOT-QLB

FSD-8"PVC-QLC

SD INLET 133303
INV: 5711.83'

M123303
RIM: 5718.30'
NW INV.: 5710.53'±, 8" PVC
SE INV.: 5710.25'±, 8" PVC

UNK-QLB

FSD-UNK"PVC-QLD

FSD-8"PVC-QLC

MATCH LINE SEE SHEET U-023

SD INLET 133301
INV.: 5701.14'
TOP OF STRUCTURE: 5709.01'± 84"H X 140"W RCP

TH22

FNSD-UNK"UNK-QLB

LIMIT OF ASCE 38-22 INVESTIGATION

MESA RIDGE PKWY

COF-84"H X 140"W RCP-QLC

SD INLET 133302
INV.: 5691.14'
TOP OF STRUCTURE: 5699.64'±
84"H X 140"W RCP

UTILITY INVESTIGATION STATEMENT OF ASCE 38-22 COMPLIANCE

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UTILITY INVESTIGATION PLANS

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DATE	XX/XX/2024
DRAWN	AJM
SURVEYED	XXX
CHECKED	SB
PROJECT #	CO08200100

SHEET TITLE
PLAN SHEET

SHEET NUMBER
U-024

Plot Stamp: 3/26/2025 4:10:35 PM - Andrew Muhlbeier
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ENVIRONMENTAL DESKTOP ANALYSIS

GARVER
WIDEFIELD WATER AND SANITATION DISTRICT
PROPOSED JIMMY CAMP LIFT STATION (JCLS)
FORCE MAIN EXTENSION DESIGN PROJECT

October 2023

Prepared by

ECOPOINT, INC

225 Hutton Ave,

Rifle, CO 81650

208.596.8194

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EXECUTIVE SUMMARY

EcoPoint, Inc. conducted a desktop environmental review for the Widefield Water and Sanitation District (District) Jimmy Camp Lift Station (JCLS) Force Main Extension Design Project for Garver, LLC. The project is located in El Paso County in Division 2- Arkansas River Watershed. The District hired Garver in 2022 to complete an alignment and capacity study of the Mesa Ridge Interceptor and recommend infrastructure improvements that could reduce nuisance odor and increase interceptor capacity. The 2022 alignment and capacity study recommended that the existing JCLS Force Main be extended all the way to the Water Reclamation Facility (WRF) and that new segments of the force main be upsized to 16-inch. This force main extension would convey JCLS flows directly to the WRF and allow existing gravity flows from portions of District north of Mesa Ridge Parkway to remain in the interceptor, effectively increasing the useful life of the Mesa Ridge Interceptor. The Project Area encompasses both alternative alignments located in Widefield, Colorado primarily along a portion of Mesa Ridge Parkway in Sections 29 and 30, Township 15 S, Range 95W.

There are no threatened or endangered species critical habitat present in the Project Area. There are three migratory birds that may be present in the Project Area including Chestnut-collard Longspur, Ferruginous Hawk, and Long-billed Curlew. The Chestnut-collard Longspur migratory bird breeds May 1-August 10 and its habitat is rolling mixed-grass and shortgrass uplands without dense litter, the IPac report shows low probability of presence during the breeding season. The Long-billed Curlew breeds April – July but has a higher probability of presence in April. The Long-billed Curlew's habitat is in short-grass/mixed grass prairie. The Ferruginous Hawk breeds March 15- August 15 and may have nests in large trees near grassland/shrub steppe habitat. If construction activities are planned during the breading season for the Ferruginous Hawk, then identifying areas of active nests (in large trees) and avoiding their destruction are very helpful to minimize species impact. If construction is planned in April, it is recommended to also conduct active nest surveys for Long-billed Curlew in short grass/mixed grass prairie in the project area and avoid active nests during construction. The USFWS Mountain Prairie Region regulates Migratory Birds in Colorado, and a Special Purpose Migratory Bird Permit is not required but recommended. The Utility needs to apply for the permit. The purpose of the Permit is if any birds, feathers, nests, etc. are found during construction, these items cannot be removed from the site unless the Utility has a permit. More information can be found at the USFWS 3-200-81 Migratory Bird Special Use Purpose Utility (USFWS 50 CFR 21.95).

The Fountain Mutual Canal, south of the Janitell Junior High School is an irrigation canal, if there are wetlands present in the canal, the construction activities for the sewer lines including outfalls will qualify under Nationwide Permit 58, assuming the loss of wetlands is no greater than 0.5 acres. Notification to the USACE in the form of a pre-construction notification needs to be submitted prior to commencing the activity if the discharge will result in the loss of greater than 1/10th acre of waters of the United States. There are also exceptions for wetlands in irrigation ditches that are not regulated by the USACE.

INTRODUCTION/PURPOSE

EcoPoint, Inc. conducted a desktop environmental review for the Widefield Water and Sanitation District (District) Jimmy Camp Lift Station (JCLS) Force Main Extension Design Project for Garver, LLC. The project is located in El Paso County in Division 2- Arkansas River Watershed. The District hired Garver in 2022 to complete an alignment and capacity study of the Mesa Ridge Interceptor and recommend infrastructure improvements that could reduce nuisance odor and increase interceptor capacity. During this study the Mesa Ridge Interceptor was modeled in greater detail and multiple proposed improvements to the interceptor were also evaluated to assess their cost-effectiveness and feasibility. The sewer headspace (or air space within the sewer) was also evaluated over a range of sewer flows and this analysis found multiple manholes along the interceptor that were expected to release, or emit, significant quantities of air during high periods of high sewer flow. This finding was consistent with areas identified by staff as having a high amount of odor complaints in the past.

The 2022 alignment and capacity study recommended that the existing JCLS Force Main be extended all the way to the Water Reclamation Facility (WRF) and that new segments of the force main be upsized to 16-inch. This force main extension would convey JCLS flows directly to the WRF and allow existing gravity flows from portions of District north of Mesa Ridge Parkway to remain in the interceptor, effectively increasing the useful life of the Mesa Ridge Interceptor. Also, by reducing the volume of flow in the Mesa Ridge Interceptor the main driver for emission of nuisance odors would be directly addressed. In the future, a second force main could be installed between JCLS and the WRF to further increase sewer capacity.

LOCATION

The project includes two alignment alternatives. Alignment 1 runs along Mesa Ridge Parkway about 0.6 miles east of Fountain Mesa Road, south onto Syracuse Streat, and west across US Highway 85/87 onto Willow Spring Road, and west along Willow Spring Road to the WRF. Alternative 1 is about 1.68 miles in length. Alternative 2 runs along Mesa Ridge Parkway about 0.1 miles east of Fountain Mesa Road, north on Syracuse Street, west across US Highway 85/87, and west along Willow Spring Road to WRF. Alternative 2 is about 2.06 miles in length. Both alternative alignments are located in Sections 29 and 30, Township 15 South, Range 65 West and Section 25, Township 15S, Range 66W of the 6th P.M., El Paso County, Colorado. Both alternatives cross the Atchison, Topeka and the Santa Fe Railroad and the Denver & Rio Grande Western Railroad right-of-ways west of Syracuse Street.

METHODS

EcoPoint, Inc. conducted a desktop environmental review for the District JCLS Force Main Extension Design Project. EcoPoint reviewed the site visit photographs from Garver's June 2023 site visit and a variety of online GIS resources and databases. The desktop environmental review includes a review of the following databases:

- National wetlands inventory (NWI) and riparian areas
- Google Earth
- Site photos from Garver's June 28, 2023 site visit and August 31, 2023 site visit

- US Fish and Wildlife Service IPAC report (T&E species and migratory birds)
- CPW High Priority Habitat
- CPW Species Presence
- National Hydrological Dataset
- Colorado Water Conservation Board Division 2- Arkansas River Watershed Irrigated Lands and Irrigation Canals
- NRCS Soil Map Units, Prime Farmland, Ecological Site Descriptions, and Hydric Soils
- El Paso County Assessors
    - Land Analysis Report for Commercial Development SWC Mesa Ridge Parkway and Syracuse Street, Fountain, Colorado by Salem Engineering Group, Inc. January 6, 2020.
- ERIS Historical photograph search
- ERIS Database Report: search of historical records of hazardous materials

VEGETATION AND SOILS

The vegetation communities present in the Project Area include Upland Grassland, roadside ditches, and Prairie Dog Communities. The Upland Grassland community is dominated by *Bromus inermis* (smooth brome), *Pascopyrum smithii* (western wheatgrass), *Kochia scoparia* (kochia), and sunflower. The Upland Grassland communities are present throughout the Project Area. The roadside ditches generally have smooth brome, *Populous deltoides* (plains cottonwood), and *Rumex crispus* (curly dock) present. The prairie dog communities consist of overly grazed grasslands. The prairie dog communities are north of Mesa Road/ West of Fountain Mesa Road and to the East of Syracuse Street. Table shows the NRCS Soil Map Units in the Project Area, dominant soil texture, ecological site description (ESD).

Table 1. Soils and ESD in Project Area

NRCS Soil Map Unit #	NRCS Soil Map Unit Name	Dominant Topsoil Soil Texture*	Ecological Site Description (ESD).
10	Blendon sandy loam, 0 to 3 percent slopes	Sandy Loam	Sandy Foothill
97	Truckton sandy loam, 3 to 9 percent slopes	Sandy Loam	Sandy Foothill
120	Fort sandy loam, 8 to 15 percent slopes, cool	Sandy Loam	Sandy Plains
30	Fort Collins loam, 0 to 3 percent slopes	Loam	Loamy Plains
39	Keith silt loam, 0 to 3 percent slopes	Silt Loam	Loamy Plains
108	Wiley silt loam, 3 to 9 percent slopes	Silt Loam	Loamy Plains
59	Nunn clay loam, 0 to 3 percent slopes	Clay Loam	Clayey Plains
82	Schamber-Razor complex, 8 to 50 percent slopes	Gravelly Loam	Gravel Breaks
101	Ustic Torrifluvents, loamy	Variable	Saline Overflow
111	Water		Water

*According to NRCS Soil Map Unit Descriptions (Appendix A).

There is no prime farmland present in the project area as the fields are not irrigated. The last time the fields were irrigated appear to be in the 1970s. The soil map units are not hydric or have a very low (1-32%) soil rating for hydric soils based on the NRCS Soil Map Units.

COLORADO PARKS AND WILDLIFE HIGH PRIORITY HABITATS

There are no Colorado Parks and Wildlife (CPW) High Priority Habitat within the Project Area. High Priority Habitats include bald eagle and golden eagle active nest sites, greater sagebrush lek sites, and lesser prairie chicken lek sites, of which there are none in the Project Area. A list of CPW species present in the Project Area is included in Appendix B.

THREATENED/ENDANGERED SPECIES HABITAT REVIEW

EcoPoint ran a United States Fish and Wildlife (USFWS) Information for Planning and Consultation (IPaC) report, Appendix C, and found there are no critical habitats for Threatened/Endangered species present according the IPaC report. There are no threatened/endangered species habitat identified in the Project Area. Table 2 shows the threatened/endangered species identified in the IPaC report, type of habitat, and why species were not present in the Project Area.

MIGRATORY BIRDS HABITAT REVIEW

The USFWS IPaC report indicated potential migratory bird habitat present in the Project Area. Table 3 shows the migratory birds considered and if suitable habitat is present. There are three migratory birds that may be present in the Project Area including Chestnut-collard Longspur, Long-billed Curlew, and Ferruginous Hawk. The Chestnut-collard Longspur migratory bird breeds May 1- August 10 and its habitat is rolling mixed-grass and shortgrass uplands without dense litter, the IPac report shows low probability of presence during the breeding season. The Long-billed Curlew breeds April – July but has a higher probability of presence in April. The Long-billed Curlew's habitat is in short-grass/mixed grass prairie. The Ferruginous Hawk breeds March 15- August 15 and may have nests in large trees near grassland/shrub steppe habitat. If construction activities are planned during the breading season for the Ferruginous Hawk or Long-billed Curlew it is recommended that species specific nesting surveys been conducted at least 10 days before construction. The species-specific nesting surveys will confirm if nests are present in the Project Area and if the nests can be avoided during construction or if construction can be delayed till after the birds have fledged from the nests. If nests cannot be avoided during construction than the USFWS recommends that the District applies for a Special Purpose Migratory Bird Permit. The USFWS Mountain Prairie Region regulates Migratory Birds in Colorado, and a Special Purpose Migratory Bird Permit is not required but recommended if construction occurs during the breeding season. The Utility needs to apply for the permit. The purpose of the Permit is if any birds, feathers, nests, etc. are found during construction, these items cannot be removed from the site unless the Utility has a permit. More information can be found at: 3-200-81 - Migratory Bird: Special Purpose - Utility (servicenowservices.com).

Table 2. Threatened and Endangered Species Habitat Presence

Species	Type	Status	Habitat Present?	Habitat Description*
Preble's Meadow Jumping Mouse	Mammal	Threatened	No- wetland habitat not sufficient and upland grassland community is over grazed.	Found in El Paso County, US Air Force Academy. The Preble's meadow jumping mouse (Preble's mouse) is found in high plains riparian habitat often reaching to foothills riparian habitats from southeastern Wyoming to south central Colorado. Well-developed riparian vegetation includes a fairly dense combination of grasses, forbs, and shrubs with the possible inclusion of a taller tree and shrub canopy (Bakeman 1997; Meaney et al. 1997a; Shenk and Eussen 1999; Schorr 2001).
Eastern Black Rail	Bird	Threatened	No- Habitat does not exist.	The eastern black rail is a wetland dependent bird primarily associated with herbaceous, persistent, emergent wetland plant cover. The subspecies requires dense overhead cover and soils that are moist to saturated (occasionally dry) and interspersed with or adjacent to very shallow water (typically ≤ 3 cm; Table 2-3). Occupied habitat tends to be primarily composed of fine-stemmed emergent plants (rushes, grasses, and sedges) with high stem densities and dense overhead cover
Piping Plover	Bird	Threatened	No- Habitat is not present in the Project Area.	Piping Plovers in Colorado use sparsely vegetated sandy shores of reservoirs and gravel pits. Piping Plovers nest on the ground. In Colorado, the species has been found in Kiowa and Bent Counties in SE Colorado. The birds prefer ungrazed and low human disturbance areas. Information obtained by Colorado Parks of Wildlife Piping Plover Assessing Habitat Quality for Priority Wildlife Species in Colorado Wetlands (CPW 2020).

Species	Type	Status	Habitat Present?	Habitat Description*
Greenback Cutthroat Trout	Fish	Threatened	No- cold water streams present in Project Area.	Cold water streams that are capable of supporting a minimum of 20 kg/ha of fish and are not occupied by non-native trout (Greenback Cutthroat Trout Recovery Plan, 1998).
Pallid Sturgeon	Fish	Endangered	Does not apply.	This species only needs to be considered if the following condition applies: Project includes water-related activities and/or use in the N. Platte, S. Platte, and Laramie River Basins which may affect listed species in Nebraska.
Monarch Butterfly	Insect	Candidate	No habitat- A site visit conducted by Garver on 8/31/23 found no milkweeds present in the project area near the Fountain Mutual Canal or the stormwater drainage area west of Syracuse Street.**	During the breeding season, monarchs lay their eggs on their obligate milkweed host plant (primarily Asclepias spp.), and larvae emerge after two to five days
Ute Ladies'-tresses	Plant	Threatened	No habitat- there are no perennial streams in the area.	Suitable habitat includes moist soils, perennial streams, seeps, springs, with FACW or OBL vegetation present. Silty, sandy, graveling soils is preferred, with non-alkaline soils. Gentle slopes and gradual transitions to upland areas.

*Habitat Descriptions came from USFWS IPAC. Gray Wolf was not considered as the Project Area does not include a predator management program and the Project Area is within a dense population.

**If milkweeds are present during construction, it is recommended that these individual plants are not removed (disturbed or damaged) if they can be avoided. Colorado is not on the main migration path of monarch butterflies, but they can still be found in Colorado. The USFWS Section 7 of the Endangered Species Act does not contain requirements for candidate species. It is a voluntary effort to conserve monarch butterflies and their habitat (USFSW 2023). If milkweeds cannot be avoided during construction, it is recommended that milkweeds are included in the seeding mix for reclamation of disturbed areas for the project, thus introducing more habitat for monarch butterflies.

Table 3. Migratory Bird Habitat Presence

Species	Type	Status	Season Affected	Habitat Present?	Habitat Description*
Bald Eagle	Bird	Migratory Bird	Year Round	No-large bodies of water present, for good breeding habitat. There are some cottonwood trees present along roadway areas. Bald eagles may utilize the area to hunt but according to CPW GIS data (July 2023) there are no bald eagle nests, roost sites, winter concentration area, summer or winter forage areas in the Project Area.	Bald Eagles typically breed and winter in forested areas adjacent to large bodies of water. Throughout range, selects large, super-canopy roost trees that are open and accessible.
Chestnut-collard Longspur	Bird	Migratory Bird	Breeds May 1-August 10	Yes- Potential habitat is present. However, the IPaC report estimates the probability of presence to be outside of the breeding season in late August and early October.	Uses level to rolling mixed-grass and shortgrass uplands, and, in drier habitats, moist lowlands. Areas with dense litter accumulations are avoided. (NatureServe 2023).
Chimney Swift	Bird	Migratory Bird	Breeds March 15 – August 15	No- due to proximity of metropolitan area.	Cosmopolitan; inhabits rural and urban environments having both an abundance of flying arthropods and suitable roosting/nesting sites. Nests principally in chimneys, but also on the interior walls of a variety of other anthropogenic structures including silos, barns, outhouses, uninhabited houses, boathouses, wells, and cisterns. Due to the prevalence of nesting structures in areas populated by humans, often occurs at higher densities in anthropogenic environments than natural ones. (NatureServe 2023).
Clark's Grebe	Bird	Migratory Bird	Breeds June 1-August 31	No- dominant vegetation species not present.	Breeding areas are located in the central arid steppe and Big Sage/Fescue zones that stretch from California north and east to south-central Canada.

Table 3. Continued.

Species	Type	Status	Season Affected	Habitat Present?	Habitat Description*
Ferruginous Hawk	Bird	Migratory Bird	Wintering, breeds Mar 15-Aug15	Yes - Project Area has upland grassland present as well as several large trees along roadways.	Ideal habitat for Ferruginous Hawks is grassland and shrub-steppe habitat including pastures, hayland and cropland (Dechant et al. 1999, p. 2). Ferruginous Hawk nests can be found in trees and large shrubs and on roofs, utility structures and artificial platforms, or near the ground on river cutbanks, or less frequently other ground locations such as rockpiles and riverbed mounds (Goodrich and Smith 2008, p. 125).
Golden Eagle	Bird	Migratory Bird	Breeds Dec 1 – August 31	No- Lack of suitable nesting sites.	Golden eagles generally inhabit open and semi-open country such as prairies, sagebrush, arctic and alpine tundra, savannah or sparse woodland, and barren areas, especially in hilly or mountainous regions, in areas with sufficient mammalian prey base and near suitable nesting sites (rock ledges and cliffs).
Lesser Yellowlegs	Bird	Migratory Bird	Breeds elsewhere	No- Wintering habitat is not present due to lack of common vegetation in the habitat description.	Lesser Yellowlegs are common breeders in boreal forest and forest/tundra transition habitats. Wintering habitat use varies with rainfall; tidal flats may be frequented during the dry season, while adjacent shallow lagoons and marshes are used during the rainy season. Nests are depressions in the ground or moss, lined with dry grass, decayed leaves, spruce needles, and moss and twig fragments. Lining materials are taken from the immediate vicinity of the nest.
Lewis's Woodpecker	Bird	Migratory Bird	Breeds April 20-Sept 30	No- Habitat is not present due to the lack of common species in the habitat description.	Three important habitats for Lewis's Woodpeckers include open ponderosa pine forest, open riparian woodland dominated by cottonwood, and logged or burned pine forest. Their breeding distribution is widely associated with ponderosa pine distribution in western North America. Lewis's Woodpeckers commonly reuse existing nest holes or natural cavities in trees, as they do not use newly excavated ones

Table 3. Continued.

Species	Type	Status	Season Affected	Habitat Present?	Habitat Description*
Long-billed Curlew	Bird	Migratory Bird	Breeding	Yes- upland grassland communities are present in the Project Area and may provide suitable breeding habitat. The IPaC report estimates that the species is likely present in April.	Short-grass or mixed prairie habitat with flat to rolling topography while breeding; tidal estuaries, wet pasture habitats and sandy beaches while wintering; wide range of habitats used during migration. Nests are a shallow depression in the ground, with scraping initiated by male. Nest lining material is variable, but may include small pebbles, bark, grass, small stems and twigs, seeds and cheatgrass leaves as well as droppings from livestock, rabbits and Canada geese.
Long-eared Owl	Bird	Migratory Bird	Breeds Mar 1 to July 15	No- vegetation communities are not present.	Woodland - Hardwood, Forest - Conifer, Forest - Hardwood, Woodland - Conifer, Old field, Woodland - Mixed, Shrubland/chaparral, Forest – Mixed. Riparian-herbaceous wetland (NatureServe Explorer 2023).
Mountain Plover	Bird	Migratory Bird	Breeds April 15- Aug 15	No- not enough diversity in upland grassland.	Grassland/herbaceous, Cropland/hedgerow, Desert. In central and southwestern Montana, southeastern Wyoming, and northeastern Colorado, nesting often occurs in shortgrass prairie with a history of heavy grazing or in low shrub semideserts (NatureServe Explorer 2023).
Red-headed woodpecker	Bird	Migratory Bird	Breeds May 10- Sept 10	No- some large trees are present in the Project Area but not large groves.	Groves, farm country, orchards, shade trees in towns, large, scattered trees. Avoids unbroken forest, favoring open country or at least clearings in the woods. Forest edges, orchards, open pine woods, groves of tall trees in open country are likely habitats. Winter habitats influenced by source of food in fall, such as acorns or beechnuts. Uncommon in CO, sometimes very eastern CO

*Habitat Descriptions came from USFWS IPAC and NatureServe Explorer (Search Results | NatureServe Explorer).

FLOOD HAZARDS

A review of the FEMA flood hazard zones shows the Project Area in a 0.2% annual chance flood hazard.

WETLAND ASSESSMENT

EcoPoint conducted a desktop review of aquatic resources within the Project Area. There are two wetland potential areas in the Project Area. The Fountain Mutual Canal, south of the Junior High School is an irrigation canal (Figure 1). Garver engineers took a site walk in July 2023 and photographs show riparian shrub species (likely willow) in the canal with the adjacent upland being dominated by sunflower, western wheatgrass, and weedy annual species. If there are wetlands present in the canal, the construction activities for the sewer lines (including outfalls) will qualify under Nationwide Permit 58, assuming the loss of wetlands is no greater than 0.5 acres (USACE 2021). Notification to the USACE in the form of a pre-construction notification (PCN) needs to be submitted prior to commencing the activity if the discharge will result in the loss of greater than 1/10th acre of waters of the United States. Thus if planned disturbance in greater than 1/10th of an acre on the Fountain Mutal Canal it is recommended to have a consultant conduct a specific wetland delineation in the field to delineate the extent of the wetland and aid in the PCN. Further, the Fountain Mutual Canal is primarily used for irrigation and irrigation waters are generally not considered waters of the United States (EPA 2022). According to the Fountain Mutual Canal website: “FMIC irrigates approximately 2,000 acres of land and the ditch (including laterals) which runs slightly less than 35-miles of open ditch with several segments of piped sections. Most Shareholders today are no-longer Irrigators, but Augmentors who run water to fulfill their augmentation plans as water providers” (FMIC 2023).

A Water Quality and Detention Pond west of Syracuse Street (Figure 4), holds water during storm events, however, this detention pond is not jurisdictional as it does not have connectivity to any stream or interstate commerce and is not a permanent water body. The definition of a relatively permanent test is “waterbodies that must be relatively permanent, standing, or continuously flowing waters connected to waters or waters with a continuous surface connection to such relatively permanent waters” (USACE 2022). The drainage basin and water pathway are lined with concrete. The surrounding dominant vegetation, noted in a site visit by Garver on August 31, 2023, includes sunflower, western wheatgrass, kochia, *Agropyron cristatum* (crested wheatgrass), and smooth brome. These species are all upland plant species and are not hydrophytic. No intrusive soil samples were collected to determine if hydric soils are present. Also, the Salem Engineering Group, Inc. Land Analysis Report (2020) that was found for the proposed development of that area found no wetlands presence requiring a permit.

Figure 1. Near End of Existing Force Main



Figure 2 shows the new FM Start, on the north side of Mesa Ridge Parkway. There are roadside ditches that appear to be dominated with bindweed, kochia, and upland shrubs. No wetlands present.

Figure 2. New FM Start, North Side of Mesa Ridge Parkway



There is ponded water present west along Syracuse Street. Figure 3 and Figure 4 show the field to the north between Syracuse Street and Mesa Ridge Parkway and Figure 4 shows the field west of Syracuse Street. The vegetation in the field to the north appears to be green (likely due to the wet summertime moisture). The field to the west of Syracuse Street has a large, ponded area with open water present. According to construction drawings for the Mesa Ridge Crossing (January 2020) this area is a water quality/detntion pond. A Land Analysis Report by Salen Engineering Group, Inc. (Jan 2020) found that there are no known man-made or natural features that require mitigation including wetlands. The NWI shows no wetlands in this area.

Figure 3. Syracuse Street, Looking North



Figure 4. Syracuse Street Looking West



There is currently construction along Mesa Road, within the Project Area. The vegetation along the roadway appears to be dominated with kochia, upland grasses, cottonwood trees, and oakbrush (Figure 5). The field adjacent to Mesa Road and Fountain Mesa Road is a prairie dog community with grazed grasses and annual weeds. Another prairie dog community is found east of Syracuse Street, within the project area.

Figure 5. Land around Mesa Road



No other wetlands or other waters of the United States occur within the Project Area. Based on the proposed waterline route, limited wetlands will be impacted, should disturbance occur along the Fountain Mutual Canal.

NOXIOUS / INVASIVE WEEDS

A site-specific survey was not conducted for the Project Area. Soil and Ecological Site Descriptions in Project Areas weeds. El Paso County has six List A Noxious Weeds, 20 List B Noxious Weeds, and four List C noxious weeds. Photographs from the site walk conducted by Garver in June 2023 show there are several annual forb species present in the Project Area, some of which are invasive weeds. It is recommended that the noxious weeds be treated prior to construction. Also, it is recommended that vehicles are washed prior to moving to another location to limit the spread of noxious/invasive weed seeds.

HAZARDOUS MATERIALS REVIEW

EcoPoint contracted with ERIS to run an Environmental Risk Report for the Project Area. The report searches through federal and state electronic databases to determine if there is any likely presence of hazardous areas within the Project Area. The Environmental Risk Report showed limited presence of any hazardous substances or petroleum products in, on, or at the Project Area. See Table 4 for a summary of the ERIS Database results within the Project Area and Figure 6 showing the location of the review. Appendix D has the full ERIS Report.

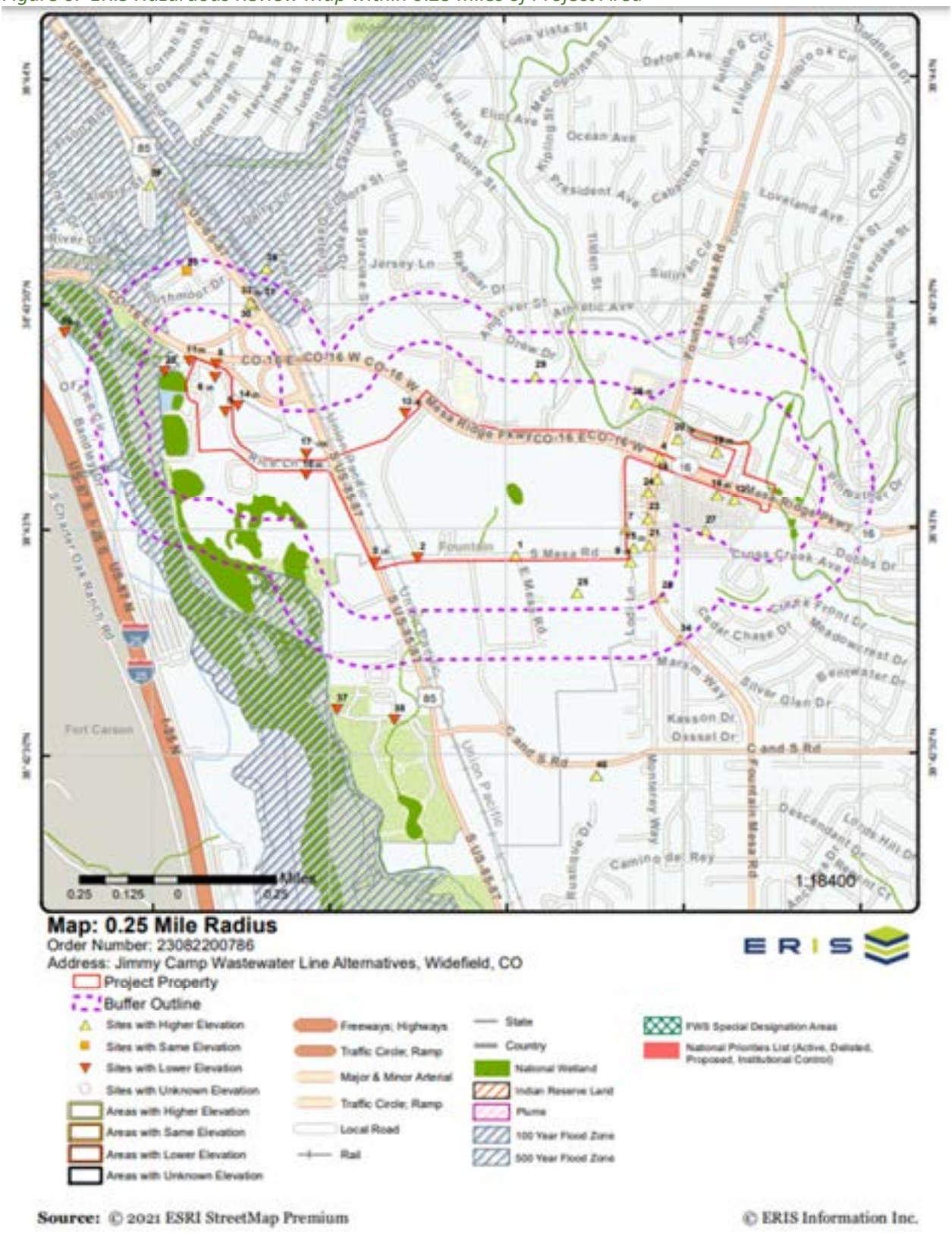
There have been two spills in the Project Area, one in 2011 due to a vehicular accident at the intersection of Mesa Ridge Parkway and Fountain Mesa Road. The spill was cleaned up by CDOT, the material was cake biosolids. The other spill occurred west of Willow Spring Road at the Waste Water Treatment Plant due to an equipment failure in 2018. There is one permanently closed underground storage tank at Widefield Homes along Fountain Mesa Road.

There are no requirements for construction required for the spills or underground storage tanks found in the project area as the spills have been cleaned up and the underground storage tank has been closed.

Table 4. Recognized Environmental Conditions in Hazardous Database Review within the Project Area

Database	Within the Project Area
UST (Underground Storage Tank)	1 (Widefield Homes- Permanently closed, Fountain Mesa Road)
FINDS/FRS (The Facility Registry Service (FRS) is a centrally managed database that identifies facilities, sites, or places subject to environmental regulations or of environmental interest)	2 (District and Mr. Car Wash on Fountain Mesa Road)
ICIS (ICIS-NPDES is an information management system maintained by the Office of Compliance to track permit compliance and enforcement status of facilities regulated by the NPDES under the Clean Water Act. This data includes permit, inspection, violation and enforcement action information for applicable ICIS records.)	2 (District and Highway 85 Outfall Sewer (Hwy 85/Mesa Road)
Spills (A list of hazardous material spills and releases (including Meth Labs) that were reported to the Colorado Department of Public Health and Environment (CDPHE).)	2 (District and intersection of Mesa Ridge Pkwy/ Fountain Mesa Road)
PDES- A list of permitted facilities tracked by the Water Quality Control Division of the Department of Public Health & Environment (DPHE). This list is the state version of the NPDES (National Pollution Discharge Elimination System).	3 (District-2 and Thompson Thrift Construction Stormwater Permit)

Figure 6. ERIS Hazardous Review Map within 0.25 miles of Project Area



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APPENDIX A NRCS SOIL MAP UNIT REPORT

United States Department of Agriculture

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for El Paso County Area, Colorado



August 29, 2023

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 20, Sep 2, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 14, 2018—Sep 23, 2018

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
10	Blendon sandy loam, 0 to 3 percent slopes	20.5	1.4%
28	Ellicott loamy coarse sand, 0 to 5 percent slopes	105.9	7.0%
29	Fluvaquentic Haplaquolls, nearly level	14.0	0.9%
30	Fort Collins loam, 0 to 3 percent slopes	142.0	9.4%
31	Fort Collins loam, 3 to 8 percent slopes	6.0	0.4%
33	Heldt clay loam, 0 to 3 percent slopes	43.9	2.9%
39	Keith silt loam, 0 to 3 percent slopes	168.6	11.1%
56	Nelson-Tassel fine sandy loams, 3 to 18 percent slopes	150.8	10.0%
59	Nunn clay loam, 0 to 3 percent slopes	181.3	12.0%
82	Schamber-Razor complex, 8 to 50 percent slopes	183.9	12.2%
86	Stoneham sandy loam, 3 to 8 percent slopes	71.1	4.7%
97	Truckton sandy loam, 3 to 9 percent slopes	74.7	4.9%
101	Ustic Torrifluvents, loamy	46.4	3.1%
108	Wiley silt loam, 3 to 9 percent slopes	10.1	0.7%
111	Water	19.1	1.3%
120	Fort sandy loam, 8 to 15 percent slopes, cool	131.9	8.7%
127	Midway-Razor clay loams, dry, 1 to 18 percent slopes	107.4	7.1%
MzA	Manzanola silty clay loam, saline, 0 to 2 percent slopes	35.0	2.3%
Totals for Area of Interest		**1,512.6**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps.

The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

El Paso County Area, Colorado

10—Blendon sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 3671
Elevation: 6,000 to 6,800 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 125 to 145 days
Farmland classification: Not prime farmland

Map Unit Composition

Blendon and similar soils: 98 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Blendon

Setting

Landform: Alluvial fans, terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy alluvium derived from arkose

Typical profile

A - 0 to 10 inches: sandy loam
Bw - 10 to 36 inches: sandy loam
C - 36 to 60 inches: gravelly sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Available water supply, 0 to 60 inches: Moderate (about 6.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 1 percent
Hydric soil rating: No

Pleasant
Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

28—Ellicott loamy coarse sand, 0 to 5 percent slopes

Map Unit Setting
National map unit symbol: 3680
Elevation: 5,500 to 6,500 feet
Mean annual precipitation: 13 to 15 inches
Mean annual air temperature: 47 to 50 degrees F
Frost-free period: 125 to 145 days
Farmland classification: Not prime farmland

Map Unit Composition
Ellicott and similar soils: 97 percent
Minor components: 3 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ellicott

Setting
Landform: Stream terraces, flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy alluvium

Typical profile
A - 0 to 4 inches: loamy coarse sand
C - 4 to 60 inches: stratified coarse sand to sandy loam

Properties and qualities
Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: NoneFrequent
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.1 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: A
Ecological site: R069XY031CO - Sandy Bottomland

Other vegetative classification: SANDY BOTTOMLAND (069AY031CO)
Hydric soil rating: No

Minor Components

Fluvaquentic haplaquoll
Percent of map unit: 1 percent
Landform: Swales
Hydric soil rating: Yes

Other soils
Percent of map unit: 1 percent
Hydric soil rating: No

Pleasant
Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

29—Fluvaquentic Haplaquolls, nearly level

Map Unit Setting
National map unit symbol: 3681
Elevation: 5,000 to 7,800 feet
Mean annual precipitation: 13 to 15 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 110 to 165 days
Farmland classification: Not prime farmland

Map Unit Composition
Fluvaquentic haplaquolls and similar soils: 98 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fluvaquentic Haplaquolls

Setting
Landform: Marshes, flood plains, swales
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile
A - 0 to 12 inches: variable
C - 12 to 60 inches: stratified very gravelly sand to loam

Properties and qualities
Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 6.00 in/hr)
Depth to water table: About 0 to 24 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.2 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: D
Ecological site: R067BY029CO - Sandy Meadow
Hydric soil rating: Yes

Minor Components

Haplaquolls
Percent of map unit: 1 percent
Landform: Domes
Hydric soil rating: Yes

Other soils
Percent of map unit: 1 percent
Hydric soil rating: No

30—Fort Collins loam, 0 to 3 percent slopes

Map Unit Setting
National map unit symbol: 3683
Elevation: 5,200 to 6,500 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 135 to 155 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition
Fort collins and similar soils: 98 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fort Collins

Setting
Landform: Flats
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy alluvium

Typical profile

A - 0 to 9 inches: loam
Bt - 9 to 16 inches: clay loam
Bk - 16 to 21 inches: clay loam
Ck - 21 to 60 inches: loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.1 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: R067BY002CO - Loamy Plains
Other vegetative classification: LOAMY PLAINS (069AY006CO)
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 1 percent
Hydric soil rating: No

Pleasant

Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

31—Fort Collins loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 3684
Elevation: 5,200 to 6,500 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 48 to 52 degrees F
Farmland classification: Not prime farmland

Map Unit Composition

Fort collins and similar soils: 98 percent

Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fort Collins

Setting
Landform: Hills
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy alluvium

Typical profile
A - 0 to 9 inches: loam
Bt - 9 to 16 inches: clay loam
Bk - 16 to 21 inches: clay loam
Ck - 21 to 60 inches: loam

Properties and qualities
Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.1 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R067BY002CO - Loamy Plains
Other vegetative classification: LOAMY PLAINS (069AY006CO)
Hydric soil rating: No

Minor Components

Other soils
Percent of map unit: 1 percent
Hydric soil rating: No

Pleasant
Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

33—Heldt clay loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 3686
Elevation: 5,200 to 6,500 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 135 to 155 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Heldt and similar soils: 98 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Heldt

Setting

Landform: Stream terraces, alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey alluvium derived from shale

Typical profile

Ap - 0 to 8 inches: clay loam
Bw - 8 to 41 inches: silty clay
Bk - 41 to 60 inches: silty clay loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Gypsum, maximum content: 4 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 10.0
Available water supply, 0 to 60 inches: High (about 10.4 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: C
Ecological site: R069XY047CO - Alkaline Plains

Other vegetative classification: ALKALINE PLAINS (069BY047CO)
Hydric soil rating: No

Minor Components

Other soils
Percent of map unit: 1 percent
Hydric soil rating: No

Pleasant
Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

39—Keith silt loam, 0 to 3 percent slopes

Map Unit Setting
National map unit symbol: 368d
Elevation: 5,500 to 5,800 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 135 to 155 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition
Keith and similar soils: 98 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Keith

Setting
Landform: Flats
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty eolian deposits

Typical profile
A - 0 to 8 inches: silt loam
Bt - 8 to 20 inches: silty clay loam
Bk - 20 to 30 inches: silty clay loam
Ck - 30 to 60 inches: silt loam

Properties and qualities
Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)

Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water supply, 0 to 60 inches: High (about 11.0 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R069XY006CO - Loamy Plains
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 1 percent
Hydric soil rating: No

Pleasant

Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

56—Nelson-Tassel fine sandy loams, 3 to 18 percent slopes

Map Unit Setting

National map unit symbol: 3690
Elevation: 5,600 to 6,400 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 135 to 155 days
Farmland classification: Not prime farmland

Map Unit Composition

Nelson and similar soils: 55 percent
Tassel and similar soils: 40 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nelson

Setting

Landform: Hills
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Calcareous residuum weathered from interbedded sedimentary rock

Typical profile

A - 0 to 5 inches: fine sandy loam
Ck - 5 to 23 inches: fine sandy loam
Cr - 23 to 27 inches: weathered bedrock

Properties and qualities

Slope: 3 to 12 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 2.8 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R067BY045CO - Shaly Plains
Other vegetative classification: SHALY PLAINS (069AY046CO)
Hydric soil rating: No

Description of Tassel

Setting

Landform: Hills
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Calcareous slope alluvium over residuum weathered from sandstone

Typical profile

A - 0 to 4 inches: fine sandy loam
C - 4 to 10 inches: fine sandy loam
Cr - 10 to 14 inches: weathered bedrock

Properties and qualities

Slope: 3 to 18 percent
Depth to restrictive feature: 6 to 20 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Available water supply, 0 to 60 inches: Very low (about 1.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Ecological site: R067BY045CO - Shaly Plains
Other vegetative classification: SHALY PLAINS (069AY046CO)
Hydric soil rating: No

Minor Components

Other soils
Percent of map unit: 4 percent
Hydric soil rating: No

Pleasant
Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

59—Nunn clay loam, 0 to 3 percent slopes

Map Unit Setting
National map unit symbol: 3693
Elevation: 5,400 to 6,500 feet
Mean annual precipitation: 13 to 15 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 135 to 155 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition
Nunn and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nunn

Setting
Landform: Terraces, fans
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Typical profile
A - 0 to 12 inches: clay loam
Bt - 12 to 26 inches: clay loam
BC - 26 to 30 inches: clay loam
Bk - 30 to 58 inches: sandy clay loam
C - 58 to 72 inches: clay

Properties and qualities
Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches

Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Gypsum, maximum content: 2 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.8 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 3c
Hydrologic Soil Group: C
Ecological site: R069XY042CO - Clayey Plains
Other vegetative classification: CLAYEY PLAINS (069AY042CO)
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 4 percent
Hydric soil rating: No

Pleasant

Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

82—Schamber-Razor complex, 8 to 50 percent slopes

Map Unit Setting

National map unit symbol: 369y
Elevation: 5,500 to 6,500 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 135 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Schamber and similar soils: 55 percent
Razor and similar soils: 43 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Schamber

Setting

Landform: Breaks

Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite and/or colluvium derived from granite and/or eolian deposits derived from granite

Typical profile
A - 0 to 5 inches: gravelly loam
AC - 5 to 15 inches: very gravelly loam
C - 15 to 60 inches: very gravelly sand

Properties and qualities
Slope: 8 to 50 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.0 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: R069XY064CO - Gravel Breaks
Hydric soil rating: No

Description of Razor

Setting
Landform: Breaks
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey slope alluvium over residuum weathered from shale

Typical profile
A - 0 to 3 inches: clay loam
Bw - 3 to 9 inches: clay loam
Bk - 9 to 31 inches: clay
Cr - 31 to 35 inches: weathered bedrock

Properties and qualities
Slope: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Gypsum, maximum content: 5 percent

Maximum salinity: Moderately saline to strongly saline (8.0 to 16.0 mmhos/cm)
Sodium adsorption ratio, maximum: 15.0
Available water supply, 0 to 60 inches: Low (about 5.5 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: R069XY047CO - Alkaline Plains
Other vegetative classification: ALKALINE PLAINS (069AY047CO)
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 1 percent
Hydric soil rating: No

Pleasant

Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

86—Stoneham sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 36b2
Elevation: 5,100 to 6,500 feet
Mean annual precipitation: 13 to 15 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 135 to 155 days
Farmland classification: Not prime farmland

Map Unit Composition

Stoneham and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Stoneham

Setting

Landform: Hills
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Calcareous loamy alluvium

Typical profile

A - 0 to 4 inches: sandy loam
Bt - 4 to 8 inches: sandy clay loam

Btk - 8 to 11 inches: sandy clay loam
Ck - 11 to 60 inches: loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.5 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: R067BY024CO - Sandy Plains
Other vegetative classification: SANDY PLAINS (069AY026CO)
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 4 percent
Hydric soil rating: No

Pleasant

Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

97—Truckton sandy loam, 3 to 9 percent slopes

Map Unit Setting

National map unit symbol: 2x0j2
Elevation: 5,300 to 6,850 feet
Mean annual precipitation: 14 to 19 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 85 to 155 days
Farmland classification: Not prime farmland

Map Unit Composition

Truckton and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Truckton

Setting

Landform: Hillslopes, interfluves
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Re-worked alluvium derived from arkose

Typical profile

A - 0 to 4 inches: sandy loam
Bt1 - 4 to 12 inches: sandy loam
Bt2 - 12 to 19 inches: sandy loam
C - 19 to 80 inches: sandy loam

Properties and qualities

Slope: 3 to 9 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Maximum salinity: Nonsaline (0.1 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.6 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Minor Components

Blakeland

Percent of map unit: 8 percent
Landform: Hillslopes, interfluves
Landform position (two-dimensional): Shoulder, backslope, summit
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Bresser

Percent of map unit: 7 percent
Landform: Low hills, interfluves
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave

Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

101—Ustic Torrifluvents, loamy

Map Unit Setting

National map unit symbol: 3673
Elevation: 5,500 to 7,000 feet
Mean annual precipitation: 13 to 16 inches
Mean annual air temperature: 47 to 52 degrees F
Frost-free period: 125 to 155 days
Farmland classification: Not prime farmland

Map Unit Composition

Ustic torrifluvents and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ustic Torrifluvents

Setting

Landform: Stream terraces, flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy, clayey, stratified loamy

Typical profile

A - 0 to 6 inches: variable
C - 6 to 60 inches: stratified loamy sand to clay loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.6 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: R069XY037CO - Saline Overflow
Other vegetative classification: OVERFLOW (069BY036CO)
Hydric soil rating: No

Minor Components

Other soils
Percent of map unit: 4 percent
Hydric soil rating: No

Pleasant
Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

108—Wiley silt loam, 3 to 9 percent slopes

Map Unit Setting
National map unit symbol: 367b
Elevation: 5,200 to 6,200 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 135 to 155 days
Farmland classification: Not prime farmland

Map Unit Composition
Wiley and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wiley

Setting
Landform: Hills
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Calcareous silty eolian deposits

Typical profile
A - 0 to 4 inches: silt loam
Bt - 4 to 16 inches: silt loam
Bk - 16 to 60 inches: silt loam

Properties and qualities
Slope: 3 to 9 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 11.5 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R067BY002CO - Loamy Plains
Other vegetative classification: LOAMY PLAINS (069AY006CO)
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 4 percent
Hydric soil rating: No

Pleasant

Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

111—Water

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

120—Fort sandy loam, 8 to 15 percent slopes, cool

Map Unit Setting

National map unit symbol: 2t50p
Elevation: 4,000 to 6,500 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 48 to 54 degrees F
Frost-free period: 125 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Fort, cool, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fort, Cool

Setting

Landform: Interfluves, hills
Landform position (two-dimensional): Backslope, footslope

Landform position (three-dimensional): Side slope, head slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium and/or eolian deposits

Typical profile

A - 0 to 5 inches: sandy loam
Bt - 5 to 13 inches: clay loam
Btk - 13 to 28 inches: clay loam
Bk1 - 28 to 36 inches: loam
Bk2 - 36 to 79 inches: sandy loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Maximum salinity: Nonsaline to very slightly saline (0.1 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Moderate (about 8.2 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R069XY026CO - Sandy Plains
Forage suitability group: Loamy (G069XW017CO)
Other vegetative classification: Sandy Plains #26 (069XY026CO_2), Loamy (G069XW017CO)
Hydric soil rating: No

Minor Components

Vonid

Percent of map unit: 10 percent
Landform: Ridges, hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex
Ecological site: R069XY026CO - Sandy Plains
Other vegetative classification: Loamy, Dry (G069XW019CO)
Hydric soil rating: No

Wilid

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R069XY006CO - Loamy Plains

Other vegetative classification: Loamy Plains #6 (069XY006CO_2), Loamy (G069XW017CO)
Hydric soil rating: No

127—Midway-Razor clay loams, dry, 1 to 18 percent slopes

Map Unit Setting

National map unit symbol: 2t52f
Elevation: 3,700 to 6,400 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 48 to 54 degrees F
Frost-free period: 130 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Midway, dry, and similar soils: 46 percent
Razor, dry, and similar soils: 44 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Midway, Dry

Setting

Landform: Hillslopes, ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Slope alluvium and/or residuum weathered from shale

Typical profile

A - 0 to 3 inches: clay loam
AC - 3 to 9 inches: clay
C - 9 to 16 inches: paragravelly clay
Cr - 16 to 79 inches: bedrock

Properties and qualities

Slope: 3 to 18 percent
Depth to restrictive feature: 11 to 20 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.00 to 0.21 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Gypsum, maximum content: 5 percent
Maximum salinity: Very slightly saline to slightly saline (2.0 to 7.9 mmhos/cm)
Sodium adsorption ratio, maximum: 10.0

Available water supply, 0 to 60 inches: Very low (about 2.2 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: R069XY046CO - Shaly Plains
Hydric soil rating: No

Description of Razor, Dry

Setting

Landform: Hillslopes, pediments
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Slope alluvium and/or residuum weathered from shale

Typical profile

A - 0 to 4 inches: clay loam
Bw - 4 to 15 inches: silty clay
Bky - 15 to 30 inches: clay
Cr - 30 to 79 inches: bedrock

Properties and qualities

Slope: 1 to 9 percent
Depth to restrictive feature: 20 to 39 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.00 to 0.21 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Gypsum, maximum content: 5 percent
Maximum salinity: Very slightly saline to slightly saline (2.0 to 7.9 mmhos/cm)
Sodium adsorption ratio, maximum: 10.0
Available water supply, 0 to 60 inches: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: R069XY047CO - Alkaline Plains
Hydric soil rating: No

Minor Components

Manzanola

Percent of map unit: 9 percent
Landform: Hillslopes, fan remnants
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Base slope, side slope
Down-slope shape: Linear
Across-slope shape: Linear

Ecological site: R069XY042CO - Clayey Plains
Other vegetative classification: Loamy Plains #6 (069XY006CO_2)
Hydric soil rating: No

Rock outcrop
Percent of map unit: 1 percent
Hydric soil rating: No

MzA—Manzanola silty clay loam, saline, 0 to 2 percent slopes

Map Unit Setting
National map unit symbol: 2rgrg
Elevation: 3,900 to 6,000 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 48 to 54 degrees F
Frost-free period: 130 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition
Manzanola and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Manzanola

Setting
Landform: Terraces, interfluves, fan remnants, drainageways
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Side slope, tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from shale

Typical profile
A - 0 to 4 inches: silty clay loam
Bt1 - 4 to 11 inches: silty clay loam
Bt2 - 11 to 26 inches: silty clay loam
Bk1 - 26 to 38 inches: silty clay loam
Bk2 - 38 to 79 inches: silty clay loam

Properties and qualities
Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 14 percent

Gypsum, maximum content: 3 percent
Maximum salinity: Moderately saline (8.0 to 15.0 mmhos/cm)
Sodium adsorption ratio, maximum: 13.0
Available water supply, 0 to 60 inches: Very high (about 12.1 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: C
Ecological site: R069XY037CO - Saline Overflow
Other vegetative classification: Saline Overflow (069XY037CO_1)
Hydric soil rating: No

Minor Components

Haversid

Percent of map unit: 5 percent
Landform: Terraces, drainageways
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R069XY037CO - Saline Overflow
Other vegetative classification: Loamy (G069XW017CO)
Hydric soil rating: No

Aguilar

Percent of map unit: 5 percent
Landform: Fan remnants
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R069XY033CO - Salt Flat
Other vegetative classification: Salt Flat #33 (069AY033CO_2), Sodic, Sodic/ Saline (G069XW027CO)
Hydric soil rating: No

Soil Information for All Uses

Soil Reports

The Soil Reports section includes various formatted tabular and narrative reports (tables) containing data for each selected soil map unit and each component of each unit. No aggregation of data has occurred as is done in reports in the Soil Properties and Qualities and Suitabilities and Limitations sections.

The reports contain soil interpretive information as well as basic soil properties and qualities. A description of each report (table) is included.

AOI Inventory

This folder contains a collection of tabular reports that present a variety of soil information. Included are various map unit description reports, special soil interpretation reports, and data summary reports.

Component Legend

This report presents general information about the map units and map unit components in the selected area. It shows map unit symbols and names and the components in each map unit. It also shows the percent of the components in the map units, the kind of component, and the slope range of each component.

Report—Component Legend

Component Legend–El Paso County Area, Colorado							
Map unit symbol and name	Map unit acres	Pct. of map unit	Component name	Component kind	Pct. slope		
					Low	RV	High
10—Blendon sandy loam, 0 to 3 percent slopes	11,680						
		98	Blendon	Series	0.0	2.0	3.0
28—Ellicott loamy coarse sand, 0 to 5 percent slopes	25,916						
		97	Ellicott	Series	0.0	3.0	5.0

Custom Soil Resource Report

Component Legend–El Paso County Area, Colorado							
Map unit symbol and name	Map unit acres	Pct. of map unit	Component name	Component kind	Pct. slope		
					Low	RV	High
29—Fluvaquentic Haplaquolls, nearly level	3,746						
		98	Fluvaquentic haplaquolls	Family	0.0	1.0	2.0
30—Fort Collins loam, 0 to 3 percent slopes	2,171						
		98	Fort collins	Series	0.0	2.0	3.0
31—Fort Collins loam, 3 to 8 percent slopes	4,859						
		98	Fort collins	Series	3.0	6.0	8.0
33—Heldt clay loam, 0 to 3 percent slopes	6,706						
		98	Heldt	Series	0.0	2.0	3.0
39—Keith silt loam, 0 to 3 percent slopes	5,387						
		98	Keith	Series	0.0	2.0	3.0
56—Nelson-Tassel fine sandy loams, 3 to 18 percent slopes	13,570						
		55	Nelson	Series	3.0	8.0	12.0
		40	Tassel	Series	3.0	11.0	18.0
59—Nunn clay loam, 0 to 3 percent slopes	10,665						
		95	Nunn	Series	0.0	2.0	3.0
82—Schamber-Razor complex, 8 to 50 percent slopes	18,148						
		55	Schamber	Series	8.0	29.0	50.0
		43	Razor	Series	8.0	12.0	15.0
86—Stoneham sandy loam, 3 to 8 percent slopes	5,274						
		95	Stoneham	Series	3.0	6.0	8.0
97—Truckton sandy loam, 3 to 9 percent slopes	72,659						
		85	Truckton	Series	3.0	5.0	9.0
101—Ustic Torrifluvents, loamy	24,061						
		95	Ustic torrifluvents	Family	0.0	2.0	3.0
108—Wiley silt loam, 3 to 9 percent slopes	6,348						
		95	Wiley	Series	3.0	6.0	9.0
111—Water	1,738						
		100	Water	Miscellaneous area			
120—Fort sandy loam, 8 to 15 percent slopes, cool	1,735						
		85	Fort, cool	Series	8.0	10.0	15.0

Component Legend–El Paso County Area, Colorado							
Map unit symbol and name	Map unit acres	Pct. of map unit	Component name	Component kind	Pct. slope		
					Low	RV	High
127—Midway-Razor clay loams, dry, 1 to 18 percent slopes	22,148						
		46	Midway, dry	Series	3.0	9.0	18.0
		44	Razor, dry	Series	1.0	6.0	9.0
MzA—Manzanola silty clay loam, saline, 0 to 2 percent slopes	5,983						
		90	Manzanola	Series	0.0	1.0	2.0

Land Classifications

This folder contains a collection of tabular reports that present a variety of soil groupings. The reports (tables) include all selected map units and components for each map unit. Land classifications are specified land use and management groupings that are assigned to soil areas because combinations of soil have similar behavior for specified practices. Most are based on soil properties and other factors that directly influence the specific use of the soil. Example classifications include ecological site classification, farmland classification, irrigated and nonirrigated land capability classification, and hydric rating.

Hydric Soils

This table lists the map unit components that are rated as hydric soils in the survey area. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and others, 2002).

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for all of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register,

2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

Map units that are dominantly made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units dominantly made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

The criteria for hydric soils are represented by codes in the table (for example, 2). Definitions for the codes are as follows:

1. All Histels except for Folistels, and Histosols except for Folists.
2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, Pachic subgroups, or Cumulic subgroups that:
    A. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or
    B. Show evidence that the soil meets the definition of a hydric soil;
3. Soils that are frequently ponded for long or very long duration during the growing season.
    A. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or
    B. Show evidence that the soil meets the definition of a hydric soil;
4. Map unit components that are frequently flooded for long duration or very long duration during the growing season that:
    A. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or
    B. Show evidence that the soil meets the definition of a hydric soil;

Hydric Condition: Food Security Act information regarding the ability to grow a commodity crop without removing woody vegetation or manipulating hydrology.

References:
Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.
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Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.
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Report—Hydric Soils

Hydric Soils–El Paso County Area, Colorado				
Map symbol and map unit name	**Component**	**Percent of map unit**	**Landform**	**Hydric criteria**
10—Blendon sandy loam, 0 to 3 percent slopes				
	Pleasant	1	Depressions	3
28—Ellicott loamy coarse sand, 0 to 5 percent slopes				
	Fluvaquentic haplaquoll	1	Swales	2
	Pleasant	1	Depressions	3
29—Fluvaquentic Haplaquolls, nearly level				
	Fluvaquentic haplaquolls	98	Marshes, flood plains, swales	2
	Haplaquolls	1	Domes	2, 3
30—Fort Collins loam, 0 to 3 percent slopes				
	Pleasant	1	Depressions	3
31—Fort Collins loam, 3 to 8 percent slopes				
	Pleasant	1	Depressions	3
33—Heldt clay loam, 0 to 3 percent slopes				
	Pleasant	1	Depressions	3
39—Keith silt loam, 0 to 3 percent slopes				
	Pleasant	1	Depressions	3
56—Nelson-Tassel fine sandy loams, 3 to 18 percent slopes				
	Pleasant	1	Depressions	3

Hydric Soils–El Paso County Area, Colorado				
Map symbol and map unit name	**Component**	**Percent of map unit**	**Landform**	**Hydric criteria**
59—Nunn clay loam, 0 to 3 percent slopes				
	Pleasant	1	Depressions	3
82—Schamber-Razor complex, 8 to 50 percent slopes				
	Pleasant	1	Depressions	3
86—Stoneham sandy loam, 3 to 8 percent slopes				
	Pleasant	1	Depressions	3
101—Ustic Torrifluvents, loamy				
	Pleasant	1	Depressions	3
108—Wiley silt loam, 3 to 9 percent slopes				
	Pleasant	1	Depressions	3

Prime and other Important Farmlands

This table lists the map units in the survey area that are considered important farmlands. Important farmlands consist of prime farmland, unique farmland, and farmland of statewide or local importance. This list does not constitute a recommendation for a particular land use.

In an effort to identify the extent and location of important farmlands, the Natural Resources Conservation Service, in cooperation with other interested Federal, State, and local government organizations, has inventoried land that can be used for the production of the Nation's food supply.

Prime farmland is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil quality, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. The water supply is dependable and of adequate quality. Prime farmland is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

For some of the soils identified in the table as prime farmland, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures.

A recent trend in land use in some areas has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

Unique farmland is land other than prime farmland that is used for the production of specific high-value food and fiber crops, such as citrus, tree nuts, olives, cranberries, and other fruits and vegetables. It has the special combination of soil quality, growing season, moisture supply, temperature, humidity, air drainage, elevation, and aspect needed for the soil to economically produce sustainable high yields of these crops when properly managed. The water supply is dependable and of adequate quality. Nearness to markets is an additional consideration. Unique farmland is not based on national criteria. It commonly is in areas where there is a special microclimate, such as the wine country in California.

In some areas, land that does not meet the criteria for prime or unique farmland is considered to be *farmland of statewide importance* for the production of food, feed, fiber, forage, and oilseed crops. The criteria for defining and delineating farmland of statewide importance are determined by the appropriate State agencies. Generally, this land includes areas of soils that nearly meet the requirements for prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. Some areas may produce as high a yield as prime farmland if conditions are favorable. Farmland of statewide importance may include tracts of land that have been designated for agriculture by State law.

In some areas that are not identified as having national or statewide importance, land is considered to be *farmland of local importance* for the production of food, feed, fiber, forage, and oilseed crops. This farmland is identified by the appropriate local agencies. Farmland of local importance may include tracts of land that have been designated for agriculture by local ordinance.

Report—Prime and other Important Farmlands

Prime and other Important Farmlands–El Paso County Area, Colorado		
Map Symbol	**Map Unit Name**	**Farmland Classification**
10	Blendon sandy loam, 0 to 3 percent slopes	Not prime farmland
28	Ellicott loamy coarse sand, 0 to 5 percent slopes	Not prime farmland
29	Fluvaquentic Haplaquolls, nearly level	Not prime farmland
30	Fort Collins loam, 0 to 3 percent slopes	Prime farmland if irrigated
31	Fort Collins loam, 3 to 8 percent slopes	Not prime farmland
33	Heldt clay loam, 0 to 3 percent slopes	Prime farmland if irrigated
39	Keith silt loam, 0 to 3 percent slopes	Prime farmland if irrigated
56	Nelson-Tassel fine sandy loams, 3 to 18 percent slopes	Not prime farmland
59	Nunn clay loam, 0 to 3 percent slopes	Prime farmland if irrigated

Prime and other Important Farmlands–El Paso County Area, Colorado		
Map Symbol	**Map Unit Name**	**Farmland Classification**
82	Schamber-Razor complex, 8 to 50 percent slopes	Not prime farmland
86	Stoneham sandy loam, 3 to 8 percent slopes	Not prime farmland
97	Truckton sandy loam, 3 to 9 percent slopes	Not prime farmland
101	Ustic Torrifluvents, loamy	Not prime farmland
108	Wiley silt loam, 3 to 9 percent slopes	Not prime farmland
111	Water	Not prime farmland
120	Fort sandy loam, 8 to 15 percent slopes, cool	Not prime farmland
127	Midway-Razor clay loams, dry, 1 to 18 percent slopes	Not prime farmland
MzA	Manzanola silty clay loam, saline, 0 to 2 percent slopes	Not prime farmland

Soil Erosion

This folder contains a collection of tabular reports that present soil erosion factors and groupings. The reports (tables) include all selected map units and components for each map unit. Soil erosion factors are soil properties and interpretations used in evaluating the soil for potential erosion. Example soil erosion factors can include K factor for the whole soil or on a rock free basis, T factor, wind erodibility group and wind erodibility index.

Conservation Planning

This report provides those soil attributes for the conservation plan for the map units in the selected area. The report includes the map unit symbol, the component name, and the percent of the component in the map unit. It provides the soil description along with the slope, runoff, T Factor, WEI, WEG, Erosion class, Drainage class, Land Capability Classification, and the engineering Hydrologic Group and the erosion factors Kf, the representative percentage of fragments, sand, silt, and clay in the mineral surface horizon. Missing surface data may indicate the presence of an organic surface layer. Further information on these factors can be found in the National Soil Survey Handbook section 618 found at the url http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/ref/?cid=nrcs142p2_054223#00 .

Custom Soil Resource Report

Soil properties and interpretations for conservation planning. The surface mineral horizon properties are displayed. Organic surface horizons are not displayed.

Conservation Planning–El Paso County Area, Colorado																	
Map symbol and soil name	Pct. of map unit	Slope RV	USLE Slope Length ft.	Runoff	T Factor	WEI	WEG	Erosion	Drainage	NIRR LCC	Hydrologic Group	Surface					
												Depths in.	Kf Factor	Frag-ments RV	Sand RV	Silt RV	Clay RV
10—Blendon sandy loam, 0 to 3 percent slopes																	
Blendon	98	2.0	—	Low	5	86	3	—	Well drained	3e	B	0 - 9	.20	3	66	19	14
28—Ellicott loamy coarse sand, 0 to 5 percent slopes																	
Ellicott	97	3.0	—	Very low	5	134	2	—	Somewhat excessively drained	7w	A	0 - 3	.17	11	84	11	5
29—Fluvaquentic Haplaquolls, nearly level																	
Fluvaquentic Haplaquolls	98	1.0	—	Very high	3	0	8	—	Poorly drained	5w	D	0 - 11	—	—	—	—	—
30—Fort Collins loam, 0 to 3 percent slopes																	
Fort Collins	98	2.0	—	Low	5	56	5	—	Well drained	4e	B	0 - 9	.28	—	44	40	15
31—Fort Collins loam, 3 to 8 percent slopes																	
Fort Collins	98	6.0	—	Medium	5	56	5	—	Well drained	6e	B	0 - 9	.28	—	44	40	15
33—Heldt clay loam, 0 to 3 percent slopes																	
Heldt	98	2.0	—	Low	5	48	6	—	Well drained	4c	C	0 - 7	.24	—	34	32	33
39—Keith silt loam, 0 to 3 percent slopes																	
Keith	98	2.0	—	Low	5	48	6	—	Well drained	4e	C	0 - 7	.37	—	11	67	21

Custom Soil Resource Report

Conservation Planning–El Paso County Area, Colorado																	
Map symbol and soil name	Pct. of map unit	Slope RV	USLE Slope Length ft.	Runoff	T Factor	WEI	WEG	Erosion	Drainage	NIRR LCC	Hydrologic Group	Surface					
												Depths in.	Kf Factor	Frag-ments RV	Sand RV	Silt RV	Clay RV
56—Nelson-Tassel fine sandy loams, 3 to 18 percent slopes																	
Nelson	55	8.0	—	Medium	3	86	3	—	Well drained	6e	B	0 - 5	.24	13	65	27	7
Tassel	40	11.0	—	Medium	2	86	3	—	Well drained	6s	D	0 - 3	.28	11	62	26	11
59—Nunn clay loam, 0 to 3 percent slopes																	
Nunn	95	2.0	—	Low	5	48	6	—	Well drained	3c	C	0 - 11	.17	—	35	33	31
82—Schamber-Razor complex, 8 to 50 percent slopes																	
Schamber	55	29.0	—	Medium	2	48	6	—	Well drained	7e	A	0 - 5	.28	29	44	40	15
Razor	43	12.0	—	Medium	3	48	6	—	Well drained	6e	D	0 - 3	.24	—	33	32	34
86—Stoneham sandy loam, 3 to 8 percent slopes																	
Stoneham	95	6.0	—	Medium	5	86	3	—	Well drained	4e	B	0 - 3	.28	13	65	19	15
97—Truckton sandy loam, 3 to 9 percent slopes																	
Truckton	85	5.0	160	Low	5	86	3	—	Well drained	6e	A	0 - 3	.28	—	68	24	8
101—Ustic Torrifluvents, loamy																	
Ustic Torrifluvents	95	2.0	—	Low	5	—	—	—	Well drained	3e	B	0 - 5	—	—	—	—	—
108—Wiley silt loam, 3 to 9 percent slopes																	
Wiley	95	6.0	—	Medium	5	86	4L	—	Well drained	6e	B	0 - 3	.43	—	11	67	21

Custom Soil Resource Report

Conservation Planning–El Paso County Area, Colorado																	
Map symbol and soil name	Pct. of map unit	Slope RV	USLE Slope Length ft.	Runoff	T Factor	WEI	WEG	Erosion	Drainage	NIRR LCC	Hydrologic Group	Surface					
												Depths in.	Kf Factor	Frag-ments RV	Sand RV	Silt RV	Clay RV
120—Fort sandy loam, 8 to 15 percent slopes, cool																	
Fort, cool	85	10.0	118	—	5	86	3	Class 1	Well drained	6e	B	0 - 5	.17	—	65	18	16
127—Midway-Razor clay loams, dry, 1 to 18 percent slopes																	
Midway, dry	46	9.0	124	High	2	86	4L	—	Well drained	6e	D	0 - 3	.24	—	32	31	37
Razor, dry	44	6.0	150	Medium	3	86	4L	—	Well drained	6e	D	0 - 3	.20	—	31	31	38
MzA—Manzanola silty clay loam, saline, 0 to 2 percent slopes																	
Manzanola	90	1.0	196	—	5	86	4L	Class 1	Well drained	4c	C	0 - 3	.37	—	12	59	29

Vegetative Productivity

This folder contains a collection of tabular reports that present vegetative productivity data. The reports (tables) include all selected map units and components for each map unit. Vegetative productivity includes estimates of potential vegetative production for a variety of land uses, including cropland, forestland, hayland, pastureland, horticulture and rangeland. In the underlying database, some states maintain crop yield data by individual map unit component. Other states maintain the data at the map unit level. Attributes are included for both, although only one or the other is likely to contain data for any given geographic area. For other land uses, productivity data is shown only at the map unit component level. Examples include potential crop yields under irrigated and nonirrigated conditions, forest productivity, forest site index, and total rangeland production under of normal, favorable and unfavorable conditions.

Link to Ecological Site Descriptions in EDIT

This report generates a list of components and any associated ecological sites. Hyperlinks are created for each ecological site. Clicking on the hyperlink opens the Ecological Site Description in the USDA-Natural Resource Conservation Service (USDA-NRCS) Ecological Site Interpretative Tool (EDIT).

EDIT is an online information system that contains the official list of publicly available USDA-NRCS ecological sites. It replaces the out-of-date Ecological Site Information System (ESIS).

Not all Ecological Site Descriptions are publicly available in EDIT. Please contact your local State Soil Scientist if you have problems viewing the ecological site description within EDIT.

The report only displays information for those soils that are within the Area of Interest and are linked to an ecological site in the Soil Survey Geographic Database (SSURGO). If a soil (component) is not linked to an ecological site, it will not be displayed in the report.

The report displays soil map unit names and symbols, ecological site IDs, ecological site names, and available links to the EDIT website.

Report—Link to Ecological Site Descriptions in EDIT

This report links the soils in the Area of Interest to the ecological sites in the EDIT website.

Custom Soil Resource Report

Link to Ecological Site Descriptions in EDIT–El Paso County Area, Colorado					
Map symbol and map unit name	**Component**	**Percent of map unit**	**Ecological Site ID**	**Ecological Site Name**	**Hyperlink to Ecological Site Description in EDIT**
10—Blendon sandy loam, 0 to 3 percent slopes					
	Blendon	98	R049XB210CO	Sandy Foothill	https://edit.jornada.nmsu.edu/catalogs/esd/049X/R049XB210CO
28—Ellicott loamy coarse sand, 0 to 5 percent slopes					
	Ellicott	97	R069XY031CO	Sandy Bottom land	https://edit.jornada.nmsu.edu/catalogs/esd/069X/R069XY031CO
29—Fluvaquentic Haplaquolls, nearly level					
	Fluvaquentic haplaquolls	98	R067BY029CO	Sandy Meadow	https://edit.jornada.nmsu.edu/catalogs/esd/067B/R067BY029CO
30—Fort Collins loam, 0 to 3 percent slopes					
	Fort collins	98	R067BY002CO	Loamy Plains	https://edit.jornada.nmsu.edu/catalogs/esd/067B/R067BY002CO
31—Fort Collins loam, 3 to 8 percent slopes					
	Fort collins	98	R067BY002CO	Loamy Plains	https://edit.jornada.nmsu.edu/catalogs/esd/067B/R067BY002CO
33—Heldt clay loam, 0 to 3 percent slopes					
	Heldt	98	R069XY047CO	Alkaline Plains	https://edit.jornada.nmsu.edu/catalogs/esd/069X/R069XY047CO
39—Keith silt loam, 0 to 3 percent slopes					
	Keith	98	R069XY006CO	Loamy Plains	https://edit.jornada.nmsu.edu/catalogs/esd/069X/R069XY006CO
56—Nelson-Tassel fine sandy loams, 3 to 18 percent slopes					
	Nelson	55	R067BY045CO	Shaly Plains	https://edit.jornada.nmsu.edu/catalogs/esd/067B/R067BY045CO
	Tassel	40	R067BY045CO	Shaly Plains	https://edit.jornada.nmsu.edu/catalogs/esd/067B/R067BY045CO
59—Nunn clay loam, 0 to 3 percent slopes					
	Nunn	95	R069XY042CO	Clayey Plains	https://edit.jornada.nmsu.edu/catalogs/esd/069X/R069XY042CO

Custom Soil Resource Report

Link to Ecological Site Descriptions in EDIT–El Paso County Area, Colorado					
Map symbol and map unit name	**Component**	**Percent of map unit**	**Ecological Site ID**	**Ecological Site Name**	**Hyperlink to Ecological Site Description in EDIT**
82—Schamber-Razor complex, 8 to 50 percent slopes					
	Schamber	55	R069XY064CO	Gravel Breaks	https://edit.jornada.nmsu.edu/catalogs/esd/069X/R069XY064CO
	Razor	43	R069XY047CO	Alkaline Plains	https://edit.jornada.nmsu.edu/catalogs/esd/069X/R069XY047CO
86—Stoneham sandy loam, 3 to 8 percent slopes					
	Stoneham	95	R067BY024CO	Sandy Plains	https://edit.jornada.nmsu.edu/catalogs/esd/067B/R067BY024CO
97—Truckton sandy loam, 3 to 9 percent slopes					
	Truckton	85	R049XB210CO	Sandy Foothill	https://edit.jornada.nmsu.edu/catalogs/esd/049X/R049XB210CO
	Blakeland	8	R049XB210CO	Sandy Foothill	https://edit.jornada.nmsu.edu/catalogs/esd/049X/R049XB210CO
	Bresser	7	R049XB210CO	Sandy Foothill	https://edit.jornada.nmsu.edu/catalogs/esd/049X/R049XB210CO
101—Ustic Torrifluvents, loamy					
	Ustic torrifluvents	95	R069XY037CO	Saline Overflow	https://edit.jornada.nmsu.edu/catalogs/esd/069X/R069XY037CO
108—Wiley silt loam, 3 to 9 percent slopes					
	Wiley	95	R067BY002CO	Loamy Plains	https://edit.jornada.nmsu.edu/catalogs/esd/067B/R067BY002CO
120—Fort sandy loam, 8 to 15 percent slopes, cool					
	Fort, cool	85	R069XY026CO	Sandy Plains	https://edit.jornada.nmsu.edu/catalogs/esd/069X/R069XY026CO
	Vonid	10	R069XY026CO	Sandy Plains	https://edit.jornada.nmsu.edu/catalogs/esd/069X/R069XY026CO
	Wilid	5	R069XY006CO	Loamy Plains	https://edit.jornada.nmsu.edu/catalogs/esd/069X/R069XY006CO

Link to Ecological Site Descriptions in EDIT–El Paso County Area, Colorado					
Map symbol and map unit name	**Component**	**Percent of map unit**	**Ecological Site ID**	**Ecological Site Name**	**Hyperlink to Ecological Site Description in EDIT**
127—Midway-Razor clay loams, dry, 1 to 18 percent slopes					
	Midway, dry	46	R069XY046CO	Shaly Plains	https://edit.jornada.nmsu.edu/catalogs/esd/069X/R069XY046CO
	Razor, dry	44	R069XY047CO	Alkaline Plains	https://edit.jornada.nmsu.edu/catalogs/esd/069X/R069XY047CO
	Manzanola	9	R069XY042CO	Clayey Plains	https://edit.jornada.nmsu.edu/catalogs/esd/069X/R069XY042CO
MzA—Manzanola silty clay loam, saline, 0 to 2 percent slopes					
	Manzanola	90	R069XY037CO	Saline Overflow	https://edit.jornada.nmsu.edu/catalogs/esd/069X/R069XY037CO
	Haversid	5	R069XY037CO	Saline Overflow	https://edit.jornada.nmsu.edu/catalogs/esd/069X/R069XY037CO
	Aguilar	5	R069XY033CO	Salt Flat	https://edit.jornada.nmsu.edu/catalogs/esd/069X/R069XY033CO

Water Features

This folder contains tabular reports that present soil hydrology information. The reports (tables) include all selected map units and components for each map unit. Water Features include ponding frequency, flooding frequency, and depth to water table.

Water Features

This table gives estimates of various soil water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

Surface runoff refers to the loss of water from an area by flow over the land surface. Surface runoff classes are based on slope, climate, and vegetative cover. The concept indicates relative runoff for very specific conditions. It is assumed that the surface of the soil is bare and that the retention of surface water resulting from irregularities in the ground surface is minimal. The classes are negligible, very low, low, medium, high, and very high.

The *months* in the table indicate the portion of the year in which a water table, ponding, and/or flooding is most likely to be a concern.

Water table refers to a saturated zone in the soil. The water features table indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table. The kind of water table, apparent or perched, is given if a seasonal high water table exists in the soil. A water table is perched if free water is restricted from moving downward in the soil by a restrictive feature, in most cases a hardpan; there is a dry layer of soil underneath a wet layer. A water table is apparent if free water is present in all horizons from its upper boundary to below 2 meters or to the depth of observation. The water table kind listed is for the first major component in the map unit.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. The table indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after

rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Custom Soil Resource Report

Map unit symbol and soil name	Hydrologic group	Surface runoff	Most likely months	Water table			Ponding			Flooding	
				Upper limit	Lower limit	Kind	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*		*Ft*				
10—Blendon sandy loam, 0 to 3 percent slopes											
Blendon	B	Low	Jan-Dec	—	—	—	—	—	None	—	None
28—Ellicott loamy coarse sand, 0 to 5 percent slopes											
Ellicott	A	Very low	Jan-Feb	—	—	—	—	—	None	—	None
			Mar-Jun	—	—	—	—	—	None	Brief (2 to 7 days)	Frequent
			Jul-Dec	—	—	—	—	—	None	—	None
29—Fluvaquentic Haplaquolls, nearly level											
Fluvaquentic haplaquolls	D	Very high	Jan-Jul	0.0-2.0	6.0	Apparent	—	—	None	Brief (2 to 7 days)	Frequent
			Aug-Oct	—	—	—	—	—	None	Brief (2 to 7 days)	Frequent
			Nov-Dec	0.0-2.0	6.0	Apparent	—	—	None	Brief (2 to 7 days)	Frequent
30—Fort Collins loam, 0 to 3 percent slopes											
Fort collins	B	Low	Jan-Dec	—	—	—	—	—	None	—	None
31—Fort Collins loam, 3 to 8 percent slopes											
Fort collins	B	Medium	Jan-Dec	—	—	—	—	—	None	—	None
33—Heldt clay loam, 0 to 3 percent slopes											
Heldt	C	Low	Jan-Dec	—	—	—	—	—	None	—	None
39—Keith silt loam, 0 to 3 percent slopes											
Keith	C	Low	Jan-Dec	—	—	—	—	—	None	—	None
56—Nelson-Tassel fine sandy loams, 3 to 18 percent slopes											
Nelson	B	Medium	Jan-Dec	—	—	—	—	—	None	—	None
Tassel	D	Medium	Jan-Dec	—	—	—	—	—	None	—	None

Custom Soil Resource Report

Map unit symbol and soil name	Hydrologic group	Surface runoff	Most likely months	Water table			Ponding			Flooding	
				Upper limit	Lower limit	Kind	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*		*Ft*				
59—Nunn clay loam, 0 to 3 percent slopes											
Nunn	C	Low	Jan-Dec	—	—	—	—	—	None	—	None
82—Schamber-Razor complex, 8 to 50 percent slopes											
Schamber	A	Medium	Jan-Dec	—	—	—	—	—	None	—	None
Razor	D	Medium	Jan-Dec	—	—	—	—	—	None	—	None
86—Stoneham sandy loam, 3 to 8 percent slopes											
Stoneham	B	Medium	Jan-Dec	—	—	—	—	—	None	—	None
97—Truckton sandy loam, 3 to 9 percent slopes											
Truckton	A	Low	Jan-Dec	—	—	—	—	—	None	—	None
101—Ustic Torrifluvents, loamy											
Ustic torrifluvents	B	Low	Jan-Dec	—	—	—	—	—	None	—	None
108—Wiley silt loam, 3 to 9 percent slopes											
Wiley	B	Medium	Jan-Dec	—	—	—	—	—	None	—	None
111—Water											
Water			Jan-Dec	—	—	—	—	—	None	—	
120—Fort sandy loam, 8 to 15 percent slopes, cool											
Fort, cool	B		Jan-Dec	—	—	—	—	—	None	—	None
127—Midway-Razor clay loams, dry, 1 to 18 percent slopes											
Midway, dry	D	High	Jan-Dec	—	—	—	—	—	None	—	None
Razor, dry	D	Medium	Jan-Dec	—	—	—	—	—	None	—	None
MzA—Manzanola silty clay loam, saline, 0 to 2 percent slopes											
Manzanola	C		Jan-Dec	—	—	—	—	—	None	—	None

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Glossary

Many of the terms relating to landforms, geology, and geomorphology are defined in more detail in the following National Soil Survey Handbook link: "National Soil Survey Handbook."

ABC soil

A soil having an A, a B, and a C horizon.

Ablation till

Loose, relatively permeable earthy material deposited during the downwasting of nearly static glacial ice, either contained within or accumulated on the surface of the glacier.

AC soil

A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

Aeration, soil

The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil

Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alkali (sodic) soil

A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Alluvial cone

A semiconical type of alluvial fan having very steep slopes. It is higher, narrower, and steeper than a fan and is composed of coarser and thicker layers of material deposited by a combination of alluvial episodes and (to a much lesser degree) landslides (debris flow). The coarsest materials tend to be concentrated at the apex of the cone.

Alluvial fan

A low, outspread mass of loose materials and/or rock material, commonly with gentle slopes. It is shaped like an open fan or a segment of a cone. The material was deposited by a stream at the place where it issues from a narrow mountain valley or upland valley or where a tributary stream is near or at its junction with the main stream. The fan is steepest near its apex, which points upstream, and slopes gently and convexly outward (downstream) with a gradual decrease in gradient.

Alluvium

Unconsolidated material, such as gravel, sand, silt, clay, and various mixtures of these, deposited on land by running water.

Alpha,alpha-dipyridyl

A compound that when dissolved in ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction implies reducing conditions and the likely presence of redoximorphic features.

Animal unit month (AUM)

The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions

Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon

A subsoil horizon characterized by an accumulation of illuvial clay.

Arroyo

The flat-floored channel of an ephemeral stream, commonly with very steep to vertical banks cut in unconsolidated material. It is usually dry but can be transformed into a temporary watercourse or short-lived torrent after heavy rain within the watershed.

Aspect

The direction toward which a slope faces. Also called slope aspect.

Association, soil

A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity)

The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low: 0 to 3
Low: 3 to 6
Moderate: 6 to 9
High: 9 to 12
Very high: More than 12

Backslope

The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

Backswamp

A flood-plain landform. Extensive, marshy or swampy, depressed areas of flood plains between natural levees and valley sides or terraces.

Badland

A landscape that is intricately dissected and characterized by a very fine drainage network with high drainage densities and short, steep slopes and narrow interfluves. Badlands develop on surfaces that have little or no vegetative cover overlying unconsolidated or poorly cemented materials (clays, silts, or sandstones) with, in some cases, soluble minerals, such as gypsum or halite.

Bajada

A broad, gently inclined alluvial piedmont slope extending from the base of a mountain range out into a basin and formed by the lateral coalescence of a series of alluvial fans. Typically, it has a broadly undulating transverse profile, parallel to the mountain front, resulting from the convexities of component fans. The term is generally restricted to constructional slopes of intermontane basins.

Basal area

The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

Base saturation

The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Base slope (geomorphology)

A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).

Bedding plane

A planar or nearly planar bedding surface that visibly separates each successive layer of stratified sediment or rock (of the same or different lithology)

from the preceding or following layer; a plane of deposition. It commonly marks a change in the circumstances of deposition and may show a parting, a color difference, a change in particle size, or various combinations of these. The term is commonly applied to any bedding surface, even one that is conspicuously bent or deformed by folding.

Bedding system

A drainage system made by plowing, grading, or otherwise shaping the surface of a flat field. It consists of a series of low ridges separated by shallow, parallel dead furrows.

Bedrock

The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock-controlled topography

A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

Bench terrace

A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

Bisequum

Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Blowout (map symbol)

A saucer-, cup-, or trough-shaped depression formed by wind erosion on a preexisting dune or other sand deposit, especially in an area of shifting sand or loose soil or where protective vegetation is disturbed or destroyed. The adjoining accumulation of sand derived from the depression, where recognizable, is commonly included. Blowouts are commonly small.

Borrow pit (map symbol)

An open excavation from which soil and underlying material have been removed, usually for construction purposes.

Bottom land

An informal term loosely applied to various portions of a flood plain.

Boulders

Rock fragments larger than 2 feet (60 centimeters) in diameter.

Breaks

A landscape or tract of steep, rough or broken land dissected by ravines and gullies and marking a sudden change in topography.

Breast height

An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

Brush management

Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Butte

An isolated, generally flat-topped hill or mountain with relatively steep slopes and talus or precipitous cliffs and characterized by summit width that is less than the height of bounding escarpments; commonly topped by a caprock of resistant material and representing an erosion remnant carved from flat-lying rocks.

Cable yarding

A method of moving felled trees to a nearby central area for transport to a processing facility. Most cable yarding systems involve use of a drum, a pole, and wire cables in an arrangement similar to that of a rod and reel used for fishing. To reduce friction and soil disturbance, felled trees generally are reeled in while one end is lifted or the entire log is suspended.

Calcareous soil

A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Caliche

A general term for a prominent zone of secondary carbonate accumulation in surficial materials in warm, subhumid to arid areas. Caliche is formed by both geologic and pedologic processes. Finely crystalline calcium carbonate forms a nearly continuous surface-coating and void-filling medium in geologic (parent) materials. Cementation ranges from weak in nonindurated forms to very strong in indurated forms. Other minerals (e.g., carbonates, silicate, and sulfate) may occur as accessory cements. Most petrocalcic horizons and some calcic horizons are caliche.

California bearing ratio (CBR)

The load-supporting capacity of a soil as compared to that of standard crushed limestone, expressed as a ratio. First standardized in California. A soil having a CBR of 16 supports 16 percent of the load that would be supported by standard crushed limestone, per unit area, with the same degree of distortion.

Canopy

The leafy crown of trees or shrubs. (See Crown.)

Canyon

A long, deep, narrow valley with high, precipitous walls in an area of high local relief.

Capillary water

Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Catena

A sequence, or “chain,” of soils on a landscape that formed in similar kinds of parent material and under similar climatic conditions but that have different characteristics as a result of differences in relief and drainage.

Cation

An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity

The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Catsteps

See Terracettes.

Cement rock

Shaly limestone used in the manufacture of cement.

Channery soil material

Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Chemical treatment

Control of unwanted vegetation through the use of chemicals.

Chiseling

Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Cirque

A steep-walled, semicircular or crescent-shaped, half-bowl-like recess or hollow, commonly situated at the head of a glaciated mountain valley or high on the side of a mountain. It was produced by the erosive activity of a mountain glacier. It commonly contains a small round lake (tarn).

Clay

As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions

See Redoximorphic features.

Clay film

A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Clay spot (map symbol)

A spot where the surface texture is silty clay or clay in areas where the surface layer of the soils in the surrounding map unit is sandy loam, loam, silt loam, or coarser.

Claypan

A dense, compact subsoil layer that contains much more clay than the overlying materials, from which it is separated by a sharply defined boundary. The layer restricts the downward movement of water through the soil. A claypan is commonly hard when dry and plastic and sticky when wet.

Climax plant community

The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse textured soil

Sand or loamy sand.

Cobble (or cobblestone)

A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material

Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

COLE (coefficient of linear extensibility)

See Linear extensibility.

Colluvium

Unconsolidated, unsorted earth material being transported or deposited on side slopes and/or at the base of slopes by mass movement (e.g., direct gravitational action) and by local, unconcentrated runoff.

Complex slope

Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil

A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions

See Redoximorphic features.

Conglomerate

A coarse grained, clastic sedimentary rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.

Conservation cropping system

Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage

A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil

Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the “Soil Survey Manual.”

Contour stripcropping

Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section

The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Coprogenous earth (sedimentary peat)

A type of limnic layer composed predominantly of fecal material derived from aquatic animals.

Corrosion (geomorphology)

A process of erosion whereby rocks and soil are removed or worn away by natural chemical processes, especially by the solvent action of running water, but also by other reactions, such as hydrolysis, hydration, carbonation, and oxidation.

Corrosion (soil survey interpretations)

Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop

A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Crop residue management

Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cropping system

Growing crops according to a planned system of rotation and management practices.

Cross-slope farming

Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

Crown

The upper part of a tree or shrub, including the living branches and their foliage.

Cryoturbate

A mass of soil or other unconsolidated earthy material moved or disturbed by frost action. It is typically coarser than the underlying material.

Cuesta

An asymmetric ridge capped by resistant rock layers of slight or moderate dip (commonly less than 15 percent slopes); a type of homocline produced by differential erosion of interbedded resistant and weak rocks. A cuesta has a long, gentle slope on one side (dip slope) that roughly parallels the inclined beds; on the other side, it has a relatively short and steep or clifflike slope (scarp) that cuts through the tilted rocks.

Culmination of the mean annual increment (CMAI)

The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

Cutbanks cave

The walls of excavations tend to cave in or slough.

Decreasers

The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deferred grazing

Postponing grazing or resting grazing land for a prescribed period.

Delta

A body of alluvium having a surface that is fan shaped and nearly flat; deposited at or near the mouth of a river or stream where it enters a body of relatively quiet water, generally a sea or lake.

Dense layer

A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depression, closed (map symbol)

A shallow, saucer-shaped area that is slightly lower on the landscape than the surrounding area and that does not have a natural outlet for surface drainage.

Depth, soil

Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Desert pavement

A natural, residual concentration or layer of wind-polished, closely packed gravel, boulders, and other rock fragments mantling a desert surface. It forms where wind action and sheetwash have removed all smaller particles or where rock fragments have migrated upward through sediments to the surface. It typically protects the finer grained underlying material from further erosion.

Diatomaceous earth

A geologic deposit of fine, grayish siliceous material composed chiefly or entirely of the remains of diatoms.

Dip slope

A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.

Diversion (or diversion terrace)

A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Divided-slope farming

A form of field stripcropping in which crops are grown in a systematic arrangement of two strips, or bands, across the slope to reduce the hazard of water erosion. One strip is in a close-growing crop that provides protection from erosion, and the other strip is in a crop that provides less protection from erosion. This practice is used where slopes are not long enough to permit a full stripcropping pattern to be used.

Drainage class (natural)

Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained*. These classes are defined in the “Soil Survey Manual.”

Drainage, surface

Runoff, or surface flow of water, from an area.

Drainageway

A general term for a course or channel along which water moves in draining an area. A term restricted to relatively small, linear depressions that at some time move concentrated water and either do not have a defined channel or have only a small defined channel.

Draw

A small stream valley that generally is shallower and more open than a ravine or gulch and that has a broader bottom. The present stream channel may appear inadequate to have cut the drainageway that it occupies.

Drift

A general term applied to all mineral material (clay, silt, sand, gravel, and boulders) transported by a glacier and deposited directly by or from the ice or transported by running water emanating from a glacier. Drift includes unstratified material (till) that forms moraines and stratified deposits that form outwash plains, eskers, kames, varves, and glaciofluvial sediments. The term is generally applied to Pleistocene glacial deposits in areas that no longer contain glaciers.

Drumlin

A low, smooth, elongated oval hill, mound, or ridge of compact till that has a core of bedrock or drift. It commonly has a blunt nose facing the direction from which the ice approached and a gentler slope tapering in the other direction. The longer axis is parallel to the general direction of glacier flow. Drumlins are products of streamline (laminar) flow of glaciers, which molded the subglacial floor through a combination of erosion and deposition.

Duff

A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Dune

A low mound, ridge, bank, or hill of loose, windblown granular material (generally sand), either barren and capable of movement from place to place or covered and stabilized with vegetation but retaining its characteristic shape.

Earthy fill

See Mine spoil.

Ecological site

An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.

Eluviation

The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation

A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian deposit

Sand-, silt-, or clay-sized clastic material transported and deposited primarily by wind, commonly in the form of a dune or a sheet of sand or loess.

Ephemeral stream

A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation

A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion

The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (accelerated)

Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Erosion (geologic)

Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion pavement

A surficial lag concentration or layer of gravel and other rock fragments that remains on the soil surface after sheet or rill erosion or wind has removed the finer soil particles and that tends to protect the underlying soil from further erosion.

Erosion surface

A land surface shaped by the action of erosion, especially by running water.

Escarpment

A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Most commonly applied to cliffs produced by differential erosion. Synonym: scarp.

Escarpment, bedrock (map symbol)

A relatively continuous and steep slope or cliff, produced by erosion or faulting, that breaks the general continuity of more gently sloping land surfaces. Exposed material is hard or soft bedrock.

Escarpment, nonbedrock (map symbol)

A relatively continuous and steep slope or cliff, generally produced by erosion but in some places produced by faulting, that breaks the continuity of more gently sloping land surfaces. Exposed earthy material is nonsoil or very shallow soil.

Esker

A long, narrow, sinuous, steep-sided ridge of stratified sand and gravel deposited as the bed of a stream flowing in an ice tunnel within or below the ice (subglacial) or between ice walls on top of the ice of a wasting glacier and left

behind as high ground when the ice melted. Eskers range in length from less than a kilometer to more than 160 kilometers and in height from 3 to 30 meters.

Extrusive rock

Igneous rock derived from deep-seated molten matter (magma) deposited and cooled on the earth's surface.

Fallow

Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fan remnant

A general term for landforms that are the remaining parts of older fan landforms, such as alluvial fans, that have been either dissected or partially buried.

Fertility, soil

The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fibric soil material (peat)

The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity

The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fill slope

A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

Fine textured soil

Sandy clay, silty clay, or clay.

Firebreak

An area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.

First bottom

An obsolete, informal term loosely applied to the lowest flood-plain steps that are subject to regular flooding.

Flaggy soil material

Material that has, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.

Flagstone

A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

Flood plain

The nearly level plain that borders a stream and is subject to flooding unless protected artificially.

Flood-plain landforms

A variety of constructional and erosional features produced by stream channel migration and flooding. Examples include backswamps, flood-plain splays, meanders, meander belts, meander scrolls, oxbow lakes, and natural levees.

Flood-plain splay

A fan-shaped deposit or other outspread deposit formed where an overloaded stream breaks through a levee (natural or artificial) and deposits its material (commonly coarse grained) on the flood plain.

Flood-plain step

An essentially flat, terrace-like alluvial surface within a valley that is frequently covered by floodwater from the present stream; any approximately horizontal surface still actively modified by fluvial scour and/or deposition. May occur individually or as a series of steps.

Fluvial

Of or pertaining to rivers or streams; produced by stream or river action.

Foothills

A region of steeply sloping hills that fringes a mountain range or high-plateau escarpment. The hills have relief of as much as 1,000 feet (300 meters).

Footslope

The concave surface at the base of a hillslope. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forb

Any herbaceous plant not a grass or a sedge.

Forest cover

All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type

A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Fragipan

A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Genesis, soil

The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gilgai

Commonly, a succession of microbasins and microknolls in nearly level areas or of microvalleys and microridges parallel with the slope. Typically, the microrelief of clayey soils that shrink and swell considerably with changes in moisture content.

Glaciofluvial deposits

Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur in the form of outwash plains, valley trains, deltas, kames, eskers, and kame terraces.

Glaciolacustrine deposits

Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial meltwater. Many deposits are bedded or laminated.

Gleyed soil

Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Graded stripcropping

Growing crops in strips that grade toward a protected waterway.

Grassed waterway

A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel

Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravel pit (map symbol)

An open excavation from which soil and underlying material have been removed and used, without crushing, as a source of sand or gravel.

Gravelly soil material

Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Gravelly spot (map symbol)

A spot where the surface layer has more than 35 percent, by volume, rock fragments that are mostly less than 3 inches in diameter in an area that has less than 15 percent rock fragments.

Green manure crop (agronomy)

A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water

Water filling all the unblocked pores of the material below the water table.

Gully (map symbol)

A small, steep-sided channel caused by erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage whereas a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock

Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hard to reclaim

Reclamation is difficult after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Hardpan

A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Head slope (geomorphology)

A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

Hemic soil material (mucky peat)

Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

High-residue crops

Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill

A generic term for an elevated area of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline. Slopes are generally more than 15 percent. The distinction between a hill and a mountain is arbitrary and may depend on local usage.

Hillslope

A generic term for the steeper part of a hill between its summit and the drainage line, valley flat, or depression floor at the base of a hill.

Horizon, soil

A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the “Soil Survey Manual.” The major horizons of mineral soil are as follows:

O horizon: An organic layer of fresh and decaying plant residue.

L horizon: A layer of organic and mineral limnic materials, including coprogenous earth (sedimentary peat), diatomaceous earth, and marl.

A horizon: The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon: The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon: The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon: The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon: Soft, consolidated bedrock beneath the soil.

R layer: Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

M layer: A root-limiting subsoil layer consisting of nearly continuous, horizontally oriented, human-manufactured materials.

W layer: A layer of water within or beneath the soil.

Humus

The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups

Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties include depth to a seasonal high water table, the infiltration rate, and depth to a layer that significantly restricts the downward movement of water. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Igneous rock

Rock that was formed by cooling and solidification of magma and that has not been changed appreciably by weathering since its formation. Major varieties include plutonic and volcanic rock (e.g., andesite, basalt, and granite).

Illuviation

The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil

A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Increasers

Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

Infiltration

The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity

The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate

The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate

The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Very low: Less than 0.2
Low: 0.2 to 0.4
Moderately low: 0.4 to 0.75
Moderate: 0.75 to 1.25
Moderately high: 1.25 to 1.75
High: 1.75 to 2.5
Very high: More than 2.5

Interfluve

A landform composed of the relatively undissected upland or ridge between two adjacent valleys containing streams flowing in the same general direction. An elevated area between two drainageways that sheds water to those drainageways.

Interfluve (geomorphology)

A geomorphic component of hills consisting of the uppermost, comparatively level or gently sloping area of a hill; shoulders of backwearing hillslopes can narrow the upland or can merge, resulting in a strongly convex shape.

Intermittent stream

A stream, or reach of a stream, that does not flow year-round but that is commonly dry for 3 or more months out of 12 and whose channel is generally below the local water table. It flows only during wet periods or when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Invaders

On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Iron depletions

See Redoximorphic features.

Irrigation

Application of water to soils to assist in production of crops. Methods of irrigation are:

Basin: Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Border: Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Controlled flooding: Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation: Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle): Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow: Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler: Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation: Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding: Water, released at high points, is allowed to flow onto an area without controlled distribution.

Kame

A low mound, knob, hummock, or short irregular ridge composed of stratified sand and gravel deposited by a subglacial stream as a fan or delta at the margin of a melting glacier; by a supraglacial stream in a low place or hole on the surface of the glacier; or as a ponded deposit on the surface or at the margin of stagnant ice.

Karst (topography)

A kind of topography that formed in limestone, gypsum, or other soluble rocks by dissolution and that is characterized by closed depressions, sinkholes, caves, and underground drainage.

Knoll

A small, low, rounded hill rising above adjacent landforms.

Ksat

See Saturated hydraulic conductivity.

Lacustrine deposit

Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Lake plain

A nearly level surface marking the floor of an extinct lake filled by well sorted, generally fine textured, stratified deposits, commonly containing varves.

Lake terrace

A narrow shelf, partly cut and partly built, produced along a lakeshore in front of a scarp line of low cliffs and later exposed when the water level falls.

Landfill (map symbol)

An area of accumulated waste products of human habitation, either above or below natural ground level.

Landslide

A general, encompassing term for most types of mass movement landforms and processes involving the downslope transport and outward deposition of soil and rock materials caused by gravitational forces; the movement may or may not involve saturated materials. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones

Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Lava flow (map symbol)

A solidified, commonly lobate body of rock formed through lateral, surface outpouring of molten lava from a vent or fissure.

Leaching

The removal of soluble material from soil or other material by percolating water.

Levee (map symbol)

An embankment that confines or controls water, especially one built along the banks of a river to prevent overflow onto lowlands.

Linear extensibility

Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $^{1}/_{3}$- or $^{1}/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit

The moisture content at which the soil passes from a plastic to a liquid state.

Loam

Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess

Material transported and deposited by wind and consisting dominantly of silt-sized particles.

Low strength

The soil is not strong enough to support loads.

Low-residue crops

Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Marl

An earthy, unconsolidated deposit consisting chiefly of calcium carbonate mixed with clay in approximately equal proportions; formed primarily under freshwater lacustrine conditions but also formed in more saline environments.

Marsh or swamp (map symbol)

A water-saturated, very poorly drained area that is intermittently or permanently covered by water. Sedges, cattails, and rushes are the dominant vegetation in marshes, and trees or shrubs are the dominant vegetation in swamps. Not used in map units where the named soils are poorly drained or very poorly drained.

Mass movement

A generic term for the dislodgment and downslope transport of soil and rock material as a unit under direct gravitational stress.

Masses

See Redoximorphic features.

Meander belt

The zone within which migration of a meandering channel occurs; the flood-plain area included between two imaginary lines drawn tangential to the outer bends of active channel loops.

Meander scar

A crescent-shaped, concave or linear mark on the face of a bluff or valley wall, produced by the lateral erosion of a meandering stream that impinged upon and undercut the bluff.

Meander scroll

One of a series of long, parallel, close-fitting, crescent-shaped ridges and troughs formed along the inner bank of a stream meander as the channel migrated laterally down-valley and toward the outer bank.

Mechanical treatment

Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil

Very fine sandy loam, loam, silt loam, or silt.

Mesa

A broad, nearly flat topped and commonly isolated landmass bounded by steep slopes or precipitous cliffs and capped by layers of resistant, nearly horizontal rocky material. The summit width is characteristically greater than the height of the bounding escarpments.

Metamorphic rock

Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement at depth in the earth’s crust. Nearly all such rocks are crystalline.

Mine or quarry (map symbol)

An open excavation from which soil and underlying material have been removed and in which bedrock is exposed. Also denotes surface openings to underground mines.

Mine spoil

An accumulation of displaced earthy material, rock, or other waste material removed during mining or excavation. Also called earthy fill.

Mineral soil

Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage

Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area

A kind of map unit that has little or no natural soil and supports little or no vegetation.

Miscellaneous water (map symbol)

Small, constructed bodies of water that are used for industrial, sanitary, or mining applications and that contain water most of the year.

Moderately coarse textured soil

Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil

Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon

A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Moraine

In terms of glacial geology, a mound, ridge, or other topographically distinct accumulation of unsorted, unstratified drift, predominantly till, deposited primarily by the direct action of glacial ice in a variety of landforms. Also, a general term for a landform composed mainly of till (except for kame moraines, which are composed mainly of stratified outwash) that has been deposited by a glacier. Some types of moraines are disintegration, end, ground, kame, lateral, recessional, and terminal.

Morphology, soil

The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil

Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Mountain

A generic term for an elevated area of the land surface, rising more than 1,000 feet (300 meters) above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can

occur as a single, isolated mass or in a group forming a chain or range. Mountains are formed primarily by tectonic activity and/or volcanic action but can also be formed by differential erosion.

Muck

Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Mucky peat

See Hemic soil material.

Mudstone

A blocky or massive, fine grained sedimentary rock in which the proportions of clay and silt are approximately equal. Also, a general term for such material as clay, silt, claystone, siltstone, shale, and argillite and that should be used only when the amounts of clay and silt are not known or cannot be precisely identified.

Munsell notation

A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Natric horizon

A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.

Neutral soil

A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules

See Redoximorphic features.

Nose slope (geomorphology)

A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent. Nose slopes consist dominantly of colluvium and slope-wash sediments (for example, slope alluvium).

Nutrient, plant

Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter

Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low: Less than 0.5 percent
Low: 0.5 to 1.0 percent
Moderately low: 1.0 to 2.0 percent
Moderate: 2.0 to 4.0 percent
High: 4.0 to 8.0 percent
Very high: More than 8.0 percent

Outwash

Stratified and sorted sediments (chiefly sand and gravel) removed or “washed out” from a glacier by meltwater streams and deposited in front of or beyond the end moraine or the margin of a glacier. The coarser material is deposited nearer to the ice.

Outwash plain

An extensive lowland area of coarse textured glaciofluvial material. An outwash plain is commonly smooth; where pitted, it generally is low in relief.

Paleoterrace

An erosional remnant of a terrace that retains the surface form and alluvial deposits of its origin but was not emplaced by, and commonly does not grade to, a present-day stream or drainage network.

Pan

A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.

Parent material

The unconsolidated organic and mineral material in which soil forms.

Peat

Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped

An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedisediment

A layer of sediment, eroded from the shoulder and backslope of an erosional slope, that lies on and is being (or was) transported across a gently sloping erosional surface at the foot of a receding hill or mountain slope.

Pedon

The smallest volume that can be called “a soil.” A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation

The movement of water through the soil.

Perennial water (map symbol)

Small, natural or constructed lakes, ponds, or pits that contain water most of the year.

Permafrost

Ground, soil, or rock that remains at or below 0 degrees C for at least 2 years. It is defined on the basis of temperature and is not necessarily frozen.

pH value

A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Phase, soil

A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

Piping

Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Pitting

Pits caused by melting around ice. They form on the soil after plant cover is removed.

Plastic limit

The moisture content at which a soil changes from semisolid to plastic.

Plasticity index

The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plateau (geomorphology)

A comparatively flat area of great extent and elevation; specifically, an extensive land region that is considerably elevated (more than 100 meters) above the adjacent lower lying terrain, is commonly limited on at least one side by an abrupt descent, and has a flat or nearly level surface. A comparatively large part of a plateau surface is near summit level.

Playa

The generally dry and nearly level lake plain that occupies the lowest parts of closed depressions, such as those on intermontane basin floors. Temporary flooding occurs primarily in response to precipitation and runoff. Playa deposits are fine grained and may or may not have a high water table and saline conditions.

Plinthite

The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.

Plowpan

A compacted layer formed in the soil directly below the plowed layer.

Ponding

Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded

Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Pore linings

See Redoximorphic features.

Potential native plant community

See Climax plant community.

Potential rooting depth (effective rooting depth)

Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning

Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil

The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil

A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use

Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and

promotes the accumulation of litter and mulch necessary to conserve soil and water.

Rangeland

Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Reaction, soil

A measure of acidity or alkalinity of a soil, expressed as pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid: Less than 3.5
Extremely acid: 3.5 to 4.4
Very strongly acid: 4.5 to 5.0
Strongly acid: 5.1 to 5.5
Moderately acid: 5.6 to 6.0
Slightly acid: 6.1 to 6.5
Neutral: 6.6 to 7.3
Slightly alkaline: 7.4 to 7.8
Moderately alkaline: 7.9 to 8.4
Strongly alkaline: 8.5 to 9.0
Very strongly alkaline: 9.1 and higher

Red beds

Sedimentary strata that are mainly red and are made up largely of sandstone and shale.

Redoximorphic concentrations

See Redoximorphic features.

Redoximorphic depletions

See Redoximorphic features.

Redoximorphic features

Redoximorphic features are associated with wetness and result from alternating periods of reduction and oxidation of iron and manganese compounds in the soil. Reduction occurs during saturation with water, and oxidation occurs when the soil is not saturated. Characteristic color patterns are created by these processes. The reduced iron and manganese ions may be removed from a soil if vertical or lateral fluxes of water occur, in which case there is no iron or manganese precipitation in that soil. Wherever the iron and manganese are oxidized and precipitated, they form either soft masses or hard concretions or nodules. Movement of iron and manganese as a result of redoximorphic processes in a soil may result in redoximorphic features that are defined as follows:

1. Redoximorphic concentrations.—These are zones of apparent accumulation of iron-manganese oxides, including:
   A. Nodules and concretions, which are cemented bodies that can be removed from the soil intact. Concretions are distinguished from nodules on the basis of internal organization. A concretion typically has concentric layers that are visible to the naked eye. Nodules do not have visible organized internal structure; *and*
   B. Masses, which are noncemented concentrations of substances within the soil matrix; *and*
   C. Pore linings, i.e., zones of accumulation along pores that may be either coatings on pore surfaces or impregnations from the matrix adjacent to the pores.
2. Redoximorphic depletions.—These are zones of low chroma (chromas less than those in the matrix) where either iron-manganese oxides alone or both iron-manganese oxides and clay have been stripped out, including:
   A. Iron depletions, i.e., zones that contain low amounts of iron and manganese oxides but have a clay content similar to that of the adjacent matrix; *and*
   B. Clay depletions, i.e., zones that contain low amounts of iron, manganese, and clay (often referred to as silt coatings or skeletans).
3. Reduced matrix.—This is a soil matrix that has low chroma *in situ* but undergoes a change in hue or chroma within 30 minutes after the soil material has been exposed to air.

Reduced matrix

See Redoximorphic features.

Regolith

All unconsolidated earth materials above the solid bedrock. It includes material weathered in place from all kinds of bedrock and alluvial, glacial, eolian, lacustrine, and pyroclastic deposits.

Relief

The relative difference in elevation between the upland summits and the lowlands or valleys of a given region.

Residuum (residual soil material)

Unconsolidated, weathered or partly weathered mineral material that accumulated as bedrock disintegrated in place.

Rill

A very small, steep-sided channel resulting from erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. A rill generally is not an obstacle to wheeled vehicles and is shallow enough to be smoothed over by ordinary tillage.

Riser

The vertical or steep side slope (e.g., escarpment) of terraces, flood-plain steps, or other stepped landforms; commonly a recurring part of a series of natural, steplike landforms, such as successive stream terraces.

Road cut

A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments

Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rock outcrop (map symbol)

An exposure of bedrock at the surface of the earth. Not used where the named soils of the surrounding map unit are shallow over bedrock or where “Rock outcrop” is a named component of the map unit.

Root zone

The part of the soil that can be penetrated by plant roots.

Runoff

The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Saline soil

A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.

Saline spot (map symbol)

An area where the surface layer has an electrical conductivity of 8 mmhos/cm more than the surface layer of the named soils in the surrounding map unit. The surface layer of the surrounding soils has an electrical conductivity of 2 mmhos/cm or less.

Sand

As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone

Sedimentary rock containing dominantly sand-sized particles.

Sandy spot (map symbol)

A spot where the surface layer is loamy fine sand or coarser in areas where the surface layer of the named soils in the surrounding map unit is very fine sandy loam or finer.

Sapric soil material (muck)

The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Saturated hydraulic conductivity (Ksat)

The ease with which pores of a saturated soil transmit water. Formally, the proportionality coefficient that expresses the relationship of the rate of water movement to hydraulic gradient in Darcy's Law, a law that describes the rate of water movement through porous media. Commonly abbreviated as "Ksat." Terms describing saturated hydraulic conductivity are:

Very high: 100 or more micrometers per second (14.17 or more inches per hour)

High: 10 to 100 micrometers per second (1.417 to 14.17 inches per hour)

Moderately high: 1 to 10 micrometers per second (0.1417 inch to 1.417 inches per hour)

Moderately low: 0.1 to 1 micrometer per second (0.01417 to 0.1417 inch per hour)

Low: 0.01 to 0.1 micrometer per second (0.001417 to 0.01417 inch per hour)

Very low: Less than 0.01 micrometer per second (less than 0.001417 inch per hour).

To convert inches per hour to micrometers per second, multiply inches per hour by 7.0572. To convert micrometers per second to inches per hour, multiply micrometers per second by 0.1417.

Saturation

Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Scarification

The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

Sedimentary rock

A consolidated deposit of clastic particles, chemical precipitates, or organic remains accumulated at or near the surface of the earth under normal low temperature and pressure conditions. Sedimentary rocks include consolidated equivalents of alluvium, colluvium, drift, and eolian, lacustrine, and marine deposits. Examples are sandstone, siltstone, mudstone, claystone, shale, conglomerate, limestone, dolomite, and coal.

Sequum

A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil

A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Severely eroded spot (map symbol)

An area where, on the average, 75 percent or more of the original surface layer has been lost because of accelerated erosion. Not used in map units in which “severely eroded,” “very severely eroded,” or “gullied” is part of the map unit name.

Shale

Sedimentary rock that formed by the hardening of a deposit of clay, silty clay, or silty clay loam and that has a tendency to split into thin layers.

Sheet erosion

The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Short, steep slope (map symbol)

A narrow area of soil having slopes that are at least two slope classes steeper than the slope class of the surrounding map unit.

Shoulder

The convex, erosional surface near the top of a hillslope. A shoulder is a transition from summit to backslope.

Shrink-swell

The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Shrub-coppice dune

A small, streamlined dune that forms around brush and clump vegetation.

Side slope (geomorphology)

A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel. Side slopes are dominantly colluvium and slope-wash sediments.

Silica

A combination of silicon and oxygen. The mineral form is called quartz.

Silica-sesquioxide ratio

The ratio of the number of molecules of silica to the number of molecules of alumina and iron oxide. The more highly weathered soils or their clay fractions in warm-temperate, humid regions, and especially those in the tropics, generally have a low ratio.

Silt

As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone

An indurated silt having the texture and composition of shale but lacking its fine lamination or fissility; a massive mudstone in which silt predominates over clay.

Similar soils

Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Sinkhole (map symbol)

A closed, circular or elliptical depression, commonly funnel shaped, characterized by subsurface drainage and formed either by dissolution of the surface of underlying bedrock (e.g., limestone, gypsum, or salt) or by collapse of underlying caves within bedrock. Complexes of sinkholes in carbonate-rock terrain are the main components of karst topography.

Site index

A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slickensides (pedogenic)

Grooved, striated, and/or glossy (shiny) slip faces on structural peds, such as wedges; produced by shrink-swell processes, most commonly in soils that have a high content of expansive clays.

Slide or slip (map symbol)

A prominent landform scar or ridge caused by fairly recent mass movement or descent of earthy material resulting from failure of earth or rock under shear stress along one or several surfaces.

Slope

The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slope alluvium

Sediment gradually transported down the slopes of mountains or hills primarily by nonchannel alluvial processes (i.e., slope-wash processes) and characterized by particle sorting. Lateral particle sorting is evident on long slopes. In a profile sequence, sediments may be distinguished by differences in size and/or specific gravity of rock fragments and may be separated by stone lines. Burnished peds and sorting of rounded or subrounded pebbles or cobbles distinguish these materials from unsorted colluvial deposits.

Slow refill

The slow filling of ponds, resulting from restricted water transmission in the soil.

Slow water movement

Restricted downward movement of water through the soil. See Saturated hydraulic conductivity.

Sodic (alkali) soil

A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Sodic spot (map symbol)

An area where the surface layer has a sodium adsorption ratio that is at least 10 more than that of the surface layer of the named soils in the surrounding map unit. The surface layer of the surrounding soils has a sodium adsorption ratio of 5 or less.

Sodicity

The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, or the ratio of Na^{+} to $Ca^{++} + Mg^{++}$. The degrees of sodicity and their respective ratios are:

Slight: Less than 13:1
Moderate: 13-30:1
Strong: More than 30:1

Sodium adsorption ratio (SAR)

A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

Soft bedrock

Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil

A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief and by the passage of time.

Soil separates

Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand: 2.0 to 1.0
Coarse sand: 1.0 to 0.5
Medium sand: 0.5 to 0.25
Fine sand: 0.25 to 0.10
Very fine sand: 0.10 to 0.05
Silt: 0.05 to 0.002
Clay: Less than 0.002

Solum

The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Spoil area (map symbol)

A pile of earthy materials, either smoothed or uneven, resulting from human activity.

Stone line

In a vertical cross section, a line formed by scattered fragments or a discrete layer of angular and subangular rock fragments (commonly a gravel- or cobble-sized lag concentration) that formerly was draped across a topographic surface and was later buried by additional sediments. A stone line generally caps material that was subject to weathering, soil formation, and erosion before burial. Many stone lines seem to be buried erosion pavements, originally formed by sheet and rill erosion across the land surface.

Stones

Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony

Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stony spot (map symbol)

A spot where 0.01 to 0.1 percent of the soil surface is covered by rock fragments that are more than 10 inches in diameter in areas where the surrounding soil has no surface stones.

Strath terrace

A type of stream terrace; formed as an erosional surface cut on bedrock and thinly mantled with stream deposits (alluvium).

Stream terrace

One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel, originally formed near the level of the stream; represents the remnants of an abandoned flood plain, stream bed, or valley floor produced during a former state of fluvial erosion or deposition.

Stripcropping

Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil

The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are:

Platy: Flat and laminated
Prismatic: Vertically elongated and having flat tops
Columnar: Vertically elongated and having rounded tops
Angular blocky: Having faces that intersect at sharp angles (planes)
Subangular blocky: Having subrounded and planar faces (no sharp angles)
Granular: Small structural units with curved or very irregular faces

Structureless soil horizons are defined as follows:

Single grained: Entirely noncoherent (each grain by itself), as in loose sand
Massive: Occurring as a coherent mass

Stubble mulch

Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil

Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling

Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum

The part of the soil below the solum.

Subsurface layer

Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summer fallow

The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

Summit

The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

Surface layer

The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the “plow layer,” or the “Ap horizon.”

Surface soil

The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Talus

Rock fragments of any size or shape (commonly coarse and angular) derived from and lying at the base of a cliff or very steep rock slope. The accumulated mass of such loose broken rock formed chiefly by falling, rolling, or sliding.

Taxadjuncts

Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Terminal moraine

An end moraine that marks the farthest advance of a glacier. It typically has the form of a massive arcuate or concentric ridge, or complex of ridges, and is underlain by till and other types of drift.

Terrace (conservation)

An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field

generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geomorphology)

A steplike surface, bordering a valley floor or shoreline, that represents the former position of a flood plain, lake, or seashore. The term is usually applied both to the relatively flat summit surface (tread) that was cut or built by stream or wave action and to the steeper descending slope (scarp or riser) that has graded to a lower base level of erosion.

Terracettes

Small, irregular steplike forms on steep hillslopes, especially in pasture, formed by creep or erosion of surficial materials that may be induced or enhanced by trampling of livestock, such as sheep or cattle.

Texture, soil

The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying “coarse,” “fine,” or “very fine.”

Thin layer

Otherwise suitable soil material that is too thin for the specified use.

Till

Dominantly unsorted and nonstratified drift, generally unconsolidated and deposited directly by a glacier without subsequent reworking by meltwater, and consisting of a heterogeneous mixture of clay, silt, sand, gravel, stones, and boulders; rock fragments of various lithologies are embedded within a finer matrix that can range from clay to sandy loam.

Till plain

An extensive area of level to gently undulating soils underlain predominantly by till and bounded at the distal end by subordinate recessional or end moraines.

Tilth, soil

The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope

The gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

Topsoil

The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements

Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Tread

The flat to gently sloping, topmost, laterally extensive slope of terraces, flood-plain steps, or other stepped landforms; commonly a recurring part of a series of natural steplike landforms, such as successive stream terraces.

Tuff

A generic term for any consolidated or cemented deposit that is 50 percent or more volcanic ash.

Upland

An informal, general term for the higher ground of a region, in contrast with a low-lying adjacent area, such as a valley or plain, or for land at a higher elevation than the flood plain or low stream terrace; land above the footslope zone of the hillslope continuum.

Valley fill

The unconsolidated sediment deposited by any agent (water, wind, ice, or mass wasting) so as to fill or partly fill a valley.

Variegation

Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Varve

A sedimentary layer or a lamina or sequence of laminae deposited in a body of still water within a year. Specifically, a thin pair of graded glaciolacustrine layers seasonally deposited, usually by meltwater streams, in a glacial lake or other body of still water in front of a glacier.

Very stony spot (map symbol)

A spot where 0.1 to 3.0 percent of the soil surface is covered by rock fragments that are more than 10 inches in diameter in areas where the surface of the surrounding soil is covered by less than 0.01 percent stones.

Water bars

Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Weathering

All physical disintegration, chemical decomposition, and biologically induced changes in rocks or other deposits at or near the earth's surface by atmospheric or biologic agents or by circulating surface waters but involving essentially no transport of the altered material.

Well graded

Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wet spot (map symbol)

A somewhat poorly drained to very poorly drained area that is at least two drainage classes wetter than the named soils in the surrounding map unit.

Wilting point (or permanent wilting point)

The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow

The uprooting and tipping over of trees by the wind.

APPENDIX B CPW SPECIES PRESENT IN PROJECT AREA

The below information was obtained by CPWSpeciesData ArcGIS Shapefile download from ArcGISOnline. Colorado Parks and Wildlife information on wildlife distributions provided to public and private agencies and individuals, for environmental assessment, proprietary land management resource planning and general scientific reference. This is an ArcGIS Online web service updated by the Colorado Parks and Wildlife GIS Unit for distributing Colorado state parks and wildlife species GIS data for public distribution. This file was updated on July 18, 2023.

Mammal Special Ranges:

- Black Bear Human Conflict Area
- Black-tailed Prairie Dog Colony Potential Occurrence Range (two colonies present)
- White-tailed Deer Concentration Area
- White-tailed Deer Winter Range

Mammal Overall Range:

- Black Bear
- Mountain Lion
- White-tailed Deer
- Botta's Pocket Gopher
- Dwarf Shrew
- White-tailed Jackrabbit

Avian Ranges:

- Lesser Sandhill Crane Overall Range
- Wild Turkey Overall Range
- Canada Geese Foraging Area and Winter Range (western 2/3rd of the Project Area)
- Brewer Sparrow Breeding Range
- Burrowing Owl Breeding Range
- Cassin Sparrow Breeding Range
- Golden Eagle Breeding Range
- Grasshopper Sparrow Breeding Range
- Lark Bunting Breeding Range
- Lazuli Bunting Breeding Range
- Lewis Woodpecker Breeding Range
- Mountain Plover Breeding Range
- Northern Harrier Breeding Range
- Prairie Falcon Breeding Range
- Swainson Hawk Breeding Range
- Veery Breeding Range
- Virginia Warbler Breeding Range
- Rufous Hummingbird Migration Range

Reptile/Amphibian Overall Range:

- Black-necked Gartersnake
- Bullsnake
- Coachwhip
- Common Lesser Earless Lizard
- Hernandez's Short-horned Lizard
- Milksnake
- North American Racer
- Ornate Box Turtle
- Painted Turtle
- Plains Gartersnake
- Plains Hog-nosed Snake
- Prairie Lizard And Plateau Fence Lizard
- Prairie Rattlesnake And Western Rattlesnake
- Six-lined Racerunner
- Smooth Greensnake
- Terrestrial Gartersnake
- Variable Skink and Many-lined Skink

Bat Overall Range:

- Big Brown Bat
- Hoary Bat
- Little Brown Myotis
- Red Bat
- Silver-haired Bat

APPENDIX C USFWS INFORMATION FOR PLANNING AND CONSULTATION (IPAC) REPORT

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

NOT FOR CONSULTATION

Location

El Paso County, Colorado



Local office

Colorado Ecological Services Field Office

(303) 236-4773
(303) 236-4005

MAILING ADDRESS

Denver Federal Center
P.O. Box 25486
Denver, CO 80225-0486

PHYSICAL ADDRESS

134 Union Boulevard, Suite 670
Lakewood, CO 80228-1807

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Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

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2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Gray Wolf *Canis lupus* This species only needs to be considered if the following condition applies: • Lone, dispersing gray wolves may be present throughout the state of Colorado. If your activity includes a predator management program, please consider this species in your environmental review. There is **final** critical habitat for this species. https://ecos.fws.gov/ecp/species/4488	Endangered
Preble's Meadow Jumping Mouse *Zapus hudsonius preblei* Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/4090	Threatened

Birds

NAME	STATUS
Eastern Black Rail *Laterallus jamaicensis ssp. jamaicensis* Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/10477	Threatened
Piping Plover *Charadrius melodus* This species only needs to be considered if the following condition applies: • Project includes water-related activities and/or use in the N. Platte, S. Platte, and Laramie River Basins which may affect listed species in Nebraska. There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/6039	Threatened

NOT FOR CONSULTATION

Fishes

NAME	STATUS
Greenback Cutthroat Trout Oncorhynchus clarkii stomias Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2775	Threatened
Pallid Sturgeon Scaphirhynchus albus Wherever found This species only needs to be considered if the following condition applies: • Project includes water-related activities and/or use in the N. Platte, S. Platte, and Laramie River Basins which may affect listed species in Nebraska. No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7162	Endangered

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Flowering Plants

NAME	STATUS
Ute Ladies'-tresses Spiranthes diluvialis Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2159	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

NOT FOR CONSULTATION

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act.

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

Additional information can be found using the following links:

- Eagle Managment https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

There are bald and/or golden eagles in your project area.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list,click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Oct 15 to Jul 31
Golden Eagle *Aquila chrysaetos* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Dec 1 to Aug 31

NOT FOR CONSULTATION

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

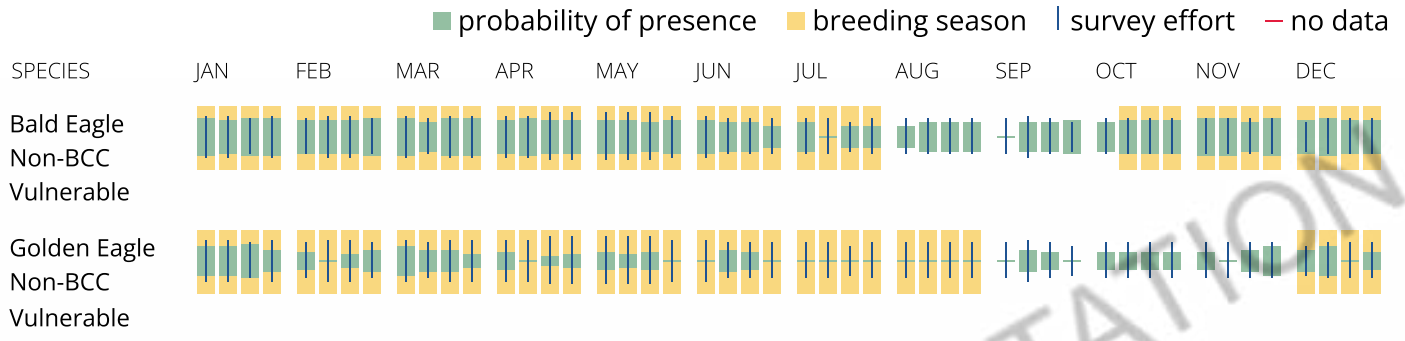
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

NOT FOR CONSULTATION

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What if I have eagles on my list?

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If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

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NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Oct 15 to Jul 31
Chestnut-collared Longspur *Calcarius ornatus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Aug 10
Chimney Swift *Chaetura pelagica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 25
Clark's Grebe *Aechmophorus clarkii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 1 to Aug 31
Ferruginous Hawk *Buteo regalis* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/6038	Breeds Mar 15 to Aug 15
Golden Eagle *Aquila chrysaetos* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Dec 1 to Aug 31
Lesser Yellowlegs *Tringa flavipes* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Lewis's Woodpecker *Melanerpes lewis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9408	Breeds Apr 20 to Sep 30

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Long-billed Curlew Numenius americanus — Breeds Apr 1 to Jul 31
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/5511

Long-eared Owl asio otus — Breeds Mar 1 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3631

Mountain Plover Charadrius montanus — Breeds Apr 15 to Aug 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3638

Red-headed Woodpecker Melanerpes erythrocephalus — Breeds May 10 to Sep 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum

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probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (▮)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

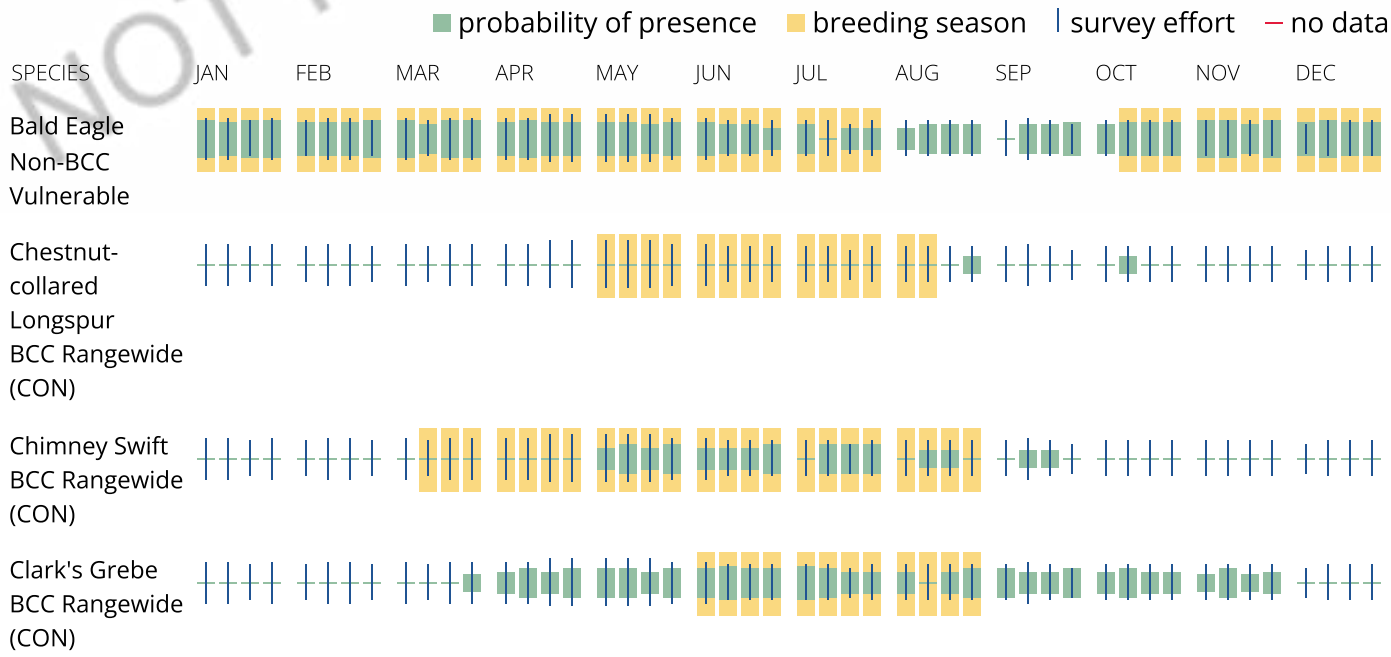
Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

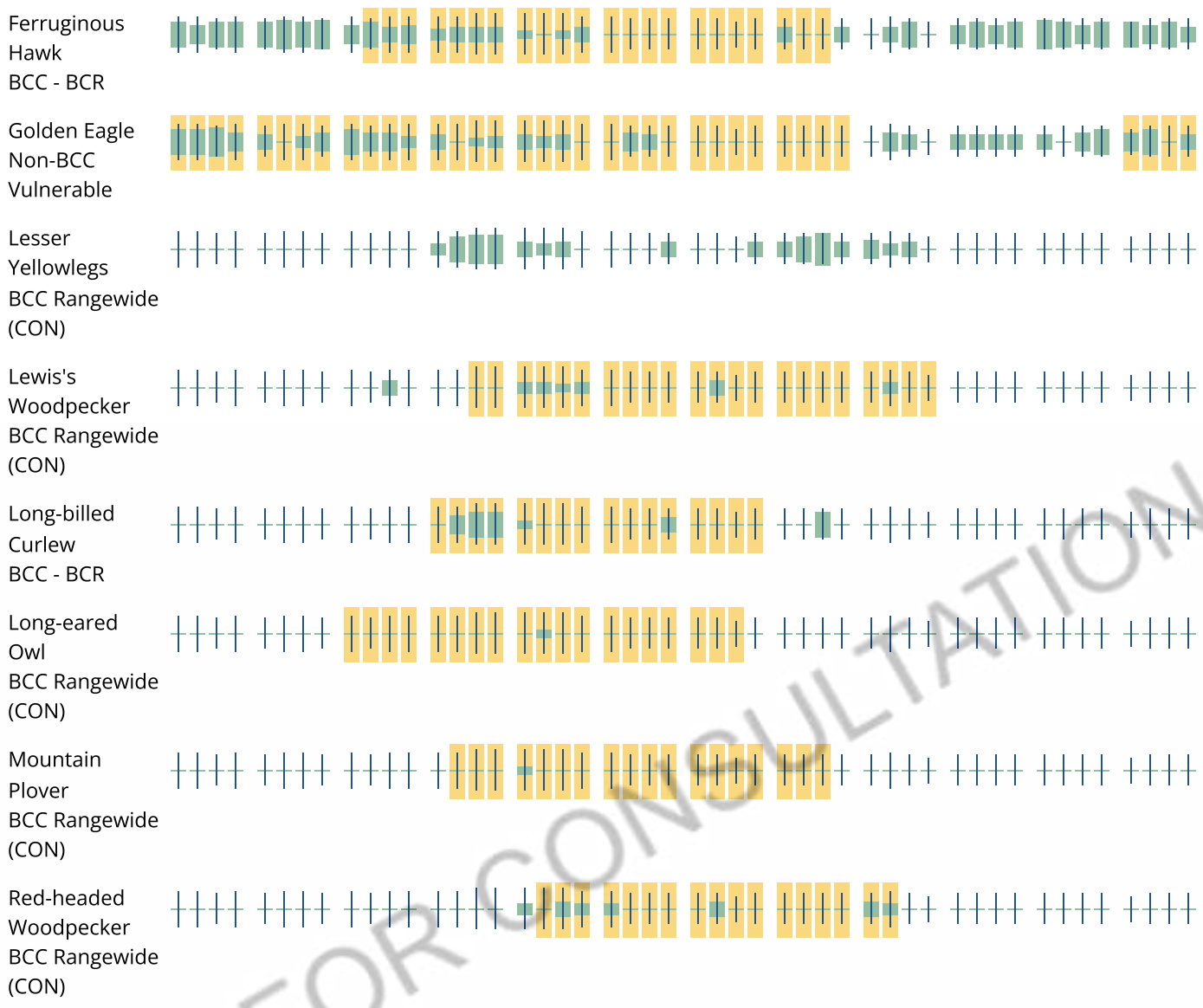
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

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Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

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For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

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Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER POND
PABGx

A full description for each wetland code can be found at the National Wetlands Inventory website

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

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The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

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APPENDIX D ERIS REPORT

ERIS

HISTORICAL AERIALS

Project Property: Jimmy Camp Wastewater Line Alternatives
Jimmy Camp Wastewater Line Alternatives
Widefield CO

Project No:

Requested By: EcoPoint, Inc.

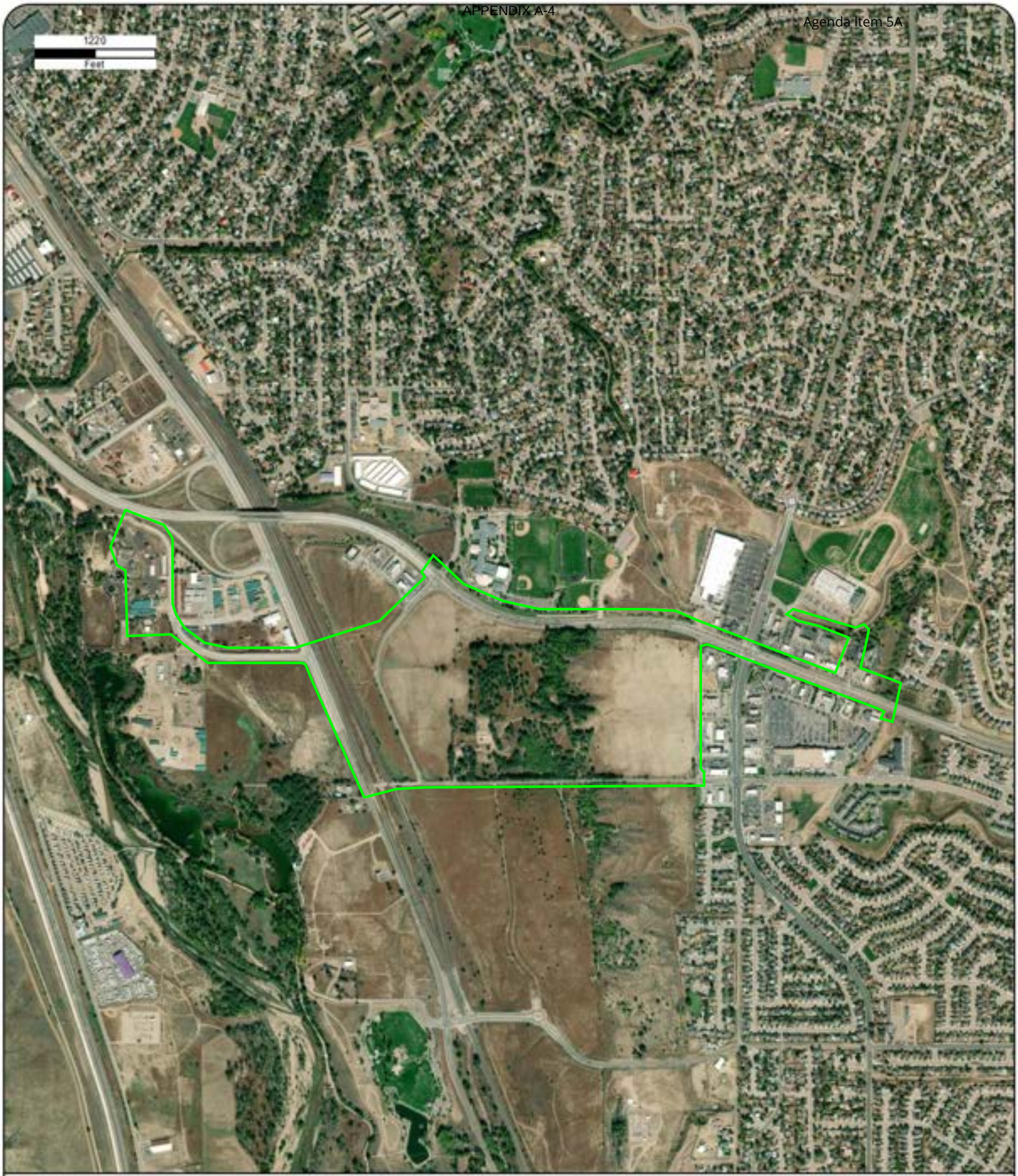
Order No: 23082200786

Date Completed: August 24,2023

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Environmental Risk Information Services
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1.866.517.5204 | info@erisinfo.com | erisinfo.com

Date	Source	Scale	Comments
2022	MAXAR TECHNOLOGIES	1" = 1200'	
2021	United States Department of Agriculture	1" = 1200'	
2019	United States Department of Agriculture	1" = 1200'	
2017	United States Department of Agriculture	1" = 1200'	
2015	United States Department of Agriculture	1" = 1200'	
2013	United States Department of Agriculture	1" = 1200'	
2011	United States Department of Agriculture	1" = 1200'	
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2006	United States Department of Agriculture	1" = 1200'	
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2004	United States Department of Agriculture	1" = 1200'	
1999	United States Geological Survey	1" = 1200'	
1991	United States Geological Survey	1" = 1200'	
1983	United States Geological Survey	1" = 1200'	
1975	United States Geological Survey	1" = 1200'	
1969	United States Geological Survey	1" = 1200'	
1960	United States Geological Survey	1" = 1200'	
1953	Army Mapping Service	1" = 1200'	
1947	United States Geological Survey	1" = 1200'	
1937	Agricultural Stabilization & Conserv. Service	1" = 1200'	

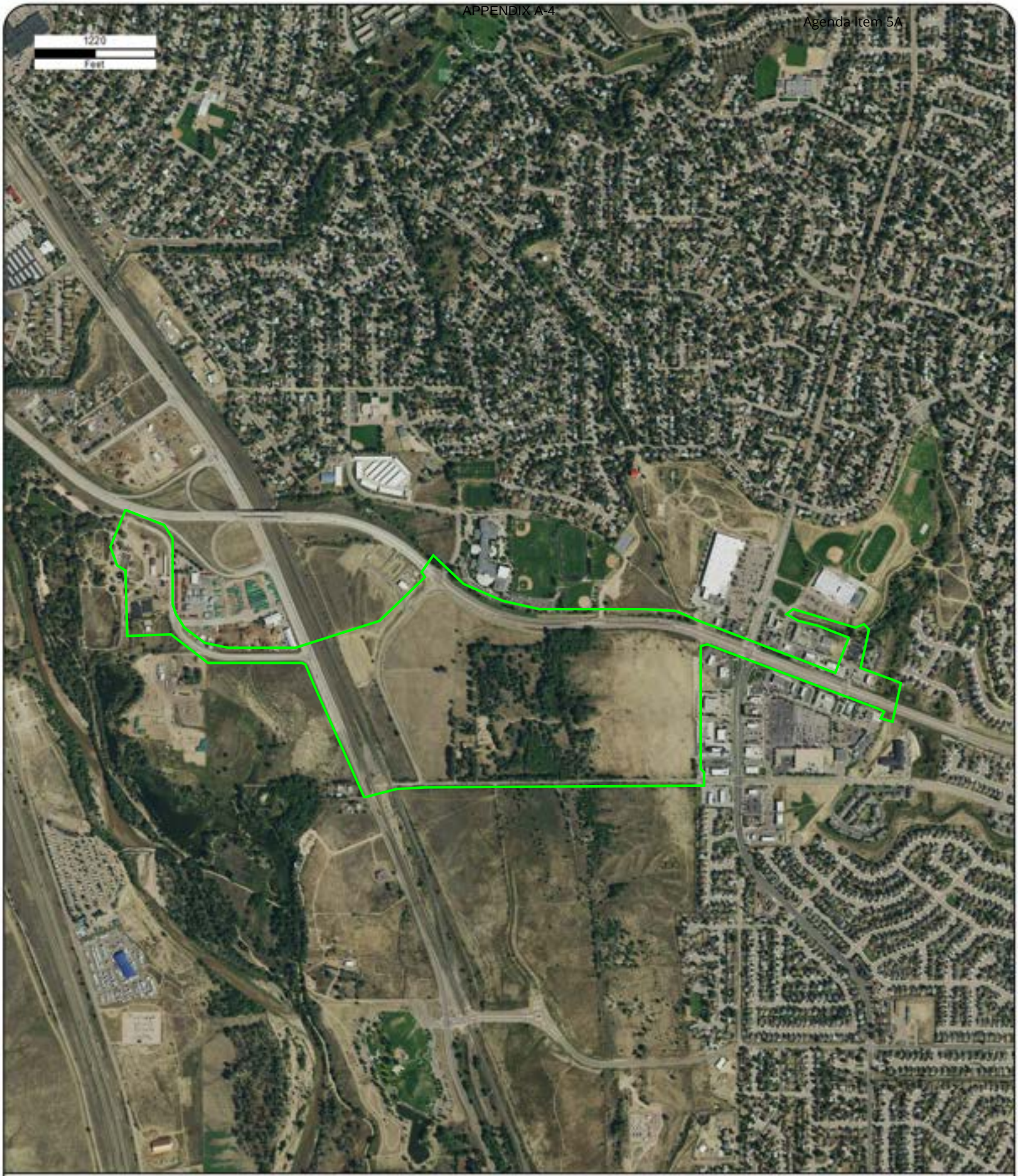


Year: 2022
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Widefield, CO
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Order No: 23082200786

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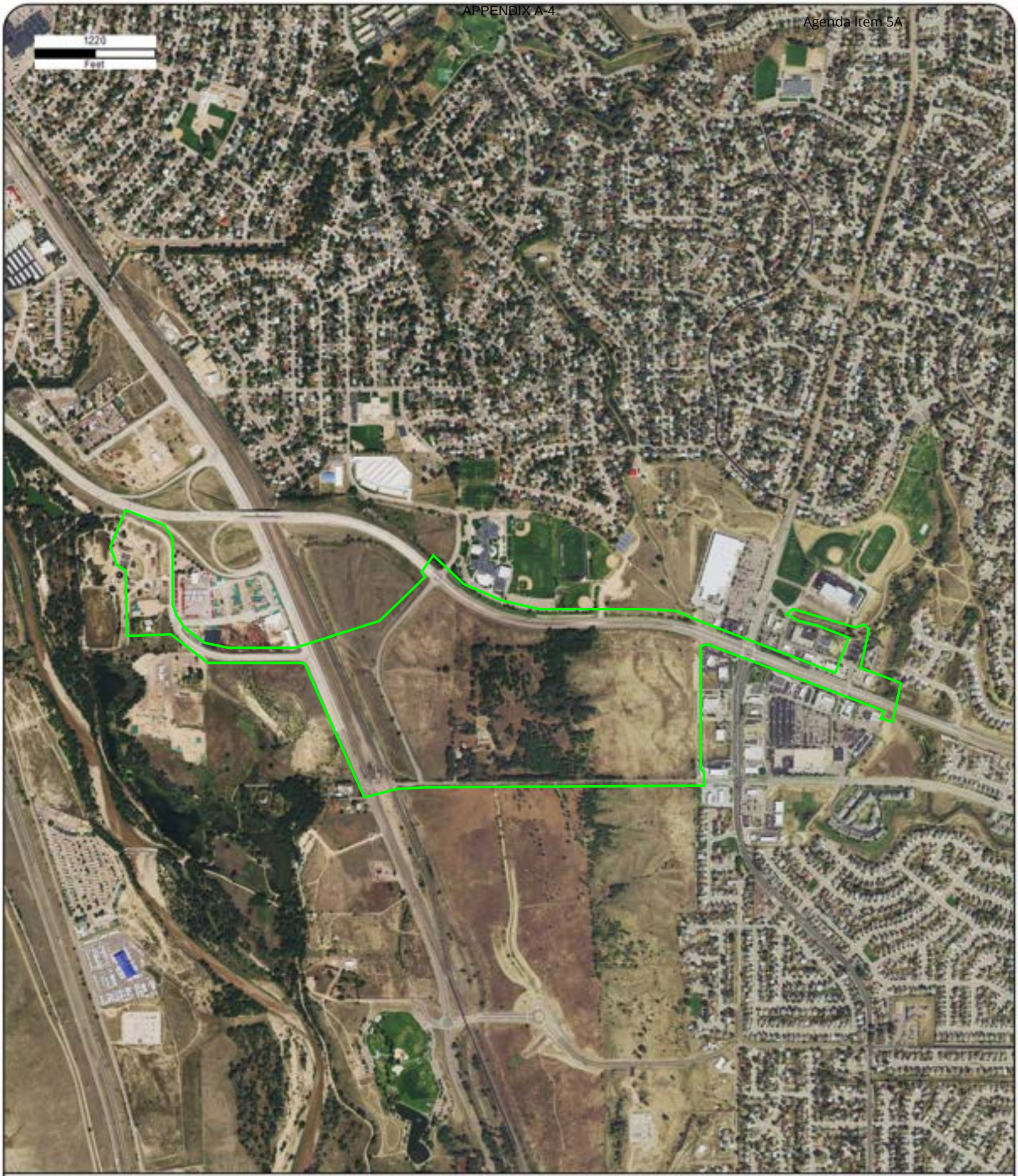


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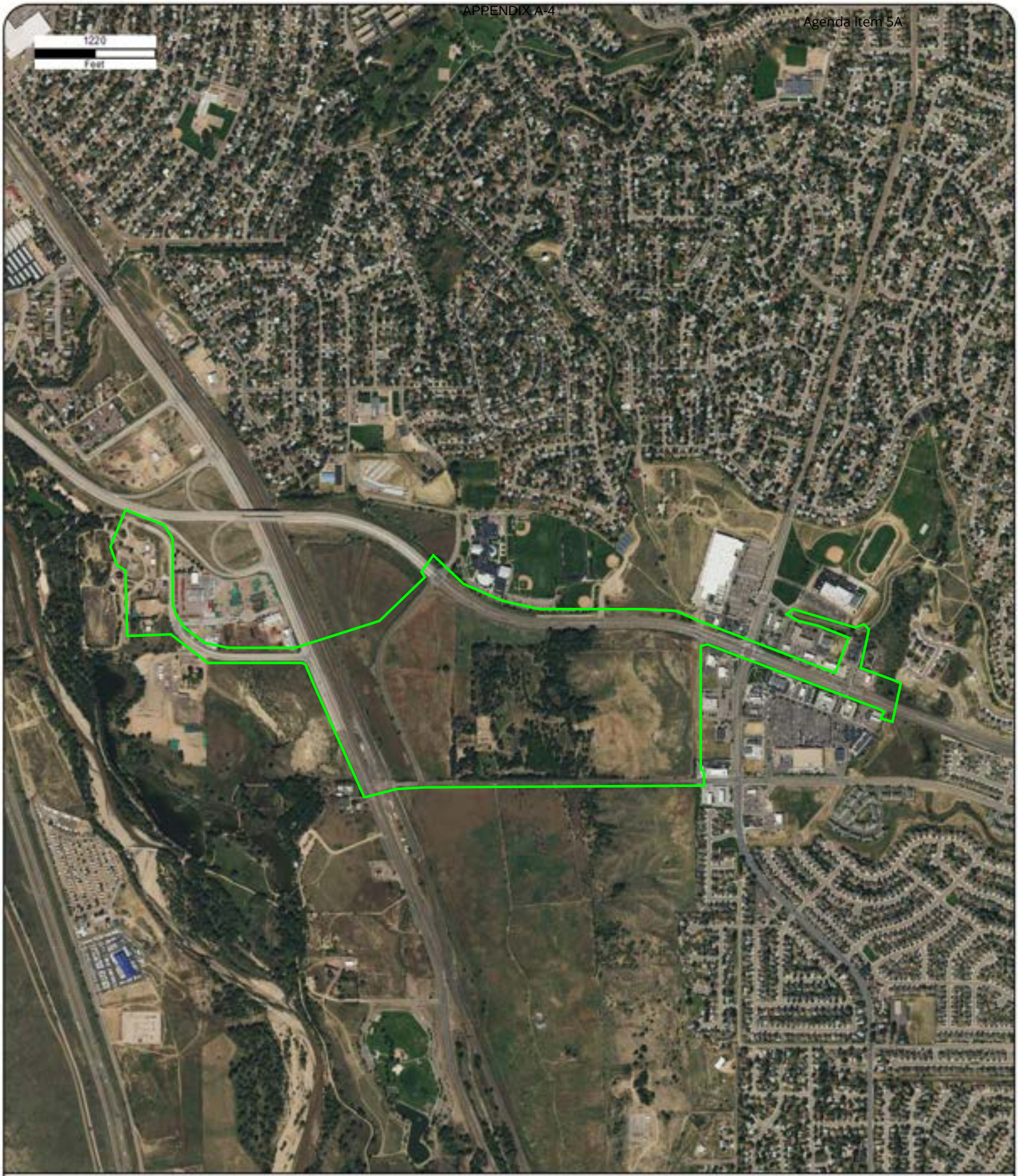


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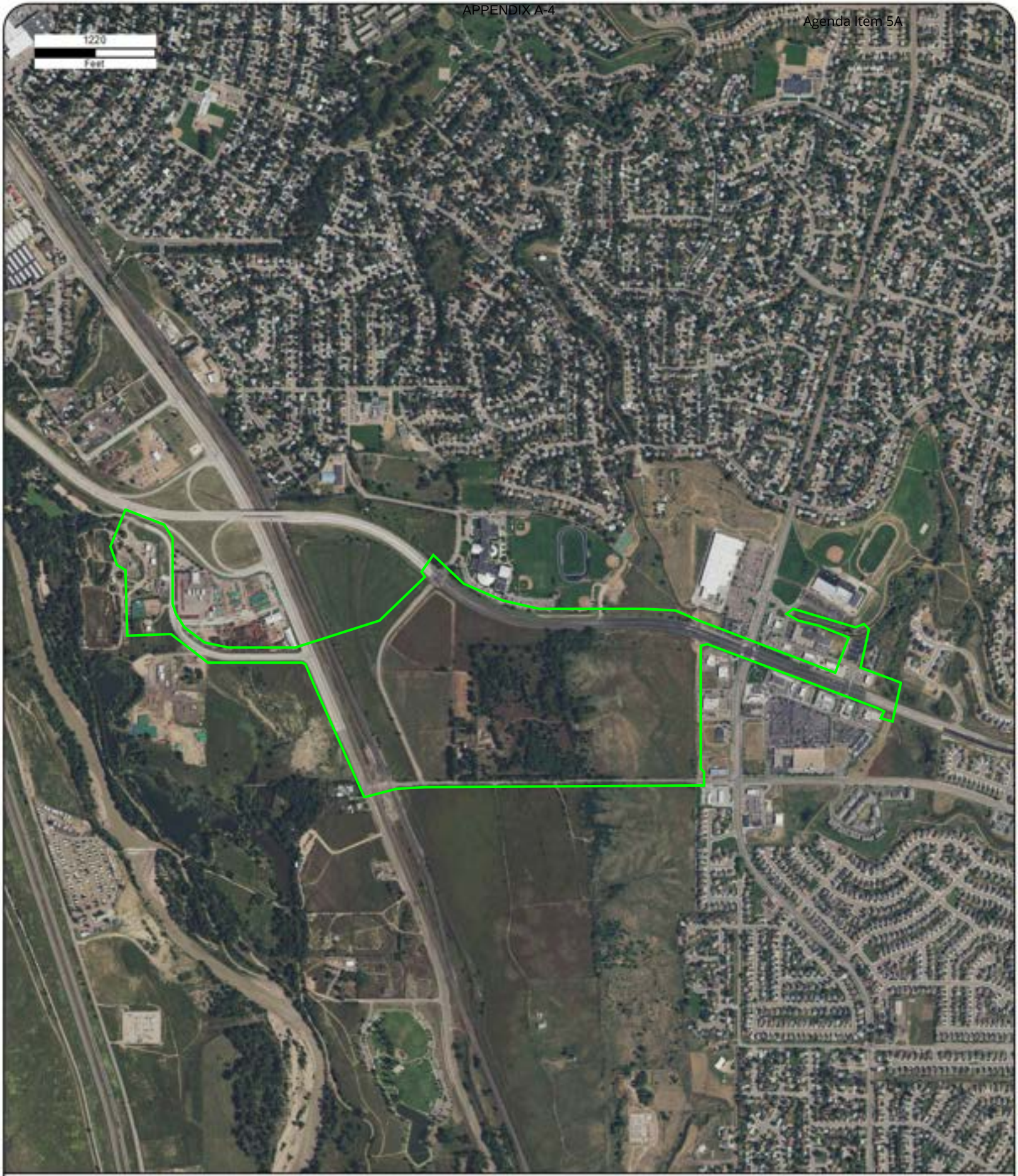


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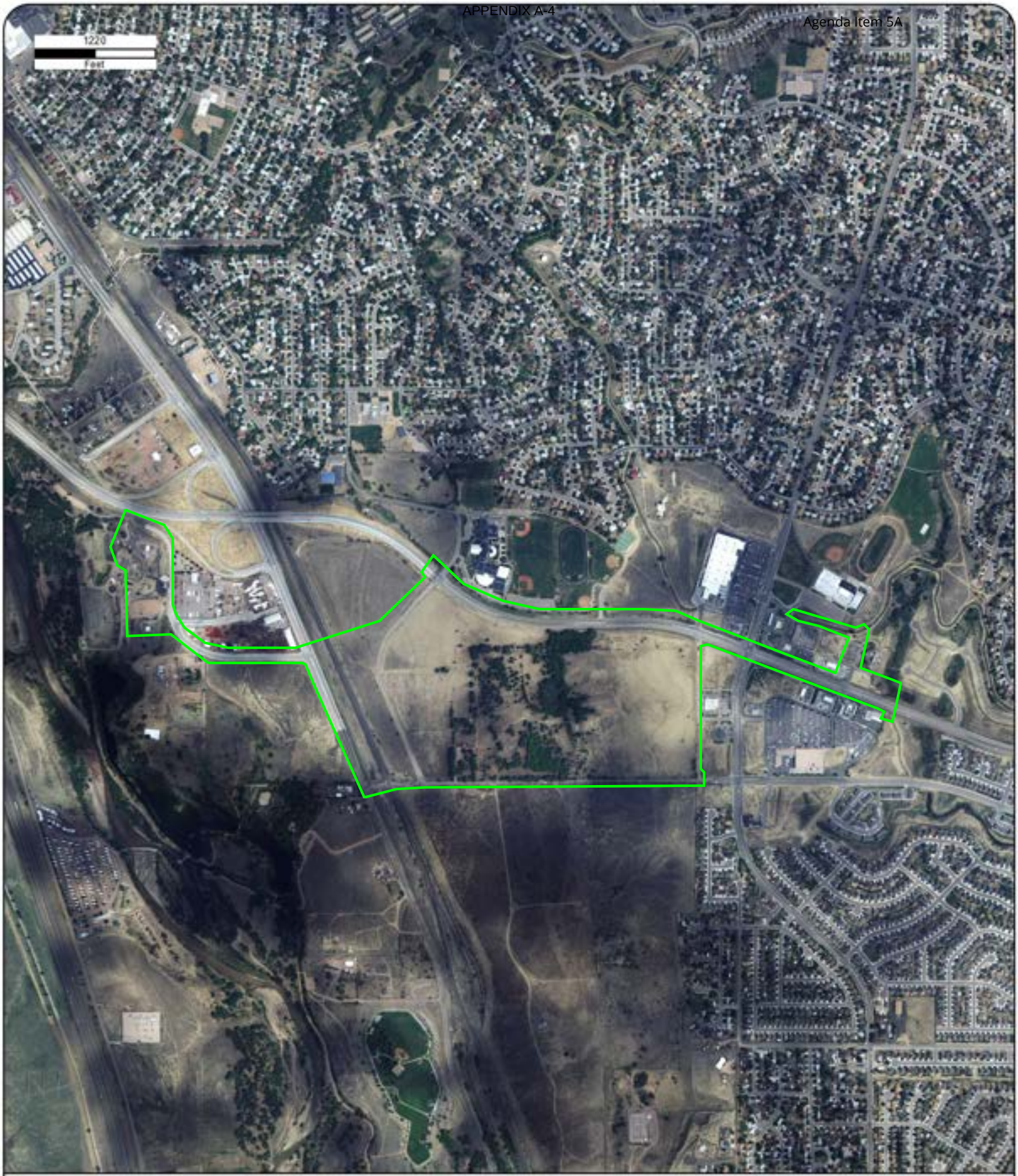


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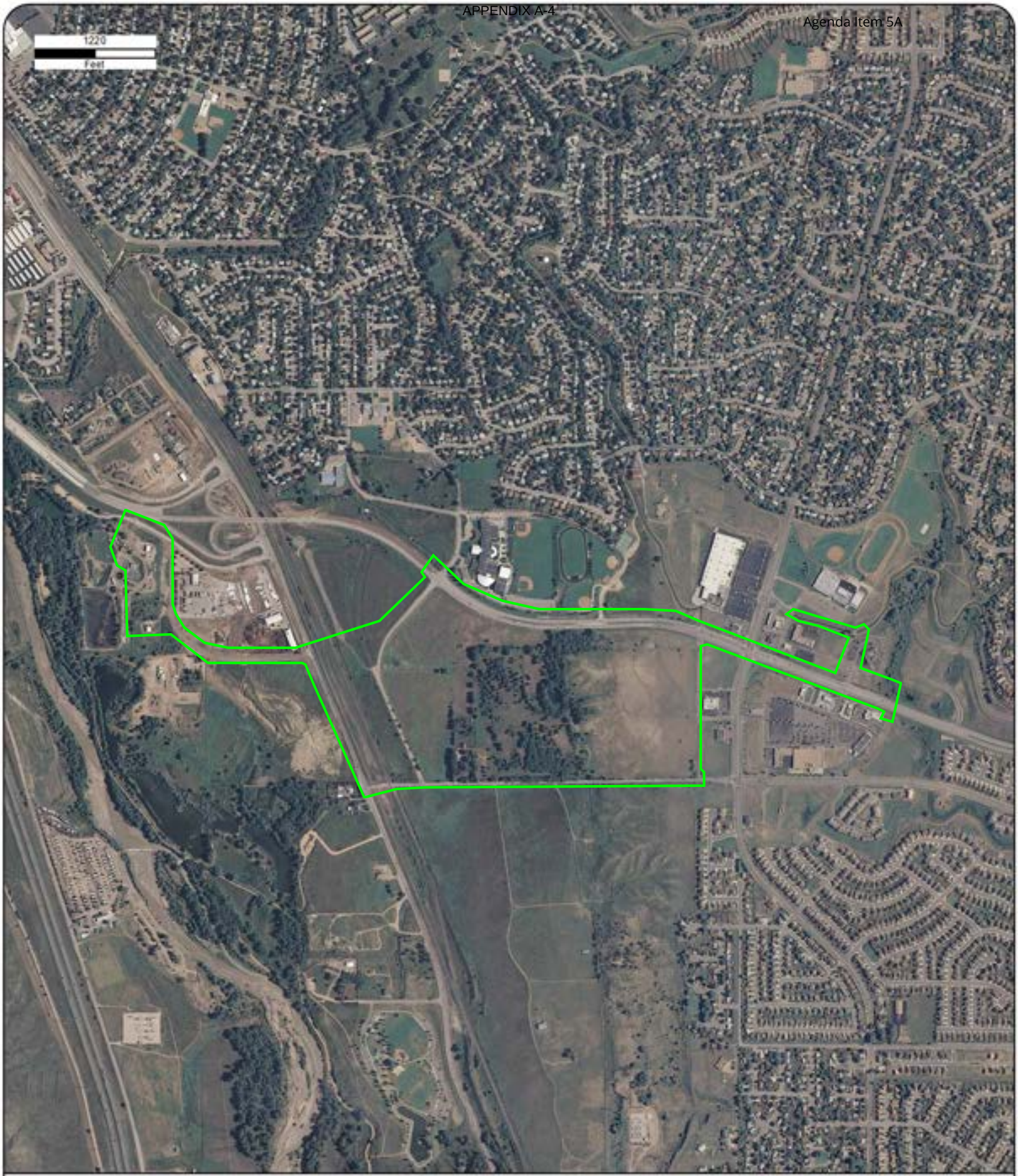


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ERIS



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ERIS



Year: 2005
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ERIS



Year: 2004
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Order No: 23082200786

ERIS



Year: 1999
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Widefield, CO
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Order No: 23082200786

ERIS



Year: 1991
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Widefield, CO
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Order No: 23082200786

ERIS



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Order No: 23082200786

ERIS



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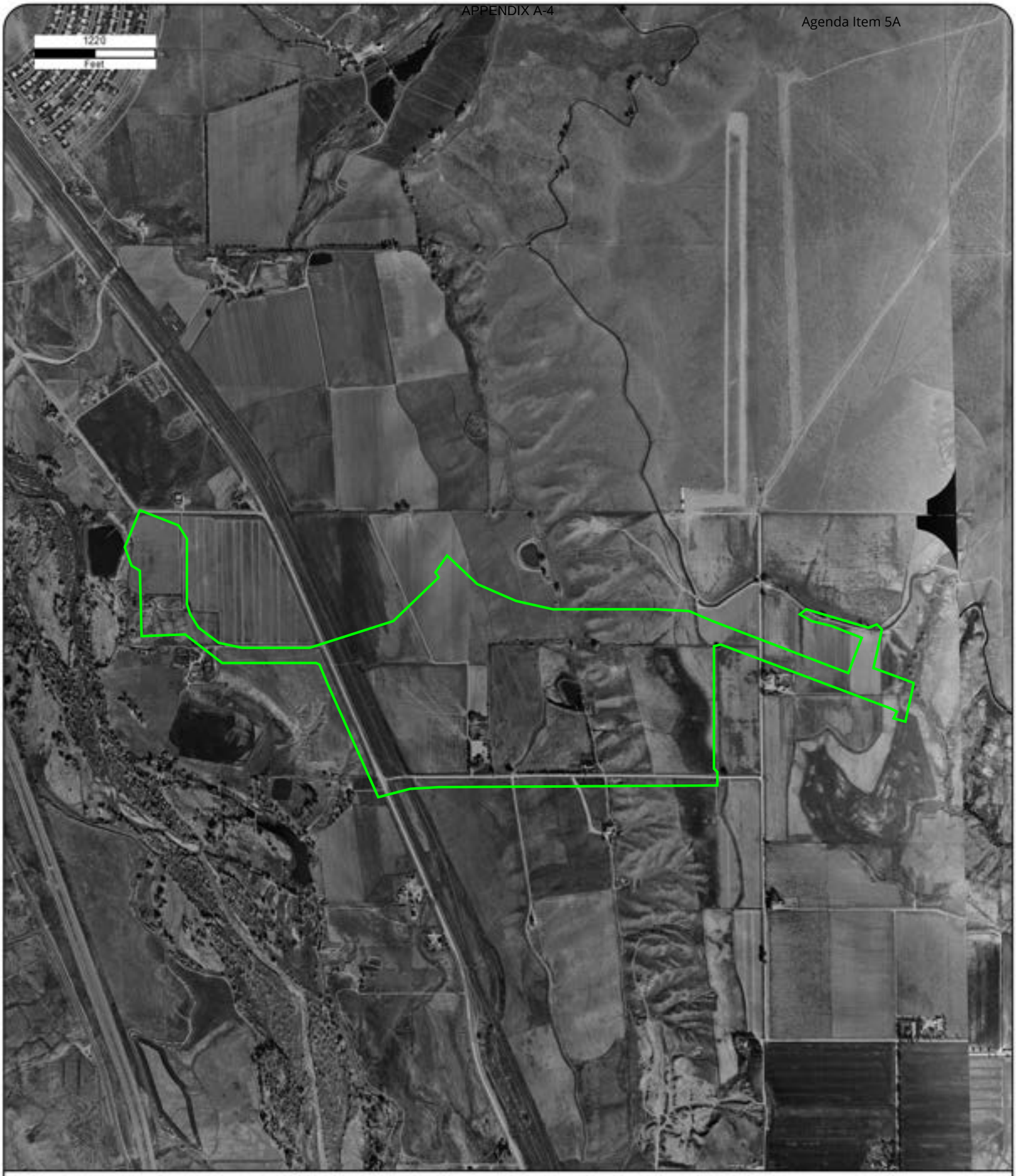


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Year: 1953
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Order No: 23082200786

ERIS



Year: 1947
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Order No: 23082200786

ERIS



Year: 1937
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Widefield, CO
Approx Center: -104.70968798,38.71832847

Order No: 23082200786

ERIS

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FIRE INSURANCE MAPS

Project Property:	Jimmy Camp Wastewater Line Alternatives Jimmy Camp Wastewater Line Alternatives Widefield CO
Project No:	
Requested By:	EcoPoint, Inc.
Order No:	23082200786
Date Completed:	August 23, 2023

Please note that no information was found for your site or adjacent properties.

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ERIS

DATABASE REPORT

Project Property:	*Jimmy Camp Wastewater Line Alternatives* *Jimmy Camp Wastewater Line Alternatives* *Widefield CO*
Project No:	
Report Type:	*Database Report*
Order No:	*23082200786*
Requested by:	*EcoPoint, Inc.*
Date Completed:	*August 24, 2023*

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Reliance on information in Report: This report DOES NOT replace a full Phase I Environmental Site Assessment but is solely intended to be used as database review of environmental records.

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Executive Summary

Property Information:

Project Property:	*Jimmy Camp Wastewater Line Alternatives* *Jimmy Camp Wastewater Line Alternatives Widefield CO*
Project No:	
Coordinates:	
Latitude:	*38.71832847*
Longitude:	*-104.70968798*
UTM Northing:	*4,285,559.94*
UTM Easting:	*525,238.02*
UTM Zone:	*UTM Zone 13S*
Elevation:	*5,654 FT*

Order Information:

Order No:	*23082200786*
Date Requested:	*August 22, 2023*
Requested by:	*EcoPoint, Inc.*
Report Type:	*Database Report*

Historicals/Products:

Aerial Photographs	*Historical Aerials (with Project Boundaries)*
ERIS Xplorer	*ERIS Xplorer*
Excel Add-On	*Excel Add-On*
Fire Insurance Maps	*US Fire Insurance Maps*
Physical Setting Report (PSR)	*Physical Setting Report (PSR)*

Executive Summary: Report Summary

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
Standard Environmental Records								
Federal								
NPL	Y	1	0	0	0	0	0	0
PROPOSED NPL	Y	1	0	0	0	0	0	0
DELETED NPL	Y	0.5	0	0	0	0	-	0
SEMS	Y	0.5	0	0	0	0	-	0
SEMS ARCHIVE	Y	0.5	0	0	0	0	-	0
ODI	Y	0.5	0	0	0	0	-	0
CERCLIS	Y	0.5	0	0	0	0	-	0
IODI	Y	0.5	0	0	0	0	-	0
CERCLIS NFRAP	Y	0.5	0	0	0	0	-	0
CERCLIS LIENS	Y	PO	0	-	-	-	-	0
RCRA CORRACTS	Y	1	0	0	0	0	0	0
RCRA TSD	Y	0.5	0	0	0	0	-	0
RCRA LQG	Y	0.25	0	0	0	-	-	0
RCRA SQG	Y	0.25	0	**1**	0	-	-	**1**
RCRA VSQG	Y	0.25	0	**2**	0	-	-	**2**
RCRA NON GEN	Y	0.25	0	**2**	**2**	-	-	**4**
RCRA CONTROLS	Y	0.5	0	0	0	0	-	0
FED ENG	Y	0.5	0	0	0	0	-	0
FED INST	Y	0.5	0	0	0	0	-	0
LUCIS	Y	0.5	0	0	0	0	-	0
NPL IC	Y	0.5	0	0	0	0	-	0
ERNS 1982 TO 1986	Y	PO	0	-	-	-	-	0
ERNS 1987 TO 1989	Y	PO	0	-	-	-	-	0
ERNS	Y	PO	0	**1**	-	-	-	**1**
FED BROWNFIELDS	Y	0.5	0	**1**	0	**1**	-	**2**
FEMA UST	Y	0.25	0	0	0	-	-	0
FRP	Y	0.25	0	0	0	-	-	0

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
DELISTED FRP	Y	0.25	0	0	0	-	-	0
HIST GAS STATIONS	Y	0.25	0	0	0	-	-	0
REFN	Y	0.25	0	0	0	-	-	0
BULK TERMINAL	Y	0.25	0	0	0	-	-	0
SEMS LIEN	Y	PO	0	-	-	-	-	0
SUPERFUND ROD	Y	1	0	0	0	0	0	0
DOE FUSRAP	Y	1	0	0	0	0	0	0
State								
COVENANTS	Y	0.5	0	0	0	0	-	0
SUPERFUND NRD	Y	1	0	0	0	0	0	0
LANDFILL METHANE	Y	0.5	0	0	0	0	-	0
SHWS	Y	1	0	0	0	0	0	0
DELISTED SHWS	Y	1	0	0	0	0	0	0
SWF/LF	Y	0.5	0	**2**	**1**	0	-	**3**
HIST LF	Y	0.5	0	0	0	0	-	0
HIST LANDFILLS	Y	0.5	0	0	0	0	-	0
RECYCLING	Y	0.5	0	0	0	0	-	0
LST	Y	0.5	0	**3**	**1**	**4**	-	**8**
LUST TRUST	Y	0.5	0	**1**	0	**1**	-	**2**
DELISTED LST	Y	0.5	0	0	0	0	-	0
UST	Y	0.25	**1**	**6**	**3**	-	-	**10**
AST	Y	0.25	0	**2**	0	-	-	**2**
TANKS	Y	0.25	0	0	0	-	-	0
DTNK	Y	0.25	0	0	0	-	-	0
AUL	Y	0.5	0	0	0	0	-	0
VCP	Y	0.5	0	0	0	0	-	0
BROWNFIELDS	Y	0.5	0	0	0	0	-	0
Tribal								
INDIAN LUST	Y	0.5	0	0	0	0	-	0
INDIAN UST	Y	0.25	0	0	0	-	-	0
DELISTED INDIAN LST	Y	0.5	0	0	0	0	-	0
DELISTED INDIAN UST	Y	0.25	0	0	0	-	-	0
County	***No County databases were selected to be included in the search.***							

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
Additional Environmental Records								
Federal								
FINDS/FRS	Y	PO	**2**	**13**	-	-	-	**15**
TRIS	Y	PO	0	-	-	-	-	0
PFAS NPL	Y	0.5	0	0	0	0	-	0
PFAS FED SITES	Y	0.5	0	0	0	0	-	0
PFAS SSEHRI	Y	0.5	0	0	0	0	-	0
ERNS PFAS	Y	0.5	0	0	0	0	-	0
PFAS NPDES	Y	0.5	0	0	0	0	-	0
PFAS TRI	Y	0.5	0	0	0	0	-	0
PFAS WATER	Y	0.5	0	0	0	0	-	0
PFAS TSCA	Y	0.5	0	0	0	0	-	0
PFAS E-MANIFEST	Y	0.5	0	0	0	0	-	0
PFAS IND	Y	0.5	0	0	0	0	-	0
HMIRS	Y	0.125	0	0	-	-	-	0
NCDL	Y	0.125	0	0	-	-	-	0
TSCA	Y	0.125	0	0	-	-	-	0
HIST TSCA	Y	0.125	0	0	-	-	-	0
FTTS ADMIN	Y	PO	0	-	-	-	-	0
FTTS INSP	Y	PO	0	-	-	-	-	0
PRP	Y	PO	0	-	-	-	-	0
SCRD DRYCLEANER	Y	0.5	0	0	0	0	-	0
ICIS	Y	PO	**2**	**7**	-	-	-	**9**
FED DRYCLEANERS	Y	0.25	0	0	0	-	-	0
DELISTED FED DRY	Y	0.25	0	0	0	-	-	0
FUDS	Y	1	0	0	0	0	0	0
FUDS MRS	Y	1	0	0	0	0	0	0
FORMER NIKE	Y	1	0	0	0	0	0	0
PIPELINE INCIDENT	Y	PO	0	-	-	-	-	0
MLTS	Y	PO	0	-	-	-	-	0
HIST MLTS	Y	PO	0	-	-	-	-	0
MINES	Y	0.25	0	0	0	-	-	0
SMCRA	Y	1	0	0	0	0	0	0
MRDS	Y	1	0	0	**1**	0	**1**	**2**
LM SITES	Y	1	0	0	0	0	0	0

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
ALT FUELS	Y	0.25	0	**2**	0	-	-	**2**
CONSENT DECREES	Y	0.25	0	0	0	-	-	0
AFS	Y	PO	0	**3**	-	-	-	**3**
SSTS	Y	0.25	0	0	0	-	-	0
PCBT	Y	0.5	0	0	0	0	-	0
PCB	Y	0.5	0	0	0	0	-	0
State								
SPILLS	Y	0.125	**2**	**3**	-	-	-	**5**
OG SPILLS	Y	0.125	0	0	-	-	-	0
DRYCLEANERS	Y	0.25	0	0	0	-	-	0
DELISTED DRYCLEANERS	Y	0.25	0	0	0	-	-	0
AIR PERMITS	Y	0.125	0	**4**	-	-	-	**4**
PFAS	Y	0.5	0	0	0	0	-	0
ASBESTOS	Y	0.125	0	0	-	-	-	0
HAZ GEN	Y	0.125	0	0	-	-	-	0
PDES	Y	PO	**3**	**5**	-	-	-	**8**
HAZ TSD	Y	0.5	0	0	0	0	-	0
HAZ CORRACT	Y	1	0	0	0	0	0	0
UMTRA	Y	0.5	0	0	0	0	-	0
Tribal	***No Tribal additional environmental record sources available for this State.***							
County	***No County additional environmental databases were selected to be included in the search.***							
	Total:		**10**	**58**	**8**	**6**	**1**	**83**

**** PO – Property Only***
**** 'Property and adjoining properties' database search radii are set at 0.25 miles.***

Executive Summary: Site Report Summary - Project Property

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
1	UST	Widefield Homes	Fountain Mesa Rd West Of Widefield Colorado Springs 80911 CO ***Facility ID:*** *7032* ***Tank Tag | Tank Status:*** *7032-1 | Permanently Closed, 7032-2 | Permanently Closed*	SE	0.00 / 0.00	8	30
2	PDES	Fountain Industrial Park, LLC	N of Syracuse St and Mesa Rd Fountain CO 80817	SW	0.00 / 0.00	-24	32
3	FINDS/FRS	HIGHWAY 85 OUTFALL SEWER	HWY 85 AND MESA RD FOUNTAIN CO 80817 ***Registry ID:*** *110040433046*	WSW	0.00 / 0.00	-27	34
3	ICIS	HIGHWAY 85 OUTFALL SEWER	HWY 85 AND MESA RD FOUNTAIN CO 80817 ***Registry ID:*** *110040433046*	WSW	0.00 / 0.00	-27	35
4	SPILLS		MESA RIDGE ROAD AND FONTAIN BLVD FOUNTAIN CO 80817 ***Case No:*** *2011-0328*	E	0.00 / 0.00	96	35
5	SPILLS		480 WILLOW SPRINGS RD. FOUNTAIN CO 80817 ***Case No:*** *2018-0278*	WNW	0.00 / 0.00	-18	35
6	FINDS/FRS	WIDEFIELD WSD	450 WILLOW SPRINGS RD FOUNTAIN CO 80817 ***Registry ID:*** *110055989649*	WNW	0.00 / 0.00	-11	36
6	ICIS	WIDEFIELD WSD WWTF	450 WILLOW SPRINGS RD WIDEFIELD CO 80817 ***Registry ID:*** *110055989649*	WNW	0.00 / 0.00	-11	37
6	PDES	Widefield WSD WWTF	450 Willow Springs Rd Fountain CO 80817	WNW	0.00 / 0.00	-11	37
6	PDES	Widefield WSD WWTF	450 Willow Springs Rd Fountain CO 80817	WNW	0.00 / 0.00	-11	40

Executive Summary: Site Report Summary - Surrounding Properties

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
7	FINDS/FRS	MR. CAR WASH	7980 FOUNTAIN MESA ROAD FOUNTAIN CO 80817 ***Registry ID:*** 110070668495	ESE	0.00 / 7.46	91	41
8	RCRA NON GEN	DATA GENERAL SERVICE INC	702 FRONTAGE RD FOUNTAIN CO 80817 ***EPA Handler ID:*** COD982648487	WNW	0.01 / 27.09	-9	41
9	UST	Kum & Go #670	8050 Fountain Mesa Rd Fountain 80817 CO ***Facility ID:*** 19326 ***Tank Tag | Tank Status:*** 19326-1 | Currently In Use, 19326-3 | Currently In Use, 19326-5 | Currently In Use, 19326-2 | Currently In Use, 19326-4 | Currently In Use	ESE	0.01 / 43.26	81	43
9	ALT FUELS	Kum & Go #670	8050 Fountain Mesa Rd Fountain CO 80817 ***ID:*** 50304	ESE	0.01 / 43.26	81	48
9	LST	Kum & Go #670	8050 Fountain Mesa Rd Fountain 80817 CO ***Facility ID:*** 19326 ***Event ID | Status:*** 13316 | Closed	ESE	0.01 / 43.26	81	49
9	LUST TRUST	Kum & Go #670	8050 Fountain Mesa Rd Fountain CO 80817 ***Facility ID | Event ID | Release Date:*** 19326 | 13316 | 5/23/2019	ESE	0.01 / 43.26	81	51
10	FINDS/FRS	COLJEN LEASING LTD ELPASO ASPHALT	8050 S US HWY 85 & 87 COLORADO SPRINGS CO 80901 ***Registry ID:*** 110038648489	W	0.01 / 51.71	-21	51
10	AFS	COLJEN LEASING LTD ELPASO ASPHALT	8050 S US HWY 85 & 87 COLORADO SPRINGS CO 000000000	W	0.01 / 51.71	-21	51
11	FINDS/FRS	EL PASO FOUNTAIN CREEK WILLOW SPRINGS	430 WILLOW SPRINGS ROAD FOUNTAIN CO 80817 ***Registry ID:*** 110032601628	WNW	0.01 / 59.68	-11	52
11	ICIS	EL PASO FOUNTAIN CREEK WILLOW SPRINGS	430 WILLOW SPRINGS ROAD FOUNTAIN CO 80817 ***Registry ID:*** 110032601628	WNW	0.01 / 59.68	-11	53
11	ICIS	EL PASO FOUNTAIN CREEK WILLOW SPRINGS	430 WILLOW SPRINGS ROAD FOUNTAIN CO 80817 ***Registry ID:*** 110032601628	WNW	0.01 / 59.68	-11	53

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
12	SPILLS		7005 MESA RIDGE PKWY FOUNTAIN CO ***Case No:*** 2019-0399	E	0.01 / 62.07	88	54
13	PDES	Mesa Ridge Crossing	Syracuse Street and Mesa Ridge Parkway Fountain CO 80903	NW	0.01 / 73.33	-8	54
13	UST	Maverik #659	Mesa Ridge PKWY & Syracuse Security 80911 CO ***Facility ID:*** 20721 ***Tank Tag | Tank Status:*** 20721-1 | Currently In Use, 20721-2 | Currently In Use, 20721-2 | Currently In Use, 20721-2 | Currently In Use	NW	0.01 / 73.33	-8	56
13	AIR PERMITS	MAVERIK-MAVERIK STORE #659	MESA RDIGE & SYRACUSE ST FOUNTAIN CO 80817	NW	0.01 / 73.33	-8	60
13	FINDS/FRS	MESA RIDGE CROSSING	SYRACUSE STREET AND MESA RIDGE PARKWAY FOUNTAIN CO 80903 ***Registry ID:*** 110070875060	NW	0.01 / 73.33	-8	64
13	FINDS/FRS	MAVERIK AT MESA RIDGE (LOT 1, MESA RIDGE CROSSING FILING 1)	MESA RIDGE PARKWAY AND SYRACUSE STREET FOUNTAIN CO 80903 ***Registry ID:*** 110071066162	NW	0.01 / 73.33	-8	65
13	FINDS/FRS	MAVERIK-MAVERIK STORE #659	MESA RDIGE & SYRACUSE ST FOUNTAIN CO 80817 ***Registry ID:*** 110071092165	NW	0.01 / 73.33	-8	65
14	FINDS/FRS	FIRST FLEET (FORMERLY AFC)	500 WILLOW SPRINGS ROAD COLORADO SPRINGS CO 80911 ***Registry ID:*** 110042344852	WNW	0.01 / 77.52	-16	66
14	ICIS	FIRST FLEET (FORMERLY AFC)	500 WILLOW SPRINGS ROAD COLORADO SPRINGS CO 80911 ***Registry ID:*** 110042344852	WNW	0.01 / 77.52	-16	66
15	FINDS/FRS	LES SCHWAB TIRE CENTER FOUNTAIN	7996 FOUNTAIN MESA RD FOUNTAIN CO 80817 ***Registry ID:*** 110064783195	ESE	0.02 / 80.39	88	67
15	ICIS	LES SCHWAB TIRE CENTER FOUNTAIN	7996 FOUNTAIN MESA RD FOUNTAIN CO 80817 ***Registry ID:*** 110064783195	ESE	0.02 / 80.39	88	67
15	SWF/LF	Les Schwab Tire Center	7996 Fountain Mesa Road Fountain CO	ESE	0.02 / 80.39	88	68

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
16	FINDS/FRS	SAFEWAY INC. # 1975	6949 MESA RIDGE PKWY FOUNTAIN CO 80817 ***Registry ID:*** 110041440296	E	0.02 / 81.34	91	68
16	UST	Safeway Fuel Center	6949 Mesa Ridge Rd Fountain 80817 CO ***Facility ID:*** 17892 ***Tank Tag | Tank Status:*** 17892-2 | Currently In Use, 17892-2 | Currently In Use, 17892-1 | Currently In Use	E	0.02 / 81.34	91	69
16	AIR PERMITS	SAFEWAY INC. # 1975	6941 MESA RIDGE PKWY FOUNTAIN CO 80817	E	0.02 / 81.34	91	72
16	ERNS		6949 MESA RIDGE PARKWAY FOUNTAIN CO 80817 ***NRC Report No:*** 1300134	E	0.02 / 81.34	91	75
16	AFS	SAFEWAY INC. # 1975	6949 MESA RIDGE PKWY FOUNTAIN CO 808171543	E	0.02 / 81.34	91	77
16	FINDS/FRS	6945 MESA RIDGE RETAIL	6945 MESA RIDGE PARKWAY FOUNTAIN CO 80817 ***Registry ID:*** 110071204685	E	0.02 / 81.34	91	77
17	FINDS/FRS	SCOTT'S COMPANY - HYPONEX CORP #1023	3 ASSEMBLY CT FOUNTAIN CO 808170000 ***Registry ID:*** 110001434742	W	0.02 / 83.39	-14	78
17	FINDS/FRS	SCOTT COMPANY	3 ASSEMBLY CT FOUNTAIN CO 808170000 ***Registry ID:*** 110010684232	W	0.02 / 83.39	-14	79
17	AST	The Scotts Company (Hyponex Corp)	3 Assembly Ct Fountain 80817 CO ***Facility ID:*** 10116 ***Tank Tag | Tank Status:*** 10116-4 | Currently In Use, 10116-3 | Not Regulated	W	0.02 / 83.39	-14	79
17	UST	The Scotts Company (Hyponex Corp)	3 Assembly Ct Fountain 80817 CO ***Facility ID:*** 10116 ***Tank Tag | Tank Status:*** 10116-2 | Permanently Closed, 10116-1 | Permanently Closed	W	0.02 / 83.39	-14	82
17	LST	The Scotts Company (Hyponex Corp)	3 Assembly Ct Fountain 80817 CO ***Facility ID:*** 10116 ***Event ID | Status:*** 11634 | Closed, 3541 | Closed	W	0.02 / 83.39	-14	84
17	ICIS	SCOTT COMPANY	3 ASSEMBLY CT FOUNTAIN CO 808170000 ***Registry ID:*** 110010684232	W	0.02 / 83.39	-14	86
17	ICIS	HYPONEX CO	3 ASSEMBLY CT FOUNTAIN CO 808172710 ***Registry ID:*** 110001434742	W	0.02 / 83.39	-14	87

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
17	ICIS	HYPONEX CORP	3 ASSEMBLY CT FOUNTAIN CO 80817 ***Registry ID:*** 110001434742	W	0.02 / 83.39	-14	87
17	PDES	Hyponex Corp	3 Assembly Ct Fountain CO 80817	W	0.02 / 83.39	-14	87
17	PDES	Hyponex Corp	3 Assembly Ct Fountain CO 80817	W	0.02 / 83.39	-14	90
17	PDES	Hyponex Corp	3 Assembly Ct Fountain CO 80817	W	0.02 / 83.39	-14	91
17	PDES	Hyponex Corp	3 Assembly Ct Fountain CO 80817	W	0.02 / 83.39	-14	92
17	AIR PERMITS	SCOTT'S COMPANY - HYPONEX CORP #1023	3 ASSEMBLY CT FOUNTAIN CO 80817	W	0.02 / 83.39	-14	93
17	AFS	HYPONEX CO	3 ASSEMBLY CT FOUNTAIN CO 808172710	W	0.02 / 83.39	-14	99
17	FED BROWNFIELDS	Scott's Fertilizer	3 Assembly Court FOUNTAIN CO 80817 ***Property ID:*** 251466	W	0.02 / 83.39	-14	101
18	FINDS/FRS	FAMILY DOLLAR #8650	6960 MESA RIDGE PKWY FOUNTAIN CO 80817 ***Registry ID:*** 110064376410	E	0.02 / 101.45	98	112
18	RCRA VSQG	FAMILY DOLLAR #8650	6960 MESA RIDGE PKWY FOUNTAIN CO 80817 ***EPA Handler ID:*** COR000238022	E	0.02 / 101.45	98	113
19	SPILLS		7841 FOUNTAIN MESA RD. FOUNTAIN CO 80817- ***Case No:*** 2002-004	E	0.03 / 151.65	92	114
20	UST	SEJ #33043	7725 Fountain Mesa Rd Fountain 80817 CO ***Facility ID:*** 15472 ***Tank Tag | Tank Status:*** 15472-1 | Currently In Use, 15472-2 | Currently In Use	E	0.03 / 175.28	99	115
20	LST	SEJ #33043	7725 Fountain Mesa Rd Fountain 80817 CO ***Facility ID:*** 15472 ***Event ID | Status:*** 9039 | Closed	E	0.03 / 175.28	99	118
20	AIR PERMITS	SEJ ASSET MANAGEMENT - 7-	7725 FOUNTAIN MESA RD FOUNTAIN CO 80817	E	0.03 / 175.28	99	119

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
		ELEVEN #33043					
21	SWF/LF	Les Schwab Tire Center #164	7990 Fountain Mesa Rd Fountain CO	ESE	0.06 / 291.50	87	121
22	SPILLS		702 FRONTAGE ROAD SOUTH FOUNTAIN CO ***Case No:*** CO96-360	WNW	0.06 / 307.16	-26	122
23	RCRA NON GEN	ADVANCE AUTO #6425	7960 FOUNTAIN MESA RD FOUNTAIN CO 80817 ***EPA Handler ID:*** COR000254318	E	0.06 / 313.16	91	122
24	ALT FUELS	UCHealth Fountain Freestanding ED	7890 Fountain Mesa Road Fountain CO 80817 ***ID:*** 213867	E	0.06 / 317.22	92	124
25	UST	Former John Janitell Property	6525 Mesa Rd Fountain 80817 CO ***Facility ID:*** 18992 ***Tank Tag | Tank Status:*** 18992-1 | Permanently Closed, 18992-2 | Permanently Closed	SE	0.08 / 446.00	51	124
26	AST	Lowes #2607	7710 Fountain Mesa Rd Fountain 80817 CO ***Facility ID:*** 18594 ***Tank Tag | Tank Status:*** 18594-1 | Currently In Use	ENE	0.10 / 521.22	112	127
26	RCRA SQG	LOWE'S OF FOUNTAIN CO #2607	7710 FOUNTAIN MESA RD FOUNTAIN CO 80817 ***EPA Handler ID:*** COR000247684	ENE	0.10 / 521.22	112	129
27	RCRA VSQG	SAFEWAY STORE #1975	6925 MESA RIDGE PKWY FOUNTAIN CO 80817 ***EPA Handler ID:*** COR000228155	E	0.11 / 599.90	71	134
28	UST	Snack Shack II	8005 Fountain Mesa Rd Fountain 80817 CO ***Facility ID:*** 20380 ***Tank Tag | Tank Status:*** 20380-2 | Currently In Use, 20380-1 | Currently In Use, 20380-2 | Currently In Use	ESE	0.13 / 670.43	81	135
29	MRDS	GRAVEL PIT	EL PASO COUNTY COLORADO SPRINGS CO 80911 ***Dep ID:*** 10215412	NE	0.14 / 720.31	51	139
30	RCRA NON GEN	A & C COLLISION CENTER	7390 S HWY 85 - 87 FOUNTAIN CO 80817 ***EPA Handler ID:*** COR000200303	WNW	0.18 / 942.26	5	139
31	RCRA NON GEN	PEOPLE'S CHOICE	7370 S HWY 85-87 FOUNTAIN CO 80917	WNW	0.18 / 956.47	5	143

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
			EPA Handler ID: COD982648057				
32	UST	Colorado Auto Auction	7360-7390 Hwy 85 And 87 Fountain 80817 CO ***Facility ID:*** 15267 ***Tank Tag | Tank Status:*** 15267-1 | Permanently Closed	WNW	0.18 / 962.18	5	144
32	LST	Colorado Auto Auction	7360-7390 Hwy 85 And 87 Fountain 80817 CO ***Facility ID:*** 15267 ***Event ID | Status:*** 8385 | Closed	WNW	0.18 / 962.18	5	146
33	SWF/LF	A-1 Emergency Mobile Inc	5620 Southmoor Lane Fountain CO	WNW	0.22 / 1,179.99	0	147
34	UST	Fountain Valley Fire Department #2	8201 Fountain Mesa Rd Fountain 80817 CO ***Facility ID:*** 3294 ***Tank Tag | Tank Status:*** 3294-2 | Permanently Closed, 3294-1 | Permanently Closed	ESE	0.24 / 1,280.51	79	148
35	LST	Glen Investment Group 1-12 LLC	18 Jersey Ln Colorado Springs 80911 CO ***Facility ID:*** 4503 ***Event ID | Status:*** 2907 | Closed	NW	0.28 / 1,458.28	8	150
36	LST	Loves Travel Stop #357	5505 Travel Plaza Dr Fountain 80817 CO ***Facility ID:*** 18115 ***Event ID | Status:*** 13423 | Closed	WNW	0.33 / 1,753.32	-30	152
36	LUST TRUST	Loves Travel Stop #357	5505 Travel Plaza Dr Fountain CO 80817 ***Facility ID | Event ID | Release Date:*** 18115 | 13423 | 7/24/2019	WNW	0.33 / 1,753.32	-30	153
37	LST	Fountain Valley Maint Shop	310 Duckwood Rd Fountain 80817 CO ***Facility ID:*** 5010 ***Event ID | Status:*** 8972 | Closed	SW	0.37 / 1,943.91	-59	153
38	FED BROWNFIELDS	Duckwood Property	200 Duckwood Road Fountain, CO 80817 (18 adjoining tax lots) FOUNTAIN CO 80817 ***Property ID:*** 250136	SSW	0.38 / 2,031.95	-47	155
39	LST	Loaf N Jug #18	7055 Alegre Cir Fountain 80817 CO ***Facility ID:*** 2226 ***Event ID | Status:*** 7978 | Closed	NW	0.46 / 2,410.38	11	166
40	MRDS	GRAVEL PIT	EL PASO COUNTY FOUNTAIN CO 80817 ***Dep ID:*** 10263607	SSE	0.55 / 2,900.33	22	167

Executive Summary: Summary by Data Source

Standard

Federal

RCRA SQG - RCRA Small Quantity Generators List

A search of the RCRA SQG database, dated Apr 24, 2023 has found that there are 1 RCRA SQG site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
LOWE'S OF FOUNTAIN CO #2607	7710 FOUNTAIN MESA RD FOUNTAIN CO 80817 ***EPA Handler ID**: COR000247684*	ENE	0.10 / 521.22	26

RCRA VSQG - RCRA Very Small Quantity Generators List

A search of the RCRA VSQG database, dated Apr 24, 2023 has found that there are 2 RCRA VSQG site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
FAMILY DOLLAR #8650	6960 MESA RIDGE PKWY FOUNTAIN CO 80817 ***EPA Handler ID**: COR000238022*	E	0.02 / 101.45	18
SAFEWAY STORE #1975	6925 MESA RIDGE PKWY FOUNTAIN CO 80817 ***EPA Handler ID**: COR000228155*	E	0.11 / 599.90	27

RCRA NON GEN - RCRA Non-Generators

A search of the RCRA NON GEN database, dated Apr 24, 2023 has found that there are 4 RCRA NON GEN site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
ADVANCE AUTO #6425	7960 FOUNTAIN MESA RD FOUNTAIN CO 80817 ***EPA Handler ID**: COR000254318*	E	0.06 / 313.16	23
A & C COLLISION CENTER	7390 S HWY 85 - 87 FOUNTAIN CO 80817 ***EPA Handler ID**: COR000200303*	WNW	0.18 / 942.26	30
PEOPLE'S CHOICE	7370 S HWY 85-87 FOUNTAIN CO 80917 ***EPA Handler ID**: COD982648057*	WNW	0.18 / 956.47	31

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
DATA GENERAL SERVICE INC	702 FRONTAGE RD FOUNTAIN CO 80817 ***EPA Handler ID**: COD982648487*	WNW	0.01 / 27.09	8

ERNS - Emergency Response Notification System

A search of the ERNS database, dated Apr 3, 2023 has found that there are 1 ERNS site(s) within approximately 0.02 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
	6949 MESA RIDGE PARKWAY FOUNTAIN CO 80817 ***NRC Report No**: 1300134*	E	0.02 / 81.34	16

FED BROWNFIELDS - The Assessment, Cleanup and Redevelopment Exchange System (ACRES) Brownfield Database

A search of the FED BROWNFIELDS database, dated Sep 13, 2022 has found that there are 2 FED BROWNFIELDS site(s) within approximately 0.50 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
Scott's Fertilizer	3 Assembly Court FOUNTAIN CO 80817 ***Property ID**: 251466*	W	0.02 / 83.39	17
Duckwood Property	200 Duckwood Road Fountain, CO 80817 (18 adjoining tax lots) FOUNTAIN CO 80817 ***Property ID**: 250136*	SSW	0.38 / 2,031.95	38

State

SWF/LF - Solid Waste Facilities and Landfills

A search of the SWF/LF database, dated May 4, 2023 has found that there are 3 SWF/LF site(s) within approximately 0.50 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
Les Schwab Tire Center	7996 Fountain Mesa Road Fountain CO	ESE	0.02 / 80.39	15
Les Schwab Tire Center #164	7990 Fountain Mesa Rd Fountain CO	ESE	0.06 / 291.50	21

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
A-1 Emergency Mobile Inc	5620 Southmoor Lane Fountain CO	WNW	0.22 / 1,179.99	33

LST - Leaking Storage Tanks

A search of the LST database, dated Jun 1, 2023 has found that there are 8 LST site(s) within approximately 0.50 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
Kum & Go #670	8050 Fountain Mesa Rd Fountain 80817 CO ***Facility ID**: 19326* ***Event ID | Status**: 13316 | Closed*	ESE	0.01 / 43.26	9
SEJ #33043	7725 Fountain Mesa Rd Fountain 80817 CO ***Facility ID**: 15472* ***Event ID | Status**: 9039 | Closed*	E	0.03 / 175.28	20
Colorado Auto Auction	7360-7390 Hwy 85 And 87 Fountain 80817 CO ***Facility ID**: 15267* ***Event ID | Status**: 8385 | Closed*	WNW	0.18 / 962.18	32
Glen Investment Group 1-12 LLC	18 Jersey Ln Colorado Springs 80911 CO ***Facility ID**: 4503* ***Event ID | Status**: 2907 | Closed*	NW	0.28 / 1,458.28	35
Loaf N Jug #18	7055 Alegre Cir Fountain 80817 CO ***Facility ID**: 2226* ***Event ID | Status**: 7978 | Closed*	NW	0.46 / 2,410.38	39

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
The Scotts Company (Hyponex Corp)	3 Assembly Ct Fountain 80817 CO ***Facility ID**: 10116* ***Event ID | Status**: 11634 | Closed, 3541 | Closed*	W	0.02 / 83.39	17
Loves Travel Stop #357	5505 Travel Plaza Dr Fountain 80817 CO ***Facility ID**: 18115* ***Event ID | Status**: 13423 | Closed*	WNW	0.33 / 1,753.32	36
Fountain Valley Maint Shop	310 Duckwood Rd Fountain 80817 CO ***Facility ID**: 5010* ***Event ID | Status**: 8972 | Closed*	SW	0.37 / 1,943.91	37

LUST TRUST - LUST Trust Sites

A search of the LUST TRUST database, dated Jun 1, 2023 has found that there are 2 LUST TRUST site(s) within approximately 0.50 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
Kum & Go #670	8050 Fountain Mesa Rd Fountain CO 80817	ESE	0.01 / 43.26	9

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
	Facility ID* | *Event ID* | *Release Date: *19326* | *13316* | *5/23/2019*			

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
Loves Travel Stop #357	5505 Travel Plaza Dr Fountain CO 80817	WNW	0.33 / 1,753.32	36
	Facility ID* | *Event ID* | *Release Date: *18115* | *13423* | *7/24/2019*			

UST - Underground Storage Tanks

A search of the UST database, dated Jun 1, 2023 has found that there are 10 UST site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
Widefield Homes	Fountain Mesa Rd West Of Widefield Colorado Springs 80911 CO ***Facility ID***: *7032* ***Tank Tag* | *Tank Status***: *7032-1* | *Permanently Closed, 7032-2* | *Permanently Closed*	SE	0.00 / 0.00	1
Kum & Go #670	8050 Fountain Mesa Rd Fountain 80817 CO ***Facility ID***: *19326* ***Tank Tag* | *Tank Status***: *19326-1* | *Currently In Use, 19326-3* | *Currently In Use, 19326-5* | *Currently In Use, 19326-2* | *Currently In Use, 19326-4* | *Currently In Use*	ESE	0.01 / 43.26	9
Safeway Fuel Center	6949 Mesa Ridge Rd Fountain 80817 CO ***Facility ID***: *17892* ***Tank Tag* | *Tank Status***: *17892-2* | *Currently In Use, 17892-2* | *Currently In Use, 17892-1* | *Currently In Use*	E	0.02 / 81.34	16
SEJ #33043	7725 Fountain Mesa Rd Fountain 80817 CO ***Facility ID***: *15472* ***Tank Tag* | *Tank Status***: *15472-1* | *Currently In Use, 15472-2* | *Currently In Use*	E	0.03 / 175.28	20
Former John Janitell Property	6525 Mesa Rd Fountain 80817 CO ***Facility ID***: *18992* ***Tank Tag* | *Tank Status***: *18992-1* | *Permanently Closed, 18992-2* | *Permanently Closed*	SE	0.08 / 446.00	25
Snack Shack II	8005 Fountain Mesa Rd Fountain 80817 CO ***Facility ID***: *20380* ***Tank Tag* | *Tank Status***: *20380-2* | *Currently In Use, 20380-1* | *Currently In Use, 20380-2* | *Currently In Use*	ESE	0.13 / 670.43	28
Colorado Auto Auction	7360-7390 Hwy 85 And 87 Fountain 80817 CO ***Facility ID***: *15267* ***Tank Tag* | *Tank Status***: *15267-1* | *Permanently Closed*	WNW	0.18 / 962.18	32
Fountain Valley Fire Department #2	8201 Fountain Mesa Rd Fountain 80817 CO ***Facility ID***: *3294* ***Tank Tag* | *Tank Status***: *3294-2* | *Permanently Closed, 3294-1* | *Permanently Closed*	ESE	0.24 / 1,280.51	34

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
Maverik #659	Mesa Ridge PKWY & Syracuse Security 80911 CO ***Facility ID**: 20721* ***Tank Tag | Tank Status**: 20721-1 | Currently In Use, 20721-2 | Currently In Use, 20721-2 | Currently In Use, 20721-2 | Currently In Use*	NW	0.01 / 73.33	13
The Scotts Company (Hyponex Corp)	3 Assembly Ct Fountain 80817 CO ***Facility ID**: 10116* ***Tank Tag | Tank Status**: 10116-2 | Permanently Closed, 10116-1 | Permanently Closed*	W	0.02 / 83.39	17

AST - Aboveground Storage Tanks

A search of the AST database, dated Jun 1, 2023 has found that there are 2 AST site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
Lowes #2607	7710 Fountain Mesa Rd Fountain 80817 CO ***Facility ID**: 18594* ***Tank Tag | Tank Status**: 18594-1 | Currently In Use*	ENE	0.10 / 521.22	26

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
The Scotts Company (Hyponex Corp)	3 Assembly Ct Fountain 80817 CO ***Facility ID**: 10116* ***Tank Tag | Tank Status**: 10116-4 | Currently In Use, 10116-3 | Not Regulated*	W	0.02 / 83.39	17

Non Standard

Federal

FINDS/FRS - Facility Registry Service/Facility Index

A search of the FINDS/FRS database, dated Aug 18, 2022 has found that there are 15 FINDS/FRS site(s) within approximately 0.02 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
MR. CAR WASH	7980 FOUNTAIN MESA ROAD FOUNTAIN CO 80817 ***Registry ID**: 110070668495*	ESE	0.00 / 7.46	7
LES SCHWAB TIRE CENTER FOUNTAIN	7996 FOUNTAIN MESA RD FOUNTAIN CO 80817 ***Registry ID**: 110064783195*	ESE	0.02 / 80.39	15
6945 MESA RIDGE RETAIL	6945 MESA RIDGE PARKWAY FOUNTAIN CO 80817 ***Registry ID**: 110071204685*	E	0.02 / 81.34	16
SAFEWAY INC. # 1975	6949 MESA RIDGE PKWY FOUNTAIN CO 80817	E	0.02 / 81.34	16

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
	***Registry ID**: 110041440296*			
FAMILY DOLLAR #8650	6960 MESA RIDGE PKWY FOUNTAIN CO 80817	E	0.02 / 101.45	18
	***Registry ID**: 110064376410*			

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
HIGHWAY 85 OUTFALL SEWER	HWY 85 AND MESA RD FOUNTAIN CO 80817	WSW	0.00 / 0.00	3
	***Registry ID**: 110040433046*			
WIDEFIELD WSD	450 WILLOW SPRINGS RD FOUNTAIN CO 80817	WNW	0.00 / 0.00	6
	***Registry ID**: 110055989649*			
COLJEN LEASING LTD ELPASO ASPHALT	8050 S US HWY 85 & 87 COLORADO SPRINGS CO 80901	W	0.01 / 51.71	10
	***Registry ID**: 110038648489*			
EL PASO FOUNTAIN CREEK WILLOW SPRINGS	430 WILLOW SPRINGS ROAD FOUNTAIN CO 80817	WNW	0.01 / 59.68	11
	***Registry ID**: 110032601628*			
MAVERIK-MAVERIK STORE #659	MESA RDIGE & SYRACUSE ST FOUNTAIN CO 80817	NW	0.01 / 73.33	13
	***Registry ID**: 110071092165*			
MESA RIDGE CROSSING	SYRACUSE STREET AND MESA RIDGE PARKWAY FOUNTAIN CO 80903 ***Registry ID**: 110070875060*	NW	0.01 / 73.33	13
MAVERIK AT MESA RIDGE (LOT 1, MESA RIDGE CROSSING FILING 1)	MESA RIDGE PARKWAY AND SYRACUSE STREET FOUNTAIN CO 80903 ***Registry ID**: 110071066162*	NW	0.01 / 73.33	13
FIRST FLEET (FORMERLY AFC)	500 WILLOW SPRINGS ROAD COLORADO SPRINGS CO 80911	WNW	0.01 / 77.52	14
	***Registry ID**: 110042344852*			
SCOTT'S COMPANY - HYPONEX CORP #1023	3 ASSEMBLY CT FOUNTAIN CO 808170000	W	0.02 / 83.39	17
	***Registry ID**: 110001434742*			
SCOTT COMPANY	3 ASSEMBLY CT FOUNTAIN CO 808170000	W	0.02 / 83.39	17
	***Registry ID**: 110010684232*			

ICIS - Integrated Compliance Information System (ICIS)

A search of the ICIS database, dated Oct 15, 2022 has found that there are 9 ICIS site(s) within approximately 0.02 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
LES SCHWAB TIRE CENTER FOUNTAIN	7996 FOUNTAIN MESA RD FOUNTAIN CO 80817 ***Registry ID**: 110064783195*	ESE	0.02 / 80.39	15

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
HIGHWAY 85 OUTFALL SEWER	HWY 85 AND MESA RD FOUNTAIN CO 80817 ***Registry ID**: 110040433046*	WSW	0.00 / 0.00	3
WIDEFIELD WSD WWTF	450 WILLOW SPRINGS RD WIDEFIELD CO 80817 ***Registry ID**: 110055989649*	WNW	0.00 / 0.00	6
EL PASO FOUNTAIN CREEK WILLOW SPRINGS	430 WILLOW SPRINGS ROAD FOUNTAIN CO 80817 ***Registry ID**: 110032601628*	WNW	0.01 / 59.68	11
EL PASO FOUNTAIN CREEK WILLOW SPRINGS	430 WILLOW SPRINGS ROAD FOUNTAIN CO 80817 ***Registry ID**: 110032601628*	WNW	0.01 / 59.68	11
FIRST FLEET (FORMERLY AFC)	500 WILLOW SPRINGS ROAD COLORADO SPRINGS CO 80911 ***Registry ID**: 110042344852*	WNW	0.01 / 77.52	14
HYPONEX CORP	3 ASSEMBLY CT FOUNTAIN CO 80817 ***Registry ID**: 110001434742*	W	0.02 / 83.39	17
HYPONEX CO	3 ASSEMBLY CT FOUNTAIN CO 808172710 ***Registry ID**: 110001434742*	W	0.02 / 83.39	17
SCOTT COMPANY	3 ASSEMBLY CT FOUNTAIN CO 808170000 ***Registry ID**: 110010684232*	W	0.02 / 83.39	17

MRDS - Mineral Resource Data System

A search of the MRDS database, dated Mar 15, 2016 has found that there are 2 MRDS site(s) within approximately 1.00 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
GRAVEL PIT	EL PASO COUNTY COLORADO SPRINGS CO 80911 ***Dep ID**: 10215412*	NE	0.14 / 720.31	29
GRAVEL PIT	EL PASO COUNTY FOUNTAIN CO 80817	SSE	0.55 / 2,900.33	40

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
	***Dep ID**: 10263607*			

ALT FUELS - Alternative Fueling Stations

A search of the ALT FUELS database, dated Jun 5, 2023 has found that there are 2 ALT FUELS site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
Kum & Go #670	8050 Fountain Mesa Rd Fountain CO 80817 ***ID**: 50304*	ESE	0.01 / 43.26	9
UCHealth Fountain Freestanding ED	7890 Fountain Mesa Road Fountain CO 80817 ***ID**: 213867*	E	0.06 / 317.22	24

AFS - Air Facility System

A search of the AFS database, dated Oct 17, 2014 has found that there are 3 AFS site(s) within approximately 0.02 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
SAFEWAY INC. # 1975	6949 MESA RIDGE PKWY FOUNTAIN CO 808171543	E	0.02 / 81.34	16

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
COLJEN LEASING LTD ELPASO ASPHALT	8050 S US HWY 85 & 87 COLORADO SPRINGS CO 000000000	W	0.01 / 51.71	10
HYPONEX CO	3 ASSEMBLY CT FOUNTAIN CO 808172710	W	0.02 / 83.39	17

State

SPILLS - Spills

A search of the SPILLS database, dated Apr 8, 2022 has found that there are 5 SPILLS site(s) within approximately 0.12 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
	MESA RIDGE ROAD AND FONTAIN BLVD FOUNTAIN CO 80817 ***Case No**: 2011-0328*	E	0.00 / 0.00	4
	7005 MESA RIDGE PKWY FOUNTAIN CO	E	0.01 / 62.07	12

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
	***Case No**: 2019-0399*			
	7841 FOUNTAIN MESA RD. FOUNTAIN CO 80817-	E	0.03 / 151.65	19
	***Case No**: 2002-004*			

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
	480 WILLOW SPRINGS RD. FOUNTAIN CO 80817	WNW	0.00 / 0.00	5
	***Case No**: 2018-0278*			
	702 FRONTAGE ROAD SOUTH FOUNTAIN CO	WNW	0.06 / 307.16	22
	***Case No**: CO96-360*			

AIR PERMITS - Air Pollution Control Division Permitted Facilities

A search of the AIR PERMITS database, dated Feb 13, 2023 has found that there are 4 AIR PERMITS site(s) within approximately 0.12 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
SAFEWAY INC. # 1975	6941 MESA RIDGE PKWY FOUNTAIN CO 80817	E	0.02 / 81.34	16
SEJ ASSET MANAGEMENT - 7-ELEVEN #33043	7725 FOUNTAIN MESA RD FOUNTAIN CO 80817	E	0.03 / 175.28	20

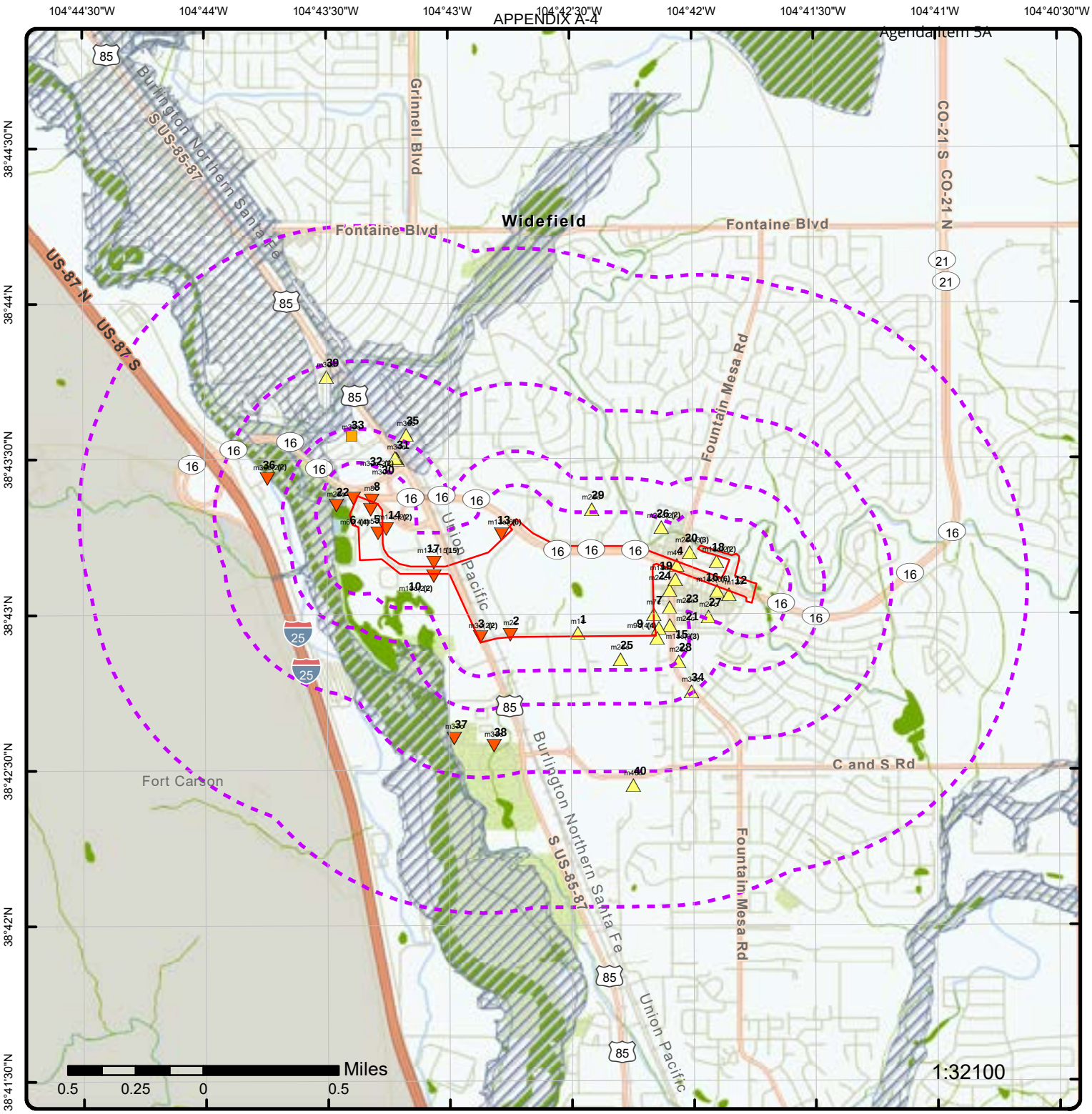
Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
MAVERIK-MAVERIK STORE #659	MESA RDIGE & SYRACUSE ST FOUNTAIN CO 80817	NW	0.01 / 73.33	13
SCOTT'S COMPANY - HYPONEX CORP #1023	3 ASSEMBLY CT FOUNTAIN CO 80817	W	0.02 / 83.39	17

PDES - Permitted Facilities Listing

A search of the PDES database, dated May 1, 2023 has found that there are 8 PDES site(s) within approximately 0.02 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
Fountain Industrial Park, LLC	N of Syracuse St and Mesa Rd Fountain CO 80817	SW	0.00 / 0.00	2

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
Widefield WSD WWTF	450 Willow Springs Rd Fountain CO 80817	WNW	0.00 / 0.00	6
Widefield WSD WWTF	450 Willow Springs Rd Fountain CO 80817	WNW	0.00 / 0.00	6
Mesa Ridge Crossing	Syracuse Street and Mesa Ridge Parkway Fountain CO 80903	NW	0.01 / 73.33	13
Hyponex Corp	3 Assembly Ct Fountain CO 80817	W	0.02 / 83.39	17
Hyponex Corp	3 Assembly Ct Fountain CO 80817	W	0.02 / 83.39	17
Hyponex Corp	3 Assembly Ct Fountain CO 80817	W	0.02 / 83.39	17
Hyponex Corp	3 Assembly Ct Fountain CO 80817	W	0.02 / 83.39	17



Map: 1.0 Mile Radius

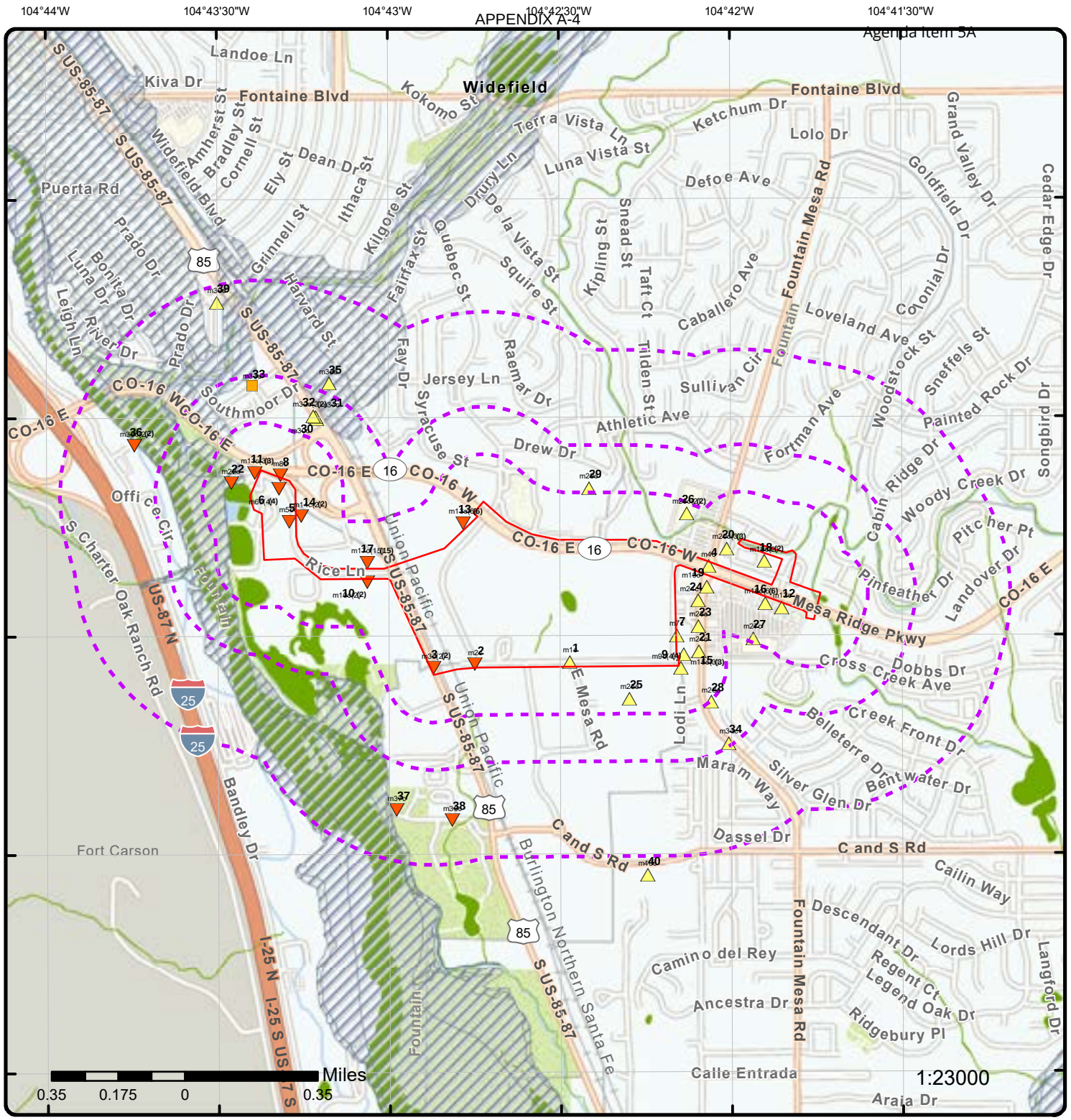
Order Number: 23082200786

Address: Jimmy Camp Wastewater Line Alternatives, Widefield, CO

- Project Property
- Buffer Outline
- Sites with Higher Elevation
- Sites with Same Elevation
- Sites with Lower Elevation
- Sites with Unknown Elevation
- Areas with Higher Elevation
- Areas with Same Elevation
- Areas with Lower Elevation
- Areas with Unknown Elevation
- Freeways; Highways
- Traffic Circle; Ramp
- Major & Minor Arterial
- Traffic Circle; Ramp
- Local Road
- Rail
- State
- Country
- National Wetland
- Indian Reserve Land
- Plume
- 100 Year Flood Zone
- 500 Year Flood Zone
- FWS Special Designation Areas
- National Priorities List (Active, Delisted, Proposed, Institutional Control)

Source: © 2021 ESRI StreetMap Premium

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Map: 0.5 Mile Radius

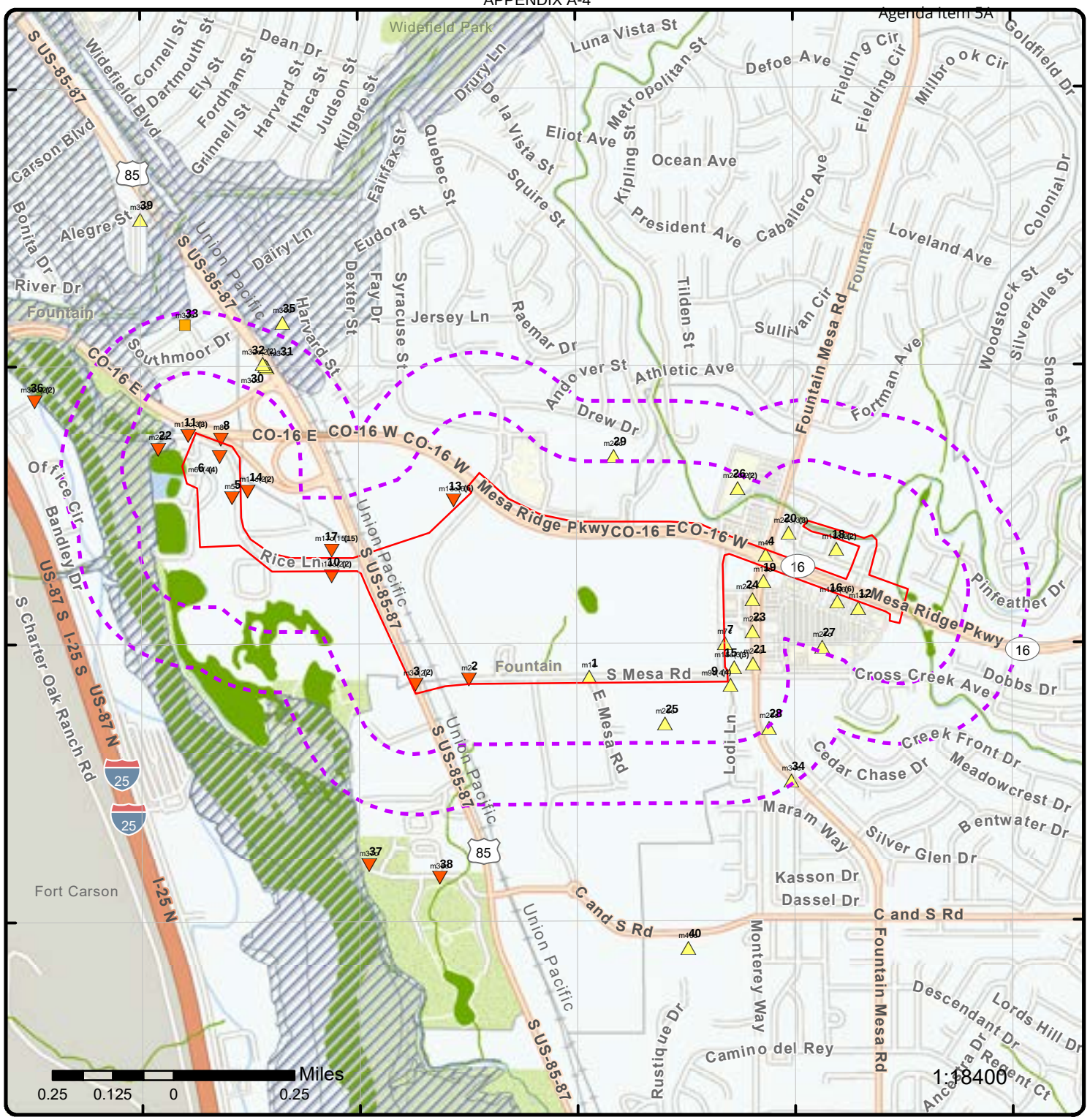
Order Number: 23082200786

Address: Jimmy Camp Wastewater Line Alternatives, Widefield, CO

- Project Property
- Buffer Outline
- Sites with Higher Elevation
- Sites with Same Elevation
- Sites with Lower Elevation
- Sites with Unknown Elevation
- Areas with Higher Elevation
- Areas with Same Elevation
- Areas with Lower Elevation
- Areas with Unknown Elevation
- Freeways; Highways
- Traffic Circle; Ramp
- Major & Minor Arterial
- Traffic Circle; Ramp
- Local Road
- Rail
- State
- Country
- National Wetland
- Indian Reserve Land
- Plume
- 100 Year Flood Zone
- 500 Year Flood Zone
- FWS Special Designation Areas
- National Priorities List (Active, Delisted, Proposed, Institutional Control)

Source: © 2021 ESRI StreetMap Premium

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Map: 0.25 Mile Radius

Order Number: 23082200786

Address: Jimmy Camp Wastewater Line Alternatives, Widefield, CO

- Project Property
- Buffer Outline
- Sites with Higher Elevation
- Sites with Same Elevation
- Sites with Lower Elevation
- Sites with Unknown Elevation
- Areas with Higher Elevation
- Areas with Same Elevation
- Areas with Lower Elevation
- Areas with Unknown Elevation
- Freeways; Highways
- Traffic Circle; Ramp
- Major & Minor Arterial
- Traffic Circle; Ramp
- Local Road
- Rail
- State
- Country
- National Wetland
- Indian Reserve Land
- Plume
- 100 Year Flood Zone
- 500 Year Flood Zone
- FWS Special Designation Areas
- National Priorities List (Active, Delisted, Proposed, Institutional Control)



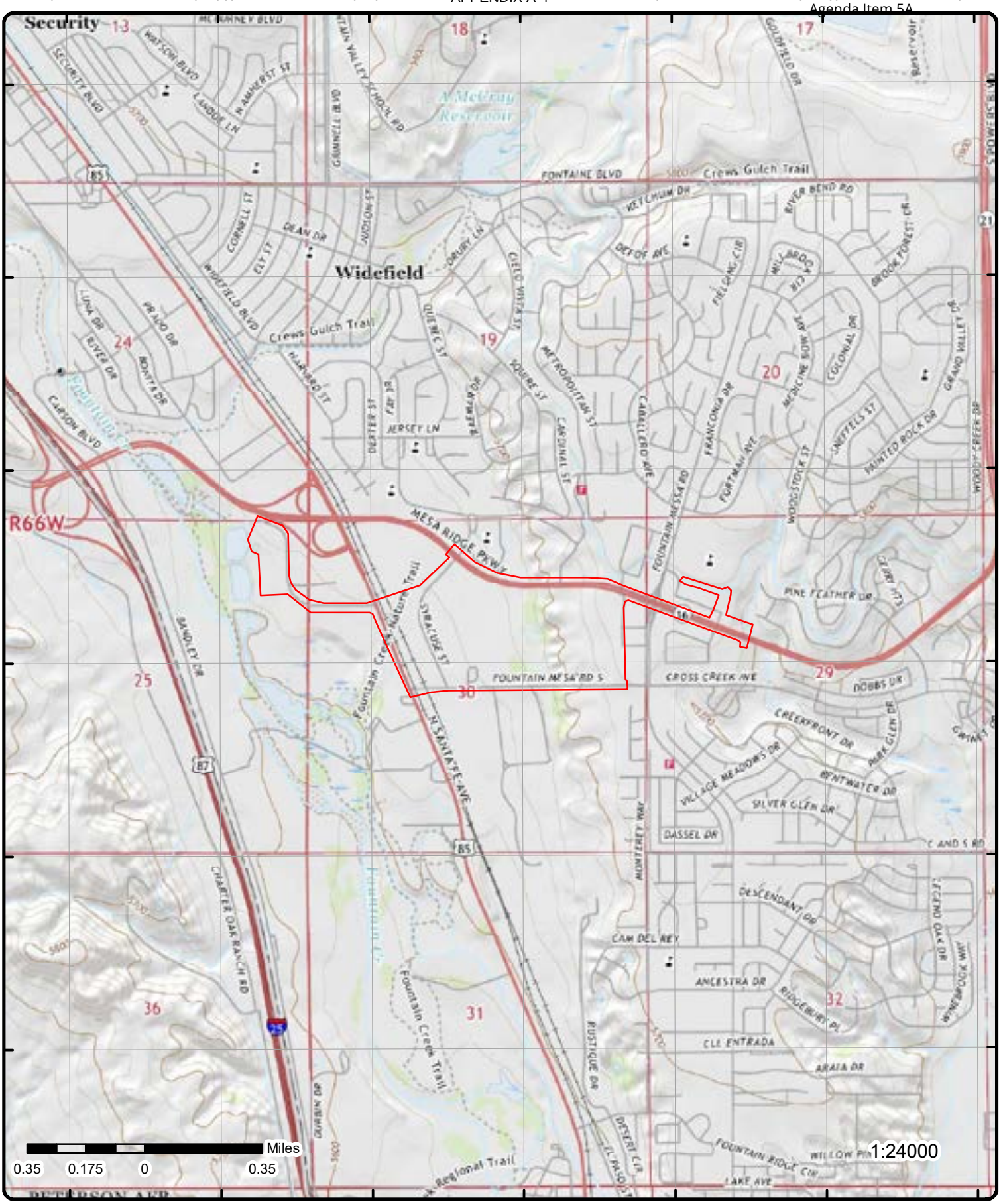
Aerial **Year: 2022**

Order Number: 23082200786

Address: Jimmy Camp Wastewater Line Alternatives, Widefield, CO

Source: ESRI World Imagery

© ERIS Information Inc.



Topographic Map **Year: 2019**

Order Number: 23082200786

Address: Jimmy Camp Wastewater Line Alternatives, CO

Quadrangle(s): Elsmere CO, Fountain CO, Cheyenne Mountain CO

Source: USGS Topographic Map

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Detail Report

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
1	1 of 1	SE	0.00 / 0.00	5,662.63 / 8	Widefield Homes Fountain Mesa Rd West Of Widefield Colorado Springs 80911 CO	UST

Facility ID: 7032
FacilityName(OPS): Widefield Homes
FacilityType(OPS): Non-Retail
Fac Category (OPS): Other
Address (OPS): Fountain Mesa Rd West Of Widefield
City (OPS): Colorado Springs
Zip Code (OPS): 80911
County (OPS): El Paso
LatLong (OPS): 38.715649, -104.707866
FacName (CDLE): Widefield Homes
Address (CDLE): Fountain Mesa Rd West Of Widefield
State (CDLE):

Fac Name (COSTIS): Widefield Homes
Address (COSTIS): Fountain Mesa Rd West Of Widefield
Colorado Springs 80911
County (COSTIS): El Paso
Latitude (CDLE): 38.715649
Longitude (CDLE): -104.707866
Fac Type (CDLE): Non-Retail
FacCategry(CDLE): Other
State (OPS): CO
City (CDLE): Colorado Springs
Zip (CDLE): 80911
County (CDLE): El Paso

Data Source(s): Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks

Facility Information (CDLE)

Count of Tank Tag: 0
No. Dispensers: 0
Owner ID: OWNR-9999

Accnt Holdr Name: larry lyster
Type: Non-Retail

Owner Information (CDLE)

Contact Name: Unknown
First Name:
Company Name: larry lyster
Last Name: Unknown
Address:
Comment:

Middle Init:

UST Tanks (COSTIS) (As of October 2021)

Tank ID: 18667
Tank Tag: '7032-2
Tank Type Desc: UST
Tank Count: 46668
Capacity:
Facility Owner: Unknown
Facility Name Address: Widefield Homes
Fountain Mesa Rd
West Of Widefield
Colorado Springs 80911

Owner ID: 9999
Tank Owner:
County: El Paso
Product Name: Gasoline

Tank ID: 18666
Tank Tag: '7032-1
Tank Type Desc: UST
Tank Count: 46668
Capacity:
Facility Owner: Unknown
Facility Name Address: Widefield Homes
Fountain Mesa Rd
West Of Widefield
Colorado Springs 80911

Owner ID: 9999
Tank Owner:
County: El Paso
Product Name: Gasoline

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

UST Tanks 1 (CDLE)

Tank Tag:	7032-1	***Overfill Preven:***	
Tank Type:	UST	***Product Type/Name:***	Gasoline
Tank Status:	Permanently Closed	***Piping Wall Type:***	None
Capacity:		***Tank Wall Type:***	
Install Date:		***Piping System:***	
Date Closed:	2/1/1995	***Piping Type:***	Other
Tank Material:	Unknown		
Piping Material:	Unknown		

UST Tanks 2 (CDLE)

Closure Meth ID:		***No Fee:***	No
Unregulated:	FALSE	***Anch Method Desc:***	
Last Used Date:	2/1/1995	***Pipe Reld Meth1 ID:***	
Del Prohib Date:		***Pipe Reldet Date:***	
Spill Protected:		***Backfill Mat Desc:***	
Spl Container Size:		***Bfill DrtCvr Amt:***	
Spl Protection Dt:		***Manifold:***	No
Spl Container Mfg:		***Registration Date:***	
Spl Container Mdel:		***Compartment:***	FALSE
Tank Reld Meth1 ID:		***Cpmet:***	No
Tank Lining Date:		***Invault:***	FALSE
CP Test Date:			

UST Tanks 1 (CDLE)

Tank Tag:	7032-2	***Overfill Preven:***	
Tank Type:	UST	***Product Type/Name:***	Gasoline
Tank Status:	Permanently Closed	***Piping Wall Type:***	None
Capacity:		***Tank Wall Type:***	
Install Date:		***Piping System:***	
Date Closed:	2/1/1995	***Piping Type:***	Other
Tank Material:	Unknown		
Piping Material:	Unknown		

UST Tanks 2 (CDLE)

Closure Meth ID:		***No Fee:***	No
Unregulated:	FALSE	***Anch Method Desc:***	
Last Used Date:	2/1/1995	***Pipe Reld Meth1 ID:***	
Del Prohib Date:		***Pipe Reldet Date:***	
Spill Protected:		***Backfill Mat Desc:***	
Spl Container Size:		***Bfill DrtCvr Amt:***	
Spl Protection Dt:		***Manifold:***	No
Spl Container Mfg:		***Registration Date:***	
Spl Container Mdel:		***Compartment:***	FALSE
Tank Reld Meth1 ID:		***Cpmet:***	No
Tank Lining Date:		***Invault:***	FALSE
CP Test Date:			

Oil & Public Safety Regulated Storage Tanks (COSTIS)

Tank Tag:	7032-1	***Leak Detector Type:***	
Tank Status:	Permanently Closed	***Capacity Gallons :***	
Tank Type:	UST	***Product:***	Gasoline
Tank Name:	TNK-014415	***Piping Type:***	Other
Installation Date:		***Piping System:***	
Closure Date:	2/1/1995	***Piping Material:***	Unknown
Tank Material:	Unknown	***Piping Wall Type:***	None
Tank Wall Type:		***Address:***	Fountain Mesa Rd West Of Widefield
Facility Name:	Widefield Homes	***City:***	Colorado Springs

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Facility Type: Non-Retail
Facility Category: Other
Overfill Preven:
Tank Corsn Protection Meth:
Tank Rel Detn Mthd Primary:
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP):
PCP at Tank:
PCP at Dispenser:
Piping Rel Detn Mthd Primary:
Piping Rel Detn Mthd Secondary:
County: El Paso
ZIP Code: 80911

Tank Tag: 7032-2
Tank Status: Permanently Closed
Tank Type: UST
Tank Name: TNK-014416
Installation Date:
Closure Date: 2/1/1995
Tank Material: Unknown
Tank Wall Type:
Facility Name: Widefield Homes
Facility Type: Non-Retail
Facility Category: Other
Overfill Preven:
Tank Corsn Protection Meth:
Tank Rel Detn Mthd Primary:
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP):
PCP at Tank:
PCP at Dispenser:
Piping Rel Detn Mthd Primary:
Piping Rel Detn Mthd Secondary:
Leak Detector Type:
Capacity Gallons :
Product: Gasoline
Piping Type: Other
Piping System:
Piping Material: Unknown
Piping Wall Type: None
Address: Fountain Mesa Rd West Of Widefield
City: Colorado Springs
County: El Paso
ZIP Code: 80911

UST Owner (COSTIS) (As of October 2021)

Owner ID: 9999
First Name:
Middle Init:
Last Name: Unknown
Full Name: Unknown;
Address1: Unknown
City: Zipcode Unknown
State: XX
County:
Zip Code: 99999

Oil & Public Safety Regulated Storage Tank Details

No of Tanks: 0

Facility Contact Details (CDLE)

Contact ID: 0033h00000mtdlz
Costis ID: FACOWN-7032-6741-Apr 4 1997 12:00AM
Active: TRUE
Role: Facility Owner
Fac Contact Name: FCON-030387
Contact Last Name: Unknown

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
2	1 of 1	SW	0.00 / 0.00	5,630.09 / -24	Fountain Industrial Park, LLC N of Syracuse St and Mesa Rd Fountain CO 80817	PDES

Permit ID: COR419235
Permit Status: Effective
Permit Sector: Construction
Previous Permit ID:
Regulation ID:
Facility Name: Fountain Industrial Park, LLC
Facility Address: N of Syracuse St and Mesa Rd
SW Constr Activity: Highway
SW Constr End Date: 1/24/2025
Permit SIC 1: 6552
Permit SIC 2:
Permit SIC 3:
Permit SIC 4:
Permittee: Thompson Thrift Construction

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Facility Address 2:		**Former Permittee:**	
Facility City:	Fountain	**Activity Desc:**	
Facility State:	CO	**Issue Date:**	1/23/2023
Facility ZIP:	80817	**Effective Date:**	1/23/2023
Facility County:	El Paso	**Expiration Date:**	3/31/2024
Facility Latitude:	38.717426	**Permit Sector1:**	
Facility Longitude:	-104.707765	**Permit Sector2:**	
Facility SIC Code:	6552	**Use category:**	
Facility Type:		**Termination Date:**	
Water Category:		**Issuing Org Type:**	
Immediate Water:		**App Received Date:**	1/13/2023
Receiving Water:		**Ct Status Start Date:**	
Stream Segment:	COARFO02a	**Ct Status End Date:**	
Fee Category:	II-J	**Ct Status Reason:**	
Add Fee Category 1:		**Workplan Year:**	
Add Fee Category 2:		**UDF3:**	
Add Fee Category 3:			

General Permit Tye: COR400000-Stormwater discharge associated with construction activities
Compliance Tracking Status:
SW Constr Start Date: 1/24/2023
Reuse Treater:
Facility Class First:
Facility Description:
Fac Horizontal Coll. Method:
Facility ICIS Ownership Type:
Associated Pot W:
SW Constr Total Acres: 3.778
Reuse Treater ID:
SW Constr Disturb Acres: 3.778
Facility Class Second:
Facility Reference Point:
Major Minor: Minor
Major River Basin:
Total App on Average Flow No:
Total App Design Flow No:
Apprvd for Eltrnc Sub:

Facility Contact

Facility Contact Org: Thompson Thrift Construction
Facility Contact First Name: Sterling
Facility Contact Last Name: Bremner
Facility Contact Title: Project Executive
Facility Contact Address: 12000 N Pecos Suite 250
Facility Contact City: Westminster
Facility Contact State: CO
Facility Contact ZIP code: 80234
Facility Contact Phone: 3035245872
Facility Contact Email: bremner@thompsonthrift.com

Billing

Billing Organization: Thompson Thrift Construction
Billing First Name: Shane
Billing Last Name: Slusser
Billing Title: Owner's Representative
Billing Address: 111 Monument Circle Suite 1500
Billing City: Indianapolis
Billing State: IN
Billing ZIP Code: 46204
Billing Phone: 5743556583
Billing Email: sslusser@thompsonthrift.com
Billing Country:

Legal

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Legal First Name: Sterling
Legal Last Name: Bremner
Legal Title: Project Executive
Legal Address: 12000 N Pecos Suite 250
Legal City: Westminster
Legal State: CO
Legal ZIP Code: 80234
Legal Phone: 3035245872
Legal Email: bremner@thompsonthrift.com
Legal Country:

Property Owner

Property Owner Org: Thompson Thrift Construction
Property Owner First Name: Paul
Property Owner Last Name: Madden
Property Owner Title: Director of Construction
Property Owner Address: 111 Monument Circle Suite 1500
Property Owner City: Indianapolis
Property Owner State: IN
Property Owner ZIP Code: 46204
Property Owner Phone: 3174471452
Property Owner Email: pmadden@thompsonthrift.com

3	1 of 2	WSW	0.00 / 0.00	5,627.11 / -27	HIGHWAY 85 OUTFALL SEWER HWY 85 AND MESA RD FOUNTAIN CO 80817	FINDS/FRS

Registry ID: 110040433046
FIPS Code: CO041
HUC Code: 11020003
Site Type Name: STATIONARY
Location Description:
Supplemental Location:
Create Date: 18-FEB-10
Update Date: 11-JAN-16
Interest Types: ICIS-NPDES NON-MAJOR
SIC Codes: 1629
SIC Code Descriptions: HEAVY CONSTRUCTION, NOT ELSEWHERE CLASSIFIED
NAICS Codes:
NAICS Code Descriptions:
Conveyor: ICIS
Federal Facility Code:
Federal Agency Name:
Tribal Land Code:
Tribal Land Name:
Congressional Dist No: 05
Census Block Code: 080410045082006
EPA Region Code: 08
County Name: EL PASO
US/Mexico Border Ind:
Latitude: 38.7097
Longitude: -104.7109
Reference Point:
Coord Collection Method:
Accuracy Value:
Datum: NAD83
Source:
Facility Detail Rprt URL: https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110040433046
Data Source: Facility Registry Service - Single File
Program Acronyms:

NPDES:COG073255

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
3	2 of 2	WSW	0.00 / 0.00	5,627.11 / -27	HIGHWAY 85 OUTFALL SEWER HWY 85 AND MESA RD FOUNTAIN CO 80817	ICIS

EPA Region: 08
Registry ID: 110040433046
Pgm Sys ID: COG073255
Pgm Sys Acrnm: NPDES
Permit Type: General Permit Covered Facility
Federal Fac ID:
Tribal Land Code:
County: El Paso
Latitude 83: 38.7097
Longitude 83: -104.7109

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
4	1 of 1	E	0.00 / 0.00	5,750.05 / 96	MESA RIDGE ROAD AND FONTAIN BLVD FOUNTAIN CO 80817	SPILLS

Case No: 2011-0328
Main ID:
NRC No:
Dt of Spl or Rel: 6/2/2011
Event Time: 9:00:00 AM
1st Rep Event Dt: 6/2/2011
Date Reported: 6/2/2011
Time Reported: 9:53:00 AM
Date Entered: 6/2/2011
Time Entered: 10:00:42 AM
Land: TRUE
Air: FALSE
Surface Water: FALSE
Ground Water: FALSE
Material Type: SOLID WASTE
Quantity 1: 1000
Unit Measure 1: POUNDS
H2O Quantity 1:
H2O Unit Measure 1:
Material 2:
Quantity 2:
Unit Measure 2:
H2O Quantity 2:
Source Desc:
H2O Unit Measure 2:
Quantity 3:
Unit Measure 3:
H2O quantity 3:
H2O Unit Measure 3:
Cause: TRANSPORTATION ACCIDENT
Death: 0
Injury: 0
Evacuation: N
Evacuation No: 0
PRP City: FOUNTAIN
PRP County: EL PASO
PRP State: CO
PRP Zip: 80817
PRP Phone: 719-382-5303
PRP Extension:
Mile Marker:
Who Took Report: GARY LAURA
Fixed Facility: FALSE
Event County: EL PASO
Latitude:
Longitude:

Source: X
Source Type: Truck
Medium: LAND
Waterway:
Material 1: CAKE BIO-SOLIDS
Material 3:
PRP: FOUNTAIN WATER AND SANITATION DIST
PRP Contact: JIM HECKMAN
PRP Street: 901 S SANTA FE AVE
PRP Fax:
Responder 1:
Responder 2:
Responder 3:
Response Comments:
Notified Name: HMWMD - Charles Johnson, Walter Avramenko, Robert Beierle; CDOT- Andy Flurkey; EPA **Note: Many records provided by the department have a truncated [Notified Name] field.

Additional Comments:
Comments:
Cause Info: Truck was forced to brake hard to avoid a possible traffic accident causing the spill.
Action: CDOT has responded with a loader and truck to remove material. Parker Agg Services will send a team to perform final clean-up of material **Note: Many records provided by the department have a truncated [Action] field.

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
5	1 of 1	WNW	0.00 / 0.00	5,636.22 / -18	480 WILLOW SPRINGS RD. FOUNTAIN CO 80817	SPILLS

Case No: 2018-0278
H2O Unit Measure 2:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Main ID:		**Quantity 3:**	
NRC No:		**Unit Measure 3:**	
Dt of Spl or Rel:	6/13/2018	**H2O quantity 3:**	
Event Time:	2:30:00 AM	**H2O Unit Measure 3:**	
1st Rep Event Dt:	6/13/2018	**Cause:**	FAILURE EQUIPMENT
Date Reported:	6/13/2018	**Death:**	
Time Reported:	8:05:00 AM	**Injury:**	
Date Entered:	6/13/2018	**Evacuation:**	
Time Entered:	8:11:32 AM	**Evacuation No:**	
Land:	FALSE	**PRP City:**	FOUNTAIN
Air:	FALSE	**PRP County:**	
Surface Water:	FALSE	**PRP State:**	CO
Ground Water:	FALSE	**PRP Zip:**	80817
Material Type:	SANITARY SEWER OVERFLOW	**PRP Phone:**	719-491-0216
Quantity 1:		**PRP Extension:**	
Unit Measure 1:	UNKNOWN	**Mile Marker:**	
H2O Quantity 1:		**Who Took Report:**	GREG STASINOS
H2O Unit Measure 1:	U	**Fixed Facility:**	TRUE
Material 2:		**Event County:**	EL PASO
Quantity 2:		**Latitude:**	
Unit Measure 2:		**Longitude:**	
H2O Quantity 2:			

Source Desc:
Source: F
Source Type: RETURN ACTIVATED SLUDGE BLDG
Medium: FIXED FACILITY
Waterway:
Material 1: SLUDGE
Material 3:
PRP: WIDEFIELD WATER AND SANITATION
PRP Contact: JASON DRESSEN
PRP Street: 480 WILLOW SPRINGS RD.
PRP Fax:
Responder 1: WIDEFIELD WATER AND SANITATION
Responder 2:
Responder 3:
Response Comments: FOUNTAIN CREEK HAS NOT BEEN IMPACTED AS OF YET, HOWEVER, THERE IS POTENTIAL FOR UNTREATED WASTEWATER TO FLOW TO THE WATERWAY DUE TO THE PUMPS NOT WORKING.
Notified Name: WQCD-CAROL KEEVER, MICHELLE THIEBAUD, DAVID KURZ, HEATHER DRISSEL, PAUL HANSON, CHARLES ROUBODIOUX **Note: Many records provided by the department have a truncated [Notified Name] field.
Additional Comments:
Comments: EL PASO COUNTY PH
Cause Info: DUE TO A THUNDER/HAIL STORM IN THE AREA POWER WAS LOST THE RAS BUILDING AT THIS WASTEWATER TREATMENT PLANT. THE BUIDLING FLOODED AND ELECTRIC RAS PUMPS ARE EMERSED IN WATER AND NOT WORKING.
Action: WIDEFIELD WATER AND SANITATION CREWS ARE WORKING TO PUMP OUT THE BUILDING IN ORDER TO EVALUATE THE PUMPS.

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
6	1 of 4	WNW	0.00 / 0.00	5,643.65 / -11	WIDEFIELD WSD 450 WILLOW SPRINGS RD FOUNTAIN CO 80817	FINDS/FRS

Registry ID: 110055989649
FIPS Code: 08041
HUC Code: 11020003
Site Type Name: STATIONARY
Location Description:
Supplemental Location:
Create Date: 26-SEP-13
Update Date: 22-FEB-21
Interest Types: BIOSOLIDS, COMMUNITY WATER SYSTEM, ICIS-NPDES MAJOR, ICIS-NPDES NON-MAJOR, POTW, WATER TREATMENT PLANT
SIC Codes: 4952
SIC Code Descriptions: SEWERAGE SYSTEMS
NAICS Codes:
NAICS Code Descriptions:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Conveyor:	FRS-GEOCODE
Federal Facility Code:	
Federal Agency Name:	
Tribal Land Code:	
Tribal Land Name:	
Congressional Dist No:	05
Census Block Code:	080410045083001
EPA Region Code:	08
County Name:	EL PASO
US/Mexico Border Ind:	
Latitude:	38.72264
Longitude:	-104.72222
Reference Point:	CENTER OF A FACILITY OR STATION
Coord Collection Method:	ADDRESS MATCHING-HOUSE NUMBER
Accuracy Value:	30
Datum:	NAD83
Source:	
Facility Detail Rprt URL:	https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110055989649
Data Source:	Facility Registry Service - Single File
Program Acronyms:	

NPDES:CO0021067, NPDES:COG650057, NPDES:CONOX0151, SFDW:CO0121900, SFDW:CO0121900 20045, SFDW:CO0121900 20046, SFDW:CO0121900 20047, SFDW:CO0121900 3776, SFDW:CO0121900 3777, SFDW:CO0121900 3778, SFDW:CO0121900 3779, SFDW:CO0121900 3780, SFDW:CO0121900 3781, SFDW:CO0121900 3782, SFDW:CO0121900 3783, SFDW:CO0121900 3784, SFDW:CO0121900 3785, SFDW:CO0121900 3786, SFDW:CO0121900 3787, SFDW:CO0121900 3788

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
6	2 of 4	WNW	0.00 / 0.00	5,643.65 / -11	WIDEFIELD WSD WWTF 450 WILLOW SPRINGS RD WIDEFIELD CO 80817	ICIS

EPA Region:	08	**Federal Fac ID:**	
Registry ID:	110055989649	**Tribal Land Code:**	
Pgm Sys ID:	CO0021067	**County:**	El Paso
Pgm Sys Acrnm:	NPDES	**Latitude 83:**	38.721111
Permit Type:	NPDES Individual Permit	**Longitude 83:**	-104.722778

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
6	3 of 4	WNW	0.00 / 0.00	5,643.65 / -11	Widefield WSD WWTF 450 Willow Springs Rd Fountain CO 80817	PDES

Permit ID:	CO0021067	**SW Constr Activity:**	
Permit Status:	Admin continued	**SW Constr End Date:**	
Permit Sector:	Public and private utilities	**Permit SIC 1:**	4952
Previous Permit ID:		**Permit SIC 2:**	
Regulation ID:	32	**Permit SIC 3:**	
Facility Name:	Widefield WSD WWTF	**Permit SIC 4:**	
Facility Address:	450 Willow Springs Rd	**Permittee:**	Widefield Water and Sanitation District
Facility Address 2:		**Former Permittee:**	
Facility City:	Fountain	**Activity Desc:**	
Facility State:	CO	**Issue Date:**	3/25/2015
Facility ZIP:	80817	**Effective Date:**	5/1/2015
Facility County:	El Paso	**Expiration Date:**	4/30/2020
Facility Latitude:	38.721111	**Permit Sector1:**	
Facility Longitude:	-104.722778	**Permit Sector2:**	
Facility SIC Code:	4952	**Use category:**	
Facility Type:		**Termination Date:**	
Water Category:		**Issuing Org Type:**	ST6
Immediate Water:		**App Received Date:**	9/28/2020
Receiving Water:	Fountain Creek	**Ct Status Start Date:**	
Stream Segment:	COARFO02a	**Ct Status End Date:**	
Fee Category:	IV-G	**Ct Status Reason:**	
Add Fee Category 1:	XI-G	**Workplan Year:**	
Add Fee Category 2:		**UDF3:**	
Add Fee Category 3:			
General Permit Tye:	CO-Individual permit		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Compliance Tracking Status:	Y
SW Constr Start Date:	
Reuse Treater:	
Facility Class First:	
Facility Description:	
Fac Horizontal Coll. Method:	
Facility ICIS Ownership Type:	
Associated Pot W:	
SW Constr Total Acres:	
Reuse Treater ID:	
SW Constr Disturb Acres:	
Facility Class Second:	
Facility Reference Point:	
Major Minor:	Major
Major River Basin:	Arkansas basin
Total App on Average Flow No:	
Total App Design Flow No:	
Apprvd for Eltrnc Sub:	Yes

Facility Contact

Facility Contact Org:	Widefield Water and Sanitation District
Facility Contact First Name:	Mike
Facility Contact Last Name:	Morgan
Facility Contact Title:	ORC13200
Facility Contact Address:	8495 Fontaine Blvd
Facility Contact City:	Colorado Springs
Facility Contact State:	CO
Facility Contact ZIP code:	80925
Facility Contact Phone:	719-491-1153
Facility Contact Email:	mike@wwsdonline.com

Billing

Billing Organization:	Widefield Water and Sanitation District
Billing First Name:	Kelly
Billing Last Name:	Smith
Billing Title:	Adm Svcs Dir
Billing Address:	8495 Fontaine Blvd
Billing City:	Colorado Springs
Billing State:	CO
Billing ZIP Code:	80925
Billing Phone:	719-390-7111
Billing Email:	accounting@wwsdonline.com
Billing Country:	USA

Collection Operator

Collection Operator Org:	Widefield Water and Sanitation District
Collection Operator First Name:	Travis
Collection Operator Last Name:	Jones
Collection Operator Title:	ORC 102457
Collection Operator Address:	8495 Fontaine Blvd
Collection Operator City:	Colorado Springs
Collection Operator State:	CO
Collection Operator ZIP Code:	80925
Collection Operator Phone:	719-491-0216
Collection Operator Email:	travis@wwsdonline.com

DMR

DMR Org:	Widefield Water and Sanitation District
DMR First Name:	Mike
DMR Last Name:	Morgan

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

DMR Title: ORC13200
DMR Address: 8495 Fontaine Blvd
DMR City: Colorado Springs
DMR State: CO
DMR ZIP Code: 80925
DMR Phone: 719-491-1153
DMR Email: mike@wwsdonline.com
Dmr Country: USA

Legal

Legal First Name: Mike
Legal Last Name: Morgan
Legal Title: WW Dept Mgr
Legal Address: 8495 Fontaine Blvd
Legal City: Colorado Springs
Legal State: CO
Legal ZIP Code: 80925
Legal Phone: 719-799-3728
Legal Email: mike@wwsdonline.com
Legal Country: USA

Operator

Operator Org: Widefield Water and Sanitation District
Operator First Name: Travis
Operator Last Name: Jones
Operator Title: ORC 102457
Operator Address: 8495 Fontaine Blvd
Operator City: Colorado Springs
Operator State: CO
Operator ZIP Code: 80925
Operator Phone: 719-491-0216
Operator Email: travis@wwsdonline.com

Other

Other Org: Widefield Water and Sanitation District
Other First Name: Rob
Other Last Name: Bannister
Other Title: Dist Engr
Other Address: 8495 Fontaine Blvd
Other City: Colorado Springs
Other State: CO
Other ZIP Code: 80925
Other Phone: 719-390-7111
Other Email: rob@wwsdonline.com

OUT

Out 5 long:
Out 4 lat:
Out 6 long:
Out 6 lat:
Out 7 long:
Out 7 lat:
Out 8 long:
Out 8 lat:
Out 9 long:
Out 9 lat:
Out 1 long: -104.7245
Out 10 long:
Out 10 lat:
Out 11 long:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Out 11 lat:	
Out 12 long:	
Out 12 lat:	
Out 1 lat:	38.7194
Out 2 long:	-104.7258
Out 2 lat:	38.7208
Out 3 long:	
Out 3 lat:	
Out 4 long:	
Out 5 lat:	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
6	4 of 4	WNW	0.00 / 0.00	5,643.65 / -11	Widefield WSD WWTF 450 Willow Springs Rd Fountain CO 80817	PDES

Permit ID:	CONOX0151	**SW Constr Activity:**	
Permit Status:	Effective	**SW Constr End Date:**	
Permit Sector:	Commerce and Industry	**Permit SIC 1:**	
Previous Permit ID:		**Permit SIC 2:**	
Regulation ID:		**Permit SIC 3:**	
Facility Name:	Widefield WSD WWTF	**Permit SIC 4:**	
Facility Address:	450 Willow Springs Rd	**Permittee:**	Widefield Water and Sanitation District
Facility Address 2:		**Former Permittee:**	
Facility City:	Fountain	**Activity Desc:**	Wastewater Treatment Facility
Facility State:	CO	**Issue Date:**	2/10/2021
Facility ZIP:	80817	**Effective Date:**	2/11/2021
Facility County:	El Paso	**Expiration Date:**	2/10/2026
Facility Latitude:	38.721111	**Permit Sector1:**	
Facility Longitude:	-104.722778	**Permit Sector2:**	
Facility SIC Code:	1715	**Use category:**	
Facility Type:		**Termination Date:**	
Water Category:		**Issuing Org Type:**	
Immediate Water:		**App Received Date:**	12/4/2020
Receiving Water:		**Ct Status Start Date:**	
Stream Segment:		**Ct Status End Date:**	
Fee Category:	00-00	**Ct Status Reason:**	
Add Fee Category 1:		**Workplan Year:**	
Add Fee Category 2:		**UDF3:**	
Add Fee Category 3:			
General Permit Tye:	CONOX000 -No Exposure Exclusion		
Compliance Tracking Status:			
SW Constr Start Date:			
Reuse Treater:			
Facility Class First:			
Facility Description:			
Fac Horizontal Coll. Method:			
Facility ICIS Ownership Type:			
Associated Pot W:			
SW Constr Total Acres:			
Reuse Treater ID:			
SW Constr Disturb Acres:			
Facility Class Second:			
Facility Reference Point:			
Major Minor:			
Major River Basin:			
Total App on Average Flow No:			
Total App Design Flow No:			
Apprvd for Eltrnc Sub:			

Facility Contact

Facility Contact Org:	Widefield Water and Sanitation District
Facility Contact First Name:	Mark
Facility Contact Last Name:	McCormack
Facility Contact Title:	Wastewater Manager
Facility Contact Address:	37 Widefield Boulevard
Facility Contact City:	Colorado Springs

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Facility Contact State: CO
Facility Contact ZIP code: 80911
Facility Contact Phone: 7194910128
Facility Contact Email: mark@wwsdonline.com

Legal

Legal First Name: Lucas
Legal Last Name: Hale
Legal Title: Dist Mgr
Legal Address: 8495 Fontaine Blvd
Legal City: Colorado Springs
Legal State: CO
Legal ZIP Code: 80925
Legal Phone: 719-390-7111
Legal Email: lucas@wwsdonline.com
Legal Country: USA

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
7	1 of 1	ESE	0.00 / 7.46	5,744.99 / 91	MR. CAR WASH 7980 FOUNTAIN MESA ROAD FOUNTAIN CO 80817	FINDS/FRS

Registry ID: 110070668495
FIPS Code: CO041
HUC Code: 11020003
Site Type Name: STATIONARY
Location Description:
Supplemental Location:
Create Date: 09-DEC-19
Update Date:
Interest Types: ICIS-NPDES NON-MAJOR
SIC Codes: 1542
SIC Code Descriptions: GENERAL CONTRACTORS-NONRESIDENTIAL BUILDINGS, OTHER THAN INDUSTRIAL BUILDINGS AND WAREHOUSES
NAICS Codes:
NAICS Code Descriptions:
Conveyor: FRS-GEOCODE
Federal Facility Code:
Federal Agency Name:
Tribal Land Code:
Tribal Land Name:
Congressional Dist No: 05
Census Block Code: 080410045073042
EPA Region Code: 08
County Name: EL PASO
US/Mexico Border Ind:
Latitude: 38.716194
Longitude: -104.70155
Reference Point: ENTRANCE POINT OF A FACILITY OR STATION
Coord Collection Method: ADDRESS MATCHING-HOUSE NUMBER
Accuracy Value: 50
Datum: NAD83
Source:
Facility Detail Rprt URL: https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110070668495
Data Source: Facility Registry Service - Single File
Program Acronyms:

NPDES:COR406856

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
8	1 of 1	WNW	0.01 / 27.09	5,645.55 / -9	DATA GENERAL SERVICE INC 702 FRONTAGE RD FOUNTAIN CO 80817	RCRA NON GEN

EPA Handler ID: COD982648487

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Gen Status Universe: No Report
Contact Name: LEE LAWSON
Contact Address: 702 FRONTAGE RD , , FOUNTAIN , CO, 80817 , US
Contact Phone No and Ext: 719-382-6259
Contact Email:
Contact Country: US
County Name: EL PASO
EPA Region: 08
Land Type:
Receive Date: 19880817
Location Latitude:
Location Longitude:

Violation/Evaluation Summary

Note: VIOLATION or UNDETERMINED: There are VIOLATION or UNDETERMINED details or records associated with this facility (EPA ID) in the Compliance Monitoring and Enforcement table dated Apr, 2023.

Violation Details

Found Violation: Yes
Citation:
Violation Short Description: Generators - General
Violation Type: 262.A
Violation Determined Date: 19901115
Scheduled Compliance Date: 19901210
Return to Compliance: Observed
Actual Return to Compl: 19901231
Violation Responsible Agency: State

Enforcement Details

Enforcement Type: 120
Enforcement Type Description: WRITTEN INFORMAL
Enforcement Action Date: 19901120
Enf Disposition Status:
Disposition Status Date:
Enforcement Lead Agency: State
Proposed Penalty Amount:
Final Amount:
Paid Amount:

Evaluation Details

Evaluation Start Date: 19901115
Evaluation Type Description: NON-FINANCIAL RECORD REVIEW
Violation Short Description: Generators - General
Return to Compliance Date: 19901231
Evaluation Agency: State

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No
Onsite Burner Exemption: No
Furnace Exemption: No
Underground Injection Activity: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 19880817
Handler Name: DATA GENERAL SERVICE INC
Source Type: Notification
Federal Waste Generator Code: N
Generator Code Description: Not a Generator, Verified

Waste Code Details

Hazardous Waste Code: F003
Waste Code Description: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Owner/Operator Details

Owner/Operator Ind: Current Owner
Type: Private
Name: DATA GENERAL CORP
Date Became Current:
Date Ended Current:
Phone: 999-999-9999
Source Type: Notification
Street No:
Street 1: DATA NOT REQUESTED
Street 2:
City: DATA NOT REQUESTED
State: CO
Country:
Zip Code: 99999

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
9	1 of 4	ESE	0.01 / 43.26	5,735.51 / 81	Kum & Go #670 8050 Fountain Mesa Rd Fountain 80817 CO	UST

Facility ID: 19326
FacilityName(OPS): Kum & Go #670
FacilityType(OPS): Retail
Fac Category (OPS): Retail Gas Station
Address (OPS): 8050 Fountain Mesa Rd
City (OPS): Fountain
Zip Code (OPS): 80817
County (OPS): El Paso
LatLong (OPS): 38.7155, -104.701461
FacName (CDLE): Kum & Go #670
Address (CDLE): 8050 Fountain Mesa Rd
State (CDLE):
Fac Name (COSTIS): Kum & Go #670
Address (COSTIS): 8050 Fountain Mesa Rd
Fountain 80817
County (COSTIS): El Paso
Latitude (CDLE): 38.7155
Longitude (CDLE): -104.701461
Fac Type (CDLE): Retail
FacCategry(CDLE): Retail Gas Station
State (OPS): CO
City (CDLE): Fountain
Zip (CDLE): 80817
County (CDLE): El Paso
Data Source(s): Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks

Facility Information (CDLE)

Count of Tank Tag: 5
No. Dispensers: 64
Owner ID: OWNR-991
Accnt Holdr Name: Kum & Go, L.C.
Type: Retail

Owner Information (CDLE)

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Contact Name: Anthony Grajeda **Middle Init:**
First Name: Anthony
Company Name:
Last Name: Grajeda
Address:
Comment: JENNIFER CARPENTER-SENECA COMPLIANCE MANAGER AT 515-261-7750; Tim Lakers 515-457-6237

UST Tanks (COSTIS) (As of October 2021)

Tank ID: 44008 **Owner ID:** 991
Tank Tag: '19326-2 **Tank Owner:**
Tank Type Desc: UST **County:** El Paso
Tank Count: 46668 **Product Name:** Unleaded Mid-Grade (MUL)
Capacity: 12000
Facility Owner: Kum and Go LC
Facility Name Address: Kum & Go #670
8050 Fountain Mesa Rd
Fountain 80817

Tank ID: 44013 **Owner ID:** 991
Tank Tag: '19326-3 **Tank Owner:**
Tank Type Desc: UST **County:** El Paso
Tank Count: 46668 **Product Name:** Diesel
Capacity: 12000
Facility Owner: Kum and Go LC
Facility Name Address: Kum & Go #670
8050 Fountain Mesa Rd
Fountain 80817

Tank ID: 44015 **Owner ID:** 991
Tank Tag: '19326-5 **Tank Owner:**
Tank Type Desc: UST **County:** El Paso
Tank Count: 46668 **Product Name:** E-85
Capacity: 8000
Facility Owner: Kum and Go LC
Facility Name Address: Kum & Go #670
8050 Fountain Mesa Rd
Fountain 80817

Tank ID: 44006 **Owner ID:** 991
Tank Tag: '19326-1 **Tank Owner:**
Tank Type Desc: UST **County:** El Paso
Tank Count: 46668 **Product Name:** Unleaded Regular (RUL)
Capacity: 20000
Facility Owner: Kum and Go LC
Facility Name Address: Kum & Go #670
8050 Fountain Mesa Rd
Fountain 80817

Tank ID: 44014 **Owner ID:** 991
Tank Tag: '19326-4 **Tank Owner:**
Tank Type Desc: UST **County:** El Paso
Tank Count: 46668 **Product Name:** Unleaded Premium (PUL)
Capacity: 8000
Facility Owner: Kum and Go LC
Facility Name Address: Kum & Go #670
8050 Fountain Mesa Rd
Fountain 80817

UST Tanks 1 (CDLE)

Tank Tag: 19326-1 **Overfill Preven:** FV: Fill Tube Valve
Tank Type: UST **Product Type/Name:** Unleaded Regular (RUL)
Tank Status: Currently In Use **Piping Wall Type:** Double-Walled
Capacity: 20000 **Tank Wall Type:**
Install Date: 11/1/2012 **Piping System:**
Date Closed: **Piping Type:** UG: Underground
Tank Material: FRP: Fiberglass Reinforced Plastic
Piping Material: FLEX: Flexible Plastic

UST Tanks 2 (CDLE)

Closure Meth ID: **No Fee:** No
Unregulated: FALSE **Anch Method Desc:** DM: Deadman

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Last Used Date:		***Pipe Reld Meth1 ID:***	L2: Dbl-Wall & Sumps w/ Sensor
Del Prohib Date:		***Pipe Reldet Date:***	
Spill Protected:		***Backfill Mat Desc:***	Pea Gravel
Spl Container Size:	5	***Bfill DrtCvr Amt:***	30
Spl Protection Dt:		***Manifold:***	No
Spl Container Mfg:	OPW	***Registration Date:***	4/8/2022
Spl Container Mdel:	1SC-2100	***Compartment:***	FALSE
Tank Reld Meth1 ID:		***Cpmet:***	Yes
Tank Lining Date:		***Invault:***	FALSE
CP Test Date:			

UST Tanks 1 (CDLE)

Tank Tag:	19326-3	***Overfill Preven:***	FV: Fill Tube Valve
Tank Type:	UST	***Product Type/Name:***	Diesel
Tank Status:	Currently In Use	***Piping Wall Type:***	Double-Walled
Capacity:	12000	***Tank Wall Type:***	
Install Date:	11/1/2012	***Piping System:***	
Date Closed:		***Piping Type:***	UG: Underground
Tank Material:	FRP: Fiberglass Reinforced Plastic		
Piping Material:	FLEX: Flexible Plastic		

UST Tanks 2 (CDLE)

Closure Meth ID:		***No Fee:***	No
Unregulated:	FALSE	***Anch Method Desc:***	DM: Deadman
Last Used Date:		***Pipe Reld Meth1 ID:***	L2: Dbl-Wall & Sumps w/ Sensor
Del Prohib Date:		***Pipe Reldet Date:***	
Spill Protected:		***Backfill Mat Desc:***	Pea Gravel
Spl Container Size:	5	***Bfill DrtCvr Amt:***	30
Spl Protection Dt:		***Manifold:***	No
Spl Container Mfg:	OPW	***Registration Date:***	4/8/2022
Spl Container Mdel:	1SC-2100	***Compartment:***	FALSE
Tank Reld Meth1 ID:		***Cpmet:***	Yes
Tank Lining Date:		***Invault:***	FALSE
CP Test Date:			

UST Tanks 1 (CDLE)

Tank Tag:	19326-5	***Overfill Preven:***	FV: Fill Tube Valve
Tank Type:	UST	***Product Type/Name:***	E-85
Tank Status:	Currently In Use	***Piping Wall Type:***	Double-Walled
Capacity:	8000	***Tank Wall Type:***	
Install Date:	11/1/2012	***Piping System:***	
Date Closed:		***Piping Type:***	UG: Underground
Tank Material:	FRP: Fiberglass Reinforced Plastic		
Piping Material:	FLEX: Flexible Plastic		

UST Tanks 2 (CDLE)

Closure Meth ID:		***No Fee:***	No
Unregulated:	FALSE	***Anch Method Desc:***	DM: Deadman
Last Used Date:		***Pipe Reld Meth1 ID:***	L2: Dbl-Wall & Sumps w/ Sensor
Del Prohib Date:		***Pipe Reldet Date:***	
Spill Protected:		***Backfill Mat Desc:***	Pea Gravel
Spl Container Size:	5	***Bfill DrtCvr Amt:***	30
Spl Protection Dt:		***Manifold:***	No
Spl Container Mfg:	OPW	***Registration Date:***	4/8/2022
Spl Container Mdel:	1SC-2100	***Compartment:***	FALSE
Tank Reld Meth1 ID:		***Cpmet:***	Yes
Tank Lining Date:		***Invault:***	FALSE
CP Test Date:			

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

UST Tanks 1 (CDLE)

Tank Tag: 19326-2
Tank Type: UST
Tank Status: Currently In Use
Capacity: 12000
Install Date: 11/1/2012
Date Closed:
Tank Material: FRP: Fiberglass Reinforced Plastic
Piping Material: FLEX: Flexible Plastic

Overfill Preven: FV: Fill Tube Valve
Product Type/Name: Unleaded Mid-Grade (MUL)
Piping Wall Type: Double-Walled
Tank Wall Type:
Piping System:
Piping Type: UG: Underground

UST Tanks 2 (CDLE)

Closure Meth ID:
Unregulated: FALSE
Last Used Date:
Del Prohib Date:
Spill Protected:
Spl Container Size: 5
Spl Protection Dt:
Spl Container Mfg: OPW
Spl Container Mdel: 1SC-2100
Tank Reld Meth1 ID:
Tank Lining Date:
CP Test Date:

No Fee: No
Anch Method Desc: DM: Deadman
Pipe Reld Meth1 ID: L2: Dbl-Wall & Sumps w/ Sensor
Pipe Reldet Date:
Backfill Mat Desc: Pea Gravel
Bfill DrtCvr Amt: 30
Manifold: No
Registration Date: 4/8/2022
Compartment: FALSE
Cpmet: Yes
Invault: FALSE

UST Tanks 1 (CDLE)

Tank Tag: 19326-4
Tank Type: UST
Tank Status: Currently In Use
Capacity: 8000
Install Date: 11/1/2012
Date Closed:
Tank Material: FRP: Fiberglass Reinforced Plastic
Piping Material: FLEX: Flexible Plastic

Overfill Preven: FV: Fill Tube Valve
Product Type/Name: Unleaded Premium (PUL)
Piping Wall Type: Double-Walled
Tank Wall Type:
Piping System:
Piping Type: UG: Underground

UST Tanks 2 (CDLE)

Closure Meth ID:
Unregulated: FALSE
Last Used Date:
Del Prohib Date:
Spill Protected:
Spl Container Size: 5
Spl Protection Dt:
Spl Container Mfg: OPW
Spl Container Mdel: 1SC-2100
Tank Reld Meth1 ID:
Tank Lining Date:
CP Test Date:

No Fee: No
Anch Method Desc: DM: Deadman
Pipe Reld Meth1 ID: L2: Dbl-Wall & Sumps w/ Sensor
Pipe Reldet Date:
Backfill Mat Desc: Pea Gravel
Bfill DrtCvr Amt: 30
Manifold: No
Registration Date: 4/8/2022
Compartment: FALSE
Cpmet: Yes
Invault: FALSE

Oil & Public Safety Regulated Storage Tanks (COSTIS)

Tank Tag: 19326-1
Tank Status: Currently In Use
Tank Type: UST
Tank Name: TNK-044854
Installation Date: 11/1/2012
Closure Date:
Tank Material: FRP: Fiberglass Reinforced Plastic
Tank Wall Type:
Facility Name: Kum & Go #670
Facility Type: Retail

Leak Detector Type: E: Electronic
Capacity Gallons : 20000
Product: Unleaded Regular (RUL)
Piping Type: UG: Underground
Piping System:
Piping Material: FLEX: Flexible Plastic
Piping Wall Type: Double-Walled
Address: 8050 Fountain Mesa Rd
City: Fountain
County: El Paso

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Facility Category: Retail Gas Station
Overfill Preven: FV: Fill Tube Valve
Tank Corsn Protection Meth: Fiberglass (n/a)
Tank Rel Detn Mthd Primary: T2: Inter Mntrg w/ Sensor
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP): Non-metallic
PCP at Tank: No Electrolyte Contact (n/a)
PCP at Dispenser: No Electrolyte Contact (n/a)
Piping Rel Detn Mthd Primary: L2: Dbl-Wall & Sumps w/ Sensor
Piping Rel Detn Mthd Secondary: L1: ATG .2/.1gph Mthly Mntrg
ZIP Code: 80817

Tank Tag: 19326-4
Tank Status: Currently In Use
Tank Type: UST
Tank Name: TNK-044857
Installation Date: 11/1/2012
Closure Date:
Tank Material: FRP: Fiberglass Reinforced Plastic
Tank Wall Type:
Facility Name: Kum & Go #670
Facility Type: Retail
Facility Category: Retail Gas Station
Overfill Preven: FV: Fill Tube Valve
Tank Corsn Protection Meth: Fiberglass (n/a)
Tank Rel Detn Mthd Primary: T2: Inter Mntrg w/ Sensor
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP): Non-metallic
PCP at Tank: No Electrolyte Contact (n/a)
PCP at Dispenser: No Electrolyte Contact (n/a)
Piping Rel Detn Mthd Primary: L2: Dbl-Wall & Sumps w/ Sensor
Piping Rel Detn Mthd Secondary:
Leak Detector Type: E: Electronic
Capacity Gallons : 8000
Product: Unleaded Premium (PUL)
Piping Type: UG: Underground
Piping System:
Piping Material: FLEX: Flexible Plastic
Piping Wall Type: Double-Walled
Address: 8050 Fountain Mesa Rd
City: Fountain
County: El Paso
ZIP Code: 80817

Tank Tag: 19326-5
Tank Status: Currently In Use
Tank Type: UST
Tank Name: TNK-044858
Installation Date: 11/1/2012
Closure Date:
Tank Material: FRP: Fiberglass Reinforced Plastic
Tank Wall Type:
Facility Name: Kum & Go #670
Facility Type: Retail
Facility Category: Retail Gas Station
Overfill Preven: FV: Fill Tube Valve
Tank Corsn Protection Meth: Fiberglass (n/a)
Tank Rel Detn Mthd Primary: T2: Inter Mntrg w/ Sensor
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP): Non-metallic
PCP at Tank: No Electrolyte Contact (n/a)
PCP at Dispenser: No Electrolyte Contact (n/a)
Piping Rel Detn Mthd Primary: L2: Dbl-Wall & Sumps w/ Sensor
Piping Rel Detn Mthd Secondary:
Leak Detector Type: E: Electronic
Capacity Gallons : 8000
Product: E-85
Piping Type: UG: Underground
Piping System:
Piping Material: FLEX: Flexible Plastic
Piping Wall Type: Double-Walled
Address: 8050 Fountain Mesa Rd
City: Fountain
County: El Paso
ZIP Code: 80817

Tank Tag: 19326-3
Tank Status: Currently In Use
Tank Type: UST
Tank Name: TNK-044856
Installation Date: 11/1/2012
Closure Date:
Tank Material: FRP: Fiberglass Reinforced Plastic
Tank Wall Type:
Facility Name: Kum & Go #670
Facility Type: Retail
Facility Category: Retail Gas Station
Overfill Preven: FV: Fill Tube Valve
Tank Corsn Protection Meth: Fiberglass (n/a)
Leak Detector Type: E: Electronic
Capacity Gallons : 12000
Product: Diesel
Piping Type: UG: Underground
Piping System:
Piping Material: FLEX: Flexible Plastic
Piping Wall Type: Double-Walled
Address: 8050 Fountain Mesa Rd
City: Fountain
County: El Paso
ZIP Code: 80817

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Tank Rel Detn Mthd Primary: T2: Inter Mntrg w/ Sensor
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP): Non-metallic
PCP at Tank: No Electrolyte Contact (n/a)
PCP at Dispenser: No Electrolyte Contact (n/a)
Piping Rel Detn Mthd Primary: L2: Dbl-Wall & Sumps w/ Sensor
Piping Rel Detn Mthd Secondary:

Tank Tag: 19326-2
Tank Status: Currently In Use
Tank Type: UST
Tank Name: TNK-044855
Installation Date: 11/1/2012
Closure Date:
Tank Material: FRP: Fiberglass Reinforced Plastic
Tank Wall Type:
Facility Name: Kum & Go #670
Facility Type: Retail
Facility Category: Retail Gas Station
Overfill Preven: FV: Fill Tube Valve
Tank Corsn Protection Meth: Fiberglass (n/a)
Tank Rel Detn Mthd Primary: T2: Inter Mntrg w/ Sensor
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP): Non-metallic
PCP at Tank: No Electrolyte Contact (n/a)
PCP at Dispenser: No Electrolyte Contact (n/a)
Piping Rel Detn Mthd Primary: L2: Dbl-Wall & Sumps w/ Sensor
Piping Rel Detn Mthd Secondary:

Leak Detector Type: E: Electronic
Capacity Gallons : 12000
Product: Unleaded Mid-Grade (MUL)
Piping Type: UG: Underground
Piping System:
Piping Material: FLEX: Flexible Plastic
Piping Wall Type: Double-Walled
Address: 8050 Fountain Mesa Rd
City: Fountain
County: El Paso
ZIP Code: 80817

UST Owner (COSTIS) (As of October 2021)

Owner ID: 991
First Name:
Middle Init:
Last Name: Kum and Go LC
Full Name:

Address1: 1459 Grand Ave
City: Des Moines
State: IA
County: Polk
Zip Code: 50309

Oil & Public Safety Regulated Storage Tank Details

No of Tanks: 5

Facility Contact Details (CDLE)

Contact ID: 0033h00000mtWeF
Costis ID: FACOWN-19326-1265-Aug 13 2012 2:15PM
Active: TRUE

Role: Facility Owner
Fac Contact Name: FCON-045341
Contact Last Name: Kum and Go LC

Contact ID: 0033h00000lL0vd
Costis ID: ABOP-19326-5337
Active: TRUE

Role: A/B Operator
Fac Contact Name: FCON-020569
Contact Last Name: Renaud

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
9	2 of 4	ESE	0.01 / 43.26	5,735.51 / 81	Kum & Go #670 8050 Fountain Mesa Rd Fountain CO 80817	ALT FUELS

ID: 50304
Fuel Type Code: E85: E85 Ethanol
Station Phone: 719-382-9018
Expected Date:
BD Blends:
NG PSI:
Federal Agency ID:
Open Date: 2012-12-14

CNG Dispenser No:
CNG Site Renew Src:
CNG Tot Compr Cap:
CNG Storage Cap:
CNG Fill Type Code:
CNG PSI:
CNG Vehicle Class:
LNG Site Renew Src:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Hydrogen is Retail:		**LNG Vehicle Class:**	
Federal Agency:		**LPG Nozzle Types:**	
Facility Type:	CONVENIENCE_STORE	**Hydrogen Pressures:**	
Dt Last Confirmed:	2023-03-08	**Hydrogen Standards:**	
Updated at:	2023-03-08 17:16:33 UTC	**Latitude:**	38.715239
Access Code:	public	**Longitude:**	-104.701984
Access Detail Code:			
Groups with Access Code:	Public		
Groups with Access Code Fr:	Public		
Fed Agency Name:			
Hydrogen Status Link:			
E85 Other Ethanol Blends:	["E15"]		
NPS Unit Name:			
Cards Accepted:	A Cash Checks D FuelMan M V Voyager Wright_Exp		
CNG Statn Sells Renewable Na:			
LNG Statn Sells Renewable Na:			
Maximum Vehicle Class:			
RD Blended With Biodiesel:			
RD Blends:			
RD Blends French:			
RD Maximum Biodiesel Level:			
Status:	Open: The station is open.		
Owner Type Desc:	Privately owned		
E85 Blender Pump Desc:	In addition to E85, the station has a blender pump capable of providing mid-level ethanol blends.		
NG Fill Type Desc:			
NG Vehicle Class Desc:			
Geocode Status Desc:	Premise (building name, property name, shopping center, etc.) level accuracy.		
Group with Access Desc:	Publicly available to all customers.		
LPG Primary Desc:			
Intersection Directions:			
Access Days Time:	24 hours daily		
Restricted Access:	false		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
9	3 of 4	ESE	0.01 / 43.26	5,735.51 / 81	Kum & Go #670 8050 Fountain Mesa Rd Fountain 80817 CO	LST

Facility ID:	19326	**Fac Name(CDLE):**	Kum & Go #670
Event ID:		**Address(CDLE):**	8050 Fountain Mesa Rd
Facility Name(OPS):	Kum & Go #670	**Fac Type(CDLE):**	Retail
Facility Type(OPS):	Retail	**Fac Category(CDLE):**	Retail Gas Station
Fac Category(OPS):	Retail Gas Station	**City(CDLE):**	Fountain
Address(OPS):	8050 Fountain Mesa Rd	**Zip(CDLE):**	80817
City(OPS):	Fountain	**County(CDLE):**	El Paso
Zip Code(OPS):	80817	**State(CDLE):**	
County(OPS):	El Paso	**Latitude(CDLE):**	38.7155
State(OPS):	CO	**Longitude(CDLE):**	-104.701461
Lat Long(OPS):	38.7155, -104.701461		
Fac Name(COSTIS):	Kum & Go #670		
Address (COSTIS):	8050 Fountain Mesa Rd Fountain 80817		
County (COSTIS):	El Paso		
Original Source:	Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks; OPS Petroleum Release Events in Colorado - Petroleum Release Events		
Owner ID:	991		
Owner Name:			

Events (CDLE)

Event ID:	13316	**Proj. Closure Date:**	
Alt Event ID:		**Category:**	
Status:	Closed	**Sardonyx ID:**	
UST Tank Count:	5	**MTBE Classifica:**	
AST Tank Count:	0	**Sum of Reimbur Amt:**	1561.16

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Source of Release:
Cause of Release: Physical Damage
Confirm Rel Dt: 5/23/2019
Site Name: Kum & Go #670
Loc Addr:
Loc Addr2:
Loc Addr3:
Aka Name:
Aka Loc Addr:
Reviewer Full Name: Hannah Williams
Logged On: 5/23/2019
Logged By:

Reimbursement Application (CDLE)

Rap ID: RAP-35403
Protest ID:
Rap Status: Paid
Application Type: Original
User Group Name:
FPR Date: 2/22/2021
Protest Amount:
Payee: Kum and Go LC
Spec Cond:
Note: Colorado Department of Labor and Employment (CDLE)
Eligibil Type Desc: Tank Owner/Operator
Rap Payee Type ID: Other
Reimbursement Req: 11661.16
Total Reimburse: 11545.7
Max Amt Reduction: 2000000
PSTC Date: 2/19/2021

Facility (CDLE)

Owner Costis ID: OWNR-991
No of Active Tanks: 5
No of Metred Prod: 64
Type: Retail
Facility Owner: Kum & Go, L.C.

Events (COSTIS) (As of October 2021)

Event ID: 13316
Process Status Name: Closed
Site Name: Kum & Go #670
Facility Name:
Address: 8050 Fountain Mesa Rd Fountain CO 80817
Loc Address: 8050 Fountain Mesa Rd
Fountain 80817
Loc City: Fountain
Loc County: El Paso
Log Date: 5/23/2019 2:03:48 PM

Reimbursement Application (COSTIS) (As of October 2021)

RAP ID: 35403
Facility ID: 19326
Payee Name: Kum and Go LC
Event ID: 13316
PSTC Date: 2/19/2021

OPS Regulated Storage Tanks

No of Tanks: 5

OPS Petroleum Release Events in Colorado - Petroleum Release Events

Event ID: 13316
Release No: REL-007449
Status: Closed
Release Date: 5/23/2019
Closure Date: 8/28/2019
NFA Type: Tier I
Release Cause: Physical Damage
Reimbursement Total:
Contact: Hannah Williams
Release Source:
Phone: (303) 318-8519
City: Fountain
Zip: 80817
State: CO
County: El Paso
Latitude: 38.7155
Longitude: -104.701461
Latitude Longitude: 38.7155, -104.701461

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Site Name: Kum & Go #670
Address: 8050 Fountain Mesa Rd
Email: hannah.williams@state.co.us
Link : https://socgov18.force.com/s/release/a183h000003KXC7

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9 *4 of 4* *ESE* *0.01 / 43.26* *5,735.51 / 81* ***Kum & Go #670 8050 Fountain Mesa Rd Fountain CO 80817*** ***LUST TRUST***

Facility ID: 19326
TtlAmtAppvdForReim : 11545.7
County: El Paso
Event ID: 13316
Release Date: 5/23/2019

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10 *1 of 2* *W* *0.01 / 51.71* *5,633.05 / -21* ***COLJEN LEASING LTD ELPASO ASPHALT 8050 S US HWY 85 & 87 COLORADO SPRINGS CO 80901*** ***FINDS/FRS***

Registry ID: 110038648489
FIPS Code: 08041
HUC Code:
Site Type Name: STATIONARY
Location Description:
Supplemental Location:
Create Date: 23-JUN-09
Update Date: 07-OCT-16
Interest Types: AIR MINOR
SIC Codes: 2951
SIC Code Descriptions: ASPHALT PAVING MIXTURES AND BLOCKS
NAICS Codes: 324121
NAICS Code Descriptions: ASPHALT PAVING MIXTURE AND BLOCK MANUFACTURING.
Conveyor:
Federal Facility Code:
Federal Agency Name:
Tribal Land Code:
Tribal Land Name:
Congressional Dist No:
Census Block Code:
EPA Region Code: 08
County Name: EL PASO
US/Mexico Border Ind:
Latitude:
Longitude:
Reference Point:
Coord Collection Method:
Accuracy Value:
Datum: NAD83
Source:
Facility Detail Rprt URL: https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110038648489
Data Source: Facility Registry Service - Single File
Program Acronyms:

AIR:CO0000000804100311, AIRS/AFS:0804100311

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10 *2 of 2* *W* *0.01 / 51.71* *5,633.05 / -21* ***COLJEN LEASING LTD ELPASO ASPHALT 8050 S US HWY 85 & 87 COLORADO SPRINGS CO 000000000*** ***AFS***

Afs ID: 0804100311
Plant ID: 802728
Epa Region: 08
Fed Reportable: No
Current Hpv:
Loc Contrl Region:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Plant County:	El Paso	**Afs Gov Fac Code:**	0
State No:	08	**Operating Status:**	X
Primary Sic Code:	2951	**Epa Class Code:**	B
Secondary Sic Code:	2951	**Epa Complian Stat:**	9
Naics Code:	324121	**State Comp Status:**	9

Afs Gov Facility Des: PRIVATELY OWNED/OPERATED
Operating Status Def: Permanently Closed
Epa Classification Des: Potential uncontrolled emissions <100 tons/year
Epa Compliance Status: In Compliance - Shut Down
State Compliance Status: In Compliance - Shut Down

Historical Compliance - Air Program Level

Air Program Code: 0
Air Program Code Ref: SIP Source
Historical Compliance Date: 0604, 0701, 0702, 0703, 0704, 0801, 0802, 0803, 0804, 0901, 0902, 0903, 0904, 1001, 1002, 1003, 1004, 1101, 1102, 1103, 1104, 1201, 1202, 1203, 1204, 1301, 1302, 1303, 1304, 1401, 1402, 1403
Historical Compliance Status: 9
Historical Compliance Stat Ref: In Compliance - Shut Down

Air Program

Plant ID:	802728	**Poll Classificatn:**	B
Air Program Code:	0	**Poll Compli Status:**	9
Air Program Status:	X	**Epa Class Code:**	B
Pollutant Code:	PT	**Epa Compli Status:**	9

Chemical Abstract Service Nmbr:
Air Program Code Subparts:
Air Program Code Ref: SIP Source
Epa Classification Code Ref: Potential uncontrolled emissions <100 tons/year
Epa Compliance Status Ref: In Compliance - Shut Down
Pollutant Code Ref:
Pollutant Classification Ref: Potential uncontrolled emissions <100 tons/year
Pollutant Complian Status Ref: In Compliance - Shut Down

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
11	1 of 3	WNW	0.01 / 59.68	5,642.86 / -11	EL PASO FOUNTAIN CREEK WILLOW SPRINGS 430 WILLOW SPRINGS ROAD FOUNTAIN CO 80817	FINDS/FRS

Registry ID: 110032601628
FIPS Code: 08041
HUC Code: 11020003
Site Type Name: STATIONARY
Location Description:
Supplemental Location:
Create Date: 15-NOV-07
Update Date: 05-MAR-13
Interest Types: ENFORCEMENT/COMPLIANCE ACTIVITY
SIC Codes:
SIC Code Descriptions:
NAICS Codes:
NAICS Code Descriptions:
Conveyor: FRS-GEOCODE
Federal Facility Code:
Federal Agency Name:
Tribal Land Code:
Tribal Land Name:
Congressional Dist No: 05
Census Block Code: 080410045083001
EPA Region Code: 08
County Name: EL PASO
US/Mexico Border Ind:
Latitude: 38.722918
Longitude: -104.723116

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Reference Point: ENTRANCE POINT OF A FACILITY OR STATION
Coord Collection Method: ADDRESS MATCHING-HOUSE NUMBER
Accuracy Value: 50
Datum: NAD83
Source:
Facility Detail Rprt URL: https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110032601628
Data Source: Facility Registry Service - Single File
Program Acronyms:

ICIS:600031310, ICIS:600031314

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11 | 2 of 3 | WNW | 0.01 / 59.68 | 5,642.86 / -11 | **EL PASO FOUNTAIN CREEK WILLOW SPRINGS**
430 WILLOW SPRINGS ROAD
FOUNTAIN CO 80817 | ICIS

EPA Region:
Registry ID: 110032601628
Pgm Sys ID: 600031314
Pgm Sys Acrnm: ICIS
Permit Type:
Federal Fac ID:
Tribal Land Code:
County: EL PASO
Latitude 83: 38.722918
Longitude 83: -104.723116

Details

Interest Type: ENFORCEMENT/COMPLIANCE ACTIVITY
Active Status:
Accuracy Value: 50
Pgm Report URL: no data yet
Federal Agency Name:
Federal Land Ind:
Fed Facility Code:
Public Ind: Y
FIPS Code: 08041
HUC 8 Code: 11020003
HUC 12:
Ref Point Desc: ENTRANCE POINT OF A FACILITY OR STATION
Collect Mth Desc: ADDRESS MATCHING-HOUSE NUMBER
Fac URL: https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110032601628
Program URL:

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11 | 3 of 3 | WNW | 0.01 / 59.68 | 5,642.86 / -11 | **EL PASO FOUNTAIN CREEK WILLOW SPRINGS**
430 WILLOW SPRINGS ROAD
FOUNTAIN CO 80817 | ICIS

EPA Region:
Registry ID: 110032601628
Pgm Sys ID: 600031310
Pgm Sys Acrnm: ICIS
Permit Type:
Federal Fac ID:
Tribal Land Code:
County: EL PASO
Latitude 83: 38.722918
Longitude 83: -104.723116

Details

Interest Type: ENFORCEMENT/COMPLIANCE ACTIVITY
Active Status:
Accuracy Value: 50
Pgm Report URL: no data yet
Federal Agency Name:
Federal Land Ind:
Fed Facility Code:
Public Ind: Y
FIPS Code: 08041
HUC 8 Code: 11020003
HUC 12:
Ref Point Desc: ENTRANCE POINT OF A FACILITY OR STATION
Collect Mth Desc: ADDRESS MATCHING-HOUSE NUMBER
Fac URL: https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110032601628
Program URL:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
12	1 of 1	E	0.01 / 62.07	5,741.96 / 88	7005 MESA RIDGE PKWY FOUNTAIN CO	SPILLS

Case No:	2019-0399	**H2O Unit Measure 2:**	
Main ID:		**Quantity 3:**	
NRC No:		**Unit Measure 3:**	
Dt of Spl or Rel:	7/22/2019	**H2O quantity 3:**	
Event Time:	1:30:00 PM	**H2O Unit Measure 3:**	
1st Rep Event Dt:	7/22/2019	**Cause:**	OTHER
Date Reported:	7/22/2019	**Death:**	
Time Reported:	2:00:00 PM	**Injury:**	
Date Entered:	7/22/2019	**Evacuation:**	
Time Entered:	2:13:58 PM	**Evacuation No:**	
Land:	TRUE	**PRP City:**	FOUNTAIN
Air:	FALSE	**PRP County:**	
Surface Water:	TRUE	**PRP State:**	CO
Ground Water:	FALSE	**PRP Zip:**	80817
Material Type:	OIL	**PRP Phone:**	719-322-9783
Quantity 1:		**PRP Extension:**	
Unit Measure 1:		**Mile Marker:**	
H2O Quantity 1:		**Who Took Report:**	ANN NEDROW
H2O Unit Measure 1:		**Fixed Facility:**	FALSE
Material 2:		**Event County:**	EL PASO
Quantity 2:		**Latitude:**	
Unit Measure 2:		**Longitude:**	
H2O Quantity 2:			

Source Desc:
Source: X
Source Type: used grease bin
Medium: WATER AND LAND
Waterway: storm drain
Material 1: COOKING OIL
Material 3:
PRP: SONIC DRIVE IN
PRP Contact: UNKNOWN
PRP Street: 7005 MESA RIDGE PKWY
PRP Fax:
Responder 1:
Responder 2:
Responder 3:
Response Comments:
Notified Name: WQCD: Michelle Thiebaud, David Kurz, Heather Drissel, Paul Hanson, Carol Keever; HMWMD: Rob Beierle, Richard Mruz, Ed Smith, Caren Johannes, Susan Newton, Laura Gurule, David Foster; **Note: Many records provided by the department have a truncated [Notified Name] field.
Additional Comments:
Comments: EL PASO COUNTY EH; PUEBLO COUNTY EH
Cause Info: Inspector for Fountain Sanitation District observed the grease bin for the Sonic to be overflowing and reaching the nearby storm drain. They do not know how much was involved in the release.
Action:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
13	1 of 6	NW	0.01 / 73.33	5,646.18 / -8	Mesa Ridge Crossing Syracuse Street and Mesa Ridge Parkway Fountain CO 80903	PDES

Permit ID:	COR410596	**SW Constr Activity:**	Commercial
Permit Status:	Effective	**SW Constr End Date:**	8/27/2021
Permit Sector:	Construction	**Permit SIC 1:**	1542
Previous Permit ID:		**Permit SIC 2:**	
Regulation ID:		**Permit SIC 3:**	
Facility Name:	Mesa Ridge Crossing	**Permit SIC 4:**	
Facility Address:	Syracuse Street and Mesa Ridge Parkway	**Permittee:**	Evergreen – Mesa Ridge + Syracuse, LLC
Facility Address 2:		**Former Permittee:**	
Facility City:	Fountain	**Activity Desc:**	
Facility State:	CO	**Issue Date:**	10/27/2020
Facility ZIP:	80903	**Effective Date:**	10/27/2020

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Facility County:	El Paso	**Expiration Date:**	3/31/2024
Facility Latitude:	38.721184	**Permit Sector1:**	
Facility Longitude:	-104.712295	**Permit Sector2:**	
Facility SIC Code:	1542	**Use category:**	
Facility Type:		**Termination Date:**	
Water Category:		**Issuing Org Type:**	
Immediate Water:		**App Received Date:**	10/26/2020
Receiving Water:		**Ct Status Start Date:**	
Stream Segment:	COARFO02a	**Ct Status End Date:**	
Fee Category:	II-J	**Ct Status Reason:**	
Add Fee Category 1:		**Workplan Year:**	
Add Fee Category 2:		**UDF3:**	
Add Fee Category 3:			

General Permit Tye: COR400000-Stormwater discharge associated with construction activities
Compliance Tracking Status:
SW Constr Start Date: 11/2/2020
Reuse Treater:
Facility Class First:
Facility Description:
Fac Horizontal Coll. Method:
Facility ICIS Ownership Type:
Associated Pot W:
SW Constr Total Acres: 5.37
Reuse Treater ID:
SW Constr Disturb Acres: 5.37
Facility Class Second:
Facility Reference Point:
Major Minor:
Major River Basin:
Total App on Average Flow No:
Total App Design Flow No:
Apprvd for Eltrnc Sub:

Facility Contact

Facility Contact Org: Evergreen – Mesa Ridge + Syracuse, LLC
Facility Contact First Name: Mitchell
Facility Contact Last Name: Lorenz
Facility Contact Title: Director Retail Construction
Facility Contact Address: 2390 East Camelback Road, Suite 410
Facility Contact City: Phoenix
Facility Contact State: AZ
Facility Contact ZIP code: 85016
Facility Contact Phone: 6025677164
Facility Contact Email: mlorenz@evgre.com

Billing

Billing Organization: Evergreen – Mesa Ridge + Syracuse, LLC
Billing First Name: Mitchell
Billing Last Name: Lorenz
Billing Title: Director Retail Construction
Billing Address: 2390 East Camelback Road, Suite 410
Billing City: Phoenix
Billing State: AZ
Billing ZIP Code: 85016
Billing Phone: 6025677164
Billing Email: mlorenz@evgre.com
Billing Country: USA

Legal

Legal First Name: Mitchell
Legal Last Name: Lorenz
Legal Title: Director Retail Construction

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Legal Address: 2390 East Camelback Road, Suite 410
Legal City: Phoenix
Legal State: AZ
Legal ZIP Code: 85016
Legal Phone: 6025677164
Legal Email: mlorenz@evgre.com
Legal Country: USA

Property Owner

Property Owner Org: Evergreen – Mesa Ridge + Syracuse, LLC
Property Owner First Name: Mitchell
Property Owner Last Name: Lorenz
Property Owner Title: Director Retail Construction
Property Owner Address: 2390 East Camelback Road, Suite 410
Property Owner City: Phoenix
Property Owner State: AZ
Property Owner ZIP Code: 85016
Property Owner Phone: 6025677164
Property Owner Email: mlorenz@evgre.com

13	2 of 6	NW	0.01 / 73.33	5,646.18 / -8	Maverik #659 Mesa Ridge PKWY & Syracuse Security 80911 CO	UST

Facility ID: 20721
FacilityName(OPS): Maverik #659
FacilityType(OPS): Retail
Fac Category (OPS): Retail Gas Station
Address (OPS): 6180 Timber Rail Point
City (OPS): Security
Zip Code (OPS): 80911
County (OPS): El Paso
LatLong (OPS): 0, 0
FacName (CDLE): Maverik #659
Address (CDLE): 6180 Timber Rail Point
State (CDLE):
Fac Name (COSTIS): Maverik #659
Address (COSTIS): Mesa Ridge PKWY & Syracuse
Security 80911
County (COSTIS): El Paso
Latitude (CDLE): 0
Longitude (CDLE): 0
Fac Type (CDLE): Retail
FacCategry(CDLE): Retail Gas Station
State (OPS): CO
City (CDLE): Security
Zip (CDLE): 80911
County (CDLE): El Paso
Data Source(s): Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks

Facility Information (CDLE)

Count of Tank Tag: 2
No. Dispensers: 50
Owner ID: OWNR-829
Accnt Holdr Name: Maverik Inc
Type: Retail

Owner Information (CDLE)

Contact Name: Dennis Riding
First Name:
Middle Init:
Company Name: Maverik Inc
Last Name: Dennis Riding
Address: 185 S State St Ste 800, Salt Lake City, UT 84111
Comment:

UST Tanks (COSTIS) (As of October 2021)

Tank ID: 49936
Tank Tag: '20721-1
Tank Type Desc: UST
Tank Count: 46668
Owner ID: 829
Tank Owner:
County: El Paso
Product Name: Gas/Gas (Multi-Comp)

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Capacity: 25000
Facility Owner: Maverik Inc
Facility Name Address: Maverik #659
Mesa Ridge PKWY & Syracuse
Security 80911

Tank ID: 49937
Tank Tag: '20721-2
Tank Type Desc: UST
Tank Count: 46668
Capacity: 25000
Facility Owner: Maverik Inc
Facility Name Address: Maverik #659
Mesa Ridge PKWY & Syracuse
Security 80911
Owner ID: 829
Tank Owner:
County: El Paso
Product Name: Gas/Gas (Multi-Comp)

UST Tanks 1 (CDLE)

Tank Tag: 20721-1
Tank Type: UST
Tank Status: Currently In Use
Capacity: 25000
Install Date: 7/22/2021
Date Closed:
Tank Material: FRP: Fiberglass Reinforced Plastic
Piping Material: FLEX: Flexible Plastic
Overfill Preven: AL: External Aud/Vis Alarm
Product Type/Name: Unleaded Regular (RUL)
Piping Wall Type: Double-Walled
Tank Wall Type: Double-Walled
Piping System:
Piping Type: UG: Underground

UST Tanks 2 (CDLE)

Closure Meth ID:
Unregulated: FALSE
Last Used Date:
Del Prohib Date:
Spill Protected:
Spl Container Size: 5
Spl Protection Dt:
Spl Container Mfg: OPW
Spl Container Mdel:
Tank Reld Meth1 ID:
Tank Lining Date:
CP Test Date:
No Fee: No
Anch Method Desc: DM: Deadman
Pipe Reld Meth1 ID: L2: Dbl-Wall & Sumps w/ Sensor
Pipe Reldet Date:
Backfill Mat Desc: Pea Gravel
Bfill DrtCvr Amt: 36
Manifold: No
Registration Date: 12/1/2021
Compartment: TRUE
Cpmet: Yes
Invault: FALSE

UST Tanks 1 (CDLE)

Tank Tag: 20721-2
Tank Type: UST
Tank Status: Currently In Use
Capacity: 25000
Install Date: 7/22/2021
Date Closed:
Tank Material: FRP: Fiberglass Reinforced Plastic
Piping Material: FLEX: Flexible Plastic
Overfill Preven: AL: External Aud/Vis Alarm
Product Type/Name: Ethanol-Free Gasoline
Piping Wall Type: Double-Walled
Tank Wall Type: Double-Walled
Piping System:
Piping Type: UG: Underground

UST Tanks 2 (CDLE)

Closure Meth ID:
Unregulated: FALSE
Last Used Date:
Del Prohib Date:
Spill Protected:
Spl Container Size: 5
Spl Protection Dt:
Spl Container Mfg: OPW
Spl Container Mdel:
Tank Reld Meth1 ID:
Tank Lining Date:
CP Test Date:
No Fee: No
Anch Method Desc: DM: Deadman
Pipe Reld Meth1 ID: L2: Dbl-Wall & Sumps w/ Sensor
Pipe Reldet Date:
Backfill Mat Desc: Pea Gravel
Bfill DrtCvr Amt: 36
Manifold: No
Registration Date: 12/1/2021
Compartment: TRUE
Cpmet: Yes
Invault: FALSE

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

UST Tanks 1 (CDLE)

Tank Tag:	20721-2	***Overfill Preven:***	AL: External Aud/Vis Alarm
Tank Type:	UST	***Product Type/Name:***	Diesel #2
Tank Status:	Currently In Use	***Piping Wall Type:***	Double-Walled
Capacity:	25000	***Tank Wall Type:***	Double-Walled
Install Date:	7/22/2021	***Piping System:***	
Date Closed:		***Piping Type:***	UG: Underground
Tank Material:	FRP: Fiberglass Reinforced Plastic		
Piping Material:	FLEX: Flexible Plastic		

UST Tanks 2 (CDLE)

Closure Meth ID:		***No Fee:***	No
Unregulated:	FALSE	***Anch Method Desc:***	DM: Deadman
Last Used Date:		***Pipe Reld Meth1 ID:***	L2: Dbl-Wall & Sumps w/ Sensor
Del Prohib Date:		***Pipe Reldet Date:***	
Spill Protected:		***Backfill Mat Desc:***	Pea Gravel
Spl Container Size:	5	***Bfill DrtCvr Amt:***	36
Spl Protection Dt:		***Manifold:***	No
Spl Container Mfg:	OPW	***Registration Date:***	12/1/2021
Spl Container Mdel:		***Compartment:***	TRUE
Tank Reld Meth1 ID:		***Cpmet:***	Yes
Tank Lining Date:		***Invault:***	FALSE
CP Test Date:			

UST Tanks 1 (CDLE)

Tank Tag:	20721-2	***Overfill Preven:***	AL: External Aud/Vis Alarm
Tank Type:	UST	***Product Type/Name:***	Unleaded Premium (PUL)
Tank Status:	Currently In Use	***Piping Wall Type:***	Double-Walled
Capacity:	25000	***Tank Wall Type:***	Double-Walled
Install Date:	7/22/2021	***Piping System:***	
Date Closed:		***Piping Type:***	UG: Underground
Tank Material:	FRP: Fiberglass Reinforced Plastic		
Piping Material:	FLEX: Flexible Plastic		

UST Tanks 2 (CDLE)

Closure Meth ID:		***No Fee:***	No
Unregulated:	FALSE	***Anch Method Desc:***	DM: Deadman
Last Used Date:		***Pipe Reld Meth1 ID:***	L2: Dbl-Wall & Sumps w/ Sensor
Del Prohib Date:		***Pipe Reldet Date:***	
Spill Protected:		***Backfill Mat Desc:***	Pea Gravel
Spl Container Size:	5	***Bfill DrtCvr Amt:***	36
Spl Protection Dt:		***Manifold:***	No
Spl Container Mfg:	OPW	***Registration Date:***	12/1/2021
Spl Container Mdel:		***Compartment:***	TRUE
Tank Reld Meth1 ID:		***Cpmet:***	Yes
Tank Lining Date:		***Invault:***	FALSE
CP Test Date:			

Oil & Public Safety Regulated Storage Tanks (COSTIS)

Tank Tag:	20721-2	***Leak Detector Type:***	E: Electronic
Tank Status:	Currently In Use	***Capacity Gallons :***	25000
Tank Type:	UST	***Product:***	Diesel #2
Tank Name:	TNK-044445	***Piping Type:***	UG: Underground
Installation Date:	7/22/2021	***Piping System:***	
Closure Date:		***Piping Material:***	FLEX: Flexible Plastic
Tank Material:	FRP: Fiberglass Reinforced Plastic	***Piping Wall Type:***	Double-Walled
Tank Wall Type:	Double-Walled	***Address:***	6180 Timber Rail Point
Facility Name:	Maverik #659	***City:***	Security

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Facility Type: Retail
Facility Category: Retail Gas Station
Overfill Preven: AL: External Aud/Vis Alarm
Tank Corsn Protection Meth: Fiberglass (n/a)
Tank Rel Detn Mthd Primary: T2: Inter Mntrg w/ Sensor
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP): Non-metallic
PCP at Tank: No Electrolyte Contact (n/a)
PCP at Dispenser: No Electrolyte Contact (n/a)
Piping Rel Detn Mthd Primary: L2: Dbl-Wall & Sumps w/ Sensor
Piping Rel Detn Mthd Secondary:
County: El Paso
ZIP Code: 80911

Tank Tag: 20721-2
Tank Status: Currently In Use
Tank Type: UST
Tank Name: TNK-044445
Installation Date: 7/22/2021
Closure Date:
Tank Material: FRP: Fiberglass Reinforced Plastic
Tank Wall Type: Double-Walled
Facility Name: Maverik #659
Facility Type: Retail
Facility Category: Retail Gas Station
Overfill Preven: AL: External Aud/Vis Alarm
Tank Corsn Protection Meth: Fiberglass (n/a)
Tank Rel Detn Mthd Primary: T2: Inter Mntrg w/ Sensor
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP): Non-metallic
PCP at Tank: No Electrolyte Contact (n/a)
PCP at Dispenser: No Electrolyte Contact (n/a)
Piping Rel Detn Mthd Primary: L2: Dbl-Wall & Sumps w/ Sensor
Piping Rel Detn Mthd Secondary:
Leak Detector Type: E: Electronic
Capacity Gallons : 25000
Product: Ethanol-Free Gasoline
Piping Type: UG: Underground
Piping System:
Piping Material: FLEX: Flexible Plastic
Piping Wall Type: Double-Walled
Address: 6180 Timber Rail Point
City: Security
County: El Paso
ZIP Code: 80911

Tank Tag: 20721-1
Tank Status: Currently In Use
Tank Type: UST
Tank Name: TNK-044444
Installation Date: 7/22/2021
Closure Date:
Tank Material: FRP: Fiberglass Reinforced Plastic
Tank Wall Type: Double-Walled
Facility Name: Maverik #659
Facility Type: Retail
Facility Category: Retail Gas Station
Overfill Preven: AL: External Aud/Vis Alarm
Tank Corsn Protection Meth: Fiberglass (n/a)
Tank Rel Detn Mthd Primary: T2: Inter Mntrg w/ Sensor
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP): Non-metallic
PCP at Tank: No Electrolyte Contact (n/a)
PCP at Dispenser: No Electrolyte Contact (n/a)
Piping Rel Detn Mthd Primary: L2: Dbl-Wall & Sumps w/ Sensor
Piping Rel Detn Mthd Secondary:
Leak Detector Type: E: Electronic
Capacity Gallons : 25000
Product: Unleaded Regular (RUL)
Piping Type: UG: Underground
Piping System:
Piping Material: FLEX: Flexible Plastic
Piping Wall Type: Double-Walled
Address: 6180 Timber Rail Point
City: Security
County: El Paso
ZIP Code: 80911

Tank Tag: 20721-2
Tank Status: Currently In Use
Tank Type: UST
Tank Name: TNK-044445
Installation Date: 7/22/2021
Closure Date:
Tank Material: FRP: Fiberglass Reinforced Plastic
Tank Wall Type: Double-Walled
Facility Name: Maverik #659
Facility Type: Retail
Facility Category: Retail Gas Station
Overfill Preven: AL: External Aud/Vis Alarm
Leak Detector Type: E: Electronic
Capacity Gallons : 25000
Product: Unleaded Premium (PUL)
Piping Type: UG: Underground
Piping System:
Piping Material: FLEX: Flexible Plastic
Piping Wall Type: Double-Walled
Address: 6180 Timber Rail Point
City: Security
County: El Paso
ZIP Code: 80911

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Tank Corsn Protection Meth: Fiberglass (n/a)
Tank Rel Detn Mthd Primary: T2: Inter Mntrg w/ Sensor
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP): Non-metallic
PCP at Tank: No Electrolyte Contact (n/a)
PCP at Dispenser: No Electrolyte Contact (n/a)
Piping Rel Detn Mthd Primary: L2: Dbl-Wall & Sumps w/ Sensor
Piping Rel Detn Mthd Secondary:

UST Owner (COSTIS) (As of October 2021)

Owner ID: 829
First Name:
Middle Init:
Last Name: Maverik Inc
Full Name:
Address1: 185 S State St Ste 800
City: Salt Lake City
State: UT
County: Salt Lake
Zip Code: 84111

Oil & Public Safety Regulated Storage Tank Details

No of Tanks: 2

Facility Contact Details (CDLE)

Contact ID: 0033h00000mtXC3
Costis ID: FACOWN-20721-1107-Apr 15 2021 2:57PM
Active: TRUE
Role: Facility Owner
Fac Contact Name: FCON-047886
Contact Last Name: Maverik Inc

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
13	3 of 6	NW	0.01 / 73.33	5,646.18 / -8	MAVERIK-MAVERIK STORE #659 MESA RDIGE & SYRACUSE ST FOUNTAIN CO 80817	AIR PERMITS

APCD Site ID: 041-2187
Site ID: 2187
Fed Facility ID:
County: EL PASO
Addr County Name: EL PASO
Address Type: STREET
Air Program: B
Air Acid Precip:
Class Apen Exempt:
Class CFC:
Class Condensate :
Class Fesop:
Class Mact:
Class Neshap:
Class Non Fed Rpt:
NSPS Federal:
Class NSPS State:
Class NSR:
Class PSD:
Sip Fed Jd:
Class Sip Federal: B
Air Title:
Class Tribal:
CMS Category:
CMS Frequency: 0
Cpts Bogus Ind: FALSE
Govt Fac Classifi: 0
Hap Classifi:
NAA NSR Classifi:
Op Classification:
Property Area: 0.0
PSD Classifi:
City FIPS Code: 27865
Sip Status Co: FALSE
Sip Status O3: FALSE
Site Cont Company:
Descriptn Category: PC
Site First Name: MARK
Site Full Name: MARK STEWART
Site Last Name: STEWART
Site Title:
Site Phone: (385)489-6202
Site Fax:
No Employees: 0.0
Site Geocode Date: 10-Feb-2022 13:50:29
Pt Lin Are: P
Src Scale: 2
Verification:
NAICS Prime: 457110
NAICS Second:
Sic Prime: 5541
Sic Second:
Site Operat Stat: O
Owner Cust: 9920109337
Method Code: I2
Site Lat: 384316.7421
Site Long: 1044245.8971
UTM Horiz: 524.97
UTM Vert: 4285.89
UTM Zone: 13.0
Vert Dat: 1
Vert Meas: 1721.73
Vert Meas Acc: 3.0
Vert Meth Coll: OT
Site Horiz Dat: 2
Acc Units: METERS

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

State FIPS:	08	**Accuracy:**	40.0
County FIPS:	041	**Date Coll:**	10-Feb-2022 13:50:29
Addr County FIPS:	041		
Permit App:	MAVERIK-MAVERIK STORE #659		
SIC Sec Desc:			
Site Email:	MARK.STEWART@MAVERIK.COM		
SIC Pri Desc:	AUTOMOTIVE DEALERS AND GASOLINE SERVICE STATIONS - Gasoline Service Station		
Site Description:	SERVICE STATION		
Site LL Description:	Elevation source: 3DEP 1/3 arc-second		
Sip Prog1:		**Sip Prog3 Area:**	
Sip Prog1 Area:		**Sip Prog4:**	
Sip Prog2:		**Sip Prog4 Area:**	
Sip Prog2 Area:		**Sip Prog5:**	
Sip Prog3:			

Site Owner

Owner Bill Cycle:	4	**Mail Fax:**	
Owner Description:	RETAIL FUEL STATION	**Mail Full Name:**	UTAHNA ARCHULETA
Mail Addr 1:	185 SOUTH STATE STREET	**Mail First Name:**	UTAHNA
Mail Addr 2:	SUITE 800	**Mail Last Name:**	ARCHULETA
Mail Type:	STREET	**Mail Phone:**	(801)683-3628
Mail City:	SALT LAKE CITY	**Mail Province:**	
Mail City Cd:		**Mail State:**	49
Mail Company:		**Mail Title:**	
Mail Country Cd:		**Mail Zip:**	84111-
Owner Name:	MAVERIK, INC		
Owner Mail Email:	UTAHNA.ARCHULETA@MAVERIK.COM		

Site Pollutant

Site ID:	2187	**Pk Co:**	
State FIPS:	08	**Pk Co Mc:**	Z
County FIPS:	041	**Pk Co Re:**	
Data Year:	2021	**Pk Co Re Mc:**	Z
Inventory Year:	2023	**Pk Co Re Units:**	PD
Inventory Year 2:	23	**Pk Co Unc:**	
Pollutant Code:	108883	**Pk Co Units:**	PD
Is Colorado Hap:	FALSE	**Pk O3:**	
Is Criteria:	FALSE	**Pk O3 Mc:**	Z
Is EPCRA Only:	FALSE	**Pk O3 Re:**	
Is Hap:	TRUE	**Pk O3 Re Mc:**	Z
NEI Pollutant ID:	108883	**Pk O3 Re Units:**	PD
Ozone Depleting:	FALSE	**Pk O3 Unc:**	
Estim:	0.003746	**Pk O3 Units:**	PD
Estim Mc:	Z	**EMIS Pot:**	
Estim Unc:	0.143524	**Pot Mc:**	
Estim Units:	TY	**Pot Unc:**	
Limit1:		**Pot Unc Mc:**	
Limit1 Mc:		**Pot Unc Units:**	
Limit1 Units:		**Pot Units:**	
Limit2:		**Re Estim:**	0.0
Limit2 Mc:		**Re Estim Mc:**	Z
Limit2 Units:		**Re ESTIM Units:**	TY
Pollutant Name:	TOLUENE		

Site Pollutant

Site ID:	2187	**Pk Co:**	
State FIPS:	08	**Pk Co Mc:**	Z
County FIPS:	041	**Pk Co Re:**	
Data Year:	2021	**Pk Co Re Mc:**	Z
Inventory Year:	2023	**Pk Co Re Units:**	PD
Inventory Year 2:	23	**Pk Co Unc:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Pollutant Code:	VOC	**Pk Co Units:**	PD
Is Colorado Hap:	FALSE	**Pk O3:**	
Is Criteria:	TRUE	**Pk O3 Mc:**	Z
Is EPCRA Only:	FALSE	**Pk O3 Re:**	
Is Hap:	FALSE	**Pk O3 Re Mc:**	Z
NEI Pollutant ID:	VOC	**Pk O3 Re Units:**	PD
Ozone Depleting:	FALSE	**Pk O3 Unc:**	
Estim:	4.60824	**Pk O3 Units:**	PD
Estim Mc:	Z	**EMIS Pot:**	
Estim Unc:	22.528	**Pot Mc:**	
Estim Units:	TY	**Pot Unc:**	
Limit1:		**Pot Unc Mc:**	
Limit1 Mc:		**Pot Unc Units:**	
Limit1 Units:		**Pot Units:**	
Limit2:		**Re Estim:**	0.0
Limit2 Mc:		**Re Estim Mc:**	Z
Limit2 Units:		**Re ESTIM Units:**	TY
Pollutant Name:	VOLATILE ORGANIC COMPOUNDS		

Site Pollutant

Site ID:	2187	**Pk Co:**	
State FIPS:	08	**Pk Co Mc:**	Z
County FIPS:	041	**Pk Co Re:**	
Data Year:	2021	**Pk Co Re Mc:**	Z
Inventory Year:	2023	**Pk Co Re Units:**	PD
Inventory Year 2:	23	**Pk Co Unc:**	
Pollutant Code:	110543	**Pk Co Units:**	PD
Is Colorado Hap:	FALSE	**Pk O3:**	
Is Criteria:	FALSE	**Pk O3 Mc:**	Z
Is EPCRA Only:	FALSE	**Pk O3 Re:**	
Is Hap:	TRUE	**Pk O3 Re Mc:**	Z
NEI Pollutant ID:	110543	**Pk O3 Re Units:**	PD
Ozone Depleting:	FALSE	**Pk O3 Unc:**	
Estim:	0.003266	**Pk O3 Units:**	PD
Estim Mc:	Z	**EMIS Pot:**	
Estim Unc:	0.125134	**Pot Mc:**	
Estim Units:	TY	**Pot Unc:**	
Limit1:		**Pot Unc Mc:**	
Limit1 Mc:		**Pot Unc Units:**	
Limit1 Units:		**Pot Units:**	
Limit2:		**Re Estim:**	0.0
Limit2 Mc:		**Re Estim Mc:**	Z
Limit2 Units:		**Re ESTIM Units:**	TY
Pollutant Name:	HEXANE,N-		

Stack

Site ID:	2187	**Plume Height:**	10
Stack ID:	001	**Rough Terrain Ind:**	N
State FIPS:	08	**Diameter:**	0.0
County FIPS:	041	**Diameter Meter:**	0.0
Data Year:	2021	**Geo Origin:**	plant
Inventory Year:	2023	**Height:**	0.0
Inventory Year 2:	23	**Height Meter:**	0.0
Apcd Stack ID:	041-2187-S001	**Horiz Dat:**	2
Cem Recorder Flag:	No	**Lining Code:**	1
Distance:		**Acc Units:**	4
Exit Gas Flow Rate:	0.0	**Accuracy:**	40.0
Exit Gas Temp:	70.0	**Method Code:**	I2
Exit Gas Kelvin:	294.0	**Pt Lin Area:**	P
Gas Velocity:	0.0	**Src Scale:**	2
Gas Meters Sec:	0.0	**Latitude:**	384316.7421
Bldg Height:	0	**Longitude:**	1044245.8971
Bldg Length:	0	**Type Code:**	F
Bldg Width:	0	**UTM Horiz:**	524.97
Stack Height:	0	**UTM Vert:**	4285.89

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

NEI Em Rls Pt Typ:	1	**Vert Meas:**	1721.73
NEI Exit Gas Flow:	0.0	**UTM Zone:**	13.0
NEI Horiz Mc:	019	**X Coord:**	-104.71274919444444
NEI Ref Pt Code:	105	**Y Coord:**	38.72131725
Emission Release Desc:	UNDERGROUND GASOLINE TANKS		
Description:	Elevation source: 3DEP 1/3 arc-second		
Description Category:	PC		
Stack Type:	FUGITIVE EMISSIONS, NO STACK EXISTS		

Stack Pollutant

Site ID:	2187	**Pk Co:**	
Stack ID:	001	**Pk Co Mc:**	Z
State Fips:	08	**Pk Co Re:**	
County Fip:	041	**Pk Co Re Mc:**	Z
Data Year:	2021	**Pk Co Re Units:**	PD
Inventory Year:	2023	**Pk Co Unc:**	
Inventory Year 2:	23	**Pk Co Units:**	PD
Pollutant Code:	108883	**Pk O3:**	
Is Colorado Hap:	FALSE	**Pk O3 Mc:**	Z
Is Criteria:	FALSE	**Pk O3 Re:**	
Is Epcra Only:	FALSE	**Pk O3 Re Mc:**	Z
Is Hap:	TRUE	**Pk O3 Re Units:**	PD
Ozone Depleting:	FALSE	**Pk O3 Unc:**	
Estim:	0.003746	**Pk O3 Units:**	PD
Estim Mc:	Z	**Pot:**	
Estim Unc:	0.143524	**Pot Mc:**	
Estim Units:	TY	**Pot Unc:**	
Limit1:		**Pot Unc Mc:**	
Limit1 Mc:		**Pot Unc Units:**	
Limit1 Units:		**Pot Units:**	
Limit2:		**Re Estim:**	0.0
Limit2 Mc:		**Re Estim Mc:**	Z
Limit2 Units:		**Re Estim Units:**	TY
Pollutant Name:	TOLUENE		

Stack Pollutant

Site ID:	2187	**Pk Co:**	
Stack ID:	001	**Pk Co Mc:**	Z
State Fips:	08	**Pk Co Re:**	
County Fip:	041	**Pk Co Re Mc:**	Z
Data Year:	2021	**Pk Co Re Units:**	PD
Inventory Year:	2023	**Pk Co Unc:**	
Inventory Year 2:	23	**Pk Co Units:**	PD
Pollutant Code:	VOC	**Pk O3:**	
Is Colorado Hap:	FALSE	**Pk O3 Mc:**	Z
Is Criteria:	TRUE	**Pk O3 Re:**	
Is Epcra Only:	FALSE	**Pk O3 Re Mc:**	Z
Is Hap:	FALSE	**Pk O3 Re Units:**	PD
Ozone Depleting:	FALSE	**Pk O3 Unc:**	
Estim:	4.60824	**Pk O3 Units:**	PD
Estim Mc:	Z	**Pot:**	
Estim Unc:	22.528	**Pot Mc:**	
Estim Units:	TY	**Pot Unc:**	
Limit1:		**Pot Unc Mc:**	
Limit1 Mc:		**Pot Unc Units:**	
Limit1 Units:		**Pot Units:**	
Limit2:		**Re Estim:**	0.0
Limit2 Mc:		**Re Estim Mc:**	Z
Limit2 Units:		**Re Estim Units:**	TY
Pollutant Name:	VOLATILE ORGANIC COMPOUNDS		

Stack Pollutant

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Site ID:	2187	**Pk Co:**	
Stack ID:	001	**Pk Co Mc:**	Z
State Fips:	08	**Pk Co Re:**	
County Fip:	041	**Pk Co Re Mc:**	Z
Data Year:	2021	**Pk Co Re Units:**	PD
Inventory Year:	2023	**Pk Co Unc:**	
Inventory Year 2:	23	**Pk Co Units:**	PD
Pollutant Code:	110543	**Pk O3:**	
Is Colorado Hap:	FALSE	**Pk O3 Mc:**	Z
Is Criteria:	FALSE	**Pk O3 Re:**	
Is Epcra Only:	FALSE	**Pk O3 Re Mc:**	Z
Is Hap:	TRUE	**Pk O3 Re Units:**	PD
Ozone Depleting:	FALSE	**Pk O3 Unc:**	
Estim:	0.003266	**Pk O3 Units:**	PD
Estim Mc:	Z	**Pot:**	
Estim Unc:	0.125134	**Pot Mc:**	
Estim Units:	TY	**Pot Unc:**	
Limit1:		**Pot Unc Mc:**	
Limit1 Mc:		**Pot Unc Units:**	
Limit1 Units:		**Pot Units:**	
Limit2:		**Re Estim:**	0.0
Limit2 Mc:		**Re Estim Mc:**	Z
Limit2 Units:		**Re Estim Units:**	TY
Pollutant Name:	HEXANE,N-		

13	*4 of 6*	*NW*	*0.01 / 73.33*	*5,646.18 / -8*	***MESA RIDGE CROSSING SYRACUSE STREET AND MESA RIDGE PARKWAY FOUNTAIN CO 80903***	***FINDS/FRS***

Registry ID:	110070875060
FIPS Code:	CO041
HUC Code:	11020003
Site Type Name:	STATIONARY
Location Description:	
Supplemental Location:	
Create Date:	04-DEC-20
Update Date:	
Interest Types:	ICIS-NPDES NON-MAJOR
SIC Codes:	1542
SIC Code Descriptions:	GENERAL CONTRACTORS-NONRESIDENTIAL BUILDINGS, OTHER THAN INDUSTRIAL BUILDINGS AND WAREHOUSES
NAICS Codes:	
NAICS Code Descriptions:	
Conveyor:	ICIS
Federal Facility Code:	
Federal Agency Name:	
Tribal Land Code:	
Tribal Land Name:	
Congressional Dist No:	05
Census Block Code:	080410045063023
EPA Region Code:	08
County Name:	EL PASO
US/Mexico Border Ind:	
Latitude:	38.721184
Longitude:	-104.712295
Reference Point:	CENTER OF A FACILITY OR STATION
Coord Collection Method:	GPS - UNSPECIFIED
Accuracy Value:	
Datum:	NAD83
Source:	
Facility Detail Rprt URL:	https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110070875060
Data Source:	Facility Registry Service - Single File
Program Acronyms:	

NPDES:COR410596

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
13	5 of 6	NW	0.01 / 73.33	5,646.18 / -8	MAVERIK AT MESA RIDGE (LOT 1, MESA RIDGE CROSSING FILING 1) MESA RIDGE PARKWAY AND SYRACUSE STREET FOUNTAIN CO 80903	FINDS/FRS

Registry ID: 110071066162
FIPS Code: CO041
HUC Code: 11020003
Site Type Name: STATIONARY
Location Description:
Supplemental Location:
Create Date: 09-JUL-21
Update Date:
Interest Types: ICIS-NPDES NON-MAJOR
SIC Codes: 1542
SIC Code Descriptions: GENERAL CONTRACTORS-NONRESIDENTIAL BUILDINGS, OTHER THAN INDUSTRIAL BUILDINGS AND WAREHOUSES
NAICS Codes:
NAICS Code Descriptions:
Conveyor: ICIS
Federal Facility Code:
Federal Agency Name:
Tribal Land Code:
Tribal Land Name:
Congressional Dist No: 05
Census Block Code: 080410045063023
EPA Region Code: 08
County Name: EL PASO
US/Mexico Border Ind:
Latitude: 38.721167
Longitude: -104.712365
Reference Point: CENTER OF A FACILITY OR STATION
Coord Collection Method: GPS - UNSPECIFIED
Accuracy Value:
Datum: NAD83
Source:
Facility Detail Rprt URL: https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110071066162
Data Source: Facility Registry Service - Single File
Program Acronyms:

NPDES:COR412638

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
13	6 of 6	NW	0.01 / 73.33	5,646.18 / -8	MAVERIK-MAVERIK STORE #659 MESA RDIGE & SYRACUSE ST FOUNTAIN CO 80817	FINDS/FRS

Registry ID: 110071092165
FIPS Code: CO041
HUC Code:
Site Type Name: STATIONARY
Location Description: SERVICE STATION
Supplemental Location:
Create Date: 08-OCT-21
Update Date:
Interest Types: AIR MINOR
SIC Codes: 5541
SIC Code Descriptions: GASOLINE SERVICE STATIONS
NAICS Codes: 447110
NAICS Code Descriptions: GASOLINE STATIONS WITH CONVENIENCE STORES.
Conveyor:
Federal Facility Code:
Federal Agency Name:
Tribal Land Code:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Tribal Land Name:
Congressional Dist No:
Census Block Code:
EPA Region Code: 08
County Name: EL PASO COUNTY
US/Mexico Border Ind:
Latitude:
Longitude:
Reference Point:
Coord Collection Method:
Accuracy Value:
Datum: NAD83
Source:
Facility Detail Rprt URL: https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110071092165
Data Source: Facility Registry Service - Single File
Program Acronyms:

AIR:CO0000000804102187

14	*1 of 2*	*WNW*	*0.01 / 77.52*	*5,638.63 / -16*	***FIRST FLEET (FORMERLY AFC)*** ***500 WILLOW SPRINGS ROAD*** ***COLORADO SPRINGS CO 80911***	***FINDS/FRS***

Registry ID: 110042344852
FIPS Code:
HUC Code: 11020003
Site Type Name: STATIONARY
Location Description:
Supplemental Location:
Create Date: 24-NOV-10
Update Date: 03-MAY-15
Interest Types: ENFORCEMENT/COMPLIANCE ACTIVITY
SIC Codes:
SIC Code Descriptions:
NAICS Codes:
NAICS Code Descriptions:
Conveyor: ICIS
Federal Facility Code:
Federal Agency Name:
Tribal Land Code:
Tribal Land Name:
Congressional Dist No: 05
Census Block Code: 080410045083001
EPA Region Code: 08
County Name: EL PASO
US/Mexico Border Ind:
Latitude: 38.722155
Longitude: -104.721151
Reference Point:
Coord Collection Method:
Accuracy Value: 30
Datum: NAD83
Source:
Facility Detail Rprt URL: https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110042344852
Data Source: Facility Registry Service - Single File
Program Acronyms:

ICIS:2200009621

14	*2 of 2*	*WNW*	*0.01 / 77.52*	*5,638.63 / -16*	***FIRST FLEET (FORMERLY AFC)*** ***500 WILLOW SPRINGS ROAD*** ***COLORADO SPRINGS CO 80911***	***ICIS***

EPA Region: ***Federal Fac ID:***

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Registry ID:	110042344852	**Tribal Land Code:**	
Pgm Sys ID:	2200009621	**County:**	EL PASO
Pgm Sys Acrnm:	ICIS	**Latitude 83:**	38.722155
Permit Type:		**Longitude 83:**	-104.721151

Details

Interest Type:	ENFORCEMENT/COMPLIANCE ACTIVITY	**Public Ind:**	Y
Active Status:		**FIPS Code:**	
Accuracy Value:	30	**HUC 8 Code:**	11020003
Pgm Report URL:	no data yet	**HUC 12:**	
Federal Agency Name:			
Federal Land Ind:			
Fed Facility Code:			
Ref Point Desc:			
Collect Mth Desc:			
Fac URL:	https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110042344852		
Program URL:			

15	*1 of 3*	*ESE*	*0.02 / 80.39*	*5,742.19 / 88*	***LES SCHWAB TIRE CENTER FOUNTAIN 7996 FOUNTAIN MESA RD FOUNTAIN CO 80817***	***FINDS/FRS***

Registry ID:	110064783195
FIPS Code:	CO041
HUC Code:	11020003
Site Type Name:	STATIONARY
Location Description:	
Supplemental Location:	
Create Date:	11-SEP-15
Update Date:	01-APR-16
Interest Types:	ICIS-NPDES NON-MAJOR
SIC Codes:	5014
SIC Code Descriptions:	TIRES AND TUBES
NAICS Codes:	
NAICS Code Descriptions:	
Conveyor:	FRS-GEOCODE
Federal Facility Code:	
Federal Agency Name:	
Tribal Land Code:	
Tribal Land Name:	
Congressional Dist No:	05
Census Block Code:	080410045073036
EPA Region Code:	08
County Name:	EL PASO
US/Mexico Border Ind:	
Latitude:	38.715724
Longitude:	-104.701495
Reference Point:	ENTRANCE POINT OF A FACILITY OR STATION
Coord Collection Method:	ADDRESS MATCHING-HOUSE NUMBER
Accuracy Value:	50
Datum:	NAD83
Source:	
Facility Detail Rprt URL:	https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110064783195
Data Source:	Facility Registry Service - Single File
Program Acronyms:	

NPDES:COR03N434

15	*2 of 3*	*ESE*	*0.02 / 80.39*	*5,742.19 / 88*	***LES SCHWAB TIRE CENTER FOUNTAIN 7996 FOUNTAIN MESA RD FOUNTAIN CO 80817***	***ICIS***

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

EPA Region: 08
Registry ID: 110064783195
Pgm Sys ID: COR03N434
Pgm Sys Acrnm: NPDES
Permit Type: General Permit Covered Facility
Federal Fac ID:
Tribal Land Code:
County: El Paso
Latitude 83: 38.715747
Longitude 83: -104.701459

---

15 | **3 of 3** | **ESE** | **0.02 / 80.39** | **5,742.19 / 88** | **Les Schwab Tire Center**
7996 Fountain Mesa Road
Fountain CO | **SWF/LF**

Loc ID: ELP191
Cert of Reg ID:

Facility Detail Info

Location ID: ELP191
Facility Name: Les Schwab Tire Center
Location Address: 7996 Fountain Mesa Road
City: Fountain
Zip: 80817
County Name: EL PASO
Latitude: 38.71598
Longitude: -104.701477

Facility Map Info (REST)

Location ID: ELP191
FID: 1355
Primary AC: Generator of Motor Vehicle and Trailer Waste Tires
Facility Name: Les Schwab Tire Center
Address: 7990 Fountain Mesa Road
City: Fountain
Zip: 80817
County Name: EL PASO
Latitude: 38.715981
Longitude: -104.701477
Y: 38.71598100000173
X: -104.7014770000024

Activity Info

Activity Type: Generator of Motor Vehicle and Trailer Waste Tires
Closure Units: FALSE
Post Closure Units: FALSE
Post Closure Ended: FALSE
Clean Closed Units: FALSE

---

16 | **1 of 6** | **E** | **0.02 / 81.34** | **5,744.85 / 91** | **SAFEWAY INC. # 1975**
6949 MESA RIDGE PKWY
FOUNTAIN CO 80817 | **FINDS/FRS**

Registry ID: 110041440296
FIPS Code: 08041
HUC Code: 11020003
Site Type Name: STATIONARY
Location Description:
Supplemental Location:
Create Date: 06-JUL-10
Update Date: 01-JUN-17
Interest Types: AIR MINOR
SIC Codes: 5541
SIC Code Descriptions: GASOLINE SERVICE STATIONS
NAICS Codes: 447190

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

NAICS Code Descriptions:	OTHER GASOLINE STATIONS.
Conveyor:	FRS-GEOCODE
Federal Facility Code:	
Federal Agency Name:	
Tribal Land Code:	
Tribal Land Name:	
Congressional Dist No:	05
Census Block Code:	080410045034035
EPA Region Code:	08
County Name:	EL PASO
US/Mexico Border Ind:	
Latitude:	38.718302
Longitude:	-104.698277
Reference Point:	ENTRANCE POINT OF A FACILITY OR STATION
Coord Collection Method:	ADDRESS MATCHING-HOUSE NUMBER
Accuracy Value:	50
Datum:	NAD83
Source:	
Facility Detail Rprt URL:	https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110041440296
Data Source:	Facility Registry Service - Single File
Program Acronyms:	

AIR:CO0000000804101622, AIRS/AFS:0804101622, EIS:13036511

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
16	2 of 6	E	0.02 / 81.34	5,744.85 / 91	Safeway Fuel Center 6949 Mesa Ridge Rd Fountain 80817 CO	UST

Facility ID:	17892	**Fac Name (COSTIS):**	Safeway Fuel Center
FacilityName(OPS):	Safeway Fuel Center	**Address (COSTIS):**	6949 Mesa Ridge Rd Fountain 80817
FacilityType(OPS):	Retail	**County (COSTIS):**	El Paso
Fac Category (OPS):	Retail Gas Station	**Latitude (CDLE):**	38.718676
Address (OPS):	6949 Mesa Ridge Rd	**Longitude (CDLE):**	-104.69904
City (OPS):	Fountain	**Fac Type (CDLE):**	Retail
Zip Code (OPS):	80817	**FacCategry(CDLE):**	Retail Gas Station
County (OPS):	El Paso	**State (OPS):**	CO
LatLong (OPS):	38.718676, -104.69904	**City (CDLE):**	Fountain
FacName (CDLE):	Safeway Fuel Center	**Zip (CDLE):**	80817
Address (CDLE):	6949 Mesa Ridge Rd	**County (CDLE):**	El Paso
State (CDLE):			

Data Source(s): Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks

Facility Information (CDLE)

Count of Tank Tag:	2	**Accnt Holdr Name:**	Safeway Stores 45 Inc.
No. Dispensers:	40	**Type:**	Retail
Owner ID:	OWNR-18457		

Owner Information (CDLE)

Contact Name:	Safeway Stores 45 Inc.	**Middle Init:**	
First Name:			
Company Name:	Safeway Stores 45 Inc.		
Last Name:	Safeway Stores 45 Inc.		
Address:	6900 S Yosemite St, Englewood, CO 80112		
Comment:	2006 INVOICE REQUESTED A CHANGE OF THE OWNER ADDRESS. SEE FILES FOR 06-64 1-17-06. ENFORCEMENT COORDINATOR OID 20958 PAUL GOFF AT 303-843-7740 OR 1-800-749-4974 AT 6900 S YOSEMITE CENTENNIAL CO 80112 SEE FID 13767 FOR OID UPDATE 7/1/07; Billing: Jacqui Ru **Note: data in the [Comment] field for some records is truncated from the source.		

UST Tanks (COSTIS) (As of October 2021)

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Tank ID: 39224 **Owner ID:** 18457
Tank Tag: '17892-2 **Tank Owner:**
Tank Type Desc: UST **County:** El Paso
Tank Count: 46668 **Product Name:** Diesel/Gas (Multi-Comp)
Capacity: 20000
Facility Owner: Safeway Stores 45 Inc.
Facility Name Address: Safeway Fuel Center
6949 Mesa Ridge Rd
Fountain 80817

Tank ID: 39223 **Owner ID:** 18457
Tank Tag: '17892-1 **Tank Owner:**
Tank Type Desc: UST **County:** El Paso
Tank Count: 46668 **Product Name:** Unleaded Regular (RUL)
Capacity: 20000
Facility Owner: Safeway Stores 45 Inc.
Facility Name Address: Safeway Fuel Center
6949 Mesa Ridge Rd
Fountain 80817

UST Tanks 1 (CDLE)

Tank Tag: 17892-2 **Overfill Preven:** FV: Fill Tube Valve
Tank Type: UST **Product Type/Name:** Diesel #2
Tank Status: Currently In Use **Piping Wall Type:** Double-Walled
Capacity: 20000 **Tank Wall Type:**
Install Date: 1/10/2006 **Piping System:**
Date Closed: **Piping Type:** UG: Underground
Tank Material: COMP: Steel/FRP Composite
Piping Material: FLEX: Flexible Plastic

UST Tanks 2 (CDLE)

Closure Meth ID: **No Fee:** No
Unregulated: FALSE **Anch Method Desc:** DM: Deadman
Last Used Date: **Pipe Reld Meth1 ID:** L1: ATG .2/.1gph Mthly Mntrg
Del Prohib Date: **Pipe Reldet Date:**
Spill Protected: **Backfill Mat Desc:**
Spl Container Size: 5 **Bfill DrtCvr Amt:** 36
Spl Protection Dt: **Manifold:** No
Spl Container Mfg: CNI and EBW **Registration Date:** 8/6/2021
Spl Container Mdel: 104 A and 705 **Compartment:** TRUE
Tank Reld Meth1 ID: **Cpmet:** Yes
Tank Lining Date: **Invault:** FALSE
CP Test Date:

UST Tanks 1 (CDLE)

Tank Tag: 17892-2 **Overfill Preven:** FV: Fill Tube Valve
Tank Type: UST **Product Type/Name:** Unleaded Premium (PUL)
Tank Status: Currently In Use **Piping Wall Type:** Double-Walled
Capacity: 20000 **Tank Wall Type:**
Install Date: 1/10/2006 **Piping System:**
Date Closed: **Piping Type:** UG: Underground
Tank Material: COMP: Steel/FRP Composite
Piping Material: FLEX: Flexible Plastic

UST Tanks 2 (CDLE)

Closure Meth ID: **No Fee:** No
Unregulated: FALSE **Anch Method Desc:** DM: Deadman
Last Used Date: **Pipe Reld Meth1 ID:** L1: ATG .2/.1gph Mthly Mntrg
Del Prohib Date: **Pipe Reldet Date:**
Spill Protected: **Backfill Mat Desc:**
Spl Container Size: 5 **Bfill DrtCvr Amt:** 36
Spl Protection Dt: **Manifold:** No
Spl Container Mfg: CNI and EBW **Registration Date:** 8/6/2021

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Spl Container Mdel:	104 A and 705	**Compartment:**	TRUE
Tank Reld Meth1 ID:		**Cpmet:**	Yes
Tank Lining Date:		**Invault:**	FALSE
CP Test Date:			

UST Tanks 1 (CDLE)

Tank Tag:	17892-1	**Overfill Preven:**	FV: Fill Tube Valve
Tank Type:	UST	**Product Type/Name:**	Unleaded Regular (RUL)
Tank Status:	Currently In Use	**Piping Wall Type:**	Double-Walled
Capacity:	20000	**Tank Wall Type:**	
Install Date:	1/10/2006	**Piping System:**	
Date Closed:		**Piping Type:**	UG: Underground
Tank Material:	COMP: Steel/FRP Composite		
Piping Material:	FLEX: Flexible Plastic		

UST Tanks 2 (CDLE)

Closure Meth ID:		**No Fee:**	No
Unregulated:	FALSE	**Anch Method Desc:**	DM: Deadman
Last Used Date:		**Pipe Reld Meth1 ID:**	L1: ATG .2/.1gph Mthly Mntrg
Del Prohib Date:		**Pipe Reldet Date:**	
Spill Protected:		**Backfill Mat Desc:**	Pea Gravel
Spl Container Size:	5	**Bfill DrtCvr Amt:**	36
Spl Protection Dt:		**Manifold:**	No
Spl Container Mfg:	CNI	**Registration Date:**	8/6/2021
Spl Container Mdel:	104 A	**Compartment:**	FALSE
Tank Reld Meth1 ID:		**Cpmet:**	Yes
Tank Lining Date:		**Invault:**	FALSE
CP Test Date:			

Oil & Public Safety Regulated Storage Tanks (COSTIS)

Tank Tag:	17892-2	**Leak Detector Type:**	E: Electronic
Tank Status:	Currently In Use	**Capacity Gallons :**	20000
Tank Type:	UST	**Product:**	Diesel #2
Tank Name:	TNK-039746	**Piping Type:**	UG: Underground
Installation Date:	1/10/2006	**Piping System:**	
Closure Date:		**Piping Material:**	FLEX: Flexible Plastic
Tank Material:	COMP: Steel/FRP Composite	**Piping Wall Type:**	Double-Walled
Tank Wall Type:		**Address:**	6949 Mesa Ridge Rd
Facility Name:	Safeway Fuel Center	**City:**	Fountain
Facility Type:	Retail	**County:**	El Paso
Facility Category:	Retail Gas Station	**ZIP Code:**	80817
Overfill Preven:	FV: Fill Tube Valve		
Tank Corsn Protection Meth:	Steel/Fiberglass Composite		
Tank Rel Detn Mthd Primary:	T2: Inter Mntrg w/ Sensor		
Tank Rel Detn Mthd Secondary:			
Piping Corsn Protection (PCP):	Non-metallic		
PCP at Tank:	No Electrolyte Contact (n/a)		
PCP at Dispenser:	No Electrolyte Contact (n/a)		
Piping Rel Detn Mthd Primary:	L1: ATG .2/.1gph Mthly Mntrg		
Piping Rel Detn Mthd Secondary:	L2: Dbl-Wall & Sumps w/ Sensor		

Tank Tag:	17892-2	**Leak Detector Type:**	E: Electronic
Tank Status:	Currently In Use	**Capacity Gallons :**	20000
Tank Type:	UST	**Product:**	Unleaded Premium (PUL)
Tank Name:	TNK-039746	**Piping Type:**	UG: Underground
Installation Date:	1/10/2006	**Piping System:**	
Closure Date:		**Piping Material:**	FLEX: Flexible Plastic
Tank Material:	COMP: Steel/FRP Composite	**Piping Wall Type:**	Double-Walled
Tank Wall Type:		**Address:**	6949 Mesa Ridge Rd
Facility Name:	Safeway Fuel Center	**City:**	Fountain
Facility Type:	Retail	**County:**	El Paso

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Facility Category: Retail Gas Station
ZIP Code: 80817
Overfill Preven: FV: Fill Tube Valve
Tank Corsn Protection Meth: Steel/Fiberglass Composite
Tank Rel Detn Mthd Primary: T2: Inter Mntrg w/ Sensor
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP): Non-metallic
PCP at Tank: No Electrolyte Contact (n/a)
PCP at Dispenser: No Electrolyte Contact (n/a)
Piping Rel Detn Mthd Primary: L1: ATG .2/.1gph Mthly Mntrg
Piping Rel Detn Mthd Secondary: L2: Dbl-Wall & Sumps w/ Sensor

Tank Tag: 17892-1
Tank Status: Currently In Use
Tank Type: UST
Tank Name: TNK-039745
Installation Date: 1/10/2006
Closure Date:
Tank Material: COMP: Steel/FRP Composite
Tank Wall Type:
Facility Name: Safeway Fuel Center
Facility Type: Retail
Facility Category: Retail Gas Station
Overfill Preven: FV: Fill Tube Valve
Tank Corsn Protection Meth: Steel/Fiberglass Composite
Tank Rel Detn Mthd Primary: T2: Inter Mntrg w/ Sensor
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP): Non-metallic
PCP at Tank: No Electrolyte Contact (n/a)
PCP at Dispenser: No Electrolyte Contact (n/a)
Piping Rel Detn Mthd Primary: L1: ATG .2/.1gph Mthly Mntrg
Piping Rel Detn Mthd Secondary: L2: Dbl-Wall & Sumps w/ Sensor
Leak Detector Type: E: Electronic
Capacity Gallons : 20000
Product: Unleaded Regular (RUL)
Piping Type: UG: Underground
Piping System:
Piping Material: FLEX: Flexible Plastic
Piping Wall Type: Double-Walled
Address: 6949 Mesa Ridge Rd
City: Fountain
County: El Paso
ZIP Code: 80817

UST Owner (COSTIS) (As of October 2021)

Owner ID: 18457
First Name:
Middle Init:
Last Name: Safeway Stores 45 Inc.
Full Name:
Address1: 6900 S Yosemite St
City: Englewood
State: CO
County: Arapahoe
Zip Code: 80112

Oil & Public Safety Regulated Storage Tank Details

No of Tanks: 2

Facility Contact Details (CDLE)

Contact ID: 0033h00000lKyid
Costis ID: ABOP-17892-7962
Active: TRUE
Role: A/B Operator
Fac Contact Name: FCON-011076
Contact Last Name: Corbin Reid

Contact ID: 0033h00000mtYhD
Costis ID: FACOWN-17892-34229-Feb 6 2006 3:08PM
Active: TRUE
Role: Facility Owner
Fac Contact Name: FCON-051595
Contact Last Name: Safeway Stores 45 Inc.

Contact ID: 0033h00000mtYh7
Costis ID: FACOWN-17892-35059-Aug 9 2005 12:51PM
Active: FALSE
Role: Facility Owner
Fac Contact Name: FCON-051522
Contact Last Name: Safeway Inc

16	3 of 6	E	0.02 / 81.34	5,744.85 / 91	SAFEWAY INC. # 1975 6941 MESA RIDGE PKWY FOUNTAIN CO 80817	AIR PERMITS

APCD Site ID: 041-1622
Sip Status Co: FALSE

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Site ID:	1622	**Sip Status O3:**	FALSE
Fed Facility ID:	13036511	**Site Cont Company:**	
County:	EL PASO	**Descriptn Category:**	PC
Addr County Name:	EL PASO	**Site First Name:**	CORBIN
Address Type:	STREET	**Site Full Name:**	CORBIN REID
Air Program:	B	**Site Last Name:**	REID
Air Acid Precip:		**Site Title:**	
Class Apen Exempt:		**Site Phone:**	(720)512-1229
Class CFC:		**Site Fax:**	
Class Condensate :	B	**No Employees:**	0.0
Class Fesop:		**Site Geocode Date:**	13-Feb-2020 15:44:10
Class Mact:		**Pt Lin Are:**	P
Class Neshap:		**Src Scale:**	2
Class Non Fed Rpt:		**Verification:**	
NSPS Federal:		**NAICS Prime:**	457110
Class NSPS State:		**NAICS Second:**	
Class NSR:		**Sic Prime:**	5541
Class PSD:		**Sic Second:**	
Sip Fed Jd:		**Site Operat Stat:**	O
Class Sip Federal:	B	**Owner Cust:**	9920105401
Air Title:		**Method Code:**	I2
Class Tribal:		**Site Lat:**	384304.4616
CMS Category:		**Site Long:**	1044153.9062
CMS Frequency:	0	**UTM Horiz:**	526.227
Cpts Bogus Ind:	FALSE	**UTM Vert:**	4285.516
Govt Fac Classifi:	0	**UTM Zone:**	13.0
Hap Classifi:	TBD	**Vert Dat:**	1
NAA NSR Classifi:	TBD	**Vert Meas:**	1751.03
Op Classification:	TBD	**Vert Meas Acc:**	3.0
Property Area:	0.0	**Vert Meth Coll:**	OT
PSD Classifi:	TBD	**Site Horiz Dat:**	2
City FIPS Code:	27865	**Acc Units:**	METERS
State FIPS:	08	**Accuracy:**	20.0
County FIPS:	041	**Date Coll:**	13-Feb-2020 15:44:10
Addr County FIPS:	041		
Permit App:	SAFEWAY INC. # 1975		
SIC Sec Desc:			
Site Email:	CORBIN.REID@RANDALLS.COM		
SIC Pri Desc:	AUTOMOTIVE DEALERS AND GASOLINE SERVICE STATIONS - Gasoline Service Station		
Site Description:	RETAIL FUEL DISPENSING SERVICE STATION		
Site LL Description:	Elevation source: 3DEP 1/3 arc-second		

Sip Prog1:		**Sip Prog3 Area:**	
Sip Prog1 Area:		**Sip Prog4:**	
Sip Prog2:		**Sip Prog4 Area:**	
Sip Prog2 Area:		**Sip Prog5:**	
Sip Prog3:			

Site Owner

Owner Bill Cycle:	4	**Mail Fax:**	
Owner Description:	FOOD STORE AND FUEL DISPENSING	**Mail Full Name:**	JACQUI RUSH
Mail Addr 1:	PO BOX 29096	**Mail First Name:**	JACQUI
Mail Addr 2:	MS #6531	**Mail Last Name:**	RUSH
Mail Type:	POBOX	**Mail Phone:**	(623)869-3765
Mail City:	PHOENIX	**Mail Province:**	
Mail City Cd:		**Mail State:**	04
Mail Company:		**Mail Title:**	
Mail Country Cd:		**Mail Zip:**	85038-
Owner Name:	SAFEWAY INC.		
Owner Mail Email:			

Site Pollutant

Site ID:	1622	**Pk Co:**	
State FIPS:	08	**Pk Co Mc:**	Z
County FIPS:	041	**Pk Co Re:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Data Year:	2019	**Pk Co Re Mc:**	Z
Inventory Year:	2023	**Pk Co Re Units:**	PD
Inventory Year 2:	23	**Pk Co Unc:**	
Pollutant Code:	VOC	**Pk Co Units:**	PD
Is Colorado Hap:	FALSE	**Pk O3:**	
Is Criteria:	TRUE	**Pk O3 Mc:**	Z
Is EPCRA Only:	FALSE	**Pk O3 Re:**	
Is Hap:	FALSE	**Pk O3 Re Mc:**	Z
NEI Pollutant ID:	VOC	**Pk O3 Re Units:**	PD
Ozone Depleting:	FALSE	**Pk O3 Unc:**	
Estim:	4.338182	**Pk O3 Units:**	PD
Estim Mc:	Z	**EMIS Pot:**	
Estim Unc:	21.173964	**Pot Mc:**	
Estim Units:	TY	**Pot Unc:**	
Limit1:		**Pot Unc Mc:**	
Limit1 Mc:		**Pot Unc Units:**	
Limit1 Units:		**Pot Units:**	
Limit2:		**Re Estim:**	0.0
Limit2 Mc:		**Re Estim Mc:**	Z
Limit2 Units:		**Re ESTIM Units:**	TY
Pollutant Name:	VOLATILE ORGANIC COMPOUNDS		

Stack

Site ID:	1622	**Plume Height:**	30
Stack ID:	001	**Rough Terrain Ind:**	N
State FIPS:	08	**Diameter:**	0.0
County FIPS:	041	**Diameter Meter:**	0.0
Data Year:	2019	**Geo Origin:**	plant
Inventory Year:	2023	**Height:**	0.0
Inventory Year 2:	23	**Height Meter:**	0.0
Apcd Stack ID:	041-1622-S001	**Horiz Dat:**	2
Cem Recorder Flag:	No	**Lining Code:**	1
Distance:		**Acc Units:**	4
Exit Gas Flow Rate:	0.0	**Accuracy:**	20.0
Exit Gas Temp:	70.0	**Method Code:**	I2
Exit Gas Kelvin:	294.0	**Pt Lin Area:**	P
Gas Velocity:	0.0	**Src Scale:**	2
Gas Meters Sec:	0.0	**Latitude:**	384304.4616
Bldg Height:	0	**Longitude:**	1044153.9062
Bldg Length:	0	**Type Code:**	V
Bldg Width:	0	**UTM Horiz:**	526.227
Stack Height:	0	**UTM Vert:**	4285.516
NEI Em Rls Pt Typ:	2	**Vert Meas:**	1751.03
NEI Exit Gas Flow:	0.0	**UTM Zone:**	13.0
NEI Horiz Mc:	019	**X Coord:**	-104.69830727777779
NEI Ref Pt Code:	105	**Y Coord:**	38.717906
Emission Release Desc:	(3) UNDERGROUND GASOLINE TANKS		
Description:	Elevation source: 3DEP 1/3 arc-second		
Description Category:	PC		
Stack Type:	A STACK WITH AN UNOBSTRUCTED OPENING DISCHARGING IN A VERTICAL DIRECTION		

Stack Pollutant

Site ID:	1622	**Pk Co:**	
Stack ID:	001	**Pk Co Mc:**	Z
State Fips:	08	**Pk Co Re:**	
County Fip:	041	**Pk Co Re Mc:**	Z
Data Year:	2019	**Pk Co Re Units:**	PD
Inventory Year:	2023	**Pk Co Unc:**	
Inventory Year 2:	23	**Pk Co Units:**	PD
Pollutant Code:	VOC	**Pk O3:**	
Is Colorado Hap:	FALSE	**Pk O3 Mc:**	Z
Is Criteria:	TRUE	**Pk O3 Re:**	
Is Epcra Only:	FALSE	**Pk O3 Re Mc:**	Z
Is Hap:	FALSE	**Pk O3 Re Units:**	PD
Ozone Depleting:	FALSE	**Pk O3 Unc:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Estim:	4.338182	**Pk O3 Units:**	PD
Estim Mc:	Z	**Pot:**	
Estim Unc:	21.173964	**Pot Mc:**	
Estim Units:	TY	**Pot Unc:**	
Limit1:		**Pot Unc Mc:**	
Limit1 Mc:		**Pot Unc Units:**	
Limit1 Units:		**Pot Units:**	
Limit2:		**Re Estim:**	0.0
Limit2 Mc:		**Re Estim Mc:**	Z
Limit2 Units:		**Re Estim Units:**	TY
Pollutant Name:	VOLATILE ORGANIC COMPOUNDS		

16	4 of 6	E	0.02 / 81.34	5,744.85 / 91	6949 MESA RIDGE PARKWAY FOUNTAIN CO 80817	ERNS

NRC Report No:	1300134	**Latitude Degrees:**	
Type of Incident:	STORAGE TANK	**Latitude Minutes:**	
Incident Cause:	EQUIPMENT FAILURE	**Latitude Seconds:**	
Incident Date:	3/11/2021 20:40	**Longitude Degrees:**	
Incident Location:		**Longitude Minutes:**	
Incident Dtg:	OCCURRED	**Longitude Seconds:**	
Distance from City:		**Lat Quad:**	
Distance Units:		**Long Quad:**	
Direction from City:		**Location Section:**	
Location County:	EL PASO	**Location Township:**	
Potential Flag:	No	**Location Range:**	
Year:	Year 2021 Reports		

Description of Incident: CALLER REPORTED A RELEASE OF GASOLINE FROM A PORTABLE GAS CONTAINER WHILE IT WAS BEING FILLED AT A GAS STATION.

Material Spill Information

Chris Code:	GAS	**Unit of Measure:**	GALLON(S)
CAS No:	000000-00-0	**If Reached Water:**	NO
UN No:		**Amount in Water:**	
Name of Material:	GASOLINE: AUTOMOTIVE (UNLEADED)	**Unit Reach Water:**	
Amount of Material:	0.5		

Calls Information

Date Time Received:	11-Mar-2021 23:01:00	**Responsible City:**	COLORADO SPRINGS
Date Time Complete:	11-Mar-2021 23:11:00	**Responsible State:**	CO
Call Type:	INC	**Responsible Zip:**	80925
Resp Company:		**Source:**	TELEPHONE
Resp Org Type:	PRIVATE CITIZEN		

Incident Information

Tank ID:		**Building ID:**	
Tank Regulated:	U	**Location Area ID:**	
Tank Regulated By:		**Location Block ID:**	
Capacity of Tank:	3	**OCSG No:**	
Capacity Tank Units:	GALLON(S)	**OCSP No:**	
Description of Tank:	PLASTIC GAS CONTAINER	**State Lease No:**	
Actual Amount:	3	**Pier Dock No:**	
Actual Amount Units:	GALLON(S)	**Berth Slip No:**	
Tank Above Ground:	ABOVE	**Brake Failure:**	U
NPDES:		**Airbag Deployed:**	U
NPDES Compliance:	U	**Transport Contain:**	Y
Init Contin Rel No:		**Location Subdiv:**	
Contin Rel Permit:		**Platform Rig Name:**	
Contin Release Type:		**Platform Letter:**	
Aircraft ID:		**Allision:**	U
Aircraft Runway No:		**Type of Structure:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Aircraft Spot No:		**Structure Name:**	
Aircraft Type:		**Structure Oper:**	U
Aircraft Model:		**Transit Bus Flag:**	
Aircraft Fuel Cap:		**Date Time Norm Serv:**	
Aircraft Fuel Cap U:		**Serv Disrupt Time:**	
Aircraft Fuel on Brd:		**Serv Disrupt Units:**	
Aircraft Fuel OB U:		**CR Begin Date:**	
Aircraft Hanger:		**CR End Date:**	
Road Mile Marker:		**CR Change Date:**	
Power Gen Facility:	U	**FBI Contact:**	
Generating Capacity:		**FBI Contact Dt Tm:**	
Type of Fixed Obj:		**Passenger Handling:**	
Type of Fuel:		**Passenger Route:**	XXX
DOT Crossing No:		**Passenger Delay:**	XXX
DOT Regulated:	U	**Sub Part C Test Req:**	XXX
Pipeline Type:		**Conductor Test:**	
Pipeline Abv Ground:	ABOVE	**Engineer Test:**	
Pipeline Covered:	U	**Trainman Test:**	
Exposed Underwater:	N	**Yard Foreman Test:**	
Railroad Hotline:		**RCL Operator Test:**	
Railroad Milepost:		**Brakeman Test:**	
Grade Crossing:	U	**Train Dispat Test:**	
Crossing Device Ty:		**Signalman Test:**	
Ty Vehicle Involved:		**Oth Employee Test:**	
Device Operational:	U	**Unknown Test:**	

Incident Details Information

Release Secured:	Y	**State Agen Report No:**	
Release Rate:		**State Agen on Scene:**	
Release Rate Unit:		**State Agen Notified:**	
Release Rate Rate:		**Fed Agency Notified:**	
Est Duration of Rel:		**Oth Agency Notified:**	
Desc Remedial Act:	CALLER STATED ABSORBANTS WERE DEPLOYED AT THE INCIDENT LOCATION.	**Body of Water:**	
Fire Involved:	N	**Tributary of:**	
Fire Extinguished:	U	**Near River Mile Make:**	
Any Evacuations:	N	**Near River Mile Mark:**	
No Evacuated:		**Offshore:**	N
Who Evacuated:		**Weather Conditions:**	CLEAR
Radius of Evac:		**Air Temperature:**	
Any Injuries:	N	**Wind Direction:**	
No. Injured:		**Wind Speed:**	
No. Hospitalized:		**Wind Speed Unit:**	
No. Fatalities:		**Water Supp Contam:**	U
Any Fatalities:	N	**Water Temperature:**	
Any Damages:	N	**Wave Condition:**	
Damage Amount:		**Current Speed:**	
Air Corridor Closed:	N	**Current Direction:**	
Air Corridor Desc:		**Current Speed Unit:**	
Air Closure Time:		**EMPL Fatality:**	
Waterway Closed:	N	**Pass Fatality:**	
Waterway Desc:		**Community Impact:**	
Waterway Close Time:		**Passengers Transfer:**	NO
Road Closed:	N	**Passenger Injuries:**	
Road Desc:		**Employee Injuries:**	
Road Closure Time:		**Occupant Fatality:**	
Road Closure Units:		**Sheen Size:**	
Closure Direction:		**Sheen Size Units:**	
Major Artery:	No	**Sheen Size Length:**	
Track Closed:	N	**Sheen Size Length U:**	
Track Desc:		**Sheen Size Width:**	
Track Closure Time:		**Sheen Size Width U:**	
Track Closure Units:		**Sheen Color:**	
Track Close Dir:		**Dir of Sheen Travel:**	
Media Interest:	NONE	**Sheen Odor Desc:**	
Medium Desc:	LAND	**Duration Unit:**	
Addl Medium Info:	GAS STATION PROPERTY	**Additional Info:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
16	5 of 6	E	0.02 / 81.34	5,744.85 / 91	SAFEWAY INC. # 1975 6949 MESA RIDGE PKWY FOUNTAIN CO 808171543	AFS

Afs ID: 0804101622
Plant ID: 1044769
Epa Region: 08
Plant County: El Paso
State No: 08
Primary Sic Code: 5541
Secondary Sic Code:
Naics Code: 447190
Afs Gov Facility Des: PRIVATELY OWNED/OPERATED
Operating Status Def: Operating
Epa Classification Des: Potential uncontrolled emissions <100 tons/year
Epa Compliance Status: In Compliance With Procedural Requirements
State Compliance Status: In Compliance With Procedural Requirements

Fed Reportable: No
Current Hpv:
Loc Contrl Region:
Afs Gov Fac Code: 0
Operating Status: O
Epa Class Code: B
Epa Complian Stat: C
State Comp Status: C

Actions

Plant ID: 1044769
Anu1: 1
Date Achieved: 20080514
Penalty Amount: 0
Record Updated Dt: 20080604
Creation Date: 20080604
Key Action No:
Regional Data Element:
National Action Desc: NOTIFICATION RECEIVED
All Air Program Def: 0-SIP Source
Result Def:
Pollutant Def:
All Violating Poll Def:
All Violation Type Def:

National Actn Type: 2J
All Air Prog Codes: 0
Result Code:
Pollutant Code:
Violating Poll Cds:
Violation Type Cds:

Historical Compliance - Air Program Level

Air Program Code: 0
Air Program Code Ref: SIP Source
Historical Compliance Date: 0701, 0702, 0703, 0704, 0801, 0802, 0803, 0804, 0901, 0902, 0903, 0904, 1001, 1002, 1003, 1004, 1101, 1102, 1103, 1104, 1201, 1202, 1203, 1204, 1301, 1302, 1303, 1304, 1401, 1402, 1403
Historical Compliance Status: C
Historical Compliance Stat Ref: In Compliance With Procedural Requirements

Air Program

Plant ID: 1044769
Air Program Code: 0
Air Program Status: O
Pollutant Code: VOC
Chemical Abstract Service Nmbr:
Air Program Code Subparts:
Air Program Code Ref: SIP Source
Epa Classification Code Ref: Potential uncontrolled emissions <100 tons/year
Epa Compliance Status Ref: In Compliance With Procedural Requirements
Pollutant Code Ref:
Pollutant Classification Ref: Potential uncontrolled emissions <100 tons/year
Pollutant Complian Status Ref: In Compliance With Procedural Requirements

Poll Classificatn: B
Poll Compli Status: C
Epa Class Code: B
Epa Compli Status: C

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
16	6 of 6	E	0.02 / 81.34	5,744.85 / 91	6945 MESA RIDGE RETAIL 6945 MESA RIDGE PARKWAY FOUNTAIN CO 80817	FINDS/FRS

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Registry ID: 110071204685
FIPS Code: CO041
HUC Code: 11020003
Site Type Name: STATIONARY
Location Description:
Supplemental Location:
Create Date: 04-FEB-22
Update Date:
Interest Types: ICIS-NPDES NON-MAJOR
SIC Codes:
SIC Code Descriptions:
NAICS Codes:
NAICS Code Descriptions:
Conveyor: ICIS
Federal Facility Code:
Federal Agency Name:
Tribal Land Code:
Tribal Land Name:
Congressional Dist No: 05
Census Block Code: 080410045034036
EPA Region Code: 08
County Name: EL PASO
US/Mexico Border Ind:
Latitude: 38.716382
Longitude: -104.69823
Reference Point: CENTER OF A FACILITY OR STATION
Coord Collection Method: GPS - UNSPECIFIED
Accuracy Value:
Datum: NAD83
Source:
Facility Detail Rprt URL: https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110071204685
Data Source: Facility Registry Service - Single File
Program Acronyms:

NPDES:COR415048

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
17	1 of 15	W	0.02 / 83.39	5,640.70 / -14	SCOTT'S COMPANY - HYPONEX CORP #1023 3 ASSEMBLY CT FOUNTAIN CO 808170000	FINDS/FRS

Registry ID: 110001434742
FIPS Code: 08041
HUC Code: 11020003
Site Type Name: STATIONARY
Location Description:
Supplemental Location:
Create Date: 01-MAR-00
Update Date: 01-JUN-17
Interest Types: AIR MINOR, ICIS-NPDES NON-MAJOR, STORM WATER INDUSTRIAL
SIC Codes: 2875, 5261
SIC Code Descriptions: FERTILIZERS, MIXING ONLY, RETAIL NURSERIES, LAWN AND GARDEN SUPPLY STORES
NAICS Codes: 453998
NAICS Code Descriptions: ALL OTHER MISCELLANEOUS STORE RETAILERS (EXCEPT TOBACCO STORES).
Conveyor: FRS-GEOCODE
Federal Facility Code:
Federal Agency Name:
Tribal Land Code:
Tribal Land Name:
Congressional Dist No: 05
Census Block Code: 080410045083006
EPA Region Code: 08
County Name: EL PASO
US/Mexico Border Ind:
Latitude: 38.72019

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Longitude: -104.71858
Reference Point: CENTER OF A FACILITY OR STATION
Coord Collection Method: ADDRESS MATCHING-HOUSE NUMBER
Accuracy Value: 30
Datum: NAD83
Source:
Facility Detail Rprt URL: https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110001434742
Data Source: Facility Registry Service - Single File
Program Acronyms:

AIR:CO0000000804100326, AIRS/AFS:0804100326, EIS:4258411, NPDES:CONOX0736, NPDES:CONOX0737, NPDES:CONOX0738, NPDES:COR900688

17	2 of 15	W	0.02 / 83.39	5,640.70 / -14	**SCOTT COMPANY** **3 ASSEMBLY CT** **FOUNTAIN CO 808170000**	FINDS/FRS

Registry ID: 110010684232
FIPS Code: 08041
HUC Code: 11020003
Site Type Name: STATIONARY
Location Description:
Supplemental Location:
Create Date: 01-MAR-00
Update Date: 05-MAR-13
Interest Types: BROWNFIELDS PROPERTY, ENFORCEMENT/COMPLIANCE ACTIVITY, FORMAL ENFORCEMENT ACTION
SIC Codes:
SIC Code Descriptions:
NAICS Codes:
NAICS Code Descriptions:
Conveyor: FRS-GEOCODE
Federal Facility Code:
Federal Agency Name:
Tribal Land Code:
Tribal Land Name:
Congressional Dist No: 05
Census Block Code: 080410045083006
EPA Region Code: 08
County Name: EL PASO
US/Mexico Border Ind:
Latitude: 38.72019
Longitude: -104.71858
Reference Point: CENTER OF A FACILITY OR STATION
Coord Collection Method: ADDRESS MATCHING-HOUSE NUMBER
Accuracy Value: 30
Datum: NAD83
Source:
Facility Detail Rprt URL: https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110010684232
Data Source: Facility Registry Service - Single File
Program Acronyms:

ACRES:251466, ICIS:15347

17	3 of 15	W	0.02 / 83.39	5,640.70 / -14	**The Scotts Company (Hyponex Corp)** **3 Assembly Ct Fountain 80817** **CO**	AST

Facility ID: 10116
FacName (OPS): The Scotts Company (Hyponex Corp)
FacType (OPS): Non-Retail
Fac Category (OPS): Commercial/Industrial
Lat/Long (OPS): 38.719724, -104.717878
Address (OPS): 3 Assembly Ct
Fac Name (CDLE): The Scotts Company (Hyponex Corp)
Address (CDLE): 3 Assembly Ct
City (CDLE): Fountain
Zip (CDLE): 80817
County (CDLE): El Paso
State (CDLE):

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

City (OPS):	Fountain	**Latitude (CDLE):**	38.719724
County (OPS):	El Paso	**Longitude (CDLE):**	-104.717878
Fac Name (COSTIS):	The Scotts Company (Hyponex Corp)	**County (COSTIS):**	El Paso
Fac Type (CDLE):	Non-Retail	**Zip Code (OPS):**	80817
FacCategry(CDLE):	Commercial/Industrial	**State (OPS):**	CO
Address (COSTIS):	3 Assembly Ct Fountain 80817		
Data Source(s):	Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks		

Facility Information (CDLE)

Count of Tank Tag:	1	**Accnt Holdr Name:**	Hyponex Corp Aka The Scotts Company LLC
No. Dispensers:	0	**Type:**	Non-Retail
Owner ID:	OWNR-2878		

Owner Information (CDLE)

Contact Name:	Hyponex Corp Aka The Scotts Company LLC	**Last Name:**	Hyponex Corp Aka The Scotts Company LLC
First Name:		**Company Name:**	Hyponex Corp Aka The Scotts Company LLC
Middle Init:			
Address:	3 Assembly Ct, Fountain, CO 80817		
Comment:	Hyponex Corp is a wholly owned company of The Scotts Company LLC. Plant Mgr: Dave Rowell; Billing: Carol Haddix		

AST Tanks (COSTIS) (As of October 2021)

Tank ID:	43003	**Owner ID:**	2878
Tank Tag:	'10116-4	**Tank Owner:**	
Tank Type Desc:	AST	**County:**	El Paso
Tank Count:	46668	**Product Name:**	Diesel
Capacity:	2000		
Facility Owner:	Hyponex Corp Aka The Scotts Company LLC		
Facility Name Address:	The Scotts Company (Hyponex Corp) 3 Assembly Ct Fountain 80817		

AST Tanks 1 (CDLE)

Tank Tag:	10116-4	**Tank Wall Type:**	
Tank Type:	AST	**Piping System:**	
Tank Status:	Currently In Use	**Piping Type:**	AG: Aboveground
Capacity:	2000	**Piping Wall Type:**	Double-Walled
Install Date:	12/20/2011	**Tank Material:**	AST: UL2085/Equiv. (Protected)
Date Closed:		**Piping Material:**	AG: Aboveground Lines
Product Type/Name:	Diesel	**Overfill Preven:**	FV: Fill Tube Valve

AST Tanks 2 (CDLE)

Closure Meth ID:		**No Fee:**	No
Unregulated:	FALSE	**Pipe Reldet Date:**	
Last Used Date:		**Backfill Mat Desc:**	
Del Prohib Date:		**Bfill DrtCvr Amt:**	0
Spill Protected:		**Manifold:**	No
Spl Container Size:	7	**Tm Name:**	
Spl Protection Dt:		**Registration Date:**	4/13/2012
Spl Container Mfg:	Pomeco	**Compartment:**	FALSE
Spl Container Mdel:	800C	**Cpmet:**	Yes
Tank Reld Meth1 ID:	Double Wall Tank	**Invault:**	FALSE
Tank Lining Date:		**Serial No:**	28203-horizontal
CP Test Date:			
Anch Method Desc:			
Pipe Reld Meth1 ID:	T11/L11: Mthly Visual Insp (AST)		

AST Tanks 1 (CDLE)

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Tank Tag: 10116-3
Tank Type: AST
Tank Status: Not Regulated
Capacity: 500
Install Date:
Date Closed:
Product Type/Name: Unleaded Regular (RUL)

Tank Wall Type:
Piping System:
Piping Type:
Piping Wall Type:
Tank Material:
Piping Material:
Overfill Preven:

AST Tanks 2 (CDLE)

Closure Meth ID:
Unregulated: TRUE
Last Used Date:
Del Prohib Date:
Spill Protected:
Spl Container Size: 0
Spl Protection Dt:
Spl Container Mfg:
Spl Container Mdel:
Tank Reld Meth1 ID:
Tank Lining Date:
CP Test Date:
Anch Method Desc:
Pipe Reld Meth1 ID:

No Fee: Yes
Pipe Reldet Date:
Backfill Mat Desc:
Bfill DrtCvr Amt: 0
Manifold: No
Tm Name:
Registration Date:
Compartment: FALSE
Cpmet: No
Invault: FALSE
Serial No:

Oil & Public Safety Regulated Storage Tank Details

No of Tanks: 1

Oil & Public Safety Regulated Storage Tanks (COSTIS)

Tank Tag: 10116-4
Tank Status: Currently In Use
Tank Type: AST
Tank Name: TNK-038276
Installation Date: 12/20/2011
Closure Date:
Tank Material: AST: UL2085/Equiv. (Protected)
Tank Wall Type:
Facility Name: The Scotts Company (Hyponex Corp)
Facility Type: Non-Retail
Facility Category: Commercial/Industrial
Overfill Preven: FV: Fill Tube Valve
Tank Corsn Protection Meth: No Electrolyte Contact
Tank Rel Detn Mthd Primary: T11/L11: Mthly Visual Insp (AST)
Tank Rel Detn Mthd Secondary: T2: Inter Mntrg w/ Sensor
Piping Corsn Protection (PCP): Aboveground Line (n/a)
PCP at Tank: Aboveground Line (n/a)
PCP at Dispenser: Aboveground Line (n/a)
Piping Rel Detn Mthd Primary: T11/L11: Mthly Visual Insp (AST)
Piping Rel Detn Mthd Secondary:

Leak Detector Type:
Capacity Gallons : 2000
Product: Diesel
Piping Type: AG: Aboveground
Piping System:
Piping Material: AG: Aboveground Lines
Piping Wall Type: Double-Walled
Address: 3 Assembly Ct
City: Fountain
County: El Paso
ZIP Code: 80817

AST Owner (COSTIS) (As of October 2021)

Owner ID: 2878
First Name:
Middle Init:
Last Name: Hyponex Corp Aka The Scotts Company LLC
Full Name:

Address1: 3 Assembly Ct
City: Fountain
State: CO
County: El Paso
Zip Code: 80817

Facility Contact Details (CDLE)

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Contact ID:	0033h00000lL0jy	**Role:**	A/B Operator
Costis ID:	ABOP-10116-438	**Fac Contact Name:**	FCON-013352
Active:	FALSE	**Contact Last Name:**	Hayhurst
Contact ID:	0033h00000lL0T0	**Role:**	Facility Owner
Costis ID:	FACOWN-10116-43574-May 25 1986 12: 00AM	**Fac Contact Name:**	FCON-013680
Active:	TRUE	**Contact Last Name:**	Hyponex Corp Aka The Scotts Company LLC

17	4 of 15	W	0.02 / 83.39	5,640.70 / -14	**The Scotts Company (Hyponex Corp)** **3 Assembly Ct Fountain 80817 CO**	UST

Facility ID:	10116	**Fac Name (COSTIS):**	The Scotts Company (Hyponex Corp)
FacilityName(OPS):	The Scotts Company (Hyponex Corp)	**Address (COSTIS):**	3 Assembly Ct Fountain 80817
FacilityType(OPS):	Non-Retail	**County (COSTIS):**	El Paso
Fac Category (OPS):	Commercial/Industrial	**Latitude (CDLE):**	38.719724
Address (OPS):	3 Assembly Ct	**Longitude (CDLE):**	-104.717878
City (OPS):	Fountain	**Fac Type (CDLE):**	Non-Retail
Zip Code (OPS):	80817	**FacCategry(CDLE):**	Commercial/Industrial
County (OPS):	El Paso	**State (OPS):**	CO
LatLong (OPS):	38.719724, -104.717878	**City (CDLE):**	Fountain
FacName (CDLE):	The Scotts Company (Hyponex Corp)	**Zip (CDLE):**	80817
Address (CDLE):	3 Assembly Ct	**County (CDLE):**	El Paso
State (CDLE):			

Data Source(s): Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks

Facility Information (CDLE)

Count of Tank Tag:	1	**Accnt Holdr Name:**	Hyponex Corp Aka The Scotts Company LLC
No. Dispensers:	0	**Type:**	Non-Retail
Owner ID:	OWNR-2878		

Owner Information (CDLE)

Contact Name:	Hyponex Corp Aka The Scotts Company LLC	**Middle Init:**	
First Name:			
Company Name:	Hyponex Corp Aka The Scotts Company LLC		
Last Name:	Hyponex Corp Aka The Scotts Company LLC		
Address:	3 Assembly Ct, Fountain, CO 80817		
Comment:	Hyponex Corp is a wholly owned company of The Scotts Company LLC. Plant Mgr: Dave Rowell; Billing: Carol Haddix		

UST Tanks (COSTIS) (As of October 2021)

Tank ID:	27225	**Owner ID:**	2878
Tank Tag:	'10116-2	**Tank Owner:**	
Tank Type Desc:	UST	**County:**	El Paso
Tank Count:	46668	**Product Name:**	Gasoline
Capacity:	2000		
Facility Owner:	Hyponex Corp Aka The Scotts Company LLC		
Facility Name Address:	The Scotts Company (Hyponex Corp) 3 Assembly Ct Fountain 80817		

Tank ID:	27224	**Owner ID:**	2878
Tank Tag:	'10116-1	**Tank Owner:**	
Tank Type Desc:	UST	**County:**	El Paso
Tank Count:	46668	**Product Name:**	Diesel
Capacity:	10000		
Facility Owner:	Hyponex Corp Aka The Scotts Company LLC		
Facility Name Address:	The Scotts Company (Hyponex Corp) 3 Assembly Ct Fountain 80817		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

UST Tanks 1 (CDLE)

Tank Tag:	10116-2	***Overfill Preven:***	FV: Fill Tube Valve
Tank Type:	UST	***Product Type/Name:***	Gasoline
Tank Status:	Permanently Closed	***Piping Wall Type:***	None
Capacity:	2000	***Tank Wall Type:***	
Install Date:	5/23/1985	***Piping System:***	
Date Closed:	9/8/1999	***Piping Type:***	Other
Tank Material:	ST: Cathodically Protected Steel		
Piping Material:	Galvanized Steel		

UST Tanks 2 (CDLE)

Closure Meth ID:	Removed	***No Fee:***	No
Unregulated:	FALSE	***Anch Method Desc:***	
Last Used Date:		***Pipe Reld Meth1 ID:***	
Del Prohib Date:		***Pipe Reldet Date:***	
Spill Protected:		***Backfill Mat Desc:***	
Spl Container Size:	0	***Bfill DrtCvr Amt:***	0
Spl Protection Dt:		***Manifold:***	No
Spl Container Mfg:		***Registration Date:***	
Spl Container Mdel:		***Compartment:***	FALSE
Tank Reld Meth1 ID:		***Cpmet:***	Yes
Tank Lining Date:		***Invault:***	FALSE
CP Test Date:			

UST Tanks 1 (CDLE)

Tank Tag:	10116-1	***Overfill Preven:***	FV: Fill Tube Valve
Tank Type:	UST	***Product Type/Name:***	Diesel
Tank Status:	Permanently Closed	***Piping Wall Type:***	None
Capacity:	10000	***Tank Wall Type:***	
Install Date:	5/23/1985	***Piping System:***	
Date Closed:	9/29/2011	***Piping Type:***	UG: Underground
Tank Material:	ST: Cathodically Protected Steel		
Piping Material:	FRP: Fiberglass Reinforced Plastic		

UST Tanks 2 (CDLE)

Closure Meth ID:	Removed	***No Fee:***	No
Unregulated:	FALSE	***Anch Method Desc:***	
Last Used Date:		***Pipe Reld Meth1 ID:***	L5: Annual Tightness Testing
Del Prohib Date:		***Pipe Reldet Date:***	
Spill Protected:		***Backfill Mat Desc:***	
Spl Container Size:	5	***Bfill DrtCvr Amt:***	0
Spl Protection Dt:		***Manifold:***	No
Spl Container Mfg:	OPW	***Registration Date:***	
Spl Container Mdel:	NO 1	***Compartment:***	FALSE
Tank Reld Meth1 ID:		***Cpmet:***	Yes
Tank Lining Date:		***Invault:***	FALSE
CP Test Date:	5/23/1985		

Oil & Public Safety Regulated Storage Tanks (COSTIS)

Tank Tag:	10116-2	***Leak Detector Type:***	
Tank Status:	Permanently Closed	***Capacity Gallons :***	2000
Tank Type:	UST	***Product:***	Gasoline
Tank Name:	TNK-038274	***Piping Type:***	Other
Installation Date:	5/23/1985	***Piping System:***	
Closure Date:	9/8/1999	***Piping Material:***	Galvanized Steel
Tank Material:	ST: Cathodically Protected Steel	***Piping Wall Type:***	None
Tank Wall Type:		***Address:***	3 Assembly Ct
Facility Name:	The Scotts Company (Hyponex Corp)	***City:***	Fountain
Facility Type:	Non-Retail	***County:***	El Paso

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Facility Category: Commercial/Industrial
ZIP Code: 80817
Overfill Preven: FV: Fill Tube Valve
Tank Corsn Protection Meth:
Tank Rel Detn Mthd Primary:
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP):
PCP at Tank:
PCP at Dispenser:
Piping Rel Detn Mthd Primary:
Piping Rel Detn Mthd Secondary:

Tank Tag: 10116-1
Tank Status: Permanently Closed
Tank Type: UST
Tank Name: TNK-038273
Installation Date: 5/23/1985
Closure Date: 9/29/2011
Tank Material: ST: Cathodically Protected Steel
Tank Wall Type:
Facility Name: The Scotts Company (Hyponex Corp)
Facility Type: Non-Retail
Facility Category: Commercial/Industrial
Overfill Preven: FV: Fill Tube Valve
Tank Corsn Protection Meth: STI-P3
Tank Rel Detn Mthd Primary: T1: ATG .2/.1gph Mthly Mntrg
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP): Non-metallic
PCP at Tank: No Electrolyte Contact (n/a)
PCP at Dispenser: No Electrolyte Contact (n/a)
Piping Rel Detn Mthd Primary: L5: Annual Tightness Testing
Piping Rel Detn Mthd Secondary:
Leak Detector Type: M: Mechanical
Capacity Gallons : 10000
Product: Diesel
Piping Type: UG: Underground
Piping System:
Piping Material: FRP: Fiberglass Reinforced Plastic
Piping Wall Type: None
Address: 3 Assembly Ct
City: Fountain
County: El Paso
ZIP Code: 80817

UST Owner (COSTIS) (As of October 2021)

Owner ID: 2878
First Name:
Middle Init:
Last Name: Hyponex Corp Aka The Scotts Company LLC
Full Name:
Address1: 3 Assembly Ct
City: Fountain
State: CO
County: El Paso
Zip Code: 80817

Oil & Public Safety Regulated Storage Tank Details

No of Tanks: 1

Facility Contact Details (CDLE)

Contact ID: 0033h00000lL0jy
Costis ID: ABOP-10116-438
Active: FALSE
Role: A/B Operator
Fac Contact Name: FCON-013352
Contact Last Name: Hayhurst

Contact ID: 0033h00000lL0T0
Costis ID: FACOWN-10116-43574-May 25 1986 12:00AM
Active: TRUE
Role: Facility Owner
Fac Contact Name: FCON-013680
Contact Last Name: Hyponex Corp Aka The Scotts Company LLC

17	5 of 15	W	0.02 / 83.39	5,640.70 / -14	The Scotts Company (Hyponex Corp) 3 Assembly Ct Fountain 80817 CO	LST

Facility ID: 10116
Event ID:
Facility Name(OPS): The Scotts Company (Hyponex Corp)
Fac Name(CDLE): The Scotts Company (Hyponex Corp)
Address(CDLE): 3 Assembly Ct
Fac Type(CDLE): Non-Retail

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Facility Type(OPS):	Non-Retail	**Fac Category(CDLE):**	Commercial/Industrial
Fac Category(OPS):	Commercial/Industrial	**City(CDLE):**	Fountain
Address(OPS):	3 Assembly Ct	**Zip(CDLE):**	80817
City(OPS):	Fountain	**County(CDLE):**	El Paso
Zip Code(OPS):	80817	**State(CDLE):**	
County(OPS):	El Paso	**Latitude(CDLE):**	38.719724
State(OPS):	CO	**Longitude(CDLE):**	-104.717878
Lat Long(OPS):	38.719724, -104.717878		
Fac Name(COSTIS):	The Scotts Company (Hyponex Corp)		
Address (COSTIS):	3 Assembly Ct Fountain 80817		
County (COSTIS):	El Paso		
Original Source:	Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks; OPS Petroleum Release Events in Colorado - Petroleum Release Events		
Owner ID:	2878		
Owner Name:			

Events (CDLE)

Event ID:	11634	**Proj. Closure Date:**	
Alt Event ID:		**Category:**	
Status:	Closed	**Sardonyx ID:**	
UST Tank Count:	2	**MTBE Classifica:**	
AST Tank Count:	2	**Sum of Reimbur Amt:**	
Source of Release:		**Reviewer Full Name:**	Tim Kelley
Cause of Release:		**Logged On:**	4/16/2012
Confirm Rel Dt:	4/16/2012	**Logged By:**	
Site Name:	The Scotts Company (Hyponex Corp)		
Loc Addr:			
Loc Addr2:			
Loc Addr3:			
Aka Name:			
Aka Loc Addr:			

Events (CDLE)

Event ID:	3541	**Proj. Closure Date:**	
Alt Event ID:	7242-1	**Category:**	
Status:	Closed	**Sardonyx ID:**	
UST Tank Count:	2	**MTBE Classifica:**	
AST Tank Count:	2	**Sum of Reimbur Amt:**	
Source of Release:		**Reviewer Full Name:**	Dennis Hotovec
Cause of Release:		**Logged On:**	3/23/1990
Confirm Rel Dt:		**Logged By:**	
Site Name:	The Scotts Company (Hyponex Corp)		
Loc Addr:			
Loc Addr2:			
Loc Addr3:			
Aka Name:			
Aka Loc Addr:			

Facility (CDLE)

Owner Costis ID:	OWNR-2878	**Type:**	Non-Retail
No of Active Tanks:	1	**Facility Owner:**	Hyponex Corp Aka The Scotts Company LLC
No of Metred Prod:	0		

Events (COSTIS) (As of October 2021)

Event ID:	11634	**Log Date:**	4/16/2012 1:46:27 PM
Process Status Name:	Closed		
Site Name:	The Scotts Company (hyponex Corp)		
Facility Name:	The Scotts Company (Hyponex Corp)		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Address: 3 Assembly Ct Fountain CO 80817
Loc Address: 3 Assembly Ct
Fountain 80817
Loc City: Fountain
Loc County: El Paso

Events (COSTIS) (As of October 2021)

Event ID: 3541
Log Date: 3/23/1990
Process Status Name: Closed
Site Name: Hyponex Corp
Facility Name: The Scotts Company (Hyponex Corp)
Address: 3 Assembly Ct Fountain CO 80817
Loc Address: 3 Assembly Ct
Fountain 80817
Loc City: Fountain
Loc County: El Paso

OPS Regulated Storage Tanks

No of Tanks: 1

OPS Petroleum Release Events in Colorado - Petroleum Release Events

Event ID: 3541
Release No: REL-006836
Status: Closed
Release Date:
Closure Date: 10/19/1999
NFA Type: Pre-RBCA
Release Cause:
Reimbursement Total:
Contact: Dennis Hotovec
Release Source:
Phone: (303) 318-4357
City: Fountain
Zip: 80817
State: CO
County: El Paso
Latitude: 38.719724
Longitude: -104.717878
Latitude Longitude: 38.719724, -104.717878
Site Name: The Scotts Company (Hyponex Corp)
Address: 3 Assembly Ct
Email: cdle_ops_public_record_center@state.co.us
Link : https://socgov18.force.com/s/release/a183h000003KX2E

OPS Petroleum Release Events in Colorado - Petroleum Release Events

Event ID: 11634
Release No: REL-011630
Status: Closed
Release Date: 4/16/2012
Closure Date: 5/1/2012
NFA Type: Tier I
Release Cause:
Reimbursement Total:
Contact: Tim Kelley
Release Source:
Phone: (303) 318-4357
City: Fountain
Zip: 80817
State: CO
County: El Paso
Latitude: 38.719724
Longitude: -104.717878
Latitude Longitude: 38.719724, -104.717878
Site Name: The Scotts Company (Hyponex Corp)
Address: 3 Assembly Ct
Email: cdle_ops_public_record_center@state.co.us
Link : https://socgov18.force.com/s/release/a183h000003KYHY

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EPA Region:
Registry ID: 110010684232
Pgm Sys ID: 15347
Pgm Sys Acrnm: ICIS
Permit Type:
Federal Fac ID:
Tribal Land Code:
County: EL PASO
Latitude 83: 38.720189999999995
Longitude 83: -104.71858

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Details

Interest Type:	ENFORCEMENT/COMPLIANCE ACTIVITY	***Public Ind:***	Y
Active Status:		***FIPS Code:***	08041
Accuracy Value:	30	***HUC 8 Code:***	11020003
Pgm Report URL:	no data yet	***HUC 12:***	
Federal Agency Name:			
Federal Land Ind:			
Fed Facility Code:			
Ref Point Desc:	CENTER OF A FACILITY OR STATION		
Collect Mth Desc:	ADDRESS MATCHING-HOUSE NUMBER		
Fac URL:	https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110010684232		
Program URL:			

Details

Interest Type:	FORMAL ENFORCEMENT ACTION	***Public Ind:***	Y
Active Status:		***FIPS Code:***	08041
Accuracy Value:	30	***HUC 8 Code:***	11020003
Pgm Report URL:	no data yet	***HUC 12:***	
Federal Agency Name:			
Federal Land Ind:			
Fed Facility Code:			
Ref Point Desc:	CENTER OF A FACILITY OR STATION		
Collect Mth Desc:	ADDRESS MATCHING-HOUSE NUMBER		
Fac URL:	https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110010684232		
Program URL:			

17	***7 of 15***	***W***	***0.02 / 83.39***	***5,640.70 / -14***	***HYPONEX CO 3 ASSEMBLY CT FOUNTAIN CO 808172710***	***ICIS***

EPA Region:	08	***Federal Fac ID:***	
Registry ID:	110001434742	***Tribal Land Code:***	
Pgm Sys ID:	CO0000000804100326	***County:***	El Paso
Pgm Sys Acrnm:	AIR	***Latitude 83:***	38.72019
Permit Type:		***Longitude 83:***	-104.71858

17	***8 of 15***	***W***	***0.02 / 83.39***	***5,640.70 / -14***	***HYPONEX CORP 3 ASSEMBLY CT FOUNTAIN CO 80817***	***ICIS***

EPA Region:	08	***Federal Fac ID:***	
Registry ID:	110001434742	***Tribal Land Code:***	
Pgm Sys ID:	COR900688	***County:***	El Paso
Pgm Sys Acrnm:	NPDES	***Latitude 83:***	38.725
Permit Type:	General Permit Covered Facility	***Longitude 83:***	-104.716666

17	***9 of 15***	***W***	***0.02 / 83.39***	***5,640.70 / -14***	***Hyponex Corp 3 Assembly Ct Fountain CO 80817***	***PDES***

Permit ID:	COR900688	***SW Constr Activity:***	
Permit Status:	Admin continued	***SW Constr End Date:***	
Permit Sector:	Commerce and industry	***Permit SIC 1:***	2875
Previous Permit ID:	COR020434	***Permit SIC 2:***	
Regulation ID:	32	***Permit SIC 3:***	
Facility Name:	Hyponex Corp	***Permit SIC 4:***	
Facility Address:	3 Assembly Ct	***Permittee:***	Hyponex Corp a Subs of Scotts Co
Facility Address 2:		***Former Permittee:***	
Facility City:	Fountain	***Activity Desc:***	This site handles composted manures, soils, composted and screened yard waste, and composted bark.

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Facility State:	CO	**Issue Date:**	5/31/2012
Facility ZIP:	80817	**Effective Date:**	7/1/2012
Facility County:	El Paso	**Expiration Date:**	6/30/2017
Facility Latitude:	38.725	**Permit Sector1:**	
Facility Longitude:	-104.716666	**Permit Sector2:**	
Facility SIC Code:	2875	**Use category:**	
Facility Type:		**Termination Date:**	
Water Category:		**Issuing Org Type:**	ST6
Immediate Water:	Fountain Creek	**App Received Date:**	5/29/2018
Receiving Water:	Arkansas River	**Ct Status Start Date:**	
Stream Segment:	COARFO02a	**Ct Status End Date:**	
Fee Category:	V-E	**Ct Status Reason:**	
Add Fee Category 1:		**Workplan Year:**	
Add Fee Category 2:		**UDF3:**	
Add Fee Category 3:			
General Permit Tye:	COR900000-Industrial stormwater		
Compliance Tracking Status:	Y		
SW Constr Start Date:			
Reuse Treater:			
Facility Class First:			
Facility Description:			
Fac Horizontal Coll. Method:			
Facility ICIS Ownership Type:			
Associated Pot W:			
SW Constr Total Acres:			
Reuse Treater ID:			
SW Constr Disturb Acres:			
Facility Class Second:			
Facility Reference Point:			
Major Minor:	Minor		
Major River Basin:	Arkansas basin		
Total App on Average Flow No:			
Total App Design Flow No:			
Apprvd for Eltrnc Sub:	Yes		

Facility Contact

Facility Contact Org:	Hyponex Corp a Subs of Scotts Co
Facility Contact First Name:	Keith
Facility Contact Last Name:	Lee
Facility Contact Title:	Production Sup
Facility Contact Address:	3 Assembly Ct
Facility Contact City:	Fountain
Facility Contact State:	CO
Facility Contact ZIP code:	80817
Facility Contact Phone:	719-390-5431
Facility Contact Email:	keith.lee@scotts.com

Billing

Billing Organization:	Hyponex Corp a Subs of Scotts Co
Billing First Name:	Gerald
Billing Last Name:	Struttmann
Billing Title:	Plant Mgr
Billing Address:	3 Assembly Ct
Billing City:	Fountain
Billing State:	CO
Billing ZIP Code:	80817
Billing Phone:	719-390-5431
Billing Email:	gerald.struttmann@scotts.com
Billing Country:	USA

DMR

DMR Org:	The Scotts Co

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

DMR First Name:	Gustavo
DMR Last Name:	Lemus
DMR Title:	Reg EHS Mgr
DMR Address:	23390 E Flood Road
DMR City:	Linden
DMR State:	CA
DMR ZIP Code:	95236
DMR Phone:	916-549-9450
DMR Email:	gustavo.lemus@scotts.com
Dmr Country:	USA

Environmental

Environmental Org:	Hyponex Corp a Subs of Scotts Co
Environmental First Name:	Bryan
Environmental Last Name:	Allen
Environmental Title:	Reg EHS Mgr
Environmental Address:	824 Cambridge Bend
Environmental City:	Tyler
Environmental State:	TX
Environmental ZIP Code:	75703
Environmental Phone:	903-651-6064
Environmental Email:	bryan.allen@scotts.com

Legal

Legal First Name:	Gerald
Legal Last Name:	Struttmann
Legal Title:	Plant Mgr
Legal Address:	3 Assembly Ct
Legal City:	Fountain
Legal State:	CO
Legal ZIP Code:	80817
Legal Phone:	719-390-5431
Legal Email:	gerald.struttmann@scotts.com
Legal Country:	USA

OUT

Out 5 long:	
Out 4 lat:	
Out 6 long:	
Out 6 lat:	
Out 7 long:	
Out 7 lat:	
Out 8 long:	
Out 8 lat:	
Out 9 long:	
Out 9 lat:	
Out 1 long:	-104.716666
Out 10 long:	
Out 10 lat:	
Out 11 long:	
Out 11 lat:	
Out 12 long:	
Out 12 lat:	
Out 1 lat:	38.725
Out 2 long:	
Out 2 lat:	
Out 3 long:	
Out 3 lat:	
Out 4 long:	
Out 5 lat:	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
17	10 of 15	W	0.02 / 83.39	5,640.70 / -14	Hyponex Corp 3 Assembly Ct Fountain CO 80817	PDES

Permit ID: CONOX0736
Permit Status: Effective
Permit Sector: Commerce and Industry
Previous Permit ID:
Regulation ID:
Facility Name: Hyponex Corp
Facility Address: 3 Assembly Ct
Facility Address 2:
Facility City: Fountain
Facility State: CO
Facility ZIP: 80817
Facility County: El Paso
Facility Latitude: 38.725
Facility Longitude: -104.716666
Facility SIC Code: 1375
Facility Type:
Water Category:
Immediate Water:
Receiving Water:
Stream Segment:
Fee Category: 00-00
Add Fee Category 1:
Add Fee Category 2:
Add Fee Category 3:
General Permit Tye: CONOX000 -No Exposure Exclusion
Compliance Tracking Status:
SW Constr Start Date:
Reuse Treater:
Facility Class First:
Facility Description:
Fac Horizontal Coll. Method:
Facility ICIS Ownership Type:
Associated Pot W:
SW Constr Total Acres:
Reuse Treater ID:
SW Constr Disturb Acres:
Facility Class Second:
Facility Reference Point:
Major Minor:
Major River Basin:
Total App on Average Flow No:
Total App Design Flow No:
Apprvd for Eltrnc Sub:

SW Constr Activity:
SW Constr End Date:
Permit SIC 1:
Permit SIC 2:
Permit SIC 3:
Permit SIC 4:
Permittee: Hyponex Corp a Subs of Scotts Co
Former Permittee:
Activity Desc: Parcel E 625000006 processes soil products for distribution to retail distributors.
Issue Date: 2/10/2021
Effective Date: 2/11/2021
Expiration Date: 2/10/2026
Permit Sector1:
Permit Sector2:
Use category:
Termination Date:
Issuing Org Type:
App Received Date: 10/1/2020
Ct Status Start Date:
Ct Status End Date:
Ct Status Reason:
Workplan Year:
UDF3:

Facility Contact

Facility Contact Org: Hyponex Corp a Subs of Scotts Co
Facility Contact First Name: Brian
Facility Contact Last Name: Maisch
Facility Contact Title: Plant Mgr
Facility Contact Address: 3 Assembly Ct
Facility Contact City: Fountain
Facility Contact State: CO
Facility Contact ZIP code: 80817
Facility Contact Phone: 7193905431
Facility Contact Email: brian.maisch@scotts.com

Legal

Legal First Name: Brian
Legal Last Name: Maisch
Legal Title: Plant Mgr

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Legal Address: 3 Assembly Ct
Legal City: Fountain
Legal State: CO
Legal ZIP Code: 80817
Legal Phone: 719-390-5431
Legal Email: brian.maisch@scotts.com
Legal Country: USA

17	11 of 15	W	0.02 / 83.39	5,640.70 / -14	Hyponex Corp 3 Assembly Ct Fountain CO 80817	PDES

Permit ID: CONOX0738
Permit Status: Effective
Permit Sector: Commerce and Industry
Previous Permit ID:
Regulation ID:
Facility Name: Hyponex Corp
Facility Address: 3 Assembly Ct
Facility Address 2:
Facility City: Fountain
Facility State: CO
Facility ZIP: 80817
Facility County: El Paso
Facility Latitude: 38.725
Facility Longitude: -104.716666
Facility SIC Code: 1377
Facility Type:
Water Category:
Immediate Water:
Receiving Water:
Stream Segment:
Fee Category: 00-00
Add Fee Category 1:
Add Fee Category 2:
Add Fee Category 3:
General Permit Tye: CONOX000 -No Exposure Exclusion
Compliance Tracking Status:
SW Constr Start Date:
Reuse Treater:
Facility Class First:
Facility Description:
Fac Horizontal Coll. Method:
Facility ICIS Ownership Type:
Associated Pot W:
SW Constr Total Acres:
Reuse Treater ID:
SW Constr Disturb Acres:
Facility Class Second:
Facility Reference Point:
Major Minor:
Major River Basin:
Total App on Average Flow No:
Total App Design Flow No:
Apprvd for Eltrnc Sub:

SW Constr Activity:
SW Constr End Date:
Permit SIC 1:
Permit SIC 2:
Permit SIC 3:
Permit SIC 4:
Permittee: Hyponex Corp a Subs of Scotts Co
Former Permittee:
Activity Desc: Lab production and monitoring services for BSL 1 sterility assurance biological indicators
Issue Date: 2/10/2021
Effective Date: 2/11/2021
Expiration Date: 2/10/2026
Permit Sector1:
Permit Sector2:
Use category:
Termination Date:
Issuing Org Type:
App Received Date: 10/1/2020
Ct Status Start Date:
Ct Status End Date:
Ct Status Reason:
Workplan Year:
UDF3:

Facility Contact

Facility Contact Org: Hyponex Corp a Subs of Scotts Co
Facility Contact First Name: Brian
Facility Contact Last Name: Maisch
Facility Contact Title: Plant Mgr
Facility Contact Address: 3 Assembly Ct
Facility Contact City: Fountain
Facility Contact State: CO
Facility Contact ZIP code: 80817

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Facility Contact Phone: 7193905431
Facility Contact Email: brian.maisch@scotts.com

Legal

Legal First Name: Brian
Legal Last Name: Maisch
Legal Title: Plant Mgr
Legal Address: 3 Assembly Ct
Legal City: Fountain
Legal State: CO
Legal ZIP Code: 80817
Legal Phone: 719-390-5431
Legal Email: brian.maisch@scotts.com
Legal Country: USA

17	12 of 15	W	0.02 / 83.39	5,640.70 / -14	Hyponex Corp 3 Assembly Ct Fountain CO 80817	PDES

Permit ID: CONOX0737
Permit Status: Effective
Permit Sector: Commerce and Industry
Previous Permit ID:
Regulation ID:
Facility Name: Hyponex Corp
Facility Address: 3 Assembly Ct
Facility Address 2:
Facility City: Fountain
Facility State: CO
Facility ZIP: 80817
Facility County: El Paso
Facility Latitude: 38.725
Facility Longitude: -104.716666
Facility SIC Code: 1376
Facility Type:
Water Category:
Immediate Water:
Receiving Water:
Stream Segment:
Fee Category: 00-00
Add Fee Category 1:
Add Fee Category 2:
Add Fee Category 3:
General Permit Tye: CONOX000 -No Exposure Exclusion
Compliance Tracking Status:
SW Constr Start Date:
Reuse Treater:
Facility Class First:
Facility Description:
Fac Horizontal Coll. Method:
Facility ICIS Ownership Type:
Associated Pot W:
SW Constr Total Acres:
Reuse Treater ID:
SW Constr Disturb Acres:
Facility Class Second:
Facility Reference Point:
Major Minor:
Major River Basin:
Total App on Average Flow No:
Total App Design Flow No:
Apprvd for Eltrnc Sub:

SW Constr Activity:
SW Constr End Date:
Permit SIC 1:
Permit SIC 2:
Permit SIC 3:
Permit SIC 4:
Permittee: Hyponex Corp a Subs of Scotts Co
Former Permittee:
Activity Desc: Trucking
Issue Date: 2/10/2021
Effective Date: 2/11/2021
Expiration Date: 2/10/2026
Permit Sector1:
Permit Sector2:
Use category:
Termination Date:
Issuing Org Type:
App Received Date: 10/1/2020
Ct Status Start Date:
Ct Status End Date:
Ct Status Reason:
Workplan Year:
UDF3:

Facility Contact

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Facility Contact Org:	Hyponex Corp a Subs of Scotts Co
Facility Contact First Name:	Brian
Facility Contact Last Name:	Maisch
Facility Contact Title:	Plant Mgr
Facility Contact Address:	3 Assembly Ct
Facility Contact City:	Fountain
Facility Contact State:	CO
Facility Contact ZIP code:	80817
Facility Contact Phone:	7193905431
Facility Contact Email:	brian.maisch@scotts.com

Legal

Legal First Name:	Brian
Legal Last Name:	Maisch
Legal Title:	Plant Mgr
Legal Address:	3 Assembly Ct
Legal City:	Fountain
Legal State:	CO
Legal ZIP Code:	80817
Legal Phone:	719-390-5431
Legal Email:	brian.maisch@scotts.com
Legal Country:	USA

17	13 of 15	W	0.02 / 83.39	5,640.70 / -14	SCOTT'S COMPANY - HYPONEX CORP #1023 3 ASSEMBLY CT FOUNTAIN CO 80817	AIR PERMITS

APCD Site ID:	041-0326	**Sip Status Co:**	FALSE
Site ID:	0326	**Sip Status O3:**	FALSE
Fed Facility ID:	4258411	**Site Cont Company:**	
County:	EL PASO	**Descriptn Category:**	PC
Addr County Name:	EL PASO	**Site First Name:**	BRIAN
Address Type:	STREET	**Site Full Name:**	BRIAN MAISCH
Air Program:	B	**Site Last Name:**	MAISCH
Air Acid Precip:		**Site Title:**	
Class Apen Exempt:		**Site Phone:**	(719)390-5431
Class CFC:		**Site Fax:**	
Class Condensate :		**No Employees:**	0.0
Class Fesop:		**Site Geocode Date:**	15-Jun-2018 14:39:59
Class Mact:		**Pt Lin Are:**	P
Class Neshap:		**Src Scale:**	2
Class Non Fed Rpt:		**Verification:**	
NSPS Federal:		**NAICS Prime:**	424910
Class NSPS State:		**NAICS Second:**	
Class NSR:		**Sic Prime:**	5261
Class PSD:		**Sic Second:**	
Sip Fed Jd:		**Site Operat Stat:**	O
Class Sip Federal:	B	**Owner Cust:**	9920109554
Air Title:		**Method Code:**	I2
Class Tribal:		**Site Lat:**	384311.3178
CMS Category:		**Site Long:**	1044303.6842
CMS Frequency:	0	**UTM Horiz:**	524.541
Cpts Bogus Ind:	FALSE	**UTM Vert:**	4285.722
Govt Fac Classifi:	0	**UTM Zone:**	13.0
Hap Classifi:		**Vert Dat:**	1
NAA NSR Classifi:		**Vert Meas:**	1719.9
Op Classification:		**Vert Meas Acc:**	3.0
Property Area:	238.0	**Vert Meth Coll:**	OT
PSD Classifi:		**Site Horiz Dat:**	2
City FIPS Code:	27865	**Acc Units:**	METERS
State FIPS:	08	**Accuracy:**	60.0
County FIPS:	041	**Date Coll:**	15-Jun-2018 14:39:58
Addr County FIPS:	041		
Permit App:	SCOTT'S COMPANY - HYPONEX CORP #1023		
SIC Sec Desc:			

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Site Email: BRIAN,MAISCH.COM
SIC Pri Desc: BUILDING MATERIALS HARDWARE GARDEN SUPPLY MOBIL - Retail Nurseries, Lawn and Garden Supply Stores
Site Description: NURSERY
Site LL Description: Elevation source: 3DEP 1/3 arc-second

Sip Prog1:
Sip Prog1 Area:
Sip Prog2:
Sip Prog2 Area:
Sip Prog3:
Sip Prog3 Area:
Sip Prog4:
Sip Prog4 Area:
Sip Prog5:

Site Owner

Owner Bill Cycle: 4
Owner Description: MATERIAL HANDLING
Mail Addr 1: 3 ASSEMBLY COURT
Mail Addr 2:
Mail Type: STREET
Mail City: FOUNTAIN
Mail City Cd: 27865
Mail Company:
Mail Country Cd:
Owner Name: SCOTT'S COMPANY LLC
Owner Mail Email: RYAN.TANN@SCOTTS.COM
Mail Fax:
Mail Full Name: RYAN TANN
Mail First Name: RYAN
Mail Last Name: TANN
Mail Phone: (719)390-5431
Mail Province:
Mail State: 08
Mail Title:
Mail Zip: 80817-

Site Pollutant

Site ID: 0326
State FIPS: 08
County FIPS: 041
Data Year: 2019
Inventory Year: 2023
Inventory Year 2: 23
Pollutant Code: PM2.5
Is Colorado Hap: FALSE
Is Criteria: TRUE
Is EPCRA Only: FALSE
Is Hap: FALSE
NEI Pollutant ID: PM25-PRI
Ozone Depleting: FALSE
Estim: 2.56
Estim Mc: Z
Estim Unc: 2.56
Estim Units: TY
Limit1:
Limit1 Mc:
Limit1 Units:
Limit2:
Limit2 Mc:
Limit2 Units:
Pollutant Name: PARTICULATE MATTER < 2.5 UM
Pk Co:
Pk Co Mc: Z
Pk Co Re:
Pk Co Re Mc: Z
Pk Co Re Units: PD
Pk Co Unc:
Pk Co Units: PD
Pk O3:
Pk O3 Mc: Z
Pk O3 Re:
Pk O3 Re Mc: Z
Pk O3 Re Units: PD
Pk O3 Unc:
Pk O3 Units: PD
EMIS Pot:
Pot Mc:
Pot Unc:
Pot Unc Mc:
Pot Unc Units:
Pot Units:
Re Estim: 0.0
Re Estim Mc: Z
Re ESTIM Units: TY

Site Pollutant

Site ID: 0326
State FIPS: 08
County FIPS: 041
Data Year: 2019
Inventory Year: 2023
Inventory Year 2: 23
Pollutant Code: PT
Is Colorado Hap: FALSE
Is Criteria: TRUE
Is EPCRA Only: FALSE
Is Hap: FALSE
Pk Co:
Pk Co Mc: Z
Pk Co Re:
Pk Co Re Mc: Z
Pk Co Re Units: PD
Pk Co Unc:
Pk Co Units: PD
Pk O3:
Pk O3 Mc: Z
Pk O3 Re:
Pk O3 Re Mc: Z

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

NEI Pollutant ID:		**Pk O3 Re Units:**	PD
Ozone Depleting:	FALSE	**Pk O3 Unc:**	
Estim:	0.49	**Pk O3 Units:**	PD
Estim Mc:	Z	**EMIS Pot:**	
Estim Unc:	0.49	**Pot Mc:**	
Estim Units:	TY	**Pot Unc:**	
Limit1:		**Pot Unc Mc:**	
Limit1 Mc:		**Pot Unc Units:**	
Limit1 Units:		**Pot Units:**	
Limit2:		**Re Estim:**	0.0
Limit2 Mc:		**Re Estim Mc:**	Z
Limit2 Units:		**Re ESTIM Units:**	TY
Pollutant Name:	TOTAL PARTICULATE MATTER		

Site Pollutant

Site ID:	0326	**Pk Co:**	
State FIPS:	08	**Pk Co Mc:**	Z
County FIPS:	041	**Pk Co Re:**	
Data Year:	2019	**Pk Co Re Mc:**	Z
Inventory Year:	2023	**Pk Co Re Units:**	PD
Inventory Year 2:	23	**Pk Co Unc:**	
Pollutant Code:	PM10	**Pk Co Units:**	PD
Is Colorado Hap:	FALSE	**Pk O3:**	
Is Criteria:	TRUE	**Pk O3 Mc:**	Z
Is EPCRA Only:	FALSE	**Pk O3 Re:**	
Is Hap:	FALSE	**Pk O3 Re Mc:**	Z
NEI Pollutant ID:	PM10-PRI	**Pk O3 Re Units:**	PD
Ozone Depleting:	FALSE	**Pk O3 Unc:**	
Estim:	2.75	**Pk O3 Units:**	PD
Estim Mc:	Z	**EMIS Pot:**	
Estim Unc:	2.75	**Pot Mc:**	
Estim Units:	TY	**Pot Unc:**	
Limit1:		**Pot Unc Mc:**	
Limit1 Mc:		**Pot Unc Units:**	
Limit1 Units:		**Pot Units:**	
Limit2:		**Re Estim:**	0.0
Limit2 Mc:		**Re Estim Mc:**	Z
Limit2 Units:		**Re ESTIM Units:**	TY
Pollutant Name:	PARTICULATE MATTER < 10 UM		

Stack

Site ID:	0326	**Plume Height:**	30
Stack ID:	003	**Rough Terrain Ind:**	
State FIPS:	08	**Diameter:**	0.0
County FIPS:	041	**Diameter Meter:**	0.0
Data Year:	2019	**Geo Origin:**	plant
Inventory Year:	2023	**Height:**	0.0
Inventory Year 2:	23	**Height Meter:**	0.0
Apcd Stack ID:	041-0326-S003	**Horiz Dat:**	2
Cem Recorder Flag:		**Lining Code:**	
Distance:		**Acc Units:**	4
Exit Gas Flow Rate:	0.0	**Accuracy:**	60.0
Exit Gas Temp:	70.0	**Method Code:**	I2
Exit Gas Kelvin:	294.0	**Pt Lin Area:**	P
Gas Velocity:	0.0	**Src Scale:**	2
Gas Meters Sec:	0.0	**Latitude:**	384311.3178
Bldg Height:	0	**Longitude:**	1044303.6842
Bldg Length:	0	**Type Code:**	F
Bldg Width:	0	**UTM Horiz:**	524.541
Stack Height:	0	**UTM Vert:**	4285.722
NEI Em Rls Pt Typ:	1	**Vert Meas:**	1719.9
NEI Exit Gas Flow:	0.0	**UTM Zone:**	13.0
NEI Horiz Mc:	019	**X Coord:**	-104.71769005555555
NEI Ref Pt Code:	105	**Y Coord:**	38.7198105
Emission Release Desc:	topsoil piles		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Description: Elevation source: 3DEP 1/3 arc-second
Description Category: PC
Stack Type: FUGITIVE EMISSIONS, NO STACK EXISTS

Stack

Site ID:	0326	**Plume Height:**	20
Stack ID:	002	**Rough Terrain Ind:**	
State FIPS:	08	**Diameter:**	0.0
County FIPS:	041	**Diameter Meter:**	0.0
Data Year:	2019	**Geo Origin:**	plant
Inventory Year:	2023	**Height:**	0.0
Inventory Year 2:	23	**Height Meter:**	0.0
Apcd Stack ID:	041-0326-S002	**Horiz Dat:**	2
Cem Recorder Flag:		**Lining Code:**	
Distance:		**Acc Units:**	4
Exit Gas Flow Rate:	0.0	**Accuracy:**	60.0
Exit Gas Temp:	70.0	**Method Code:**	I2
Exit Gas Kelvin:	294.0	**Pt Lin Area:**	P
Gas Velocity:	0.0	**Src Scale:**	2
Gas Meters Sec:	0.0	**Latitude:**	384311.3178
Bldg Height:	0	**Longitude:**	1044303.6842
Bldg Length:	0	**Type Code:**	F
Bldg Width:	0	**UTM Horiz:**	524.541
Stack Height:	0	**UTM Vert:**	4285.722
NEI Em Rls Pt Typ:	1	**Vert Meas:**	1719.9
NEI Exit Gas Flow:	0.0	**UTM Zone:**	13.0
NEI Horiz Mc:	019	**X Coord:**	-104.71769005555555
NEI Ref Pt Code:	105	**Y Coord:**	38.7198105

Emission Release Desc:
Description: Elevation source: 3DEP 1/3 arc-second
Description Category: PC
Stack Type: FUGITIVE EMISSIONS, NO STACK EXISTS

Stack

Site ID:	0326	**Plume Height:**	20
Stack ID:	001	**Rough Terrain Ind:**	
State FIPS:	08	**Diameter:**	0.0
County FIPS:	041	**Diameter Meter:**	0.0
Data Year:	2019	**Geo Origin:**	plant
Inventory Year:	2023	**Height:**	0.0
Inventory Year 2:	23	**Height Meter:**	0.0
Apcd Stack ID:	041-0326-S001	**Horiz Dat:**	2
Cem Recorder Flag:		**Lining Code:**	
Distance:		**Acc Units:**	4
Exit Gas Flow Rate:	0.0	**Accuracy:**	60.0
Exit Gas Temp:	70.0	**Method Code:**	I2
Exit Gas Kelvin:	294.0	**Pt Lin Area:**	P
Gas Velocity:	0.0	**Src Scale:**	2
Gas Meters Sec:	0.0	**Latitude:**	384311.3178
Bldg Height:	0	**Longitude:**	1044303.6842
Bldg Length:	0	**Type Code:**	F
Bldg Width:	0	**UTM Horiz:**	524.541
Stack Height:	0	**UTM Vert:**	4285.722
NEI Em Rls Pt Typ:	1	**Vert Meas:**	1719.9
NEI Exit Gas Flow:	0.0	**UTM Zone:**	13.0
NEI Horiz Mc:	019	**X Coord:**	-104.71769005555555
NEI Ref Pt Code:	105	**Y Coord:**	38.7198105

Emission Release Desc:
Description: Elevation source: 3DEP 1/3 arc-second
Description Category: PC
Stack Type: FUGITIVE EMISSIONS, NO STACK EXISTS

Stack Pollutant

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Site ID:	0326	**Pk Co:**	
Stack ID:	001	**Pk Co Mc:**	Z
State Fips:	08	**Pk Co Re:**	
County Fip:	041	**Pk Co Re Mc:**	Z
Data Year:	2019	**Pk Co Re Units:**	PD
Inventory Year:	2023	**Pk Co Unc:**	
Inventory Year 2:	23	**Pk Co Units:**	PD
Pollutant Code:	PM2.5	**Pk O3:**	
Is Colorado Hap:	FALSE	**Pk O3 Mc:**	Z
Is Criteria:	TRUE	**Pk O3 Re:**	
Is Epcra Only:	FALSE	**Pk O3 Re Mc:**	Z
Is Hap:	FALSE	**Pk O3 Re Units:**	PD
Ozone Depleting:	FALSE	**Pk O3 Unc:**	
Estim:	0.252	**Pk O3 Units:**	PD
Estim Mc:	Z	**Pot:**	
Estim Unc:	0.252	**Pot Mc:**	
Estim Units:	TY	**Pot Unc:**	
Limit1:		**Pot Unc Mc:**	
Limit1 Mc:		**Pot Unc Units:**	
Limit1 Units:		**Pot Units:**	
Limit2:		**Re Estim:**	0.0
Limit2 Mc:		**Re Estim Mc:**	Z
Limit2 Units:		**Re Estim Units:**	TY
Pollutant Name:	PARTICULATE MATTER < 2.5 UM		

Stack Pollutant

Site ID:	0326	**Pk Co:**	
Stack ID:	003	**Pk Co Mc:**	Z
State Fips:	08	**Pk Co Re:**	
County Fip:	041	**Pk Co Re Mc:**	Z
Data Year:	2019	**Pk Co Re Units:**	PD
Inventory Year:	2023	**Pk Co Unc:**	
Inventory Year 2:	23	**Pk Co Units:**	PD
Pollutant Code:	PM10	**Pk O3:**	
Is Colorado Hap:	FALSE	**Pk O3 Mc:**	Z
Is Criteria:	TRUE	**Pk O3 Re:**	
Is Epcra Only:	FALSE	**Pk O3 Re Mc:**	Z
Is Hap:	FALSE	**Pk O3 Re Units:**	PD
Ozone Depleting:	FALSE	**Pk O3 Unc:**	
Estim:	0.23	**Pk O3 Units:**	PD
Estim Mc:	Z	**Pot:**	
Estim Unc:	0.23	**Pot Mc:**	
Estim Units:	TY	**Pot Unc:**	
Limit1:		**Pot Unc Mc:**	
Limit1 Mc:		**Pot Unc Units:**	
Limit1 Units:		**Pot Units:**	
Limit2:		**Re Estim:**	0.0
Limit2 Mc:		**Re Estim Mc:**	Z
Limit2 Units:		**Re Estim Units:**	TY
Pollutant Name:	PARTICULATE MATTER < 10 UM		

Stack Pollutant

Site ID:	0326	**Pk Co:**	
Stack ID:	003	**Pk Co Mc:**	Z
State Fips:	08	**Pk Co Re:**	
County Fip:	041	**Pk Co Re Mc:**	Z
Data Year:	2019	**Pk Co Re Units:**	PD
Inventory Year:	2023	**Pk Co Unc:**	
Inventory Year 2:	23	**Pk Co Units:**	PD
Pollutant Code:	PM2.5	**Pk O3:**	
Is Colorado Hap:	FALSE	**Pk O3 Mc:**	Z
Is Criteria:	TRUE	**Pk O3 Re:**	
Is Epcra Only:	FALSE	**Pk O3 Re Mc:**	Z
Is Hap:	FALSE	**Pk O3 Re Units:**	PD

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Ozone Depleting:	FALSE	**Pk O3 Unc:**	
Estim:	0.04	**Pk O3 Units:**	PD
Estim Mc:	Z	**Pot:**	
Estim Unc:	0.04	**Pot Mc:**	
Estim Units:	TY	**Pot Unc:**	
Limit1:		**Pot Unc Mc:**	
Limit1 Mc:		**Pot Unc Units:**	
Limit1 Units:		**Pot Units:**	
Limit2:		**Re Estim:**	0.0
Limit2 Mc:		**Re Estim Mc:**	Z
Limit2 Units:		**Re Estim Units:**	TY
Pollutant Name:	PARTICULATE MATTER < 2.5 UM		

Stack Pollutant

Site ID:	0326	**Pk Co:**	
Stack ID:	002	**Pk Co Mc:**	Z
State Fips:	08	**Pk Co Re:**	
County Fip:	041	**Pk Co Re Mc:**	Z
Data Year:	2019	**Pk Co Re Units:**	PD
Inventory Year:	2023	**Pk Co Unc:**	
Inventory Year 2:	23	**Pk Co Units:**	PD
Pollutant Code:	PM10	**Pk O3:**	
Is Colorado Hap:	FALSE	**Pk O3 Mc:**	Z
Is Criteria:	TRUE	**Pk O3 Re:**	
Is Epcra Only:	FALSE	**Pk O3 Re Mc:**	Z
Is Hap:	FALSE	**Pk O3 Re Units:**	PD
Ozone Depleting:	FALSE	**Pk O3 Unc:**	
Estim:	2.268	**Pk O3 Units:**	PD
Estim Mc:	Z	**Pot:**	
Estim Unc:	2.268	**Pot Mc:**	
Estim Units:	TY	**Pot Unc:**	
Limit1:		**Pot Unc Mc:**	
Limit1 Mc:		**Pot Unc Units:**	
Limit1 Units:		**Pot Units:**	
Limit2:		**Re Estim:**	0.0
Limit2 Mc:		**Re Estim Mc:**	Z
Limit2 Units:		**Re Estim Units:**	TY
Pollutant Name:	PARTICULATE MATTER < 10 UM		

Stack Pollutant

Site ID:	0326	**Pk Co:**	
Stack ID:	002	**Pk Co Mc:**	Z
State Fips:	08	**Pk Co Re:**	
County Fip:	041	**Pk Co Re Mc:**	Z
Data Year:	2019	**Pk Co Re Units:**	PD
Inventory Year:	2023	**Pk Co Unc:**	
Inventory Year 2:	23	**Pk Co Units:**	PD
Pollutant Code:	PM2.5	**Pk O3:**	
Is Colorado Hap:	FALSE	**Pk O3 Mc:**	Z
Is Criteria:	TRUE	**Pk O3 Re:**	
Is Epcra Only:	FALSE	**Pk O3 Re Mc:**	Z
Is Hap:	FALSE	**Pk O3 Re Units:**	PD
Ozone Depleting:	FALSE	**Pk O3 Unc:**	
Estim:	2.268	**Pk O3 Units:**	PD
Estim Mc:	Z	**Pot:**	
Estim Unc:	2.268	**Pot Mc:**	
Estim Units:	TY	**Pot Unc:**	
Limit1:		**Pot Unc Mc:**	
Limit1 Mc:		**Pot Unc Units:**	
Limit1 Units:		**Pot Units:**	
Limit2:		**Re Estim:**	0.0
Limit2 Mc:		**Re Estim Mc:**	Z
Limit2 Units:		**Re Estim Units:**	TY
Pollutant Name:	PARTICULATE MATTER < 2.5 UM		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Stack Pollutant

Site ID:	0326	***Pk Co:***	
Stack ID:	001	***Pk Co Mc:***	Z
State Fips:	08	***Pk Co Re:***	
County Fip:	041	***Pk Co Re Mc:***	Z
Data Year:	2019	***Pk Co Re Units:***	PD
Inventory Year:	2023	***Pk Co Unc:***	
Inventory Year 2:	23	***Pk Co Units:***	PD
Pollutant Code:	PM10	***Pk O3:***	
Is Colorado Hap:	FALSE	***Pk O3 Mc:***	Z
Is Criteria:	TRUE	***Pk O3 Re:***	
Is Epcra Only:	FALSE	***Pk O3 Re Mc:***	Z
Is Hap:	FALSE	***Pk O3 Re Units:***	PD
Ozone Depleting:	FALSE	***Pk O3 Unc:***	
Estim:	0.252	***Pk O3 Units:***	PD
Estim Mc:	Z	***Pot:***	
Estim Unc:	0.252	***Pot Mc:***	
Estim Units:	TY	***Pot Unc:***	
Limit1:		***Pot Unc Mc:***	
Limit1 Mc:		***Pot Unc Units:***	
Limit1 Units:		***Pot Units:***	
Limit2:		***Re Estim:***	0.0
Limit2 Mc:		***Re Estim Mc:***	Z
Limit2 Units:		***Re Estim Units:***	TY
Pollutant Name:	PARTICULATE MATTER < 10 UM		

Stack Pollutant

Site ID:	0326	***Pk Co:***	
Stack ID:	003	***Pk Co Mc:***	Z
State Fips:	08	***Pk Co Re:***	
County Fip:	041	***Pk Co Re Mc:***	Z
Data Year:	2019	***Pk Co Re Units:***	PD
Inventory Year:	2023	***Pk Co Unc:***	
Inventory Year 2:	23	***Pk Co Units:***	PD
Pollutant Code:	PT	***Pk O3:***	
Is Colorado Hap:	FALSE	***Pk O3 Mc:***	Z
Is Criteria:	TRUE	***Pk O3 Re:***	
Is Epcra Only:	FALSE	***Pk O3 Re Mc:***	Z
Is Hap:	FALSE	***Pk O3 Re Units:***	PD
Ozone Depleting:	FALSE	***Pk O3 Unc:***	
Estim:	0.49	***Pk O3 Units:***	PD
Estim Mc:	Z	***Pot:***	
Estim Unc:	0.49	***Pot Mc:***	
Estim Units:	TY	***Pot Unc:***	
Limit1:		***Pot Unc Mc:***	
Limit1 Mc:		***Pot Unc Units:***	
Limit1 Units:		***Pot Units:***	
Limit2:		***Re Estim:***	0.0
Limit2 Mc:		***Re Estim Mc:***	Z
Limit2 Units:		***Re Estim Units:***	TY
Pollutant Name:	TOTAL PARTICULATE MATTER		

17	***14 of 15***	***W***	***0.02 / 83.39***	***5,640.70 / -14***	***HYPONEX CO 3 ASSEMBLY CT FOUNTAIN CO 808172710***	***AFS***

Afs ID:	0804100326	***Fed Reportable:***	No
Plant ID:	802740	***Current Hpv:***	
Epa Region:	08	***Loc Contrl Region:***	
Plant County:	El Paso	***Afs Gov Fac Code:***	0
State No:	08	***Operating Status:***	O
Primary Sic Code:	5261	***Epa Class Code:***	B
Secondary Sic Code:	5261	***Epa Complian Stat:***	C
Naics Code:	453998	***State Comp Status:***	C

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Afs Gov Facility Des: PRIVATELY OWNED/OPERATED
Operating Status Def: Operating
Epa Classification Des: Potential uncontrolled emissions <100 tons/year
Epa Compliance Status: In Compliance With Procedural Requirements
State Compliance Status: In Compliance With Procedural Requirements

Actions

Plant ID: 802740
Anu1: 2
Date Achieved: 20000420
Penalty Amount: 0
Record Updated Dt: 20000718
Creation Date:
Key Action No:
Regional Data Element:
National Action Desc: STATE INSPECTION - LEVEL 2 OR GREATER
All Air Program Def: 0-SIP Source
Result Def: IN COMPLIANCE
Pollutant Def:
All Violating Poll Def:
All Violation Type Def:
National Actn Type: 5C
All Air Prog Codes: 0
Result Code: MC
Pollutant Code: PT
Violating Poll Cds:
Violation Type Cds:

Actions

Plant ID: 802740
Anu1: 1
Date Achieved: 19970422
Penalty Amount: 0
Record Updated Dt: 19970623
Creation Date:
Key Action No:
Regional Data Element:
National Action Desc: STATE INSPECTION - LEVEL 2 OR GREATER
All Air Program Def: 0-SIP Source
Result Def: IN COMPLIANCE
Pollutant Def:
All Violating Poll Def:
All Violation Type Def:
National Actn Type: 5C
All Air Prog Codes: 0
Result Code: MC
Pollutant Code: PT
Violating Poll Cds:
Violation Type Cds:

Actions

Plant ID: 802740
Anu1: 3
Date Achieved: 20040908
Penalty Amount: 0
Record Updated Dt: 20060502
Creation Date:
Key Action No:
Regional Data Element:
National Action Desc: STATE CONDUCTED FCE/ON-SITE
All Air Program Def: 0-SIP Source
Result Def: IN VIOLATION
Pollutant Def:
All Violating Poll Def:
All Violation Type Def:
National Actn Type: FS
All Air Prog Codes: 0
Result Code: MV
Pollutant Code:
Violating Poll Cds:
Violation Type Cds:

Historical Compliance - Air Program Level

Air Program Code: 0
Air Program Code Ref: SIP Source
Historical Compliance Date: 0604, 0701, 0702, 0703, 0704, 0801, 0802, 0803, 0804, 0901, 0902, 0903, 0904, 1001, 1002, 1003, 1004, 1101, 1102, 1103, 1104, 1201, 1202, 1203, 1204, 1301, 1302, 1303, 1304, 1401, 1402, 1403
Historical Compliance Status: C

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Historical Compliance Stat Ref: In Compliance With Procedural Requirements

Air Program

Plant ID:	802740	***Poll Classificatn:***	B
Air Program Code:	0	***Poll Compli Status:***	C
Air Program Status:	O	***Epa Class Code:***	B
Pollutant Code:	PM10	***Epa Compli Status:***	C
Chemical Abstract Service Nmbr:			
Air Program Code Subparts:			

Air Program Code Ref: SIP Source
Epa Classification Code Ref: Potential uncontrolled emissions <100 tons/year
Epa Compliance Status Ref: In Compliance With Procedural Requirements
Pollutant Code Ref: Particulate Matter < 10 Um
Pollutant Classification Ref: Potential uncontrolled emissions <100 tons/year
Pollutant Complian Status Ref: In Compliance With Procedural Requirements

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Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
17	15 of 15	W	0.02 / 83.39	5,640.70 / -14	Scott's Fertilizer 3 Assembly Court FOUNTAIN CO 80817	FED BROWNFIELDS

Property ID:	251466	***BF Property (Map):***	251466
Lat Measure:	38.720104991793676	***Latitude (Map):***	38.7201049918
Long Measure:	-104.7177580114071	***Longitude (Map):***	-104.717758011
Property Name:	Scott's Fertilizer		
Address:	3 Assembly Court		
City:	FOUNTAIN		
State Code:	CO		
Zip Code:	80817		
Primary Name (Map):	SCOTT COMPANY		
Location Address (Map):	3 ASSEMBLY CT		
City Name (Map):	FOUNTAIN		
County Name (Map):	EL PASO		
State Code (Map):	CO		
Postal Code (Map):	80817		

Brownfields Details

Registry I:	110010684232	***EPA ID:***	
EPA Region:	08	***BF RLF Gra:***	
Cat No:	11020003	***BF RLF Pil:***	
RCRA Handl:		***BF Assess :***	
RCRA Curre:		***BF Cleanup:***	
RCRA Remed:		***BF Tba Ind:***	
RCRA Const:		***BF 128a In:***	
RCRA El He:		***BF IC Code:***	U
RCRA El Gm:		***BF IC Gc I:***	U
RCRA Rem 1:		***BF IC Ep I:***	U
RCRA Ec Gw:		***BF IC ID I:***	U
RCRA Ec Ng:		***BF IC Pr I:***	U
RCRA IC Ep:		***FF Brac In:***	
RCRA IC Gc:		***BF RLF Ind:***	
RCRA IC ID:		***BF Assess1:***	Y
RCRA IC Pr:		***BF Multipu:***	
FF RCRA In:		***BF Awp Ind:***	
RCRA Trans:		***BF Showcas:***	
RCRA Tra 1:		***BF 128a P :***	
RCRA Ec Co:		***LUST Relea:***	
RCRA IC Co:		***LUST Award:***	
RCRA Gpra :		***LUST State:***	
RCRA Rem 2:		***Congressio:***	CO-05
RCRA Dru 1:		***FD Agency :***	
SF Site ID:		***FD Listing:***	
SF Ec Ind:		***FD Non NPL:***	
SF El Gm C:		***FD RCRA Ha:***	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

SF El He C:		**FD RCRA Ca:**	
SF IC Ind:		**FD SF NPL :**	
SF NPL Cod:		**FD FF Ind:**	
SF NPL C 1:		**FD Ej Code:**	
SF Admin F:		**FD Brac In:**	
FF And Sit:		**FD Federal:**	
FF SF Ind:		**FD Hrs Sco:**	
Map Symbol:	B	**FD Ongoing:**	
Data Refre:	29-Jul-2022	**FD NPL Sta:**	
GIS Refres:		**FD Non N 1:**	
New Site:		**FD RCRA Gw:**	
Repow Ref :		**FD RCRA He:**	
EPAOSC Sit:		**FD GMS Sur:**	
EPAOSC Res:		**FD Hes Sur:**	
EPAOSC R 1:		**FD SF Site:**	
EPAOSC Sta:		**FD Brac Ro:**	
EPAOSC Inc:		**Stimulus S:**	
Desc :		**Stimulus B:**	
Ind Name:			
Cat Name:	Fountain		
Sub Name:	Fountain		
Primary Name:	SCOTT COMPANY		
RCRA Drupa:			
Url:	https://obipublic11.epa.gov/analytics/saw.dll?PortalPages&Action=Navigate&col1=ACRES_GRANT_EXPORT.PROPERTY_ID&val1=%22251466.0%22&PortalPath=/shared/CIMC/_portal/CIMC&Page=Profile+Page		
Census Url:	https://ejscreen.epa.gov/mapper/demogreportpdf.aspx?report=census2010sf1&coords=-104.71775801140701%2C38.7201049917937&feattype=point&radius=1.0		
ACS Url:	https://ejscreen.epa.gov/mapper/demogreportpdf.aspx?report=acs2017&coords=-104.71775801140701%2C38.7201049917937&feattype=point&radius=1.0		

SF Site Na:		**UST Status:**	
SF Non Npl:		**UST Substa:**	
SF Non N 1:		**UST Landus:**	
SF Non N 3:		**UST SPA Wa:**	
ERR Lat Lo:		**UST SPA Fa:**	
REPOW BF:		**UST WHPA W:**	
REPOW SF:		**UST WHPA F:**	
REPOW RCRA:		**UST Open:**	
REPOW Ref1:		**UST Closed:**	
RCRA Han 1:		**LUST ID:**	
RCRA Rau I:		**Saa Site:**	
BF Propert:	251466-		
REPOW Re 1:			
BF Prope 1:	Scott's Fertilizer		
SF Non N 2:			

Cleanups In My Community (CIMC)

Grant ID:	69605299	**ASMT Cntrl Sub :**	
Grant Type:	Assessment	**Cleanup Cntrl Sub :**	
EPA Region:	08	**ASMT Asbestos :**	
Ownership Entity:		**Cleanup Asbestos :**	
Latitude Measure:	38.720104991793676	**ASMT Pcbs :**	
Longitude Measure:	-104.7177580114071	**Cleanup Pcbs :**	
Flag Cleanup Reqd:	U	**ASMT Vocs :**	
Flag IC Required:		**Cleanup Vocs :**	
Stcntrbg:		**ASMT Lead :**	
Property Size:	4.91	**Cleanup Lead :**	
Flag IC in Place:		**ASMT Oth Metal :**	
IC in Place Date:		**Cleanup Oth Metal :**	
Prop Cntrl :		**ASMT Pahs :**	
Gov Cntrl :		**Cleanup Pahs :**	
Permit Tools :		**ASMT Oth Cont:**	
Info DevlCes :		**Cleanup Oth Cont:**	
Prop Fnding Type Cd:	Hazardous	**ASMT Air :**	
Ownshp Changed :		**Cleanup Air :**	
Sfllp Factor :		**ASMT Drk Wat:**	
Source Mapscale No:		**Cleanup Drk Wat:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Past Cml Acres:	4.91	**ASMT Grd Water:**	
Future Cml Acres:		**Cleanup Grd Water:**	
Past Grnspc Acres:		**ASMT Sediments :**	
Future Grnspc Acres:		**Cleanup Sediments :**	
Past Acres:		**ASMT Soil :**	
Future Acres:		**Cleanup Soil :**	
Past Res Acres:		**ASMT Srf Water :**	
Future Res Acres:		**Cleanup Srf Water :**	
St Enrollment Dt:		**Other Media :**	
St Enrollment ID:		**Unknown Media :**	
St NFA Dt:		**Ready For Reuse :**	N
Assess Petrol Prod :		**Assess Amount:**	
Cleanup Petrol Prod :		**Assess Fnd Ent Nm:**	
Assess Start Dt:		**Photo Available :**	
Assess Cmpltn Dt:		**Video Available :**	
Cleanup Start Dt:		**Cleanup Acres:**	
Cleanup Cmpltn Dt:		**Cleanup Amount:**	
Redev Start Dt:		**Redev Acres:**	
Redev Cleanup Jobs:		**Redev Amount:**	
Grant Recipient Nm:	Colorado Springs City Government		
PropertyNm:	Scott's Fertilizer		
Address:	3 Assembly Court		
City:	FOUNTAIN		
State Code:	CO		
Zip Code:	80817		
Local Parcel No:	5530003007		
Current Owner:			
IC Data Address:			
Horizontal Collection Method:			
Reference Point:			
Horizontal Reference Datum:			
Other Description:			
Other Desc Cleaned Up:			
Assess Type:			
Assess Fund Entity:			
Cleanup Funding EntityNm:			
Cleanup Fund Entity:			
Redev Funding Entity Nm:			
Desc Hist:			

Accmplisht Cnt Flag:		**Vacant Housing:**	
Coop Agreement No:	96896301	**Vacant Housing Pct:**	
Past Mltistry Acres:		**Total Unemployed:**	
Ftr Multistory Acres:		**Unemployed Pct:**	
Assess Cadmium :		**Radius:**	
Clnup Cadmium :		**Actvy Funded:**	
Assess Chromium :		**Redev Lvrgd Srcs:**	
Clnup Chromium :		**AA Amt Funding:**	
Assess Copper :		**Flag Clnup Trmt Tech:**	
Clnup Copper :		**Excavation Disposal:**	
Assess Iron :		**Extrctn of Cntmnts:**	
Clnup Iron :		**Removal of Mats:**	
Assess Nickel :		**Rdctn of Cntmnts:**	
Clnup Nickel :		**Clnup of Structures:**	
Assess Selenium :		**Env EC Required:**	U
Clnup Selenium :		**Flag EC Cover Tech:**	
Assess Mercury :		**Flag EC Security:**	
Clnup Mercury :		**Flag EC Immblztn:**	
Assess ArsenIC :		**Flag EC Eng Barriers:**	
Clnup ArsenIC :		**Flag EC Other:**	
Assess Bldg Mats :		**Env IC in Place:**	
Clnup Bldg Mats :		**Env EC in Place:**	
Assess oorair :		**Env Clnup Jobs:**	
Clnup oorair :		**Sect 128 A State Trbl:**	
Assess None :		**Multipurpose:**	
Clnup None :		**Clnup Cst Shr Amt:**	
Assess Pesticides :		**RLF Loan Amount:**	
Clnup Pesticides :		**RLF Ln Cst Shr Amt:**	
Assess Unknown :		**Pro Income Amt:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Clnup Unknown :		***Dt RLF Loan Signed:***	
Assess Svocs :		***Repayment Period:***	
Clnup Svocs :		***Interest Rate:***	
Clnup Unkn Media :		***RLF Subgrant Amt:***	
Redev Cmpltn Date:		***Cost Share Amt:***	
Pro Code:	BF	***Env Pro Income Amt:***	
FCA Fy:		***Dt RLF Sbgrnt Signd:***	
Flag EC in Place:		***Clnup Actvy Funded:***	
Flag EC Required:	U	***Below Poverty:***	
RFR Notation:		***Below Poverty Pct:***	
Gpa Type ID:	6	***Median Income:***	
Clnup Doc:		***Low Income:***	
Awp Catalyst Yn:		***Low Income Pct:***	
Flag Prop Not Enrld:	Y		
Redev Fund Entity:			
Gpa Type Desc:	Acres Cleaned Up		
AA Actvy Funded:			
AA Source of Funding:			
Clnup Trmt Tech Info:			
EC Data Address:			
EC Addl Info:			
Env IC Data Address:			
Other Forms of Doc:			
IC Addl Info:			

Highlights: This property is in a highly visible, developing commercial area near Fountain Creek. The facility processes and packages soil/mulch products for distribution to retail distributors. Raw materials including peat moss, bark fines, wood fiber, yard compost, compost manure, coir, rice hulls, topsoil, humus, and wood chips are received at the Property and stockpiled outdoors. All bagged and drummed raw materials such as dyes and fertilizer additives are received into the warehouse. The mulch/soil materials are screened to remove rocks and debris and are then placed in machines outside the processing building where they are mixed with water-based biodegradable dyes and fertilizers. A conveyor then transports the mixture into the building where it is bagged and palletized. The packaged product is placed on pallets and shrink-wrapped for storage on-site. The potential for residual concentrations of fertilizers from years of outdoor mixing and storage on the property was identified as a Business Environmental Risk (BER) as defined in ASTM E1527.

Property Alias:	
Ctmnt Found:	
Ctmnt Cleanedup:	
Ctmnt Rec:	
Media Afffected:	

Cleanups In My Community (CIMC)

Grant ID:	69605299	***ASMT Cntrl Sub :***	
Grant Type:	Assessment	***Cleanup Cntrl Sub :***	
EPA Region:	08	***ASMT Asbestos :***	
Ownership Entity:		***Cleanup Asbestos :***	
Latitude Measure:	38.720104991793676	***ASMT Pcbs :***	
Longitude Measure:	-104.7177580114071	***Cleanup Pcbs :***	
Flag Cleanup Reqd:	U	***ASMT Vocs :***	
Flag IC Required:		***Cleanup Vocs :***	
Stcntrbg:		***ASMT Lead :***	
Property Size:	4.91	***Cleanup Lead :***	
Flag IC in Place:		***ASMT Oth Metal :***	
IC in Place Date:		***Cleanup Oth Metal :***	
Prop Cntrl :		***ASMT Pahs :***	
Gov Cntrl :		***Cleanup Pahs :***	
Permit Tools :		***ASMT Oth Cont:***	
Info DevlCes :		***Cleanup Oth Cont:***	
Prop Fnding Type Cd:	Hazardous	***ASMT Air :***	
Ownshp Changed :		***Cleanup Air :***	
Sfllp Factor :		***ASMT Drk Wat:***	
Source Mapscale No:		***Cleanup Drk Wat:***	
Past Cml Acres:	4.91	***ASMT Grd Water:***	
Future Cml Acres:		***Cleanup Grd Water:***	
Past Grnspc Acres:		***ASMT Sediments :***	
Future Grnspc Acres:		***Cleanup Sediments :***	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Past Acres:		**ASMT Soil :**	
Future Acres:		**Cleanup Soil :**	
Past Res Acres:		**ASMT Srf Water :**	
Future Res Acres:		**Cleanup Srf Water :**	
St Enrollment Dt:		**Other Media :**	
St Enrollment ID:		**Unknown Media :**	
St NFA Dt:		**Ready For Reuse :**	N
Assess Petrol Prod :		**Assess Amount:**	
Cleanup Petrol Prod :		**Assess Fnd Ent Nm:**	
Assess Start Dt:		**Photo Available :**	
Assess Cmpltn Dt:		**Video Available :**	
Cleanup Start Dt:		**Cleanup Acres:**	
Cleanup Cmpltn Dt:		**Cleanup Amount:**	
Redev Start Dt:		**Redev Acres:**	
Redev Cleanup Jobs:		**Redev Amount:**	
Grant Recipient Nm:	Colorado Springs City Government		
PropertyNm:	Scott's Fertilizer		
Address:	3 Assembly Court		
City:	FOUNTAIN		
State Code:	CO		
Zip Code:	80817		
Local Parcel No:	5530003007		
Current Owner:			
IC Data Address:			
Horizontal Collection Method:			
Reference Point:			
Horizontal Reference Datum:			
Other Description:			
Other Desc Cleaned Up:			
Assess Type:			
Assess Fund Entity:			
Cleanup Funding EntityNm:			
Cleanup Fund Entity:			
Redev Funding Entity Nm:			
Desc Hist:			

Accmplisht Cnt Flag:		**Vacant Housing:**	
Coop Agreement No:	96896301	**Vacant Housing Pct:**	
Past Mltistry Acres:		**Total Unemployed:**	
Ftr Multistory Acres:		**Unemployed Pct:**	
Assess Cadmium :		**Radius:**	
Clnup Cadmium :		**Actvy Funded:**	
Assess Chromium :		**Redev Lvrgd Srcs:**	
Clnup Chromium :		**AA Amt Funding:**	
Assess Copper :		**Flag Clnup Trmt Tech:**	
Clnup Copper :		**Excavation Disposal:**	
Assess Iron :		**Extrctn of Cntmnts:**	
Clnup Iron :		**Removal of Mats:**	
Assess Nickel :		**Rdctn of Cntmnts:**	
Clnup Nickel :		**Clnup of Structures:**	
Assess Selenium :		**Env EC Required:**	U
Clnup Selenium :		**Flag EC Cover Tech:**	
Assess Mercury :		**Flag EC Security:**	
Clnup Mercury :		**Flag EC Immblztn:**	
Assess ArsenIC :		**Flag EC Eng Barriers:**	
Clnup ArsenIC :		**Flag EC Other:**	
Assess Bldg Mats :		**Env IC in Place:**	
Clnup Bldg Mats :		**Env EC in Place:**	
Assess oorair :		**Env Clnup Jobs:**	
Clnup oorair :		**Sect 128 A State Trbl:**	
Assess None :		**Multipurpose:**	
Clnup None :		**Clnup Cst Shr Amt:**	
Assess Pesticides :		**RLF Loan Amount:**	
Clnup Pesticides :		**RLF Ln Cst Shr Amt:**	
Assess Unknown :		**Pro Income Amt:**	
Clnup Unknown :		**Dt RLF Loan Signed:**	
Assess Svocs :		**Repayment Period:**	
Clnup Svocs :		**Interest Rate:**	
Clnup Unkn Media :		**RLF Subgrant Amt:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Redev Cmpltn Date:			**Cost Share Amt:**
Pro Code:	BF		**Env Pro Income Amt:**
FCA Fy:			**Dt RLF Sbgrnt Signd:**
Flag EC in Place:			**Clnup Actvy Funded:**
Flag EC Required:	U		**Below Poverty:**
RFR Notation:			**Below Poverty Pct:**
Gpa Type ID:	5		**Median Income:**
Clnup Doc:	N		**Low Income:**
Awp Catalyst Yn:			**Low Income Pct:**
Flag Prop Not Enrld:	Y		
Redev Fund Entity:			
Gpa Type Desc:		Cleanup Activity	
AA Actvy Funded:			
AA Source of Funding:			
Clnup Trmt Tech Info:			
EC Data Address:			
EC Addl Info:			
Env IC Data Address:			
Other Forms of Doc:			
IC Addl Info:			

Highlights: This property is in a highly visible, developing commercial area near Fountain Creek. The facility processes and packages soil/mulch products for distribution to retail distributors. Raw materials including peat moss, bark fines, wood fiber, yard compost, compost manure, coir, rice hulls, topsoil, humus, and wood chips are received at the Property and stockpiled outdoors. All bagged and drummed raw materials such as dyes and fertilizer additives are received into the warehouse. The mulch/soil materials are screened to remove rocks and debris and are then placed in machines outside the processing building where they are mixed with water-based biodegradable dyes and fertilizers. A conveyor then transports the mixture into the building where it is bagged and palletized. The packaged product is placed on pallets and shrink-wrapped for storage on-site. The potential for residual concentrations of fertilizers from years of outdoor mixing and storage on the property was identified as a Business Environmental Risk (BER) as defined in ASTM E1527.

Property Alias:	
Ctmnt Found:	
Ctmnt Cleanedup:	
Ctmnt Rec:	
Media Afffected:	

Cleanups In My Community (CIMC)

Grant ID:	69605299	**ASMT Cntrl Sub :**	
Grant Type:	Assessment	**Cleanup Cntrl Sub :**	
EPA Region:	08	**ASMT Asbestos :**	
Ownership Entity:		**Cleanup Asbestos :**	
Latitude Measure:	38.720104991793676	**ASMT Pcbs :**	
Longitude Measure:	-104.7177580114071	**Cleanup Pcbs :**	
Flag Cleanup Reqd:	U	**ASMT Vocs :**	
Flag IC Required:		**Cleanup Vocs :**	
Stcntrbg:		**ASMT Lead :**	
Property Size:	4.91	**Cleanup Lead :**	
Flag IC in Place:		**ASMT Oth Metal :**	
IC in Place Date:		**Cleanup Oth Metal :**	
Prop Cntrl :		**ASMT Pahs :**	
Gov Cntrl :		**Cleanup Pahs :**	
Permit Tools :		**ASMT Oth Cont:**	
Info DevlCes :		**Cleanup Oth Cont:**	
Prop Fnding Type Cd:	Hazardous	**ASMT Air :**	
Ownshp Changed :		**Cleanup Air :**	
Sfllp Factor :		**ASMT Drk Wat:**	
Source Mapscale No:		**Cleanup Drk Wat:**	
Past Cml Acres:	4.91	**ASMT Grd Water:**	
Future Cml Acres:		**Cleanup Grd Water:**	
Past Grnspc Acres:		**ASMT Sediments :**	
Future Grnspc Acres:		**Cleanup Sediments :**	
Past Acres:		**ASMT Soil :**	
Future Acres:		**Cleanup Soil :**	
Past Res Acres:		**ASMT Srf Water :**	
Future Res Acres:		**Cleanup Srf Water :**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

St Enrollment Dt:		**Other Media :**	
St Enrollment ID:		**Unknown Media :**	
St NFA Dt:		**Ready For Reuse :**	N
Assess Petrol Prod :		**Assess Amount:**	
Cleanup Petrol Prod :		**Assess Fnd Ent Nm:**	
Assess Start Dt:		**Photo Available :**	
Assess Cmpltn Dt:		**Video Available :**	
Cleanup Start Dt:		**Cleanup Acres:**	
Cleanup Cmpltn Dt:		**Cleanup Amount:**	
Redev Start Dt:		**Redev Acres:**	
Redev Cleanup Jobs:		**Redev Amount:**	
Grant Recipient Nm:	Colorado Springs City Government		
PropertyNm:	Scott's Fertilizer		
Address:	3 Assembly Court		
City:	FOUNTAIN		
State Code:	CO		
Zip Code:	80817		
Local Parcel No:	5530003007		
Current Owner:			
IC Data Address:			
Horizontal Collection Method:			
Reference Point:			
Horizontal Reference Datum:			
Other Description:			
Other Desc Cleaned Up:			
Assess Type:			
Assess Fund Entity:			
Cleanup Funding EntityNm:			
Cleanup Fund Entity:			
Redev Funding Entity Nm:			
Desc Hist:			

Accmplisht Cnt Flag:		**Vacant Housing:**	
Coop Agreement No:	96896301	**Vacant Housing Pct:**	
Past Mltistry Acres:		**Total Unemployed:**	
Ftr Multistory Acres:		**Unemployed Pct:**	
Assess Cadmium :		**Radius:**	
Clnup Cadmium :		**Actvy Funded:**	
Assess Chromium :		**Redev Lvrgd Srcs:**	
Clnup Chromium :		**AA Amt Funding:**	
Assess Copper :		**Flag Clnup Trmt Tech:**	
Clnup Copper :		**Excavation Disposal:**	
Assess Iron :		**Extrctn of Cntmnts:**	
Clnup Iron :		**Removal of Mats:**	
Assess Nickel :		**Rdctn of Cntmnts:**	
Clnup Nickel :		**Clnup of Structures:**	
Assess Selenium :		**Env EC Required:**	U
Clnup Selenium :		**Flag EC Cover Tech:**	
Assess Mercury :		**Flag EC Security:**	
Clnup Mercury :		**Flag EC Immblztn:**	
Assess ArsenIC :		**Flag EC Eng Barriers:**	
Clnup ArsenIC :		**Flag EC Other:**	
Assess Bldg Mats :		**Env IC in Place:**	
Clnup Bldg Mats :		**Env EC in Place:**	
Assess oorair :		**Env Clnup Jobs:**	
Clnup oorair :		**Sect 128 A State Trbl:**	
Assess None :		**Multipurpose:**	
Clnup None :		**Clnup Cst Shr Amt:**	
Assess Pesticides :		**RLF Loan Amount:**	
Clnup Pesticides :		**RLF Ln Cst Shr Amt:**	
Assess Unknown :		**Pro Income Amt:**	
Clnup Unknown :		**Dt RLF Loan Signed:**	
Assess Svocs :		**Repayment Period:**	
Clnup Svocs :		**Interest Rate:**	
Clnup Unkn Media :		**RLF Subgrant Amt:**	
Redev Cmpltn Date:		**Cost Share Amt:**	
Pro Code:	BF	**Env Pro Income Amt:**	
FCA Fy:		**Dt RLF Sbgrnt Signd:**	
Flag EC in Place:		**Clnup Actvy Funded:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Flag EC Required:	U	**Below Poverty:**	
RFR Notation:		**Below Poverty Pct:**	
Gpa Type ID:	11	**Median Income:**	
Clnup Doc:		**Low Income:**	
Awp Catalyst Yn:		**Low Income Pct:**	
Flag Prop Not Enrld:	Y		
Redev Fund Entity:			
Gpa Type Desc:	Cleanup Jobs Leveraged		
AA Actvy Funded:			
AA Source of Funding:			
Clnup Trmt Tech Info:			
EC Data Address:			
EC Addl Info:			
Env IC Data Address:			
Other Forms of Doc:			
IC Addl Info:			

Highlights: This property is in a highly visible, developing commercial area near Fountain Creek. The facility processes and packages soil/mulch products for distribution to retail distributors. Raw materials including peat moss, bark fines, wood fiber, yard compost, compost manure, coir, rice hulls, topsoil, humus, and wood chips are received at the Property and stockpiled outdoors. All bagged and drummed raw materials such as dyes and fertilizer additives are received into the warehouse. The mulch/soil materials are screened to remove rocks and debris and are then placed in machines outside the processing building where they are mixed with water-based biodegradable dyes and fertilizers. A conveyor then transports the mixture into the building where it is bagged and palletized. The packaged product is placed on pallets and shrink-wrapped for storage on-site. The potential for residual concentrations of fertilizers from years of outdoor mixing and storage on the property was identified as a Business Environmental Risk (BER) as defined in ASTM E1527.

Property Alias:
Ctmnt Found:
Ctmnt Cleanedup:
Ctmnt Rec:

Media Afffected:

Cleanups In My Community (CIMC)

Grant ID:	69605299	**ASMT Cntrl Sub :**	
Grant Type:	Assessment	**Cleanup Cntrl Sub :**	
EPA Region:	08	**ASMT Asbestos :**	
Ownership Entity:		**Cleanup Asbestos :**	
Latitude Measure:	38.720104991793676	**ASMT Pcbs :**	
Longitude Measure:	-104.7177580114071	**Cleanup Pcbs :**	
Flag Cleanup Reqd:	U	**ASMT Vocs :**	
Flag IC Required:		**Cleanup Vocs :**	
Stcntrbg:		**ASMT Lead :**	
Property Size:	4.91	**Cleanup Lead :**	
Flag IC in Place:		**ASMT Oth Metal :**	
IC in Place Date:		**Cleanup Oth Metal :**	
Prop Cntrl :		**ASMT Pahs :**	
Gov Cntrl :		**Cleanup Pahs :**	
Permit Tools :		**ASMT Oth Cont:**	
Info DevlCes :		**Cleanup Oth Cont:**	
Prop Fnding Type Cd:	Hazardous	**ASMT Air :**	
Ownshp Changed :		**Cleanup Air :**	
Sfllp Factor :		**ASMT Drk Wat:**	
Source Mapscale No:		**Cleanup Drk Wat:**	
Past Cml Acres:	4.91	**ASMT Grd Water:**	
Future Cml Acres:		**Cleanup Grd Water:**	
Past Grnspc Acres:		**ASMT Sediments :**	
Future Grnspc Acres:		**Cleanup Sediments :**	
Past Acres:		**ASMT Soil :**	
Future Acres:		**Cleanup Soil :**	
Past Res Acres:		**ASMT Srf Water :**	
Future Res Acres:		**Cleanup Srf Water :**	
St Enrollment Dt:		**Other Media :**	
St Enrollment ID:		**Unknown Media :**	
St NFA Dt:		**Ready For Reuse :**	N
Assess Petrol Prod :		**Assess Amount:**	5900

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Cleanup Petrol Prod :		**Assess Fnd Ent Nm:**	EPA
Assess Start Dt:	08/16/2021	**Photo Available :**	
Assess Cmpltn Dt:	12/10/2021	**Video Available :**	
Cleanup Start Dt:		**Cleanup Acres:**	
Cleanup Cmpltn Dt:		**Cleanup Amount:**	
Redev Start Dt:		**Redev Acres:**	
Redev Cleanup Jobs:		**Redev Amount:**	
Grant Recipient Nm:	Colorado Springs City Government		
PropertyNm:	Scott's Fertilizer		
Address:	3 Assembly Court		
City:	FOUNTAIN		
State Code:	CO		
Zip Code:	80817		
Local Parcel No:	5530003007		
Current Owner:			
IC Data Address:			
Horizontal Collection Method:			
Reference Point:			
Horizontal Reference Datum:			
Other Description:			
Other Desc Cleaned Up:			
Assess Type:	Phase I Environmental Assessment		
Assess Fund Entity:	US EPA - Brownfields Assessment Cooperative Agreement		
Cleanup Funding EntityNm:			
Cleanup Fund Entity:			
Redev Funding Entity Nm:			
Desc Hist:			

Accmplisht Cnt Flag:	Y	**Vacant Housing:**	
Coop Agreement No:	96896301	**Vacant Housing Pct:**	
Past Mltistry Acres:		**Total Unemployed:**	
Ftr Multistory Acres:		**Unemployed Pct:**	
Assess Cadmium :		**Radius:**	
Clnup Cadmium :		**Actvy Funded:**	
Assess Chromium :		**Redev Lvrgd Srcs:**	
Clnup Chromium :		**AA Amt Funding:**	
Assess Copper :		**Flag Clnup Trmt Tech:**	
Clnup Copper :		**Excavation Disposal:**	
Assess Iron :		**Extrctn of Cntmnts:**	
Clnup Iron :		**Removal of Mats:**	
Assess Nickel :		**Rdctn of Cntmnts:**	
Clnup Nickel :		**Clnup of Structures:**	
Assess Selenium :		**Env EC Required:**	U
Clnup Selenium :		**Flag EC Cover Tech:**	
Assess Mercury :		**Flag EC Security:**	
Clnup Mercury :		**Flag EC Immblztn:**	
Assess ArsenIC :		**Flag EC Eng Barriers:**	
Clnup ArsenIC :		**Flag EC Other:**	
Assess Bldg Mats :		**Env IC in Place:**	
Clnup Bldg Mats :		**Env EC in Place:**	
Assess oorair :		**Env Clnup Jobs:**	
Clnup oorair :		**Sect 128 A State Trbl:**	
Assess None :		**Multipurpose:**	
Clnup None :		**Clnup Cst Shr Amt:**	
Assess Pesticides :		**RLF Loan Amount:**	
Clnup Pesticides :		**RLF Ln Cst Shr Amt:**	
Assess Unknown :		**Pro Income Amt:**	
Clnup Unknown :		**Dt RLF Loan Signed:**	
Assess Svocs :		**Repayment Period:**	
Clnup Svocs :		**Interest Rate:**	
Clnup Unkn Media :		**RLF Subgrant Amt:**	
Redev Cmpltn Date:		**Cost Share Amt:**	
Pro Code:	BF	**Env Pro Income Amt:**	
FCA Fy:	FY22	**Dt RLF Sbgrnt Signd:**	
Flag EC in Place:		**Clnup Actvy Funded:**	
Flag EC Required:	U	**Below Poverty:**	
RFR Notation:		**Below Poverty Pct:**	
Gpa Type ID:	1	**Median Income:**	
Clnup Doc:		**Low Income:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Awp Catalyst Yn:		***Low Income Pct:***	
Flag Prop Not Enrld:	Y		
Redev Fund Entity:			
Gpa Type Desc:	Phase I Environmental Assessment		
AA Actvy Funded:	Phase I Environmental Assessment		
AA Source of Funding:			
Clnup Trmt Tech Info:			
EC Data Address:			
EC Addl Info:			
Env IC Data Address:			
Other Forms of Doc:			
IC Addl Info:			

Highlights: This property is in a highly visible, developing commercial area near Fountain Creek. The facility processes and packages soil/mulch products for distribution to retail distributors. Raw materials including peat moss, bark fines, wood fiber, yard compost, compost manure, coir, rice hulls, topsoil, humus, and wood chips are received at the Property and stockpiled outdoors. All bagged and drummed raw materials such as dyes and fertilizer additives are received into the warehouse. The mulch/soil materials are screened to remove rocks and debris and are then placed in machines outside the processing building where they are mixed with water-based biodegradable dyes and fertilizers. A conveyor then transports the mixture into the building where it is bagged and palletized. The packaged product is placed on pallets and shrink-wrapped for storage on-site. The potential for residual concentrations of fertilizers from years of outdoor mixing and storage on the property was identified as a Business Environmental Risk (BER) as defined in ASTM E1527.

Property Alias:	
Ctmnt Found:	
Ctmnt Cleanedup:	
Ctmnt Rec:	
Media Afffected:	

Cleanups In My Community (CIMC)

Grant ID:	69605299	***ASMT Cntrl Sub :***	
Grant Type:	Assessment	***Cleanup Cntrl Sub :***	
EPA Region:	08	***ASMT Asbestos :***	
Ownership Entity:		***Cleanup Asbestos :***	
Latitude Measure:	38.720104991793676	***ASMT Pcbs :***	
Longitude Measure:	-104.7177580114071	***Cleanup Pcbs :***	
Flag Cleanup Reqd:	U	***ASMT Vocs :***	
Flag IC Required:		***Cleanup Vocs :***	
Stcntrbg:		***ASMT Lead :***	
Property Size:	4.91	***Cleanup Lead :***	
Flag IC in Place:		***ASMT Oth Metal :***	
IC in Place Date:		***Cleanup Oth Metal :***	
Prop Cntrl :		***ASMT Pahs :***	
Gov Cntrl :		***Cleanup Pahs :***	
Permit Tools :		***ASMT Oth Cont:***	
Info DevlCes :		***Cleanup Oth Cont:***	
Prop Fnding Type Cd:	Hazardous	***ASMT Air :***	
Ownshp Changed :		***Cleanup Air :***	
Sfllp Factor :		***ASMT Drk Wat:***	
Source Mapscale No:		***Cleanup Drk Wat:***	
Past Cml Acres:	4.91	***ASMT Grd Water:***	
Future Cml Acres:		***Cleanup Grd Water:***	
Past Grnspc Acres:		***ASMT Sediments :***	
Future Grnspc Acres:		***Cleanup Sediments :***	
Past Acres:		***ASMT Soil :***	
Future Acres:		***Cleanup Soil :***	
Past Res Acres:		***ASMT Srf Water :***	
Future Res Acres:		***Cleanup Srf Water :***	
St Enrollment Dt:		***Other Media :***	
St Enrollment ID:		***Unknown Media :***	
St NFA Dt:		***Ready For Reuse :***	N
Assess Petrol Prod :		***Assess Amount:***	
Cleanup Petrol Prod :		***Assess Fnd Ent Nm:***	
Assess Start Dt:		***Photo Available :***	
Assess Cmpltn Dt:		***Video Available :***	
Cleanup Start Dt:		***Cleanup Acres:***	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Cleanup Cmpltn Dt:		**Cleanup Amount:**	
Redev Start Dt:		**Redev Acres:**	
Redev Cleanup Jobs:		**Redev Amount:**	
Grant Recipient Nm:	Colorado Springs City Government		
PropertyNm:	Scott's Fertilizer		
Address:	3 Assembly Court		
City:	FOUNTAIN		
State Code:	CO		
Zip Code:	80817		
Local Parcel No:	5530003007		
Current Owner:			
IC Data Address:			
Horizontal Collection Method:			
Reference Point:			
Horizontal Reference Datum:			
Other Description:			
Other Desc Cleaned Up:			
Assess Type:			
Assess Fund Entity:			
Cleanup Funding EntityNm:			
Cleanup Fund Entity:			
Redev Funding Entity Nm:			
Desc Hist:			

Accmplisht Cnt Flag:		**Vacant Housing:**	
Coop Agreement No:	96896301	**Vacant Housing Pct:**	
Past Mltistry Acres:		**Total Unemployed:**	
Ftr Multistory Acres:		**Unemployed Pct:**	
Assess Cadmium :		**Radius:**	
Clnup Cadmium :		**Actvy Funded:**	
Assess Chromium :		**Redev Lvrgd Srcs:**	
Clnup Chromium :		**AA Amt Funding:**	
Assess Copper :		**Flag Clnup Trmt Tech:**	
Clnup Copper :		**Excavation Disposal:**	
Assess Iron :		**Extrctn of Cntmnts:**	
Clnup Iron :		**Removal of Mats:**	
Assess Nickel :		**Rdctn of Cntmnts:**	
Clnup Nickel :		**Clnup of Structures:**	
Assess Selenium :		**Env EC Required:**	U
Clnup Selenium :		**Flag EC Cover Tech:**	
Assess Mercury :		**Flag EC Security:**	
Clnup Mercury :		**Flag EC Immblztn:**	
Assess ArsenIC :		**Flag EC Eng Barriers:**	
Clnup ArsenIC :		**Flag EC Other:**	
Assess Bldg Mats :		**Env IC in Place:**	
Clnup Bldg Mats :		**Env EC in Place:**	
Assess oorair :		**Env Clnup Jobs:**	
Clnup oorair :		**Sect 128 A State Trbl:**	
Assess None :		**Multipurpose:**	
Clnup None :		**Clnup Cst Shr Amt:**	
Assess Pesticides :		**RLF Loan Amount:**	
Clnup Pesticides :		**RLF Ln Cst Shr Amt:**	
Assess Unknown :		**Pro Income Amt:**	
Clnup Unknown :		**Dt RLF Loan Signed:**	
Assess Svocs :		**Repayment Period:**	
Clnup Svocs :		**Interest Rate:**	
Clnup Unkn Media :		**RLF Subgrant Amt:**	
Redev Cmpltn Date:		**Cost Share Amt:**	
Pro Code:	BF	**Env Pro Income Amt:**	
FCA Fy:		**Dt RLF Sbgrnt Signd:**	
Flag EC in Place:		**Clnup Actvy Funded:**	
Flag EC Required:	U	**Below Poverty:**	
RFR Notation:		**Below Poverty Pct:**	
Gpa Type ID:	10	**Median Income:**	
Clnup Doc:		**Low Income:**	
Awp Catalyst Yn:		**Low Income Pct:**	
Flag Prop Not Enrld:	Y		
Redev Fund Entity:			
Gpa Type Desc:	Redevelopment Jobs Leveraged		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

AA Actvy Funded:
AA Source of Funding:
Clnup Trmt Tech Info:
EC Data Address:
EC Addl Info:
Env IC Data Address:
Other Forms of Doc:
IC Addl Info:
Highlights: This property is in a highly visible, developing commercial area near Fountain Creek. The facility processes and packages soil/mulch products for distribution to retail distributors. Raw materials including peat moss, bark fines, wood fiber, yard compost, compost manure, coir, rice hulls, topsoil, humus, and wood chips are received at the Property and stockpiled outdoors. All bagged and drummed raw materials such as dyes and fertilizer additives are received into the warehouse. The mulch/soil materials are screened to remove rocks and debris and are then placed in machines outside the processing building where they are mixed with water-based biodegradable dyes and fertilizers. A conveyor then transports the mixture into the building where it is bagged and palletized. The packaged product is placed on pallets and shrink-wrapped for storage on-site. The potential for residual concentrations of fertilizers from years of outdoor mixing and storage on the property was identified as a Business Environmental Risk (BER) as defined in ASTM E1527.
Property Alias:
Ctmnt Found:
Ctmnt Cleanedup:
Ctmnt Rec:

Media Afffected:

18	*1 of 2*	*E*	*0.02 / 101.45*	*5,752.04 / 98*	***FAMILY DOLLAR #8650 6960 MESA RIDGE PKWY FOUNTAIN CO 80817***	***FINDS/FRS***

Registry ID: 110064376410
FIPS Code: 08041
HUC Code: 11020003
Site Type Name: STATIONARY
Location Description:
Supplemental Location:
Create Date: 29-MAY-15
Update Date:
Interest Types: UNSPECIFIED UNIVERSE
SIC Codes:
SIC Code Descriptions:
NAICS Codes:
NAICS Code Descriptions:
Conveyor: FRS-GEOCODE
Federal Facility Code:
Federal Agency Name:
Tribal Land Code:
Tribal Land Name:
Congressional Dist No: 05
Census Block Code: 080410045034035
EPA Region Code: 08
County Name: EL PASO
US/Mexico Border Ind:
Latitude: 38.71856
Longitude: -104.698673
Reference Point: ENTRANCE POINT OF A FACILITY OR STATION
Coord Collection Method: ADDRESS MATCHING-HOUSE NUMBER
Accuracy Value: 50
Datum: NAD83
Source:
Facility Detail Rprt URL: https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110064376410
Data Source: Facility Registry Service - Single File
Program Acronyms:

RCRAINFO:COR000238022

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
18	2 of 2	E	0.02 / 101.45	5,752.04 / 98	FAMILY DOLLAR #8650 6960 MESA RIDGE PKWY FOUNTAIN CO 80817	RCRA VSQG

EPA Handler ID: COR000238022
Gen Status Universe: VSG
Contact Name: KEVIN STRAIGHT
Contact Address: P O BOX 1017 , , CHARLOTTE , NC, 28201 , US
Contact Phone No and Ext: 704-708-1909
Contact Email: KSTRAIGHT@FAMILYDOLLAR.COM
Contact Country: US
County Name: EL PASO
EPA Region: 08
Land Type: Private
Receive Date: 20150323
Location Latitude: 38.720381
Location Longitude: -104.682724

Violation/Evaluation Summary

Note: NO RECORDS: As of Apr 2023, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No
Onsite Burner Exemption: No
Furnace Exemption: No
Underground Injection Activity: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20150323
Handler Name: FAMILY DOLLAR #8650
Federal Waste Generator Code: 3
Generator Code Description: Very Small Quantity Generator
Source Type: Notification

Waste Code Details

Hazardous Waste Code: D005
Waste Code Description: BARIUM

Hazardous Waste Code: U002
Waste Code Description: 2-PROPANONE (I) (OR) ACETONE (I)

Hazardous Waste Code: D004
Waste Code Description: ARSENIC

Hazardous Waste Code: D009
Waste Code Description: MERCURY

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Hazardous Waste Code: D016
Waste Code Description: 2,4-D (2,4-DICHLOROPHENOXYACETIC ACID)

Hazardous Waste Code: D008
Waste Code Description: LEAD

Hazardous Waste Code: D035
Waste Code Description: METHYL ETHYL KETONE

Hazardous Waste Code: D002
Waste Code Description: CORROSIVE WASTE

Hazardous Waste Code: D007
Waste Code Description: CHROMIUM

Hazardous Waste Code: D011
Waste Code Description: SILVER

Hazardous Waste Code: D001
Waste Code Description: IGNITABLE WASTE

Hazardous Waste Code: D010
Waste Code Description: SELENIUM

Owner/Operator Details

Owner/Operator Ind:	Current Operator	**Street No:**	6960
Type:	Private	**Street 1:**	MESA RIDGE PKWY
Name:	FAMILY DOLLAR #8650	**Street 2:**	
Date Became Current:	20150323	**City:**	FOUNTAIN
Date Ended Current:		**State:**	CO
Phone:		**Country:**	US
Source Type:	Notification	**Zip Code:**	80817
Owner/Operator Ind:	Current Owner	**Street No:**	121
Type:	Private	**Street 1:**	S TEJON ST #201
Name:	MMR RETAIL G-1 LLC	**Street 2:**	
Date Became Current:	20150323	**City:**	COLORADO SPRINGS
Date Ended Current:		**State:**	CO
Phone:	719-573-1122	**Country:**	US
Source Type:	Notification	**Zip Code:**	80903

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
19	1 of 1	E	0.03 / 151.65	5,746.68 / 92	7841 FOUNTAIN MESA RD. FOUNTAIN CO 80817-	SPILLS

Case No:	2002-004	**H2O Unit Measure 2:**	
Main ID:		**Quantity 3:**	
NRC No:		**Unit Measure 3:**	
Dt of Spl or Rel:	1/2/2002	**H2O quantity 3:**	
Event Time:	11:00:00 PM	**H2O Unit Measure 3:**	
1st Rep Event Dt:	1/2/2002	**Cause:**	O
Date Reported:	1/3/2002	**Death:**	0
Time Reported:	10:30:00 AM	**Injury:**	0
Date Entered:	1/4/2002	**Evacuation:**	Y
Time Entered:	2:09:41 PM	**Evacuation No:**	200
Land:	FALSE	**PRP City:**	
Air:	FALSE	**PRP County:**	
Surface Water:	FALSE	**PRP State:**	CO
Ground Water:	FALSE	**PRP Zip:**	
Material Type:	HAZARDOUS	**PRP Phone:**	
Quantity 1:	30000	**PRP Extension:**	
Unit Measure 1:	O	**Mile Marker:**	
H2O Quantity 1:	0	**Who Took Report:**	MIKE MORELAND
H2O Unit Measure 1:	U	**Fixed Facility:**	TRUE
Material 2:		**Event County:**	EL PASO
Quantity 2:		**Latitude:**	0

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Unit Measure 2:
Longitude: 0
H2O Quantity 2:
Source Desc:
Source: F
Source Type: AIRPORT HANGERS
Medium: FIXED FACILITY
Waterway:
Material 1: TIRES
Material 3:
PRP: UNKNOWN
PRP Contact:
PRP Street:
PRP Fax:
Responder 1: FOUNTAIN FIRE DEPT.
Responder 2: FOUNTAIN POLICE DEPT.
Responder 3: EL PASO CTY HEALTH DEPT.
Response Comments: TOM STEWART OF CDPHE-EMP RECEIVED A PHONE CALL FROM DAVE OUIMETTE OF CDPHE-APCD AT 10:30 AM REQUESTING STEWART CALL JOHN JAMES OF EL PASO COUNTY HEALTH DEPT. WHO WAS REQUESTING ASSISTANCE WITH PUBLIC HEALTH ISSUES REGARDING TIRE FIRE NEAR THE CITY OF FOUNTAIN.
Notified Name: APCD-DAVE OUIMETTE **Note: Many records provided by the department have a truncated [Notified Name] field.
Additional Comments: OTHER AGENCIES NOTIFIED WERE- AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY (ATSDR) AND ENVIRONMENTAL PROTECTION AGENCY(EPA).
Comments: ALL RUNOFF OF WATER USED TO COMBAT FIRE WAS CONTAINED ON SITE.
Cause Info: FIRE - UNKNOWN CAUSE **Note: Many records provided by the department have a truncated [Cause Info] field.
Action: FIRE CREWS DEMOLISHED ONE BUILDING TO SMOTHER FLAMES AND USED GRAVEL AND WATER TO TRY AND EXTINGUISH FIRE.

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
20	1 of 3	E	0.03 / 175.28	5,752.76 / 99	SEJ #33043 7725 Fountain Mesa Rd Fountain 80817 CO	UST

Facility ID: 15472
FacilityName(OPS): SEJ #33043
FacilityType(OPS): Retail
Fac Category (OPS): Retail Gas Station
Address (OPS): 7725 Fountain Mesa Rd
City (OPS): Fountain
Zip Code (OPS): 80817
County (OPS): El Paso
LatLong (OPS): 38.720101, -104.700167
FacName (CDLE): SEJ #33043
Address (CDLE): 7725 Fountain Mesa Rd
State (CDLE):
Fac Name (COSTIS): SEJ #33043
Address (COSTIS): 7725 Fountain Mesa Rd
Fountain 80817
County (COSTIS): El Paso
Latitude (CDLE): 38.720101
Longitude (CDLE): -104.700167
Fac Type (CDLE): Retail
FacCategry(CDLE): Retail Gas Station
State (OPS): CO
City (CDLE): Fountain
Zip (CDLE): 80817
County (CDLE): El Paso
Data Source(s): Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks

Facility Information (CDLE)

Count of Tank Tag: 2
Accnt Holdr Name: SEJ Asset Management & Investment Company
No. Dispensers: 30
Type: Retail
Owner ID: OWNR-22315

Owner Information (CDLE)

Contact Name: SEJ Asset Management & Investment Company
Middle Init:
First Name:
Company Name: SEJ Asset Management & Investment Company
Last Name: SEJ Asset Management & Investment Company
Address: 1722 Routh St, Dallas, TX 75221
Comment:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

UST Tanks (COSTIS) (As of October 2021)

Tank ID:	34115	***Owner ID:***	22315
Tank Tag:	'15472-1	***Tank Owner:***	
Tank Type Desc:	UST	***County:***	El Paso
Tank Count:	46668	***Product Name:***	Unleaded Regular (RUL)
Capacity:	15000		
Facility Owner:	SEJ Asset Management & Investment Company		
Facility Name Address:	SEJ #33043 7725 Fountain Mesa Rd Fountain 80817		

Tank ID:	34116	***Owner ID:***	22315
Tank Tag:	'15472-2	***Tank Owner:***	
Tank Type Desc:	UST	***County:***	El Paso
Tank Count:	46668	***Product Name:***	Unleaded Premium (PUL)
Capacity:	10000		
Facility Owner:	SEJ Asset Management & Investment Company		
Facility Name Address:	SEJ #33043 7725 Fountain Mesa Rd Fountain 80817		

UST Tanks 1 (CDLE)

Tank Tag:	15472-1	***Overfill Preven:***	FV: Fill Tube Valve
Tank Type:	UST	***Product Type/Name:***	Unleaded Regular (RUL)
Tank Status:	Currently In Use	***Piping Wall Type:***	Double-Walled
Capacity:	15000	***Tank Wall Type:***	
Install Date:	6/14/2001	***Piping System:***	
Date Closed:		***Piping Type:***	UG: Underground
Tank Material:	FRP: Fiberglass Reinforced Plastic		
Piping Material:	FLEX: Flexible Plastic		

UST Tanks 2 (CDLE)

Closure Meth ID:		***No Fee:***	No
Unregulated:	FALSE	***Anch Method Desc:***	
Last Used Date:		***Pipe Reld Meth1 ID:***	L5: Annual Tightness Testing
Del Prohib Date:		***Pipe Reldet Date:***	
Spill Protected:		***Backfill Mat Desc:***	
Spl Container Size:	5	***Bfill DrtCvr Amt:***	0
Spl Protection Dt:		***Manifold:***	No
Spl Container Mfg:	OPW	***Registration Date:***	7/20/2022
Spl Container Mdel:	1C-2100	***Compartment:***	FALSE
Tank Reld Meth1 ID:		***Cpmet:***	Yes
Tank Lining Date:		***Invault:***	FALSE
CP Test Date:	5/4/2001		

UST Tanks 1 (CDLE)

Tank Tag:	15472-2	***Overfill Preven:***	FV: Fill Tube Valve
Tank Type:	UST	***Product Type/Name:***	Unleaded Premium (PUL)
Tank Status:	Currently In Use	***Piping Wall Type:***	Double-Walled
Capacity:	10000	***Tank Wall Type:***	
Install Date:	6/14/2001	***Piping System:***	
Date Closed:		***Piping Type:***	UG: Underground
Tank Material:	FRP: Fiberglass Reinforced Plastic		
Piping Material:	FLEX: Flexible Plastic		

UST Tanks 2 (CDLE)

Closure Meth ID:		***No Fee:***	No
Unregulated:	FALSE	***Anch Method Desc:***	
Last Used Date:		***Pipe Reld Meth1 ID:***	L5: Annual Tightness Testing
Del Prohib Date:		***Pipe Reldet Date:***	
Spill Protected:		***Backfill Mat Desc:***	
Spl Container Size:	5	***Bfill DrtCvr Amt:***	0

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Spl Protection Dt:
Spl Container Mfg: OPW
Spl Container Mdel: 1C-2100
Tank Reld Meth1 ID:
Tank Lining Date:
CP Test Date: 5/4/2001
Manifold: No
Registration Date: 7/20/2022
Compartment: FALSE
Cpmet: Yes
Invault: FALSE

Oil & Public Safety Regulated Storage Tanks (COSTIS)

Tank Tag: 15472-2
Tank Status: Currently In Use
Tank Type: UST
Tank Name: TNK-030652
Installation Date: 6/14/2001
Closure Date:
Tank Material: FRP: Fiberglass Reinforced Plastic
Tank Wall Type:
Facility Name: SEJ #33043
Facility Type: Retail
Facility Category: Retail Gas Station
Overfill Preven: FV: Fill Tube Valve
Tank Corsn Protection Meth: Fiberglass (n/a)
Tank Rel Detn Mthd Primary: T2: Inter Mntrg w/ Sensor
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP): Non-metallic
PCP at Tank: No Electrolyte Contact (n/a)
PCP at Dispenser: No Electrolyte Contact (n/a)
Piping Rel Detn Mthd Primary: L5: Annual Tightness Testing
Piping Rel Detn Mthd Secondary:
Leak Detector Type: M: Mechanical
Capacity Gallons : 10000
Product: Unleaded Premium (PUL)
Piping Type: UG: Underground
Piping System:
Piping Material: FLEX: Flexible Plastic
Piping Wall Type: Double-Walled
Address: 7725 Fountain Mesa Rd
City: Fountain
County: El Paso
ZIP Code: 80817

Tank Tag: 15472-1
Tank Status: Currently In Use
Tank Type: UST
Tank Name: TNK-030651
Installation Date: 6/14/2001
Closure Date:
Tank Material: FRP: Fiberglass Reinforced Plastic
Tank Wall Type:
Facility Name: SEJ #33043
Facility Type: Retail
Facility Category: Retail Gas Station
Overfill Preven: FV: Fill Tube Valve
Tank Corsn Protection Meth: Fiberglass (n/a)
Tank Rel Detn Mthd Primary: T2: Inter Mntrg w/ Sensor
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP): Non-metallic
PCP at Tank: No Electrolyte Contact (n/a)
PCP at Dispenser: No Electrolyte Contact (n/a)
Piping Rel Detn Mthd Primary: L5: Annual Tightness Testing
Piping Rel Detn Mthd Secondary:
Leak Detector Type: M: Mechanical
Capacity Gallons : 15000
Product: Unleaded Regular (RUL)
Piping Type: UG: Underground
Piping System:
Piping Material: FLEX: Flexible Plastic
Piping Wall Type: Double-Walled
Address: 7725 Fountain Mesa Rd
City: Fountain
County: El Paso
ZIP Code: 80817

UST Owner (COSTIS) (As of October 2021)

Owner ID: 22315
First Name:
Middle Init:
Last Name: SEJ Asset Management & Investment Company
Full Name:
Address1: 1722 Routh St
City: Dallas
State: TX
County: Dallas
Zip Code: 75221

Oil & Public Safety Regulated Storage Tank Details

No of Tanks: 2

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Facility Contact Details (CDLE)

Contact ID:	0033h00000lKyBC	***Role:***	Facility Owner
Costis ID:	FACOWN-15472-10331-Dec 12 2001 9:20AM	***Fac Contact Name:***	FCON-001498
Active:	FALSE	***Contact Last Name:***	7-Eleven Inc
Contact ID:	0033h00000lKyBF	***Role:***	Facility Owner
Costis ID:	FACOWN-15472-34526-May 10 2001 3:52PM	***Fac Contact Name:***	FCON-006195
Active:	FALSE	***Contact Last Name:***	7-Eleven Inc
Contact ID:	0033h00000mtYqV	***Role:***	Facility Owner
Costis ID:	FACOWN-15472-47737-Oct 15 2013 10:37AM	***Fac Contact Name:***	FCON-052271
Active:	TRUE	***Contact Last Name:***	SEJ Asset Management & Investment Company
Contact ID:	0033h00000lKyBI	***Role:***	Facility Owner
Costis ID:	FACOWN-15472-5403-Jan 15 2002 9:09AM	***Fac Contact Name:***	FCON-001593
Active:	FALSE	***Contact Last Name:***	7-Eleven Inc
Contact ID:	0033h00000mtX4Z	***Role:***	A/B Operator
Costis ID:	ABOP-15472-1148	***Fac Contact Name:***	FCON-047501
Active:	TRUE	***Contact Last Name:***	Marc Westfall

20	2 of 3	E	0.03 / 175.28	5,752.76 / 99	***SEJ #33043*** ***7725 Fountain Mesa Rd Fountain 80817*** ***CO***	***LST***

Facility ID:	15472	***Fac Name(CDLE):***	SEJ #33043
Event ID:		***Address(CDLE):***	7725 Fountain Mesa Rd
Facility Name(OPS):	SEJ #33043	***Fac Type(CDLE):***	Retail
Facility Type(OPS):	Retail	***Fac Category(CDLE):***	Retail Gas Station
Fac Category(OPS):	Retail Gas Station	***City(CDLE):***	Fountain
Address(OPS):	7725 Fountain Mesa Rd	***Zip(CDLE):***	80817
City(OPS):	Fountain	***County(CDLE):***	El Paso
Zip Code(OPS):	80817	***State(CDLE):***	
County(OPS):	El Paso	***Latitude(CDLE):***	38.720101
State(OPS):	CO	***Longitude(CDLE):***	-104.700167
Lat Long(OPS):	38.720101, -104.700167		
Fac Name(COSTIS):	SEJ #33043		
Address (COSTIS):	7725 Fountain Mesa Rd Fountain 80817		
County (COSTIS):	El Paso		
Original Source:	Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks; OPS Petroleum Release Events in Colorado - Petroleum Release Events		
Owner ID:	22315		
Owner Name:			

Events (CDLE)

Event ID:	9039	***Proj. Closure Date:***	
Alt Event ID:		***Category:***	
Status:	Closed	***Sardonyx ID:***	
UST Tank Count:	2	***MTBE Classifica:***	
AST Tank Count:	0	***Sum of Reimbur Amt:***	
Source of Release:		***Reviewer Full Name:***	John Gould
Cause of Release:		***Logged On:***	9/18/2002
Confirm Rel Dt:	9/13/2002	***Logged By:***	
Site Name:	SEJ #33043		
Loc Addr:			
Loc Addr2:			
Loc Addr3:			
Aka Name:			
Aka Loc Addr:			

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Facility (CDLE)

Owner Costis ID:	OWNR-22315	***Type:***	Retail
No of Active Tanks:	2	***Facility Owner:***	SEJ Asset Management & Investment Company
No of Metred Prod:	30		

Events (COSTIS) (As of October 2021)

Event ID:	9039	***Log Date:***	9/18/2002 3:44:54 PM
Process Status Name:	Closed		
Site Name:	7-Eleven #33043		
Facility Name:			
Address:	7725 Fountain Mesa Rd Fountain CO 80817		
Loc Address:	7725 Fountain Mesa Rd Fountain 80817		
Loc City:	Fountain		
Loc County:	El Paso		

OPS Regulated Storage Tanks

No of Tanks:	2

OPS Petroleum Release Events in Colorado - Petroleum Release Events

Event ID:	9039	***Phone:***	(303) 318-4357
Release No:	REL-005209	***City:***	Fountain
Status:	Closed	***Zip:***	80817
Release Date:	9/13/2002	***State:***	CO
Closure Date:		***County:***	El Paso
NFA Type:	Administrative	***Latitude:***	38.720101
Release Cause:		***Longitude:***	-104.700167
Reimbursement Total:		***Latitude Longitude:***	38.720101, -104.700167
Contact:	John Gould		
Release Source:			
Site Name:	SEJ #33043		
Address:	7725 Fountain Mesa Rd		
Email:	cdle_ops_public_record_center@state.co.us		
Link :	https://socgov18.force.com/s/release/a183h000003KWbz		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
20	3 of 3	E	0.03 / 175.28	5,752.76 / 99	SEJ ASSET MANAGEMENT - 7-ELEVEN #33043 7725 FOUNTAIN MESA RD FOUNTAIN CO 80817	AIR PERMITS

APCD Site ID:	041-1554	***Sip Status Co:***	FALSE
Site ID:	1554	***Sip Status O3:***	FALSE
Fed Facility ID:	4387411	***Site Cont Company:***	7-ELEVEN INC
County:	EL PASO	***Descriptn Category:***	PC
Addr County Name:	EL PASO	***Site First Name:***	Marc
Address Type:	STREET	***Site Full Name:***	Marc Westfall
Air Program:	SM	***Site Last Name:***	Westfall
Air Acid Precip:		***Site Title:***	
Class Apen Exempt:		***Site Phone:***	(214)415-0146
Class CFC:		***Site Fax:***	(208)342-5353
Class Condensate :		***No Employees:***	0.0
Class Fesop:		***Site Geocode Date:***	28-Nov-2018 15:16:43
Class Mact:		***Pt Lin Are:***	P
Class Neshap:		***Src Scale:***	2
Class Non Fed Rpt:		***Verification:***	
NSPS Federal:		***NAICS Prime:***	457110
Class NSPS State:		***NAICS Second:***	
Class NSR:		***Sic Prime:***	5541
Class PSD:		***Sic Second:***	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Sip Fed Jd:		**Site Operat Stat:**	O
Class Sip Federal:	SM	**Owner Cust:**	9920108246
Air Title:		**Method Code:**	I2
Class Tribal:		**Site Lat:**	384312.3794
CMS Category:		**Site Long:**	1044201.2573
CMS Frequency:	0	**UTM Horiz:**	526.049
Cpts Bogus Ind:	FALSE	**UTM Vert:**	4285.759
Govt Fac Classifi:	0	**UTM Zone:**	13.0
Hap Classifi:	TBD	**Vert Dat:**	1
NAA NSR Classifi:	TBD	**Vert Meas:**	1753.6
Op Classification:	TBD	**Vert Meas Acc:**	3.0
Property Area:	0.0	**Vert Meth Coll:**	OT
PSD Classifi:	TBD	**Site Horiz Dat:**	2
City FIPS Code:	27865	**Acc Units:**	METERS
State FIPS:	08	**Accuracy:**	30.0
County FIPS:	041	**Date Coll:**	28-Nov-2018 15:16:43
Addr County FIPS:	041		
Permit App:	SEJ ASSET MANAGEMENT - 7-ELEVEN #33043		
SIC Sec Desc:			
Site Email:	marc.westfall@7-11.com		
SIC Pri Desc:	AUTOMOTIVE DEALERS AND GASOLINE SERVICE STATIONS - Gasoline Service Station		
Site Description:	CONVENIENCE STORE WITH GASOLINE		
Site LL Description:	Elevation source: 3DEP 1/3 arc-second		

Sip Prog1:		**Sip Prog3 Area:**	
Sip Prog1 Area:		**Sip Prog4:**	
Sip Prog2:		**Sip Prog4 Area:**	
Sip Prog2 Area:		**Sip Prog5:**	
Sip Prog3:			

Site Owner

Owner Bill Cycle:	3	**Mail Fax:**	(972)828-1011
Owner Description:	FUEL DISPENSING STATIONS	**Mail Full Name:**	RANKIN GASAWAY
Mail Addr 1:	1722 ROUTH STREET	**Mail First Name:**	RANKIN
Mail Addr 2:	SUITE 1000	**Mail Last Name:**	GASAWAY
Mail Type:	STREET	**Mail Phone:**	(972)828-0711
Mail City:	DALLAS	**Mail Province:**	
Mail City Cd:		**Mail State:**	48
Mail Company:		**Mail Title:**	
Mail Country Cd:	US	**Mail Zip:**	75221-
Owner Name:	SEJ ASSET MANAGEMENT & INVESTMENT COMPANY		
Owner Mail Email:	rankin.gasaway@7-11.com		

Site Pollutant

Site ID:	1554	**Pk Co:**	
State FIPS:	08	**Pk Co Mc:**	Z
County FIPS:	041	**Pk Co Re:**	
Data Year:	2018	**Pk Co Re Mc:**	Z
Inventory Year:	2023	**Pk Co Re Units:**	PD
Inventory Year 2:	23	**Pk Co Unc:**	
Pollutant Code:	VOC	**Pk Co Units:**	PD
Is Colorado Hap:	FALSE	**Pk O3:**	
Is Criteria:	TRUE	**Pk O3 Mc:**	Z
Is EPCRA Only:	FALSE	**Pk O3 Re:**	
Is Hap:	FALSE	**Pk O3 Re Mc:**	Z
NEI Pollutant ID:	VOC	**Pk O3 Re Units:**	PD
Ozone Depleting:	FALSE	**Pk O3 Unc:**	
Estim:	3.305627	**Pk O3 Units:**	PD
Estim Mc:	Z	**EMIS Pot:**	
Estim Unc:	3.305627	**Pot Mc:**	
Estim Units:	TY	**Pot Unc:**	
Limit1:		**Pot Unc Mc:**	
Limit1 Mc:		**Pot Unc Units:**	
Limit1 Units:		**Pot Units:**	
Limit2:		**Re Estim:**	0.0

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Limit2 Mc:		**Re Estim Mc:**	Z
Limit2 Units:		**Re ESTIM Units:**	TY
Pollutant Name:	VOLATILE ORGANIC COMPOUNDS		

Stack

Site ID:	1554	**Plume Height:**	30
Stack ID:	001	**Rough Terrain Ind:**	N
State FIPS:	08	**Diameter:**	0.0
County FIPS:	041	**Diameter Meter:**	0.0
Data Year:	2018	**Geo Origin:**	plant
Inventory Year:	2023	**Height:**	0.0
Inventory Year 2:	23	**Height Meter:**	0.0
Apcd Stack ID:	041-1554-S001	**Horiz Dat:**	2
Cem Recorder Flag:	No	**Lining Code:**	
Distance:		**Acc Units:**	4
Exit Gas Flow Rate:	0.0	**Accuracy:**	30.0
Exit Gas Temp:	70.0	**Method Code:**	I2
Exit Gas Kelvin:	294.0	**Pt Lin Area:**	P
Gas Velocity:	0.0	**Src Scale:**	2
Gas Meters Sec:	0.0	**Latitude:**	384312.3794
Bldg Height:	0	**Longitude:**	1044201.2573
Bldg Length:	0	**Type Code:**	F
Bldg Width:	0	**UTM Horiz:**	526.049
Stack Height:	0	**UTM Vert:**	4285.759
NEI Em Rls Pt Typ:	1	**Vert Meas:**	1753.6
NEI Exit Gas Flow:	0.0	**UTM Zone:**	13.0
NEI Horiz Mc:	019	**X Coord:**	-104.70034925
NEI Ref Pt Code:	105	**Y Coord:**	38.720105388888896
Emission Release Desc:	2 GASOLINE UST		
Description:	Elevation source: 3DEP 1/3 arc-second		
Description Category:	PC		
Stack Type:	FUGITIVE EMISSIONS, NO STACK EXISTS		

Stack Pollutant

Site ID:	1554	**Pk Co:**	
Stack ID:	001	**Pk Co Mc:**	Z
State Fips:	08	**Pk Co Re:**	
County Fip:	041	**Pk Co Re Mc:**	Z
Data Year:	2018	**Pk Co Re Units:**	PD
Inventory Year:	2023	**Pk Co Unc:**	
Inventory Year 2:	23	**Pk Co Units:**	PD
Pollutant Code:	VOC	**Pk O3:**	
Is Colorado Hap:	FALSE	**Pk O3 Mc:**	Z
Is Criteria:	TRUE	**Pk O3 Re:**	
Is Epcra Only:	FALSE	**Pk O3 Re Mc:**	Z
Is Hap:	FALSE	**Pk O3 Re Units:**	PD
Ozone Depleting:	FALSE	**Pk O3 Unc:**	
Estim:	3.305627	**Pk O3 Units:**	PD
Estim Mc:	Z	**Pot:**	
Estim Unc:	3.305627	**Pot Mc:**	
Estim Units:	TY	**Pot Unc:**	
Limit1:		**Pot Unc Mc:**	
Limit1 Mc:		**Pot Unc Units:**	
Limit1 Units:		**Pot Units:**	
Limit2:		**Re Estim:**	0.0
Limit2 Mc:		**Re Estim Mc:**	Z
Limit2 Units:		**Re Estim Units:**	TY
Pollutant Name:	VOLATILE ORGANIC COMPOUNDS		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
21	1 of 1	ESE	0.06 / 291.50	5,741.00 / 87	Les Schwab Tire Center #164 7990 Fountain Mesa Rd Fountain CO	SWF/LF

Loc ID:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Cert of Reg ID: 2313

Waste Tire Registrants Info

County:	El Paso	**Processor:**	No
Business Phone:	541-416-5514	**Mobile Proc:**	No
Generator:	Yes	**End User:**	No
Hauler:	No	**Monofill:**	No
Collection Facility:	No		
Doing Business As:			

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22 | **1 of 1** | **WNW** | **0.06 / 307.16** | **5,628.46 / -26** | **702 FRONTAGE ROAD SOUTH FOUNTAIN CO** | **SPILLS**

Case No:	CO96-360	**H2O Unit Measure 2:**	
Main ID:		**Quantity 3:**	0
NRC No:	360801	**Unit Measure 3:**	
Dt of Spl or Rel:	9/11/1996	**H2O quantity 3:**	0
Event Time:	4:00:00 PM	**H2O Unit Measure 3:**	
1st Rep Event Dt:	9/11/1996	**Cause:**	F
Date Reported:	9/11/1996	**Death:**	0
Time Reported:	4:50:00 PM	**Injury:**	0
Date Entered:	10/8/1996	**Evacuation:**	N
Time Entered:	11:46:56 AM	**Evacuation No:**	0
Land:	TRUE	**PRP City:**	COLORADO SPRINGS
Air:	FALSE	**PRP County:**	EL PASO
Surface Water:	FALSE	**PRP State:**	CO
Ground Water:	FALSE	**PRP Zip:**	80903-
Material Type:	OIL	**PRP Phone:**	719-634-8874-
Quantity 1:	230	**PRP Extension:**	
Unit Measure 1:	G	**Mile Marker:**	
H2O Quantity 1:	0	**Who Took Report:**	STEWART, TOM
H2O Unit Measure 1:		**Fixed Facility:**	FALSE
Material 2:		**Event County:**	EL PASO
Quantity 2:	0	**Latitude:**	0
Unit Measure 2:		**Longitude:**	0
H2O Quantity 2:	0		

Source Desc:
Source: H
Source Type: TANK WAGON
Medium: LAND
Waterway:
Material 1: OILS,DIESEL
Material 3:
PRP: ACORN PETROLEUM
PRP Contact: RONALD SPRINGSTEEN
PRP Street: 529 SOUTH SAHWATCH
PRP Fax:
Responder 1:
Responder 2:
Responder 3:
Response Comments:
Notified Name: CDPHE/HMWMD/SW **Note: Many records provided by the department have a truncated [Notified Name] field.
Additional Comments:
Comments:
Cause Info: BROKEN PTO HOSE **Note: Many records provided by the department have a truncated [Cause Info] field.
Action: RELEASE STOPPED AND CLEAN UP CREW EN ROUTE **Note: Many records provided by the department have a truncated [Action] field.

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23 | **1 of 1** | **E** | **0.06 / 313.16** | **5,745.44 / 91** | **ADVANCE AUTO #6425 7960 FOUNTAIN MESA RD FOUNTAIN CO 80817** | **RCRA NON GEN**

EPA Handler ID: COR000254318

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Gen Status Universe: No Report
Contact Name: AMANDA SANDIDGE
Contact Address: 5008 , AIRPORT RD , , ROANOKE , VA, 24012 , US
Contact Phone No and Ext: 540-561-8303
Contact Email: AMANDA.SANDIDGE@ADVANCE-AUTO.COM
Contact Country: US
County Name: EL PASO
EPA Region: 08
Land Type: Private
Receive Date: 20210604
Location Latitude:
Location Longitude:

Violation/Evaluation Summary

Note: NO RECORDS: As of Apr 2023, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No
Onsite Burner Exemption: No
Furnace Exemption: No
Underground Injection Activity: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20210604
Handler Name: ADVANCE AUTO #6425
Source Type: Notification
Federal Waste Generator Code: N
Generator Code Description: Not a Generator, Verified

Waste Code Details

Hazardous Waste Code: F001
Waste Code Description: THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING: TETRACHLOROETHYLENE, TRICHLORETHYLENE, METHYLENE CHLORIDE, 1,1,1-TRICHLOROETHANE, CARBON TETRACHLORIDE AND CHLORINATED FLUOROCARBONS; ALL SPENT SOLVENT MIXTURES/BLENDS USED IN DEGREASING CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Owner/Operator Details

Owner/Operator Ind: Current Operator
Type: Private
Name: ADVANCE STORES COMPANY INC
Date Became Current: 20040610
Date Ended Current:
Phone:
Street No: 5008
Street 1: AIRPORT RD
Street 2:
City: ROANOKE
State: VA
Country: US

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Source Type:	Notification	**Zip Code:**	24012	
Owner/Operator Ind:	Current Owner	**Street No:**	7089	
Type:	Private	**Street 1:**	FIRENZA PL	
Name:	MALIK PROPERTIES LLC	**Street 2:**		
Date Became Current:	20040128	**City:**	DUBLIN	
Date Ended Current:		**State:**	OH	
Phone:		**Country:**	US	
Source Type:	Notification	**Zip Code:**	43016	

24	1 of 1	E	0.06 / 317.22	5,746.49 / 92	**UCHealth Fountain Freestanding ED** **7890 Fountain Mesa Road** **Fountain CO 80817**	ALT FUELS

ID:	213867	**CNG Dispenser No:**	
Fuel Type Code:	ELEC: Electric	**CNG Site Renew Src:**	
Station Phone:	800-663-5633	**CNG Tot Compr Cap:**	
Expected Date:		**CNG Storage Cap:**	
BD Blends:		**CNG Fill Type Code:**	
NG PSI:		**CNG PSI:**	
Federal Agency ID:		**CNG Vehicle Class:**	
Open Date:	2022-04-13	**LNG Site Renew Src:**	
Hydrogen is Retail:		**LNG Vehicle Class:**	
Federal Agency:		**LPG Nozzle Types:**	
Facility Type:		**Hydrogen Pressures:**	
Dt Last Confirmed:	2023-06-05	**Hydrogen Standards:**	
Updated at:	2023-06-05 00:01:32 UTC	**Latitude:**	38.718698
Access Code:	public	**Longitude:**	-104.702013
Access Detail Code:			
Groups with Access Code:	Public		
Groups with Access Code Fr:	Public		
Fed Agency Name:			
Hydrogen Status Link:			
E85 Other Ethanol Blends:			
NPS Unit Name:			
Cards Accepted:			
CNG Statn Sells Renewable Na:			
LNG Statn Sells Renewable Na:			
Maximum Vehicle Class:			
RD Blended With Biodiesel:			
RD Blends:			
RD Blends French:			
RD Maximum Biodiesel Level:			
Status:	Open: The station is open.		
Owner Type Desc:			
E85 Blender Pump Desc:			
NG Fill Type Desc:			
NG Vehicle Class Desc:			
Geocode Status Desc:	The location is from a real GPS readout at the station.		
Group with Access Desc:	Publicly available to all customers.		
LPG Primary Desc:			
Intersection Directions:			
Access Days Time:			
Restricted Access:			

25	1 of 1	SE	0.08 / 446.00	5,705.08 / 51	**Former John Janitell Property** **6525 Mesa Rd Fountain 80817 CO**	UST

Facility ID:	18992	**Fac Name (COSTIS):**	Former John Janitell Property
FacilityName(OPS):	Former John Janitell Property	**Address (COSTIS):**	6525 Mesa Rd Fountain 80817
FacilityType(OPS):	Non-Retail	**County (COSTIS):**	El Paso
Fac Category (OPS):	Other	**Latitude (CDLE):**	38.713932
Address (OPS):	6525 Mesa Rd	**Longitude (CDLE):**	-104.705011
City (OPS):	Fountain	**Fac Type (CDLE):**	Non-Retail

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Zip Code (OPS):	80817	**FacCategry(CDLE):**	Other
County (OPS):	El Paso	**State (OPS):**	CO
LatLong (OPS):	38.713932, -104.705011	**City (CDLE):**	Fountain
FacName (CDLE):	Former John Janitell Property	**Zip (CDLE):**	80817
Address (CDLE):	6525 Mesa Rd	**County (CDLE):**	El Paso
State (CDLE):			

Data Source(s): Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks

Facility Information (CDLE)

Count of Tank Tag:	0	**Accnt Holdr Name:**	Classic Communities
No. Dispensers:	0	**Type:**	Non-Retail
Owner ID:	OWNR-21830		

Owner Information (CDLE)

Contact Name:	Classic Communities	**Middle Init:**	
First Name:			
Company Name:	Classic Communities		
Last Name:	Classic Communities		
Address:	6385 Corporate Dr Ste 200, Colorado Springs, CO 80919		
Comment:			

UST Tanks 1 (CDLE)

Tank Tag:	18992-1	**Overfill Preven:**	
Tank Type:	UST	**Product Type/Name:**	Unleaded Regular (RUL)
Tank Status:	Permanently Closed	**Piping Wall Type:**	
Capacity:	560	**Tank Wall Type:**	
Install Date:		**Piping System:**	
Date Closed:		**Piping Type:**	
Tank Material:			
Piping Material:			

UST Tanks 2 (CDLE)

Closure Meth ID:		**No Fee:**	No
Unregulated:	TRUE	**Anch Method Desc:**	
Last Used Date:		**Pipe Reld Meth1 ID:**	
Del Prohib Date:		**Pipe Reldet Date:**	
Spill Protected:		**Backfill Mat Desc:**	
Spl Container Size:	0	**Bfill DrtCvr Amt:**	0
Spl Protection Dt:		**Manifold:**	No
Spl Container Mfg:		**Registration Date:**	
Spl Container Mdel:		**Compartment:**	FALSE
Tank Reld Meth1 ID:		**Cpmet:**	No
Tank Lining Date:		**Invault:**	FALSE
CP Test Date:			

UST Tanks 1 (CDLE)

Tank Tag:	18992-2	**Overfill Preven:**	
Tank Type:	UST	**Product Type/Name:**	Unleaded Regular (RUL)
Tank Status:	Permanently Closed	**Piping Wall Type:**	
Capacity:	560	**Tank Wall Type:**	
Install Date:		**Piping System:**	
Date Closed:		**Piping Type:**	
Tank Material:			
Piping Material:			

UST Tanks 2 (CDLE)

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Closure Meth ID:
Unregulated: TRUE
Last Used Date:
Del Prohib Date:
Spill Protected:
Spl Container Size: 0
Spl Protection Dt:
Spl Container Mfg:
Spl Container Mdel:
Tank Reld Meth1 ID:
Tank Lining Date:
CP Test Date:
No Fee: No
Anch Method Desc:
Pipe Reld Meth1 ID:
Pipe Reldet Date:
Backfill Mat Desc:
Bfill DrtCvr Amt: 0
Manifold: No
Registration Date:
Compartment: FALSE
Cpmet: No
Invault: FALSE

Oil & Public Safety Regulated Storage Tanks (COSTIS)

Tank Tag: 18992-2
Tank Status: Permanently Closed
Tank Type: UST
Tank Name: TNK-043493
Installation Date:
Closure Date:
Tank Material:
Tank Wall Type:
Facility Name: Former John Janitell Property
Facility Type: Non-Retail
Facility Category: Other
Overfill Preven:
Tank Corsn Protection Meth:
Tank Rel Detn Mthd Primary:
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP):
PCP at Tank:
PCP at Dispenser:
Piping Rel Detn Mthd Primary:
Piping Rel Detn Mthd Secondary:
Leak Detector Type:
Capacity Gallons : 560
Product: Unleaded Regular (RUL)
Piping Type:
Piping System:
Piping Material:
Piping Wall Type:
Address: 6525 Mesa Rd
City: Fountain
County: El Paso
ZIP Code: 80817

Tank Tag: 18992-1
Tank Status: Permanently Closed
Tank Type: UST
Tank Name: TNK-043492
Installation Date:
Closure Date:
Tank Material:
Tank Wall Type:
Facility Name: Former John Janitell Property
Facility Type: Non-Retail
Facility Category: Other
Overfill Preven:
Tank Corsn Protection Meth:
Tank Rel Detn Mthd Primary:
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP):
PCP at Tank:
PCP at Dispenser:
Piping Rel Detn Mthd Primary:
Piping Rel Detn Mthd Secondary:
Leak Detector Type:
Capacity Gallons : 560
Product: Unleaded Regular (RUL)
Piping Type:
Piping System:
Piping Material:
Piping Wall Type:
Address: 6525 Mesa Rd
City: Fountain
County: El Paso
ZIP Code: 80817

UST Owner (COSTIS) (As of October 2021)

Owner ID: 21830
First Name:
Middle Init:
Last Name: Classic Communities
Full Name:
Address1: 6385 Corporate Dr Ste 200
City: Colorado Springs
State: CO
County: El Paso
Zip Code: 80919

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Oil & Public Safety Regulated Storage Tank Details

No of Tanks: 0

Facility Contact Details (CDLE)

Contact ID: 0033h00000lKyVq
Costis ID: FACOWN-18992-46496-Aug 27 2010 12: 09PM
Active: TRUE
Role: Facility Owner
Fac Contact Name: FCON-008612
Contact Last Name: Classic Communities

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26 | ***1 of 2*** | ***ENE*** | ***0.10 / 521.22*** | ***5,766.00 / 112*** | ***Lowes #2607 7710 Fountain Mesa Rd Fountain 80817 CO*** | ***AST***

Facility ID: 18594
FacName (OPS): Lowes #2607
FacType (OPS): Non-Retail
Fac Category (OPS): Emergency Generator Only
Lat/Long (OPS): 38.721117, -104.701991
Address (OPS): 7710 Fountain Mesa Rd
City (OPS): Fountain
County (OPS): El Paso
Fac Name (COSTIS): Lowes #2607
Fac Type (CDLE): Non-Retail
FacCategry(CDLE): Emergency Generator Only
Address (COSTIS): 7710 Fountain Mesa Rd
Fountain 80817
Data Source(s): Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks

Fac Name (CDLE): Lowes #2607
Address (CDLE): 7710 Fountain Mesa Rd
City (CDLE): Fountain
Zip (CDLE): 80817
County (CDLE): El Paso
State (CDLE):
Latitude (CDLE): 38.721117
Longitude (CDLE): -104.701991
County (COSTIS): El Paso
Zip Code (OPS): 80817
State (OPS): CO

Facility Information (CDLE)

Count of Tank Tag: 1
No. Dispensers: 0
Owner ID: OWNR-21296
Accnt Holdr Name: Lowes Compliance RFS-92
Type: Non-Retail

Owner Information (CDLE)

Contact Name: Lowes Compliance RFS-92
First Name:
Middle Init:
Address: 1000 Lowes Blvd, Mooresville, NC 28115
Comment: MELISSA CALL ENERGY SYSTEM SUPERVISOR (RDR contact)facility aka Lowes Home Improvement Warehouse Inc.
Last Name: Lowes Compliance RFS-92
Company Name: Lowes Compliance RFS-92

AST Tanks (COSTIS) (As of October 2021)

Tank ID: 41439
Tank Tag: '18594-1
Tank Type Desc: AST
Tank Count: 46668
Capacity: 1500
Facility Owner: Lowes Compliance RFS-92
Facility Name Address: Lowes #2607
7710 Fountain Mesa Rd
Fountain 80817
Owner ID: 21296
Tank Owner:
County: El Paso
Product Name: Diesel

AST Tanks 1 (CDLE)

Tank Tag: 18594-1
Tank Type: AST
Tank Wall Type:
Piping System:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Tank Status:	Currently In Use	**Piping Type:**	AG: Aboveground
Capacity:	1500	**Piping Wall Type:**	Double-Walled
Install Date:	1/1/2009	**Tank Material:**	AST: UL142/Equiv.
Date Closed:		**Piping Material:**	AG: Aboveground Lines
Product Type/Name:	Diesel	**Overfill Preven:**	ULL: AL: External Aud/Vis Alarm

AST Tanks 2 (CDLE)

Closure Meth ID:		**No Fee:**	No
Unregulated:	FALSE	**Pipe Reldet Date:**	
Last Used Date:		**Backfill Mat Desc:**	
Del Prohib Date:		**Bfill DrtCvr Amt:**	0
Spill Protected:		**Manifold:**	No
Spl Container Size:	0	**Tm Name:**	
Spl Protection Dt:		**Registration Date:**	12/22/2021
Spl Container Mfg:	Morrison	**Compartment:**	FALSE
Spl Container Mdel:	517	**Cpmet:**	Yes
Tank Reld Meth1 ID:	Double Wall Tank	**Invault:**	FALSE
Tank Lining Date:		**Serial No:**	none-rectangle
CP Test Date:			
Anch Method Desc:			
Pipe Reld Meth1 ID:	T11/L11: Mthly Visual Insp (AST)		

Oil & Public Safety Regulated Storage Tank Details

No of Tanks: 1

Oil & Public Safety Regulated Storage Tanks (COSTIS)

Tank Tag:	18594-1	**Leak Detector Type:**	
Tank Status:	Currently In Use	**Capacity Gallons :**	1500
Tank Type:	AST	**Product:**	Diesel
Tank Name:	TNK-041838	**Piping Type:**	AG: Aboveground
Installation Date:	1/1/2009	**Piping System:**	
Closure Date:		**Piping Material:**	AG: Aboveground Lines
Tank Material:	AST: UL142/Equiv.	**Piping Wall Type:**	Double-Walled
Tank Wall Type:		**Address:**	7710 Fountain Mesa Rd
Facility Name:	Lowes #2607	**City:**	Fountain
Facility Type:	Non-Retail	**County:**	El Paso
Facility Category:	Emergency Generator Only	**ZIP Code:**	80817
Overfill Preven:	ULL: AL: External Aud/Vis Alarm		
Tank Corsn Protection Meth:	No Electrolyte Contact		
Tank Rel Detn Mthd Primary:	T11/L11: Mthly Visual Insp (AST)		
Tank Rel Detn Mthd Secondary:	T2: Inter Mntrg w/ Sensor		
Piping Corsn Protection (PCP):	Aboveground Line (n/a)		
PCP at Tank:	Aboveground Line (n/a)		
PCP at Dispenser:	Aboveground Line (n/a)		
Piping Rel Detn Mthd Primary:	T11/L11: Mthly Visual Insp (AST)		
Piping Rel Detn Mthd Secondary:			

AST Owner (COSTIS) (As of October 2021)

Owner ID:	21296	**Address1:**	1000 Lowes Blvd
First Name:		**City:**	Mooresville
Middle Init:		**State:**	NC
Last Name:	Lowes Compliance RFS-92	**County:**	Iredell
Full Name:		**Zip Code:**	28115

Facility Contact Details (CDLE)

Contact ID:	0033h00000mtWyg	**Role:**	Facility Owner
Costis ID:	FACOWN-18594-43112-Jul 28 2008 2:42PM	**Fac Contact Name:**	FCON-051718

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
Active:	TRUE			Contact Last Name:	Lowes Compliance RFS-92	
26	2 of 2	ENE	0.10 / 521.22	5,766.00 / 112	LOWE'S OF FOUNTAIN CO #2607 7710 FOUNTAIN MESA RD FOUNTAIN CO 80817	RCRA SQG

EPA Handler ID: COR000247684
Gen Status Universe: Small Quantity Generator
Contact Name: BOBBI TENBORG
Contact Address: 1000 , LOWES BLVD , , MOORESVILLE , NC, 28117 , US
Contact Phone No and Ext: 704-993-1564
Contact Email: BOBBI.L.TENBORG@LOWES.COM
Contact Country: US
County Name: EL PASO
EPA Region: 08
Land Type: Private
Receive Date: 20220527
Location Latitude: 38.727039
Location Longitude: -104.698073

Violation/Evaluation Summary

Note: NO VIOLATIONS: All of the compliance records associated with this facility (EPA ID) indicate NO VIOLATIONS; Compliance Monitoring and Enforcement table dated Apr, 2023.

Evaluation Details

Evaluation Start Date: 20210527
Evaluation Type Description: FACILITY SELF DISCLOSURE
Violation Short Description:
Return to Compliance Date:
Evaluation Agency: State

Evaluation Start Date: 20220519
Evaluation Type Description: FACILITY SELF DISCLOSURE
Violation Short Description:
Return to Compliance Date:
Evaluation Agency: State

Evaluation Start Date: 20200611
Evaluation Type Description: FACILITY SELF DISCLOSURE
Violation Short Description:
Return to Compliance Date:
Evaluation Agency: State

Evaluation Start Date: 20190626
Evaluation Type Description: FACILITY SELF DISCLOSURE
Violation Short Description:
Return to Compliance Date:
Evaluation Agency: State

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No
Onsite Burner Exemption: No
Furnace Exemption: No
Underground Injection Activity: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20180730
Handler Name: LOWES OF FOUNTAIN CO #2607
Federal Waste Generator Code: 2
Generator Code Description: Small Quantity Generator
Source Type: Notification

Waste Code Details

Hazardous Waste Code: D001
Waste Code Description: IGNITABLE WASTE

Hazardous Waste Code: U154
Waste Code Description: METHANOL (I) (OR) METHYL ALCOHOL (I)

Hazardous Waste Code: D005
Waste Code Description: BARIUM

Hazardous Waste Code: D006
Waste Code Description: CADMIUM

Hazardous Waste Code: D018
Waste Code Description: BENZENE

Hazardous Waste Code: D002
Waste Code Description: CORROSIVE WASTE

Hazardous Waste Code: D007
Waste Code Description: CHROMIUM

Hazardous Waste Code: D011
Waste Code Description: SILVER

Hazardous Waste Code: D009
Waste Code Description: MERCURY

Hazardous Waste Code: D016
Waste Code Description: 2,4-D (2,4-DICHLOROPHENOXYACETIC ACID)

Hazardous Waste Code: D035
Waste Code Description: METHYL ETHYL KETONE

Hazardous Waste Code: D008
Waste Code Description: LEAD

Hazardous Waste Handler Details

Sequence No: 2
Receive Date: 20201029
Handler Name: LOWES OF FOUNTAIN CO #2607
Federal Waste Generator Code: 2
Generator Code Description: Small Quantity Generator
Source Type: Notification

Waste Code Details

Hazardous Waste Code: D039
Waste Code Description: TETRACHLOROETHYLENE

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Hazardous Waste Code: U159
Waste Code Description: 2-BUTANONE (I,T) (OR) METHYL ETHYL KETONE (MEK) (I,T)

Hazardous Waste Code: D001
Waste Code Description: IGNITABLE WASTE

Hazardous Waste Code: D027
Waste Code Description: 1,4-DICHLOROBENZENE

Hazardous Waste Code: U154
Waste Code Description: METHANOL (I) (OR) METHYL ALCOHOL (I)

Hazardous Waste Code: U279
Waste Code Description: CARBARYL (OR) 1-NAPHTHALENOL, METHYLCARBAMATE

Hazardous Waste Code: D018
Waste Code Description: BENZENE

Hazardous Waste Code: U165
Waste Code Description: NAPHTHALENE

Hazardous Waste Code: D002
Waste Code Description: CORROSIVE WASTE

Hazardous Waste Code: D007
Waste Code Description: CHROMIUM

Hazardous Waste Code: D011
Waste Code Description: SILVER

Hazardous Waste Code: U072
Waste Code Description: BENZENE, 1,4-DICHLORO- (OR) P-DICHLOROBENZENE

Hazardous Waste Code: U240
Waste Code Description: 2,4-D, SALTS & ESTERS (OR) ACETIC ACID, (2,4-DICHLOROPHENOXY)-, SALTS & ESTERS (OR) DICHLOROPHENOXYACETIC ACID 2,4-D

Hazardous Waste Code: D005
Waste Code Description: BARIUM

Hazardous Waste Code: U002
Waste Code Description: 2-PROPANONE (I) (OR) ACETONE (I)

Hazardous Waste Code: U210
Waste Code Description: ETHENE, TETRACHLORO- (OR) TETRACHLOROETHYLENE

Hazardous Waste Code: U411
Waste Code Description: PHENOL, 2-(1-METHYLETHOXY)-, METHYLCARBAMATE (OR) PROPOXUR

Hazardous Waste Code: D009
Waste Code Description: MERCURY

Hazardous Waste Code: D016
Waste Code Description: 2,4-D (2,4-DICHLOROPHENOXYACETIC ACID)

Hazardous Waste Code: D004
Waste Code Description: ARSENIC

Hazardous Waste Code: U134
Waste Code Description: HYDROFLUORIC ACID (C,T) (OR) HYDROGEN FLUORIDE (C,T)

Hazardous Waste Code: U249
Waste Code Description: ZINC PHOSPHIDE ZN3P2, WHEN PRESENT AT CONCENTRATIONS OF 10% OR LESS

Hazardous Waste Code: D035
Waste Code Description: METHYL ETHYL KETONE

Hazardous Waste Code: D008

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Waste Code Description: LEAD

Hazardous Waste Handler Details

Sequence No: 3
Receive Date: 20220527
Handler Name: LOWE'S OF FOUNTAIN CO #2607
Federal Waste Generator Code: 2
Generator Code Description: Small Quantity Generator
Source Type: Notification

Waste Code Details

Hazardous Waste Code: D005
Waste Code Description: BARIUM

Hazardous Waste Code: U002
Waste Code Description: 2-PROPANONE (I) (OR) ACETONE (I)

Hazardous Waste Code: D039
Waste Code Description: TETRACHLOROETHYLENE

Hazardous Waste Code: U159
Waste Code Description: 2-BUTANONE (I,T) (OR) METHYL ETHYL KETONE (MEK) (I,T)

Hazardous Waste Code: D001
Waste Code Description: IGNITABLE WASTE

Hazardous Waste Code: D027
Waste Code Description: 1,4-DICHLOROBENZENE

Hazardous Waste Code: U154
Waste Code Description: METHANOL (I) (OR) METHYL ALCOHOL (I)

Hazardous Waste Code: U279
Waste Code Description: CARBARYL (OR) 1-NAPHTHALENOL, METHYLCARBAMATE

Hazardous Waste Code: D018
Waste Code Description: BENZENE

Hazardous Waste Code: U165
Waste Code Description: NAPHTHALENE

Hazardous Waste Code: D002
Waste Code Description: CORROSIVE WASTE

Hazardous Waste Code: D007
Waste Code Description: CHROMIUM

Hazardous Waste Code: D011
Waste Code Description: SILVER

Hazardous Waste Code: U072
Waste Code Description: BENZENE, 1,4-DICHLORO- (OR) P-DICHLOROBENZENE

Hazardous Waste Code: U240
Waste Code Description: 2,4-D, SALTS & ESTERS (OR) ACETIC ACID, (2,4-DICHLOROPHENOXY)-, SALTS & ESTERS (OR) DICHLOROPHENOXYACETIC ACID 2,4-D

Hazardous Waste Code: U210
Waste Code Description: ETHENE, TETRACHLORO- (OR) TETRACHLOROETHYLENE

Hazardous Waste Code: U134
Waste Code Description: HYDROFLUORIC ACID (C,T) (OR) HYDROGEN FLUORIDE (C,T)

Hazardous Waste Code: U411
Waste Code Description: PHENOL, 2-(1-METHYLETHOXY)-, METHYLCARBAMATE (OR) PROPOXUR

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Hazardous Waste Code: D009
Waste Code Description: MERCURY

Hazardous Waste Code: D016
Waste Code Description: 2,4-D (2,4-DICHLOROPHENOXYACETIC ACID)

Hazardous Waste Code: D004
Waste Code Description: ARSENIC

Hazardous Waste Code: U249
Waste Code Description: ZINC PHOSPHIDE ZN3P2, WHEN PRESENT AT CONCENTRATIONS OF 10% OR LESS

Hazardous Waste Code: D035
Waste Code Description: METHYL ETHYL KETONE

Hazardous Waste Code: D008
Waste Code Description: LEAD

Owner/Operator Details

Owner/Operator Ind: Current Operator
Type: Private
Name: LOWE'S HOME CENTERS LLC
Date Became Current: 20060203
Date Ended Current:
Phone: 704-993-1564
Source Type: Notification
Street No: 1000
Street 1: LOWES BLVD
Street 2:
City: MOORESVILLE
State: NC
Country: US
Zip Code: 28117

Owner/Operator Ind: Current Owner
Type: Private
Name: LOWES HOME CENTERS LLC
Date Became Current: 20060203
Date Ended Current:
Phone: 704-758-2955
Source Type: Notification
Street No: 1000
Street 1: LOWES BLVD
Street 2:
City: MOORESVILLE
State: NC
Country: US
Zip Code: 28117

Owner/Operator Ind: Current Owner
Type: Private
Name: LOWES HOME CENTERS LLC
Date Became Current: 20180730
Date Ended Current:
Phone: 704-758-2955
Source Type: Notification
Street No: 1605
Street 1: CURTIS BRIDGE RD
Street 2:
City: WILKESBORO
State: NC
Country: US
Zip Code: 28697

Owner/Operator Ind: Current Operator
Type: Private
Name: LOWES OF FOUNTAIN CO #2607
Date Became Current: 20180730
Date Ended Current:
Phone:
Source Type: Notification
Street No: 7710
Street 1: FOUNTAIN MESA RD
Street 2:
City: FOUNTAIN
State: CO
Country: US
Zip Code: 80817

Owner/Operator Ind: Current Owner
Type: Private
Name: LOWE'S HOME CENTERS LLC
Date Became Current: 20060203
Date Ended Current:
Phone: 704-993-1564
Source Type: Notification
Street No: 1000
Street 1: LOWES BLVD
Street 2:
City: MOORESVILLE
State: NC
Country: US
Zip Code: 28117

Owner/Operator Ind: Current Operator
Type: Private
Name: LOWES HOME CENTERS LLC
Date Became Current: 20060203
Date Ended Current:
Phone: 704-758-2955
Source Type: Notification
Street No: 1000
Street 1: LOWES BLVD
Street 2:
City: MOORESVILLE
State: NC
Country: US
Zip Code: 28117

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Historical Handler Details

Receive Dt: 20201029
Generator Code Description: Small Quantity Generator
Handler Name: LOWES OF FOUNTAIN CO #2607

Receive Dt: 20180730
Generator Code Description: Small Quantity Generator
Handler Name: LOWES OF FOUNTAIN CO #2607

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
27	1 of 1	E	0.11 / 599.90	5,725.69 / 71	SAFEWAY STORE #1975 6925 MESA RIDGE PKWY FOUNTAIN CO 80817	RCRA VSQG

EPA Handler ID: COR000228155
Gen Status Universe: VSG
Contact Name: KEITH B POWERS
Contact Address: 5918 , STONERIDGE MALL RD , , PLEASANTON , CA, 94588 , US
Contact Phone No and Ext: 510-246-0358
Contact Email: KEITH.POWERS@SAFEWAY.COM
Contact Country: US
County Name: EL PASO
EPA Region: 08
Land Type: Private
Receive Date: 20201229
Location Latitude: 38.720381
Location Longitude: -104.682724

Violation/Evaluation Summary

Note: NO RECORDS: As of Apr 2023, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No
Onsite Burner Exemption: No
Furnace Exemption: No
Underground Injection Activity: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 2
Receive Date: 20201229
Handler Name: SAFEWAY STORE #1975
Federal Waste Generator Code: 3
Generator Code Description: Very Small Quantity Generator
Source Type: Notification

Waste Code Details

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Hazardous Waste Code: P075
Waste Code Description: NICOTINE, & SALTS (OR) PYRIDINE, 3-(1-METHYL-2-PYRROLIDINYL)-,(S)-, & SALTS

Hazardous Waste Code: D002
Waste Code Description: CORROSIVE WASTE

Hazardous Waste Code: P001
Waste Code Description: 2H-1-BENZOPYRAN-2-ONE, 4-HYDROXY-3-(3-OXO-1-PHENYLBUTYL)-, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3% (OR) WARFARIN, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3%

Hazardous Waste Code: D001
Waste Code Description: IGNITABLE WASTE

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20120810
Handler Name: SAFEWAY STORE #1975
Federal Waste Generator Code: 3
Generator Code Description: Very Small Quantity Generator
Source Type: Notification

Waste Code Details

Hazardous Waste Code: P075
Waste Code Description: NICOTINE, & SALTS (OR) PYRIDINE, 3-(1-METHYL-2-PYRROLIDINYL)-,(S)-, & SALTS

Owner/Operator Details

Owner/Operator Ind:	Current Owner	**Street No:**	71
Type:	Private	**Street 1:**	CASCADE KEY
Name:	SUN COLORADO INVESTMENTS LLC	**Street 2:**	
Date Became Current:	20000101	**City:**	BELLEVUE
Date Ended Current:		**State:**	WA
Phone:		**Country:**	US
Source Type:	Notification	**Zip Code:**	98006
Owner/Operator Ind:	Current Operator	**Street No:**	
Type:	Private	**Street 1:**	
Name:	SAFEWAY STORE #1975	**Street 2:**	
Date Became Current:	20000101	**City:**	
Date Ended Current:		**State:**	
Phone:		**Country:**	US
Source Type:	Notification	**Zip Code:**	
Owner/Operator Ind:	Current Operator	**Street No:**	6925
Type:	Private	**Street 1:**	MESA RIDGE PKWY
Name:	SAFEWAY STORE #1975	**Street 2:**	
Date Became Current:	20000101	**City:**	FOUNTAIN
Date Ended Current:		**State:**	CO
Phone:		**Country:**	US
Source Type:	Notification	**Zip Code:**	80817

Historical Handler Details

Receive Dt: 20120810
Generator Code Description: Very Small Quantity Generator
Handler Name: SAFEWAY STORE #1975

28	*1 of 1*	*ESE*	*0.13 / 670.43*	*5,735.10 / 81*	***Snack Shack II 8005 Fountain Mesa Rd Fountain***	***UST***

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

80817
CO

Facility ID:	20380	**Fac Name (COSTIS):**	Snack Shack II
FacilityName(OPS):	Snack Shack II	**Address (COSTIS):**	8005 Fountain Mesa Rd Fountain 80817
FacilityType(OPS):	Retail	**County (COSTIS):**	El Paso
Fac Category (OPS):	Retail Gas Station	**Latitude (CDLE):**	38.714079
Address (OPS):	8005 Fountain Mesa Rd	**Longitude (CDLE):**	-104.70076
City (OPS):	Fountain	**Fac Type (CDLE):**	Retail
Zip Code (OPS):	80817	**FacCategry(CDLE):**	Retail Gas Station
County (OPS):	El Paso	**State (OPS):**	CO
LatLong (OPS):	38.714079, -104.70076	**City (CDLE):**	Fountain
FacName (CDLE):	Snack Shack II	**Zip (CDLE):**	80817
Address (CDLE):	8005 Fountain Mesa Rd	**County (CDLE):**	El Paso
State (CDLE):			

Data Source(s): Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks

Facility Information (CDLE)

Count of Tank Tag:	2	**Accnt Holdr Name:**	Jumar Inc
No. Dispensers:	28	**Type:**	Retail
Owner ID:	OWNR-22193		

Owner Information (CDLE)

Contact Name:	Jumar Inc
Middle Init:	
First Name:	
Company Name:	Jumar Inc
Last Name:	Jumar Inc
Address:	3725 Twisted Oak Cr, Colorado Springs, CO 80904
Comment:	

UST Tanks (COSTIS) (As of October 2021)

Tank ID:	47873	**Owner ID:**	22193
Tank Tag:	'20380-2	**Tank Owner:**	
Tank Type Desc:	UST	**County:**	El Paso
Tank Count:	46668	**Product Name:**	Diesel/Gas (Multi-Comp)
Capacity:	15000		
Facility Owner:	Jumar Inc		
Facility Name Address:	Snack Shack II 8005 Fountain Mesa Rd Fountain 80817		

Tank ID:	47872	**Owner ID:**	22193
Tank Tag:	'20380-1	**Tank Owner:**	
Tank Type Desc:	UST	**County:**	El Paso
Tank Count:	46668	**Product Name:**	Unleaded Regular (RUL)
Capacity:	15000		
Facility Owner:	Jumar Inc		
Facility Name Address:	Snack Shack II 8005 Fountain Mesa Rd Fountain 80817		

UST Tanks 1 (CDLE)

Tank Tag:	20380-2	**Overfill Preven:**	FV: Fill Tube Valve
Tank Type:	UST	**Product Type/Name:**	Diesel
Tank Status:	Currently In Use	**Piping Wall Type:**	Double-Walled
Capacity:	15000	**Tank Wall Type:**	
Install Date:	2/11/2019	**Piping System:**	
Date Closed:		**Piping Type:**	UG: Underground
Tank Material:	JKT: Jacketed Steel Tank		
Piping Material:	FLEX: Flexible Plastic		

UST Tanks 2 (CDLE)

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Closure Meth ID:
Unregulated: FALSE
Last Used Date:
Del Prohib Date:
Spill Protected:
Spl Container Size: 5
Spl Protection Dt:
Spl Container Mfg: OPW
Spl Container Mdel: 1C-311 2d
Tank Reld Meth1 ID:
Tank Lining Date:
CP Test Date:
No Fee: No
Anch Method Desc: DM: Deadman
Pipe Reld Meth1 ID: L2: Dbl-Wall & Sumps w/ Sensor
Pipe Reldet Date:
Backfill Mat Desc: Other
Bfill DrtCvr Amt: 0
Manifold: No
Registration Date: 8/30/2021
Compartment: TRUE
Cpmet: No
Invault: FALSE

UST Tanks 1 (CDLE)

Tank Tag: 20380-1
Tank Type: UST
Tank Status: Currently In Use
Capacity: 15000
Install Date: 2/11/2019
Date Closed:
Tank Material: JKT: Jacketed Steel Tank
Piping Material: FLEX: Flexible Plastic
Overfill Preven: FV: Fill Tube Valve
Product Type/Name: Unleaded Regular (RUL)
Piping Wall Type: Double-Walled
Tank Wall Type:
Piping System:
Piping Type: UG: Underground

UST Tanks 2 (CDLE)

Closure Meth ID:
Unregulated: FALSE
Last Used Date:
Del Prohib Date:
Spill Protected:
Spl Container Size: 5
Spl Protection Dt:
Spl Container Mfg: OPW
Spl Container Mdel: 1C-311 2d
Tank Reld Meth1 ID:
Tank Lining Date:
CP Test Date:
No Fee: No
Anch Method Desc: DM: Deadman
Pipe Reld Meth1 ID: L2: Dbl-Wall & Sumps w/ Sensor
Pipe Reldet Date:
Backfill Mat Desc: Other
Bfill DrtCvr Amt: 0
Manifold: No
Registration Date: 8/30/2021
Compartment: FALSE
Cpmet: No
Invault: FALSE

UST Tanks 1 (CDLE)

Tank Tag: 20380-2
Tank Type: UST
Tank Status: Currently In Use
Capacity: 15000
Install Date: 2/11/2019
Date Closed:
Tank Material: JKT: Jacketed Steel Tank
Piping Material: FLEX: Flexible Plastic
Overfill Preven: FV: Fill Tube Valve
Product Type/Name: Unleaded Premium (PUL)
Piping Wall Type: Double-Walled
Tank Wall Type:
Piping System:
Piping Type: UG: Underground

UST Tanks 2 (CDLE)

Closure Meth ID:
Unregulated: FALSE
Last Used Date:
Del Prohib Date:
Spill Protected:
Spl Container Size: 5
Spl Protection Dt:
Spl Container Mfg: OPW
Spl Container Mdel: 1C-311 2d
Tank Reld Meth1 ID:
Tank Lining Date:
No Fee: No
Anch Method Desc: DM: Deadman
Pipe Reld Meth1 ID: L2: Dbl-Wall & Sumps w/ Sensor
Pipe Reldet Date:
Backfill Mat Desc: Other
Bfill DrtCvr Amt: 0
Manifold: No
Registration Date: 8/30/2021
Compartment: TRUE
Cpmet: No
Invault: FALSE

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

CP Test Date:

Oil & Public Safety Regulated Storage Tanks (COSTIS)

Tank Tag: 20380-2
Tank Status: Currently In Use
Tank Type: UST
Tank Name: TNK-042914
Installation Date: 2/11/2019
Closure Date:
Tank Material: JKT: Jacketed Steel Tank
Tank Wall Type:
Facility Name: Snack Shack II
Facility Type: Retail
Facility Category: Retail Gas Station
Overfill Preven: FV: Fill Tube Valve
Tank Corsn Protection Meth: Jacketed Steel Tank
Tank Rel Detn Mthd Primary: T2: Inter Mntrg w/ Sensor
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP): Non-metallic
PCP at Tank: No Electrolyte Contact (n/a)
PCP at Dispenser: No Electrolyte Contact (n/a)
Piping Rel Detn Mthd Primary: L2: Dbl-Wall & Sumps w/ Sensor
Piping Rel Detn Mthd Secondary:

Leak Detector Type: E: Electronic
Capacity Gallons : 15000
Product: Diesel
Piping Type: UG: Underground
Piping System:
Piping Material: FLEX: Flexible Plastic
Piping Wall Type: Double-Walled
Address: 8005 Fountain Mesa Rd
City: Fountain
County: El Paso
ZIP Code: 80817

Tank Tag: 20380-1
Tank Status: Currently In Use
Tank Type: UST
Tank Name: TNK-042913
Installation Date: 2/11/2019
Closure Date:
Tank Material: JKT: Jacketed Steel Tank
Tank Wall Type:
Facility Name: Snack Shack II
Facility Type: Retail
Facility Category: Retail Gas Station
Overfill Preven: FV: Fill Tube Valve
Tank Corsn Protection Meth: Jacketed Steel Tank
Tank Rel Detn Mthd Primary: T2: Inter Mntrg w/ Sensor
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP): Non-metallic
PCP at Tank: No Electrolyte Contact (n/a)
PCP at Dispenser: No Electrolyte Contact (n/a)
Piping Rel Detn Mthd Primary: L2: Dbl-Wall & Sumps w/ Sensor
Piping Rel Detn Mthd Secondary:

Leak Detector Type: E: Electronic
Capacity Gallons : 15000
Product: Unleaded Regular (RUL)
Piping Type: UG: Underground
Piping System:
Piping Material: FLEX: Flexible Plastic
Piping Wall Type: Double-Walled
Address: 8005 Fountain Mesa Rd
City: Fountain
County: El Paso
ZIP Code: 80817

Tank Tag: 20380-2
Tank Status: Currently In Use
Tank Type: UST
Tank Name: TNK-042914
Installation Date: 2/11/2019
Closure Date:
Tank Material: JKT: Jacketed Steel Tank
Tank Wall Type:
Facility Name: Snack Shack II
Facility Type: Retail
Facility Category: Retail Gas Station
Overfill Preven: FV: Fill Tube Valve
Tank Corsn Protection Meth: Jacketed Steel Tank
Tank Rel Detn Mthd Primary: T2: Inter Mntrg w/ Sensor
Tank Rel Detn Mthd Secondary:
Piping Corsn Protection (PCP): Non-metallic
PCP at Tank: No Electrolyte Contact (n/a)
PCP at Dispenser: No Electrolyte Contact (n/a)
Piping Rel Detn Mthd Primary: L2: Dbl-Wall & Sumps w/ Sensor
Piping Rel Detn Mthd

Leak Detector Type: E: Electronic
Capacity Gallons : 15000
Product: Unleaded Premium (PUL)
Piping Type: UG: Underground
Piping System:
Piping Material: FLEX: Flexible Plastic
Piping Wall Type: Double-Walled
Address: 8005 Fountain Mesa Rd
City: Fountain
County: El Paso
ZIP Code: 80817

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Secondary:

UST Owner (COSTIS) (As of October 2021)

Owner ID:	22193	**Address1:**	3725 Twisted Oak Cr
First Name:		**City:**	Colorado Springs
Middle Init:		**State:**	CO
Last Name:	Jumar Inc	**County:**	El Paso
Full Name:	Jumar Inc;	**Zip Code:**	80904

Oil & Public Safety Regulated Storage Tank Details

No of Tanks: 2

Facility Contact Details (CDLE)

Contact ID:	0033h00000mtcDH	**Role:**	Facility Owner
Costis ID:	FACOWN-20380-47419-Oct 10 2018 2:46PM	**Fac Contact Name:**	FCON-030460
Active:	TRUE	**Contact Last Name:**	Jumar Inc

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29 | **1 of 1** | **NE** | **0.14 / 720.31** | **5,705.26 / 51** | **GRAVEL PIT**
EL PASO COUNTY
COLORADO SPRINGS CO 80911 | **MRDS**

Dep ID:	10215412	**I1:**	17
Dev Status:	PRODUCER	**Latitude:**	38.72229
Code List:	SDG	**Longitude:**	-104.706909
Url:	http://mrdata.usgs.gov/mrds/show-mrds.php?dep_id=10215412		

Commodity

I1:	23	**Line:**	1
Code:	SDG	**Inserted By:**	MAS migration
Commodity:	Sand and Gravel, Cons	**Insert Date:**	29-OCT-2002 09:00:24
Commodity Type:	Non-metallic	**Updated By:**	USGS
Commodity Group:	Sand and Gravel	**Update Date:**	29-OCT-2002 09:01:57
Importance:	Primary		

Names

I1:	38	**Inserted By:**	MAS migration
Status:	Current	**Insert Date:**	29-OCT-02
Site Name:	Gravel Pit	**Updated By:**	USGS
Line:	1	**Update Date:**	29-OCT-02

---

30 | **1 of 1** | **WNW** | **0.18 / 942.26** | **5,659.47 / 5** | **A & C COLLISION CENTER**
7390 S HWY 85 - 87
FOUNTAIN CO 80817 | **RCRA NON GEN**

EPA Handler ID:	COR000200303
Gen Status Universe:	No Report
Contact Name:	MONTE SISSON
Contact Address:	7390 S HWY 85 - 87 , , FOUNTAIN , CO, 80817 , US
Contact Phone No and Ext:	719-391-2068
Contact Email:	
Contact Country:	US
County Name:	EL PASO
EPA Region:	08
Land Type:	Private
Receive Date:	20070213
Location Latitude:	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Location Longitude:

Violation/Evaluation Summary

Note: NO RECORDS: As of Apr 2023, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No
Onsite Burner Exemption: No
Furnace Exemption: No
Underground Injection Activity: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20070213
Handler Name: A & C COLLISION CENTER
Source Type: Implementer
Federal Waste Generator Code: N
Generator Code Description: Not a Generator, Verified

Waste Code Details

Hazardous Waste Code: D008
Waste Code Description: LEAD

Hazardous Waste Code: D035
Waste Code Description: METHYL ETHYL KETONE

Hazardous Waste Code: D001
Waste Code Description: IGNITABLE WASTE

Hazardous Waste Code: F001
Waste Code Description: THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING: TETRACHLOROETHYLENE, TRICHLORETHYLENE, METHYLENE CHLORIDE, 1,1,1-TRICHLOROETHANE, CARBON TETRACHLORIDE AND CHLORINATED FLUOROCARBONS; ALL SPENT SOLVENT MIXTURES/BLENDS USED IN DEGREASING CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Hazardous Waste Code: D006
Waste Code Description: CADMIUM

Hazardous Waste Code: D002
Waste Code Description: CORROSIVE WASTE

Hazardous Waste Code: D039
Waste Code Description: TETRACHLOROETHYLENE

Hazardous Waste Code: F003
Waste Code Description: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Hazardous Waste Code: F005
Waste Code Description: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Hazardous Waste Code: D018
Waste Code Description: BENZENE

Hazardous Waste Code: D040
Waste Code Description: TRICHLORETHYLENE

Hazardous Waste Handler Details

Sequence No: 3
Receive Date: 20020221
Handler Name: A & C COLLISION CENTER
Source Type: Notification
Federal Waste Generator Code: 3
Generator Code Description: Very Small Quantity Generator

Waste Code Details

Hazardous Waste Code: D008
Waste Code Description: LEAD

Hazardous Waste Code: D035
Waste Code Description: METHYL ETHYL KETONE

Hazardous Waste Code: D001
Waste Code Description: IGNITABLE WASTE

Hazardous Waste Code: F001
Waste Code Description: THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING: TETRACHLOROETHYLENE, TRICHLORETHYLENE, METHYLENE CHLORIDE, 1,1,1-TRICHLOROETHANE, CARBON TETRACHLORIDE AND CHLORINATED FLUOROCARBONS; ALL SPENT SOLVENT MIXTURES/BLENDS USED IN DEGREASING CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Hazardous Waste Code: D006
Waste Code Description: CADMIUM

Hazardous Waste Code: D002
Waste Code Description: CORROSIVE WASTE

Hazardous Waste Code: D039
Waste Code Description: TETRACHLOROETHYLENE

Hazardous Waste Code: F003
Waste Code Description: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Hazardous Waste Code: F005
Waste Code Description: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Hazardous Waste Code: D018
Waste Code Description: BENZENE

Hazardous Waste Code: D040
Waste Code Description: TRICHLORETHYLENE

Hazardous Waste Handler Details

Sequence No: 2
Receive Date: 20020219
Handler Name: A & C COLLISION CENTER
Source Type: Notification
Federal Waste Generator Code: N
Generator Code Description: Not a Generator, Verified

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20001109
Handler Name: A & C COLLISION CENTER
Source Type: Notification
Federal Waste Generator Code: 2
Generator Code Description: Small Quantity Generator

Owner/Operator Details

Owner/Operator Ind: Current Owner
Type: Private
Name: MONTE R SISSON
Date Became Current: 20010901
Date Ended Current:
Phone: 719-391-2068
Source Type: Implementer
Street No:
Street 1: 7390 S HWY 85 - 87
Street 2:
City: FOUNTAIN
State: CO
Country:
Zip Code: 80817

Owner/Operator Ind: Current Owner
Type: Private
Name: MONTE R SISSON
Date Became Current: 20010901
Date Ended Current:
Phone: 719-391-2068
Source Type: Notification
Street No:
Street 1: 7390 S HWY 85 - 87
Street 2:
City: FOUNTAIN
State: CO
Country:
Zip Code: 80817

Historical Handler Details

Receive Dt: 20001109
Generator Code Description: Small Quantity Generator
Handler Name: A & C COLLISION CENTER

Receive Dt: 20020219
Generator Code Description: Not a Generator, Verified
Handler Name: A & C COLLISION CENTER

Receive Dt: 20020221
Generator Code Description: Very Small Quantity Generator
Handler Name: A & C COLLISION CENTER

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
31	1 of 1	WNW	0.18 / 956.47	5,659.72 / 5	PEOPLE'S CHOICE 7370 S HWY 85-87 FOUNTAIN CO 80917	RCRA NON GEN

EPA Handler ID: COD982648057
Gen Status Universe: No Report
Contact Name:
Contact Address: 7370 , S HWY 85-87 , , FOUNTAIN , CO, 80917 , US
Contact Phone No and Ext:
Contact Email:
Contact Country: US
County Name: EL PASO
EPA Region: 08
Land Type:
Receive Date: 20030605
Location Latitude:
Location Longitude:

Violation/Evaluation Summary

Note: NO VIOLATIONS: All of the compliance records associated with this facility (EPA ID) indicate NO VIOLATIONS; Compliance Monitoring and Enforcement table dated Apr, 2023.

Evaluation Details

Evaluation Start Date: 20030605
Evaluation Type Description: FOCUSED COMPLIANCE INSPECTION
Violation Short Description:
Return to Compliance Date:
Evaluation Agency: State

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No
Onsite Burner Exemption: No
Furnace Exemption: No
Underground Injection Activity: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20030605
Handler Name: PEOPLE'S CHOICE
Source Type: Implementer
Federal Waste Generator Code: N
Generator Code Description: Not a Generator, Verified

Hazardous Waste Handler Details

Sequence No: 1

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Receive Date: 19880721
Handler Name: PEOPLE'S CHOICE
Source Type: Notification
Federal Waste Generator Code: 2
Generator Code Description: Small Quantity Generator

Waste Code Details

Hazardous Waste Code: D001
Waste Code Description: IGNITABLE WASTE

Hazardous Waste Code: F003
Waste Code Description: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Hazardous Waste Code: F005
Waste Code Description: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Owner/Operator Details

Owner/Operator Ind: Current Owner
Type: Private
Name: MABLE HENDERSON
Date Became Current:
Date Ended Current:
Phone: 999-999-9999
Source Type: Notification
Street No:
Street 1: DATA NOT REQUESTED
Street 2:
City: DATA NOT REQUESTED
State: CO
Country:
Zip Code: 99999

Owner/Operator Ind: Current Owner
Type: Private
Name: MABLE HENDERSON
Date Became Current: 18000101
Date Ended Current:
Phone: 999-999-9999
Source Type: Implementer
Street No:
Street 1: DATA NOT REQUESTED
Street 2:
City: DATA NOT REQUESTED
State: CO
Country:
Zip Code: 99999

Historical Handler Details

Receive Dt: 19880721
Generator Code Description: Small Quantity Generator
Handler Name: PEOPLE'S CHOICE

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
32	1 of 2	WNW	0.18 / 962.18	5,659.45 / 5	Colorado Auto Auction 7360-7390 Hwy 85 And 87 Fountain 80817 CO	UST

Facility ID: 15267
FacilityName(OPS): Colorado Auto Auction
FacilityType(OPS): Non-Retail
Fac Category (OPS): Other
Address (OPS): 7360-7390 Hwy 85 And 87
City (OPS): Fountain
Zip Code (OPS): 80817
Fac Name (COSTIS): Colorado Auto Auction
Address (COSTIS): 7360-7390 Hwy 85 And 87
Fountain 80817
County (COSTIS): El Paso
Latitude (CDLE): 38.725097
Longitude (CDLE): -104.720267
Fac Type (CDLE): Non-Retail
FacCategry(CDLE): Other

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

County (OPS):	El Paso	**State (OPS):**	CO
LatLong (OPS):	38.725097, -104.720267	**City (CDLE):**	Fountain
FacName (CDLE):	Colorado Auto Auction	**Zip (CDLE):**	80817
Address (CDLE):	7360-7390 Hwy 85 And 87	**County (CDLE):**	El Paso
State (CDLE):			
Data Source(s):	Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks		

Facility Information (CDLE)

Count of Tank Tag:	0	**Accnt Holdr Name:**	Colorado Auto Auction
No. Dispensers:	0	**Type:**	Non-Retail
Owner ID:	OWNR-18433		

Owner Information (CDLE)

Contact Name:	Colorado Auto Auction	**Middle Init:**	
First Name:			
Company Name:	Colorado Auto Auction		
Last Name:	Colorado Auto Auction		
Address:	7360-7390 Hwy 85 And 87, Fountain, CO 80817		
Comment:			

UST Tanks (COSTIS) (As of October 2021)

Tank ID:	33368	**Owner ID:**	18433
Tank Tag:	'15267-1	**Tank Owner:**	
Tank Type Desc:	UST	**County:**	El Paso
Tank Count:	46668	**Product Name:**	Used Oil (Waste Oil)
Capacity:	500		
Facility Owner:	Colorado Auto Auction		
Facility Name Address:	Colorado Auto Auction 7360-7390 Hwy 85 And 87 Fountain 80817		

UST Tanks 1 (CDLE)

Tank Tag:	15267-1	**Overfill Preven:**	
Tank Type:	UST	**Product Type/Name:**	Used Oil (Waste Oil)
Tank Status:	Permanently Closed	**Piping Wall Type:**	None
Capacity:	500	**Tank Wall Type:**	
Install Date:		**Piping System:**	
Date Closed:	9/29/2000	**Piping Type:**	Other
Tank Material:	Not Listed		
Piping Material:	Not Listed		

UST Tanks 2 (CDLE)

Closure Meth ID:		**No Fee:**	No
Unregulated:	FALSE	**Anch Method Desc:**	
Last Used Date:		**Pipe Reld Meth1 ID:**	T13/L13: Not Listed
Del Prohib Date:		**Pipe Reldet Date:**	
Spill Protected:		**Backfill Mat Desc:**	
Spl Container Size:		**Bfill DrtCvr Amt:**	
Spl Protection Dt:		**Manifold:**	No
Spl Container Mfg:		**Registration Date:**	
Spl Container Mdel:		**Compartment:**	FALSE
Tank Reld Meth1 ID:		**Cpmet:**	No
Tank Lining Date:		**Invault:**	FALSE
CP Test Date:			

Oil & Public Safety Regulated Storage Tanks (COSTIS)

Tank Tag:	15267-1	**Leak Detector Type:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Tank Status:	Permanently Closed	**Capacity Gallons :**	500
Tank Type:	UST	**Product:**	Used Oil (Waste Oil)
Tank Name:	TNK-027688	**Piping Type:**	Other
Installation Date:		**Piping System:**	
Closure Date:	9/29/2000	**Piping Material:**	Not Listed
Tank Material:	Not Listed	**Piping Wall Type:**	None
Tank Wall Type:		**Address:**	7360-7390 Hwy 85 And 87
Facility Name:	Colorado Auto Auction	**City:**	Fountain
Facility Type:	Non-Retail	**County:**	El Paso
Facility Category:	Other	**ZIP Code:**	80817
Overfill Preven:			
Tank Corsn Protection Meth:			
Tank Rel Detn Mthd Primary:	T13/L13: Not Listed		
Tank Rel Detn Mthd Secondary:			
Piping Corsn Protection (PCP):			
PCP at Tank:			
PCP at Dispenser:			
Piping Rel Detn Mthd Primary:	T13/L13: Not Listed		
Piping Rel Detn Mthd Secondary:			

UST Owner (COSTIS) (As of October 2021)

Owner ID:	18433	**Address1:**	7360-7390 Hwy 85 And 87
First Name:		**City:**	Fountain
Middle Init:		**State:**	CO
Last Name:	Colorado Auto Auction	**County:**	El Paso
Full Name:	Colorado Auto Auction;	**Zip Code:**	80817

Oil & Public Safety Regulated Storage Tank Details

No of Tanks: 0

Facility Contact Details (CDLE)

Contact ID:	0033h00000mtbAJ	**Role:**	Facility Owner
Costis ID:	FACOWN-15267-43943-Sep 27 2000 12:00AM	**Fac Contact Name:**	FCON-019182
Active:	TRUE	**Contact Last Name:**	Colorado Auto Auction

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
32	2 of 2	WNW	0.18 / 962.18	5,659.45 / 5	Colorado Auto Auction 7360-7390 Hwy 85 And 87 Fountain 80817 CO	LST

Facility ID:	15267	**Fac Name(CDLE):**	Colorado Auto Auction
Event ID:		**Address(CDLE):**	7360-7390 Hwy 85 And 87
Facility Name(OPS):	Colorado Auto Auction	**Fac Type(CDLE):**	Non-Retail
Facility Type(OPS):	Non-Retail	**Fac Category(CDLE):**	Other
Fac Category(OPS):	Other	**City(CDLE):**	Fountain
Address(OPS):	7360-7390 Hwy 85 And 87	**Zip(CDLE):**	80817
City(OPS):	Fountain	**County(CDLE):**	El Paso
Zip Code(OPS):	80817	**State(CDLE):**	
County(OPS):	El Paso	**Latitude(CDLE):**	38.725097
State(OPS):	CO	**Longitude(CDLE):**	-104.720267
Lat Long(OPS):	38.725097, -104.720267		
Fac Name(COSTIS):	Colorado Auto Auction		
Address (COSTIS):	7360-7390 Hwy 85 And 87 Fountain 80817		
County (COSTIS):	El Paso		
Original Source:	Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks; OPS Petroleum Release Events in Colorado - Petroleum Release Events		
Owner ID:	18433		
Owner Name:	Colorado Auto Auction;		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Events (CDLE)

Event ID:	8385	***Proj. Closure Date:***	
Alt Event ID:		***Category:***	
Status:	Closed	***Sardonyx ID:***	
UST Tank Count:	1	***MTBE Classifica:***	
AST Tank Count:	0	***Sum of Reimbur Amt:***	
Source of Release:	Tank	***Reviewer Full Name:***	Tim Kelley
Cause of Release:		***Logged On:***	12/5/2000
Confirm Rel Dt:	10/3/2000	***Logged By:***	
Site Name:	Colorado Auto Auction		
Loc Addr:			
Loc Addr2:			
Loc Addr3:			
Aka Name:			
Aka Loc Addr:			

Facility (CDLE)

Owner Costis ID:	OWNR-18433	***Type:***	Non-Retail
No of Active Tanks:	0	***Facility Owner:***	Colorado Auto Auction
No of Metred Prod:	0		

Events (COSTIS) (As of October 2021)

Event ID:	8385	***Log Date:***	12/5/2000
Process Status Name:	Closed		
Site Name:	Colorado Auto Auction		
Facility Name:			
Address:	7360-7390 Hwy 85 And 87 Fountain CO 80817		
Loc Address:	7360 Hwy 85 And 87 Fountain 80817		
Loc City:	Fountain		
Loc County:	El Paso		

OPS Regulated Storage Tanks

No of Tanks:	0

OPS Petroleum Release Events in Colorado - Petroleum Release Events

Event ID:	8385	***Phone:***	(303) 318-4357
Release No:	REL-001142	***City:***	Fountain
Status:	Closed	***Zip:***	80817
Release Date:	10/3/2000	***State:***	CO
Closure Date:	10/21/2004	***County:***	El Paso
NFA Type:	Tier I	***Latitude:***	38.725097
Release Cause:		***Longitude:***	-104.720267
Reimbursement Total:		***Latitude Longitude:***	38.725097, -104.720267
Contact:	Tim Kelley		
Release Source:	Tank		
Site Name:	Colorado Auto Auction		
Address:	7360-7390 Hwy 85 And 87		
Email:	cdle_ops_public_record_center@state.co.us		
Link :	https://socgov18.force.com/s/release/a183h000003KVYO		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
33	*1 of 1*	*WNW*	*0.22 / 1,179.99*	*5,653.80 / 0*	***A-1 Emergency Mobile Inc*** ***5620 Southmoor Lane*** ***Fountain CO***	*SWF/LF*

Loc ID:	
Cert of Reg ID:	2831

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Waste Tire Registrants Info

County:	El Paso	***Processor:***	No
Business Phone:	7193931328	***Mobile Proc:***	No
Generator:	Yes	***End User:***	No
Hauler:	No	***Monofill:***	No
Collection Facility:	No		
Doing Business As:			

34	1 of 1	ESE	0.24 / 1,280.51	5,732.91 / 79	Fountain Valley Fire Department #2 8201 Fountain Mesa Rd Fountain 80817 CO	UST

Facility ID:	3294	***Fac Name (COSTIS):***	Fountain Valley Fire Department #2
FacilityName(OPS):	Fountain Valley Fire Department #2	***Address (COSTIS):***	8201 Fountain Mesa Rd Fountain 80817
FacilityType(OPS):	Non-Retail	***County (COSTIS):***	El Paso
Fac Category (OPS):	State/Local Government	***Latitude (CDLE):***	38.712304
Address (OPS):	8201 Fountain Mesa Rd	***Longitude (CDLE):***	-104.700294
City (OPS):	Fountain	***Fac Type (CDLE):***	Non-Retail
Zip Code (OPS):	80817	***FacCategry(CDLE):***	State/Local Government
County (OPS):	El Paso	***State (OPS):***	CO
LatLong (OPS):	38.712304, -104.700294	***City (CDLE):***	Fountain
FacName (CDLE):	Fountain Valley Fire Department #2	***Zip (CDLE):***	80817
Address (CDLE):	8201 Fountain Mesa Rd	***County (CDLE):***	El Paso
State (CDLE):			
Data Source(s):	Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks		

Facility Information (CDLE)

Count of Tank Tag:	0	***Accnt Holdr Name:***	City Of Fountain
No. Dispensers:	0	***Type:***	Non-Retail
Owner ID:	OWNR-1130		

Owner Information (CDLE)

Contact Name:	City Of Fountain	***Middle Init:***	
First Name:			
Company Name:	City Of Fountain		
Last Name:	City Of Fountain		
Address:	116 S Main St, Fountain, CO 80817		
Comment:			

UST Tanks (COSTIS) (As of October 2021)

Tank ID:	9118	***Owner ID:***	1130
Tank Tag:	'3294-2	***Tank Owner:***	
Tank Type Desc:	UST	***County:***	El Paso
Tank Count:	46668	***Product Name:***	Diesel
Capacity:	560		
Facility Owner:	City Of Fountain		
Facility Name Address:	Fountain Valley Fire Department #2 8201 Fountain Mesa Rd Fountain 80817		

Tank ID:	9117	***Owner ID:***	1130
Tank Tag:	'3294-1	***Tank Owner:***	
Tank Type Desc:	UST	***County:***	El Paso
Tank Count:	46668	***Product Name:***	Gasoline
Capacity:	560		
Facility Owner:	City Of Fountain		
Facility Name Address:	Fountain Valley Fire Department #2 8201 Fountain Mesa Rd Fountain 80817		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

UST Tanks 1 (CDLE)

Tank Tag:	3294-2	***Overfill Preven:***	
Tank Type:	UST	***Product Type/Name:***	Diesel
Tank Status:	Permanently Closed	***Piping Wall Type:***	None
Capacity:	560	***Tank Wall Type:***	
Install Date:	1/1/1981	***Piping System:***	
Date Closed:	11/25/1997	***Piping Type:***	UG: Underground
Tank Material:	Asphalt Coated or Bare Steel		
Piping Material:	Galvanized Steel		

UST Tanks 2 (CDLE)

Closure Meth ID:		***No Fee:***	No
Unregulated:	FALSE	***Anch Method Desc:***	
Last Used Date:	10/1/1997	***Pipe Reld Meth1 ID:***	
Del Prohib Date:		***Pipe Reldet Date:***	
Spill Protected:		***Backfill Mat Desc:***	
Spl Container Size:		***Bfill DrtCvr Amt:***	
Spl Protection Dt:		***Manifold:***	No
Spl Container Mfg:		***Registration Date:***	
Spl Container Mdel:		***Compartment:***	FALSE
Tank Reld Meth1 ID:		***Cpmet:***	No
Tank Lining Date:		***Invault:***	FALSE
CP Test Date:			

UST Tanks 1 (CDLE)

Tank Tag:	3294-1	***Overfill Preven:***	
Tank Type:	UST	***Product Type/Name:***	Gasoline
Tank Status:	Permanently Closed	***Piping Wall Type:***	None
Capacity:	560	***Tank Wall Type:***	
Install Date:	1/1/1981	***Piping System:***	
Date Closed:	11/25/1997	***Piping Type:***	UG: Underground
Tank Material:	Asphalt Coated or Bare Steel		
Piping Material:	Galvanized Steel		

UST Tanks 2 (CDLE)

Closure Meth ID:		***No Fee:***	No
Unregulated:	FALSE	***Anch Method Desc:***	
Last Used Date:	10/1/1997	***Pipe Reld Meth1 ID:***	
Del Prohib Date:		***Pipe Reldet Date:***	
Spill Protected:		***Backfill Mat Desc:***	
Spl Container Size:		***Bfill DrtCvr Amt:***	
Spl Protection Dt:		***Manifold:***	No
Spl Container Mfg:		***Registration Date:***	
Spl Container Mdel:		***Compartment:***	FALSE
Tank Reld Meth1 ID:		***Cpmet:***	No
Tank Lining Date:		***Invault:***	FALSE
CP Test Date:			

Oil & Public Safety Regulated Storage Tanks (COSTIS)

Tank Tag:	3294-2	***Leak Detector Type:***	
Tank Status:	Permanently Closed	***Capacity Gallons :***	560
Tank Type:	UST	***Product:***	Diesel
Tank Name:	TNK-004313	***Piping Type:***	UG: Underground
Installation Date:	1/1/1981	***Piping System:***	
Closure Date:	11/25/1997	***Piping Material:***	Galvanized Steel
Tank Material:	Asphalt Coated or Bare Steel	***Piping Wall Type:***	None
Tank Wall Type:		***Address:***	8201 Fountain Mesa Rd

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Facility Name:	Fountain Valley Fire Department #2	**City:**	Fountain
Facility Type:	Non-Retail	**County:**	El Paso
Facility Category:	State/Local Government	**ZIP Code:**	80817
Overfill Preven:			
Tank Corsn Protection Meth:			
Tank Rel Detn Mthd Primary:			
Tank Rel Detn Mthd Secondary:			
Piping Corsn Protection (PCP):			
PCP at Tank:			
PCP at Dispenser:			
Piping Rel Detn Mthd Primary:			
Piping Rel Detn Mthd Secondary:			

Tank Tag:	3294-1	**Leak Detector Type:**	
Tank Status:	Permanently Closed	**Capacity Gallons :**	560
Tank Type:	UST	**Product:**	Gasoline
Tank Name:	TNK-004312	**Piping Type:**	UG: Underground
Installation Date:	1/1/1981	**Piping System:**	
Closure Date:	11/25/1997	**Piping Material:**	Galvanized Steel
Tank Material:	Asphalt Coated or Bare Steel	**Piping Wall Type:**	None
Tank Wall Type:		**Address:**	8201 Fountain Mesa Rd
Facility Name:	Fountain Valley Fire Department #2	**City:**	Fountain
Facility Type:	Non-Retail	**County:**	El Paso
Facility Category:	State/Local Government	**ZIP Code:**	80817
Overfill Preven:			
Tank Corsn Protection Meth:			
Tank Rel Detn Mthd Primary:			
Tank Rel Detn Mthd Secondary:			
Piping Corsn Protection (PCP):			
PCP at Tank:			
PCP at Dispenser:			
Piping Rel Detn Mthd Primary:			
Piping Rel Detn Mthd Secondary:			

UST Owner (COSTIS) (As of October 2021)

Owner ID:	1130	**Address1:**	116 S Main St
First Name:		**City:**	Fountain
Middle Init:		**State:**	CO
Last Name:	City Of Fountain	**County:**	El Paso
Full Name:	City Of Fountain;	**Zip Code:**	80817

Oil & Public Safety Regulated Storage Tank Details

No of Tanks: 0

Facility Contact Details (CDLE)

Contact ID:	0033h00000mtb6W	**Role:**	Facility Owner
Costis ID:	FACOWN-3294-1399-Dec 26 1997 12:00AM	**Fac Contact Name:**	FCON-018908
Active:	TRUE	**Contact Last Name:**	City Of Fountain

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
35	1 of 1	NW	0.28 / 1,458.28	5,662.63 / 8	Glen Investment Group 1-12 LLC 18 Jersey Ln Colorado Springs 80911 CO	LST

Facility ID:	4503	**Fac Name(CDLE):**	Glen Investment Group 1-12 LLC
Event ID:		**Address(CDLE):**	18 Jersey Ln
Facility Name(OPS):	Glen Investment Group 1-12 LLC	**Fac Type(CDLE):**	Non-Retail
Facility Type(OPS):	Non-Retail	**Fac Category(CDLE):**	Other
Fac Category(OPS):	Other	**City(CDLE):**	Colorado Springs
Address(OPS):	18 Jersey Ln	**Zip(CDLE):**	80911

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

City(OPS):	Colorado Springs	**County(CDLE):**	El Paso
Zip Code(OPS):	80911	**State(CDLE):**	
County(OPS):	El Paso	**Latitude(CDLE):**	38.726919
State(OPS):	CO	**Longitude(CDLE):**	-104.72018
Lat Long(OPS):	38.726919, -104.72018		

Fac Name(COSTIS): Glen Investment Group 1-12 LLC
Address (COSTIS): 18 Jersey Ln
Colorado Springs 80911
County (COSTIS): El Paso
Original Source: Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks; OPS Petroleum Release Events in Colorado - Petroleum Release Events

Owner ID: 22834
Owner Name:

Events (CDLE)

Event ID:	2907	**Proj. Closure Date:**	
Alt Event ID:	5499-1	**Category:**	
Status:	Closed	**Sardonyx ID:**	
UST Tank Count:	4	**MTBE Classifica:**	
AST Tank Count:	2	**Sum of Reimbur Amt:**	
Source of Release:		**Reviewer Full Name:**	Mark Walker
Cause of Release:		**Logged On:**	4/26/1994
Confirm Rel Dt:		**Logged By:**	

Site Name: Glen Investment Group 1-12 LLC
Loc Addr:
Loc Addr2:
Loc Addr3:
Aka Name:
Aka Loc Addr:

Facility (CDLE)

Owner Costis ID:	OWNR-22834	**Type:**	Non-Retail
No of Active Tanks:	2	**Facility Owner:**	Glen Investment Group 1-12 LLC
No of Metred Prod:	0		

Events (COSTIS) (As of October 2021)

Event ID:	2907	**Log Date:**	4/26/1994

Process Status Name: Closed
Site Name: Widefield Supply
Facility Name:
Address: 18 Jersey Ln Colorado Springs CO 80911
Loc Address: 18 Jersey Ln
Colorado Springs 80911
Loc City: Colorado Springs
Loc County: El Paso

OPS Regulated Storage Tanks

No of Tanks: 2

OPS Petroleum Release Events in Colorado - Petroleum Release Events

Event ID:	2907	**Phone:**	(303) 318-4357
Release No:	REL-012917	**City:**	Colorado Springs
Status:	Closed	**Zip:**	80911
Release Date:		**State:**	CO
Closure Date:	1/4/1995	**County:**	El Paso
NFA Type:	Pre-RBCA	**Latitude:**	38.726919
Release Cause:		**Longitude:**	-104.72018
Reimbursement Total:		**Latitude Longitude:**	38.726919, -104.72018

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Contact: Mark Walker
Release Source:
Site Name: Glen Investment Group 1-12 LLC
Address: 18 Jersey Ln
Email: cdle_ops_public_record_center@state.co.us
Link : https://socgov18.force.com/s/release/a183h000003KYcJ

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36 | **1 of 2** | **WNW** | **0.33 / 1,753.32** | **5,623.98 / -30** | **Loves Travel Stop #357, 5505 Travel Plaza Dr Fountain, 80817, CO** | **LST**

Facility ID: 18115
Event ID:
Facility Name(OPS): Loves Travel Stop #357
Facility Type(OPS): Retail
Fac Category(OPS): Retail Gas Station
Address(OPS): 5505 Travel Plaza Dr
City(OPS): Fountain
Zip Code(OPS): 80817
County(OPS): El Paso
State(OPS): CO
Lat Long(OPS): 38.723328, -104.729391
Fac Name(CDLE): Loves Travel Stop #357
Address(CDLE): 5505 Travel Plaza Dr
Fac Type(CDLE): Retail
Fac Category(CDLE): Retail Gas Station
City(CDLE): Fountain
Zip(CDLE): 80817
County(CDLE): El Paso
State(CDLE):
Latitude(CDLE): 38.723328
Longitude(CDLE): -104.729391
Fac Name(COSTIS): Loves Travel Stop #357
Address (COSTIS): 5505 Travel Plaza Dr
Fountain 80817
County (COSTIS): El Paso
Original Source: Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks; OPS Petroleum Release Events in Colorado - Petroleum Release Events

Owner ID: 3860
Owner Name:

Events (CDLE)

Event ID: 13423
Alt Event ID:
Status: Closed
UST Tank Count: 2
AST Tank Count: 0
Source of Release:
Cause of Release: Physical Damage
Confirm Rel Dt: 7/24/2019
Site Name: Loves Travel Stop #357
Loc Addr:
Loc Addr2:
Loc Addr3:
Aka Name:
Aka Loc Addr:
Proj. Closure Date:
Category:
Sardonyx ID:
MTBE Classifica:
Sum of Reimbur Amt: 5613.33
Reviewer Full Name: Jane Bral
Logged On: 7/25/2019
Logged By:

Reimbursement Application (CDLE)

Rap ID: RAP-35487
Protest ID:
Rap Status: Paid
Application Type: Original
User Group Name:
FPR Date: 4/22/2021
Protest Amount:
Payee: Loves Travel Stops & Country Stores Inc
Spec Cond:
Note: Colorado Department of Labor and Employment (CDLE)
Eligibil Type Desc: Tank Owner/Operator
Rap Payee Type ID: Corporation
Reimbursement Req: 15613.33
Total Reimburse: 15613.33
Max Amt Reduction: 2000000
PSTC Date:

Facility (CDLE)

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Owner Costis ID: OWNR-3860 **Type:** Retail
No of Active Tanks: 2 **Facility Owner:** Love's Travel Stops & Country Stores
No of Metred Prod: 80

Events (COSTIS) (As of October 2021)

Event ID: 13423 **Log Date:** 7/25/2019 12:33:12 PM
Process Status Name: Closed
Site Name: Loves Travel Stop #357
Facility Name: Loves Travel Stop #357
Address: 5505 Travel Plaza Dr Fountain CO 80817
Loc Address: 5505 Travel Plaza Dr
Fountain 80817
Loc City: Fountain
Loc County: El Paso

Reimbursement Application (COSTIS) (As of October 2021)

RAP ID: 35487 **Event ID:** 13423
Facility ID: 18115 **PSTC Date:**
Payee Name: Loves Travel Stops & Country Stores Inc

OPS Regulated Storage Tanks

No of Tanks: 2

OPS Petroleum Release Events in Colorado - Petroleum Release Events

Event ID: 13423 **Phone:** (303) 318-8510
Release No: REL-008076 **City:** Fountain
Status: Closed **Zip:** 80817
Release Date: 7/24/2019 **State:** CO
Closure Date: 1/22/2020 **County:** El Paso
NFA Type: Tier I **Latitude:** 38.723328
Release Cause: Physical Damage **Longitude:** -104.729391
Reimbursement Total: **Latitude Longitude:** 38.723328, -104.729391
Contact: Jane Bral
Release Source:
Site Name: Loves Travel Stop #357
Address: 5505 Travel Plaza Dr
Email: jane.bral@state.co.us
Link : https://socgov18.force.com/s/release/a183h000003KXME

36	2 of 2	WNW	0.33 / 1,753.32	5,623.98 / -30	Loves Travel Stop #357 5505 Travel Plaza Dr Fountain CO 80817	LUST TRUST

Facility ID: 18115 **Event ID:** 13423
TtlAmtAppvdForReim : 15613.33 **Release Date:** 7/24/2019
County: El Paso

37	1 of 1	SW	0.37 / 1,943.91	5,595.63 / -59	Fountain Valley Maint Shop 310 Duckwood Rd Fountain 80817 CO	LST

Facility ID: 5010 **Fac Name(CDLE):** Fountain Valley Maint Shop
Event ID: **Address(CDLE):** 310 Duckwood Rd
Facility Name(OPS): Fountain Valley Maint Shop **Fac Type(CDLE):** Non-Retail
Facility Type(OPS): Non-Retail **Fac Category(CDLE):** State/Local Government
Fac Category(OPS): State/Local Government **City(CDLE):** Fountain
Address(OPS): 310 Duckwood Rd **Zip(CDLE):** 80817
City(OPS): Fountain **County(CDLE):** El Paso

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Zip Code(OPS): 80817
County(OPS): El Paso
State(OPS): CO
Lat Long(OPS): 38.710313, -104.715677
State(CDLE):
Latitude(CDLE): 38.710313
Longitude(CDLE): -104.715677
Fac Name(COSTIS): Fountain Valley Maint Shop
Address (COSTIS): 310 Duckwood Rd
Fountain 80817
County (COSTIS): El Paso
Original Source: Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks; OPS Petroleum Release Events in Colorado - Petroleum Release Events

Owner ID: 20154
Owner Name:

Events (CDLE)

Event ID: 8972
Alt Event ID:
Status: Closed
UST Tank Count: 2
AST Tank Count: 1
Source of Release:
Cause of Release:
Confirm Rel Dt:
Site Name: Fountain Valley Maint Shop
Loc Addr:
Loc Addr2:
Loc Addr3:
Aka Name:
Aka Loc Addr:
Proj. Closure Date:
Category:
Sardonyx ID:
MTBE Classifica:
Sum of Reimbur Amt:
Reviewer Full Name: Tina Sandoval
Logged On: 6/20/2002
Logged By:

Facility (CDLE)

Owner Costis ID: OWNR-20154
No of Active Tanks: 1
No of Metred Prod: 0
Type: Non-Retail
Facility Owner: El Paso County Fleet Management

Events (COSTIS) (As of October 2021)

Event ID: 8972
Process Status Name: Closed
Site Name: Fountain Valley Maint Shop
Facility Name: Fountain Valley Maint Shop
Address: 310 Duckwood Rd Fountain CO 80817
Loc Address: 310 Duckwood Rd
Fountain 80817
Loc City: Fountain
Loc County: El Paso
Log Date: 6/20/2002 4:08:34 PM

OPS Regulated Storage Tanks

No of Tanks: 1

OPS Petroleum Release Events in Colorado - Petroleum Release Events

Event ID: 8972
Release No: REL-005805
Status: Closed
Release Date:
Closure Date: 11/15/2002
NFA Type: Pre-RBCA
Release Cause:
Reimbursement Total:
Contact: Tina Sandoval
Phone: (303) 318-4357
City: Fountain
Zip: 80817
State: CO
County: El Paso
Latitude: 38.710313
Longitude: -104.715677
Latitude Longitude: 38.710313, -104.715677

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Release Source:
Site Name: Fountain Valley Maint Shop
Address: 310 Duckwood Rd
Email: cdle_ops_public_record_center@state.co.us
Link : https://socgov18.force.com/s/release/a183h000003KWlb

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38 | **1 of 1** | **SSW** | **0.38 / 2,031.95** | **5,607.41 / -47** | **Duckwood Property**
200 Duckwood Road Fountain, CO 80817 (18 adjoining tax lots)
FOUNTAIN CO 80817 | **FED BROWNFIELDS**

Property ID: 250136
Lat Measure: 38.71018000051183
Long Measure: -104.71630826665717
BF Property (Map): 250136
Latitude (Map): 38.7101800005
Longitude (Map): -104.716308267
Property Name: Duckwood Property
Address: 200 Duckwood Road Fountain, CO 80817 (18 adjoining tax lots)
City: FOUNTAIN
State Code: CO
Zip Code: 80817
Primary Name (Map): DUCKWOOD PROPERTY
Location Address (Map): 200 DUCKWOOD ROAD FOUNTAIN, CO 80817 (18 ADJOINING
City Name (Map): FOUNTAIN
County Name (Map): EL PASO
State Code (Map): CO
Postal Code (Map): 80817

Brownfields Details

Registry I: 110071089162
EPA Region: 08
Cat No: 11020003
Map Symbol: B
Data Refre: 29-Jul-2022

EPA ID:
BF IC Code: U
BF IC Gc I: U
BF IC Ep I: U
BF IC ID I: U
BF IC Pr I: U
BF Assess1: Y
Congressio: CO-05

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

EPAOSC Sit:		**FD GMS Sur:**	
EPAOSC Res:		**FD Hes Sur:**	
EPAOSC R 1:		**FD SF Site:**	
EPAOSC Sta:		**FD Brac Ro:**	
EPAOSC Inc:		**Stimulus S:**	
Desc :		**Stimulus B:**	
Ind Name:			
Cat Name:	Fountain		
Sub Name:	Fountain		
Primary Name:	DUCKWOOD PROPERTY		
RCRA Drupa:			
Url:	https://obipublic11.epa.gov/analytics/saw.dll?PortalPages&Action=Navigate&col1=ACRES_GRANT_EXPORT.PROPERTY_ID&val1=%22250136.0%22&PortalPath=/shared/CIMC/_portal/CIMC&Page=Profile+Page		
Census Url:	https://ejscreen.epa.gov/mapper/demogreportpdf.aspx?report=census2010sf1&coords=-104.71630826665701%2C38.7101800005118&feattype=point&radius=1.0		
ACS Url:	https://ejscreen.epa.gov/mapper/demogreportpdf.aspx?report=acs2017&coords=-104.71630826665701%2C38.7101800005118&feattype=point&radius=1.0		

SF Site Na:		**UST Status:**	
SF Non Npl:		**UST Substa:**	
SF Non N 1:		**UST Landus:**	
SF Non N 3:		**UST SPA Wa:**	
ERR Lat Lo:		**UST SPA Fa:**	
REPOW BF:		**UST WHPA W:**	
REPOW SF:		**UST WHPA F:**	
REPOW RCRA:		**UST Open:**	
REPOW Ref1:		**UST Closed:**	
RCRA Han 1:		**LUST ID:**	
RCRA Rau I:		**Saa Site:**	
BF Propert:	250136-		
REPOW Re 1:			
BF Prope 1:	Duckwood Property		
SF Non N 2:			

Cleanups In My Community (CIMC)

Grant ID:	69605299	**ASMT Cntrl Sub :**	
Grant Type:	Assessment	**Cleanup Cntrl Sub :**	
EPA Region:	08	**ASMT Asbestos :**	
Ownership Entity:	Private	**Cleanup Asbestos :**	
Latitude Measure:	38.71018000051183	**ASMT Pcbs :**	
Longitude Measure:	-104.71630826665717	**Cleanup Pcbs :**	
Flag Cleanup Reqd:	U	**ASMT Vocs :**	
Flag IC Required:		**Cleanup Vocs :**	
Stcntrbg:		**ASMT Lead :**	
Property Size:	41	**Cleanup Lead :**	
Flag IC in Place:		**ASMT Oth Metal :**	
IC in Place Date:		**Cleanup Oth Metal :**	
Prop Cntrl :		**ASMT Pahs :**	
Gov Cntrl :		**Cleanup Pahs :**	
Permit Tools :		**ASMT Oth Cont:**	
Info DevlCes :		**Cleanup Oth Cont:**	
Prop Fnding Type Cd:	Hazardous	**ASMT Air :**	
Ownshp Changed :		**Cleanup Air :**	
Sfllp Factor :		**ASMT Drk Wat:**	
Source Mapscale No:		**Cleanup Drk Wat:**	
Past Cml Acres:	19	**ASMT Grd Water:**	
Future Cml Acres:		**Cleanup Grd Water:**	
Past Grnspc Acres:	5	**ASMT Sediments :**	
Future Grnspc Acres:		**Cleanup Sediments :**	
Past Acres:		**ASMT Soil :**	
Future Acres:		**Cleanup Soil :**	
Past Res Acres:	17	**ASMT Srf Water :**	
Future Res Acres:		**Cleanup Srf Water :**	
St Enrollment Dt:		**Other Media :**	
St Enrollment ID:		**Unknown Media :**	
St NFA Dt:		**Ready For Reuse :**	N
Assess Petrol Prod :		**Assess Amount:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Cleanup Petrol Prod :		**Assess Fnd Ent Nm:**	
Assess Start Dt:		**Photo Available :**	
Assess Cmpltn Dt:		**Video Available :**	
Cleanup Start Dt:		**Cleanup Acres:**	
Cleanup Cmpltn Dt:		**Cleanup Amount:**	
Redev Start Dt:		**Redev Acres:**	
Redev Cleanup Jobs:		**Redev Amount:**	
Grant Recipient Nm:	Colorado Springs City Government		
PropertyNm:	Duckwood Property		
Address:	200 Duckwood Road Fountain, CO 80817 (18 adjoining tax lots)		
City:	FOUNTAIN		
State Code:	CO		
Zip Code:	80817		
Local Parcel No:	Multiple		
Current Owner:			
IC Data Address:			
Horizontal Collection Method:			
Reference Point:			
Horizontal Reference Datum:			
Other Description:			
Other Desc Cleaned Up:			
Assess Type:			
Assess Fund Entity:			
Cleanup Funding EntityNm:			
Cleanup Fund Entity:			
Redev Funding Entity Nm:			
Desc Hist:			

Accmplisht Cnt Flag:		**Vacant Housing:**	
Coop Agreement No:	96896301	**Vacant Housing Pct:**	
Past Mltistry Acres:		**Total Unemployed:**	
Ftr Multistory Acres:		**Unemployed Pct:**	
Assess Cadmium :		**Radius:**	
Clnup Cadmium :		**Actvy Funded:**	
Assess Chromium :		**Redev Lvrgd Srcs:**	
Clnup Chromium :		**AA Amt Funding:**	
Assess Copper :		**Flag Clnup Trmt Tech:**	
Clnup Copper :		**Excavation Disposal:**	
Assess Iron :		**Extrctn of Cntmnts:**	
Clnup Iron :		**Removal of Mats:**	
Assess Nickel :		**Rdctn of Cntmnts:**	
Clnup Nickel :		**Clnup of Structures:**	
Assess Selenium :		**Env EC Required:**	
Clnup Selenium :		**Flag EC Cover Tech:**	
Assess Mercury :		**Flag EC Security:**	
Clnup Mercury :		**Flag EC Immblztn:**	
Assess ArsenIC :		**Flag EC Eng Barriers:**	
Clnup ArsenIC :		**Flag EC Other:**	
Assess Bldg Mats :		**Env IC in Place:**	
Clnup Bldg Mats :		**Env EC in Place:**	
Assess oorair :		**Env Clnup Jobs:**	
Clnup oorair :		**Sect 128 A State Trbl:**	
Assess None :		**Multipurpose:**	
Clnup None :		**Clnup Cst Shr Amt:**	
Assess Pesticides :		**RLF Loan Amount:**	
Clnup Pesticides :		**RLF Ln Cst Shr Amt:**	
Assess Unknown :		**Pro Income Amt:**	
Clnup Unknown :		**Dt RLF Loan Signed:**	
Assess Svocs :		**Repayment Period:**	
Clnup Svocs :		**Interest Rate:**	
Clnup Unkn Media :		**RLF Subgrant Amt:**	
Redev Cmpltn Date:		**Cost Share Amt:**	
Pro Code:	BF	**Env Pro Income Amt:**	
FCA Fy:		**Dt RLF Sbgrnt Signd:**	
Flag EC in Place:		**Clnup Actvy Funded:**	
Flag EC Required:		**Below Poverty:**	
RFR Notation:		**Below Poverty Pct:**	
Gpa Type ID:	5	**Median Income:**	
Clnup Doc:	N	**Low Income:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Awp Catalyst Yn:
Flag Prop Not Enrld: Y
Redev Fund Entity:
Gpa Type Desc: Cleanup Activity
AA Actvy Funded:
AA Source of Funding:
Clnup Trmt Tech Info:
EC Data Address:
EC Addl Info:
Env IC Data Address:
Other Forms of Doc:
IC Addl Info:
Highlights: At the time of the Phase I ESA reconnaissance, most of the Property was vacant and unimproved except for a single-family residence on tax parcel 5530001087 in the southwestern area of the Property. Indications of past development (former building pads/paved areas and a feature that may be a water supply well) were observed on parcel 5530000023. Cattail Marsh Road divides the three northernmost tax parcels of the Property (tax parcels 5530001015, 5530001016, and 5530001017) from the rest of the Property. Historical aerial photographs and city directories indicate that portions of the Property have been used for vehicle storage and salvage. The potential for petroleum and hazardous substances to be released as a result of these operations represents a REC and a potential vapor encroachment condition (VEC) for the Property.
Property Alias:
Ctmnt Found:
Ctmnt Cleanedup:
Ctmnt Rec:

Media Afffected:

Low Income Pct:

Cleanups In My Community (CIMC)

Grant ID: 69605299
Grant Type: Assessment
EPA Region: 08
Ownership Entity: Private
Latitude Measure: 38.71018000051183
Longitude Measure: -104.71630826665717
Flag Cleanup Reqd: U
Flag IC Required:
Stcntrbg:
Property Size: 41
Flag IC in Place:
IC in Place Date:
Prop Cntrl :
Gov Cntrl :
Permit Tools :
Info DevlCes :
Prop Fnding Type Cd: Hazardous
Ownshp Changed :
Sfllp Factor :
Source Mapscale No:
Past Cml Acres: 19
Future Cml Acres:
Past Grnspc Acres: 5
Future Grnspc Acres:
Past Acres:
Future Acres:
Past Res Acres: 17
Future Res Acres:
St Enrollment Dt:
St Enrollment ID:
St NFA Dt:
Assess Petrol Prod :
Cleanup Petrol Prod :
Assess Start Dt:
Assess Cmpltn Dt:
Cleanup Start Dt:
Cleanup Cmpltn Dt:
Redev Start Dt:

ASMT Cntrl Sub :
Cleanup Cntrl Sub :
ASMT Asbestos :
Cleanup Asbestos :
ASMT Pcbs :
Cleanup Pcbs :
ASMT Vocs :
Cleanup Vocs :
ASMT Lead :
Cleanup Lead :
ASMT Oth Metal :
Cleanup Oth Metal :
ASMT Pahs :
Cleanup Pahs :
ASMT Oth Cont:
Cleanup Oth Cont:
ASMT Air :
Cleanup Air :
ASMT Drk Wat:
Cleanup Drk Wat:
ASMT Grd Water:
Cleanup Grd Water:
ASMT Sediments :
Cleanup Sediments :
ASMT Soil :
Cleanup Soil :
ASMT Srf Water :
Cleanup Srf Water :
Other Media :
Unknown Media :
Ready For Reuse : N
Assess Amount:
Assess Fnd Ent Nm:
Photo Available :
Video Available :
Cleanup Acres:
Cleanup Amount:
Redev Acres:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Redev Cleanup Jobs: **Redev Amount:**
Grant Recipient Nm: Colorado Springs City Government
PropertyNm: Duckwood Property
Address: 200 Duckwood Road Fountain, CO 80817 (18 adjoining tax lots)
City: FOUNTAIN
State Code: CO
Zip Code: 80817
Local Parcel No: Multiple
Current Owner:
IC Data Address:
Horizontal Collection Method:
Reference Point:
Horizontal Reference Datum:
Other Description:
Other Desc Cleaned Up:
Assess Type:
Assess Fund Entity:
Cleanup Funding EntityNm:
Cleanup Fund Entity:
Redev Funding Entity Nm:
Desc Hist:

Accmplisht Cnt Flag:
Coop Agreement No: 96896301
Past Mltistry Acres:
Ftr Multistory Acres:
Assess Cadmium :
Clnup Cadmium :
Assess Chromium :
Clnup Chromium :
Assess Copper :
Clnup Copper :
Assess Iron :
Clnup Iron :
Assess Nickel :
Clnup Nickel :
Assess Selenium :
Clnup Selenium :
Assess Mercury :
Clnup Mercury :
Assess ArsenIC :
Clnup ArsenIC :
Assess Bldg Mats :
Clnup Bldg Mats :
Assess oorair :
Clnup oorair :
Assess None :
Clnup None :
Assess Pesticides :
Clnup Pesticides :
Assess Unknown :
Clnup Unknown :
Assess Svocs :
Clnup Svocs :
Clnup Unkn Media :
Redev Cmpltn Date:
Pro Code: BF
FCA Fy:
Flag EC in Place:
Flag EC Required:
RFR Notation:
Gpa Type ID: 11
Clnup Doc:
Awp Catalyst Yn:
Flag Prop Not Enrld: Y
Redev Fund Entity:
Gpa Type Desc: Cleanup Jobs Leveraged
AA Actvy Funded:
AA Source of Funding:

Vacant Housing:
Vacant Housing Pct:
Total Unemployed:
Unemployed Pct:
Radius:
Actvy Funded:
Redev Lvrgd Srcs:
AA Amt Funding:
Flag Clnup Trmt Tech:
Excavation Disposal:
Extrctn of Cntmnts:
Removal of Mats:
Rdctn of Cntmnts:
Clnup of Structures:
Env EC Required:
Flag EC Cover Tech:
Flag EC Security:
Flag EC Immblztn:
Flag EC Eng Barriers:
Flag EC Other:
Env IC in Place:
Env EC in Place:
Env Clnup Jobs:
Sect 128 A State Trbl:
Multipurpose:
Clnup Cst Shr Amt:
RLF Loan Amount:
RLF Ln Cst Shr Amt:
Pro Income Amt:
Dt RLF Loan Signed:
Repayment Period:
Interest Rate:
RLF Subgrant Amt:
Cost Share Amt:
Env Pro Income Amt:
Dt RLF Sbgrnt Signd:
Clnup Actvy Funded:
Below Poverty:
Below Poverty Pct:
Median Income:
Low Income:
Low Income Pct:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Clnup Trmt Tech Info:
EC Data Address:
EC Addl Info:
Env IC Data Address:
Other Forms of Doc:
IC Addl Info:
Highlights: At the time of the Phase I ESA reconnaissance, most of the Property was vacant and unimproved except for a single-family residence on tax parcel 5530001087 in the southwestern area of the Property. Indications of past development (former building pads/paved areas and a feature that may be a water supply well) were observed on parcel 5530000023. Cattail Marsh Road divides the three northernmost tax parcels of the Property (tax parcels 5530001015, 5530001016, and 5530001017) from the rest of the Property. Historical aerial photographs and city directories indicate that portions of the Property have been used for vehicle storage and salvage. The potential for petroleum and hazardous substances to be released as a result of these operations represents a REC and a potential vapor encroachment condition (VEC) for the Property.
Property Alias:
Ctmnt Found:
Ctmnt Cleanedup:
Ctmnt Rec:

Media Afffected:

Cleanups In My Community (CIMC)

Grant ID:	69605299	**ASMT Cntrl Sub :**	
Grant Type:	Assessment	**Cleanup Cntrl Sub :**	
EPA Region:	08	**ASMT Asbestos :**	
Ownership Entity:	Private	**Cleanup Asbestos :**	
Latitude Measure:	38.71018000051183	**ASMT Pcbs :**	
Longitude Measure:	-104.71630826665717	**Cleanup Pcbs :**	
Flag Cleanup Reqd:	U	**ASMT Vocs :**	
Flag IC Required:		**Cleanup Vocs :**	
Stcntrbg:		**ASMT Lead :**	
Property Size:	41	**Cleanup Lead :**	
Flag IC in Place:		**ASMT Oth Metal :**	
IC in Place Date:		**Cleanup Oth Metal :**	
Prop Cntrl :		**ASMT Pahs :**	
Gov Cntrl :		**Cleanup Pahs :**	
Permit Tools :		**ASMT Oth Cont:**	
Info DevlCes :		**Cleanup Oth Cont:**	
Prop Fnding Type Cd:	Hazardous	**ASMT Air :**	
Ownshp Changed :		**Cleanup Air :**	
Sfllp Factor :		**ASMT Drk Wat:**	
Source Mapscale No:		**Cleanup Drk Wat:**	
Past Cml Acres:	19	**ASMT Grd Water:**	
Future Cml Acres:		**Cleanup Grd Water:**	
Past Grnspc Acres:	5	**ASMT Sediments :**	
Future Grnspc Acres:		**Cleanup Sediments :**	
Past Acres:		**ASMT Soil :**	
Future Acres:		**Cleanup Soil :**	
Past Res Acres:	17	**ASMT Srf Water :**	
Future Res Acres:		**Cleanup Srf Water :**	
St Enrollment Dt:		**Other Media :**	
St Enrollment ID:		**Unknown Media :**	
St NFA Dt:		**Ready For Reuse :**	N
Assess Petrol Prod :		**Assess Amount:**	4783
Cleanup Petrol Prod :		**Assess Fnd Ent Nm:**	EPA
Assess Start Dt:	01/15/2021	**Photo Available :**	
Assess Cmpltn Dt:	03/22/2021	**Video Available :**	
Cleanup Start Dt:		**Cleanup Acres:**	
Cleanup Cmpltn Dt:		**Cleanup Amount:**	
Redev Start Dt:		**Redev Acres:**	
Redev Cleanup Jobs:		**Redev Amount:**	

Grant Recipient Nm: Colorado Springs City Government
PropertyNm: Duckwood Property
Address: 200 Duckwood Road Fountain, CO 80817 (18 adjoining tax lots)
City: FOUNTAIN
State Code: CO

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Zip Code: 80817
Local Parcel No: Multiple
Current Owner:
IC Data Address:
Horizontal Collection Method:
Reference Point:
Horizontal Reference Datum:
Other Description:
Other Desc Cleaned Up:
Assess Type: Phase I Environmental Assessment
Assess Fund Entity: US EPA - Brownfields Assessment Cooperative Agreement
Cleanup Funding EntityNm:
Cleanup Fund Entity:
Redev Funding Entity Nm:
Desc Hist:

Accmplisht Cnt Flag: Y
Coop Agreement No: 96896301
Past Mltistry Acres:
Ftr Multistory Acres:
Assess Cadmium :
Clnup Cadmium :
Assess Chromium :
Clnup Chromium :
Assess Copper :
Clnup Copper :
Assess Iron :
Clnup Iron :
Assess Nickel :
Clnup Nickel :
Assess Selenium :
Clnup Selenium :
Assess Mercury :
Clnup Mercury :
Assess ArsenIC :
Clnup ArsenIC :
Assess Bldg Mats :
Clnup Bldg Mats :
Assess oorair :
Clnup oorair :
Assess None :
Clnup None :
Assess Pesticides :
Clnup Pesticides :
Assess Unknown :
Clnup Unknown :
Assess Svocs :
Clnup Svocs :
Clnup Unkn Media :
Redev Cmpltn Date:
Pro Code: BF
FCA Fy: FY21
Flag EC in Place:
Flag EC Required:
RFR Notation:
Gpa Type ID: 1
Clnup Doc:
Awp Catalyst Yn:
Flag Prop Not Enrld: Y
Redev Fund Entity:
Gpa Type Desc: Phase I Environmental Assessment
AA Actvy Funded: Phase I Environmental Assessment
AA Source of Funding:
Clnup Trmt Tech Info:
EC Data Address:
EC Addl Info:
Env IC Data Address:
Other Forms of Doc:
IC Addl Info:

Vacant Housing:
Vacant Housing Pct:
Total Unemployed:
Unemployed Pct:
Radius:
Actvy Funded:
Redev Lvrgd Srcs:
AA Amt Funding:
Flag Clnup Trmt Tech:
Excavation Disposal:
Extrctn of Cntmnts:
Removal of Mats:
Rdctn of Cntmnts:
Clnup of Structures:
Env EC Required:
Flag EC Cover Tech:
Flag EC Security:
Flag EC Immblztn:
Flag EC Eng Barriers:
Flag EC Other:
Env IC in Place:
Env EC in Place:
Env Clnup Jobs:
Sect 128 A State Trbl:
Multipurpose:
Clnup Cst Shr Amt:
RLF Loan Amount:
RLF Ln Cst Shr Amt:
Pro Income Amt:
Dt RLF Loan Signed:
Repayment Period:
Interest Rate:
RLF Subgrant Amt:
Cost Share Amt:
Env Pro Income Amt:
Dt RLF Sbgrnt Signd:
Clnup Actvy Funded:
Below Poverty:
Below Poverty Pct:
Median Income:
Low Income:
Low Income Pct:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Highlights: At the time of the Phase I ESA reconnaissance, most of the Property was vacant and unimproved except for a single-family residence on tax parcel 5530001087 in the southwestern area of the Property. Indications of past development (former building pads/paved areas and a feature that may be a water supply well) were observed on parcel 5530000023. Cattail Marsh Road divides the three northernmost tax parcels of the Property (tax parcels 5530001015, 5530001016, and 5530001017) from the rest of the Property. Historical aerial photographs and city directories indicate that portions of the Property have been used for vehicle storage and salvage. The potential for petroleum and hazardous substances to be released as a result of these operations represents a REC and a potential vapor encroachment condition (VEC) for the Property.

Property Alias:
Ctmnt Found:
Ctmnt Cleanedup:
Ctmnt Rec:

Media Afffected:

Cleanups In My Community (CIMC)

Grant ID:	69605299	**ASMT Cntrl Sub :**	
Grant Type:	Assessment	**Cleanup Cntrl Sub :**	
EPA Region:	08	**ASMT Asbestos :**	
Ownership Entity:	Private	**Cleanup Asbestos :**	
Latitude Measure:	38.71018000051183	**ASMT Pcbs :**	
Longitude Measure:	-104.71630826665717	**Cleanup Pcbs :**	
Flag Cleanup Reqd:	U	**ASMT Vocs :**	
Flag IC Required:		**Cleanup Vocs :**	
Stcntrbg:		**ASMT Lead :**	
Property Size:	41	**Cleanup Lead :**	
Flag IC in Place:		**ASMT Oth Metal :**	
IC in Place Date:		**Cleanup Oth Metal :**	
Prop Cntrl :		**ASMT Pahs :**	
Gov Cntrl :		**Cleanup Pahs :**	
Permit Tools :		**ASMT Oth Cont:**	
Info DevlCes :		**Cleanup Oth Cont:**	
Prop Fnding Type Cd:	Hazardous	**ASMT Air :**	
Ownshp Changed :		**Cleanup Air :**	
Sfllp Factor :		**ASMT Drk Wat:**	
Source Mapscale No:		**Cleanup Drk Wat:**	
Past Cml Acres:	19	**ASMT Grd Water:**	
Future Cml Acres:		**Cleanup Grd Water:**	
Past Grnspc Acres:	5	**ASMT Sediments :**	
Future Grnspc Acres:		**Cleanup Sediments :**	
Past Acres:		**ASMT Soil :**	
Future Acres:		**Cleanup Soil :**	
Past Res Acres:	17	**ASMT Srf Water :**	
Future Res Acres:		**Cleanup Srf Water :**	
St Enrollment Dt:		**Other Media :**	
St Enrollment ID:		**Unknown Media :**	
St NFA Dt:		**Ready For Reuse :**	N
Assess Petrol Prod :		**Assess Amount:**	
Cleanup Petrol Prod :		**Assess Fnd Ent Nm:**	
Assess Start Dt:		**Photo Available :**	
Assess Cmpltn Dt:		**Video Available :**	
Cleanup Start Dt:		**Cleanup Acres:**	
Cleanup Cmpltn Dt:		**Cleanup Amount:**	
Redev Start Dt:		**Redev Acres:**	
Redev Cleanup Jobs:		**Redev Amount:**	
Grant Recipient Nm:	Colorado Springs City Government		
PropertyNm:	Duckwood Property		
Address:	200 Duckwood Road Fountain, CO 80817 (18 adjoining tax lots)		
City:	FOUNTAIN		
State Code:	CO		
Zip Code:	80817		
Local Parcel No:	Multiple		
Current Owner:			
IC Data Address:			
Horizontal Collection Method:			
Reference Point:			

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Horizontal Reference Datum:
Other Description:
Other Desc Cleaned Up:
Assess Type:
Assess Fund Entity:
Cleanup Funding EntityNm:
Cleanup Fund Entity:
Redev Funding Entity Nm:
Desc Hist:

Accmplisht Cnt Flag:
Coop Agreement No: 96896301
Past Mltistry Acres:
Ftr Multistory Acres:
Assess Cadmium :
Clnup Cadmium :
Assess Chromium :
Clnup Chromium :
Assess Copper :
Clnup Copper :
Assess Iron :
Clnup Iron :
Assess Nickel :
Clnup Nickel :
Assess Selenium :
Clnup Selenium :
Assess Mercury :
Clnup Mercury :
Assess ArsenIC :
Clnup ArsenIC :
Assess Bldg Mats :
Clnup Bldg Mats :
Assess oorair :
Clnup oorair :
Assess None :
Clnup None :
Assess Pesticides :
Clnup Pesticides :
Assess Unknown :
Clnup Unknown :
Assess Svocs :
Clnup Svocs :
Clnup Unkn Media :
Redev Cmpltn Date:
Pro Code: BF
FCA Fy:
Flag EC in Place:
Flag EC Required:
RFR Notation:
Gpa Type ID: 6
Clnup Doc:
Awp Catalyst Yn:
Flag Prop Not Enrld: Y
Redev Fund Entity:
Gpa Type Desc: Acres Cleaned Up
AA Actvy Funded:
AA Source of Funding:
Clnup Trmt Tech Info:
EC Data Address:
EC Addl Info:
Env IC Data Address:
Other Forms of Doc:
IC Addl Info:

Vacant Housing:
Vacant Housing Pct:
Total Unemployed:
Unemployed Pct:
Radius:
Actvy Funded:
Redev Lvrgd Srcs:
AA Amt Funding:
Flag Clnup Trmt Tech:
Excavation Disposal:
Extrctn of Cntmnts:
Removal of Mats:
Rdctn of Cntmnts:
Clnup of Structures:
Env EC Required:
Flag EC Cover Tech:
Flag EC Security:
Flag EC Immblztn:
Flag EC Eng Barriers:
Flag EC Other:
Env IC in Place:
Env EC in Place:
Env Clnup Jobs:
Sect 128 A State Trbl:
Multipurpose:
Clnup Cst Shr Amt:
RLF Loan Amount:
RLF Ln Cst Shr Amt:
Pro Income Amt:
Dt RLF Loan Signed:
Repayment Period:
Interest Rate:
RLF Subgrant Amt:
Cost Share Amt:
Env Pro Income Amt:
Dt RLF Sbgrnt Signd:
Clnup Actvy Funded:
Below Poverty:
Below Poverty Pct:
Median Income:
Low Income:
Low Income Pct:

Highlights: At the time of the Phase I ESA reconnaissance, most of the Property was vacant and unimproved except for a single-family residence on tax parcel 5530001087 in the southwestern area of the Property. Indications of past development (former building pads/paved areas and a feature that may be a water supply well) were observed on parcel 5530000023. Cattail Marsh Road divides the three northernmost tax parcels of the Property (tax parcels 5530001015, 5530001016, and 5530001017) from the rest of the Property. Historical aerial photographs and city directories indicate that portions of the Property have been used for vehicle storage and salvage. The potential for

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

petroleum and hazardous substances to be released as a result of these operations represents a REC and a potential vapor encroachment condition (VEC) for the Property.

Property Alias:
Ctmnt Found:
Ctmnt Cleanedup:
Ctmnt Rec:

Media Afffected:

Cleanups In My Community (CIMC)

Grant ID:	69605299	***ASMT Cntrl Sub :***	
Grant Type:	Assessment	***Cleanup Cntrl Sub :***	
EPA Region:	08	***ASMT Asbestos :***	
Ownership Entity:	Private	***Cleanup Asbestos :***	
Latitude Measure:	38.71018000051183	***ASMT Pcbs :***	
Longitude Measure:	-104.71630826665717	***Cleanup Pcbs :***	
Flag Cleanup Reqd:	U	***ASMT Vocs :***	
Flag IC Required:		***Cleanup Vocs :***	
Stcntrbg:		***ASMT Lead :***	
Property Size:	41	***Cleanup Lead :***	
Flag IC in Place:		***ASMT Oth Metal :***	
IC in Place Date:		***Cleanup Oth Metal :***	
Prop Cntrl :		***ASMT Pahs :***	
Gov Cntrl :		***Cleanup Pahs :***	
Permit Tools :		***ASMT Oth Cont:***	
Info DevlCes :		***Cleanup Oth Cont:***	
Prop Fnding Type Cd:	Hazardous	***ASMT Air :***	
Ownshp Changed :		***Cleanup Air :***	
Sfllp Factor :		***ASMT Drk Wat:***	
Source Mapscale No:		***Cleanup Drk Wat:***	
Past Cml Acres:	19	***ASMT Grd Water:***	
Future Cml Acres:		***Cleanup Grd Water:***	
Past Grnspc Acres:	5	***ASMT Sediments :***	
Future Grnspc Acres:		***Cleanup Sediments :***	
Past Acres:		***ASMT Soil :***	
Future Acres:		***Cleanup Soil :***	
Past Res Acres:	17	***ASMT Srf Water :***	
Future Res Acres:		***Cleanup Srf Water :***	
St Enrollment Dt:		***Other Media :***	
St Enrollment ID:		***Unknown Media :***	
St NFA Dt:		***Ready For Reuse :***	N
Assess Petrol Prod :		***Assess Amount:***	
Cleanup Petrol Prod :		***Assess Fnd Ent Nm:***	
Assess Start Dt:		***Photo Available :***	
Assess Cmpltn Dt:		***Video Available :***	
Cleanup Start Dt:		***Cleanup Acres:***	
Cleanup Cmpltn Dt:		***Cleanup Amount:***	
Redev Start Dt:		***Redev Acres:***	
Redev Cleanup Jobs:		***Redev Amount:***	
Grant Recipient Nm:	Colorado Springs City Government		
PropertyNm:	Duckwood Property		
Address:	200 Duckwood Road Fountain, CO 80817 (18 adjoining tax lots)		
City:	FOUNTAIN		
State Code:	CO		
Zip Code:	80817		
Local Parcel No:	Multiple		
Current Owner:			
IC Data Address:			
Horizontal Collection Method:			
Reference Point:			
Horizontal Reference Datum:			
Other Description:			
Other Desc Cleaned Up:			
Assess Type:			
Assess Fund Entity:			
Cleanup Funding EntityNm:			

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Cleanup Fund Entity:
Redev Funding Entity Nm:
Desc Hist:

Accmplisht Cnt Flag:
Coop Agreement No: 96896301
Past Mltistry Acres:
Ftr Multistory Acres:
Assess Cadmium :
Clnup Cadmium :
Assess Chromium :
Clnup Chromium :
Assess Copper :
Clnup Copper :
Assess Iron :
Clnup Iron :
Assess Nickel :
Clnup Nickel :
Assess Selenium :
Clnup Selenium :
Assess Mercury :
Clnup Mercury :
Assess ArsenIC :
Clnup ArsenIC :
Assess Bldg Mats :
Clnup Bldg Mats :
Assess oorair :
Clnup oorair :
Assess None :
Clnup None :
Assess Pesticides :
Clnup Pesticides :
Assess Unknown :
Clnup Unknown :
Assess Svocs :
Clnup Svocs :
Clnup Unkn Media :
Redev Cmpltn Date:
Pro Code: BF
FCA Fy:
Flag EC in Place:
Flag EC Required:
RFR Notation:
Gpa Type ID: 10
Clnup Doc:
Awp Catalyst Yn:
Flag Prop Not Enrld: Y
Redev Fund Entity:
Gpa Type Desc: Redevelopment Jobs Leveraged
AA Actvy Funded:
AA Source of Funding:
Clnup Trmt Tech Info:
EC Data Address:
EC Addl Info:
Env IC Data Address:
Other Forms of Doc:
IC Addl Info:
Highlights: At the time of the Phase I ESA reconnaissance, most of the Property was vacant and unimproved except for a single-family residence on tax parcel 5530001087 in the southwestern area of the Property. Indications of past development (former building pads/paved areas and a feature that may be a water supply well) were observed on parcel 5530000023. Cattail Marsh Road divides the three northernmost tax parcels of the Property (tax parcels 5530001015, 5530001016, and 5530001017) from the rest of the Property. Historical aerial photographs and city directories indicate that portions of the Property have been used for vehicle storage and salvage. The potential for petroleum and hazardous substances to be released as a result of these operations represents a REC and a potential vapor encroachment condition (VEC) for the Property.
Property Alias:
Ctmnt Found:
Ctmnt Cleanedup:
Ctmnt Rec:

Vacant Housing:
Vacant Housing Pct:
Total Unemployed:
Unemployed Pct:
Radius:
Actvy Funded:
Redev Lvrgd Srcs:
AA Amt Funding:
Flag Clnup Trmt Tech:
Excavation Disposal:
Extrctn of Cntmnts:
Removal of Mats:
Rdctn of Cntmnts:
Clnup of Structures:
Env EC Required:
Flag EC Cover Tech:
Flag EC Security:
Flag EC Immblztn:
Flag EC Eng Barriers:
Flag EC Other:
Env IC in Place:
Env EC in Place:
Env Clnup Jobs:
Sect 128 A State Trbl:
Multipurpose:
Clnup Cst Shr Amt:
RLF Loan Amount:
RLF Ln Cst Shr Amt:
Pro Income Amt:
Dt RLF Loan Signed:
Repayment Period:
Interest Rate:
RLF Subgrant Amt:
Cost Share Amt:
Env Pro Income Amt:
Dt RLF Sbgrnt Signd:
Clnup Actvy Funded:
Below Poverty:
Below Poverty Pct:
Median Income:
Low Income:
Low Income Pct:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
					Media Afffected:	
39	1 of 1	NW	0.46 / 2,410.38	5,664.85 / 11	Loaf N Jug #18 7055 Alegre Cir Fountain 80817 CO	LST

Facility ID: 2226
Event ID:
Facility Name(OPS): Loaf N Jug #18
Facility Type(OPS): Retail
Fac Category(OPS): Retail Gas Station
Address(OPS): 7055 Alegre Cir
City(OPS): Fountain
Zip Code(OPS): 80817
County(OPS): El Paso
State(OPS): CO
Lat Long(OPS): 38.729431, -104.724982
Fac Name(COSTIS): Loaf N Jug #18
Address (COSTIS): 7055 Alegre Cir
Fountain 80817
County (COSTIS): El Paso
Original Source: Colorado Storage Tank Information System (COSTIS) (As of October, 2021); Colorado Department of Labor and Employment (CDLE); Oil & Public Safety(OPS) Regulated Storage Tanks; OPS Petroleum Release Events in Colorado - Petroleum Release Events

Fac Name(CDLE): Loaf N Jug #18
Address(CDLE): 7055 Alegre Cir
Fac Type(CDLE): Retail
Fac Category(CDLE): Retail Gas Station
City(CDLE): Fountain
Zip(CDLE): 80817
County(CDLE): El Paso
State(CDLE):
Latitude(CDLE): 38.729431
Longitude(CDLE): -104.724982

Owner ID: 3561
Owner Name:

Events (CDLE)

Event ID: 7978
Alt Event ID:
Status: Closed
UST Tank Count: 3
AST Tank Count: 0
Source of Release:
Cause of Release:
Confirm Rel Dt:
Site Name: Loaf N Jug #18
Loc Addr:
Loc Addr2:
Loc Addr3:
Aka Name:
Aka Loc Addr:

Proj. Closure Date:
Category:
Sardonyx ID:
MTBE Classifica:
Sum of Reimbur Amt:
Reviewer Full Name: Larry Delin
Logged On: 12/21/1999
Logged By:

Facility (CDLE)

Owner Costis ID: OWNR-3561
No of Active Tanks: 0
No of Metred Prod: 0

Type: Retail
Facility Owner: Black Diamond Petroleum Inc

Events (COSTIS) (As of October 2021)

Event ID: 7978
Process Status Name: Closed
Site Name: Black Diamond Petroleum Fka Loaf N Jug
Facility Name:
Address: 7055 Alegre Cir Fountain CO 80817
Loc Address: 7055 Alegre Cir
Fountain 80817
Loc City: Fountain
Loc County: El Paso

Log Date: 12/21/1999

OPS Regulated Storage Tanks

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

No of Tanks: 0

OPS Petroleum Release Events in Colorado - Petroleum Release Events

Event ID:	7978	**Phone:**	(303) 318-4357
Release No:	REL-004113	**City:**	Fountain
Status:	Closed	**Zip:**	80817
Release Date:		**State:**	CO
Closure Date:	1/20/2000	**County:**	El Paso
NFA Type:	Pre-RBCA	**Latitude:**	38.729431
Release Cause:		**Longitude:**	-104.724982
Reimbursement Total:		**Latitude Longitude:**	38.729431, -104.724982
Contact:	Larry Delin		
Release Source:			
Site Name:	Loaf N Jug #18		
Address:	7055 Alegre Cir		
Email:	cdle_ops_public_record_center@state.co.us		
Link :	https://socgov18.force.com/s/release/a183h000003KWKJ		

40	1 of 1	SSE	0.55 / 2,900.33	5,676.29 / 22	GRAVEL PIT EL PASO COUNTY FOUNTAIN CO 80817	MRDS

Dep ID:	10263607	**I1:**	24
Dev Status:	PRODUCER	**Latitude:**	38.70752
Code List:	SDG	**Longitude:**	-104.704102
Url:	http://mrdata.usgs.gov/mrds/show-mrds.php?dep_id=10263607		

Commodity

I1:	36	**Line:**	1
Code:	SDG	**Inserted By:**	MAS migration
Commodity:	Sand and Gravel, Cons	**Insert Date:**	29-OCT-2002 09:00:24
Commodity Type:	Non-metallic	**Updated By:**	USGS
Commodity Group:	Sand and Gravel	**Update Date:**	29-OCT-2002 09:02:20
Importance:	Primary		

Names

I1:	38	**Inserted By:**	MAS migration
Status:	Current	**Insert Date:**	29-OCT-02
Site Name:	Gravel Pit	**Updated By:**	USGS
Line:	1	**Update Date:**	29-OCT-02

Unplottable Summary

Total: 2 Unplottable sites

DB	Company Name/Site Name	Address	City	Zip	ERIS ID
ERNS		FOUNTAIN MESA RD ***NRC Report No:*** 243588	FOUNTAIN CO		806998819
SPILLS		NEAR FOUNTAIN MESA ROAD ***Case No:*** CO94-207	FOUNTAIN CO		820846478

Unplottable Report

Site:

FOUNTAIN MESA RD FOUNTAIN CO

ERNS

NRC Report No:	243588	***Latitude Degrees:***	
Type of Incident:	UNKNOWN SHEEN	***Latitude Minutes:***	
Incident Cause:	UNKNOWN	***Latitude Seconds:***	
Incident Date:	12-Jun-1994 13:00:00	***Longitude Degrees:***	
Incident Location:		***Longitude Minutes:***	
Incident Dtg:	DISCOVERED	***Longitude Seconds:***	
Distance from City:		***Lat Quad:***	
Distance Units:		***Long Quad:***	
Direction from City:		***Location Section:***	
Location County:	EL PASO	***Location Township:***	
Potential Flag:		***Location Range:***	
Year:	Year 1994 Reports		

Description of Incident: CALLER CAN SEE A TIRE FIRE 3-4 MILES AWAY/ LARGE PLUME OF SMOKE

Material Spill Information

Chris Code:	UNK	***Unit of Measure:***	UNKNOWN AMOUNT
CAS No:		***If Reached Water:***	YES
UN No:		***Amount in Water:***	0
Name of Material:	UNKNOWN MATERIAL/ TIRES BURNING	***Unit Reach Water:***	UNKNOWN AMOUNT
Amount of Material:	0		

Calls Information

Date Time Received:	12-Jun-1994 15:45:41	***Responsible City:***	
Date Time Complete:	12-Jun-1994 15:48:19	***Responsible State:***	XX
Call Type:	INC	***Responsible Zip:***	
Resp Company:		***Source:***	UNAVAILABLE
Resp Org Type:	UNKNOWN		

Incident Information

Tank ID:		***Building ID:***	
Tank Regulated:	U	***Location Area ID:***	
Tank Regulated By:		***Location Block ID:***	
Capacity of Tank:		***OCSG No:***	
Capacity Tank Units:		***OCSP No:***	
Description of Tank:		***State Lease No:***	
Actual Amount:		***Pier Dock No:***	
Actual Amount Units:		***Berth Slip No:***	
Tank Above Ground:	ABOVE	***Brake Failure:***	N
NPDES:		***Airbag Deployed:***	
NPDES Compliance:	U	***Transport Contain:***	U
Init Contin Rel No:		***Location Subdiv:***	
Contin Rel Permit:		***Platform Rig Name:***	
Contin Release Type:		***Platform Letter:***	
Aircraft ID:		***Allision:***	N
Aircraft Runway No:		***Type of Structure:***	
Aircraft Spot No:		***Structure Name:***	
Aircraft Type:	UNKNOWN	***Structure Oper:***	Y
Aircraft Model:		***Transit Bus Flag:***	
Aircraft Fuel Cap:		***Date Time Norm Serv:***	
Aircraft Fuel Cap U:		***Serv Disrupt Time:***	
Aircraft Fuel on Brd:		***Serv Disrupt Units:***	
Aircraft Fuel OB U:		***CR Begin Date:***	
Aircraft Hanger:		***CR End Date:***	

Road Mile Marker:		***CR Change Date:***	
Power Gen Facility:	U	***FBI Contact:***	
Generating Capacity:		***FBI Contact Dt Tm:***	
Type of Fixed Obj:	UNKNOWN	***Passenger Handling:***	
Type of Fuel:		***Passenger Route:***	XXX
DOT Crossing No:		***Passenger Delay:***	XXX
DOT Regulated:	U	***Sub Part C Test Req:***	XXX
Pipeline Type:	UNKNOWN	***Conductor Test:***	
Pipeline Abv Ground:	ABOVE	***Engineer Test:***	
Pipeline Covered:	U	***Trainman Test:***	
Exposed Underwater:	U	***Yard Foreman Test:***	
Railroad Hotline:	No	***RCL Operator Test:***	
Railroad Milepost:	UNKNOWN	***Brakeman Test:***	
Grade Crossing:	N	***Train Dispat Test:***	
Crossing Device Ty:		***Signalman Test:***	
Ty Vehicle Involved:	UNKNOWN	***Oth Employee Test:***	
Device Operational:	Y	***Unknown Test:***	

Incident Details Information

Release Secured:		***State Agen Report No:***	
Release Rate:		***State Agen on Scene:***	
Release Rate Unit:		***State Agen Notified:***	
Release Rate Rate:		***Fed Agency Notified:***	
Est Duration of Rel:		***Oth Agency Notified:***	
Desc Remedial Act:	NONE	***Body of Water:***	
Fire Involved:	N	***Tributary of:***	
Fire Extinguished:		***Near River Mile Make:***	
Any Evacuations:	N	***Near River Mile Mark:***	
No Evacuated:		***Offshore:***	
Who Evacuated:		***Weather Conditions:***	
Radius of Evac:		***Air Temperature:***	
Any Injuries:	U	***Wind Direction:***	
No. Injured:		***Wind Speed:***	
No. Hospitalized:		***Wind Speed Unit:***	
No. Fatalities:		***Water Supp Contam:***	
Any Fatalities:	U	***Water Temperature:***	
Any Damages:	N	***Wave Condition:***	
Damage Amount:		***Current Speed:***	
Air Corridor Closed:		***Current Direction:***	
Air Corridor Desc:		***Current Speed Unit:***	
Air Closure Time:		***EMPL Fatality:***	
Waterway Closed:		***Pass Fatality:***	
Waterway Desc:		***Community Impact:***	
Waterway Close Time:		***Passengers Transfer:***	UNK
Road Closed:		***Passenger Injuries:***	
Road Desc:		***Employee Injuries:***	
Road Closure Time:		***Occupant Fatality:***	
Road Closure Units:		***Sheen Size:***	
Closure Direction:		***Sheen Size Units:***	
Major Artery:		***Sheen Size Length:***	
Track Closed:		***Sheen Size Length U:***	
Track Desc:		***Sheen Size Width:***	
Track Closure Time:		***Sheen Size Width U:***	
Track Closure Units:		***Sheen Color:***	
Track Close Dir:		***Dir of Sheen Travel:***	
Media Interest:		***Sheen Odor Desc:***	
Medium Desc:	AIR	***Duration Unit:***	
Addl Medium Info:	ATMOSPHERE	***Additional Info:***	

Site:

NEAR FOUNTAIN MESA ROAD FOUNTAIN CO

SPILLS

Case No:	CO94-207	***H2O Unit Measure 2:***	
Main ID:		***Quantity 3:***	0
NRC No:	NONE	***Unit Measure 3:***	
Dt of Spl or Rel:	6/12/1994	***H2O quantity 3:***	0
Event Time:	12:00:00 AM	***H2O Unit Measure 3:***	
1st Rep Event Dt:	6/12/1994	***Cause:***	O

Date Reported:	6/12/1994	***Death:***	
Time Reported:	2:12:00 PM	***Injury:***	
Date Entered:	1/5/1995	***Evacuation:***	N
Time Entered:	4:34:56 PM	***Evacuation No:***	0
Land:	TRUE	***PRP City:***	
Air:	TRUE	***PRP County:***	
Surface Water:	FALSE	***PRP State:***	
Ground Water:	FALSE	***PRP Zip:***	
Material Type:	OTHER	***PRP Phone:***	
Quantity 1:	0	***PRP Extension:***	
Unit Measure 1:		***Mile Marker:***	
H2O Quantity 1:	0	***Who Took Report:***	GUNDERSON, STEVE
H2O Unit Measure 1:		***Fixed Facility:***	FALSE
Material 2:		***Event County:***	EL PASO
Quantity 2:	0	***Latitude:***	0
Unit Measure 2:		***Longitude:***	0
H2O Quantity 2:	0		

Source Desc:	
Source:	F
Source Type:	ILLEGAL TIRE DUMP
Medium:	AIR AND LAND
Waterway:	NONE
Material 1:	TIRES
Material 3:	
PRP:	POTTER, BOB
PRP Contact:	
PRP Street:	
PRP Fax:	
Responder 1:	FORT CARSON FIRE DEPARTMENT
Responder 2:	FOUNTAIN FIRE DEPARTMENT
Responder 3:	HANOVER & SECURITY FIRE DEPT
Response Comments:	
Notified Name:	CDH/EMU **Note: Many records provided by the department have a truncated [Notified Name] field.
Additional Comments:	
Comments:	ESTIMATED 10 MILLION TIRES OVER 40 ACRES, 2 ACRES BURNING.
Cause Info:	FIRE STARTED BY LIGHTENING **Note: Many records provided by the department have a truncated [Cause Info] field.
Action:	BERMS BUILT WITH BULLDOZERS; SMOTHERING FIRE W/DIRT & FOAM.

Appendix: Database Descriptions

Environmental Risk Information Services (ERIS) can search the following databases. The extent of historical information varies with each database and current information is determined by what is publicly available to ERIS at the time of update. ERIS updates databases as set out in ASTM Standard E1527-13 and E1527-21, Section 8.1.8 Sources of Standard Source Information:

"Government information from nongovernmental sources may be considered current if the source updates the information at least every 90 days, or, for information that is updated less frequently than quarterly by the government agency, within 90 days of the date the government agency makes the information available to the public."

Standard Environmental Record Sources

Federal

National Priority List: NPL

Sites on the United States Environmental Protection Agency (EPA)'s National Priorities List of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under the Superfund program. The NPL, which EPA is required to update at least once a year, is based primarily on the score a site receives from EPA's Hazard Ranking System. A site must be on the NPL to receive money from the Superfund Trust Fund for remedial action. Sites are represented by boundaries where available in the EPA Superfund Site Boundaries maintained by the Shared Enterprise Geodata and Services (SEGS). Site boundaries represent the footprint of a whole site, the sum of all of the Operable Units and the current understanding of the full extent of contamination; for Federal Facility sites, the total site polygon may be the Facility boundary. Where there is no polygon boundary data available for a given site, the site is represented as a point.

Government Publication Date: May 25, 2023

National Priority List - Proposed: PROPOSED NPL

Sites proposed by the United States Environmental Protection Agency (EPA), the state agency, or concerned citizens for addition to the National Priorities List (NPL) due to contamination by hazardous waste and identified by the EPA as a candidate for cleanup because it poses a risk to human health and/or the environment. Sites are represented by boundaries where available in the EPA Superfund Site Boundaries maintained by the Shared Enterprise Geodata and Services (SEGS). Site boundaries represent the footprint of a whole site, the sum of all of the Operable Units and the current understanding of the full extent of contamination; for Federal Facility sites, the total site polygon may be the Facility boundary. Where there is no polygon boundary data available for a given site, the site is represented as a point.

Government Publication Date: May 25, 2023

Deleted NPL: DELETED NPL

Sites deleted from the United States Environmental Protection Agency (EPA)'s National Priorities List. The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate. Sites are represented by boundaries where available in the EPA Superfund Site Boundaries maintained by the Shared Enterprise Geodata and Services (SEGS). Site boundaries represent the footprint of a whole site, the sum of all of the Operable Units and the current understanding of the full extent of contamination; for Federal Facility sites, the total site polygon may be the Facility boundary. Where there is no polygon boundary data available for a given site, the site is represented as a point.

Government Publication Date: May 25, 2023

SEMS List 8R Active Site Inventory: SEMS

The U.S. Environmental Protection Agency's (EPA) Superfund Program has deployed the Superfund Enterprise Management System (SEMS), which integrates multiple legacy systems into a comprehensive tracking and reporting tool. This inventory contains active sites evaluated by the Superfund program that are either proposed to be or are on the National Priorities List (NPL) as well as sites that are in the screening and assessment phase for possible inclusion on the NPL. The Active Site Inventory Report displays site and location information at active SEMS sites. An active site is one at which site assessment, removal, remedial, enforcement, cost recovery, or oversight activities are being planned or conducted. This data includes SEMS sites from the List 8R Active file as well as applicable sites from the SEMS GIS/REST file layer obtained from EPA's Facility Registry Service.

Government Publication Date: Mar 23, 2023

SEMS List 8R Archive Sites: SEMS ARCHIVE

The U.S. Environmental Protection Agency's (EPA) Superfund Enterprise Management System (SEMS) Archived Site Inventory displays site and location information at sites archived from SEMS. An archived site is one at which EPA has determined that assessment has been completed and no further remedial action is planned under the Superfund program at this time. This data includes sites from the List 8R Archived site file.

Government Publication Date: Mar 23, 2023

Inventory of Open Dumps, June 1985: ODI

The Resource Conservation and Recovery Act (RCRA) provides for publication of an inventory of open dumps. The Act defines "open dumps" as facilities which do not comply with EPA's "Criteria for Classification of Solid Waste Disposal Facilities and Practices" (40 CFR 257).

Government Publication Date: Jun 1985

Comprehensive Environmental Response, Compensation and Liability Information System - CERCLIS: CERCLIS

Superfund is a program administered by the United States Environmental Protection Agency (EPA) to locate, investigate, and clean up the worst hazardous waste sites throughout the United States. CERCLIS is a database of potential and confirmed hazardous waste sites at which the EPA Superfund program has some involvement. It contains sites that are either proposed to be or are on the National Priorities List (NPL) as well as sites that are in the screening and assessment phase for possible inclusion on the NPL. The EPA administers the Superfund program in cooperation with individual states and tribal governments; this database is made available by the EPA.

Government Publication Date: Oct 25, 2013

EPA Report on the Status of Open Dumps on Indian Lands: IODI

Public Law 103-399, The Indian Lands Open Dump Cleanup Act of 1994, enacted October 22, 1994, identified congressional concerns that solid waste open dump sites located on American Indian or Alaska Native (AI/AN) lands threaten the health and safety of residents of those lands and contiguous areas. The purpose of the Act is to identify the location of open dumps on Indian lands, assess the relative health and environment hazards posed by those sites, and provide financial and technical assistance to Indian tribal governments to close such dumps in compliance with Federal standards and regulations or standards promulgated by Indian Tribal governments or Alaska Native entities.

Government Publication Date: Dec 31, 1998

CERCLIS - No Further Remedial Action Planned: CERCLIS NFRAP

An archived site is one at which EPA has determined that assessment has been completed and no further remedial action is planned under the Superfund program at this time. The Archive designation means that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL). This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Government Publication Date: Oct 25, 2013

CERCLIS Liens: CERCLIS LIENS

A Federal Superfund lien exists at any property where EPA has incurred Superfund costs to address contamination ("Superfund site") and has provided notice of liability to the property owner. A Federal CERCLA ("Superfund") lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. This database is made available by the United States Environmental Protection Agency (EPA). This database was provided by the United States Environmental Protection Agency (EPA). Refer to SEMS LIEN as the current data source for Superfund Liens.

Government Publication Date: Jan 30, 2014

RCRA CORRACTS-Corrective Action: RCRA CORRACTS

RCRA Info is the U.S. Environmental Protection Agency's (EPA) comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. At these sites, the Corrective Action Program ensures that cleanups occur. EPA and state regulators work with facilities and communities to design remedies based on the contamination, geology, and anticipated use unique to each site.

Government Publication Date: Apr 24, 2023

RCRA non-CORRACTS TSD Facilities: RCRA TSD

RCRA Info is the U.S. Environmental Protection Agency's (EPA) comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. This database includes Non-Corrective Action sites listed as treatment, storage and/or disposal facilities of hazardous waste as defined by RCRA.

Government Publication Date: Apr 24, 2023

RCRA Generator List: RCRA LQG

RCRA Info is the U.S. Environmental Protection Agency's (EPA) comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Large Quantity Generators (LQGs) generate 1,000 kilograms per month or more of hazardous waste or more than one kilogram per month of acutely hazardous waste.

Government Publication Date: Apr 24, 2023

RCRA Small Quantity Generators List: RCRA SQG

RCRA Info is the U.S. Environmental Protection Agency's (EPA) comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Small Quantity Generators (SQGs) generate more than 100 kilograms, but less than 1,000 kilograms, of hazardous waste per month.

Government Publication Date: Apr 24, 2023

RCRA Very Small Quantity Generators List: RCRA VSQG

RCRA Info is the U.S. Environmental Protection Agency's (EPA) comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Very Small Quantity Generators (VSQG) generate 100 kilograms or less per month of hazardous waste, or one kilogram or less per month of acutely hazardous waste. Additionally, VSQG may not accumulate more than 1,000 kilograms of hazardous waste at any time.

Government Publication Date: Apr 24, 2023

RCRA Non-Generators: RCRA NON GEN

RCRA Info is the U.S. Environmental Protection Agency's (EPA) comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Non-Generators do not presently generate hazardous waste.

Government Publication Date: Apr 24, 2023

RCRA Sites with Controls: RCRA CONTROLS

List of Resource Conservation and Recovery Act (RCRA) facilities with institutional controls in place. RCRA gives the U.S. Environmental Protection Agency (EPA) the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances.

Government Publication Date: Apr 24, 2023

Federal Engineering Controls-ECs: FED ENG

This list of Engineering controls (ECs) is provided by the United States Environmental Protection Agency (EPA). ECs encompass a variety of engineered and constructed physical barriers (e.g., soil capping, sub-surface venting systems, mitigation barriers, fences) to contain and/or prevent exposure to contamination on a property. The EC listing includes remedy component data from Superfund decision documents issued in fiscal years 1982-2021 for applicable sites on the final or deleted on the National Priorities List (NPL); and sites with a Superfund Alternative Approach (SAA) Agreement in place. The only sites included that are not on the NPL; proposed for NPL; or removed from proposed NPL, are those with an SAA Agreement in place.

Government Publication Date: Jun 22, 2023

Federal Institutional Controls- ICs: FED INST

This list of Institutional controls (ICs) is provided by the United States Environmental Protection Agency (EPA). ICs are non-engineered instruments, such as administrative and legal controls, that help minimize the potential for human exposure to contamination and/or protect the integrity of the remedy. Although it is EPA's expectation that treatment or engineering controls will be used to address principal threat wastes and that groundwater will be returned to its beneficial use whenever practicable, ICs play an important role in site remedies because they reduce exposure to contamination by limiting land or resource use and guide human behavior at a site. The IC listing includes remedy component data from Superfund decision documents issued in fiscal years 1982-2021 for applicable sites on the final or deleted on the National Priorities List (NPL); and sites with a Superfund Alternative Approach (SAA) Agreement in place. The only sites included that are not on the NPL; proposed for NPL; or removed from proposed NPL, are those with an SAA Agreement in place.

Government Publication Date: Jun 22, 2023

Land Use Control Information System: LUCIS

The LUCIS database is maintained by the U.S. Department of the Navy and contains information for former Base Realignment and Closure (BRAC) properties across the United States.

Government Publication Date: Sep 1, 2006

Institutional Control Boundaries at NPL sites: NPL IC

Boundaries of Institutional Control areas at sites on the United States Environmental Protection Agency (EPA)'s National Priorities List, or Proposed or Deleted, made available by the EPA's Shared Enterprise Geodata and Services (SEGS). United States Environmental Protection Agency (EPA)'s National Priorities List of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under the Superfund program. Institutional controls are non-engineered instruments such as administrative and legal controls that help minimize the potential for human exposure to contamination and/or protect the integrity of the remedy.

Government Publication Date: May 25, 2023

Emergency Response Notification System: ERNS 1982 TO 1986

Database of oil and hazardous substances spill reports controlled by the National Response Center. The primary function of the National Response Center is to serve as the sole national point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories.

Government Publication Date: 1982-1986

Emergency Response Notification System: ERNS 1987 TO 1989

Database of oil and hazardous substances spill reports controlled by the National Response Center. The primary function of the National Response Center is to serve as the sole national point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories.

Government Publication Date: 1987-1989

Emergency Response Notification System: ERNS

Database of oil and hazardous substances spill reports made available by the United States Coast Guard National Response Center (NRC). The NRC fields initial reports for pollution and railroad incidents and forwards that information to appropriate federal/state agencies for response. These data contain initial incident data that has not been validated or investigated by a federal/state response agency.

Government Publication Date: Apr 3, 2023

The Assessment, Cleanup and Redevelopment Exchange System (ACRES) Brownfield Database: FED BROWNFIELDS

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties protects the environment, reduces blight, and takes development pressures off greenspaces and working lands. This data is provided by the United States Environmental Protection Agency (EPA) and includes Brownfield sites from the Cleanups in My Community (CIMC) web application.

Government Publication Date: Sep 13, 2022

FEMA Underground Storage Tank Listing: FEMA UST

The Federal Emergency Management Agency (FEMA) of the Department of Homeland Security maintains a list of FEMA owned underground storage tanks.

Government Publication Date: Dec 31, 2017

Facility Response Plan: FRP

This listing contains facilities that have submitted Facility Response Plans (FRPs) to the U.S. Environmental Protection Agency (EPA). Facilities that could reasonably be expected to cause "substantial harm" to the environment by discharging oil into or on navigable waters are required to prepare and submit FRPs. Harm is determined based on total oil storage capacity, secondary containment and age of tanks, oil transfer activities, history of discharges, proximity to a public drinking water intake or sensitive environments. This listing includes FRP facilities from an applicable EPA FOIA file and Homeland Infrastructure Foundation-Level Data (HIFLD) data file.

Government Publication Date: May 2, 2023

Delisted Facility Response Plans: DELISTED FRP

Facilities that once appeared in - and have since been removed from - the list of facilities that have submitted Facility Response Plans (FRP) to EPA. Facilities that could reasonably be expected to cause "substantial harm" to the environment by discharging oil into or on navigable waters are required to prepare and submit Facility Response Plans (FRPs). Harm is determined based on total oil storage capacity, secondary containment and age of tanks, oil transfer activities, history of discharges, proximity to a public drinking water intake or sensitive environments.

Government Publication Date: May 2, 2023

Historical Gas Stations: HIST GAS STATIONS

This historic directory of service stations is provided by the Cities Service Company. The directory includes Cities Service filling stations that were located throughout the United States in 1930.

Government Publication Date: Jul 1, 1930

Petroleum Refineries: REFN

List of petroleum refineries from the U.S. Energy Information Administration (EIA) Refinery Capacity Report. Includes operating and idle petroleum refineries (including new refineries under construction) and refineries shut down during the previous year located in the 50 States, the District of Columbia, Puerto Rico, the Virgin Islands, Guam, and other U.S. possessions. Survey locations adjusted using public data.

Government Publication Date: Aug 30, 2022

Petroleum Product and Crude Oil Rail Terminals: BULK TERMINAL

List of petroleum product and crude oil rail terminals made available by the U.S. Energy Information Administration (EIA). Includes operable bulk petroleum product terminals located in the 50 States and the District of Columbia with a total bulk shell storage capacity of 50,000 barrels or more, and/or the ability to receive volumes from tanker, barge, or pipeline; also rail terminals handling the loading and unloading of crude oil that were active between 2017 and 2018. Petroleum product terminals comes from the EIA-815 Bulk Terminal and Blender Report, which includes working, shell in operation, and shell idle for several major product groupings. Survey locations adjusted using public data.

Government Publication Date: Jun 29, 2022

LIEN on Property: SEMS LIEN

The U.S. Environmental Protection Agency's (EPA) Superfund Enterprise Management System (SEMS) provides Lien details on applicable properties, such as the Superfund lien on property activity, the lien property information, and the parties associated with the lien.

Government Publication Date: Mar 23, 2023

Superfund Decision Documents: SUPERFUND ROD

This database contains a list of decision documents for Superfund sites. Decision documents serve to provide the reasoning for the choice of (or) changes to a Superfund Site cleanup plan. The decision documents include completed Records of Decision (ROD), ROD Amendments, Explanations of Significant Differences (ESD) for active and archived sites stored in the Superfund Enterprise Management System (SEMS), along with other associated memos and files. This information is maintained and made available by the U.S. Environmental Protection Agency.

Government Publication Date: Mar 23, 2023

Formerly Utilized Sites Remedial Action Program: DOE FUSRAP

The U.S. Department of Energy (DOE) established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from the Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations. The DOE Office of Legacy Management (LM) established long-term surveillance and maintenance (LTS&M) requirements for remediated FUSRAP sites. DOE evaluates the final site conditions of a remediated site on the basis of risk for different future uses. DOE then confirms that LTS&M requirements will maintain protectiveness.

Government Publication Date: Mar 4, 2017

State

Environmental Covenants and Use Restrictions: COVENANTS

Boundaries of environmental covenant/environmental use restriction sites made available by the Colorado Deparment of Public Health & Environment (CDPHE). CPDHE has the authority to approve requests to restrict the future use of a property using an enforceable agreement called an environmental covenant. Land use restrictions may be used to ensure the cleanup remedy adequately protects human health and the environment when a contaminated site isn't cleaned up completely.

Government Publication Date: Apr 20, 2023

Superfund National Priorities List and Natural Resource Damages sites: SUPERFUND NRD

Boundaries of Superfund National Priorities List sites and Natural Resource Damages sites in Colorado made available by the Colorado Department of Public Health and Environment (CDPHE).

Government Publication Date: Apr 14, 2023

Methane Gas Study Sites: LANDFILL METHANE

This Investigation of Methane Gas Hazards report was prepared by the Denver Office of Emergency Preparedness in 1981. The purpose of this study was to assess the actual and potential generation, migration, explosive and related problems associated with specified landfills, and to identify existing and potential problems, suggested strategies to prevent, abate, and control such problems and recommend investigative and monitoring functions as may be deemed necessary. The Colorado Department of Health selected eight landfills as priorities due to population density and potential hazards to population and property.

Government Publication Date: Jan 2, 1981

Superfund Sites: SHWS

A list of Superfund sites in Colorado made available by the Colorado Department of Public Health and Environment (CDPHE). In Colorado, the cleanup of Superfund sites is overseen by the CDPHE or the Environmental Protection Agency (EPA). This list includes active Superfund sites, deleted sites, proposed sites, and natural resource damage sites.

Government Publication Date: Jun 29, 2022

Delisted Superfund Sites: DELISTED SHWS

Sites which once appeared on - but have since been removed from - the list of Superfund sites in Colorado made available by the Colorado Department of Public Health and Environment (CDPHE). In Colorado, the cleanup of Superfund sites is overseen by the CDPHE or the Environmental Protection Agency (EPA).

Government Publication Date: Jun 29, 2022

Solid Waste Facilities and Landfills: SWF/LF

The Colorado Department of Public Health and Environment (CDPHE) regulates the management and disposal of solid waste, landfill facilities, waste tire registrants, and waste tire haulers. Solid waste and landfills data is provided by the CDPHE's Hazardous Materials and Waste Management Division's Solid Waste Report and the Environmental Sites Search Map Application. Waste tire data is made available by the CDPHE.

Government Publication Date: May 4, 2023

Historical Solid Waste (Closed or Abandoned Landfills): HIST LF

In the early 1980s the Hazardous Materials Waste Management Division of the Colorado Department of Public Health and Environment (CDPHE) conducted a survey of staff members and local agencies. The information gathered was compiled in 1984 for sites that were known or thought to have waste issues. The information is not complete and generally not very definitive or verifiable. This data became the Solid Waste Historical Data. The data is not maintained and has not been since the late 1980s.

Government Publication Date: 1984

Tri-County Historic Landfills: HIST LANDFILLS

A list of historical landfills made available by the Tri-County Health Department (TCHD). The TCHD serves Adams, Arapahoe, and Douglas Counties.

Government Publication Date: Jun 1, 2022

Registered Recycling Facilities: RECYCLING

This list of registered recycling facilities in Colorado is maintained by the Colorado Department of Public Health & Environment (CDPHE). This list includes primarily processing facilities for recyclable materials, such as material recovery facilities, industrial recycling operations, and recyclable material end user sites. Collection centers/drop-off locations are not included unless the site is also processing recyclable materials (separating, sorting, dismantling, grinding, baling, etc.).

Government Publication Date: Mar 13, 2023

Leaking Storage Tanks: LST

A list of leaking storage tank locations from the Colorado Storage Tank Information System (COSTIS) database, including those which have applied for reimbursement from the Petroleum Storage Tank Fund. This list is made available by the Division of Oil and Public Safety (OPS) of the Colorado Department of Labor and Employment (CDLE) and includes data compiled from applicable FOIA files, COSTIS files and other OPS datasets. Classified military tanks are excluded from this data.

Government Publication Date: Jun 1, 2023

LUST Trust Sites: LUST TRUST

The Division of Oil and Public Safety of the Colorado Department of Labor and Employment (CDLE) manages a Petroleum Storage Tank Fund (The Fund) that receives and processes applications to the Fund for reimbursement of costs related to assessment and cleanup of petroleum contaminated sites. Classified military tanks are excluded from this data.

Government Publication Date: Jun 1, 2023

Delisted Leaking Storage Tanks: DELISTED LST

This database contains a list of leaking storage tank sites and their Funds for reimbursement of costs related to assessment and cleanup that were removed from the Colorado Department of Labor and Employment (CDLE) database.

Government Publication Date: Jun 1, 2023

Underground Storage Tanks: UST

A list of underground storage tanks from the Colorado Storage Tank Information System (COSTIS) database. This database is made available by the Division of Oil and Public Safety (OPS) of the Colorado Department of Labor and Employment (CDLE). Data is compiled from applicable FOIA files, COSTIS files and other OPS datasets. Classified military tanks are excluded from this data.

Government Publication Date: Jun 1, 2023

Aboveground Storage Tanks: AST

A list of aboveground storage tanks from the Colorado Storage Tank Information System (COSTIS) database. This list is made available by the Division of Oil and Public Safety (OPS) of the Colorado Department of Labor and Employment (CDLE). Data is compiled from applicable FOIA files, COSTIS files and other OPS datasets. Classified military tanks are excluded from this data.

Government Publication Date: Jun 1, 2023

Storage Tank Information System (COSTIS): TANKS

This storage tank listing is provided by the Colorado Department of Labor and Employment, Division of Oil and Public Safety (OPS). The OPS manages the Colorado Storage Tank Information System (COSTIS) database which stores information on these facilities. This tank data includes facilities with liquefied petroleum gas, liquefied natural gas, and compressed natural gas tanks which are not classified as either underground storage tanks or aboveground storage tanks. Data is compiled from applicable FOIA files, COSTIS files and other OPS datasets. Classified military tanks are excluded from this data.

Government Publication Date: Jun 1, 2023

Delisted Storage Tanks: DTNK

This database contains a list of closed storage tank sites that were removed from the Division of Oil and Public Safety of the Colorado Department of Labor and Employment (CDLE) Tank Information System.

Government Publication Date: Jun 1, 2023

Environmental Covenants and Environmental Use Restrictions List: AUL

The Colorado Department of Public Health and Environment (CDPHE) maintains a list of sites that have environmental covenants and use restrictions in place. Land use restrictions may be used to ensure the cleanup remedy adequately protects human health and the environment when a contaminated site is not cleaned up completely.

Government Publication Date: Apr 20, 2023

Voluntary Cleanup and Redevelopment Program Sites: VCP

The Voluntary Cleanup and Redevelopment Program (VCUP) of the Colorado Department of Public Health and Environment (CDPHE) was created in 1994 with the objective to facilitate the redevelopment and transfer of contaminated properties. This VCUP site listing includes applicable active and inactive sites from the CDPHE Voluntary Cleanup Open Records data file and map layer.

Government Publication Date: Mar 20, 2023

Brownfield Sites: BROWNFIELDS

A list of Brownfields Program sites from the Hazardous Materials and Waste Management Division and the Colorado Environmental Records Search Interactive Map made available by the Colorado Department of Public Health and Environment (CDPHE). Sites which go untouched because of their real or perceived contamination can be rehabilitated using the CDPHE Brownfields Program.

Government Publication Date: Apr 3, 2023

Tribal

Leaking Underground Storage Tanks on Tribal/Indian Lands: INDIAN LUST

This list of leaking underground storage tanks (LUSTs) on Tribal/Indian Lands in Region 8, which includes Colorado, is made available by the United States Environmental Protection Agency (EPA).

Government Publication Date: Apr 20, 2023

Underground Storage Tanks on Tribal/Indian Lands: INDIAN UST

This list of underground storage tanks (USTs) on Tribal/Indian Lands in Region 8, which includes Colorado, is made available by the United States Environmental Protection Agency (EPA).

Government Publication Date: Apr 20, 2023

Delisted Tribal Leaking Storage Tanks: DELISTED INDIAN LST

Leaking Underground Storage Tank (LUST) facilities which once appeared on - and have since been removed from - the Regional Tribal/Indian LUST lists made available by the United States Environmental Protection Agency (EPA).

Government Publication Date: Apr 26, 2023

Delisted Tribal Underground Storage Tanks: DELISTED INDIAN UST

Underground Storage Tank (UST) facilities which once appeared on - and have since been removed from - the Regional Tribal/Indian UST lists made available by the United States Environmental Protection Agency (EPA).

Government Publication Date: Apr 26, 2023

County

No County databases were selected to be included in the search.

Additional Environmental Record Sources

Federal

Facility Registry Service/Facility Index: FINDS/FRS

The Facility Registry Service (FRS) is a centrally managed database that identifies facilities, sites, or places subject to environmental regulations or of environmental interest. FRS creates high-quality, accurate, and authoritative facility identification records through rigorous verification and management procedures that incorporate information from program national systems, state master facility records, and data collected from EPA's Central Data Exchange registrations and data management personnel. This list is made available by the Environmental Protection Agency (US EPA).

Government Publication Date: Aug 18, 2022

Toxics Release Inventory (TRI) Program: TRIS

The U.S. Environmental Protection Agency's Toxics Release Inventory (TRI) is a database containing data on disposal or other releases of toxic chemicals from U.S. facilities and information about how facilities manage those chemicals through recycling, energy recovery, and treatment. There are currently 770 individually listed chemicals and 33 chemical categories covered by the TRI Program. Facilities that manufacture, process or otherwise use these chemicals in amounts above established levels must submit annual reporting forms for each chemical. Note that the TRI chemical list does not include all toxic chemicals used in the U.S. One of TRI's primary purposes is to inform communities about toxic chemical releases to the environment.

Government Publication Date: Oct 19, 2022

PFOA/PFOS Contaminated Sites: PFAS NPL

This list of National Priorities List (NPL) and related Superfund Alternative Agreement (SAA) sites where PFOA or PFOS contaminants have been detected in water and/or soil is provided by the U.S. Environmental Protection Agency (EPA). EPA Disclaimer with FOIA file: Inclusion on the list does not necessarily mean that drinking water has been affected, nor does inclusion mean that anyone at the site has been exposed or is at risk for detrimental health effects.

Government Publication Date: Jun 15, 2023

Federal Agency Locations with Known or Suspected PFAS Detections: PFAS FED SITES

List of Federal agency locations with known or suspected detections of Per- and Polyfluoroalkyl Substances (PFAS), made available by the U.S. Environmental Protection Agency (EPA) in their PFAS Analytic Tools data. EPA outlines that these data are gathered from several federal entities, such as the Federal Superfund program, Department of Defense (DOD), National Aeronautics and Space Administration, Department of Transportation, and Department of Energy. The dates this data was extracted for the PFAS Analytic Tools range from March 2022 to April 2023. Sites on this list do not necessarily reflect the source/s of PFAS contamination and detections do not indicate level of risk or human exposure at the site. Agricultural notifications in this data are limited to DOD sites only. At this time, the EPA is aware that this list is not comprehensive of all Federal agencies.

Government Publication Date: Apr 24, 2023

SSEHRI PFAS Contamination Sites: PFAS SSEHRI

This PFAS Contamination Site Tracker database is compiled by the Social Science Environmental Health Research Institute (SSEHRI) at Northeastern University. According to the SSEHRI, the database records qualitative and quantitative data from each known site of PFAS contamination, including timeline of discovery, sources, levels, health impacts, community response, and government response. The goal of this database is to compile information and support public understanding of the rapidly unfolding issue of PFAS contamination. All data presented was extracted from government websites, news articles, or publicly available documents, and this is cited in the tracker. Locations for the Known PFAS Contamination Sites are sourced from the PFAS Sites and Community Resources Map, credited to the Northeastern University's PFAS Project Lab, Silent Spring Institute, and the PFAS-REACH team. Disclaimer: The source conveys the data undergoes regular updates as new information becomes available, some sites may be missing and/or contain information that is incorrect or outdated, as well as their information represents all contamination sites SSEHRI is aware of, not all possible contamination sites. This data is not intended to be used for legal purposes. Access the following source link for the most current information: https://pfasproject.com/pfas-sites-and-community-resources/

Government Publication Date: Oct 9, 2022

National Response Center PFAS Spills: ERNS PFAS

This Per- and Poly-Fluoroalkyl Substances (PFAS) Spills dataset is made available via the U.S. Environmental Protection Agency's (EPA) PFAS Analytic Tools. The National Response Center (NRC), operated by the U.S. Coast Guard, serves as an emergency call center that fields initial reports for pollution and railroad incidents and forwards that information to appropriate federal/state agencies for response. Response center calls from 1990 to the most recent complete calendar year where there was indication of Aqueous Film Forming Foam (AFFF) usage are included in this dataset. NRC calls may reference AFFF usage in the "Material Involved" or "Incident Description" fields. Limitations: The data from the NRC website contain initial incident data that has not been validated or investigated by a federal/state response agency. Keyword searches may misidentify some incident reports that do not contain PFAS. This dataset should also not be considered to be exhaustive of all PFAS spills/release incidents.

Government Publication Date: Apr 15, 2023

PFAS NPDES Discharge Monitoring: PFAS NPDES

This list of National Pollutant Discharge Elimination System (NPDES) permitted facilities with required monitoring for Per- and Polyfluoroalkyl (PFAS) Substances is made available via the U.S. Environmental Protection Agency (EPA)'s PFAS Analytic Tools. Any point-source wastewater discharger to waters of the United States must have a NPDES permit, which defines a set of parameters for pollutants and monitoring to ensure that the discharge does not degrade water quality or impair human health. This list includes NPDES permitted facilities associated with permits that monitor for Per- and Polyfluoroalkyl Substances (PFAS), limited to the years 2007 - present. EPA further advises the following regarding these data: currently, fewer than half of states have required PFAS monitoring for at least one of their permittees, and fewer states have established PFAS effluent limits for permittees. For states that may have required monitoring, some reporting and data transfer issues may exist on a state-by-state basis.

Government Publication Date: Feb 19, 2023

Perfluorinated Alkyl Substances (PFAS) from Toxic Release Inventory: PFAS TRI

List of Toxics Release Inventory (TRI) facilities at which the reported chemical is a per- or polyfluoroalkyl (PFAS) substance included in the U.S. Environmental Protection Agency's (EPA) consolidated PFAS Master List of PFAS Substances. Encompasses Toxics Release Inventory records included in the EPA PFAS Analytic Tools. The EPA's TRI database currently tracks information on disposal or releases of 770 individually listed toxic chemicals and 33 chemical categories from thousands of U.S. facilities and details about how facilities manage those chemicals through recycling, energy recovery, and treatment.

Government Publication Date: Oct 19, 2022

Perfluorinated Alkyl Substances (PFAS) Water Quality: PFAS WATER

The Water Quality Portal (WQP) is a cooperative service sponsored by the United States Geological Survey (USGS), the Environmental Protection Agency (EPA), and the National Water Quality Monitoring Council (NWQMC). This listing includes records from the Water Quality Portal where the characteristic (environmental measurement) is in the Environmental Protection Agency (EPA)'s consolidated Master List of PFAS Substances.

Government Publication Date: Jul 20, 2020

PFAS TSCA Manufacture and Import Facilities: PFAS TSCA

The U.S. Environmental Protection Agency (EPA) issued the Chemical Data Reporting (CDR) Rule under the Toxic Substances Control Act (TSCA) and requires chemical manufacturers and facilities that manufacture or import chemical substances to report data to EPA. This list is specific only to TSCA Manufacture and Import Facilities with reported per- and poly-fluoroalkyl (PFAS) substances. Data file is sourced from EPA's PFAS Analytic Tools TSCA dataset which includes CDR/Inventory Update Reporting data from 1998 up to 2020. Disclaimer: This data file includes production and importation data for chemicals identified in EPA's CompTox Chemicals Dashboard list of PFAS without explicit structures and list of PFAS structures in DSSTox. Note that some regulations have specific chemical structure requirements that define PFAS differently than the lists in EPA's CompTox Chemicals Dashboard. Reporting information on manufactured or imported chemical substance amounts should not be compared between facilities, as some companies claim Chemical Data Reporting Rule data fields for PFAS information as Confidential Business Information.

Government Publication Date: Jan 5, 2023

PFAS Waste Transfers from RCRA e-Manifest : PFAS E-MANIFEST

This Per- and Poly-Fluoroalkyl Substances (PFAS) Waste Transfers dataset is made available via the U.S. Environmental Protection Agency's (EPA) PFAS Analytic Tools. Every shipment of hazardous waste in the U.S. must be accompanied by a shipment manifest, which is a critical component of the cradle-to-grave tracking of wastes mandated by the Resource Conservation and Recovery Act (RCRA). According to the EPA, currently no Federal Waste Code exists for any PFAS compounds. To work around the lack of PFAS waste codes in the RCRA database, EPA developed the PFAS Transfers dataset by mining e-Manifest records containing at least one of these common PFAS keywords: • PFAS • PFOA • PFOS • PERFL • AFFF • GENX • GEN-X (plus the Vermont state-specific waste codes). Limitations: Amount or concentration of PFAS being transferred cannot be determined from the manifest information. Keyword searches may misidentify some manifest records that do not contain PFAS. This dataset should also not be considered to be exhaustive of all PFAS waste transfers.

Government Publication Date: Apr 9, 2023

PFAS Industry Sectors: PFAS IND

This Per- and Poly-Fluoroalkyl Substances (PFAS) Industry Sectors dataset is made available via the U.S. Environmental Protection Agency's (EPA) PFAS Analytic Tools. The EPA developed the dataset from various sources that show which industries may be handling PFAS including: EPA's Enforcement and Compliance History Online (ECHO) records restricted to potential PFAS-handling industry sectors; ECHO records for Fire Training Sites identified where fire-fighting foam may have been used in training exercises; and 14 CFR Part 139 Airports compiled from historic and current records from the FAA Airport Data and Information Portal. Since July 2006, all certificated Part 139 Airports are required to have fire-fighting foam onsite that meet certain military specifications, which to date have been fluorinated (Aqueous Film Forming Foam). Limitations: Inclusion in this dataset does not indicate that PFAS are being manufactured, processed, used, or released by the facility. Listed facilities potentially handle PFAS based on their industrial profile, but are unconfirmed by the EPA. Keyword searches in ECHO for Fire Training sites may misidentify some facilities and should not be considered to be an exhaustive list of fire training facilities in the U.S.

Government Publication Date: Apr 16, 2023

Hazardous Materials Information Reporting System: HMIRS

US DOT - Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) Incidents Reports Database taken from Hazmat Intelligence Portal, U.S. Department of Transportation.

Government Publication Date: Sep 1, 2020

National Clandestine Drug Labs: NCDL

The U.S. Department of Justice ("the Department"), Drug Enforcement Administration (DEA), provides this data as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy.

Government Publication Date: Feb 8, 2023

Toxic Substances Control Act: TSCA

The Environmental Protection Agency (EPA) is amending the Toxic Substances Control Act (TSCA) section 8(a) Inventory Update Reporting (IUR) rule and changing its name to the Chemical Data Reporting (CDR) rule.
The CDR enables EPA to collect and publish information on the manufacturing, processing, and use of commercial chemical substances and mixtures (referred to hereafter as chemical substances) on the TSCA Chemical Substance Inventory (TSCA Inventory). This includes current information on chemical substance production volumes, manufacturing sites, and how the chemical substances are used. This information helps the Agency determine whether people or the environment are potentially exposed to reported chemical substances. EPA publishes submitted CDR data that is not Confidential Business Information (CBI).

Government Publication Date: Apr 11, 2019

Hist TSCA: HIST TSCA

The Environmental Protection Agency (EPA) is amending the Toxic Substances Control Act (TSCA) section 8(a) Inventory Update Reporting (IUR) rule and changing its name to the Chemical Data Reporting (CDR) rule.
The 2006 IUR data summary report includes information about chemicals manufactured or imported in quantities of 25,000 pounds or more at a single site during calendar year 2005. In addition to the basic manufacturing information collected in previous reporting cycles, the 2006 cycle is the first time EPA collected information to characterize exposure during manufacturing, processing and use of organic chemicals. The 2006 cycle also is the first time manufacturers of inorganic chemicals were required to report basic manufacturing information.

Government Publication Date: Dec 31, 2006

FTTS Administrative Case Listing: FTTS ADMIN

An administrative case listing from the Federal Insecticide, Fungicide, & Rodenticide Act (FIFRA) and Toxic Substances Control Act (TSCA), together known as FTTS. This database was obtained from the Environmental Protection Agency's (EPA) National Compliance Database (NCDB). The FTTS and NCDB was shut down in 2006.

Government Publication Date: Jan 19, 2007

FTTS Inspection Case Listing: FTTS INSP

An inspection case listing from the Federal Insecticide, Fungicide, & Rodenticide Act (FIFRA) and Toxic Substances Control Act (TSCA), together known as FTTS. This database was obtained from the Environmental Protection Agency's (EPA) National Compliance Database (NCDB). The FTTS and NCDB was shut down in 2006.

Government Publication Date: Jan 19, 2007

Potentially Responsible Parties List: PRP

Early in the site cleanup process, the U.S. Environmental Protection Agency (EPA) conducts a search to find the Potentially Responsible Parties (PRPs). The EPA looks for evidence to determine liability by matching wastes found at the site with parties that may have contributed wastes to the site. This listing contains PRPs, Noticed Parties, at sites in the EPA's Superfund Enterprise Management System (SEMS).

Government Publication Date: Jan 25, 2023

State Coalition for Remediation of Drycleaners Listing: SCRD DRYCLEANER

The State Coalition for Remediation of Drycleaners (SCRD) was established in 1998, with support from the U.S. Environmental Protection Agency (EPA) Office of Superfund Remediation and Technology Innovation. Coalition members are states with mandated programs and funding for drycleaner site remediation. Current members are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin. Since 2017, the SCRD no longer maintains this data, refer to applicable state source data where available.

Government Publication Date: Nov 08, 2017

Integrated Compliance Information System (ICIS): ICIS

The U.S. Environmental Protection Agency's Enforcement and Compliance History Online system incorporates data from the Integrated Compliance Information System - National Pollutant Discharge Elimination System (ICIS-NPDES). ICIS-NPDES is an information management system maintained by the Office of Compliance to track permit compliance and enforcement status of facilities regulated by the NPDES under the Clean Water Act. This data includes permit, inspection, violation and enforcement action information for applicable ICIS records.

Government Publication Date: Oct 15, 2022

Drycleaner Facilities: FED DRYCLEANERS

A list of drycleaner facilities from Enforcement and Compliance History Online (ECHO) data as made available by the U.S. Environmental Protection Agency (EPA), sourced from the ECHO Exporter file. The EPA tracks facilities that possess NAIC and SIC codes that classify businesses as drycleaner establishments.

Government Publication Date: Apr 15, 2023

Delisted Drycleaner Facilities: DELISTED FED DRY

List of sites removed from the list of Drycleaner Facilities (sites in the EPA's Integrated Compliance Information System (ICIS) with NAIC or SIC codes identifying the business as a drycleaner establishment).

Government Publication Date: Apr 15, 2023

Formerly Used Defense Sites: FUDS

Formerly Used Defense Sites (FUDS) are properties that were formerly owned by, leased to, or otherwise possessed by and under the jurisdiction of the Secretary of Defense prior to October 1986, where the Department of Defense (DOD) is responsible for an environmental restoration. The FUDS Annual Report to Congress (ARC) is published by the U.S. Army Corps of Engineers (USACE). This data is compiled from the USACE's Geospatial FUDS data layers and Homeland Infrastructure Foundation-Level Data (HIFLD) FUDS dataset.

Government Publication Date: Jul 12, 2022

FUDS Munitions Response Sites: FUDS MRS

Boundaries of Munitions Response Sites (MRS), published with the Formerly Used Defense Sites (FUDS) Annual Report to Congress (ARC) by the U.S. Army Corps of Engineers (USACE). An MRS is a discrete location within a Munitions response area (MRA) that is known to require a munitions response. An MRA means any area on a defense site that is known or suspected to contain unexploded ordnance (UXO), discarded military munitions (DMM), or munitions constituents (MC). This data is compiled from the USACE's Geospatial MRS data layers and Homeland Infrastructure Foundation-Level Data (HIFLD) MRS dataset.

Government Publication Date: Jul 12, 2022

Former Military Nike Missile Sites: FORMER NIKE

This information was taken from report DRXTH-AS-IA-83A016 (Historical Overview of the Nike Missile System, 12/1984) which was performed by Environmental Science and Engineering, Inc. for the U.S. Army Toxic and Hazardous Materials Agency Assessment Division. The Nike system was deployed between 1954 and the mid-1970's. Among the substances used or stored on Nike sites were liquid missile fuel (JP-4); starter fluids (UDKH, aniline, and furfuryl alcohol); oxidizer (IRFNA); hydrocarbons (motor oil, hydraulic fluid, diesel fuel, gasoline, heating oil); solvents (carbon tetrachloride, trichloroethylene, trichloroethane, stoddard solvent); and battery electrolyte. The quantities of material a disposed of and procedures for disposal are not documented in published reports. Virtually all information concerning the potential for contamination at Nike sites is confined to personnel who were assigned to Nike sites. During deactivation most hardware was shipped to depot-level supply points. There were reportedly instances where excess materials were disposed of on or near the site itself at closure. There was reportedly no routine site decontamination.
Government Publication Date: Dec 2, 1984

PHMSA Pipeline Safety Flagged Incidents: PIPELINE INCIDENT
A list of flagged pipeline incidents made available by the U.S. Department of Transportation (US DOT) Pipeline and Hazardous Materials Safety Administration (PHMSA). PHMSA regulations require incident and accident reports for five different pipeline system types.
Government Publication Date: Dec 30, 2022

Material Licensing Tracking System (MLTS): MLTS
A list of sites that store radioactive material subject to the Nuclear Regulatory Commission (NRC) licensing requirements. This list is maintained by the NRC. As of September 2016, the NRC no longer releases location information for sites. Site locations were last received in July 2016.
Government Publication Date: May 11, 2021

Historic Material Licensing Tracking System (MLTS) sites: HIST MLTS
A historic list of sites that have inactive licenses and/or removed from the Material Licensing Tracking System (MLTS). In some cases, a site is removed from the MLTS when the state becomes an "Agreement State". An Agreement State is a State that has signed an agreement with the Nuclear Regulatory Commission (NRC) authorizing the State to regulate certain uses of radioactive materials within the State.
Government Publication Date: Jan 31, 2010

Mines Master Index File: MINES
The Master Index File (MIF) is provided by the United State Department of Labor, Mine Safety and Health Administration (MSHA). This file, which was originally created in the 1970's, contained many Mine-IDs that were invalid. MSHA removes invalid IDs from the MIF upon discovery. MSHA applicable data includes the following: all Coal and Metal/Non-Metal mines under MSHA's jurisdiction since 1/1/1970; mine addresses for all mines in the database except for Abandoned mines prior to 1998 from MSHA's legacy system (addresses may or may not correspond with the physical location of the mine itself); violations that have been assessed penalties as a result of MSHA inspections beginning on 1/1/2000; and violations issued as a result of MSHA inspections conducted beginning on 1/1/2000.
Government Publication Date: Nov 7, 2022

Surface Mining Control and Reclamation Act Sites: SMCRA
An inventory of land and water impacted by past mining (primarily coal mining) is maintained by the Office of Surface Mining Reclamation and Enforcement (OSMRE) to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of Abandoned Mine Land (AML) impacts, as well as information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.
Government Publication Date: Aug 18, 2022

Mineral Resource Data System: MRDS
The Mineral Resource Data System (MRDS) is a collection of reports describing metallic and nonmetallic mineral resources throughout the world. Included are deposit name, location, commodity, deposit description, geologic characteristics, production, reserves, resources, and references. This database contains the records previously provided in the Mineral Resource Data System (MRDS) of USGS and the Mineral Availability System/Mineral Industry Locator System (MAS/MILS) originated in the U.S. Bureau of Mines, which is now part of USGS. The USGS has ceased systematic updates of the MRDS database with their focus more recently on deposits of critical minerals while providing a well-documented baseline of historical mine locations from USGS topographic maps.
Government Publication Date: Mar 15, 2016

DOE Legacy Management Sites: LM SITES

The U.S. Department of Energy (DOE) Office of Legacy Management (LM) currently manages radioactive and chemical waste, environmental contamination, and hazardous material at over 100 sites across the U.S. The LM manages sites with diverse regulatory drivers (statutes or programs that direct cleanup and management requirements at DOE sites) or as part of internal DOE or congressionally-recognized programs, such as but not limited to: Formerly Utilized Sites Remedial Action Program (FUSRAP), Uranium Mill Tailings Radiation Control Act (UMTRCA Title I, Tile II), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Resource Conservation and Recovery Act (RCRA), Decontamination and Decommissioning (D&D), Nuclear Waste Policy Act (NWPA). This site listing includes data exported from the DOE Office of LM's Geospatial Environmental Mapping System (GEMS). GEMS Data disclaimer: The DOE Office of LM makes no representation or warranty, expressed or implied, regarding the use, accuracy, availability, or completeness of the data presented herein.
Government Publication Date: May 25, 2023

Alternative Fueling Stations: ALT FUELS
This list of alternative fueling stations is sourced from the Alternative Fuels Data Center (AFDC). The U.S. Department of Energy's Office of Energy Efficiency & Renewable Energy launched the AFDC in 1991 as a repository for alternative fuel vehicle performance data, which provides a wealth of information and data on alternative and renewable fuels, advanced vehicles, fuel-saving strategies, and emerging transportation technologies. The data includes Biodiesel (B20 and above), Compressed Natural Gas (CNG), Electric, Ethanol (E85), Hydrogen, Liquefied Natural Gas (LNG), Propane (LPG), and Renewable Diesel (R20 and above) fuel type locations.
Government Publication Date: Jun 5, 2023

Superfunds Consent Decrees: CONSENT DECREES
This list of Superfund consent decrees is provided by the Department of Justice, Environment & Natural Resources Division (ENRD) through a Freedom of Information Act (FOIA) applicable file. This listing includes Consent Decrees for CERCLA or Superfund Sites filed and/or as proposed within the ENRD's Case Management System (CMS) since 2010. CMS may not reflect the latest developments in a case nor can the agency guarantee the accuracy of the data. ENRD Disclaimer: Congress excluded three discrete categories of law enforcement and national security records from the requirements of the FOIA; response is limited to those records that are subject to the requirements of the FOIA; however, this should not be taken as an indication that excluded records do, or do not, exist.
Government Publication Date: Apr 19, 2023

Air Facility System: AFS
This EPA retired Air Facility System (AFS) dataset contains emissions, compliance, and enforcement data on stationary sources of air pollution. Regulated sources cover a wide spectrum; from large industrial facilities to relatively small operations such as dry cleaners. AFS does not contain data on facilities that are solely asbestos demolition and/or renovation contractors, or landfills. ECHO Clean Air Act data from AFS are frozen and reflect data as of October 17, 2014; the EPA retired this system for Clean Air Act stationary sources and transitioned to ICIS-Air.
Government Publication Date: Oct 17, 2014

Registered Pesticide Establishments: SSTS
This national list of active EPA-registered foreign and domestic pesticide and/or device-producing establishments is based on data from the Section Seven Tracking System (SSTS). The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Section 7 requires that each producing establishment must place its EPA establishment number on the label or immediate container of each pesticide, active ingredient or device produced. An EPA establishment number on a pesticide product label identifies the EPA registered location where the product was produced. The list of establishments is made available by the U.S. Environmental Protection Agency (EPA).
Government Publication Date: Mar 1, 2023

Polychlorinated Biphenyl (PCB) Transformers: PCBT
Locations of Transformers Containing Polychlorinated Biphenyls (PCBs) registered with the United States Environmental Protection Agency. PCB transformer owners must register their transformer(s) with EPA. Although not required, PCB transformer owners who have removed and properly disposed of a registered PCB transformer may notify EPA to have their PCB transformer de-registered. Data made available by EPA.
Government Publication Date: Oct 15, 2019

Polychlorinated Biphenyl (PCB) Notifiers: PCB
Facilities included in the national list of facilities that have notified the United States Environmental Protection Agency (EPA) of Polychlorinated Biphenyl (PCB) activities. Any company or person storing, transporting or disposing of PCBs or conducting PCB research and development must notify the EPA and receive an identification number.
Government Publication Date: Mar 20, 2023

State

Spills: SPILLS

A list of hazardous material spills and releases (including Meth Labs) that were reported to the Colorado Department of Public Health and Environment (CDPHE).
Government Publication Date: Apr 8, 2022

Colorado Oil and Gas Conservation Commission Spills: OG SPILLS
A list of spills made available by the Colorado Oil and Gas Conservation Commission (COGCC).
Government Publication Date: Jun 7, 2023

Dry Cleaning Facilities: DRYCLEANERS
A list of dry cleaners provided by the Colorado Department of Public Health and Environment (CDPHE) Hazardous Waste Compliance Assurance Unit and Stationary Sources Program.
Government Publication Date: Mar 14, 2023

Delisted Dry Cleaning Facilities: DELISTED DRYCLEANERS
List of sites removed from the drycleaners database made available by the Department of Public Health & Environment.
Government Publication Date: Mar 14, 2023

Air Pollution Control Division Permitted Facilities: AIR PERMITS
This list of Air Pollution Control Division Permitted Facilities is maintained by the Colorado Department of Public Health and Environment. The Stationary Sources Program evaluates and develops air permits for stationary sources in Colorado. The program inspects sources to determine compliance with air regulations and permit conditions and maintains an inventory of air pollution emissions throughout the state.
Government Publication Date: Feb 13, 2023

Per- and Polyfluoroalkyl Substances (PFAS): PFAS
A list of facilities that reported storing or using AFFF or Class B firefighting foam, other PFAS chemicals, have reported PFAS passthrough, or have detectable limits of PFAS in their discharge.
Government Publication Date: Dec 8, 2020

Asbestos Abatement and Demolition Projects: ASBESTOS
A list of Asbestos Abatement and Demolition Projects made available by the Colorado Department of Public Health and Environment (CDPHE), Air Pollution Control Division.
Government Publication Date: Dec 28, 2017

Hazardous Waste Sites- Generator: HAZ GEN
A list of hazardous waste generators.This list is made available by the Colorado Department of Public Health and Environment (CDPHE).
Government Publication Date: Jun 30, 2003

Permitted Facilities Listing: PDES
A list of permitted facilities tracked by the Water Quality Control Division of the Department of Public Health & Environment (DPHE). This list is the state version of the NPDES (National Pollution Discharge Elimination System).
Government Publication Date: May 1, 2023

Hazardous Waste Sites- Treatment, Storage & Disposal: HAZ TSD
A list of facilities that treat, store, dispose, or recycle hazardous waste on-site. This list is made available by the Colorado Department of Public Health and Environment (CDPHE).
Government Publication Date: Jun 30, 2003

Hazardous Waste Sites- Corrective Action: HAZ CORRACT
A list of hazardous waste generators with corrective actions. This list is made available by the Colorado Department of Public Health and Environment (CDPHE).
Government Publication Date: Jun 30, 2003

Uranium Mill Tailings Sites: UMTRA
This list of former uranium mill sites in Colorado, with cleanup authorized by the Uranium Mill Tailings Remedial Action (UMTRA) program, was provided by the Colorado Department of Public Health and Environment. Because much of the cleanup is complete, the focus has shifted to primarily "Post-UMTRA issues," or the discovery of new uranium mill tailings material by private citizens, utility companies or local governments.
Government Publication Date: Sep 26, 2022

Tribal

No Tribal additional environmental record sources available for this State.

County

No County additional environmental databases were selected to be included in the search.

Definitions

Database Descriptions: This section provides a detailed explanation for each database including: source, information available, time coverage, and acronyms used. They are listed in alphabetic order.

Detail Report: This is the section of the report which provides the most detail for each individual record. Records are summarized by location, starting with the project property followed by records in closest proximity.

Distance: The distance value is the distance between plotted points, not necessarily the distance between the sites' boundaries. All values are an approximation.

Direction: The direction value is the compass direction of the site in respect to the project property and/or center point of the report.

Elevation: The elevation value is taken from the location at which the records for the site address have been plotted. All values are an approximation. Source: Google Elevation API.

Executive Summary: This portion of the report is divided into 3 sections:

'Report Summary'- Displays a chart indicating how many records fall on the project property and, within the report search radii.

'Site Report Summary'-Project Property'- This section lists all the records which fall on the project property. For more details, see the 'Detail Report' section.

'Site Report Summary-Surrounding Properties'- This section summarizes all records on adjacent properties, listing them in order of proximity from the project property. For more details, see the 'Detail Report' section.

Map Key: The map key number is assigned according to closest proximity from the project property. Map Key numbers always start at #1. The project property will always have a map key of '1' if records are available. If there is a number in brackets beside the main number, this will indicate the number of records on that specific property. If there is no number in brackets, there is only one record for that property.

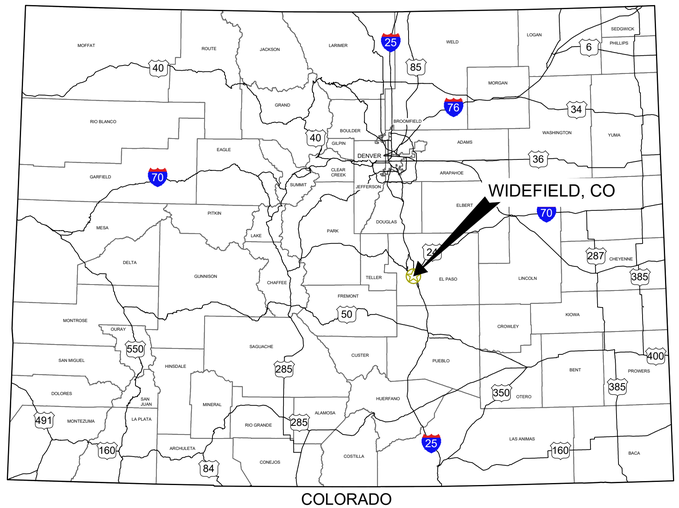
The symbol and colour used indicates 'elevation': the red inverted triangle will dictate 'ERIS Sites with Lower Elevation', the yellow triangle will dictate 'ERIS Sites with Higher Elevation' and the orange square will dictate 'ERIS Sites with Same Elevation.'

Unplottables: These are records that could not be mapped due to various reasons, including limited geographic information. These records may or may not be in your study area, and are included as reference.



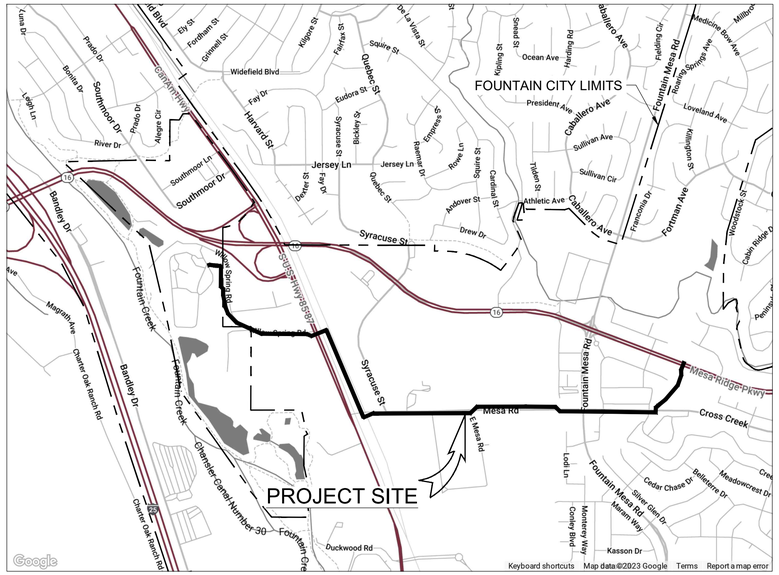
GarverUSA.com

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT:
FORCE MAIN EXTENSION DESIGN
WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, CO



AREA
NO SCALE





VICINITY MAP
NO SCALE

GARVER PROJECT NO. 22W23080
MAY 2025

CONSTRUCTION IN CITY OF FOUNTAIN RIGHT-OF-WAY

PERMIT SHALL BE OBTAINED PRIOR TO INITIATING CONSTRUCTION WITHIN THE CITY'S RIGHT-OF-WAY INCLUDING BUT NOT LIMITED TO EXCAVATION, TRAFFIC CONTROL, GRADING AND SWPPP DEVICES.

CITY OF FOUNTAIN

188 INVERNESS DRIVE WEST
SUITE 500
ENGLEWOOD, CO 80112
(303) 721-6932

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REV.	DATE	DESCRIPTION	BY

WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT: FORCE MAIN EXTENSION DESIGN

COVER SHEET

JOB NO.: 22W23080
DATE: MAY 2025
DESIGNED BY: JMC
DRAWN BY: UOP
CHECKED BY: PMB

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
01-G001

SHEET NUMBER **01**

File: L:\2022\22W23080 - Widefield WSD Jimmy Camp FM Design\Drawings\WJC FM-01-G001.dwg Last Save: 5/16/2025 1:59 PM Last saved by: LARamirez
Last plotted by: Ramirez, Luiz A. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 5/16/2025 2:07 PM Plotter used: None

SHEET INDEX

SHEET NO.	DWG. NO	SHEET TITLE
		01 - GENERAL
01	01-G001	COVER SHEET
02	01-G002	SHEET INDEX
03	01-G003	GENERAL NOTES 1
04	01-G004	GENERAL NOTES 2
05	01-G005	LEGEND & ABBREVIATIONS
06	01-G006	OVERALL EASEMENT LAYOUT PLAN
		05 - CIVIL
07	05-C101	OVERALL LAYOUT
08	05-C301	PLAN AND PROFILE (STA. 10+00 TO STA. 14+00)
09	05-C302	PLAN AND PROFILE (STA. 14+00 TO STA. 19+00)
10	05-C303	PLAN AND PROFILE (STA. 19+00 TO STA. 24+00)
11	05-C304	PLAN AND PROFILE (STA. 24+00 TO STA. 29+00)
12	05-C305	PLAN AND PROFILE (STA. 29+00 TO STA. 34+00)
13	05-C306	PLAN AND PROFILE (STA. 34+00 TO STA. 39+00)
14	05-C307	PLAN AND PROFILE (STA. 39+00 TO STA. 44+00)
15	05-C308	PLAN AND PROFILE (STA. 44+00 TO STA. 49+00)
16	05-C309	PLAN AND PROFILE (STA. 49+00 TO STA. 54+00)
17	05-C310	PLAN AND PROFILE (STA. 54+00 TO STA. 59+00)
18	05-C311	PLAN AND PROFILE (STA. 59+00 TO STA. 64+00)
19	05-C312	PLAN AND PROFILE (STA. 64+00 TO STA. 69+00)
20	05-C313	PLAN AND PROFILE (STA. 69+00 TO STA. 74+00)
21	05-C314	PLAN AND PROFILE (STA. 74+00 TO STA. 79+00)
22	05-C315	PLAN AND PROFILE (STA. 79+00 TO STA. 84+00)
23	05-C316	PLAN AND PROFILE (STA. 84+00 TO STA. 89+00)
24	05-C317	PLAN AND PROFILE (STA. 89+00 TO STA. 93+00)
25	05-C318	PLAN AND PROFILE (STA. 93+00 TO STA. 98+50)
26	05-C319	PLAN AND PROFILE (STA. 98+50 TO STA. 103+50)
27	05-C320	PLAN AND PROFILE (STA. 103+50 TO END)
		99 - DETAILS
28	99-C501	STANDARD DETAILS I
29	99-C502	STANDARD DETAILS II
30	99-C503	STANDARD DETAILS III
31	99-C504	STANDARD DETAILS IV
32	99-C505	STANDARD DETAILS V
33	99-C506	STANDARD DETAILS VI
34	99-C507	COF DETAILS 1
35	99-C508	COF DETAILS 2
36	99-C509	COF DETAILS 3

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Last plotted by: Ramirez, Luiz A. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 5/16/2025 2:07 PM Plotter used: None

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REV.	DATE	DESCRIPTION	BY

WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT FORCE MAIN EXTENSION DESIGN

SHEET INDEX

JOB NO.: 22W23080
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DESIGNED BY: JMC
DRAWN BY: UOP
CHECKED BY: PMB

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
01-G002

SHEET NUMBER **02**

GENERAL CIVIL NOTES

1. SAFETY SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR SAFETY, MEANS, OR METHODS OF THE CONTRACTOR.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL APPROPRIATE AGENCIES BEFORE WORK COMMENCES TO VERIFY THE TYPE, LOCATION, PROTECTION REQUIREMENTS, DEPTH OF ALL EXISTING UTILITIES, DRAINAGE FACILITIES, AND OTHER OBSTRUCTIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH REPAIRING AND/OR REPLACING ANY SUCH ITEMS DAMAGED DURING CONSTRUCTION.
3. CAUTION: UNDERGROUND UTILITIES SHOWN ARE TAKEN FROM EXISTING RECORDS AND ARE SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. THE CONTRACTOR SHALL CONTACT ALL UTILITY OWNERS AND CONFIRM LOCATIONS OF UTILITIES AT LEAST 48 HOURS BEFORE BEGINNING CONSTRUCTION. THE CONTRACTOR SHALL ACCURATELY LOCATE AND UNCOVER ALL EXISTING UTILITIES BEFORE BEGINNING CONSTRUCTION. ANY DAMAGE RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. WHERE CROSSING OF EXISTING UTILITIES OCCUR, PROVIDE 12" MINIMUM CLEARANCE EXCEPT WATER MAINS SHALL BE 24". CROSS UNDER ALL WATER MAINS WHERE NOT POSSIBLE TO PROVIDE 18" CLEARANCE.
4. SEWER AND WATER SERVICE SHALL BE MAINTAINED DURING ENTIRE CONSTRUCTION PERIOD OR TEMPORARY FACILITIES PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
5. CONTRACTOR IS RESPONSIBLE FOR ALL DEWATERING ACTIVITIES AND ASSOCIATED PERMITS REQUIRED FOR ALL EXCAVATIONS REQUIRED TO COMPLETE THE PROJECT.
6. APPROXIMATE LOCATIONS OF OVERHEAD POWER LINES MAY OR MAY NOT BE SHOWN ON PLANS. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR VERIFYING ALL LOCATIONS IN THE FIELD AND PLAN WORK IN THESE AREAS ACCORDINGLY.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE DRAINAGE AND COMPLIANCE WITH ALL GOVERNMENTAL STORM WATER REGULATIONS AND PERMITS (SWPPP) AS REQUIRED. CONTRACTOR SHALL OBTAIN NOI FROM APPROPRIATE STATE BODY PRIOR TO ANY CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY PERMITS REQUIRED FOR WORK WITHIN STREAMS.
8. IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO PROVIDE TRAFFIC CONTROL AND SIGNAGE FOR THE DURATION OF PROJECT AS REQUIRED BY THE NATIONAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES -PART VI ,AND/OR ALL OTHER APPLICABLE GUIDELINES OF CDOT, COUNTY, CITY OR ANY OTHER AUTHORITIES HAVING JURISDICTION OVER THE PROJECT AREAS. ALL ROAD CLOSURE MUST BE APPROVED BY THE CITY OF WIDEFIELD TRAFFIC ENGINEER PRIOR TO ANY PUBLIC ROAD CLOSURES.
9. CONTRACTOR SHALL MAINTAIN TRAFFIC FLOW TO RESIDENCES AND BUSINESS WITH MINIMUM DISRUPTION OF ACCESS.
10. ALL STREETS AND DRIVEWAYS SHALL BE OPEN CUT UNLESS NOTED OTHERWISE.
11. ALL EXCAVATION BACKFILL OUTSIDE TRAFFIC WAYS SHALL BE COMPACTED TO MIN 95% STANDARD PROCTOR DENSITY TO PREVENT SETTLEMENT.
12. CONSTRUCTION EASEMENTS WILL BE REQUIRED IF ENCROACHING INTO PRIVATE PROPERTY DURING THE CONSTRUCTION PROCESS.
13. A WORK IN THE R.O.W. PERMIT WILL BE REQUIRED FOR ALL CONSTRUCTION WORK WITHIN THE R.O.W.
14. THE STORMWATER MANAGEMENT PLAN SHALL BE PREPARED BY THE CONTRACTOR AND SHALL BE SEALED BY LICENSED ENGINEER IN THE STATE OF COLORADO.

PAVING AND GRADING NOTES

1. ALL PAVING MATERIALS AND CONSTRUCTION SHALL MEET THE EPC WHEN THE FORCE MAIN IS WITHIN EPC JURISDICTION AND THE CITY OF FOUNTAINS SOP'S, STANDARD SPECIFICATIONS, DETAILS WHEN THE FORCE MAIN IS WITHIN THE CITY OF FOUNTAIN JURISDICTION UNLESS NOTED OTHERWISE.
2. ANY PAVEMENT DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION AT THE CONTRACTORS EXPENSE.
3. ANY DISTURBED AREAS NOT SPECIFICALLY DESIGNATED TO BE GRADED SHALL BE RESTORED TO EQUAL OR BETTER CONDITION AND SHALL BE GRADED TO DRAIN AS APPROVED BY THE ENGINEER.
4. FINAL PAVEMENT SURFACES SHALL NOT BE PLACED UNTIL ALL MAJOR CONSTRUCTION ACTIVES HAVE CONCLUDED.
5. ANY CHANGES TO FINAL GRADE ELEVATIONS AS SHOWN ON THE PLANS SHALL BE APPROVED BY THE ENGINEER.
6. ALL ASPHALT AND CONCRETE PAVING REMOVED AND REPLACED SHALL BE NEAT SAW CUT.

PIPING NOTES

1. MINIMUM COVER OVER PIPING SHALL BE 5'-5", MEASURED FROM FINISHED GRADE.
2. PROVIDE MINIMUM PIPE COVER, AS SPECIFIED. IN GENERAL LAY PIPE TO UNIFORM GRADES BETWEEN THE ELEVATIONS SHOWN, UNLESS OTHERWISE APPROVED. IN SOME CASES, EXISTING CONDITIONS PROHIBIT UNIFORM GRADES BETWEEN THE ELEVATIONS SHOWN, AND FIELD ADJUSTMENTS TO UNIFORM GRADES ARE REQUIRED AS APPROVED BY ENGINEER.
3. SIZE OF FITTINGS SHOWN ON PLANS SHALL CORRESPOND TO ADJACENT STRAIGHT RUN OF PIPE, UNLESS OTHERWISE INDICATED. TYPE OF JOINT AND FITTING MATERIAL SHALL BE AS SPECIFIED FOR ADJACENT STRAIGHT RUN OF PIPE.
4. ALL JOINTS SHALL BE WATERTIGHT.
5. THRUST AT FITTINGS SHALL BE RESISTED BY RESTRAINED JOINTS OR CONCRETE REVERSE ANCHORS AS SPECIFIED AND AS REQUIRED TO RESIST THRUST, UNLESS OTHERWISE APPROVED BY ENGINEER. SEE THRUST RESTRAINT DETAILS W-25 C501
6. CONTRACTOR SHALL LOCATE AND UNCOVER ALL CONNECTIONS TO EXISTING LINES, AND ANY POSSIBLE CONFLICTS WITH PROPOSED FACILITIES AND VERIFY LOCATION, ELEVATION, PIPE MATERIAL, AND PIPE O.D. PRIOR TO ANY CONSTRUCTION.
7. CONTRACTOR SHALL MAINTAIN AND PROTECT ALL EXISTING BURIED PIPING AND UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGED UNDERGROUND FACILITIES.
8. ALL PIPELINE SHUTDOWNS SHALL BE COORDINATED WITH THE DISTRICT. A WRITTEN WORK PLAN SHALL BE SUBMITTED AND APPROVED BY THE ENGINEER AND DISTRICT 24 HOURS PRIOR TO ANY SHUTDOWNS.
9. ROCK SHALL BE UNDERCUT A MINIMUM OF 4". NO SEPARATE PAY ITEM EXISTS FOR ROCK EXCAVATION. ALL EXCAVATION SHALL BE CONSIDERED TO BE UN-CLASSIFIED EXCAVATION AND SUBSIDIARY TO OTHER BID ITEMS.
10. CONTRACTOR SHALL PREVENT STORM WATER AND DEBRIS FROM ENTERING PIPES AND MANHOLES AT ALL TIMES. ALL PIPES AND MANHOLES SHALL BE SECURELY PLUGGED AT THE END OF EACH DAY.
11. CONTRACTOR IS RESPONSIBLE FOR INSTALLING AND VERIFYING THE FORCE MAIN PARALLEL AND CROSSING INSTALLATIONS WITH POTABLE WATER PIPES. MEET SEPARATION REQUIREMENTS AS OUTLINED BY CDPHE. CONTRACTOR TO UTILIZE V-BIO POLYWRAP FOR SECONDARY CONTAINMENT WHERE WATER AND WASTEWATER SEPARATION IS LESS THAN 10' HORIZONTAL AND 18" VERTICAL AT STATIONS IDENTIFIED IN PLANS. IF SITE CONDITIONS ARE DISCOVERED WHERE WASTEWATER SEPARATION IS LESS THAN 4' HORIZONTAL AND 18" VERTICAL, NOTIFY THE DISTRICT AND ENGINEER.
12. CONTRACTOR IS RESPONSIBLE FOR PERFORMING AND COMPLYING WITH COLORADO REQUIREMENTS FOR DEWATERING. CONTRACTOR TO CONFIRM THE APPLICABLE DEWATERING DISCHARGE MEANS AND METHODS, AND WILL COORDINATE PERMITTED DEWATERING DISCHARGE TO SANITARY SEWER WITH OWNER AND ENGINEER PRIOR TO DISCHARGING.
13. CONTRACTOR IS RESPONSIBLE FOR HYDROSTATIC TESTING. CONTRACTOR SHALL FOLLOW REQUIREMENTS OF WWSD STANDARD SECTIONS 3.11, 3.12, AND 3.13.
14. GALVANIC ANODES SHALL BE INSTALLED AT ALL DUCTILE IRON FITTINGS AND AS SHOWN ON DRAWINGS. SIZE OF ANODES SHALL BE PROVIDED BY A CORROSION ENGINEER LICENSED IN THE STATE OF COLORADO.
15. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER HANDLING AND DISPOSAL OF ANY EXISTING PIPE AND ANY EXCESS MATERIALS RESULTING FROM THE WORK. FOR ASBESTOS CONTAINING MATERIALS (ACM), CONTRACTOR SHALL COMPLY WITH CDPHE REGULATION 8 CONTROL OF HAZARDOUS AIR POLLUTANTS 5 CCR 1001-10. REFER TO PART B ASBESTOS CONTROL. CONTRACTOR SHALL BE RESPONSIBLE FOR REQUIRED INSPECTION, NOTIFICATIONS AND PERMITS. FOR REMOVAL OF ASBESTOS, OR MATERIAL THAT COULD POTENTIALLY CONTAIN ASBESTOS, COMPLY WITH APPLICABLE PROVISIONS OF OSHA 29 CFR 1926.1101 - ASBESTOS, OSHA 29 CFR 1926.32 - GENERAL SAFETY AND HEALTH PROVISIONS, AND EPA 40CFR 61 SUBPART M - NATIONAL EMISSION STANDARD FOR ASBESTOS.

STANDARD NOTES FOR EL PASO COUNTY CONSTRUCTION PLANS:

1. ALL DRAINAGE AND ROADWAY CONSTRUCTION SHALL MEET THE STANDARDS AND SPECIFICATIONS OF THE CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2, AND THE EL PASO COUNTY ENGINEERING CRITERIA MANUAL.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR THE NOTIFICATION AND FIELD NOTIFICATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, BEFORE BEGINNING CONSTRUCTION. LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CALL 811 TO CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC).
3. CONTRACTOR SHALL KEEP A COPY OF THESE APPROVED PLANS, THE GRADING AND EROSION CONTROL PLAN, THE STORMWATER MANAGEMENT PLAN (SWMP), THE SOILS AND GEOTECHNICAL REPORT, AND THE APPROPRIATE DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS AT THE JOB SITE AT ALL TIMES, INCLUDING THE FOLLOWING:

   EL PASO COUNTY ENGINEERING CRITERIA MANUAL (ECM)
   CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2
   COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION CDOT M & S STANDARDS
4. NOT WITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL, AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING. ANY MODIFICATIONS NECESSARY TO MEET CRITERIA AFTER-THE-FACT WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.
5. IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ACCURATELY SHOW EXISTING CONDITIONS, BOTH ONSITE AND OFFSITE, ON THE CONSTRUCTION PLANS. ANY MODIFICATIONS NECESSARY DUE TO CONFLICTS, OMISSIONS, OR CHANGED CONDITIONS WILL BE ENTIRELY THE CONTRACTOR'S RESPONSIBILITY TO RECTIFY.
6. CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH EL PASO COUNTY AND FOUNTAIN ENGINEERING DEPT. PLANNING AND COMMUNITY DEVELOPMENT (PCD) - INSPECTIONS, PRIOR TO STARTING CONSTRUCTION.
7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO UNDERSTAND THE REQUIREMENTS OF ALL JURISDICTIONAL AGENCIES AND TO OBTAIN ALL REQUIRED PERMITS, INCLUDING BUT NOT LIMITED TO EL PASO COUNTY EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP), REGIONAL BUILDING FLOODPLAIN DEVELOPMENT PERMIT, U.S. ARMY CORPS OF ENGINEERS-ISSUED 401 AND/OR 404 PERMITS, AND COUNTY AND STATE FUGITIVE DUST PERMITS AND FOUNTAIN.
8. CONTRACTOR SHALL NOT DEVIATE FROM THE PLANS WITHOUT FIRST OBTAINING WRITTEN APPROVAL FROM THE DESIGN ENGINEER AND PLANNING AND COMMUNITY DEVELOPMENT. CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY UPON DISCOVERY OF ANY ERRORS OR INCONSISTENCIES.
9. ALL STORM DRAIN PIPE SHALL BE CLASS III RCP UNLESS OTHERWISE NOTED AND APPROVES BY PCD
10. CONTRACTOR SHALL COORDINATE GEOTECHNICAL TESTING PER ECM STANDARDS PAVEMENT DESIGN SHALL BE APPROVED BY EL PASO COUNTY PCD AND THE CITY OF FOUNTAIN PRIOR TO PLACEMENT OF CURB AND GUTTER AND PAVEMENT.
11. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SIRE AT APPROVED CONSTRUCTION ACCESS POINTS.
12. SIGHT VISIBILITY TRIANGLES AS IDENTIFIED IN THE PLAN SHALL BE PROVIDED AT ALL INTERSECTIONS. OBSTRUCTIONS GREATER THAN 18 INCHES ABOVE FLOWLINE ARE NOT ALLOWED WITHIN SIGHT TRIANGLES.
13. SIGNING AND STRIPING SHALL COMPLY WITH EL PASO COUNTY DOT AND MUTCD CRITERIA. (IF APPLICABLE, ADDITIONAL SIGNING AND STRIPING NOTES WILL BE PROVIDED.
14. CONTRACTOR SHALL OBTAIN ANY PERMITS REQUIRED BY EL PASO COUNTY DOT AND FOUNTAIN ENGINEERING DEPARTMENT, INCLUDING WORK WITHIN THE RIGHT-OF-WAY AND SPECIAL TRANSPORT PERMITS.
15. THE LIMITS OF CONSTRUCTION SHALL REMAIN WITHIN THE PROPERTY PERMANENT OR TEMPORARY EASEMENTS LINE UNLESS OTHERWISE NOTED. THE CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION AND EASEMENTS, WHERE REQUIRED, FROM ADJOINING PROPERTY OWNER(S) PRIOR TO ANY OFF-SITE DISTURBANCE, GRADING, OR CONSTRUCTION.

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REV.	DATE	DESCRIPTION	BY

WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENTS FORCE MAIN EXTENSION DESIGN

GENERAL NOTES 1

JOB NO.: 22W23080
DATE: MAY 2025
DESIGNED BY: JMC
DRAWN BY: UOP
CHECKED BY: PMB

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
01-G003

SHEET NUMBER **03**

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Last plotted by: Ramirez, Luiz A. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 5/16/2025 2:07 PM Plotter used: None

STRUCTURAL NOTES:

1. GENERAL NOTES AND STANDARD DETAILS SHALL NOT REPLACE OR OVER RULE ANY STRUCTURE SPECIFIC NOTE, DETAIL, OR SPECIFICATION. STRUCTURE SPECIFIC NOTES AND DETAILS SHALL GOVERN OVER GENERAL NOTES AND STANDARD DETAILS.

2. BUILDING RISK CATEGORY---------- III

3. DESIGN LIVE LOADS - 2009 IBC
   - ROOF WITHOUT REDUCTION---------- 20 PSF
   - FLOORS:
   - CORRIDORS---------- 100 PSF
   - ASSEMBLY AREAS---------- 100 PSF
   - BALCONIES---------- 100 PSF
   - RESTROOMS---------- 80 PSF
   - OFFICES---------- 50 PSF
   - STAIRS---------- 100 PSF
   - MOVABLE FILE ROOMS---------- 150 PSF
   - INDUSTRIAL AREAS---------- 250 PSF
   - EQUIPMENT ROOMS---------- 250 PSF
   - AREAS WITH UNRESTRICTED VEHICULAR ACCESS------- AASHTO HS20

4. WIND LOAD PARAMETERS - ASCE 7-10
   - BASIC WIND SPEED---------- 120 MPH
   - IMPORTANCE FACTORE, I---------- 1.15
   - EXPOSURE CATEGORY---------- C
   - GCPI +/- 0.18 (ENCLOSED BUILDINGS)

5. SEISMIC DESIGN PARAMETERS ----------IBC 2012
   - IMPORTANCE FACTOR, I----------1.25
   - SITE CLASS----------D
   - SEISMIC SPECTRAL ACCELERATIONS
     - SS ---------- 0.176g
     - S1 ---------- 0.096g
     - SEISMIC DESIGN CATEGORY---------- C
     - DESIGN SPECTRAL ACCELERATIONS
     - SDS ----------0.188g
     - SD1---------- 0.154g
   - RESPONSE MODIFICATION FACTOR, R----------SEE INDIVIDUAL PLANS
   - BASIC SEISMIC FORCE RESISTING SYSTEM---------- SEE INDIVIDUAL PLANS
   - SEISMIC RESPONSE COEFFICIENT, Cs----------SEE INDIVIDUAL PLANS
   - ANALYSIS PROCEDURE----------EQUIVALENT LATERAL FORCE

6. SNOW LOADS PARAMETERS ---------- ASCE 7-10
   - GROUND SNOW LOAD, P_G ---------- 10 PSF
   - IMPORTANCE FACTOR, I ---------- 1.10
   - EXPOSURE FACTOR, C_e ---------- 0.90
   - THERMAL FACTOR, C_T ---------- 1.0
   - SLOPED ROOF SNOW LOAD, P_S ---------- 10 PSF

7. THE STRUCTURE SHOULD NOT BE CONSIDERED TO BE STABLE DURING CONSTRUCTION UNTIL ALL ELEMENTS ARE IN PLACE AND CONNECTED. THE CONTRACTOR IS RESPONSIBLE FOR DESIGNING ALL TEMPORARY CONSTRUCTION BRACING, AS REQUIRED.

8. CONSTRUCTION METHODS, PROCEDURES, AND SEQUENCES ARE THE CONTRACTOR'S RESPONSIBILITY. THE CONTRACTOR SHALL TAKE THE ALL NECESSARY MEANS TO MAINTAIN AND PROTECT THE STRUCTURAL INTEGRITY OF ALL CONSTRUCTION, NEW AND EXISTING, AT ALL STAGES.

9. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO ANY PERTINENT WORK. ALL EXISTING CONDITIONS AND DIMENSIONS SHALL BE NOTED ON THE SHOP DRAWINGS.

10. COORDINATE WITH THE ARCHITECTURAL, CIVIL, MECHANICAL, STRUCTURAL, AND ELECTRICAL DRAWINGS, AND VERIFY THE LOCATIONS AND SIZES OF THE CHASES, OPENING, INSERTS, SLEEVES, FINISHES, CONDUITS, DEPRESSIONS AND OTHER PROJECT REQUIREMENTS.

11. THE CONTRACTOR IS RESPONSIBLE FOR REVIEWING THE DRAWINGS AND EXISTING CONDITIONS TO DETERMINE WHERE OPENINGS ARE REQUIRED IN WALLS AND SLABS.

12. STANDARD DETAILS APPLY UNLESS INDICATED OTHERWISE ON SPECIFIC STRUCTURE DRAWINGS.

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REV	DATE	DESCRIPTION	BY

WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT FORCE MAIN EXTENSION DESIGN

GENERAL NOTES 2

JOB NO.: 22W23080
DATE: MAY 2025
DESIGNED BY: JMC
DRAWN BY: UOP
CHECKED BY: PMB

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DRAWING NUMBER
01-G004

SHEET NUMBER **04**

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Last plotted by: Ramirez, Luiz A. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 5/16/2025 2:07 PM Plotter used: None

LINETYPES

LINETYPE	DESCRIPTION
X	FENCE
F	FIRE LINE
FP	FLOODPLAIN
I I	FLOODWAY
	FLOWLINE
	GUARDRAIL/MASONRY FENCE
	HANDRAIL
PD	PROCESS DRAIN
SF	SILT FENCE
TOB	TOP OF BANK
TOS	TOE OF SLOPE
	TREE LINE
	WATER EDGE
(A)	INDICATES ABANDONED LINE
12"	12" INDICATES SIZE OF LINE
	EXISTING ELECTRICAL DUCT BANK
	EXISTING PIPE TO BE ABANDONED
	EXISTING PIPE TO BE DEMOLISHED
1300	EXISTING CONTOURS
1300	PROPOSED CONTOURS
	PROPOSED ELECTRICAL DUCT BANK

CIVIL LEGEND

LINETYPE	DESCRIPTION
	EASEMENT LINE
PL	PROPERTY LINE
W	WWSD WATER LINE
W	WATER LINE
SS	WWSD SANITARY SEWER
SS	SANITARY SEWER
CP	STORM DRAIN CULVERT
SD	STORM DRAIN
FM	FORCE MAIN
G	GAS LINE
FO	FIBER OPTIC LINE
UGE	UNDERGROUND ELECTRIC
	FUTURE 16" FORCE MAIN

SYMBOL	DESCRIPTION
	PERMANENT ESMT.
	TEMPORARY CONSTRUCTION ESMT.
	WETLANDS AREA
	CROSSING BY OTHER THAN OPEN CUT

CIVIL LEGEND

SYMBOL	DESCRIPTION
	AREA INLET
	BENCH MARK/GEOTECHNICAL BORE
	BOLLARD
	CATCH BASIN/JUNCTION BOX
CO	CLEANOUT
	CONCRETE HEADWALL
101	CONTROL POINT
	CURB INLET SEDIMENT FILTER
	DOUBLE COMBINATION INLET
EB	ELECTRIC BOX/PULLBOX
EDM	ELECTRIC DUCT MARKER
EHH	ELECTRIC HANDHOLE
EMH	ELECTRIC MANHOLE
EM	ELECTRIC METER
	EXTENDED THROAT CURB INLET
FOC	FIBER OPTIC BOX
FOC	FIBER OPTIC CABLE RISER/PEDESTAL
FOMH	FIBER OPTIC MANHOLE
	FIRE HYDRANT
	FLAGPOLE
	FLARED END SECTION (FES)
GM	GAS METER
	GAS REGULATOR
	GRATED INLET
	GUY WIRE ANCHOR
ICV	IRRIGATION CONTROL VALVE
LIFT STA	LIFT STATION
	LIGHT POLE
MH	MANHOLE
	MAILBOX
MW	MONITORING WELL
PD	PROCESS DRAIN MANHOLE
	PROPERTY PIN
PULL BOX	PULL BOX
PUMP STATION	PUMP STATION
RAILROAD SWITCH BOX	RAILROAD SWITCH BOX
	RIP RAP
R/W	RIGHT-OF-WAY MARKER
	ROCK DITCH CHECK
SS	SANITARY SEWER MANHOLE
	SATELLITE DISH

CIVIL LEGEND (CONT'D)

SYMBOL	DESCRIPTION
SEPTIC TANK	SEPTIC TANK
	SIGN
	SLOPE DIRECTION INDICATOR
	SPRINKLER HEAD
	STANDARD CURB INLET
SD	STORM DRAIN MANHOLE
	SUMP INLET SEDIMENT FILTER
	SURVEY CONTROL POINT
TELE	TELEPHONE JUNCTION BOX
TELE MH	TELEPHONE MANHOLE
	TELEPHONE PEDESTAL
CABLE	TELEVISION PEDESTAL
TRAFFIC CONTROL BOX	TRAFFIC CONTROL BOX
TRANSFORMER	TRANSFORMER
	UTILITY POLE
	VALVE
VC	VALVE COVER
	VENT
WM	WATER METER
WELL	WELL
	WINDSOCK
	YARD HYDRANT/SPIGOT
	SHRUB/BUSH
	DEMOLISH TREE
0'-6" DIA	TREE
0'-6" DIA	EVERGREEN TREE
	DEMOLISH
	PROPOSED HEAVY DUTY ASPHALT
	EXISTING ASPHALT
	PROPOSED ASPHALT/ PAVEMENT REPAIR
	EXISTING CONCRETE
	PROPOSED CONCRETE
	PROPOSED HEAVY DUTY CONCRETE
	GRAVEL ROAD OR DRIVE
	SIDEWALK
	STAGING AREA

GENERAL IDENTIFICATION

LABEL	DESCRIPTION
1 / 01-C500	DETAIL NUMBER / DRAWING NUMBER
D33 / 3923-003	DIVISION NUMBER / DETAIL NUMBER
1 / 05-C301	PROFILE NUMBER 1 / DRAWING NUMBER
C01 / 05-C301	CHEMICAL LINE PROFILE NUMBER 1 / DRAWING NUMBER
E01 / 05-E201	ELECTRICAL DUCT BANK PROFILE NUMBER 1 / DRAWING NUMBER
G01 / 05-C301	GAS LINE PROFILE NUMBER 1 / DRAWING NUMBER
P01 / 05-C301	PROCESS LINE PROFILE NUMBER 1 / DRAWING NUMBER
R01 / 05-C201	ROAD PROFILE NUMBER 1 / DRAWING NUMBER
S01 / 05-C201	STORM DRAIN PROFILE NUMBER 1 / DRAWING NUMBER
U01 / 05-C301	UTILITY PROFILE NUMBER 1 / DRAWING NUMBER

1-01
- APPURTENANCE SEQUENCE NUMBER
- PROFILE NUMBER 1

CPB-C01-01
- PULLBOX SEQUENCE NUMBER
- CHEMICAL LINE PROFILE NUMBER 1
- CHEMICAL PULLBOX

P01-01
- APPURTENANCE SEQUENCE NUMBER
- PROCESS LINE PROFILE NUMBER 1

S01-01
- APPURTENANCE SEQUENCE NUMBER
- STORM DRAIN LINE PROFILE NUMBER 1

SDMH-S01-01
- STRUCTURE SEQUENCE NUMBER
- STORM DRAIN LINE PROFILE NUMBER 1
- STORM DRAIN MANHOLE STRUCTURE

SSMH-U01-01
- STRUCTURE SEQUENCE NUMBER
- UTILITY PROFILE NUMBER 1
- SANITARY SEWER MANHOLE STRUCTURE

U01-01
- APPURTENANCE SEQUENCE NUMBER
- UTILITY LINE PROFILE NUMBER 1

APPURTENANCE SYMBOLS

PROFILE	DESCRIPTION
	AIR RELEASE VALVE
	BALL VALVE
	BLOW-OFF VALVE

APPURTENANCE SYMBOLS

PROFILE	DESCRIPTION
	BUTTERFLY VALVE
	CLEANOUT
	FIRE HYDRANT ASSEMBLY

APPURTENANCE SYMBOLS

PROFILE	DESCRIPTION
	GATE VALVE
	PLUG VALVE

GENERAL CONVENTIONS

SYMBOL	DESCRIPTION
1 / 05-C501	CALLOUT DENOTES A CIVIL DETAIL REFERENCE (THIS EXAMPLE IS DETAIL 1 ON DRAWING NUMBER 05-C501)
D33 / 3923-003	CALLOUT DENOTES A STANDARD DETAIL REFERENCE
1	CALLOUT DENOTES A KEYED NOTE REFERENCE
FG - 1300.00	SPOT ELEVATION
CAUTION! EXIST. XXX	CAUTION CALLOUT
1	CLOUDED REGION INDICATES A REVISED AREA
1 / 05-C501 TITLE SCALE: NONE	TITLE DENOTES A CIVIL DETAIL (THIS EXAMPLE IS DETAIL 1 ON DRAWING NUMBER 05-C501)
1 / 05-C305 | 05-C310 TITLE SCALE: NONE	TITLE DENOTES A CIVIL PROFILE AND PLAN VIEW LAYOUT (THIS EXAMPLE IS PROFILE NUMBER 1 ON DRAWING NUMBER 05-C310 WHICH HAS A BACK REFERENCE TO THE PLAN VIEW LAYOUT ON DRAWING NUMBER 05-C305)
1 / 05-C205 | 05-C210	CALLOUT DENOTES A CUT SECTION TYPICAL REFERENCE (THIS EXAMPLE OCCURS ON DRAWING NUMBER 05-C205 REFERENCING SECTION NUMBER 1 ON DRAWING NUMBER 05-C210)
N	SYMBOL INDICATES NORTH DIRECTION
0 10' 20' 40' 60' (IN FEET)	SYMBOL INDICATES A GRAPHICAL BAR SCALE

CIVIL LEGEND NOTES:

1. GRAYSCALE LINE TYPES AND SYMBOLS INDICATE EXISTING ITEMS. BOLD LINE TYPES AND SYMBOLS INDICATE PROPOSED ITEMS.
2. ADDITIONAL PROCESS LINES MAY BE DENOTED BY A LINE TYPE WITH THE FLOW STREAM IDENTIFIER.
3. SEE PROCESS MECHANICAL NOTES AND LEGEND SHEET FOR PLAN PIPE FITTING AND VALVE SYMBOLS.
4. LINES OF 12 INCH DIAMETER OR GREATER ARE SHOWN AT NOMINAL DIAMETER. LINES LESS THAN 12 INCH DIAMETER ARE SHOWN AS A SINGLE LINE.
5. NUMBERS INCLUDED WITH FACILITY NAMES IN DRAWINGS ARE FACILITY NUMBERS AND REFER TO THE NUMBERED FACILITY WITHIN THE PLAN SET.

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REV.	DATE	DESCRIPTION	BY

WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT FORCE MAIN EXTENSION DESIGN

LEGEND & ABBREVIATIONS

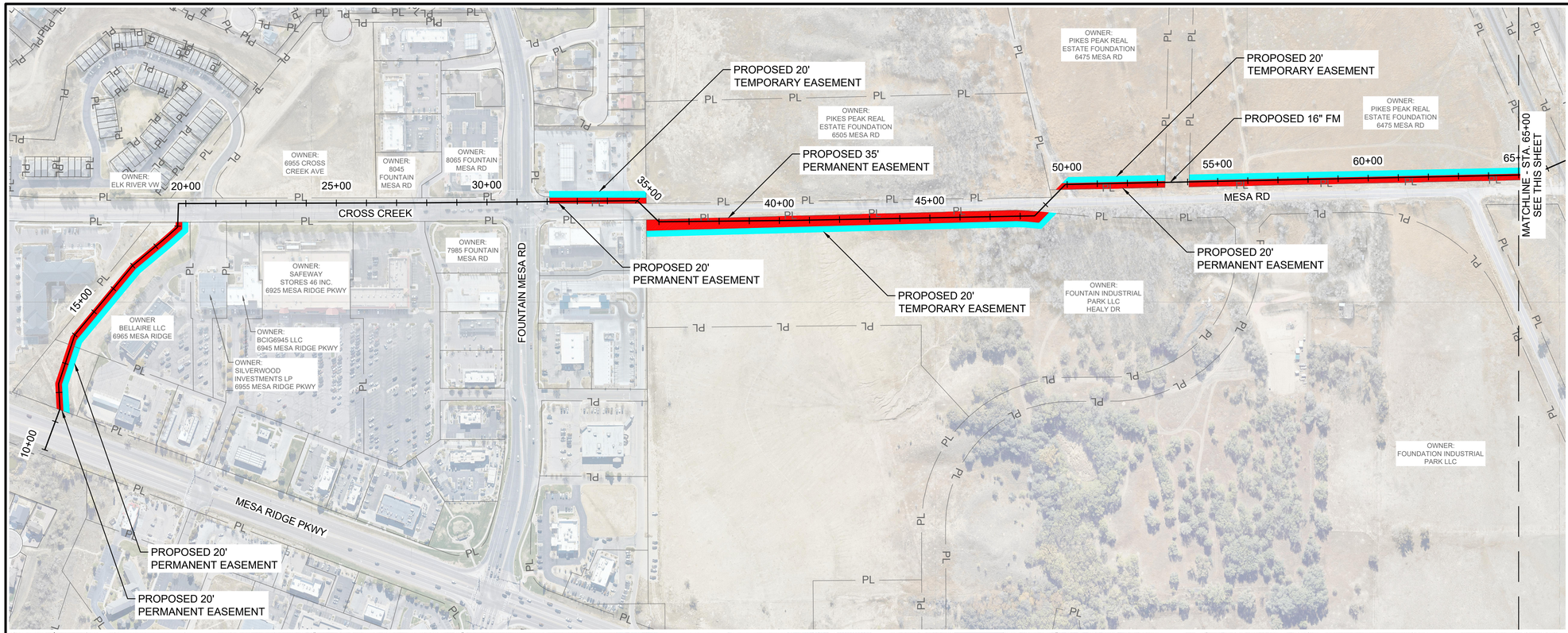
JOB NO.: 22W23080
DATE: MAY 2025
DESIGNED BY: JMC
DRAWN BY: UOP
CHECKED BY: PMB

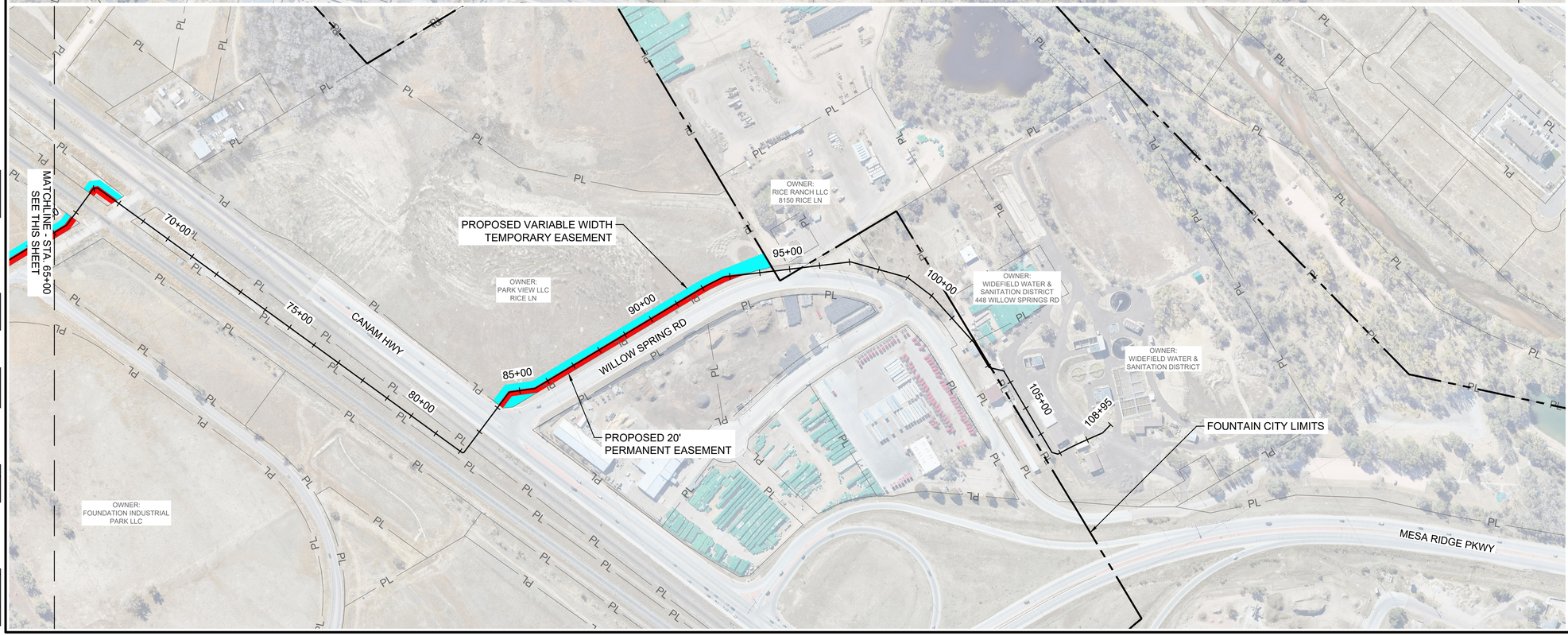
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER **01-G005**

SHEET NUMBER **05**

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Last plotted by: Ramirez, Luiz A. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 5/16/2025 2:07 PM Plotter used: None





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REV.	DATE	DESCRIPTION	BY

WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENTS FORCE MAIN EXTENSION DESIGN

OVERALL EASEMENT LAYOUT PLAN

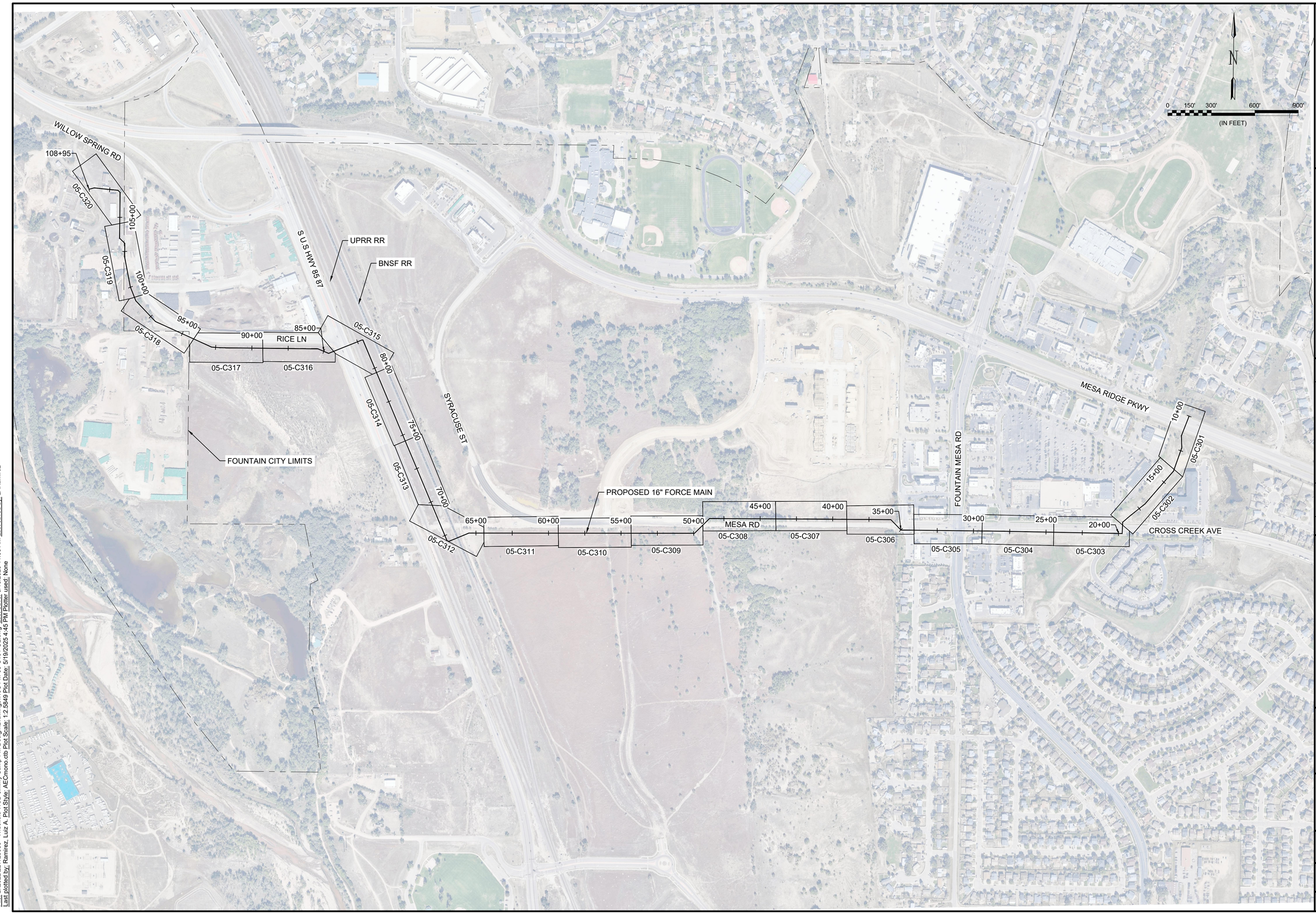
JOB NO.: 22W23080
DATE: MAY 2025
DESIGNED BY: JMC
DRAWN BY: UOP
CHECKED BY: PMB

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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
01-G006

SHEET NUMBER **06**

File: L:\2022\22W23080 - Widefield WSD Jimmy Camp FM Design\Drawings\EXHIBITS\22W23080_WJC - Overall Easement Layout Plan.dwg Last Saved: 5/16/2025 11:33 AM Last saved by: LARamirez
Last plotted by: Ramirez, Luiz A. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 5/16/2025 2:08 PM Plotter used: None



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REV.	DATE	DESCRIPTION	BY

WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENTS FORCE MAIN EXTENSION DESIGN

OVERALL LAYOUT

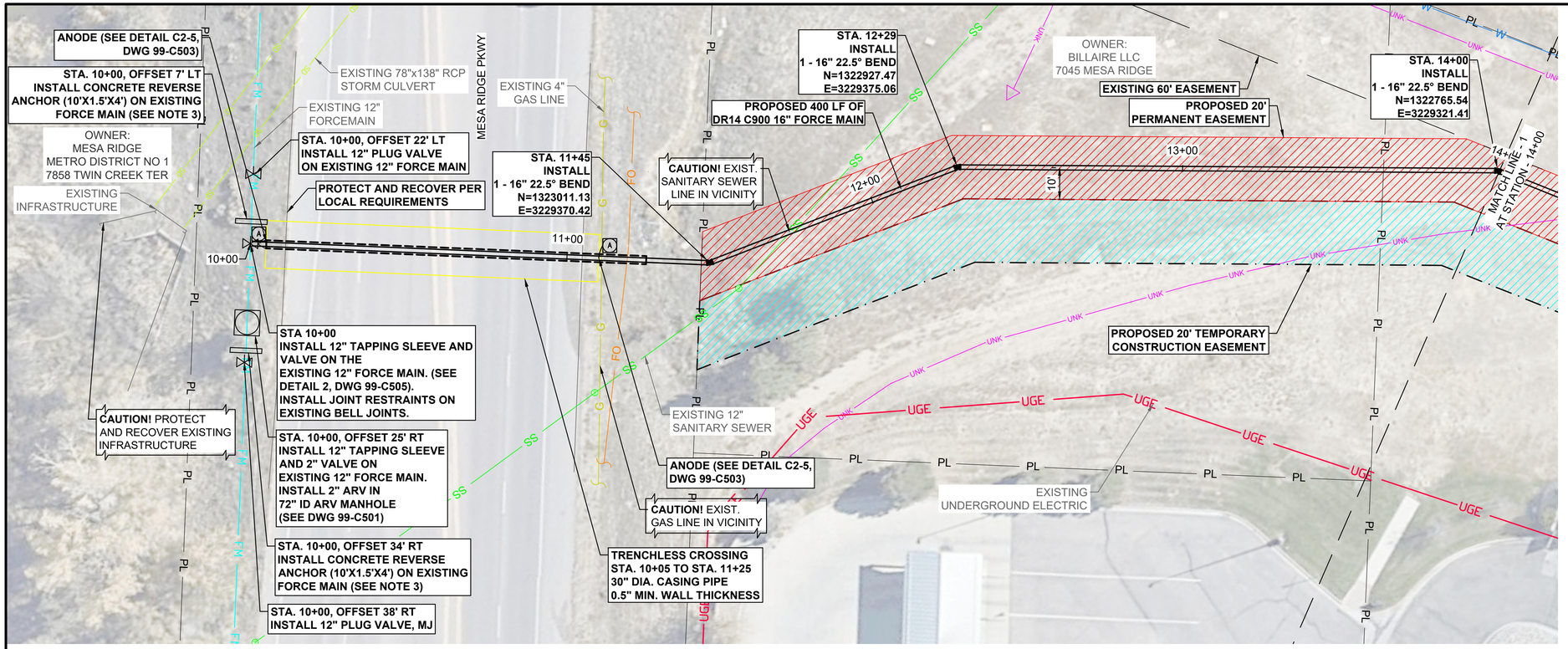
JOB NO.: 22W23080
DATE: MAY 2025
DESIGNED BY: JMC
DRAWN BY: UOP
CHECKED BY: PMB

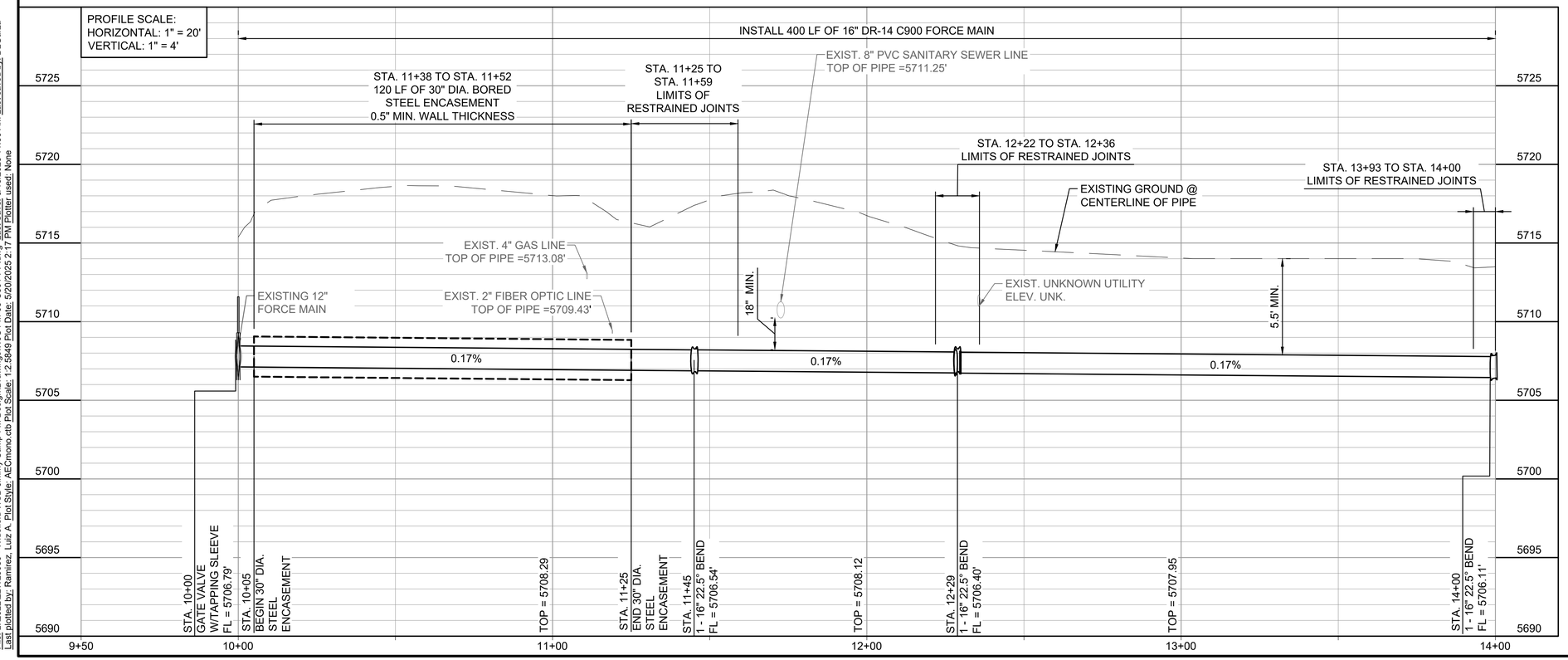
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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

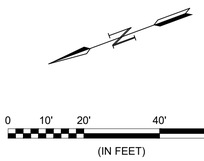
DRAWING NUMBER
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SHEET NUMBER **07**

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Last plotted by: Ramirez, Luiz A Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 5/19/2025 4:45 PM Plotter used: None







NOTES:

1. COORDINATE INSTALLATION AND TIE-IN TO EXISTING 12-INCH FORCE MAIN WITH OWNER AND OPERATIONS STAFF.
2. RECOVER GRADING AND SURFACE CONDITIONS. GRADE TO MATCH EXISTING CONDITIONS.
3. REVERSE CONCRETE ANCHOR SHALL BE PLACED A MINIMUM OF 5' FROM THE EXISTING FORCE MAIN JOINT. LOCATE FORCE MAIN JOINT AND SUBMIT TO ENGINEER FOR RECORD PURPOSES.

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REV.	DATE	DESCRIPTION	BY

WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT - FORCE MAIN EXTENSION DESIGN

PLAN AND PROFILE (STA. 10+00 TO STA. 14+00)

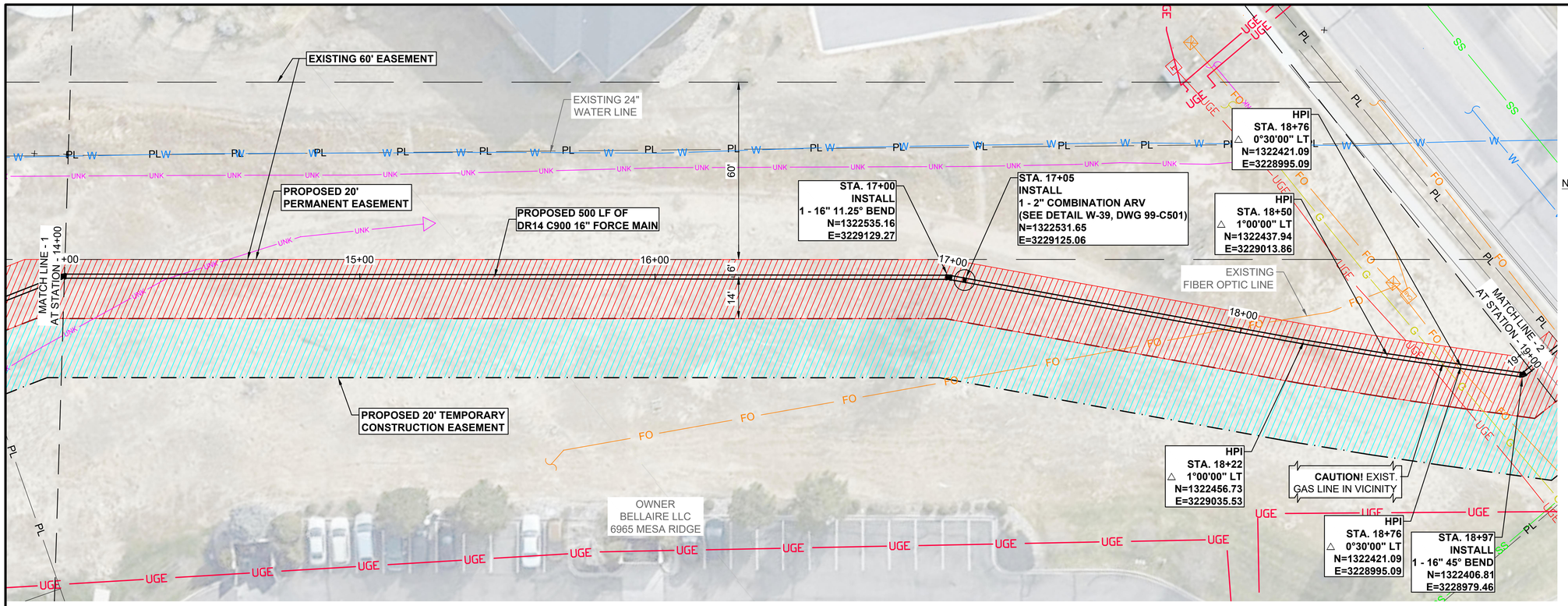
JOB NO.: 22W23080
DATE: MAY 2025
DESIGNED BY: JMC
DRAWN BY: UOP
CHECKED BY: PMB

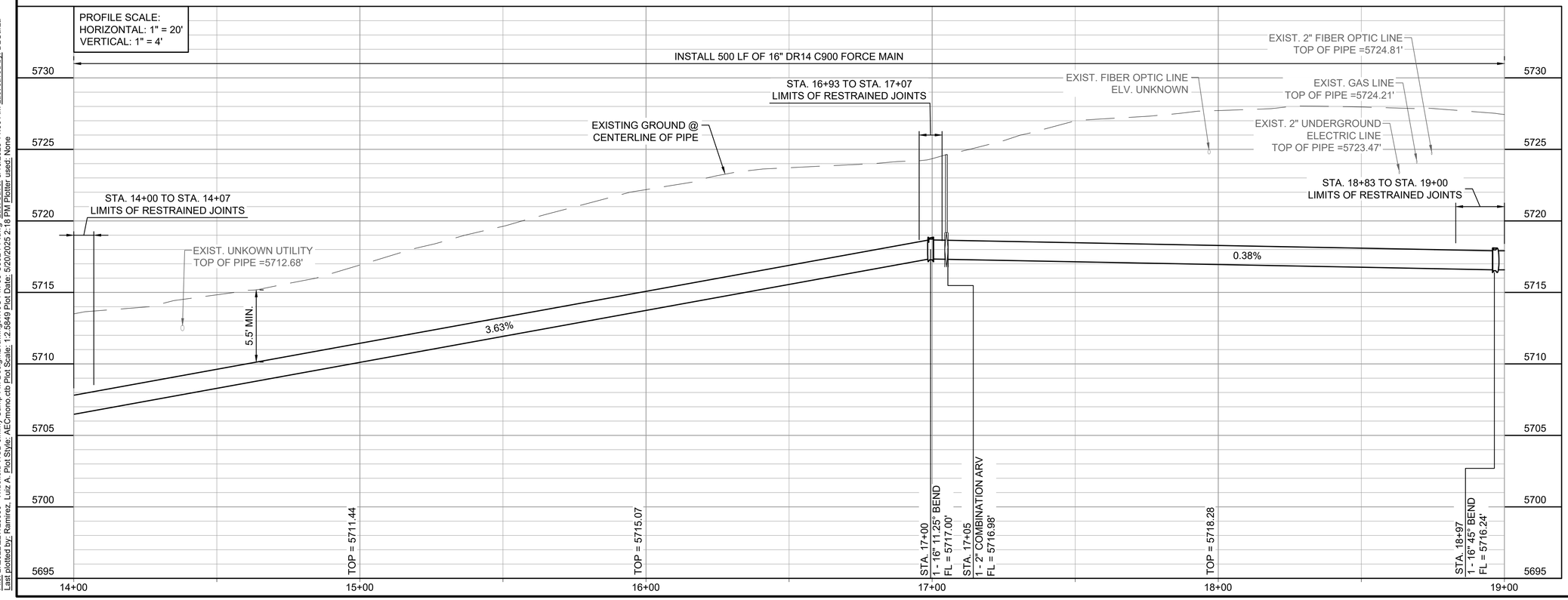
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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DRAWING NUMBER
05-C301

SHEET NUMBER **08**

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Last plotted by: Ramirez, Luiz A. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 5/20/2025 2:17 PM Plotter used: None







NOTES:

1. RECOVER GRADING AND SURFACE CONDITIONS.
2. UTILITIES ARE SHOWN ACCORDING TO THE AVAILABLE RECORD INFORMATION. LOCATE EXISTING WHICH ARE UNKNOWN PRIOR TO BEGINNING CONSTRUCTION.

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REV.	DATE	DESCRIPTION	BY

WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT FORCE MAIN EXTENSION DESIGN

PLAN AND PROFILE (STA. 14+00 TO STA. 19+00)

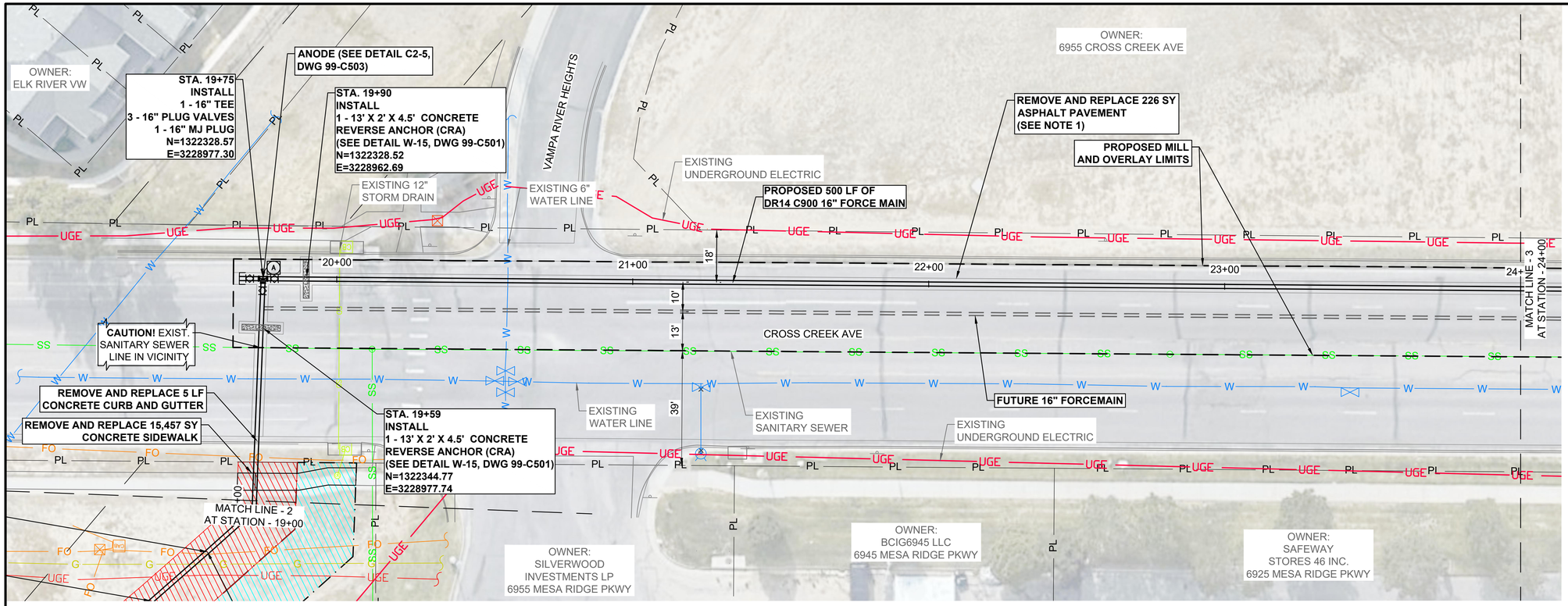
JOB NO.: 22W23080
DATE: MAY 2025
DESIGNED BY: JMC
DRAWN BY: UOP
CHECKED BY: PMB

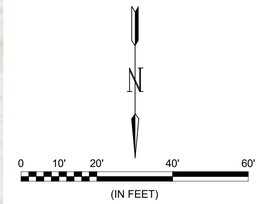
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DRAWING NUMBER
05-C302

SHEET NUMBER **09**

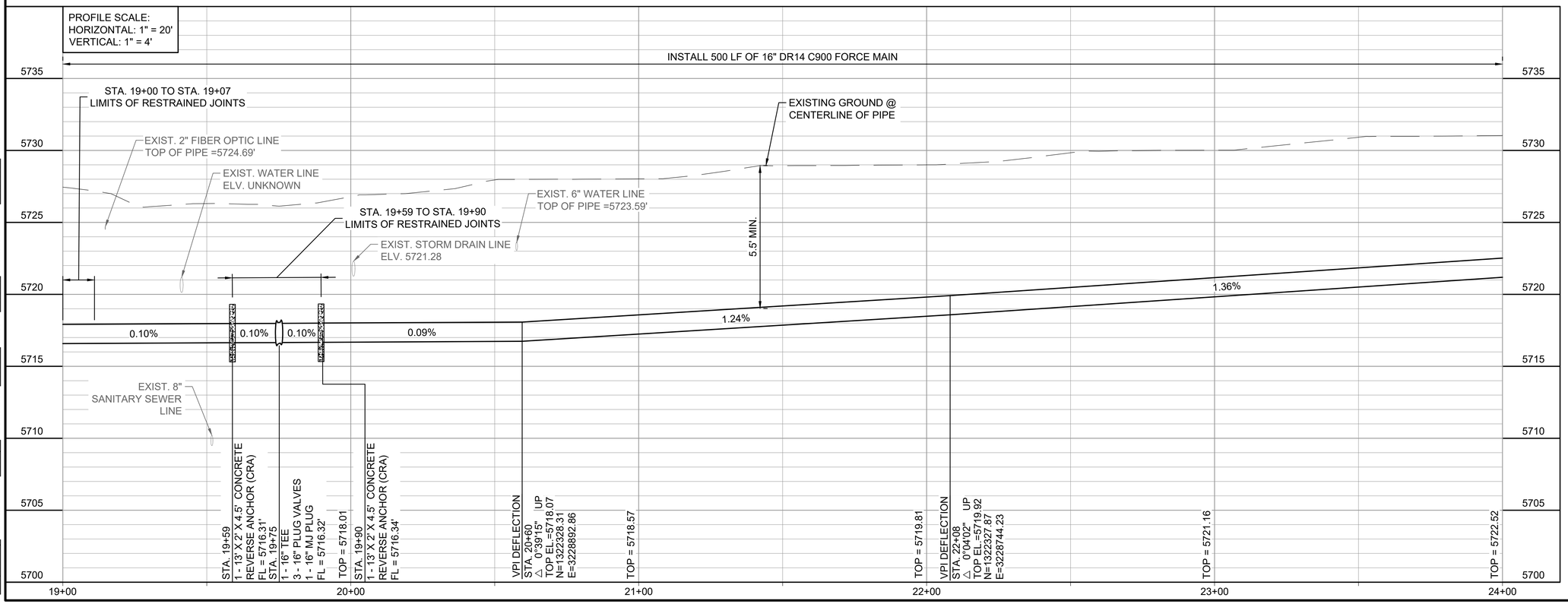
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Last plotted by: Ramirez, Luiz A. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 5/20/2025 2:18 PM Plotter used: None





NOTES:

1. FULL DEPTH PAVEMENT REPAIR SHALL BE COMPLETED ACCORDING TO THE CITY OF FOUNTAIN'S REQUIREMENTS ON A MINOR ARTERIAL ROAD. THE MINIMUM THICKNESS PROVIDED SHALL BE 4" OF HOT MIX ASPHALT WITH A 12" AGGREGATE BASE COURSE.
2. RESTORE PAVEMENT MARKINGS ACCORDING TO THE CITY OF FOUNTAIN STANDARDS.



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REV.	DATE	DESCRIPTION	BY

Widefield Water and Sanitation District

WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT FORCE MAIN EXTENSION DESIGN

PLAN AND PROFILE (STA. 19+00 TO STA. 24+00)

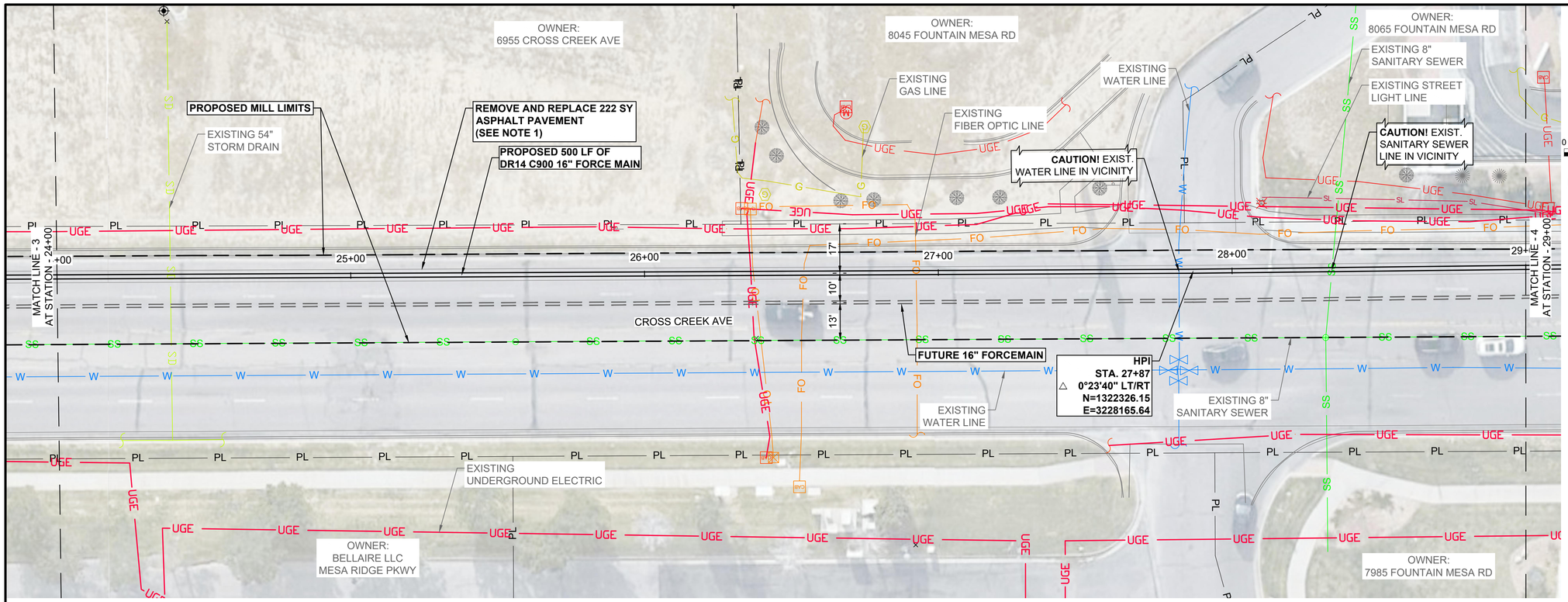
JOB NO.: 22W23080
DATE: MAY 2025
DESIGNED BY: JMC
DRAWN BY: UOP
CHECKED BY: PMB

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DRAWING NUMBER
05-C303

SHEET NUMBER **10**

File: L:\2022\22W23080 - Widefield WSD Jimmy Camp FM Design\Drawings\WJC FM-05-C303-PP.dwg Last Save: 5/16/2025 11:36 AM Last saved by: DLGarza
Last plotted by: Ramirez, Luiz A. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 5/20/2025 2:18 PM Plotter used: None

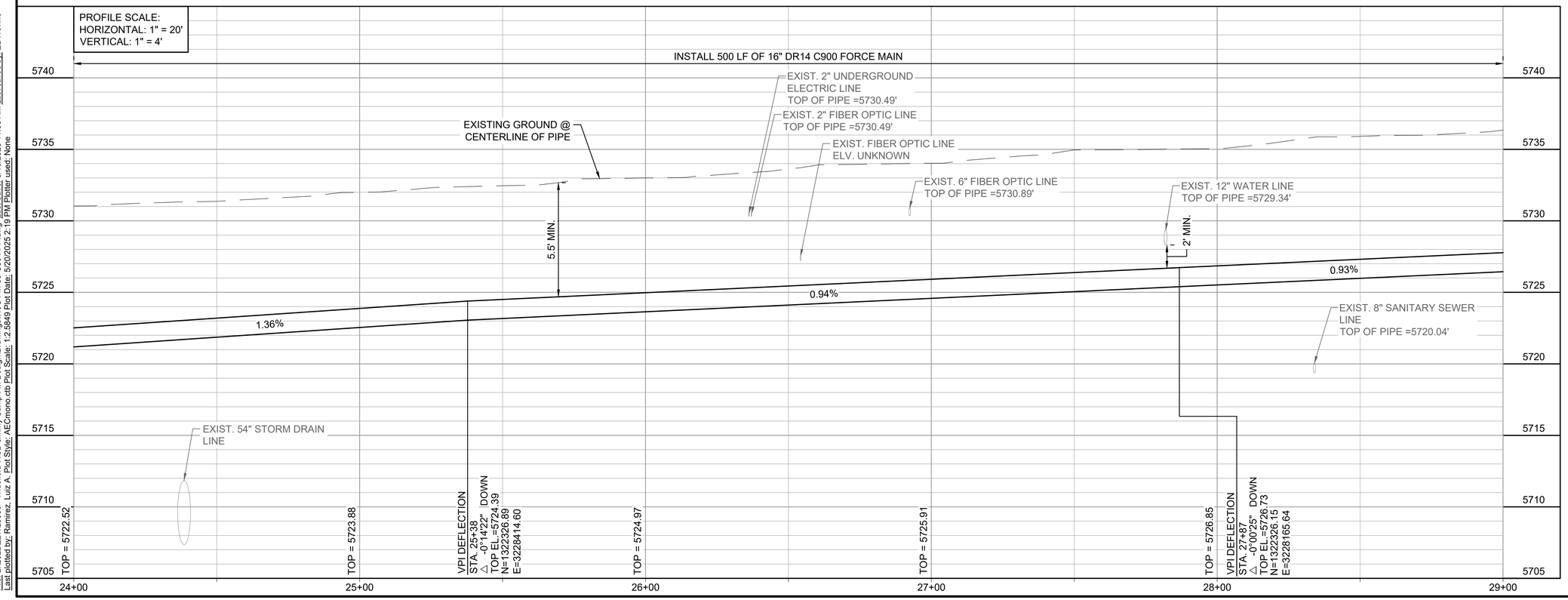


N

0 10' 20' 40' 60'
(IN FEET)

NOTES:

1. FULL DEPTH PAVEMENT REPAIR SHALL BE COMPLETED ACCORDING TO THE CITY OF FOUNTAIN'S REQUIREMENTS ON A MINOR ARTERIAL ROAD. THE MINIMUM THICKNESS PROVIDED SHALL BE 4" OF HOT MIX ASPHALT WITH A 12" AGGREGATE BASE COURSE.



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REV.	DATE	DESCRIPTION	BY

WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT FORCE MAIN EXTENSION DESIGN

PLAN AND PROFILE (STA. 24+00 TO STA. 29+00)

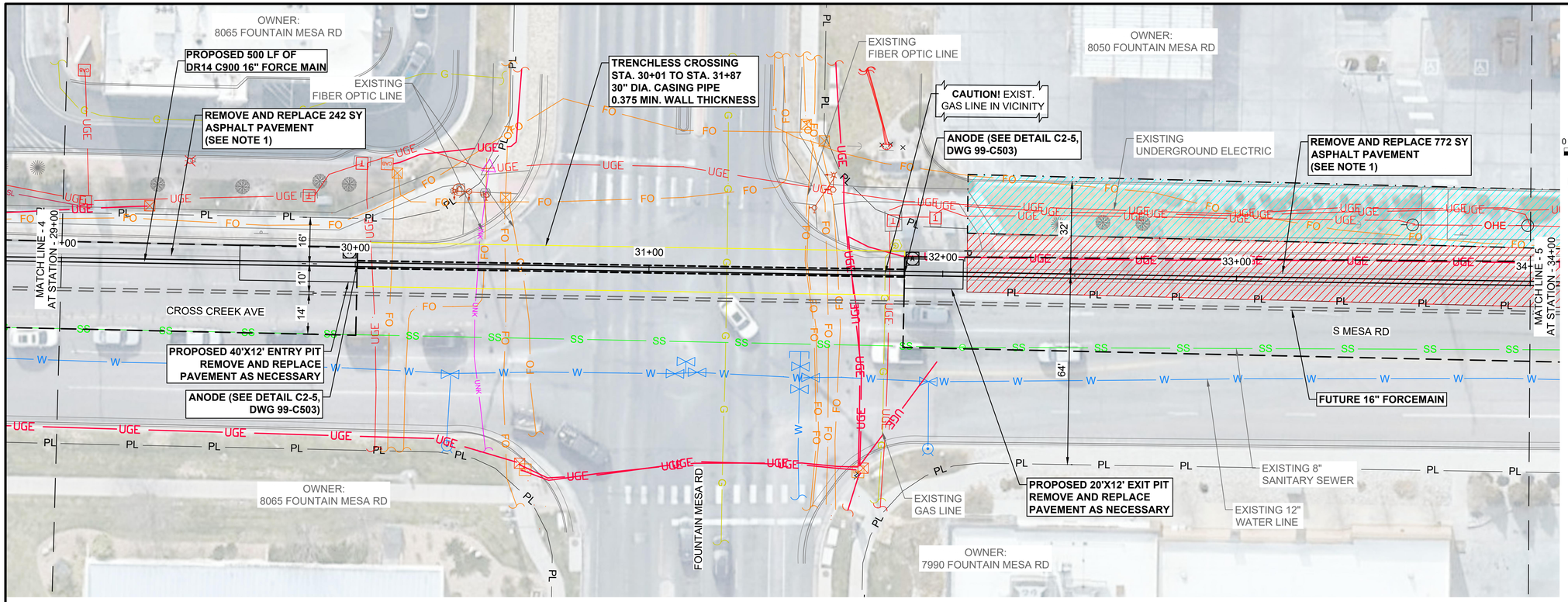
JOB NO.: 22W23080
DATE: MAY 2025
DESIGNED BY: JMC
DRAWN BY: UOP
CHECKED BY: PMB

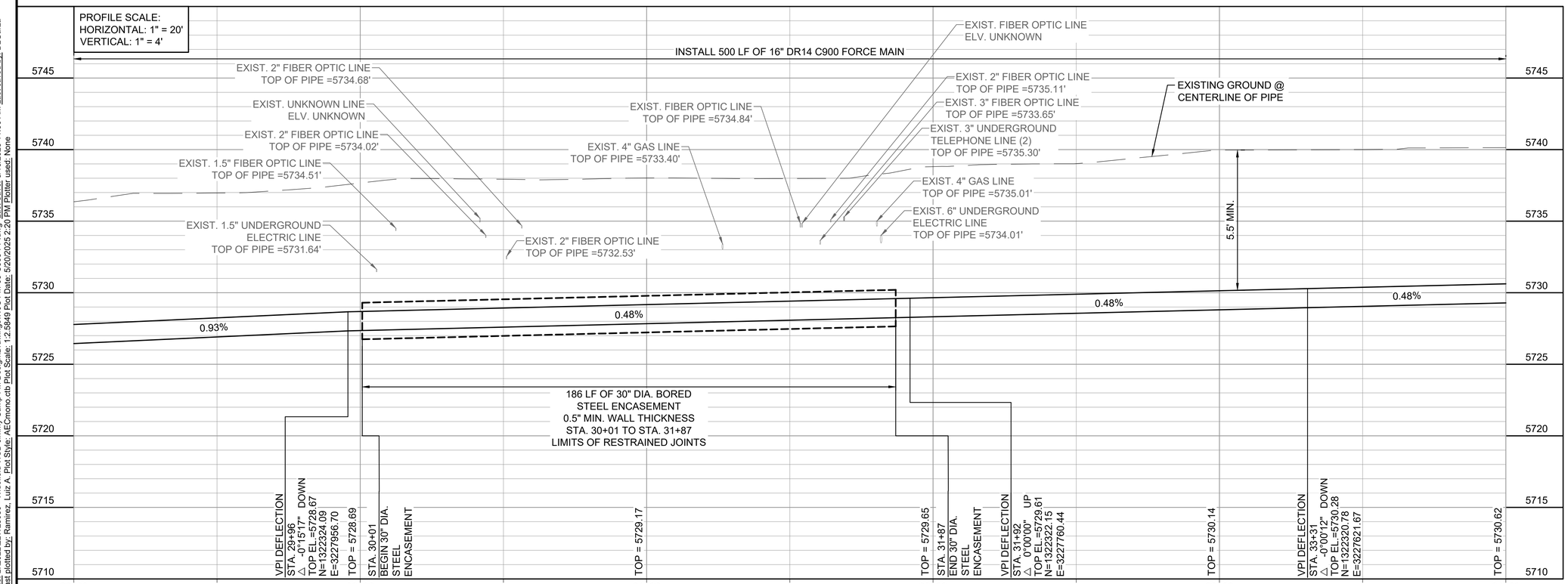
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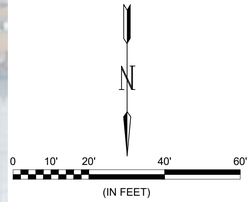
DRAWING NUMBER
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SHEET NUMBER **10**

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Last plotted by: Ramirez, Luiz A. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 5/20/2025 2:19 PM Plotter used: None







NOTES:

1. FULL DEPTH PAVEMENT REPAIR SHALL BE COMPLETED ACCORDING TO THE CITY OF FOUNTAIN'S REQUIREMENTS ON A MINOR ARTERIAL ROAD. THE MINIMUM THICKNESS PROVIDED SHALL BE 4" OF HOT MIX ASPHALT WITH A 12" AGGREGATE BASE COURSE.
2. COORDINATE WITH OTHER'S PERFORMANCE OF RIGHT-OF-WAY AND LINE-OF-SITE IMPROVEMENTS ACCORDINGLY.
3. EXISTING UTILITIES NOTED WITH A TOP OF PIPE ELEVATION WERE DISCOVERED VIA LEVEL A SUE. CONTRACTOR SHALL LOCATE UTILITIES NOTED AS UNKNOWN PRIOR TO BEGINNING EXCAVATION.

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REV.	DATE	DESCRIPTION	BY

Widefield Water and Sanitation District

WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT FORCE MAIN EXTENSION DESIGN

PLAN AND PROFILE (STA. 29+00 TO STA. 34+00)

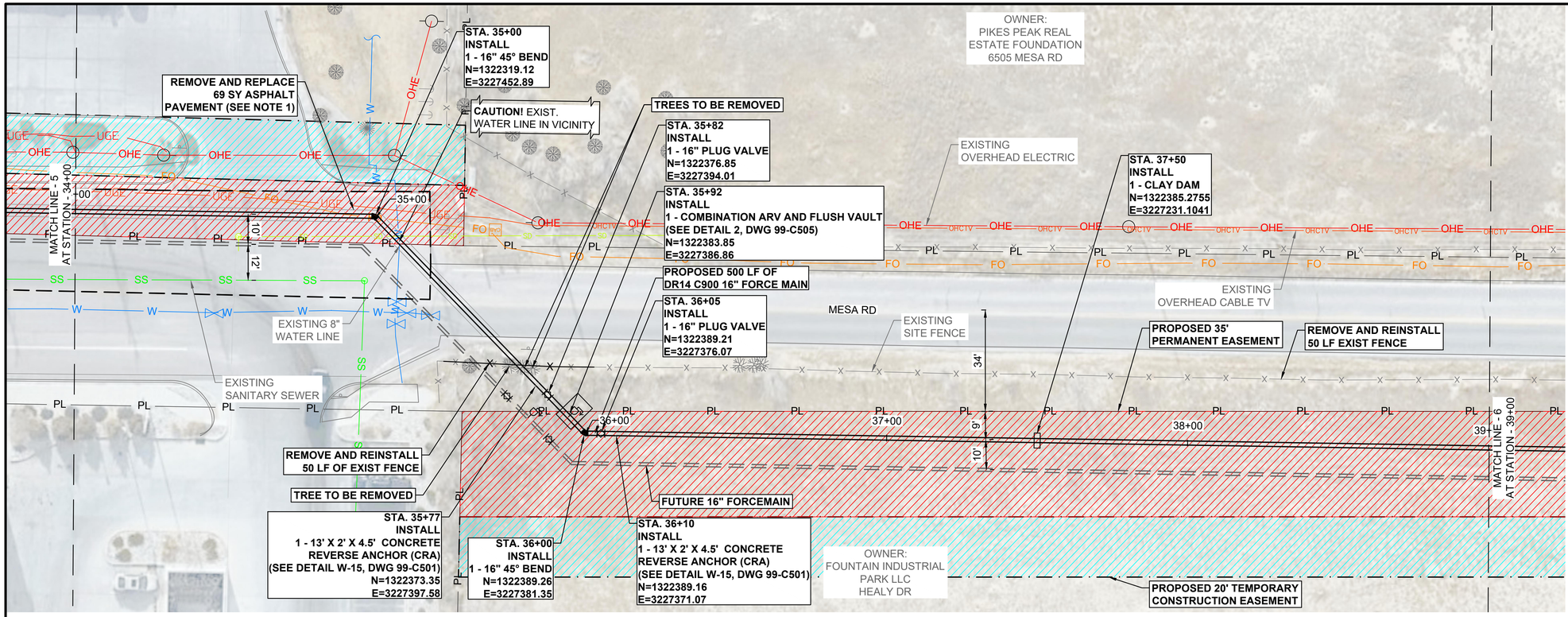
JOB NO.: 22W23080
DATE: MAY 2025
DESIGNED BY: JMC
DRAWN BY: UOP
CHECKED BY: PMB

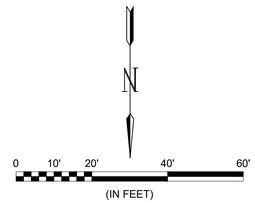
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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DRAWING NUMBER
05-C305

SHEET NUMBER **12**

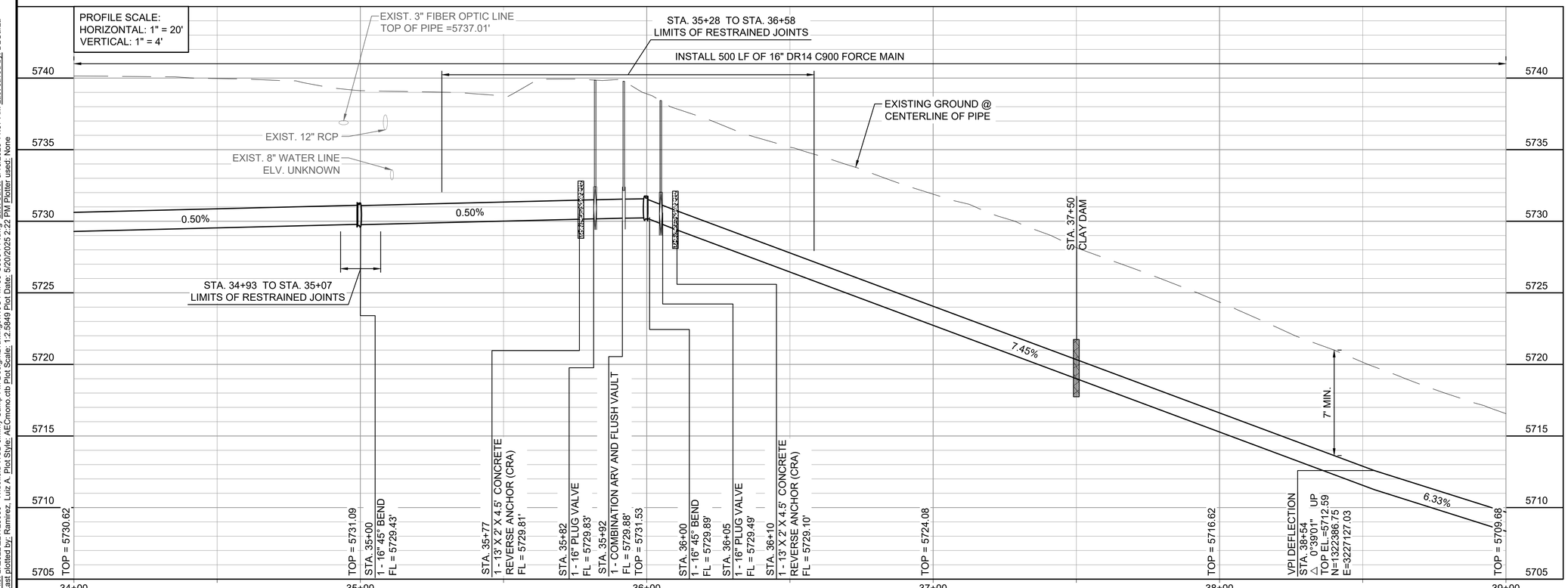
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Last plotted by: Ramirez, Luiz A. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 5/20/2025 2:20 PM Plotter used: None





NOTES:

1. FULL DEPTH PAVEMENT REPAIR SHALL BE COMPLETED ACCORDING TO THE CITY OF FOUNTAIN'S REQUIREMENTS ON A MINOR ARTERIAL ROAD. THE MINIMUM THICKNESS PROVIDED SHALL BE 4" OF HOT MIX ASPHALT WITH A 12" AGGREGATE BASE COURSE.
2. UNLESS INDICATED OTHERWISE, FENCE ALONG MESA RD MAY BE REMOVED AND REINSTALLED FOR ACCESS TO EXISTING EASEMENT AT NO ADDITIONAL COST TO THE OWNER.
3. RESTORE AND RECOVER TO MATCH EXISTING CONDITIONS.
4. COORDINATE WITH OTHER'S PERFORMANCE OF RIGHT-OF-WAY AND LINE-OF-SITE IMPROVEMENTS ACCORDINGLY.



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REV.	DATE	DESCRIPTION	BY

WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT FORCE MAIN EXTENSION DESIGN

PLAN AND PROFILE
(STA. 34+00 TO STA. 39+00)

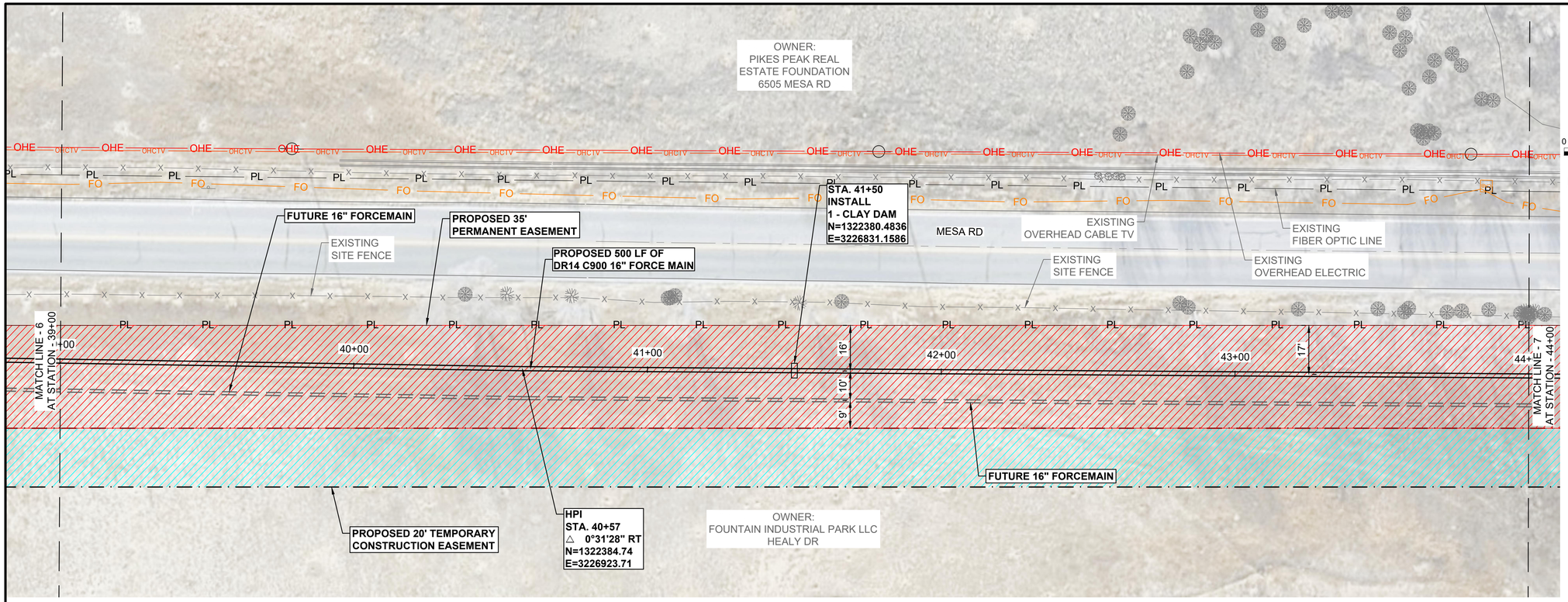
JOB NO.: 22W23080
DATE: MAY 2025
DESIGNED BY: JMC
DRAWN BY: UOP
CHECKED BY: PMB

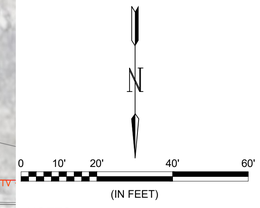
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DRAWING NUMBER
05-C306

SHEET NUMBER **13**

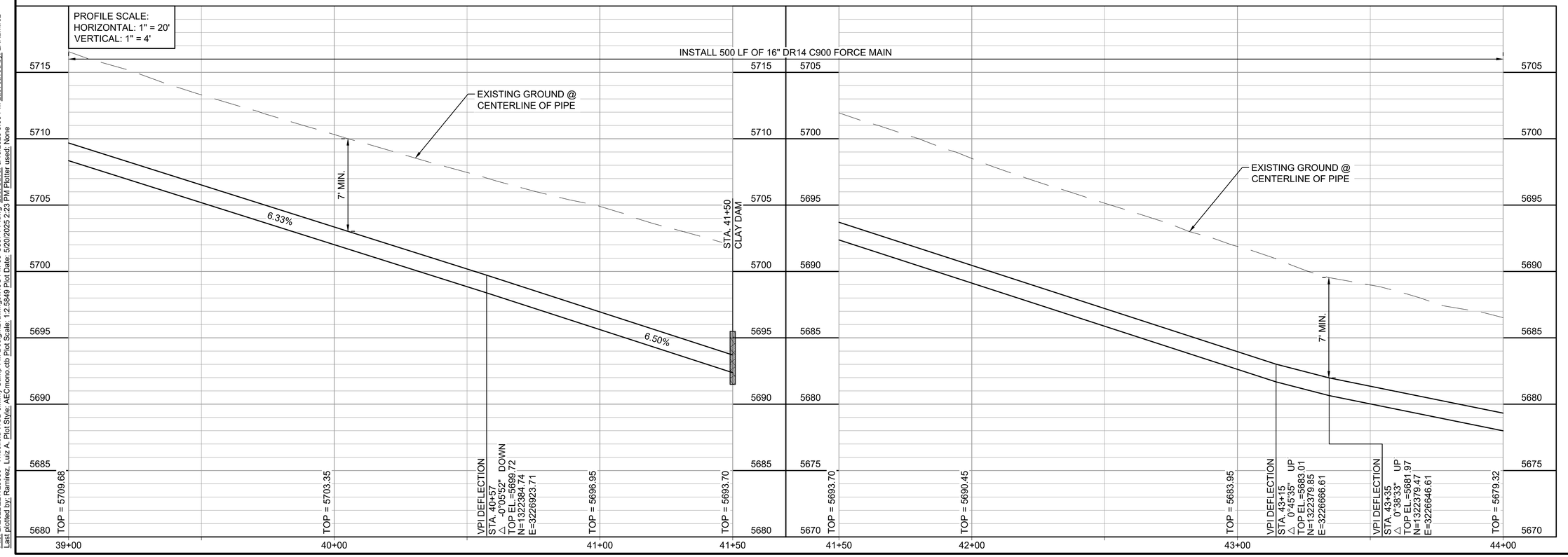
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Last plotted by: Ramirez, Luiz A. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 5/20/2025 2:22 PM Plotter used: None





NOTES:

1. RECOVER ASPHALT TO MIN. 9" THICKNESS ON 24" CL6 ABC.
2. FULL DEPTH PAVEMENT REPAIR SHALL BE COMPLETED ACCORDING TO THE CITY OF FOUNTAIN'S REQUIREMENTS ON A MINOR ARTERIAL ROAD. THE MINIMUM THICKNESS PROVIDED SHALL BE 4" OF HOT MIX ASPHALT WITH A 12" AGGREGATE BASE COURSE.
3. REMOVE AND RE-INSTALL FENCE.
4. RESTORE AND RECOVER TO MATCH EXISTING CONDITIONS.
5. COORDINATE WITH OTHER'S PERFORMANCE OF RIGHT-OF-WAY AND LINE-OF-SITE IMPROVEMENTS ACCORDINGLY.



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REV.	DATE	DESCRIPTION	BY

WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT - FORCE MAIN EXTENSION DESIGN

PLAN AND PROFILE
(STA. 39+00 TO STA. 44+00)

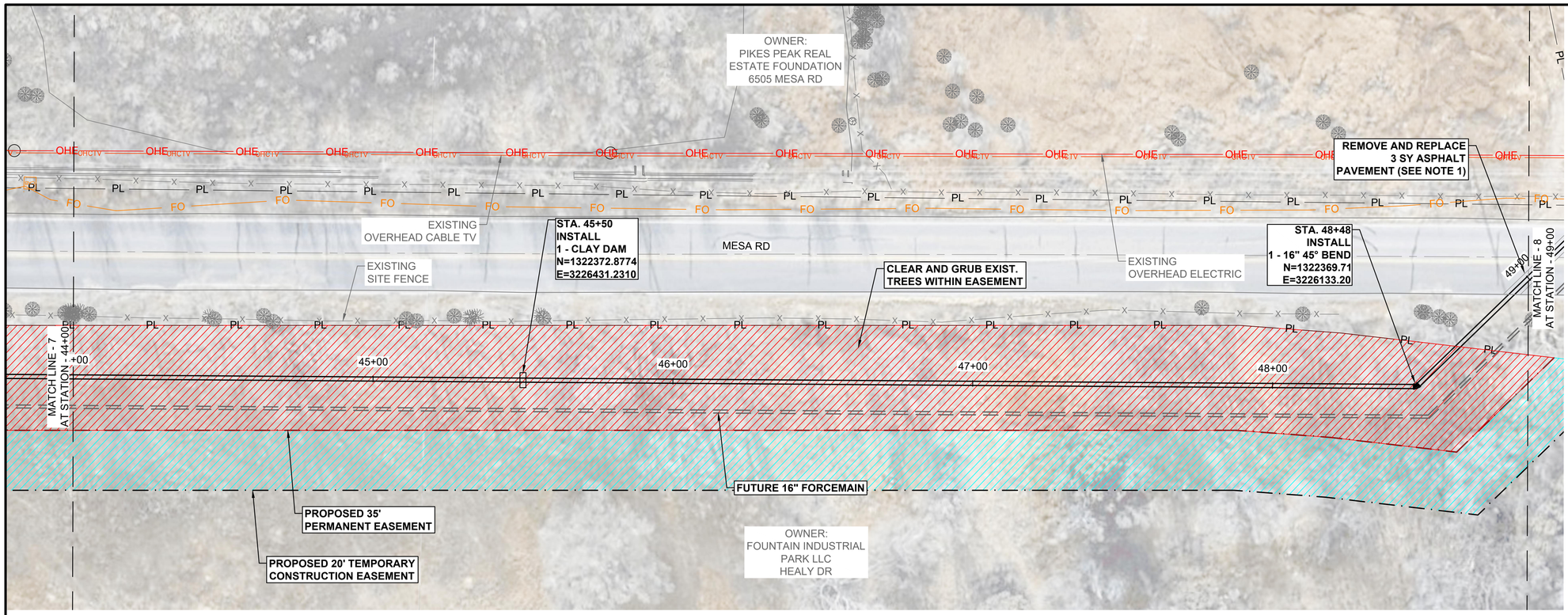
JOB NO.: 22W23080
DATE: MAY 2025
DESIGNED BY: JMC
DRAWN BY: UOP
CHECKED BY: PMB

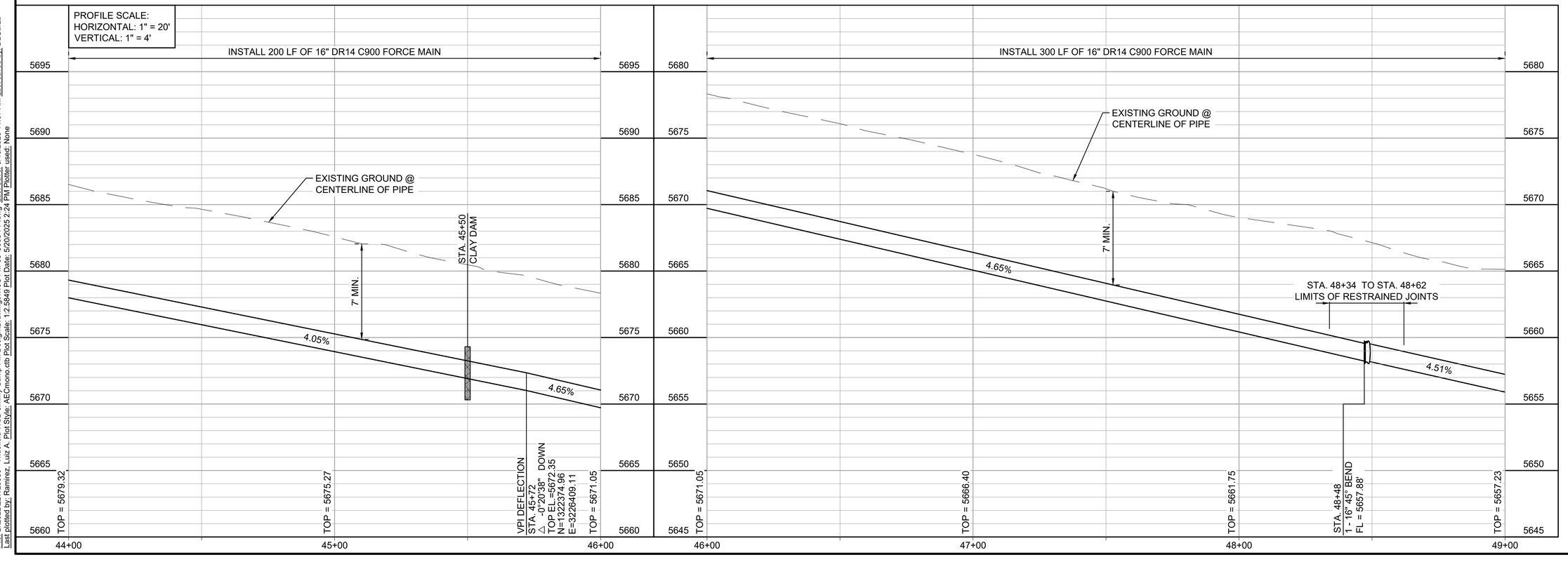
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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DRAWING NUMBER
05-C307

SHEET NUMBER **14**

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Last plotted by: Ramirez, Luiz A. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 5/20/2025 2:23 PM Plotter used: None





N

0 10' 20' 40' 60'
(IN FEET)

NOTES:

1. RECOVER ASPHALT TO MIN. 9" THICKNESS ON 24" CL6 ABC.
2. FULL DEPTH PAVEMENT REPAIR SHALL BE COMPLETED ACCORDING TO THE CITY OF FOUNTAIN'S REQUIREMENTS ON A MINOR ARTERIAL ROAD. THE MINIMUM THICKNESS PROVIDED SHALL BE 4" OF HOT MIX ASPHALT WITH A 12" AGGREGATE BASE COURSE.
3. UNLESS INDICATED OTHERWISE, FENCE ALONG MESA RD MAY BE REMOVED AND REINSTALLED FOR ACCESS TO EXISTING EASEMENT AT NO ADDITIONAL COST TO THE OWNER.
4. RESTORE AND RECOVER TO MATCH EXISTING CONDITIONS.
5. COORDINATE WITH OTHER'S PERFORMANCE OF RIGHT-OF-WAY AND LINE-OF-SITE IMPROVEMENTS ACCORDINGLY.

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REV	DATE	DESCRIPTION	BY

WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT FORCE MAIN EXTENSION DESIGN

PLAN AND PROFILE
(STA. 44+00 TO STA. 49+00)

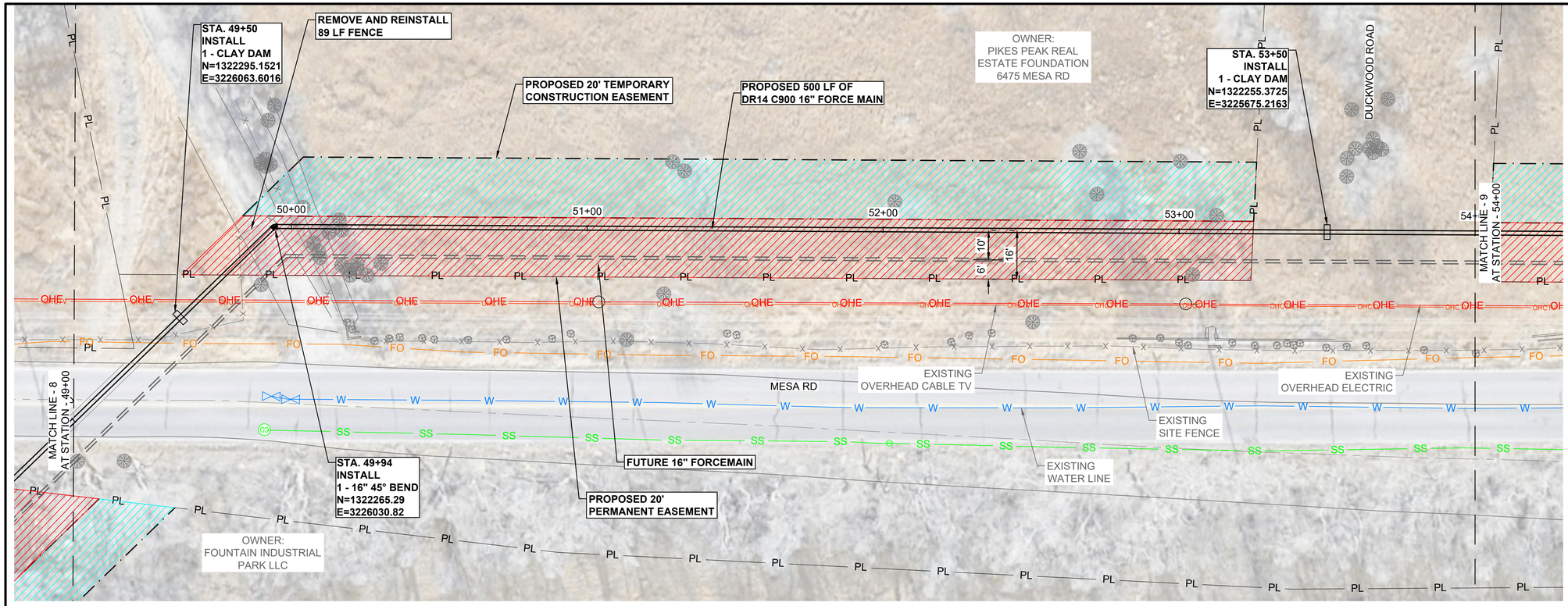
JOB NO.: 22W23080
DATE: MAY 2025
DESIGNED BY: JMC
DRAWN BY: UOP
CHECKED BY: PMB

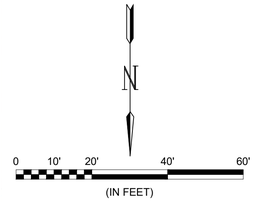
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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DRAWING NUMBER
05-C308

SHEET NUMBER **15**

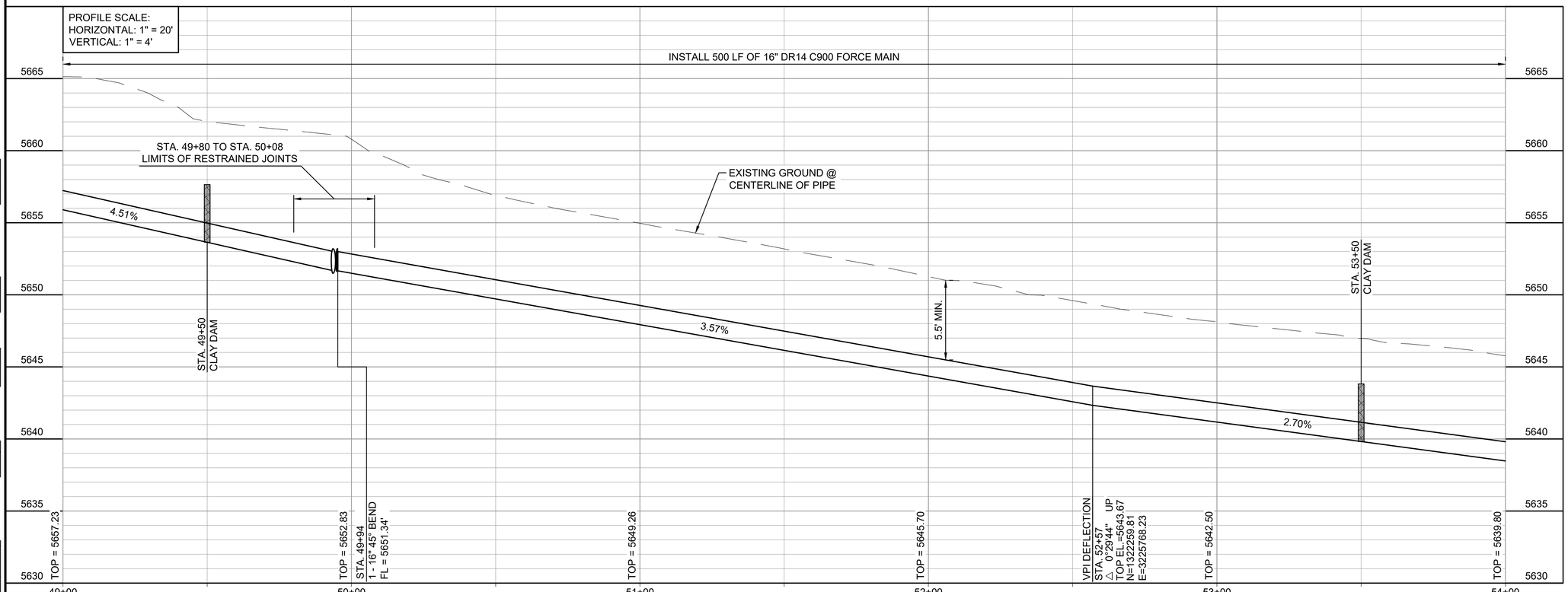
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Last plotted by: Ramirez, Luiz A. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 5/20/2025 2:24 PM Plotter used: None





NOTES:

1. RECOVER ASPHALT TO MIN. 9" THICKNESS ON 24" CL6 ABC.



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REV.	DATE	DESCRIPTION	BY

WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT-FORCE MAIN EXTENSION DESIGN

PLAN AND PROFILE (STA. 49+00 TO STA. 54+00)

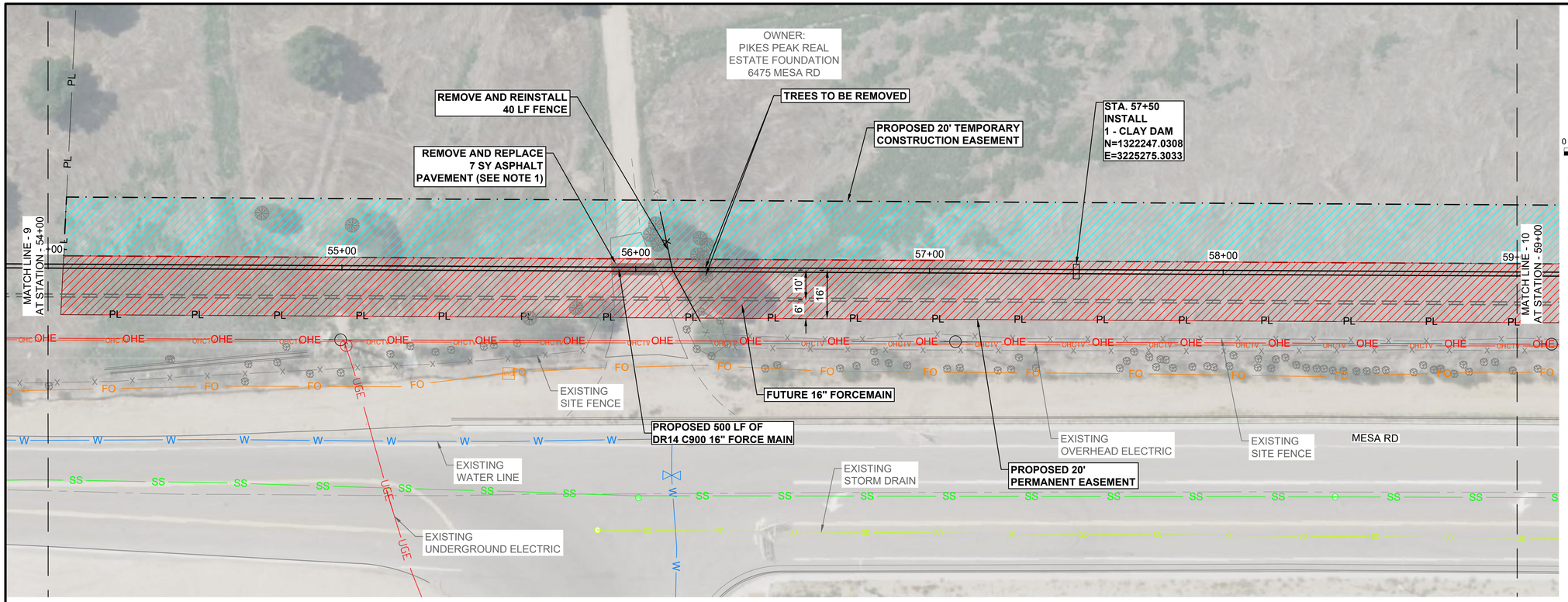
JOB NO.: 22W23080
DATE: MAY 2025
DESIGNED BY: JMC
DRAWN BY: UOP
CHECKED BY: PMB

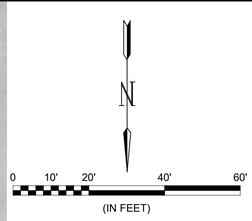
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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DRAWING NUMBER
05-C309

SHEET NUMBER **16**

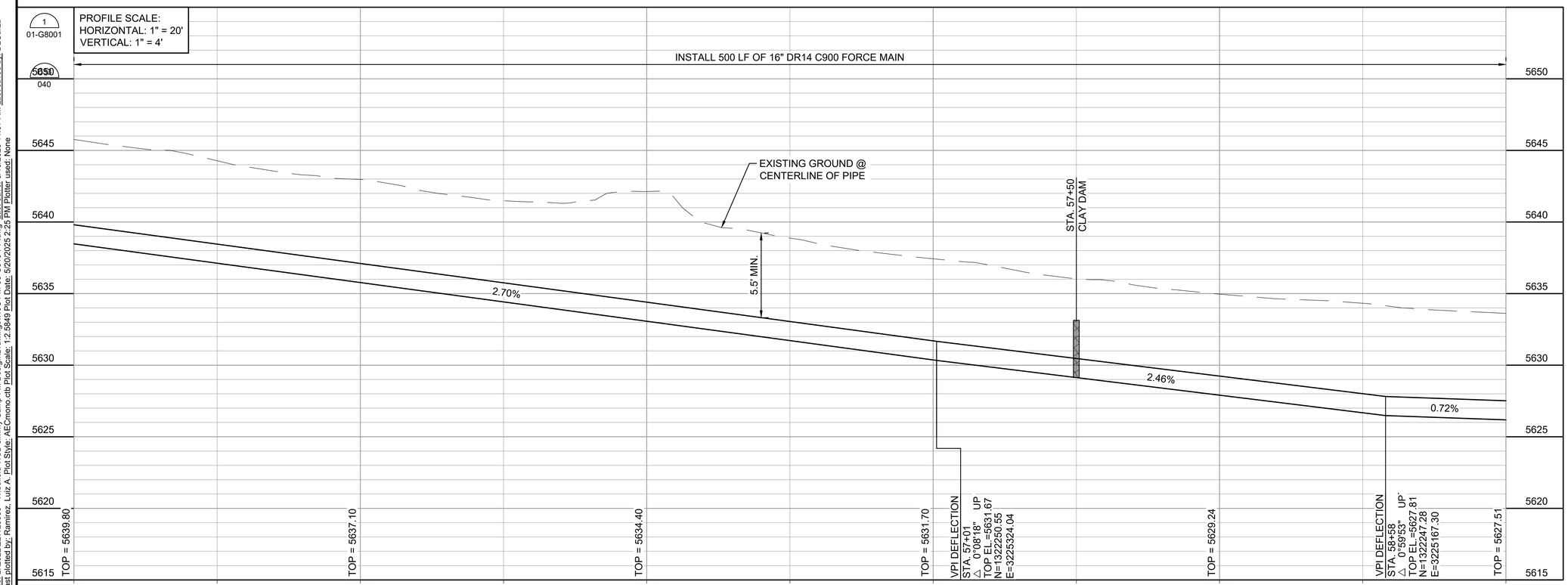
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Last plotted by: Ramirez, Luiz A. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 5/20/2025 2:24 PM Plotter used: None





NOTES:

1. RECOVER ASPHALT TO MIN. 9" THICKNESS ON 24" CL6 ABC.



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REV.	DATE	DESCRIPTION	BY

WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT-FORCE MAIN EXTENSION DESIGN

PLAN AND PROFILE
(STA. 54+00 TO STA. 59+00)

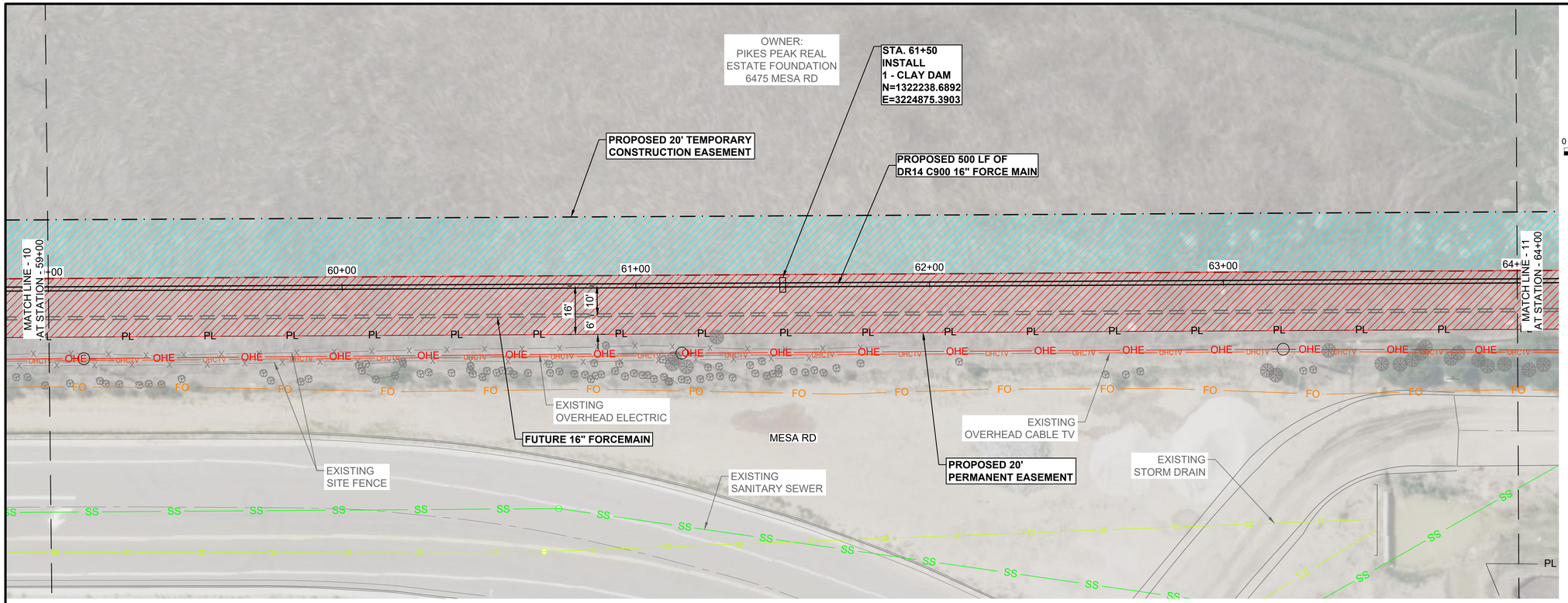
JOB NO.: 22W23080
DATE: MAY 2025
DESIGNED BY: JMC
DRAWN BY: UOP
CHECKED BY: PMB

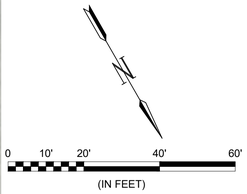
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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DRAWING NUMBER
05-C310

SHEET NUMBER **17**

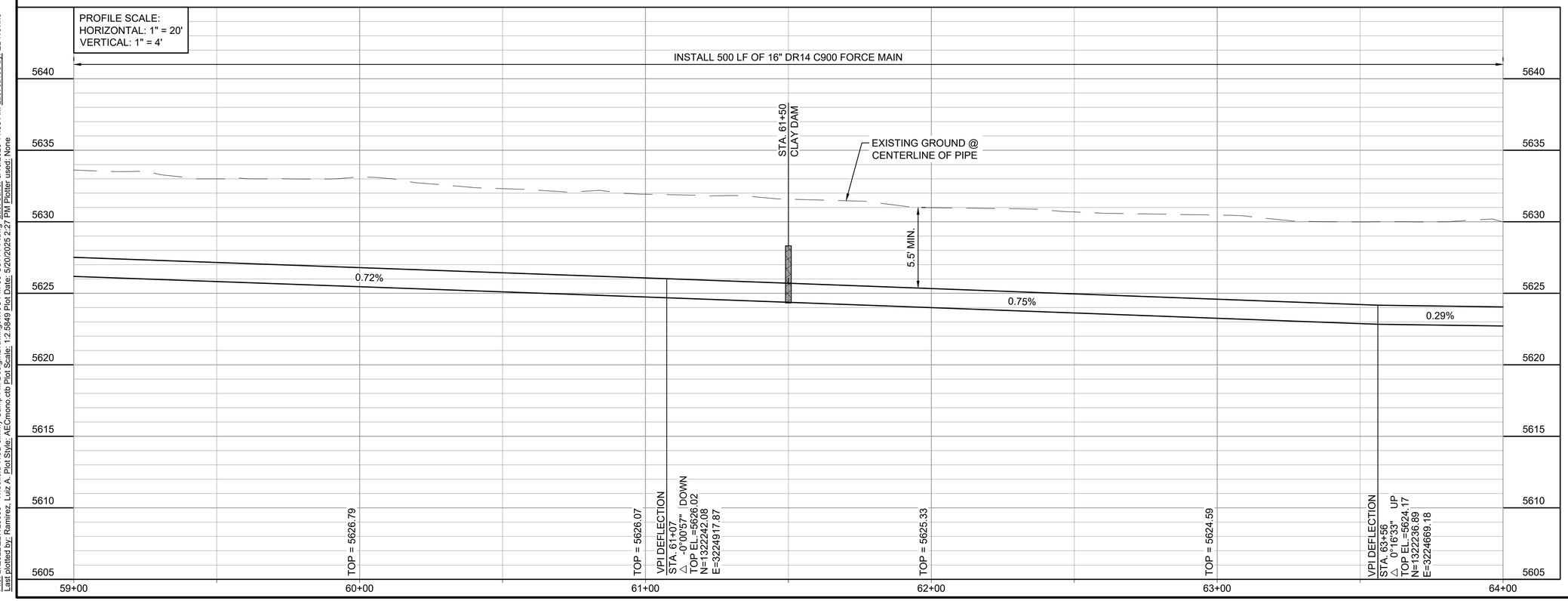
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Last plotted by: Ramirez, Luiz A. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 5/20/2025 2:25 PM Plotter used: None





NOTES:

1. RECOVER ASPHALT TO MIN. 9" THICKNESS ON 24" CL6 ABC.



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REV.	DATE	DESCRIPTION	BY

WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT-FORCE MAIN EXTENSION DESIGN

PLAN AND PROFILE
(STA. 59+00 TO STA. 64+00)

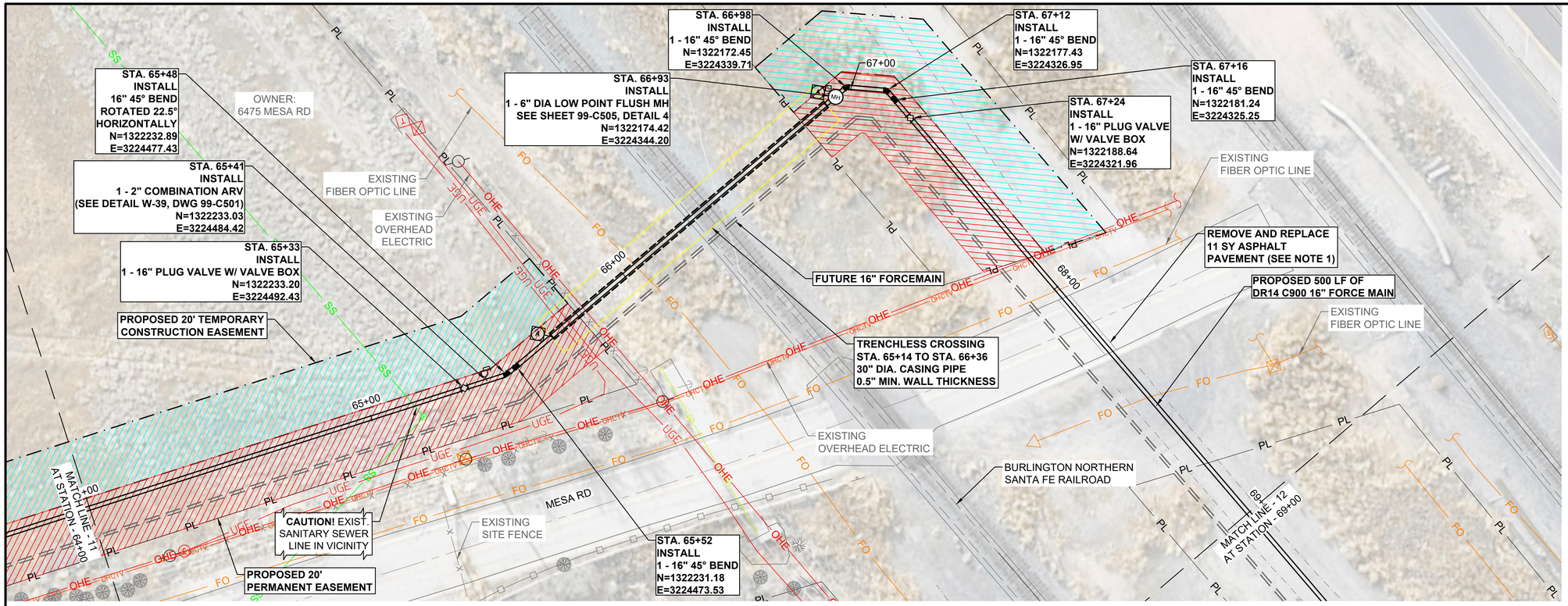
JOB NO.: 22W23080
DATE: MAY 2025
DESIGNED BY: JMC
DRAWN BY: UOP
CHECKED BY: PMB

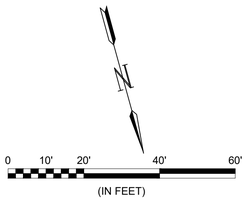
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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
05-C311

SHEET NUMBER **18**

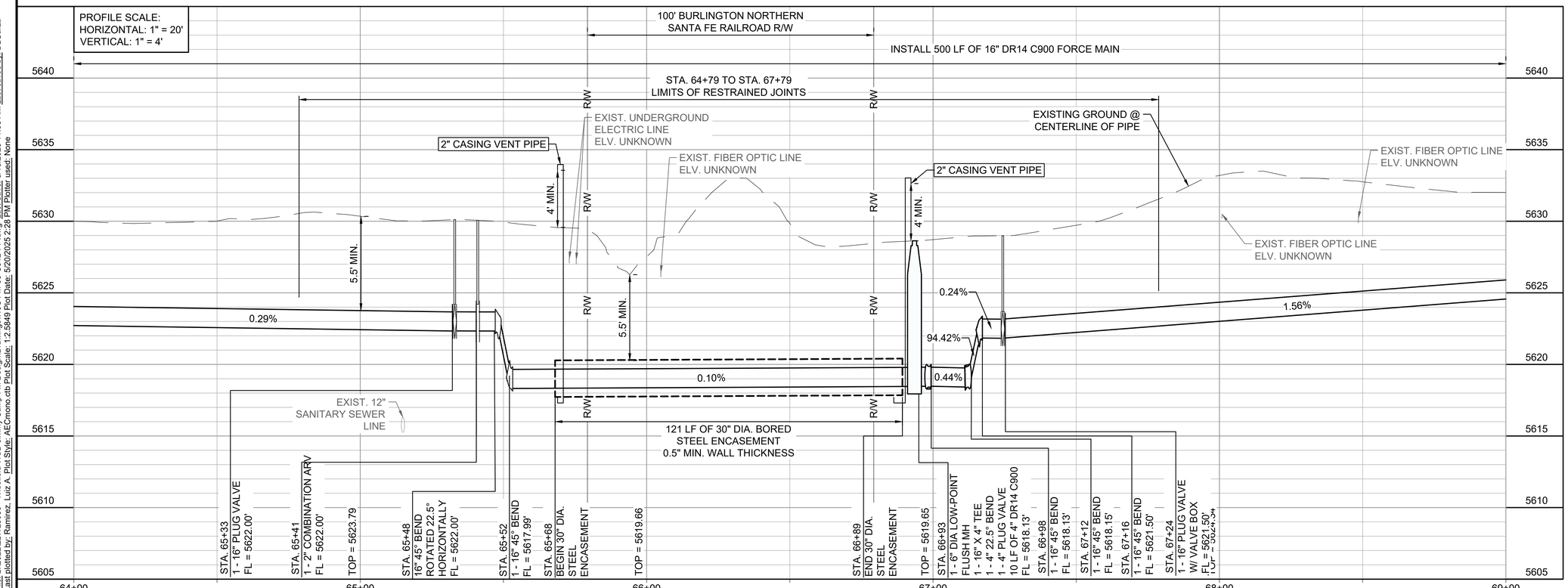
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Last plotted by: Ramirez, Luiz A. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 5/20/2025 2:27 PM Plotter used: None





NOTES:

1. RECOVER ASPHALT TO MIN. 9" THICKNESS ON 24" CL6 ABC.



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REV.	DATE	DESCRIPTION	BY

WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT - FORCE MAIN EXTENSION DESIGN

PLAN AND PROFILE
(STA. 64+00 TO STA. 69+00)

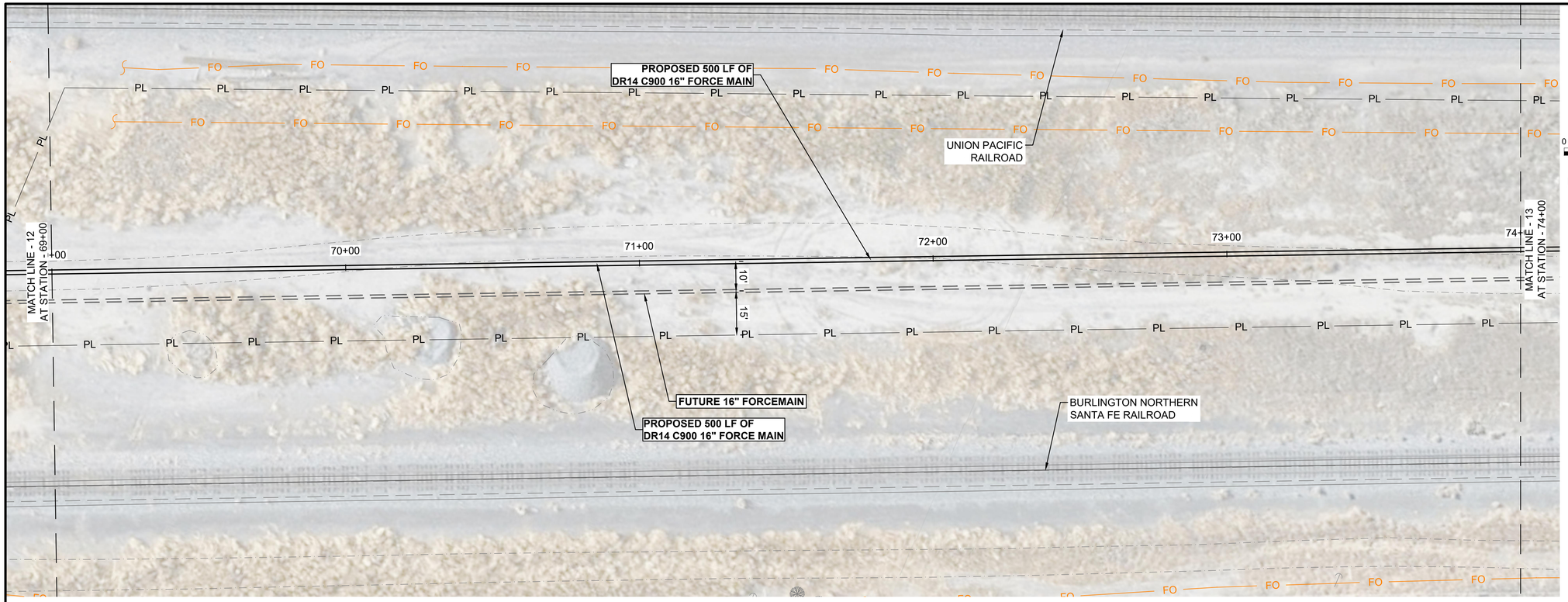
JOB NO.: 22W23080
DATE: MAY 2025
DESIGNED BY: JMC
DRAWN BY: UOP
CHECKED BY: PMB

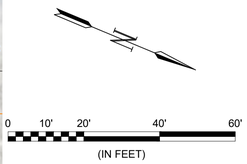
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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DRAWING NUMBER
05-C312

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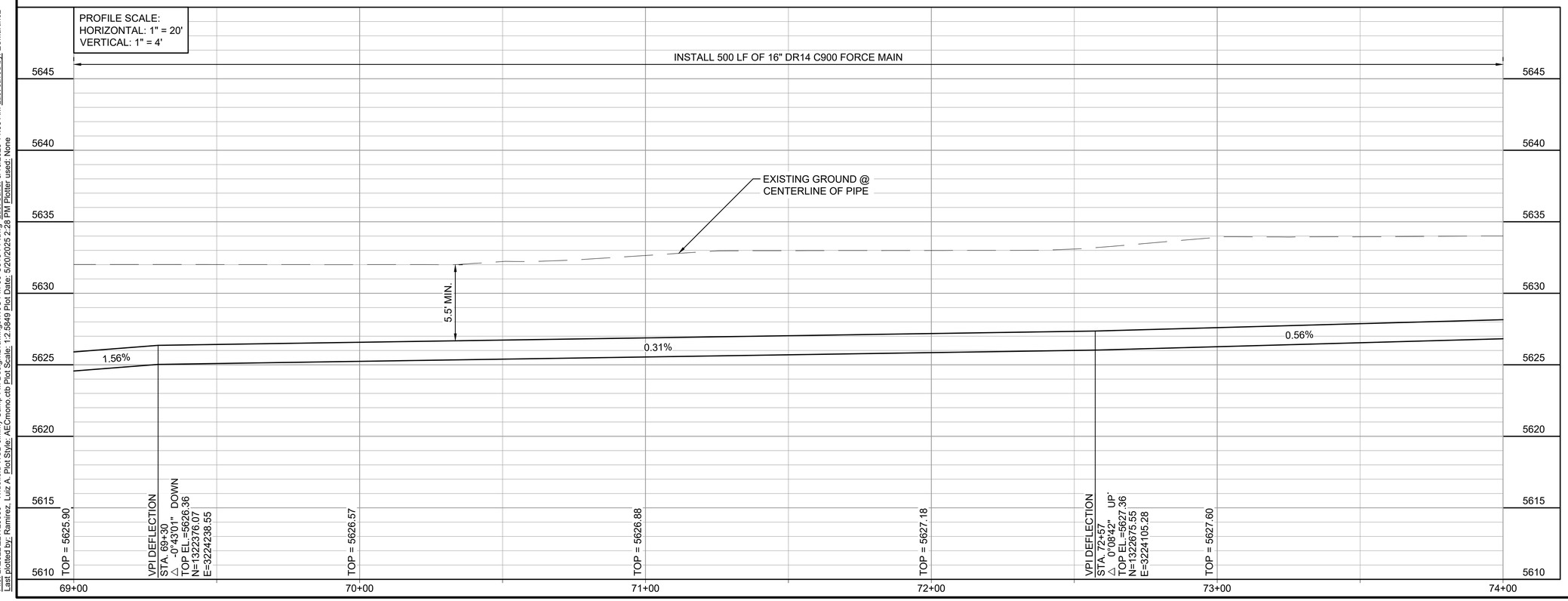
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Last plotted by: Ramirez, Luiz A. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 5/20/2025 2:28 PM Plotter used: None





NOTES:

1. RECOVER ASPHALT TO MIN. 9" THICKNESS ON 24" CL6 ABC.



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REV.	DATE	DESCRIPTION	BY

WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT - FORCE MAIN EXTENSION DESIGN

PLAN AND PROFILE
(STA. 69+00 TO STA. 74+00)

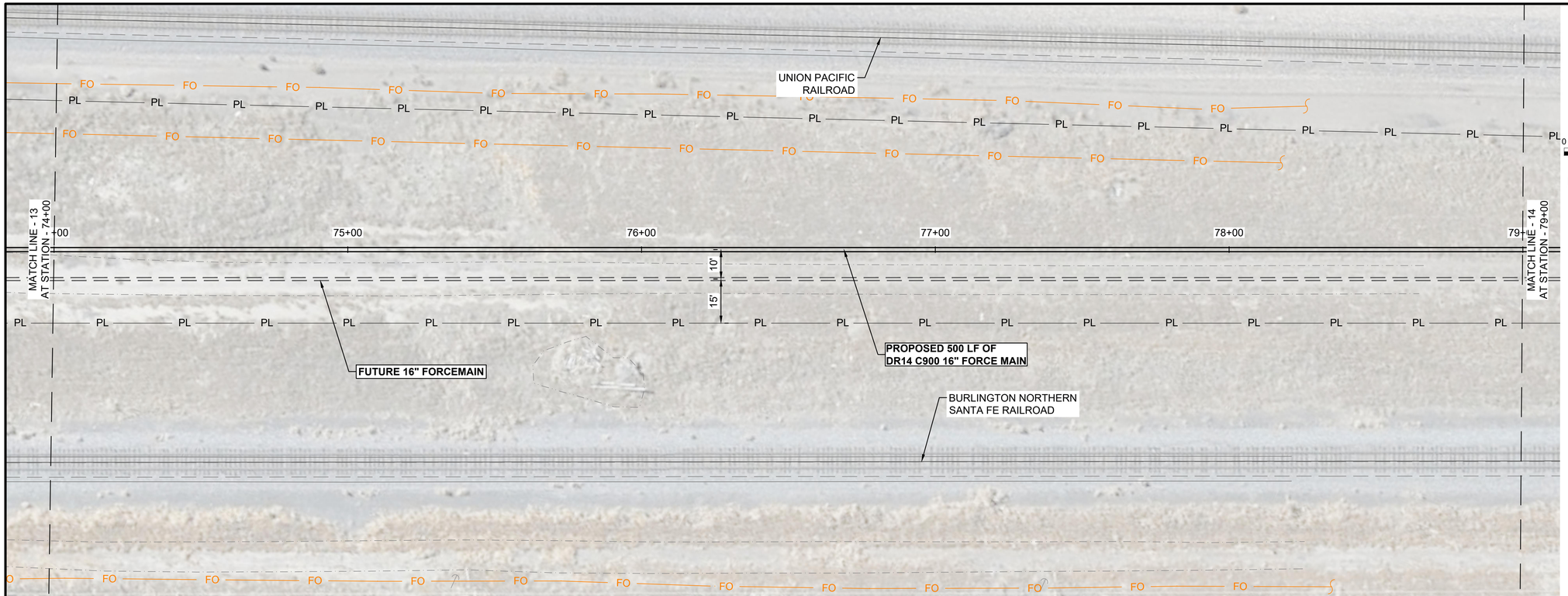
JOB NO.: 22W23080
DATE: MAY 2025
DESIGNED BY: JMC
DRAWN BY: UOP
CHECKED BY: PMB

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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
05-C313

SHEET NUMBER **20**

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Last plotted by: Ramirez, Luiz A. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 5/20/2025 2:28 PM Plotter used: None



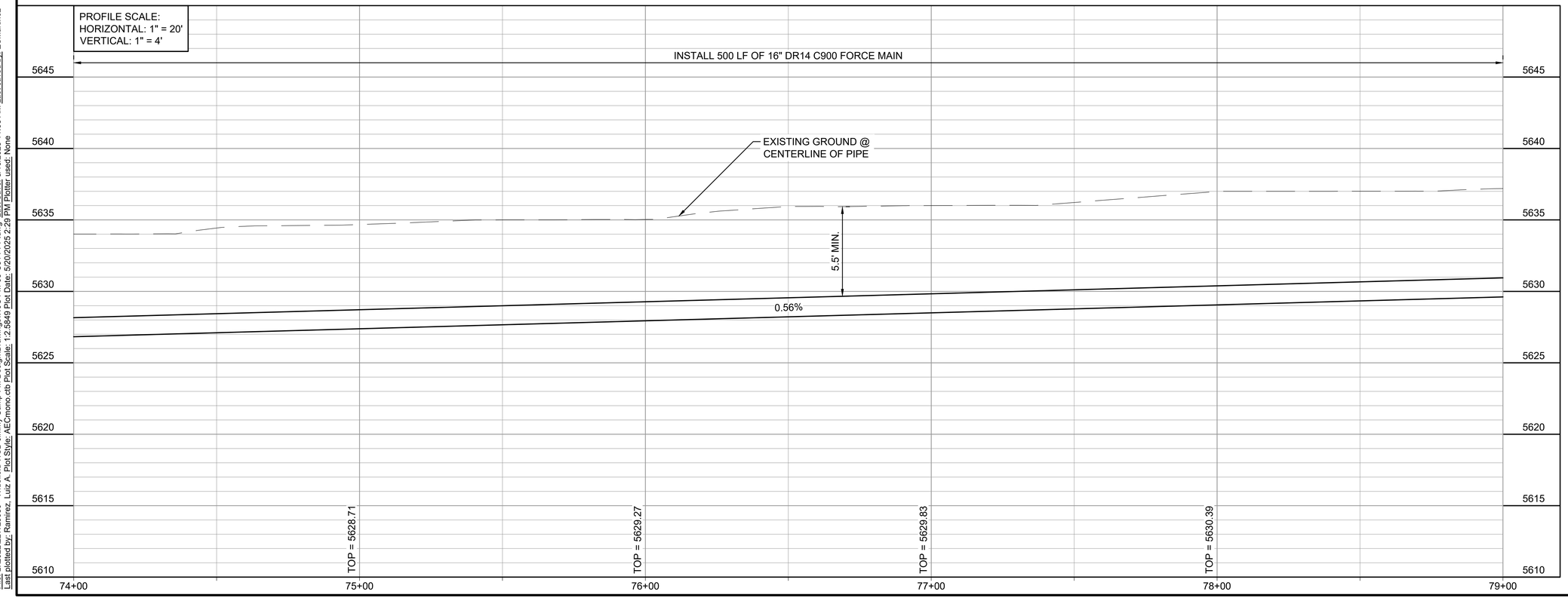


0 10' 20' 40' 60'

(IN FEET)

NOTES:

1. RECOVER ASPHALT TO MIN. 9" THICKNESS ON 24" CL6 ABC.



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REV.	DATE	DESCRIPTION	BY

WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENTS FORCE MAIN EXTENSION DESIGN

PLAN AND PROFILE (STA. 74+00 TO STA. 79+00)

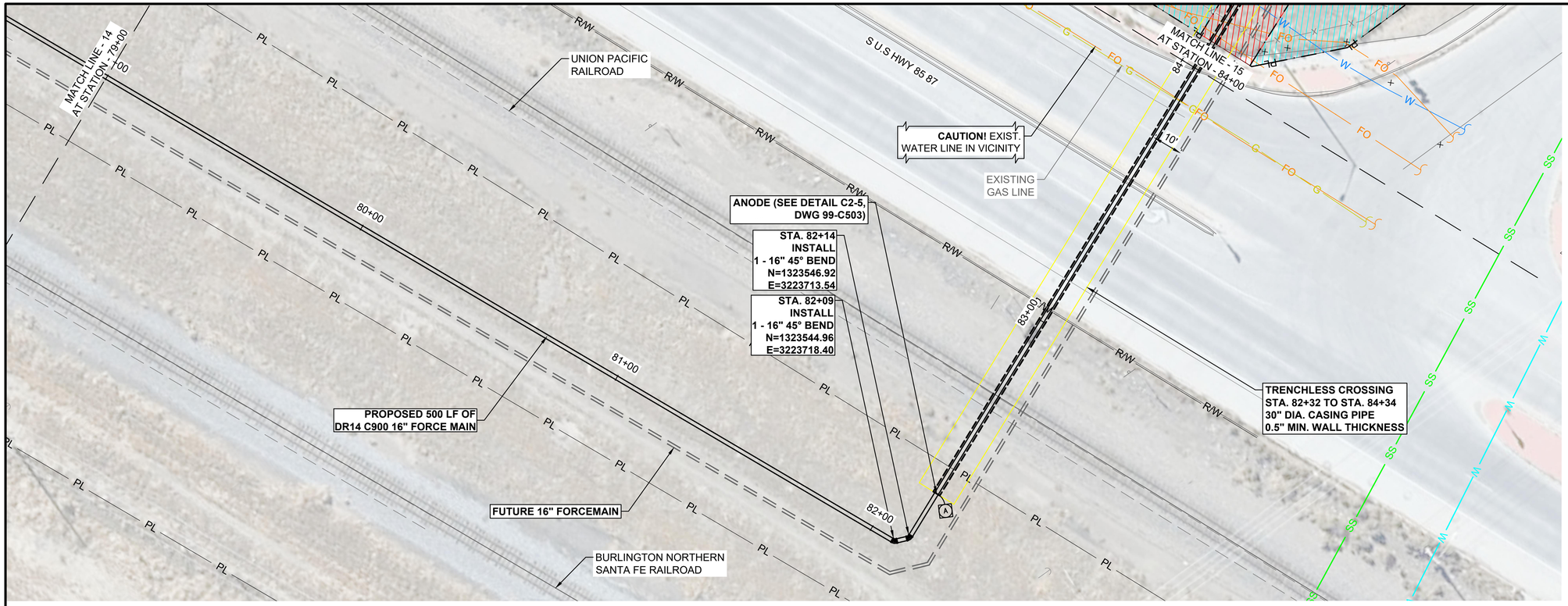
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DATE: MAY 2025
DESIGNED BY: JMC
DRAWN BY: UOP
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05-C314

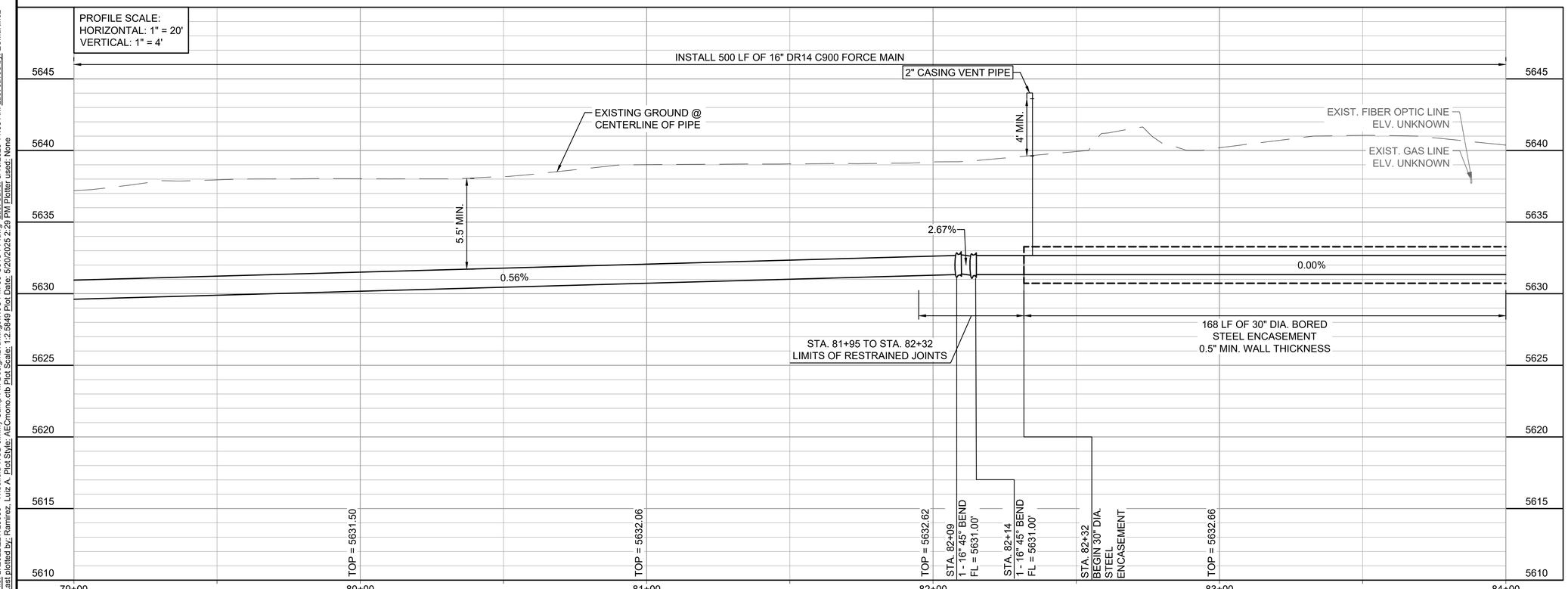
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Last plotted by: Ramirez, Luiz A. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 5/20/2025 2:29 PM Plotter used: None



NOTES:

1. RECOVER ASPHALT TO MIN. 9" THICKNESS ON 24" CL6 ABC.



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REV.	DATE	DESCRIPTION	BY

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WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT- FORCE MAIN EXTENSION DESIGN

PLAN AND PROFILE (STA. 79+00 TO STA. 84+00)

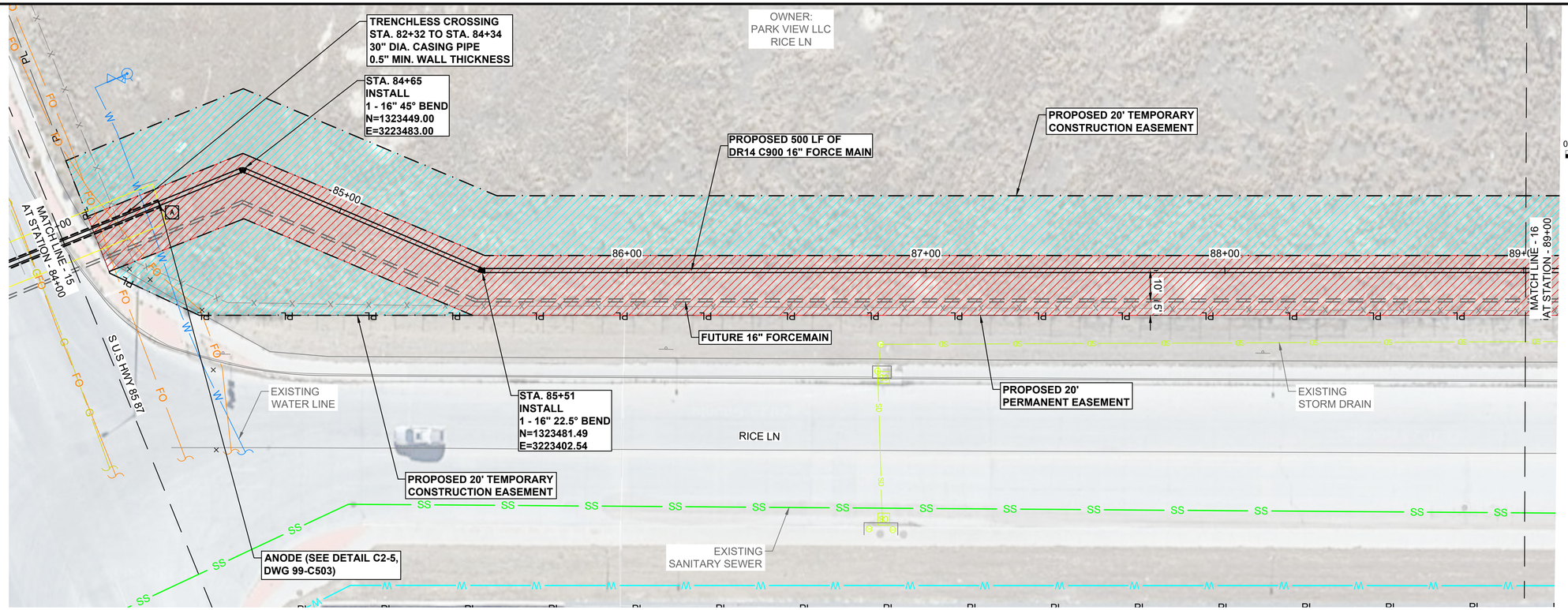
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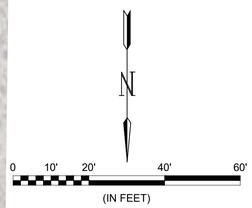
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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
05-C315

SHEET NUMBER **22**

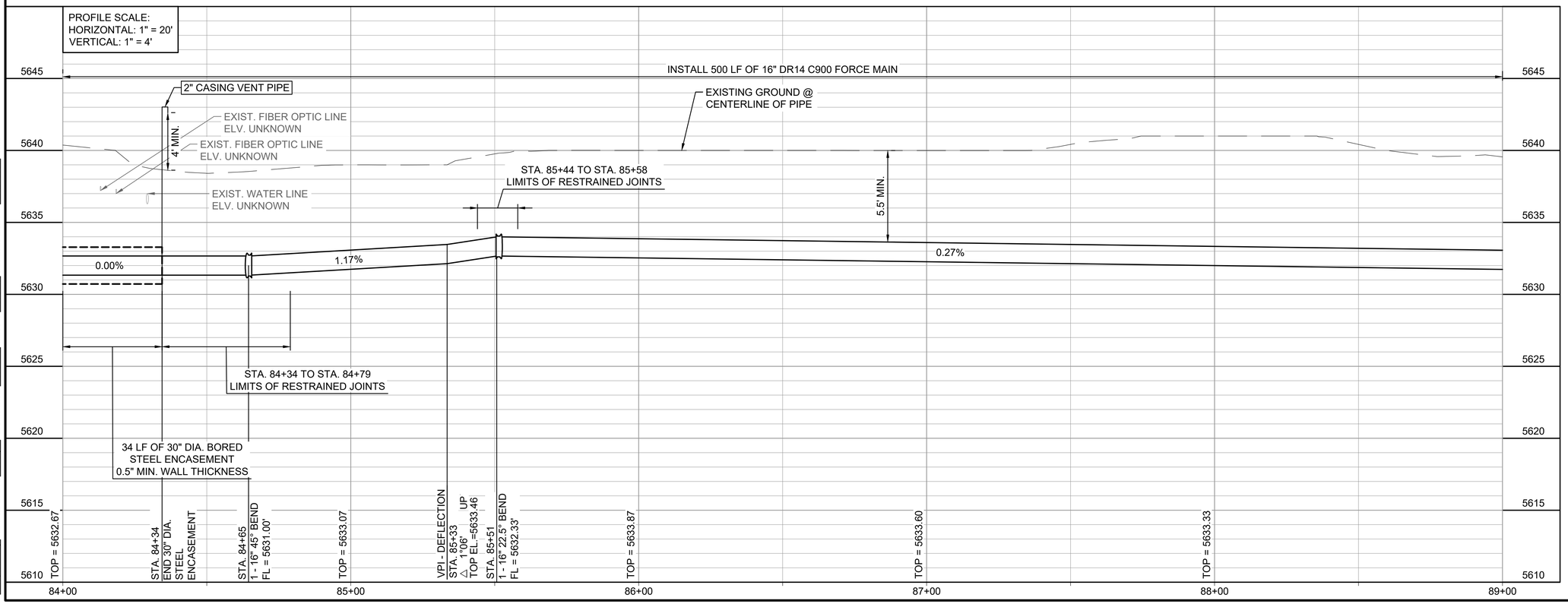
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Last plotted by: Ramirez, Luiz A. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 5/20/2025 2:29 PM Plotter used: None





NOTES:

1. RECOVER ASPHALT TO MIN. 9" THICKNESS ON 24" CL6 ABC.
2. REMOVE AND RE-INSTALL FENCE.
3. RESTORE AND RECOVER TO MATCH EXISTING CONDITIONS.



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REV.	DATE	DESCRIPTION	BY

WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT- FORCE MAIN EXTENSION DESIGN

PLAN AND PROFILE
(STA. 84+00 TO STA. 89+00)

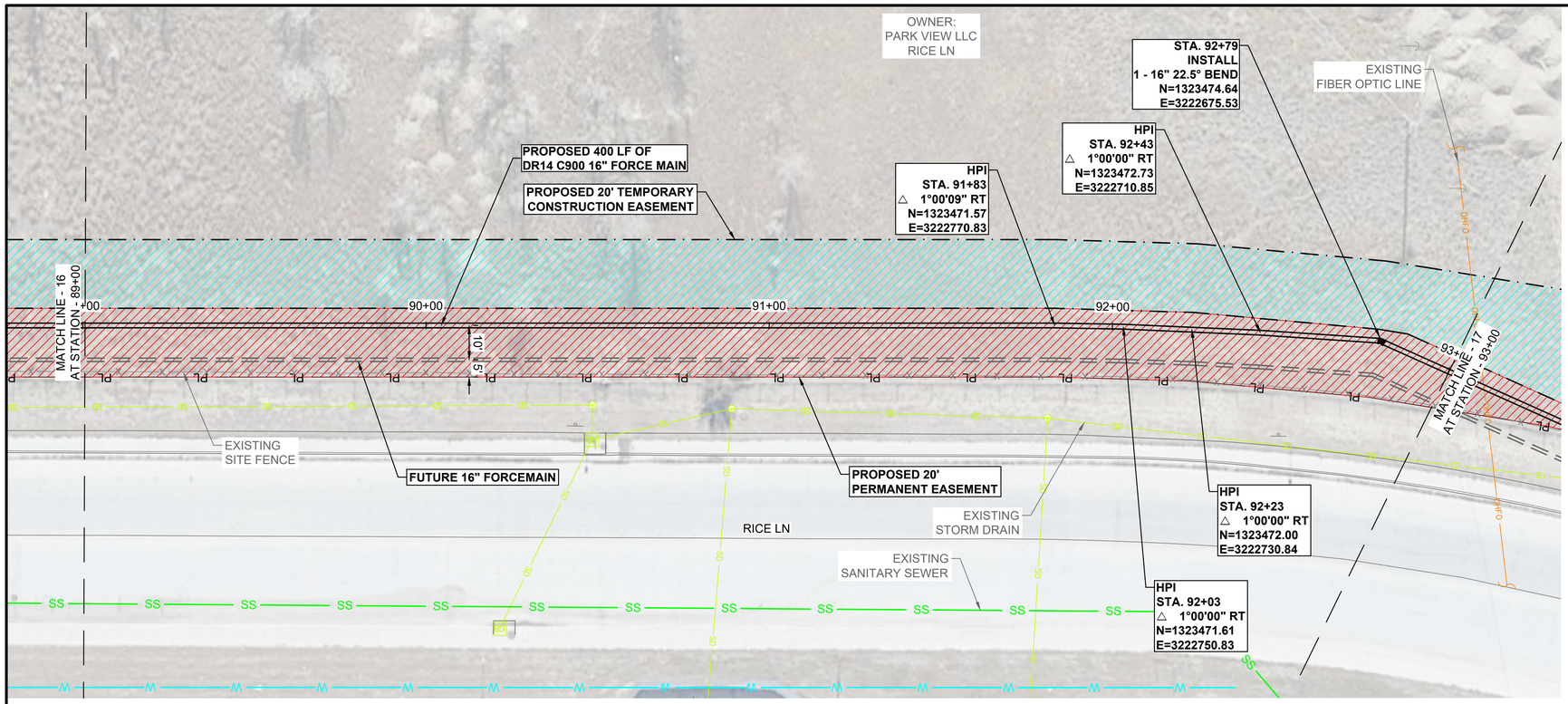
JOB NO.: 22W23080
DATE: MAY 2025
DESIGNED BY: JMC
DRAWN BY: UOP
CHECKED BY: PMB

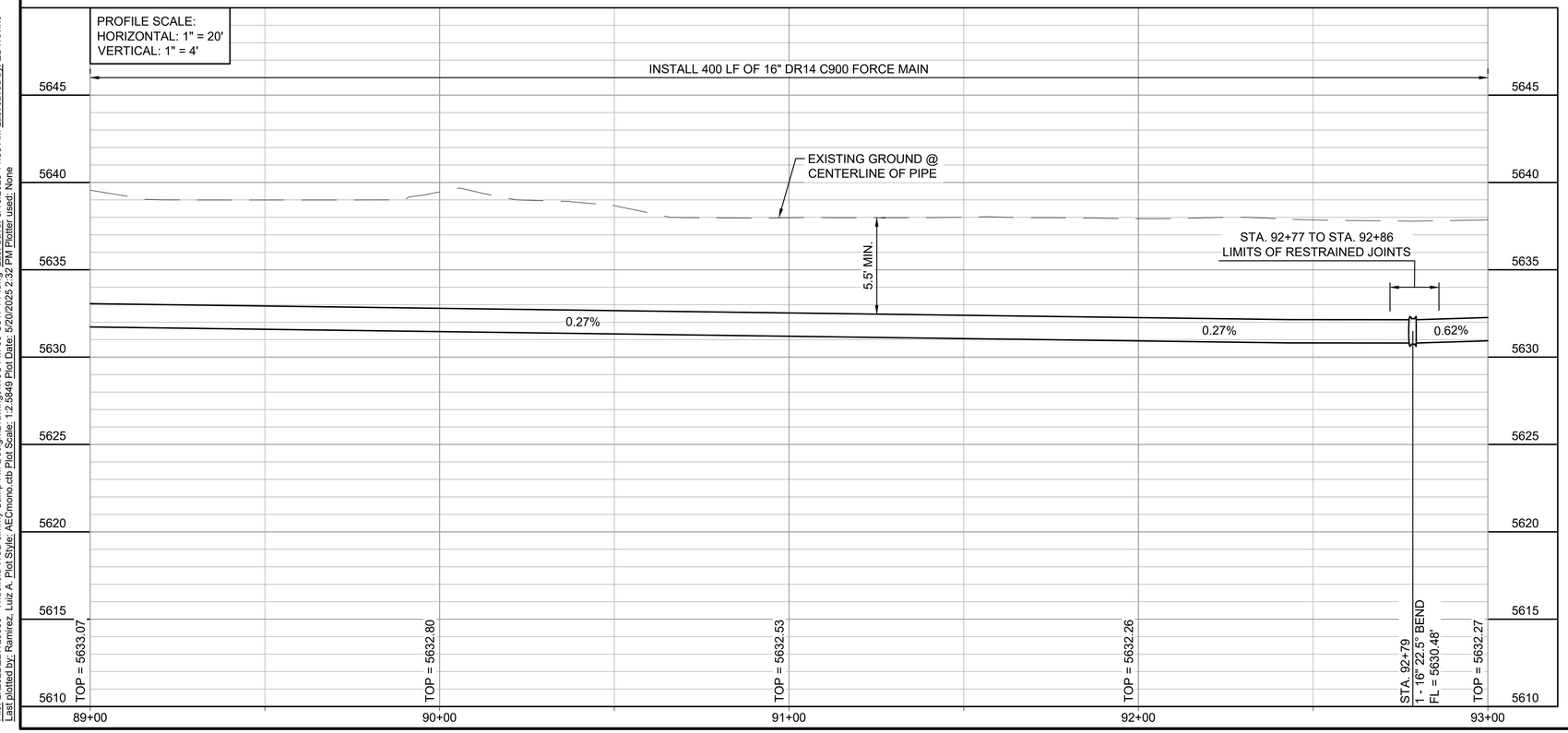
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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

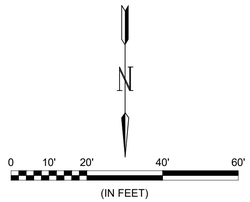
DRAWING NUMBER
05-C316

SHEET NUMBER **23**

File: L:\2022\22W23080 - Widefield WSD Jimmy Camp FM Design\Drawings\WJC FM-05-C316-PP.dwg Last Save: 5/16/2025 11:38 AM Last saved by: EDTrevino
Last plotted by: Ramirez, Luiz A. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 5/20/2025 2:32 PM Plotter used: None







NOTES:

1. RECOVER ASPHALT TO MIN. 9" THICKNESS ON 24" CL6 ABC.

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REV.	DATE	DESCRIPTION	BY

Widefield Water and Sanitation District

WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT FORCE MAIN EXTENSION DESIGN

PLAN AND PROFILE
(STA. 89+00 TO STA. 93+00)

JOB NO.: 22W23080
DATE: MAY 2025
DESIGNED BY: JMC
DRAWN BY: UOP
CHECKED BY: PMB

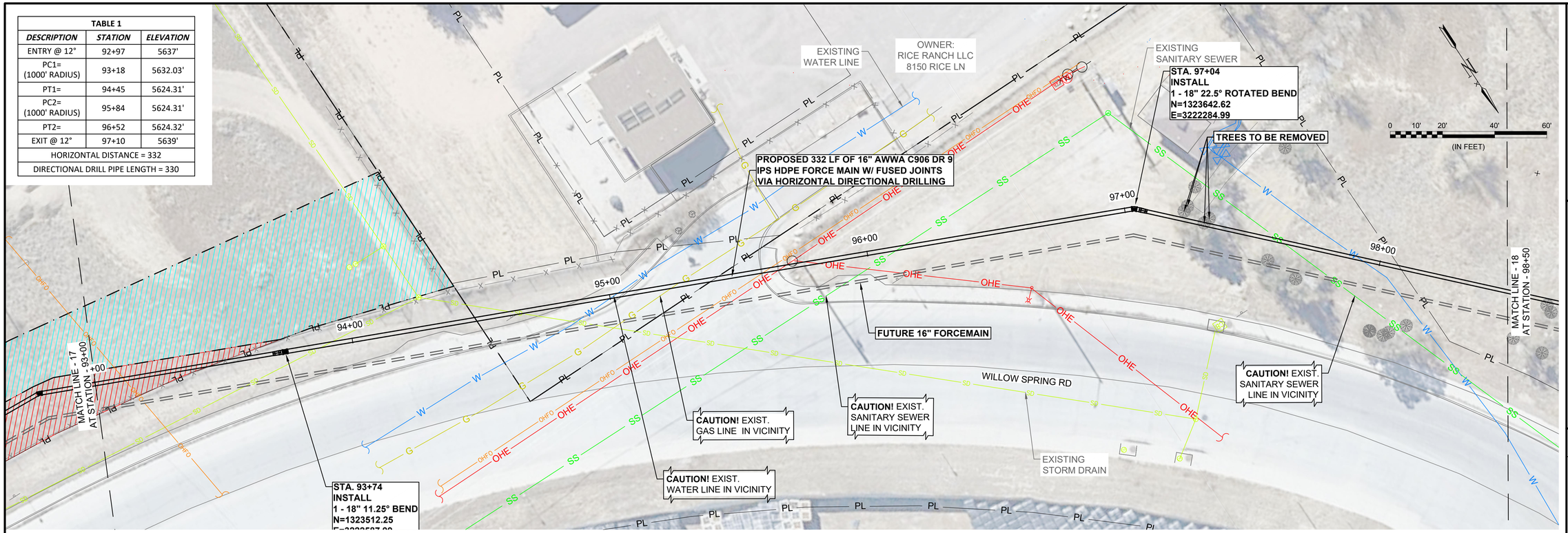
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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

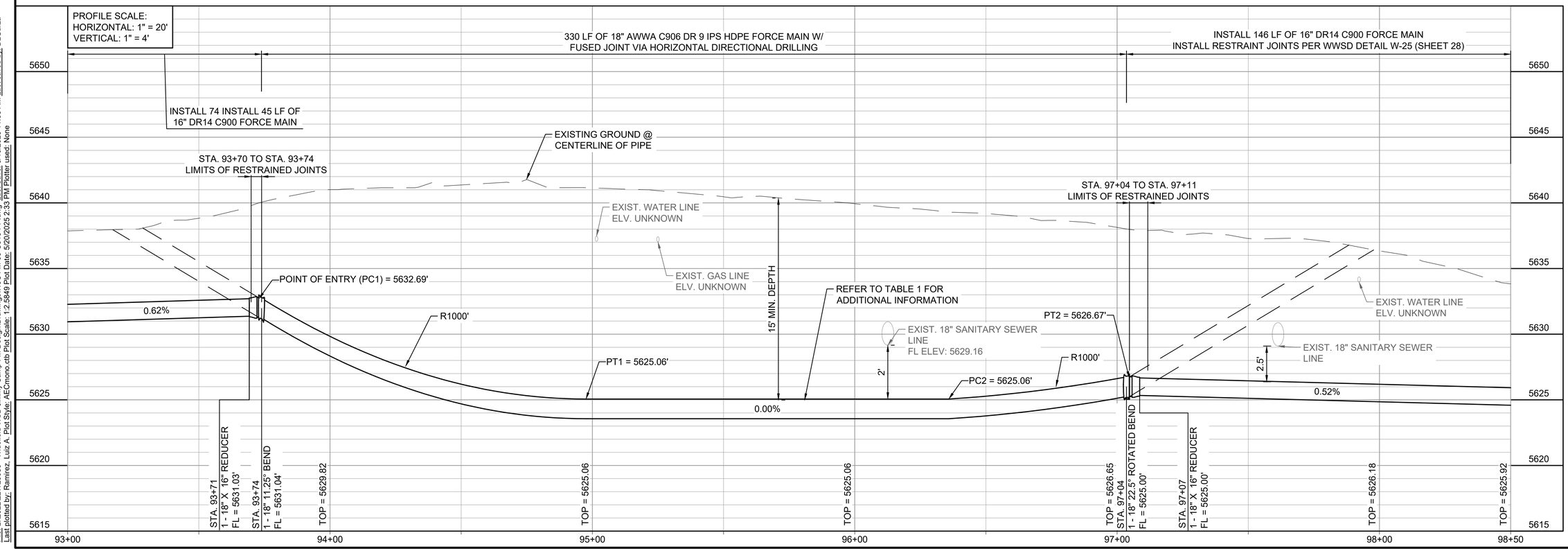
DRAWING NUMBER
05-C317

SHEET NUMBER **24**

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Last plotted by: Ramirez, Luiz A. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 5/20/2025 2:32 PM Plotter used: None

TABLE 1		
DESCRIPTION	***STATION***	***ELEVATION***
ENTRY @ 12°	92+97	5637'
PC1= (1000' RADIUS)	93+18	5632.03'
PT1=	94+45	5624.31'
PC2= (1000' RADIUS)	95+84	5624.31'
PT2=	96+52	5624.32'
EXIT @ 12°	97+10	5639'
HORIZONTAL DISTANCE = 332		
DIRECTIONAL DRILL PIPE LENGTH = 330		





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REV.	DATE	DESCRIPTION	BY

WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT - FORCE MAIN EXTENSION DESIGN

PLAN AND PROFILE (STA. 93+00 TO STA. 98+50)

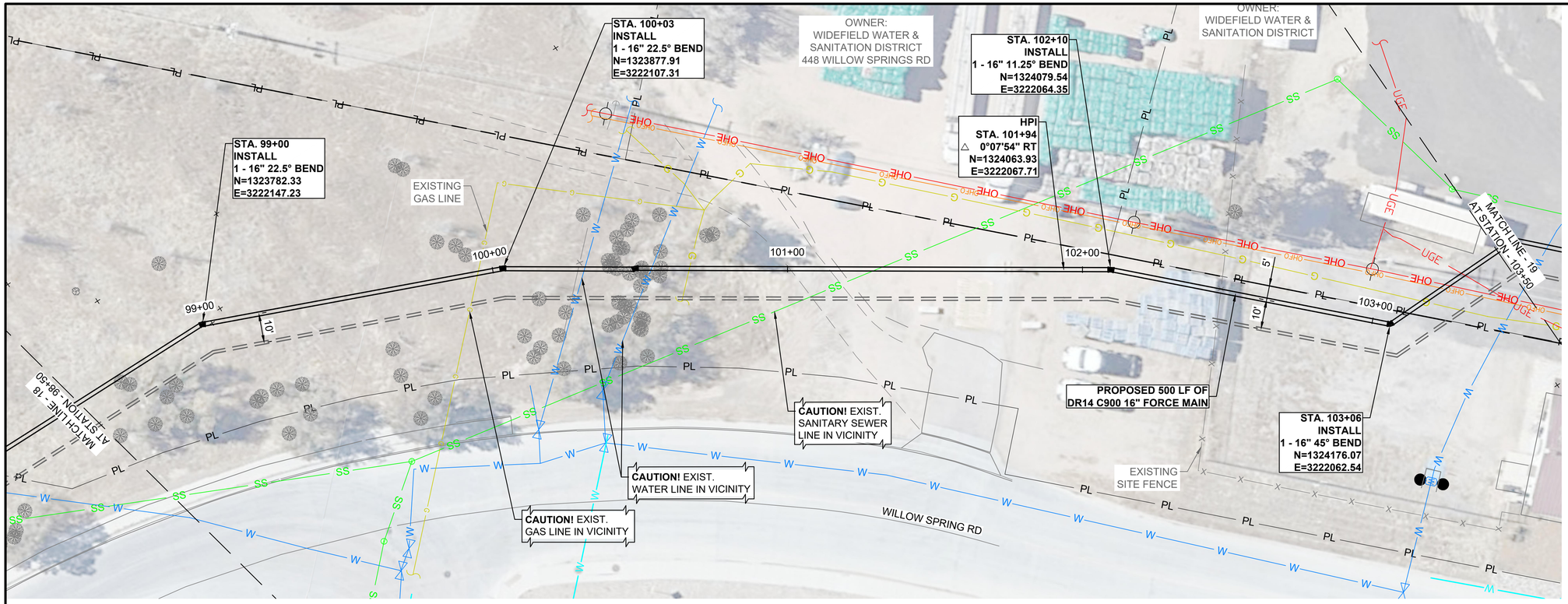
JOB NO.: 22W23080
DATE: MAY 2025
DESIGNED BY: JMC
DRAWN BY: UOP
CHECKED BY: PMB

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
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DRAWING NUMBER
05-C318

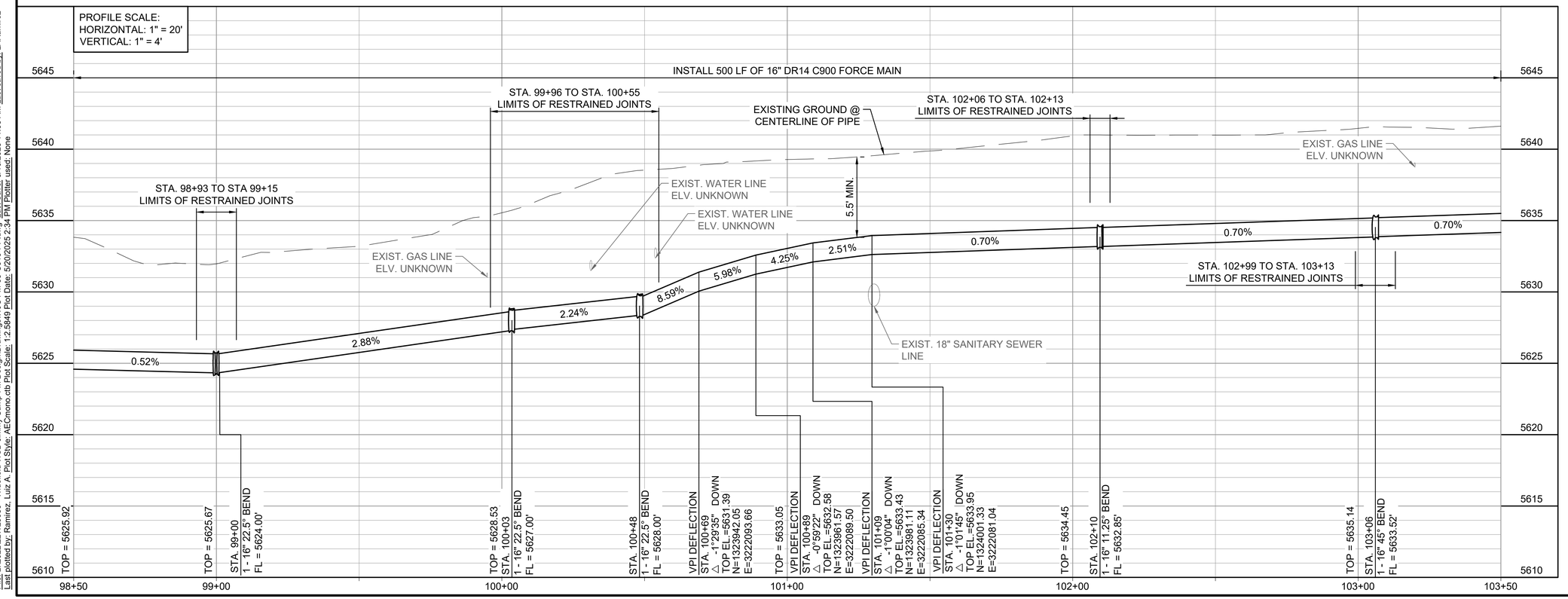
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Last plotted by: Ramirez, Luiz A. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 5/20/2025 2:33 PM Plotter used: None



NOTES:

1. RECOVER ASPHALT TO MIN. 9" THICKNESS ON 24" CL6 ABC.



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WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT - FORCE MAIN EXTENSION DESIGN

PLAN AND PROFILE
(STA. 98+50 TO STA. 103+50)

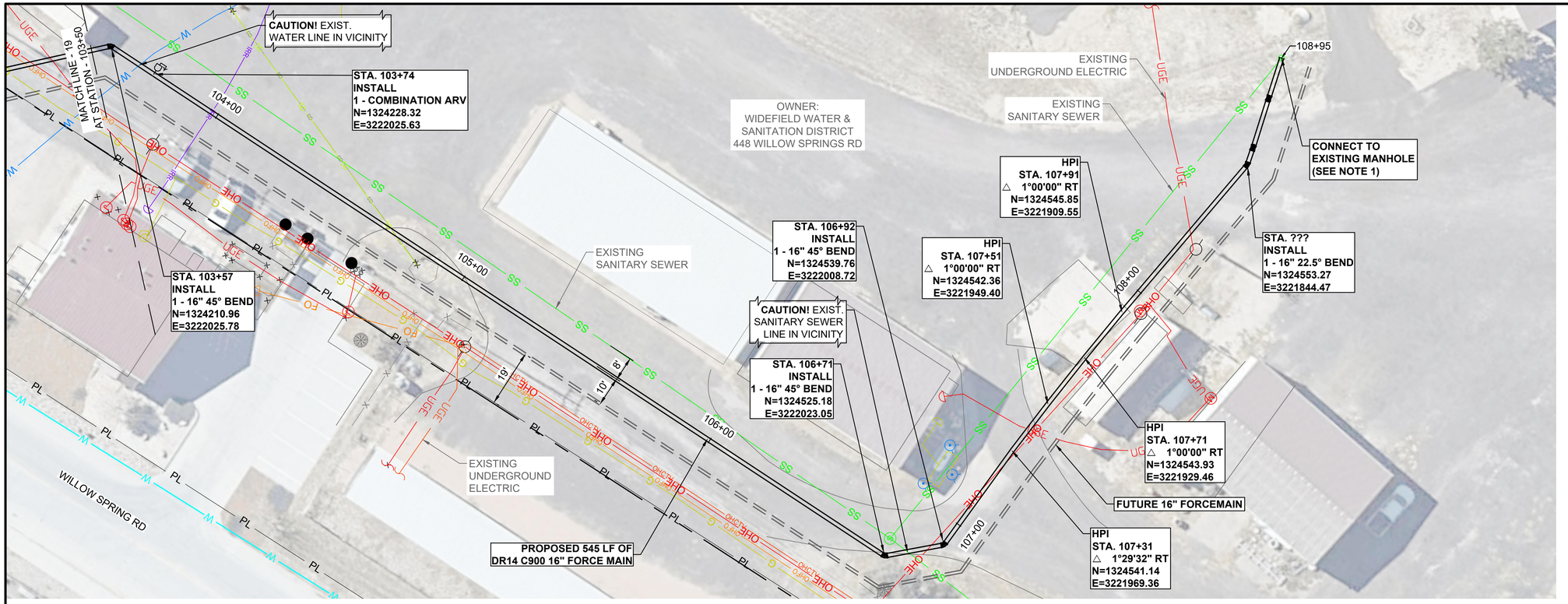
JOB NO.: 22W23080
DATE: MAY 2025
DESIGNED BY: JMC
DRAWN BY: UOP
CHECKED BY: PMB

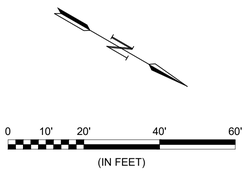
BAR IS ONE INCH ON ORIGINAL DRAWING
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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DRAWING NUMBER
05-C319

SHEET NUMBER **26**

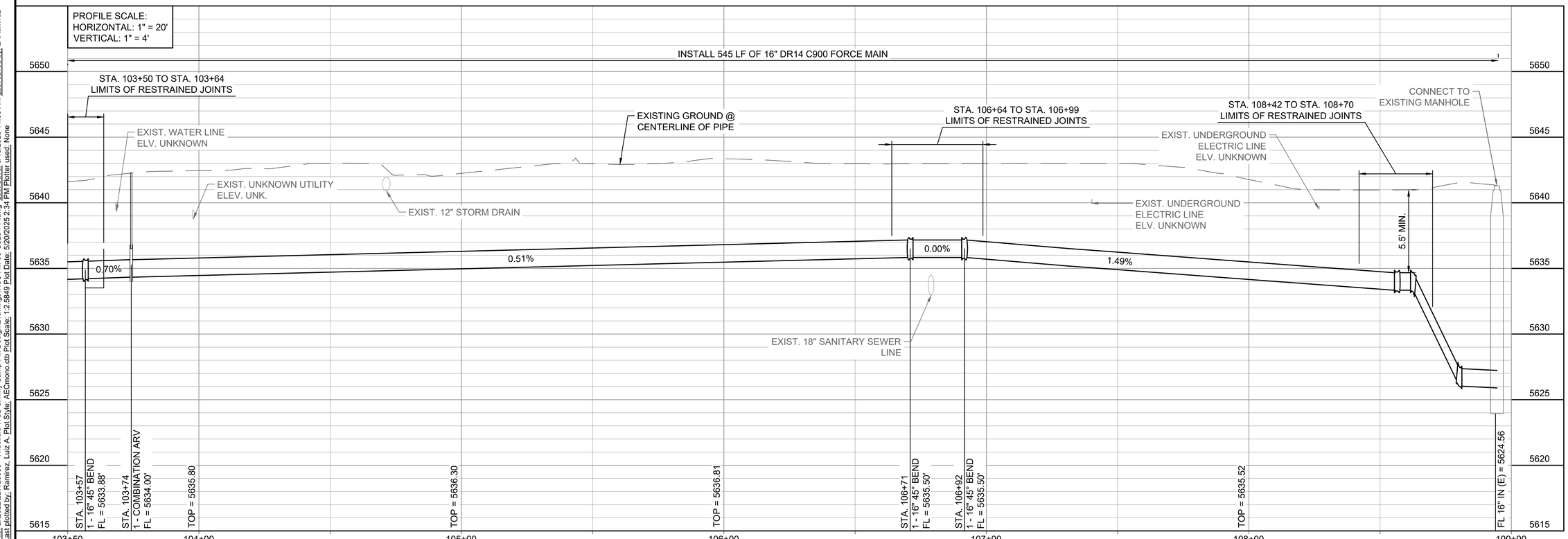
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Last plotted by: Ramirez, Luiz A. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 5/20/2025 2:34 PM Plotter used: None





NOTES:

1. CONNECT THE NEW FORCE MAIN TO THE EXISTING MANHOLE AND RESTORE THE EFFECTED STRUCTURES AND COATINGS. COORDINATE WITH OWNER TO PERFORM THE TIE-IN. PROTECT THE EXISTING MANHOLES AND SITE ACCORDINGLY.



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REV.	DATE	DESCRIPTION	BY

WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT - FORCE MAIN EXTENSION DESIGN

PLAN AND PROFILE
(STA. 103+50 TO END)

JOB NO.: 22W23080
DATE: MAY 2025
DESIGNED BY: JMC
DRAWN BY: UOP
CHECKED BY: PMB

BAR IS ONE INCH ON ORIGINAL DRAWING
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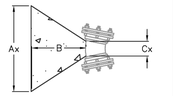
DRAWING NUMBER
05-C320

SHEET NUMBER **27**

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Last plotted by: Ramirez, Luiz A. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 5/20/2025 2:34 PM Plotter used: None

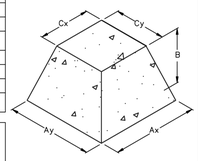
THRUST BLOCK DIMENSIONS AND VOLUMES – PVC & DIP 250 PSI

MAIN SIZE (in.)	TYPE OF FITTING	MINIMUM BEARING SURFACE AREA (ft²)	MINIMUM Ax (ft)	MINIMUM Ay (ft)	MINIMUM Cx (ft)	MINIMUM Cy (ft)	MINIMUM B (ft)	APPROXIMATE VOLUME (CY)
6	11.25° BEND	2.00	1.41	1.41	0.25	0.50	2.00	0.25
6	22.5° BEND	3.75	1.94	1.94	0.38	0.50	2.00	0.25
6	45° BEND	7.25	2.69	2.69	0.58	0.50	2.00	0.25
6	TEE & DEAD END	9.50	3.08	3.08	0.83	0.50	2.00	0.50
8	11.25° BEND	3.25	1.80	1.80	0.34	0.67	2.00	0.25
8	22.5° BEND	6.50	2.55	2.55	0.48	0.67	2.00	0.25
8	45° BEND	12.50	3.57	3.50	0.67	0.67	2.00	0.50
8	TEE & DEAD END	16.25	4.64	3.50	1.08	0.67	2.00	0.75



THRUST BLOCK DIMENSIONS AND VOLUMES – PVC & DIP 170 PSI

MAIN SIZE (in.)	TYPE OF FITTING	MINIMUM BEARING SURFACE AREA (ft²)	MINIMUM Ax (ft)	MINIMUM Ay (ft)	MINIMUM Cx (ft)	MINIMUM Cy (ft)	MINIMUM B (ft)	APPROXIMATE VOLUME (CY)
12	11.25° BEND	4.75	2.18	2.18	0.43	1.00	2.00	0.25
12	22.5° BEND	9.25	3.04	3.04	0.64	1.00	2.00	0.50
12	45° BEND	18.00	4.92	3.66	1.00	1.00	2.00	0.75
12	TEE & DEAD END	23.50	6.42	3.66	1.46	1.00	2.48	1.00
16	11.25° BEND	8.00	2.83	2.83	0.44	1.33	2.00	0.50
16	22.5° BEND	16.00	4.27	3.75	0.66	1.33	2.00	0.75
16	45° BEND	31.00	8.27	3.75	1.00	1.33	3.64	1.75
16	TEE & DEAD END	40.50	10.80	3.75	1.92	1.33	4.44	3.00



THRUST BLOCK DIMENSIONS AND VOLUMES – PVC & DIP 250 PSI

MAIN SIZE (in.)	TYPE OF FITTING	MINIMUM BEARING SURFACE AREA (ft²)	MINIMUM Ax (ft)	MINIMUM Ay (ft)	MINIMUM Cx (ft)	MINIMUM Cy (ft)	MINIMUM B (ft)	APPROXIMATE VOLUME (CY)
12	11.25° BEND	6.75	2.60	2.60	0.43	1.00	2.00	0.50
12	22.5° BEND	13.50	3.69	3.66	0.64	1.00	2.00	0.50
12	45° BEND	26.25	7.17	3.66	1.00	1.00	3.09	1.50
12	TEE & DEAD END	34.25	9.36	3.66	1.46	1.00	3.95	2.25
16	11.25° BEND	11.75	3.43	3.43	0.44	1.33	2.00	0.50
16	22.5° BEND	23.25	6.20	3.75	0.66	1.33	2.77	1.00
16	45° BEND	45.50	12.13	3.75	1.00	1.33	5.57	4.00
16	TEE & DEAD END	59.50	15.87	3.75	1.92	1.33	6.95	6.50

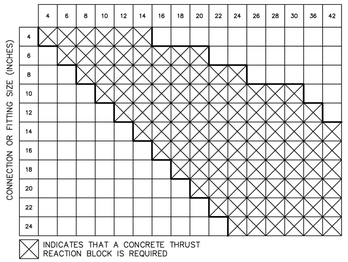
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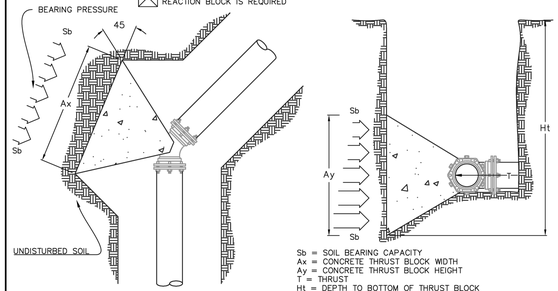
1. THE MINIMUM BEARING SURFACE AREA SHOWN ARE BASED ON A MAX STATIC PRESSURE OF 170/250 POUNDS PER SQUARE INCH PLUS A SAFETY FACTOR OF 1.5 AND AN ALLOWABLE SOIL BEARING CAPACITY OF 1500 POUNDS PER SQUARE FOOT. BEARING SURFACE AREA IS ROUNDED UP TO THE NEAREST 0.25 SQUARE FEET. REFERENCE AWWA M-23 AND M-41.
2. THE DESIGN ENGINEER IS RESPONSIBLE FOR VERIFYING ASSUMPTIONS BASED ON ACTUAL SITE CONDITIONS. IF SITE CONDITIONS VARY FROM THE ASSUMPTIONS THE DESIGN ENGINEER SHALL PROVIDE A SITE SPECIFIC DESIGN IN ACCORDANCE WITH AWWA M-23, PVC PIPE DESIGN AND INSTALLATION AND AWWA M-41, DUCTILE-IRON PIPE AND FITTINGS. SITE SPECIFIC DESIGNS INCLUDING GEOTECHNICAL INFORMATION SHALL BE SUBMITTED TO THE DISTRICT FOR REVIEW.
3. THE MINIMUM BEARING SURFACE AREA AND APPROXIMATE VOLUME OF CONCRETE SHALL BE SHOWN ON THE CONSTRUCTION PLANS FOR ALL CONCRETE THRUST BLOCKS. CONCRETE MIX SHALL BE PER MATERIAL IN SECTION 4.8.
4. THESE CHARTS MAY ONLY BE USED IF THE BLOCK HEIGHT (Ay) IS EQUAL TO OR LESS THAN ONE HALF OF THE TOTAL DEPTH (Ht) FROM THE FINISHED GRADE TO THE BOTTOM OF THE BLOCK. THE MINIMUM DIMENSIONS SHOWN ARE BASED ON PIPE DEPTH OF 5 FEET. SEE DETAIL DRAWING W-11.
5. A SITE SPECIFIC DESIGN SHALL BE REQUIRED FOR PIPES LARGER THAN 16 INCHES OR MAX STATIC PIPE PRESSURES GREATER THAN 200 POUNDS PER SQUARE INCH. THE DESIGN ENGINEER HAS THE OPTION OF PROVIDING A SITE SPECIFIC DESIGN FOR PIPES SMALL THAN 16 INCHES OR MAX STATIC PRESSURE LESS THAT 250 POUNDS PER SQUARE INCH.
6. ALL CALCULATIONS SHALL BE PROVIDED TO THE DISTRICT FOR REVIEW.

CONCRETE THRUST REACTION BLOCK

Drawn: RKB Date: MAY 6, 2020 Scale: N.T.S. Revised: Revised: Revised:	Revised: Revised: Revised: Revised: Revised: Revised:	Widefield Water and Sanitation District	W-10

CONCRETE THRUST REACTION BLOCK REQUIREMENTS FOR TEES OR TAPS





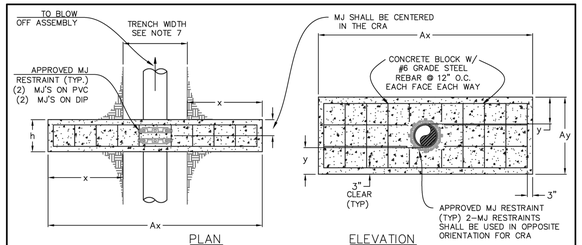
Sb = SOIL BEARING CAPACITY
Ax = CONCRETE THRUST BLOCK WIDTH
Ay = CONCRETE THRUST BLOCK HEIGHT
T = THRUST
Ht = DEPTH TO BOTTOM OF THRUST BLOCK
Ay ≤ ½ Ht

NOTES:

1. A SITE SPECIFIC DESIGN SHALL BE REQUIRED FOR CONNECTIONS OR FITTING SIZE COMBINATIONS NOT SHOWN ABOVE.
2. THE CONCRETE THRUST REACTION BLOCK SHALL BEAR AGAINST UNDISTURBED SOIL.
3. THE CONCRETE THRUST REACTION BLOCK SHALL BE INSTALLED WITH 45° ANGLE FROM THE FITTING TO THE UNDISTURBED SOIL AS SHOWN IN THE DRAWING ABOVE.
4. REFER TO DETAIL DRAWING W-10 FOR STANDARD CONCRETE REACTION BLOCK DIMENSIONS AND VOLUMES.
5. DUCTILE IRON FITTINGS AND PIPE SHALL BE WRAPPED IN POLYETHYLENE TUBING WHERE ADJACENT TO CONCRETE. DO NOT COVER NUTS AND/OR BOLTS WITH CONCRETE.

CONCRETE THRUST REACTION BLOCKS

Drawn: RKB Date: MAY 6, 2020 Scale: N.T.S. Revised: Revised: Revised:	Revised: Revised: Revised: Revised: Revised: Revised:	Widefield Water and Sanitation District	W-11



PLAN
DEAD END OR REVERSE ANCHOR

ELEVATION
DEAD END OR REVERSE ANCHOR

DIAMETER (in)	PRESSURE (psi)	x (in)	Ax (in)	y (in)	Ay (in)	Ab (in)	h (in)	Vol (cy)
4	250	12	72	12	28.80	6.80	18	1.0
6	250	18	84	12	30.90	9.73	18	1.0
8	250	36	120	12	33.05	18.53	18	1.5
12	170	36	120	15	43.20	24.60	18	2.0
12	250	48	144	18	49.20	36.80	24	3.75
16	170	54	156	18	53.40	44.05	24	4.25
16	250	60	168	24	68.40	60.50	36	8.5

NOTES:

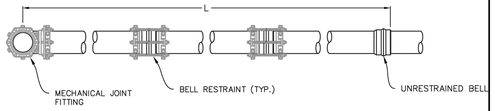
1. THE MINIMUM BEARING SURFACE AREAS SHOWN ARE BASED ON A MAX STATIC PIP PRESSURE OF 170/250 POUNDS PER SQUARE INCH PLUS A SAFETY FACTOR OF 1.5, AND AN ALLOWABLE SOIL BEARING CAPACITY OF 1500 POUNDS PER SQUARE FOOT. FOR HDPE ADDITIONAL ASSUMPTIONS INCLUDE A MAX 50°-F TEMPERATURE CHANGE AND A POISSON RATION OF 0.45. REFERENCE AWWA M-23, M-41 AND M-55.
2. THE DESIGN ENGINEER IS RESPONSIBLE FOR VERIFYING ASSUMPTION BASED ON ACTUAL SITE CONDITIONS. IF SITE VARY FROM THE ASSUMPTIONS, THE DESIGN ENGINEER SHALL PROVIDE A SITE SPECIFIC DESIGN THAT SHALL BE IN ACCORDANCE WITH AWWA M-23, PVC PIPE-DESIGN AND INSTALLATION AND AWWA M-41, DUCTILE-IRON PIPE AND FITTINGS. SITE SPECIFIC DESIGNS USING GEOTECHNICAL INFORMATION SHALL BE SUBMITTED TO WIDEFIELD WATER AND SANITATION DISTRICT FOR APPROVAL.
3. THE MINIMUM LATERAL BEARING SURFACE AREA (Ab) AND APPROXIMATE VOLUME OF CONCRETE (Vol) SHALL BE SHOWN ON THE CONSTRUCTION PLANS FOR ALL CONCRETE REVERSE ANCHORS.
4. THE APPROXIMATE VOLUMES SHOWN ARE BASED ON THE MINIMUM DIMENSIONS IN THE TABLE. THE APPROXIMATE VOLUME IS ROUNDED UP TO THE NEAREST 0.25 CUBIC YARD.
5. A SITE SPECIFIC DESIGN SHALL BE REQUIRED FOR PIPES LARGER THAN 16 INCHES OR MAX STATIC PIPE PRESSURE GREATER THAT 250 POUNDS PER SQUARE INCH. THE DESIGN ENGINEER HAS THE OPTION OF PROVIDING A SITE SPECIFIC DESIGN FOR PIPES SMALLER THAN 16 INCHES OR MAX STATIC PRESSURES LESS THAN THE PRESSURE LISTED IN THE TABLE.
6. FOR CORROSION PROTECTION OF THE RODS, SEE DETAIL DRAWING W-7.
7. A TRENCH WIDTH OF 4 FEET AND 6 INCH BEDDING UNDER THE PIPE ARE ASSUMED FOR BEARING CALCULATIONS (Ax, Ay, x AND y).
8. THE DESIGN ENGINEER SHALL ENSURE THE CONSTRUCTION OF THE CONCRETE REVERSE ANCHOR SHALL NOT CONFLICT WITH OTHER UTILITIES.
9. DUCTILE IRON FITTINGS AND PIPE SHALL BE WRAPPED IN POLYETHYLENE TUBING WHERE ADJACENT TO CONCRETE.

CONCRETE REVERSE ANCHOR

Drawn: RKB Date: JUNE 4, 2020 Scale: N.T.S. Revised: Revised: Revised:	Revised: Revised: Revised: Revised: Revised: Revised:	Widefield Water and Sanitation District	W-15

RESTRAINED PIPE LENGTH (FT) W/ MECHANICAL JOINT RESTRAINTS

PIPE DIAMETER		L = MINIMUM RESTRAINED PIPE LENGTH (FEET) 45° BEND		22-1/2° BEND		11-1/4° BEND		DEAD END VALVE OR PLUG, TO INCLUDE IN-LINE VALVES (SEE NOTE 9)	
MAX. STATIC PRESSURE (PSI)		150	200	150	200	150	200	150	200
6-INCH	DUCTILE IRON AND PVC	9	12	5	6	3	3	73	97
8-INCH	DUCTILE IRON AND PVC	12	16	6	8	3	4	94	125
12-INCH	DUCTILE IRON AND PVC	17	23	8	11	4	6	133	177
16-INCH	DUCTILE IRON AND PVC	22	29	11	14	5	7	USE CONCRETE THRUST BLOCK ANCHOR	USE CONCRETE REVERSE ANCHOR
24-INCH	DUCTILE IRON AND PVC	30	40	15	20	7	10		
30-INCH	DUCTILE IRON AND PVC	36	48	18	24	8	12		
36-INCH	DUCTILE IRON AND PVC	42	56	20	27	10	14		

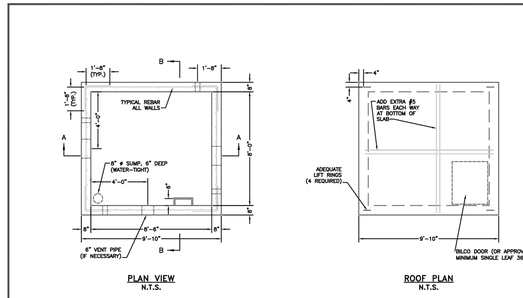


NOTES:

1. PRESSURE GREATER THAN 200 PSI REQUIRE SPECIAL DESING APPROVED BY THE DISTRICT.
2. LENGTH IS BASED ON MINIMUM 5 FEET OF GROUND COVER AND SOIL COMPACTED ACCORDING TO SECTION 3 OF THESE DESIGN STANDARDS. IF THE DEPTH IS LESS THAN 5 FEET, RESTRAINED LENGTH MUST BE DESIGNED BY THE DESIGN ENGINEER.
3. APPROVED METHODS OF RESTRAINED PIPE BEYOND INITIAL FITTING SHALL BE IN ACCORDANCE WITH SECTION 4.
4. RESTRAINED PIPE LENGTH APPLIES TO CONDITIONS WHERE NO CONCRETE THRUST REACTION BLOCK IS PRESENT.
5. CALCULATIONS ARE BASED ON A POORLY GRADED SANDS, GRAVEL AND GRAVEL-SAND MIXTURE, LITTLE TO NO FINES, TYPE 4 BEDDING CONDITIONS. PIPE BEDDED IN SAND, GRAVEL OR CRUSHED STONE TO A DEPTH OF ⅛ PIE DIAMETER (4" MIN) AND A FACTOR OF SAFETY 2:1
6. FIGURES ARE BASED ON DIP WRAPPED IN POLYETHYLENE MATERIAL.
7. MEASUREMENTS ARE IN FEET.
8. USE CRA FOR DOWN TURNING BENDS.
9. RESTRAINED LENGTH FOR DEAD END MAY BE USED AT THE DITCRETION OF THE DISTRICT.

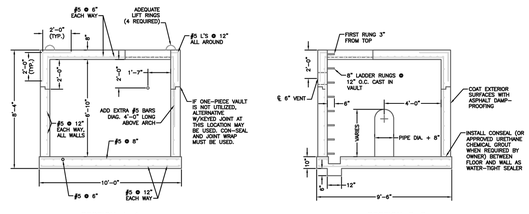
RESTRAINED PIPE LENGTH (FT) W/ MECHANICAL JOINT RESTRAINTS

Drawn: RKB Date: MAY 6, 2020 Scale: N.T.S. Revised: Revised: Revised:	Revised: Revised: Revised: Revised: Revised: Revised:	Widefield Water and Sanitation District	W-25



PLAN VIEW
N.T.S.

ROOF PLAN
N.T.S.



SECTION A-A
N.T.S.

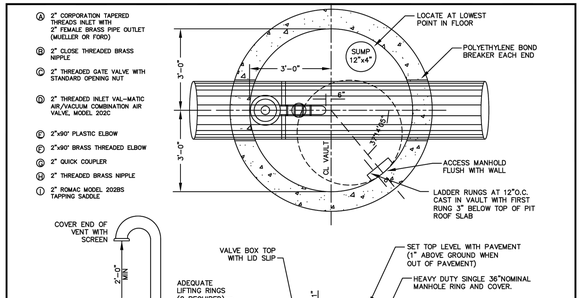
SECTION B-B
N.T.S.

NOTES:

1. ALL CONCRETE WORK SHALL COMPLY WITH DISTRICT STANDARD SPECIFICATIONS AND LATEST ACI-318 CODE.
2. MINIMUM CONCRETE CLEARANCES FOR REBAR:
   - 3" WHERE POURED AGAINST EARTH
   - 2" WHERE FORMED AND THEN EXPOSED TO GROUND OR WEATHER FOR #5 OR LARGER, 1.5" FOR #5 AND SMALLER.
   - 1" WHERE EXPOSED TO INTERIOR SURFACES
3. ALL VAULTS SHALL BE CONSTRUCTED TO MEET HS20-44 TRAFFIC LOADING CONDITIONS AND 300 PSF SURCHARGE LOAD.

STAND. CONC. VAULT FOR VALVE INSTALLATIONS (PRECAST)

Drawn: GGM Date: SEPT 2014 Scale: N.T.S. Revised: Revised: Revised:	Revised: Revised: Revised: Revised: Revised: Revised:	Widefield Water and Sanitation District	W-29



AIR/VAC PRESSURE VALVE PIT

Drawn: GGM Date: SEPT 2014 Scale: N.T.S. Revised: Revised: Revised:	Revised: Revised: Revised: Revised: Revised: Revised:	Widefield Water and Sanitation District	W-39

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REV.	DATE	DESCRIPTION	BY

WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT FORCE MAIN EXTENSION DESIGN

STANDARD DETAILS I

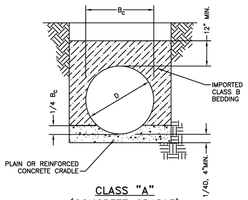
JOB NO.: 22W23080
DATE: MAY 2025
DESIGNED BY: JMC
DRAWN BY: UOP
CHECKED BY: PMB

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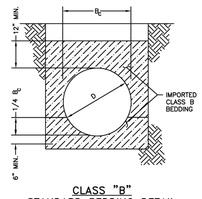
DRAWING NUMBER
99-C501

SHEET NUMBER **28**

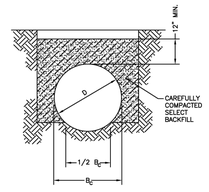
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CLASS "A"
(CONCRETE CRADLE)
L.F.=2.8



CLASS "B"
STANDARD BEDDING DETAIL
(GRANULAR BASE)
L.F.=1.9



CLASS "C"
(SHAPED BOTTOM)
L.F.=1.5

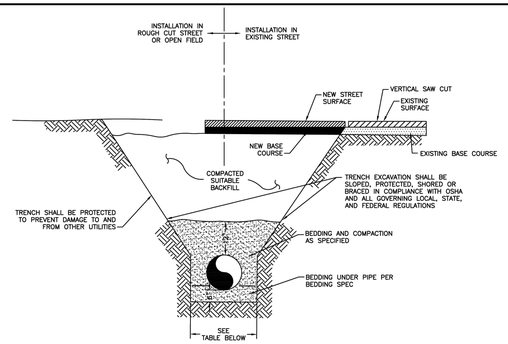
NOTES:

1. FOR ROCK OR OTHER INCOMPRESSIBLE MATERIALS, THE TRENCH SHALL BE OVEREXCAVATED A MINIMUM OF 6" AND REFILLED WITH GRANNULAR BEDDING MATERIAL AS DEFINED BY CLASS "B" BEDDING.
2. L.F. = LOAD FACTOR
3. MINIMUM DENSITY FOR CAREFULLY COMPACTED SELECT BACKFILL SHALL BE 95% OF STD. PROCTOR DENSITY OR AS SPECIFIED FOR THE TRENCH BACKFILL WHICHEVER IS GREATER.

PIPE BEDDING

Drawn: GGM	Revised:
Date: JULY 2011	Revised:
Scale: N.T.S.	Revised:
Revised:	Revised:
Revised:	Revised:
Revised:	Revised:

WW–1



BOTTOM OF TRENCH WIDTH		
PIPE DIAMETER	MINIMUM WIDTH	MAXIMUM WIDTH
4"	1'–5"	3'–9"
6"	1'–7"	3'–11"
8"	1'–9"	4'–1"
12"	2'–1"	4'–5"
15"	2'–6"	4'–9"
18"	2'–10"	5'–2"
24"	3'–2"	5'–6"

ALL PIPE EMBEDMENT SHALL BE IMPORTED CLASS B BEDDING UNLESS OTHERWISE DIRECTED.

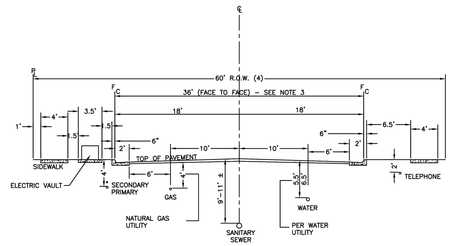
AN OVER EXCAVATED TRENCH SHALL BE REFILLED AND THOROUGHLY COMPACTED UNDER THE DIRECTION OF THE DISTRICT.

UNDER NO CIRCUMSTANCES WILL PIPE BE LAID IN A PROPOSED FILL AREA PRIOR TO IT BEING COMPLETELY FILLED. THE FILL WILL BE PLACED FIRST TO PROPOSED GRADE AND COMPACTED AS REQUIRED. A TRENCH THEN WILL BE EXCAVATED AND THE PIPE INSTALLED IN THE USUAL MANNER.

TYPICAL TRENCH CROSS SECTION

Drawn: GGM	Revised:
Date: JULY 2011	Revised:
Scale: N.T.S.	Revised:
Revised:	Revised:
Revised:	Revised:
Revised:	Revised:

WW–2



TYPICAL CROSS SECTION
UTILITIES LOCATION

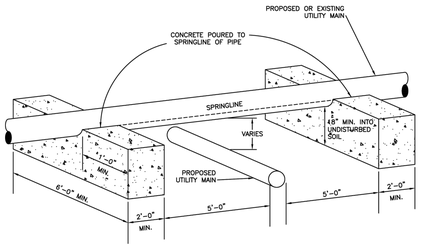
GENERAL NOTES

1. STORM SEWERS SHALL MAINTAIN A 10' CLEAR SEPARATION FROM WATER.
2. ELECTRIC CONDUITS SHALL BE ON THE OPPOSITE SIDE OF THE STREET FROM WATER.
3. FOR 40' WIDE STREET SECTIONS, MAINTAIN WATER 10 FEET FROM SANITARY SEWER AT STREET CENTERLINE.
4. FOR 50' WIDE RIGHT-OF-WAY (ROW), A 5-FOOT WIDE SIDEWALK AND UTILITY EASEMENTS ARE REQUIRED ADJACENT TO THE STREET ROW. FIVE (5) FOOT WIDE ATTACHED SIDEWALK IS USED WITH ELECTRIC UTILITIES BEHIND WALK IN EASEMENT.

TYPICAL UTILITIES LOCATION

Drawn: GGM	Revised:
Date: JULY 2011	Revised:
Scale: N.T.S.	Revised:
Revised:	Revised:
Revised:	Revised:
Revised:	Revised:

WW–8



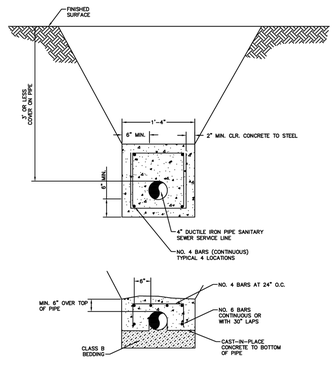
NOTES:

1. CONCRETE BLOCKS TO BE REINFORCED WITH #6 REBAR SET ON 12" CENTERS.
2. NO JOINTS OF UTILITY MAIN SHALL BE ALLOWED BETWEEN CONCRETE BRIDGING BLOCKS.

PIPE BRIDGING

Drawn: GGM	Revised:
Date: JULY 2011	Revised:
Scale: N.T.S.	Revised:
Revised:	Revised:
Revised:	Revised:
Revised:	Revised:

WW–9



REINFORCED CONCRETE PIPE CAP

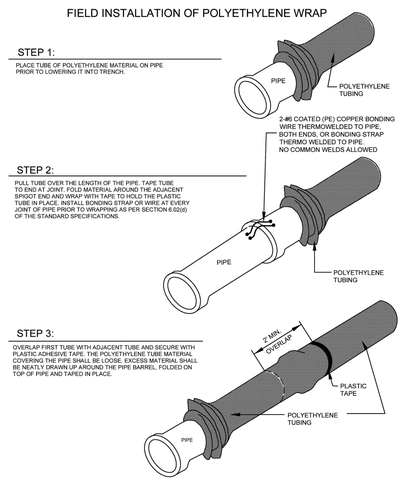
NOTES:

1. DUCTILE IRON PIPE WITHOUT CONCRETE ENCASEMENT MAY BE PERMITTED BY THE DISTRICT IF FINAL PIPE COVER IS MORE THAN 3 FEET.
2. CONCRETE ENCASEMENT PER THIS DRAWING IS REQUIRED WITH DUCTILE IRON PIPE WHERE FINAL PIPE COVER IS 3 FEET OR LESS.
3. IF THE CONCRETE ENCASEMENT IS REQUIRED ON A SANITARY SEWER SERVICE LINE, THE PROPERTY OWNER/CUSTOMER IS COMPLETELY RESPONSIBLE FOR OPERATION, MAINTENANCE AND REPLACEMENT OF ANY SEWER SERVICE LINE FROM THE DISTRICT'S SEWER MAIN TO THE STRUCTURE SERVED.
4. THE DISTRICT MAY ACCEPT CONCRETE CAP FOR PIPE PROTECTION IN SPECIAL CONDITIONS.

SHALLOW SANITARY SEWER LINE PROTECTION/ENCASEMENT

Drawn: GGM	Revised:
Date: JULY 2011	Revised:
Scale: N.T.S.	Revised:
Revised:	Revised:
Revised:	Revised:
Revised:	Revised:

WW–10



POLYETHYLENE PIPE WRAP

Drawn: GGM	Revised:
Date: JULY 2011	Revised:
Scale: N.T.S.	Revised:
Revised:	Revised:
Revised:	Revised:
Revised:	Revised:

WW–12

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REV.	DATE	DESCRIPTION	BY

WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT FORCE MAIN EXTENSION DESIGN

STANDARD DETAILS II

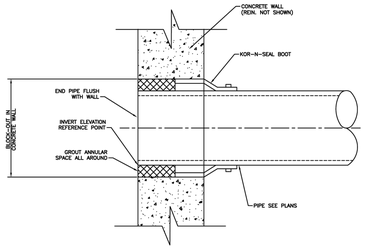
JOB NO.: 22W23080
DATE: MAY 2025
DESIGNED BY: JMC
DRAWN BY: UOP
CHECKED BY: PMB

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DRAWING NUMBER
99-C502

SHEET NUMBER **29**

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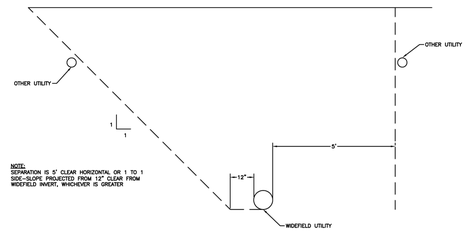


KOR-N-SEAL BOOT DETAIL

Drawn: GGM	Revised:
Date: JULY 2011	Revised:
Scale: N.T.S.	Revised:
Revised:	Revised:
Revised:	Revised:
Revised:	Revised:

Widefield Water and Sanitation District

WW-19



UTILITY SEPARATION FOR PARALLEL UTILITIES

Drawn: GGM	Revised:
Date: JULY 2012	Revised:
Scale: N.T.S.	Revised:
Revised:	Revised:
Revised:	Revised:
Revised:	Revised:

Widefield Water and Sanitation District

WW-20

PIPE SIZE AND MATERIAL	ALLOWABLE DEFLECTION	PIPE LENGTH AND CORRESPONDING RADIUS								
		20'	18'	16'	14'	12'	10'	8'	6'	4'
4" - 12" DIP	4°00'	286'	258'	229'	200'	172'	143'	115'	100'	100'
14" - 16" DIP	3°12'	358'	322'	287'	251'	215'	179'	143'	107'	100'
18" - 36" DIP	2°24'	477'	430'	382'	334'	286'	239'	191'	143'	100'
4" - 36" SDR 35 PVC	3°00'	382'	344'	306'	267'	230'	191'	153'	115'	100'

NOTES:

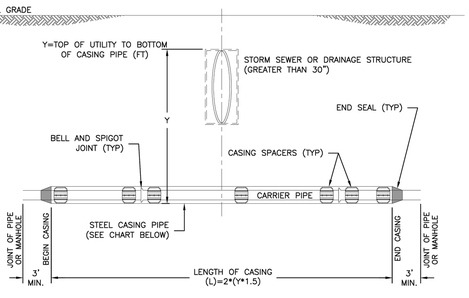
1. COLORADO SPRINGS UTILITIES USES A 1.25 SAFETY FACTOR FOR DIP SLIP JOINT DEFLECTION FROM THE MANUFACTURER'S ALLOWABLE DEFLECTION.
2. SDR 35 PVC SHALL NOT BE DEFLECTED WITHOUT THE USE OF FABRICATED 3° BENDS.
3. MINIMUM RADIUS FOR DIP AND SDR 35 PVC SHALL BE 100'.

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MINIMUM RADIUS FOR DIP AND PVC PIPE

C2-2

DATED 5/2015



CARRIER PIPE SIZE (INCH)	MIN. CASING PIPE SIZE (INCH)	MIN. CASING WALL THICKNESS (INCH)
8	12	0.250
12	16	0.312
18	22	0.375
20 & 21	24	0.500
24	30	0.500
30	36	0.625
36	42	0.625

NOTES:

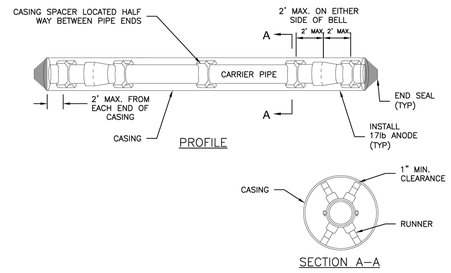
1. THE DESIGN ENGINEER SHALL VERIFY THAT THE SIZE OF THE CASING PIPE WILL MEET THE NEEDS OF THE PROJECT.
2. CASING WALL THICKNESS BASED ON E80 LOADING.
3. CASING SHALL BE STEEL PIPE WITH A MINIMUM YIELD STRENGTH OF 35,000 PSI.
4. SEE DETAIL DRAWING C2-5 FOR CASING SPACER DETAILS.
5. WHERE THE WASTEWATER MAIN CROSSES ABOVE A WATER MAIN, SEE SECTION 2.5.F.3.
6. WHERE THE WASTEWATER MAIN CROSSES UNDER A RAILWAY OR MAJOR ROADWAY, THE LENGTH OF CASING AND ITS PROPERTIES SHALL BE DETERMINED BY THE AUTHORITY HAVING JURISDICTION.

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TYPICAL STEEL CASING INSTALLATION

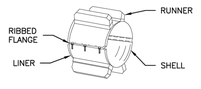
C2-4

DATED 5/2015



CARRIER PIPE:

1. CARRIER PIPE SHALL BE CENTERED WITHIN CASING BY USE OF APPROVED CASING SPACERS. (SEE CHAPTER 4)



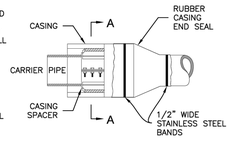
SPACER DETAIL

PLACEMENT OF SPACERS ON CARRIER PIPE:

1. CASING SPACERS SHALL BE PLACED MAX. 2' FROM EACH END OF CASING AND ON EITHER SIDE OF EACH BELL. WHEN CARRIER PIPE IS PVC, CASING SPACER SHALL BE PLACED AT THE HOME MARK TO PREVENT OVER-BELLING. SPACERS SHALL ALSO BE PLACED HALF WAY BETWEEN PIPE ENDS, OR IN ACCORDANCE WITH PIPE MANUFACTURERS RECOMMENDATIONS.

END SEALS:

1. END SEALS SHALL BE USED TO ENSURE A WATER TIGHT SEAL ON EITHER END OF THE CASING.



END SEAL DETAIL

CATHODIC PROTECTION:

1. CASING SHALL BE CATHODICALLY PROTECTED USING A 17 LB HIGH POTENTIAL ANODE AND AN APPROVED COATING. SEE SECTION 2.5.G.

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TYPICAL STEEL CASING INSTALLATION
(CONTINUED)

C2-5

DATED 5/2015

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REV.	DATE	DESCRIPTION	BY

Widefield Water and Sanitation District

WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT FORCE MAIN EXTENSION DESIGN

STANDARD DETAILS III

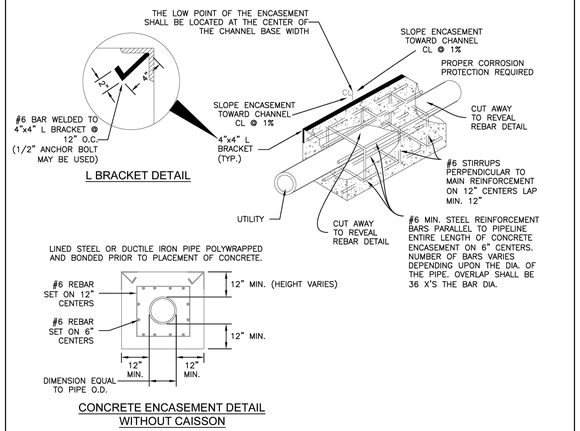
JOB NO.: 22W23080
DATE: MAY 2025
DESIGNED BY: JMC
DRAWN BY: UOP
CHECKED BY: PMB

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
99-C503

SHEET NUMBER **30**

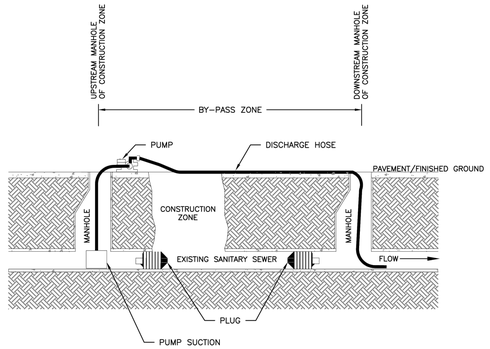
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Last plotted by: Ramirez, Luiz A. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 5/16/2025 1:57 PM Plotter used: None



Colorado Springs Utilities
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PIPE ENCASEMENT DETAIL

C2–9
DATED 5/2015



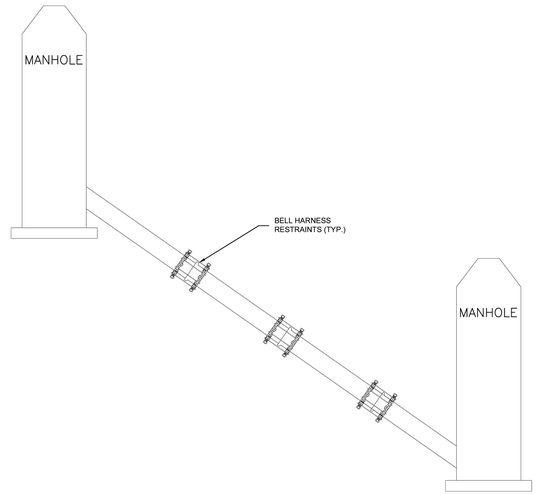
NOTES:

1. EXAMPLE CAN VARY DUE TO SITE CONDITIONS AND COLORADO SPRINGS UTILITIES INSPECTORS' DIRECTIONS.
2. IF A BY–PASS SYSTEM PLAN OR FLOW MANAGEMENT PLAN IS NEEDED, IT SHALL BE REVIEWED AND APPROVED BY COLORADO SPRINGS UTILITIES, PRIOR TO DESIGN APPROVAL. THE CONTRACTOR SHALL HAVE 100% REDUNDANT PUMPING CAPACITY WITH 24 HOUR SUPERVISION DURING ALL PUMPING OPERATIONS.
3. SEE CHAPTER 5 FOR ADDITIONAL INFORMATION ON BYPASS SYSTEM REQUIREMENTS

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SCHEMATIC OF TYPICAL BY–PASS SYSTEM

C2–12
DATED 5/2015



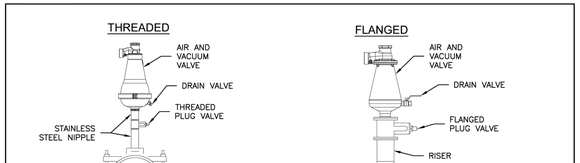
NOTES:

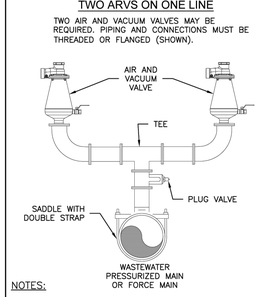
1. APPROVED METHODS OF RESTRAINED PIPE SHALL BE IN ACCORDANCE WITH CHAPTER 4.
2. RESTRAINED PIPE SHALL BE USED ON STEEP AND/OR UNSTABLE SLOPES OUT OF A PAVED AREA AS DETERMINED BY COLORADO SPRINGS UTILITIES.

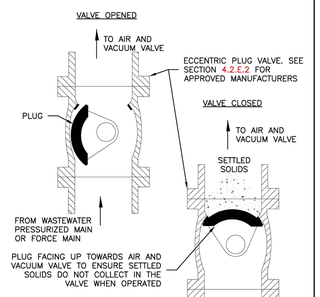
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STEEP SLOPE BELL RESTRAINTS

C2–15
DATED 1/2017







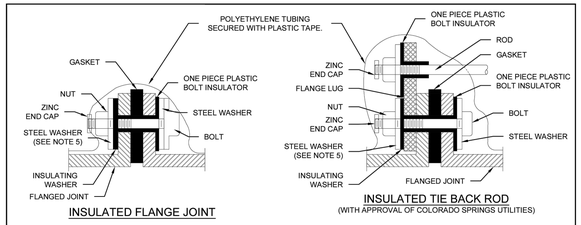
NOTES:

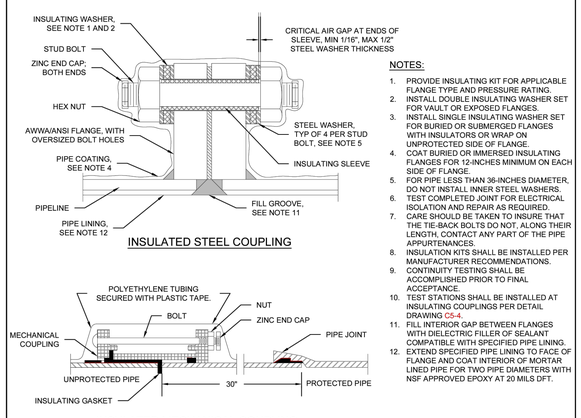
1. A SINGLE AIR AND VACUUM VALVE SHALL BE LOCATED IN A MANHOLE WITH A MINIMUM DIAMETER OF 4 FEET. IF TWO AIR AND VACUUM VALVES ARE REQUIRED, THE MANHOLE DIAMETER MUST BE A MINIMUM OF 6 FEET.
2. SEE SECTION 4.2.E.3 FOR APPROVED AIR AND VACUUM VALVES.
3. REFER TO AIR AND VACUUM VALVE DESIGN CRITERIA IN SECTION 7.6.G FOR PUBLIC FORCE MAINS AND 7.9.C FOR PRESSURIZED WASTEWATER MAINS.
4. FOR 3" AND LARGER AIR AND VACUUM VALVES, USE A FLANGE CONNECTION.

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TYPICAL AIR AND VACUUM VALVE

C2–16
DATED 7/2022





NOTES:

1. PROVIDE INSULATING KIT FOR APPLICABLE FLANGE TYPE AND PRESSURE RATING.
2. INSTALL DOUBLE INSULATING WASHER SET FOR VAULT OR EXPOSED FLANGES.
3. INSTALL SINGLE INSULATING WASHER SET FOR BURIED OR SUBMERGED FLANGES WITH INSULATORS OR WRAP ON UNPROTECTED SIDE OF FLANGE.
4. COAT BURIED OR IMMERSED INSULATING FLANGES FOR 12-INCHES MINIMUM ON EACH SIDE OF FLANGE.
5. FOR PIPE LESS THAN 36-INCHES DIAMETER, DO NOT INSTALL INNER STEEL WASHERS.
6. TEST COMPLETED JOINT FOR ELECTRICAL ISOLATION AND REPAIR AS REQUIRED.
7. CARE SHOULD BE TAKEN TO INSURE THAT THE TIE-BACK BOLTS DO NOT, ALONG THEIR LENGTH, CONTACT ANY PART OF THE PIPE APPURTENANCES.
8. INSULATION KITS SHALL BE INSTALLED PER MANUFACTURER RECOMMENDATIONS.
9. CONTINUITY TESTING SHALL BE ACCOMPLISHED PRIOR TO FINAL ACCEPTANCE.
10. TEST STATIONS SHALL BE INSTALLED AT INSULATING COUPLINGS PER DETAIL DRAWING C5-4.
11. FILL INTERIOR GAP BETWEEN FLANGES WITH DIELECTRIC FILLER OF SEALANT COMPATIBLE WITH SPECIFIED PIPE LINING.
12. EXTEND SPECIFIED PIPE LINING TO FACE OF FLANGE AND COAT INTERIOR OF MORTAR LINED PIPE FOR TWO PIPE DIAMETERS WITH NSF APPROVED EPOXY AT 20 MILS DFT.

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INSULATOR INSTALLATION

C5-3
DATED 5/2015

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WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT FORCE MAIN EXTENSION DESIGN

STANDARD DETAILS IV

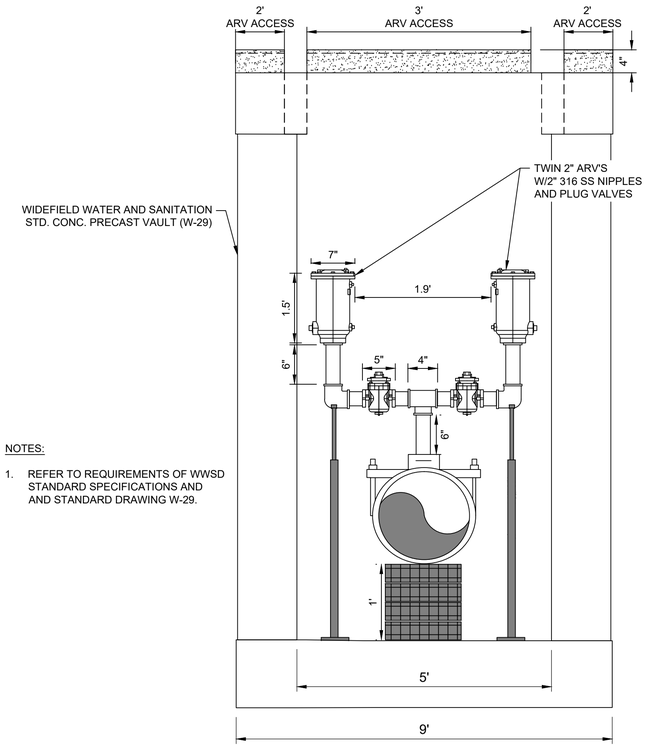
JOB NO.: 22W23080
DATE: MAY 2025
DESIGNED BY: JMC
DRAWN BY: UOP
CHECKED BY: PMB

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
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DRAWING NUMBER
99-C504

SHEET NUMBER 31

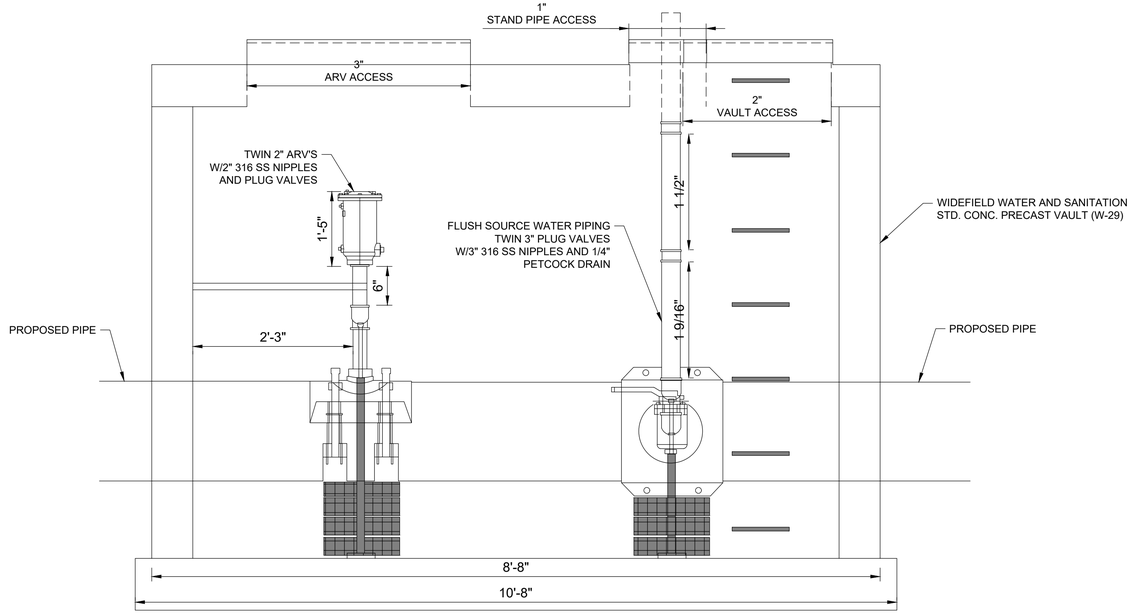
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Last plotted by: Ramirez, Luiz A. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 5/16/2025 1:58 PM Plotter used: None



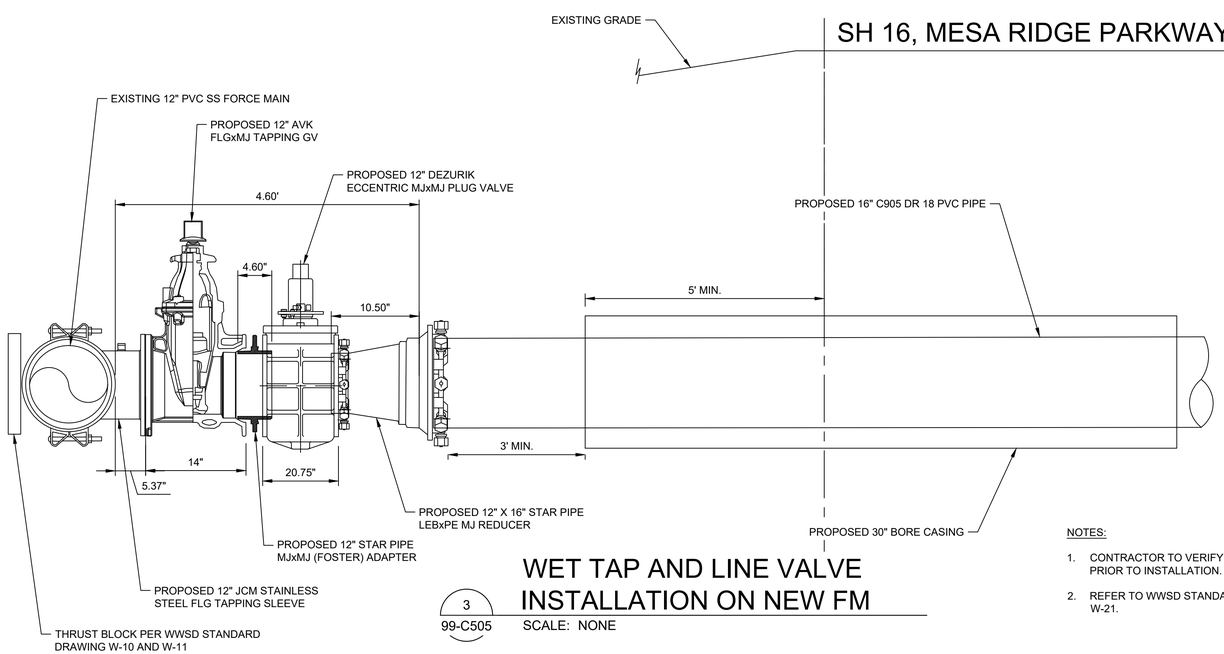
NOTES:

1. REFER TO REQUIREMENTS OF WWSD STANDARD SPECIFICATIONS AND AND STANDARD DRAWING W-29.

1 / 99-C505 — COMBINATION ARV VAULT
SCALE: NONE



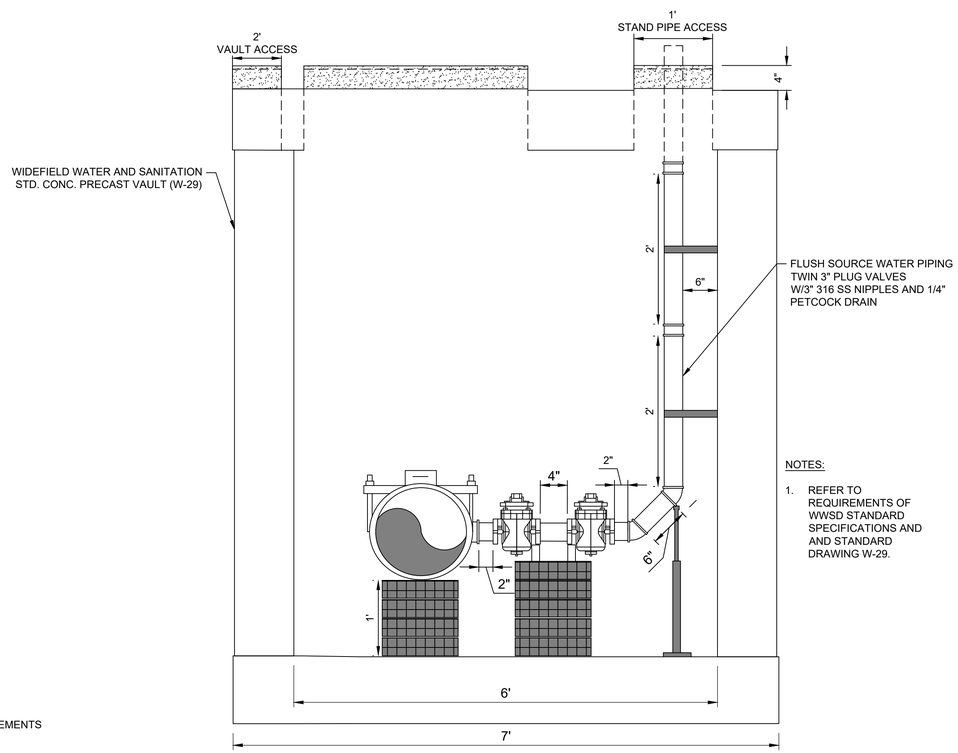
2 / 99-C505 — ELEVATION VIEW OF COMBINATION ARV AND FLUSH VAULT
SCALE: NONE



3 / 99-C505 — WET TAP AND LINE VALVE INSTALLATION ON NEW FM
SCALE: NONE

NOTES:

1. CONTRACTOR TO VERIFY MEASUREMENTS PRIOR TO INSTALLATION.
2. REFER TO WWSD STANDARD DRAWING W-21.



NOTES:

1. REFER TO REQUIREMENTS OF WWSD STANDARD SPECIFICATIONS AND AND STANDARD DRAWING W-29.

4 / 99-C505 — FLUSH VAULT
SCALE: NONE

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WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT - FORCE MAIN EXTENSION DESIGN

STANDARD DETAILS
V

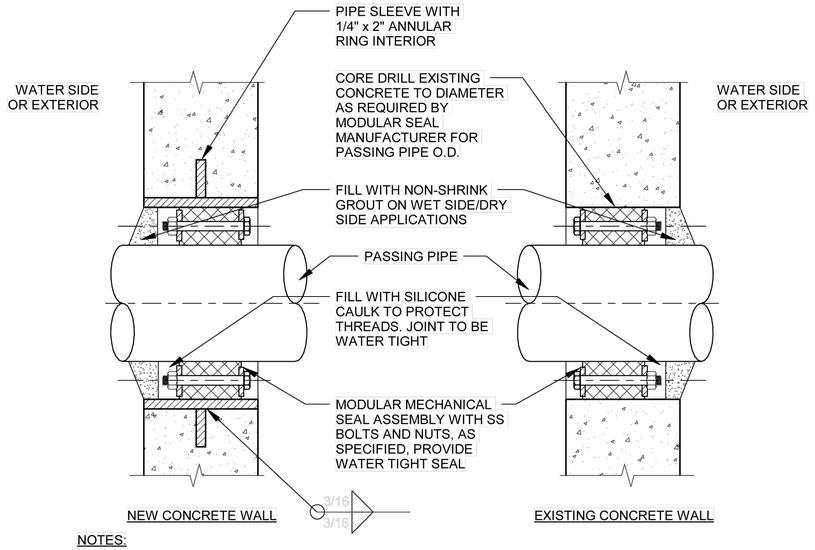
JOB NO.: 22W23080
DATE: MAY 2025
DESIGNED BY: JMC
DRAWN BY: UOP
CHECKED BY: PMB

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DRAWING NUMBER
99-C505

SHEET NUMBER **32**

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Last plotted by: Ramirez, Luiz A. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 5/16/2025 1:58 PM Plotter used: None



NOTES:

1. WHERE EXISTING CONCRETE STRUCTURE IS TO BE CORE DRILLED, THE CONTRACTOR SHALL ULTRASONIC TEST OR X-RAY THE AREA FOR EMBEDDED ITEMS BEFORE CORE DRILLING CAN PROCEED. IF EMBEDDED ITEMS ARE FOUND, NOTIFY THE ENGINEER IMMEDIATELY.
2. FOR NEW CONSTRUCTION, SLEEVES SHALL BE CAST INTO WALL. BLOCKOUTS AND SUBSEQUENT GROUTED IN SLEEVES WILL NOT BE PERMITTED UNLESS A KEYED WATERSTOP JOINT IS PROVIDED.
3. 6" DIAMETER SLEEVES AND SMALLER SHALL BE SCHEDULE 40 STEEL PIPE.
4. SLEEVES LARGER THAN 6" DIAMETER SHALL BE 1/4" THICK STEEL PIPE.
5. IN WALLS THICKER THAN 12", LINK SEAL SHALL BE INSTALLED AT BOTH ENDS OF THE WALL SLEEVE. SLEEVE DIAMETER SHALL BE PER LINK SEAL MANUFACTURER'S RECOMMENDATION.
6. SLEEVE SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.

1 / 99-C506 WALL PENETRATION SEAL

SCALE: NONE

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Last plotted by: Ramirez, Luiz A. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 5/16/2025 1:58 PM Plotter used: None

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WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT FORCE MAIN EXTENSION DESIGN

STANDARD DETAILS
VI

JOB NO.: 22W23080
DATE: MAY 2025
DESIGNED BY: JMC
DRAWN BY: UOP
CHECKED BY: PMB

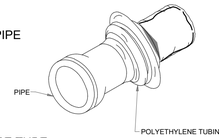
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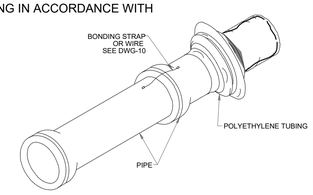
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FIELD INSTALLATION OF POLYETHYLENE WRAP

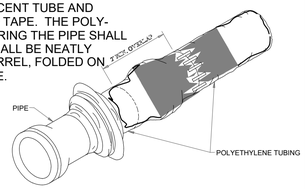
STEP 1:
PLACE TUBE OF POLYETHYLENE MATERIAL ON PIPE PRIOR TO LOWERING IT INTO TRENCH.



STEP 2:
PULL TUBE OVER THE LENGTH OF THE PIPE. TAPE TUBE TO END AT JOINT. FOLD MATERIAL AROUND THE ADJACENT SPIGOT END AND WRAP WITH TAPE TO HOLD THE PLASTIC TUBE IN PLACE. INSTALL BONDING STRAP OR WIRE AT EVERY JOINT OF PIPE PRIOR TO WRAPPING IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

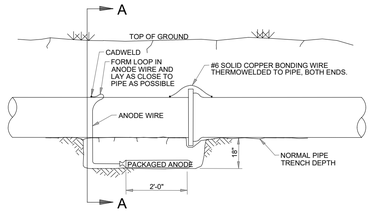


STEP 3:
OVERLAP FIRST TUBE WITH ADJACENT TUBE AND SECURE WITH PLASTIC ADHESIVE TAPE. THE POLY-ETHYLENE TUBE MATERIAL COVERING THE PIPE SHALL BE LOOSE. EXCESS MATERIAL SHALL BE NEATLY DRAWN UP AROUND THE PIPE BARREL, FOLDED ON TOP OF PIPE AND TAPED IN PLACE.

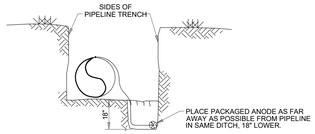


POLYETHYLENE WRAP		
DRAWN:	REVISED: JAN 2001	DWG - 9
DATE: OCT 1998	REVISED:	
SCALE: NONE	REVISED:	

BONDING JOINT & ANODE INSTALLATION



ELEVATION



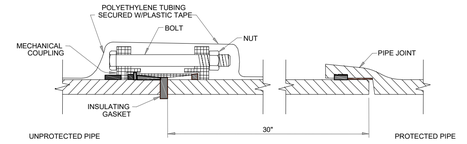
SECTION A-A

NOTE:

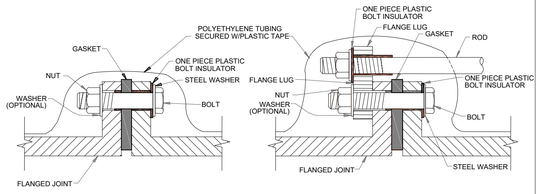
1. CADWELD CONNECTION TO BE PRIMED AND COATED CAREFULLY. PACKAGED ANODE SHOULD BE COVERED WITH FINE SOIL CONTAINING NO ROCKS OR DIRT CLUMPS, TAMPED.
2. WHEN ANODES ARE REQUIRED WITH METAL FITTINGS AND APPURTENANCES TOGETHER WITH PVC PIPE INSTALLATION, THE ANODES SHALL BE PLACED AND ATTACHED TO THE METAL IN SAME MANNER AS SHOWN IN THE DRAWING.

BONDING JOINT & ANODE INSTALLATION		
DRAWN:	REVISED: JAN 2001	DWG - 10
DATE: OCT 1998	REVISED:	
SCALE: NONE	REVISED:	

INSULATOR INSTALLATION



INSULATED MECHANICAL COUPLING



INSULATED FLANGE JOINT **INSULATED TIE BACK ROD**

NOTE:

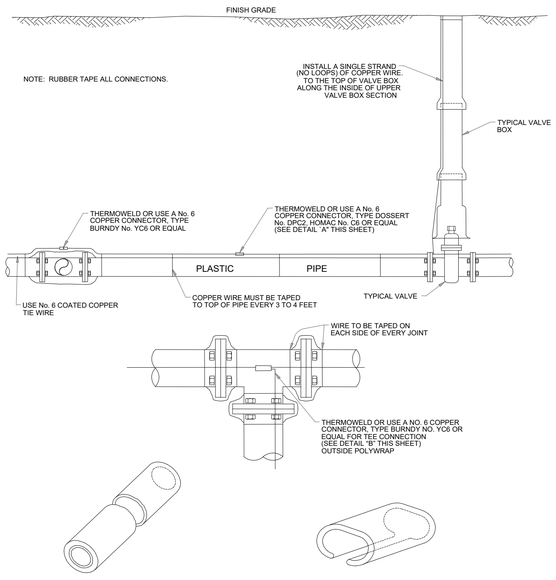
TEST WIRES TO BE USED WHEN REQUIRED.

INSULATOR INSTALLATION		
DRAWN:	REVISED: AUG 2002	DWG - 11
DATE: NOV 1998	REVISED:	
SCALE: NONE	REVISED:	

NOTES:

1. THESE DETAILS SHALL BE FOLLOWED WHEN THE FORCE MAIN IS WITHIN THE CITY OF FOUNTAIN LIMITS.

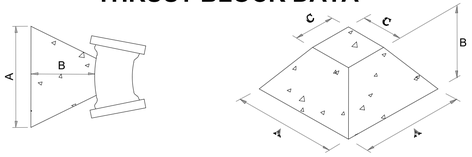
COPPER TRACER WIRE ON PVC PIPE



DETAIL "A" **DETAIL "B"**

COPPER TRACER WIRE ON PVC PIPE		
DRAWN:	REVISED: AUG 2002	DWG - 12
DATE: NOV 1998	REVISED: JAN 2006	
SCALE: NONE	REVISED:	

THRUST BLOCK DATA



NOTE: SEE THE FOLLOWING VALUES FOR "C"

PIPE SIZE =	C =
12" & UNDER	1'-6"
16" TO 24"	2'-0"
30" TO 36"	3'-0"

OVER 36" A, B & C WILL BE GIVEN IN EACH INSTANCE

VOL. (yds)	A	B @ C=1'-6"	B @ C=2'-0"	B @ C=3'-0"
1/4	2'-6"	0'-10"	0'-8"	0'-6"
1/2	2'-8"	1'-7"	1/2	1/2
3/4	3'-2"	2'-5"	2'-0"	1'-6"
1	4'-0"	2'-6"	2'-2"	1'-8"
1	4'-4"	3'-0"	2'-7"	2'-0"
1 1/4	4'-10"	3'-1"	2'-9"	2'-2"
1 1/2	5'-3"	3'-3"	2'-11"	2'-4"
1 3/4	5'-7"	3'-5"	3'-1"	2'-6"
2	5'-10"	3'-7"	3'-3"	2'-8"
2 1/4	6'-3"	3'-8"	3'-4"	2'-9"
2 1/2	6'-4"	3'-11"	3'-7"	3'-0"
2 3/4	6'-9"	3'-11"	3'-7"	3'-0"
3	6'-10"	4'-1"	3'-9"	3'-2"
3 1/4	7'-3"	4'-1"	3'-9"	3'-2"
3 1/4	7'-4"	4'-3"	3'-11"	3'-4"
3 1/2	7'-7"	4'-4"	4'-0"	3'-5"
4	7'-11"		4'-0"	3'-5"
4 1/4	8'-1"		4'-0"	3'-6"
4 1/2	8'-4"		4'-0"	3'-6"
4 3/4	8'-6"		4'-1"	3'-7"

VOL. (yds)	A	B @ C=1'-6"	B @ C=2'-0"	B @ C=3'-0"
5	8'-8"		4'-2"	3'-8"
5 1/4	8'-11"		4'-2"	3'-8"
5 1/2	9'-1"		4'-3"	3'-9"
5 3/4	9'-3"		4'-4"	3'-10"
6	9'-4"		4'-5"	3'-11"
6 1/4	9'-6"		4'-6"	4'-0"
6 1/4	9'-8"		4'-6"	4'-0"
6 1/2	9'-11"		4'-6"	4'-0"
7	10'-2"		4'-6"	4'-0"
7 1/4	10'-3"		4'-7"	4'-1"
7 1/2	10'-4"		4'-8"	4'-2"
7 3/4	10'-5"		4'-9"	4'-3"
8	10'-6"		4'-10"	4'-4"
8 1/4	10'-8"		4'-10"	4'-4"
8 1/4	10'-9"		4'-11"	4'-5"
8 1/2	10'-11"		4'-11"	4'-5"
9	11'-1"		4'-11"	4'-5"
9 1/4	11'-2"		5'-0"	4'-6"
9 1/2	11'-4"		5'-0"	4'-8"
9 3/4	11'-6"		5'-0"	4'-8"
10	11'-8"		5'-0"	4'-8"

ALL WATER MAINS GREATER THAN TWELVE (12) INCHES IN DIAMETER SHALL HAVE THRUST BLOCK DESIGNED & SHOWN ON THE CONSTRUCTION DOCUMENTS.

SEE VOLUMES ABOVE FOR A, B & C DIM.

FITTING	4"	6"	8"	12"
TEE	1/4 yd.	1/2 yd.	3/4 yd.	2 yd.
90° BEND	1/8 yd.	3/4 yd.	1 1/4 yd.	3 yd.
45° BEND	1/8 yd.	1/4 yd.	3/4 yd.	1 1/4 yd.
22-1/2° BEND	1/8 yd.	1/4 yd.	1/4 yd.	3/4 yd.
11-1/4° BEND	1/8 yd.	1/4 yd.	1/8 yd.	1/4 yd.

THRUST BLOCK DATA		
DRAWN:	REVISED: AUG 2002	DWG - 13
DATE: NOV 1998	REVISED:	
SCALE: NONE	REVISED:	

THRUST BLOCKS REQUIRED FOR TAPS

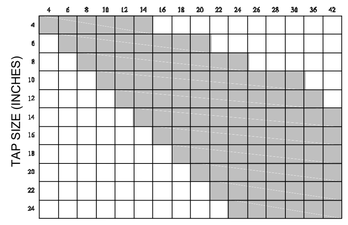
CONCRETE THRUST BLOCKS

WATER MAIN AND TAP SIZE COMBINATIONS WHICH REQUIRE A CONCRETE THRUST REACTION BLOCK BEHIND THE MAIN AT THE TAPPING SLEEVE OR SADDLE.

ALL WATER MAINS

INDICATES CONCRETE THRUST BLOCK REQUIRED

MAIN SIZE (INCHES)



ANY THRUST REACTION BLOCK REQUIREMENTS FOR WATER MAIN AND TAP SIZE COMBINATIONS OTHER THAN THOSE SHOWN ABOVE WILL REQUIRE SPECIAL DESIGN APPROVAL BY THE CITY OF FOUNTAIN'S WATER DEPARTMENT.

THRUST BLOCKS REQUIRED FOR TAPS		
DRAWN:	REVISED: AUG 2002	DWG - 14
DATE: NOV 1998	REVISED:	
SCALE: NONE	REVISED:	

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REV.	DATE	DESCRIPTION	BY

WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT FORCE MAIN EXTENSION DESIGN

COF DETAILS 1

JOB NO.: 22W23080
DATE: MAY 2025
DESIGNED BY: JMC
DRAWN BY: UOP
CHECKED BY: PMB

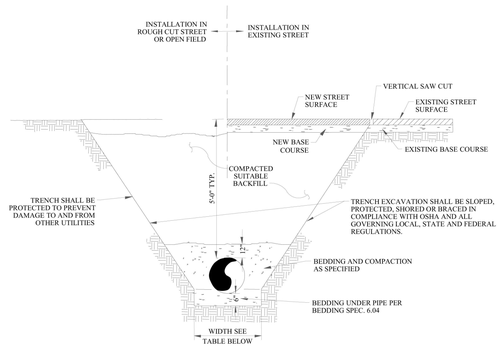
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
99-C507

SHEET NUMBER **34**

File: L:\2022\22W23080 - Widefield WSD Jimmy Camp FM Design\Drawings\WJC FM-99-C507-DT.dwg Last Save: 5/16/2025 1:54 PM Last saved by: LARamirez
Last plotted by: Ramirez, Luiz A. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 5/16/2025 1:58 PM Plotter used: None

TYPICAL TRENCH CROSS SECTION



BOTTOM OF TRENCH WIDTH

PIPE DIAMETER	MINIMUM WIDTH	MAXIMUM WIDTH
4"	1'-5"	3'-9"
6"	1'-7"	3'-11"
8"	1'-8"	4'-1"
12"	2'-1"	4'-5"
16"	2'-6"	4'-9"
20"	2'-10"	5'-2"
24"	3'-2"	5'-6"

AN OVER EXCAVATED TRENCH SHALL BE REFILLED AND THOROUGHLY COMPACTED UNDER THE DIRECTION OF THE WATER DEPT. UNDER NO CIRCUMSTANCES WILL PIPE BE LAID IN A PROPOSED FILL AREA PRIOR TO IT BEING COMPLETELY FILLED. THE FILL WILL BE PLACED FIRST TO PROPOSED GRADE AND COMPACTED AS REQUIRED. A TRENCH THEN WILL BE EXCAVATED AND THE PIPE INSTALLED IN THE USUAL MANNER.

TYPICAL TRENCH CROSS SECTION		
DRAWN:	REVISED: AUG 2002	DWG - 15
DATE: NOV 1998	REVISED: JAN 2006	
SCALE: NONE	REVISED:	

MAXIMUM PIPELINE DEFLECTION DATA

MAXIMUM DEFLECTION
PER SLIP JOINT OF D.I.P.

PIPE DIAMETER			MFRS. DEFL.	DESIGN DEFLECTION (80% MAX.)		APPROX. RADIUS FOR DEFLECTING CURVES WITHOUT BENDS	
					MAX. DEFL. DIST.		
I.D.	O.D.(IN.)	O.D.(FT.)			(1)	(2)	20'L	18'L
4"	4.80"	.400'	5°00'00"	4°00'00"	16"	15"	286'	258'
6"	6.90"	.575'	5°00'00"	4°00'00"	16"	15"	286'	258'
8"	9.05"	.754'	5°00'00"	4°00'00"	16"	15"	286'	258'
10"	11.10"	.925'	5°00'00"	4°00'00"	16"	15"	286'	258'
12"	13.20"	1.100'	5°00'00"	4°00'00"	16"	15"	286'	258'
14"	15.30"	1.275'	3°00'00"	2°24'00"	10"	9"	477'	430'
16"	17.40"	1.450'	3°00'00"	2°24'00"	10"	9"	477'	430'
18"	19.50"	1.625'	3°00'00"	2°24'00"	10"	9"	477'	430'
20"	21.60"	1.800'	3°00'00"	2°24'00"	10"	9"	477'	430'
24"	25.80"	2.150'	3°00'00"	2°24'00"	10"	9"	477'	430'
30"	32.00"	2.666'	2°30'00"	2°00'00"	8"	7"	573'	516'
36"	38.30"	3.192'	2°00'00"	1°36'00"	6"	6"	716'	645'
42"	44.50"	3.708'	2°00'00"	1°36'00"	6"	6"	716'	645'

(1) 20'L = NORMAL TWENTY (20) FOOT JOINT LAYING LENGTH.

(2) 18'L = NORMAL EIGHTEEN (18) FOOT JOINT LAYING LENGTH.

MAXIMUM PIPELINE DEFLECTION DATA		
DRAWN:	REVISED: JAN 2001	DWG - 16
DATE: NOV 1998	REVISED:	
SCALE: NONE	REVISED:	

PIPE CUTTING



MECHANICAL JOINT CONNECTION

PIPE MUST BE CUT AT RIGHT ANGLES TO LONGITUDINAL CENTERLINE IN ALL CASES.

PIPE ENDS SHALL BE FREE OF BURRS.

MORTAR LINING SHALL BE FLUSH WITH PIPE END.

GOUGES CUT IN PIPE ENDS SHALL NOT BE ALLOWED.



SLIP JOINT CONNECTION

PIPE CUT IN STRAIGHT LINE AND BEVELED AT 45° ANGLE ON END.

GENERAL NOTES:

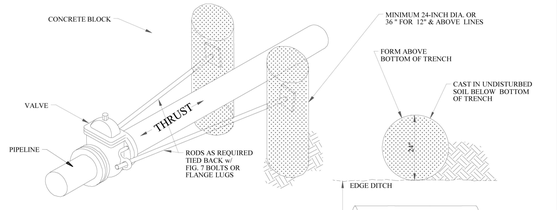
1. ALL PIPE CUTTING EQUIPMENT AND PIPE CUTS MUST BE APPROVED BY THE CITY OF FOUNTAIN WATER DEPARTMENT INSPECTOR.
2. ALL PIPE ENDS TO BE USED IN INSTALLATION SHALL BE DRESSED SMOOTH TO THE SATISFACTION OF THE INSPECTOR PRIOR TO INSTALLATION.
3. AT THE REQUEST OF THE CONTRACTOR MAKING THE INSTALLATION, THE DEPARTMENT WILL MAKE PIPE CUTS, PROVIDING THE CURRENT FEE PER CUT IS PAID AND 24-HOUR NOTICE IS GIVEN (THE CURRENT FEE IS SUBJECT TO CHANGE).
4. ALL DIP DELIVERED TO JOB SITE MUST BE NEW MATERIAL.

PIPE CUTTING		
DRAWN:	REVISED: JAN 2001	DWG - 17
DATE: NOV 1998	REVISED:	
SCALE: NONE	REVISED:	

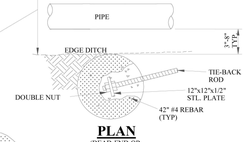
NOTES:

1. THESE DETAILS SHALL BE FOLLOWED WHEN THE FORCE MAIN IS WITHIN THE CITY OF FOUNTAIN LIMITS.

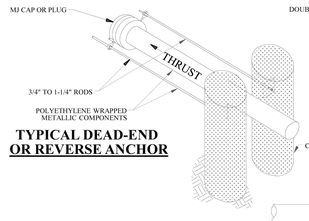
REVERSE ANCHOR DETAIL



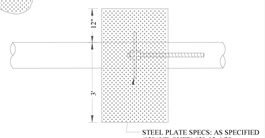
TYPICAL VALVE ANCHOR



PLAN
(DEAD-END OR REVERSE ANCHOR)



TYPICAL DEAD-END OR REVERSE ANCHOR



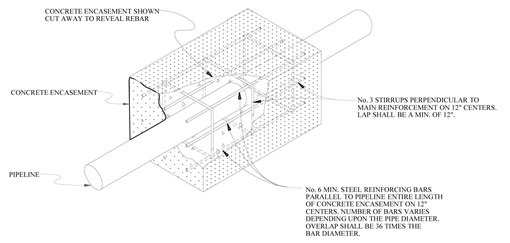
ELEVATION
(DEAD-END OR REVERSE ANCHOR)

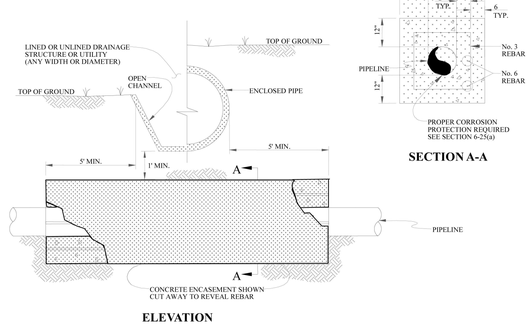
NOTES:

1. MAX. ROD LENGTH = 12'
   MIN. ROD LENGTH = 4'
2. ALL METALLIC COMPONENTS TO BE ENCASED IN CONCRETE OR POLYETHYLENE TUBING.

REVERSE ANCHOR DETAIL		
DRAWN:	REVISED: JAN 2001	DWG - 18
DATE: NOV 1998	REVISED:	
SCALE: NONE	REVISED:	

CONCRETE PIPE ENCASEMENT



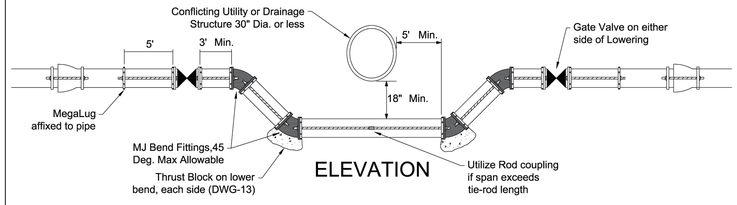


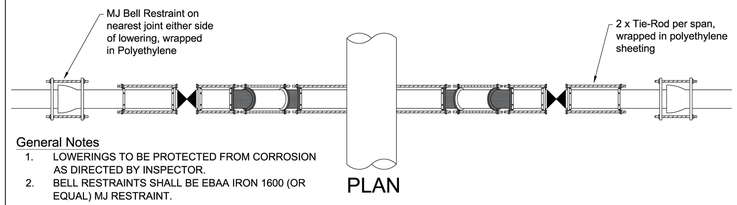
SECTION A-A

ELEVATION

CONCRETE PIPE ENCASEMENT		
DRAWN:	REVISED: AUG 2002	DWG - 19
DATE: OCT 1998	REVISED:	
SCALE: NONE	REVISED:	

WATER LINE LOWERING DETAIL





General Notes
1. LOWERINGS TO BE PROTECTED FROM CORROSION AS DIRECTED BY INSPECTOR.
2. BELL RESTRAINTS SHALL BE EBAA IRON 1600 (OR EQUAL) MJ RESTRAINT.

WATER LINE LOWERING DETAIL		
Drawn: TM/DL	Revised:	DWG - 20
Date: 7/15/2021	Revised:	
Scale: None	Revised:	

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REV.	DATE	DESCRIPTION	BY

WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT FORCE MAIN EXTENSION DESIGN

COF DETAILS 2

JOB NO.: 22W23080
DATE: MAY 2025
DESIGNED BY: JMC
DRAWN BY: UOP
CHECKED BY: PMB

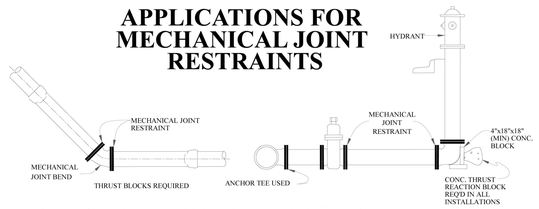
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
99-C508

SHEET NUMBER **35**

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Last plotted by: Ramirez, Luiz A. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 5/16/2025 1:58 PM Plotter used: None

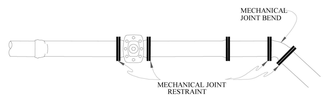
APPLICATIONS FOR MECHANICAL JOINT RESTRAINTS



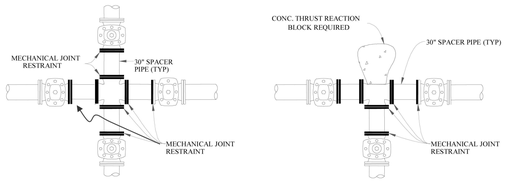
NOTE: ALL JOINTS BETWEEN HYDRANT AND TEE MUST BE RESTRAINED.

INSTALLATION FOR BENDS

INSTALLATION FOR FIRE HYDRANT



INSTALLATION FOR LINE VALVE



CROSS INSTALLATION

TEE INSTALLATION

NOTES:

1. ALL MECHANICAL JOINTS MUST USE MEGGA LUG OR EQUAL.

APPLICATIONS FOR MECHANICAL JOINT RESTRAINTS			
DRAWN:	REVISED: AUG 2002		DWG - 27
DATE: OCT 1998	REVISED: JAN 2006		
SCALE: NONE	REVISED:		

RESTRAINED PIPE LENGTH (FT)

6-INCH — DUCTILE IRON AND PVC

	STATIC PRESSURE (PSI)		
TYPE OF FITTING	<100	100-150	150-200
90° BEND, TEE, VALVE OR PLUG	31	47	62
45° BEND	13	19	25
22-1/2° BEND	6	8	11
11-1/4° BEND	3	5	6

8-INCH — DUCTILE IRON AND PVC

	STATIC PRESSURE (PSI)		
TYPE OF FITTING	<100	100-150	150-200
90° BEND, TEE, VALVE OR PLUG	39	58	78
45° BEND	17	24	33
22-1/2° BEND	8	12	16
11-1/4° BEND	5	6	8

12-INCH — DUCTILE IRON AND PVC

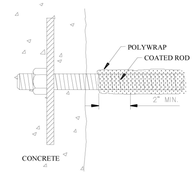
	STATIC PRESSURE (PSI)		
TYPE OF FITTING	<100	100-150	150-200
90° BEND, TEE, VALVE OR PLUG	56	84	112
45° BEND	23	35	47
22-1/2° BEND	11	17	22
11-1/4° BEND	6	8	11

NOTES:

1. PRESSURES GREATER THAN 200 PSI REQUIRE SPECIAL DESIGN APPROVED BY THE WATER DEPARTMENT.
2. LENGTH IS BASED ON MINIMUM FIVE (5) FOOT OF GROUND COVER AND SOIL COMPACTED ACCORDING TO SECTION 5.15 OF THESE SPECIFICATIONS.
3. APPROVED METHODS OF RESTRAINED PIPE BEYOND INITIAL FITTING SHALL BE:
   A. FOR DUCTILE IRON PIPE, 1100 SERIES MEGALUG BY EBAA IRON OR EQUAL ON MECHANICAL JOINT PIPE OR DOUBLE 1100 SERIES MEGALUG BY EBAA IRON OR EQUAL ON PUSH ON JOINT PIPE.
   B. FOR PVC PIPE, SERIES 1500 OR SERIES 2800 RESTRAINTS BY EBAA IRON OR EQUAL.

RESTRAINED PIPE LENGTH DATA			
DRAWN:	REVISED: AUG 2002		DWG - 28
DATE: OCT 1998	REVISED:		
SCALE: NONE	REVISED:		

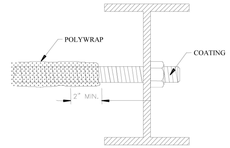
PROTECTING TIE-RODS



NO SCALE

METAL IN CONCRETE:

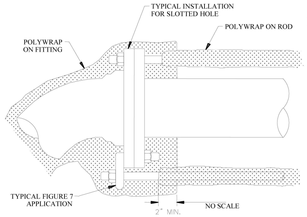
1. COAT METAL PARTS WHERE IN CONTACT WITH CONCRETE, EXTENDING COATING SEVERAL INCHES BEYOND THE CONCRETE. SEE SECTION 4.12(b) AND 4.12(g).
2. POLYWRAP THE ROD, OVERLAPPING THE POLYWRAP AND THE COATING A MINIMUM OF 2".
3. SECURE POLYWRAP TO THE ROAD USING 2" WIDE, 10-MIL POLYETHYLENE PRESSURE-SENSITIVE TAPE.



NO SCALE

ROD THROUGH I-BEAM:

1. COAT ENTIRE I-BEAM. SEE SECTION 4.12(d) AND 4.12(g).
2. COAT NUT AND ROD, EXTENDING COATING SEVERAL INCHES BEYOND THE BEAM.
3. POLYWRAP THE ROD, OVERLAPPING THE COATING A MINIMUM OF 2".
4. SECURE POLYWRAP WITH TAPE.



RODS IN MJ FITTING:

1. POLYWRAP THE ROD AND SECURE WITH TAPE. SEE SECTION 4.12(g).
2. POLYWRAP THE FITTING, OVERLAPPING THE POLYWRAP ON THE ROD A MINIMUM OF 2" AND SECURE WITH TAPE.

PROTECTING TIE-RODS			
DRAWN:	REVISED: AUG 2002		DWG - 36
DATE: FEB 1999	REVISED:		
SCALE: NONE	REVISED:		

NOTES:

1. THESE DETAILS SHALL BE FOLLOWED WHEN THE FORCE MAIN IS WITHIN THE CITY OF FOUNTAIN LIMITS.

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REV.	DATE	DESCRIPTION	BY

WIDEFIELD WATER AND SANITATION DISTRICT
WIDEFIELD, COLORADO

JIMMY CAMP LIFT STATION CAPACITY IMPROVEMENT FORCE MAIN EXTENSION DESIGN

COF DETAILS 3

JOB NO.: 22W23080
DATE: MAY 2025
DESIGNED BY: JMC
DRAWN BY: UOP
CHECKED BY: PMB

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
99-C509

SHEET NUMBER **36**

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Last plotted by: Ramirez, Luiz A. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 5/16/2025 1:58 PM Plotter used: None

Pikes Peak Area Council of Governments
Communities Working Together

Meeting Minutes
Water Quality Management Committee
Wednesday, October 15, 2025, 9:00 AM

1. **Call to Order / Establish a Quorum**
   Meeting was called to order at 9:00 am
2. **Agenda Approval**
   Agenda was approved unanimously
3. **Approval of Minutes from July 23, 2025**
   Minutes were approved unanimously
4. **Public Comments / Presentations**
   No public comments.
5. **Action Items**
   A. Site Application – Walden WWTP – Adam Sommers, AquaWorks DBO
      i. Matt Dunston provided a brief statement about their intent to upgrading the WWTP.
      ii. Committee questions:
         1. The applicant has provided an estimate to deal with removal of the sludge being stored on-site, but has not yet followed through. What are the plans to have this removed?
            a. The applicant is letting it dry out more and is scheduled for Tuesday November 11th to remove it.
         2. Original application was in name of Walden Water & Sanitation District, could not verify this actually exists in state records.
            a. Applicant has modified the application to reflect the Walden Corporation, this has been the entity since originally created in 1963. A metropolitan district is in place that could eventually take control of the ownership and operations.
         3. A Private company is overseen by PUC public utilities commission, regarding rates and finances. How does Walden set rates. Most public entities have audit reports publicly available where we can see
            a. Rates are passed by the PUC from time to time and are also rate structure is comparable with similar districts in the region.
         4. How can we independently verify through financial reports or approval process from PUC how residents… Developer cut off committee member question.

5. Does the applicant have any records of conversations with PUC about financial documents or rates?
    a. No, it has been five years since talked with PUC.
    b. The committee is looking for something where rates have been submitted and approved. The PUC has a rigorous process for approval.
    c. Applicant mentioned that there are “entities” that they communicate with on rates.
6. WQMC member asked - why is the WQMC looking so deeply into the financial records of this applicant?
    a. For other public facilities, audits and financial records are publicly available and independently verifiable. They are not available for this entity and there has been a lack of transparency on this from the applicant. Also, it is known that developers often create treatment facilities and then walk away without ensuring the long-term operations and maintenance of the facility are addressed properly. There are also some concerns with the transparency of this entity as we have asked for information on finances sufficient to ensure the applicant can cover ongoing operational expenses and not received it.
7. A motion to move the application to the CAC was moved by Kevin Brown, seconded by Wally Eaves, Apposed by Roy Heald.
    a. The WQMC added that they would like their stated concerns to be carried forward through the review process.
    b. Roy explained that he believes the committee has not met obligations under Regulation 22 for financial certainty, and there is still uncertainty with financial structures of Walden Corporation. There is uncertainty that the process is being followed and would like to have more reassurance.
    c. Need more information from PUC or other documentation on how rates are collected and used

B. Site Application – Widefield Water & Sanitation District, Jimmy Camp Lift Station Force Main Extension – Wesley Lozano, Garver USA
    i. The WQMC has received confirmation that concerns from the City of Fountain have been adequately addressed.
    ii. Wesley Lozano provided a presentation on the project.
    iii. A question was asked regarding use of the 12-inch force main. Wesley explained how this fits into the engineering plan, and the primary flow path. No additional concerns were expressed.

iv. A motion to move the application to the CAC was moved by Roy Heald, seconded by Darren Adame, unanimously approved.

C. Site Application – Fountain Sanitation District, Jonathan Moore, Fountain Sanitation District
    i. Jonathan Moore presented on the application. The lift station was built in 1955 and deteriorated rapidly in 2024, and was replaced as an emergency project. The project was designed by Fountain Sanitation District's District Engineer. The City of Fountain approved the project and it went through the LFWQMA, but the applicant was not aware of needing to go through CDPHE's review process. PPACG is only required to get notification on this project.
    ii. The project added a new valve vault, new control panel, new pumps.
    iii. A motion to move the application to the CAC was moved by Wally Eaves, seconded by Darren Adame, unanimously approved.

6. Discussion Items

A. Graywater discussion – Kat McGarvy, Environmental Health Division Director, El Paso County Public Health
    i. Mark Christiansen, Colorado Springs Utilities
        1. HB 24-1362 was passed, specifying that individual entities need to develop a graywater program or opt out through ordinance or a resolution banning graywater use in their area. Entities in need to decide whether they want to adopt graywater as a reuse option for water. This needs to be done by January 2026. Encourage folks to look in to this asap.
            a. Regulation 86 covers graywater use.
            b. Others examples of programs in Castle Rock and Denver, only about 30 or so entities on those systems, there has been little interest.
            c. Definition of graywater is Greywater (or grey water, sullage, also spelled gray water in the United States) refers to domestic wastewater generated in households or office buildings from streams without fecal contamination, i.e., all streams except for the wastewater from toilets. Sources of greywater include sinks, showers, baths, washing machines or dishwashers. As greywater contains fewer pathogens than blackwater, it is generally safer to handle and easier to treat and reuse onsite for toilet flushing, landscape or crop irrigation, and other non-potable uses.
            d. Fountain WSD will not be opting in, would push for non-potable water use but not graywater.

e. Graywater has many stipulations for approval process if an entity wanted to get it installed. Colorado Springs Utilities would need to inspect to protect potable water system.
f. Are there any water rights issues? Every entity would be different, but no issues for Colorado Springs Utilities. Depending on individual decrees for each entity. Individual entities should look into this for their own opting in or out.
g. Metro versus rural could be treated differently, especially where septic is in place. Rural might need to change plumbing systems considerably. Regulation 86 outlines how the system would work.

7. WQMC Meeting Schedule Adjustments – Angie Martell, PPACG
   A. The group temporarily agreed to move the meeting to the third Wednesday at 9:00 am.

8. Information Items
   A. 2026 CDPHE - WQCD Assistance Grants – Angie Martell, PPACG
   B. Colorado State Revolving Fund Technical Assistance Dashboard – Angie Martell, PPACG

9. Member Entity Announcements
   A. Ann Esch – no longer representing Green Mountain Falls. Caleb Patterson, GMF Town Manager is moving forward for approval to represent

10. Meeting Schedule

11. Adjournment
   A. Motion was made to adjourn by Roy Heald, seconded by Wally Eaves, unanimously approved at 10:15 am

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The Pikes Peak Area Council of Governments will not discriminate against qualified individuals with disabilities. Meetings are available to join remotely via Microsoft Teams, and meetings include live transcription for remote and in-person attendees using automated software. Should you require any additional auxiliary aids or services to participate, please contact ppacg@ppacg.org or (719) 471-7080 x139 as soon as possible so that we can do our best to accommodate your needs.

Si necesita ayuda con traducción, llame por favor al (719) 471-7080 x139 o ppacg@ppacg.org.

Pikes Peak Area Council of Governments
Communities Working Together

Date: October 29, 2025

To: Pikes Peak Area Council of Governments Community Advisory Committee

From: Angie Martell, Environmental Planner

Subject: Site Application for Walden Corporation Wastewater Treatment Plant Expansion

Action Requested: See Proposed Motions

Previous Action

1) The application was reviewed and recommended by the SARC for review by the Water Quality Management Committee (WQMC) on July 16, 2025..
2) The Applicant presented to the WQMC on July 23, where the WQMC voted to table to application pending further information from the applicant.
3) The Applicant presented to the WQMC again on October 15, 2025 where the WQMC voted to recommend the application to the PPACG Board. However, one WQMC member apposed approval of the application citing that the WQMC had not met obligations under Regulation 22 for financial certainty.

Summary

As required by §22.12(1) of the Colorado Department of Public Health and Environment's Regulation 22 - Site Location and Design Regulations for Domestic Wastewater Treatment Works, AquaWorks DBO Inc., on behalf of Walden Corporation, is providing the Pikes Peak Area Council of Governments CAC with the attached summary of a site application request for the new Walden Corporation Wastewater Treatment Plant.

The project is located in unincorporated El Paso County, about 7 miles east of the town of Monument and just east of the intersection of Highway 83 and Walker Road. While the project is not located within the watersheds of focus in the PPACG 208 Plan, it is within El Paso County and is thus required to go through the PPACG 208 Site Application Review process and approval.

This project is proposing to construct a new domestic wastewater treatment plant (WWTP) to replace its existing WWTP, at the site of the existing treatment plan. The Walden Corporation currently operates a sequencing batch reactor WWTP. The existing plant, which was built in 1972 and modified in 1984, has exceeded its design life and is unable to meet the current discharge permit requirements. The facility has had several permit noncompliance issues since at least 2018 being unable to meet the permit effluent limitations. As stated in the application, the

facility is in violation of its existing permit, and has an outstanding compliance order and to leak test the two clay-lined lagoons and meet the new discharge requirements by 2027. The new WWTP is anticipated to enable the Walden Corporation to meet the water quality requirements of their discharge permit.

The proposed project involves installing a new membrane bioreactor treatment facility and decommissioning the existing facility. The new treatment plant will be enclosed and have a hydraulic rating of 150,000 GPD and an organic rating of 375 pounds per day of BOD. The existing plant discharges to groundwater while the replacement plant will discharge to surface water.

Summary of WQMC Concerns

Following the WQMC meeting on July 23, the WQMC requested that the applicant address a variety of concerns before moving forward in the application process. These concerns are described below, and are also detailed in the WQMC meeting minutes.

On July 23, 2025, the WQMC requested that the applicant to properly dispose of sludge being improperly stored on site. Sludge is material used in the wastewater treatment process and is hazardous waste, and the sludge stored at the Walden site was noted as being accessible to the public via a nearby trial. The applicant has provided an estimate from a contractor to properly dispose of the sludge, but has not provided documentation that they have followed through with removal. During the WQMC meeting on October 15, the Applicant stated that they are scheduled to have the sludge removed on November 11, 2025. The WQMC has also expressed concerns with enforcement from CDPHE to ensure that the sludge is properly addressed.

The WQMC expressed concerns with the ability of the applicant to demonstrate financial certainty for ongoing operations and maintenance. The WQMC has asked the applicant to provide some financial documentation to demonstrate that necessary operations and maintenance will be adequately funded and implemented by Walden Corporation, but no documentation has yet been provided. For other public wastewater treatment facilities, audits and financial records are publicly available and independently verifiable. Because Walden Corporation is a private entity, these documents are not publicly available and must be provided by the applicant to confirm that the applicant has a financial plan for ongoing operations and maintenance, and for setting rates for customers. Regulation 22 - Site Location and Design Regulations for Domestic Wastewater Treatment Works (5 CCR 1002-22) and Implementation Policy CW 19 directly address this concern and outline requirements for applicants. Implementation Policy CW 19, Section 22.6(1)(b)(xii) Financial System states that:

> *The financial system associated with construction, operating, and maintaining the proposed treatment works must include evidence of sufficient financial resources to construct the facility, as well as a financial plan to generate revenue sufficient to repay any indebtedness and cover ongoing operational expenses.*

Due to lack of financial certainty associated with the Walden Corporation site application, one member of the WQMC has voted in apposition to this site application until the applicant can

demonstrate sufficient financial resources as outlined in Regulation 22, Implementation Policy CW 19.

Proposed Motions

A) Recommend the Site Application request for the Walden Corporation Wastewater Treatment Plant to the PPACG Board of Directors for approval.

B) Recommend the Site Application request for the Walden Corporation Wastewater Treatment Plant to be sent back to the WQMC to either develop approval conditions, or for the applicant to provide necessary information to demonstrate a financial plan as outlined in Regulation 22.

Attachments

1. Site Application Report for the Walden Corporation Wastewater Treatment Plant
2. WQMC Meeting Minutes from July 23, 2025
3. WQMC Meeting Minutes from October 15, 2025

Strategic Plan Goals

☐ Advocacy: Serve as an effective advocacy voice for common ground issues.
☒ Information Sharing: Serve as a significant resource for PPACG members to collect and share information with regional partners.
☐ Aging: Expand and extend senior access, awareness, education, and connectivity to support age-friendly communities and empower individual seniors.
☐Transportation: Maintain and improve a coordinated, validated plan for transportation needs across the PPACG region.
☒ Program Excellence: Continue to excel in the key fundamental areas of PPACG: Military support, Environmental programs, Transportation, Area Agency on Aging, and regional communication and collaboration.

AquaWorks DBO, Inc.
3252 Williams Street
Denver, Colorado 80205

(303) 477-5915
www.aquaworksdbo.com
info@aquaworksdbo.com

Ms. Angie Martell
Pikes Peak Area Council of Governments
15 South 7th Street
Colorado Springs, CO 80905
amartell@ppacg.org

June 10, 2025

Re: Walden W&S District WWTP Site Application Referral

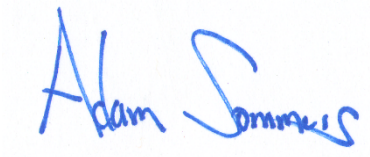
Dear Ms. Martell

The Walden Water and Sanitation District will be submitting a Site Location Application to the Colorado Department of Public Health and Environment for a replacement wastewater treatment plant. The new wastewater plant will replace the antiquated 53-year-old treatment plant. The new WWTP will be located adjacent to and on the same lot as the existing facility.

The proposed project involves installing a new modular membrane bioreactor treatment facility. The new treatment plant will have a hydraulic rating of 150,000 GPD and an organic rating of 375 pounds per day of BOD and discharge to surface water.

Pike Peak Area Council of Governments is being provided a copy of the Site Application document per CDPHE requirements. We request that you review the application and return a signed copy of the certificate block to me. Comments, if any, can be directed to me and Mr. Tyson Ingels at tyson.ingels@state.co.us.

Sincerely,
AQUAWORKS DBO, INC.



Adam Sommers, P.E.

AquaWorks DBO, Inc.
3252 Williams Street
Denver, Colorado 80205

(303) 477-5915
www.aquaworksdbo.com
info@aquaworksdbo.com

June 8, 2025

Mr. Tyson Ingels, P.E.
Water Quality Control Division
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South
Denver, CO 80246-1530

RE: Walden W&S District WWTP Site Application Submittal

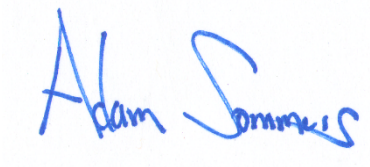
Dear Mr. Ingels,

The Walden Water and Sanitation District is submitting the attached Site Location Application (Regulation 22.6) to construct a new domestic wastewater treatment plant to replace its existing WWTP. The project is in unincorporated El Paso County, Colorado. The existing plant was built in 1972 and has exceeded its design life. The existing plant discharges to groundwater. The replacement plant will discharge to surface water.

The proposed project involves installing a new membrane bioreactor treatment facility and decommissioning the existing facility. The new treatment plant will have a hydraulic rating of 150,000 GPD and an organic rating of 375 pounds per day of BOD.

Please feel free to contact me at (303) 477-5915 with any questions.

Sincerely,
AQUAWORKS DBO, INC.



Adam Sommers, P.E.

cc. Walden Water and Sanitation District

Regulation 22.6 Site Location Application
New Wastewater Treatment Plant Project
June 2025



AquaWorks DBO, Inc.
3252 Williams Street
Denver, CO 80205
(303) 477-5915

Walden Water and Sanitation District WWTP
3155 Walker Road
Colorado Springs, CO 80908
CDPES Permit: COX631032

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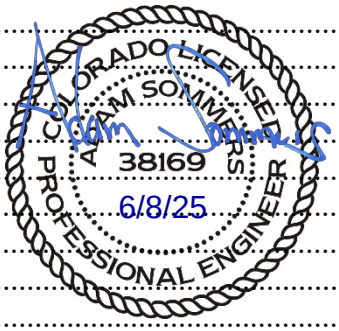
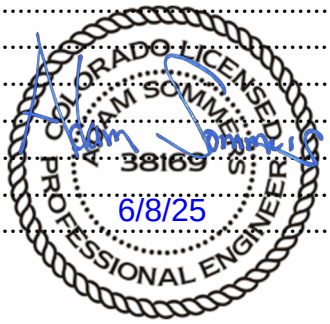


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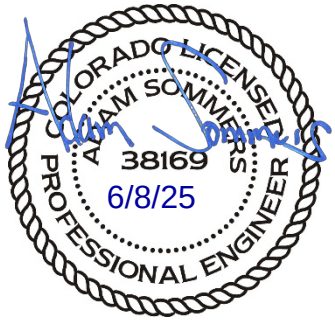


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ABBREVIATIONS

(Not all may be included in this report)

BNR	biological nutrient reduction
BOD	biological oxygen demand
CDPHE	Colorado Department of Public Health and Environment
DMR	discharge monitoring report
EQR	equivalent residential
Ft	feet
GPCD	gallons per capita per day
GPD	gallons per day
GPM	gallons per minute
HMI	human-machine interface
Hp	horsepower
I&I	inflow and infiltration
ICIS	Integrated Compliance Information System
KW	kilowatt
LS	lump sum
MBR	membrane bioreactor
MCL	maximum contaminate level
MG	million gallons
MGD	million gallons per day
Mg/L	milligrams per liter
MLSS	mixed liquor suspended solids
MMADF	maximum month average day flow
O&M	operation and maintenance
ORC	Operator in Responsible Charge
PACOG	Pueblo Area Council of Governments
PEL	Preliminary Effluent Limits
PLC	programmable logic controller
POTW	Publicly Owned Treatment Works
PPD	pounds per day
RAS	return activated sludge
SBR	sequencing batch reactor
SCADA	supervisory control and data acquisition
SRF	State Revolving Fund
SRT	solids retention time
TSS	total suspended solids

UV	ultraviolet light
WQCD	Water Quality Control Division
WQPT	Water Quality Planning Target
WWTP	wastewater treatment plant
WAS	waste-activated sludge

1. EXECUTIVE SUMMARY

The Walden Water and Sanitation District (Walden WSD), managed by the Walden Corporation, operates a sequencing batch reactor wastewater treatment plant (WWTP) in unincorporated El Paso County, Colorado. The existing plant, which was built in 1972 and modified in 1984, has exceeded its design life and is unable to meet the current discharge permit requirements. The facility has an outstanding compliance order to leak test the two clay-lined lagoons and meet the new stringent discharge requirements by 2027. This report describes the engineering evaluation and findings to remove and replace the existing wastewater treatment plant with a new membrane bioreactor (MBR) treatment plant.

The project is located in unincorporated El Paso County, about 7 miles east of the town of Monument and just east of the intersection of Highway 83 and Walker Road. The facility's existing service area is a residential community of 381 homes and a buildout capacity of 520 homes, and two schools, Kilmer Elementary and the Monument Academy East Campus. The average 30-day monthly flows range between 32,000 gallons per day (GPD) and 76,000 GPD and are consistently below the 0.11 million gallons per day (MGD) maximum month average day flow (MMADF) allowed in Walden's current groundwater discharge permit. Concurrent with the site application, Walden is applying for a new surface water general discharge permit. The application proposes moving the discharge from its current location of groundwater discharge via land application to a surface water discharge to an unnamed tributary of West Cherry Creek. The existing permit would remain in effect until the new WWTP is operational.

The treatment alternatives evaluated for the new WWTP include a sequencing batch reactor and a membrane bioreactor. The membrane bioreactor was selected as the preferred treatment alternative because of its filtration capabilities, modularity, small footprint, ease of installation, ability to meet discharge permit limits, and simplicity to operate.

Installation can be completed in 2026 if the implementation schedule is followed.

2. SYSTEM STRUCTURE AND OPERATIONS

2.1 LEGAL OWNERSHIP OF SYSTEM

The legal contact information is as follows:

Walden Water and Sanitation District
Matt Dunston, President
Walden Corporation
P.O. Box 1870
Monument, CO 80132
(719) 559-2229

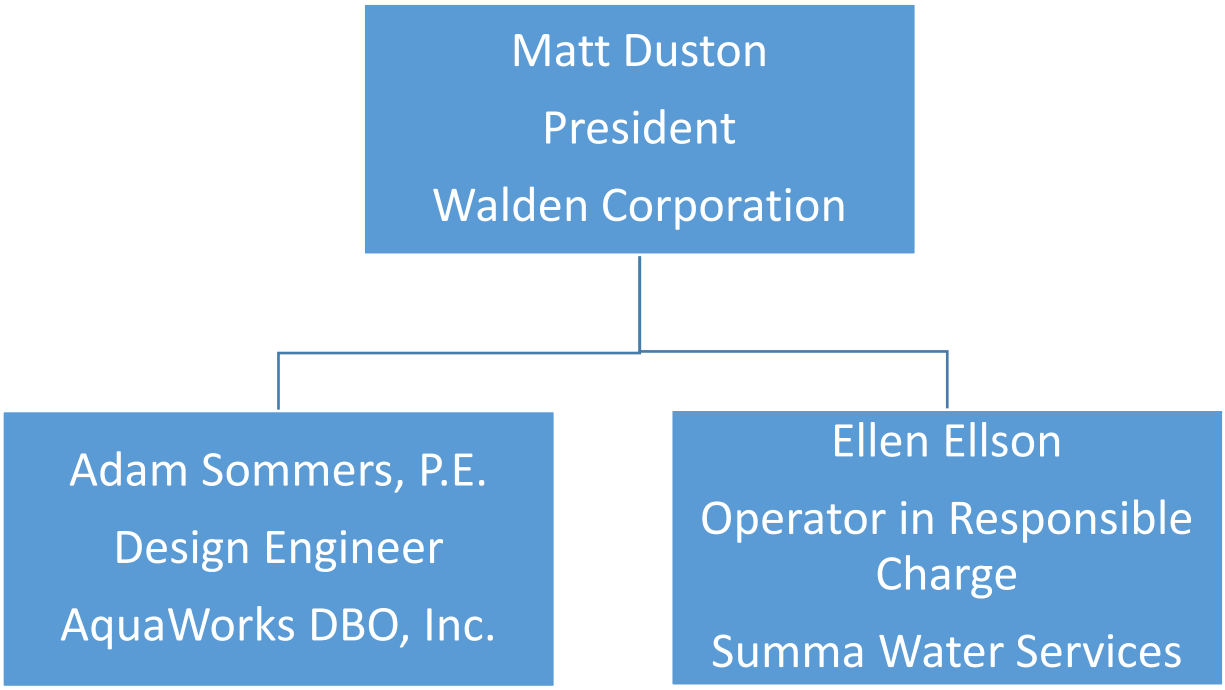
The local contact person for the facility is the Operator in Responsible Charge:

Ellen Ellson, Owner
Summa Water Services
Operator in Responsible Charge
9548 Waterbury Drive
Falcon, CO 80831
(719) 352-5257

2.2 ORGANIZATIONAL CHART

The system's organizational chart is as follows:

Figure 1: Organizational Chart



2.3 CURRENT OPERATOR IN RESPONSIBLE CHARGE & CERTIFICATION

The Walden WWTP has a contracted Operator in Responsible Charge, Ellen Ellson, who together with the owners of Walden Corporation, is responsible for managing, operating, and maintaining the facility. Ms. Ellson maintains a wastewater treatment Class A Treatment Certificate #CWP-WA-00163-0707 (Expires 7/14/2025) and Class 4 Collections Certificate #CWP-D4-00359-0107 (Expires 01/11/2026). The proposed MBR system requires a Class B certificate; therefore, Ms. Ellson's existing certifications exceed the Regulation 100 minimum ORC treatment certification requirement.

3. PROJECT DESCRIPTION PURPOSE AND NEED

3.1 PROJECT DESCRIPTION

Walden Water and Sanitation District (Walden WSD) operates a WWTP consisting of a sequencing batch reactor with polishing and evaporation ponds in El Paso County, Colorado. Walden WSD proposes replacing the existing plant, which has exceeded its design life and is unable to meet the effluent limits in the permit, with a new membrane bioreactor (MBR) package plant.

Figure 2: Service Area and Project Location



The current wastewater treatment facility uses an aerated sequencing batch reactor (SBR) system, followed by a polishing pond and an evaporation pond. The treatment process includes an inoperable mechanical grinder, aerated grit channel, a bar screen, basin blowers/aerators, the SBR, a settling pond, a polishing/evaporation pond, chlorine disinfection, and an irrigation system.

Wastewater is collected from the community and conveyed by gravity through sewer lines to the treatment plant. It first enters an open concrete chamber where it passes through a mechanical grinder. From there, it flows into an aerated concrete chamber containing a horizontal-flow grit chamber, a manual bar screen, and a 3-inch Parshall flume for flow measurement.

The wastewater then enters the sequencing batch reactor, which consists of a single concrete basin divided into two cells. Effluent from the SBR is discharged into an aerated settling pond, then continues to a polishing and evaporation pond.

After treatment in the ponds, the effluent flows in series through three concrete manholes that serve as chlorine contact basins. Disinfection is achieved via chlorine dosing in these basins. An irrigation pump draws effluent from the third manhole and distributes it to an irrigation system, which land-applies the treated water to pastureland.

The ponds and the land application area are located within the Cherry Creek Basin. The design of the proposed facility would move the discharge location to a surface water discharge in an unnamed tributary of West Cherry Creek.

Treatment alternatives evaluated for the new WWTP include a new sequencing batch reactor (SBR) and the MBR. The MBR was selected as the preferred treatment alternative because of its filtration capabilities, modularity, small footprint, ease of installation, ability to meet anticipated discharge permit limits, and simplicity to operate.

3.2 COMPLIANCE

As a condition of the permit COX631032, the facility has been issued a compliance schedule for effluent nutrient limits, specifically to meet strict total phosphorus (0.05 mg/L) and TDS limits (400 mg/L) in the Cherry Creek Basin. Additionally, the compliance schedule includes a requirement for a seepage rate study on the two ponds by 2027.

The compliance schedule was issued with the permit renewal certification for COX631032, effective 2/1/2019. It initially required the nutrient limits to be met, and the seepage study completed by 2020, but has been modified by the CDPHE to a new deadline in 2027.
The facility has been in non-compliance for gross effluent of total coliforms in October 2024. The system has been out of compliance with TSS effluent limits and percent removal in November 2023 and April 2024. The 3- year compliance history from EPA ECHO is shown below.

Figure 3: WWTP ECHO Three- Year Compliance History



Three-Year Compliance History by Quarter

Download Data

Statute	Program/Pollutant/Violation Type				QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12	QTR 13+
	CWA (Source ID: COX631032)				01/01-03/31/22	04/01-06/30/22	07/01-09/30/22	10/01-12/31/22	01/01-03/31/23	04/01-06/30/23	07/01-09/30/23	10/01-12/31/23	01/01-03/31/24	04/01-06/30/24	07/01-09/30/24	10/01-12/31/24	01/01-04/18/25
	Facility-Level Status				No Violation Identified	No Violation Identified	No Violation Identified	Violation Identified	No Violation Identified	Violation Identified	No Violation Identified	Violation Identified	Violation Identified	Violation Identified	Violation Identified	Violation Identified	Violation Identified
	Quarterly Noncompliance Report History							Reportable Noncompliance	Resolved	Other Violation	Resolved	Reportable Noncompliance	Reportable Noncompliance	Reportable Noncompliance	Reportable Noncompliance	Reportable Noncompliance	
	Pollutant	Disch Point	Mon Loc	Freq													
▸CWA	Coliform, total general E	001 - A	Effluent Gross	Mthly												345%	
▸CWA	Solids, suspended percent removal E	001 - A	Percent Removal	Neither								79%					
▸CWA	Solids, total suspended E	001 - A	Effluent Gross	Mthly								53%		17%			
▸CWA	Solids, total suspended E	001 - A	Effluent Gross	NMth								2%					

The facility has had compliance issues related to not meeting reporting requirements or late reporting, which have been resolved since.

Additionally, in July 2024, the Walden WSD was notified that CDPHE had received odor complaints about the facility. The operator adjusted the aeration in the first pond to fix the odor problem.

3.3 EXISTING FACILITY LIMITATIONS

The District's current wastewater treatment facility is rated for an average flow of 0.11 million gallons per day (MGD) MMADF and 230 pounds per day (PPD) of BOD_5. A gravity-fed collection system conveys wastewater to the continuous-flow SBR. Then effluent flows to an aerated polishing pond, and on to a polishing/evaporation pond.

Figure 4: Photograph of SBR Basins



Periodically, effluent is disinfected through chlorination and disposed of through land application via spray irrigation during summer months. The land application site is secured to prevent unauthorized access and is typically used only once or twice per year.

The primary challenges facing the system are its inability to consistently treat the permitted hydraulic capacity and meet current permit limits. Due to the discharge location in the Cherry Creek Basin, the facility is subject to very stringent effluent limits for nutrients, including a total phosphorus (TP) limit of 0.05 mg/L, as outlined in the compliance schedule.

In 2019, JDS Hydro indicated in the facility evaluation report that significant modifications to the existing facilities and operations would be required for the WWTP to consistently treat the

permitted hydraulic capacity, allow for future expansion, and meet current effluent limits. The WWTP had violations for BOD5, TSS, nitrate plus nitrate, and Total Coliform from October 2013 to September 2018. More recently, the facility has been out of compliance for total coliforms and TSS in 2024 and has a compliance schedule to meet nutrient limits.

Additionally, the lagoon liners are a concern for the existing facility. Both ponds have clay liners that would have been installed with the original plant in 1972, and the rate of seepage is unknown. The compliance schedule in the facility permit requires a seepage study for these ponds.

3.4 OPERATIONS AND MAINTENANCE ISSUES

Lagoon treatment systems have large surface areas relative to mechanical treatment plants, and the large surface area allows heat loss from the wastewater to the atmosphere. In winter, Walden's climate and elevation cause water temperatures to drop significantly, and the ponds may ice over, and the sprinkler system becomes inoperable. Effluent may only be land applied during warmer months.

Observations made by JDS Hydro in 2019, showed that the plant is not operating optimally and will continue to be unable to meet the effluent limit requirements. The following is a summary of the problematic equipment and associated maintenance issues noted by JDS Hydro:

- Preliminary treatment – The existing grinder and grit chamber are inadequate as wastewater sometimes backs up and carries large debris around the grinder into the secondary process. Grit must be manually dredged from the bottom of the grit teamer periodically
- Parshall Flume – The accuracy of the ultrasonic level center has been questionable in the past.
- Sequencing Batch Reactor – The SBR Basin is missing a pre-react basin, so wastewater flows directly from the Parshall flume into the main SBR Basin. This causes mixing and agitation during the subtle phase and contributes to the discharge of mixed liquor in the basin.
- Discharge line from the SBR – The discharge pipe is located below the normal water surface, so it cannot decant effluent from the top of the basin, which is typical on an SBR
- Aeration system – The static tube aerators used in the system are fairly inefficient at transferring oxygen and ultimately increase energy requirements for the blower.
- Biological Nutrient Removal – The SBR system has an inadequate mixing system.
- Holding Ponds – It is unknown if the pond liners are leaking. A leakage study will be required, and pond liners may need to be upgraded if the seepage exceeds the allowable rate of 1/32 inches per day.

- Winter Holding Capacity in Pond – The winter holding capacity was determined to be inadequate due to sludge buildup. Since the irrigation system can only be operated while temperatures are above freezing, additional water holding capacity may be required
- Disinfection/Chlorine Contact Chamber – The chlorine contact chamber is currently a series of three concrete manholes. An irrigation pump discharges to the irrigation system Currently, there is no dechlorination system installed

These original design issues, coupled with the aging and inadequate infrastructure and the need for extensive upgrades, strongly justify the construction of a new, modern, and efficient WWTP to ensure regulatory compliance and the protection of public health and the environment.

4. EXISTING FACILITIES ANALYSIS

4.1. AREA DISCHARGE PERMITS

The Walden WSD is located approximately 6 miles east of Interstate 25 and the town of Monument, Colorado. Wastewater is currently collected, treated, and evaporated. Land application through spray irrigation is provided, if necessary and weather-permitting, for effluent disposal to fields in the Cherry Creek Basin.

The closest facility is Monument Water and Sanitation, approximately 6 miles west of the WWTP at the junction of Walker Road and Highway 83. Walden Corporation reached out to them, but they have declined to treat the wastewater from Walden WSD. In addition, it would be cost-prohibitive to connect to Monument Water and Sanitation as the pipeline would cost more than 12 million dollars to construct, not including tap fees or land acquisition costs.

Additional facilities are much further, such as Colorado Springs Utilities and Tri Lakes WWTP, which are both over 20 miles to the southwest.

Figure 5: 1-Mile Radius Map

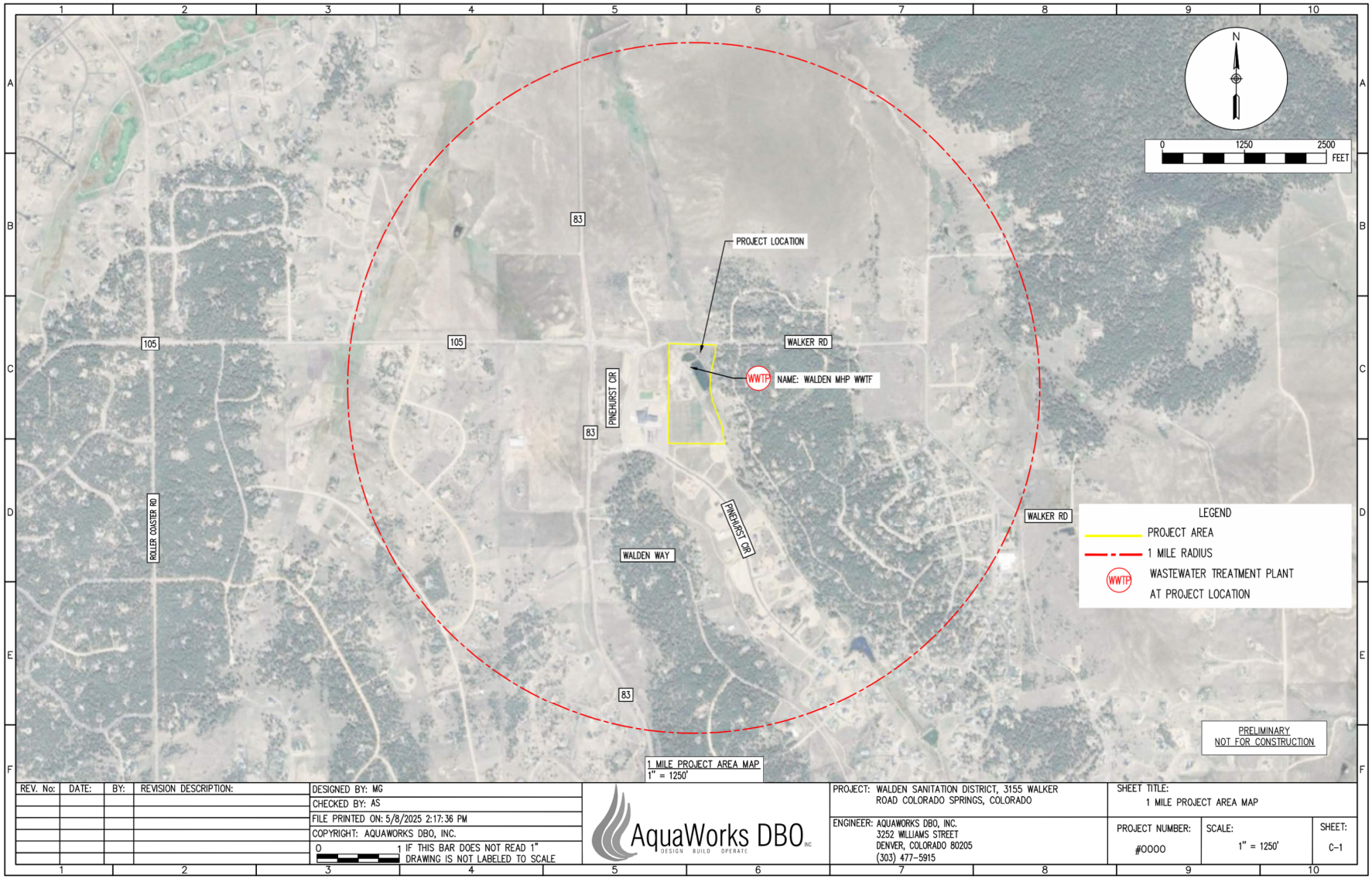
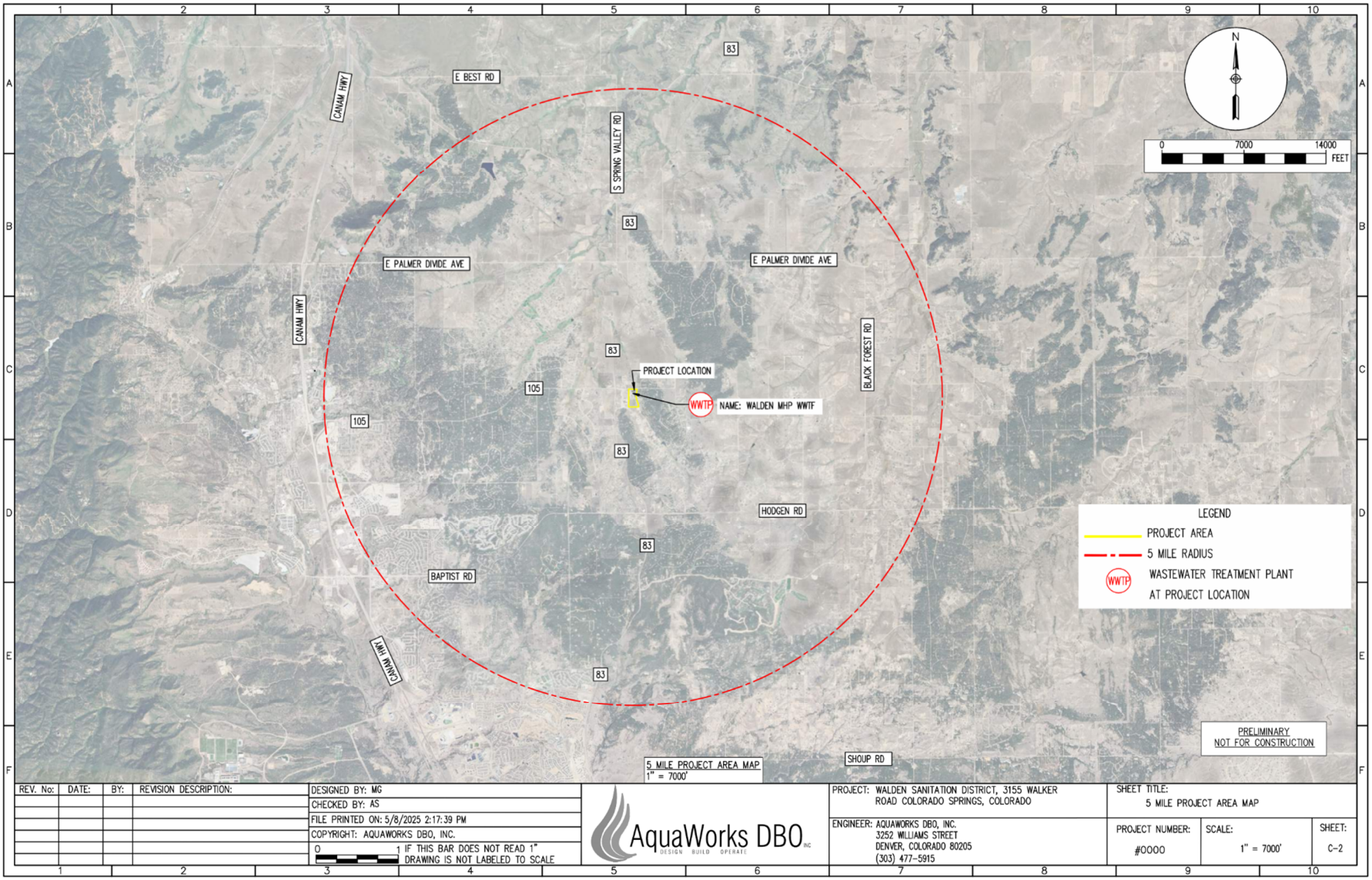


Figure 6: 3-Mile Radius Map

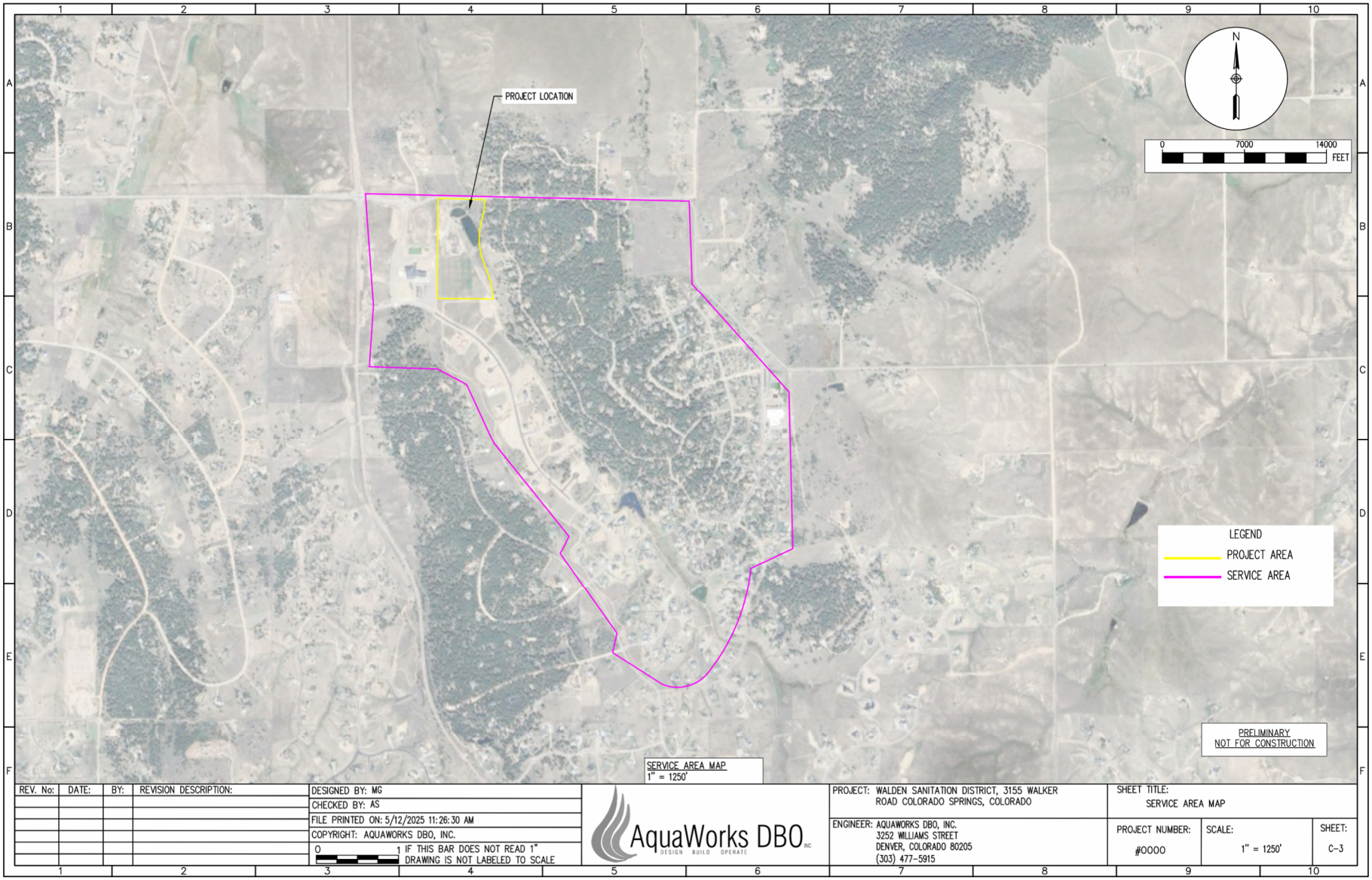


4.2. SERVICE AREA

The service area consists of 562 acres with approximately 381 homes and two schools, Kilmer Elementary School and the Monument Academy East Campus, as indicated in Figure 7. Kilmer Elementary School has approximately 340 students and 30 teachers, and staff with a target enrollment of 600 students. Monument Academy East has approximately 485 students and 30 teachers and staff, and a target enrollment of 1,000 students.

The community of Walden is a residential area developed and managed by the Walden Corporation. The existing service area includes 381 occupied homes with additional platted lots yet to be developed for a total of 400 homes. Walden Corporation is also planning a new development consisting of 120 additional homes. The total buildout is projected to reach approximately 520 homes. Additionally, both the elementary school and Monument Academy are expected to grow proportionally with the community.

Figure 7: District Service Area



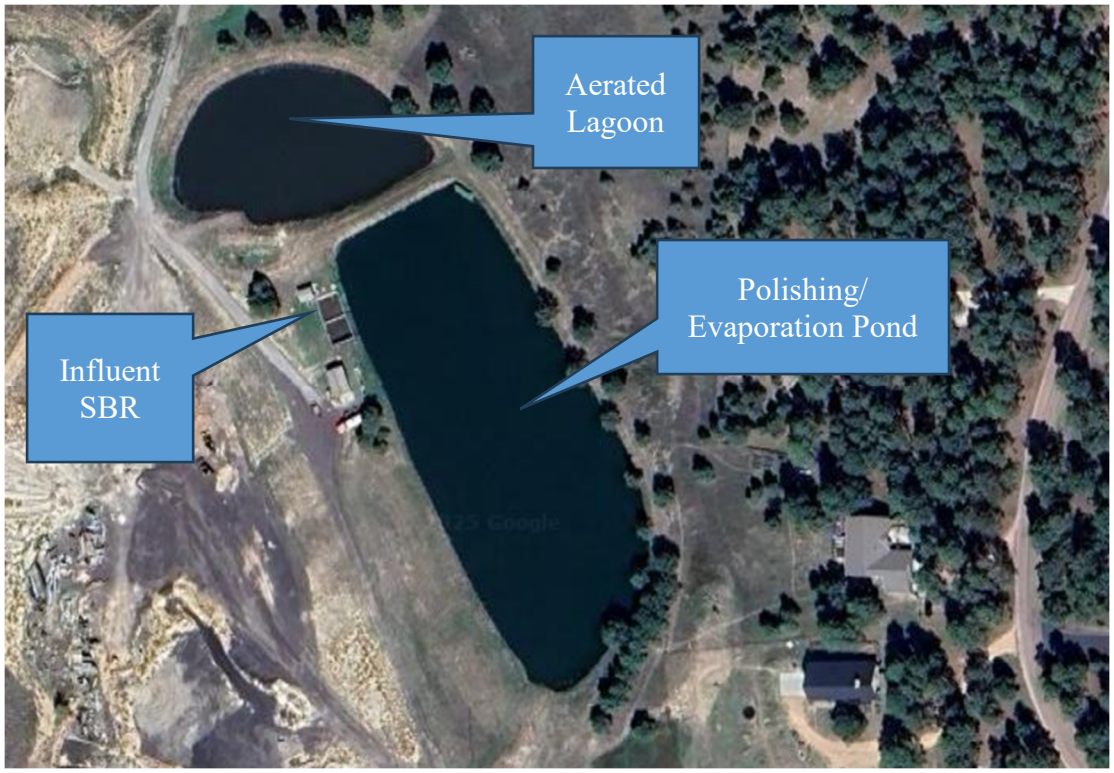
4.3 FACILITIES LAYOUT AND DESCRIPTION

The Walden WSD wastewater treatment facility is located in the NE ¼ of Section 15, T11S, R66W, 6th P.M., at 3155 Walker Road, Colorado Springs, CO 80908. The property is located in the southwest corner of Highway 83 and Walker Road. The current discharge location is latitude 39.098594 ° and longitude -104.7651810°.

Wastewater is collected from the residences within the community and the two schools and conveyed by gravity to the treatment facility. Preliminary treatment includes a bar screen and a Parshall flume. The existing system is a mechanical secondary treatment facility consisting of one aerated sequencing batch reactor (SBR), one aerated lagoon, and one polishing/evaporation pond. Effluent from the SBR is discharged to the aerated polishing pond, followed by the storage/evaporation pond for disposal via evaporation.

Chlorination and land application occur approximately twice a year. Land application through spray irrigation is permitted for groundwater discharge to the Cherry Creek Basin. The existing WWTP layout is shown in Figure 8 below.

Figure 8: Layout of Existing Wastewater Plant



System Components:

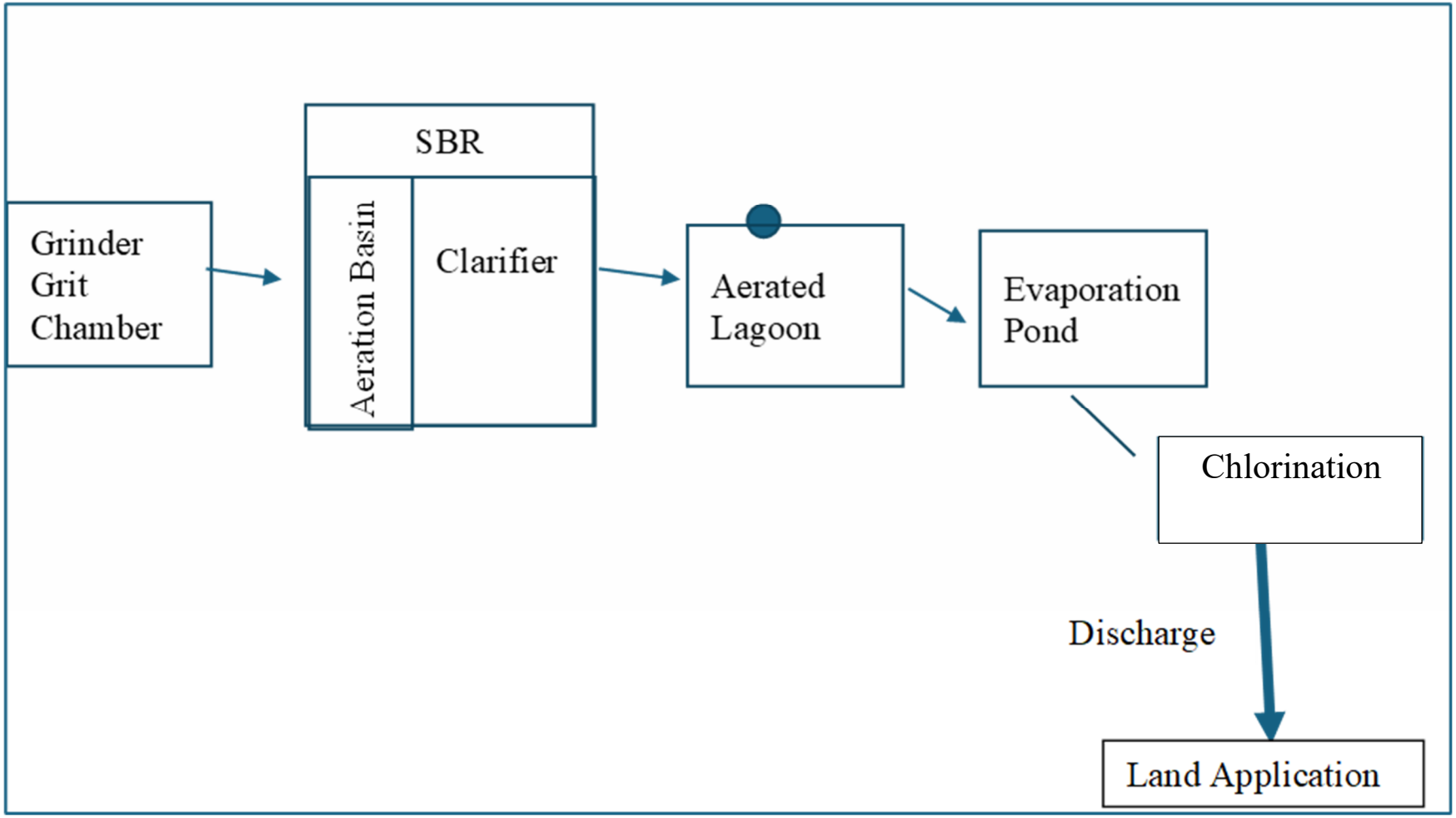
- Gravity-fed collection system

- Pretreatment through a grinder and grit chamber and bar screen
- Parshall flume
- Sequencing Batch Reactor: Pre-aeration basin, aeration basin, and clarifier
- Aerated Lagoon (Pond 1)
- Polishing and evaporation pond (Pond 2)
- WWTP Disinfection: chlorine for land application
- WWTP Discharge: Spray irrigation for land application

4.4. EXISTING PROCESS FLOW DIAGRAM

The Walden WWTP existing process flow diagram is shown in Figure 9:

Figure 9: Walden Existing WWTP Process Flow Diagram



4.5. EXISTING WASTEWATER FLOWS

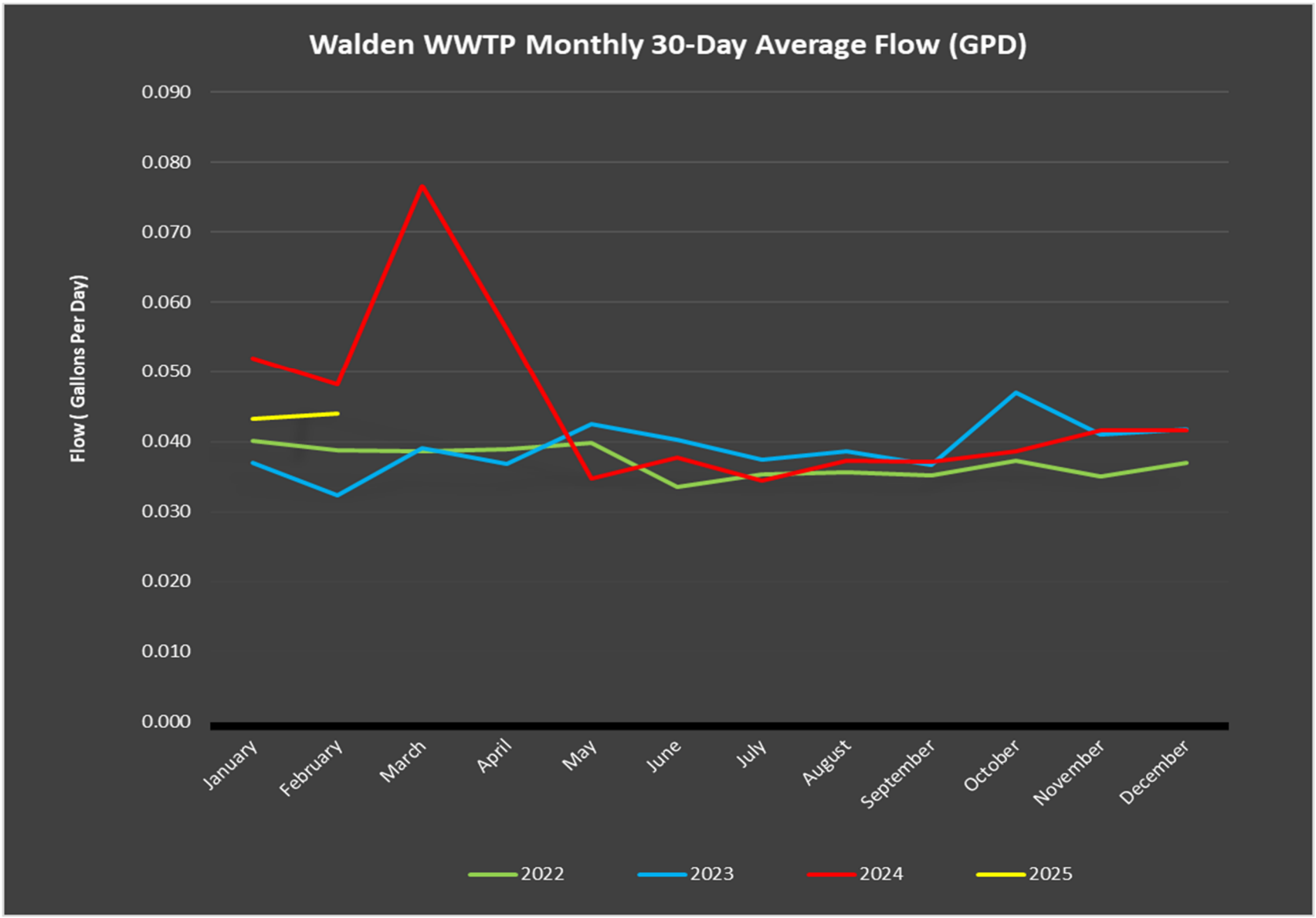
Flow rates at Walden WWTP were evaluated using EPA's ECHO records available from January 2021 to February 2025. The ECHO reports include influent flow data to the plant and discharge rates for periodic land application. Table 1 shows the calculated 30-day average flow through this period. Based on the data set, the WWTP flow ranges between approximately 37,121 GPD during low usage and 76,560 GDP during high usage. The 30-day average annual flow across all months for this period was 40,413 GPD. The maximum 30-day average day flow of 76,560 GPD was observed in March 2024.

The existing wastewater flows are compared to other data sources, such as theoretical generation rates for comparable projects, when sizing the replacement facility.

Table 1: Walden WWTP Influent 30-Day Average Monthly Flow Rate (GPD)

Month	2022	2023	2024	2025	Monthly Average
January	40,174	37,022	51,959	43,202	**43,089**
February	38,836	32,281	48,205	44,068	**40,848**
March	38,607	39,046	76,560	38,557	**51,404**
April	38,926	36,885	56,070	36,957	**43,960**
May	39,804	42,562	34,779		**39,048**
June	33,526	40,318	37,684		**37,176**
July	35,265	37,367	34,405		**35,679**
August	35,589	38,588	37,227		**37,135**
September	35,156	36,632	37,121		**36,303**
October	37,247	47,015	38,632		**40,965**
November	35,063	40,975	41,676		**39,238**
December	37,045	41,737	41,533		**40,105**
Yearly Average	**37,103**	**39,202**	**44,654**	**40,696**	**40,413**

Figure 10: Influent Wastewater 30-Day Average Flow Rates



4.6. HISTORIC WASTELOAD

Typically, the average BOD concentration for residential wastewater is around 300 mg/L. Influent wastewater records indicate that the Walden WWTP is far below the standard concentration. In the chart below, November 2023 and January 2022 were the only months with BOD concentrations of greater than 300 mg/L. However, the operator sampled the wastewater in March 2025, and the results indicated that BOD was 383 mg/L. There appears to be a discrepancy in the low BOD concentration results in the DMR and the influent wastewater level measured in March 2025.

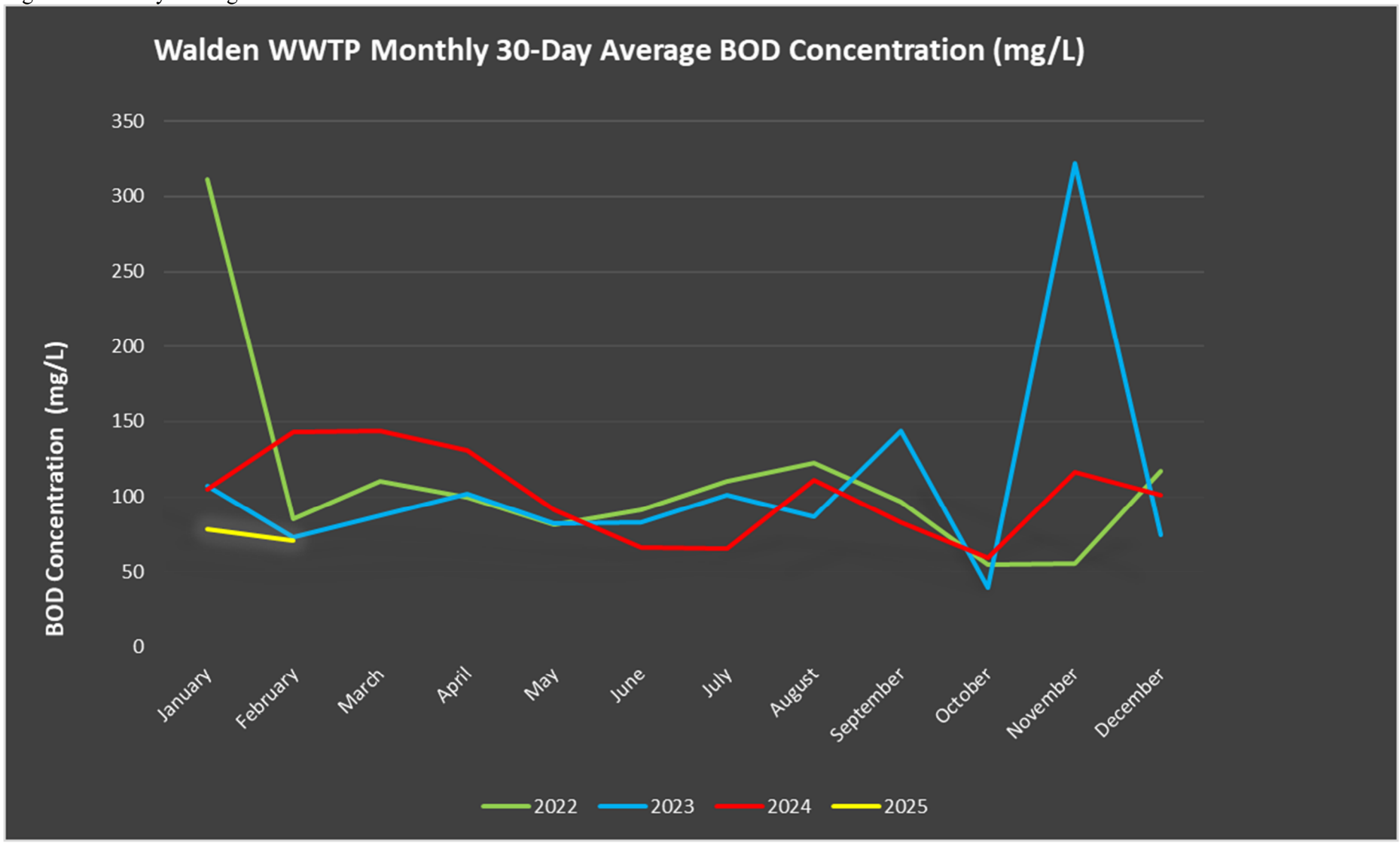
The historic BOD concentration results from the DMR records for influent BOD were used to evaluate the current and proposed organic loading of the facility. Table 2 and Figure 11 below the influent BOD concentration. The average BOD influent concentration during this period was 105 mg/L.

Table 2: 30-Day Average Raw Wastewater BOD Concentration (mg/L)

Month	2022	2023	2024	2025	Monthly Average
January	311	107	105	78	**150**
February	85	73	143	70.5	**93**
March	110	88	144		**114**
April	100	102	131		**111**
May	81	82	91		**85**
June	91	83	66		**80**
July	110	101	65		**92**
August	123	87	111		**107**
September	96	144	83		**108**
October	55	40	59		**51**
November	55	322	116		**164**
December	117	74	101		**98**
Yearly Average	**111**	**109**	**101**	**74**	**105**

Walden WSD does not believe using an influent BOD concentration of 105 mg/L accurately reflects the concentrations it will see at its new facility and is using 300 mg/L to size the organic load to the WWTP.

Figure 11: 30-Day Average Raw Wastewater BOD Concentration



Walden WSD does not sample regularly for influent nitrogen and phosphorus, as it is not required to be reported in the discharge monitoring report. The operator took a sample of total phosphorus (TP), Total Dissolved Solids (TDS), and total Kjeldahl Nitrogen (TKN) in March 2025. The results of that sample were as follows: TSS 179 mg/L, TDS 452 mg/L, TKN 50.2 mg/L, and TP 7.7 mg/L. These values align with the expected wastewater strength, based on the engineer's experience with similar systems. The wastewater in this system is anticipated to be of moderately high strength. Typical residential wastewater of average strength is generally 300 mg/L BOD, TKN of 45-55 mg/L, and TP of 6-9 mg/L. As a result, the design values used to size the replacement plant, shown in Table 4, are more conservative than the empirical data.

4.7 APPROPRIATENESS OF TREATMENT TECHNOLOGIES

The existing plant was installed in 1972 and expanded in 1984. The expansion in 1984 consisted of the SBR reactor basin, screening, aeration, and ponds. A building with blowers was also installed. As discussed in Sections 3.3 and 3.4, the most significant issues with the system are the system's inability to treat the wastewater to the effluent standards in the permit, as well as, the condition of the lagoon liners.

The treatment technology was appropriate for the historical uses – but not adequate for the long-term goals of the district. Therefore, it is seeking to replace the SBR and spray irrigation system with a membrane bioreactor.

4.8 CAPACITY OF TREATMENT TECHNOLOGIES

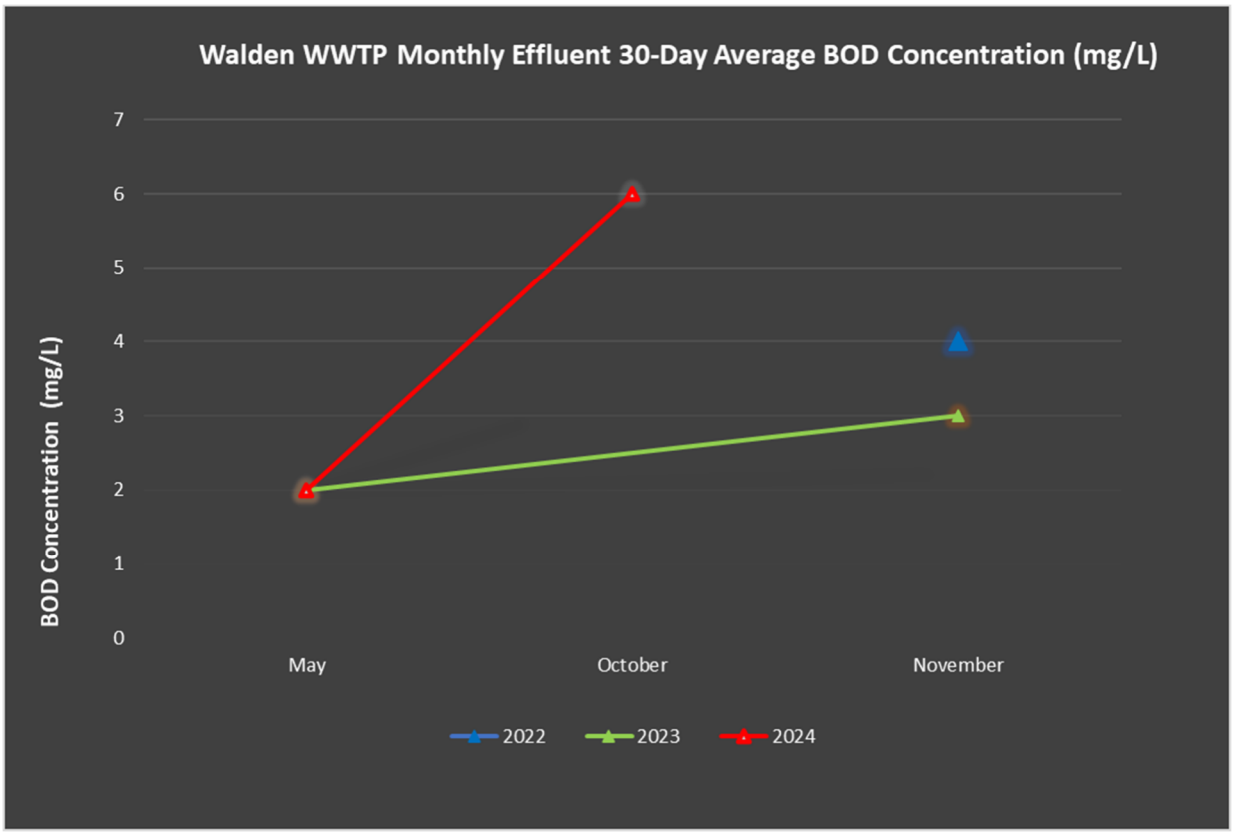
The existing facility has a rated hydraulic capacity of 0.11 MGD MMADF and an organic capacity of 230 PPD of BOD. It is a mechanical secondary treatment facility consisting of one aerated SBR with a capacity of 0.12 MGD, one aerated lagoon (2.2 MG), and one polishing pond (6.3 MG). Effluent from the SBR is discharged to the aerated polishing pond, followed by the storage/evaporation pond for disposal via evaporation.

The system has historically produced effluent with less than 30 mg/L BOD. Effluent is only periodically discharged to the land application system, so effluent results are only available for months when the wastewater was discharged. Table 3 and Figure 11 below indicate that the historical effluent BOD levels for the period between July 2021 and August 2024 vary between 2 mg/L and 4 mg/L.

Table 3: 30-Day Average effluent BOD Concentration (mg/L)

Month	2022	2023	2024	Monthly Average
May		2	2	**2**
October			6	**6**
November	4	3		**3.5**
Yearly Average	**4**	**3**	**4**	**3.8**

Figure 12: 30-Day Average Effluent BOD (mg/L) Concentration



4.9 OPERATIONAL CONTROLS

The existing system requires high amounts of manual labor for operational controls, as the equipment requires a physical presence to record data and perform visual inspections. Currently, tasks such as solids management, aeration basin monitoring, pumping system monitoring, and maintenance are being performed manually at the plant by an operator. The existing system cannot automatically monitor and keep historical records of data and, therefore, requires additional efforts from the staff to perform such tasks.

A new mechanical system will have up-to-date automation controls with a PLC-based master control panel that monitors and governs most of the treatment equipment. In-line instrumentation would be installed to optimize process control automatically. A new SCADA system would be included to record historical data and allow the operator to access the PLC remotely. An autodialer would be included so that alarm notifications are automatically reported to the operators' phones.

5. FACILITY PLANNING ANALYSIS

5.1 PROJECT AREA MAP

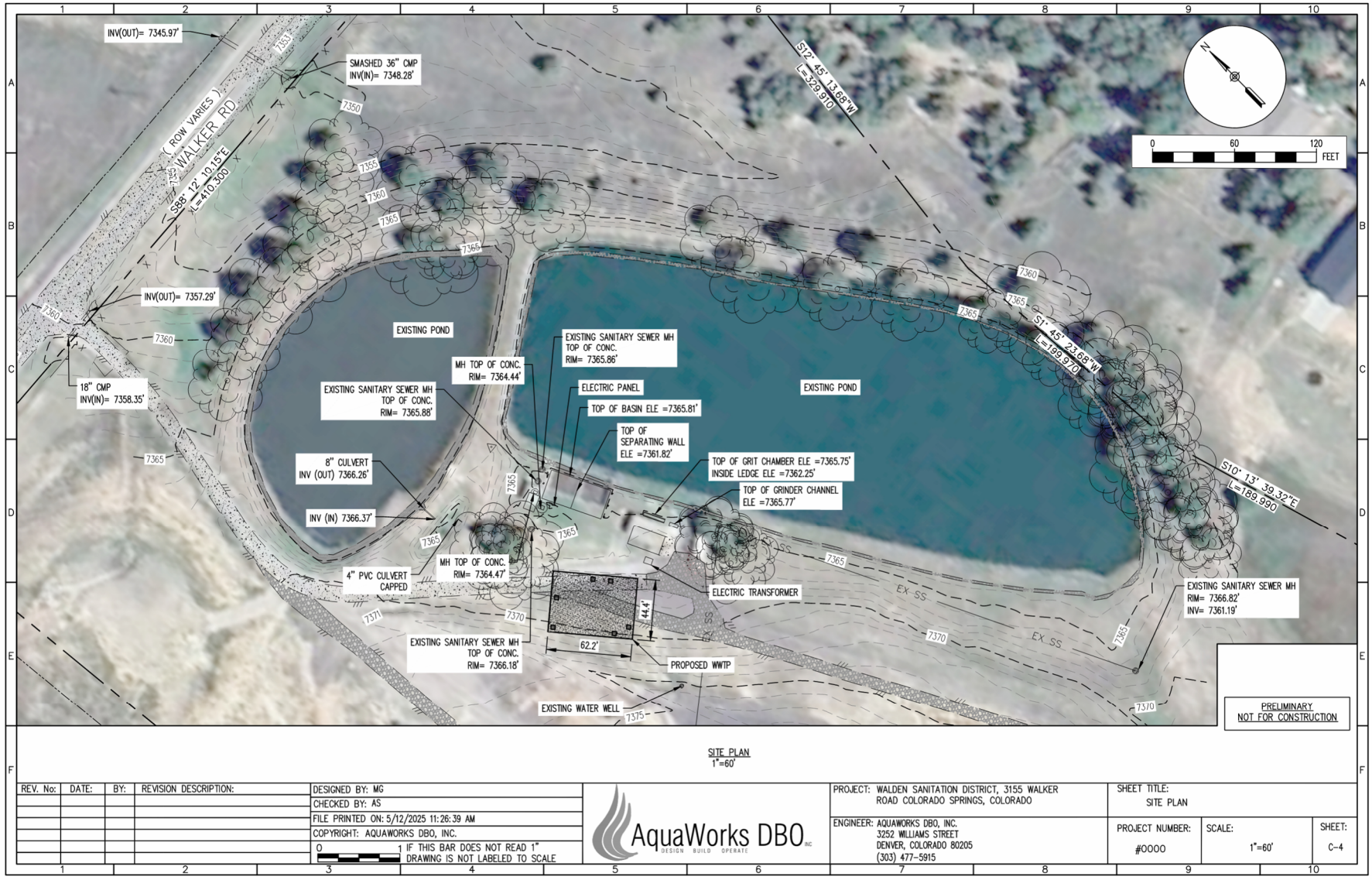
A service area map is included in the Appendix and Figure 7. The service area is not being changed with this project.

The Walden WSD wastewater collection and treatment system assets include:

- Collection system for residential housing and 2 schools
- WWTP components include continuous flow sequencing batch reactor basin, aerators, blowers, mechanical grinder, bar screen, evaporation ponds, chlorine disinfection, land irrigation.

The future site for the WWTP has been analyzed and strategically selected. AquaWorks DBO determined that it is most effective to construct the new plant close to the existing plant. This approach reduces reconnection costs and timing issues, and will be the least disruptive to the residents. Additionally, the new outfall will be located north of the plant and daylight to a small drainage way under Walker Road. See Figure 13 for the project's site plan.

Figure 13: Walden WSD Proposed Site Plan



5.2 208 PLAN COORDINATION

The Pike Peak Council of Governments will be included as one of the referral agencies. Coordination with the CDPHE will be made, if required.

5.3 LOCAL AND REGIONAL ISSUES

As required under Regulation 22, this site application has been sent to local review agencies for review and comment. The Site Application form identifies the referral agencies. In addition, since this is a new domestic wastewater treatment works as defined in Regulation 22, a sign was posted notifying stakeholders that a new treatment facility will be installed. The picture of the sign posted at the site is shown in Figure 14. The sign was posted from April 17, 2025, until May 9, 2025.

The project involves replacing an SBR/lagoon treatment plant that is a potential public and environmental health hazard, and which has had previous odor complaints, with a new facility that will treat sewage to a much higher standard. Historically, these projects have been favorably received by the public as they improve water quality.

Figure 14: Walden WSD WWTP Sign Posted at the Site (April 17, 2025) & Last Day (May 9, 2025)



5.4 POPULATION, FLOW, AND LOAD PROJECTIONS

The community of Walden is a residential area developed and managed by the Walden Corporation. The existing service area includes 381 existing homes, with additional platted lots yet to be developed for a total of 400 homes. Walden Corporation is also planning a new development consisting of 120 additional homes. The total buildout is projected to reach approximately 520 homes. Additionally, both the elementary school and Monument Academy are expected to grow proportionally with the community.

Kilmer Elementary School has approximately 340 students and 30 teachers, and staff with a target enrollment of 600 students. Monument Academy East has approximately 485 students and 30 teachers and staff and a target enrollment of 1,000 students.

Table 4: Wastewater Flow Forecasts

Wastewater Treatment Flow & Loading Projections (Regulation #43 - On-Site Wastewater Treatment)					
	Units	**Persons per SFE**	**Persons**	**Flow Per Person (GPD)**	**Flow (GPD)**

Existing Single-Family Units	381	2.7	1,029	75	77,152
Potential Buildout Single Family Units	139	2.7	324	75	28,148
Ray E Kilmer Elementary School			336	25	8,400
Elementary School Staff			30	15	450
Student Growth			200	25	5,000
Staff Growth			30	15	450
Monument Academy East High School			485	25	12125
High School Staff			30	15	450
Student Growth			460	25	11,500
Staff Growth			51	15	765
Contingency					5,560
Maximum Month Flow (30-day Max)					**150,000**

Peak Day Factor: 2
Peak Day Flow: 300,000 GPD
Peak Day Flow: 208 GPM
Peak Hour Factor: 4
Peak Hour Flow: 833 GPM

Table 5 provides flow and loading calculations based on CDPHE Regulation 43 and Policy CW-DR-1 standard planning numbers. Actual measured flow rates at the Walden WSD treatment plant are much lower than planning numbers and are currently averaging approximately 40,413 GPD. The influent loading characteristics anticipated for this project will be similar to typical household wastewater for new developments consisting of water-saving fixtures. Due to the use of water-saving fixtures and minimal I&I, the design is conservative, with an average BOD_5 concentration of 300 mg/L.

Table 5: Wasteload Forecasts

Item	Concentration		Loading per Day	
BOD_5	300	mg/L	375	PPD
TSS	300	mg/L	375	PPD
TKN	60	mg/L	75	PPD
TP	10	mg/L	13	PPD

5.5 STAGING AND PHASING

The new 150,000 GPD treatment plant will be built and installed in one phase and will contain two treatment trains for redundancy purposes, consistent with the requirements of CDPHE DR-1. The

current wastewater treatment plant will remain operable while the new treatment plant is constructed near the existing plant. After the new treatment plant is installed, the wastewater treatment will be transferred to the new treatment plant. Once the new plant is fully operational, the old plant and lagoons will be decommissioned and removed consistent with federal, state, and local requirements.

5.6 WATER QUALITY PLANNING TARGETS

The CDPHE no longer issues Preliminary Effluent Limits or Water Quality Planning Targets. Instead, it expects the applicants to anticipate the effluent limits when they are issued. The CDPHE will issue design approval without the limits, but not allow the facility to begin discharging. It is unclear what happens when a plant is designed to meet the limits that the applicant has anticipated, but ultimately are different from the discharge permit limit set by the CDPHE sometime in the future.

To proceed with this situation, where the CDPHE does not provide effluent limits yet expects the applicants to anticipate what the limits will be in the future, Walden WSD retained White River Consultants to prepare an evaluation of anticipated water quality goals. It is included in the Appendix. While this document does not guarantee the anticipated limits that will eventually be in the discharge permit, it presents the best available information at this time. The anticipated goals from White River Consultants is as follows:

Table 6: Anticipated Effluent Goals

Mechanical Facilities with Design Flows Less Than or Equal to 0.25 MGD Discharging to Classified Waters							
ICIS Code	Parameter	Limitation				Frequency[1]	Type[2]
		30-day Avg.	7-day Avg.	Daily Max	2-year Avg		
50050	Flow, MGD[3]	0.15		Report		Continuous[4]	Recorder[4]
00310	BOD_5, mg/l[5]	30	45			Monthly	Composite
81010	BOD_5, percent removal[5,6]	85% (min)				Monthly	Calculated
00530	Total Suspended Solids, mg/l	30	45 [2]			Monthly	Composite
81011	TSS, percent removal[6]	85% (min)				Monthly	Calculated
00400	pH, s.u.			6.5-9.0		Weekly	Grab
84066	Oil and Grease, mg/l			Report		Weekly	Visual
03582	Oil and Grease, mg/l			10		Contingent	Grab

Mechanical Facilities with Design Flows Less Than or Equal to 0.25 MGD Discharging to Classified Waters							
ICIS Code	Parameter	Limitation				Frequency[1]	Type[2]
		30-day Avg.	7-day Avg.	Daily Max	2-year Avg		
51040	*E. coli*, no/100 ml[7]	126	252		20	Monthly	Grab
50060	Total Residual Chlorine, mg/l	0.011		0.019	0.0017	Weekly	Grab
00640	Total Inorganic Nitrogen mg/l (Water Supply)			10	1.5	Monthly	Composite
	Total Phosphorus mg/L (Regulation 72)[8]	0.05*				Monthly	Composite
00610	Total Ammonia, mg/l as N						
	January	7.2		16	1.1	Monthly	Composite
	February	7.7		18	1.2	Monthly	Composite
	March	6.7		15	1.1	Monthly	Composite
	April	4.6		14	0.7	Monthly	Composite
	May	4.8		15	0.8	Monthly	Composite
	June	4.8		16	0.8	Monthly	Composite
	July	4.3		17	0.7	Monthly	Composite
	August	4.5		18	0.7	Monthly	Composite
	September	4.6		17	0.7	Monthly	Composite
	October	5.1		15	0.8	Monthly	Composite
	November	5.6		15	0.9	Monthly	Composite
	December	6.7		15	1.0	Monthly	Composite
00615	Nitrite as N (mg/l)**	Report or 0.5				Monthly	Composite
00940	Chloride (mg/l)	250			38	Monthly	Composite
81020	Sulfate (mg/l)	250				Monthly	Composite
51202	Sulfide as H2S (mg/l)	0.002			0.0003	Monthly	Composite

The facility's existing groundwater discharge permit will terminate once the surface water permit is issued and the plant is operational.

The following is a summary of the hydraulic and organic waste loading planned for the proposed WWTP facility:

Table 7: Wasteload Forecasts Summary

	Current Conditions		Rating/Design	
Single Family Equivalents	381	Units	520	Units
Flow (MMADF)	48,000	GPD	150,000	GPD
BOD Concentration	300	mg/L	300	mg/L
BOD Loading	120	PPD	375	PPD
TSS Concentration	300	mg/L	300	mg/L
TSS Loading	120	PPD	375	PPD
TKN Concentration	60	mg/L	60	mg/L
TKN Loading	24	PPD	75	PPD
Total Phosphorus Concentration	10	mg/L	10	mg/L
Total Phosphorus Loading	3.6	PPD	13	PPD

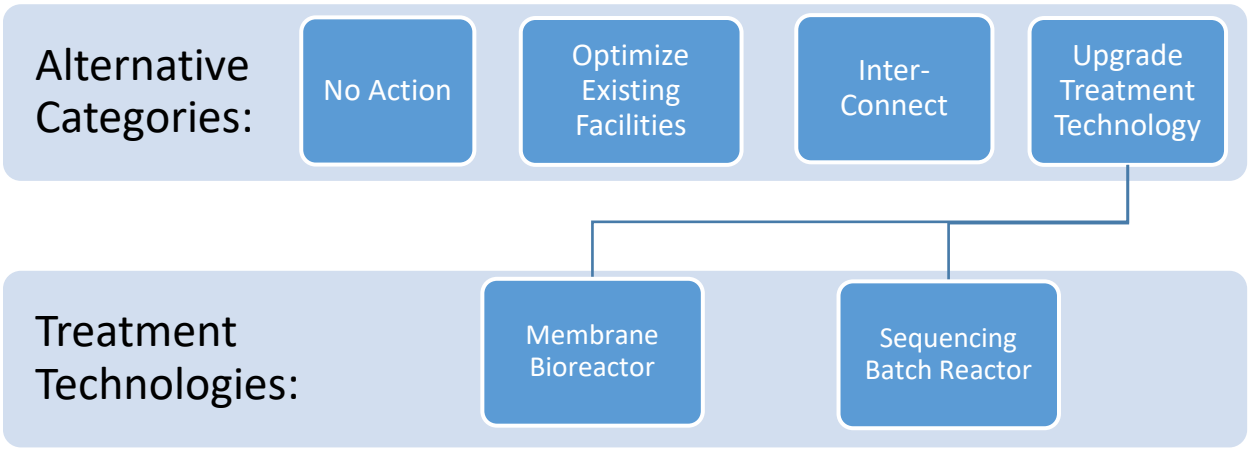
6. ASSESSMENT OF ALTERNATIVES

6.1 ALTERNATIVES

An analysis of potential reasonable alternatives was conducted for this project. The following alternatives were evaluated:

- No action.
- Optimizing the existing facilities.
- Interconnecting with the nearest facility.
- Upgrading the existing facility treatment technology with one of the following options:
    - Membrane Bioreactor (MBR)
    - Sequencing Batch Reactor (SBR)

Figure 15: Chart of Alternative Assessment Options



No Action: The Walden WWTP is not able to meet the new discharge requirements, and lagoons are not efficient at treating wastewater to these stringent standards. The facility has a compliance schedule to meet new standards by 9/1/2027. Therefore, "No Action" is not a feasible long-term approach to maintain compliance with Colorado regulations.

Optimizing the Existing Facilities: Optimizing the facility would involve making extensive improvements to the existing treatment system, which may still not meet current treatment standards. The lagoons will need to be leak tested and likely require expensive modifications to the liners.

Given the magnitude of treatment changes needed to improve the existing system, replacing it with a new, modern system with robust treatment is more effective and cost-efficient.

Interconnecting with Existing Facilities:
The CDPHE provides direction in Section 22.3(1)(c)(v), Consolidation Analysis of the Implementation Policy for Regulation 22 (Policy CW-14), for determining whether interconnecting with existing facilities is feasible. Policy CW-14 states that meeting only one of five factors is required to preclude consolidation and make connecting to an existing facility infeasible.

Interconnecting was considered but found to be impractical. The nearest treatment facility is the Monument Water and Sanitation District. To reach the nearest collection system infrastructure at Monument WWTP, the pipeline would need to be over 6 miles long and cost well over 12 million dollars. Walden WSD would still have to build a lift station and pay a tap fee to have its sewage treated at the Monument facility.

The cost to the Walden WSD facility to connect with Monument is cost-prohibitive and meets the Consolidation Analysis Policy. Additionally, Walden WSD had approached the Monument Water and Sanitation District (MWSD) about consolidating, but it exercised its right not to manage wastewater treated by Walden WSD, further making this alternative impractical.

Upgrade Treatment Technology: The most desirable scenario is to replace the existing treatment plant with a different, more advanced treatment technology that is better suited to operate well considering year-round site conditions, will achieve effluent quality to meet discharge permit limits, and provide the capacity needed for the Walden WSD. New treatment technologies can allow for a smaller footprint, simpler operations, greater operational control, and overall better effluent quality. Several treatment technologies are available. The two options evaluated for this project are the MBR and the sequencing batch reactor (SBR).

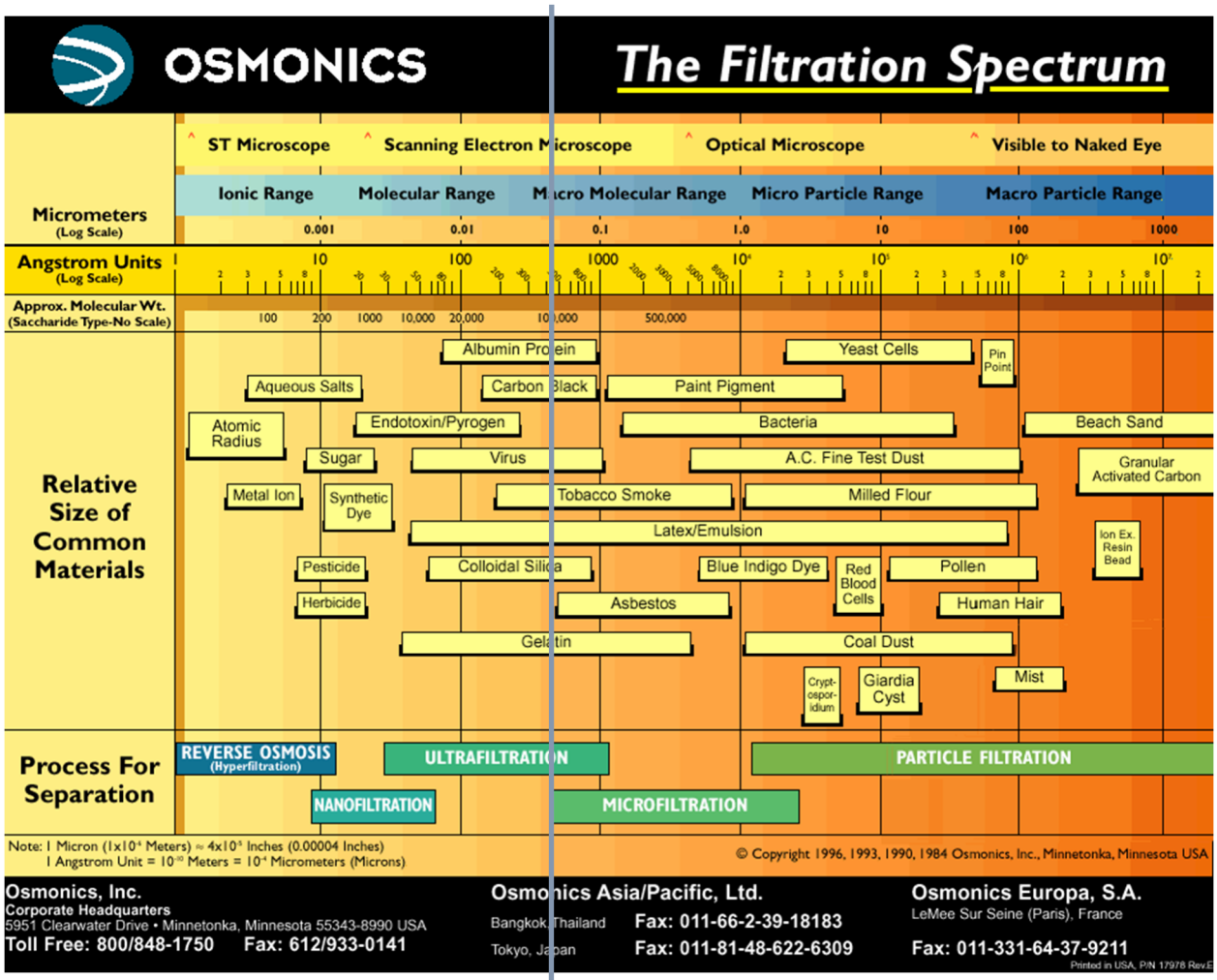
6.2 ALTERNATIVE #1 – MEMBRANE BIOREACTOR

The Membrane bioreactor (MBR) was evaluated as Alternative #1. MBR equipment packages consist of an influent fine screening channel, equalization basin, anoxic zone for denitrification, if needed, aerated tanks, membrane filtration, chemical addition, disinfection, and aerobic sludge digestion. The configuration is typical for most MBR equipment manufacturers.

The use of membrane filtration provides advanced capabilities to produce high-quality effluent. MBR systems consist of aerobic sludge manipulation that uses semi-permeable membranes to remove solids. The nominal pore size for many membranes is 0.04 µm. This porosity limits pathogenic flow-through and improves the ability to produce consistent, high-quality effluent.

Figure 16 shows the additional particles and pathogens that are filtered out with the use of a membrane.

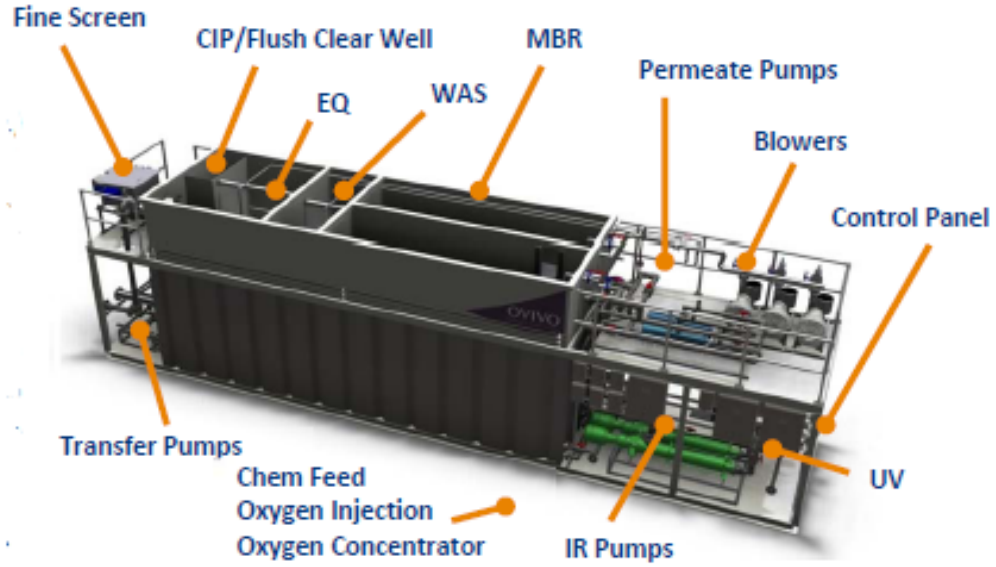
Figure 16: Filtration Spectrum



Not Filtered by Membrane ← → Filtered by Membrane

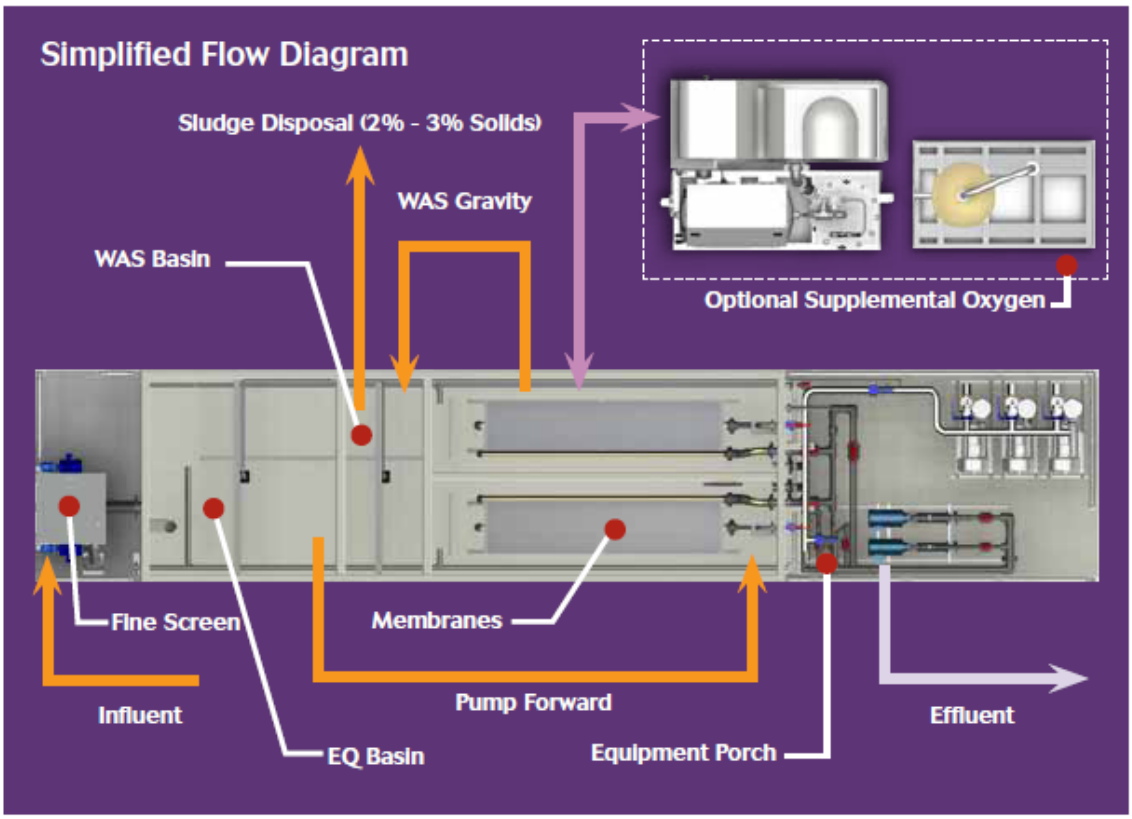
In this design, significant portions of the MBR equipment will come installed in a containerized system. Any in-basin equipment will come shipped loose for installation in new concrete tankage that is installed separately by an on-site contractor. Packaging as much of the equipment into the container as possible allows for expedited installation times and reduced construction costs. Given the short construction season, both benefits are extremely valuable for this project. The figure below depicts a complete skid-mounted system. The equipment shown below would be installed in new poured-in-place concrete tanks or the containerized system. For the Walden WSD WWTP, the design will require two modularized trains with a total of 150,000 GPD capacity.

Figure 17: Overview of MBR Equipment



- Influent fine screening
- Influent flow measurement
- Equalization zone/aerated grit storage
- Aerated sludge holding
- Provisions for coagulant, carbon, and alkalinity addition, if needed
- Aeration treatment
- Anoxic treatment, if needed
- MBR basins
- Permeate pumps
- UV disinfection reactors
- Sodium hypochlorite and citric acid addition for membrane cleaning
- Real-time DO sensor equipment
- Pre-wired, factory-tested equipment
- Remote monitoring controls and alarm exporting

Figure 18: Sample MBR Design Flow Diagram



Influent Flow and Equalization Zone/Transfer Pumps

The influent enters through a coarse bars screen to remove large solids. The coarse screen will be designed for peak influent flows from the collection system. After the coarse screen, wastewater then enters into an equalization tank (EQ). The EQ tank will be designed to hold peak hour flow and I&I events and to facilitate grit removal as grit will settle to the bottom of the tank. Aeration pumps will be installed to keep the liquid from becoming septic. Redundancy in the design includes an EQ tank that can be bifurcated into two by closing a gate between compartments. The tank will also include at least two EQ transfer pumps (one duty and one standby). The transfer pumps will transfer wastewater from the EQ tank through the fine screens, the first step within the modularized system.

Fine Screens

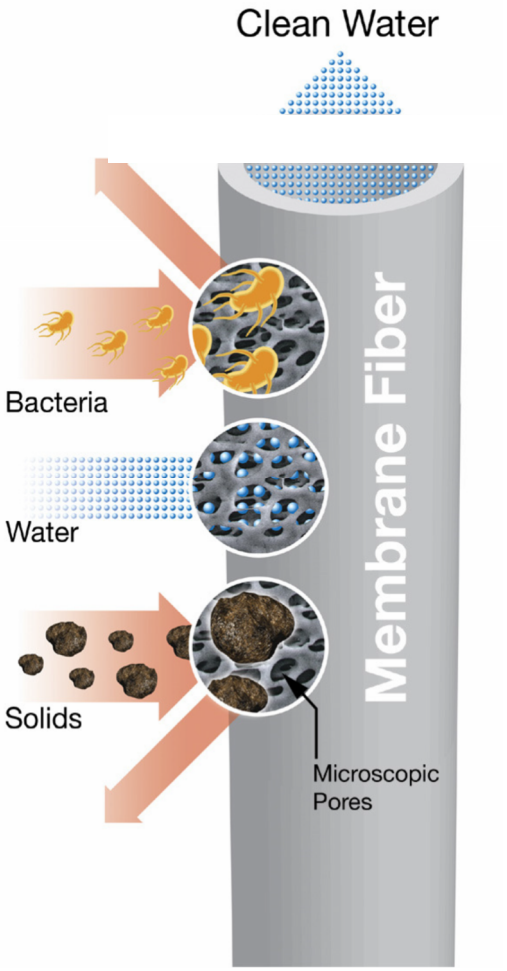
After EQ, wastewater passes through an automatic fine screen as the first treatment process in the modularized system. The fine screens will be designed to meet peak influent flow rates. The fine screens will have perforated openings of 2 mm for removing solids to protect the membranes. Two fine screens will be supplied, and a shelf spare part will be provided. After fine screening, screened wastewater then enters the biological treatment basins.

Screenings will be processed into a bin for ease of removal and disposal at a solid waste facility.

Biological Nutrient Reduction

The MBR treatment process can be designed for BOD and ammonia treatment and may be modified to include denitrification for nitrogen removal. The Walden WWTP design will include pre-anoxic tanks to facilitate denitrification to meet total inorganic nitrogen limits anticipated in the facility's future discharge permit renewal. The pre-anoxic tank will include a mixing pump to optimize denitrification. The aerobic tank is after the pre-anoxic tank and provides BOD and ammonia reduction. The aerobic tank includes submerged fine bubble diffusers, a mixed liquor recycle pump, and a waste sludge pump. Regenerative blowers are supplied to provide constant aeration of the mixed liquor in the aerobic tank. Finally, another set of transfer pumps convey treated wastewater from the end of the aerobic tank to the membranes for solids removal. Throughout the biological processes, the system's controls monitor tank water levels, dissolved oxygen concentrations, and pH in the basin biomass to indicate the changing biological oxygen demand and nitrification needs.

Figure 19: Membrane Fiber Diagram



Submerged Membranes

The MBR system's core treatment is housed in the two MBR basins. In the basins, a mixed liquor suspended solids (MLSS) of 9,000 mg/L (or 12,000 mg/L for ceramic membranes) is maintained. After biological treatment, membranes use filtration to separate treated water from the mixed liquor. The continuous scouring acts as a primary means of avoiding membrane fouling. Typical operation of membranes calls for a set permeate period, determined by the manufacturer, followed by a rest function and/or a reverse flow. This alternating operation helps prevent overloading and fouling of the membrane cartridges.

The membranes are installed in a parallel arrangement and use a permeate vacuum pump to achieve an optimal flow-through rate. The operator adjusts the pressure to achieve constant pressure.

This feature provides optimal flux among flow-through capabilities, membrane surface area, and membrane fouling prevention.

UV Disinfection
The MBR alternative includes ultraviolet disinfection after solids removal. The UV disinfection process will be designed to meet effluent limits for coliform and E. coli. This process does not require the addition of any chemicals.

Effluent Operation
The effluent discharge rate is regulated by the permeate pumps. The pumps are controlled and monitored by the system's internal controls governed by the PLC. The flow rate is measured by an integral effluent magnetic flow meter and controlled with the PLC.

Operation & Maintenance
The MBR's process control is performed through an integral HMI interface panel. The panel monitors and allows the manipulation of blowers, pumps, flows, and chemical additions.

Scheduled maintenance will include cleaning of the basins and sludge removal. The manufacturer suggests cleaning the basins with a chemical cleaner for organic and inorganic fouling. The cleaning chemicals used with this system will consist of sodium hypochlorite and citric acid. The frequency of cleaning will be dependent upon influent loading characteristics.

As with any process, the use of a proactive procedure will provide optimal system performance for continuous quality treatment. Influent, effluent, and in-basin monitoring of wastewater conditions will allow the system to evaluate trends and predictive measures to be taken to forecast possible interruptions in effluent quality. A scheduled routine of sludge removal will be required at the intervals deemed necessary.

Chemical Addition
The MBR process will require the following five chemicals for operations and maintenance:

- Alum to promote the removal of phosphorus if needed.
- Carbon addition for denitrification, if needed.
- Caustic soda for pH and alkalinity adjustment.
- Sodium hypochlorite for back-pulsing of membranes.
- Citric acid for cleaning to prevent inorganic fouling of membranes

6.2.1 CAPITAL AND O&M COSTS – MEMBRANE BIOREACTOR

The following is a conceptual-level annual estimate of the O&M costs for the MBR alternative:

Table 8: MBR O&M Annual Estimates

	MBR
Sludge Disposal	$60,000
Power (at $0.1 per kW/hr)	$50,000
Chemicals	$12,000
Membrane Replacement Budget	$12,000
Replacement Parts Budget	$25,000
Analytical Testing	$6,000
Contract Operations	$60,000
Miscellaneous	$40,000
Total:	$265,000

6.2.2 ADVANTAGES & DISADVANTAGES – MEMBRANE BIOREACTOR

The following is a summary of the advantages and disadvantages of the MBR:

Table 9: MBR Advantages/Disadvantages

Advantages	Disadvantages
Quick and simple construction onsite to place a single buried, concrete basin.	High equipment cost (membrane)
Controls, pumps, chemical feed systems, and blowers come within a container already assembled and tested.	High power costs due to continuous blower and permeate pump operation
Since equipment comes within a container that functions as the treatment building, constructing a treatment building on site is eliminated.	Possible membrane fouling
Lower overall construction costs and shorter construction duration onsite.	Lower oxygen transfer rate due to the coarse bubble diffusers and high MLSS
High-quality effluent. High BOD and ammonia removal	Membranes require replacing approximately every 10 years
Can meet strict future phosphorous limits without additional equipment	Membranes perform less efficiently at cold temperatures (< 10°C)
Better site aesthetics/ smaller footprint required	
Coarse bubble diffusers experience lower probability of plugging	

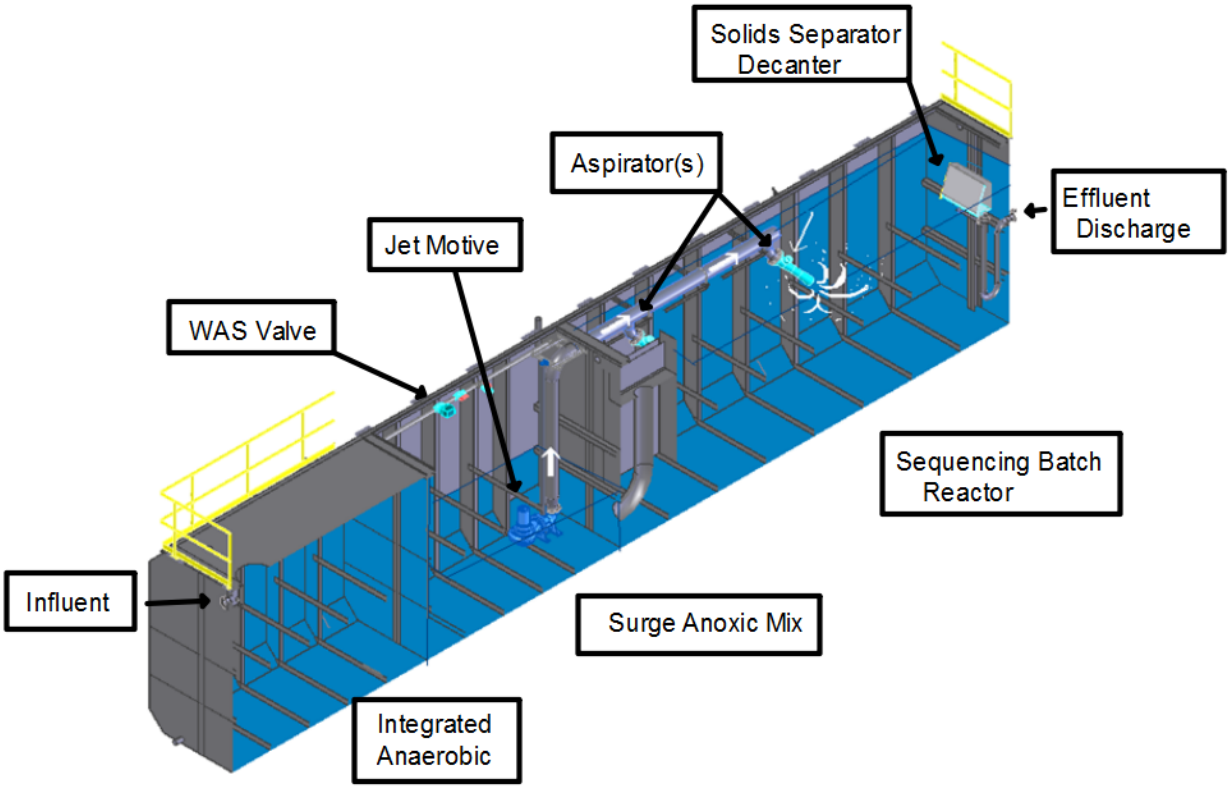
6.3 ALTERNATIVE #2 – SEQUENCING BATCH REACTOR

The SBR treatment facility alternative consists of an activated sludge system with most of the required equipment and controls supplied by a common manufacturer. The equipment features the following major components:

- Influent conditioning/equalization
- Anaerobic sludge handling
- Jet motive/wastewater transfer pumps
- Jet aspirator aeration system
- SBR basins
- Automated floating solids, excluding decanter
- UV disinfection
- PLC-based control system

The proposed system package consists of two treatment train processes operating in parallel. This configuration provides enhanced operator control and additional redundancy capabilities. The functions and basis of the design for each of these treatment steps are discussed below.

Figure 20: Overview of the SBR Process



The image above shows all the equipment in a metal tank.

Influent Conditioning/Sludge Storage Tanks

After the influent flow measurement and screening, raw wastewater will flow by gravity into the first component of the biological process, the influent conditioning/equalization chamber. This variable-level chamber is where heavy influent solids and grit will settle out, like a primary clarifier. Here, settleable solids will be converted to soluble BOD. Underflow baffles are incorporated into the design to prevent direct short-circuiting, which causes uneven treatment and conversion rates.

Waste Sludge Storage

The SBR alternative includes a separate storage tank for aerobic waste sludge. The storage tank is typically sized to provide approximately 30 days of storage to facilitate periodic sludge hauling.

SBR manufacturers have documented significant volatile-solid reductions and typical sludge solid concentrations of 3–4%. This results in an extremely efficient sludge storage system and

minimizes the frequency of hauling. Based on observations of the stored sludge levels, sludge will be removed as needed with a vacuum truck and hauled offsite to a permitted facility.

Jet Motive – Wastewater Transfer Pumps

The multipurpose jet motive pumps serve three essential functions for the SBR. First, the pumps act on an intermittent cycle to forward-feed partially treated water into the SBR while simultaneously acting as Venturi aerators. Second, the pumps cycle water between the SBR and the anoxic basin to denitrify the wastewater. Third, the jet motive pumps feed WAS to the front of the plant by siphoning a side stream of the sludge. Enough jet motive pumps will be supplied to provide redundancy.

Aeration System – Aspirating Nozzles

The motive pump also activates an aspirating jet aerator to oxygenate the SBR. The aerator nozzles will be in the SBR's basin. The oxygen-delivery system is sized to exceed the calculated oxygen requirements to accomplish treatment (CBOD and ammonia conversion).

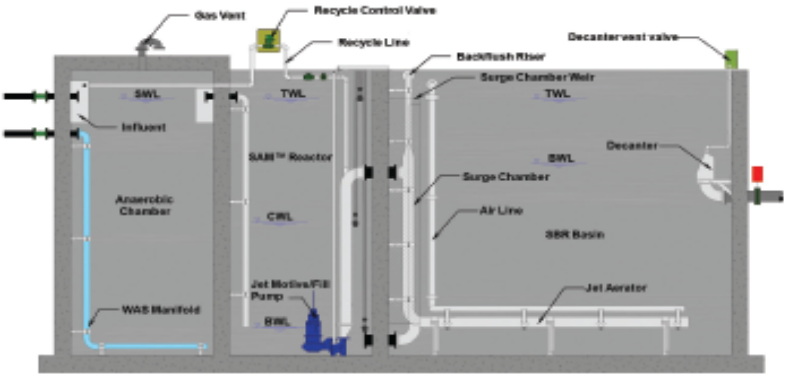
Sequencing Batch Reactor (SBR)

Each batch of wastewater is treated within a cycle in the SBR basin. Each cycle has five distinct phases:

1. Fill/react
2. Interact/react
3. Settle
4. Decant
5. Filled Decant

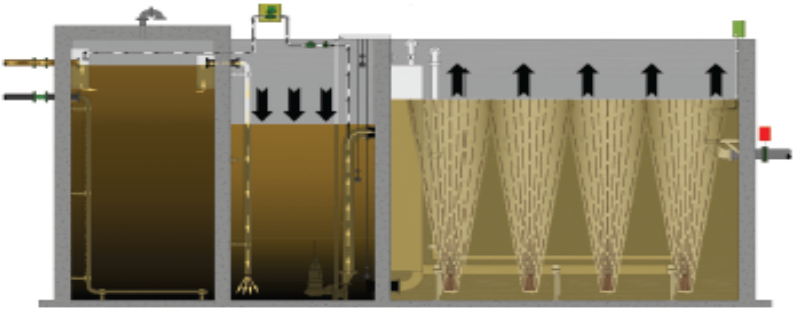
The following is a description and illustration of the five phases of the SBR process:

Figure 21: SBR Phases



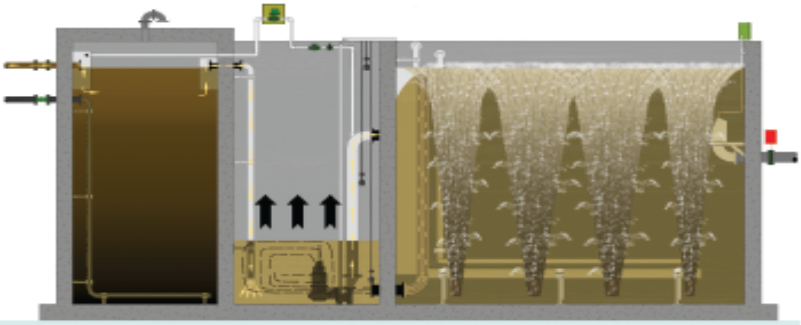
System Components:

Influent continuously enters the anaerobic chamber where solids settle. Settleable BOD is converted to soluble BOD. BOD is reduced by 30% and solids are reduced by 60%. The influent then flows to the SAM™ reactor. Mixed liquor is maintained in the SAM™ reactor to suppress orders and initiate and accelerate carbon and nitrogen reduction.



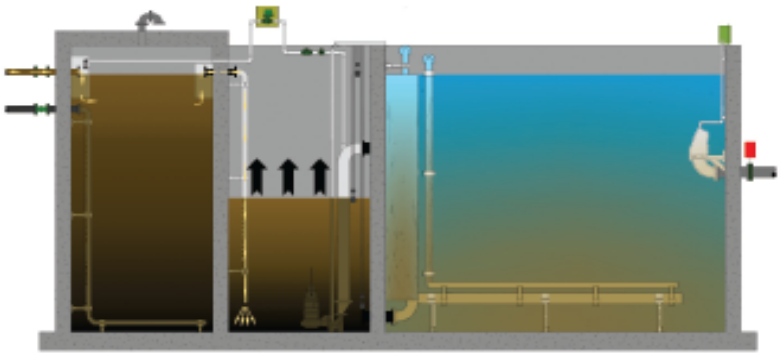
Fill Phase:

When the level in the SAM™ reactor reaches a predetermined "control level" the motive liquid pump is started. The SBR basin is filled and mixed. A percentage of the pumped flow is returned to the anaerobic chamber where biological solid settle. Settled solids in the anaerobic chamber are digested.



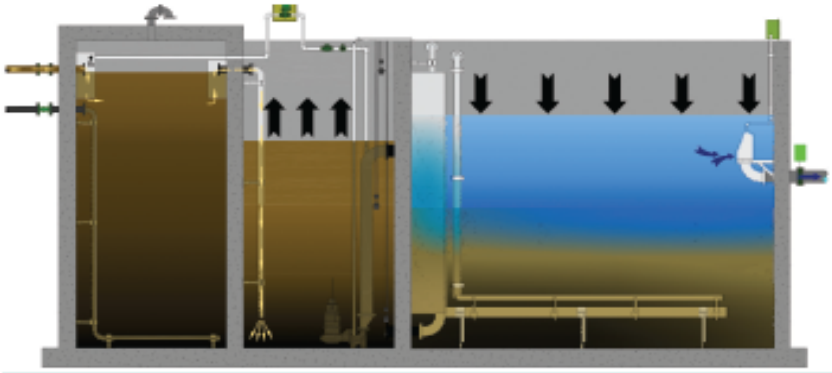
Interact Phase:

When the level in the SBR reaches TWL, nitrified mixed liquor overflows the surge chamber weir and is returned to the SAM™ chamber to mix and react with the raw influent. Aeration is cycled on and off to provide the required oxygen. Denitrification is reliable and complete. Scum is also removed from the SBR basin.



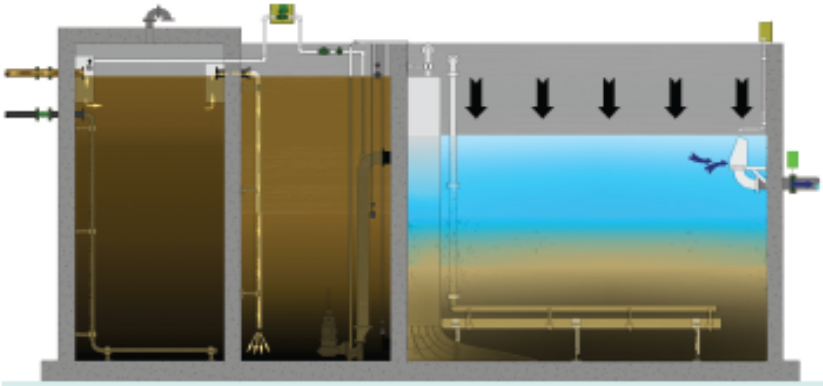
Settle Phase:

When the level in the SAM™ reactor again reaches "control level" aeration is discontinued and the SBR basin settles under perfect quiescent conditions.



Decant Phase:

When the settle timer expires, the decant valve is open and treated effluent is withdrawn from the upper portion of the SBR basin by means of a fixed solids excluding decanter.



Filled Decant Phase:

If, during peak flow events, the SAM™ reactor reaches TWL before the decant phase ends, influent flows in a reverse direction through the surge return line and overflows the surge chamber secondary weir and is diffused into the settled sludge at very low velocity as the decant phase continues.

Filtration
Filtration will not be included with this SBR alternative. Space in the facility's building could be provided in the event future strict phosphorous limits are implemented, and filtration needs to be added to the SBR treatment.

Disinfection System
Decanted supernatant passes through a chlorine disinfection contact/effluent equalization chamber.

Biological Nutrient Reduction (BNR)
The SBR has features that allow for BNR through the modulation of the MLSS and react cycles. Uric nitrogen is removed first through anaerobic denitrification, which converts urea-based nitrogen into ammonia. The SBR then allows for nitrification via an aerobic process whereby the ammonia is converted to nitrite/nitrate molecules.

OPERATION & MAINTENANCE
The SBR system is highly automated but will require daily operation and maintenance by operators for optimal process control. A PLC operates the SBR with HMI manipulation. The process is automated and is optimized when the operator makes adjustments to achieve a quality effluent. As with all wastewater facilities, the SBR runs best with daily supervision and provides consistent operation if a proactive regiment is implemented. A true understanding of influent/effluent and in-basin conditions will allow the operator to make educated adjustments and predictions for wastewater treatment.

Daily or weekly maintenance may include settleability, MLSS testing of the SBR, and a monthly sludge judge analysis of the sludge storage basin. Pump maintenance should be performed in accordance with the manufacturer's O&M requirements.

Sludge dewatering or hauling is typically done monthly but is subject to influent loading conditions. Design criteria will influence how frequently sludge must be removed.

Chemical Addition
The SBR process will require the addition of the following chemicals:

- Alum, to promote the removal of phosphorus.
- Soda ash for alkalinity adjustment.
- Carbon addition for additional denitrification, if needed.

6.3.1 CAPITAL AND O&M COSTS – SEQUENCING BATCH REACTOR

The following is a conceptual-level annual estimate of the O&M costs for the SBR:

Table 10: SBR Annual O&M Estimates

	SBR
Sludge Disposal	$40,000
Power (at $0.1 per kW/hr)	$40,000
Chemicals	$12,000
Replacement Parts Budget	$10,000
Analytical Testing	$6,000
Contract Operations	$50,000
Miscellaneous	$40,000
Total:	$198,000

6.3.2 ADVANTAGES & DISADVANTAGES – SEQUENCING BATCH REACTOR

The following is a summary of the advantages and disadvantages of the SBR:

Table 11: SBR Advantages/Disadvantages

Advantages	Disadvantages
Lower equipment costs	Site aesthetics/ Larger footprint relative to MBR
Reduced amount of sludge generated	Requires construction of a separate building structure over the SBR basins and equipment
Lower electrical consumption	Plant can gain too much MLSS and produce solids in effluent if not properly maintained
Fewer consumables (membranes) to replace	Does not have a membrane as a barrier to retain solids
High-quality effluent	Longer construction duration needed to install basins, construct the onsite building, and install equipment
	If the anaerobic tank is not maintained below a set sludge level, it can provide unsightly scum in the SBR, eventually causing poor settleability.

7. SELECTED ALTERNATIVE

7.1 JUSTIFICATION OF SELECTED ALTERNATIVE

Walden WSD proposes implementing MBR treatment technology at the plant site to replace the current system. This approach provides the most robust practical level of wastewater treatment within a small footprint and low cost.

The MBR can produce consistent effluent quality better than the other available technologies, such as conventional activated sludge, rotating biological contactor, moving bed bioreactor, sequencing batch reactor, lagoon, and oxidation ditches. The proposed MBR system contains an ultrafilter membrane with 0.04-micron openings to remove particulates, bacteria, and viruses. Anything larger than this opening is unable to pass through the membrane and will not be discharged into the environment with the effluent.

Another significant reason the MBR technology was selected is that this option offers a quick turn-key solution because the community cannot be without wastewater treatment. The small footprint requirements also facilitate construction in a small area on the same parcel as the existing facility while the plant is still in operation.

The proposed MBR technology is supplied by Newterra and is a made-to-order system. Most of the equipment is installed inside a container offsite and shipped ready to operate. No further building is required to house the treatment equipment. The system can be manufactured off-site while site work and concrete tanks are completed on site. The cast-in-place concrete tanks act as a foundation for the containerized MBR unit, which is simply placed on top when arriving on site. This approach significantly reduces construction time. Due to Walden WSD's schedule and the need to install a new system as soon as possible, a quick, cost-effective solution is essential. The equipment installation process is greatly simplified with this approach as it does not require the onsite contractor to complete ordering and installing specialized process equipment, electrical, and controls.

Figure 22: Cross-section View of Newterra Containerized MBR System

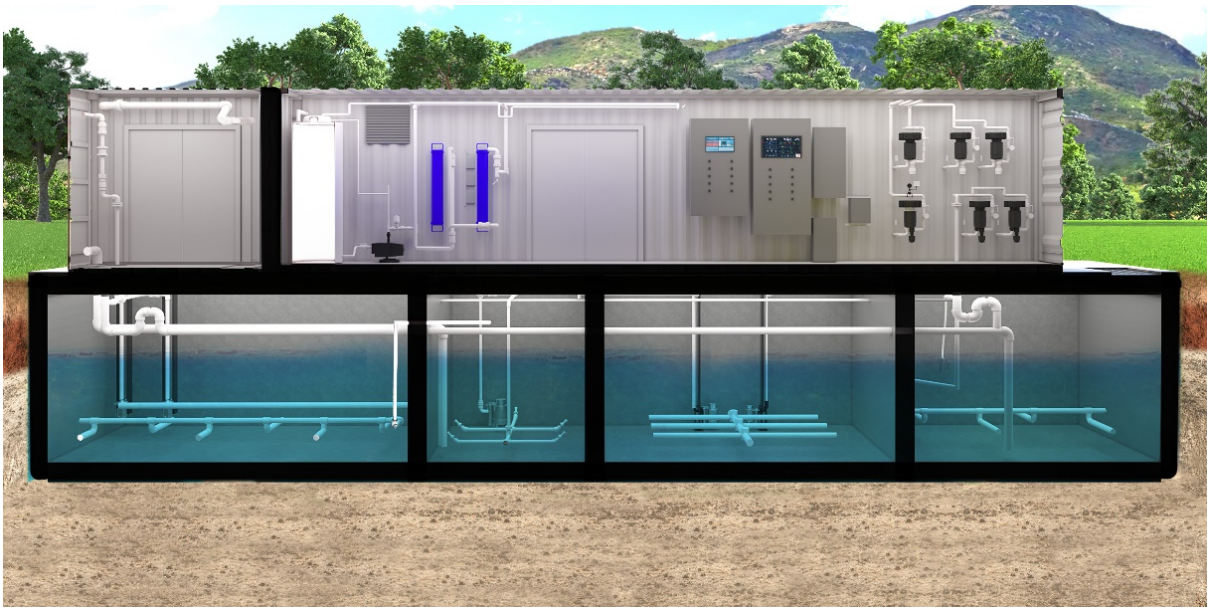
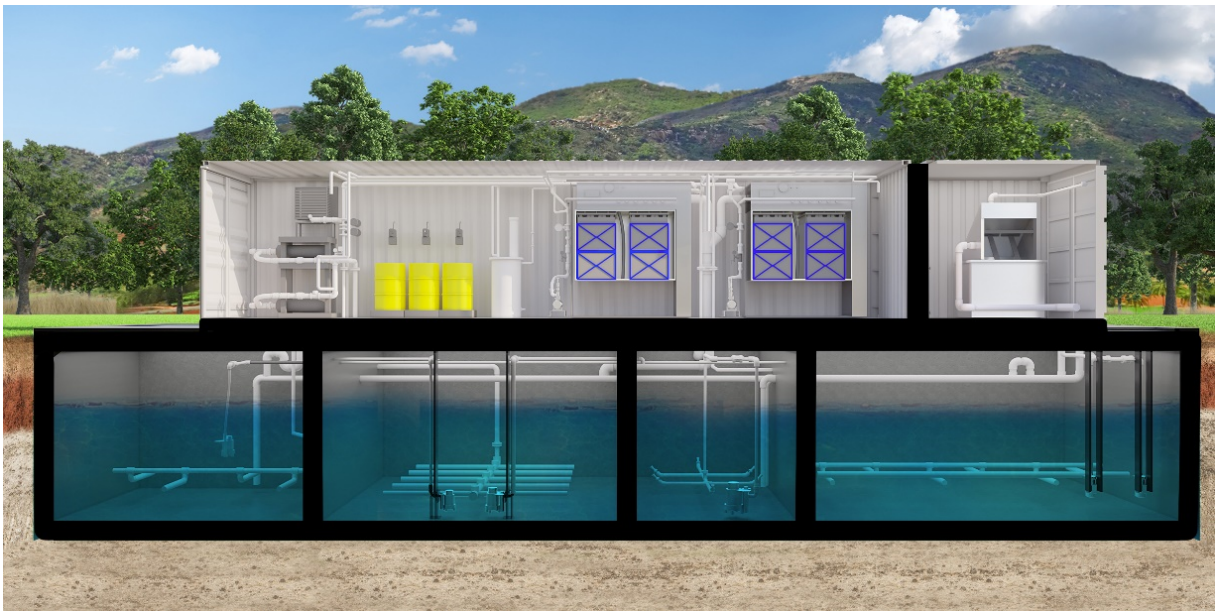
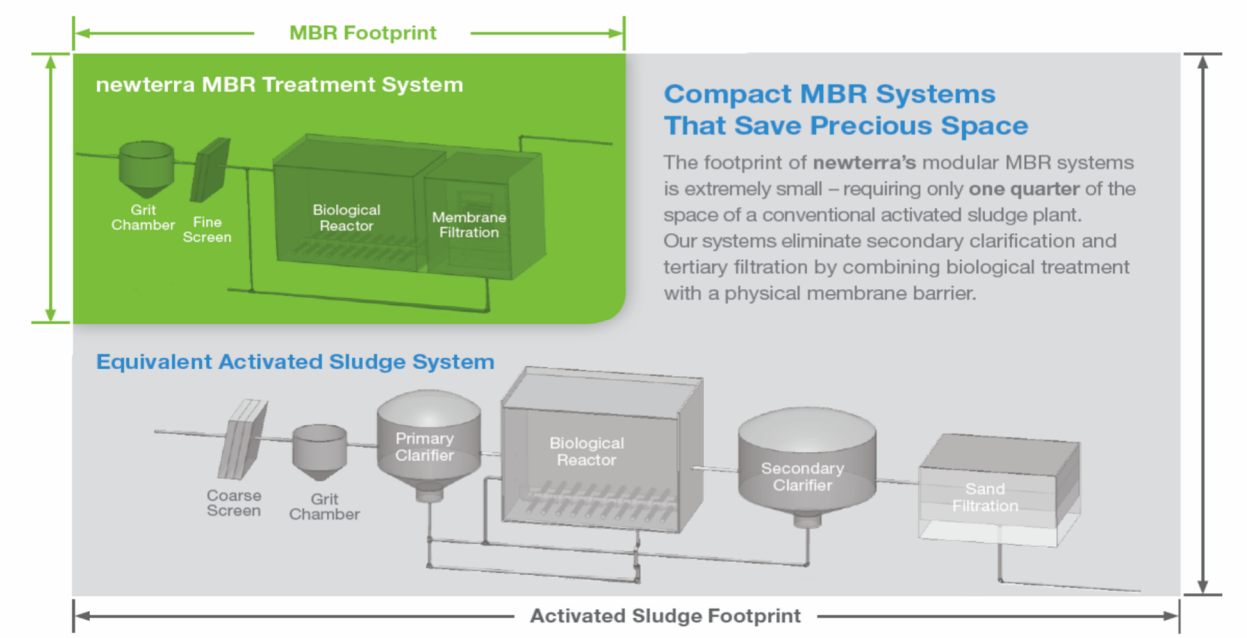


Figure 23: Cross-section View of Newterra Containerized MBR System



The operational hours needed to maintain the MBR are lower than many other treatment facilities. This efficiency is due to the high level of automation available through the PLC-operated controls, water level floats, and dissolved oxygen in-line measuring devices. The operator assigned to the Walden WSD facility, Ellon Ellson, is experienced in operating filtration systems.

Figure 24: MBR Space Saving Features



Walden WSD can expect to see measurable gains in the WWTP treatment operations over the course of the new plant's life. It is anticipated that the MBR plant will result in efficient use of operator time and high-quality effluent production.

7.2 TECHNICAL DESCRIPTION AND DESIGN PARAMETERS

The proposed design for the Walden WSD WWTP is a facility rated for 150,000 GPD of flow and 375 PPD of BOD. Wastewater will enter the facility via the current collection system and be directed through coarse screening to an equalization tank that will even out peak flows. Influent transfer pumps will convey wastewater from the equalization tank through fine screens to the pre-anoxic tank for denitrification. The anoxic tank will be equipped with mixing pumps and water level detection. From the pre-anoxic tank, wastewater flows to the aerobic tank.

Dissolved oxygen is added for BOD reduction and nitrification in the aerobic tank. Air is provided by two blowers and introduced into the tank through fine bubble diffusers. The aeration tank also houses the mixed liquor recycle pump, the activated sludge wasting pump, and transfer pumps to feed nitrified wastewater to the membranes for solids separation. After filtration, the wastewater will be treated using UV reactors for disinfection before being discharged to an unnamed tributary of West Cherry Creek.

The treatment process design will include chemical dosing for alkalinity and pH control to optimize nitrification and design provisions for both carbon and alum addition for future nitrogen and phosphorus removal should it become necessary.

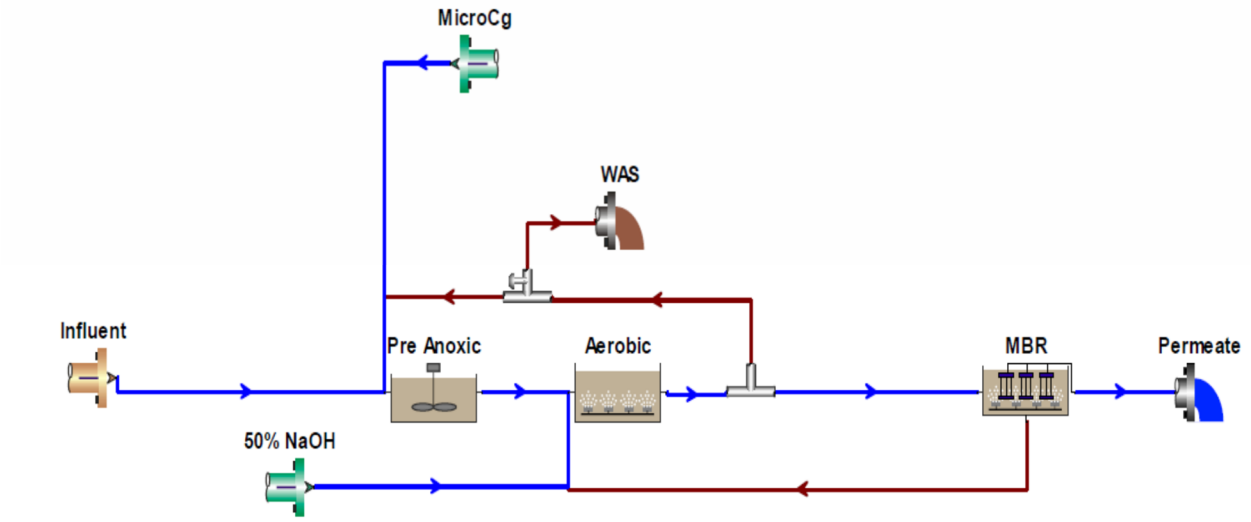
Solids are wasted out of the aerobic basin using the sludge wasting pump and discharged into the aerated sludge storage tank. The sludge storage tank contains decant pumps to thicken solids and will be operated to maintain adequate dissolved oxygen to minimize odors. Accumulated and thickened solids will be periodically hauled off by a contract hauler to a disposal site.

Details of the individual process components are included in the Newterra proposal in the Appendix. These documents provide supplemental information to the Assessment of Alternatives section of this report.

7.3 PROPOSED PROCESS FLOW DIAGRAM

The detailed process diagram for the proposed facility is included in the Appendix.

Figure 25: MBR Process Flow



7.4 APPROPRIATENESS OF TREATMENT TECHNOLOGIES

MBRs are a proven and popular treatment technology with multiple successful installations in Colorado. The design for the Walden WSD WWTP will have two individual treatment process trains, each sized for 50% of the flow and 100% of the hydraulic rating, like successful applications of other Newterra installations. Included in the Appendix are process calculations from Newterra

showing that their technology can meet the anticipated effluent limits. A BioWin model will be provided with the Process Design Report.

7.5 ENVIRONMENTAL IMPACTS

The proposed project will result in net improvements to the environment. The MBR technology can provide robust treatment for BOD, TSS, ammonia, nitrogen, and phosphorus. Treated effluent from the proposed MBR plant will be of significantly higher quality than the current treated effluent. The proposed system will result in reduced pounds per day of pollutants discharged into the environment.

The project will seek to minimize land disturbance, and most of the project will be built within the existing storage area. Based on previous construction activities in the vicinity of the proposed WWTP location, the area is not expected to have cultural or archeological resources present. From current information, Walden WSD does not expect the project to have impacts to any cultural, historical, or archeological resources during or after construction.

In addition to the construction of the MBR infrastructure, the project will include decommissioning the existing treatment plant and lagoons in accordance with federal, state, and local regulations.

It is anticipated that construction activities necessary to install the infrastructure will have some unavoidable impacts. Construction methods will minimize these impacts by implementing measures such as following best stormwater management practices, limiting construction activities to daytime hours, and maintaining a traffic control and safety plan.

The contractor will be required to obtain a CDPHE Construction Activities Stormwater Discharge Permit during the construction phase of the project if the area of disturbance is greater than 2 acres. The contractor will need to follow the erosion control measures and best management practices specified by the design engineer to minimize the amount of sediment that leaves the site during earthwork activities.

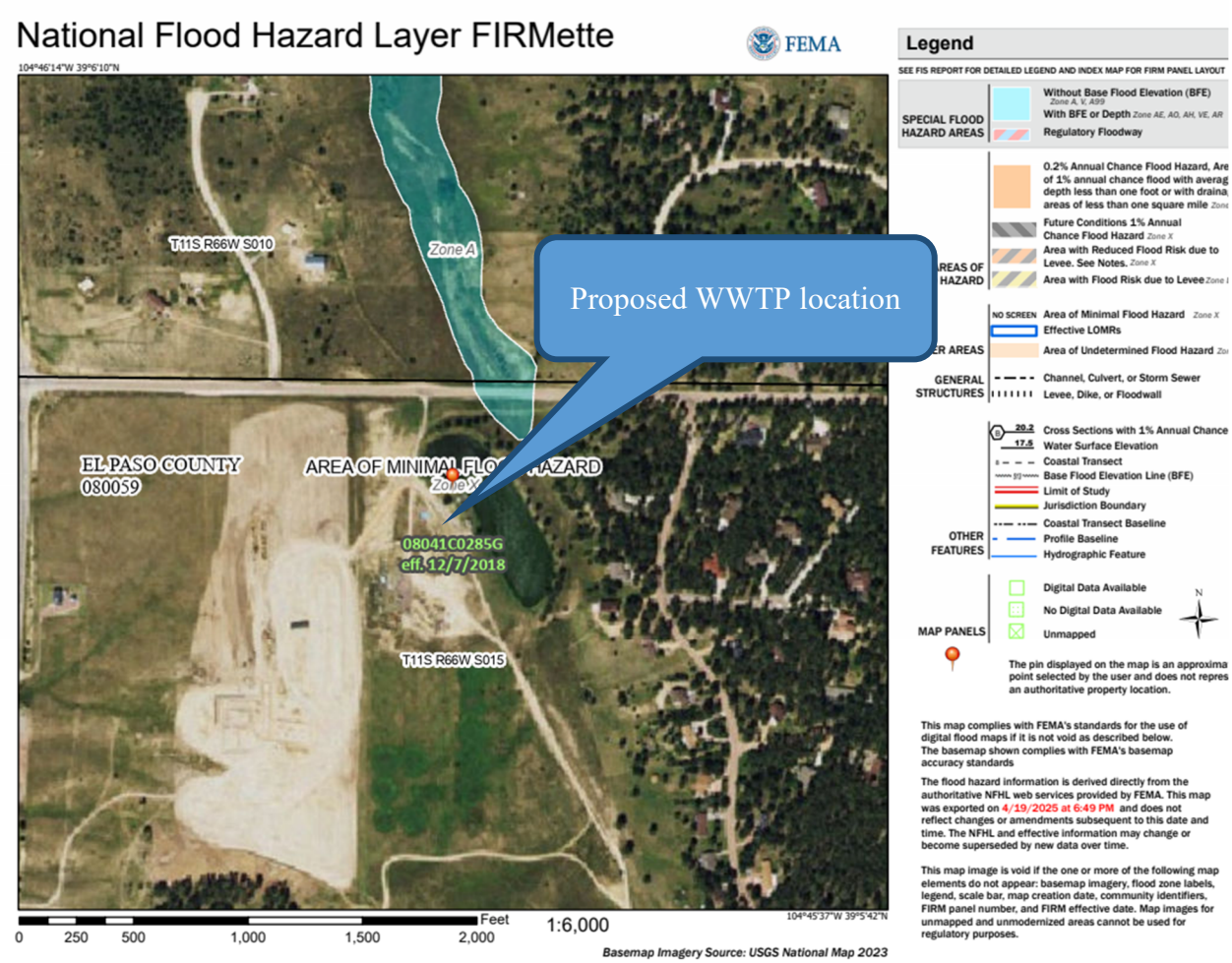
It is not anticipated that this project would negatively impact threatened and endangered species, or other wildlife. The project will be constructed on the existing plant site, which has already been disturbed by prior construction activities. The proposed outfall alignment will be provided with the final design submittal.

Floodplain Provisions:

The area was evaluated via published mapping for potential floodplain hazards. The site is outside FEMA's 100-year floodplain and is considered an area of minimal flood hazard. The FEMA

Firmette for the proposed WWTP location is attached to the Appendix and shown in Figure 26 below.

Figure 26: Walden WSD WWTP - Draft Floodplain Map



7.6 LAND REQUIREMENTS

The existing WWTP site is owned by Walden Corporation and the new treatment plant will be located within the same property.

A rendering of the proposed system is shown in the figure below:

Figure 27: Above and Below Ground Image of Newterra Containerized MBR System



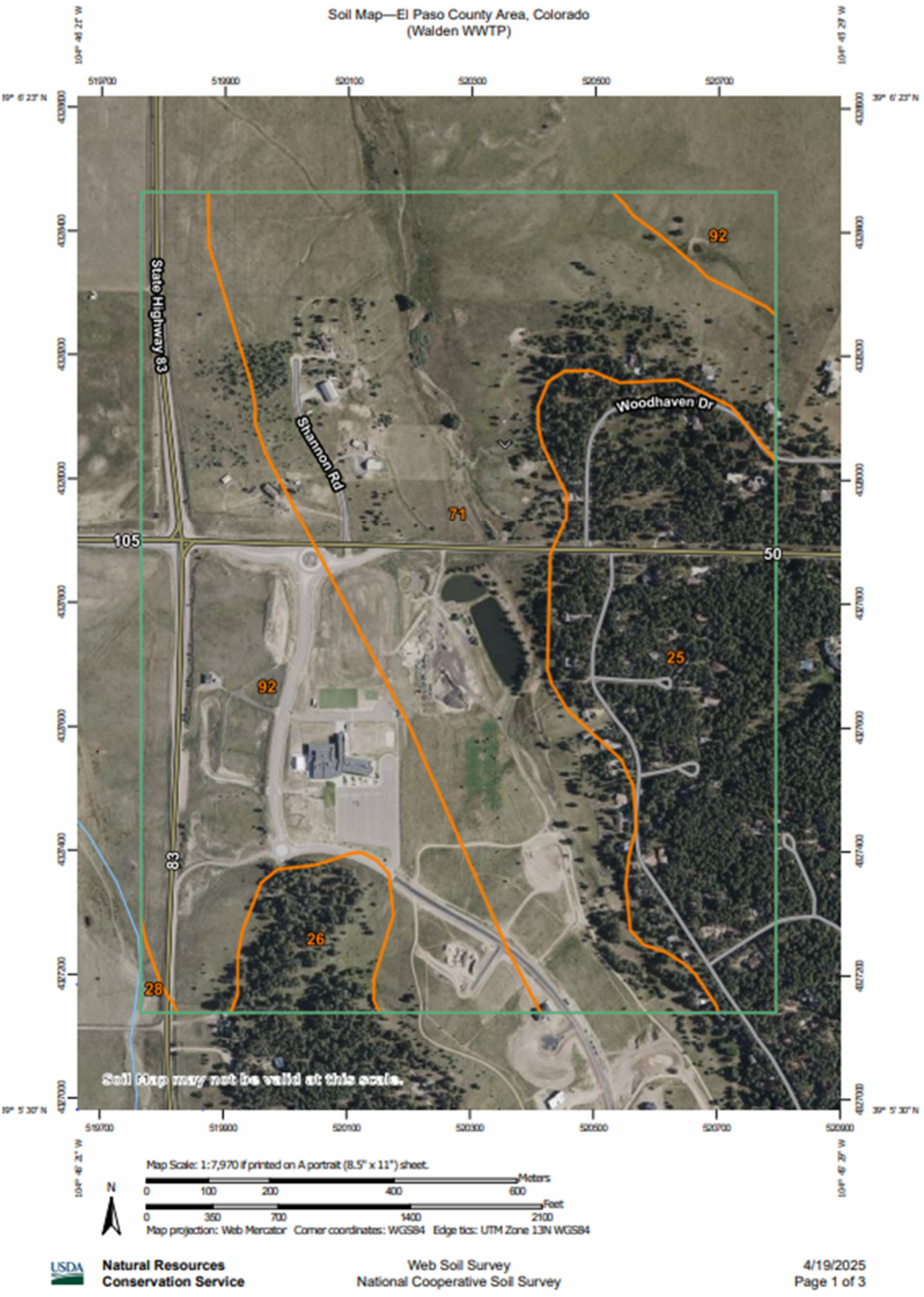
7.7 GEOTECHNICAL ANALYSIS

Parr Engineering & Consulting, Inc. completed a geotechnical evaluation in 2019. Their report provides a summary of their findings and recommendations for the foundation design, given the site's geotechnical conditions. There are no adverse conditions within the proposed site that would preclude the selected WWTP from being constructed. A copy of the geotechnical report with the recommendations is provided in the Appendix.

The soils map for the area in and around the treatment plant is presented in Figure 28 below. The Appendix includes the full map plus the map legend. Based on the map, the treatment plant site is located in the area Pring Sandy loam, 3% to 8% slopes.

AquaWorks DBO will confirm with the geotechnical engineer during the final design phase that the design meets their recommendations.

Figure 28: NRCS Soils Map



7.8 CONSTRUCTION CHALLENGES

Construction of the new facility will need to take place while the existing treatment facility remains operational. The construction will be scheduled to minimize impacts to the district's residents.

Another construction consideration is the new alignment for the outfall pipe and the location of the new outfall. Construction will take place on the bank of a small unnamed tributary of West Cherry Creek. Construction activities will be planned to minimize the impacts to the waterway. Any permits needed for the outfall installation will be obtained.

The final design must also consider maintaining operations at the existing facility while constructing the new one. There is adequate space to accomplish this; however, planning will be required. The design team will consider how to sequence the transfer of operations to the new facility and decommission the existing treatment plant facilities while preparing the final design.

Additional construction challenges would be like other projects of this magnitude. Such challenges may include scheduling construction crews, obtaining materials in a timely manner, obtaining local and state approvals, and construction oversight.

7.9 OPERATIONAL ASPECTS

The new facility will have far more process control capabilities than the existing facility. Operators will need to be trained to operate the new automated and manual equipment. The new facility will have a PLC to control most of the treatment equipment and processes. Instrumentation will be provided to control the treatment process, and inline instrumentation will automatically optimize process control.

Instrumentation will include flow metering, tank level monitoring and alarms, an in-line dissolved oxygen analyzer, a pH analyzer, pressure monitoring on membrane banks, and UV transmittance metering. Chemical feed systems will be configured to dose chemicals based on flow monitoring and an operator set point dose. A new SCADA system will record historical data and allow the operator to access the PLC remotely. An autodialer will be included so that alarm notifications are automatically reported to the operators' phones.

Emergency Provisions:

The telemetry system will export alarms automatically in the event an alarm condition is met. A generator, sized to operate 100% of the plant, will provide a backup source of power in the event the primary electrical source fails. The generator will be equipped with an automatic transfer switch, which will be triggered by the primary electrical source failure. A preliminary emergency

plan is provided in the Appendix, and a detailed emergency plan will be developed during the design and delivered with the facility's operation and maintenance manual.

7.10 FINANCIAL SYSTEM AND RATE STRUCTURE CHANGES

The district will be funding the project and much of the work will be self preformed. Included in the Appendix is a letter from its bank showing the financial capacity.

The operational costs of the WWTP, including the contract operator's fee, will continue to be funded by the Walden Water and Sanitation District's operating account.

7.11 PROJECT IMPLEMENTATION

Construction of the facility can occur as early as 2026. The following milestones highlight the anticipated schedule. However, the final schedule depends upon several factors, not all of which are under Walden's control, such as application review times and weather.

Table 12: Implementation Schedule

Date	Item
June 2025	Submit Site Application to CDPHE
December 2025	Submit PDR and Final Plans and Specifications to CDPHE
December 2025	Obtain Site Application Approval
May 2026	Obtain Final Design Approval
Summer 2026	Commence Construction
Spring 2027	Complete Construction

7.12 PUBLIC MEETING

A public meeting will not be required as funding assistance through the State Revolving Fund program is not being pursued.

7.13 PRELIMINARY OPINION OF PROBABLE COSTS

The following a preliminary engineer's opinion of probable costs.

Table 13: Preliminary Opinion of Costs

Division:	Item:	Quantity:	Unit:	Unit Price	Total Cost
1	**Contractor General Requirements**				
	Bonds & Insurance	1	LS	$150,000	$150,000

	Mobilization	1	LS	$165,000	$165,000
2	**Existing Conditions**				
	Clearing & Grubbing	1	LS	$10,000	$10,000
	Demolition	1	LS	$50,000	$50,000
3	**Concrete**				
	Buried Process Tank	1	LS	$1,400,000	$1,400,000
	Concrete Sidewalk, Pads, Drive	1	LS	$50,000	$50,000
	Concrete Hatches to Access Buried Tanks	1	LS	$25,000	$25,000
9	**Painting**				
	Coat Influent Equalization Tanks	1	LS	$225,000	$225,000
11	**Equipment**				
	MBR Process Treatment Equipment (Package by Newterra)	1	LS	$1,261,242	$1,261,242
	Portable Davit Crane & Bases	1	LS	$5,000	$5,000
	Coarse Screen & Headworks	1	LS	$200,000	$200,000
	Equipment & Process Piping Installation	1	LS	$250,000	$250,000
26	**Electrical**				
	Line Voltage Electrical Improvements	1	LS	$200,000	$200,000
	Instrumentation & Controls	1	LS	$25,000	$25,000
	Backup Generator & ATS	1	LS	$150,000	$150,000
	New Transformer (If Required)	1	LS	$100,000	$100,000
31	**Earthwork**				
	Process Tank Excavation	1	LS	$250,000	$250,000
	Process Tank Backfill	1	LS	$50,000	$50,000
	Dewatering	1	LS	$200,000	$200,000
	Bollards	10	EA	$1,000	$10,000
	Lagoon Grading & Restoration	1	LS	$150,000	$150,000
33	**Utilities**				
	Yard Piping	1	LS	$75,000	$75,000
	Import Material	1	LS	$100,000	$100,000
	Site Finishing	1	LS	$20,000	$20,000
	Erosion Control	1	LS	$15,000	$15,000
				Subtotal:	$5,136,242
	Contractor Overhead & Profit:	8.0%			$410,899
	Design Engineering				$400,000
	Construction Engineering				$250,000
	Contingency	5.0%			$256,812

	Total				$6,453,953

REFERENCES

Colorado Department of Public Health & Environment (2020). *Implementation Policy Regulation 22 - Site Location and Design Approval Regulations for Domestic Wastewater Treatment Works (5 CCR 1002-22). Clean Water Program Policy Number CW-14. Denver, CO.*

Colorado Department of Public Health & Environment (2020). *Regulation 22 - Site Location and Design Approval Regulations for Domestic Wastewater Treatment Works 5 CCR 1002-22.* Denver, CO.

Colorado Department of Public Health & Environment (2018). *Regulation 43 – On-Site Wastewater Treatment Regulation 5 CCR 1002-43.* Denver, CO.

Colorado Department of Public Health & Environment (2022). *State of Colorado Design Criteria for Domestic Wastewater Treatment Works*. *Clean Water Program Policy Number WPC-DR-1*. Denver, CO.

JDS Hydro (2019). *Site Evaluation Report.*

Lindeburg, M. R. (2003). *Civil Engineering Reference Manual* (9th Edition). Belmont, CA: Professional Publications.

Metcalf & Eddy (1991), *Wastewater Engineering Treatment Disposal Reuse*. Third edition.

Walden Water & Saniation District. (2025) *Walden WSD Discharge Permit Application*

APPENDIX – SUPPLEMENTAL INFORMATION

- Regulation 22.7 Site Application Form
- One Mile Radius Map
- Five Mile Radius Map
- Draft Emergency Response Plan
- El Paso County Property Record Card
- Service Area Map
- Map of Adjacent Properties
- County Zoning Map
- Geotechnical Report
- National Resources Conservation Service Soil Map
- National Wetlands Inventory Map
- FEMA Firmette
- Newterra Brochure
- Newterra Proposal
- Fluidyne ISAM SBR Brochure
- Preliminary Engineering Drawings
    - Site Plan
    - Process Flow Diagram
    - Hydraulic Profile

COLORADO
Department of Public Health & Environment

Water Quality Control Division
Engineering Section

4300 Cherry Creek Drive South, B2
Denver, Colorado 80246-1530
CDPHE.WQEngReview@state.co.us
303-692-6298

Regulation 22 Site Location Application Form
Section 22.6 - New Domestic Wastewater Treatment Plant

A. Project and System Information			
System Name	Walden Water and Sanitation District		
Project Title	Walden Water and Sanitation Distrcit WWTP		
County	El Paso		
CDPS Permit No.	COX-631032 (to be replaced with surface water permit)		
Date Fee Paid or payment attached		Invoice Number and Check Number	
Design Company Name	AquaWorks DBO, Inc.		
Design Engineer	Adam Sommers, P.E.	CO License Number	38,169
Address	3252 Williams Street		
	Denver, CO 80205		
Email	adam@aquaworksdbo.com	Phone	(303) 883-4613
Applicant/Entity	Walden Water and Sanitation District		
Representative Name	Matthew Dunston, President		
Address	PO Box 170		
	Monument, CO 80132		
Email	waldencorporation@yahoo.com	Phone	(719) 559-2229

B. Project Information

Location (existing or proposed site)		***Proposed Project Design Capacity***	
Brief location description	3155 Walker Road Colroado Springs	Hydraulic Capacity Maximum Month Average	0.150 MGD
Legal Description (e.g., Township, Range)	Section 15S, Township 11S, Range 66W of the 6th PM	Peak Hour Hydraulic Capacity	0.6 MGD
County	El Paso		
Latitude	39.09856°	Organic Loading Capacity – Treatment Plant Only (Maximum Month Average)	375 lbs. BOD_5/day or lbs. cBOD/day
Longitude	-104.76538°		

Funding Process	Will the State Revolving Fund (SRF) loan program be used to finance any portion of the project?	Yes	☐	No	☒	If yes, please list project number	

Project Schedule and Cost Estimate	
Estimated Bid Opening Date	Fall 2025
Estimated Completion Date	Spring 2027
Estimated Project Cost	

Project and System Information	
System Name	Walden Water and Sanitation District
Project Title	Walden Water and Sanitation Distrcit WWTP
County	El Paso
CDPS Permit No.	COX-631032

Treatment Works Information

1. **Type and capacity of treatment works proposed including major processes used.**

The proposed wastewater treatment facility for the Walden WWTP will be an on-site Membrane Bioreactor (MBR) system with a total buildout capacity of 150,000 GPD. The MBR process includes biological nutrient removal (BNR) with pre-anoxic and post-anoxic zones, aerobic treatment for BOD reduction, and submerged membrane filtration. Effluent will be disinfected using ultraviolet (UV) reactors before being discharged to surface water.

Site Information

2. **Vicinity maps of site location which includes the following:**
a) 5-mile radius map: all treatment plants, lift stations and domestic water supply intakes
b) 1-mile radius map: habitable buildings (e.g., residences, schools, and commercial structures), location of public and private potable water wells, an approximate indication of the topography of the area, and neighboring land uses

Respective radius maps are proivded within Section 3 of the engineering report.

3. **Site Location Zoning**

a) Present zoning of the site location?

The site is currently zoned Planned Unit Development (PUD).

b) Zoning within a one (1) mile radius of the site location?

See the Site Application Appendix

4. **Floodplain and Natural Hazards**

a) Is the site located in a 100-year floodplain or other natural hazard area? If so, what precautions are being taken?

No.

b) Has the floodplain been designated by the Colorado Water Conservation Board, Department of Natural Resources or other agency? If so, please list agency name and the designation.

FEMA - see Firmette map within the Engineering Report Appendix.

5. **Legal Arrangements Demonstrating Control of the Site**

Please provide the legal arrangements showing control of the site or right-of-way for the project life or showing the ability of the entity to acquire the site or right-of-way and use it for the project life.

The proposed proejct will be installed on the same lot as the district's existing wastewater treatment plant.

6. **Nearby Facilities**

Please list all municipalities and water and/or sanitation districts within 5-miles downstream of the proposed treatment works site.

Wolcott and Edwards, Colorado are the two municpalities within a 5-mile radius to the project site. The Eagle River Water and Sanitation District would be the closest sanitation district, but is located outside the 5-mile radius boundary.

Treatment Works Effluent Information

7. **Effluent disposal method (check all that apply)**

☒	Surface Discharge to watercourse (enter watercourse name below)
☐	Groundwater Discharge
☐	Land application
☐	Treated Effluent Reuse (Regulation 84)
☐	Evaporation
☐	Other (describe below)

	Unnamed tributary to West Cherry Creek
8.	**Water Quality Planning Targets** (please attach a copy in Engineering Report)
	a) Identify the document to be used as the Water Quality Planning Targets:
	Owner provided study from White River Consultants, titled Preliminary Evaluation of Potential Effluent Limitations, 2025
	b) If Preliminary Effluent Limits are required, please identify the date the document was received:
	N/A
9.	**Downstream Distances**
	a) Downstream distance from the discharge point to the nearest domestic water supply intake? Name of supply? Address of supply?
	Distance: *Name of Supply:* *Address of Supply:*
	b) Downstream distance from the discharge point to the nearest other point of diversion? Name of user? Address of user?
	Distance: *Name of User:* *Address of User:*
Project Information	
10.	What entity is financially responsible for the construction of the treatment works?
	See engineering report.
11.	What entity has the financial responsibility for owning and long term operating expense of the proposed treatment works?
	The Walden Water & Saniation District.
12.	What entity has the responsibility for managing and operating the proposed treatment works after construction?
	The Walden Water & Saniation District.
Additional Factors	
13.	Please identify any additional factors that might help the Division make an informed decision on your site location application.
	See Engineering Report.

COLORADO
Department of Public Health & Environment

Water Quality Control Division
Engineering Section

4300 Cherry Creek Drive South, B2
Denver, Colorado 80246-1530
CDPHE.WQEngReview@state.co.us
303-692-6298

Applicant Certification and Review Agencies Recommendation
Section 22.6 - New Domestic Wastewater Treatment Plant

Project and System Information	
System Name	Walden Water and Sanitation District
Project Title	Walden Water and Sanitation Distrcit WWTP
County	El Paso
CDPS Permit No.	COX-631032

1. Applicant Certification

I certify that I am familiar with the requirements of *Regulation 22 - Site Location and Design Regulations for Domestic Wastewater Treatment Works*, and have posted the site location in accordance with the regulations. An engineering report, as described and required by the regulations, has been prepared and is enclosed.

Applicant Legal Representative

Position/Title	Typed Name	Signature	Date
President	Matthew Dunston	Matthew W Dunston	6/9/2025
Email: waldencorporation@yahoo.com		Phone: (719) 559-2229	

The system legal representative is the legally responsible agent and decision-making authority (e.g. mayor, president of a board, public works director, owner). The Design Engineer is not the legal representative and cannot sign this form.

2. Recommendation of Review Agencies

As required in Section 22.6(2), the application and the engineering report must be submitted to all appropriate local governments, local health authority, 208 designated planning and management agencies and other state or federal agencies for review and comment prior to submittal to the Division. By signing below, the review agency: 1) acknowledges receipt of the proposed site location application, 2) has reviewed the proposed application and may elect to provide comments, and 3) has provided a recommendation concerning the application to the Division. The recommendation should be based on the factors outlined in Section 22.6(2); for example, on the consistency of the proposed site location application with the local comprehensive plan(s) as they relate to water quality and the approved regional water quality management plan(s). *Please note: Review agencies are encouraged to provide project comments; however, if a review agency does not recommend approval then the agency must attach a letter describing the reason for their decision or comment on the next page.*

Signature of designated Management Agency (i.e., Water Quality Authority, Watershed Association, Watershed Authority)

Agency	Typed Name	Signature	Date	
See 208 Agency below				
Email		Phone	Recommend Approval?	Yes ☐ / No ☐

Signature of County, if the site is located in unincorporated areas of a county

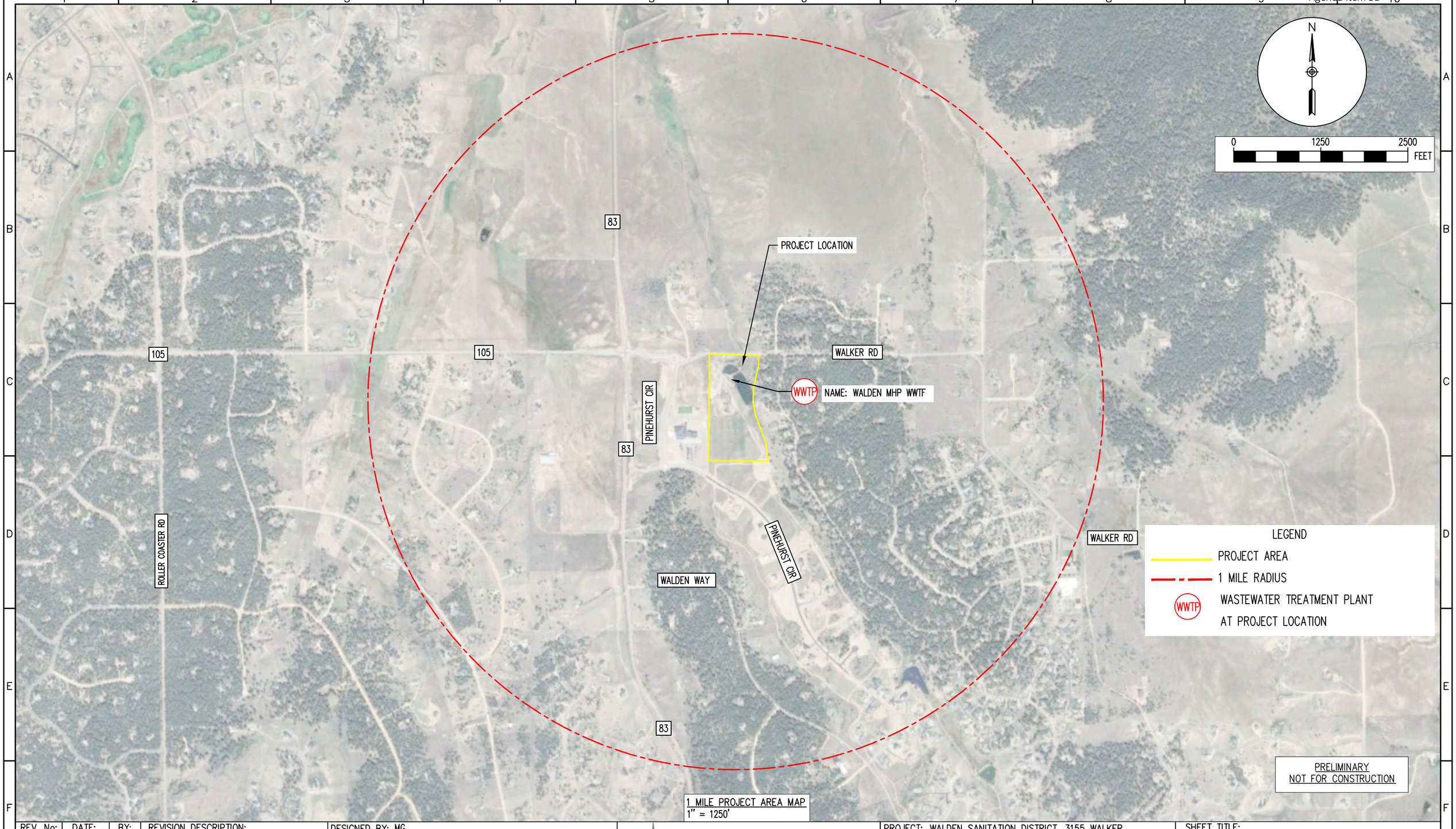
County	Typed Name	Signature	Date	
El Paso County Planning Division	Kari Parsons			
Email: kariparsons@elpasoco.com		Phone: (719) 520-6300	Recommend Approval?	Yes ☐ / No ☐

Signature of City or Town, if the site is located within a City/Town boundary or within three miles of the City/Town boundary (if multiple, attach additional sheets as needed)

City/Town	Typed Name	Signature	Date	
Email		Phone	Recommend Approval?	Yes ☐ / No ☐

Signature of Local Health Authority					
Agency El Paso County Environmental Division	Typed Name Kathy Andrew	Signature		Date	
Email kathyandrew@elpasoco.com		Phone (719) 578-3199	Recommend Approval?	*Yes*	☐
				No	☐
Signature of 208 Designated Planning Agency					
Agency Pikes Peak Area Council of Governments	Typed Name Angie Martell	Signature		Date	
Email amartell@ppacg.org		Phone (719) 471-7080 x116	Recommend Approval?	*Yes*	☐
				No	☐
Signature of other State or Federal Agencies, if treatment works is located on or adjacent to a site that is owned or managed by a federal or state agency.					
Agency	Typed Name	Signature		Date	
Email		Phone	Recommend Approval?	*Yes*	☐
				No	☐
Signature of other undesignated Basin Water Quality Authority, Watershed Association, Watershed Authority, etc.					
Agency N/A See 208 above	Typed Name	Signature		Date	
Email		Phone	Recommend Approval?	*Yes*	☐
				No	☐

Review Agency Comments:



1 MILE PROJECT AREA MAP
1" = 1250'

REV. No:	DATE:	BY:	REVISION DESCRIPTION:

DESIGNED BY: MG
CHECKED BY: AS
FILE PRINTED ON: 5/12/2025 11:26:24 AM
COPYRIGHT: AQUAWORKS DBO, INC.
0 1 IF THIS BAR DOES NOT READ 1" DRAWING IS NOT LABELED TO SCALE

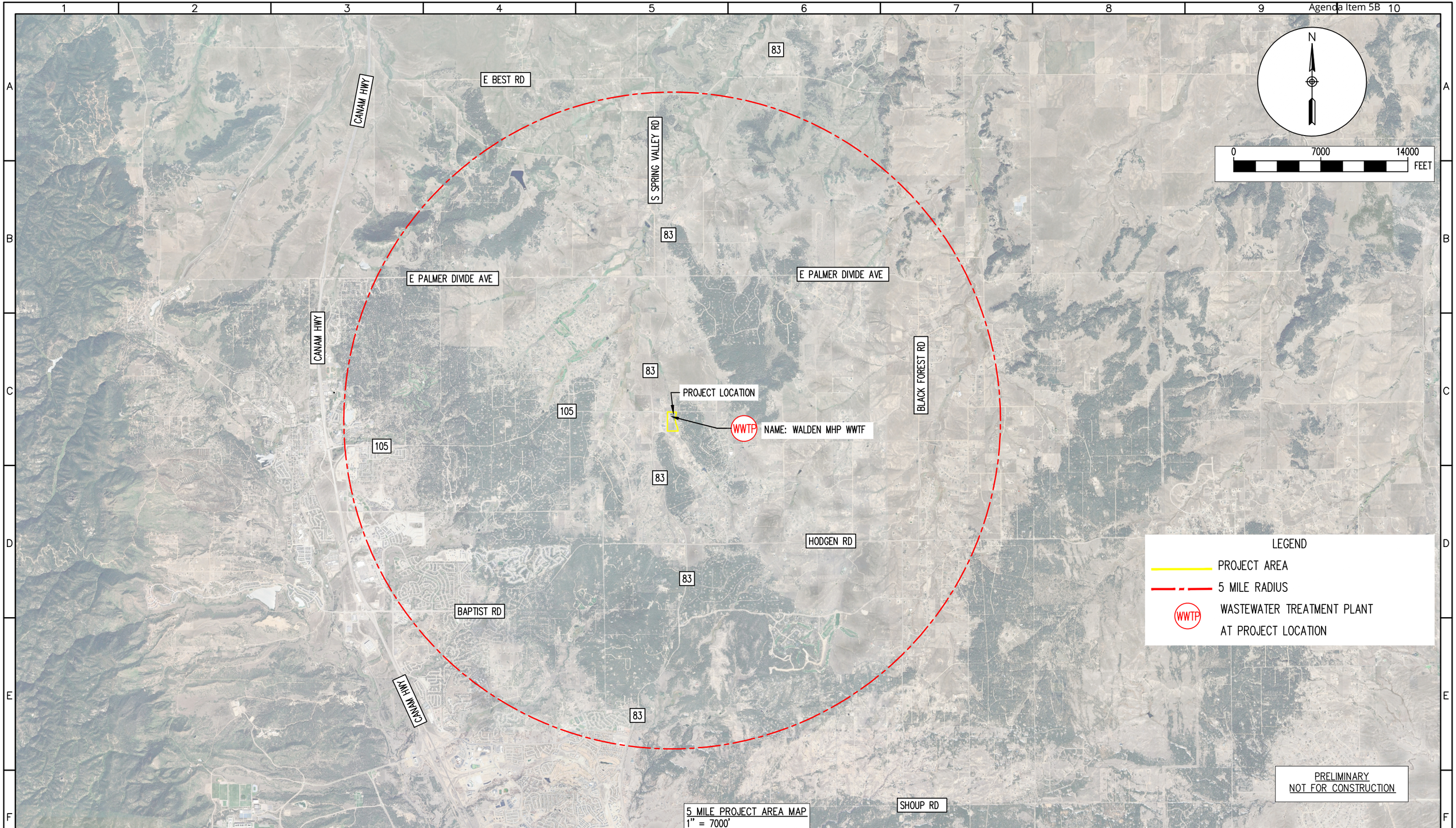
AquaWorks DBO INC
DESIGN BUILD OPERATE

PROJECT: WALDEN SANITATION DISTRICT, 3155 WALKER ROAD COLORADO SPRINGS, COLORADO

ENGINEER: AQUAWORKS DBO, INC.
3252 WILLIAMS STREET
DENVER, COLORADO 80205
(303) 477-5915

SHEET TITLE: 1 MILE PROJECT AREA MAP

PROJECT NUMBER:	SCALE:	SHEET:
#0000	1" = 1250'	C-1



5 MILE PROJECT AREA MAP
1" = 7000'

REV. No:	DATE:	BY:	REVISION DESCRIPTION:

DESIGNED BY: MG
CHECKED BY: AS
FILE PRINTED ON: 5/12/2025 11:31:07 AM
COPYRIGHT: AQUAWORKS DBO, INC.
0 1 IF THIS BAR DOES NOT READ 1" DRAWING IS NOT LABELED TO SCALE

AquaWorks DBO INC
DESIGN BUILD OPERATE

PROJECT: WALDEN SANITATION DISTRICT, 3155 WALKER ROAD COLORADO SPRINGS, COLORADO

ENGINEER: AQUAWORKS DBO, INC.
3252 WILLIAMS STREET
DENVER, COLORADO 80205
(303) 477-5915

SHEET TITLE: 5 MILE PROJECT AREA MAP

PROJECT NUMBER:	SCALE:	SHEET:
#0000	1" = 7000'	C-2

White River consultants

TECHNICAL MEMORANDUM

To: Adam Sommers, AquaWorks DBO, Inc. and Bill Dunston, Walden Corporation
From: Caroline Byus, White River Consultants
Date: June 4, 2025
Subject: Preliminary estimation of potential effluent limits for the proposed Walden Water and Sanitation District Domestic WWTF under General Permit Number COG591000

I. Purpose

A review of available information indicates that the proposed Walden Water and Sanitation District (Walden WSD) Wastewater Treatment Facility (WWTF) will qualify for coverage under the CDPS General Permit (GP) for *Domestic Wastewater Treatment Plants That Discharge to Receiving Waters that are Unclassified; Use Protected; Reviewable; or are Designated Threatened and Endangered Species Habitat* (Permit Number COG591000).

A high-level qualitative evaluation was conducted and summarized below to determine potential future limits for the Walden facility for planning purposes only. The evaluation uses available information from various sources, including the General Permit and Fact Sheet; CDPHE, EPA, and Department of Natural Resources mapping resources; and information from existing permitted facilities that discharge to the South Platte River Basin under GP 591000.

An in-depth evaluation of all potential limits was not conducted for this initial evaluation. Therefore, additional numeric limits not included in this evaluation may be incorporated into the certification. These are discussed in a qualitative manner and are not all-inclusive.

2. Facility and Service Area Information

The new Walden WSD WWTF will have an estimated design flow of 0.15 million gallons per day (MGD) and discharge to an unnamed tributary of West Cherry Creek in the South Platte River Basin. The new Membrane Bioreactor (MBR) package plant will replace the existing groundwater discharge mechanical secondary treatment facility, which has exceeded its design life. According to GP COG591000, a "[n]ew treatment facility means any domestic wastewater treatment facility on a new site that is not an "existing treatment facility" and commences discharge to surface water, or receives PELs, after May 31, 2012 in addition to the applicable influent and effluent limits in Parts I.B.2 and 1.B.3 of this permit."[1] The new Walden WSD WWTF will be constructed near the existing facility on a new site as a new surface water discharge. Therefore, the following estimated limits acknowledge the Walden WSD WWTF as a new facility.

[1] COG591000, Part I, Page 34 of 48.
https://oitco.hylandcloud.com/CDPHERMPop/docpop/docpop.aspx?clienttype=html&docid=11080034

The Walden WSD WWTF property is on the southeast corner of Highway 83 and Walker Road, approximately 6 miles east of Interstate 70 and the town of Monument, Colorado. The facility is located at the NE ¼ of Section 15, T11S, R66W, 6th P.M., at 3155 Walker Road, Colorado Springs, CO 80908; at latitude 39.09941° N and longitude 104.76471° W in El Paso County. The Walden WSD services a residential area managed by the Walden Corporation. The service area consists of 562 acres with approximately 381 occupied homes, additional undeveloped plats, and two schools: Kilmer Elementary School and the Monument Academy East Campus. Figure 1 shows an overview of the existing WWTF site location.



Figure 1. Existing Walden WSD WWTF Site Overview

3. Site Information

3.1 Nearby Facilities

The Walden WSD WWTF will be the sole known point source contributor to its "receiving water" in the unnamed tributary of West Cherry Creek. An evaluation by the Water Quality Control Division (WQCD) Permits Unit, outlined in the May 29, 2019, Preliminary Effluent Limitations (PELs) document addressed to Matt Dunston, determined that the nearest discharger is the Academy Water and Sanitation District WWTF (COG589020), located approximately six miles south of the Walden WSD WWTF and discharging to Smith Creek.

Although the WWTF project referenced in the PELs document is no longer under consideration, the assessment of nearby facilities remains relevant. Other facilities are located more than twenty miles from the Walden WSD WWTF and were therefore excluded from consideration. Given the application of an in-stream low flow of zero, the WQCD determined that assimilative capacities during low-flow conditions are unaffected by nearby contributions. Consequently, modeling nearby facilities in conjunction with the proposed Walden WSD WWTF is unnecessary. The evaluation also noted that stormwater discharges were not considered in the PELs due to their intermittent nature and because they do not typically occur during low flow conditions.

3.2 Hydrography

Figure 2 shows a USGS map of the waterbody features near and downstream of the proposed Walden WSD WWTF site. The facility's receiving stream is an ephemeral/intermittent unnamed tributary channel of West Cherry Creek, which remains dry except during precipitation and snowmelt events large enough to generate runoff. The channel distance from the proposed point of discharge on the unnamed tributary to the confluence with West Cherry, which is a downstream segment, is approximately 1.5 miles. From there, West Cherry Creek flows at least another 46 river miles before reaching Cherry Creek Reservoir. Both the unnamed tributary and West Cherry Creek are classified as intermittent streams according to the USGS National Hydrography Dataset (NHD) and are included in Segment COSPCH04a_A of the Colorado Water Quality Control Commission's Regulation 38[2], which establishes classifications and numeric standards for state waters in the South Platte River Basin.

Figure 2 also shows the location of two downstream reservoir waterbodies. The "West Cherry Creek Detention No. 4 Reservoir (No. 4 Reservoir) is located on the unnamed tributary between the proposed discharge point and its confluence with West Cherry Creek. The No. 4 Reservoir is

[2] https://www.coloradosos.gov/CCR/GenerateRulePdf.do?ruleVersionId=11754&fileName=5%20CCR%201002-38

classified as a perennial lake/pond according to the USGS NHD; however, it appears that this is an error. Research by White River Consultants (WRC) has confirmed that no perennial waterbody exists at this location based on available information. The apparent misclassification originates from a 1962 map, in which a reservoir at this site was inaccurately marked with perennial symbology. Staff at the USGS National Geospatial Technical Operations Center, Hydrography Operations, reviewed the original report associated with the mapping of the reservoir and found no mention of its existence.

Furthermore, the No. 4 Reservoir dam is included in the Army Corps of Engineers' National Inventory of Dams under FED ID CO00316[3] and this record designates the purpose of the dam as flood mitigation. Neither does the 2018 inspection report make reference to a reservoir or recorded water levels. Follow-up discussions with Colorado Division of Water Resources (DWR) dam engineers also confirm that no permanent water pool exists at the No. 4 Reservoir site. The dam is strictly intended for flood control, temporarily storing water during extreme precipitation events before its gradual release. WRC recommends that the Walden WSD contact the CDPHE WQCD Standards Unit to discuss removal or reclassification of the No. 4 Reservoir, ensuring that it reflects actual conditions, not a perennial waterbody. When the error regarding No. 4 Reservoir's nonexistence is formally acknowledged, either the Walden WSD or, preferably, the WQCD, should propose its reclassification or removal from Regulation 38 to ensure accuracy**.**

The No. 7 Reservoir, located on West Cherry Creek approximately 3.5 miles downstream of the proposed WWTF discharge, appears to be correctly coded as a perennial lake/pond. Both the No. 4 and No. 7 Reservoirs are included in Regulation No. 38 Segment COSPCH05_B.

Based on a high-level review of other recent certifications under the GP COG591000, the WQCD Permits Unit appears to reach at least 10 miles downstream of the point source discharger to evaluate protection of water quality in downstream segments. Given this, the WQCD will likely include both the No.4 (if not removed as previously discussed) and the No. 7 Reservoirs in the permit limit evaluation for the Walden WSD WWTF. Additionally, because the Walden WSD WWTF is located in the Cherry Creek Watershed, it is subject to the Cherry Creek Reservoir Control Regulation No. 72, which requires that all WWTF dischargers meet a concentration-based limit for total phosphorus (TP) of 0.05 milligrams/liter (mg/L). As a new facility, the Walden WSD WWTF will also be subject to the Nutrients Control Regulation No. 85.

[3] https://nid.sec.usace.army.mil/#/dams/system/CO00316/description

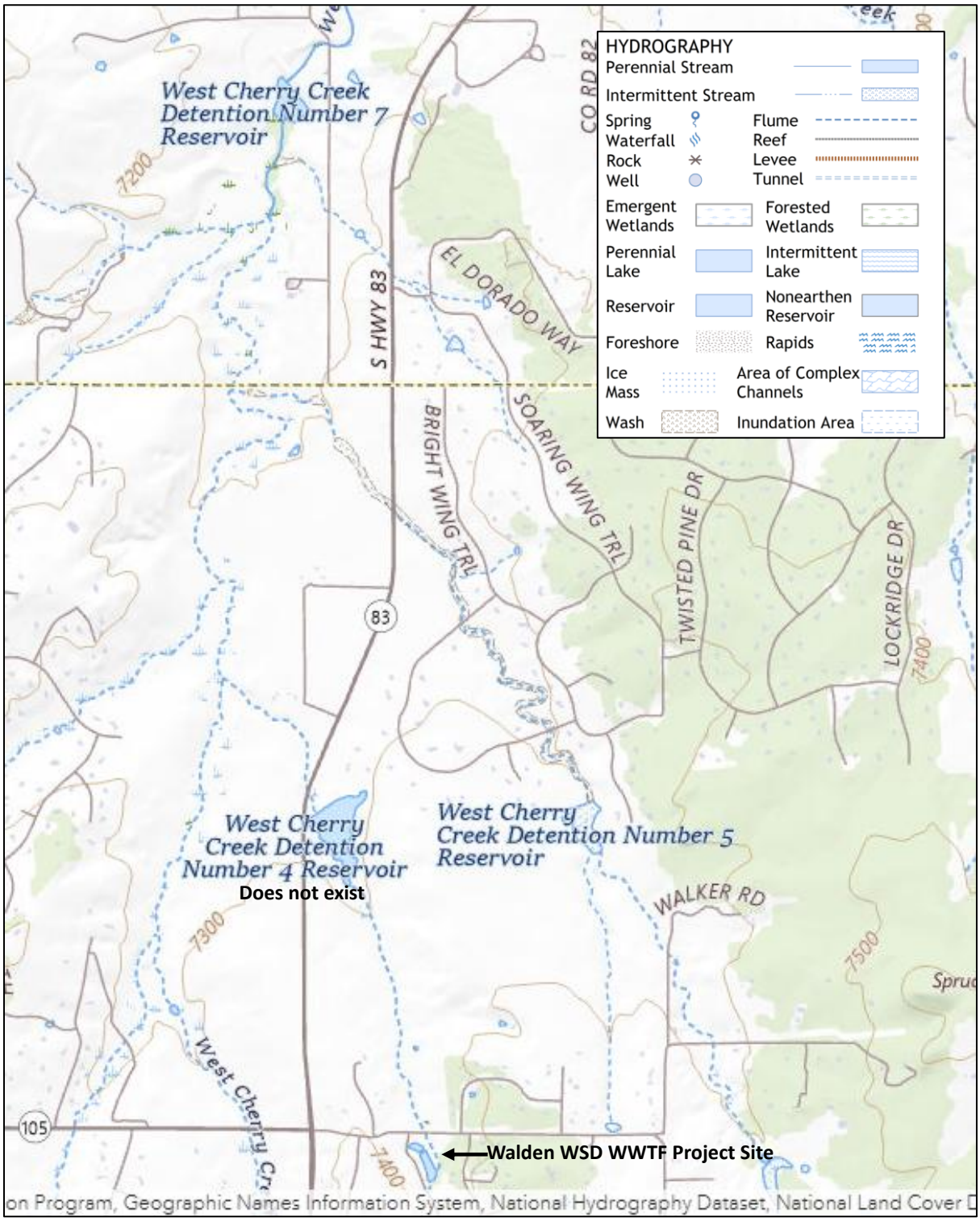


Figure 2. USGS Hydrography Map in the near vicinity and downstream of the Walden WSD WWTF Site

4. Receiving Stream & Downstream Segments Information

4.1 Antidegradation Designation and Use Classifications

Table 1 summarizes receiving stream and downstream segment information that were considered in the estimation of potential effluent limits.

Table 1. Receiving Stream/Downstream Segments Antidegradation Designation & Use Classifications

Receiving Stream	Segment ID	Antidegradation Designation	Classifications
Unnamed Tributary to West Cherry Creek	COSPCH04a_A	Use Protected	Aquatic Life Warm 2 Recreation Class E Agriculture Water Supply
Downstream Segments			
West Cherry Creek	COSPCH04a_A	Use Protected	Aquatic Life Warm 2 Recreation Class E Agriculture Water Supply
West Cherry Creek Detention No. 4 Reservoir /West Cherry Creek Detention No. 7 Reservoir	COSPCH05_B	Reviewable	Aquatic Life Warm 2 Recreation Classe e Agriculture Water Supply

Note that none of the segments listed in Table 1 are included on the Regulation No. 93 303(d) List for impairment, nor do they have total maximum daily loads (TMDLs) or contain threatened and endangered (T&E) species. West Cherry Creek is included on the Monitoring & Evaluation (M&E) List for dissolved iron and dissolved manganese.

4.2 Critical Low Flows

In the 2019 PELs document, the WQCD assigned critical low flows of "0" for the receiving segment and downstream segments, including the reservoir(s). WRC assumes that the WQCD will apply the same assumptions and reasoning for critical low flows under COG591000.

4.3 Water Quality Standards

Water quality standards for Segments COSPCH04a (Unnamed Tributary and West Cherry Creek) and COSPCH05 (Nos. 4 and 7 Reservoirs) are summarized in tables 2 and 3.

Table 2. Water Quality Standards for COSPCH04a

4a. All tributaries to Cherry Creek, including all wetlands, from the source of East and West Cherry Creeks to the confluence with the South Platte River except for listings in Segment 4b.

COSPCH04A	Classifications
Designation	Agriculture
UP	Aq Life Warm 2
	Recreation E
	Water Supply
Qualifiers:	
Other:	

*Phosphorus(chronic) = Applies only above the facilities listed at 38.5(4).
*Uranium(acute) = See 38.5(3) for details.
*Uranium(chronic) = See 38.5(3) for details.

Physical and Biological	DM	MWAT
Temperature °C	WS-II	WS-II
	acute	chronic
D.O. (mg/L)	---	5.0
pH	6.5 - 9.0	---
chlorophyll a (mg/m^2)	---	TVS
E. coli (per 100 mL)	---	126
Inorganic (mg/L)		
	acute	chronic
Ammonia	TVS	TVS
Boron	---	0.75
Chloride	---	250
Chlorine	0.019	0.011
Cyanide	0.005	---
Nitrate	10	---
Nitrite	---	0.5
Phosphorus	---	TVS*
Sulfate	---	WS
Sulfide	---	0.002

Metals (ug/L)	acute	chronic
Arsenic	340	---
Arsenic(T)	---	0.02-10 [A]
Cadmium	TVS	TVS
Cadmium(T)	5.0	---
Chromium III	---	TVS
Chromium III(T)	50	---
Chromium VI	TVS	TVS
Copper	TVS	TVS
Iron	---	WS
Iron(T)	---	1000
Lead	TVS	TVS
Lead(T)	50	---
Manganese	TVS	TVS/WS
Mercury(T)	---	0.01
Molybdenum(T)	---	150
Nickel	TVS	TVS
Nickel(T)	---	100
Selenium	TVS	TVS
Silver	TVS	TVS
Uranium	varies*	varies*
Zinc	TVS	TVS

Mg/m^2 – milligrams per meter squared
TVS = Table Value Standard (Regulation 31)
WS = Water Supply
WL = Warm Lakes
UP = Use Protected
WL = Warm Lake
Aq = Aquatic
°C = Degrees Celsius
mL = milliliter
mg/L – milligrams per liter
WS-II = Warm Stream II
Aq = Aquatic

All metals are dissolved unless otherwise noted.
T = total recoverable
t = total
tr = trout

D.O. = dissolved oxygen
DM = daily maximum
MWAT = maximum weekly average temperature
See 38.6 for further details on applied standards.

Table 3. Water Quality Standards for COSPCH05_B

5. Lakes and reservoirs in the Cherry Creek system from the source of East and West Cherry Creeks to the confluence with the South Platte River, except for listings in Segments 2, 6 and 7.

COSPCH05	Classifications
Designation	Agriculture
Reviewable	Aq Life Warm 2
	Recreation E
	Water Supply

Qualifiers:

Water + Fish Standards

Other:

*Nitrogen(chronic) = applies only above the facilities listed at 38.5(4).
*Phosphorus(chronic) = applies only above the facilities listed at 38.5(4).
*Uranium(acute) = See 38.5(3) for details.
*Uranium(chronic) = See 38.5(3) for details.

Physical and Biological	DM	MWAT
Temperature °C	WL	WL
	acute	**chronic**
D.O. (mg/L)	---	5.0
pH	6.5 - 9.0	---
chlorophyll a (ug/L)	---	TVS
E. coli (per 100 mL)	---	126
Inorganic (mg/L)		
	acute	**chronic**
Ammonia	TVS	TVS
Boron	---	0.75
Chloride	---	250
Chlorine	0.019	0.011
Cyanide	0.005	---
Nitrate	10	---
Nitrite	---	0.5
Nitrogen	---	TVS*
Phosphorus	---	TVS*
Sulfate	---	WS
Sulfide	---	0.002

Metals (ug/L)	acute	chronic
Arsenic	340	---
Arsenic(T)	---	0.02
Cadmium	TVS	TVS
Cadmium(T)	5.0	---
Chromium III	---	TVS
Chromium III(T)	50	---
Chromium VI	TVS	TVS
Copper	TVS	TVS
Iron	---	WS
Iron(T)	---	1000
Lead	TVS	TVS
Lead(T)	50	---
Manganese	TVS	TVS/WS
Mercury(T)	---	0.01
Molybdenum(T)	---	150
Nickel	TVS	TVS
Nickel(T)	---	100
Selenium	TVS	TVS
Silver	TVS	TVS
Uranium	varies*	varies*
Zinc	TVS	TVS

Mg/m^2 – milligrams per meter squared
TVS = Table Value Standard (Regulation 31)
WS = Water Supply
WL = Warm Lakes
UP = Use Protected
WL = Warm Lake
Aq = Aquatic
°C = Degrees Celsius
mL = milliliter
mg/L – milligrams per liter
WS-II = Warm Stream II
Aq = Aquatic

All metals are dissolved unless otherwise noted.
T = total recoverable
t = total
tr = trout

D.O. = dissolved oxygen
DM = daily maximum
MWAT = maximum weekly average temperature
See 38.6 for further details on applied standards.

5. Estimation of Future Permit Limits

WRC's estimation of future effluent limits for the Walden WSD WWTF under GP COG591000 are preliminary and based on a high-level review of available information, a knowledge of permitting regulations and implementation policies, and established precedents. Note that the WQCD Permits Unit may include permit limits or requirements not identified in the tables below based on best professional judgment (BPJ) and site-specific conditions. Therefore, the following estimation of permit limits for the Walden WSD WWTF should be viewed as conservative, but subject to change.

5.1 Estimated Monitoring for Influent Parameters

Table 4 summarizes the potential future influent monitoring parameters for the Walden WSD WWTF.

Table 4. Mechanical Facilities With Design Flows Of Less Than Or Equal To 0.25 MGD						
ICIS Code	Parameter	Influent Monitoring			Monitoring Frequency[1]	Sample Type
		30-Day Avg.	7-Day Avg.	Daily Max.		
50050G	Flow, MGD	Report		Report	Continuous[2]	Recorder[2]
00180P	Plant Capacity (% of Hydraulic Capacity)[3]	Report			Monthly	Calculated[3]
00310G	BOD_5, mg/l	Report	Report		Monthly	Composite[4]
00310G	BOD, lbs/day	Report	Report		Monthly	Calculated
00180Q	Plant Capacity (% of Organic Capacity)[3]	Report			Monthly	Calculated[3]
00530G	Total Suspended Solids, mg/l	Report	Report		Monthly	Composite[4]

[1] Monitoring frequency reductions may be granted, in accordance with the Baseline Monitoring Frequency, Sample Type, and Reduced Monitoring Frequency Policy for Industrial and Domestic Wastewater Treatment Facilities (WQP-20).

[2] The monitoring frequency and sample type for effluent flow is specified in the certification and is fully enforceable under the general permit. Mechanical-type treatment facilities are typically required to have both influent and effluent flow measuring and recording devices. This requirement may be waived in cases where the Division determines that either influent or effluent flow measurements are impractical. For these facilities, flow measuring and sampling type will be specified in the certification. If only one device is applicable, then that device will be used to report both influent and effluent flow. However, where these devices are not in place at the time of certification, the permittee has one year from the end of the calendar month that certification was given to install the required equipment. Where such equipment is in place, the frequency and type of flow monitoring will be "Continuous" and "Recorder", respectively. Where such equipment is not in place, the frequency and type of flow monitoring, during the interim period, will be specified in the certification. For certain facilities, the use of a metered pumping rate or potable water use may be allowed. In these cases, the monitoring frequency and sample type will be determined and specified in the certification.

[3] The % capacity is to be reported against the listed capacities for the design capacity and for the organic capacities as noted in the most recent Site Approval and as listed in the certification. The percentage should be calculated using the 30-day average values divided by the corresponding capacity, times 100.

[4] See the definition of “composite” in Part I.D of the general permit. If the Division determines that a flow-weighted composite sample is impracticable for a facility, a time composite sample of four equal aliquots collected at two-hour intervals or sampling equal aliquots will be allowed. The monitoring frequency and sample type will be specified in the certification. See Section VI.A of the fact sheet for more information.

5.2 Estimated Effluent Limits

Table 5 summarizes the potential future effluent limits for the Walden WSD WWTF not including Regulation 85 nutrient limits. Regulation 85 effluent limits are summarized in Section 5.2.1 below. Note that additional potential limits/requirements are discussed in Sections 7 and 8 below.

Table 5. Mechanical Facilities with Design Flows Less Than or Equal to 0.25 MGD Discharging to Classified Waters

ICIS Code	Parameter	Limitation				Frequency[1]	Type[2]
		30-day Avg.	7-day Avg.	Daily Max	2-year Avg		
50050	Flow, MGD[3]	0.15		Report		Continuous[4]	Recorder[4]
00310	BOD_5, mg/l[5]	30	45			Monthly	Composite
81010	BOD_5, percent removal[5,6]	85% (min)				Monthly	Calculated
00530	Total Suspended Solids, mg/l	30	45 [2]			Monthly	Composite
81011	TSS, percent removal[6]	85% (min)				Monthly	Calculated
00400	pH, s.u.			6.5-9.0		Weekly	Grab
84066	Oil and Grease, mg/l			Report		Weekly	Visual
03582	Oil and Grease, mg/l			10		Contingent	Grab
51040	*E. coli*, no/100 ml[7]	126	252		20	Monthly	Grab
50060	Total Residual Chlorine, mg/l	0.011		0.019	0.0017	Weekly	Grab
00640	Total Inorganic Nitrogen mg/l (Water Supply)			10	1.5	Monthly	Composite
	Total Phosphorus mg/L (Regulation 72)[8]	0.05*				Monthly	Composite
00610	Total Ammonia, mg/l as N						
	January	7.2		16	1.1	Monthly	Composite
	February	7.7		18	1.2	Monthly	Composite

Table 5. Mechanical Facilities with Design Flows Less Than or Equal to 0.25 MGD Discharging to Classified Waters

ICIS Code	Parameter	Limitation				Frequency[1]	Type[2]
		30-day Avg.	7-day Avg.	Daily Max	2-year Avg		
	March	6.7		15	1.1	Monthly	Composite
	April	4.6		14	0.7	Monthly	Composite
	May	4.8		15	0.8	Monthly	Composite
	June	4.8		16	0.8	Monthly	Composite
	July	4.3		17	0.7	Monthly	Composite
	August	4.5		18	0.7	Monthly	Composite
	September	4.6		17	0.7	Monthly	Composite
	October	5.1		15	0.8	Monthly	Composite
	November	5.6		15	0.9	Monthly	Composite
	December	6.7		15	1.0	Monthly	Composite
00615	Nitrite as N (mg/l)**	Report or 0.5				Monthly	Composite
00940	Chloride (mg/l)	250			38	Monthly	Composite
81020	Sulfate (mg/l)	250				Monthly	Composite
51202	Sulfide as H2S (mg/l)	0.002			0.0003	Monthly	Composite

* NOTE that Regulation 72 allows a 90 day averaging period for TP, with approval from the Cherry Creek Basin Water Quality Authority

** NOTE that it is unclear whether nitrite will be added as a Report or Limit requirement. A higher standard is applied to new facilities, which could mean that the WQCD would expect nitrite to be met at startup.

[1] Monitoring frequency reductions may be granted, in accordance with the Baseline Monitoring Frequency, Sample Type, and Reduced Monitoring Frequency Policy for Industrial and Domestic Wastewater Treatment Facilities (WQP-20).

[2] See the definition of "composite" in Part I.D of this permit. If the division determines that a flow-weighted composite sample is impracticable for a facility, a time composite sample of four equal aliquots collected at two-hour intervals will be allowed. The monitoring frequency and sample type will be specified in the certification. See Section VI.A of the fact sheet for more information.

[3] The 30-day average effluent limitation for flow is identified in the certification, is generally based on the design capacity of the facility as outlined in the most recent site approval, and is enforceable under this permit. Facilities with flow equalization basin

and reclaimed water configurations may be addressed differently. See 61.8(2)(f).

[4] The monitoring frequency and sample type for effluent flow is specified in the certification and is fully enforceable under this permit. Mechanical type treatment facilities are typically required to have both influent and effluent flow measuring and recording devices. This requirement may be waived in cases where the division determines that either influent or effluent flow measurements are impractical. For these facilities, flow measuring and sampling type will be specified in the certification. If only one device is applicable, then that device will be used to report both influent and effluent flow. However, where these devices are not in place at the time of certification, the permittee has one year from the end of the calendar month that certification was given to install the required equipment. Where such equipment is in place, the frequency and type of flow monitoring will be "Continuous" and "Recorder", respectively. Where such equipment is not in place, the frequency and type of flow monitoring, during the interim period, will be specified in the certification. For certain facilities, the use of a metered pumping rate or potable water use or may be allowed. In these cases, the monitoring frequency and sample type are determined and specified in the certification.

[5] Limitations for 5-day Carbonaceous Biochemical Oxygen Demand ($CBOD_5$) of 25 mg/l (30-day average) and 40 mg/l (maximum 7- day average) may be substituted for the limits for BOD_5 as identified in the certification. 85% removal of $CBOD_5$ would also be required.

[6] For domestic sources, where the permittee has demonstrated that the treatment facility is unable to meet the 85 percent removal requirement for a parameter and the inability to meet the requirement is not caused by infiltration and inflow, a lower percent removal requirement or a mass loading limit may be substituted provided that the permittee can demonstrate that the numeric limitations for BOD_5, $CBOD_5$, and TSS can be met.

[7] For *E. coli* the statistic used is the Geometric Mean, which is based on Method 1: Geometric Mean $= (a*b*c*d*...)^{(1/n)}$, or Method 2: Geometric Mean = antilog([log(a)+log(b)+log(c)+log(d)+...]/n).

[8] Total Phosphorus limits are established and included in the certification, where applicable, and are based on the applicable regulation (Regulation Nos. 71-74).

5.2.1 Regulation 85 Effluent Nutrient Limits

According to COG59100 (p. 35 of 48), new facilities are required to meet either Regulation 85 limits or Regulation 31 TP and total nitrogen (TN) limits, as applicable, upon commencement of discharge. Note that the running annual median requires 1 year of data collection prior to reporting. Regulation 85 TIN and TP limits for new facilities are summarized in Table 6.

Table 6. Regulation 85 Permit Limits Applicable to New Facilities (85.5(1)(b))

Parameter	Parameter Limitations	Parameter Limitations
	Annual Median[1]	**95th Percentile[2]**
(a) Total Phosphorus (TP)	0.7 mg/L	1.75 mg/L
(b) Total Inorganic Nitrogen (TIN) as N[3]	7 mg/L	14 mg/L

[1] 14 mg/L Rolling Annual Median: The median of all samples taken in the most recent 12 calendar months.
[2] The 95th percentile of all samples taken in the most recent 12 calendar months.
[3] Determined as the sum of nitrate as N, nitrite as N, and ammonia as N.

Calculated Regulation 31 TP and TN water quality-based limits (WQBELs) for warm streams are summarized in GP COG59100 (starting on p. 34 of 48). Based on the assumed 1E5 critical low flow to facility design capacity ratio for the Walden WSD WWTF, the calculated limit for the TN WQBEL is 2.01

mg/L where ambient quality of the receiving stream is assumed to be 0 mg/L. According to the process described in the GP, the Regulation 85 technology-based TIN limits in Table 6 above will be applied instead of the Regulation No. 31 TN WQBEL because it is greater than the WQBEL. Similarly, the calculated Regulation No. 31 WQBEL for TP is 0.17, where ambient quality is assumed to be 0, according to Table 7e – Part 1 (p. 37 of 48) of the GP. Therefore, the Regulation 85 TP technology-based limit in Table 6 will be applied because it is greater than WQBEL.

6. Non-compliance Risk

The membrane bioreactor wastewater treatment process that is proposed for the Walden WSD WWTF is one of the most advanced solutions for wastewater treatment.[4] This technology will significantly improve effluent quality at the facility. However, despite the expected high-quality effluent, some estimated limits—particularly the 2-year average antidegradation-based average concentration (ADBAC) limits listed in Table 5—are either below current technological capabilities and/or economically infeasible.

According to Regulation No. 31, new or increased water quality impacts from regulated activities, including Colorado Discharge Permit System (CDPS) permits, must undergo an antidegradation review. Because the Walden WSD WWTF constitutes a new surface water discharge, it will be considered a new impact to its receiving stream and therefore subject to antidegradation requirements. If the limits summarized in Table 5 are incorporated into the Walden WSD WWTF discharge certification under GP 591000, the following options (or others not yet defined) may be pursued by WSD to obtain regulatory relief:

- Antidegradation Alternatives Analysis. According to Colorado's Antidegradation Guidance Document[5], a discharger is allowed to examine alternatives that may result in no degradation or less degradation, and are economically, environmentally, and technologically reasonable. If a proposed regulated activity is deemed important for economic or social development, an assessment shall be made to determine whether the resulting degradation is necessary to accommodate that development. An alternative antidegradation limit is typically expressed as a numeric value higher than the ADBAC yet equal to or lower than the WQBEL, and it must be reasonably achievable by the facility.

- Individual Permit. If effluent limit concerns cannot be resolved under the GP, pursuing an individual permit may be necessary. Site-specific analyses under an individual permit could help mitigate non-compliance risks by establishing limits based on actual dilution rather than defaulting to an assumed zero dilution due to a lack of data. For example, a mixing zone study for the No. 7 Reservoir might eliminate the assumption of zero critical low flow and could

[4] https://www.waterandwastewater.com/what-is-membrane-bioreactor-wastewater-treatment/
[5] https://drive.google.com/file/d/18NjdSx251SFWMrSOrVP8bRIlxzXziTO5/view

potentially result in less stringent limits. Similar modifications based on a reservoir mixing zone study may also be possible within the GP framework.

- Revisions to COG591000. The WQCD recently paused compliance enforcement for existing WWTFs permitted under GP COG591000, recognizing that several facilities received limits that cannot feasibly be met. Although the Walden WSD WWTF is not yet permitted under COG591000, potential issues within the GP may necessitate future revisions. Depending on how the WQCD addresses these concerns, the facility may benefit from an updated permit, though the scope and timing of potential revisions remain uncertain.

If the Walden WWTF faces potential permit non-compliance, the pros and cons of each approach should be assessed in collaboration with the WQCD to determine the most viable path forward.

7. Chemical Use Implications

Additional permit limits (not considered in this evaluation) could be incorporated into the permit certification based on chemicals added to the treatment process. For example, one facility received a methanol reporting requirement due to its use of Micro C 2000 based on a qualitative reasonable potential determination. Table 7 lists parameters associated with various common treatment chemicals. Chemicals specific to the Walden WSD WWTF treatment will need to be further evaluated for permit limitations. Chemical use permit limits are often based on the best professional judgment of the permit writer.

Table 7. Common Chemicals Added to WWTF Treatment

Product/trade name	Chemical constituent(s)	Purpose	Pollutants of concern
Alum	aluminum sulfate	flocculent	Al, SO4, Sulfide, pH, WET
Sodium Hydroxide	sodium hydroxide, water	alkalinity	TSS, pH. WET
MicroC 2000	glycerin, glycerol, sodium chloride, methanol, water	carbon supplement	TOC, DOC, Methanol, WET
Sodium Hypochlorite	sodium hypochlorite, sodium hydroxide, water	membrane cleaner	TRC, WET, TSS, Chloride
Citric Acid	citric acid	membrane cleaner	pH, TOC

8. Additional Considerations

Whole Effluent Toxicity (WET) Limits – The WQCD typically determines the applicability of WET on a case-by-case basis, considering factors such as facility type, influent characteristics, discharge variability, chemical usage, and non-domestic contributions, in accordance with its WET Testing policy. Assuming

there will be no commercial or industrial discharges to the Walden WSD WWTF, it is unlikely that WET limits will be incorporated into the permit, unless chemical usage triggers a WET limit.

Temperature Limits – The 7E3 low flow is 0 in all twelve months, and the immediate receiving water is an effluent-dependent stream (ephemeral stream without the presence of wastewater). Therefore, in accordance with Regulation 31.9(3), no temperature limitations are required. However, note that the implementation of temperature limits in discharge permits has been inconsistent.

Metals monitoring – The facility may be required to monitor metals, including, but not limited to, arsenic, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, silver, uranium, and zinc. Monitoring is used to determine potential future effluent limits.

EPA Periodic Pollutant Monitoring – The facility may be required to conduct annual total metals pollutant scans of its effluent. However, this seems unnecessary given that the system has no commercial or industrial contributions.

PFAS Monitoring - A one-time monitoring requirement for PFAS may be included in the certification to gather information on the presence of these substances in the effluent discharge.

Secondary drinking water limits – If drinking water wells are located in the zone of discharge influence downstream of the WWTF discharge, dissolved iron and/or dissolved manganese limits based on secondary water supply standards may be incorporated into the permit.

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Draft Emergency Plan for Walden W&S WWTP Project

Introduction

The Walden Wastewater Treatment Plant (WWTP) project is committed to ensuring the safety and reliability of its wastewater treatment operations during emergency events. This preliminary emergency plan outlines the procedures and responsibilities for responding to emergencies that may arise at the Walden WWTP. The plan is designed to protect public health, the environment, and the infrastructure of the treatment plant. Summa Water Services will serve as the Operator in Responsible Charge, leading the response effort in the event of an emergency.

Objectives

The primary objectives of this emergency plan are to:

1. Ensure the safety of plant personnel and the public.
2. Minimize environmental impacts.
3. Maintain compliance with regulatory requirements.
4. Restore normal operations as quickly as possible.

Emergency Response Team

The Emergency Response Team (ERT) is responsible for managing and coordinating the response to any emergency at the Walden WWTP. The team includes:

- **Incident Commander**: The Incident Commander is responsible for overall management of the emergency response. This role will be filled by Ellen Ellson, owner of Summa Water Services, the contract operator.
- **Safety Officer**: The Safety Officer ensures the safety of all personnel involved in the emergency response.
- **Public Information Officer**: The Public Information Officer communicates with the public and media, providing accurate and timely information about the emergency and response efforts.

Emergency Scenarios

The following scenarios outline potential emergencies that may occur at the Walden WWTP and the corresponding response actions:

1. **Power Outage**:
    - **Response Actions**:
        - Backup generator is designed to automatically engage though the ATS to maintain critical operations.
        - Notify the local utility company and coordinate restoration efforts.
        - Monitor plant operations to ensure continued treatment effectiveness.
2. **Chemical Spill**:
    - **Response Actions**:
        - Evacuate the affected area and secure the spill site.
        - Use appropriate personal protective equipment (PPE) and containment materials to control the spill.
        - Notify local emergency responders and environmental agencies.
        - Conduct cleanup and decontamination procedures.
3. **Equipment Failure**:
    - **Response Actions**:
        - Identify the failed equipment and assess the impact on plant operations.
        - Implement contingency plans to maintain treatment processes.
        - Coordinate repair or replacement of the equipment.
        - Document the incident and corrective actions taken.
        - Replace any shelf spare equipment
4. **Flooding**:
    - **Response Actions**:
        - Monitor weather forecasts and water levels.
        - Implement flood protection measures, such as sandbagging and temporary barriers.
        - Evacuate non-essential personnel and secure critical infrastructure.
        - Coordinate with local emergency management agencies for support and resources.

Communication Plan

Effective communication is critical during an emergency. The following communication protocols will be followed:

- **Internal Communication**:

    - The Incident Commander will communicate with the ERT and plant personnel using radios, phones, and other available communication tools.
    - Regular briefings will be held to update the team on the status of the emergency and response efforts.
- **External Communication**:
    - The Public Information Officer will serve as the primary point of contact for the public and media.
    - Press releases and public statements will be issued to provide accurate and timely information.
    - Coordination with local emergency responders and regulatory agencies will be maintained throughout the response.

Training and Drills

Regular training and drills are essential to ensure that all personnel are prepared to respond effectively to emergencies. The following activities will be conducted:

- **Training**:
    - All plant personnel will receive training on emergency response procedures, including the use of PPE and emergency equipment.
    - Specialized training will be provided for members of the ERT.
- **Drills**:
    - Emergency drills will be conducted to test the effectiveness of the emergency plan and identify areas for improvement.
    - Drills will include scenarios such as power outages, chemical spills, equipment failures, and flooding.

Contact Information for Emergency Response Team Resources

In the event that additional support is needed to operate the generator, the Emergency Response Team for Generator Source in Brighton, Colorado. Their contact information is as follows:

- **Generator Source**
    - **Address**: 625 Baseline Rd, Brighton, CO 80603
    - **Phone**: (303) 659-2073
    - **Email**: genny@generatorsource.com

Sewer Jetting Contractor

For sewer jetting services, the following contractor in Colorado is available:

- **Rocky Mountain Sewer Jet**
  - **Address**: 14697 E. Easter Avenue, Suite D, Centennial, CO 80112
  - **Phone**: (303) 791-5041
  - **Email**: info@rmsjet.com

Electrical Utility Contact Information

For electrical utility services, Holy Cross Electric can be contacted as follows:

- **Mountain View Electric Association**
  - **Address**: 11140 East Woodmen Road Falcon, CO 80831-8127
  - **Phone**: (719) 495-2283

Electrical Contractor

For electrical contracting services, Grasmick Electric can be contacted as follows:

- **Grasmick Electric**
  - **Address**: 525 S Gilbert St, Castle Rock, CO 80104
  - **Phone**: (720) 573-8175
  - **Email**: Chris@gecelec.com

Velocity Plant Services

For additional support and services for plant work, Velocity Plant Services can be contacted as follows:

- **Velocity Plant Services**
  - **Address**: 2107 W College Ave, Englewood, CO 80110
  - **Phone**: (303) 984-7800
  - **Email**: dvelasquez@velocityci.com

Ambiente H2O

For additional treatment equipment needs including pump replacements, Ambiente H2O can be contacted as follows:

- **Ambiente H2O**
  - **Address**: 1500 W Hampden Ave Suite 3G, Sheridan, CO 80110
  - **Phone**: (303) 433-0364
  - **Email**: hansen@ambienteh2o.com

Newterra

For system manufacturer concerns, Newterra can be contacted as follows:

- **Newterra**
  - **Address:** 1291 California Avenue Brockville, ON K6V 5Y6
  - **Phone**: (737) 233-0316
  - **Email**: edavid@newterra.com

Conclusion

The Walden WWTP PUD project is committed to maintaining a safe and reliable wastewater treatment operation. This emergency plan provides a preliminary framework for responding to emergencies, protecting public health and the environment, and ensuring the continued operation of the treatment plant. Water Quality Control Professionals, as the operator in responsible charge, will lead the response effort and ensure that all necessary actions are taken to mitigate the impact of any emergency. Regular training and drills will be conducted to ensure that all personnel are prepared to respond effectively to any situation.

El Paso County - Colorado

6115000001
3155 WALKER RD

Total Market Value
$36,794

OVERVIEW

Owner:	**WALDEN CORPORATION**
Mailing Address:	**PO BOX 1870 MONUMENT CO 80132-1870**
Location:	**3155 WALKER RD**
Tax Status:	**Taxable**
Zoning:	**RR-5**
Plat No:	**-**
Legal Description:	**TRACT IN NE4 SEC 15-11-66 AS FOLS, COM AT NE COR OF SD SEC 15, TH N 88<13'11" W ON N LN THEREOF 2225.64 FT, TH S 1<46'49" W 30.00 FT TO S R/W LN OF HWY 50 FOR POB, TH S 25<17' E 520.99 FT, S 1<46'49" W 200.00 FT, S 69<46'49" W 200.00 FT, N 23<40'09" W 818.25 FT TO S R/W LN OF HWY 50, TH S 88<13'11" E ALG SD S LN 300.00 FT TO POB**

MARKET & ASSESSMENT DETAILS

	Market Value	Assessed Value
Land	**$35,000**	**$9,770**
Improvement	**$1,794**	**$470**
Total	**$36,794**	**$10,240**

LAND DETAILS

SEQUENCE NUMBER	LAND USE	ASSESSMENT RATE	AREA	MARKET VALUE
1	WAREHOUSE/STORAGE	27.900	4.7 Acres	$35,000

BUILDING DETAILS

FARM UTILITY BUILDING (1) MARKET VALUE $1,794

Assessment Rate	**26.4**	Sprinkler	**N**
Bldg #	**1**	Elevator	**-**
Use	**FARM UTILITY BUILDING**	Occup 1	**404**
Year Built	**1986**	Occup 2	**-**
Area	**336**	HVA 1	**Ventilation**
Class	**D**	HVA 2	**-**
Quality	**Average Plus**	Wall Height	**10**
Stories	**1**	Land Size	**-**
Perimeter	**76**	Neigh #	**202**
# Units	**0**		
Market Value **$1,794**			

SALES HISTORY

SALE DATE	SALE PRICE	SALE TYPE	RECEPTION
No items to display			

TAX ENTITY AND LEVY INFORMATION

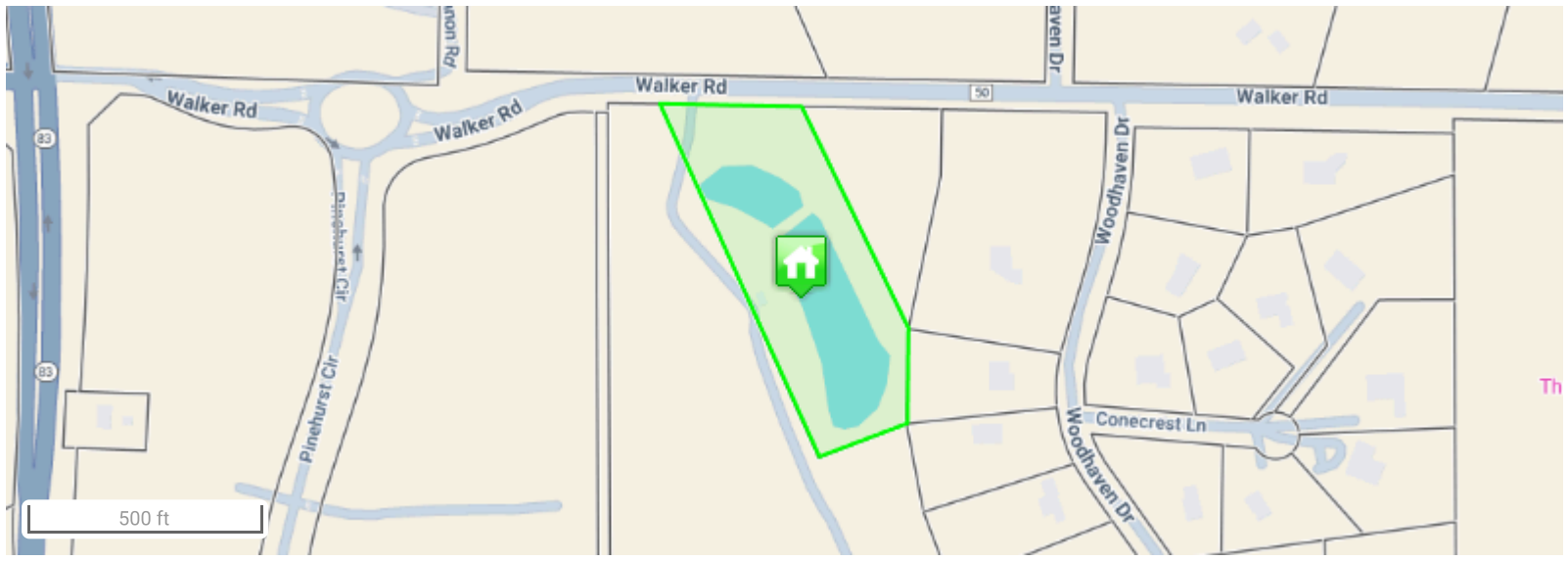
County Treasurer Tax Information

Tax Area Code: **PFL** Levy Year: **2024** Mill Levy: **66.355**

TAXING ENTITY	LEVY	CONTACT NAME/ORGANIZATION	CONTACT PHONE
EL PASO COUNTY	6.985	FINANCIAL SERVICES	(719)520-6400
EPC ROAD & BRIDGE (UNSHARED)	0.330	-	(719)520-6498
LEWIS-PALMER SCHOOL DISTRICT #38	37.500	BRETT RIDGWAY	(719)488-4705
PIKES PEAK LIBRARY DISTRICT	3.140	RANDALL A GREEN	(719)531-6333
TRI-LAKES MONUMENT FIRE PROTECTION DISTRICT	18.400	ANDY KOVACS	(719)484-0911
EL PASO COUNTY CONSERVATION DISTRICT	0.000	MARIAH HUDSON	(719)600-4706

MAP SHEET

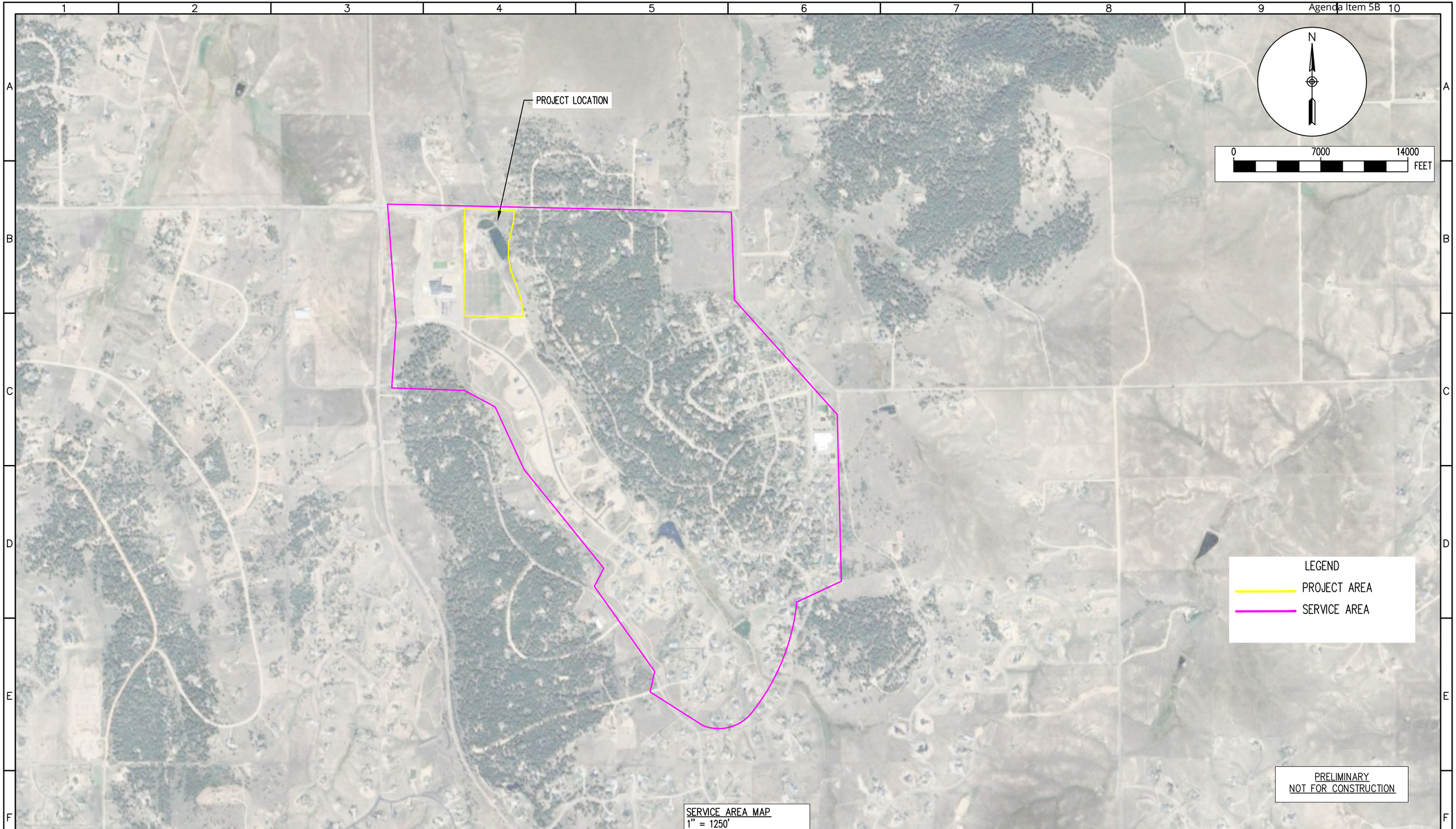
Click to view Map Sheet 1





Disclaimer

We have made a good-faith effort to provide you with the most recent and most accurate information available. However, if you need to use this information in any legal or official venue, you will need to obtain official copies from the Assessor's Office. Do be aware that this data is subject to change on a daily basis. If you believe that any of this information is incorrect, please call us at (719) 520-6600.



SERVICE AREA MAP
1" = 1250'

REV. No:	DATE:	BY:	REVISION DESCRIPTION:

DESIGNED BY: MG
CHECKED BY: AS
FILE PRINTED ON: 5/12/2025 11:26:30 AM
COPYRIGHT: AQUAWORKS DBO, INC.
0 1 IF THIS BAR DOES NOT READ 1" DRAWING IS NOT LABELED TO SCALE

AquaWorks DBO INC
DESIGN BUILD OPERATE

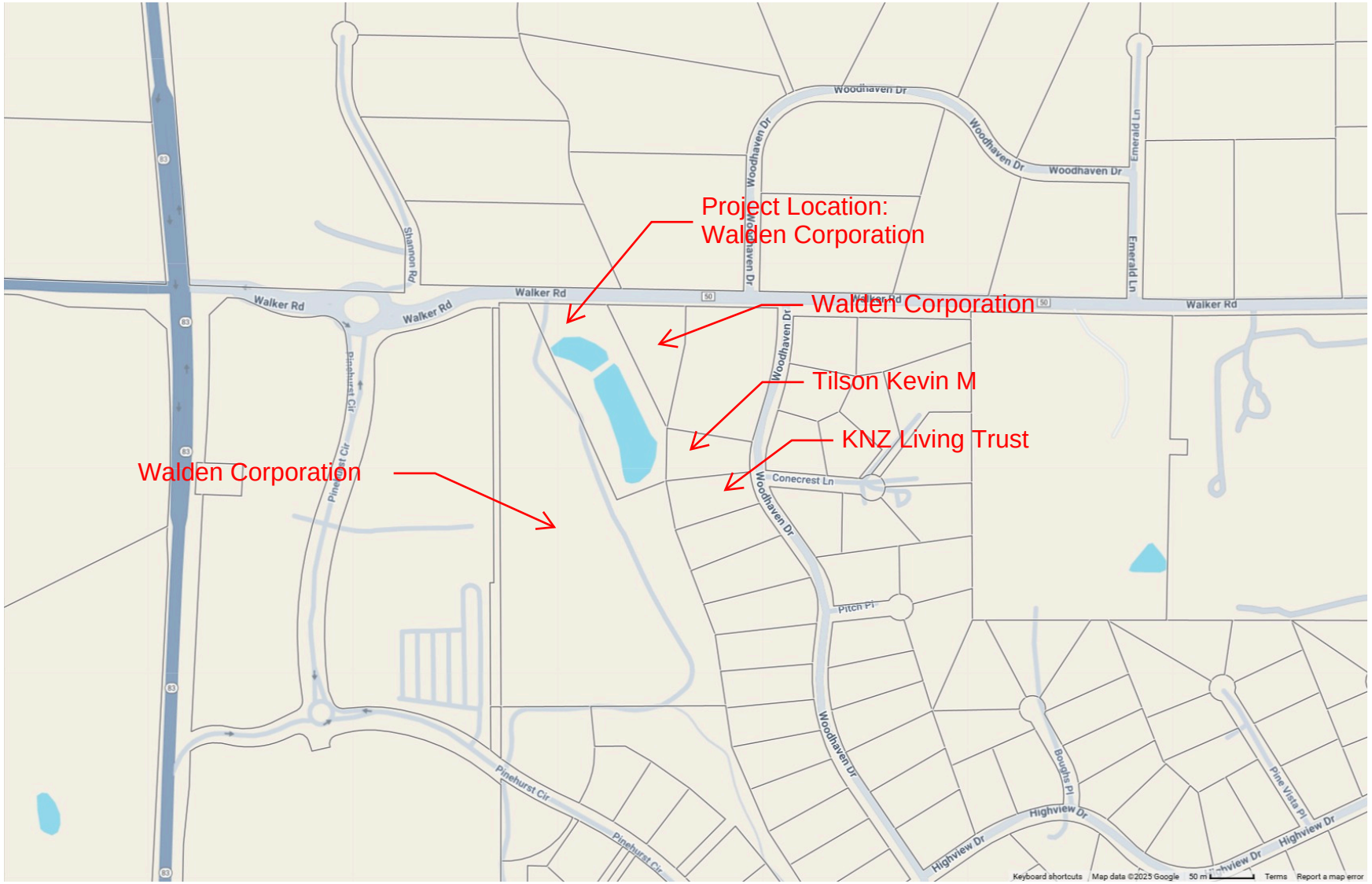
PROJECT: WALDEN SANITATION DISTRICT, 3155 WALKER ROAD COLORADO SPRINGS, COLORADO

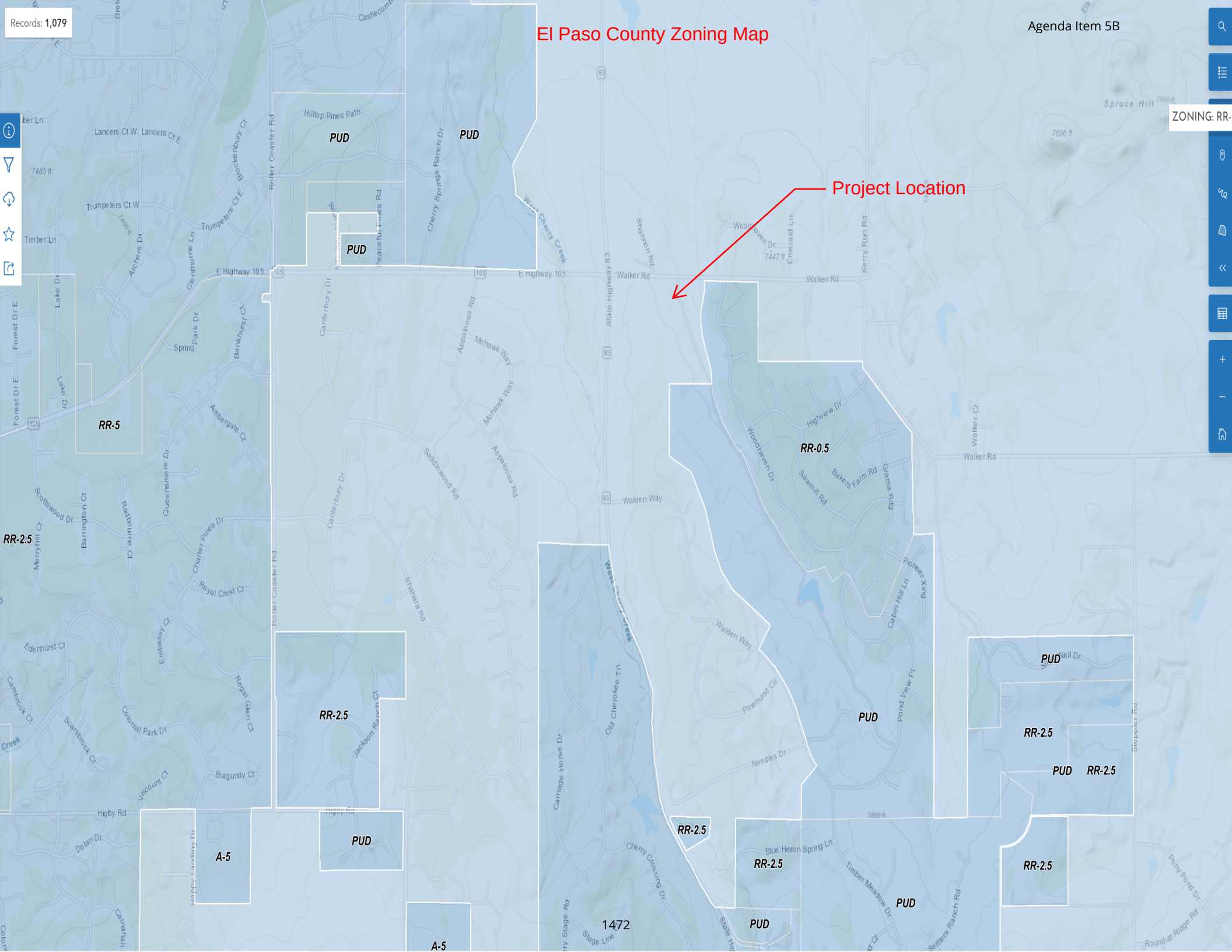
ENGINEER: AQUAWORKS DBO, INC.
3252 WILLIAMS STREET
DENVER, COLORADO 80205
(303) 477-5915

SHEET TITLE: SERVICE AREA MAP

PROJECT NUMBER:	SCALE:	SHEET:
#0000	1" = 1250'	C-3

Map of Adjacent Properties




El Paso County Zoning Map
Agenda Item 5B
Project Location
Records: 1,079
ZONING: RR-
PUD
RR-5
RR-2.5
RR-0.5
A-5
1472
E Highway 105
Walker Rd
Walden Way
Hilltop Pines Path
Roller Coaster Rd
Cherry Springs Ranch Dr
West Cherry Creek
State Highway 83
Shannon Rd
Kerry Run Rd
Emerald Ln
Woodhaven Dr
Highview Dr
Sawmill Rd
Bakers Farm Rd
Grama Ridge
Cabin Hill Ln
Pioneer Xing
Pond View Pl
Pinehurst Cir
Needles Dr
Old Cherokee Trl
Carriage Horse Dr
Cherry Crossing Dr
Blue Heron Spring Ln
Timber Meadow Dr
Stage Line
Seffers Ranch Rd
Pony Pond Dr
Roundup Ridge Rd
Spruce Hill
7600 ft
7696 ft
7485 ft
7447 ft
Trumpeters Ct W
Trumpeters Ct E
Timber Ln
Lancers Ct W
Lancers Ct E
Archers Dr
Glentivore Ln
Blockenbury Ct
Peaceful Pines Rd
Spring Park Dr
Lake Dr
Forest Dr E
Bankhurst Ct
Canterbury Dr
Appaloosa Rd
Mohawk Way
Saddlewood Rd
Ambergate Ct
Queensmere Dr
Radbourne Ct
Barrington Ct
Scottswood Dr
Merryhill Ct
Charter Pines Dr
Royal Crest Ct
Shahara Rd
Jackson Ranch Ct
Regal Glen Ct
Colonial Park Dr
Scarsbrook Ct
Cambrook Ct
Foehnhurst Ct
Embassy Ct
Viscount Ct
Burgundy Ct
Higby Rd
Dolan Dr
Happy Landing Dr
Carnahan
Walker Ct
Sierpen Rd
Veil Dr

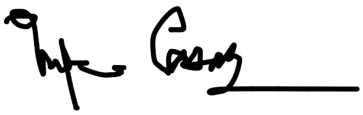
Integrity BANK & TRUST
Member FDIC

6/4/25

To Whom It May Concern;

This letter serves as a loan pre-qualification letter for Bill and Matt Dunston and Walden Corporation for the financing of a water plant in Walden Preserve, up to a $5 million loan amount. Please note that the pre-qualification is not a loan approval and is subject to underwriting and final approval, and other potential requirements. If you have any questions please feel free to call or e-mail me directly.

Sincerely,



Mike Casarez
Senior Credit Officer
NMLS # 1136818
Integrity Bank & Trust, NMLS #439891
1275 Village Ridge Pt.
Monument, CO 80132
P: 719-484-0077 C: 719-251-6298
mcasarez@integritybankandtrust.com

PARR ENGINEERING
& CONSULTING, INC.

Christopher L. Parr, P.E. Principal
11590 Black Forest Road, Suite 10
Colorado Springs, Colorado 80908
Office: 719-494-0404

Structural Engineering & Consulting
Geotechnical Engineering
On-Site Wastewater Treatment Design
Inspections & Technical Reports

August 30, 2019 JN 19.300

Project: **Subsurface Soil Investigation**
3155 Walker Road
Colorado Springs, CO 80908

Attached is a formal soils report for the project referenced above. Included in this report is a review of the soils investigation and analysis for this location. The purpose of our investigation was to evaluate the conditions of the subsurface soil in order to establish design and construction criteria for the proposed structure(s). A discussion of the results of our investigation with construction recommendations is also included. If revisions to the design of the proposed structure take place, it is advised that our firm be contacted immediately to review the changes and to determine if the revised plans are acceptable.

If you have any questions concerning this report, please feel free to contact our office at 719-494-0404.

Sincerely,

Jared R. Dumke, P.E.



Table of Contents

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Laboratory Investigation 4
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Open Excavation Observation (Cont.) 6
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Surface Drainage 6
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Purpose and Scope of Study

This report presents the results of a subsurface exploration program to provide foundation recommendations for the proposed structure to be located on the parcel of land referenced above.

The exploration program was conducted in order to obtain information regarding the subsurface conditions. Soil samples were retrieved from a soil boring(s) and analyzed to provide data on the classification and engineering characteristics of the on-site soils. The results of the field and laboratory investigation are presented herein.

This report has been prepared to summarize the data obtained and to present our conclusion and recommendations based on the proposed construction and the subsurface conditions encountered. Design criteria and a discussion of the geotechnical engineering considerations related to the construction of the proposed structure are included.

The information presented in this report is NOT intended to be used as a design. The foundation design requirements and all inspections associated with the foundation design is the responsibility of the Structural Engineer of Record.

Proposed Construction

Based on the information provided, the proposed construction will consist of a non-residential wastewater aeration basin supported on a reinforced concrete foundation system. We anticipate maximum structural loadings of 3000 pounds per lineal foot for distributive wall loads and a total capacity of 150,000 – 200,000 gallons.

If the project features or loadings differ significantly from those above, our firm should be contacted to reevaluate the recommendations contained herein.

Field Investigation

The field investigation for this project was conducted on August 19, 2019.

A 4” diameter exploratory boring was drilled to approximately 30 feet below grade in the area of the proposed construction. Standard penetration testing (SPT) was conducted during the drilling process.

The SPT measures resistance to penetration of a standard split-spoon sampler that is driven by a 140 lbm hammer dropped from a height of 30 in. The number of blows required to drive the sampler a distance of 12 in. after an initial penetration of 6 in. is referred to as the N-value or standard penetration resistance in blows per foot.

The representative samples obtained from the SPT split-spoon sampler are saved for subsequent laboratory examination and testing.

Laboratory Investigation

The field samples obtained were analyzed and classified in the laboratory. Laboratory testing included standard property tests, natural water content, Atterberg limits and Expansion Index tests.

The laboratory testing was conducted in general accordance with ASTM specifications.

Subsurface Conditions

The following tables summarize information obtained about the subsurface conditions encountered:

TB #1 Soil Classification	Sample Depth	Gravel	Sand	Fines	LL[1]	PI[2]	EI[3]	Expansive Potential
Silty Sand (SM)	10 ft.	6.8%	69.8%	23.3%	NP[4]	NP[4]	N/A	**Low**

LL – Liquid Limit [1] PI – Plasticity Index [2] EI – Expansion Index [3] NP[4] – Non Plastic

TB #1 Soil Classification	Sample Depth	SPT N-Value	Relative Density	Moisture Content	Clay Content	Expansive Index	Expansion Potential
Silty Sand (SM)	5 ft.	15	Medium Dense	6.8%	Low	N/A	**Low**
Silty Sand (SM)	10 ft.	25	Medium Dense	6.0%	Low	N/A	**Low**
Silty Sand (SM)	15 ft.	50+	Very Dense	8.3%	Low	N/A	**Low**
Silty Sand (SM)	20 ft.	50+	Very Dense	13.1%	Low	N/A	**Low**
Silty Sand (SM)	25 ft.	50+	Very Dense	17.0%	Low	N/A	**Low**
Clayey Sand (SC)	30 ft.	50+	Very Dense	18.6%	Medium	N/A	**Medium**

Ground water was encountered at a depth of 17'-0" below grade during the time of our investigation. The groundwater table subsequently may rise or fall due to seasonal changes, degree of irrigation and/or other factors. Ground water mitigation (underdrain, sump pump, etc) may be necessary for installation and shall be directed by foundation engineer. Groundwater may not be obvious until the open excavation inspection.

Foundation Recommendations

Considering the subsurface conditions encountered on-site and the nature of the proposed construction, we recommend that the proposed structure be founded on a reinforced concrete shallow foundation system with footings placed on native undisturbed soil. **Foundation elements shall be designed for a maximum allowable bearing pressure of 3000 lb/ft^2.**

Foundation Recommendations (Cont.)

NOTE: During the time of excavation if groundwater is encountered, overexcavation and compacted fill placement may be necessary for this project. The native soil must be overexcavated to a minimum depth of 36" below the proposed bearing depth of all foundation elements.

The native soils must be replaced and compacted with offsite structural fill material and placed and compacted as follows:

a. The initial, lower-most lift shall consist of a 1 foot layer of 12" angular, boulder sized material. The material shall be rolled into the native stratus allowing the native material to fill the spaces between the larger material.

b. The second layer shall consist of a 1 foot layer of 3"-8" angular, cobble sized material.

c. The uppermost layer shall consist of a 1 foot layer of ¼"-3" angular, gravel sized material extending to the desired grade elevation.

All material shall be placed and uniformly compacted such that the particles interlock creating a dense mat.

Existing topsoil, silt or deleterious materials if encountered below the foundation must be removed.

Foundation Walls

Foundation walls which are laterally supported and can be expected to undergo a minimal amount of deflection ("at-rest condition") may be designed for a lateral earth pressure computed on the basis of an **equivalent fluid unit weight of 45 pcf for onsite material**.

All foundation walls should be designed for appropriate hydrostatic and surcharge pressures such as adjacent buildings, traffic and construction materials and equipment. The pressures recommended above assume a relatively horizontal backfill surface.

The onsite excavated materials may be used as foundation wall backfill. Backfill shall be carefully placed in uniform lifts and properly compacted near optimum moisture content. Care should be taken not to over compact the backfill since this could cause excessive lateral pressure on the walls. Some settlement of deep foundation wall backfill will occur even if the material is placed correctly.

Open Excavation Observation

It is assumed that the results in this report are representative of the subsurface conditions throughout the site. However, variations across the site are a possibility and will not become evident until the foundation excavation is complete.

Open Excavation Observation (Cont.)

A representative of Parr Engineering & Consulting shall be contacted to inspect the completed foundation excavation prior to the placement of any formwork. Please contact our office a minimum of 24 hours prior to the requested site visit. This report may be rendered null and void if the open excavation observation is not completed.

The Open Excavation Observation Report will be billed additionally at the time services are complete and prior to the release of any documentation (either electronically or hard copy).

Floor System Recommendations

Floor Slabs should be provided with control joints to reduce damage that may occur as a result of shrinkage cracking. We suggest the spacing of the joints to be no more than 15 feet centers. The actual joint spacing should be based on the slab reinforcing design.

Surface Drainage

The following drainage precautions should be observed during the construction and maintained at all times after the residence has been completed.

1) Excessive wetting and drying of the foundation excavations and under slab areas should be avoided during construction.
2) The ground surface surrounding the exterior of the building should be sloped to drain away from the foundation in all directions. We recommend a minimum slope of 12 inches in the first 10 feet.
3) Roof downspouts and drains should discharge well beyond the limits of the backfill.
4) Landscaping which requires excessive watering should be located at least 10 feet from the house.
5) Plastic membranes should not be used to cover the ground surface adjacent to the foundation walls.

Limitations

This report has been prepared with generally accepted soil and foundation engineering practices in this area for use by the client for design purposes. The conclusions and recommendations presented are based on data obtained from the exploratory boring. The nature and extent of variation from the boring may not become evident until excavation is performed. If during construction, soil, rock and groundwater conditions appear to be different from those described herein, our office should be advised immediately so that reevaluation of the recommendations may be made.

Although all laboratory procedures were performed under optimal conditions, it should be noted that precautions should be taken to accommodate for certain sources of failure such as inconsistencies in the properties/characteristics of the on-site soil, variations in groundwater levels due to seasonal changes, etc.

This report DOES NOT address the potential for geologic hazards or constraints (i.e., slope stability, landslides). It must be emphasized that such hazards and constraints are outside the scope of this investigation and must be investigated independently.

Site Map



Laboratory Analysis – Sieve Analysis

SOIL CLASSIFICATION

Location of Site	3155 Walker Road, 80908	Tested By:	R.Jaquet
		Date Tested	08/19/19
Legal Description	N/A		
		Collected By	D.M. & S.D.
Job Number	19.300	Date Collected	08/19/19

SITE INVESTIGATION

Test Hole Depth	30'-0"	Groundwater Table	17'-0"
Surface Layer Thickness	-	Volume of Soil Sample	1/2 cu.ft.
Soil System	Uniform	Visual Moisture Observation	Moist

Layer	Soil Type/Depth
Surface	-
No. 1	SM/0 - 27'-0"
No. 2	SC/27'-0" - 30'-0"
No. 3	-

Critical Layer	No. 1
Coloration	Brown
Gravel	Trace
Organic Content	Little-None

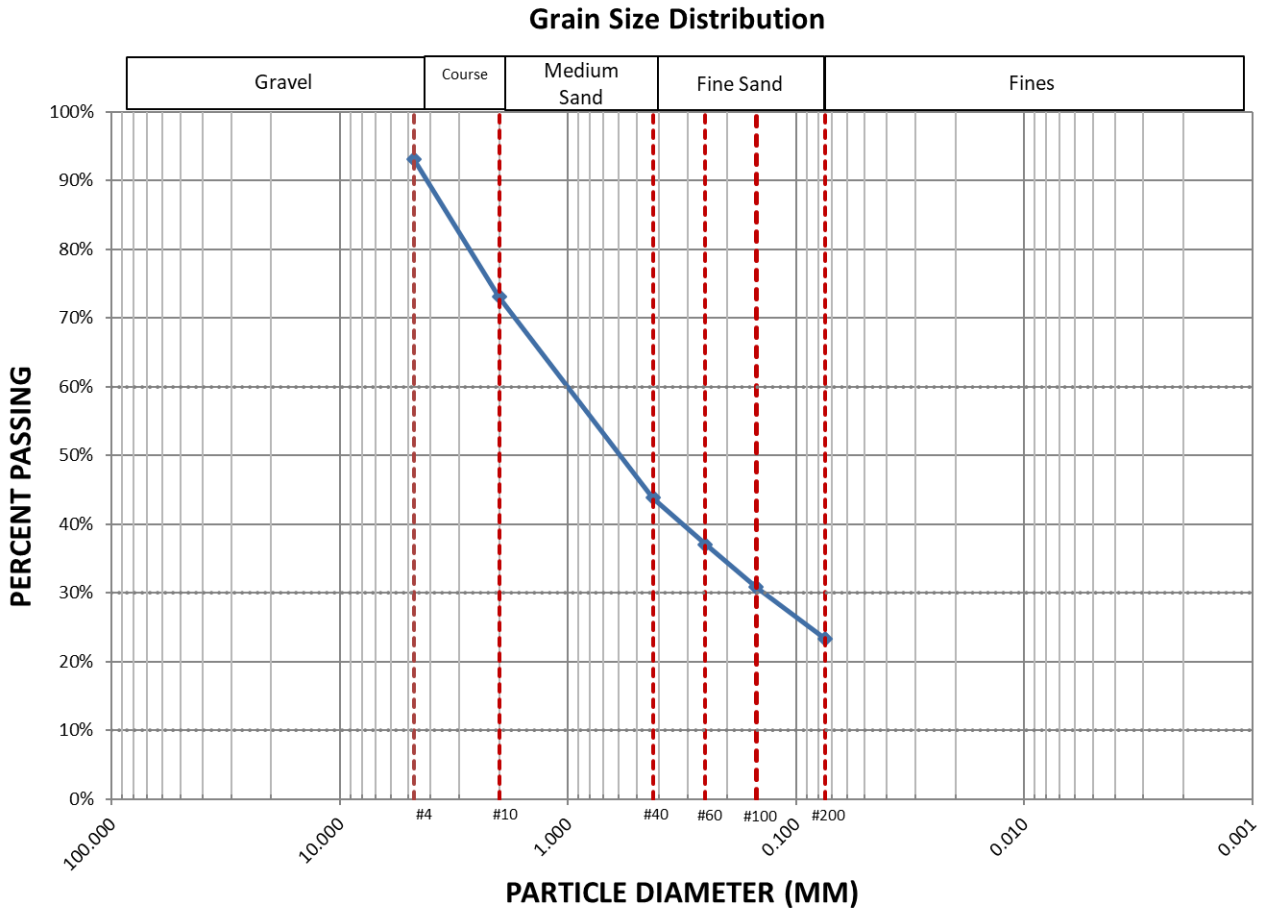
SIEVE ANALYSIS

Test Bore #:	TB #1	Bulk	Wet Weight of Soil (g)	514.4
Layer	No. 1		Dry Weight of Soil (g)	485.3
Depth of Sample	10'-0"		Natural Moisture Content	6.0%

Sieve #	Thickness (mm)	Mass Ret. (g)	% Ret.	%Pass	
4	4.750	33.2	6.8%	93.2%	Gravel
10	2.000	97.3	20.0%	73.1%	
40	0.425	141.9	29.2%	43.9%	Sand
60	0.250	33.0	6.8%	37.1%	
100	0.150	30.3	6.2%	30.8%	
200	0.075	36.4	7.5%	23.3%	
Pan	0.000	113.2	23.3%	0.0%	Fines
Pan	0.000		0.0%	0.0%	Organic
Totals		485.3	100.0%		

% Gravel	6.8%	Retained on #200	$C_u = D_{60}/D_{10}$ =	N/A
% Sand	69.8%			
% Fines	23.3%	Passes #200	$C_c = D_{30}^2/(D_{10})(D_{60})$ =	N/A
% Organic	0.0%			
Check	100.0%			

Laboratory Analysis – Grain Size Distribution



Job Number: 19.300
3155 Walker Road, 80908

Drill Log – Test Bore #1

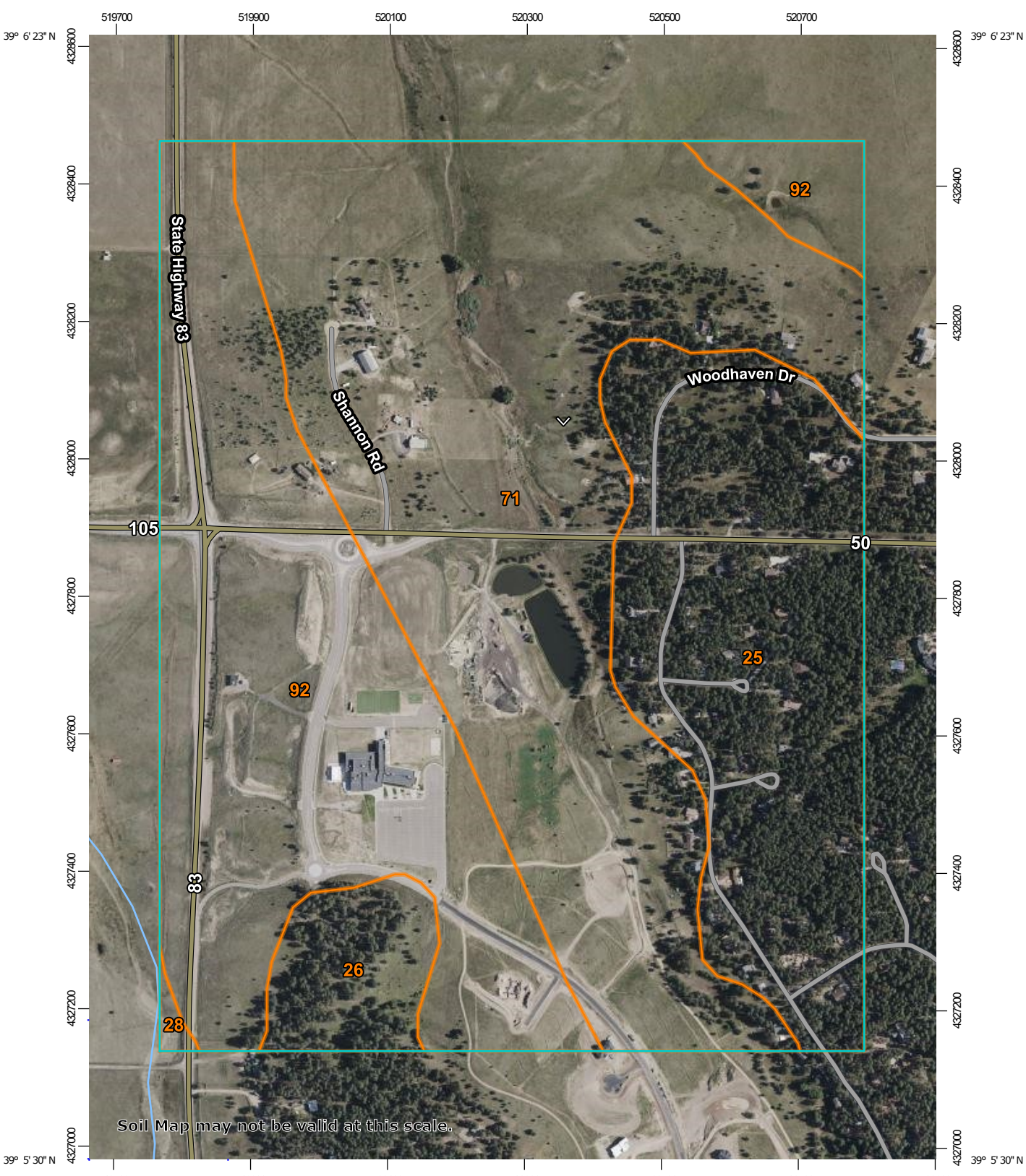
Parr Engineering & Consulting, Inc.
11590 Black Forest Road, Suite 10
Colorado Springs, Colorado 80908
Phone: 719-494-0404

BORING LOG	
Job Number:	19.300
Date Drilled:	08/19/19
Boring #:	TB #1

Driller:	D.Mizicko	Total Depth:	30'-0"
Logged By:	S.Dunfee	Groundwater Elevation:	17'-0"
Method:	Boring	Latitude:	39° 5'54.44"N
Auger & Size:	4" Solid Stem	Longitude:	104°45'54.83"W

Depth (ft.)	Sample Interval	SPT Blows - 6"/18"	3155 Walker Road, 80908	Additional Notes
			Sand, Fine-Grained, Silt, Trace Gravel, Medium Dense, Brown,	
			Non-Plastic, Moist, (SM)	
5		5/20		
10		5/30		
			Sand, Coarse-Grained, Silt, Gravel, Very Dense, Brown,	
			Non-Plastic, Moist, (SM)	
15		50+		
			Sand, Coarse-Grained, Silt, Gravel, Very Dense, Brown,	▼
			Non-Plastic, Saturated, (SM)	
20		50+		
25		50+		
			Sand, Coarse-Grained, Clay, Gravel, Silt, Very Dense, Tan,	
			Low Plasticity, Moist, (SC)	
30		50+		
			Total Depth= 30'-0"	

Soil Map—El Paso County Area, Colorado
(Walden WWTP)



Map Scale: 1:7,970 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 100 200 400 600

Feet
0 350 700 1400 2100

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

Soil Map—El Paso County Area, Colorado
(Walden WWTP)

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 22, Sep 3, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 23, 2024—Aug 4, 2024

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
25	Elbeth sandy loam, 3 to 8 percent slopes	73.2	21.6%
26	Elbeth sandy loam, 8 to 15 percent slopes	13.4	4.0%
28	Ellicott loamy coarse sand, 0 to 5 percent slopes	0.9	0.3%
71	Pring coarse sandy loam, 3 to 8 percent slopes	145.6	43.1%
92	Tomah-Crowfoot loamy sands, 3 to 8 percent slopes	105.0	31.1%
Totals for Area of Interest		**338.0**	**100.0%**

U.S. Fish and Wildlife Service
National Wetlands Inventory

Walden WTTP



April 19, 2025

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Flood Hazard Layer FIRMette

FEMA

104°46'14"W 39°6'10"N



104°45'37"W 39°5'42"N

Feet
0 250 500 1,000 1,500 2,000
1:6,000
1488

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 4/19/2025 at 6:49 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



Decentralized MBR Wastewater Treatment

Scalable, Cost-Effective Solutions for Development Projects & WWTP Retrofits

newterra®

clean water. modular solutions. *simple.*™

Modular Systems That Grow As Your Developments Grow

newterra is leading the way with decentralized wastewater solutions that help you reduce project costs with a sustainable treatment approach. Our modular membrane bioreactor (MBR) systems are scalable – allowing treatment infrastructure to be added in stages as capacity requirements grow.



The Right Solution for a Wide Range of Projects

newterra's innovative wastewater treatment systems are ideally suited to many types of projects, including:

- Greenfield & Retrofit Projects
- Existing Infrastructure Tie-ins
- Municipal WWTPs
- New Residential Developments
- Hotels, Resorts & Restaurants
- Campgrounds & Trailer Parks
- Mobile Home Communities
- Off-Grid & Remote Municipal Plants
- New Commercial Developments
- Service Area Expansions
- LEED® Certified & Green Buildings
- Schools & Hospitals
- Golf Courses
- Sports & Recreational Facilities
- Highway Rest Areas

Self-Contained and Enclosed Systems

newterra MBR wastewater systems are modular, and can be configured as fully self-contained units that can be clad with a variety of materials to blend in with surrounding structures, or integrated into new or existing treatment structures. They are built in our MET-certified manufacturing facility and have UL electrical certification.

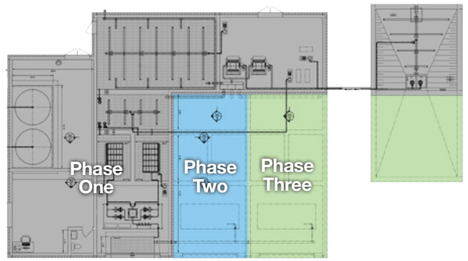


***newterra** systems can be clad to blend in with their surroundings (inset, left), or be loose-shipped for use with inground tanks and buildings (inset, right).*

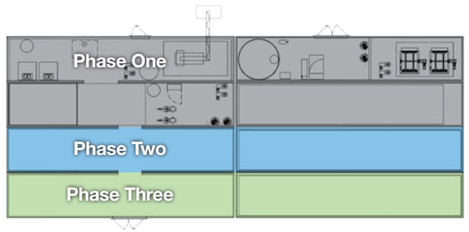
Add Infrastructure with Each Phase of a Project

Our modular, scalable treatment technology allows you to phase in wastewater infrastructure in parallel with the treatment demands of your development. **newterra** MBR systems can handle high loads, and are very resilient to flow and loading fluctuations. They are also extremely space efficient – reducing land requirements and providing more options of where the plant can be located. **newterra** systems can be loose-shipped or pre-manufactured, and we offer you the option of renting or leasing to minimize your initial capital expenditures.

Option #1: Loose-Shipped Components - Conventional Installation



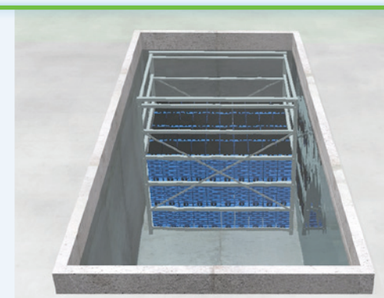
Option #2: Pre-manufactured Modular System – No Other Buildings





Cost-Effective for New Facilities & Retrofits

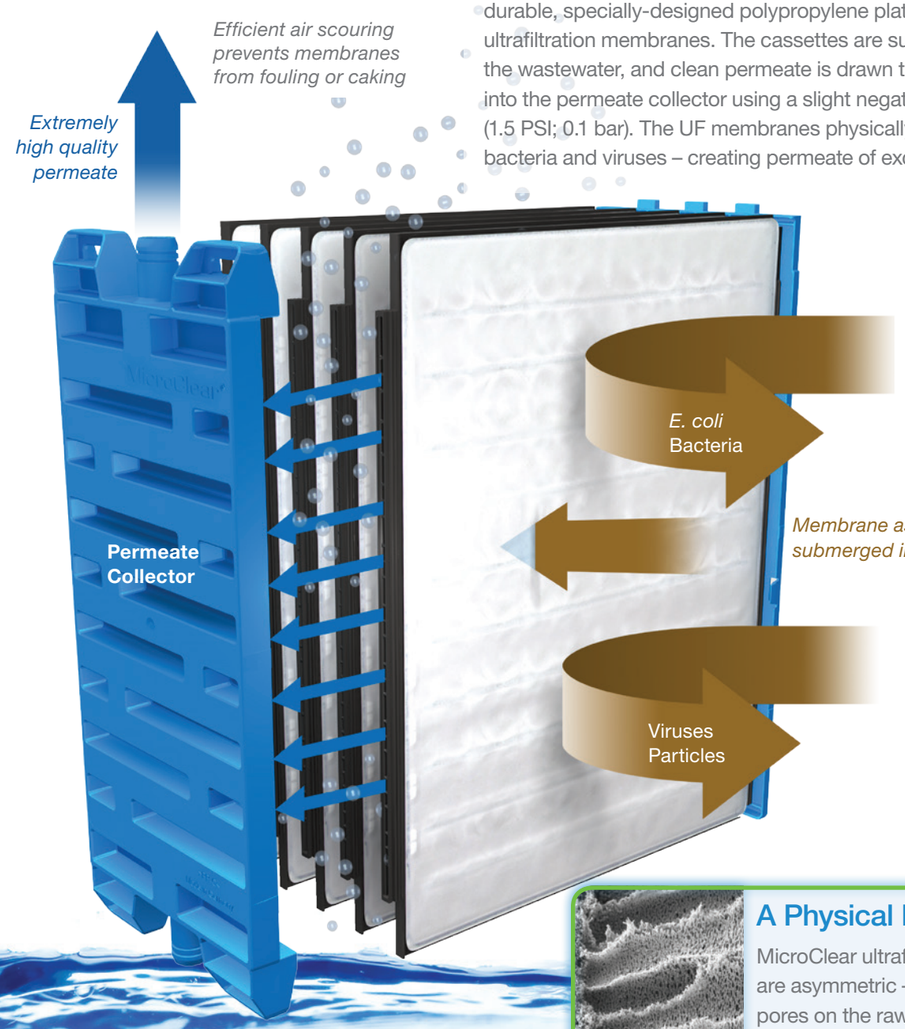
At **newterra**, we offer both custom-designed and pre-engineered, packaged MBR treatment systems for new facilities. Our technology is also very well suited to retrofitting conventional BNR and ENR plants to comply with higher regulatory standards or expand capacity. **newterra** MBR modules can be easily incorporated into existing clarification tanks – more than **tripling plant capacity** within the current footprint and eliminating the need for costly infrastructure expansion.

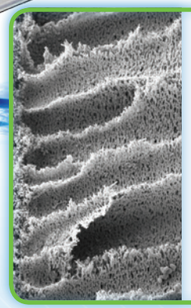


newterra MicroClear® UF Membranes: The Core of our MBRs

Innovative Design. Outstanding Performance

newterra's patented MicroClear cassettes consist of a series of durable, specially-designed polypropylene plates sandwiched by ultrafiltration membranes. The cassettes are submerged directly into the wastewater, and clean permeate is drawn through the membranes into the permeate collector using a slight negative pressure (1.5 PSI; 0.1 bar). The UF membranes physically block particles, bacteria and viruses – creating permeate of exceptionally high quality.



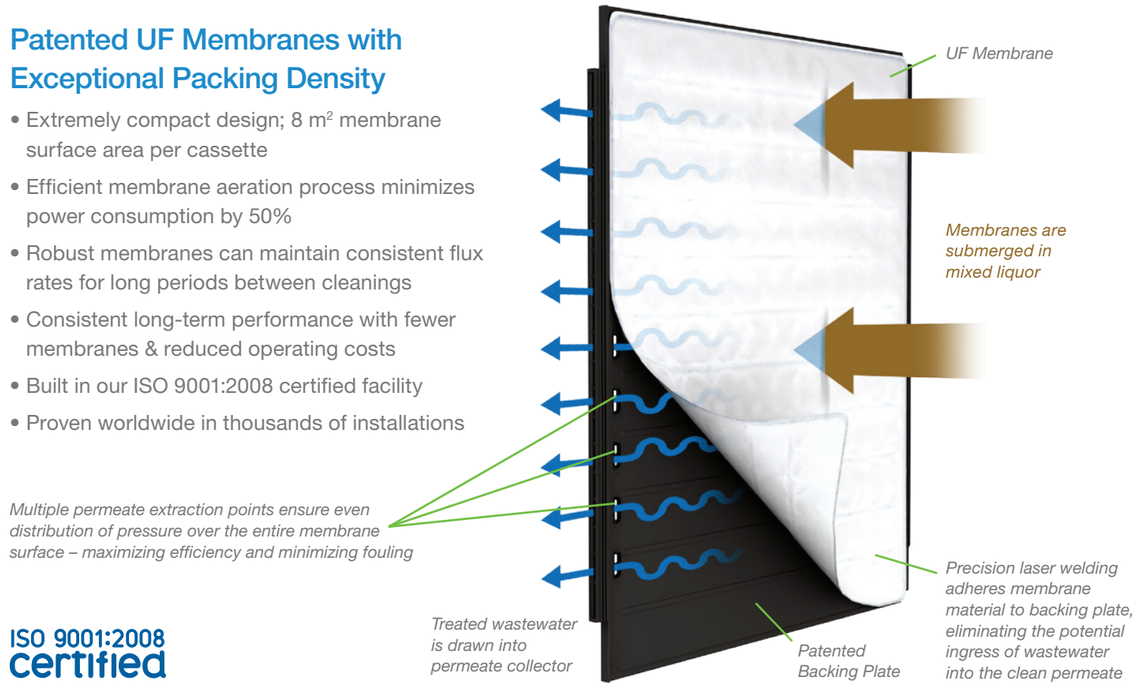


A Physical Barrier

MicroClear ultrafiltration membranes are asymmetric – featuring smaller pores on the raw water side than the permeate side. This ensures that viruses and microscope particles are retained, while minimizing pressure loss inside the membrane.

Patented UF Membranes with Exceptional Packing Density

- Extremely compact design; 8 m^2 membrane surface area per cassette
- Efficient membrane aeration process minimizes power consumption by 50%
- Robust membranes can maintain consistent flux rates for long periods between cleanings
- Consistent long-term performance with fewer membranes & reduced operating costs
- Built in our ISO 9001:2008 certified facility
- Proven worldwide in thousands of installations



ISO 9001:2008 certified

Excellent Permeate Quality That Meets Global Standards

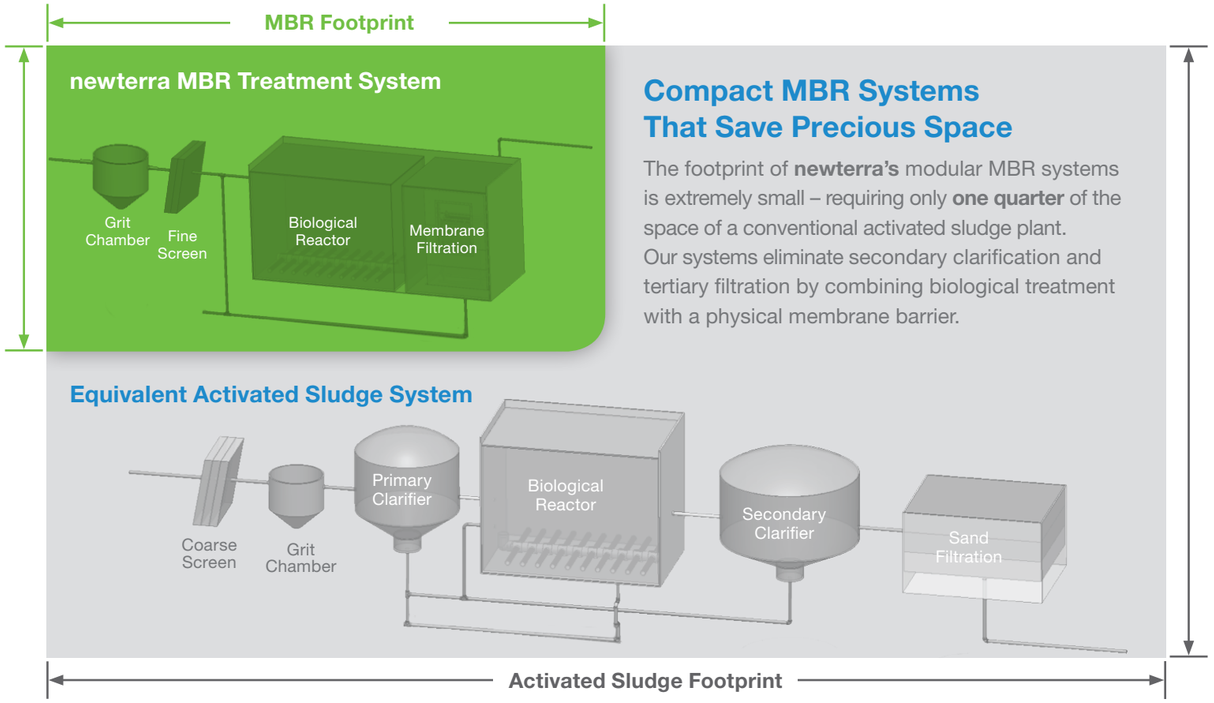
newterra MBR treatment systems provide high quality permeate that meets or exceeds global regulatory standards for reuse applications or direct discharge – even in environmentally sensitive areas.

- WHO Health Guidelines for the Use of Wastewater in Agriculture & Aquaculture
- EU Bathing Water Directive (2006/7/EC)
- UN International Maritime Organization bacteriological limits
- California Title 22 – 4 Code of Regulations

Parameter	Permeate
Biological Oxygen Demand	<2.0 mg/L
Total Suspended Solids	<1.0 mg/L
Ammonia-N	<0.5 mg/L
Total Phosphorus	<0.05 mg/L
Total Nitrogen	<3.0 mg/L
Turbidity	<0.5 NTU



Compact, Operator-Friendly & Sustainable Treatment Solutions

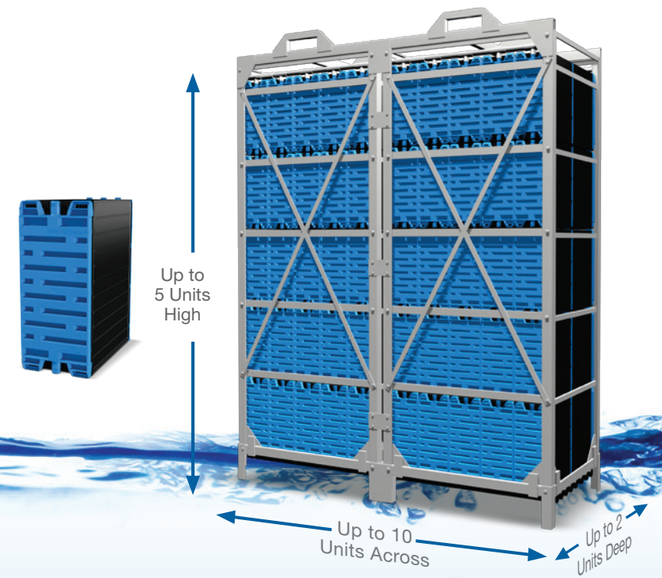


Compact MBR Systems That Save Precious Space

The footprint of **newterra's** modular MBR systems is extremely small – requiring only **one quarter** of the space of a conventional activated sludge plant. Our systems eliminate secondary clarification and tertiary filtration by combining biological treatment with a physical membrane barrier.

Scalability Starts from Within

newterra systems deliver maximum treatment capacity in a minimum of space. MicroClear UF cassettes are the building blocks of our scalable MBR treatment systems. They allow a wide range of configurations to suit your flow requirements, system footprint, and existing tanks and equipment for plant retrofits. The patented cassettes are framed in modules that are submerged directly in the mixed liquor.

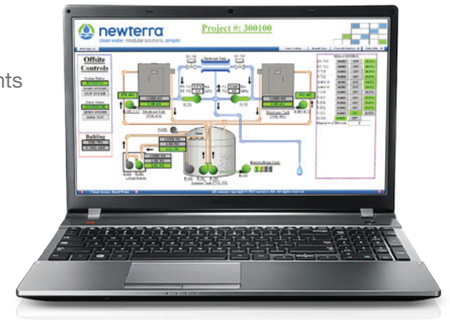


Designed & Built for Minimal Maintenance

newterra MBR systems are field proven in some of the most extreme conditions on the planet. Feedback from operators has been a key ingredient in the development and refinement of our low maintenance solutions:

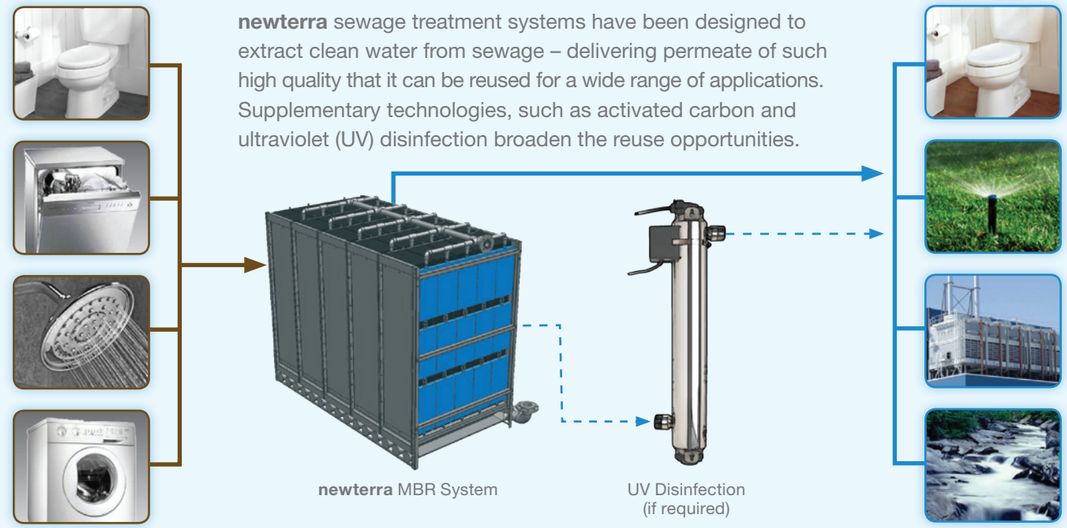
- Intuitive, user-friendly controls and instrumentation
- Built-in telemetry & remote monitoring reduce plant visits by operator
- Air scouring & periodic membrane relaxation minimize CIP requirements
- No backflushing required
- Built-in redundancy to eliminate downtime
- Proven in a wide range of regions, climates and altitudes

Ambient Temperatures	High Altitudes
-40˚F to +104˚F	13,125 ft.
-40˚C to +40˚C	4,000 m



Integrated cellular telemetry and our SiteLink technology allow 24/7 monitoring and operation by your staff, and proactive troubleshooting by our technical team

Sewage Treatment That Offers A Wide Range of Reuse Applications



newterra sewage treatment systems have been designed to extract clean water from sewage – delivering permeate of such high quality that it can be reused for a wide range of applications. Supplementary technologies, such as activated carbon and ultraviolet (UV) disinfection broaden the reuse opportunities.

About newterra

A Global Water Technology Leader

newterra is recognized as a leader in the development of modular treatment solutions for water, sewage, wastewater and groundwater remediation for industrial, municipal, land development, commercial & residential markets. Our heritage of innovation in providing clean water solutions dates all the way back to 1863. Over that time, **newterra** has grown to over 200 people and we've installed thousands of treatment systems – some of which operate in the most extreme conditions on the planet.

Full Control from Start to Finish

At **newterra**, we take full control of virtually every aspect of the treatment systems we build – from process design and engineering to manufacturing, installation, operations and ongoing parts & service support. That also includes manufacturing our own MicroClear® UF membranes in **newterra's** ISO 9001:2008 certified facility. This award-winning approach ensures **newterra** treatment systems meet our high standards for quality and on-time delivery.

200+ Employees

40+ Professional Engineers

10,000+ Installations Worldwide

CANADA'S BEST MANAGED COMPANIES Platinum member

2015 Global Cleantech 100 TOP 100 COMPANY



Brockville, Canada

Langgöns, Germany

newterra®
clean water. modular solutions. *simple*™

1.613.498.1876 | 1.800.420.4056
newterra.com

LDSSEW-0916



Walden MBR-WWTP

Clear^3 MBR

Budgetary Proposal QU-2507644.R0

Submitted To: AquaWorks DBO, Inc.

Attention To: Adam Sommers, (303) 477-5915, adam@aquaworksdbo.com

Submitted By: Newterra Corporation, Inc.
1555 Coraopolis Heights Rd. Suite 4100
Coraopolis, PA 15108

Presented By: Chris Harris, 512-417-2271, charris@newterra.com

newterra®

Submitted 2025-05-14

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1 Introduction & Overview

About Newterra

Newterra's approach is simple: we are a single point contractor combining process design, engineering, fabrication, and long-term life cycle support services to all our customers. We are a leading provider of modular, prefabricated water treatment technologies with a core focus of treating water for three primary purposes:

- **To drink**
- **To safely return to the environment or be reused**
- **For industries to use to produce goods and services**

Operating as Newterra since 1992, and headquartered in Coraopolis, PA, USA, Newterra is an industry leader in modular treatment solutions. Servicing a variety of customers in diverse end-markets including municipalities, land developers, military, commercial & institutional and a variety of light and heavy industries. Providing treatment solutions from 100 gallons per day up to several million gallons per day is within our wheelhouse and driven by the type of treatment solution targeted. Our cross functional team brings outstanding expertise in engineering, treatment applications, manufacturing, and service, leveraging a broad portfolio of technologies. We have dependable (largely modular) designs for ease of installation and operation. We employ a flexible business model to address your needs from capital equipment to rental units (water as a service) and full lifecycle support. Newterra provides real solutions to the world's most demanding industrial end-users, including Mining, Oil & Gas and food and beverage, as well as potable and wastewater solutions for Private and Commercial Developments, and Municipalities.

With over 200+ employees worldwide, delivering 100's of systems annually Newterra is more than just an equipment and solutions provider. Newterra forms a long-term partnership with all our customers, providing long-term Life Cycle support and site services. We understand operating a water or wastewater treatment system can be challenging. Oftentimes, the purchaser of the system, and even the operator of the system, cannot maintain the same level of expertise as the original system designer. Newterra is dedicated to the ongoing success of all its clients, and so we offer our engineering and technical capabilities as an ongoing service.

What differentiates Newterra from our competition is:

1) Client Relationships – Our fundamental belief is that knowing our clients and understanding their needs, desires and challenges is the only way to foster and maintain long-lasting relationships where both parties reap the benefits.
2) Flexibility – Newterra understands that not all clients or projects are the same and therefore offer the ability to design the level of systems that is appropriate for your specific project needs.
3) Stature – Newterra is a right sized company to provide a hands-on approach to every project. One of Newterra's greatest strengths is the ability to make decisions quickly and effectively. Our clients appreciate the speed of service and our level of attentiveness, especially in moments of crisis or emergency.
4) Streamlined In-House Services and Capabilities – Being an integrated mid-sized equipment and service provider allows Newterra the flexibility to offer a full spectrum of in-house capabilities to best serve and create value for our clients.

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Locations

Newterra is headquartered in Coraopolis, PA, with engineering, fabrication, and field service offices strategically located thought North America to better service our growing client base.



Newterra Corporate Headquarters
1555 Coraopolis Heights Rd. Suite 4100
Coraopolis, PA 15108
USA



Systems Manufacturing
1291 California Ave.
Brockville, ON K6V 5Y6
Canada



Pressure Vessel Manufacturing
250 Bolton Sullivan Dr.
Heber Springs, AR 72543
USA



Surface Aerators & Mixer Manufacturing
1215 Chaska Creek Blvd., Suite 400
Chaska, MN 55318
USA



Systems Manufacturing
1220 Kendall Road
San Luis Obispo, CA 93401
USA

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2 Commercial Section

Pricing

Item	Price
Budgetary Equipment Purchase Price	$ 1,261,242
Equipment provided EXW Brockville, ON (Incoterms 2020)	
Onsite Startup • Includes ten (10) 8-hour days of Pre-commissioning Walkthrough, Site Acceptance Testing, onsite startup/commissioning and onsite training by one (1) factory trained Newterra representative in two (2) trips • Additional days on-site to be billed at $1,800.00/day per technician plus expenses for travel, meals and accommodation	Included
Sales Tax on Equipment	Not Included
Total System Price	$ 1,261,242

Freight Pricing

Item	Price
Estimated Equipment Freight to Site • System will be shipped DAP Brockville, ON to Walden, CO. (Incoterms 2020) • Freight costs will be prepaid and added to invoice • All freight costs are subject to a 20% administration charge (included)	$ 25,600

Optional FRP Interior Pricing

Item	Price
FRP Interior Paneling	$ 14,780

Commercial Notes

- All prices are quoted in US Dollars (USD).
- This quote is for budgetary purposes only and does not constitute a binding offer of sale. Contact your Newterra representative for a firm priced proposal before placing a purchase order.
- Unless otherwise specified, any sales or value added taxes or duties are not included.
- This is an equipment supply price and does not include freight or onsite technical services.

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Schedule

The information provided below is a projected estimate only and should not be assumed to represent a binding schedule.
Newterra's proposed schedule milestones are as follows:

- Submittal of drawings[1] for approval: 6 weeks[2] after Order Acceptance[3]
- Customer review and approval of drawings: Not longer than 2 weeks
- Colorado DOLA approval process: 6 weeks after customer approval of drawings
- Notice of readiness to ship: 20 weeks[2,4] after Receipt of DOLA approval

Notes:

1) *Newterra will provide one set of drawings in pdf format to include P&ID (if applicable) and General Arrangement Drawings.*
2) *At time of order, Newterra will confirm a submittal of drawings' date based on verified engineering loading. Two weeks after receipt of drawing approval, Newterra will confirm a ship date based on verified shop loading and material lead times.*
3) *Order Acceptance will occur once all required fully executed order documents have been received (signed purchase order, mutually agreed upon terms and conditions) and acknowledged in writing by Newterra.*
4) *Readiness to Ship date will be contingent on payment milestones being met (payment received and confirmed by Newterra in writing). Delays on any payments will postpone the ship date.*

Lifecycle Services

The Newterra technical support teams are here to support, maintain and optimize your water, wastewater, and remediation systems to maximize your ROI, whether we're needed on an ad-hoc basis, or you enjoy the benefits of one of our service contract offerings.

Ad-Hoc Service and Support

If we cannot solve your technology challenges remotely, our experts can be at your site to support your solution, wherever you are. We can perform emergency maintenance required to keep your system operational in a pinch.

Service Contracts

Operating a water or wastewater treatment system can be challenging. Oftentimes, the purchaser of the system, and even the operator of the system, cannot maintain the same level of expertise as the original system designer. Newterra is dedicated to the ongoing success of all of its clients, and so we offer our engineering and technical capabilities as an ongoing service.

For a more detailed listing of Newterra's life cycle services please see the detailed listing found in the appendix of this proposal.

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3 Technical Section

Design Basis

Design Parameters

Parameter	Design Value	Unit
Minimum Turn Down[1]	12,500	gpd
Average daily flow (ADF)	45,714	gpd
Maximum Month Flow (MMF)	150,000	gpd
Maximum Daily Flow (MDF)	225,000	gpd
Peak Instantaneous Inlet Flow (PIF)	291	gpm
Site power[2]	Three-phase, 277/480VY, 60Hz Maximum Available Fault Current: 10,000 Symmetrical RMS Amps (Newterra's default design standard)	
System area classification	According to NFPA 820, 2016 Edition	
Ambient temperatures	10 to 90	°F
Elevation	7,879	ft

Notes:

1) *This is a rule of thumb estimate for the turn down of the plant. A more accurate estimate can be provided if needed, or if further turndown is required, we can revise the design to accommodate.*
2) *The system will not be rated for service entrance, but this can be provided. Please contact Newterra to discuss if this is desired.*

Wastewater Characteristics

Parameter	Design Value	Unit
Biochemical Oxygen Demand (BOD5) [1]	250	mg/L
Total Suspended Solids (TSS) [1]	250	mg/L
Total Kjeldahl Nitrogen (TKN) [1]	60	mg/L
Total Ammonia Nitrogen (NH3-N + (NH4-N) [1]	42	mg/L
Total Phosphorus (TP) [1]	9	mg/L
Fat, Oil and Grease (FOG) [1]	30	mg/L
pH[1]	6.5 to 8.5	-
Water Temperature[1]	50 to 77	°F
Prohibited Chemicals/Compounds[2]	Not Present	
Grinder Pumps	Not Present Upstream of MBR	

Notes:

1) *Noted values are assumed. Any variance to assumed parameter values may require system modification at the sole responsibility of the purchaser. A change order may be required to proceed with modifications and may delay delivery*
2) *A complete list of prohibited chemicals will be included in the membrane maintenance manual. Use of any of these chemicals may nullify all warranties.*

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Effluent Quality

Parameter	Regulatory Limit	Design Value	Units
pH	-	6.5 to 8.5	
Carbonaceous Biochemical Oxygen Demand (CBOD5)	< 5	< 5	mg/L
Total Suspended Solids (TSS)	< 5	< 5	mg/L
Ammonia nitrogen (NH3-N + HN4-N)	< 2	< 1	mg/L
Total Phosphorus (TP)[1]	0.05	< 0.04	mg/L

Note:

1) *Dependent on the fraction of soluble non-reactive phosphorus.*

Chemical Consumption

CHEMICAL	CONCENTRATION	FUNCTION	DESIGN VALUE [1]	UNIT
Sodium Hypochlorite	12% Solution	Membrane cleaning	535	gal/year
Citric Acid	30% Solution	Membrane cleaning	428	gal/year
Aluminum Sulphate	48% Solution	Phosphorous reduction	28.17	gpd
Sodium Hydroxide[2]	50% Solution	pH Correction / Alkalinity addition	-	gpd
MicroC 2000[3]	Solution	Denitrification	-	gpd

Note:

1) *Chemical consumption values are estimated based on the system operating at ADF and average loading and will vary based on actual operational conditions.*
2) *It is assumed that there is sufficient alkalinity such that sodium hydroxide will not be required. However, a chemical dosing pump has been provided in the event that there is insufficient alkalinity.*
3) *It is assumed that carbon dosing will not be required, but a chemical dosing pump has been provided in the event that there is insufficient carbon for the bioreactor.*

Waste Activated Sludge (WAS) Production

LOCATION/HANDLING STAGE	VOLUME [1]	UNIT	SOLIDS CONTENT	UNIT
WAS Volume with Thickening	2,205	gpd	2%	w/w dry solids

Note:

1) WAS Production values are estimated based on the system operating at ADF and average loading and will vary based on actual operational conditions.

Process Description

Membrane Bioreactor

Membrane bioreactor (MBR) treatment technology is a simple, yet effective combination of an activated sludge biological treatment process with membrane filtration. The ultrafiltration (UF) membranes act as a physical barrier against the passage of all particulate solids, unlike the gravity settling of mixed liquor in the conventional activated sludge process, where separation is not complete. As a result, the MBR can operate at a much higher mixed liquor suspended solids (MLSS) concentration (typically 8,000 to 12,000 mg/L vs. 2,000 to

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4,000 mg/L in conventional activated sludge system). This results in a robust, versatile, and ultra-compact wastewater treatment system. In addition, the high concentration of biomass inventory in the MBR system provides resilience to changes in influent quality.

Flow-Equalization

Throughout the day the flow and strength of the wastewater will vary. To accommodate this, an equalization tank will buffer the flow and homogenize the loading. The equalization tank is aerated to maintain an aerobic environment to reduce odors and to maintain suspension of solids and pumps transfer wastewater to biological treatment.

Fine Screening

Raw wastewater entering the MBR system contains particulates and solids that could damage the equipment and membranes down-stream. Fine screening protects the down-stream equipment by removing large solids and fibrous material.

Biological Treatment

In the aerobic zone, the influent wastewater is combined with return activated sludge from the membrane tank. Fine bubble diffusers create an aerobic environment where the organics contributing to biological oxygen demand (BOD) and ammonia (TAN) are oxidized by the biology. Dissolved oxygen is continuously measured, and aeration blowers are controlled to maintain it in the range of 2 to 3 mg/L for process optimization and energy savings.

pH Correction and Alkalinity Addition

As ammonia is oxidized in the aeration tank, alkalinity is consumed lowering the pH of the mixed liquor. To offset this consumption of alkalinity, and to balance the pH when the influent water is acidic, an alkaline solution is dosed into the mixed liquor, as required.

Phosphorous Reduction

Chemical precipitation is used to remove inorganic phosphate. An aluminum sulphate or “Alum” solution is dosed into the mixed liquor causing dissolved phosphorus to precipitate and coagulate. The precipitated phosphorus cannot pass through the UF membrane, and the phosphorus is eventually removed from the system as a solid with the waste activated sludge (WAS).

After the chemical precipitation and filtration step there will be an additional phosphorus removal polishing step. For this step dissolved phosphorus will be adsorbed onto an iron based adsorbent media and thus filtered from solution. Water from the MBR system will be collected in a transfer tank and then pumped through two adsorbent media vessels operating in parallel to treat the full flow. Water entering into each vessel will be distributed throughout the vessel and then passed through the adsorbent media. Eventually the adsorbent media will become exhausted and need to be replaced. This is an infrequent manual process during which the spent media is withdrawn by vacuum capable pump and new media is added to the vessels.

Membrane Filtration

After being treated biologically, the treated effluent is separated from the mixed liquor and solids by our membrane modules and the permeate extraction system. The membrane modules are continually air scoured to induce flow of mixed liquor over the membrane surface and prevent fouling and buildup of solids on the membrane surface without the use of chemicals.

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The mixed liquor is then transferred to the inlet of the biological treatment to maintain even distribution of solids throughout the system and to introduce activated biology to the raw wastewater.

Effluent Disinfection

The UF membrane removes 99.9999% of bacteria and 99.99% of viruses. For additional disinfection and/or redundancy the effluent will pass through a UV reactor.

Waste Activated Sludge (WAS) Handling

As solids-laden wastewater enters the system, suspended bacteria grow and solids-free effluent is discharged, the suspended solids concentration in the mixed liquor (MLSS) will increase. To maintain the proper level of MLSS, solids must be removed from the system as Waste Activated Sludge (WAS) which is mixed liquor discharged from the aerobic tank at approximately 0.8% dry solids by weight.

WAS is discharged to a tank for holding and thickening. The holding tank is aerated to maintain an aerobic environment to reduce odors. In the thickening process, the WAS is allowed to settle and supernatant is pumped off, and returned to the MBR, thickening the sludge in the holding tank. By thickening the sludge to approximately 2% dry solids by weight, the total volume that must be disposed of is decreased, extending holding time and reducing operational costs. Level control in the tank indicates when the tank should be decanted or a vacuum truck should be scheduled to dispose of the WAS.

Control System

The water treatment system will be controlled by one PLC and HMI located in the main control panel. The PLC will have an Ethernet port to connect to the plant control system.

Newterra's control and automation system combines a high level of instrumentation, an advanced PLC, and in-house custom programming to deliver a system that offers tremendous optimization capabilities yet requires minimal operator intervention for day to day operation. The user interface can be accessed on-site from control panel mounted touchscreen (HMI) or remotely from a computer over the internet with purchase of a telemetry package. Also with the telemetry package, alarm messages can be transmitted by email or text message to alert operators to issues, even when the operators are not on site.

All important information is logged so trends can be monitored to ensure the long-term successful operation of the Newterra system.

Modular Building

With over 25 years of experience containerizing equipment Newterra has developed a modular building system that includes insulation, HVAC, interior and exterior lighting, spill containment and sumps, access doors, and other features facilitating operations.

All equipment installation, wiring, and piping internal to a container is done in the ideal conditions of our climate-controlled, manufacturing facility with full access to proper tools, equipment, and engineering support.

The full system will be assembled and undergo comprehensive Factory Acceptance Testing (FAT) before it leaves our facility. This rigorous testing prior to shipping helps eliminate downtime when the system arrives on site.

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Scope of Supply

Flow Equalization

(Equipment shipped loose for installation on site by others)

Two (2) trains total, each train includes:

- In-ground concrete equalization tank (By others, recommended liquid volume is at least 27,726 gal, maximum SWD of 10 ft)
    - Influent flow transmitter (E+H or equal, shipped loose and common between trains, flume by others)
    - Coarse bubble air diffuser grid (EDI or equal)
    - High level alarm switch (Gems or equal)
    - Low level alarm switch (Gems or equal)
    - Level transmitter (Dwyer or equal)
- Two (2) air mixing blowers
    - One (1) blower duty, one (1) blower standby (shared between trains)
    - Regenerative (FPZ or equal)
    - Inlet filter silencers (Solberg or equal)
    - Check valves
    - Isolation valves
    - Pressure relief valves
    - Temperature gauges (Ashcroft or equal)
    - Pressure gauges (Aschroft or equal)
    - Low pressure alarm switch (Dwyer or equal)
- Two (2) screen feed pumps
    - One (1) pump duty, one (1) pump standby
    - Submersible (Zoeller or equal)
    - Isolation valves
    - Check valves
    - Rail systems for pumps removal

Fine Screening

Two (2) trains total, each train includes:

- One (1) inlet flow transmitter (E+H or equal)
- One (1) fine screen
    - Rotary brush (Newterra or equal)
    - Automatic cleaning 2mm perforated plate
    - Shelf spares of critical parts
- Discharge tank
    - High level alarm switch (Gems or equal)
    - Gravity drain to aerobic tank

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Biological Treatment

(Equipment shipped loose for installation on site by others)

Two (2) trains total, each train includes:

- In-ground concrete Aerobic Tank (By others, working volume of at least 38,381 gal, maximum SWD of 10 ft)
  - Fine bubble air diffuser grid (EDI or equal)
  - pH transmitter (E+H or equal)
  - Dissolved oxygen (DO) transmitter (E+H or equal)
  - High level alarm switch (Gems or equal)
  - Low level alarm switch (Gems or equal)
  - Level transmitter (Dwyer or equal)
- Three (3) aeration blowers (installed inside Newterra's enclosure)
  - Two (2) blowers duty, one (1) blower common shelf spare
  - Regenerative (FPZ or equal)
  - VFD controlled (Danfoss or equal)
  - Inlet filter silencers (Solberg or equal)
  - Check valves
  - Isolation valves
  - Pressure relief valves
  - Temperature gauges (Ashcroft or equal)
  - Pressure gauges (Ashcroft or equal)
  - Low pressure alarm switch (Dwyer or equal)
- Two (2) waste activated sludge (WAS) pumps
  - One (1) pump duty, one (1) pump common shelf spare (shared between trains)
  - Submersible (Zoeller or equal)
  - Isolation valves
  - Check valves
  - Rail systems for pumps removal
  - Flow transmitter (E+H or equal)
- Two (2) membrane feed pumps
  - One (1) pump duty, one (1) pump standby
  - Submersible (Zoeller or equal)
  - Isolation valves
  - Check valves
  - Rail system for pumps removal

Membrane Filtration

Two (2) trains total, each train includes:

- Membrane tank
  - All wetted components are stainless steel
  - Sample port for MLSS testing
  - Temperature transmitter (IFM or equal)
  - Viewing window

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- Ground level access hatch
- High level alarm switch (Gems or equal)
- Level control switch (Gems or equal)

- Twenty-four(24) submerged UF membrane modules (Zeeweed) with
  - Stainless steel housing
  - Hanging brackets
  - Air scouring diffusers
- Permeate extraction header
  - Clear PVC pipe sections for visual permeate monitoring
  - Membrane module isolation valves
  - Air bleed pump
- Two (2) permeate extraction pumps
  - One (1) pump duty, one (1) pump standby
  - Centrifugal (Goulds Pumps or equal)
  - VFD controlled (Danfoss or equal)
  - Vacuum transmitters (IFM or equal)
  - Three (3) Vacuum gauges (Ashcroft or equal)
    - Two (2) installed, one (1) shelf spare
  - Isolation valves
  - Check valves
  - Pressure gauges (Ashcroft or equal)
  - Sample ports
  - Flow transmitter (IFM or equal)
  - Turbidity transmitter (Hach or equal)
- Membrane Backwash System (Common between membrane trains)
  - Holding tank
  - Membrane backwash Pumps (VFD controlled)
  - Flow transmitter (IFM or equal)
  - Automated fill valves (ASCO or equal)
  - Automated backwash valves
- Two (2) air scouring blowers
  - One (1) blower duty, one (1) blower common standby (shared between trains)
  - Regenerative (FPZ or equal)
  - Inlet filter silencers
  - Check valves
  - Isolation valves
  - Temperature gauges (Ashcroft or equal0
  - Pressure gauges (Ashcroft or equal)
  - Low pressure alarm switches

Chemical Dosing

(Equipment shipped loose for installation on site by others)

Two (2) trains total, each train includes:

- One (1) chemical dosing pump for Caustic

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- Diaphragm pump (Prominent or equal)
- Foot valve
- Multifunction valve
- Injection quill with check valve

- Chemical storage tank(Common between trains)
  - Level transmitter (Prominent or equal)
- One (1) chemical dosing pump for Carbon
  - Diaphragm pump (Prominent or equal)
  - Foot valve
  - Multifunction valve
  - Injection quill with check valve
- Spill containment for chemical drum (Common between trains)
  - Level transmitter (Prominent or equal)
- One (1) chemical dosing pump for Alum
  - Diaphragm pump (Prominent or equal)
  - Foot valve
  - Multifunction valve
  - Injection quill with check valve
- Chemical storage tank (Common between trains)
  - Level transmitter (Prominent or equal)
- One (1) chemical dosing system for Citric Acid (Common between trains, installed in Newterra enclosure)
  - Pump (Shurflo or equal)
  - Eductor
  - Isolation valve
  - Check valve
- Spill containment for chemical drum (Common between trains)
- One (1) chemical dosing system for Sodium Hypochlorite (Common between trains, installed in Newterra enclosure)
  - Pump (Shurflo or equal)
  - Eductor
  - Isolation valve
  - Check valve
- Spill containment for chemical drum (Common between trains)
- One (1) Chemical dosing pump shelf spare (Prominent or equal, common between trains)

Effluent Disinfection

One (1) trains total, each train includes:

- Four (4) UV reactor (Hallet or equal)
  - Three (3) UV reactors duty, one (1) redundant
  - Piped in series for redundancy
  - Bypass valves

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Break Tank

(Equipment shipped loose for installation on site by others)

One (1) trains total, each train includes:

- In-ground concrete break tank (By others, recommended liquid volume is at least 1,800 gal, recommended SWD of 40 ft)
  - Coarse bubble air diffuser grid (EDI or equal)
  - High level alarm switch (Gems or equal)
  - Low level alarm switch (Gems or equal)
  - Level transmitter (Dwyer or equal)
- Two (2) phosphorus polishing feed pumps
  - One (1) pump duty, one (1) pump standby
  - Submersible (Zoeller or equal)
  - Isolation valves
  - Check valves
  - Rail systems for pumps removal

Phosphorus Polishing

One (1) train total, each train includes:

- Two (2) IPV C 2000 Media Vessels (Newterra or equal)
  - Two (2) vessels duty
  - Piped in parallel
  - Bypass valves
  - Isolation valves
  - Sample ports
  - Pressure gauges (Ashcroft or equal)
  - Flow transmitter (E+H or equal, shared between vessels)

Potable Connection

- Inlet Piping
- Backflow preventer valve

Sludge Holding & Thickening

(Equipment shipped loose for installation on site by others)

One (1) train total, each train includes:

- In-ground concrete Sludge Holding Tank (By others, working volume of at least 42,304 gal, maximum SWD of 10 ft)
  - Coarse bubble air diffusers (EDI or equal)
  - High level alarm switch (Gems or equal)
  - Low level alarm switch (Gems or equal)
  - Level transmitter (Dwyer or equal)
- Two (2) aeration blowers (installed inside Newterra's enclosure)
  - One (1) blower duty, one (1) blower standby

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- Regenerative (FPZ or equal)
- Inlet filter silencers (Solberg or equal)
- Check valves
- Isolation valves
- Temperature gauges (Ashcroft or equal)
- Pressure gauges (Ashcroft or equal)
- Low pressure alarm switches (Dwyer or qual)

- Two (2) decanting pumps
  - One (1) pump lead, one (1) pump lag
  - Submersible (Zoeller or equal)
  - Isolation valves
  - Check valves
  - Discharge tube and camlocks
  - Chains for pump height adjustment
  - Supernatant flow transmitter (E+H or equal)

System Enclosures

Two (2) 40’ Modified High-Cube Shipping Containers

Certified built to NEC/NFPA 70 Standards in Newterra’s MET approved factory, with all wiring complete and all equipment pre-piped factory tested and mounted in enclosure.

- Once used high-cube modified shipping containers with the following features:
- Exterior paint
- Lifting eyes on upper corners
- Coated plywood floor
  - Sump basin with drain and leak detection
- Welded steel man door(s) with safety window and push/crash bar lever
- Welded steel double door(s) with safety window and push/crash bar lever
- Barn-style double doors
- Lighting
- Outdoor lighting on each side
- Insulation
- Heating
- Ventilation fans
- Passive vent louvers with hoods
- Eye wash in chemicals room
- Fire extinguisher
- Low temperature alarm switch
- Emergency stop switch
- Duplex 15 Amp GFI receptacle for heat trace inlet and discharge

Note:

1) *MET, like UL and CSA, is a Nationally Recognized Testing Laboratory (NRTL) and Newterra’s factory approval recognizes our qualifications to certify the systems we build to the CEC and NEC standards referenced.*

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2) *Scope of supply includes Newterra providing Factory-Built certification of the system enclosure(s) through the Colorado Department of Local Affairs (DOLA). Please note that changes imposed by DOLA during this process may be subject to changes in overall system costing.*

Control System Module

Main Power and Control Panels with the following standard features:

- Control panels are certified to UL508A (for GP systems), UL698A (for C1D1 or C1D2 systems) and CSA C22.2 No. 14 in Newterra's MET/cMET approved factory
- AIC rating of 10000
- NEMA 4 panel enclosure
- Primary circuit protection
- Main power block
- Branch circuit protection with circuit breakers for motors
- Motor starters with overload protection (Schneider or equal)
- Variable frequency drives where required (Danfoss or equal)
- Branch circuit protection with circuit breakers for powered devices
- PLC control system (Schneider or equal)
- 24 VDC IS power supply
- Intrinsically safe barriers for switches in classified areas
- Alarm notification in the event of a main power failure
- Dry contacts to allow interlock with system inlet pumps
- Wired and installed
- Factory tested prior to shipping

Outside cover of panel to contain the following:

- System ready light
- Red alarm indicator light
- Programmable touch screen (Red Lion or equal) with:
    - Colour P&ID display
    - Display of measurements recorded from any transmitters present in system
    - System on/off control
    - Safety control over all valves and motors with timed delay when in Hand position
    - Timers for solenoid valves and motors present in system
    - Alarm indicators with reset function
    - Run indicators for system components
    - Alarm reset button
- Emergency stop button

Note: MET, like UL and CSA, is a Nationally Recognized Testing Laboratory (NRTL) and Newterra's factory approval recognizes our qualifications to certify the panels we build to the UL and CSA standards referenced

Operation and Maintenance Manual

- Operating instructions for all treatment system components
- Copy of operating manual for each piece of equipment **(Digital copy only)**
- Summary of system components

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- Summary of system operation principles
- Summary of operation controls and failsafes
- Summary of maintenance requirements for each piece of equipment
- One digital copy provided
- All documentation provided in English

Factory Acceptance Testing (FAT)

- Material receipt inspection
- Assembly verification
- Leak test/set up verification
- Functional challenge
- FAT summary & deviation report

Optional Scope of Supply

System Enclosures

Two (2) 40’ Modified High-Cube Shipping Containers

- Upgrade from painted plywood to FRP finishing for walls and ceiling

Optional Services Scope of Supply

Pre-commissioning System Walkthrough

Typical system walkthrough includes the following:

- System walkthrough by Newterra’s representative
  - Inspect all shipped loose equipment to verify correct installation
  - Confirm all mechanical equipment installed as per Newterra drawings
  - Confirm al electrical equipment installed as per Newterra drawings
- Summary & deviation report/list of corrective actions to be performed before commissioning

Site Acceptance Testing (SAT)

Typical SAT includes the following:

- Assembly/Installation verification
  - Includes electrical & mechanical check
- SAT summary & deviation report/list of corrective actions

NOTES:

1) Newterra SAT does not relieve another party from warranty issues arising from their scope of work
2) Newterra will not begin formal start-up until SAT is complete and signed off by all parties

System Startup/Commissioning

Typical System Startup/Commissioning includes the following:

- Equipment check
  - Electrical, mechanical, and controls
- Functional test

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- Equipment and control system
- Hydraulic test
- Operation during plant seeding

Training

On-site operator training including the following topics:

- General theory & process
- Specific system instruction
  - Components
  - Controls and operating philosophy
  - Alarms and alarm troubleshooting
  - Maintenance
  - Troubleshooting
  - MBR Fouling control (Biology, physical, and chemical)

Customer's Scope of Supply

Newterra does not include the following unless expressly detailed in this proposal:

- Installation of loose shipped tanks and equipment supplied by Newterra
- Placement and anchoring (if required) of equipment
- Stairs, access platforms, etc. as required
- Interconnecting piping supply and installation
- Interconnecting electrical and controls supply and installation including connection inside Newterra's panels
- Junction boxes for shipped loose equipment in external tanks
- Conduit penetrations into Newterra enclosure for field devices into Newterra panels
- Electrical power supply to our electrical panel, lightning, grounding, etc.
- Permitting
- Potable water supply to the plant site
- Seed sludge
- Wastewater testing
- Chemicals supply and storage
  - NOTE: Based on local regulations, additional safety equipment may be required to store and handle chemicals on the site which have not been included as part of this proposal. This may include but be limited to: eye wash stations, safety showers, spill containment, secondary containment, isolation curtains, isolated ventilated bulk storage buildings, personal protective equipment, constant ventilation systems, vapor suppression equipment, and spill containment equipment. Newterra can provide pricing for these options upon request.
- Treated effluent and waste sludge disposal
- All civil work including design
- Tank sizing as per Newterra supplied PFD, to be confirmed during detailed design
- Anything not mentioned in "Scope of Supply" above

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Newterra Digital Service

Remote Data Collection and Analysis Technology



Welcome to Newterra Digital Service!

Newterra Digital Service™ is an advanced cloud-based data acquisition and customer portal for monitoring the operation of Newterra Systems and equipment in real-time. Accessible from any device with internet access, you can monitor all aspects of your systems, keep your team connected, and optimize performance with ease.

Services Offered	Access	Access & Control
Remote Software Updates	✔	✔
Unlimited Users	✔	✔
Historical Data Logging	✔	✔
Email Alarm Notifications – First Tier	✔	✔
Email Daily Reporting	✔	✔
System Documentation Access *(Manual, P&ID, Electrical)*	✔	✔
Newterra Experts Upon Request	✔	✔
Control System Remotely – Full Control of HMI		✔

Key Features and Benefits

- Real-time visibility to system performance
- Real-time system control
- Alarm notifications
- Mobile app
- Current operational data and historical trends for data analysis
- Security with multi-level user access
- Maintenance logs
- Direct connection to Newterra's Technical Service team

Why Choose Newterra Digital Service™?

Investing in Newterra Digital Service™ offers numerous benefits that enhance the efficiency and longevity of your water treatment systems. Here's why you should consider incorporating this advanced service into your operations:

1. **Reduced System Downtime**: With real-time monitoring and alerts, potential issues can be identified and addressed promptly, minimizing system downtime and ensuring continuous operation.
2. **Reduced Operator Visits**: Remote access to system performance data means fewer on-site visits are necessary, saving time and reducing operational costs.
3. **Better System Performance**: Access to current and historical operational data allows for detailed analysis and optimization, resulting in improved system performance and efficiency.
4. **Increased Equipment Lifespan**: Proactive maintenance and timely interventions help extend the life of your equipment, protecting your investment and reducing long-term costs.
5. **Enhanced Security**: Multi-level user access ensures that only authorized personnel can access critical system data, maintaining the integrity and security of your operations.
6. **Comprehensive Support**: Direct connection to Newterra's Technical Service team provides expert support and guidance, ensuring your systems operate at their best.
7. **Convenient Access**: The cloud-based portal is accessible from any device with internet connectivity, giving you the flexibility to monitor your systems from anywhere, at any time.

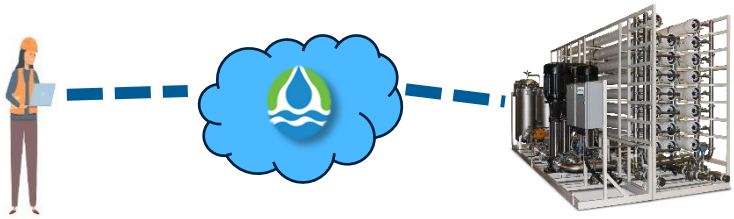
By choosing Newterra Digital Service™, you are not just opting for a monitoring solution; you are empowering your team, optimizing your operations, and securing the future of your water treatment systems.

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Elevate Your Operations with Newterra Digital Service™

Good news! Your system will be built with the hardware for Newterra Digital Service™ included giving you the opportunity to elevate your operations, empower your team, and ensure the longevity of your systems with our state-of-the-art digital solution. It's easy, during startup Newterra will set up your free 1-year subscription of Control and Access services.

For added peace of mind, you have the flexibility to use the built-in VPN security switch on the device to disable outside-in connections, ensuring that the Newterra Digital Service™ can be tailored to meet your site's specific security requirements.



Engineering Submittals

Initial Documents for Approval:

Mechanical Process and Instrumentation Diagram

- Schematic diagram describing Newterra's mechanical equipment scope of work including:
  - Equipment modules
  - Piping types and sizes
  - Manual valves
  - Automated valves
  - Gauges
  - Switches
  - Transmitters
  - Battery limits
  - motors
- Symbol legend

General Arrangement Drawing(s) (3D)

- Overall system footprint size
- Skid(s) / Container(s) arrangement
- Depiction of equipment placement on skid(s) / in container(s)
  - Equipment modules
  - Piping routes

Control Narrative

- List of inputs and outputs
- Functional description of system control
- Description of system alarms

Electrical Single Line Diagram

- Schematic diagram describing Newterra's electrical equipment scope of work including:
  - Motors
  - Control valves

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- Main disconnect with fuse voltage and amperage rating
- Heaters, vent fans for containers

System Electrical Load List

- Full load amperage for the system
- Total kVA for the system
- List of electrical loads for each voltage and phase

Bill of Materials

- List of components to be included in the project
- Data sheets for components
- Performance curves

Appendices

- BIOWIN calculations
- Equipment sizing information

Final Documents Included (other than final copies of the above submittals):

O&M Manual

- Submittals documents
- Operation instructions
- Maintenance guidance
- Startup and shutdown procedures
- Factory acceptance testing reports
- System component data
- As built level system drawings

Electrical Schematic Drawings

- Circuit schematics
- Panel layouts
- Network diagram

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4 Statement of Qualifications

Custom and Pre-Engineered Modular Water & Wastewater Solutions

Newterra has been developing modular water and MBR (Membrane Bioreactor) wastewater treatment technologies for more than 20 years, servicing the work camp/remote communities' market for many Fortune 500 resources companies. The experience we've gained designing, engineering, manufacturing sewage treatment systems that operate in some of the most remote areas on the planet – many in extreme environmental conditions – is incorporated in our Residential/ Commercial development clients. The evolution of Newterra treatment systems has been built on significant input from Operators. Those "Voice of Customer" insights have influenced everything from our controls and telemetry to our patented, side access membrane removal system. The result are sewage treatment systems that are robust, reliable and require minimal maintenance. In short, they are extremely operator-friendly.

Newterra's approach is simple: we are a single- point supplier that combines process design and engineering to manufacturing our own systems. We take full control of every aspect of the treatment systems we build. We also commission our systems, train the operators, and offer post-installation parts and service. This ensures that every Newterra system meets our high standards for quality and on-time delivery. Newterra's innovative, integrated delivery methodology is unheralded by traditional consulting, and project delivery methods.

The Newterra MBR system employs membrane biological reactor (MBR) technology with submerged ultrafiltration membranes. The system is designed to be the simplest, most operator-friendly membrane technology available in the market. The Newterra MBR system produces ultra-clean water (solids free effluent) which effectively meets any water standards for discharge and reuse.

The Newterra MBR system is a packaged wastewater treatment plant with modular design features. The system comes complete with containerized screen, biological treatment, and membrane filtration. The plant is housed inside modified high-cube shipping containers or prefabricated buildings - completely pre-assembled, pre-piped, pre-wired and pre-tested, ready for a quick site installation and start-up. The advantages that the Newterra MBR system offers include:

- **Absolute Physical Barrier for Contaminants**
- **Short Delivery Period**
- **Factory Assembled & Tested**
- **Minimal Site Work Required**
- **Reliable & Low Maintenance System**
- **Compact Footprint**
- **Minimal Noise & Odourless Operation**



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Key Qualifications

- We provide both standard and custom water and wastewater solutions to meet every projects unique set of criteria.
- We are vertically integrated/staffed as follows: technical assessment/fit, design, build, FAT test, deliver, startup, commission, service, aftermarket support, with 100% accountability from start to finish.
- We've partnered with the premier membrane company in the world to supply ZeeWeed membranes.
- We work transparently with 100% accountability from start to finish.
- We specialize in completely enclosed modular facilities that include operator work stations, air conditioning & heating, weatherization, odor control, sound attenuation, & custom siding/painting.
- We have been developing and deploying engineered solutions for the water industry for over 25 years with 3,000+ systems operating around the world including over 125 MBR systems
- We have the engineering expertise to provide water solutions across many different industries and technical applications.
- We focus only on small to medium size projects ranging in size of 2,000 GPD – 1.5 MGD.

We design our Telemetry and PLC programs in-house. newtN™ SCADA (Supervisory Control & Data Acquisition) is an ALL-NEW cloud-based data acquisition and control software for Newterra systems. Since newtN is solely cloud-based, there is no need for any software or APP download. All information is readily available in real-time and operates on all platforms including computer, laptops, tablets, or any smartphone. Easily access data for multiple sites or systems on newtN, all can be accessed with proper credentials from your Customer Portal.










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Newterra's Modular Approach

Newterra's modular systems are configured as a fully self-contained wastewater or water treatment system. Our building block modules are designed such that when placed together it forms a complete standalone building housing the treatment equipment. These systems can be designed to meet the custom requirements of any project, including operator work stations, washroom/shower facilities, and spare parts and chemical storage. They are also designed to consider the geographical climate conditions to maintain a comfortable working environment.

We understand that prefabrication saves both time and money. Therefore, it is our approach to minimize or eliminate the need for costly site construction works, and additional health and safety costs. Designing and manufacturing Prefabricated systems can drastically lower the total installed cost, relative to a 'brick and mortar' construction approach.

Our modular, scalable treatment technology allows our clients to phase in water and wastewater infrastructure in parallel with the treatment demands of the project.

Where a site constructed building is preferred, Newterra provides our treatment equipment in a packaged and/or skid mounted configuration. As much of the equipment, controls, and electrical is pre-manufactured to maximize Factory Acceptance Testing and Quality Control while minimizing on-site installation time and complexity.

Utilization of custom engineered modular solution provides many advantages over conventional or traditional field erected projects such as;

	Newterra 's Modular Solutions	Field Constructed Packaged WWTP	Traditional Field Constructed WWTP
Utilize MBR technology	✔	✔	✔
Meet advanced effluent criteria	✔	✔	✔
Flexible membrane configurations	✔	✔	✔
Systems designed with internal operator work stations and washrooms, and safety showers	✔	✔	✔
Installation requires minimal site works	✔	✔	
Systems are easily scalable	✔	✔	
Requires **no** additional building infrastructure	✔		
Minimal noise and odorless operation	✔		
Reduced overall project schedule	✔		
Reduced overall project costs	✔		
100% accountability of system performance	✔		

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Membrane Filtration

Newterra is proud to offer the ZW 500 (Veolia, ZeeWeed) in the majority of our modular MBR systems. The ZeeWeed 500 membrane has outstanding performance with best-in class membrane life in MBR.

Performance

- True UF membrane for over 25 years with proven 0.04 µm nominal pore size
- Extremely high module permeability > 900 lmh/bar
- Proven high flux with dedicated MBR chemistry since 2007
- PVDF membrane since early 1990's



Reliability

- Outstanding membrane life of over 10 years in many applications; longest proven life 20.5 years!
- Fiber Strength of >600N tensile strength vs. ~ 10N for non-reinforced PVDF membranes

Proven Experience

- Over 2000 MBRs globally running with ZeeWeed 500 membranes

Flexibility & Simplicity

- Configurable product to provide plant layout versatility and easy future expansion

Lifecycle Team

- Deep experience with best-in-class support from the Suez team coupled with tenured experience at Newterra is an unbeatable combination

Specifically, Newterra has adapted the ZW 500S to its modular systems. This small footprint membrane is light enough to handle, even after operating, by 2 people. This reduces the overall logistics required if the need arises to remove the membranes from the tanks, typically no cranes are required with the Newterra modular design.

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5 Newterra Lifecycle Solutions

Robust Support and Complete Lifecycle Solutions: Call us at 1-800-420-4056

Newterra Lifecycle offerings are here to assist with maintaining your water treatment equipment every step of the way by offering OEM Spare Parts & Consumables customized to suit your needs, alongside a team of support staff dedicated to providing top level services for the life of your system. Not Just Technologies. Lifecycle Solutions.



Newterra Parts and Consumables Support

Our Newterra Parts Team ensures seamless replacement and maintenance parts support, with a detailed list of OEM critical spares, maintenance, and consumable parts provided in your Operations & Maintenance Manual. We're dedicated to meeting your parts requirements to ensure long-lasting equipment solutions. Whether your system needs regular maintenance or requires consumable parts for optimal performance, we have you covered. Our Customer Experience Team is here to assist you in identifying the right components based on your specific challenges. Let us connect you with one of our specialists to find the perfect solution tailored to your needs.



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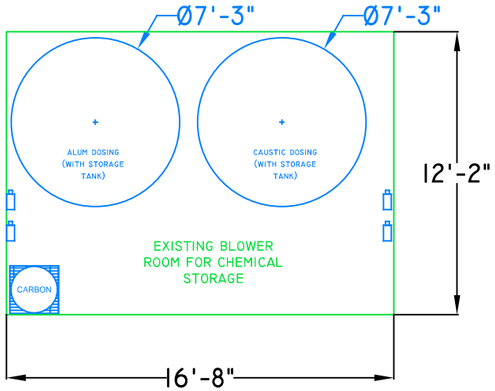
Proper media selection is crucial for efficiency, sustainability, and cost-effectiveness. Newterra leads this sector, providing a range of media solutions from bulk supplies to specialized drums, including Granular Activated Carbon (GAC) and Resin media. When your media has lost its ability to reduce contaminants, our trained professionals, backed by Newterra's experience in the design and implementation of liquid and vapor phase treatment systems, provide complete on-site services. Our trained technicians will arrive on-site and safely clean and remove vapor phase and liquid phase media or even the vessels themselves. We embrace the entire lifecycle of your system.



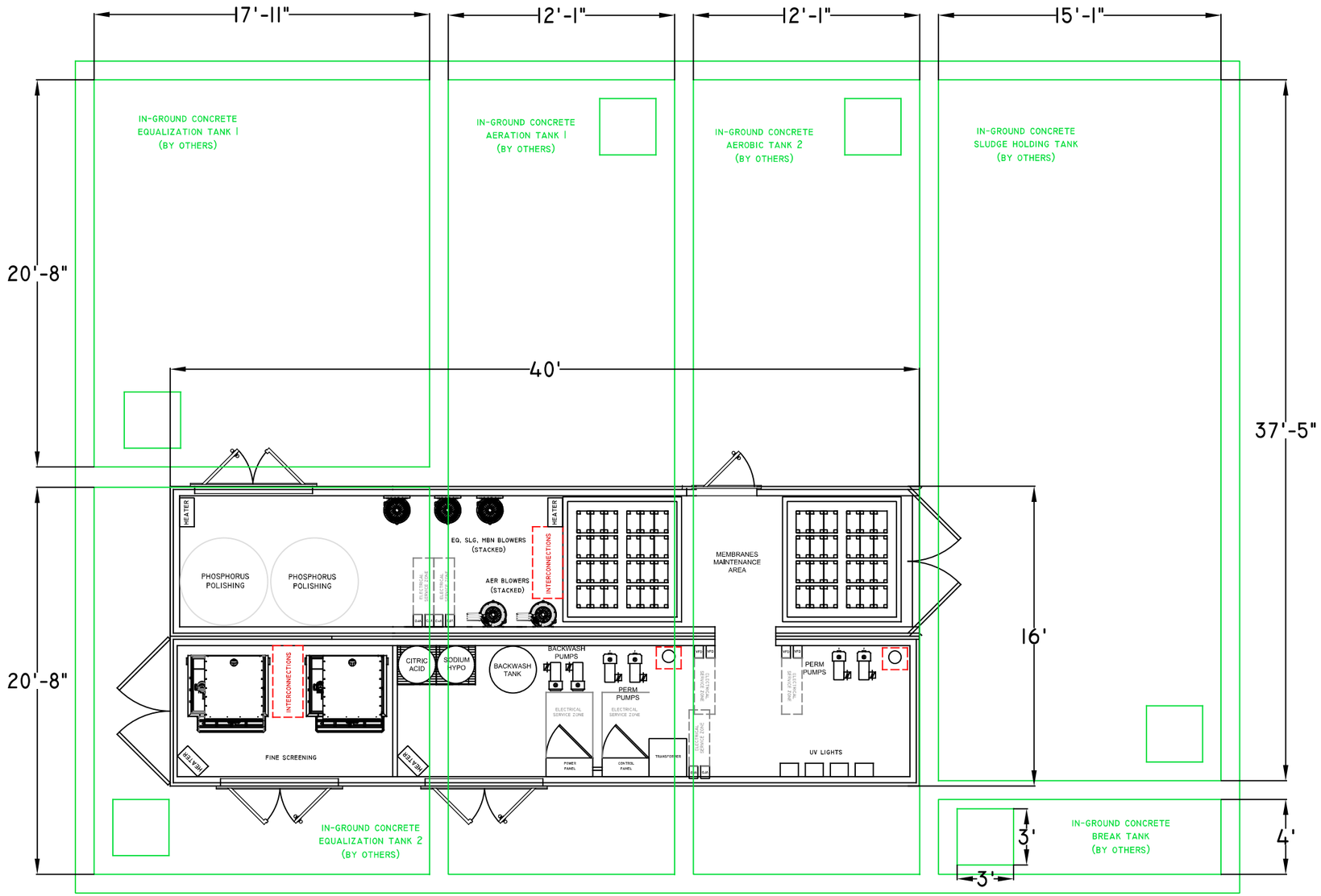
Rentals Solutions

For just about any water problem, Newterra has you covered. If you're looking for medium or short-term water or wastewater treatment solutions, Newterra has a large, in-stock inventory of solutions that are available to rent. From supplemental aeration to remediation systems, pressure vessels, and complete wastewater treatment systems, our temporary ownership and rental solutions can save precious capital while solving a critical need. Newterra offers flexible terms and conditions to suit any customer.

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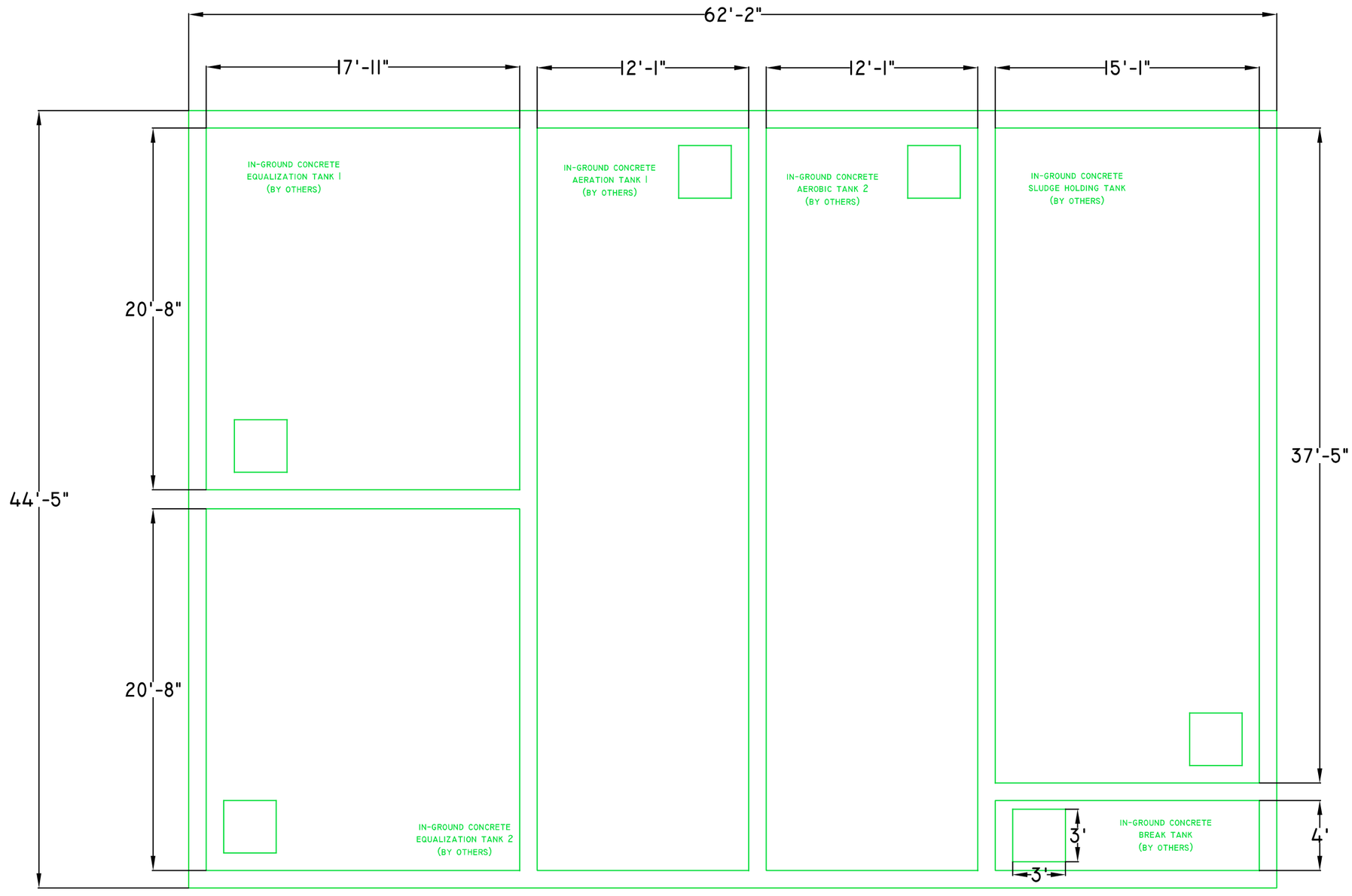
PROJECT NUMBER 2507644

TITLE AND LOCATION
PRELIMINARY LAYOUT
WALDEN, CO

CUSTOMER
AQUAWORKS DBO

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PROJECT NUMBER
2507644

TITLE AND LOCATION
PRELIMINARY LAYOUT
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CUSTOMER
AQUAWORKS DBO

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newterra Project 2507644R0

Subject: Walden MBR WWTP

PROCESS DESIGN CALCULATION

Table 1: Influent Flow Rate

Influent Flow Rate	Design Value	Metric Unit	Design Value	US Unit
Minimum Turn Down	47	m^3/d	12,500	gpd
Average Daily Flow (ADF)	173	m^3/d	45,714	gpd
Maximum Month Flow (MMF)	568	m^3/d	150,000	gpd
Maximum Daily Flow (MDF) (assumed)	852	m^3/d	225,000	gpd
Peak Instantaneous Flow (PIF)	66.09	m^3/h	291.00	gpm
Selected Design Flow, Q_D	23.66	m^3/h	104.17	gpm
Selected Peak Flow, Q_P	35.48	m^3/h	156.25	gpm

Table 2: Influent Wastewater Characterization

Influent Wastewater Characteristics	Design Value	Metric Unit	Design Value	US Unit
Chemical Oxygen Demand, COD, assumed	500	mg/L		
Biochemical Oxygen Demand, BOD	250	mg/L		
Total Suspended Solids,TSS	250	mg/L		
Volatile Suspended Solids, VSS	200	mg/L		
Total Kjeldahl Nitrogen, TKN	60	mg/L		
Ammonia nitrogen, NH_4-N	42	mg/L		
Total Phosphorus, TP	9	mg/L		
Fat, Oil and Grease, FOG	30	mg/L		
Minimum water temperature	10	˚C	50	˚F
Maximum water temperature	25	˚C	77	˚F
Alkalinity, assumed	300	mg/L		
Site elevation	2402	m	7878.56	ft

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Table 3: Treated Effluent Specification

Effluent Water Specification	Effluent Limit	Metric Unit	Design Value	Metric Unit
$cBOD_5$	< 5	mg/L	< 5	mg/L
TSS	< 5	mg/L	< 5	mg/L
NH_4-N + NH_3-N	< 2	mg/L	< 1	mg/L
TP*	< 0.05	mg/L	< 0.04	mg/L

*Achievable effluent phosphorus concentration is dependent on the fraction of soluble non-reactive phosphorus in the wastewater stream

Table 4: Design of Equalization tank

Design of Equalization tank	Design Value	Metric Unit	Design Value	US Unit
Total Working Volume	189.3	m^3	50,000	gal
HRT	8.00	h		
Aeration	0.015	$m^3/m^3.min$	0.015	$ft^3/ft^3.min$
Blower Capacity	188.9	m^3/h		
	182.2	Nm^3/h	115.1	scfm
Number of basins	2.00	-		
Working Volume/basin	94.6	m^3	25,000	gal
Liquid Volume/basin	105.0	m^3	27,729	gal
Tank Geometry	Rectangular			
Operating depth (max level - min level)	2.75	m	9.01	ft
Side Water Depth, SWD	3.05	m	10.00	ft
Length, L	6.31	m	20.71	ft
Width, W	5.45	m	17.89	ft
Minor head loss, piping and fitting	8.0	kpa	1.16	psi
Total head loss	38	kpa	5.47	psi

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Table 5: Membrane Calculation

Design of Membrane Tanks	Design Value	Metric Unit	Design Value	US Unit
1) Capacity				
Surface Area per Membrane Cassette	27.9	m^2	300	ft^2
Number of membrane tanks	2			
Number of membrane modules /membrane tank	24	-		
Selection of membrane module	500S	-		
Membrane cassettes per selected module	1	-		
Membrane surface area/module	28	m^2	300	ft^2
Total installed cassettes	48	-		
Total membrane area/ membrane tank	669.6	m^2	7204	ft^2
Total membrane area/ system	1,339	m^2	14408	ft^2

Design of Membrane Tanks	Design Value	Design Value	Design Value	Design Value	Units
2) Flux Analysis	**ADF**	**MMF**	**MDF**	ADF (N-1)	
Influent flow rate (per tank)	86.51	283.88	425.81	173.0	m^3/d
Instantaneous flux	6	20	29	12	LMH
Net flux	5	18	26.5	11	LMH
Reference net flux at 10°C (suez)	18	20.0	28.2	28.2	LMH
	ADF	**MMF**	**MDF**	**ADF (N-1)**	
Influent Flow rate (per tank)	22,857	75,000	112,500	45714	gpd
Net flux	3.2	10.4	15.6	6.3	GFD
Reference net flux at 10°C (suez)	10.6	11.8	16.6	16.6	GFD

Design of Membrane Tanks	Design Value	Metric Unit	Design Value	US Unit
3) Scouring Aeration				
Air flow per membrane module	8	N m^3/h	4.63	cfm
Air flow per membrane tank	189	N m^3/h	111.20	cfm
Total MBR air flow	378	N m^3/h	222.39	cfm
Total MBR air flow,standard	406	m^3/h	238.68	scfm

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Design of Membrane Tanks	Design Value	Metric Unit	Design Value	US Unit
4) Membrane Tank Design				
Tank Type	Containerized			
Length, L	1.8	m	5.83	ft
Width, W	2.0	m	6.66	ft
Side Water Depth, SWD	2.1	m	6.89	ft
Volume per tank	7.6	m^3	1,997	gal
Volume displaced per tank by membranes	1.0	m^3	270	gal
Percent volume displaced by membranes	14%	%		
Effective volume per tank	6.6	m^3	1,726	gal
Total effective MBR volume, V_m	13.1	m^3	3,452	gal
HRT_m	0.6	h		
Blower headloss	27.3	kPa	3.96	psi

Table 6: Biological Operating Parameters

Biological Operating Parameters	Design Value	Metric Unit
Design aerobic Sludge Retention Time, SRT	14.551	day
MLSS in aerobic tank	8,000	mg/L
MLSS in membrane tank	10,000	mg/L
Mixed Liquor Volatile Suspended Solids, MLVSS, in aerobic tank	3361	mg/L
MLVSS/MLSS	42	%
Recirculation Ratio, RR: Membrane tank => Aerobic tank	4	-

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Table 7: Kinetic Constants at Design Temperature

Kinetics Constants for BOD Removal	Value at 20°C	Value at design temperature	Metric Unit
K_s	32	32	g BOD/m^3
$k_{e\ or}\ k_d$	0.12	0.08	per day
Biomass yield, Y	0.40	0.40	g VSS/g BOD
μ_m	6	3.05	g VSS/g VSS.day
k		7.63	g BOD/g VSS/day
f_d		0.15	g /g
Y_{obs}		0.48	g VSS/g BOD
Y_H		0.50	g TSS/g BOD
Yobs-overall		0.74	gTSS/g BOD

Kinetics Constants for Nitrification	Value at 20°C	Value at design temperature	Metric Unit
$\mu_{m,n}$	0.75	0.38	g VSS/(g VSS.day)
K_n	0.74	0.44	g NH_4-N/m^3
$k_{en\ or}\ k_{dn}$	0.08	0.05	g VSS/(g VSS.day)
Y_n	0.12	0.12	g VSS/g NH_4-N
k_0		0.5	g/m^3
μ_n . Theoretical		0.11	g/(g/day)
Safety factor		1.5	
$SRT_{aerobic,\ theoretical}$		13.90	day

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Table 8: Sludge Yield

Sludge Yield	Design Value	Metric Unit	Design Value	US Unit
Effluent BOD, S_e	1.65	mg/L		
NO_x	48.5	mg/L		
$P_{x,bio}$	32.30	kg VSS/day	71.15	lb/d
X_0	37.85	kg/day	83.37	lb/d
$P_{x,vss}= P_{x,bio}+ X_0$	70.2	kg/day	154.52	lb/d
$P_{x,tss,\ biomass}$	104.24	kg/day	229.61	lb/d
$P_{x,TSS,\ total}$	166.97	kg/day	367.77	lb/d
$Q_{w,\ biomass}$	20.87	m^3/day	5,514	gal/d
Nitrogen uptake through sludge production	11	mg/L		
Phosphorus uptake through sludge production	2.8	mg/L		

Table 9: Design of Aerobic Tank

Design of Aerobic Tank	Design Value	Metric Unit	Design Value	US Unit
$V_{aerobic\ tank\ +\ membrane\ tank}$	303.70	m^3	80,237	gal
$HRT_{aerobic\ tank\ +\ membrane\ tank}$	12.84	h		
$V_{aerobic\ tank}$	290.58	m^3	76,771	gal
$HRT_{aerobic\ tank}$	12.28	h		
Number of trains	2	-		
Tank Geometry	Rectangular			
Tanks in series	1			
Volume/basin	145.29	m^3	38,385	gal
Length, L	12.93	m	42.41	ft
Width, W	3.69	m	12.09	ft
Side Water Depth, SWD	3.05	m	10.00	ft

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Table 10: Biological Parameters

Biological Design Summary	Design Value	Metric Unit	Design Value	US Unit
F:M ratio-aerobic	0.018	kg BOD/kg MLSS.d	0.018	lb BOD/lb MLSS.d
F:M ratio-aerobic	0.042	kg BOD/kg MLVSS.d	0.042	lb BOD/lb MLVSS.d
F:M ratio-overall	0.018	kg BOD/kg MLSS.d	0.018	lb BOD/lb MLSS.d
F:M ratio-overall	0.042	kg BOD/kg MLVSS.d	0.042	lb BOD/lb MLVSS.d
Organic Loading rate - Aerobic	0.93	kg COD/m^3.d	72.2	lb COD/1000 ft^3.d
Organic Loading rate - Aerobic	0.47	kg BOD/m^3.d	36.1	lb BOD/1000 ft^3.d
Organic Loading rate - Overall	0.93	kg COD/m^3.d	72.2	lb COD/1000 ft^3.d
Organic Loading rate - Overall	0.47	kg BOD/m^3.d	36.1	lb BOD/1000 ft^3.d
$HRT_{aerobic}$	12.3	h	96	% V/V_{Total}
$HRT_{membrane}$	0.6	h	4	% V/V_{Total}
HRT_{total}	**12.84**	**h**		
$HRT_{total, max\ day}$	**8.56**	**h**		
SRT_{total}	**14.6**	**d**		

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Table 11: Chemical Phosphorus Removal

Liquid ALUM (Al2(SO4)3.14H2O) Addition-TP Removal	Design Value	Metric Unit	Design Value	US Unit
Chemical Selection	Alum (Al2(SO4)3*14(H2O)			
Effluent TP limit	0.03	mg/L		
Al:P molar ratio	6.50	-		
Dosage of alum to phosphorus ratio	62	-		
Phosphorus required to be removed	6.2	mg/L		
Alum dosage concentration	387	mg/L		
Alum solution by weight	48	%		
Alum solution density	1310	kg/m^3	10.92	lb/gal
Daily alum solution dosage (48%)	349.8	L/d	92.43	gpd
Hourly alum solution dosage (48%)	14.6	L/h	0.06	gpm

Table 12: Total Sludge Production

Total Sludge Production	Design Value	Metric Unit	Design Value	US Unit
Chemical sludge produced (as AlPO4)	13.89	kg/d	30.59	lb/d
Chemical sludge produced (as Al(OH)3)	48.84	kg/d	107.57	lb/d
Total chemical sludge produced (as AlPO4 and Al(OH)3)	62.73	kg/d	138.16	lb/d
Total sludge produced	167.0	kg TSS/d	367.77	lb/d
Sludge wasting rate (0.8%)	20.9	m^3/d	27.30	yd^3/d

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Table 13: Check Alkalinity

Check Alkalinity	Design Value	Metric Unit	Design Value	US Unit
Alkalinity in the feed water	300	mg/L as $CaCO_3$		
Amount of NH_4-N converted to NO_3-N	60	mg/L		
Effluent NO_3-N concentration	48.50	mg/L		
Residual alkilinity needed to maintain pH	80	mg/L as $CaCO_3$		
Alkalinity used for nitrification	349.74	mg/L as $CaCO_3$		
Alkalinity consumed by liquid alum	193.73	mg/L as $CaCO_3$		
Alkalinity produced	0.00	mg/L as $CaCO_3$		
Alkalinity needed	323.48	mg/L as $CaCO_3$		
Alkalinity needed	183.65	kg/day as $CaCO_3$	404.52	lb/d as $CaCO_3$
Chemical Selection	Sodium Hydroxide			
% by weight	50	%		
Density	1,530	kg/m^3	12.76	lb/gal
Daily caustic dosage (50%)	192.1	L/d	50.74	gpd
Caustic dosage (50%)	8.00	L/h	0.04	gpm

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Table 14: Aeration Requirements Aerobic Tank

Aeration Requirement in Aeration tank (Fine bubble)	Design Value	Metric Unit	Design Value	US Unit
BOD loading	141.94	kg/d	312.64	lb/d
TKN loading	34.07	kg/d	75.03	lb/d
TN in WAS	6.25	kg/d	13.78	lb/d
TP loading	5.11	kg/d	11.25	lb/d
S loading	0.00	kg/d	0.00	lb/d
Unit BOD oxygen demand	1.30	kg O_2/kg BOD	1.30	lb/lb
Unit nitrification oxygen demand	4.60	kg O_2/kg N	4.60	lb/lb
denitrification rate	0.00	%	0.00	lb/lb
Unit denitrification credit	-2.90	kg O_2/kg N	-2.90	lb/lb
Unit sulfide oxygen demand	2.00	kg O_2/kg S^{2-}	2.00	lb/lb
BOD oxygen requirement, R_1	184.52	kg O_2/d	406.43	lb O_2/d
Nitrification oxygen requirement, R_2	127.9	kg O_2/d	281.78	lb O_2/d
DeN oxygen credit, R_3	0.00	kg O_2/d	0.00	lb O_2/d
Sulfide oxygen requirement, R_4	0.00	kg O_2/d	0.00	lb O_2/d
Oxygen demand	312.45	kg O_2/d	688.21	lb O_2/d
Oxygen credit from membrane tanks	0.00	kg O_2/d	0.00	lb O_2/d
Design AOR for aeration tank	312.45	kg O_2/d	688.21	lb O_2/d
Alpha	0.50	-		
Beta	0.95	-		
Theta (Temp. correction)	1.02	-		
Tbasin, winter	10	°C	50	°F
Tbasin, summer	25	°C	77	°F
CsatT (surface sat DO at winter)	11.35	mg/L		
CsatT (surface sat DO at summer)	8.15	mg/L		
Effective depth correction factor	0.40	-		
Csat20	10.06	mg/L		
Target min operating DO	2.00	mg/L		
Psite	76.17	kPa	11.05	psi
SOR, winter	1143.52	kg O_2/d	2,518.77	lb O_2/d
SOR, summer	1256.01	kg O_2/d	2,766.53	lb O_2/d
AOR/SOR_{summer}	0.25	-		

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Aeration Requirement in Aeration tank (Fine bubble) (continued)	Design Value	Metric Unit	Design Value	US Unit
SWD	3.05	m	10.00	ft
SOTE at operating SWD	16.49	%		
Density of air	1.29	kg/m^3	0.01	lb/gal
% O2 in air	23.20	%		
	1058.92	m^3/h		
Air Required	0.29	m^3/s		
Peaking Factor	1.50	-		
Design Air	1479.58	Nm^3/h	934.1	scfm
Static headloss	27.0	kPa	3.91	psi
Minor loss	13.8	kPa	2.00	psi
Total headloss	40.8	kPa	5.92	psi

Table 15: Sludge Management

Design of Sludge Holding Tank	Design Value	Metric Unit	Design Value	US Unit
Thickened sludge wasting rate (2%)	8.35	m^3/d	10.92	yd^3/d
Required sludge storage volume, V	160.1	m^3	42,309	gal
Sludge storage with decanting (at 2%)	19	d		
Sludge storage without decanting (at 0.8%)	8	d		
Tank Geometry	Rectangular			
Number of Basins	1			
Volume / Basin	160	m^3	42,309	gal
Width, W	11.40	m	37.40	ft
Width, W	4.61	m	15.11	ft
Side Water Depth, SWD	3.05	m	10.00	ft
Area, S	52.54	m^2	565.24	ft^2
Mixing requirement	0.03	m^3/min/m^3	30.00	cfm/1000 ft3
Blower air flow rate	288.25	m^3/h		
	278.06	N m^3/h	175.60	scfm
Static headloss	26.70	kPa	3.88	psig
Minor loss	10.40	kPa	1.51	psig
Total headloss	37.10	kPa	5.39	psig

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ISAM™

INTEGRATED SURGE ANOXIC MIX

Proven Technology

FLUIDYNE'S ISAM™ IS A TOTAL TREATMENT SYSTEM

incorporating BOD, TSS and nitrogen removal along with sludge reduction in an integrated system. Raw (crude) sewage enters a covered anaerobic reactor for pretreatment, sludge thickening and sludge destruction. Complex organic solids undergo hydrolysis to simpler soluble organics which pass to the surge anoxic mix (SAM™) tank.

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THE EXPERIENCED LEADER IN WASTEWATER TREATMENT TECHNOLOGY

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A TOTALLY NEW CONCEPT IN SBR DESIGN

FLUIDYNE ISAM™

In operation, all influent flow enters the anaerobic basin where influent solids are allowed to settle much like a primary clarifier. Elimination of primary solids in the anaerobic basin allows for much smaller SBR basins at equivalent SRT than conventional SBRs. The anaerobic selector also creates soluble carbon as a food source for biological nutrient removal through anaerobic conversion of settleable BOD to soluble BOD. The influent then flows to the SAM™ surge basin, or influent equalization basin. The surge basin provides flow and nutrient equalization to optimize treatment at the full range of flows and loadings.

100% ON-LINE STANDBY EQUIPMENT

Fluidyne's prepackaged ISAM SBRs are furnished with spare mixing/fill pump and aerator assembly installed for 100% redundancy.

REDUCES WASTE SLUDGE BY 75%

The Fluidyne ISAM™ Sequencing Batch Reactor incorporates an anaerobic selector chamber with the SAM™ SBR. The anaerobic selector not only provides consistent phosphorous removal by subjecting the recirculated biomass to anaerobic conditions, forcing the release of phosphorous, but also creates soluble carbon as a food source for phosphorous removal through anaerobic conversion of settleable BOD to soluble BOD. Additionally, anaerobic sludge digestion occurs in the anaerobic selector chamber, reducing waste solids production by up to 75% for the entire secondary process.

SEVERAL UNIQUE FEATURES

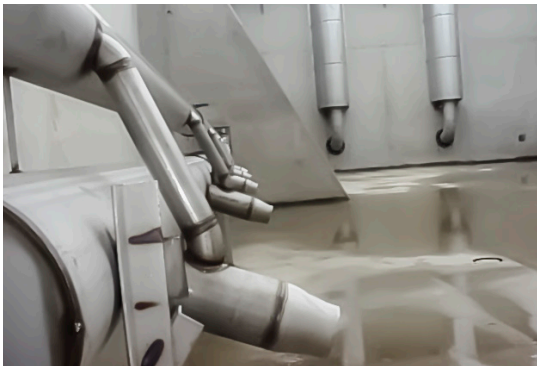
Several unique feature of the Fluidyne ISAM™ SBR include odor control and scum skimming. Mixed liquor is maintained in the SAM™ tank to immediately react with incoming flow from the anaerobic chamber to suppress odors and initiate and accelerate carbon and nitrogen reactions. Mixed liquor is recycled from the top of the SBR tank effectively removing scum by use of proprietary flow and scum control system. In addition, nitrates are recycled to the SAM™ tank for effective and rapid denitrification. Denitrification reactions are accelerated in the presence of the unreacted carbon from the raw sewage entering the SAM™ tank. Aeration and energy requirements are reduced as nitrates are fully reduced to nitrogen gas in the SAM™ tank.

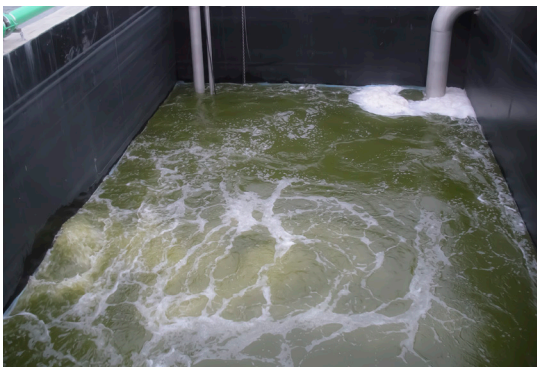


EXPERIENCED LEADER IN SEQUENCING BATCH REACTOR TECHNOLOGY

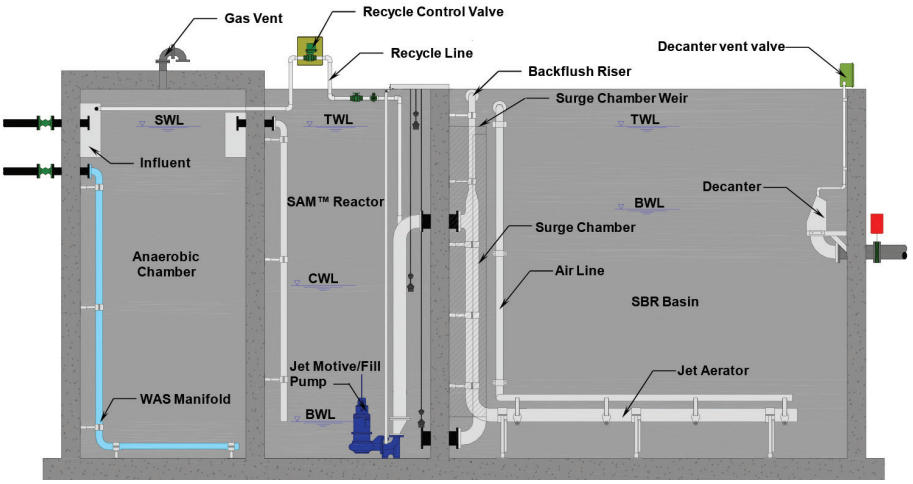
BENEFITS:

- Easy to operate and maintain
- Reduced operation and maintenance cost
- SBR basin has no moving parts that require maintenance.
- Power usage is controlled through the Fluidyne control panel
- Covered anaerobic selector chamber for odor control
- More flexible than continuous flow plants
- ISAM performs consistently regardless of influent flow changes
- Ability to handle highly variable flows and loading. Built in flow equalization is provided in the SAM™ reactor to handle peak hourly flows
- Built in sludge reduction system
- Aeration and mixing can automatically be adjusted to optimize power and prohibit filamentous growth
- Process utilizes quiescent settle and decant periods
- Small footprint with no digesters, secondary clarifiers,RAS piping and pumping
- Produces the highest quality effluent (Typical Fluidyne ISAM™ facilities are achieving less than 10 mg/L BOD5 and TSS, less than 1 mg/L NH3-N, less than 7 mg/L total N, and less than 2 mg/L phosphorus)
- Automatic scum skimming prior to effluent discharge provides highest quality effluent
- Easily expandable by adding additional flow trains



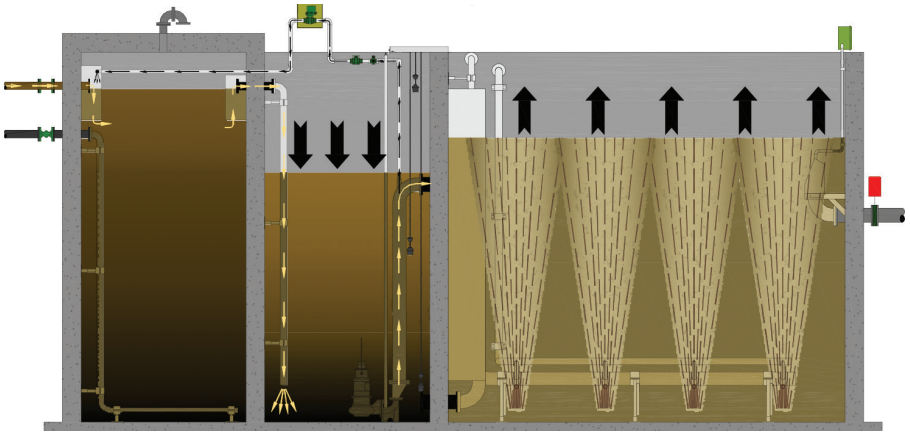


System Components:



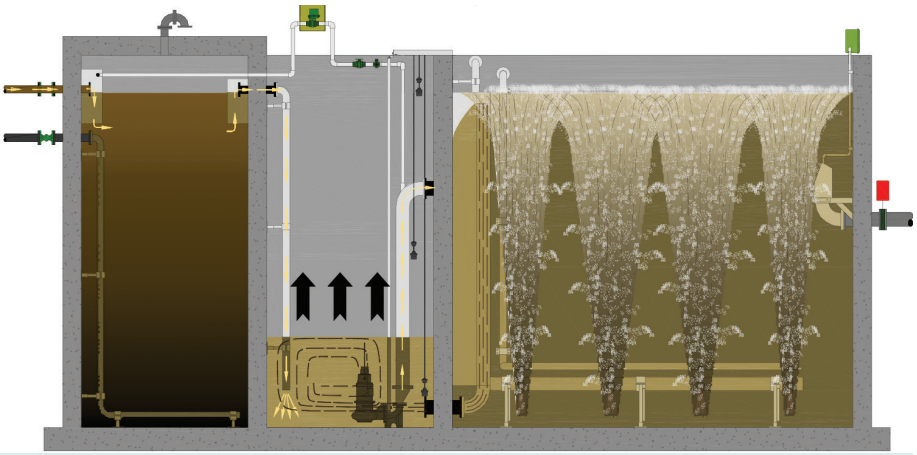
Influent continuously enters the anaerobic chamber where solids settle. Settleable BOD is converted to soluble BOD. BOD is reduced by 30% and solids are reduced by 60%. The influent then flows to the SAM™ reactor. Mixed liquor is maintained in the SAM™ reactor to suppress orders and initiate and accelerate carbon and nitrogen reduction.

Fill Phase:

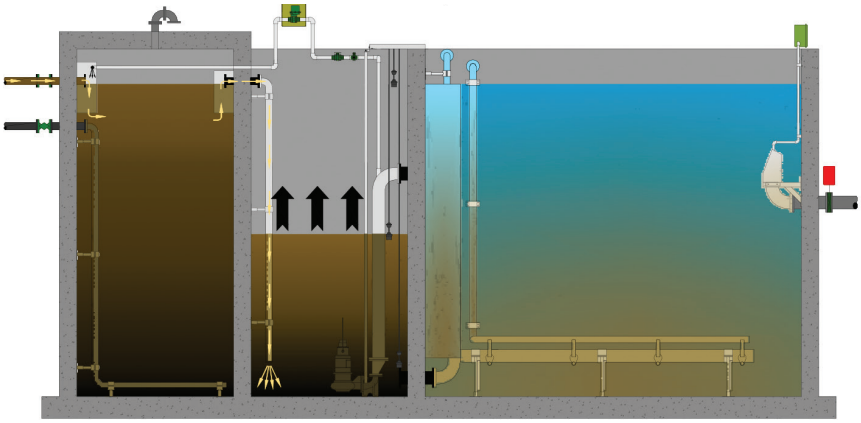


When the level in the SAM™ reactor reaches a predetermined “control level” the motive liquid pump is started. The SBR basin is filled and mixed. A percentage of the pumped flow is returned to the anaerobic chamber where biological solid settle. Settled solids in the anaerobic chamber are digested.

Interact Phase:

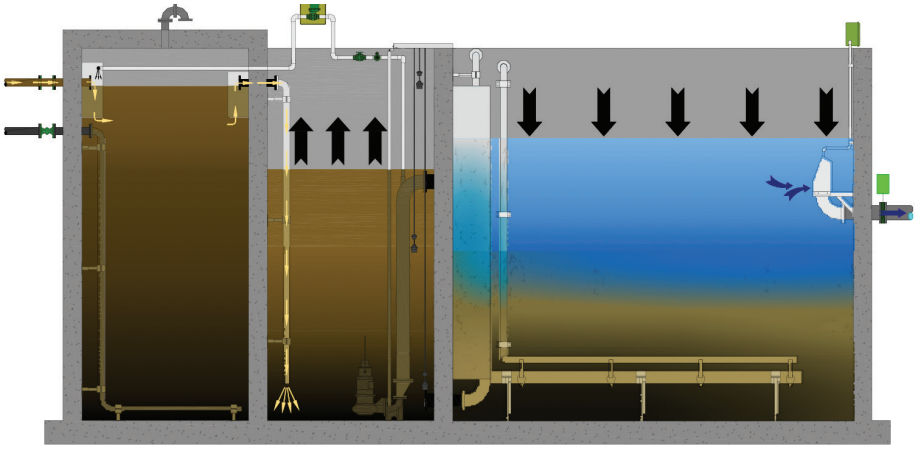


When the level in the SBR reaches TWL, nitrified mixed liquor overflows the surge chamber weir and is returned to the SAM™ chamber to mix and react with the raw influent. Aeration is cycled on and off to provide the required oxygen. Denitrification is reliable and complete. Scum is also removed from the SBR basin.



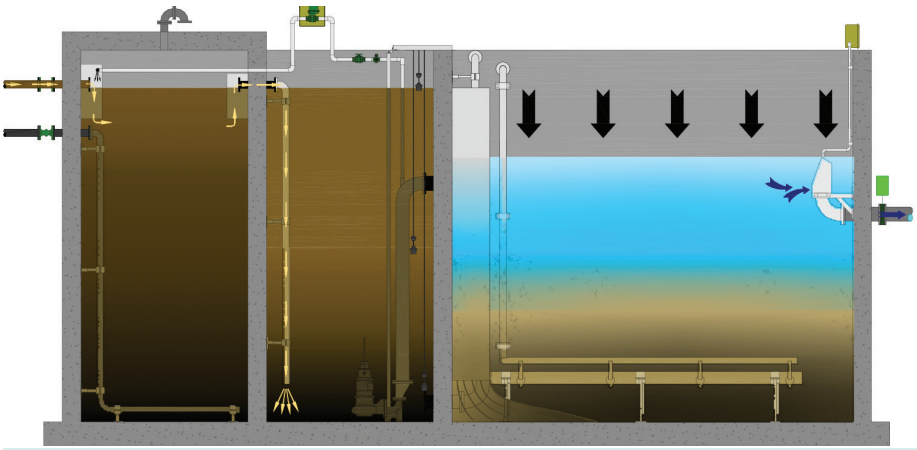
Settle Phase:

When the level in the SAM™ reactor again reaches “control level” aeration is discontinued and the SBR basin settles under perfect quiescent conditions.



Decant Phase:

When the settle timer expires, the decant valve is open and treated effluent is withdrawn from the upper portion of the SBR basin by means of a fixed solids excluding decanter.



Filled Decant Phase:

If, during peak flow events, the SAM™ reactor reaches TWL before the decant phase ends, influent flows in a reverse direction through the surge return line and overflows the surge chamber secondary weir and is diffused into the settled sludge at very low velocity as the decant phase continues.

FLUIDYNE

THE EXPERIENCED LEADER IN WASTEWATER TREATMENT TECHNOLOGY





THE EXPERIENCED LEADER IN WASTEWATER TREATMENT TECHOLOGY

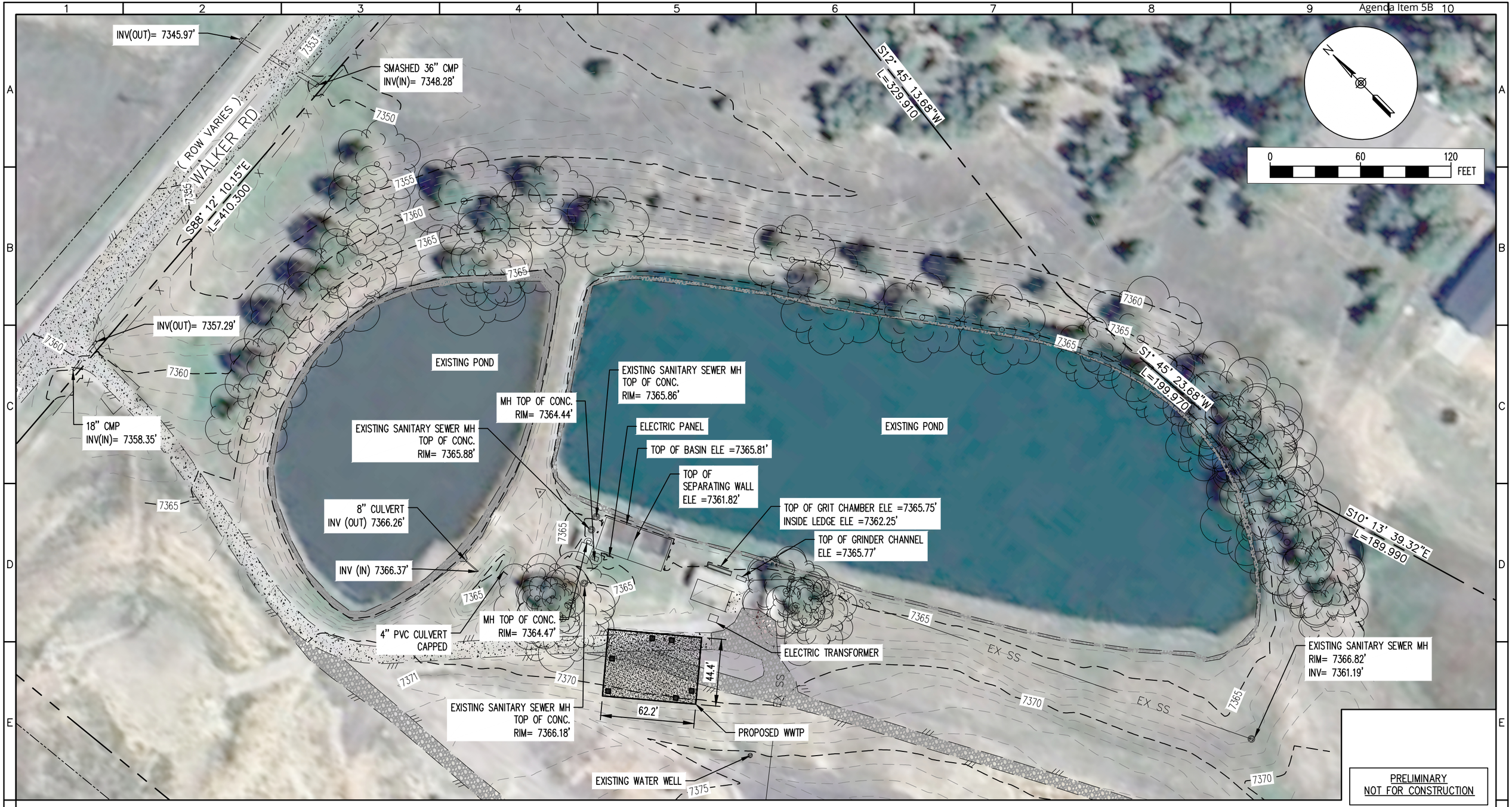
FLUIDYNE CORPORATION

5436 Nordic Drive, Suite D
Cedar Falls, IA 50613

319.266.9967

fax: 319.277.6034
fluidyne@fluidynecorp.com

FLUIDYNECORP.COM



PRELIMINARY
NOT FOR CONSTRUCTION

SITE PLAN
1"=60'

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DESIGNED BY: MG
CHECKED BY: AS
FILE PRINTED ON: 5/12/2025 11:26:39 AM
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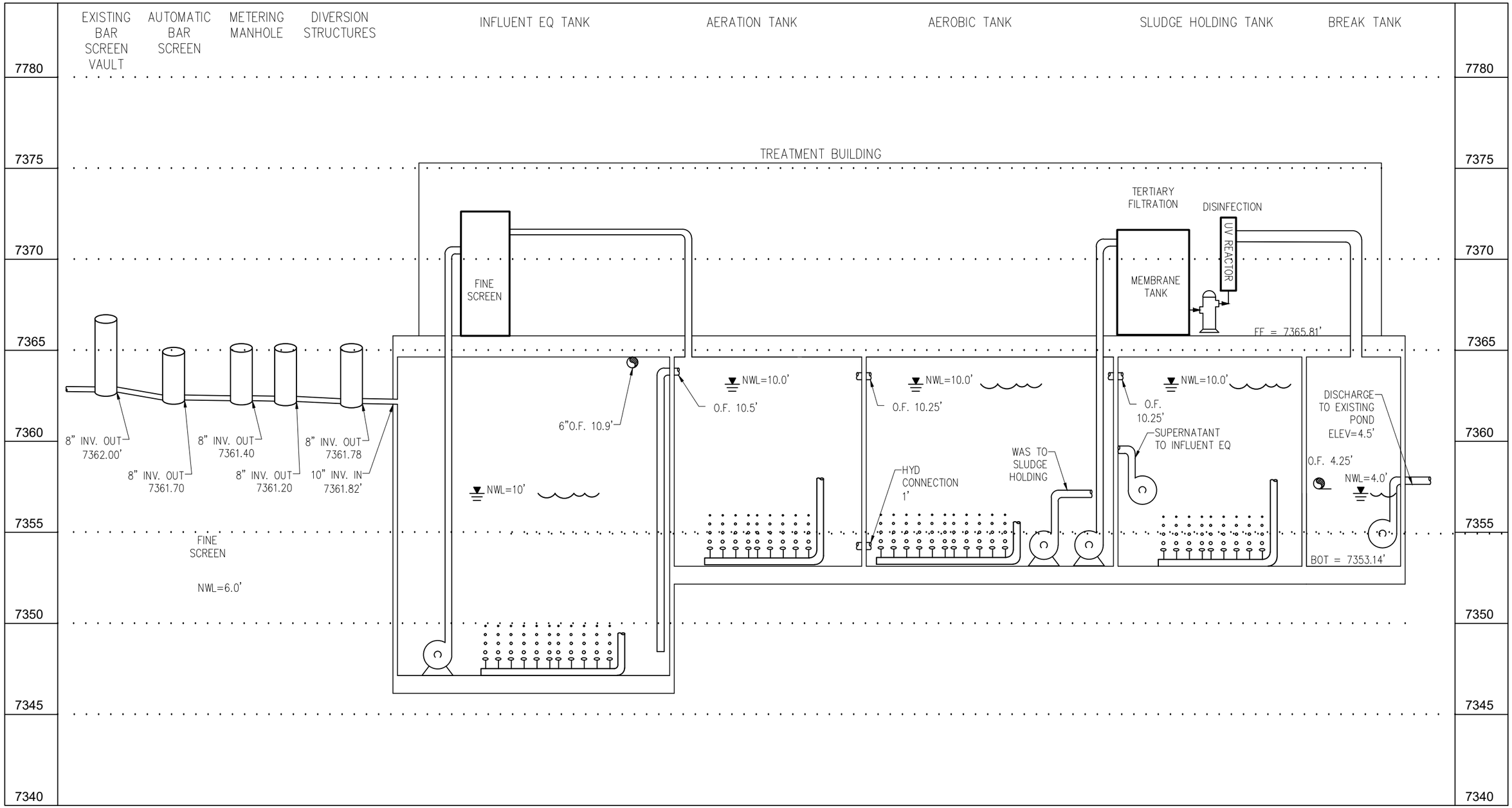
AquaWorks DBO INC
DESIGN BUILD OPERATE

PROJECT: WALDEN SANITATION DISTRICT, 3155 WALKER ROAD COLORADO SPRINGS, COLORADO

ENGINEER: AQUAWORKS DBO, INC.
3252 WILLIAMS STREET
DENVER, COLORADO 80205
(303) 477-5915

SHEET TITLE: SITE PLAN

PROJECT NUMBER:	SCALE:	SHEET:
#0000	1"=60'	C-4



HYDRAULIC PROFILE
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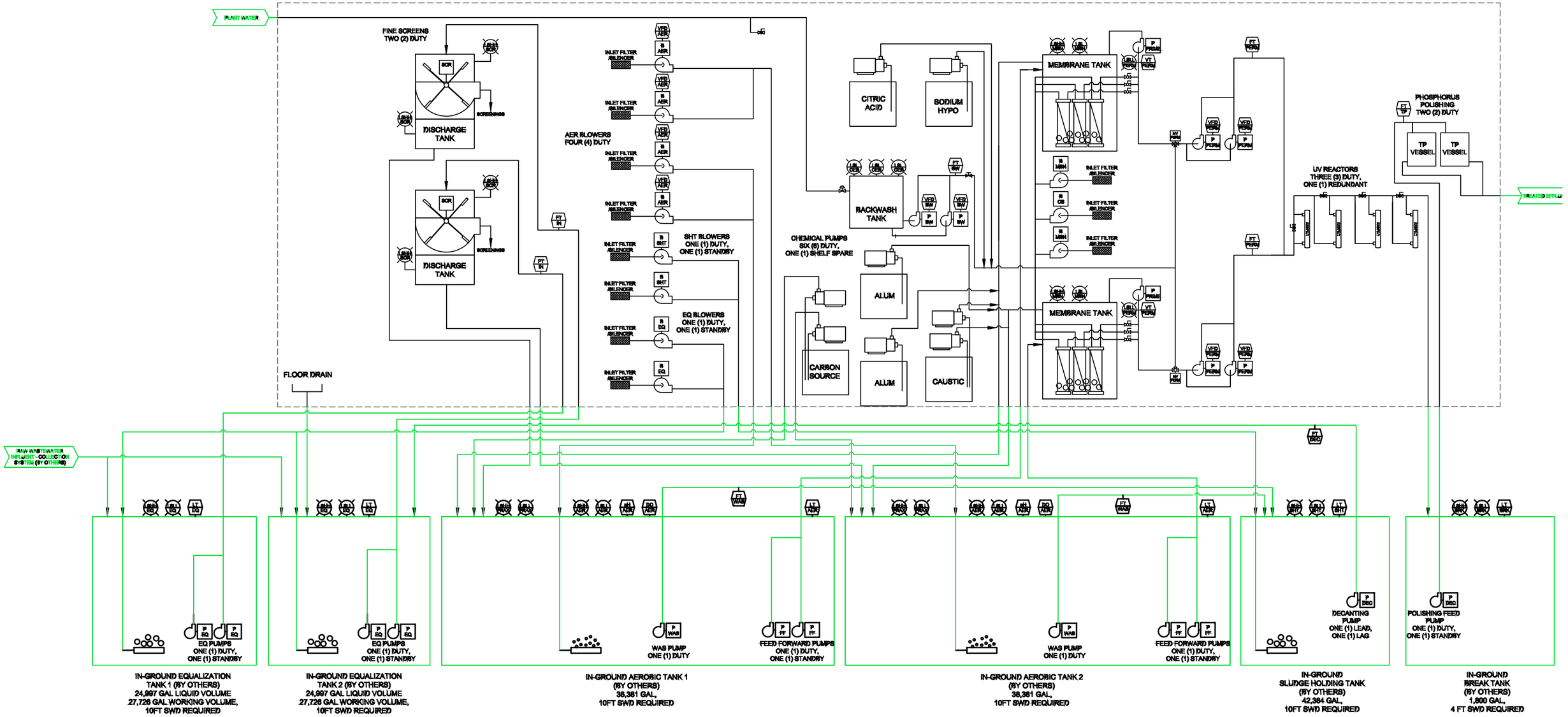
PROJECT: WALDEN SANITATION DISTRICT, 3155 WALKER ROAD COLORADO SPRINGS, COLORADO

ENGINEER: AQUAWORKS DBO, INC.
3252 WILLIAMS STREET
DENVER, COLORADO 80205
(303) 477-5915

SHEET TITLE: HYDRAULIC PROFILE

PROJECT NUMBER:	SCALE:	SHEET:
#0000	N.T.S.	C-5

1541



PROCESS FLOW DIAGRAM
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AquaWorks DBO INC
DESIGN BUILD OPERATE

PROJECT: WALDEN SANITATION DISTRICT, 3155 WALKER ROAD COLORADO SPRINGS, COLORADO

ENGINEER: AQUAWORKS DBO, INC.
3252 WILLIAMS STREET
DENVER, COLORADO 80205
(303) 477-5915

SHEET TITLE: HYDRAULIC PROFILE

PROJECT NUMBER:	SCALE:	SHEET:
#0000	N.T.S.	C-5

Pikes Peak Area Council of Governments
Communities Working Together

Meeting Minutes
Water Quality Management Committee
Wednesday, July 23, 2025, 9:00 AM

1. **Call to Order / Establish a Quorum:** Meeting called to order at 9:00 am
2. **Agenda Approval:** Motion for approval made by Roy Heald, seconded by Wally Eaves. Approved unanimously.
3. **Approval of Minutes from May 28, 2025:** Motion for approval made by Wally Eaves, seconded by Roy Heald.
4. **Public Comments / Presentations**
   No public comments.
5. **Action Items**
   A. Site Application – Walden WWTP – Adam Sommers, AquaWorks DBO provided a presentation.
      i. Verify signage was posted on site for public notice: Applicant should review Regulation 22 for specific requirements on the timing, sizing, content, etc. of this signage. CDPHE is responsible for verifying this criteria has been met at site.
      ii. Need to verify the ownership. Walden Water and Sanitation District does not exist, yet this is the named applicant. Walden WSD is not in state records, Walden Corporation is also named in the application. Is there a contract between the Corporation and the metro district? What are these details? Application should be in the name of the actual entity, Walden WSD does not appear to exist.
      iii. Need to ensure an ongoing operations and maintenance plan, and ensure financial certainty that this operation can continue while also meeting standards. There seems to be no financial certainty that this entity can maintain ongoing financial obligations and maintenance. Given the current condition at the site, it does not appear that dedicated funding will be obligated for ongoing financial obligations and maintenance. Financial documents online indicate that all funds are dedicated to consulting fees, but there is no budget for operations and maintenance, no indication that district receives anything as far as rates, or who collects rates, who has the authority to raise rates, etc.. Fees for Operation and Maintenance (O&M) need to only go to O&M, not optional. Cost for membranes alone needs ongoing funding. This seems to be a developer district – not enough money has been put towards this facility as it is.
         1. Applicant response: District was formed 10 years ago, Walden WSD is financial entity. There may be three entities. Walden Metro District 1

appears to be the funding entity, and Metro District 2 appears to be the management entity. Need to clarify this. District collects nominal amount of property tax, but all funds are used for consulting. Service plan entails a contractual relationship with district and the corporation. It has authority to issue maintenance, fees could be used for maintenance and improvements. Can issue up to 15 million in debt but this is an old document. But the document stating this is very old.

iv. Who bills for services? It is unclear what the financial structure is of the districts. 2025 Budget is posted but there is no debt service or capital improvements. How are capital projects financed and who is responsible for this? And how will improvements be financed? Application shows an estimated $260 K per year, how will this be funded, who is sending bills? Need to show more transparency in the district.

v. Current facility is in violation of their existing permit, and has a compliance schedule to meet standards. What did the State tell them they need to do?
    a. PDF Pg. 14 of site app summarizes violations at facility. But there are compliance issues back to 2019. Pushing the entity to upgrade their facility, and this project will address that.
        i. There are other compliance issues not reflected in this application, we would like to see a complete summary.

vi. Sludge is being stored on site – need specific details on how this will be taken care of immediately. This is hazardous waste and is accessible via a trail system leads right to it, children play nearby and throw rocks into the ponds. It cannot be buried on site, and needs to be removed by a licensed entity.

vii. Current fence is loose three-line barb wire, not secure. Need a fence and to be labeled for authorized personnel only.
    1. The applicants don't want to do chain link fencing due to aesthetics. Container on site will be closed, some fencing will be around the repurposed pit.
    2. A security fence needs to be shown on site plan with details on how/when it will be installed.

viii. The assumptions on BOD that operator submitted are questionable, it is clear from these numbers that testing has not been done appropriately. Operator has certifications but is she capable? Please show examples of how she is qualified. Who does operator report to? Is there a board of directors?
    1. She has contract operations and has A level certifications.
    2. WQMC would like to see evidence that this operator has necessary experience, beyond certifications, to operate this type of a facility. There are concerns with the operator's experience and ability to confidently operate this facility.

ix. Water rights – need update on this. What is the augmentation plan?
x. Site plan shows a well – this is not a drinking water well.
xi. **A motion to table this application until further information can be provided** was motioned by Roy Heald, seconded by Wally Eaves, moved unanimously.

6. **Discussion Items**
   A. Update on RLF Funding – Jared Verner, PPACG Public Information and Policy provided an update on the letter sent by PPACG to preserve federal RLF program funding and limit cuts to the RLF.
      i. Earmarks dedicated have gone unsed due to poor administration
   B. Follow-up on 208 Plan Update – Angie Martell, PPACG Environmental Planner presented follow up questions to the WQMC on the 208 Plan update process. The group agreed that a presentation on the purpose of the WQMC and the 208 Plan would be beneficial.
7. **Information Items**
   A. Karen Rowe – Regional grant navigator provided an update on federal funding options.
      i. Water Smart Programs have been cancelled.
      ii. There is a USDA revolving fund, only $1 million available nationwide, applications due August 7th.
      iii. Cripple Creek signed up for water technical assistance program through EPA. Will look at financials, look for assistance and grants to fund, hire technical assistance consultants to develop a plan and help pursue funds.
      iv. State Emerging Contaminants in Small or Disadvantaged Communities Grant Program (EC-SDC Grant Program) is available.
      v. Generally the federal trend for funding is that there is more formula funding and less discretionary grants.
8. **Member Entity Announcements**
   A. None
9. **Meeting Schedule** ✉
10. **Adjournment:** Meeting was adjourned at 10:03 am, moved by Wally Eaves, seconded by Roy Heald, approved unanimously.

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Pikes Peak Area Council of Governments
Communities Working Together

Meeting Minutes
Water Quality Management Committee
Wednesday, October 15, 2025, 9:00 AM

1. **Call to Order / Establish a Quorum**
   Meeting was called to order at 9:00 am
2. **Agenda Approval**
   Agenda was approved unanimously
3. **Approval of Minutes from July 23, 2025**
   Minutes were approved unanimously
4. **Public Comments / Presentations**
   No public comments.
5. **Action Items**
   A. Site Application – Walden WWTP – Adam Sommers, AquaWorks DBO
      i. Matt Dunston provided a brief statement about their intent to upgrading the WWTP.
      ii. Committee questions:
         1. The applicant has provided an estimate to deal with removal of the sludge being stored on-site, but has not yet followed through. What are the plans to have this removed?
            a. The applicant is letting it dry out more and is scheduled for Tuesday November 11th to remove it.
         2. Original application was in name of Walden Water & Sanitation District, could not verify this actually exists in state records.
            a. Applicant has modified the application to reflect the Walden Corporation, this has been the entity since originally created in 1963. A metropolitan district is in place that could eventually take control of the ownership and operations.
         3. A Private company is overseen by PUC public utilities commission, regarding rates and finances. How does Walden set rates. Most public entities have audit reports publicly available where we can see
            a. Rates are passed by the PUC from time to time and are also rate structure is comparable with similar districts in the region.
         4. How can we independently verify through financial reports or approval process from PUC how residents… Developer cut off committee member question.

5. Does the applicant have any records of conversations with PUC about financial documents or rates?
    a. No, it has been five years since talked with PUC.
    b. The committee is looking for something where rates have been submitted and approved. The PUC has a rigorous process for approval.
    c. Applicant mentioned that there are “entities” that they communicate with on rates.
6. WQMC member asked - why is the WQMC looking so deeply into the financial records of this applicant?
    a. For other public facilities, audits and financial records are publicly available and independently verifiable. They are not available for this entity and there has been a lack of transparency on this from the applicant. Also, it is known that developers often create treatment facilities and then walk away without ensuring the long-term operations and maintenance of the facility are addressed properly. There are also some concerns with the transparency of this entity as we have asked for information on finances sufficient to ensure the applicant can cover ongoing operational expenses and not received it.
7. A motion to move the application to the CAC was moved by Kevin Brown, seconded by Wally Eaves, Apposed by Roy Heald.
    a. The WQMC added that they would like their stated concerns to be carried forward through the review process.
    b. Roy explained that he believes the committee has not met obligations under Regulation 22 for financial certainty, and there is still uncertainty with financial structures of Walden Corporation. There is uncertainty that the process is being followed and would like to have more reassurance.
    c. Need more information from PUC or other documentation on how rates are collected and used

B. Site Application – Widefield Water & Sanitation District, Jimmy Camp Lift Station Force Main Extension – Wesley Lozano, Garver USA
    i. The WQMC has received confirmation that concerns from the City of Fountain have been adequately addressed.
    ii. Wesley Lozano provided a presentation on the project.
    iii. A question was asked regarding use of the 12-inch force main. Wesley explained how this fits into the engineering plan, and the primary flow path. No additional concerns were expressed.

iv. A motion to move the application to the CAC was moved by Roy Heald, seconded by Darren Adame, unanimously approved.

C. Site Application – Fountain Sanitation District, Jonathan Moore, Fountain Sanitation District
    i. Jonathan Moore presented on the application. The lift station was built in 1955 and deteriorated rapidly in 2024, and was replaced as an emergency project. The project was designed by Fountain Sanitation District's District Engineer. The City of Fountain approved the project and it went through the LFWQMA, but the applicant was not aware of needing to go through CDPHE's review process. PPACG is only required to get notification on this project.
    ii. The project added a new valve vault, new control panel, new pumps.
    iii. A motion to move the application to the CAC was moved by Wally Eaves, seconded by Darren Adame, unanimously approved.

6. Discussion Items

A. Graywater discussion – Kat McGarvy, Environmental Health Division Director, El Paso County Public Health
    i. Mark Christiansen, Colorado Springs Utilities
        1. HB 24-1362 was passed, specifying that individual entities need to develop a graywater program or opt out through ordinance or a resolution banning graywater use in their area. Entities in need to decide whether they want to adopt graywater as a reuse option for water. This needs to be done by January 2026. Encourage folks to look in to this asap.
            a. Regulation 86 covers graywater use.
            b. Others examples of programs in Castle Rock and Denver, only about 30 or so entities on those systems, there has been little interest.
            c. Definition of graywater is Greywater (or grey water, sullage, also spelled gray water in the United States) refers to domestic wastewater generated in households or office buildings from streams without fecal contamination, i.e., all streams except for the wastewater from toilets. Sources of greywater include sinks, showers, baths, washing machines or dishwashers. As greywater contains fewer pathogens than blackwater, it is generally safer to handle and easier to treat and reuse onsite for toilet flushing, landscape or crop irrigation, and other non-potable uses.
            d. Fountain WSD will not be opting in, would push for non-potable water use but not graywater.

e. Graywater has many stipulations for approval process if an entity wanted to get it installed. Colorado Springs Utilities would need to inspect to protect potable water system.
f. Are there any water rights issues? Every entity would be different, but no issues for Colorado Springs Utilities. Depending on individual decrees for each entity. Individual entities should look into this for their own opting in or out.
g. Metro versus rural could be treated differently, especially where septic is in place. Rural might need to change plumbing systems considerably. Regulation 86 outlines how the system would work.

7. WQMC Meeting Schedule Adjustments – Angie Martell, PPACG
   A. The group temporarily agreed to move the meeting to the third Wednesday at 9:00 am.

8. Information Items
   A. 2026 CDPHE - WQCD Assistance Grants – Angie Martell, PPACG
   B. Colorado State Revolving Fund Technical Assistance Dashboard – Angie Martell, PPACG

9. Member Entity Announcements
   A. Ann Esch – no longer representing Green Mountain Falls. Caleb Patterson, GMF Town Manager is moving forward for approval to represent

10. Meeting Schedule

11. Adjournment
   A. Motion was made to adjourn by Roy Heald, seconded by Wally Eaves, unanimously approved at 10:15 am

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Pikes Peak Area Council of Governments
Communities Working Together

Date: October 29, 2025

To: Pikes Peak Area Council of Governments Community Advisory Committee

From: Angie Martell, Environmental Planner

Subject: Site Application for Fountain Sanitation District's Race Street Lift Station

Action Requested: Review and Recommend

Previous Action

1) The application was reviewed by the Lower Fountain Water Quality Management Association (LFWQMA) in January, 2025.
2) The Application was reviewed and recommended by the SARC on October 6, 2025.
3) The Application was reviewed and recommended by the Water Quality Management Committee (WQMC) on October 15, 2025.

Summary

As required by §22.12(1) of the Colorado Department of Public Health and Environment's Regulation 22 - Site Location and Design Regulations for Domestic Wastewater Treatment Works, Fountain Sanitation District is providing the Pikes Peak Area Council of Governments CAC with the attached Site Application request for the Fountain Sanitation District (FSD) Race Street Lift Station.

The existing lift station was built in 1955 and began to deteriorate rapidly in 2024. The project was designed by Fountain Sanitation District's District Engineer. The City of Fountain approved the project and it went through the LFWQMA for review, but the applicant was not aware of needing to go through PPACG and CDPHE's review process for Regulation 22 Site Applications. The Fountain Sanitation District has replaced the lift station as an emergency project, adding a new valve vault, new control panel, new pumps.

PPACG is only required to get notification on this project, but it will continue to move the application through the Site Application Review Process as outlined in PPACG's 208 Plan. The WQMC has identified no significant concerns with this application.

Proposed Motion

Recommend the Site Application request for the Fountain Sanitation District Race Street Lift Station to the PPACG Board of Directors for approval.

Attachments

1. Site Application Report for the Fountain Sanitation District Race Street Lift Station
2. WQMC meeting minutes from October 15, 2025

Strategic Plan Goals

☐ Advocacy: Serve as an effective advocacy voice for common ground issues.
☒ Information Sharing: Serve as a significant resource for PPACG members to collect and share information with regional partners.
☐ Aging: Expand and extend senior access, awareness, education, and connectivity to support age-friendly communities and empower individual seniors.
☐Transportation: Maintain and improve a coordinated, validated plan for transportation needs across the PPACG region.
☒ Program Excellence: Continue to excel in the key fundamental areas of PPACG: Military support, Environmental programs, Transportation, Area Agency on Aging, and regional communication and collaboration.

COLORADO
Department of Public Health & Environment

Water Quality Control Division
Engineering Section

4300 Cherry Creek Drive South, B2
Denver, Colorado 80246-1530
CDPHE.WQEngReview@state.co.us
303-692-6298

Site Location- Fee Information Request Form

Regulation 22 - Site Location and Design Regulations for Domestic Wastewater Treatment Works

FEBRUARY 2025 INVOICING UPDATE: Wastewater invoicing will now take place when you submit your wastewater site location application and process design report application. After submitting your application and engineering report, you will receive an invoice. Please note that the invoice will expire 90 days after issuance.

Directions: Please submit site location or design review request via email to CDPHE.WQEngReview@state.co.us
All information with an asterisk (*) is required.

A. Project and System Information					
System Name*	Fountain Sanitation District				
Project Title*	Race Street Lift Station				
County*	El Paso				
For existing domestic wastewater treatment works, please indicate original site location approval number and date	No Approval #, date 1955				
Send Invoice to:	Design Company	☐	Applicant	☒	
Design Company Name	Fountain Sanitation District				
Design Engineer	Jonathan Moore	CO License Number	34933		
Address	11545 Link Road Fountain CO 80817				
Email	jonathanm@fsd901.org				
Phone	719-382-5303	Fax: 719-382-3441			
Applicant / Entity*	Fountain Sanitation District				
Representative Name/Title*	Jonathan Moore, Assistant District Manager/District Engineer				
Address (include City, State, Zip Code)*	11545 Link Road Fountain CO 80817				
Email*	jonathanm@fsd901.org				
Phone	719-382-5303	Fax: 719-382-3441			

B. Type of Review Requested (check all that apply)			
Treatment Facility		***Lift Station***	
New Domestic Wastewater Treatment Plant (Section 22.6 of Regulation 22)		New Lift Station (Section 22.9 of Regulation 22)	☒
Increasing or Decreasing the Design Capacity of an Existing Domestic Wastewater Treatment Plant Where Construction Has Taken Place or Will Take Place (Section 22.7 of Regulation 22)	☐	Expansion of Existing Lift Station (Section 22.10(3) of Regulation 22)	☐
Amendment to Existing Site Location Approval		***Interceptors***	
Amendment of an Existing Site Location Approval – Disinfection Changes Only (Section 22.10(2)(a)(ii) of Regulation 22)	☐	Interceptor Sewers Not Eligible for Certification (Section 22.8(3) of Regulation 22)	☐
Amendment of an Existing Site Location Approval – All other Amendment Requests (Section 22.10 Regulation 22)	☐	Certification for Eligible Interceptors (Section 22.8(1) of Regulation 22)	☐
Other Reviews and Special Cases			
New outfall for existing domestic wastewater treatment works (Section 22.10(1)(c)(xii) of Regulation 22)	☐		
Site Approval Extension (Section 22.4(9) of Regulation 22)	☐		
On-site Wastewater Treatment Systems (OWTS)	☐		

C. Project Information

Location (existing or proposed site)		*Proposed Project Capacity*	
Address (include City, State, Zip Code)*	432 South Race Street, Fountain CO 80817	Hydraulic Capacity: Maximum Month Average in million gallons per day (MGD)	0.014 MGD
Legal Description (e.g., Township, Range)	LOTS 1 & 2 BLK 4 SANTA FE ADD TOWN OF FOUNTAIN TOG W / S2 OF VAC KENTUCKY AVE	Hydraulic Capacity: Peak Hour in million gallons per day (MGD)	0.0175 MGD
County	El Paso		
Latitude	38,40',42" N	Organic Capacity (lbs. BOD_5/day) – Treatment Facility Only	43 lbs. BOD_5/day
Longitude	104,42'07" W		
Estimated Project Cost	$271,000		

Funding Process	Will a State or Federal grant or loan be sought to finance any portion of the project (e.g., State Revolving Fund)?	No	☒	Yes	☐	If yes, please list project number	

D. Brief Project Summary and Major Project Work Description (e.g., new treatment facility, addition of a new aeration basin, request for re-rating of organic capacity where no construction is proposed, addition of larger pumps in an existing pump station)

The existing concrete manhole that contained both the pumps and valves was replaced with two concrete vaults. One wet well (with pumps) and the other dry well containing the valves. No additional flows were introduced to the system. Discharge pipe remains as is. Existing control panel was replaced.

FOR DIVISION USE ONLY

Treatment Facility		*Amendment to Existing Site Location Approval*	
New Domestic Wastewater Treatment Plant (Section 22.6 of Regulation 22)		Amendment of an Existing Site Location Approval – Disinfection Changes Only (Section 22.10(2)(a)(ii) of Regulation 22)	
Less than 100,000 gals/day (Subcategory I-AN & II-AN)	☐	*Less than 100,000 gals/day (Subcategory I-I & II-I)*	☐
100,000 gals/day to 999,999 gals/day (Subcategory I-BN & II-BN)	☐	*100,000 gals/day to 999,999 gals/day (Subcategory I-J & II-J)*	☐
1,000,000 gals/day to 9,999,999 gals/day (Subcategory I-CN & II-CN)	☐	*1,000,000 gals/day to 9,999,999 gals/day (Subcategory I-K & II-K)*	☐
10,000,000 gallons/day or more (Subcategory I-DN & II-DN)	☐	*10,000,000 gallons/day or more (Subcategory I-L & II-L)*	☐
Existing Domestic Wastewater Treatment Plant – Increasing or Decreasing Capacity Where Construction Has Taken Place or Will Take Place Including Decreasing the Design Capacity to 2,000 GPD or Less (Section 22.7 of Regulation 22)		Amendment of an Existing Site Location Approval – All Other Amendments (Section 22.10)	
Less than 100,000 gals/day (Subcategory I-AE & II-AE)	☐	*Less than 100,000 gals/day (Subcategory I-M & II-M)*	☐
100,000 gals/day to 999,999 gals/day (Subcategory I-BE & II-BE)	☐	*100,000 gals/day to 999,999 gals/day (Subcategory I-N & II-N)*	☐
1,000,000 gals/day to 9,999,999 gals/day (Subcategory I-CE & II-CE)	☐	*1,000,000 gals/day to 9,999,999 gals/day (Subcategory I-O & II-O)*	☐
10,000,000 gallons/day or more (Subcategory I-DE & II-DE)	☐	*10,000,000 gallons/day or more (Subcategory I-P & II-P)*	☐
Lift Station		***Interceptors***	
New Lift Station (Section 22.9 of Regulation 22)		Interceptor Sewers Not Eligible for Certification (Section 22.8(3) of Regulation 22) (*Subcategory I-S & II-R)*	☐
Less than 100,000 gals/day (Subcategory I-EN & II-EN)	☐	Certification for Eligible Interceptors(Section 22.8(1) of Regulation 22) (*Subcategory I-T)*	☐
100,000 gals/day to 999,999 gals/day (Subcategory I-FN & II-FN)	☐	***Other Applications and/or Reviews***	
1,000,000 gals/day to 9,999,999 gals/day (Subcategory I-GN & II-GN)	☐	On-Site Wastewater Treatment System (*Subcategory I-Q & II-Q)*	☐
10,000,000 gallons/day or more (Subcategory I-HN & II-HN)	☐	Site Application Extension (*Subcategory I-R)*	☐
Expansion of Existing Lift Station (Section 22.10(3) of Regulation 22)		Outfall Sewers (*Subcategory I-U & II-S)*	☐
Less than 100,000 gals/day (Subcategory I-EE & II-EE)	☐		
100,000 gals/day to 999,999 gals/day (Subcategory I-FE & II-FE)	☐		
1,000,000 gals/day to 9,999,999 gals/day (Subcategory I-GE & II-GE)	☐		
10,000,000 gallons/day or more (Subcategory I-HE & II-HE)	☐		

Regulation 22 Site Location Application Form
Section 22.10(3) – Amendment of Existing Lift Station Site Location Approval

A. Project and System Information			
System Name	Fountain Sanitation District		
Project Title	Race Street Lift Station		
County	El Paso		
Associated CDPS Permit No.	N/A		
Date Fee Paid or payment attached	Pending	Invoice Number and Check Number	Not received yet.
Design Company Name	Fountain Sanitation District		
Design Engineer	Jonathan Moore	CO License Number	34944
Address	11545 Link Road Fountain CO 80817		
Email	jonathanm@fsd901.org	Phone	719-382-5303
Applicant/Entity	Fountain Sanitation District		
Representative Name	Jonathan Moore		
Address	11545 Link Road Fountain CO 80817		
Email	jonathanm@fsd901.org	Phone	719-382-5303

B. Project Information

Location (existing or proposed site)		*Project Design Capacity*	*Approved*	*Existing*
Brief location description	432 South Race Street, Fountain CO 80817	Firm Pumping Capacity (capacity with the largest unit out of service)	100 GPM	100 GPM
Legal Description	LOTS 1 & 2 BLK 4 SANTA FE ADD TOWN OF FOUNTAIN TOG W / S2 OF VAC KENTUCKY AVE	Service Area Flow to Lift Station (maximum month average flow)	0.014 MGD	0.014 MGD
(e.g., Township, Range)	16A, 65W	Service Area Flow to Lift Station (peak hour flow)	0.0175 MGD	0.0175 MGD
County	El Paso			

Funding Process	Will the State Revolving Fund (SRF) loan program be used to finance any portion of the project?	Yes	☐	No	☒	If yes, please list project number	

Project Schedule and Cost Estimate	
Estimated Bid Opening Date	10/9/24
Estimated Completion Date	1/15/25
Estimated Project Cost	$271,000

Project and System Information	
System Name	Fountain Sanitation District
Project Title	Race Street Lift Station
County	El Paso
Associated CDPS Permit No.	Pending
Original Site Location Approval No. (attach copy of approval)	Not received yet. Original construction in 1955
Date of Site Location Approval	1/15/25

1. Type of Site Amendment	
Addition or modification of odor control treatment at the lift station. – Section 22.10(3)(a).	☐
Addition or modification of emergency storage or wetwell capacity. – Section 22.10(3)(b).	☐
Addition or modification of grinding/screening equipment. – Section 22.10(3)(c).	☐
Addition or modification of back-up power (generator). – Section 22.10(3)(d).	☐
Rehabilitation or replacement not meeting the definition of in-kind replacement, due to facility age or for operational improvements including the inlet piping or associated force main(s) as long as improvements do not increase the design capacity of the lift station. - Section 22.10(3)(e).	☒

2. Site Amendment Description

The existing concrete manhole that contained both the pumps and valves was replaced with two concrete vaults. One wet well (with pumps) and the other dry well containing the valves. No additional flows were introduced to the system. Discharge pipe remains as is. Existing control panel replaced.

3. Comparison of Existing and Proposed Lift Station Components

a. Lift Station Component Description	Existing Lift Station	After Proposed Modification(s)
	One existing concrete manhole with pumps and valves. One control panel.	Two concrete vaults. One vault with pumps (wet well), the other vault with the valves (dry well). Control panel was replaced.

4. Additional Factors

Please identify any additional factors that might help the Division make an informed decision on your site location application.

Response:
Existing manhole and lift station was built in 1955, both the pump configuration and the manhole walls were deteriorating. By removing the valves out of the wet well, it is safer for staff to operate the valves. The manhole was replaced with two concrete vaults. Existing control panel was also replaced with updated technology and reliability.

COLORADO
Department of Public Health & Environment

Water Quality Control Division
Engineering Section

4300 Cherry Creek Drive South, B2
Denver, Colorado 80246-1530
CDPHE.WQEngReview@state.co.us
303-692-6298

Applicant Certification and Review Agencies Recommendation
Section 22.10 – Amendment of Existing Lift Station Site Location Approval

Project and System Information	
System Name	Fountain Sanitation District
Project Title	Race Street Lift Station
County	El Paso
Associated CDPS Permit No.	Pending

1. Applicant Certification

Applicant Legal Representative			
Position/Title Assistant District Manager/District Engineer	Typed Name Jonathan Moore	Signature	Date
Email jonathanm@fsd901.org		Phone 719-382-5303	
The system legal representative is the legally responsible agent and decision-making authority (e.g. mayor, president of a board, public works director, owner). The Design Engineer is not the legal representative and cannot sign this form.			

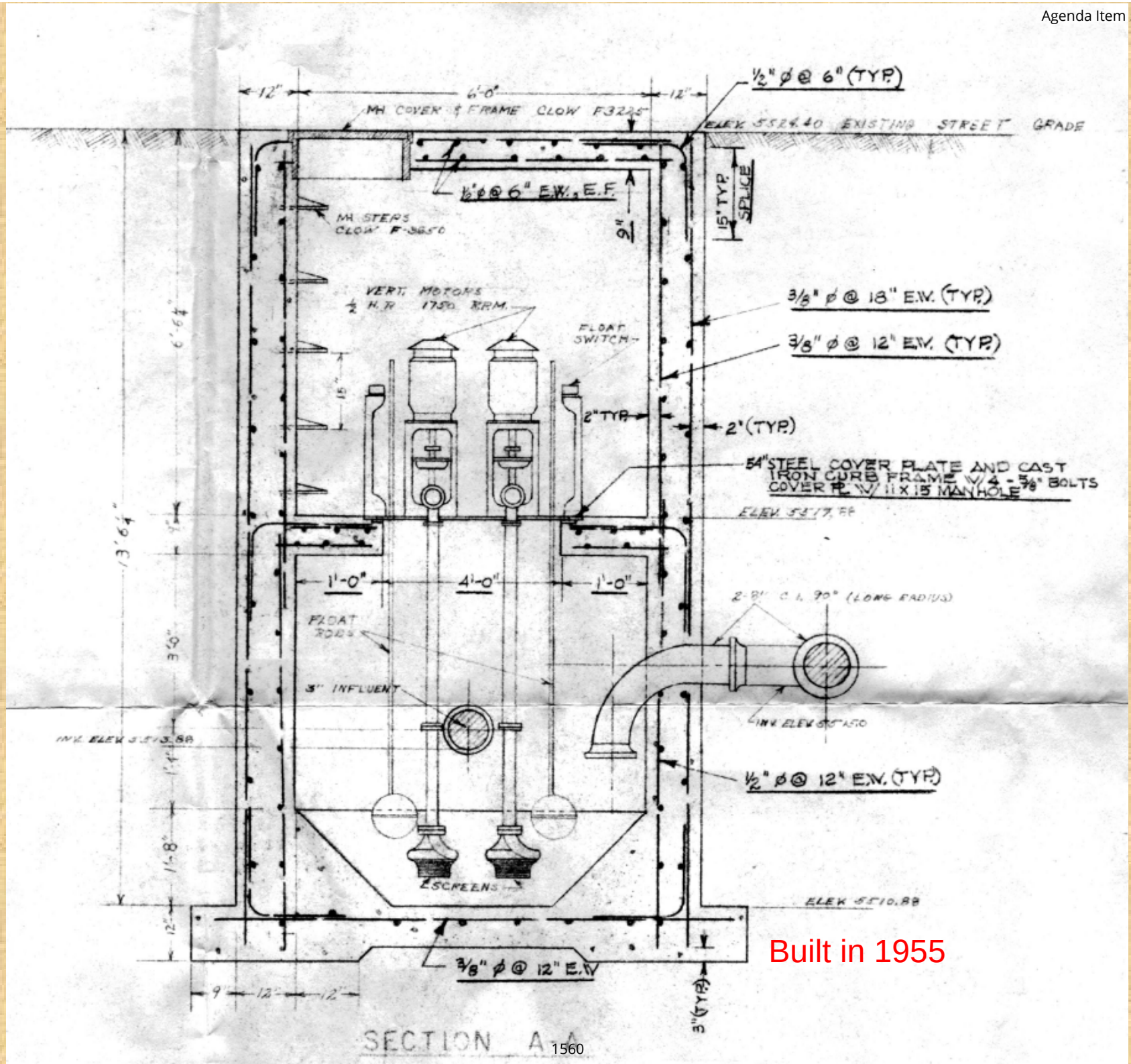
2. Review Agency Notification

As required in Section 22.10(1), the site location application and any amendment proposal supporting documentation must be submitted to all appropriate local governments, local health authority, 208 designated planning and management agencies and other state or federal agencies, as defined in 22.6(2). The review agencies will have 15 working days from receipt of the application to review and comment directly to the Division unless a brief extension is requested in writing. Please list below the review agencies to whom the site location application and proposal has been submitted and attach a copy of the transmittal letter.

Designated Management Agency (i.e., Water Quality Authority, Watershed Association, Watershed Authority)		
Agency Lower Fountain Water Quality Management Association	Typed Name Jonathan Moore (Chair)	Notification Date 1/27/25
Email jonathanm@fsd901.org		Phone 719-382-5303
County, if the site is located in unincorporated areas of a county		
County N/A	Typed Name N/A	Notification Date N/A
Email N/A		Phone N/A
City or Town, if the site is located within a City/Town boundary or within three miles of the City/Town boundary (if multiple, attach additional sheets as needed)		
City/Town Fountain	Typed Name Ben Sheets	Notification Date 9-20-24
Email bsheets@fountaincolorado.org		Phone 719-447-5234

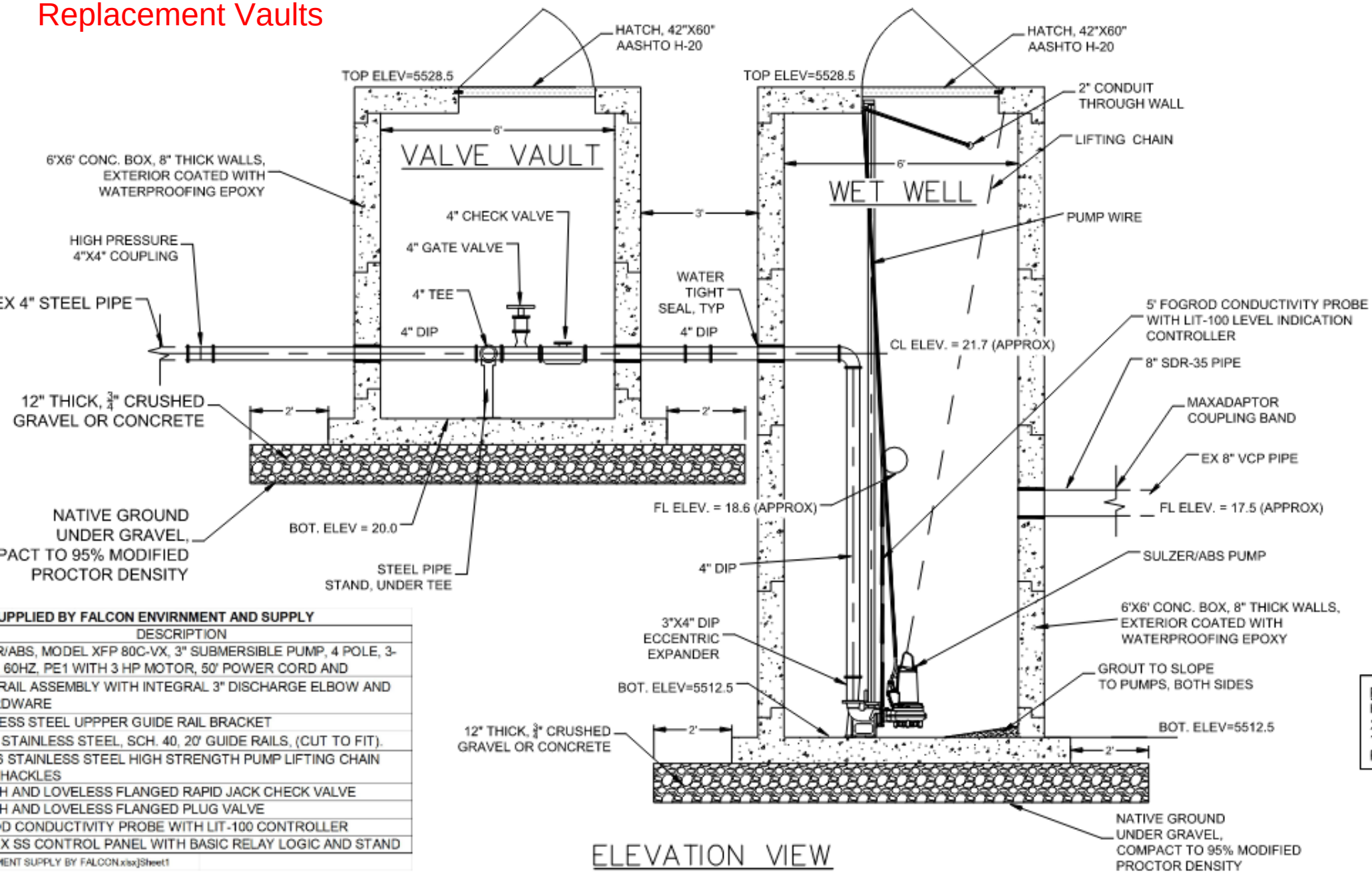
Local Health Authority		
Agency N/A	Typed Name	Notification Date
Email		Phone
208 Designated Planning Agency		
Agency PPACG	Typed Name Andrew Gunning	Notification Date
Email agunning@ppacg.org		Phone 719-471-7080
Other State or Federal Agencies, if treatment works is located on or adjacent to a site that is owned or managed by a federal or state agency.		
Agency N/A	Typed Name	Notification Date
Email		Phone
Other undesignated Basin Water Quality Authority, Watershed Association, Watershed Authority, etc.		
Agency N/A	Typed Name	Notification Date
Email		Phone


Underground
Lift Station



Built in 1955

Replacement Vaults



UPPLIED BY FALCON ENVIRNMENT AND SUPPLY

DESCRIPTION
R/ABS, MODEL XFP 80C-VX, 3" SUBMERSIBLE PUMP, 4 POLE, 3-60HZ, PE1 WITH 3 HP MOTOR, 50' POWER CORD AND
RAIL ASSEMBLY WITH INTEGRAL 3" DISCHARGE ELBOW AND LDWARE
ESS STEEL UPPPER GUIDE RAIL BRACKET
STAINLESS STEEL, SCH. 40, 20' GUIDE RAILS, (CUT TO FIT).
6 STAINLESS STEEL HIGH STRENGTH PUMP LIFTING CHAIN HACKLES
H AND LOVELESS FLANGED RAPID JACK CHECK VALVE
H AND LOVELESS FLANGED PLUG VALVE
D CONDUCTIVITY PROBE WITH LIT-100 CONTROLLER
X SS CONTROL PANEL WITH BASIC RELAY LOGIC AND STAND

MENT SUPPLY BY FALCON.xlsx]Sheet1

PUMP
HIGH
2ND
1ST
PUMP

Pikes Peak Area Council of Governments
Communities Working Together

Meeting Minutes
Water Quality Management Committee
Wednesday, October 15, 2025, 9:00 AM

1. **Call to Order / Establish a Quorum**
   Meeting was called to order at 9:00 am
2. **Agenda Approval**
   Agenda was approved unanimously
3. **Approval of Minutes from July 23, 2025**
   Minutes were approved unanimously
4. **Public Comments / Presentations**
   No public comments.
5. **Action Items**
   A. Site Application – Walden WWTP – Adam Sommers, AquaWorks DBO
      i. Matt Dunston provided a brief statement about their intent to upgrading the WWTP.
      ii. Committee questions:
         1. The applicant has provided an estimate to deal with removal of the sludge being stored on-site, but has not yet followed through. What are the plans to have this removed?
            a. The applicant is letting it dry out more and is scheduled for Tuesday November 11th to remove it.
         2. Original application was in name of Walden Water & Sanitation District, could not verify this actually exists in state records.
            a. Applicant has modified the application to reflect the Walden Corporation, this has been the entity since originally created in 1963. A metropolitan district is in place that could eventually take control of the ownership and operations.
         3. A Private company is overseen by PUC public utilities commission, regarding rates and finances. How does Walden set rates. Most public entities have audit reports publicly available where we can see
            a. Rates are passed by the PUC from time to time and are also rate structure is comparable with similar districts in the region.
         4. How can we independently verify through financial reports or approval process from PUC how residents… Developer cut off committee member question.

5. Does the applicant have any records of conversations with PUC about financial documents or rates?
    a. No, it has been five years since talked with PUC.
    b. The committee is looking for something where rates have been submitted and approved. The PUC has a rigorous process for approval.
    c. Applicant mentioned that there are “entities” that they communicate with on rates.
6. WQMC member asked - why is the WQMC looking so deeply into the financial records of this applicant?
    a. For other public facilities, audits and financial records are publicly available and independently verifiable. They are not available for this entity and there has been a lack of transparency on this from the applicant. Also, it is known that developers often create treatment facilities and then walk away without ensuring the long-term operations and maintenance of the facility are addressed properly. There are also some concerns with the transparency of this entity as we have asked for information on finances sufficient to ensure the applicant can cover ongoing operational expenses and not received it.
7. A motion to move the application to the CAC was moved by Kevin Brown, seconded by Wally Eaves, Apposed by Roy Heald.
    a. The WQMC added that they would like their stated concerns to be carried forward through the review process.
    b. Roy explained that he believes the committee has not met obligations under Regulation 22 for financial certainty, and there is still uncertainty with financial structures of Walden Corporation. There is uncertainty that the process is being followed and would like to have more reassurance.
    c. Need more information from PUC or other documentation on how rates are collected and used

B. Site Application – Widefield Water & Sanitation District, Jimmy Camp Lift Station Force Main Extension – Wesley Lozano, Garver USA
    i. The WQMC has received confirmation that concerns from the City of Fountain have been adequately addressed.
    ii. Wesley Lozano provided a presentation on the project.
    iii. A question was asked regarding use of the 12-inch force main. Wesley explained how this fits into the engineering plan, and the primary flow path. No additional concerns were expressed.

iv. A motion to move the application to the CAC was moved by Roy Heald, seconded by Darren Adame, unanimously approved.

C. Site Application – Fountain Sanitation District, Jonathan Moore, Fountain Sanitation District
    i. Jonathan Moore presented on the application. The lift station was built in 1955 and deteriorated rapidly in 2024, and was replaced as an emergency project. The project was designed by Fountain Sanitation District's District Engineer. The City of Fountain approved the project and it went through the LFWQMA, but the applicant was not aware of needing to go through CDPHE's review process. PPACG is only required to get notification on this project.
    ii. The project added a new valve vault, new control panel, new pumps.
    iii. A motion to move the application to the CAC was moved by Wally Eaves, seconded by Darren Adame, unanimously approved.

6. Discussion Items

A. Graywater discussion – Kat McGarvy, Environmental Health Division Director, El Paso County Public Health
    i. Mark Christiansen, Colorado Springs Utilities
        1. HB 24-1362 was passed, specifying that individual entities need to develop a graywater program or opt out through ordinance or a resolution banning graywater use in their area. Entities in need to decide whether they want to adopt graywater as a reuse option for water. This needs to be done by January 2026. Encourage folks to look in to this asap.
            a. Regulation 86 covers graywater use.
            b. Others examples of programs in Castle Rock and Denver, only about 30 or so entities on those systems, there has been little interest.
            c. Definition of graywater is Greywater (or grey water, sullage, also spelled gray water in the United States) refers to domestic wastewater generated in households or office buildings from streams without fecal contamination, i.e., all streams except for the wastewater from toilets. Sources of greywater include sinks, showers, baths, washing machines or dishwashers. As greywater contains fewer pathogens than blackwater, it is generally safer to handle and easier to treat and reuse onsite for toilet flushing, landscape or crop irrigation, and other non-potable uses.
            d. Fountain WSD will not be opting in, would push for non-potable water use but not graywater.

e. Graywater has many stipulations for approval process if an entity wanted to get it installed. Colorado Springs Utilities would need to inspect to protect potable water system.
f. Are there any water rights issues? Every entity would be different, but no issues for Colorado Springs Utilities. Depending on individual decrees for each entity. Individual entities should look into this for their own opting in or out.
g. Metro versus rural could be treated differently, especially where septic is in place. Rural might need to change plumbing systems considerably. Regulation 86 outlines how the system would work.

7. WQMC Meeting Schedule Adjustments – Angie Martell, PPACG
   A. The group temporarily agreed to move the meeting to the third Wednesday at 9:00 am.

8. Information Items
   A. 2026 CDPHE - WQCD Assistance Grants – Angie Martell, PPACG
   B. Colorado State Revolving Fund Technical Assistance Dashboard – Angie Martell, PPACG

9. Member Entity Announcements
   A. Ann Esch – no longer representing Green Mountain Falls. Caleb Patterson, GMF Town Manager is moving forward for approval to represent

10. Meeting Schedule

11. Adjournment
   A. Motion was made to adjourn by Roy Heald, seconded by Wally Eaves, unanimously approved at 10:15 am

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The Pikes Peak Area Council of Governments will not discriminate against qualified individuals with disabilities. Meetings are available to join remotely via Microsoft Teams, and meetings include live transcription for remote and in-person attendees using automated software. Should you require any additional auxiliary aids or services to participate, please contact ppacg@ppacg.org or (719) 471-7080 x139 as soon as possible so that we can do our best to accommodate your needs.

Si necesita ayuda con traducción, llame por favor al (719) 471-7080 x139 o ppacg@ppacg.org.

Pikes Peak Area Council of Governments
Communities Working Together

Date: October 29, 2025

To: Pikes Peak Area Council of Governments Community Advisory Committee

From: William Mast, GIS and Modeling Manager

Subject: Regional Traffic Data Service

Action Requested: Review and Recommend

Summary

The Pikes Peak Area Council of Governments and member governments currently utilize the StreetLight traffic data service to support transportation planning through a variety of operational workflows, including congestion metrics, origin-destination traffic routes, and corridor path/time profiling. Members of the Transportation Advisory Committee (TAC) and staff have recognized that partnering this service with static traffic counts can further enhance the effective planning and modeling of the region's transportation network. Further, Transportation Advisory Committee members have identified the potential usefulness of a traffic crash data service that might help streamline crash data reporting and analysis.

Background

In 2022, Pikes Peak Area Council of Governments staff were instructed to utilize Surface Transportation Block Grant program funding (also known as STP Metro) to procure traffic data services through StreetLight for the 2023 calendar year. This service continued, with committee support, in 2024 and 2025. The annual cost for this service was not to exceed $290,000, with up to $240,091 in Surface Transportation Black Grant funding and up to $49,909 in local match. The local match for this procurement was provided by the City of Colorado Springs and El Paso County. Colorado Springs has offered to be the sole provider for the local match to extend the StreetLight contract through the 2026 calendar year, maintaining it as a regional license available for all PPACG member governments.

Use of STP funds for this service was approved by the Transportation Advisory Committee at the October 2025 meeting.

Proposed Motion

Recommend approval of the continued use of Surface Transportation Block Grant funds for a regional traffic data service for at least one year, starting January 1, 2026, with Colorado Springs providing the local 17.21% match requirement of $49,736.90 for the service.

Attachments
None.

Strategic Plan Goals
☐ Advocacy: Serve as an effective advocacy voice for common ground issues.
☒ Information Sharing: Serve as a significant resource for PPACG members to collect and share information with regional partners.
☐ Aging: Expand and extend senior access, awareness, education, and connectivity to support age-friendly communities and empower individual seniors.
☒ Transportation: Maintain and improve a coordinated, validated plan for transportation needs across the PPACG region.
☒ Program Excellence: Continue to excel in the key fundamental areas of PPACG: Military support, Environmental programs, Transportation, Area Agency on Aging, and regional communication and collaboration.

Pikes Peak Area Council of Governments
Communities Working Together

Date: October 29, 2025

To: Pikes Peak Area Council of Governments Community Advisory Committee

From: Jason O'Brien, Transportation Planner

Subject: Safety Action Plan

Action Requested: Review and Recommend

Summary
In 2024, Woodland Park and Pikes Peak Area Council of Governments pursued and received a grant to complete a Safety Action Plan under the federal Safe Streets for All (SS4A) Program established by the Infrastructure Investment and Jobs Act. The Safety Action Plan identifies the most significant road safety concerns in a community and the projects and strategies to address those issues. Upon approval, the Safety Action Plan creates eligibility of identified projects for Implementation Grant funds through Safe Streets for All. Projects not identified in the Safety Action Plan are ineligible for Implementation funds; no projects are eligible until the Safety Action Plan is approved.

Work began in early 2025 with the hiring of Fellsburg, Holt, and Ullevig to lead the Safety Action Plan. The target time for approval is April 2026, three months ahead of the application deadline for Implementation Grants (late June 2026).

The project team has presented the Safety Action Plan to the Community Advisory Committee once previously in July 2025 for general comment and direction. It has also been presented to the Transportation Advisory Committee and the Pikes Peak Area Council of Governments Board of Directors.

At this point –

- The project team has met with or received information from all Pikes Peak Area Council of Governments member jurisdictions as well as other partners.
- The draft High Injury Network, a key analytical product of the Plan, is complete and ready for review.

The project team expects to bring this item back to the Transportation Advisory Committee at least once more as deliverables are completed and to ask for the Community Advisory Committee's formal recommendation of the draft Plan early in 2026.

Proposed Motion
Information only.

Attachments
1) High Injury Network Development Memo
2) Safety Action Plan Slides

Strategic Plan Goals
☐ Advocacy: Serve as an effective advocacy voice for common ground issues.
☐ Information Sharing: Serve as a significant resource for PPACG members to collect and share information with regional partners.
☐ Aging: Expand and extend senior access, awareness, education, and connectivity to support age-friendly communities and empower individual seniors.
☒ Transportation: Maintain and improve a coordinated, validated plan for transportation needs across the PPACG region.
☒ Program Excellence: Continue to excel in the key fundamental areas of PPACG: Military support, Environmental programs, Transportation, Area Agency on Aging, and regional communication and collaboration.

Pikes Peak Area Council of Governments
Communities Working Together

Woodland Park COLORADO

Comprehensive Safety Action Plan

Memorandum

TO:	Pikes Peak Area Council of Government (PPACG)
FROM:	Felsburg Holt & Ullevig (FHU)
DATE:	October 2025
SUBJECT:	High Injury Network Development FHU No. 124349-01

This memorandum documents the High Injury Network (HIN) development process for the Pikes Peak Region Comprehensive Safety Action Plan (CSAP).

1. Introduction

Development of a High Injury Network (HIN) is a method of network screening used to identify the portions of the transportation system that are most susceptible to injury and fatal crash frequency. Once determined, the HIN can be used to help understand patterns of injury and fatality and focus countermeasures on specific locations where safety benefits can be maximized given limited resources.

The resulting HIN highlights the share of severe crashes concentrated on a relatively small percentage of the region's transportation system. For example, just 16 percent of intersections with crash history and 9 percent of roadway miles account for 41 percent of all injury and fatal crashes in the PPACG study area.

Beyond identifying high-risk locations, the HIN serves as a tool to support data-driven decision making. Key outcomes of the CSAP will include prioritizing HIN corridors and intersections with the greatest need for safety improvements and identifying potential countermeasures and implementation strategies that improve safety across the region.

To support this process, the analysis incorporates the Weighted Crash Severity Index (WCSI), a measure that compares locations by considering crash occurance and crash severity. The process used to develop the HIN is illustrated in the flowchart shown in Figure 1 below, with the remaining memo providing a description of each step in detail.

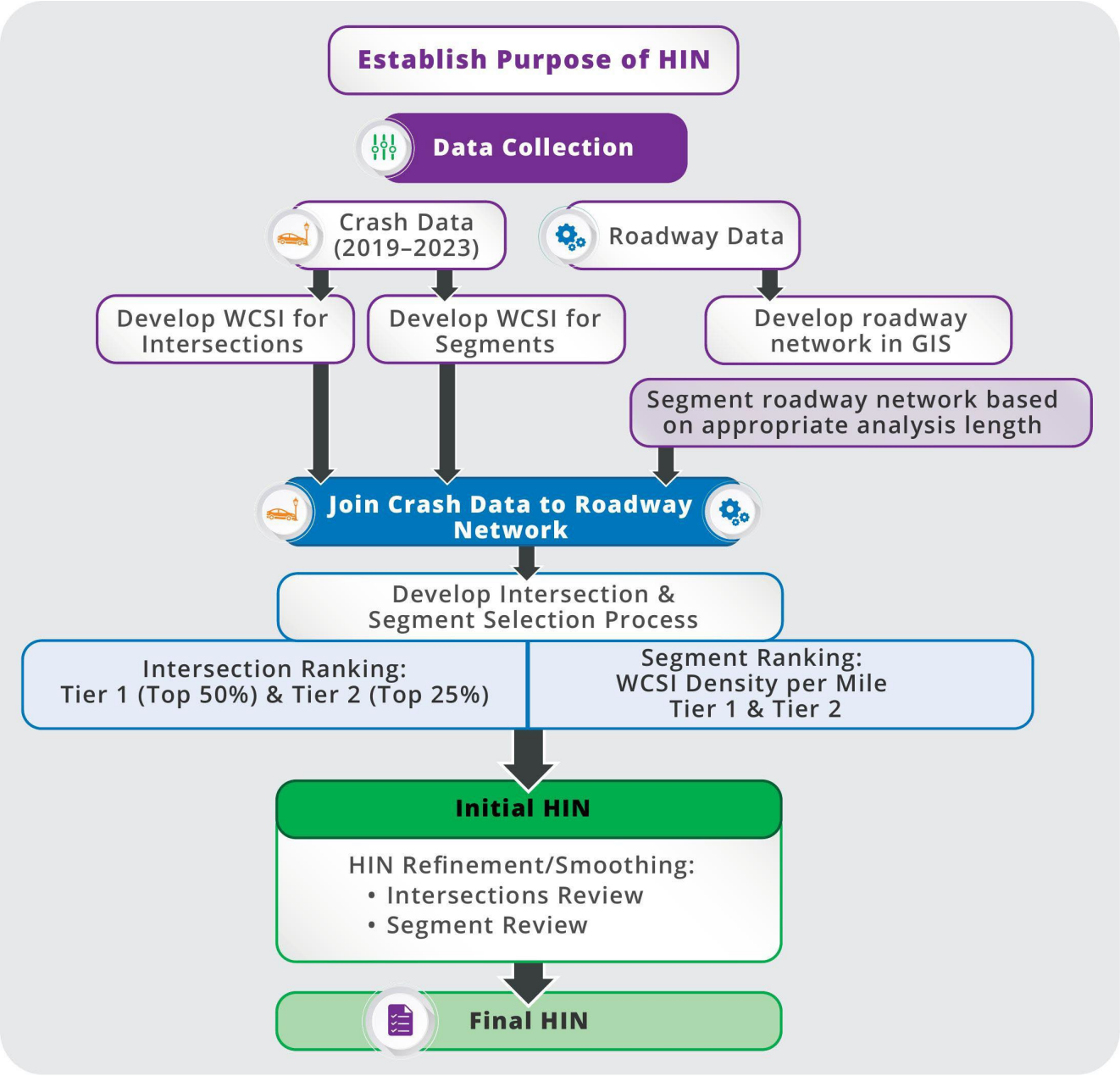


Figure 1. HIN Development Flowchart

2. Data Collection

2.1 Crash Data

Crash data used to develop the HIN was obtained from PPACG for the five-year period from January 1, 2019, through December 31, 2023. Crash data was divided into the three subareas identified for this project (Urban/Suburban, Mountain, Rural). Only injury and fatal crashes were evaluated as part of the HIN, but injury crashes were stratified using the KABCO injury classifications. During the study period, 5,365 crashes were recorded that resulted in injury or fatality (4,072 Urban/Suburban, 1,033 Mountain, 260 Rural).

The crash data was separated into intersection and non-intersection categories. Intersection and intersection-related crashes accounted for 40 percent of injury and fatal crashes (2,126 crashes). This proportion varied significantly based on geographic zone – 46 percent in Urban/Suburban, 16 percent in Mountain, and 30 percent in Rural.

Non-intersection crashes accounted for 60 percent of injury and fatal crashes (3,239 crashes). This proportion varied significantly based on geographic zone – 54 percent in Urban/Suburban, 84 percent in Mountain, and 70 percent in Rural.

2.2 Roadway Data

Roadway network data was obtained from the PPACG and other stakeholders. Using this base dataset, two unique networks were developed: 1) intersections and 2) roadway segments.

Intersections

In each project zone, intersection points were identified at locations where roadway segments crossed. Due to the size of the study area, intersections with no nearby crashes were removed resulting in 694 total intersections (537 Urban/Suburban, 105 Mountain, 52 Rural).

Segments

Roadway segments for analysis included all locations with the study area, excluding Interstate 25 (I-25) and all local roads, resulting in nearly 2,289 miles of roadway (1,034 miles in Urban/Suburban, 666 miles in Mountain, 590 miles in Rural). Segments were also split at intersections and further joined/split to achieve more uniform lengths which is a key factor in HIN analysis. The following criteria were considered when joining/splitting segments based on geographic context:

- Urban/Suburban: target segment length – 0.25 miles
    - Acceptable segment length between 0.2 miles and 0.4 miles

- Mountain: target segment length – 1.0 miles
  - Acceptable segment length between 0.6 miles and 1.2 miles
- Rural: target segment length – 0.5 miles
  - Acceptable segment length between 0.2 miles and 0.6 miles

Due to the size of the study area, segments with no nearby crashes were removed resulting in 583 total centerline miles of roadway (180 Urban/Suburban, 345 Mountain, 58 Rural).

2.3 Joining Roadway and Crash Data

Intersection crashes were joined to intersection points assuming a 250-foot buffer for each point, with some hand adjustments to prevent duplication of crashes at multiple locations. Similarly, non-intersection crashes were joined to roadway segments assuming a 100-foot buffer, with adjustments to prevent duplicating crashes on multiple segments.

Table 1 displays the average and standard deviation of crash frequency for intersections and segments in each geographic zone.

Table 1. Average Injury & Fatal Crash Frequency at All Locations

Statistic	Urban/Suburban	Mountain	Rural
Total Intersections (#)	537	105	52
Average Crash Frequency (crashes/int)	3.5	1.6	1.5
Standard Deviation (crashes/int)	5.2	1.9	1.1
Segment Roadway Miles (mi)	180.1	345.3	57.6
Average Crash Frequency (crashes/mi)	8.9	2.6	3.3
Standard Deviation (crashes/mi)	8.6	2.3	2.0

Note: This table only considers locations that had at least one crash during the study period.

3. HIN Selection

A subset of intersections and segments were selected to the HIN based on their frequency of injury and fatal crashes relative to all other locations in their geographic zone. The following subsections describe the HIN selection process.

3.1 Weighted Crash Severity Index

Weighted Crash Severity Index (WCSI) describes a metric used to rank locations based on crash risk using an index value for each crash severity. The WCSI for a location is equal to the sum of weighted crash values. Index values for the WCSI used in this study were based on USDOT's monetized values of crashes by KABCO level.[1] The index value is equal to the ratio of monetary values of a given severity level versus the next level down:

- Fatal: (K) = 11
- Evident Incapacitating (Serious) Injury: (A) = 5
- Evident Non-Incapacitating Injury: (B) = 2
- Complaint of Injury: (C) = 1

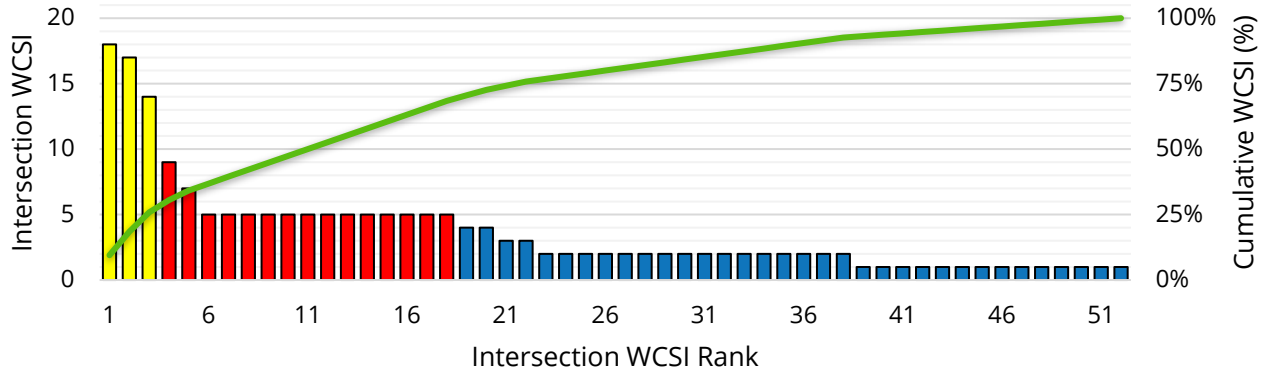
3.2 Intersections

After calculating the WCSI for intersections, all intersections in each geographic zone were ranked highest to lowest. Next, the cumulative WCSI was calculated for each successive intersection. Top-ranked intersections that make up the first 25 percent of the cumulative WCSI in each geographic zone were determined to be **Tier 1 HIN Intersections**. Top-ranked intersections that make up the second 25 percent of the cumulative WCSI in each geographic zone were determined to be **Tier 2 HIN Intersections**.

Figure 2 displays an example of how intersections are ranked by WCSI and selected for each tier of the HIN. The vertical bars represent the individual WCSI for each intersection, which are sorted in decreasing order. The green line represents the cumulative WCSI of all intersections, which increases at a higher rate between high-ranking intersections, and a lower rate between low-ranking intersections. Yellow bars represent Tier 1 HIN intersections, red bars represent Tier 2 HIN intersections, and blue bars represent non-HIN intersections.

[1] United States Department of Transportation. November 2024. *Benefit-Cost Analysis Guidance for Discretionary Grant Programs* (Table A-1).

Figure 2. Example of HIN Intersection Selection



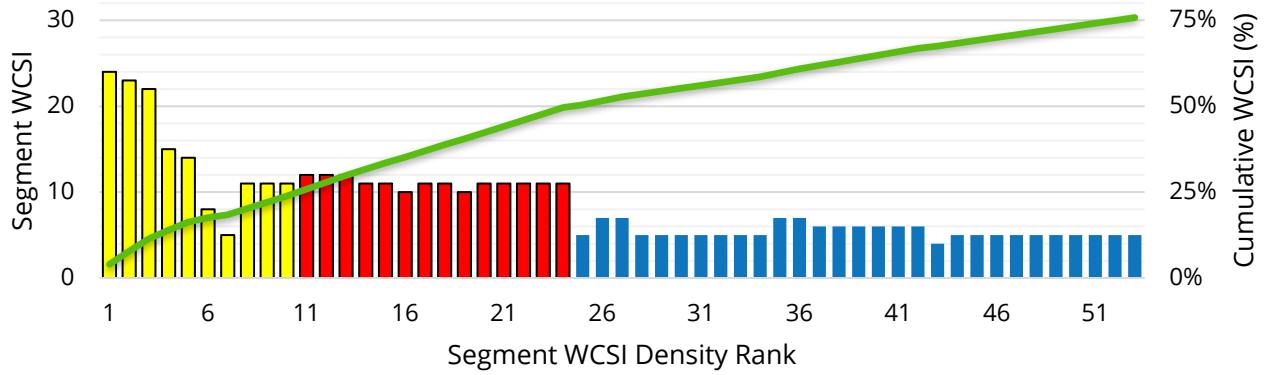
After this initial selection process, the HIN included 60 Urban/Suburban intersections (17 in Tier 1, 43 in Tier 2), 25 Mountain intersections (6 in Tier 1, 19 in Tier 2), and 18 Rural intersections (3 in Tier 1, 15 in Tier 2). While these intersections make up only 15 percent of the intersections in the study area, they accounted for 47% of the intersection crashes.

3.3 Segments

After calculating the WCSI for each segment, the WCSI density was also calculated by dividing by the segment length (in WCSI per mile). Then, all segments in each geographic zone were ranked highest to lowest by WCSI density. Next the cumulative WCSI (index value, *not density*) was calculated for each successive segment. Top-ranked segments that make up the first 25 percent of the cumulative WCSI in each geographic zone were determined to be **Tier 1 HIN Segments**. Top-ranked segments that make up the second 25 percent of the cumulative WCSI in each geographic zone were determined to be **Tier 2 HIN Segments**.

Figure 3 displays an example of how segments are ranked by WCSI density and selected for each tier of the HIN. The vertical bars represent the individual WCSI index value for each intersection, which are sorted in decreasing order of WCSI density (per mile). The green line represents the cumulative WCSI index value of all intersections. Yellow bars represent Tier 1 HIN segments, red bars represent Tier 2 HIN segments, and blue bars represent non-HIN segments.

Figure 3. Example of HIN Segment Selection



After this initial selection process, the HIN included 30.7 miles of Urban/Suburban roadways (10.4 miles in Tier 1, 20.3 miles in Tier 2), 58.8 miles of Mountain roadways (21.5 miles in Tier 1, 37.3 miles in Tier 2), and 10.4 miles of Rural roadways (3.5 miles in Tier 1, 6.8 miles in Tier 2). While these segments make up only 17 percent of roadway miles in the study area, they accounted for 35% of the non-intersection crashes.

4. HIN Refinement/Smoothing

4.1 Intersections

HIN intersections were reviewed to consider adding locations with high crash frequency. As a result, multiple high frequency locations were added in the Urban/Suburban zone.

4.2 Segments

HIN segments in each geographic zone were reviewed to remove locations that 1) are short, isolated locations, 2) have very low crash frequency, or 3) have recently completed projects that are not reflected in the historic crash data. Tier 1 HIN segments were more likely to be kept on the HIN since they represented locations with higher WCSI density.

Additionally, several segments that were not initially on the HIN were added in order to connect multiple HIN segments together. This allows for the creation of HIN corridors – collections of consecutive HIN segments on a single roadway that can be evaluated together and benefit from similar safety improvements.

5. Final High Injury Network

The final HIN includes 109 intersections and 42 corridors totaling 205 centerline miles. In total, the HIN accounts for 41 percent of injury and fatal crashes, despite comprising only 3 percent of the total centerline roadway length in the study area. The following sections further discuss the final HIN for each geographic zone.

5.1 Urban/Suburban

The Urban/Suburban HIN includes 66 intersections and 84 centerline miles of roadway. **Figure 4** displays the final HIN for the Urban/Suburban zone. The following sections provide more details about the intersections and corridors in the Urban/Suburban zone.

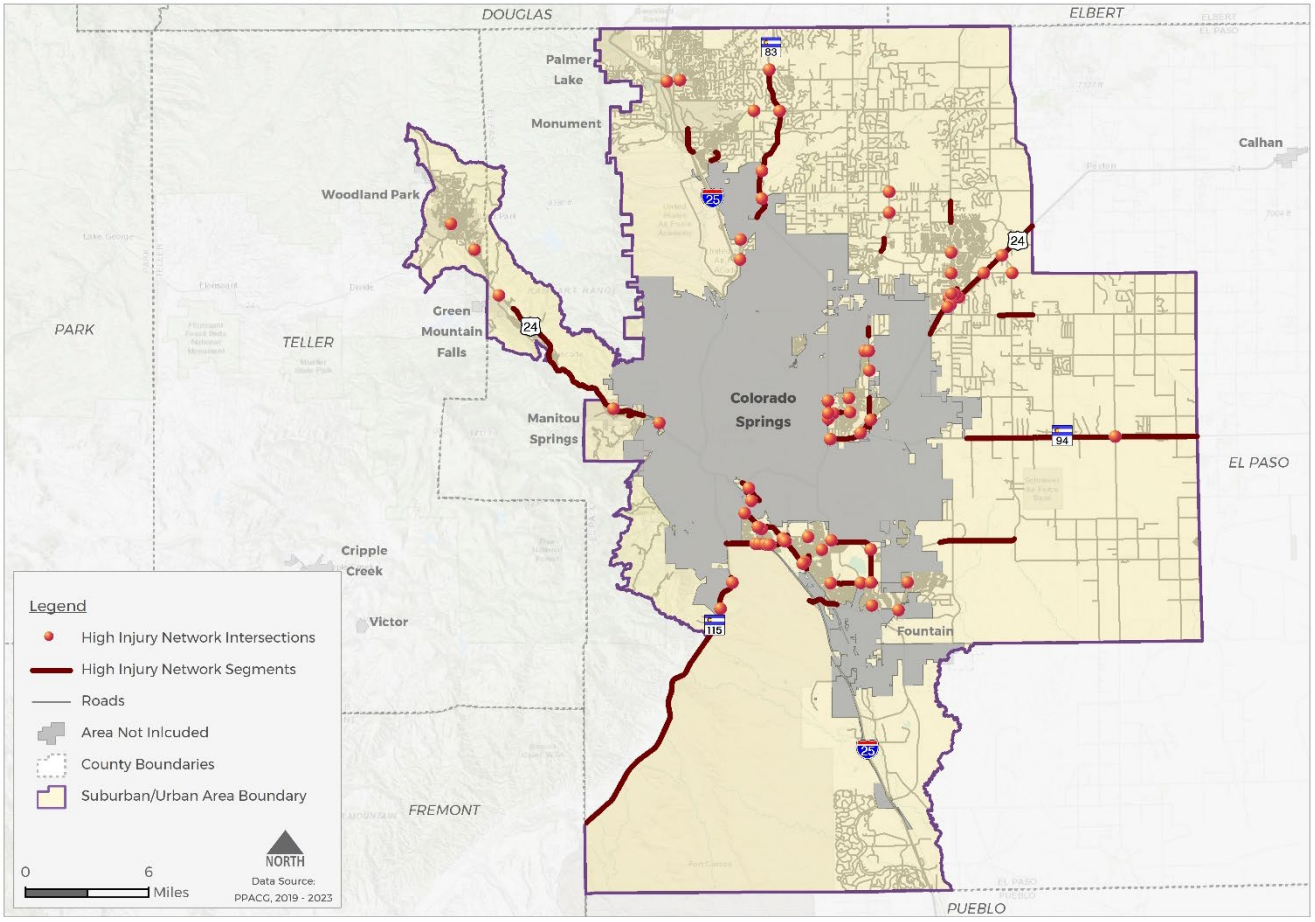


Figure 4. High Injury Network - Urban/Suburban

Intersections

Figure 5 displays the HIN intersections for the Urban/Suburban zone, symbolized by WCSI, and **Table 2** displays a summary of Urban/Suburban HIN intersections and associated crash frequencies. 66 of 537 intersections with crash history (12 percent) were included in the HIN. Of 1,879 injury and fatal crashes that occurred at Urban/Suburban intersections, 942 (50 percent) occurred at HIN intersections.

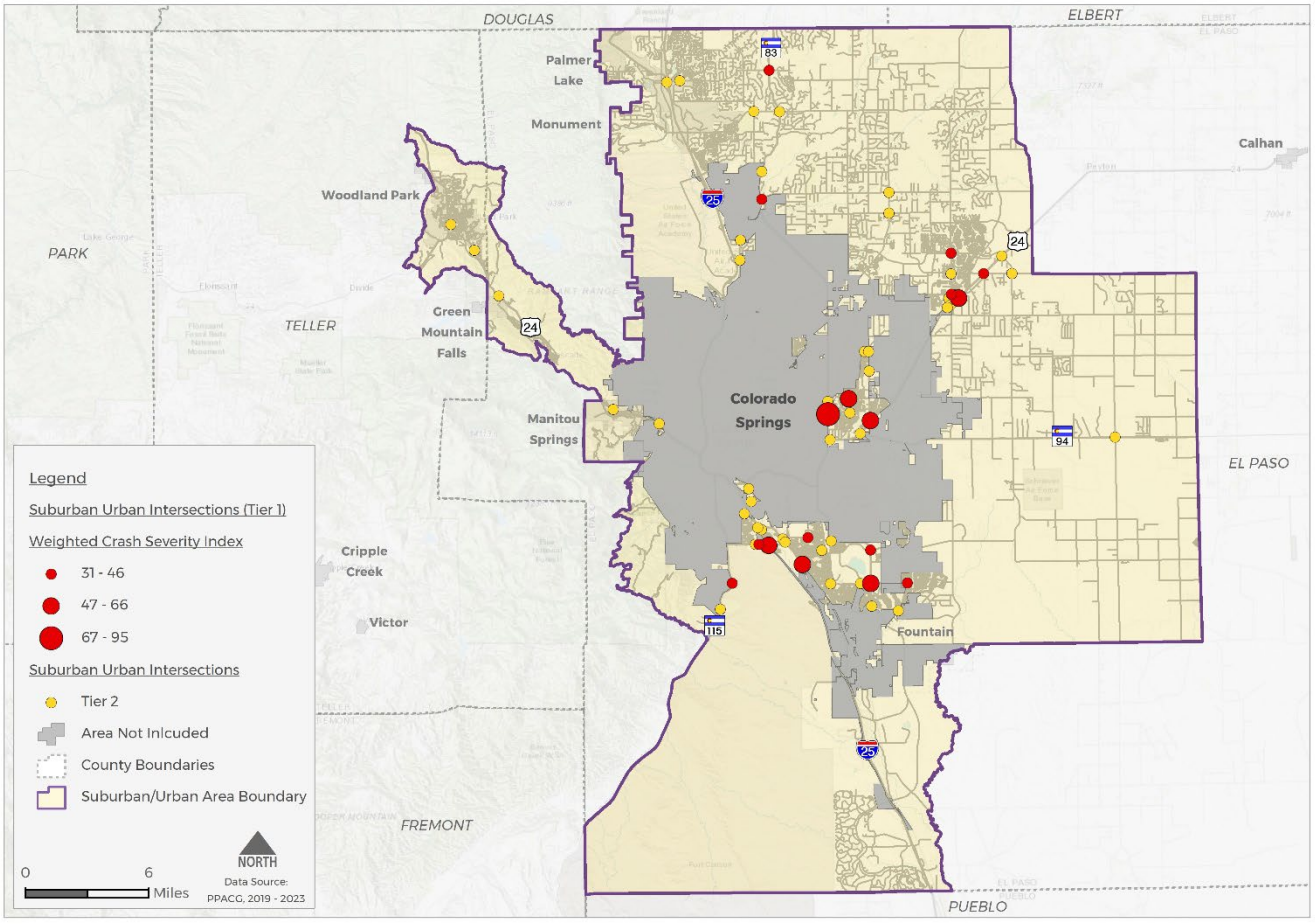


Figure 5. High Injury Network - Urban/Suburban Intersections

Table 2. Urban/Suburban HIN Intersections

Main Street	Cross Street	Traffic Control Type	Tier	Injury + Fatal Crashes	WCSI[1]
State Highway 24	State Highway 67	Signal	**1**	48	95
State Highway 24	Morning Sun Dr	Signal	**1**	27	66
State Highway 24	Green Mountain Falls Rd	Two-Way Stop	**1**	18	65
State Highway 24	Sunshine Trl	Two-Way Stop	**1**	30	59
State Highway 24	S 31st St	Signal	**1**	41	58
State Highway 105	I-25 SB Ramps	Signal	**1**	29	50
State Highway 105	Knollwood Dr	Signal	**1**	25	49
State Highway 115	Titus Blvd	Signal	**1**	27	46
State Highway 115	Nelson Blvd	Signal	**1**	32	41
Voyager Pkwy	Briargate Pkwy	Signal	**1**	24	37
Voyager Pkwy	Old Ranch Rd	Signal	**1**	21	36
Cheyenne Meadows Rd	Venetucci Blvd	Signal	**1**	15	35
E Las Vegas St	Janitell Rd	Two-Way Stop	**1**	19	35
S Circle Dr	Janitell Rd	Signal	**1**	20	35
E Baptist Rd	Roller Coaster Rd	All-Way Stop	**1**	20	35
State Highway 83	Shoup Rd	Signal	**1**	17	31
State Highway 85	B St	Signal	**1**	18	31
S Academy Blvd	Venetucci Blvd	Signal	2	16	30
State Highway 85	Maxwell St	Two-Way Stop	2	14	29
State Highway 83	Shoup Rd	Signal	2	13	29
State Highway 83	N Gate Blvd	Signal	2	11	28
S Academy Blvd	I-25 SB Ramps	Signal	2	15	28
S Academy Blvd	I-25 NB Ramps	Signal	2	13	28
State Highway 83	E Highway 105	Signal	2	9	26
State Highway 85	Academy Blvd EB Ramps	Signal	2	15	25
State Highway 83	Hodgen Rd	Signal	2	12	24
State Highway 83	N Gate Blvd	Signal	2	13	24
State Highway 85	S Academy Blvd EB Ramps	Signal	2	12	24

Main Street	Cross Street	Traffic Control Type	Tier	Injury + Fatal Crashes	WCSI[1]
State Highway 85	Main St	Signal	2	10	22
Main St	Security Blvd	Signal	2	6	22
Hancock Expy	Bradley Rd	Signal	2	13	21
State Highway 83	Hodgen Rd	Signal	2	14	21
Bradley Rd	Wageman Dr	Two-Way Stop	2	16	21
N Powers Blvd	Palmer Park Blvd	Signal	2	9	21
N Powers Blvd	Omaha Blvd	Two-Way Stop	2	15	21
E Platte Ave	N Powers Blvd NB Ramps	Signal	2	19	20
Fontaine Blvd	Grinnell Blvd	Signal	2	8	20
Venetucci Blvd	Cheyenne Meadows Rd	Signal	2	12	20
S Circle Dr	Janitell Rd	Signal	2	11	20
Petersson Rd	Constitution Ave	Signal	2	5	20
Palmer Park Blvd	Peterson Rd	Signal	2	8	19
State Highway 24	State HIghway 94	Signal	2	11	19
Fontaine Blvd	Goldfield Dr	Two-Way Stop	2	13	19
Barnes Rd	Antelope Ridge Dr	Signal	2	10	18
N Marksheffel Rd	Barnes Rd	Signal	2	10	17
N Marksheffel Rd	N Carefree Cir	Signal	2	11	17
State Highway 24	N Marksheffel Rd	Signal	2	12	17
Powers Blvd	Bradley Rd	Signal	2	7	17
Powers Blvd	Fontaine Blvd	Signal	2	11	17
Powers Blvd	Mesa Ridge Pkwy	Signal	2	9	17
Vollmer Rd	Shoup Rd	Two-Way Stop	2	5	17
Vollmer Rd	Burgess Rd	All-Way Stop	2	12	17
S Marksheffel Rd	Mesa Ridge Pkwy	Signal	2	7	16
Fontaine Blvd	S Marksheffel Rd	Signal	2	6	16
State Highway 24	Meridian Rd	Signal	2	4	16
Meridian Rd	Flower Rd	Two-Way Stop	2	7	15
State Highway 24	Old Meridian Rd	Two-Way Stop	2	11	15

Main Street	Cross Street	Traffic Control Type	Tier	Injury + Fatal Crashes	WCSI[1]
Meridian Rd	Stapleton Dr N	Signal	2	11	15
Meridian Rd	Woodmen Hills Dr	Signal	2	10	15
E Woodmen Rd	Meridian Rd	Signal	2	6	15
E Woodmen Rd	McLaughlin Rd	Signal	2	9	14
State Highway 24	E Woodmen Rd	Signal	2	9	14
State Highway 24	Judge Orr Rd	Signal	2	7	13
State Highway 24	Stapleton Dr N	Two-Way Stop	2	7	13
Judge Orr Rd	Curtis Rd	Two-Way Stop	2	8	12
State Highway 94	S Peyton Hwy	Two-Way Stop	2	9	10

1: WCSI = Weighted Crash Severity Index

Corridors

Figure 6 displays the HIN corridors for the Urban/Suburban zone, symbolized by WCSI, and **Table 3** displays a summary of Urban/Suburban HIN corridors and associated crash frequencies. 28 unique Urban/Suburban corridors were identified in the HIN, totaling about 84 miles (8 percent). Of 1,428 injury and fatal crashes that occurred on Urban/Suburban segments, 673 (47 percent) occurred on HIN corridors.

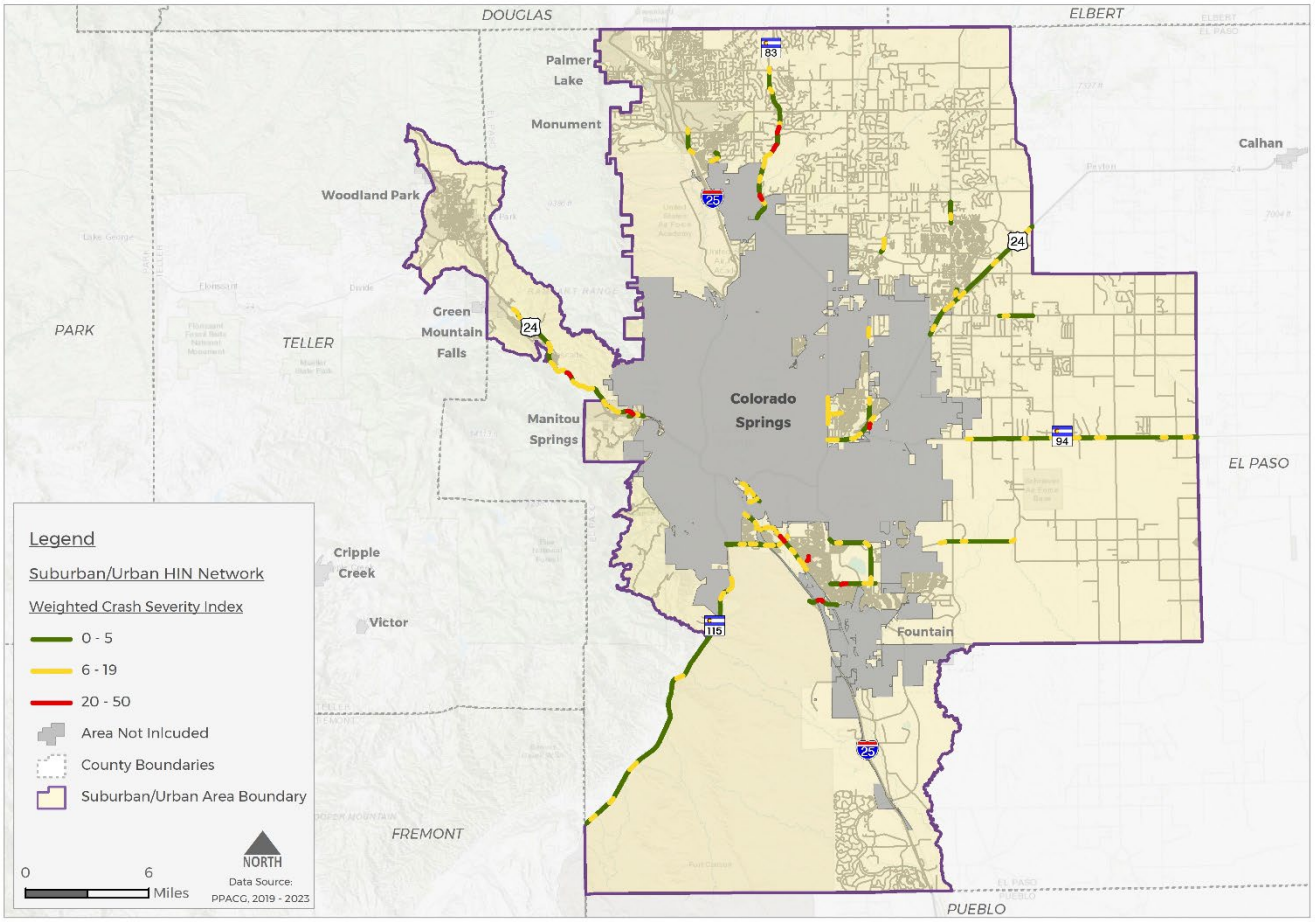


Figure 6. High Injury Network - Urban/Suburban Corridors

Table 3. Urban/Suburban HIN Corridors

Route	Start	End	Length (mi)	Injury + Fatal Crashes / mi	WCSI[1] per mi
Main St	Holly Dr	US Hwy 85	0.5	20.8	52.9
S Circle Dr	w.o. Hancock Expy	e.o. Janitell Rd	0.4	20.6	52.7
Palmer Park Blvd	N Powers Blvd	Pima Dr	0.7	14.9	47.8
N Marksheffel Rd	s.o. Tarren Hts	Huber Rd	0.4	7.9	44.9
Janitell Rd	E Las Vegas St	Fountain Creek	0.3	3.9	42.6
N Powers Blvd	n.o. Waynoka Rd	s.o. Omaha Blvd	1.3	14.1	41.6
Mc Laughlin Rd	Eastonville Rd	E Woodmen Rd	0.3	27.9	38.4

Route	Start	End	Length (mi)	Injury + Fatal Crashes / mi	WCSI[1] per mi
S Academy Blvd	State Highway 115	n.o. Bradley Rd	3.2	26.9	38.0
E Las Vegas St	E Fountain Blvd	s.o. S Circle Dr	1.2	7.5	35.9
US Highway 24	Manitou Ave	s.o. Lucky 4 Rd	8.6	13.6	31.4
State Highway 16	w.o. I-25	w.o. Syracuse St	1.4	6.9	31.1
N Marksheffel Rd	Constitution Ave	n.o. Air Ln	1.5	9.4	30.3
Vollmer Rd	Wildflower Rd	n.o. Dines Blvd	0.7	12.1	30.2
US Highway 85	Venettucci Blvd	s.o. Main St	3.8	13.3	28.5
US Highway 24	N Powers Blvd	n.o. Marksheffel Rd	2.7	9.9	24.3
Gleneagle Dr	Latrobe Dr	Doral Wy	0.7	7.3	23.4
Venetucci Blvd	Cheyenne Meadows Rd	US Hwy 85	0.7	15.4	21.5
State Highway 83	n.o. New Life Dr	n.o. Walker Rd	7.9	7.8	20.9
Manitou Ave	w.o. Columbia Rd	Oak Pl	0.8	9.1	20.8
Struthers Rd	Lyons Trail Rd	Air Garden Ln	1.3	7.9	20.7
N Meridian Rd	Ayer Rd	Rex Rd	1.0	8.7	19.4
Fontaine Blvd	Grinnell Blvd	e.o. Powers Blvd	2.2	7.8	18.4
US Highway 24	n.o. Garrett Rd	Elbert Rd	7.3	7.3	13.6
Falcon Hwy	e.o. Good Fortune Rd	Falcon Grassy Hts	1.6	4.3	13.5
Powers Blvd	n.o. Grinnel Blvd	s.o. Fontaine Blvd	3.9	4.1	10.5
Bradley Rd	w.o. S Meridian Rd	Drennan Rd	3.6	1.9	9.9
State Highway 115	n.o. Nelson Blvd	s.o. Barrett Rd	14.8	3.6	9.4
State Highway 94	e.o. Aztec Raceway	N Ellicott Highway	11.2	3.4	8.7

1: WCSI = Weighted Crash Severity Index

Mountain

The Mountain HIN includes 25 intersections and 106 centerline miles of roadway. **Figure 7** displays the final HIN for the Mountain zone. The following sections provide more details about the intersections and corridors in the Mountain zone.

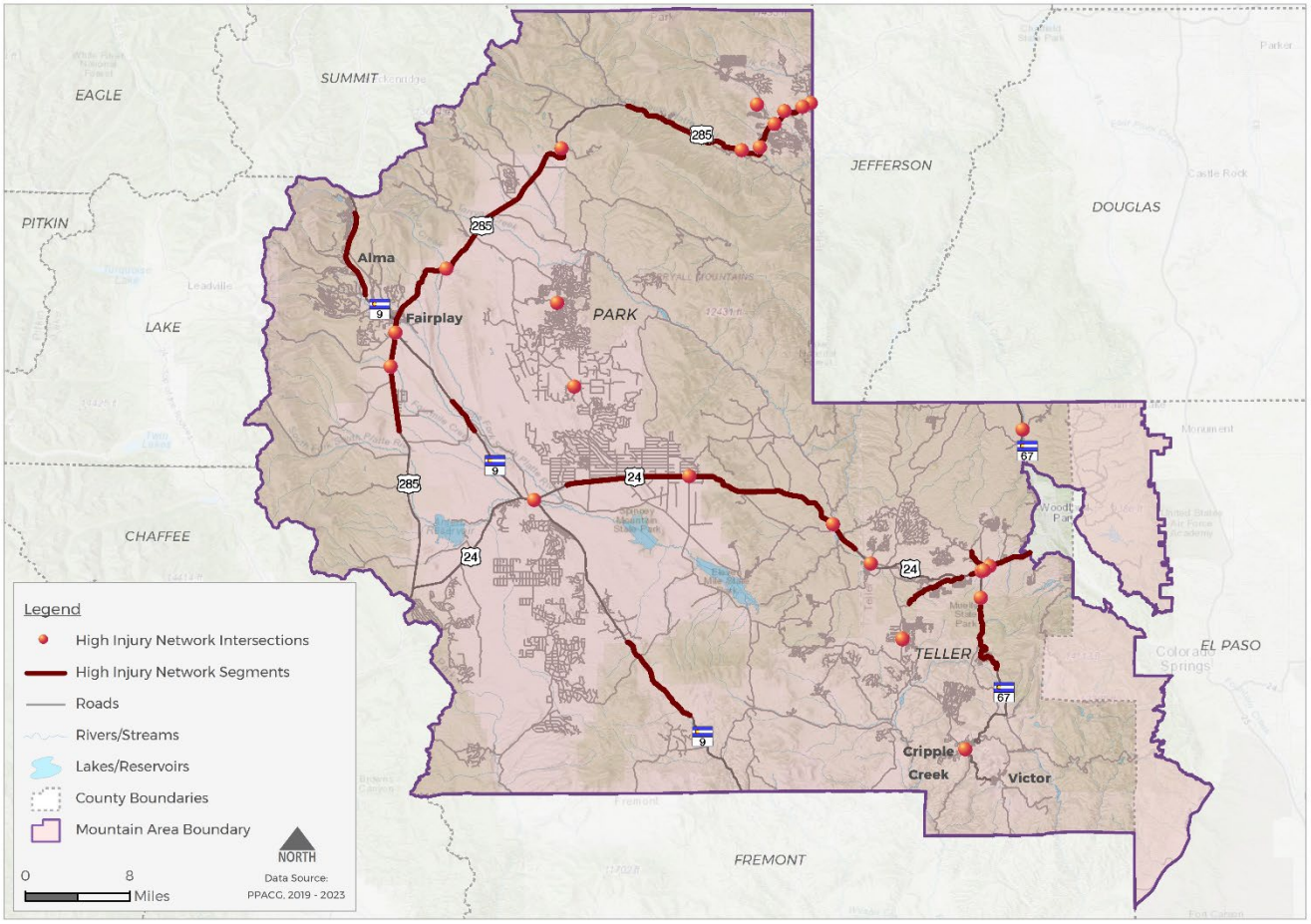


Figure 7. High Injury Network – Mountain

Intersections

Figure 8 displays the HIN intersections for the Mountain zone, symbolized by WCSI, and **Table 4** displays a summary of Mountain HIN intersections and associated crash frequencies. 25 of 105 intersections with crash history (24 percent) were included in the HIN. Of 168 injury and fatal crashes that occurred at Mountain intersections, 72 (43 percent) occurred at HIN intersections.

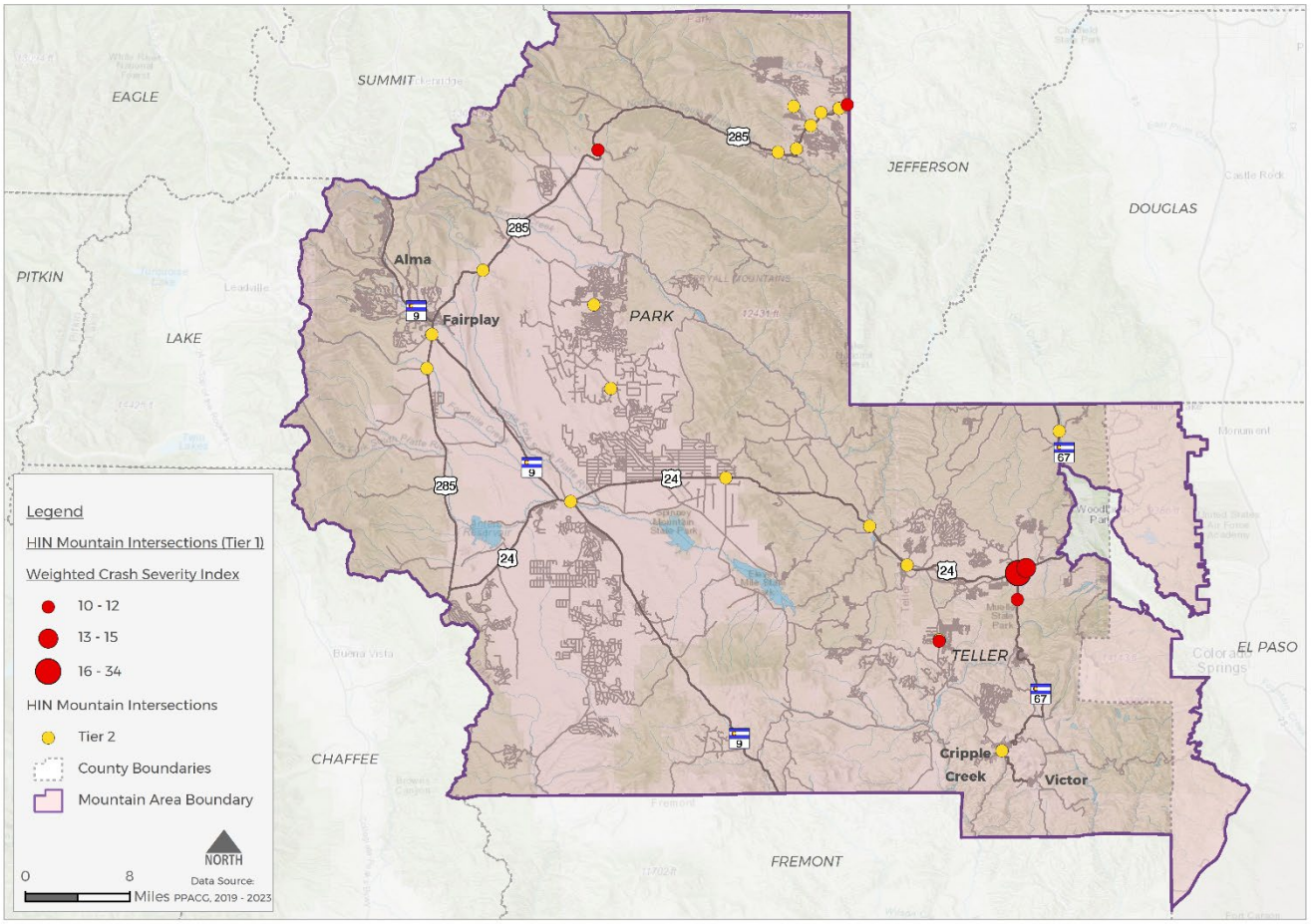


Figure 8. High Injury Network - Mountain Intersections

Table 4. Mountain HIN Intersections

Main Street	Cross Street	Traffic Control Type	Tier	Injury + Fatal Crashes	WCSI[1]
State Highway 24	State Highway 67	Signal	**1**	19	34
State Highway 24	Meadow Park Dr	Two-Way Stop	**1**	6	15
State Highway 285	S Wandercrest Dr	Two-Way Stop	**1**	3	12
State Highway 285	FS Road 126	Two-Way Stop	**1**	4	10
County Road 1	Matterhorn Dr	Two-Way Stop	**1**	2	10
State Highway 67	Divide South Dr	Two-Way Stop	**1**	2	10
Arrowhead Dr	Aqua Ct	Two-Way Stop	2	2	7

Main Street	Cross Street	Traffic Control Type	Tier	Injury + Fatal Crashes	WCSI[1]
State Highway 24	High Chapparral Rd	Two-Way Stop	2	2	7
State Highway 285	Old Stagecoach Rd	Two-Way Stop	2	5	6
State Highway 285	Roland Valley Dr	Two-Way Stop	2	2	6
State Highway 24	County Road 77	Two-Way Stop	2	2	6
State Highway 24	Wilson Dr	Two-Way Stop	2	2	6
State Highway 67	County Rd 79	Two-Way Stop	2	2	6
State Highway 285	County Road 20	Two-Way Stop	2	1	5
State Highway 285	Highway 9	Two-Way Stop	2	4	5
State Highway 285	County Road 77	Two-Way Stop	2	1	5
State Highway 24	Valley Dr	Two-Way Stop	2	1	5
Galahad Way	Camelot Dr	Two-Way Stop	2	1	5
County Road 43	Connestoga Rd	Two-Way Stop	2	1	5
State Highway 285	Lower Crow Hill Rd	Two-Way Stop	2	3	5
State Highway 285	County Rd 43	Two-Way Stop	2	3	5
State Highway 285	Wisp Creek Dr	Two-Way Stop	2	1	5
County Road 1	Garfield Cir	Two-Way Stop	2	1	5
W May St	S A St	Two-Way Stop	2	1	5
State Highway 24	Ryolite City Rd	Two-Way Stop	2	1	5

1: WCSI = Weighted Crash Severity Index

Corridors

Figure 9 displays the HIN corridors for the Mountain zone, symbolized by WCSI, and **Table 5** displays a summary of Mountain HIN corridors and associated crash frequencies. 10 unique Mountain corridors were identified in the HIN, totaling about 106 miles (16 percent). Of 865 injury and fatal crashes that occurred on Mountain segments, 419 (48 percent) occurred on HIN corridors.

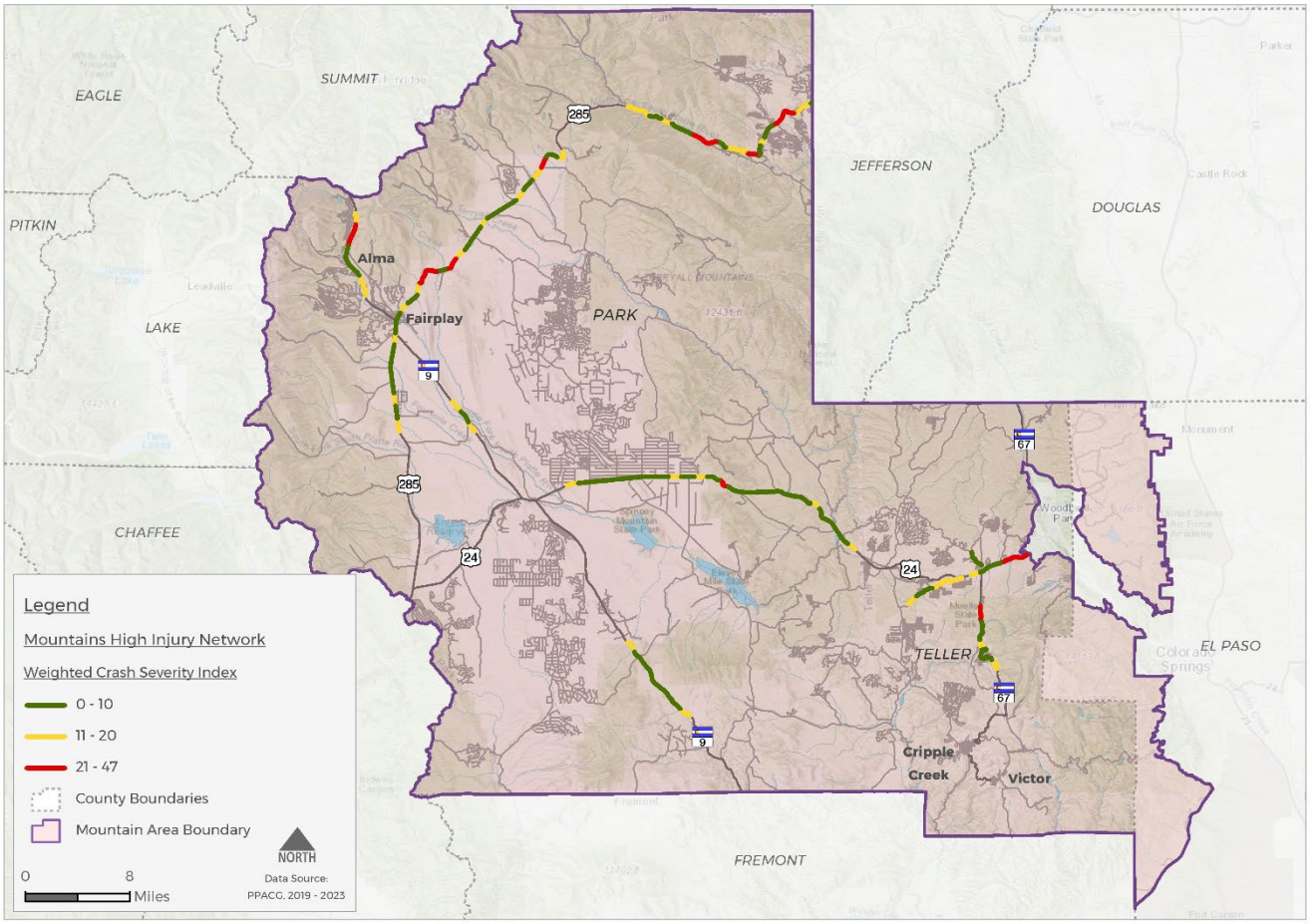


Figure 9. High Injury Network – Mountain Corridors

Table 5. Mountain HIN Corridors

Route	Start	End	Length (mi)	Injury + Fatal Crashes / mi	WCSI[1] per mi
US Highway 24	Edlowe Rd	e.o. Robinhood Dr	4.9	6.5	20.8
State Highway 9	County Rd 1	s.o. County Rd 4	6.9	5.8	16.4
US Highway 285	County Rd 62	w.o. Mt Evans Blvd	18.0	6.3	15.9
Lower Twin Rocks Rd	US Highway 24	e.o. County Rd 1	4.9	4.1	12.7
State Highway 67	s.o. Divide South Dr	n.o. Lazy S Ranch Rd	6.7	4.4	11.9
State Highway 9	n.o. County Rd 460	s.o. County Rd 24	2.9	3.5	11.6
US Highway 285	n.o. County Rd 24	s.o. FS Road 126	28.6	3.8	11.2

Route	Start	End	Length (mi)	Injury + Fatal Crashes / mi	WCSI[1] per mi
State Highway 9	n.o. County Rd 258	n.o. County Rd 88	7.7	1.6	7.6
US Highway 24	e.o. County Rd 443	w.o. County Rd 31	24.6	2.1	6.6
Cedar Mountain Rd	County Rd 5	County Rd 511	1.4	1.5	5.1

1: WCSI = Weighted Crash Severity Index

5.2 Rural

The Rural HIN includes 18 intersections and 15 centerline miles of roadway. **Figure 10** displays the final HIN for the Rural zone. The following sections provide more details about the intersections and corridors in the Mountain zone.

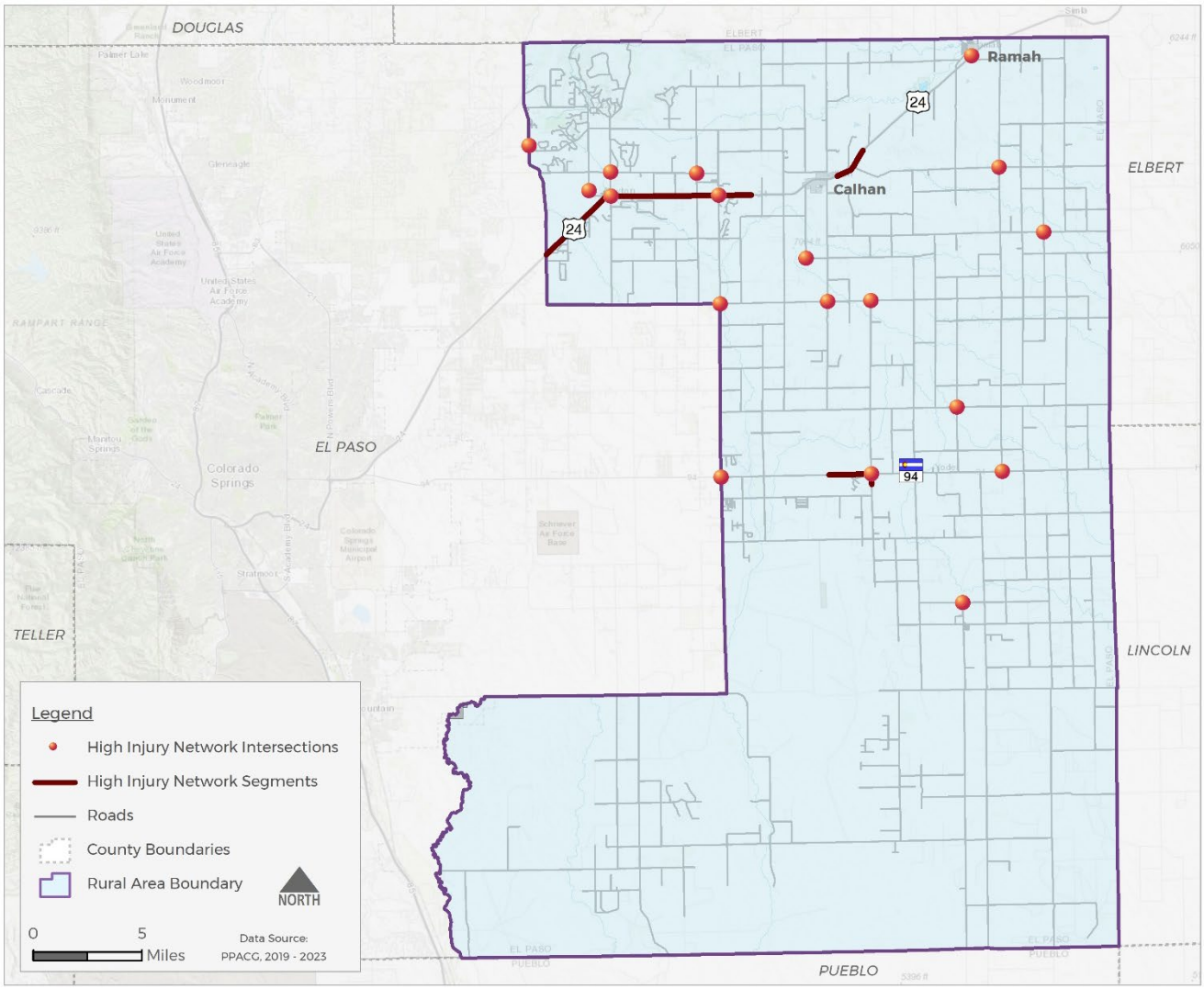


Figure 10. High Injury Network – Rural

Intersections

Figure 11 displays the HIN intersections for the Rural zone, symbolized by WCSI, and **Table 6** displays a summary of Rural HIN intersections and associated crash frequencies. 18 of 52 intersections with crash history (35 percent) were included in the HIN. Of 79 injury and fatal crashes that occurred at Rural intersections, 36 (46 percent) occurred at HIN intersections.

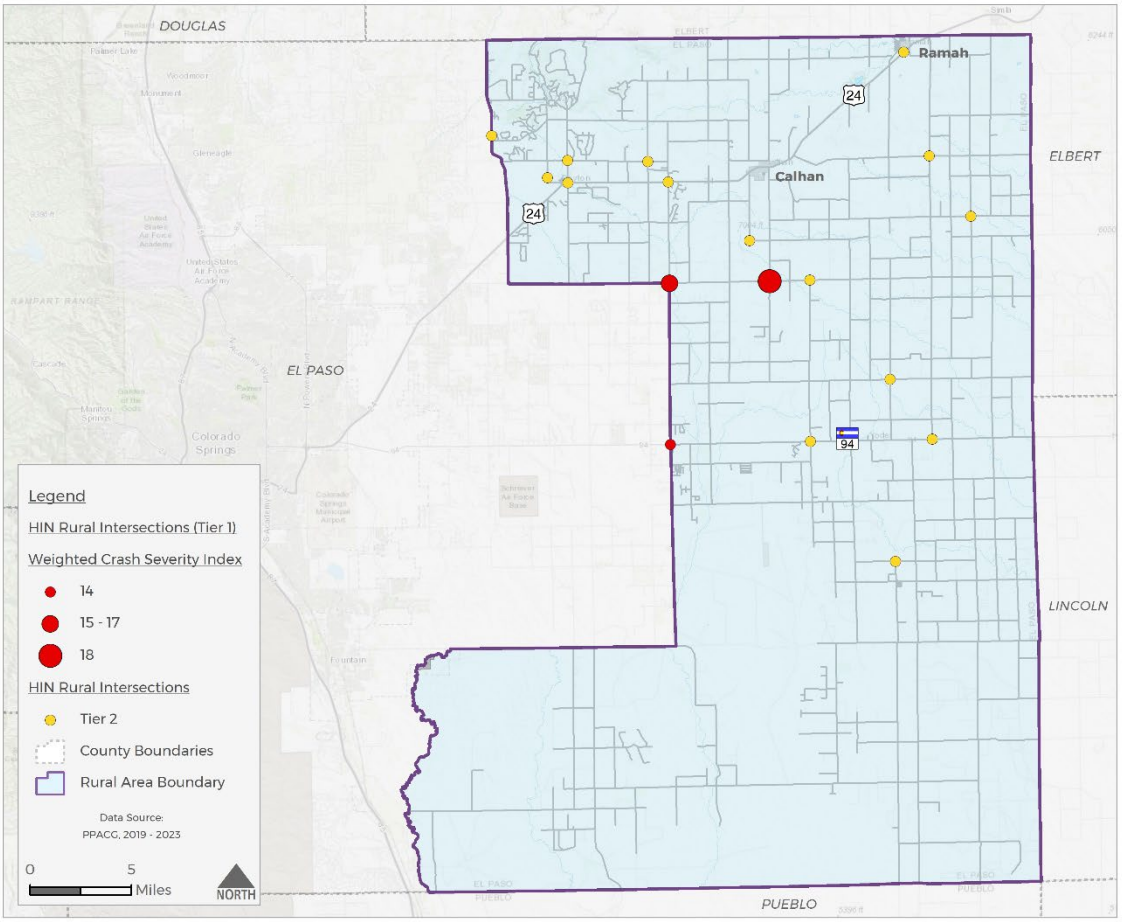


Figure 11. High Injury Network - Rural Intersections

Table 6. Rural HIN Intersections

Main Street	Cross Street	Traffic Control Type	Tier	Injury + Fatal Crashes	WCSI[1]
Judge Orr Rd	S Calhan Rd	Two-Way Stop	**1**	3	18
N Ellicott Hwy	Judge Orr Rd	Two-Way Stop	**1**	5	17
State Highway 94	N Ellicott Hwy	Two-Way Stop	**1**	4	14
Judge Orr Rd	Calhan Hwy	Two-Way Stop	2	7	9
State Highway 24	Peyton Hwy	Two-Way Stop	2	2	7
Elbert Rd	Sweet Rd	Two-Way Stop	2	1	5
Peyton Hwy	Murphy Rd	Two-Way Stop	2	1	5
Murphy Rd	McClelland Rd	Two-Way Stop	2	1	5
State Highway 24	N Ellicott Hwy	Two-Way Stop	2	3	5
State Highway 94	S Calhan Rd	Two-Way Stop	2	1	5
Sengbeil Rd	Big Springs Rd	Two-Way Stop	2	1	5
Fossinger Rd	Boone Rd	Two-Way Stop	2	1	5
State Highway 24	S Commercial St	Two-Way Stop	2	1	5
Harrisville Rd	Ramah Rd	Two-Way Stop	2	1	5
State Highway 94	N Ramah Hwy	Two-Way Stop	2	1	5
Oil Well Rd	Funk Rd	Two-Way Stop	2	1	5
Bradshaw Rd	Peyton Elem. School	Two-Way Stop	2	1	5
Washington Rd	Hahn Rd	Two-Way Stop	2	1	5

1: WCSI = Weighted Crash Severity Index

Corridors

Figure 12 displays the HIN corridors for the Rural zone, symbolized by WCSI, and **Table 7** displays a summary of Rural HIN corridors and associated crash frequencies. 4 unique Rural corridors were identified in the HIN, totaling about 15 miles (2 percent). Of 181 injury and fatal crashes that occurred on Rural segments, 51 (28 percent) occurred on HIN corridors.

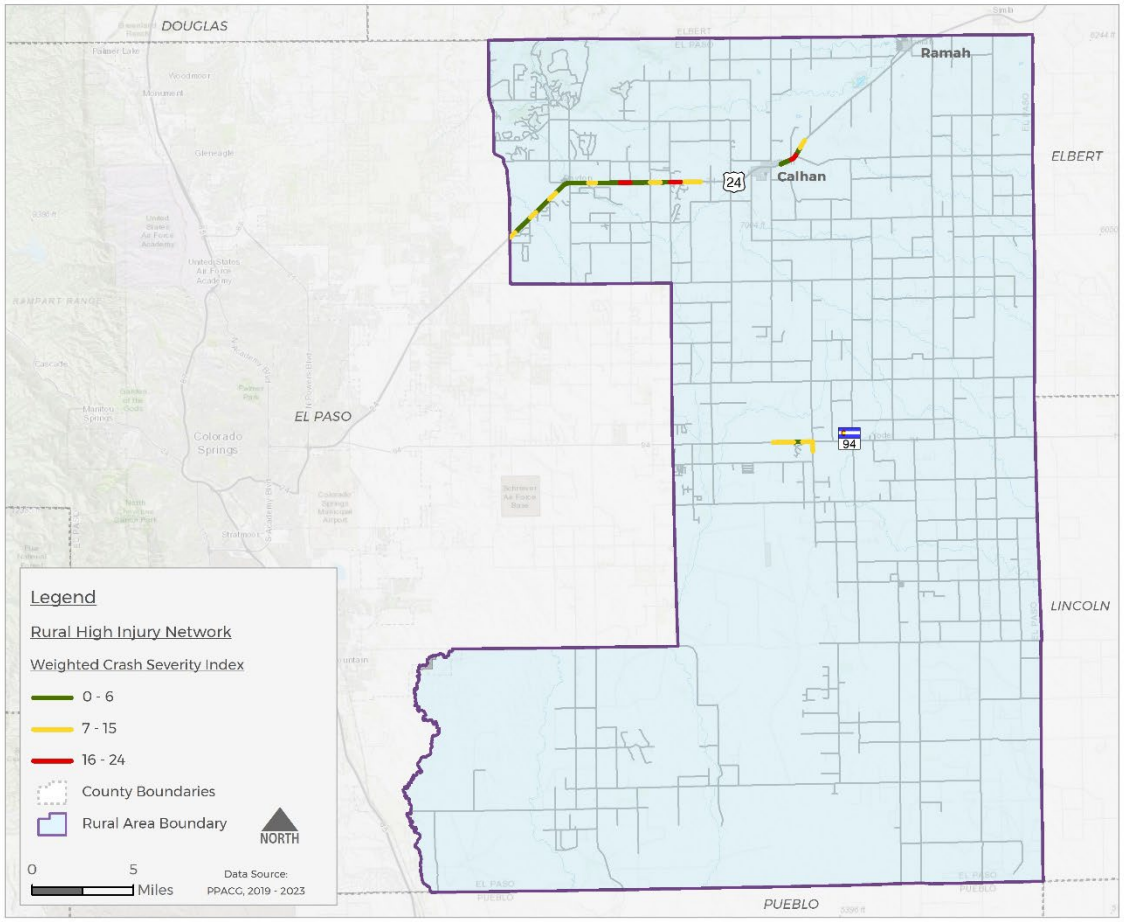


Figure 12. High Injury Network – Rural Corridors

Table 7. Rural HIN Corridors

Route	Start	End	Length (mi)	Injury + Fatal Crashes / mi	WCSI[1] per mi
S Calhan Highway	State Highway 94	N Dinner Bell Dr	0.5	2.1	23.2
US Highway 24	e.o. N Calhan Hwy	w.o. Barney Rd	1.7	5.2	18.6
State Highway 94	S Calhan Hwy	e.o. Baggett Rd	1.9	2.1	17.5
US Highway 24	Elbert Rd	Carter Ln	10.5	3.5	15.3

1: WCSI = Weighted Crash Severity Index

6. Conclusions

The development of the High Injury Network (HIN) identifies key locations within the transportation network that are most susceptible to injury and fatal crashes. The analysis utilized crash data from 2019 to 2023 to prioritize locations with high crash frequencies and severity. The HIN includes 109 intersections (approximately 16 percent of all intersections with crash history) and 42 corridors which total approximately 205 centerline miles of roadway (approximately 9 percent of all roadway miles – excluding local roads and I-25), and accounts for 41 percent of injury and fatal crashes in the PPACG study area.

The methodology applied in this study involved ranking intersections and roadway segments by both severe crash frequency and Weighted Crash Severity Index (WCSI). Top-ranked intersections and segments making up the first 25 percent (Tier 1) and second 25 percent (Tier 2) of cumulative WCSI were selected for inclusion in the HIN. Additionally, locations were added or removed based on local context and knowledge, as well as the expected impact of recently completed infrastructure projects. These findings help inform the identification of future implementation strategies, actions, and countermeasures.

7. Next Steps

Tier 1 HIN intersections and all HIN corridors from each geographic zone will be evaluated to determine Level of Service of Safety (LOSS) and diagnostic crash patterns based on techniques in the Highway Safety Manual (HSM). The results of these analyses will help inform potential countermeasures and serve as an additional tool for prioritizing safety improvements.

Pikes Peak Region Comprehensive Safety Action Plan

Woodland Park COLORADO
City Above the Clouds
1891

Pikes Peak Area Council of Governments
Communities Working Together

Transportation Advisory Committee
Meeting #3

October 16, 2025

Agenda

- Safety Action Plan Refresher
- Outreach and Engagement
- Analysis
- Project Schedule and Next Steps

SS4A Overview – What is a Safety Action Plan?

Purpose:

Reduce or eliminate roadway fatalities and serious injuries.

Guiding Principles:

- **Safe System Approach:** Designs for human error to minimize crash impacts.
- **Data-Driven:** Uses crash history and trends to pinpoint safety needs.
- **Holistic:** Considers all users—drivers, pedestrians, cyclists, transit.
- **Community-Informed:** Reflects local priorities and needs.
- **Actionable Projects:** Develop a prioritized list of actionable safety projects

Funding Opportunities (NOFO 2026):

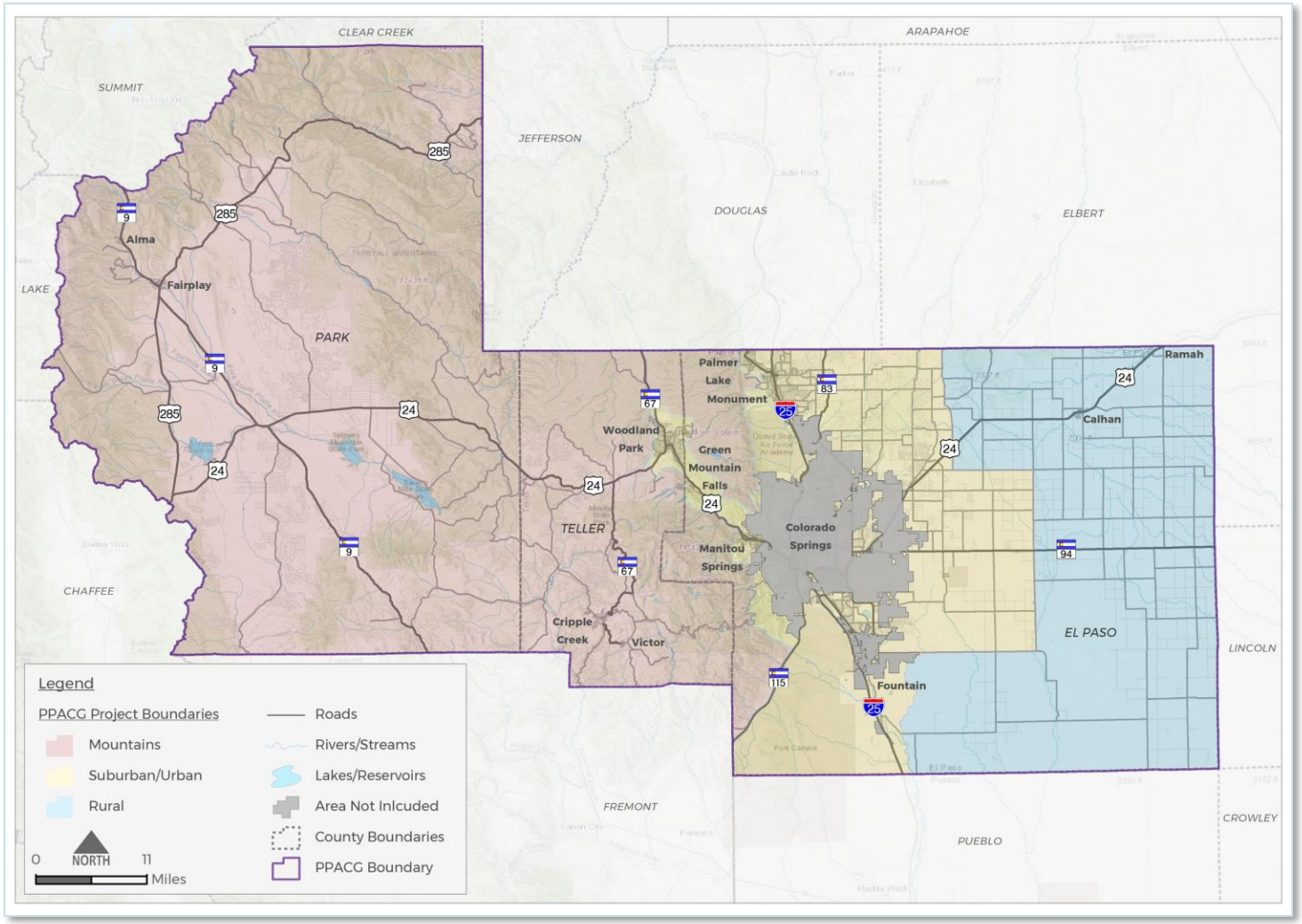
- Planning & Demonstration Grants
- Implementation Grants

Benefit to Local Communities:

- Eligibility for future implementation grants to fund safety improvements.



Pikes Peak Region Safety Action Plan



Lead Applicant: City of Woodland Park

Regional Coordinator: Pikes Peak Area Council of Governments

Coverage Area:

- **El Paso, Park, and Teller Counties**

(Excludes Colorado Springs and Fountain)

Why It Matters:

This plan will provide a framework for future safety improvements in the region.

It will bring the region into eligibility for federal implementation funding.

SS4A Safety Action Plan Process

To qualify for future funding, the plan must include:

1. **Leadership Commitment & Goal Setting**
2. **Planning Structure for Oversight**
3. **Safety Analysis of Crash Data**
4. **Stakeholder Engagement & Collaboration**
5. **Policy & Process Review**
6. **Strategies & Project Selection**
7. **Measurement Tools (Progress) & Transparency**

TAC Role:
Recommend for formal adoption in **February 2026**

Engagement to Date

- **April:** TAC #1, Colorado Springs, El Paso Co., Cripple Creek, Teller Co., Drive Smart Colorado Board
- **May:** Manitou Springs, Drive Smart Colorado Coalition
- **June:** Victor
- **July:** Park Co., Fairplay, Woodland Park, BOD #1, TAC #2, CAC #1
- **August:** Monument, Fountain, Fort Carson
- **September:** Alma, Mountain Metro, Colorado Springs #2, Bike COS, Ramah/Calhan, Palmer Lake
- **October:** TAC #3, CAC #2

Online mapping and survey closed October 6th

Safety Analysis

Safety Analysis

Crash Analysis + High Injury Network (HIN)

Systemic Safety Analysis + High Risk Network (HRN)

Level of Service of Safety (LOSS) Analysis

Prioritization of Top Locations

Countermeasure Pairing

Implementation Strategy and Policy Recommendation

High Injury Network (HIN)



Crash Analysis + High Injury Network (HIN)

Purpose:

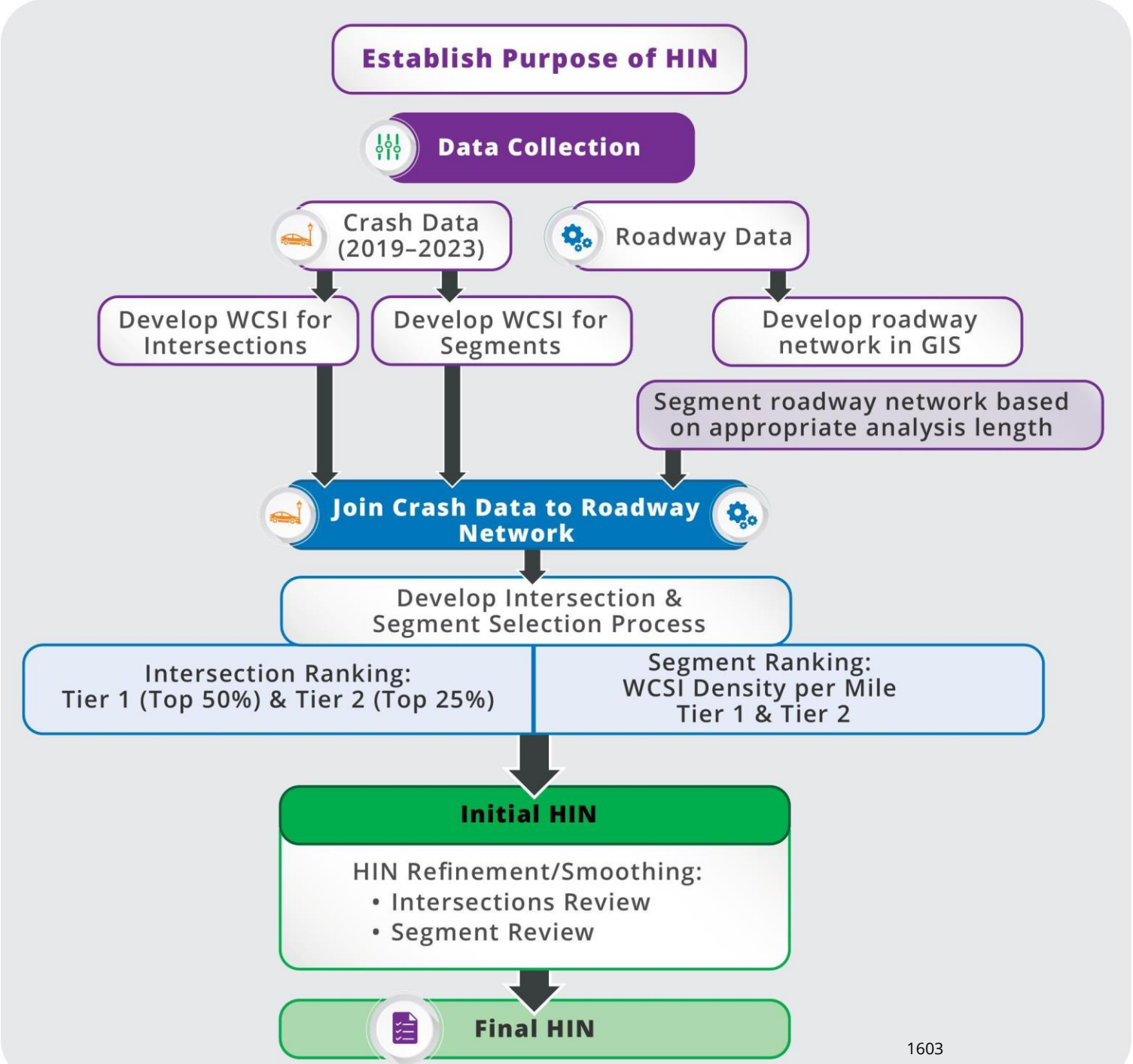
- Identify intersections and corridors with the highest concentration of severe crashes.

Method:

- Analyze historical crash data to rank intersections and corridors by frequency and severity using a **Weighted Crash Severity Index (WCSI)**, selecting top-tier locations that account for a disproportionate share of crashes.

Outcome:

- Produce a **High-Injury Network** map highlighting priority corridors and intersections where targeted safety improvements can deliver the greatest impact in reducing severe crashes.



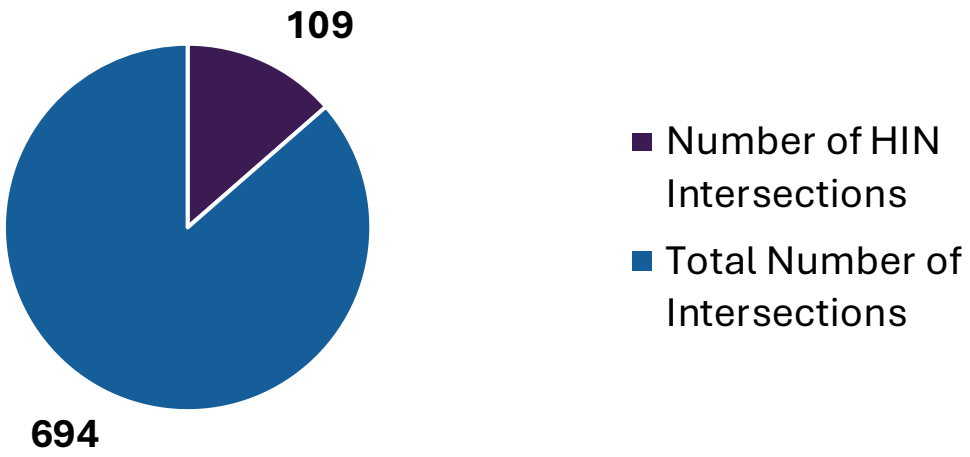
Weighted Crash Severity Index (WCSI):

Weights assigned to each crash severity per the following

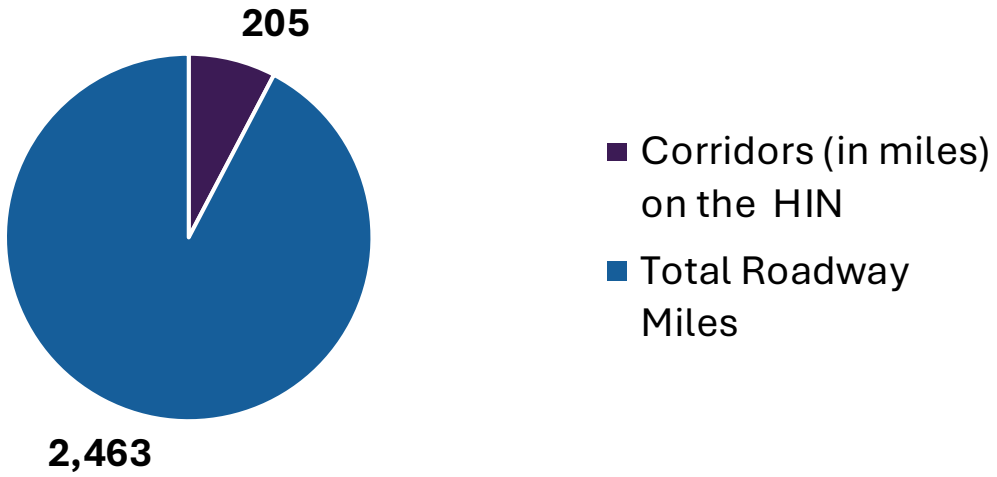
- Fatal (K)=11
- Serious Injury (A)=5
- Minor Injury (B)=2
- Complaint of Injury (C)=1

HIN Results

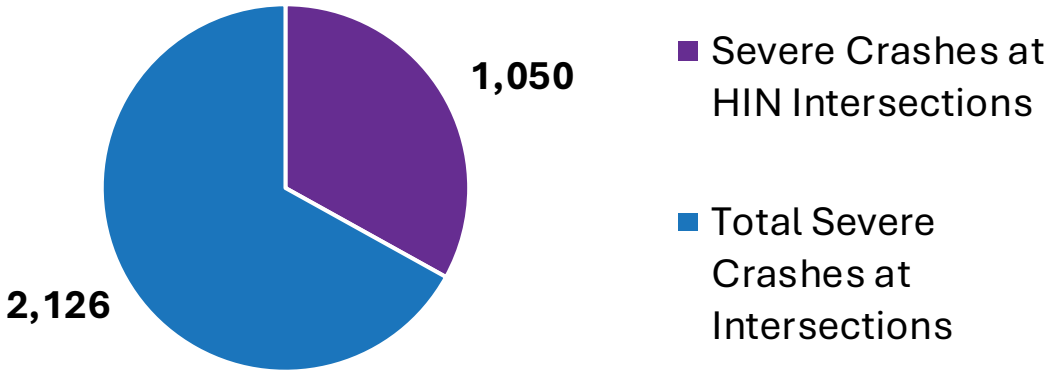
HIN Intersections



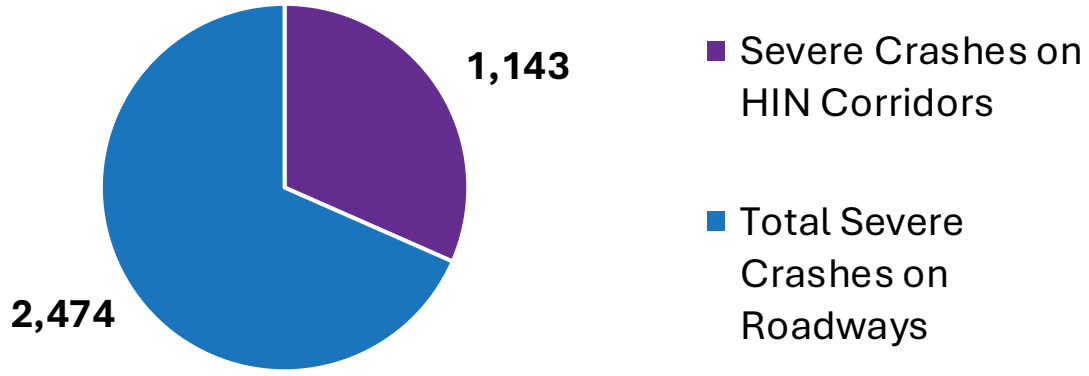
HIN Corridors (in miles)



Severe Crashes at HIN Intersections

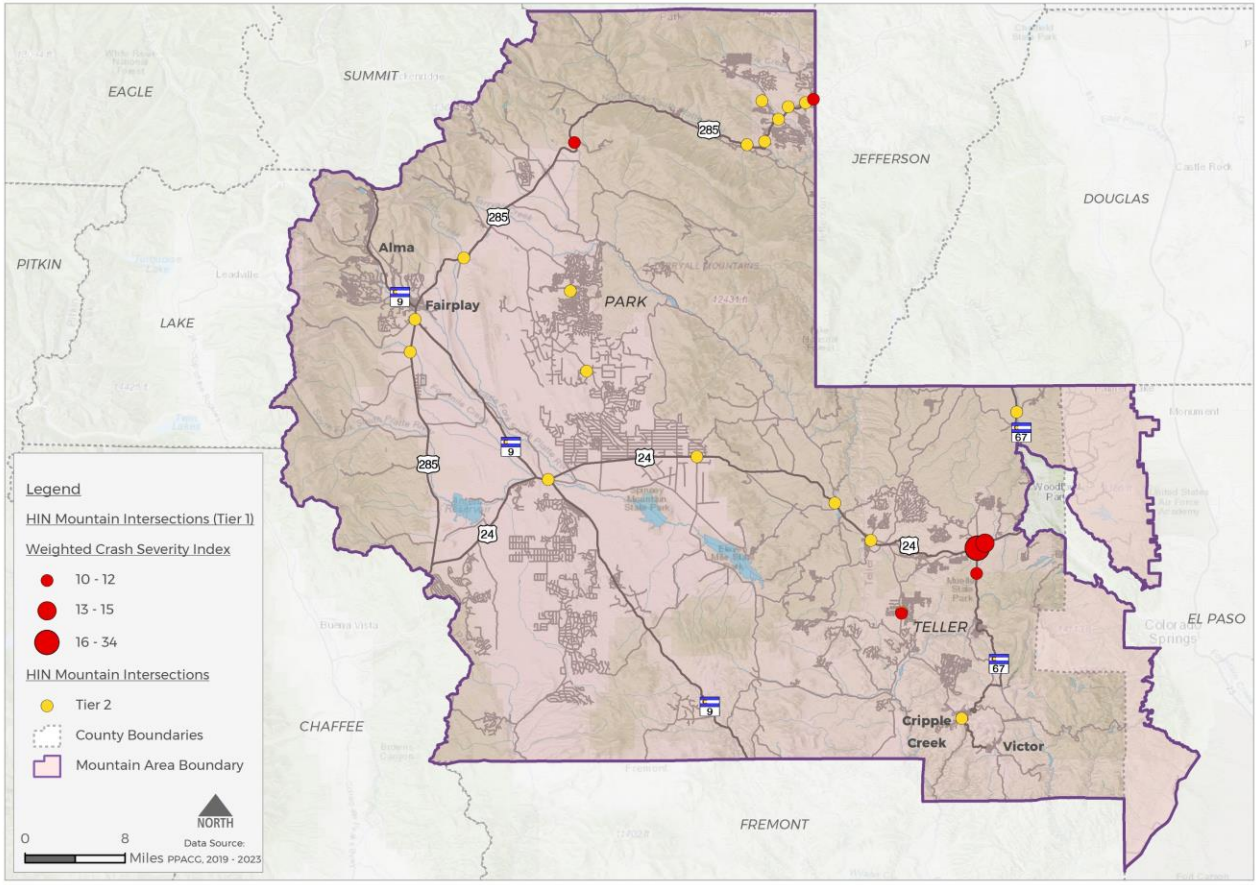


Severe Crashes on HIN Corridors

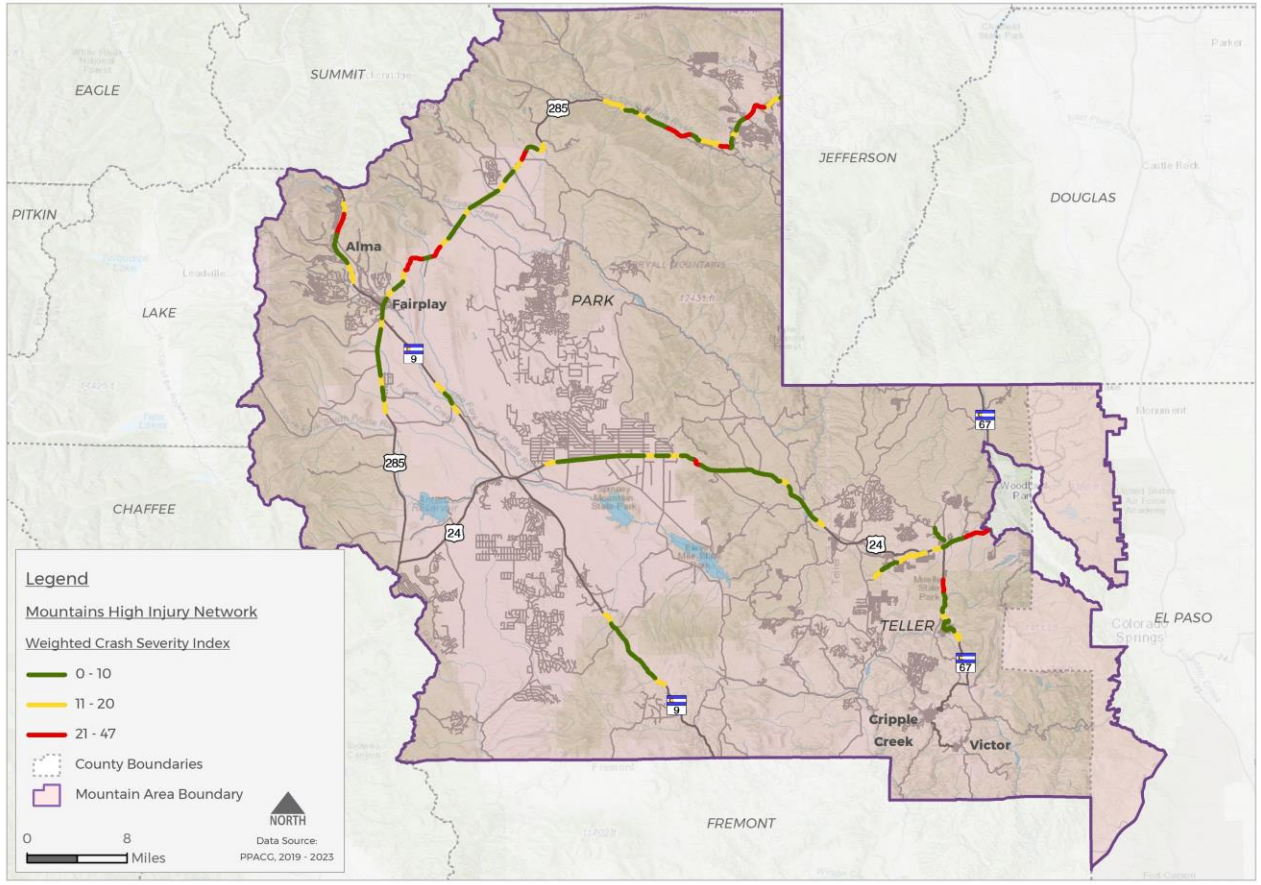


Mountain HIN

Intersections

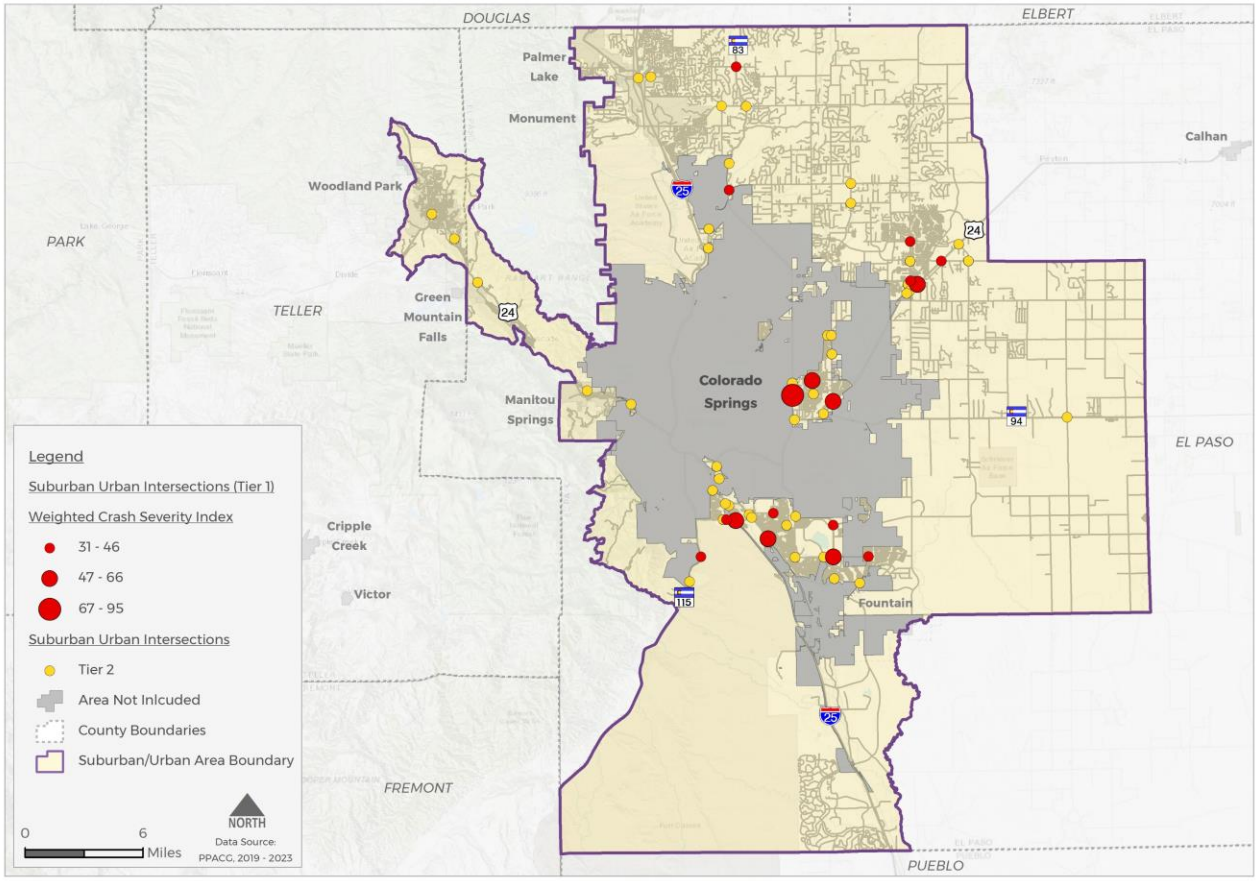


Corridors

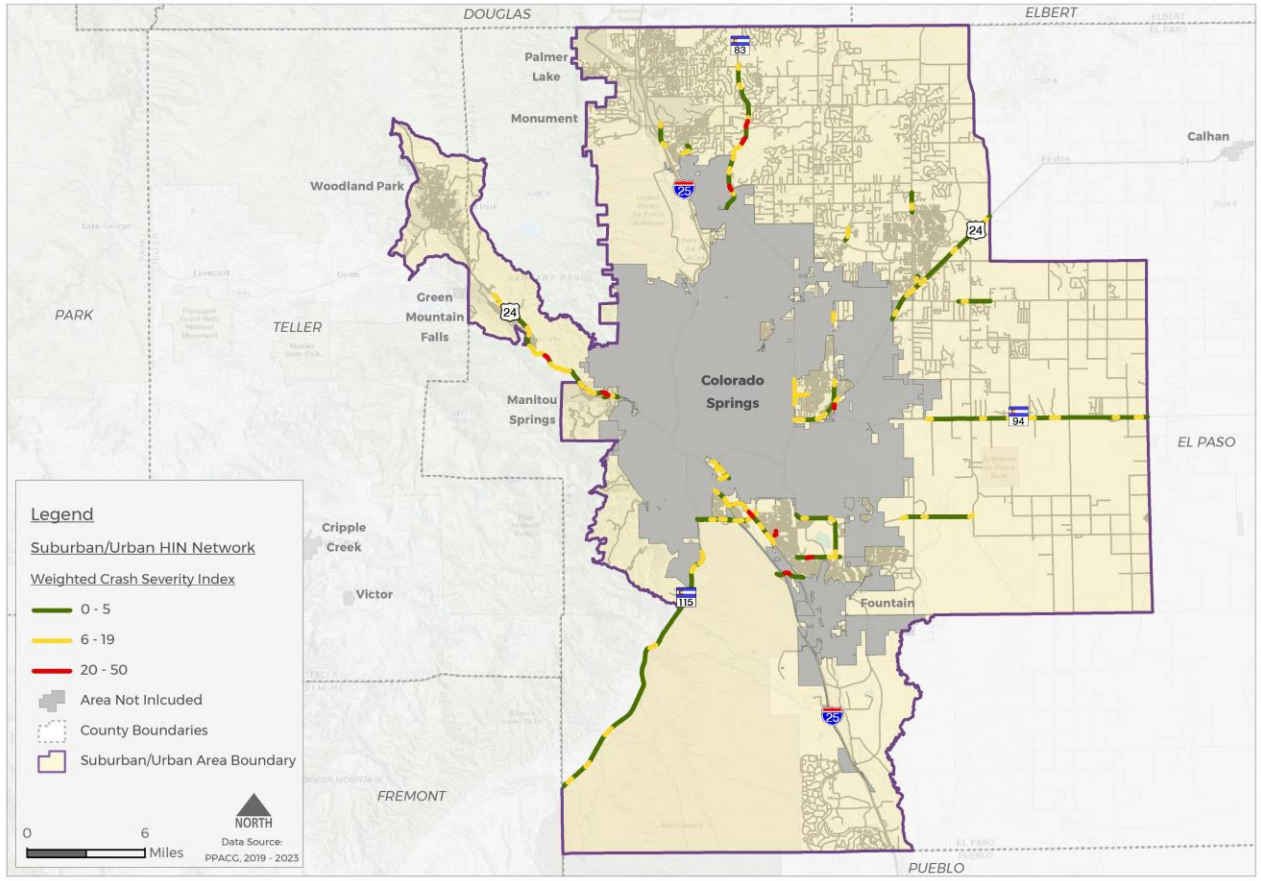


Urban/Suburban HIN

Intersections

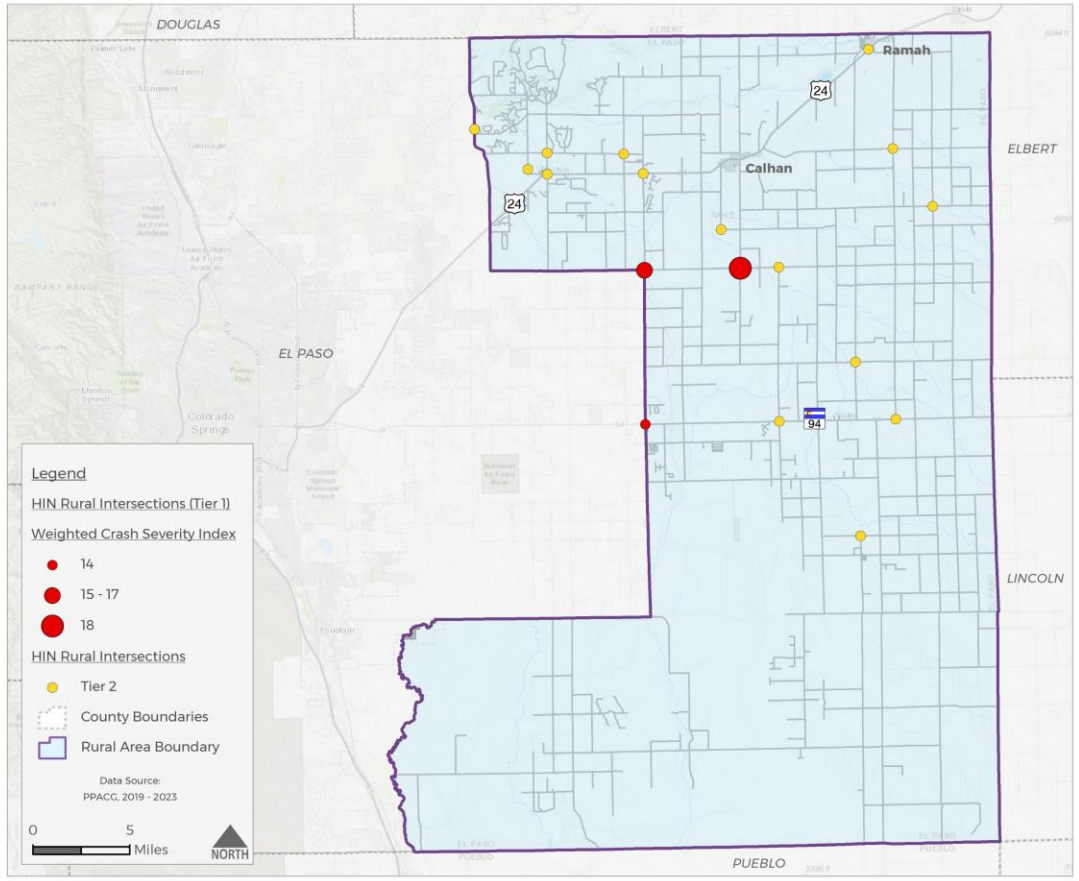


Corridors

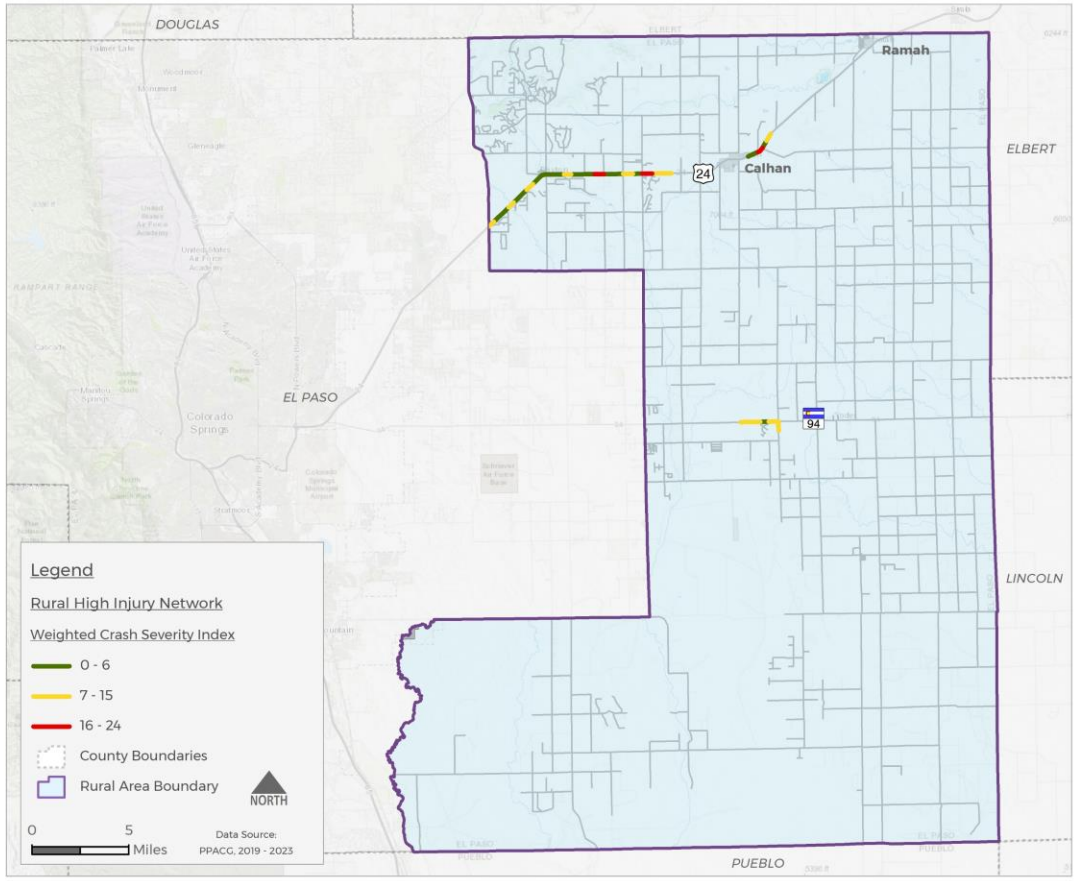


Rural HIN

Intersections



Corridors



High Risk Network (HRN)



Purpose:

- A proactive safety analysis methodology that identifies roadway and land-use features linked to higher rates of killed and serious injury (KSI) crashes.

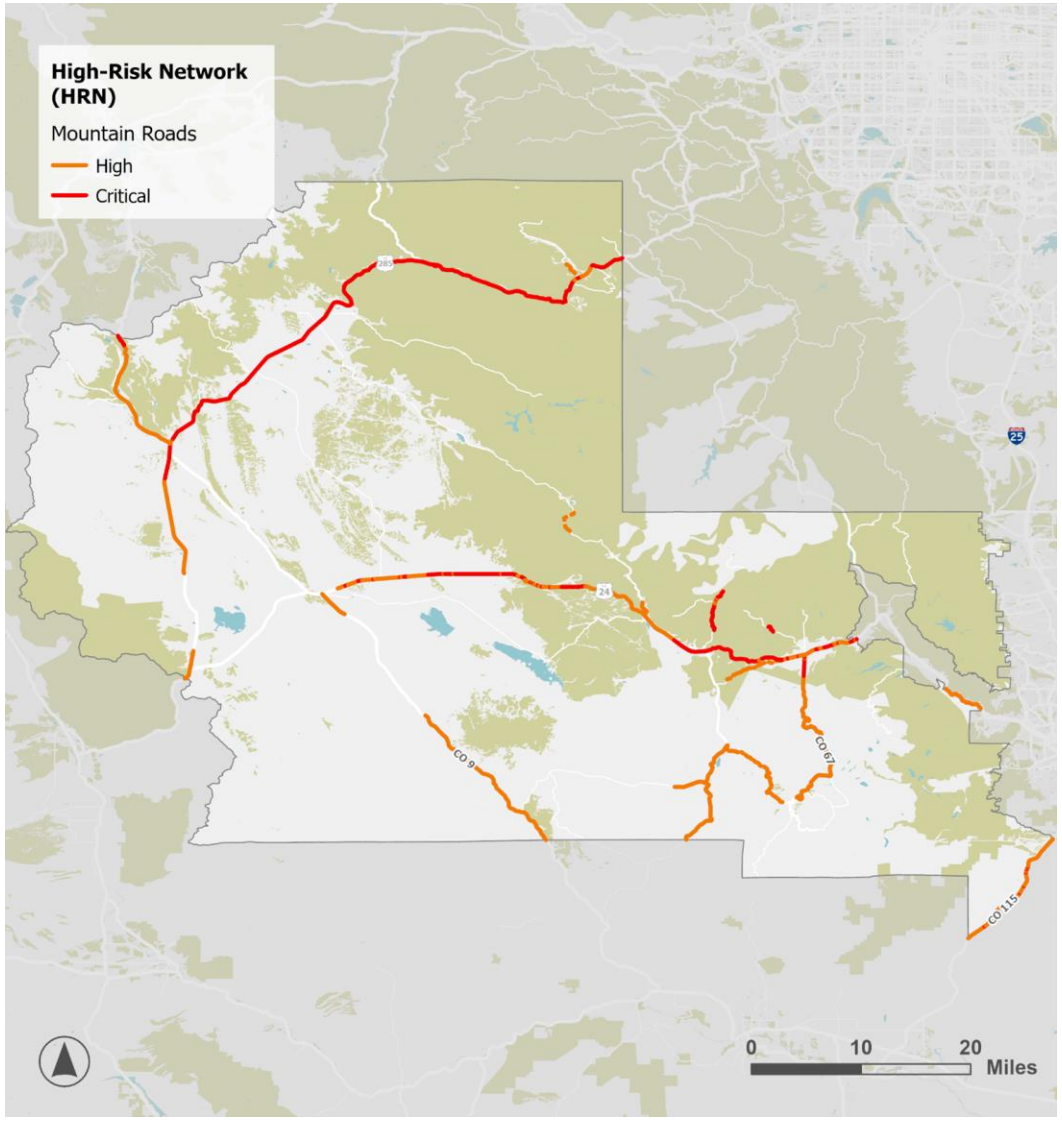
Method:

- Analyze past KSI crash sites to find common risk factors, then scans the entire network for similar conditions.

Outcome:

- Create a **High-Risk Network (HRN)** that highlights roads with a high potential for KSI crashes throughout the roadway network, even where crashes haven't occurred yet.

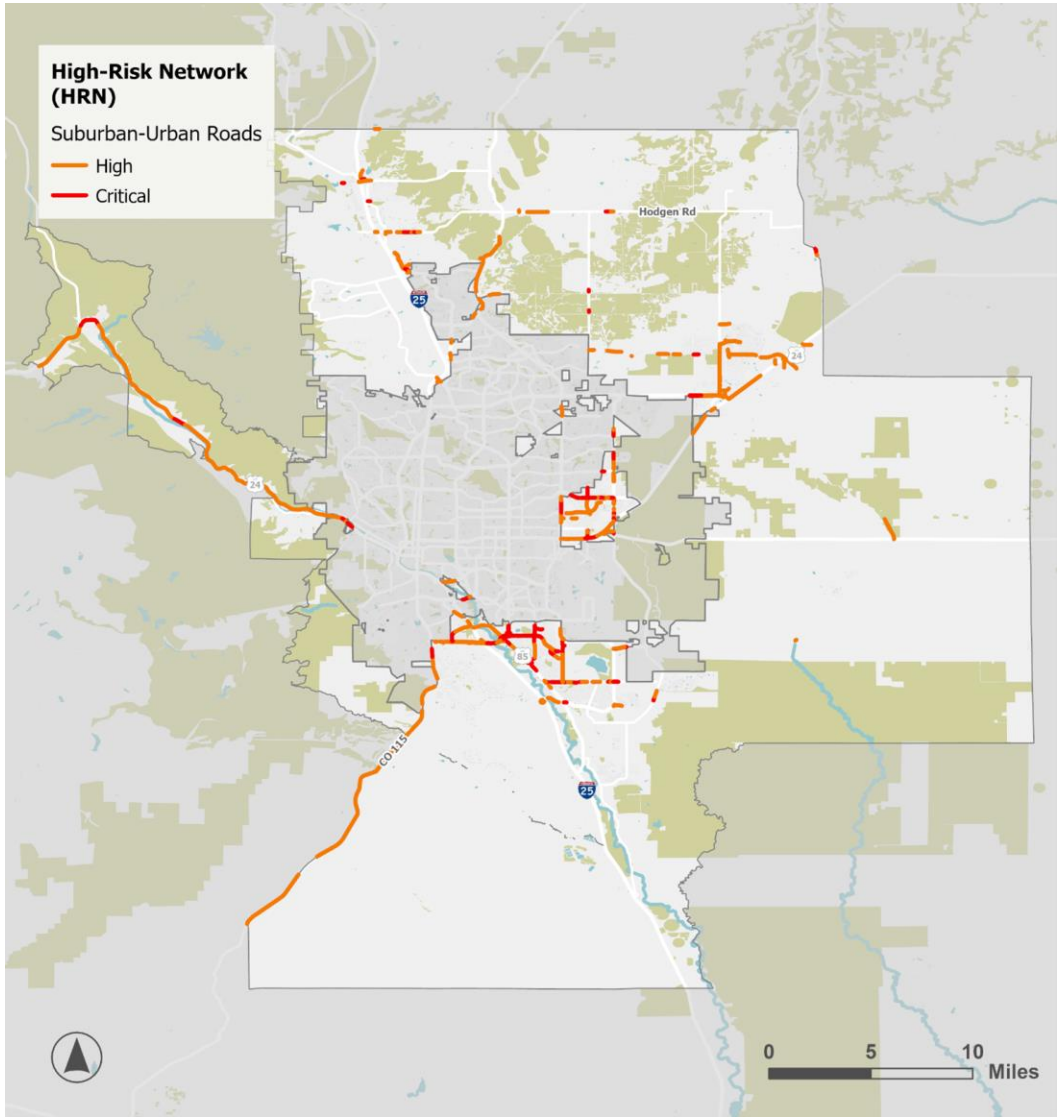
Mountain HRN



Risk Factors

- Functional class
- Traffic volume (AADT)
- Speed limit
- Senior population
- Zero vehicle households

Urban/Suburban HRN

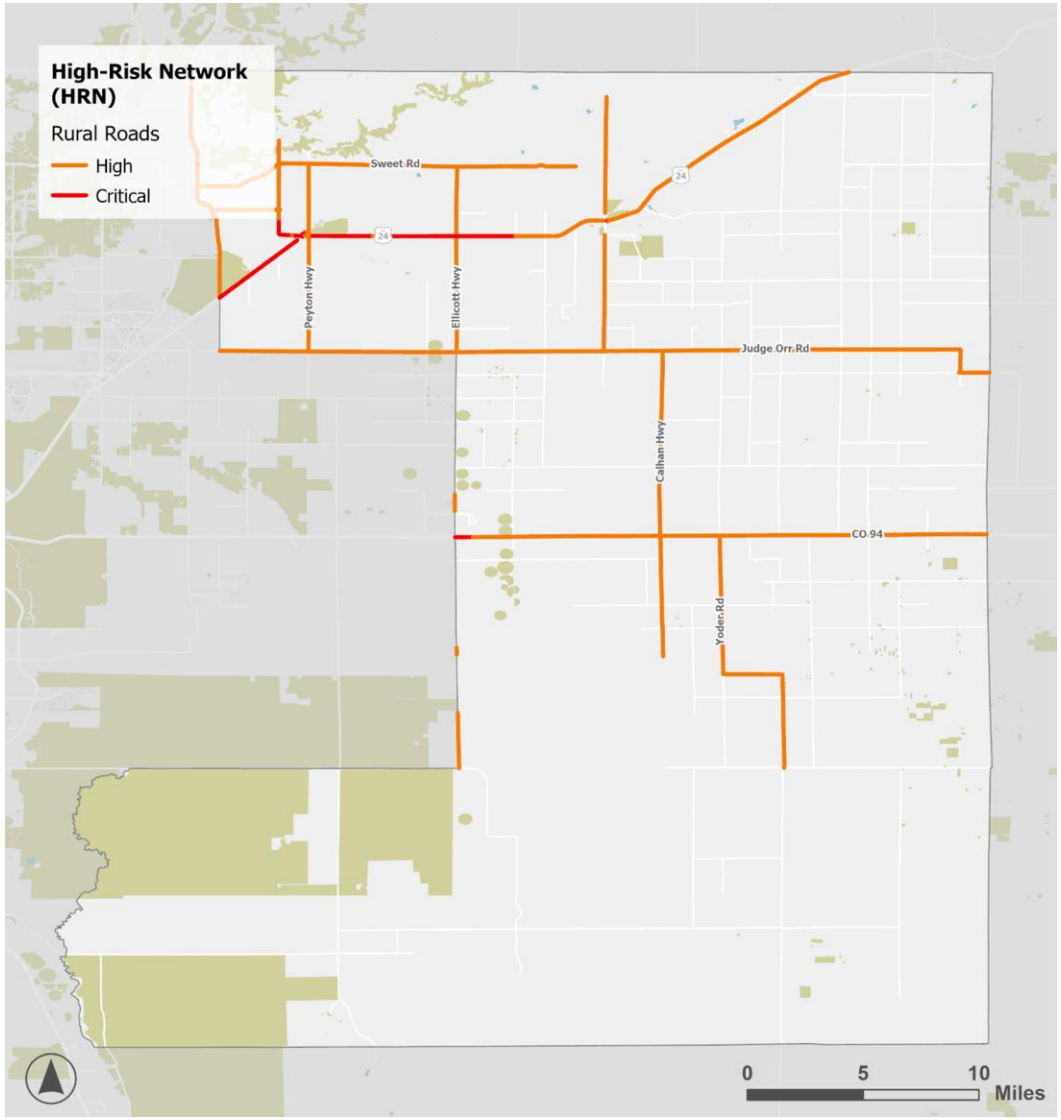


Risk Factors

- Traffic volume (AADT)
- Presence of median
- Zero vehicle households
- Proximity to schools

1610

Rural HRN



Risk Factors

- Traffic volume (AADT)
- Speed limit
- Limited English proficiency rate
- Senior population
- Proximity to schools
- Household poverty level

1611

Analysis Next Steps

Analysis Next Steps

Crash Analysis + High Injury Network (HIN)

Systemic Safety Analysis + High Risk Network (HRN)

Level of Service of Safety (LOSS) Analysis

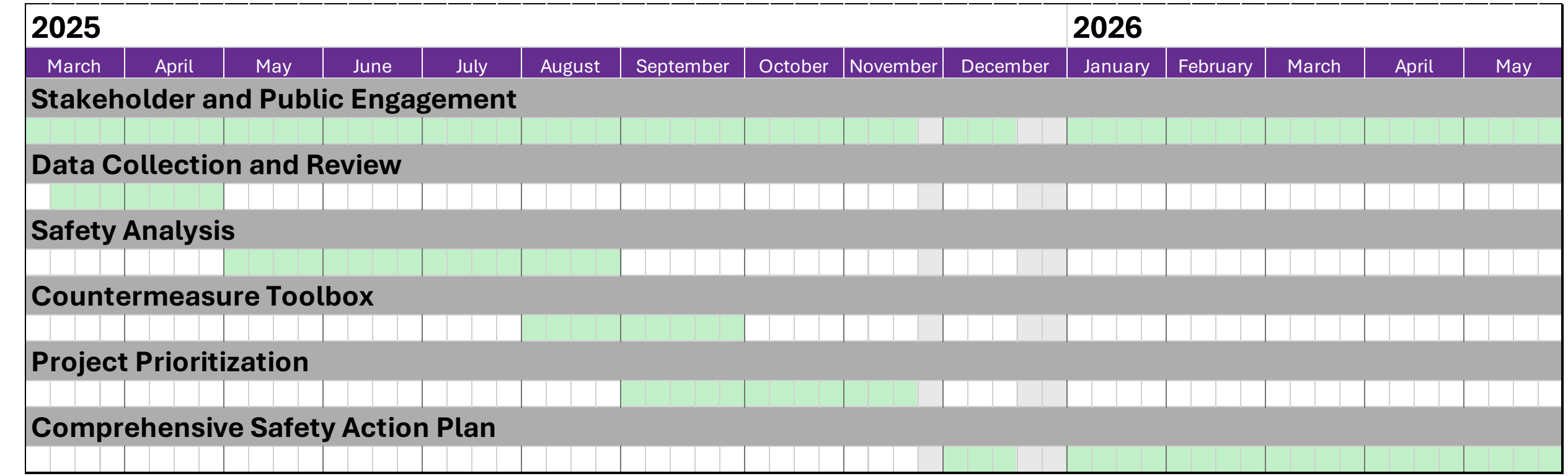
Prioritization of Top Locations

Countermeasure Pairing

Implementation Strategy and Policy Recommendation

Project Next Steps

Project Schedule



Pikes Peak Region Comprehensive Safety Action Plan

Woodland Park COLORADO City Above the Clouds 1891

Pikes Peak Area Council of Governments

Communities Working Together

Discussion & Questions

Pikes Peak Area Council of Governments
Communities Working Together

Date: October 29, 2025

To: Pikes Peak Area Council of Governments Community Advisory Committee

From: Colorado Department of Transportation/Josh Squires, Transportation Planner

Subject: Colorado Department of Transportation Regional Priority Project Funding Update

Action Requested: Information Only

Summary

Colorado Department of Transportation Region 2 staff are providing an update regarding Regional Priority Program (RPP) funding within the Pikes Peak Area Council of Governments region. The attached spreadsheet provides the list of projects anticipated to be programmed with Regional Priority Program funding spanning from the current year to 2032. Region 2 staff will discuss these adjustments with the Transportation Advisory Committee.

A Transportation Improvement Program amendment to reflect the changes is anticipated for the November Transportation Advisory Committee meeting.

Proposed Motion

Information only.

Attachments

1) Colorado Department of Transportation Regional Priority Program Memo
2) Regional Priority Program Spreadsheet, October 2025

Strategic Plan Goals

☐ Advocacy: Serve as an effective advocacy voice for common ground issues.
☒ Information Sharing: Serve as a significant resource for PPACG members to collect and share information with regional partners.
☐ Aging: Expand and extend senior access, awareness, education, and connectivity to support age-friendly communities and empower individual seniors.
☒ Transportation: Maintain and improve a coordinated, validated plan for transportation needs across the PPACG region.
☒ Program Excellence: Continue to excel in the key fundamental areas of PPACG: Military support, Environmental programs, Transportation, Area Agency on Aging, and regional communication and collaboration.

COLORADO
Department of Transportation
Region 2

North Program
1480 Quail Lake Loop, Suite A
Colorado Springs, CO 80906

Pikes Peak Area Council of Governments (PPACG) Regional Priority Program (RPP)

Funding Changes & Additional Years FY 2026 - 2032

October 20, 2025

CDOT is proposing the following changes and new Regional Priority Program (RPP) funding for Fiscal Years (FY) 2026 through 2032. These changes either add more than prior planned RPP funding or keep RPP funding levels the same within PPACG each year. FY 30 - 32 are newly added to the plan.

Proposed changes for FY 26 (net changes add $130,000 to PPACG FY 26 RPP totals):

1. New funding of $130,000 FY 26 RPP from Region-wide RPP program project savings that is allocated to the Region 2 RPP funding that is used to perform critical highway maintenance of mobility operations within the region. This project has $550,000 in funds that were used to resurface the intersection near Powers Blvd and Milton Proby Pkwy. The new funds bring the total to $680,000 of FY 26 RPP and will be used to complete crack sealing to ensure the long-term benefit of the recent CO115A projects southwest of Colorado Springs.
2. Move $150,000 FY 26 RPP from project "CO21A & B Mobility and Safety Improvements" to project "CO21A & B, US24A, I-25A Corridor Management". This project uses these funds to ensure corridor management which includes looking for future mobility and safety enhancements, including completing necessary corridor management tasks such as Environmental Assessment (EA) Financial Plans that are critical to all future planned activities on these corridors.

Proposed changes for FY 27 (net changes add $400,000 to PPACG FY 27 RPP totals):

3. New funding of $400,000 FY 27 RPP from overall RPP program project savings and allocated to US24H Resurfacing - I-25 to Powers Blvd. These funds will allow for pre-construction design work to commence on this proposed new 10-year project for FY 27 - 30 that PPACG approved in August.

Proposed changes for FY 28 ($0 net change to PPACG FY 28 RPP totals):

4. Reduce the allocation of FY 28 RPP to I25A S Academy-Circle/Lake Safety/Operational Improvements from $3,000,000 to $2,000,000. The reduced funds will go to projects #5 and #6 below, and this project will receive more future funding as noted in #9, #15 and #20 below.
5. Allocate $500,000 FY 28 RPP to CO21A/Stetson Hills Interchange. This funding will be used to begin pre-construction activities on this 10-year project added at PPACG's request to the new FY 27 - 36 10-Year Plan when approved in August 2025.
6. Allocate $500,000 FY 28 RPP to US85A Replace Structure J-18-M in Fountain. This funding will be used to continue pre-construction activities such as ROW acquisition on this proposed 10-year project for FY 31 - 36 that PPACG approved in August.

October 20, 2025

7. Move $500,000 FY 28 RPP from project “I-25A Mobility and Safety Improvements” to project “CO94A Corridor Study”, aligning the funding better with current area needs. These funds will allow for assessment of critical mobility and safety projects to support in the future.
8. Move $500,000 FY 28 RPP from project described as “US24A Mobility and Safety Improvements” to project described as “US24H Resurfacing - I-25 to Powers Blvd”, aligning the funding better to proposed 10-year projects.

Proposed FY 30 funding (FY 30 has not had a previously approved funding plan; $6,500,000 allocated here):

9. Allocate $2,000,000 FY 30 RPP to I25A S Academy-Circle/Lake Safety/Operational Improvements. This funding will be used to continue pre-construction activities and provide grant match funds on this active 10-year project.
10. Allocate $1,000,000 FY 30 RPP to CO21A/Stetson Hills Interchange. This funding will be used to continue pre-construction activities on this 10-year project added at PPACG’s request to the 10-year list when approved in August.
11. Allocate $2,500,000 FY 30 RPP to US24A/Ridge Rd Overpass. This funding will be used to continue pre-construction activities and provide potential grant match funds on this active 10-year project.
12. Allocate $250,000 FY 30 RPP to CO21A & B, US24A, I-25A Corridor Management. The project makes use of the funds to ensure corridor management which includes looking for future mobility and safety enhancements, including completing necessary corridor management tasks such as Environmental Assessment (EA) Financial Plans that are critical to all future planned activities on these corridors.
13. Allocate $250,000 FY 30 RPP to CO105A Resurfacing - I-25 to Palmer Lake. This funding will be used to continue pre-construction activities on this proposed new 10-year project for FY 31 - 36 that PPACG approved in August.
14. Allocate $500,000 FY 30 RPP to US85A Replace Str J-18-M in Fountain. This funding will be used to continue pre-construction activities such as ROW acquisition on this proposed new 10-year project for FY 31 - 36 that PPACG approved in August.

Proposed FY31 funding (FY 31 has not had a previously approved funding plan; $4,500,000 allocated here):

15. Allocate $1,000,000 FY 31 RPP to I25A S Academy-Circle/Lake Safety/Operational Improvements. This funding will be used to continue pre-construction activities and provide grant match funds on this active 10-year project.
16. Allocate $1,000,000 FY 31 RPP to CO21A/Milton Proby Interchange. This funding will be used to continue pre-construction activities on this proposed new 10-year project for FY 31 - 36 that PPACG approved in August.
17. Allocate $1,000,000 FY 31 RPP to CO21A/Stetson Hills Interchange. This funding will be used to continue pre-construction activities on this 10-year project added at PPACG’s request to the 10-year list when approved in August.
18. Allocate $1,000,000 FY 31 RPP to US85A Replace Structure J-18-M in Fountain. This funding will be used to continue pre-construction activities such as ROW acquisition on this proposed new 10-year project for FY31-36 that PPACG approved in August.
19. Allocate $500,000 FY 31 RPP to the Region 2 Regional Priorities funding that is used to perform critical highway maintenance of mobility operations within the region.

Proposed FY 32 funding (FY 32 has not had a previously approved funding plan; $4,500,000 allocated here):

October 20, 2025

20. Allocate $1,000,000 FY 32 RPP to I25A S Academy-Circle/Lake Safety/Operational Improvements. This funding will be used to continue pre-construction activities and provide potential grant match funds on this active 10-year project.
21. Allocate $1,000,000 FY 32 RPP to CO21A/Milton Proby Interchange. This funding will be used to continue pre-construction activities on this proposed new 10-year project for FY27-30 that PPACG approved in August.
22. Allocate $1,000,000 FY 32 RPP to CO21A/Stetson Hills Interchange. This funding will be used to continue pre-construction activities on this 10-year project added at PPACG's request to the 10-year list when approved in August.
23. Allocate $1,000,000 FY 32 RPP to US24A/Ridge Rd Overpass. This funding will be used to continue pre-construction activities and provide potential grant match funds on this active 10-year project.
24. Allocate $500,000 FY 32 RPP to the Region 2 Regional Priorities funding that is used to perform critical highway maintenance of mobility operations within the region.

Pikes Peak Area Council of Governments (PPACG)

Colorado Department of Transportation (CDOT) Regional Priorities Programming (RPP) Funding

October 2025

Project Description	CDOT Project Sub-account	2016-24 Prior Funds	2025 Planned Funds	2025 Budgeted Funds	2026 Planned Funds	2026 Budgeted Funds	2027 Planned Funds	2027 Budgeted Funds	2028 Planned Funds	2028 Budgeted Funds	2029 Planned Funds	2029 Budgeted Funds	2030 Planned Funds	2030 Budgeted Funds	2031 Planned Funds	2031 Budgeted Funds	2032 Planned Funds	2032 Budgeted Funds	Future Funds	2016-24 Subtotal Funds	2025-32 Subtotal Funds	Project RPP Total
Prior Year Completed Projects and Funding & Projected 31-32	Various	$ 29,717,494																		$ 29,717,494	$ -	$ 29,717,494
CO94A/Blaney Rd Jughandle	22479																				$ -	
Powers South PEL	24774																				$ -	
I25A Monument Gap PEL	21102																				$ -	
CO67D Woodland Park Widening/Paving	25080																				$ -	
US24G, CO21B Colorado Springs Signal Replacement	24476																				$ -	
CO115 -MP20-39 Safety/Bridge/Paving Improvements	22903		$ -	$ 612,840																$ 1,019,035	$ 612,840	$ 1,631,875
Powers (US24G)/Airport DDI Interchange	24610		$ -	$ 500,000																$ -	$ 500,000	$ 500,000
R2 Regional Priority Roadway Segments, Highway Paving & Maintenance of Mobility - HMA IDIQ Powers/Milton Proby Intersection Resufacing & CO115A Crack Sealing + Future Projects	26921			Change +$130K	$ 130,000	$ 550,000									$ 500,000		$ 500,000			$ -	$ 1,680,000	$ 1,680,000
~~I-25A Mobility and Safety Improvements~~	~~TBD~~								Was $500K				Was $1.5M							$ -	$ -	$ -
I-25A S Academy-Circle/Lake Safety/Operational Improvements (10YCP: 2759H 27+)	25092		$ -	$ 1,500,000	$ 1,000,000	$ 1,000,000			$ 2,000,000	Change -$1M			$ 2,000,000	New	$ 1,000,000		$ 1,000,000			$ 1,000,000	$ 9,500,000	$ 10,500,000
I-25 Resurfacing - Woodmen to CO105	TBD																			$ -	$ -	$ -
CO21A/Milton Proby Interchange	25017		$ -	$ 500,000	$ -	$ 200,000									$ 1,000,000		$ 1,000,000			$ 1,000,000	$ 2,700,000	$ 3,700,000
~~CO21A & B Mobility and Safety Improvements~~	~~TBD~~		$150K rolled to FY26		Was $150K															$ -	$ -	$ -
CO21A & B, US24A, I-25A Corridor Management	23074 / TBD				$ 150,000	New							$ 250,000	New						$ -	$ 400,000	$ 400,000
CO21B/Stetson Hills Interchange Preliminary Design (10YCP: TBD_H 31-36)	TBD								$ 500,000	New			$ 1,000,000	New	$ 1,000,000		$ 1,000,000			$ -	$ 3,500,000	$ 3,500,000
US24A Woodland Park Reliever Route Study	TBD		$500K rolled to FY26		$ 500,000	$ -														$ -	$ 500,000	$ 500,000
~~US24A Mobility and Safety Improvements~~	~~TBD~~								Was $500K											$ -	$ -	$ -
US24A/Ridge Rd Overpass (10YCP: 2549H 27+)	25355		$ -	$ 1,500,000	$ 500,000	$ -			$ 1,000,000	$ -			$ 2,500,000	New			$ 1,000,000			$ 100,000	$ 6,500,000	$ 6,600,000
US24G Garrett-Woodmen Widening	25094		$ -	$ 2,000,000	$ 1,000,000	$ 1,000,000			$ 2,000,000	$ -										$ 2,000,000	$ 6,000,000	$ 8,000,000
US24G -MP311-350 Mobility/Safety Improvements	TBD / 25122		$250K rolled to FY26		$ 250,000	$ -	$ 800,000	$ -	$ 500,000	$ -										$ -	$ 1,550,000	$ 1,550,000
US24G Resurfacing - Powers to Garrett Rd (10YCP: TBD_UH 31-36)	TBD																			$ -	$ -	$ -
US24H Resurfacing - I-25 to Powers Blvd (10YCP: TBD_UH 27-30)	TBD						$ 400,000	New	$ 500,000	New										$ -	$ 900,000	$ 900,000
CO94A Corridor Mobility & Safety Study	TBD								$ 500,000	New										$ -	$ 500,000	$ 500,000
CO105 Palmer Lake Maintenance Rehabilitation	26209		$ -	$ 100,000																$ -	$ 100,000	$ 100,000
CO105A Resurfacing - I-25 to Palmer Lake (10YCP: TBD_UH 31-36)	TBD												$ 250,000	New						$ -	$ 250,000	$ 250,000
US85A Replace Str J-18-M in Fountain (10YCP: TBD_H 31-36)	TBD								$ 500,000	New			$ 500,000	New	$ 1,000,000					$ -	$ 2,000,000	$ 2,000,000
~~CO21B/Dublin Interchange~~	~~TBD~~												Was $2M							$ -	$ -	$ -
~~US24A/21st St Interchange~~	~~TBD~~												Was $3M							$ -	$ -	$ -
PPACG Totals		$ 29,717,494	$ -	$ 6,712,840	$ 3,530,000	$ 2,750,000	$ 1,200,000	$ -	$ 7,500,000	$ -	$ -	$ -	$ 6,500,000	$ -	$ 4,500,000	$ -	$ 4,500,000	$ -	$ -	$ 34,836,529	$ 37,192,840	$ 72,029,369

Pikes Peak Area Council of Governments
Communities Working Together

Date: October 29, 2025

To: Pikes Peak Area Council of Governments Community Advisory Committee

From: Lisa Gagnon, Transit Planner

Subject: Federal Transit Administration Section 5310 Notice of Funding Availability

Action Requested: Information Only

Summary

On October 7, 2025, the Pikes Peak Area Council of Governments issued a Notice of Funding Availability for transportation programs and projects that serve older adults and individuals with disabilities within the Metropolitan Planning Organization area. Selected projects will be eligible for funding from January 1 to December 31, 2026, through the Federal Transit Administration's Section 5310 Enhanced Mobility of Older Adults and Individuals with Disabilities Program, available only for services in the Colorado Springs Urbanized Area.

Pikes Peak Area Council of Governments staff are working with human service providers to offer information and guidance throughout the application process.

Pikes Peak Area Council of Governments is providing information on this topic for future ranking and approval of recipients for this funding.

Proposed Motion

Information Only

Attachments

1. 2026 Notice of Funding Availability
2. Scoring Criteria
3. Application Questions

Strategic Plan Goals

☐ Advocacy: Serve as an effective advocacy voice for common ground issues.
☒ Information Sharing: Serve as a significant resource for PPACG members to collect and share information with regional partners.
☐ Aging: Expand and extend senior access, awareness, education, and connectivity to support age-friendly communities and empower individual seniors.

☒ Transportation: Maintain and improve a coordinated, validated plan for transportation needs across the PPACG region.
☒ Program Excellence: Continue to excel in the key fundamental areas of PPACG: Military support, Environmental programs, Transportation, Area Agency on Aging, and regional communication and collaboration.

Pikes Peak Area Council of Governments
Communities Working Together

Pikes Peak Area Council of Governments 2026 Notice of Funding Availability For Programs/Projects Serving Older Adults and Individuals with Disabilities

Introduction

The Pikes Peak Area Council of Governments issuing a Notice of Funding Availability to call for transportation programs and projects serving older adults and individuals with disabilities in the Metropolitan Planning Organization. Programs/projects awarded funding from this call will be eligible to receive funds from January 1, 2026, to December 31, 2026. Pikes Peak Area Council of Governments receives funding for programs/projects serving older adults and individuals with disabilities through:

- Federal Transit Administration Section 5310 Enhanced Mobility of Older adults and Individuals with Disabilities Program (Only available for services provided in the Colorado Springs Urbanized Area)

This Notice of Funding Availability sets forth guidelines for the program/project eligibility, evaluation criteria, selection process, and schedule for this call. Applications are due to Pikes Peak Area Council of Governments via online application system by November 4, 2025, 5:00 p.m. Late applications will not be accepted or considered for funding.

Definitions

Federal Transit Administration 5310 provides funding for programs that support older adults and individuals with disabilities under the age of 60, including:

- Assisted Transportation: assistance and transportation, including escort, to a person who has physical or cognitive difficulties using regular vehicular transportation.

- Contracted Mobility Services: direct cost associated with providing transportation provided to older adults and individuals with disabilities through the Federal Transit Administration 5310 program.

- Paratransit Services: Americans with Disabilities Act transportation services provided by Mountain Metropolitan Transit.

- Specialized Transportation: transportation services provided beyond Mountain Metropolitan Transit's paratransit services for older adults and individuals with disabilities.

- Subrecipient: a non-federal entity that receives a federal award from a direct recipient to carry out part of a federal program but does not include an individual that is a beneficiary of such program. A subrecipient may also be a recipient of other federal awards directly from a federal awarding agency

Application Process and Deadlines

All applicants will apply through Pikes Peak Area Council of Government's via online application system.

- Notice of Funding Availability release: October 7, 2025, Pikes Peak Area Council of Governments

- Applications Due: to Pikes Peak Area Council of Governments via the Notice of Funding Availability online application system by November 4th, 2025 by 5:00 pm. Application found here: https://forms.office.com/r/55kZAC0E8n

- Award notification and contract execution: December 2025

Program Descriptions

Federal Transit Administration 5310 is a formula program that provides Pikes Peak Area Council of Governments funds for contract mobility services in the Colorado Springs urbanized area. These transportation services are designed to improve mobility and meet the needs of older adults and individuals with disabilities. Federal Transit Administration 5310 program provides funds for transportation carried out to meet the special needs of older adults and individuals with disabilities when public transportation and complementary paratransit services are insufficient, inappropriate, or unavailable. For example, beyond a ¾ mile radius of paratransit services, service needed beyond paratransit level of service, i.e., Door thru Door, and/or services that extend beyond the time paratransit services are available. Federal Transit Administration 5310 projects must be targeted toward meeting the transportation needs of older adults and individuals with disabilities, although they may be used by the public on an incidental basis. It is not sufficient that older adults and individuals with disabilities are included (or assumed to be included) among the people who will benefit from the project.

Available Funding

Pikes Peak Area Council of Governments reserves the right to award some or all the funds available in this table based on application evaluation outcomes. Funds are subject to change based on the appropriations process at the state and federal levels. Click here for service area map

- Federal Transit Administration 5310: $ 623,715 Funding is available for the Colorado Springs Urbanized Area (UZA).

The total amount of funding available is subject to change based on the undetermined federal congressional appropriations. If funding levels are adjusted, applicants will be notified, and a separate Notice of Funding Availability may be issued.

Subrecipient Eligibility and Allowable Expenses

The following organizations are eligible for funding:

- A private nonprofit organization
- A state or local governmental authority

Allowable expenses include:

- Direct costs (those costs that may be computed and identified directly with a particular program/project)
- Fuel and oil expenses
- Vehicle maintenance activities
- Vehicle insurance
- Driver, supervisor, and dispatcher salaries and fringe benefits
- Purchased transit services.

Local Match

Approved applicants are required to provide a local match. The local share of eligible capital costs shall be not less than 20 percent of the net cost of the activity, and the local share for eligible operating costs shall be not less than 50 percent of the net operating costs. Mobility management is an eligible capital cost. Mobility management techniques may enhance transportation access for populations beyond those served by one agency or organization within a community. Local match can come from many sources, including state or local appropriations, tax revenues, private donations, revenue from service contracts, income generated from advertising and concession, and volunteer hours – provided its use as match is not prohibited or disallowed by that funding source. Local match may only be used once, e.g., the same OAA funds may not be used for two different grant applications.

Local match may include local cash or in-kind match. In-kind match may consist of non-cash contributions of time, equipment, space, and other items committed to the goals of the program. In-kind matching may involve the use of items or personnel time donated by a third party, i.e., volunteer labor. Local cash match is cash to cover program costs not already covered by Pikes Peak Area Council of Governments. The difference between the program's actual cost and Pikes Peak Area Council of Governments reimbursements may also be considered a cash match. It may include the grantee organization’s own funds or cash donations from non-federal third parties.

Selection Process

The selection process is a public process involving external stakeholders and committee members comprised of community members, programmatic experts, and representatives from regional municipalities.

Pikes Peak Area Council of Governments will largely determine the eligibility of each applicant project based on the Agency Profile and staff knowledge of each applicant’s operation, along with the information provided in the application. Staff and the selection committees will consider funding projects from each program for which an applicant and each project is eligible, subject to availability and scoring of the project.

Committee Review Schedule
1. Staff screen applications to ensure eligibility.
2. Applications are reviewed and scored by the Technical Review Sub-committees (TRS)
3. Technical Review Sub-committees will present funding recommendations to the Transportation Advisory Committee (TAC) for 5310 and local transit funds at their monthly public meetings. A public comment period for recommendations begins.
4. Applicants can contest recommendations in writing to the Transit Planner.
5. Recommendations from the Transportation Advisory Committee will be presented to the Community Advisory Committee for review before making the final funding recommendations to Pikes Peak Area Council of Government's Board of Directors.
6. Pikes Peak Area Council of Government's Board of Directors will review funding recommendations from the review committees and any contests or public comments that were relevant to the selection of projects and funding allocations.
7. Pikes Peak Area Council of Governments Board of Directors, after review, approves the distribution of funds or requests further review from committees.

All projects will be evaluated based on the criteria listed below. Applications are given a score of 0 to 3.0 in ¼ point increments for each element. The element score is then weighted based on the below criteria and added together to derive the total merit score.

1. Financial Need - Weight 10%
2. Service Justification - Weight 15%
3. Coordination and Effectiveness - Weight 20%
4. Alignment with the Pikes Peak Area Council of Governments Strategic Plan and Coordinated Human Services Plan - Weight 20%
5. Budget Review and Financial Management Capacity - Weight 20%
6. Past performance managing Pikes Peak Area Council of Governments and CDOT grants – Weight 15%

Any applicant not meeting the criteria will be contacted by Pikes Peak Area Council of Governments and given the opportunity to respond to any finding of ineligibility. Applicants must be prepared to take full responsibility for carrying out the proposed project. Projects cannot later be transferred or reassigned to another agency. Pikes Peak Area Council of Governments encourages agencies to collaborate on projects.

Funding recipients will be assessed annually for civil rights, programmatic, and fiscal compliance. Recipients must verify expenses and tie them to the program outcomes listed in their application. Once an agency's budget is approved by Pikes Peak Area Council of Governments staff, a recipient cannot change or add a line-item expense to their budget to help prove cost.

Non-discrimination and Civil Rights

All recipients of 5310 transportation must adopt a Title VI plan that meets the requirements stated in Federal Transit Administration's Title VI Circular. Applicants will be required to have Title VI plans developed and adopted prior to receiving any funds. Applicants will be provided templates to craft their plans if there is not a current plan in place. Recipients will be monitored yearly for Title VI compliance during their program review period.

The Title VI Plan must include.

- A detailed description of how your organization will provide outreach and services to Limited English Proficient individuals
- Assurances of following ADA rules and regulations, including certificates of equivalent service for vehicles that are not ADA accessible
- Policies and procedures of how a citizen may submit a Civil Rights complaint and a description of the review process
- Equal Opportunity Employer Statement

Please refer to the Federal Transit Administration Circular for more information on Title VI requirements.

https://www.transit.dot.gov/sites/fta.dot.gov/files/2024-10/C9070.1H-Circular-11-01-2024.pdf

5310 RFP
EVALUATION CRITERIA
All projects will be evaluated based on the criteria listed below. Applications are given a score of 0 to 3.0 in ¼ point increments for each element. The element score is then weighted based on the above criteria and added together to derive the total merit score.

1. Financial Need- Factors considered as a part of this criterion include: (Weight 10%)

- Lack of funding sources available to the applicant
- Reasonable faith efforts to obtain funds for the project from non-FTA sources
- Reasonableness of costs to operate and administer the project
- Amount of available revenue, including earmarked funds
- A portion of the costs covered by local funds

0= Does not demonstrate a financial need
1= Demonstrates a financial need, but this funding would be their sole source for transportation programming and may not meet match requirements
2= Demonstrates a financial need but has limited resources and capacity to source other fundingto support their program.
3= Demonstrates the need for funds and has diverse funding sources for transportation of seniors and individuals with disabilities.

2. Service Justification- Factors considered as a part of this criterion include: (Weight 15%)

- Lack of appropriate public transportation alternatives (Demonstration of need)
- Transit dependency of population proposed project serves
- Extent to which the applicant provides services to other organizations, the number of riders, and types of trips
- Size of the applicant's service area

0=The proposal did not provide any justification for their services in the region.
1=Provides anecdotal information about the need for services in this area but no references to published data or information from their own tracking systems.
2=Provides data on past usage but no data showing gaps in services to which their project will work to fill.
3=Provides comprehensive data from past services, demographic trends, and references how their project will address gaps identified through their own assessment and other published tools

2. Coordination and Effectiveness- Factors considered as a part of this criterion include: (Weight 20%)

- Extent to which coordination reduces operating expenses, number of vehicles used, and lead time for passenger scheduling
- Extent to which the applicant works with community organizations to promote the service
- Lack of duplication of transit services provided by others
- The performance measure(s) listed for each activity demonstrates their ability to improve their clientele's quality of life and can also indicate the quality of

change that was produced by the activity

0=Demonstrates no previous coordinating activities with other groups and does not list activities the agency would like to do with funds to enhance the efficiency and effectiveness of transit services in the urbanized area.
1=Demonstrates a desire to coordinate with others but has not done so in the past.
2=Connected to others through committees and other networks but has no formal coordinating agreements with other groups.
3=Coordinates with others through formal partnerships and share programming to enhance and expand services in the urbanized area.

3. Alignment with PPACG's Strategic Plan, Pikes Peak Area Agency (PPAAA) on Agency 4 Year Plan, and Coordinated Human Service Plan- Factors considered as a part of this criterion include: (Weight 20%)

   - Proposed projects focus on addressing service gaps identified through PPACG and PPAAA plans.

   0=Project proposed does not align with any of the plans listed above.
   1=Project aligns with one measure cited in the plans listed.
   2=Project aligns with two or more measures listed in the plans.
   3=Project addresses three or more measures identified through plans

4. Budget Review and Financial Management Capacity- Factors considered as a part of the criterion include: (Weight 20%)

   - The results of risk assessment on each applicant determining the level of controls in place to manage a federal program., with a more thorough evaluation of the projects recommended for funding.
   - A cost analysis will be conducted on each application, with a more thorough evaluation of the projects recommended for funding. The purpose of this analysis is to determine whether the subrecipient understands the financial aspects of the proposed project and has developed reasonable estimates of costs involved in performing the project.
   - This review will take place during steps five, six, and eight in Table 4, and it will include a review of the proposed local matching funds source.

   0=Agency presents an incomplete budget with proposal and scores low on the risk assessment.
   1=Agency demonstrates from risk assessment limited capacity to manage federal funds due to the absence of staffing and/or lack of sufficient tracking mechanisms.
   2=Agency demonstrates staff and fiscal management capacity but is new to receiving federal funds for transportation.
   3=Agency demonstrates staff and fiscal management capacity to manage federal transit funds with an excellent track record.

6. Past performance managing PPAAA and CDOT grants. (15%)

   0=The agency is on restriction from receiving grant funds.
   1=The agency has had findings on a previous program and financial assessments for two consecutive years.
   2=The agency has had findings on the program and/or financial assessments but

has demonstrated through their most recent yearly assessment, corrective actions taken were successful.
3=There have been no findings on the program and financial assessments in the past three years.

Application Questions

Agency Information

1. Submitting agency
2. Federal Employer ID Number
3. Date established
4. Type of organization

Agency Contacts

1. Name, Title, Role, Email, Phone Number

Agency Description

1. Provide a brief history of your organization, programs offered, and service area.
2. Please provide specific information about the level of services offered, hours of operation, capacity, and how the public can access your services.
3. Does your organization require a fee for service? If so, what percentage of your program is funded by fees? Describe any accommodations made for low-income individuals?
4. Demonstrate the need for services in your area. We suggest applicants include any relevant statistics. If a statistic is used, please note the source.

Proposed Services

1. Please list your proposed services with requested federal funding amount
2. Describe your proposed services
3. Please provide a detailed budget for the prosed service (Revenues, local cash, local in-kind, program income, expenses, unit rate analysis, ect)
4. Please provide the service ear offered for each proposed service
5. Please provide a description of volunteer support for the proposed service

Funding Narrative Questions

1. Funding sources through PPACG require a match. Please describe how your organization will source matching funds through in-kind and cash.
2. Has your entity had difficulty meeting local match requirements in the past three years?
3. Is this funding request 10% or more of your entity's overall budget?
4. Has your organization managed federal funds in the past three years?
5. What is the total federal funding your entity has been awarded for the last federal fiscal year, and what is your entity's fiscal year-end?
6. Describe your agency's efforts to obtain funds for the project from non-FTA sources.
7. Is the program you are trying to fund new to your entity?

Accounting Narrative Questions

1. Will your accounting system provide the recording of expenditures for each award by the budget cost categories shown in your budget?

2. Does your payroll system have the capability to track time and effort towards grant awarded projects?
3. Does your accounting system identify the receipts and expenditures of program funds separately for each award?
4. Does your agency have a review process for all expenditures that will ensure that all costs are reasonable, allowable, and allocated correctly to each funding source?
5. Does your entity have written procurement policies?
6. Does your entity have a written process assuring subcontractors conform to the rules and regulations that apply to the programs you may receive funding for?
7. How many total full time employees performs accounting functions within your organization?

Staff Narrative Questions

1. Has your entity had any significant changes in key personnel in the last year? (e.g., Controller, Executive Director, Program Manager, Accounting Manager, etc.) If so, please describe the changes and/or vacancies.
2. Does your staff assigned to this program have at least three full years of experience managing federal transportation programs?
3. Is your staff familiar with the relevant PPACG policies and federal program requirements? (FTA Section 5310 Circular for transportation, OAA program requirements, and 2 CFR 200 for all programs)

Audit Narrative Questions

1. Were there any non-compliance issues in your last review and/or single audit? If so, please describe the issues and corrective action taken to remedy the issues.
2. Has your entity had an on-site project or grant review from an external entity (e.g., CDOT, PPACG) within the past three years?
3. Has your entity been required to return funds after a program audit?

General Narrative Questions

1. Describe your organization's efforts to coordinate services with other organizations or programs.
2. Detail how your organization's funding request and program align with the following relevant plans to your project: AAA Four-Year Plan, PPACG's Strategic Plan, Specialized Transit Plan (transportation only)
3. Describe your organization's efforts to target or promote your services to minority groups and people with limited English proficiency.

Conflict of Interest Narrative Questions

1. For this award, has your entity had any violations of Federal criminal law involving fraud, bribery, or gratuity violations that would potentially affect your eligibility? If so, please describe.

2. For this upcoming federal award or in the immediate future, does your entity have any potential conflicts of interest in accordance with applicable Federal awarding agency policy? If Yes, please disclose these conflicts in writing, along with supporting information. (*Any practices, activities, or relationships that reasonably appear to be in conflict with the full performance of the Subrecipient's obligations to PPACG.)

Documents

Please email, PPACG's Transit Planner, Lisa Gagnon, lgagnon@ppacg.org with the following documents:

1. Board Resolution Template (Required)
2. Certificate of Good Standing (Required)
3. Certificates of Insurance (Required)
4. Self Assessment (Required)
5. ADA Plan Template (Transportation Specific) (Not Required)
6. EEO Plan Template (Not Required)
7. Title VI Plan Template (Transportation Specific) (Not Required)
8. Any additional documents

Terms And Conditions

In submitting a proposal, you agree to the following terms and conditions. It is understood and agreed by the proposer

that:

1. Funds granted as a result of this request are to be expended for the purposes as allowed under the Federal Transit Administration and as set forth herein, and in accordance with all applicable laws, regulations, policies, and procedures of the Pikes Peak Area Council of Governments (PPACG), the State of Colorado, and the Administration on Aging of the U.S. Department of Health and Human Services;
2. Funds granted as a result of this request are contingent upon the services provided being allowable expenses;
3. Payment for services rendered cannot occur until the parties have fully executed a contract and PPACG has confirmed that the services are eligible for funding;
4. Funds awarded as a result of this request may be terminated at any time for violations of any terms or requirements of the required contract or any applicable laws, regulations, policies or procedures, or in the event that it is determined that the services are not eligible for funding under the Federal Transit Administration;
5. The Required Reading Section of this proposal application will be read prior to finalizing and submitting a
proposal.

It is further acknowledged and agreed to that this application is a solicitation and not an offer to contract. PPACG reserves the right to reject any and all proposals. PPACG further reserves the right to issue clarifications and other directives concerning this application; to require clarification or further information with respect to any proposal; and to determine the final terms of any contract.

It is further agreed that the proposer also represents that its agency and its principals are not suspended or debarred per
federal requirements

In signing this proposal, we acknowledge and consent to the above terms and conditions

Date of signing

Pikes Peak Area Council of Governments
Communities Working Together

Upcoming Meeting Schedule

Date	Time	Meeting
October 29	3 p.m.	Community Advisory Committee
November 3	8:30 a.m.	Legislative Committee
November 3	11 a.m.	Transportation Advisory Committee – Pre-Application Workshop
November 5	9 a.m.	Commission on Aging – Executive Committee
November 7	9 a.m.	Board of Directors Workshop
November 12	9 a.m.	Board of Directors
November 19	9 a.m.	Water Quality Management Committee
November 19	1 p.m.	Air Quality Working Group
November 19	3 p.m.	Commission on Aging
November 20	8:30 a.m.	Mobility Coordinating Committee – Executive Committee
November 20	1:30 p.m.	Transportation Advisory Committee
November 20	2 p.m.	Commission on Aging – Caregiving
November 26	3 p.m.	Community Advisory Committee
December 1	8:30 a.m.	Legislative Committee
December 2	9:30 a.m.	Mobility Coordinating Working Group
December 3	9 a.m.	Commission on Aging – Executive Committee
December 3	11 a.m.	Regional Advisory Council – Executive Committee
December 5	9 a.m.	Board of Directors Workshop
December 10	9 a.m.	Board of Directors
December 17	9 a.m.	Water Quality Management Committee
December 17	3 p.m.	Commission on Aging
December 18	10 a.m.	Regional Advisory Council
December 18	1:30 p.m.	Transportation Advisory Committee
December 18	2 p.m.	Commission on Aging – Caregiving
December 31	3 p.m.	Community Advisory Committee

Schedule as of October 23, 2025
Meetings may be added, changed or cancelled as needed. Current meeting schedule is available at ppacg.org.