Prepared for:

Colorado Springs Utilities

It's how we're all connected

Colorado Springs Utilities Northern Monument Creek Interceptor and Middle Tributary Lift Station Interceptor Connection

Construction Stormwater Pollution Prevention Plan (SWPPP)

For General Permit COR12000F

Colorado Springs, Colorado

March 2026

SWPPP MUST BE KEPT ON SITE

Prepared By:

1670 Broadway, Suite 3400
Denver, Colorado
(303) 764-1520
www.hdrinc.com

Please add this text:

EPC EDARP File No.: CDR266

SWPPP Certification and Notification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information contained therein. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information contained is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

HDR Engineering, Inc. Date

Table of Contents

General Requirements **5**
Qualified Stormwater Manager 5
Permittee / Qualified Stormwater Manager Duties 7
Permitting 7
Plan Availability and Retention 7
Training 7
Reviews and Revisions 8
Inspections 8
Other Required Noncompliance Notifications 9
Site Description **10**
Nature of Construction Activity at the Site 11
Proposed Sequence of Major Construction Activities 11
Area Estimates 11
Existing Soil Information 11
Vegetative Coverage 11
Allowable Non-Stormwater Discharges 12
Receiving Waters 12
Stream and Road Crossings 13
Diversion Structures: 14
Alternate Temporary Stabilization Frequencies 14
Endangered Species Certification 14
Historic Preservation 14
Site Map **14**
Potential Sources of Pollution **15**
Control Measure Implementation **16**
Structural Control Measures 16
Non-Structural Control Measures 16
Documented Use Agreement 16
Dewatering Practices 17
Materials Handling **17**
Good Housekeeping Practices 17
Spill Prevention and Response Plan **17**

Stabilization Requirements **18**
Temporary Stabilization 18
Final Stabilization 18
Long Term Stormwater Management 19
Inspection Reports **19**
Inspection Frequency 19
Reduced Inspection Frequency 19
Post-Storm Inspections at Temporarily Idle Sites 19
Inspections at Completed Sites/Areas 20
Winter Conditions Inspections Exclusion 20
Inspection Scope 20
Appendix A: Site Maps & BMP Details ..... **A**
Appendix B: General Permits (for Reference) ..... **B**
Appendix C: NOI Application and EPA Authorization ..... **C**
Appendix D: Inspection Form ..... **D**
Appendix E: Corrective Action Log and Form ..... **E**
Appendix F: SWPPP Amendment Log ..... **F**
Appendix G: Subcontractor Certification and Agreements ..... **G**
Appendix H: Grading and Stabilization Log ..... **H**
Appendix I: Training Documentation ..... **I**
Appendix J: Delegation of Authority ..... **J**
Appendix K: Record of Environmental Consideration (NEPA) ..... **K**
Appendix L: Seeding Specifications ..... **L**
Appendix M: Dewatering Inspection Form ..... **M**
Appendix N: Spill Plan and Action Guidance ..... **N**
Appendix O: Pre-Construction Photos ..... **O**
Appendix P: El Paso County Permitting ..... **P**
Appendix Q: Additional Reference Documents ..... **Q**

General Requirements

The following Construction Stormwater Pollution Prevention Plan (SWPPP) covers work associated with the Northern Monument Creek Interceptor (NMCI) and Middle Tributary Lift Station Interceptor (MTLSI) Connection project being conducted by Colorado Springs Utilities (Utilities). It was prepared in accordance with good engineering, hydrologic, and pollution control practices and developed to comply with requirements of the United States Environmental Protection Agency's (EPA) National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges from Construction Activities (CGP), Permit Number COR12000F as modified and effective April 8, 2025 and attached for reference in Appendix B.

This SWPPP report was also developed to comply with City of Colorado Springs (COS), the United States Air Force Academy, Town of Monument, and El Paso County requirements. The terms SWPPP and Construction Stormwater Management Plan (CSWMP or SWMP) may be used interchangeably throughout the report.

The permittee must implement the provisions of the SWPPP as written and updated, from commencement of construction activity until final stabilization is complete as defined by COR12000F.

Qualified Stormwater Manager

This SWPPP must identify, at a minimum, one person who meets the following description of a Qualified Person:

"A person knowledgeable in the principles and practices of erosion and sediment controls and pollution prevention, who possesses the appropriate skills and training to assess conditions at construction site that could impact stormwater quality and the appropriate skills and training to assess the effectiveness of stormwater controls selected and installed to meet the requirements of this permit."

The qualified stormwater manager (QSM) is responsible for implementing the SWPPP in its entirety. This role may be filled by more than one individual. Update the following table accordingly throughout the life of the project as roles and responsibilities change. Include new rows/additional sheets as necessary.

Qualified Stormwater Manager Contact Information

PROJECT OWNER:			
Name: Andy Muser	Company: Colorado Springs Utilities	Address: 1521 South Hancock Expressway, Colorado Springs, CO 80903	Email: amuser@csu.org
Title: CSU Project Manager	Phone: 719-668-8373		QSM (Y/N) N
PROJECT OPERATOR:			
Name:	Company:	Address:	Email:
Title:	Phone:		QSM (Y/N)
PROJECT MANAGER:			
Name:	Company:	Address:	Email:
Title:	Phone:		QSM (Y/N)
SWPPP PREPARER:			
Name: Rachel Keatley	Company: HDR	Address: 1670 Broadway Suite 3400 Denver, CO, 80202	Email: Rachel.keatley@hdrinc.com
Title: Design Engineer	Phone: 303-318-6351		QSM (Y/N) N
CONSTRUCTION FOREMAN/MANAGER:			
Name:	Company:	Address:	Email:
Title:	Phone:		QSM (Y/N)
SWPPP INSPECTOR:			
Name:	Company:	Address:	Email:
Title:	Phone:		QSM (Y/N)
CONTROL MEASURE INSTALLER:			
Name:	Company:	Address:	Email:
Title:	Phone:		QSM (Y/N)
EMERGENCY 24-HOUR CONTACT			
Name:	Company:	Address:	Email:
Title:	Phone:		QSM (Y/N)
OTHER:			
Name:	Company:	Address:	Email:
Title:	Phone:		QSM (Y/N)

Permittee / Qualified Stormwater Manager Duties

The permittee and qualified stormwater managers defined and identified in the Qualified Stormwater Manager section of this report are responsible for maintaining this SWPPP per requirements in the general permit. Key responsibilities for management of this SWPPP document are defined below.

Permitting

The permittee must originate all permit applications and submit them to the United States Air Force Academy (USAFA) Contracting Officer (CO) for review and approval by the USAFA Environmental Office. Once the SWPPP and draft permit materials are approved, submit an electronic Notice of Intent (NOI) to the Environmental Protection Agency (EPA). Once received, attach NOI documentation as Appendix C of this report.

Before ground disturbance, install stormwater controls and contact USAFA CO to schedule a site visit for verification. Earth disturbing activities may commence as soon as site visit is completed, dewatering and construction air permits are secured, and the contractor receives an individual permit number from the EPA. Submit copies of all documentation to USAFA CO. Contractor must post a sign at a safe, publicly accessible location in close proximity to the construction site per the project specifications and requirements of Permit COR12000F.

After construction activities are complete and final stabilization has been achieved, the Environmental Office will sign the USAFA Notice of Termination form and notify the permittee to proceed. Permittee shall then submit an electronic Notice of Termination (NOT) to the EPA.

Plan Availability and Retention

AVAILABILITY

The permittee must provide a copy of the SWPPP to the EPA, and any local agency with authority for approving sediment and erosion control plans, grading plans, or local SWPPPs upon request.

RETENTION

Permittee must retain a copy of the SWPPP that the construction site from the date of the initiation of construction activities unless another location, specified by the permittee, is approved by the EPA.

Permittee must retain copies of documentation required by the general permit, including records of all data used to complete the application for permit coverage, for at least three years from the date the permit coverage is terminated.

Training

The qualified stormwater manager is responsible for ensuring that all activities on the site comply with the permit requirements. Personnel should be briefed on these requirements in relation to their work, via monthly tailgate discussions or similar methods. If any personnel are planned to conduct stormwater inspections, formal training must be provided and documented in Appendix I.

Reviews and Revisions

The qualified stormwater manager should document installation dates of all control measures as well as continuously review and update the SWPPP, which acts as a living document, as part of the overall process of assessing and managing stormwater quality issues at the site.

Qualified stormwater managers, or other onsite staff, must amend the plan, report narrative or site maps, within seven days when any of the following occurs:

- A change in design, construction, operation, or maintenance of the site requiring implementation of new or revised control measures;
- The SWPPP proves ineffective in controlling pollutants in stormwater runoff in compliance with the permit conditions;
- Control measures identified in the SWPPP are no longer necessary and are removed;
- Corrective actions are taken onsite that result in a change to the SWPPP; and
- Revisions to Federal, State, or local requirements that affect the control measures implemented at the site.

For SWPPP revisions made prior to or following changes onsite, including revisions to sections addressing site conditions and control measures, include a notation that identifies:

- Date of the site change, the control measure removed, or modified;
- Locations of those control measures;
- Changes to the control measures; and
- Name of person authorizing each change.

The permittee must ensure site changes are reflected in the plan. The permittee is noncompliant with the permit until the SWPPP revisions are made. A SWPPP amendment log is provided for convenience in Appendix F.

Inspections

A qualified stormwater manager must conduct regular inspections of the site beginning within seven days of commencement of construction activities at the site and until final stabilization is achieved and permit coverage is terminated.

The permittee is responsible for verifying that inspections are conducted by a qualified stormwater manager. Additional inspection requirements are discussed in the Inspection Report section of the report.

ROUTINE MAINTENANCE

Maintenance must be in accordance with good engineering, hydrologic, and pollution control practices. Control measures requiring routine maintenance, as observed during an inspection or as a general observation at the site, are not subject to requirements of corrective actions (described below).

CORRECTIVE ACTIONS

Permittee must take all necessary steps to minimize or prevent discharge of pollutants until a control measure is implemented and made operational and/or an inadequate control measure is replaced or returned to effective operating condition.

If it is infeasible to install or repair a control measure immediately after discovering the deficiency, the following information must be documented and kept on record:

- Description of why it is infeasible to initiate the installation or repair immediately; and
- Provide a schedule for installing or repairing the control measure and returning it to an effective operating condition as soon as possible but no later than seven calendar days from the time of discovery.

The permittee must remove and properly dispose of any unauthorized release or discharge (e.g. discharge of non stormwater, spill, or leak not authorized by the Construction Stormwater Permit). The permittee must also clean up any contaminated surface to minimize discharges of the material in subsequent storm events.

The permittee is noncompliant with the Construction Stormwater Permit until the inadequate control measure is replaced or returned to effective operation condition.

Other Required Noncompliance Notifications

Permittee must notify the USAFA Environmental Office if circumstances allowing any of the following occur:

- Noncompliance which may endanger health or the environment regardless of the cause of the incident;
- Unanticipated bypass which exceeds effluent limitations in the general permit;
    - Bypass: *The intentional diversion of waste streams from any portion of a treatment facility.*
- Upset which causes exceedance of any effluent limitation in the general permit;
    - Upset: *Unintentional and temporary noncompliance with permit effluent limitations because of factors beyond the reasonable control of the permittee. Does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation.*
- Daily maximum violations for any pollutants limited by Part I of the general permit, including any toxic pollutant or hazardous substance or any pollutant specifically identified as the method to control any toxic pollutant or hazardous substance.

Upon discovery, the permittee must provide verbal notification to the USAFA Environmental Office within 24 hours and a written report within five working days.

Site Description

This Project will construct a new gravity interceptor which will ultimately allow for the replacement of multiple wastewater lift stations in the Utilities collection system. An overall vicinity map is shown in Figure 1 below, with the pipe alignment shown in red.



Figure 1: Vicinity Map

The NMCI will reside in an easement dedicated to Utilities, beginning just north of USAFA at a connection point to a shared Tri-view Metropolitan District and Forest Lakes Metropolitan District main near the Upper Monument Creek Regional Wastewater Treatment Facility. The interceptor will extend south to a connection point located south of Interstate 25 at an existing aerial crossing of Pine Creek.

The MTLSI lateral will be designed and constructed at the same time as the NMCI as the first lateral connection into the system. MTLSI will intercept and transfer flows from the Middle Tributary Lift Station on the east side of I-25 into NMCI.

Nature of Construction Activity at the Site

This project will construct approximately eight and one-half (8.5) miles of 30” interceptor pipe as well as approximately 1,300 linear feet of 12” lateral pipe. Contractors will install the pipelines using a combination of trenchless, horizontal directional drilling (HDD), and open cut methods.

Regular work hours are scheduled 7AM to 6PM from Monday to Friday.

Proposed Sequence of Major Construction Activities

Construction is anticipated to span approximately two years, starting in mid-2026 and ending in 2028. Before construction commences, the contractor shall prepare the site by installing erosion control measures and clearing/grubbing as construction progresses. During construction, exposure of non-stabilized disturbed areas will be limited as not all areas will be in the same phase at the same time.

The first portion of work to be completed will include the HDD and tunnel locations spaced throughout the project. Construction will then commence linearly via open trenching methods for the interceptor pipe followed by backfill operations. Once complete, asphalt patching will occur within paved areas and any vegetation disturbed will be restored to achieve final stabilization.

Area Estimates

Please clarify that the estimated EPC portion of the disturbance is 2.68ac

The total construction area at the project site comprises areas that may not be disturbed during construction or are surface stabilized. Total construction area of the site is roughly 207 acres.

The total disturbance area at the project site comprises areas that will be cleared, excavated, graded, or otherwise impacted by construction in a manner that causes soil exposure beyond background levels. The disturbance area has been estimated to be up to 165 acres.

Existing Soil Information

Per the Geotechnical Report prepared by Shannon & Wilson, Inc. and dated June 2025, existing soils onsite are characterized as fill, alluvium consisting of sand with varying amounts of silt and clay, residuum (completely weathered bedrock), and bedrock. Using additional data obtained from the NRCS Web Soil Survey website (see Appendix Q), the soil generally aligns with qualities of Hydrologic Soil Group B. The soil maps indicate a low-to-mid K factor for the area of interest, which suggests that the potential for sheet erosion by water is mildly low. The soil maps also indicate a high level of susceptibility for wind erosion based on the Wind Erodibility Group.

Vegetative Coverage

Vegetative cover for the project site is estimated to range from 70-75% based on site visits and aerial imagery from Google Earth dated October 6, 2023.

Allowable Non-Stormwater Discharges

Contractors will manage authorized non-stormwater discharges in conjunction with stormwater discharges at the site. Implemented control measures were designed to handle increased discharges due to the below allowable non-stormwater sources.

- Discharges from uncontaminated springs that do not originate from an area of land disturbance;
- Discharge to the ground of concrete washout water associated with washing of concrete tools and concrete mixer chutes. **Discharges of concrete washout water must not leave the site as surface runoff or reach receiving waters.** Controls for concrete washout are shown in Appendix A. Dispose of concrete waste consistent with Part 2.3.3e of COR12000F;
- Landscape irrigation return flow. Generally, sites that only propose salvaged materials and seed for revegetation do not require temporary irrigation assuming adequate soil preparation and correct seasonal timing of implementation was met;
- Discharges from emergency fire-fighting activities;
- Fire hydrant flushings;
- Water used to wash vehicles, buildings and equipment, **provided that there is no discharge of soaps, solvents, or detergents used for such purposes**;
- Water used to control dust;
- Potable water including uncontaminated water line flushings;
- Uncontaminated air conditioning or compressor condensate;
- Foundation or footing drains

Diversion of state waters is not anticipated as part of this project.

All other non-stormwater discharges at the site must be covered by a separate NPDES permit or by the EPA's Low Risk Discharge Guidance document. Separate plans will be developed by the contractor to indicate locations of these discharges, if any, and associated control measures.

Receiving Waters

This project is located in the Monument Creek watershed. From I-25, runoff generally flows west as sheet flow or channelizes within ephemeral drainage ditches (which only contain water during and directly after a storm event). Runoff then travels into seven major creeks and drainage branches: Jackson Creek, Black Forest Creek, Smith Creek, Monument Branch, Middle Tributary, Black Squirrel Creek, and Kettle Creek. These branches then ultimately feed into Monument Creek. Monument Creek is currently listed as impaired for E coli.

Any work in or near surface waters will be restricted to the permitted limits of disturbance (LOD) determined as part of the NEPA process. A 404 permit will also be obtained before construction for any impacts to wetlands or surface waters within the LOD.

Stream and Road Crossings

To avoid sensitive creeks and Preble's meadow jumping mouse habitat, the project includes five inverted siphon crossings installed via HDD. The project also includes seven trenchless crossings of roadways and drainageways using various tunneling technologies. The crossings are as follows:

- NMCI I-25
  - General Location: STA 22+00 to 26+00 of the NMCI alignment
  - Trenchless Technology: Guided Auger Bore or Tunnel Boring Machine (TBM)
- 60" Waterline Crossing
  - General Location: STA 62+00 to STA 62+50 of the NMCI alignment
  - Trenchless Technology: Guided Auger Bore or Tunnel Boring Machine (TBM) or Shield Mining
- Kettle Creek
  - General Location: STA 72+00 to STA 81+00 of the NMCI alignment
  - Trenchless Technology: Horizontal Directional Drilling (HDD)
- Industrial Drive
  - General Location: STA 110+50 to STA 114+00 of the NMCI alignment
  - Trenchless Technology: Guided Auger Bore or Tunnel Boring Machine (TBM)
- South Gate Boulevard
  - General Location: STA 174+00 to 177+00 of the NMCI alignment
  - Trenchless Technology: Microtunnel Boring Machine (MTBM)
- Elk Horn Tributary
  - General Location: STA 209+00 to 214+00 of the NMCI alignment
  - Trenchless Technology: Microtunnel Boring Machine (MTBM)
- Black Squirrel Creek
  - General Location: STA 291+00 to 306+00 of the NMCI alignment
  - Trenchless Technology: Horizontal Directional Drilling (HDD)
- Middle Tributary
  - General Location: STA 330+50 to 338+00 of the NMCI alignment
  - Trenchless Technology: Horizontal Directional Drilling (HDD)
- Monument Branch
  - General Location: STA 377+50 to 394+50 of the NMCI alignment
  - Trenchless Technology: Horizontal Directional Drilling (HDD)
- Smith Creek and North Gate Boulevard
  - General Location: STA 434+50 to 457+00 of the NMCI alignment
  - Trenchless Technology: Horizontal Directional Drilling (HDD)
- Black Forest Creek
  - General Location: STA 539+00 to 545+50
  - Trenchless Technology: Microtunnel Boring Machine (MTBM)

- MTLSI I-25
    - General Location: STA 14+00 to 17+00 of the MTLSI alignment
    - Trenchless Technology: Microtunnel Boring Machine (MTBM)

Diversion Structures: Diversion structures are not anticipated for this project.

Alternate Temporary Stabilization Frequencies

Constraints that necessitate an alternative temporary stabilization frequency have not been identified at this time. The QSM must update this section as necessary if constraints that necessitate an alternative temporary stabilization schedule arise. Site maps will be updated to indicate locations where alternative temporary stabilization frequencies are required and to show control measures used in the interim.

Endangered Species Certification

The Preble's meadow jumping mouse (PMJM) is listed as a federally threatened subspecies. Within the project area, the majority of the habitat is upland habitat and is nonhabitat or low-quality habitat for PMJM. The remaining habitat is consider high- or moderate-quality habitat in the areas where the NMCI would cross through wetland and riparian vegetation and habitat.

Impacts to PMJM have been evaluated through the NEPA permitting process, with the majority of impacts determined to be temporary. Additionally, land disturbed during construction will be returned to preconstruction grade and vegetated with native vegetation. Permanent impacts will be located in low-quality habitat. See the Biological Assessment report by ERO provided in Appendix K for more information.

No other state or federally threatened or endangered species are anticipated within the project area.

Historic Preservation

According to the Environmental Assessment for Northern Monument Creek Interceptor (March 2024) provided in Appendix K, the following three historic properties would be directly impacted by the NMCI project: the AT&SF Railroad, one segment of the Great North & South Highway and one segment of Park Drive. This memo generated as part of the NEPA permitting process concluded that although the impacts would be permanent, they would be minor because most impacts on cultural resources would be minimized or avoided altogether.

Site Map

Site maps are included in Appendix A which depict:

- Construction site boundaries;
- Flow arrows that depict stormwater flow directions on-site and runoff direction;
- All areas of ground disturbance including areas of borrow and fill;
- Areas used for storage of soil and materials;

- Locations of all waste accumulation areas, including areas for liquid, concrete, masonry, and asphalt;
- Locations of dedicated asphalt and/or concrete batch plants, and masonry mixing stations;
- Locations of all structural control measures;
- Locations of all non-structural control measures;
- Locations of springs, streams, wetlands, and other receiving waters, including areas that require pre-existing vegetation be maintained within 50 feet of a receiving water, where determined feasible;
- Locations of all stream crossings located within the construction site boundary;
- Areas of Federally listed critical habitat; and
- Areas where alternate temporary stabilization frequencies are required.

Potential Sources of Pollution

Permittee must implement control measures to minimize discharge of pollutants from all potential pollutant sources. The following are potential sources of pollution which may reasonably be expected to affect quality of stormwater discharges at the site.

Potential Source of Pollutant	**Possible at site?**
Disturbed and stored soils	Yes
Vehicle tracking of sediments	Yes
Management of contaminated soils	Yes
Loading and unloading operations	Yes
Outdoor storage of significant materials	Yes
Vehicle and equipment maintenance, fueling, and fuel storage	Yes
Significant dust or particulate generating processes	Yes
Routine maintenance activities involving significant materials	Yes
On-site waste management practices	Yes
Concrete truck/equipment washing	Yes
Dedicated asphalt/concrete batch plants, masonry mixing stations	Yes
Non-industrial waste sources: worker trash, portable toilets, etc.	Yes
Other potential sources:	Yes

Contractor shall not discharge any domestic, construction and/or industrial waste (including any hazardous material or hazardous waste) to the environment, sanitary or storm water sewer system without first securing approval from the USAFA Environmental Office.

Control measures used to manage the sources of the above listed pollutants are shown on the site maps in Appendix A, including details depicting how each control measure is designed to prevent pollution from entering waters as well as their locations. Additional information on spill prevention and response is included in the Spill Prevention and Response Plan section.

Control Measure Implementation

Selection, design, installation, and maintenance of control measures must be in accordance with good engineering, hydrologic and pollution control practices. Contractors must install control measures prior to commencing activities that may contribute pollutants, including sediment, to stormwater discharges. Control measures must effectively minimize erosion, sediment transport, and the release of other pollutants related to construction activity.

Stormwater runoff from all non-stabilized, disturbed areas and soil storage areas must flow to at least one control measure to minimize (filter, settle, strain) sediment in the discharge.

Erosion control measures prevent or minimize erosion of soil, whereas sediment control measures are designed to remove sediment from stormwater runoff before it leaves the site. Both erosion and sediment control measures will be used at the site. Information on control measure implementation is included on site maps in Appendix A. Additional descriptions are included in the following subsections.

When modifying this SWPPP to supplement control measures, the QSM must ensure that additional control measure specifications adhere to the requirements of the general permit.

Structural Control Measures

Structural control measures are physical devices that prevent or minimize stormwater quality impacts.

Proposed structural control measures for this project include silt fence, sediment control logs, rock logs/curb socks, erosion control blankets, check dams, inlet protection, and vehicle tracking control.

Non-Structural Control Measures

Non-structural control measures include implementation of methods, practices, and procedures to minimize water quality impacts.

Proposed non-structural control measures for this project include street sweeping, protecting/preserving existing vegetation, employee training, general site management practices/good housekeeping, topsoil preservation, soil compaction, wind erosion control, dust control including but not limited to water-sprayer trucks, and minimizing disturbance footprint.

Documented Use Agreement

Project compliance relies solely upon control measures located inside the permitted area and under direct control of the permittee. If space outside of the permitted area covered by this SWPPP is used, the contractor must design, implement, and document all additional control measures. The contractor shall secure and document use agreements with landowners as needed.

Dewatering Practices

The pipe invert is expected to be located below the groundwater table along portions of alignment and will require dewatering along these segments as work progresses. Construction dewatering is anticipated to be performed via a combination of pumping well points and sump pumping. Water from dewatering operations will be discharged at the surface away from open excavations and steep slopes, utilizing filtration devices on an as-needed basis. Dewatering permits must be obtained prior to excavation work. A dewatering inspection report template is provided in Appendix M.

Materials Handling

Site maps in Appendix A indicate location of control measures designed to minimize impacts from handling significant materials that could contribute pollutants to runoff. Information on implementation of structural and non-structural control measures associated with such are discussed in Control Measure implementation and also included on the site maps in Appendix A.

Significant materials include non-sediment pollutants such as raw materials, petroleum based products, solvents, detergents, plastic pellets, finished raw materials (such as metallic products), raw materials used in food processing, fertilizers, pesticides, sanitary waste materials, waste from saw cutting, pothole slurry, concrete, mortar and masonry products, and any other hazardous material.

Bulk storage (55 gallons or greater) of any petroleum product or other liquid chemical must be located a minimum of 50 feet from receiving waters and have secondary containment, or equivalent protection, in order to prevent spilled material from entering receiving waters. Concrete washout activities must have associated control measures which are specifically designed for concrete washout waste.

All hazardous materials brought on site are subject to pre-approval by the USAFA Hazardous Material Management Process Team. Refer to AFMAN 32-7002, Environmental Compliance and Pollution Prevention.

Good Housekeeping Practices

Good housekeeping practices can prevent pollution in stormwater while reducing safety hazards to personnel and the environment. To promote good housekeeping, a project can use the following procedures: improve operation and maintenance of machinery and processes, apply material storage practices, include material inventory controls, conduct routine and regular clean-up schedules, maintain well organized work areas, create informative signage, and establish educational programs for employees and the general public about all of the practices.

Spill Prevention and Response Plan

The construction contractor must provide a Spill Prevention and Response Plan (SPRP). The Discharge Emergency Response Plan described in the Project Specifications Section 01 73 00

may function as the SPRP, if desired. The plan shall contain the following information at a minimum:

- Notification procedures to be used in the event of an accident. At the very least, notify the Qualified Stormwater Manager (See Qualified Stormwater Manager section). Depending on the nature of the spill and the material involved, the CDPHE 24 hour spill reporting line (**877-518-5608**), downstream water users, or other agencies may also need to be notified;
- Instructions for clean-up procedures and identification of spill kit locations;
- Provisions for absorbents to be made available for use in fuel areas, and for containers to be available for used absorbents; and,
- Procedures for properly washing out concrete truck chutes and other equipment in a manner and location so that the materials and wash water cannot discharge form the site, and never into a storm drain system or stream.

Report to the USAFA Environmental Office and the CDPHE any release of any chemical, oil, petroleum product, sewage, etc., which may enter waters of the State of Colorado (including surface water, groundwater, dry gullies, or storm sewers leading to surface water).

A copy of the contractor's SPRP is included in Appendix N.

Stabilization Requirements

Temporary Stabilization

Contractors must implement temporary stabilization control measures at any disturbed area within 14 days of cessation of earth disturbing activities at that area. This includes areas that will be re-disturbed outside of the 14-day time frame as well as stockpiles. Stabilization measures should be completed as soon as practicable, but no later than 7 days after stabilization has been initiated. Temporary stabilization measures are discussed in depth in the details provided within Appendix A.

Generally, temporary stabilization measures include surface roughening, applying temporary seed mix, aggregate surfacing, or tarping stockpiles. This project intends to provide surface roughening and temporary seed mix as an interim condition prior to final stabilization.

For this linear project, contractors may implement final stabilization efforts in one mobilization once construction in all areas is complete. Inspectors must continue to inspect areas temporarily stabilized at the regular inspections' frequencies until final stabilization efforts are implemented.

Final Stabilization

Contractors must implement final stabilization for all areas disturbed by the construction activity. The site must retain coverage under this or an alternate construction SWPPP permit until all areas have reached final stabilization in the form of uniform vegetative cover with individual plant density of at least 70 percent of pre-disturbance levels is established, or equivalent permanent alternative stabilizations are implemented.

Anticipated final stabilization at the site includes permanent seeding and maintaining necessary erosion and sediment control measures until stabilization is reached. Interim control measures, such as concrete washout areas, vehicle tracking controls, and perimeter controls, may be removed. Control measures which provide protection against down-gradient disturbances must remain in place until final stabilization is achieved. Fully biodegradable control measures may be left to deteriorate in place.

The site will be stabilized using the seed mix tables and placements as specified in the USAFA Revegetation and Erosion Control Standards (September 2024) and is included as Appendix L.

Long Term Stormwater Management

Return of the site to pre-construction conditions, and stabilizing as described above, will act as long term stormwater management for the project. No post construction water quality control measures are planned in connection with the project.

Inspection Reports

Inspection Frequency

A qualified stormwater manager will inspect the site at one of the below frequencies unless an alternate schedule, defined by the permittee, has been approved in writing by the EPA. Templates to aid in inspections are provided in Appendices D and E.

- At least once every 7 calendar days, or
- At least once every 14 calendar days, if post storm event inspections are conducted within 24 hours of:
    - A storm event producing 0.25 inches or more of rain within a 24 hour period; or
    - A discharge caused by snowmelt from a storm event that produces 3.25 inches or more of snow within a 24 hour period.

To determine whether a storm event meets the thresholds above, obtain information from a local weather station. Alternatively, measurements may be taken at the site by directly measuring snowfall or with a properly maintained rain gauge. See Parts 4.2.2 and 4.2.3 of the General Permit in Appendix B for further information.

The USAFA Stormwater Program will conduct **quarterly** inspections to check compliance with the CGP. The Environmental Program Manager will contact the project proponent to schedule site visits, check the SWPPP updates, and check that routine inspections are performed. The USAFA Stormwater Program will also conduct a final inspection prior to project closeout.

Reduced Inspection Frequency

Reduced inspection frequencies may occur when the following conditions exist:

Post-Storm Inspections at Temporarily Idle Sites

For permittees choosing to combine 14-day inspections and post-storm event inspections, if no construction activities will occur following a storm event, post-storm event inspections must be

conducted prior to re-commencing construction activities, but no later than 24 hours following the storm event. The delay of any post-storm event inspection must be documented in the inspection record. Routine inspections must still be conducted at least every 14 calendar days.

Inspections at Completed Sites/Areas
When the site, or portions of a site are awaiting establishment of a vegetative ground cover and final stabilization, the permittee must conduct a thorough inspection of the stormwater management system twice per month for the first month and then at least once every 30 days until permit coverage is terminated. Post-storm event inspections are not required under this schedule. This reduced inspection schedule is allowed if all of the following criteria are met:

- All construction activities resulting in ground disturbance are complete;
- All activities required for final stabilization, in accordance with the SWPPP, have been completed, with the exception of the application of seed that has not occurred due to seasonal conditions or the necessity for additional seed application to augment previous efforts; and
- The SWPPP has been amended to locate those areas to be inspected in accordance with the reduced schedule allowed for in this paragraph.

Winter Conditions Inspections Exclusion
Inspections are not required for sites that meet all of the following conditions:

- Construction activities are temporarily halted,
- Snow cover exists over the entire site for an extended period, and
- Melting conditions posing a risk of surface erosion do not exist.

When this inspection exclusion is implemented, document and retain the following:

- Dates when snow cover existed;
- Date when construction activities ceased; and
- Date melting conditions began.

Inspection Scope

Qualified stormwater manager must inspect the following areas for evidence of, or potential for, pollutants leaving the construction site boundaries, entering the stormwater drainage system, or discharging to receiving waters:

- Construction site perimeter;
- All disturbed areas;
- Designated haul routes
- Material and waste storage areas exposed to precipitation;
- Locations where stormwater has the potential to discharge offsite; and
- Locations where vehicles exit the site;
- Areas where construction dewatering is taking place.

During inspections, the qualified stormwater manager must:

- Visually verify whether all implemented control measures are in effective operational condition and are working as designed in their specifications to minimize pollutant discharges;
- Determine if there are new potential sources of pollutants;
- Assess the adequacy of control measures at the site to identify areas requiring new or modified control measures to minimize pollutant discharges;
- Check for signs of visible erosion and sedimentation; and
- Identify all areas of non-compliance with the general permit requirements and, if necessary, implement corrective action. Record corrective actions taken in project logs.

At a minimum the inspection report must include the following information about the site at the time of inspection:

- Inspection date;
- Name/title of personnel conducting inspection; and their signature
- Weather conditions;
- Phase of construction;
- Estimated acreage of disturbance;
- Locations of discharges of sediment and other pollutants from the site;
- Locations of control measures requiring maintenance;
- Locations and identification of inadequate control measures;
- Locations and identification of additional control measures needed and not in place;
- Description of the minimum inspection frequency and any deviations from the minimum inspection schedule;
- After adequate corrective actions and maintenance have taken place, or where a report does not identify any incidents requiring such, include the following statement:

> *"I verify that, to the best of my knowledge and belief, all corrective action and maintenance items identified during the inspection are complete, and the site is currently in compliance with the permit."*

Inspections must differentiate between control measures that require routine maintenance and those that warrant corrective action based on the following definitions:

Control measure requiring routine maintenance: *Any control measure that is still operating in accordance with its design and the requirements of the general permit, but requires maintenance to prevent a breach of the control measure.*

Inadequate control measure: *Any control measure that is not designed or implemented in accordance with the requirements of the general permit and/or any control measure that is not implemented to operate in accordance with its design*

Appendix A: Site Maps & BMP Details

GENERAL GRADING, EROSION, AND SEDIMENT CONTROL PLAN NOTES

1. GRADING, EROSION, AND SEDIMENT CONTROL (GESC) IS USED INTERCHANGEABLY WITH STORMWATER MANAGEMENT PLAN (SWMP) THROUGHOUT THE PLAN SET.
2. CONSTRUCTION ACCESS POINTS TO HAVE CONSTRUCTION FENCE ON BOTH SIDES FROM CONSTRUCTION ALIGNMENT TO PAVED ROAD/VTC OR TO GRAVELED ACCESS. GRAVELED ACCESS CAN BE MAINTAINED COUNTY ROAD OR INTERNAL GRAVEL PIT ROAD, GENERALLY AGGREGATE SURFACED SO THAT VEHICLES ARE NOT PICKING UP SEDIMENT BY TRAVELING ON ROAD.
3. CONTRACTOR TO TEMPORARILY STABILIZE (EX. SURFACE ROUGHEN OR MULCH) ALL DISTURBED AREAS WITHIN 14 DAYS OF THE AREA BEING INACTIVE, UNLESS JURISDICTIONAL REQUIREMENTS ARE MORE RESTRICTIVE.
4. CONTRACTOR TO PERMANENTLY STABILIZE (EX. PAVE OR APPLY SEED AND MULCH) AREAS THAT WILL NO LONGER UNDERGO DISTURBANCE DUE TO CONSTRUCTION WITHIN 14 DAYS OF SUCH AREAS REMAINING DORMANT OR UNDISTURBED, UNLESS JURISDICTIONAL REQUIREMENTS ARE MORE RESTRICTIVE.
5. CONTRACTOR TO PHASE WORK AS MUCH AS PRACTICABLE TO MINIMIZE CONSTRUCTION IN FLOODPLAIN DURING LIKELY FLOODING SEASON, MAY - SEPTEMBER.
6. CONTRACTOR TO STORE MATERIAL STOCKPILED OVERNIGHT OR LONGER OUTSIDE OF FLOODPLAIN AS MUCH AS PRACTICABLE.
7. FOR CONSTRUCTION THAT OCCURS INSIDE OF THE FLOODPLAIN, CONTRACTOR TO STABILIZE DISTURBED AREAS WHERE CONSTRUCTION HAS BEEN COMPLETED WITHIN 5 DAYS DURING LIKELY FLOODING SEASON, MAY - SEPTEMBER.
8. SUBMIT NOTICE OF TERMINATION AS REQUIRED (LOCAL, COUNTY, AND STATE).
9. SEDIMENT CONTROL LOG (SCL) AND SILT FENCE (SF) MAY BE USED INTERCHANGEABLY AT THE DISCRETION OF THE CONTRACTOR UNLESS OTHERWISE PROHIBITED BY LOCAL JURISDICTIONAL REQUIREMENTS.
10. IF LINEAR BMP'S RUN CONTINUOUSLY THROUGHOUT SEVERAL VIEWS OR SHEETS, THE LINEAR FEET DISTANCES ARE MEASURED PER EACH VIEW FROM MATCH LINE TO MATCH LINE.
11. LOCATIONS OF PERIMETER SCL/SF ARE APPROXIMATE.
12. IF EXISTING SITE CONDITIONS (I.E. FENCES, WALLS, TOPOGRAPHY) PROVIDE SUFFICIENT PERIMETER CONTROL, CF MAY NOT BE REQUIRED IN SOME AREAS.
13. SEE ACCESS ROAD SWMP SHEETS FOR CONTROL MEASURES OUTSIDE OF PIPELINE EASEMENT.
14. SEE SPECIFICATION SECTIONS 01 57 19 AND 32 92 00 FOR SPECIFIC CONSTRUCTION AND RESTORATION REQUIREMENTS.

BMP INSTALLATION SEQUENCING CHART

EROSION CONTROL MEASURE	INITIAL PHASE	INTERIM PHASE	FINAL PHASE
CONSTRUCTION BOUNDARY FENCE	X	X	
SILT FENCE	X	X	
EROSION CONTROL BLANKET			X
INLET PROTECTION	X	X	
VEHICLE TRACKING CONTROL	X	X	
SEEDING AND MULCHING			X
STOCKPILE MANAGEMENT		X	
ROCK SOCK PROTECTION	X	X	
CHECK DAM	X	X	

OVERLAY & PRESERVATION EASEMENT NOTE:

THE CITY STREAMSIDE OVERLAY AND CITY HILLSIDE OVERLAY ARE NOT APPLICABLE. THERE ARE NO PRESERVATION EASEMENTS ON SITE.

ANTICIPATED SCHEDULE:

BEGIN DISTURBANCE: SUMMER 2026
END DISTURBANCE: SUMMER 2028
FINAL STABILIZATION: SUMMER 2028

RECEIVING WATERS:

MONUMENT CREEK

ISSUE	DATE	DESCRIPTION
D	03/2026	100% DESIGN REVIEW
C	11/2025	90% DESIGN REVIEW
B	07/2025	60% DESIGN REVIEW
A	12/2024	30% DESIGN REVIEW

PROJECT MANAGER	STEVEN T. POOL
PROJECT ENGINEER	R. KEATLEY
QUALITY CONTROL	M. GOSSETT
DRAFTER	T. HICKS
PROJECT NUMBER	10393769

PRELIMINARY
NOT FOR
CONSTRUCTION OR
RECORDING

COLORADO SPRINGS UTILITIES
NORTHERN MONUMENT CREEK INTERCEPTOR AND MIDDLE TRIBUTARY LIFT STATION INTERCEPTOR CONNECTION

SWMP/GEC NOTES

0 1" 2"

FILENAME 05C001.DWG
SCALE AS NOTED

SHEET 05C001

GENERAL NOTES (CITY OF COLORADO SPRINGS)

1. NO CLEARING, GRADING, EXCAVATION, OR OTHER LAND DISTURBING ACTIVITIES SHALL BE ALLOWED (EXCEPT FOR WORK DIRECTLY RELATED TO THE INSTALLATION OF INITIAL CONTROL MEASURES) UNTIL A CITY GEC PERMIT HAS BEEN ISSUED.

2. ALL LAND DISTURBING ACTIVITIES MUST BE PERFORMED IN ACCORDANCE WITH AND THE APPROVED GEC PLAN AND CSWMP.

3. INITIAL CONTROL MEASURES SHALL BE INSTALLED AND INSPECTED PRIOR TO ANY LAND DISTURBANCE ACTIVITIES TAKING PLACE. AN INITIAL SITE INSPECTION WILL NOT BE SCHEDULED UNTIL A CITY GEC PERMIT HAS BEEN "CONDITIONALLY APPROVED." CALL CITY STORMWATER INSPECTIONS, 385-5980, AT LEAST 48 HOURS PRIOR TO CONSTRUCTION TO SCHEDULE AN INITIAL INSPECTION AND OBTAIN FULL PERMIT APPROVAL.

4. INDIVIDUALS SHALL COMPLY WITH THE "COLORADO WATER QUALITY CONTROL ACT" (TITLE 25, ARTICLE 8, CRS) AND THE "CLEAN WATER ACT" (33 USC 1344), INCLUDING REGULATIONS PROMULGATED AND CERTIFICATIONS OR PERMITS ISSUED, IN ADDITION TO THE REQUIREMENTS INCLUDED IN THE CITY'S MS4 PERMIT, STORMWATER CONSTRUCTION MANUAL. IN THE EVENT OF CONFLICTS BETWEEN THESE REQUIREMENTS AND WATER QUALITY CONTROL LAWS, RULES, OR REGULATIONS OF OTHER FEDERAL OR STATE AGENCIES, THE MORE RESTRICTIVE LAWS, RULES, OR REGULATIONS SHALL APPLY.

5. STORMWATER DISCHARGES FROM CONSTRUCTION SITES SHALL NOT CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR DEGRADATION OF STATE WATERS.

6. ALL CONSTRUCTION CONTROL MEASURES SHALL BE MAINTAINED UNTIL PERMANENT STABILIZATION MEASURES ARE IMPLEMENTED. TEMPORARY CONSTRUCTION CONTROL MEASURES MUST BE REMOVED PRIOR TO PERMIT CLOSEOUT.

7. CONCRETE WASH WATER SHALL NOT BE DISCHARGED TO OR ALLOWED TO RUNOFF TO STATE WATERS OR ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITIES.

8. BUILDING, CONSTRUCTION, EXCAVATION, OR OTHER WASTE MATERIALS SHALL NOT BE TEMPORARILY PLACED OR STORED IN THE STREET, ALLEY, OR OTHER PUBLIC WAY, UNLESS IN ACCORDANCE WITH AN APPROVED TRAFFIC CONTROL PLAN. CONSTRUCTION CONTROL MEASURES MAY BE REQUIRED BY THE GEC INSPECTOR IF DEEMED NECESSARY BASED ON SPECIFIC CONDITIONS AND CIRCUMSTANCES (E.G., ESTIMATED TIME OF EXPOSURE, SEASON OF THE YEAR, ETC.).

9. ALL WASTES COMPOSED OF BUILDING MATERIALS MUST BE REMOVED FROM THE CONSTRUCTION SITE FOR DISPOSAL IN ACCORDANCE WITH LOCAL AND STATE REGULATORY REQUIREMENTS. NO BUILDING MATERIAL WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURIED, DUMPED, OR DISCHARGED AT THE SITE.

10. THE PERMITTEE SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL CONSTRUCTION DEBRIS, DIRT, TRASH, ROCK, SEDIMENT, AND SAND THAT MAY ACCUMULATE IN THE STORM SEWER OR OTHER DRAINAGE CONVEYANCE SYSTEM AS A RESULT OF CONSTRUCTION ACTIVITIES.

11. THE QUANTITY OF MATERIALS STORED ON THE PROJECT SITE SHALL BE LIMITED, AS MUCH AS PRACTICAL, TO THAT QUANTITY REQUIRED TO PERFORM THE WORK IN AN ORDERLY SEQUENCE. ALL MATERIALS STORED ON-SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER, IN THEIR ORIGINAL CONTAINERS, WITH ORIGINAL MANUFACTURER'S LABELS. MATERIALS SHALL NOT BE STORED IN A LOCATION WHERE THEY MAY BE CARRIED BY STORMWATER RUNOFF INTO THE STORM SEWER SYSTEM AT ANY TIME.

12. SPILL PREVENTION AND CONTAINMENT MEASURES SHALL BE USED AT ALL STORAGE, EQUIPMENT FUELING, AND EQUIPMENT SERVICING AREAS SO AS TO CONTAIN ALL SPILLS AND PREVENT ANY SPILLED MATERIAL FROM ENTERING THE MS4, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITY. BULK STORAGE STRUCTURES FOR PETROLEUM PRODUCTS AND OTHER CHEMICALS SHALL HAVE SECONDARY CONTAINMENT OR EQUIVALENT ADEQUATE PROTECTION. ALL SPILLS SHALL BE CLEANED UP IMMEDIATELY AFTER DISCOVERY, OR CONTAINED UNTIL APPROPRIATE CLEANUP METHODS CAN BE EMPLOYED. MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP SHALL BE FOLLOWED, ALONG WITH PROPER DISPOSAL METHODS.

13. SEDIMENT (MUD AND DIRT) TRANSPORTED ONTO A PUBLIC ROAD, REGARDLESS OF THE SIZE OF THE SITE, SHALL BE CLEANED AS SOON AS POSSIBLE AFTER DISCOVERY.

14. NO CHEMICALS ARE TO BE ADDED TO THE DISCHARGE UNLESS PERMISSION FOR THE USE OF A SPECIFIC CHEMICAL IS GRANTED BY THE STATE. IN GRANTING THE USE OF SUCH CHEMICALS, SPECIAL CONDITIONS AND MONITORING MAY BE REQUIRED.

15. CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, OR ANY DISTURBED LAND AREA SHALL BE COMPLETED WITHIN FOURTEEN (14) CALENDAR DAYS AFTER FINAL GRADING OR FINAL LAND DISTURBANCE HAS BEEN COMPLETED. DISTURBED AREAS WHICH ARE NOT AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN FOURTEEN (14) DAYS SHALL BE ROUGHENED, MULCHED, TACKIFIED, OR STABILIZED WITH TARPS WITHIN FOURTEEN (14) DAYS AFTER INTERIM GRADING. AN AREA THAT IS GOING TO REMAIN IN AN INTERIM STATE FOR MORE THAN SIXTY (60) DAYS SHALL ALSO BE SEEDED, UNLESS AN ALTERNATIVE STABILIZATION MEASURE IS ACCEPTED AT THE INSPECTOR'S DISCRETION. ALL TEMPORARY CONSTRUCTION CONTROL MEASURES SHALL BE MAINTAINED UNTIL FINAL STABILIZATION IS ACHIEVED.

16. THE GEC PLAN WILL BE SUBJECT TO RE-REVIEW AND RE-ACCEPTANCE BY THE STORMWATER ENTERPRISE SHOULD ANY OF THE FOLLOWING OCCUR: GRADING DOES NOT COMMENCE WITHIN TWELVE (12) MONTHS OF THE CITY'S ACCEPTANCE OF THE PLAN, THE CONSTRUCTION SITE IS IDLE FOR TWELVE (12) CONSECUTIVE MONTHS, A CHANGE IN PROPERTY OWNERSHIP OCCURS, THE PLANNED DEVELOPMENT CHANGES, OR ANY OTHER MAJOR MODIFICATIONS ARE PROPOSED AS DEFINED IN THE STORMWATER CONSTRUCTION MANUAL.

17. IT IS NOT PERMISSIBLE FOR ANY PERSON TO MODIFY THE GRADE OF THE EARTH ON ANY UTILITY EASEMENT OR UTILITY RIGHT-OF-WAY WITHOUT WRITTEN APPROVAL FROM THE UTILITY OWNER. CITY ACCEPTANCE OF THE GEC PLAN AND CSWMP DOES NOT SATISFY THIS REQUIREMENT. THE PLAN SHALL NOT INCREASE OR DIVERT WATER TOWARDS UTILITY FACILITIES. ANY CHANGES TO EXISTING UTILITY FACILITIES TO ACCOMMODATE THE PLAN MUST BE APPROVED BY THE AFFECTED UTILITY OWNER PRIOR TO IMPLEMENTING THE PLAN. THE COST TO RELOCATE OR PROTECT EXISTING UTILITIES OR TO PROVIDE INTERIM ACCESS SHALL BE AT THE APPLICANT'S EXPENSE.

18. APPLICANT REPRESENTS AND WARRANTS THAT THEY HAVE THE LEGAL AUTHORITY TO GRADE AND/OR CONSTRUCT IMPROVEMENTS ON ADJACENT PROPERTY. THE CITY HAS NOT REVIEWED THE DEVELOPER'S AUTHORITY TO MODIFY ADJACENT PROPERTY. AN APPROVED GEC PERMIT DOES NOT PROVIDE APPROVAL FOR THE APPLICANT TO PERFORM WORK ON ADJACENT PROPERTY.

GENERAL NOTES (UNITED STATES AIR FORCE ACADEMY)

1. TOPSOIL STOCKPILES SHALL NOT HAVE SIDE SLOPES GREATER THAN 3:1 AND SHALL NOT EXCEED TEN FEET (10') IN HEIGHT. STOCKPILES SHALL BE SEEDED WITH THE TEMPORARY SEED MIX OR WIT HTHE APPROPRIATE PERMANENT NATIVE SEED MIX WITHIN 14 DAYS OF STOCKPILING. EROSION CONTROL BEST MANAGEMENT PRACTICES (BMPS) SHALL BE USED AROUND THE DOWNGRADIENT PERIMETER OF ALL STOCKPILES, INCLUDING TOPSOIL STOCKPILES.

2. WETLAND TOPSOIL SHALL BE SALVAGED AND STOCKPILED SEPARATELY. STOCKPILED WETLAND TOPSOIL SHALL ONLY BE USED IN AREAS WHERE WETLANDS WILL BE REESTABLISHED. WETLAND TOPSOIL SHOULD BE SALVAGED AND REPLACED IN WETLAND ESTABLISHMENT AREAS AS SOON AS POSSIBLE TO AVOID A LOSS IN VIABILITY. WETLAND TOPSOIL STOCKPILES SHALL NOT EXCEED THREE FEET (3') IN HEIGHT OR WIDTH AND SHALL NOT BE KEPT FOR MORE THAN FOUR WEEKS. STOCKPILING WETLAND TOPSOIL IN THE SUMMER OR DURING PERIODS OF HIGH TEMPERATURES SHOULD BE AVOIDED WHEN POSSIBLE.

3. TOPSOIL CONTAINING DENSE NOXIOUS OR INVASIVE NON-NATIVE WEED SEED BANKS SHALL NOT BE SALVAGED FOR REUSE. THE TOP TWO TO FOUR INCHES (2-4") OF TOPSOIL IN AREAS DOMINATED BY NOXIOUS OR INVASIVE NON-NATIVE WEEDS SHALL BE SCRAPED AND BURIED TO LIMIT ESTABLISHMENT AND SPREAD OF THESE SPECIES POST-CONSTRUCTION.

4. COMPOST AND FERTILIZERS SHALL NOT BE APPLIED TO AREAS WITHIN 50 HORIZONTAL FEET (50') FROM WATERBODIES TO AVOID IMPACTS TO WATER QUALITY.

5. FALL THROUGH SPRING (OCTOBER 15 TO APRIL 15) IS THE PREFERRED WINDOW FOR NON-IRRIGATED SEEDING. SITES SHALL NOT BE SEEDED IF THEY ARE FROZEN, SNOW COVERED, OR MUDDY.

6. WEED CONTROL IS REQUIRED DURING CONSTRUCTION.

7. EROSION CONTROL MEASURES FOR ALL DISTURBED AREAS SHALL BE INSTALLED PRIOR TO GRADING OR DISTURBANCES HAVE BEGUN.

8. MANUFACTURED BIODEGRADABLE STAKES OR WOODEN STAKES SHALL BE USED TO ANCHOR ALL EROSION MATERIALS. DO NOT USE METAL STAKES TO SECURE BLANKETS.

9. EROSION CONTROL BLANKETS, STRAW COIR LOGS, AND/OR SOIL BERMS SHALL BE USED WHENEVER RECLAIMING AND STABILIZING SLOPES GREATER THAN 4:1 OR ALONG DRAINAGEWAYS.

C:\PW\WORKING\central01\d4374172\05C002.dwg, 3/16/2026 3:31:32 PM, THHICK

ISSUE	DATE	DESCRIPTION
D	03/2026	100% DESIGN REVIEW
C	11/2025	90% DESIGN REVIEW
B	07/2025	60% DESIGN REVIEW
A	12/2024	30% DESIGN REVIEW

PROJECT MANAGER	STEVEN T. POOL
PROJECT ENGINEER	R. KEATLEY
QUALITY CONTROL	M. GOSSETT
DRAFTER	T. HICKS
PROJECT NUMBER	10393769

PRELIMINARY
NOT FOR
CONSTRUCTION OR
RECORDING

COLORADO SPRINGS UTILITIES
NORTHERN MONUMENT CREEK INTERCEPTOR AND MIDDLE TRIBUTARY LIFT STATION INTERCEPTOR CONNECTION

SWMP/GEC
COLORADO SPRINGS & USAFA NOTES

0 1" 2"

FILENAME 05C002.DWG
SCALE AS NOTED

SHEET
05C002

GENERAL NOTES (EL PASO COUNTY)

1. NOTWITHSTANDING 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 (EPC) STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE (LDC), THE ENGINEERING CRITERIA MANUAL (ECM), THE DRAINAGE CRITERIA MANUAL (DCM) VOLUME 1 AND 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING.

2. A PRECONSTRUCTION MEETING BETWEEN THE PERMIT HOLDER(S) AND EL PASO COUNTY SHALL BE HELD PRIOR TO ANY CONSTRUCTION ACTIVITIES. IT IS THE RESPONSIBILITY OF THE PERMIT HOLDER(S) TO COORDINATE THE MEETING TIME AND PLACE WITH COUNTY STAFF. NO LAND DISTURBANCE OR CONSTRUCTION ACTIVITIES BEYOND THE INSTALLATION OF THE INITIAL CONSTRUCTION CONTROL MEASURES (CCMS), AS INDICATED ON THE APPROVED GEC PLAN OR CDS WITH GEC PLANS, MAY OCCUR PRIOR TO RECEIVING A NOTICE TO PROCEED (NTP) ISSUED BY THE ECM ADMINISTRATOR. FAILURE TO OBTAIN A NOTICE TO PROCEED PRIOR TO BEGINNING LAND DISTURBING ACTIVITIES MAY RESULT IN AN IMMEDIATE STOP WORK ORDER (SWO).

3. CONSTRUCTION CONTROL MEASURES MUST BE INSTALLED PRIOR TO COMMENCEMENT OF ACTIVITIES THAT COULD CONTRIBUTE POLLUTANTS TO STORMWATER. STORMWATER RUNOFF FROM ALL DISTURBED AREAS AND SOIL STORAGE AREAS MUST UTILIZE OR FLOW TO ONE OR MORE CCM(S) TO MINIMIZE EROSION OR SEDIMENT IN THE DISCHARGE. THE CCM(S) MUST CONTAIN OR FILTER FLOWS IN ORDER TO PREVENT THE BYPASS OF FLOWS WITHOUT TREATMENT AND MUST BE APPROPRIATE FOR STORMWATER RUNOFF FROM DISTURBED AREAS AND FOR THE EXPECTED FLOW RATE, DURATION, AND FLOW CONDITIONS (E.G., SHEET OR CONCENTRATED FLOW).

4. ALL CCMS SHALL BE MAINTAINED AND REMAIN IN EFFECTIVE OPERATING CONDITION UNTIL FINAL STABILIZATION IS ACHIEVED. THE QUALIFIED STORMWATER MANAGER (QSM) SHALL ASSESS THE ADEQUACY OF CCMS AT THE SITE AND IDENTIFY IF CHANGES TO THOSE CCMS ARE NEEDED TO ENSURE THE CONTINUED EFFECTIVE PERFORMANCE OF THE CCMS.

5. PRIOR TO CONSTRUCTION THE PERMIT HOLDER(S) SHALL VERIFY THE LOCATION OF EXISTING UTILITIES.

6. MANAGEMENT OF THE STORMWATER MANAGEMENT PLAN (SWMP) DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE DESIGNATED QSM. THE SWMP SHALL BE LOCATED ON-SITE OR DIGITALLY ACCESSIBLE AT ALL TIMES DURING CONSTRUCTION ACTIVITIES AND MUST BE IMPLEMENTED AS WRITTEN FROM THE START OF CONSTRUCTION ACTIVITY UNTIL FINAL STABILIZATION IS ACHIEVED. THE QSM SHALL AMEND THE SWMP WHEN THERE IS A CHANGE IN DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE OF THE SITE WHICH WOULD REQUIRE THE IMPLEMENTATION OF NEW OR REVISED CCMS OR IF THE SWMP PROVES TO BE INEFFECTIVE IN CONTROLLING POLLUTANTS IN STORMWATER RUNOFF ASSOCIATED WITH CONSTRUCTION ACTIVITY OR WHEN CCMS ARE NO LONGER NECESSARY AND ARE REMOVED. THE QSM SHALL MAINTAIN A RECORD OF AMENDMENTS MADE TO THE SWMP THAT INCLUDES THE DATE AND IDENTIFICATION OF THE CHANGES.

7. EARTH DISTURBANCES SHALL BE CONDUCTED IN SUCH A MANNER SO AS TO EFFECTIVELY MINIMIZE ACCELERATED SOIL EROSION AND RESULTING SEDIMENTATION. ALL DISTURBANCES SHALL BE DESIGNED, CONSTRUCTED, AND COMPLETED SO THAT THE EXPOSED AREA OF ANY DISTURBED LAND SHALL BE LIMITED TO THE SHORTEST PRACTICAL PERIOD OF TIME. PRE-EXISTING VEGETATION SHALL BE PROTECTED AND MAINTAINED WITHIN 50 HORIZONTAL FEET OF A RECEIVING WATER UNLESS SHOWN TO BE INFEASIBLE AND SPECIFICALLY REQUESTED AND APPROVED. IN ADDITION TO MAINTAINING 50 HORIZONTAL FEET OF PRE-EXISTING VEGETATION UPGRADIENT OF A RECEIVING WATER (UNLESS INFEASIBLE AND APPROVED), THE PERMIT HOLDER(S) MUST INSTALL CCMS UPGRADIENT OF THE VEGETATIVE BUFFER.

8. TEMPORARY STABILIZATION MEASURES SHALL BE IMPLEMENTED ON DISTURBED AREAS AND STOCKPILES WHERE GROUND DISTURBING CONSTRUCTION ACTIVITY HAS PERMANENTLY CEASED OR TEMPORARILY CEASED FOR LONGER THAN 14 DAYS.

9. EROSION CONTROL BLANKET (ECB) OR OTHER APPROVED CONTROL MEASURE(S) SHALL BE USED ON SLOPES STEEPER THAN 3:1.

10. VEHICLE TRACKING CONTROLS (VTC) MUST BE IMPLEMENTED TO MINIMIZE VEHICLE TRACKING OF SEDIMENT FROM DISTURBED AREAS. VTCS MUST INCLUDE A STRUCTURE CONTROL MEASURE (E.G., TRACKING PAD) AND MAY INCLUDE A NON-STRUCTURAL CONTROL MEASURE (E.G., SWEEPING). MATERIAL TRACKED OFF-SITE SHALL BE CLEANED UP AND PROPERLY DISPOSED OF IMMEDIATELY.

11. ANY TEMPORARY OR PERMANENT CONTROL MEASURE DESIGNED AND CONSTRUCTED FOR THE CONVEYANCE OF STORMWATER AROUND, THROUGH, OR FROM THE EARTH DISTURBANCE AREA SHALL BE A STABILIZED CONVEYANCE DESIGNED TO MINIMIZE EROSION AND THE DISCHARGE OF SEDIMENT OFF-SITE.

12. NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE CURB AND GUTTER. PERMANENT CONTROL MEASURES (PCMS), OR DITCHES EXCEPT WITH APPROVED SEDIMENT CONTROL MEASURES.

13. ALL PCMS SHALL BE INSTALLED AS DESIGNED IN THE APPROVED PLANS. ANY PROPOSED CHANGES THAT AFFECT THE DESIGN OR FUNCTION OF PCMS MUST BE APPROVED BY THE ECM ADMINISTRATOR PRIOR TO IMPLEMENTATION.

14. SOIL COMPACTION MUST BE MINIMIZED IN AREAS WHERE INFILTRATION PCMS WILL BE INSTALLED OR IN AREAS WHERE FINAL STABILIZATION WILL BE ACHIEVED BY VEGETATIVE COVER. AREAS DESIGNATED FOR INFILTRATION PCMS SHALL ALSO BE PROTECTED FROM SEDIMENTATION DURING CONSTRUCTION UNTIL FINAL STABILIZATION IS ACHIEVED. IF SOIL COMPACTION DOES OCCUR IN AREAS WHERE FINAL STABILIZATION WILL BE ACHIEVED BY VEGETATIVE COVER OR IN AREAS WHERE INFILTRATION PCMS WILL BE INSTALLED, DECOMPACTION OF THE SOIL MUST BE COMPLETED PRIOR TO PLANTING OR INSTALLATION OF THE PCM(S). AN INFILTRATION TEST MUST BE CONDUCTED FOR ALL INFILTRATION PCMS AND THE INFILTRATION TEST RESULTS SUBMITTED TO EL PASO COUNTY PRIOR TO PRELIMINARY ACCEPTANCE (PA)

15. FINAL STABILIZATION MUST BE IMPLEMENTED AT ALL APPLICABLE CONSTRUCTION SITES. FINAL STABILIZATION IS ACHIEVED WHEN ALL GROUND DISTURBING ACTIVITIES AT THE SITE HAVE BEEN COMPLETED AND PERMANENT STABILIZATION METHODS ARE COMPLETE. WHEN USING VEGETATIVE COVER AS A PERMANENT STABILIZATION METHOD, THE VEGETATION SHALL BE EVENLY DISTRIBUTED PERENNIAL VEGETATION AND OF THE VARIETY AND SPECIES FOUND IN THE COUNTY-APPROVED SEED MIXES OR IN THE APPROVED GEC PLAN. VEGETATION COVERAGE SHALL BE, AT A MINIMUM, EQUAL TO 70% OF WHAT WOULD HAVE BEEN PROVIDED BY NATIVE VEGETATION IN A LOCAL, UNDISTURBED AREA OR ADEQUATE REFERENCE SITE. ALL TEMPORARY CCMS SHALL BE REMOVED UPON FINAL STABILIZATION AND PRIOR TO STORMWATER PERMIT TERMINATION.

16. STORMWATER DISCHARGES FROM CONSTRUCTION SITES SHALL NOT CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR DEGRADATION OF STATE WATERS. ALL WORK AND EARTH DISTURBANCE SHALL BE DONE IN A MANNER THAT MINIMIZES POLLUTION OF ANY ON-SITE OR OFF-SITE WATERS, INCLUDING WETLANDS.

17. CONCRETE WASH WATER SHALL BE CONTAINED AND DISPOSED OF IN ACCORDANCE WITH THE SWMP. NO WASH WATER SHALL BE DISCHARGED TO OR ALLOWED TO BE DISCHARGED OFFSITE OR TO ENTER STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR CONTROL MEASURES. CONCRETE WASHOUT AREAS SHALL NOT BE LOCATED IN AN AREA WHERE SHALLOW GROUNDWATER MAY BE PRESENT, OR WITHIN 50 FEET OF A SURFACE WATER BODY, CREEK, OR STREAM.

18. DURING CONSTRUCTION DEWATERING OPERATIONS, UNCONTAMINATED GROUNDWATER MAY BE DISCHARGED ON- SITE IN ACCORDANCE WITH THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT'S (CDPHE) LOW RISK DISCHARGE GUIDANCE POLICY FOR DISCHARGES OF UNCONTAMINATED GROUNDWATER TO LAND. IF CONSTRUCTION DEWATERING OPERATIONS ARE UNABLE TO MEET ALL CRITERIA, CONDITIONS, AND CONTROL MEASURE REQUIREMENTS OF THE LOW RISK DISCHARGE GUIDANCE POLICY, A COLORADO DISCHARGE PERMIT SYSTEM (CDPS) GENERAL PERMIT COG080000 WILL BE REQUIRED.

19. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL WASTE FROM THE CONSTRUCTION SITE FOR DISPOSAL IN ACCORDANCE WITH LOCAL AND STATE REGULATORY REQUIREMENTS. NO CONSTRUCTION DEBRIS, TREE SLASH, BUILDING MATERIAL WASTES, OR UNUSED BUILDING MATERIALS SHALL BE BURIED, DUMPED, OR DISCHARGED AT THE SITE.

20. THE PERMIT HOLDER(S) SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL CONSTRUCTION DEBRIS, DIRT, TRASH, ROCK, SEDIMENT, SOIL, AND SAND THAT MAY ACCUMULATE IN ROADS, STORM DRAINS AND OTHER DRAINAGE CONVEYANCE SYSTEMS AND STORMWATER APPURTENANCES AS A RESULT OF SITE DEVELOPMENT.

21. THE QUANTITY OF MATERIALS STORED ON THE PROJECT SITE SHALL BE LIMITED, AS MUCH AS PRACTICAL, TO THAT QUANTITY REQUIRED TO PERFORM THE WORK IN AN ORDERLY SEQUENCE. ALL MATERIALS STORED ON-SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER, IN THEIR ORIGINAL CONTAINERS, WITH ORIGINAL MANUFACTURER'S LABELS.

22. MATERIALS SHALL NOT BE TEMPORARILY PLACED OR STORED IN THE STREET, ALLEY, OR OTHER PUBLIC WAY, UNLESS IN ACCORDANCE WITH AN APPROVED TRAFFIC CONTROL PLAN. APPROPRIATE CMS SHALL BE UTILIZED BASED ON SPECIFIC CONDITIONS AND CIRCUMSTANCE.

23. BULK STORAGE (I.E., INDIVIDUAL CONTAINERS OF 55 GALLONS OR GREATER) OF ALLOWED PETROLEUM PRODUCTS OR OTHER ALLOWED LIQUID SHALL REQUIRE ADEQUATE SECONDARY CONTAINMENT, OR EQUIVALENT PROTECTION, TO CONTAIN ALL SPILLS ON-SITE AND TO PREVENT ANY SPILLED MATERIALS FROM ENTERING STATE WATERS, ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM, OR OTHER FACILITIES.

24. NO CHEMICAL(S) HAVING THE POTENTIAL TO BE RELEASED IN STORMWATER ARE TO BE STORED OR USED ON-SITE UNLESS PERMISSION FOR THE USE OF SUCH CHEMICAL(S) IS GRANTED IN WRITING BY THE ECM ADMINISTRATOR. IN GRANTING APPROVAL FOR THE USE OF SUCH CHEMICAL(S), SPECIAL CONDITIONS AND MONITORING MAY BE REQUIRED.

25. ON AREAS OF EXPOSED SOIL, MINIMIZE DUST THROUGH THE APPROPRIATE APPLICATION OF WATER OR OTHER DUST SUPPRESSION TECHNIQUES. WATER APPLICATION MUST BE CONDUCTED IN A MANNER TO PREVENT DISCHARGE OFFSITE UNLESS AUTHORIZED BY A CDPS OR NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT.

26. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE ONLY AT APPROVED CONSTRUCTION ACCESS POINTS.

27. FOR SITES WHERE A SOILS REPORT IS REQUIRED, THE APPROVED SOILS REPORT FOR THIS SITE SHALL BE CONSIDERED A PART OF THESE PLANS.

28. PERMIT HOLDER(S) AND THEIR AGENTS SHALL COMPLY WITH THE "COLORADO WATER QUALITY CONTROL ACT" (TITLE 25, ARTICLE 8, CRS), AND THE "CLEAN WATER ACT" (33 USC 1344), IN ADDITION TO THE REQUIREMENTS OF THE LAND DEVELOPMENT CODE, DRAINAGE CRITERIA MANUAL VOLUME 2, AND ENGINEERING CRITERIA MANUAL. ALL APPLICABLE LOCAL, STATE, AND FEDERAL PERMITS MUST BE OBTAINED PRIOR TO CONSTRUCTION. IN THE EVENT OF CONFLICTS BETWEEN THESE REQUIREMENTS AND OTHER LAWS, RULES, OR REGULATIONS OF OTHER FEDERAL, STATE, LOCAL, OR COUNTY AGENCIES, THE MOST RESTRICTIVE LAWS, RULES, OR REGULATIONS SHALL APPLY.

29. AT LEAST TEN (10) DAYS PRIOR TO THE ANTICIPATED START OF CONSTRUCTION, FOR PROJECTS THAT WILL DISTURB ONE (1) ACRE OR MORE OR LESS THAN 1 ACRE AND PART OF A LARGER COMMON PLAN OF DEVELOPMENT OR SALE THAT WOULD DISTURB 1 OR MORE ACRES, THE PERMIT HOLDER(S) SHALL SUBMIT A PERMIT APPLICATION FOR STORMWATER DISCHARGE (COR400000 PERMIT) TO THE CDPHE WATER QUALITY DIVISION. THE APPLICATION CONTAINS CERTIFICATION OF COMPLETION OF A SWMP, OF WHICH THIS GEC PLAN MAY BE A PART. FOR INFORMATION OR APPLICATION MATERIALS CONTACT:

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT
WATER QUALITY CONTROL DIVISION
WQCD-PERMITS
4300 CHERRY CREEK DRIVE SOUTH
DENVER, CO 80246-1530
ATTN: PERMITS UNIT

ENGINEER'S STATEMENT

THESE DETAILED PLANS AND SPECIFICATIONS WERE PREPARED UNDER MY DIRECTION AND SUPERVISION. SAID PLANS AND SPECIFICATIONS HAVE BEEN PREPARED ACCORDING TO THE CRITERIA ESTABLISHED BY THE COUNTY FOR DETAILED ROADWAY, DRAINAGE, GRADING AND EROSION CONTROL PLANS AND SPECIFICATIONS, AND SAID PLANS AND SPECIFICATIONS ARE IN CONFORMITY WITH APPLICABLE MASTER DRAINAGE PLANS AND MASTER TRANSPORTATION PLANS. SAID PLANS AND SPECIFICATIONS MEET THE PURPOSES FOR WHICH THE PARTICULAR ROADWAY, AND DRAINAGE FACILITIES ARE DESIGNED AND ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY ANY NEGLIGENT ACTS, ERRORS OR OMISSIONS ON MY PART IN PREPARATION OF THESE DETAILED PLANS AND SPECIFICATIONS.

ENGINEER OF RECORD SIGNATURE _____ DATE _____

OWNER'S STATEMENT

I, THE OWNER/DEVELOPER, HAVE READ AND COMPLY WITH THE REQUIREMENTS OF THE GRADING AND EROSION CONTROL PLAN AND ALL OF THE REQUIREMENTS SPECIFIED IN THESE DETAILED PLANS AND SPECIFICATIONS.

OWNER SIGNATURE _____ DATE _____

EL PASO COUNTY STATEMENT

COUNTY PLAN REVIEW IS PROVIDED ONLY FOR GENERAL CONFORMANCE WITH COUNTY DESIGN CRITERIA. THE COUNTY IS NOT RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE DESIGN, DIMENSIONS, AND/OR ELEVATIONS WHICH SHALL BE CONFIRMED AT THE JOB SITE. THE COUNTY THROUGH THE APPROVAL OF THIS DOCUMENT ASSUMES NO RESPONSIBILITY FOR COMPLETENESS AND/OR ACCURACY OF THIS DOCUMENT.

FILED IN ACCORDANCE WITH THE REQUIREMENTS OF THE EL PASO COUNTY LAND DEVELOPMENT CODE, DRAINAGE CRITERIA MANUAL VOLUMES 1 AND 2, AND ENGINEERING CRITERIA MANUAL, AS AMENDED.

IN ACCORDANCE WITH ECM SECTION 1.12, THESE CONSTRUCTION DOCUMENTS WILL BE VALID FOR CONSTRUCTION FOR A PERIOD OF 2 YEARS FROM THE DATE SIGNED BY THE EL PASO COUNTY ENGINEER. IF CONSTRUCTION HAS NOT BEEN STARTED WITHIN THOSE 2 YEARS, THE PLANS WILL NEED TO BE RESUBMITTED FOR APPROVAL, INCLUDING PAYMENT OF REVIEW FEES AT THE PLANNING AND COMMUNITY DEVELOPMENT DIRECTOR'S DISCRETION.

JOSHUA PALMER, P.E.
COUNTY ENGINEER/ECM ADMINISTRATOR _____ DATE _____

ISSUE	DATE	DESCRIPTION
D	03/2026	100% DESIGN REVIEW
C	11/2025	90% DESIGN REVIEW
B	07/2025	60% DESIGN REVIEW
A	12/2024	30% DESIGN REVIEW

PROJECT MANAGER	STEVEN T. POOL
PROJECT ENGINEER	R. KEATLEY
QUALITY CONTROL	M. GOSSETT
DRAFTER	T. HICKS
PROJECT NUMBER	10393769

PRELIMINARY NOT FOR CONSTRUCTION OR RECORDING

COLORADO SPRINGS UTILITIES NORTHERN MONUMENT CREEK INTERCEPTOR AND MIDDLE TRIBUTARY LIFT STATION INTERCEPTOR CONNECTION

SWMP/GEC
EL PASO COUNTY NOTES

0 1" 2"

FILENAME 05C003.DWG
SCALE AS NOTED

SHEET
05C003

ECB
Erosion Control Blanket

1.0 DESCRIPTION

- Woven blankets made of natural and biodegradable materials placed on disturbed areas and secured to the ground with staples or stakes.

2.0 PURPOSE

- Used to control erosion, retain sediment resulting from sheet flow, and protect newly seeded areas.

3.0 IMPLEMENTATION

- Install erosion control blankets over uniform surfaces, with no large rocks, vegetation, or rills.
- Properly prepare topsoil and apply seed prior to blanket installation.
- Erosion control blankets must be made from 100% natural and biodegradable materials.
- Turf reinforcement mats may be used in place of erosion control blankets when specified by engineer.

4.0 TIMING

- Install in disturbed areas after final grading and seeding has been completed.
- Leave erosion control blankets in place to biodegrade, or remove if required by the GEC Inspector.

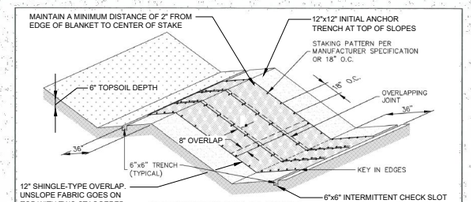
5.0 MAINTENANCE

- Any erosion control blanket pulled out, torn, or otherwise damaged shall be repaired or reinstalled.
- Any subgrade areas below the geotextile that have eroded to create a void under the blanket, or that remain devoid of grass shall be repaired, reseeded and mulched and the erosion control blanket reinstalled.
- Broken or damaged staking must be repaired immediately when identified.

City of Colorado Springs
Stormwater Enterprise

ECB-1

Construction Control Measures
December 2020



MODIFIED

ECB

STORMWATER ENTERPRISE — EROSION CONTROL BLANKET

APPROVED: CHIEF MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-ECB-1

INSTALLATION NOTES

1. 100% NATURAL AND BIODEGRADABLE MATERIALS ARE REQUIRED FOR EROSION CONTROL BLANKETS. TRM PRODUCTS MAY ME USED WHERE APPROPRIATE AS DESIGNATED BY THE ENGINEER.
2. IN AREAS WHERE EROSION CONTROL BLANKETS ARE SHOWN ON THE PLANS, THE PERMITTEE SHALL PLACE TOPSOIL AND PERFORM FINAL GRADING, SURFACE PREPARATION, AND SEEDING AND MULCHING. SUBGRADE SHALL BE SMOOTH AND MOIST PRIOR TO EROSION CONTROL BLANKET INSTALLATION, AND THE EROSION CONTROL BLANKET SHALL BE IN FULL CONTACT WITH THE SUBGRADE. NO GAPS OR VOIDS SHALL EXIST UNDER THE BLANKET.
3. PERIMETER ANCHOR TRENCH SHALL BE USED ALONG THE OUTSIDE PERIMETER OF ALL BLANKET AREAS.
4. JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF EROSION CONTROL BLANKETS TOGETHER (LONGITUDINALLY AND TRANSVERSELY) FOR ALL EROSION CONTROL BLANKETS.
5. INTERMEDIATE CHECK SLOT OR STAPLE CHECK SHALL BE INSTALLED EVERY 15 DOWN SLOPES IN DRAINAGEWAYS. INSTALL CHECK SLOTS EVERY 25' PERPENDICULAR TO FLOW DIRECTION.
6. OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROLLS OF EROSION CONTROL BLANKETS TOGETHER FOR EROSION CONTROL BLANKETS ON SLOPES.
7. MATERIAL SPECIFICATIONS OF EROSION CONTROL BLANKETS SHALL CONFORM TO TABLE ECB-1.
8. ANY AREAS OF SEEDING AND MULCHING DISTURBED IN THE PROCESS OF INSTALLING EROSION CONTROL BLANKETS SHALL BE RESEEDED AND MULCHED.
9. STRAW EROSION CONTROL BLANKETS SHALL NOT BE USED WITHIN STREAMS AND DRAINAGE CHANNELS.
10. COMPACT ALL TRENCHES.
11. STAKE TYPES SHALL BE THE FOLLOWING:
    A. KOIR FABRIC SHALL BE SECURED USING 2"x2"x24" WOOD STAKES AS SHOWN IN DETAIL. THESE STAKES SHALL BE DRIVEN TO A DEPTH THAT LEAVES 3" MAX EXPOSED ABOVE THE FABRIC.
    B. COCONUT FABRIC SHALL BE SLOPE DEPENDENT. IF SLOPES GREATER THAN 3:1 OR EROSION CONTROL FABRIC WILL EXPERIENCE LIVE STORM FLOWS, USE 2"x2"x24" WOOD STAKES. OTHERWISE, USE ECO-STAKES.
12. METAL STAPLES ARE NOT ALLOWED.
13. BLANKET SHOULD NOT BE STRETCHED TIGHT. BUT SHOULD HAVE FULL CONTACT WITH THE SOIL BELOW.
14. REFER TO STAPLE PATTERN GUIDE FOR SLOPES FOR APPROPRIATE STAKE SPACING AND PATTERN.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. EROSION CONTROL BLANKETS SHALL BE LEFT IN PLACE TO EVENTUALLY BIODEGRADE. TRM MUST BE REMOVED AT THE DISCRETION OF THE GEC INSPECTOR.
3. ANY EROSION CONTROL BLANKET PULLED OUT, TORN, OR OTHERWISE DAMAGED SHALL BE REPAIRED OR REINSTALLED. ANY SUBGRADE AREAS BELOW GEOTEXTILE THAT HAVE ERODED TO CREATE A VOID UNDER THE BLANKET, OR THAT REMAIN DEVOID OF GRASS SHALL BE REPAIRED, RESEEDED AND MULCHED, AND THE EROSION CONTROL BLANKET REINSTALLED.

TABLE ECB-1 EROSION CONTROL BLANKET MATERIAL SPECIFICATIONS

TYPE	COCONUT CONTENT	STRAW CONTENT	EXCELSIOR CONTENT	RECOMMENDED NETTING
STRAW		100%		DOUBLE / NATURAL
STRAW-COCONUT	30% MIN	70% MAX		DOUBLE / NATURAL
COCONUT	100%			DOUBLE / NATURAL
EXCELSIOR			100%	DOUBLE / NATURAL

MODIFIED

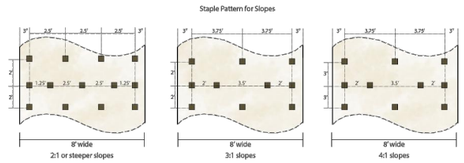
ECB

STORMWATER ENTERPRISE — EROSION CONTROL BLANKET

APPROVED: CHIEF MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-ECB-2

Figure 9: Erosion Control Blanket Staking Patterns



SF
Silt Fence

1.0 DESCRIPTION

- Silt fence is a temporary sediment barrier consisting of woven geotextile fabric attached to supporting posts and trenched into the soil.

2.0 PURPOSE

- Used to intercept sheet flow prior to leaving a construction site.
- May be used around the perimeter of a construction site.

3.0 IMPLEMENTATION

- Install silt fence to intercept sheet flow runoff from disturbed areas.
- Silt fence is not designed to be used as a filter fabric.
- Do not install silt fence across streams, channels, swales, ditches, or other drainageways.
- Install silt fence along the contour of slopes or in a manner to avoid creating concentrated flow (i.e. "J-hook" installation).
- The maximum tributary drainage area per 100 liner feet of silt fence is 1/4 acre.
- Properly installed silt fence should not be easily pulled out by hand and there should be no gaps between the ground and fabric.

4.0 TIMING

- Install prior to land disturbing activities.
- Remove silt fence after the upstream area has been permanently stabilized.

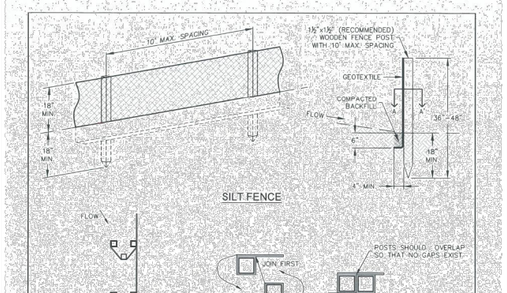
5.0 MAINTENANCE

- Remove and properly dispose of sediment when it has accumulated to 1/2 of the height of the exposed silt fence.
- Inspect for and repair or replace damaged silt fence.

City of Colorado Springs
Stormwater Enterprise

SF-1

Construction Control Measures
December 2020



INSTALLATION NOTES

1. SILT FENCE MUST BE PLACED ON A FLAT SURFACE 2'-5' AWAY FROM TOE OF THE SLOPE TO ALLOW FOR PONDING AND DEPOSITION.
2. COMPACT THE TRENCH USING A JUMPING JACK OR WHEEL ROLLING TO THE POINT THAT THE FENCE RESISTS BEING PULLED OUT OF THE GROUND BY HAND.
3. SILT FENCE SHALL BE TAUT WITH NO SAGS AFTER IT HAS BEEN ANCHORED.
4. FABRIC SHALL BE ATTACHED TO POSTS WITH 1" HEAVY DUTY STAPLES OR 1" NAILS. THESE SHOULD BE PLACED VERTICALLY DOWN THE POST, 3" APART.
5. THE PREFERRED INSTALLATION METHOD USES A TRENCHER OR SILT FENCE INSTALLATION DEVICE.
6. INSTALL SILT FENCE ALONG THE CONTOUR OF THE SLOPES OR IN A MANNER TO AVOID CREATING CONCENTRATED FLOW (SUCH AS A "J-HOOK" INSTALLATION).

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES ½ OF THE DESIGN HEIGHT OF THE SILT FENCE.
3. SILT FENCE MUST REMAIN UNTIL THE UPSTREAM DISTURBANCE AREA IS STABILIZED.
4. PERMANENTLY STABILIZE AREA AFTER SILT FENCE IS REMOVED.

SF

STORMWATER ENTERPRISE — SILT FENCE

APPROVED: CHIEF MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-SF-1

SM
Seeding and Mulching

1.0 DESCRIPTION

- The preparation of soil, application of mulch, and application of seed to disturbed areas.

2.0 PURPOSE

- Used to control runoff and erosion on disturbed areas by establishing vegetative cover.
- Reduces erosion and sediment loss.
- Provides permanent stabilization in disturbed areas.

3.0 IMPLEMENTATION

- All soil testing, soil amendment and fertilizer documentation, and seed load and bag tickets must be added to the CSWMP.
- Properly prepare soil prior to seeding and mulching.
- Apply seed mixes as specified in the City of Colorado Springs Stormwater Construction Manual. Alternative seed mixes are acceptable if included in an approved Landscaping Plan.
- Mulch seeded areas using hay or straw mulch, hydraulic mulching, or install erosion control blanket.

4.0 TIMING

- Seed and mulch disturbed areas after final grading.
- Seeding and mulching may also be used as a temporary erosion control measure during construction.

5.0 MAINTENANCE

- Repair and reseed bare areas as necessary.
- Restrict vehicle access to seeded areas.

City of Colorado Springs
Stormwater Enterprise

SM-1

Construction Control Measures
December 2020

SEEDING & MULCHING

ALL SOIL TESTING, SOILS AMENDMENT AND FERTILIZER DOCUMENTATION, AND SEED LOAD AND BAG TICKETS MUST BE ADDED TO THE CSWMP.

SOIL PREPARATION

1. IN AREAS TO BE SEEDED, THE UPPER 6 INCHES OF THE SOIL MUST NOT BE HEAVILY COMPACTED, AND SHOULD BE IN FRIABLE CONDITION. LESS THAN 85% STANDARD PROCTOR DENSITY IS ACCEPTABLE. AREAS OF COMPACTION OR GENERAL CONSTRUCTION ACTIVITY MUST BE SCARIFIED TO A DEPTH OF 6 TO 12 INCHES PRIOR TO SPREADING TOPSOIL TO BREAK UP COMPACTED LAYERS AND PROVIDE A BLENDING ZONE BETWEEN DIFFERENT SOIL LAYERS.
2. AREAS TO BE PLANTED SHALL HAVE AT LEAST 4 INCHES OF TOPSOIL SUITABLE TO SUPPORT PLANT GROWTH.
3. THE CITY RECOMMENDS THAT EXISTING AND/OR IMPORTED TOPSOIL BE TESTED TO IDENTIFY SOIL DEFICIENCIES AND ANY SOIL AMENDMENTS NECESSARY TO ADDRESS THESE DEFICIENCIES. SOIL AMENDMENTS AND/OR FERTILIZERS SHOULD BE ADDED TO CORRECT TOPSOIL DEFICIENCIES BASED ON SOIL TESTING RESULTS.
4. TOPSOIL SHALL BE PROTECTED DURING THE CONSTRUCTION PERIOD TO RETAIN ITS STRUCTURE, AVOID COMPACTION, AND TO PREVENT EROSION AND CONTAMINATION. STRIPPED TOPSOIL MUST BE STORED IN AN AREA AWAY FROM MACHINERY AND CONSTRUCTION OPERATIONS, AND CARE MUST BE TAKEN TO PROTECT THE TOPSOIL AS A VALUABLE COMMODITY. TOPSOIL MUST NOT BE STRIPPED DURING UNDESIRABLE WORKING CONDITIONS (E.G. DURING WET WEATHER OR WHEN SOILS ARE SATURATED). TOPSOIL SHALL NOT BE STORED IN SWALES OR IN AREAS WITH POOR DRAINAGE.

SEEDING

1. ALLOWABLE SEED MIXES ARE INCLUDED IN THE CITY OF COLORADO SPRINGS STORMWATER CONSTRUCTION MANUAL. ALTERNATIVE SEED MIXES ARE ACCEPTABLE IF INCLUDED IN AN APPROVED LANDSCAPING PLAN.
2. SEED SHOULD BE DRILL SEEDED WHENEVER POSSIBLE.
   - SEED DEPTH MUST BE ¼ TO ½ INCHES WHEN DRILL SEEDING IS USED.
3. BROADCAST SEEDING OR HYDRO-SEEDING WITH TACKIFIER MAY BE SUBSTITUTED ON SLOPES STEEPER THAN 3:1 IF ON-OTHER AREAS NOT PRACTICAL TO DRILL SEED.
   - SEEDING RATES MUST BE DOUBLED FOR BROADCAST SEEDING OR INCREASED BY 50% IF USING A BRILLION DRILL OR HYDRO-SEEDING.
   - BROADCAST SEEDING MUST BE LIGHTLY RAKED INTO THE SOIL.

MULCHING

1. MULCHING SHOULD BE COMPLETED AS SOON AS PRACTICABLE AFTER SEEDING. HOWEVER PLANTED AREAS MUST BE MULCHED NO LATER THAN 14 DAYS AFTER PLANTING.
2. MULCHING REQUIREMENTS INCLUDE:
   - HAY OR STRAW MULCH
     - ONLY CERTIFIED WEED-FREE AND CERTIFIED SEED-FREE MULCH MAY BE USED. MULCH MUST BE APPLIED AT 2 TONS/ACRE AND ADEQUATELY SECURED BY CRIMPING AND/OR TACKIFIER. CRIMPING MUST NOT BE USED ON SLOPES GREATER THAN 3:1 AND MULCH FIBERS MUST BE TUCKED INTO THE SOIL TO A DEPTH OF 3" TO 4" INCHES.
     - TACKIFIER MUST BE USED IN PLACE OF CRIMPING ON SLOPES STEEPER THAN 3:1.
   - HYDRAULIC MULCHING
     - HYDRAULIC MULCHING IS AN OPTION ON STEEP SLOPES OR WHERE ACCESS IS LIMITED.
     - IF HYDRO-SEEDING IS USED, MULCHING MUST BE APPLIED AS A SEPARATE, SECOND OPERATION. WOOD CELLULOSE FIBERS MIXED WITH WATER MUST BE APPLIED AT A RATE OF 2,000 TO 2,500 POUNDS/ACRE, AND TACKIFIER MUST BE APPLIED AT A RATE OF 100 POUNDS/ACRE.
   - EROSION CONTROL BLANKET
     - EROSION CONTROL BLANKET MAY BE USED IN PLACE OF TRADITIONAL MULCHING METHODS.

SM

STORMWATER ENTERPRISE — SEEDING & MULCHING

APPROVED: CHIEF MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-SM

C:\PW\ORKING\central\01\d4537417\2\05C004.dwg, 3/16/2026 3:31:55 PM, THHICK

ISSUE	DATE	DESCRIPTION
D	03/2026	100% DESIGN REVIEW
C	11/2025	90% DESIGN REVIEW
B	07/2025	60% DESIGN REVIEW
A	12/2024	30% DESIGN REVIEW

PROJECT MANAGER	STEVEN T. POOL
PROJECT ENGINEER	R. KEATLEY
QUALITY CONTROL	M. GOSSETT
DRAFTER	T. HICKS
PROJECT NUMBER	10393769

PRELIMINARY
NOT FOR
CONSTRUCTION OR
RECORDING

COLORADO SPRINGS UTILITIES
NORTHERN MONUMENT CREEK INTERCEPTOR AND MIDDLE TRIBUTARY LIFT STATION INTERCEPTOR CONNECTION

SWMP/GEC
STORM WATER MANAGEMENT PLAN
DETAILS

0 1" 2"

FILENAME 05C004.DWG
SCALE AS NOTED

SHEET
05C004

CWA
Concrete Washout Area

1.0 DESCRIPTION

- Concrete washout areas consist of either an excavated pit or a prefabricated haul-away container designed to contain concrete and concrete waste water.

2.0 PURPOSE

- Used to contain concrete and concrete waste water when the chutes of concrete mixers and hoppers of concrete pumps are rinsed out after delivery.
- Concrete washout areas consolidate solids for easier disposal and prevent runoff of concrete waste water, which is alkaline and contains high levels of chromium.

3.0 IMPLEMENTATION

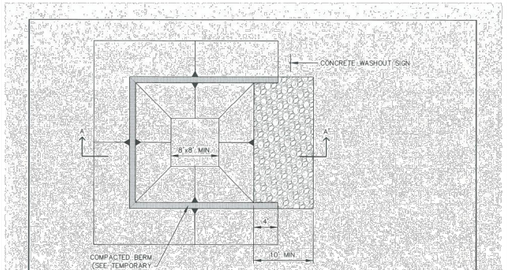
- Locate at least 50 feet away from State Waters, measured horizontally. Unlined concrete washout areas must be located at least 400 feet away from State Waters, and at least 1000 feet away from wells or drinking water sources.
- Do not locate in areas where shallow groundwater may be present, such as near natural drainages, springs, or wetlands.
- Do not place in areas subject to run-on.
- Label areas with appropriate signage.
- The addition of solvents, flocculents, or acid to wash water is prohibited.

4.0 TIMING

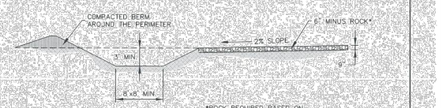
- Install prior to concrete activities.
- Remove after concrete activities have concluded.

5.0 MAINTENANCE

- Clean out facilities once they are 2/3 full, or construct new facilities for additional capacity.
- Concrete waste must be permanently disposed of off-site in an appropriate manner.



CONCRETE WASHOUT AREA PLAN



SECTION A-A'

*ROCK REQUIRED BASED ON SITE CONDITIONS AT THE DISCRETION OF THE QEC INSPECTOR

CWA

STORMWATER ENTERPRISE | CONCRETE WASHOUT AREA

APPROVED: CHIEF MANAGER		
ISSUED: 10/7/19	REVISED: 8/19/2020	DRAWING NO.: 900-CWA-1

INSTALLATION NOTES

1. SEE PLAN VIEW FOR LOCATION OF CONCRETE WASHOUT AREA.
2. LOCATE AT LEAST 50' AWAY FROM STATE WATERS, MEASURED HORIZONTALLY.
3. AN IMPERMEABLE LINER (16 MIL MINIMUM THICKNESS) IS REQUIRED IF CONCRETE WASH AREA IS LOCATED WITHIN 400' OF STATE WATERS OR 1000' OF WELLS OR DRINKING WATER SOURCES.
4. DO NOT LOCATE IN AREAS WHERE SHALLOW GROUNDWATER MAY BE PRESENT.
5. THE CONCRETE WASH AREA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.
6. CONCRETE WASH AREA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST 8' BY 8'.
7. BERM SURROUNDING SIDES AND BACK OF CONCRETE WASH AREA SHALL HAVE A MINIMUM HEIGHT OF 2 FEET.
8. CONCRETE WASH AREA ENTRANCE SHALL BE SLOPED 2% TOWARDS THE CONCRETE WASH AREA.
9. SIGNS SHALL BE PLACED AT THE CONCRETE WASH AREA.
10. USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. THE CONCRETE WASH AREA SHALL BE REPAIRED, CLEANED, OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE. CONCRETE MATERIALS ACCUMULATED IN THE PIT SHALL BE REMOVED ONCE THE MATERIALS HAVE REACHED A DEPTH OF ½ THE HEIGHT OF THE CONCRETE WASH AREA.
3. CONCRETE WASHOUT WATER, WASTED PIECES OF CONCRETE, AND ALL OTHER DEBRIS IN THE SUBSURFACE PIT SHALL BE TRANSPORTED FROM THE JOB SITE IN A WATER-TIGHT CONTAINER AND DISPOSED OF PROPERLY.
4. THE CONCRETE WASH AREA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.
5. PERMANENTLY STABILIZE AREA AFTER CONCRETE WASH AREA IS REMOVED.

CWA

STORMWATER ENTERPRISE | CONCRETE WASHOUT AREA

APPROVED: CHIEF MANAGER		
ISSUED: 10/7/19	REVISED: 8/19/2020	DRAWING NO.: 900-CWA-2

IP
Inlet Protection

1.0 DESCRIPTION

- Inlet protection consists of a permeable sediment barrier installed around a storm inlet.

2.0 PURPOSE

- Used to minimize the amount of sediment and debris entering a storm drainage system prior to permanent stabilization of the contributing disturbed area.
- Inlet protection slows down runoff velocity to filter runoff and to promote sedimentation prior to entry into a storm drainage system.

3.0 IMPLEMENTATION

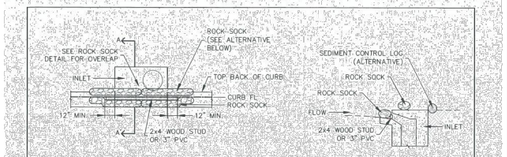
- Install inlet protection at storm sewer inlets that are operable and receiving runoff from disturbed areas during construction.
- Place inlet protection to allow the inlet to function without completely blocking flows into the inlet in a manner that causes localized flooding.
- Inlet protection is not a stand-alone control measure and should be used in conjunction with other upgradient control measures. Inlet protection in areas with a contributing drainage area of one acre or larger must be part of a treatment train.
- When selecting the type of inlet protection, consider factors such as type of inlet, traffic, anticipated flows, ability to secure the inlet protection, safety, and other site-specific conditions.

4.0 TIMING

- Install prior to land disturbing activities, or immediately after inlet installation.
- Remove and properly dispose of inlet protection after the contributing drainage area has been permanently stabilized.

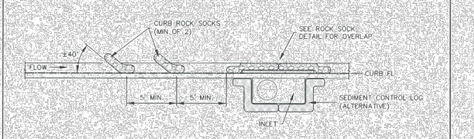
5.0 MAINTENANCE

- Remove and properly dispose of sediment when it has accumulated to 1/2 of the design depth of the inlet barrier.
- Inspect for holes or tears that can result in sediment directly entering the inlet.
- Inspect for displaced inlet protection that is no longer protecting the inlet.



CURB INLET PROTECTION PLAN

SECTION A-A'



CURB ROCK SOCKS UPSTREAM OF INLET PROTECTION

INSTALLATION NOTES

1. SEE ROCK SOCK DETAIL FOR INSTALLATION REQUIREMENTS.
2. PLACEMENT OF THE ROCK SOCK SHALL BE APPROXIMATELY 40 DEGREES FROM THE CURB.
3. ROCK SOCKS ARE TO BE FLUSH WITH THE CURB, AND SPACED A MINIMUM OF 5' APART.
4. AT LEAST TWO CURB ROCK SOCKS IN SERIES ARE REQUIRED UPSTREAM OF ON-GRADIENT INLETS.
5. ADDITIONAL ROCK SOCKS MAY BE REQUIRED AT GEC INSPECTOR'S DISCRETION.

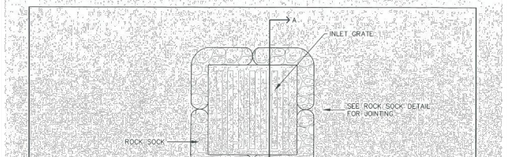
MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES ½ OF THE DESIGN DEPTH OF THE INLET BARRIER.
3. ROCK SOCKS MUST REMAIN UNTIL THE UPSTREAM DISTURBANCE AREA IS STABILIZED.
4. PERMANENTLY STABILIZE AREA BEHIND INLET AFTER ROCK SOCKS ARE REMOVED WHEN REMOVAL IS APPROPRIATE.

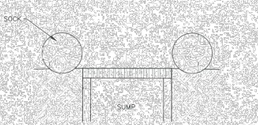
IP-1

STORMWATER ENTERPRISE | ON-GRADE INLET PROTECTION

APPROVED: CHIEF MANAGER		
ISSUED: 10/7/19	REVISED: 8/19/2020	DRAWING NO.: 900-IP-1



ROCK SOCK SUMP INLET PROTECTION PLAN



SECTION A-A'

INSTALLATION NOTES

1. SEE ROCK SOCK DETAIL FOR INSTALLATION REQUIREMENTS.
2. SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF ROCK SOCKS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL.
3. CONTROL MEASURES MUST BE WRAPPED AROUND INLET AS TIGHTLY AS POSSIBLE.

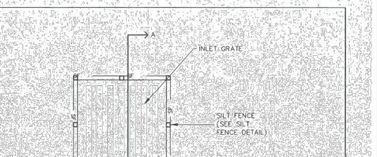
MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES ½ OF THE DESIGN DEPTH OF THE INLET BARRIER.
3. ROCK SOCKS MUST REMAIN UNTIL THE UPSTREAM DISTURBANCE AREA IS STABILIZED.
4. PERMANENTLY STABILIZE AREA AROUND INLET AFTER ROCK SOCKS ARE REMOVED WHEN REMOVAL IS APPROPRIATE.

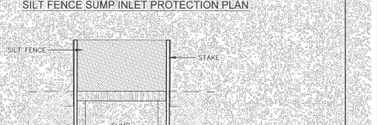
IP-2

STORMWATER ENTERPRISE | SUMP INLET PROTECTION

APPROVED: CHIEF MANAGER		
ISSUED: 10/7/19	REVISED: 8/19/2020	DRAWING NO.: 900-IP-2



SILT FENCE SUMP INLET PROTECTION PLAN



SECTION A-A'

INSTALLATION NOTES

1. SEE SILT FENCE DETAIL FOR INSTALLATION REQUIREMENTS.
2. POSTS SHALL BE PLACED AT EACH CORNER OF THE INLET AND AROUND THE EDGES AT A MAXIMUM SPACING OF THREE FEET.
3. SILT FENCE FABRIC SHOULD HAVE A FLOW RATE IN EXCESS OF 30 GALLONS PER MINUTE PER SQUARE YARD SO AS TO ALLOW SOME WATER FLOW AND NOT DAM THE WATER. STANDARD, LOW-FLOW SILT FENCE FABRIC WILL NOT BE ALLOWED.

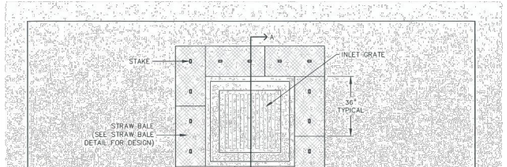
MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES ½ OF THE DESIGN DEPTH OF THE INLET BARRIER.
3. SILT FENCE MUST REMAIN UNTIL THE UPSTREAM DISTURBANCE AREA IS STABILIZED.
4. PERMANENTLY STABILIZE AREA AROUND INLET AFTER SILT FENCE IS REMOVED WHEN REMOVAL IS APPROPRIATE.

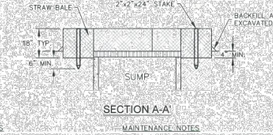
IP-3

STORMWATER ENTERPRISE | SUMP INLET PROTECTION

APPROVED: CHIEF MANAGER		
ISSUED: 10/7/19	REVISED: 8/19/2020	DRAWING NO.: 900-IP-3



STRAW BALE SUMP INLET PROTECTION PLAN



SECTION A-A'

INSTALLATION NOTES

1. BALES SHALL BE PLACED IN A SINGLE ROW AROUND THE INLET WITH THE ENDS OF THE BALES TIGHTLY ABUTTING ONE ANOTHER.
2. STRAW BALES SHALL CONSIST OF CERTIFIED WEED FREE STRAW OR HAY. LOCAL JURISDICTIONS MAY REQUIRE PROOF THAT BALES ARE WEED FREE.
3. STRAW BALES SHALL CONSIST OF APPROXIMATELY 5 CUBIC FEET OF STRAW OR HAY AND WEIGH NOT LESS THAN 35 POUNDS.
4. STRAW BALE DIMENSIONS SHALL BE APPROXIMATELY 36"x18"x18".
5. A UNIFORM ANCHOR TRENCH SHALL BE EXCAVATED TO A DEPTH OF 4". STRAW BALES SHALL BE PACED SO THAT THE BINDING TWINE IS ENCOMPASSING THE VERTICAL SIDES OF THE BALE(S).
6. TWO (2) WOODEN STAKES SHALL BE USED TO HOLD EACH BALE IN PLACE. WOODEN STAKED SHALL BE 2"x2"x24" (MIN.). WOODEN STAKES SHALL BE DRIVEN A MINIMUM OF 6" INTO THE GROUND.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES ½ OF THE DESIGN DEPTH OF THE INLET BARRIER.
3. STRAW BALES MUST REMAIN UNTIL THE UPSTREAM DISTURBANCE AREA IS STABILIZED.
4. PERMANENTLY STABILIZE AREA AROUND INLET AFTER STRAW BALES ARE REMOVED WHEN REMOVAL IS APPROPRIATE.
5. STRAW BALES SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED, ROTTEN, OR DAMAGED BEYOND REPAIR.

IP-4

STORMWATER ENTERPRISE | SUMP INLET PROTECTION

APPROVED: CHIEF MANAGER		
ISSUED: 10/7/19	REVISED: 8/19/2020	DRAWING NO.: 900-IP-4

C:\PWWORKING\central01\d437417205C005.dwg, 3/16/2026 3:32:03 PM, THHICK

ISSUE	DATE	DESCRIPTION
D	03/2026	100% DESIGN REVIEW
C	11/2025	90% DESIGN REVIEW
B	07/2025	60% DESIGN REVIEW
A	12/2024	30% DESIGN REVIEW

PROJECT MANAGER	STEVEN T. POOL
PROJECT ENGINEER	R. KEATLEY
QUALITY CONTROL	M. GOSSETT
DRAFTER	T. HICKS
PROJECT NUMBER	10393769

PRELIMINARY
NOT FOR
CONSTRUCTION OR
RECORDING

COLORADO SPRINGS UTILITIES
NORTHERN MONUMENT CREEK INTERCEPTOR AND MIDDLE TRIBUTARY LIFT STATION INTERCEPTOR CONNECTION

SWMP/GEC
STORM WATER MANAGEMENT PLAN
DETAILS

0 1" 2"

FILENAME 05C005.DWG
SCALE AS NOTED

SHEET
05C005

RS
Rock Sock

1.0 DESCRIPTION

- A rock sock consists of gravel that has been wrapped by wire mesh or a geotextile to form an elongated cylindrical filter.

2.0 PURPOSE

- Used to slow down the velocity of runoff to filter runoff and to promote sedimentation.
- Rock socks are typically used as either perimeter control or as a part of inlet protection.

3.0 IMPLEMENTATION

- Rock socks do not require trenching or staking, and are able to be placed on hard surfaces where trenching or staking would be impossible.
- The maximum tributary drainage area per 100 liner feet of rock socks is 1/4 acre.
- When placed in a gutter adjacent to a curb, rock socks should protrude no more than two feet from the curb in order for traffic to pass safely.
- Proprietary rock socks can be used in place of wire mesh rock socks.

4.0 TIMING

- Install prior to land disturbing activities, or immediately after inlet installation.
- Remove and properly dispose of inlet protection after the contributing drainage area has been permanently stabilized.

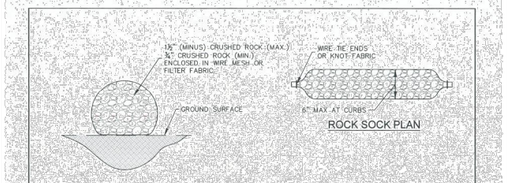
5.0 MAINTENANCE

- Remove and properly dispose of sediment when it has accumulated to 1/2 of the height of the rock sock.
- Inspect for and replace damaged or displaced rock socks.

City of Colorado Springs
Stormwater Enterprise

RS-1

Construction Control Measures
December 2020



INSTALLATION NOTES

1. CRUSHED ROCK SHALL BE BETWEEN MAX. 1½" (MINUS) IN SIZE WITH A FRACTURED FACE (ALL SIDES) AND SHALL COMPLY WITH GRADATION SHOWN ON THIS SHEET AND MIN. ¾" CRUSHED ROCK.
2. WIRE MESH SHALL HAVE OPENINGS SMALLER THAN THE SMALLEST SIZE ROCK.
3. WIRE MESH SHALL BE SECURED USING HOG RINGS, OR WIRE TIES AT 6" CENTERS ALONG ALL JOINTS AND AT 2' CENTERS ON ENDS OF SOCKS.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ROCK SOCKS SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED OR DAMAGED BEYOND REPAIR.
3. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN THE DEPTH REACHES ½ OF THE HEIGHT OF THE ROCK SOCK.
4. ROCK SOCKS ARE TO REMAIN IN PLACE UNTIL DISTURBED AREA IS STABILIZED.
5. PERMANENTLY STABILIZE AREA AFTER ROCK SOCKS HAVE BEEN REMOVED.

RS

STORMWATER ENTERPRISE

ROCK SOCK

APPROVED: CHIEF MANAGER

ISSUED	REVISED	DRAWING NO.
10/7/19	8/19/2020	SGO-RS

PT
Portable Toilet

1.0 DESCRIPTION

- The portable toilet detail provides requirements for portable toilet use on construction sites.

2.0 PURPOSE

- Used to minimize the risk of pollutant migration to State Waters.

3.0 IMPLEMENTATION

- Place portable toilet a minimum of 10 feet from the back of curb or on a trailer for road projects or sites that are mostly paved.
- Anchor portable toilet to the ground, at a minimum of two opposing corners (on a diagonal) using U-shaped rebar stakes.

4.0 TIMING

- Install as needed.
- Remove prior to the end of construction. Permanently stabilize any disturbed areas associated with the installation, maintenance, and/or removal of the toilets.

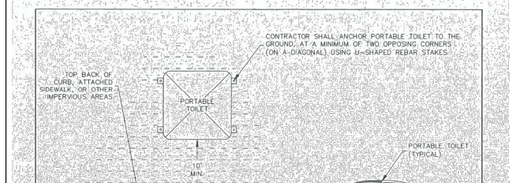
5.0 MAINTENANCE

- Portable toilets shall be serviced at the necessary intervals to eliminate the possibility of overflow.

City of Colorado Springs
Stormwater Enterprise

PT-1

Construction Control Measures
December 2020



INSTALLATION NOTES

1. PORTABLE TOILETS SHALL BE PLACED A MINIMUM OF 10 FEET BEHIND ALL CURBS, SIDEWALKS, AND OTHER IMPERVIOUS AREAS, 50 FEET FROM STORM INLETS, AND 100 FEET FROM WATERWAYS.
2. PORTABLE TOILETS IN THE RIGHT-OF-WAY ARE REQUIRED TO BE PLACED ON MOBILE TRAILERS AND MUST BE ANCHORED OR WEIGHTED DOWN. PORTABLE TOILETS MAY BE INSTALLED IN ACCORDANCE WITH NOTE #1 IN STAGING AREAS/YARDS.
3. PORTABLE TOILETS SHALL BE SECURELY ANCHORED TO THE GROUND USING U-SHAPED REBAR STAKES, OR OTHER EFFECTIVE ANCHORING.
4. ANCHORING SHALL BE POSITIONED ON AT LEAST TWO OPPOSING (DIAGONAL) CORNERS.
5. TOILET CONTAINMENT PANS MAY BE USED IN PLACE OF A TRAILER AT THE QEC INSPECTOR'S DISCRETION. TOILET CONTAINMENT PANS MUST BE ANCHORED IN PLACE AND MUST NOT BE USED WITHIN THE CITY R.O.W.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. PORTABLE TOILETS SHALL BE SERVICED AT THE NECESSARY INTERVALS TO ELIMINATE THE POSSIBILITY OF OVERFLOW.
3. WHEN THE PORTABLE TOILETS ARE REMOVED, ANY DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION, MAINTENANCE, AND/OR REMOVAL OF THE TOILETS MUST BE PERMANENTLY STABILIZED.

PT

PORTABLE TOILET

APPROVED: CHIEF MANAGER

ISSUED	REVISED	DRAWING NO.
2/19/19	8/19/2020	SGO-PT

SP
Stockpile Protection

1.0 DESCRIPTION

- Perimeter control placed around stockpiles of soil and other erodible materials.

2.0 PURPOSE

- Used to avoid the migration of sediment and other materials from stockpiles.

3.0 IMPLEMENTATION

- Install perimeter control around stockpile on downgradient side.
- Stockpile perimeter controls may not be required for stockpiles on the interior portion of a construction site where other downgradient controls including perimeter control are in place.

4.0 TIMING

- Install immediately after stockpile has formed or limits are known, whichever occurs first.
- Remove stockpile protection after the stockpile has been removed.

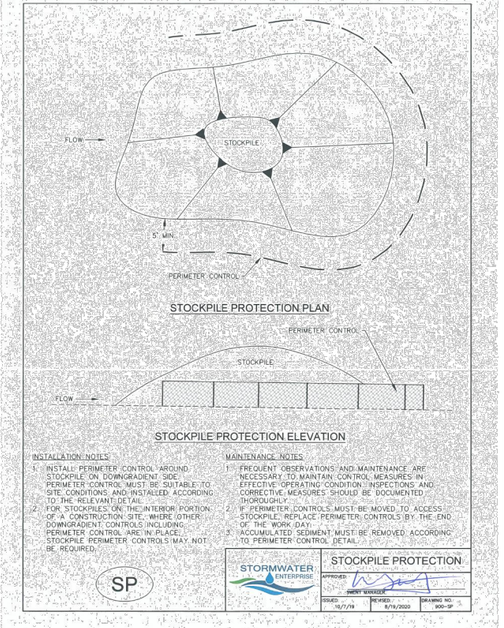
5.0 MAINTENANCE

- Remove and properly dispose of sediment according to the perimeter control detail.
- If perimeter controls must be moved to access stockpile, replace perimeter controls by the end of the work day.
- Inspect for and repair and/or replace perimeter controls as needed to maintain functionality.

City of Colorado Springs
Stormwater Enterprise

SP-1

Construction Control Measures
December 2020



INSTALLATION NOTES

1. INSTALL PERIMETER CONTROL AROUND STOCKPILE ON DOWNGRADIENT SIDE. PERIMETER CONTROL MUST BE SUITABLE TO SITE CONDITIONS AND INSTALLED ACCORDING TO THE RELEVANT DETAIL.
2. FOR STOCKPILES ON THE INTERIOR PORTION OF A CONSTRUCTION SITE, WHERE OTHER DOWNGRADIENT CONTROLS INCLUDING PERIMETER CONTROL ARE IN PLACE, STOCKPILE PERIMETER CONTROLS MAY NOT BE REQUIRED.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. IF PERIMETER CONTROLS MUST BE MOVED TO ACCESS STOCKPILE, REPLACE PERIMETER CONTROLS BY THE END OF THE WORK DAY.
3. ACCUMULATED SEDIMENT MUST BE REMOVED ACCORDING TO PERIMETER CONTROL DETAIL.

SP

STORMWATER ENTERPRISE

STOCKPILE PROTECTION

APPROVED: CHIEF MANAGER

ISSUED	REVISED	DRAWING NO.
10/7/19	8/19/2020	SGO-SP

VTC
Vehicle Tracking Control

1.0 DESCRIPTION

- Vehicle tracking control consists of a pad of coarse stone aggregate placed on a geotextile filter fabric.

2.0 PURPOSE

- Used to reduce the tracking of sediment onto roadways by construction vehicles.
- As vehicles drive over the VTC device, mud and sediment is removed from the tires.

3.0 IMPLEMENTATION

- Locate at construction entrance/exit.
- Organize site to ensure that all vehicles use the vehicle tracking control device.
- Where possible, grade VTC device to drain to construction site rather than to street.
- Proprietary VTC devices may be used if approved as an alternative Construction Control Measure.

4.0 TIMING

- Install prior to land disturbing activities.
- Remove when the potential for sediment migration onto adjacent roadways no longer exists (typically after site has been stabilized). Permanently stabilized area after vehicle tracking control is removed.

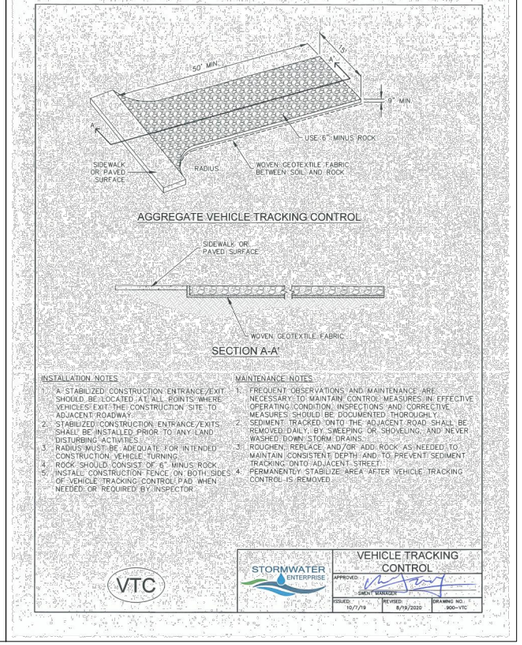
5.0 MAINTENANCE

- Roughen, replace, and/or add rock as needed to maintain a consistent depth and to prevent sediment tracking onto adjacent street.
- Sediment tracked onto the adjacent road shall be removed daily, by sweeping or shoveling, and never washed down storm drains.

City of Colorado Springs
Stormwater Enterprise

VTC-1

Construction Control Measures
December 2020



INSTALLATION NOTES

1. A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHOULD BE LOCATED AT ALL POINTS WHERE VEHICLES EXIT THE CONSTRUCTION SITE TO ADJACENT ROADWAYS.
2. STABILIZED CONSTRUCTION ENTRANCE/EXITS SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
3. RADIUS MUST BE ADEQUATE FOR INTENDED CONSTRUCTION VEHICLE TURNING.
4. ROCK SHOULD CONSIST OF 6" MINUS ROCK.
5. INSTALL CONSTRUCTION FENCE ON BOTH SIDES OF VEHICLE TRACKING CONTROL PAD WHEN NEEDED OR REQUIRED BY INSPECTOR.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. SEDIMENT TRACKED ONTO THE ADJACENT ROAD SHALL BE REMOVED DAILY, BY SWEEPING OR SHOVELING, AND NEVER WASHED DOWN STORM DRAINS.
3. ROUGHEN, REPLACE, AND/OR ADD ROCK AS NEEDED TO MAINTAIN CONSISTENT DEPTH AND TO PREVENT SEDIMENT TRACKING ONTO ADJACENT STREET.
4. PERMANENTLY STABILIZE AREA AFTER VEHICLE TRACKING CONTROL IS REMOVED.

VTC

STORMWATER ENTERPRISE

VEHICLE TRACKING CONTROL

APPROVED: CHIEF MANAGER

ISSUED	REVISED	DRAWING NO.
10/7/19	8/19/2020	SGO-VTC

C:\PWWORKING\central\d0134374172\05C006.dwg, 3/16/2026 3:32:12 PM, THHICK

ISSUE	DATE	DESCRIPTION
D	03/2026	100% DESIGN REVIEW
C	11/2025	90% DESIGN REVIEW
B	07/2025	60% DESIGN REVIEW
A	12/2024	30% DESIGN REVIEW

PROJECT MANAGER	STEVEN T. POOL
PROJECT ENGINEER	R. KEATLEY
QUALITY CONTROL	M. GOSSETT
DRAFTER	T. HICKS
PROJECT NUMBER	10393769

PRELIMINARY
NOT FOR CONSTRUCTION OR RECORDING

COLORADO SPRINGS UTILITIES
NORTHERN MONUMENT CREEK INTERCEPTOR AND MIDDLE TRIBUTARY LIFT STATION INTERCEPTOR CONNECTION

SWMP/GEC
STORM WATER MANAGEMENT PLAN
DETAILS

0 1" 2"

FILENAME 05C006.DWG
SCALE AS NOTED

SHEET
05C006

SCL
Sediment Control Log

1.0 DESCRIPTION

- A sediment control log is a temporary sediment barrier consisting of a linear roll of natural materials such as straw, compost, excelsior or coconut fiber.

2.0 PURPOSE

- Used to intercept sheet flow prior to leaving a construction site.
- May be used around the perimeter of a construction site.
- Placed on long slopes to slow down flows.

3.0 IMPLEMENTATION

- Install sediment control logs to intercept sheet flow runoff from disturbed areas.
- Install sediment control logs along the contour of slopes or in a manner to avoid creating concentrated flow.
- Place sediment control logs against sidewalk or back of curb when adjacent to these features.
- The maximum tributary drainage area per 100 liner feet of sediment control logs is 1/4 acre.
- Sediment control logs shall consist of straw, compost, excelsior or coconut fiber, and shall be free from any noxious weed seeds or defects.

4.0 TIMING

- Install prior to land disturbing activities.
- Remove sediment control logs after the upstream area has been permanently stabilized.

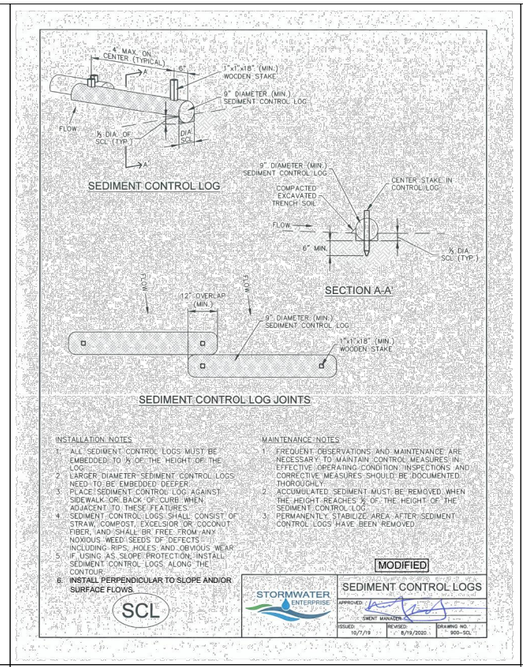
5.0 MAINTENANCE

- Remove and properly dispose of sediment when it has accumulated to 1/2 of the height of the exposed sediment control log.
- Inspect for and repair or replace damaged sediment control logs.

City of Colorado Springs
Stormwater Enterprise

SCL-1

Construction Control Measures
December 2020



CD
Check Dam

1.0 DESCRIPTION

- Check dams are small temporary rock dams constructed across a swale or drainage ditch.

2.0 PURPOSE

- Used to slow down the velocity of concentrated flow to limit erosion and to promote sedimentation.
- Placed in areas of concentrated flow, such as a ditch or swale.

3.0 IMPLEMENTATION

- Place check dams at regular intervals perpendicular to the direction of flow.
- Use check dams on mild or moderately steep slopes.
- Install wide enough check dams to reach from bank to bank of the ditch or swale.
- In general, the maximum spacing between check dams should be such that the toe of the upstream check dam is at the same elevation as the top of the downstream check dam.
- During installation, place rock mechanically or by hand.

4.0 TIMING

- Install prior to land disturbing activities.
- Remove after surrounding area has been permanently stabilized, or immediately prior to installation of a non-erodible lining. Permanently stabilize bare areas caused by check dams after removal.

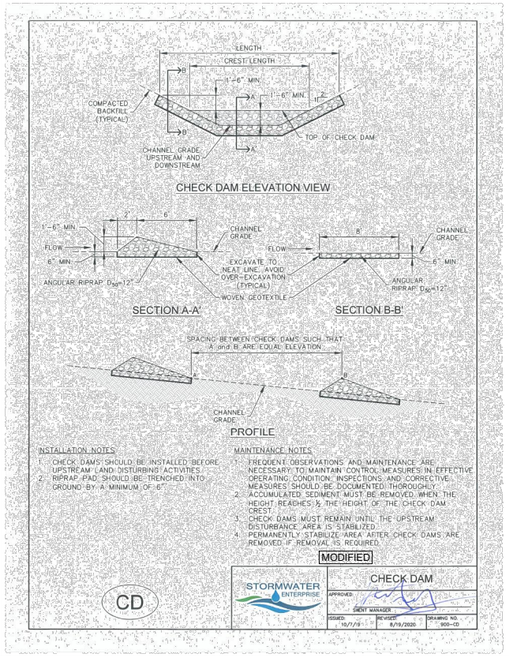
5.0 MAINTENANCE

- Remove and properly dispose of sediment when it has accumulated to 1/2 of the height of the check dam crest.
- Replace missing rocks causing voids in the check dam.
- Inspect for erosion along the ends of check dams and repair when necessary.

City of Colorado Springs
Stormwater Enterprise

CD-1

Construction Control Measures
December 2020



SPACING TABLE	
SLOPE	SPACING
0.50%	302 LF
1.00%	152 LF
2.00%	77 LF
3.00%	52 LF
4.00%	39 LF
5.00%	32 LF
6.00%	27 LF
8.00%	21 LF
10.00%	17 LF
20.00%	9 LF

CIP
Culvert Inlet Protection

1.0 DESCRIPTION

- Culvert inlet protection consists of a permeable sediment barrier installed upstream of a flared end section entrance to a culvert or storm sewer.

2.0 PURPOSE

- Used to prevent sediment and debris from entering a culvert or storm drainage system prior to permanent stabilization of the contributing disturbed area.
- Culvert inlet protection slows down runoff velocity to filter runoff and to promote sedimentation prior to entry into a culvert or storm drainage system.

3.0 IMPLEMENTATION

- Install culvert inlet protection at flared end section inlets to culverts and storm sewers that are operable and receiving runoff from disturbed areas during construction.
- Culvert inlet protection is not a stand-alone control measure and should be used in conjunction with other upgradient control measures. Culvert inlet protection with a contributing drainage area including of one acre or more of disturbed area must be part of a treatment train.

4.0 TIMING

- Install prior to land disturbing activities, or immediately after pipe installation.
- Remove and properly dispose of culvert inlet protection after the contributing drainage area has been permanently stabilized.

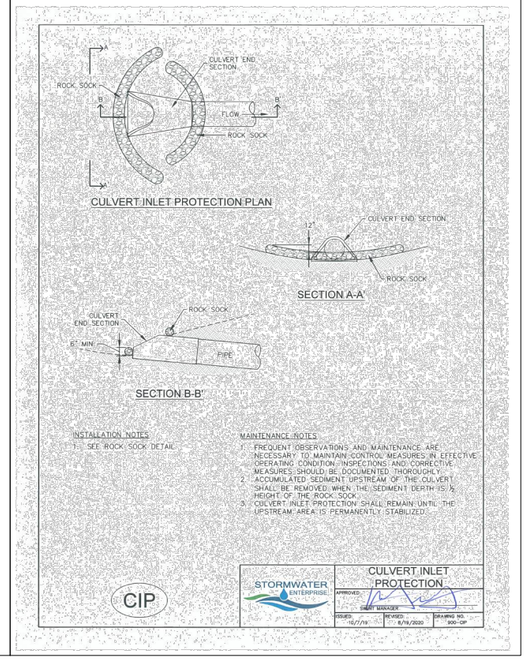
5.0 MAINTENANCE

- Remove and properly dispose of sediment when it has accumulated to 1/2 of the height of the rock sock.
- Inspect for displaced rock socks that are no longer protecting the inlet.

City of Colorado Springs
Stormwater Enterprise

CIP-1

Construction Control Measures
December 2020



C:\PWWORKING\centra\d01\d43741720\05C007.dwg, 3/16/2026 3:32:22 PM, THHICK

ISSUE	DATE	DESCRIPTION
D	03/2026	100% DESIGN REVIEW
C	11/2025	90% DESIGN REVIEW
B	07/2025	60% DESIGN REVIEW
A	12/2024	30% DESIGN REVIEW

PROJECT MANAGER	STEVEN T. POOL
PROJECT ENGINEER	R. KEATLEY
QUALITY CONTROL	M. GOSSETT
DRAFTER	T. HICKS
PROJECT NUMBER	10393769

PRELIMINARY
NOT FOR
CONSTRUCTION OR
RECORDING

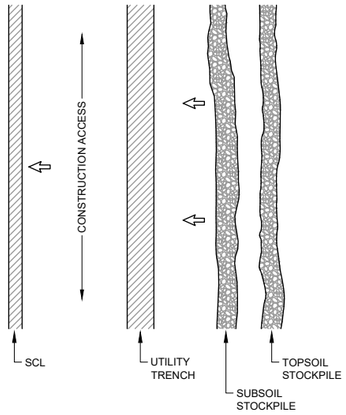
COLORADO SPRINGS UTILITIES
NORTHERN MONUMENT CREEK INTERCEPTOR AND MIDDLE TRIBUTARY LIFT STATION INTERCEPTOR CONNECTION

SWMP/GEC
STORM WATER MANAGEMENT PLAN
DETAILS

0 1" 2"

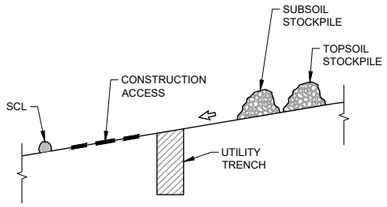
FILENAME 05C007.DWG
SCALE AS NOTED

SHEET
05C007



PLAN VIEW
NO SCALE

*CONSTRUCTION ACCESS AND STOCKPILE LOCATIONS MAY BE SWITCHED



CROSS SECTION
NO SCALE

*CONSTRUCTION ACCESS AND STOCKPILE LOCATIONS MAY BE SWITCHED

DESCRIPTION:

CONTROL MEASURE(S) (CM) FOR OPEN TRENCHING WITHIN AN UNPAVED SURFACE. THIS MAY BE A DIRT, UNVEGETATED OPEN AREA OR DIRT AND GRAVEL MIXED AREA TO BE RESTORED TO DIRT OR VEGETATED AREA.

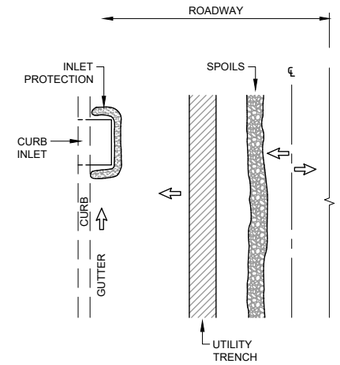
DESIGN AND INSTALLATION:

1. INSTALL DOWN-GRADIENT CMs PRIOR TO CONSTRUCTION AT THE SITE. ABOVE GROUND VEGETATION MAY BE CLEARED PRIOR TO CM INSTALLATION.
2. EXCAVATE BY DOUBLE DITCH METHODS SEPARATING TOPSOIL FROM SUBSOIL AND PLACING IN TWO BERMS ALONG TRENCH.
3. IF SPOILS ARE TO BE PLACED UP-GRADIENT OF TRENCH, TRENCH ACTS AS DOWN-GRADIENT CM. DOWN-GRADIENT LINEAR CMs ARE REQUIRED FOR ACCESS DISTURBANCES.
4. CONSTRUCTION ACCESS AND SPOIL BERMS AND CONSTRUCTION ACCESS TO BE LOCATED ON OPPOSITE SIDES OF THE TRENCH SHOWN UNLESS CONDITIONS RENDER IMPOSSIBLE TO DO SO.
5. TRENCH TO BE BACKFILLED WITH TOPSOIL PLACED LAST AND SURFACE ROUGHENED IN ANTICIPATION OF SEED AND MULCH APPLICATION, UNLESS RESTORATION INCLUDES RETURNING TO DIRT OR GRAVEL AREA.
8. DOWN-GRADIENT CMs MAY BE REMOVED ONCE SURFACE ROUGHENING HAS OCCURRED AND PRIOR TO SEED AND MULCH UNLESS SIDE-SLOPES ALLOW EROSION OF EXPOSED/ SURFACE ROUGHENED SOIL.

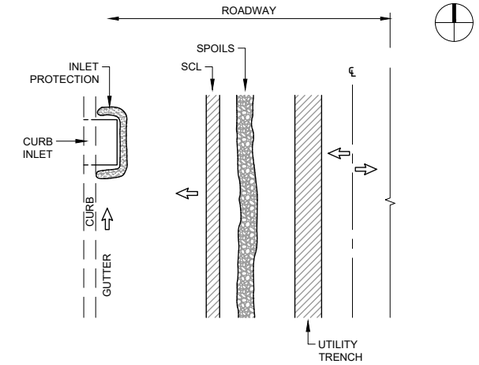
MAINTENANCE:

MAINTAIN CMs PER SCL OF APPROPRIATE CM TYPE.

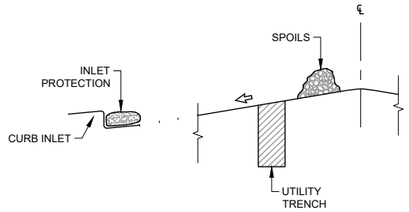
UNPAVED/VEGETATED AREA
NO SCALE



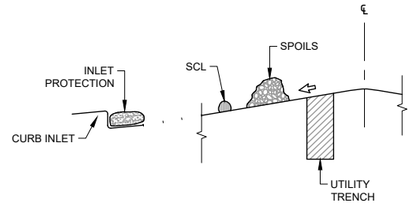
PLAN VIEW, UP-GRADIENT SPOILS
NO SCALE



PLAN VIEW, DOWN-GRADIENT SPOILS
NO SCALE



CROSS SECTION, UP-GRADIENT SPOILS
NO SCALE



CROSS SECTION, DOWN-GRADIENT SPOILS
NO SCALE

DESCRIPTION:

CONTROL MEASURE(S) (CM) FOR OPEN TRENCHING WITHIN A PAVED SURFACE. THIS MAY BE ASPHALT OR CONCRETE.

DESIGN AND INSTALLATION:

1. INSTALL DOWN-GRADIENT INLET PROTECTION AND GUTTER CMs PRIOR TO SAW CUTTING, PAVEMENT CUTS AND EXCAVATION SPOILS ARE RECOMMENDED TO BE IMMEDIATELY REMOVED FOR OFF-SITE DISPOSAL. IN THIS EVENT, NO DOWN-GRADIENT LINEAR CM IS REQUIRED. ROCK LOG (OR LIKE) IN GUTTER AND INLET PROTECTION IS STILL REQUIRED.
2. IF CUT AND EXCAVATION SPOILS ARE NOT IMMEDIATELY HAULED OFF-SITE, PLACE SPOIL PILE UP-GRADIENT OF TRENCH AS PRACTICABLE. TRENCH ACTS AS DOWN-GRADIENT CM.
3. IF SPOILS ARE TO BE PLACED DOWN-GRADIENT OF TRENCH, INSTALL WEIGHTED SEDIMENT CONTROL LOG BETWEEN SPOILS AND GUTTER.
4. INLET PROTECTION AND GUTTER CMs SHOULD BE INSTALLED DOWN-GRADIENT OF CONSTRUCTION ON BOTH SIDES OF ROAD IN AREAS WHERE THE CONSTRUCTION ACTIVITY EXTENDS TO BOTH SIDES OF THE ROAD CROWN.
5. BACKFILL WITH FLOWABLE FILL REQUIRE A CONCRETE WASHOUT WHEREVER WASHOUT OCCURS.
6. SITE IS STABILIZED UPON PATCH/RESTORATION OF PAVEMENT AT WHICH TIME CMs MAY BE REMOVED.

MAINTENANCE:

MAINTAIN CMs PER SCL OF APPROPRIATE CM TYPE.

PAVED AREA WITH CURB/GUTTER
NO SCALE

A
-
OPEN TRENCH CM
NO SCALE

C:\PWWORKING\central\01\d43741720\05C008.dwg, 3/12/2026 10:23:27 AM, THHICK

ISSUE	DATE	DESCRIPTION
D	03/2026	100% DESIGN REVIEW
C	11/2025	90% DESIGN REVIEW
B	07/2025	60% DESIGN REVIEW
A	12/2024	30% DESIGN REVIEW

PROJECT MANAGER	STEVEN T. POOL
PROJECT ENGINEER	R. KEATLEY
QUALITY CONTROL	M. GOSSETT
DRAFTER	T. HICKS
PROJECT NUMBER	10393769

PRELIMINARY NOT FOR CONSTRUCTION OR RECORDING

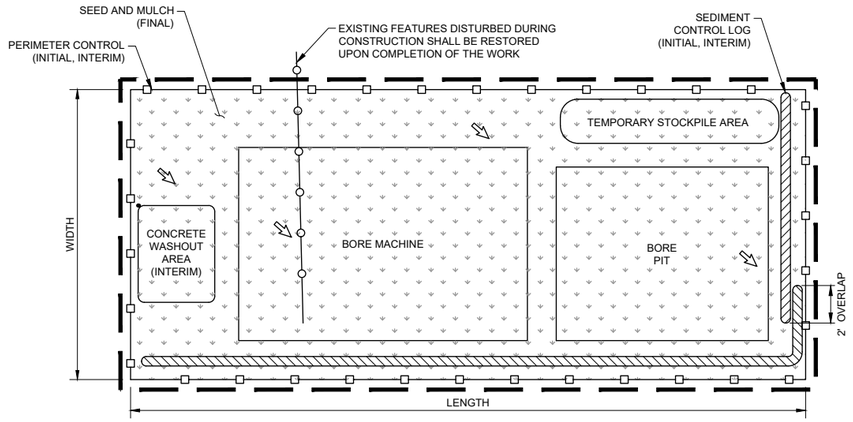
COLORADO SPRINGS UTILITIES NORTHERN MONUMENT CREEK INTERCEPTOR AND MIDDLE TRIBUTARY LIFT STATION INTERCEPTOR CONNECTION

SWMP/GEC
STORM WATER MANAGEMENT PLAN
DETAILS

0 1" 2"

FILENAME 05C008.DWG
SCALE AS NOTED

SHEET
05C008



UNPAVED/VEGETATED AREA

NO SCALE

DESCRIPTION:

CONTROL MEASURE(S) (CM) FOR DIRECTIONAL BORE PITS WITHIN AN UNPAVED AREA. THIS MAY BE A VEGETATED AREA, UNVEGETATED OPEN AREA, OR DIRT AND GRAVEL MIXED AREA TO BE RESTORED WITH DIRT.

DESIGN AND INSTALLATION:

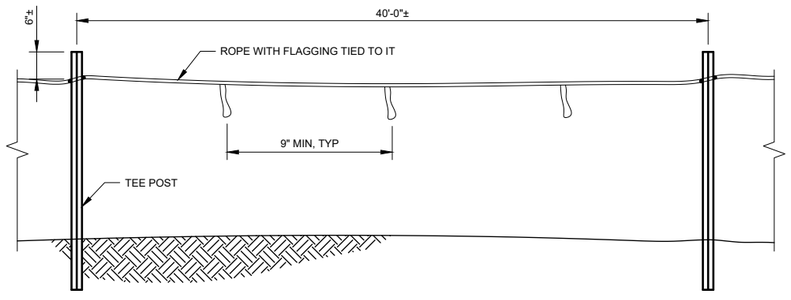
1. INSTALL DOWN-GRADIENT CMs PRIOR TO CONSTRUCTION AT THE SITE. ABOVE GROUND VEGETATION MAY BE CLEARED PRIOR TO CM INSTALLATION.
2. PERFORM GRADING AS REQUIRED TO ACHIEVE LEVEL SURFACE.
3. EXCAVATE BY DOUBLE DITCH METHODS SEPARATING TOPSOIL FROM SUBSOIL, CREATING TWO STOCKPILES.
4. DIMENSIONS AND ARRANGEMENT SHOWN ARE APPROXIMATE AND MAY VARY BASED ON WORK REQUIREMENTS AND/OR SITE CHARACTERISTICS. PLACE SPOIL PILES UP-GRADIENT OF BORE AS PRACTICABLE. PIT ACTS AS DOWN-GRADIENT CM.
5. CONSTRUCTION ACCESS SHOULD BE FROM UP-GRADIENT SIDE OF WORK AREA.
6. INITIAL BORE PIT BACKFILL WITH FLOWABLE FILL REQUIRES A CONCRETE WASHOUT AS SHOWN. SEE CWA DETAIL FOR CMs.
7. REMAINING DEPTH OF BORE PIT TO BE BACKFILLED WITH SOIL. PREPARE SURFACE IN ACCORDANCE WITH SPECIFICATION 31 22 19 AND 32 92 00 IN ANTICIPATION OF SEED AND MULCH APPLICATION, UNLESS RESTORATION INCLUDES RETURNING TO DIRT OR GRAVEL AREA.
8. DOWN-GRADIENT CMs MAY BE REMOVED ONCE SURFACE ROUGHENING HAS OCCURRED AND PRIOR TO SEED AND MULCH UNLESS SIDE-SLOPES ALLOW EROSION OF EXPOSED/ SURFACE ROUGHENED SOIL.

MAINTENANCE:

MAINTAIN CMs PER APPROPRIATE CM TYPE. SEE SWMP REPORT FOR ACTIONS TO BE TAKEN IN EVENT OF INADVERTENT FLUID RELEASE.

1 - BORE PIT CM

NO SCALE



GENERAL PRACTICES:

1. SEE STORM WATER MANAGEMENT PLANS FOR LOCATIONS OF BOUNDARY FENCING.
2. LIMITS OF DISTURBANCE, EASEMENTS, WETLANDS, AND WILDLIFE AREAS WILL BE STAKED OUT BY SURVEYOR BEFORE PLACING BOUNDARY FENCING.
3. ALL EQUIPMENT USED TO INSTALL FENCING SHALL BE KEPT ON THE CONSTRUCTION SIDE OF PROJECT.
4. VEGETATIVE BUFFERS SHALL BE PRESERVED WHENEVER POSSIBLE.
5. BOUNDARY FENCING CAN BE REMOVED PRIOR TO FINAL STABILIZATION AND PERMANENT SEEDING.

2 - CONSTRUCTION BOUNDARY FENCING CM

NO SCALE

ISSUE	DATE	DESCRIPTION
D	03/2026	100% DESIGN REVIEW
C	11/2025	90% DESIGN REVIEW
B	07/2025	60% DESIGN REVIEW
A	12/2024	30% DESIGN REVIEW

PROJECT MANAGER	STEVEN T. POOL
PROJECT ENGINEER	R. KEATLEY
QUALITY CONTROL	M. GOSSETT
DRAFTER	T. HICKS
PROJECT NUMBER	10393769

PRELIMINARY NOT FOR CONSTRUCTION OR RECORDING

COLORADO SPRINGS UTILITIES
NORTHERN MONUMENT CREEK INTERCEPTOR AND MIDDLE TRIBUTARY LIFT STATION INTERCEPTOR CONNECTION

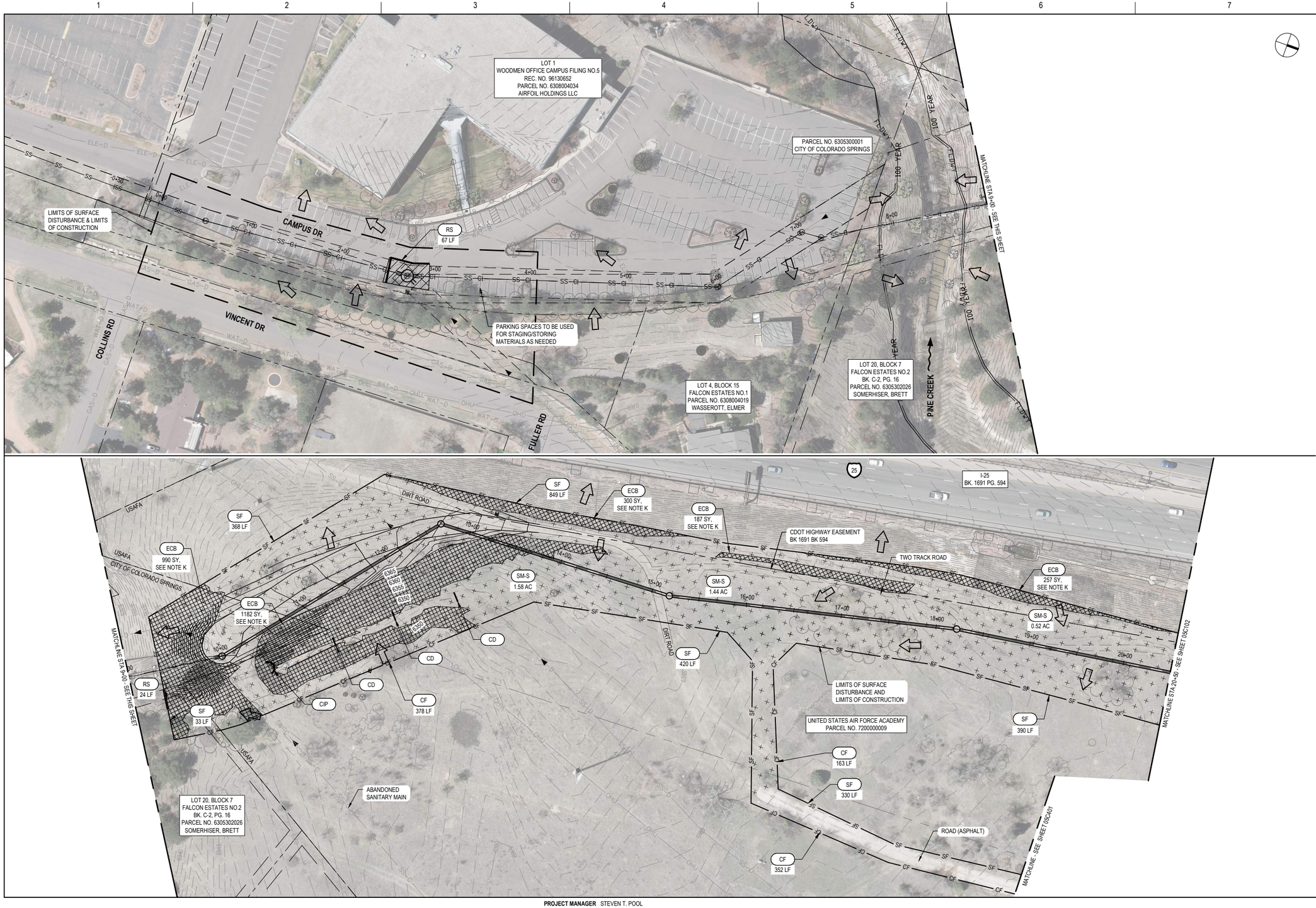
SWMP/GEC
STORM WATER MANAGEMENT PLAN DETAILS

0 1" 2"

FILENAME 05C009.DWG
SCALE AS NOTED

SHEET 05C009

c:\pwworking\central\d1\d437417205C009.dwg, 3/12/2026 10:23:37 AM, THHICK



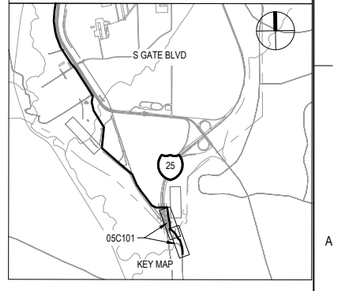
GENERAL NOTES

A. STAGING AREA TO BE DETERMINED BY THE CONTRACTOR.

K. FOR EROSION CONTROL BLANKETS, USE PRODUCTS CORRESPONDING TO APPROPRIATE SLOPE:
- 4:1 SLOPES: USE NETLESS ROLLED EROSION CONTROL BLANKETS
- 3:1 SLOPES: USE SINGLE-NET EROSION CONTROL BLANKETS AND OPEN WEAVE TEXTILES
- 2:1 SLOPES: DOUBLE-NET EROSION CONTROL BLANKET

(CCM) LEGEND:

KEY	TITLE
ECB	EROSION CONTROL BLANKET
IP-2	SUMP INLET PROTECTION
CD	CHECK DAM
RS	ROCK SOCK PROTECTION
SF	SILT FENCE
CF	CONSTRUCTION BOUNDARY FENCE
CIP	CULVERT INLET PROTECTION
ECB	EROSION CONTROL BLANKET
SM-R	RIPARIAN/TRANSITIONAL SEED MIX
SM-L	LOAMY/CLAYEY FOOTHILLS MIX
SM-M	MOUNTAIN MIX
SM-S	SANDY FOOTHILLS MIX
	STAGING AREA
VTC	VEHICLE TRACKING CONTROL
	FLOW DIRECTION



50 0 50 100
SCALE IN FEET
HORIZONTAL SCALE

C:\pwworking\central01\d437417205C101.dwg, 3/12/2026 2:54:39 PM, TIHHICK

ISSUE	DATE	DESCRIPTION
D	03/2026	100% DESIGN REVIEW
C	11/2025	90% DESIGN REVIEW
B	07/2025	60% DESIGN REVIEW
A	12/2024	30% DESIGN REVIEW

PROJECT MANAGER	STEVEN T. POOL
PROJECT ENGINEER	R. KEATLEY
QUALITY CONTROL	M. GOSSETT
DRAFTER	T. HICKS
PROJECT NUMBER	10393769

PRELIMINARY NOT FOR CONSTRUCTION OR RECORDING

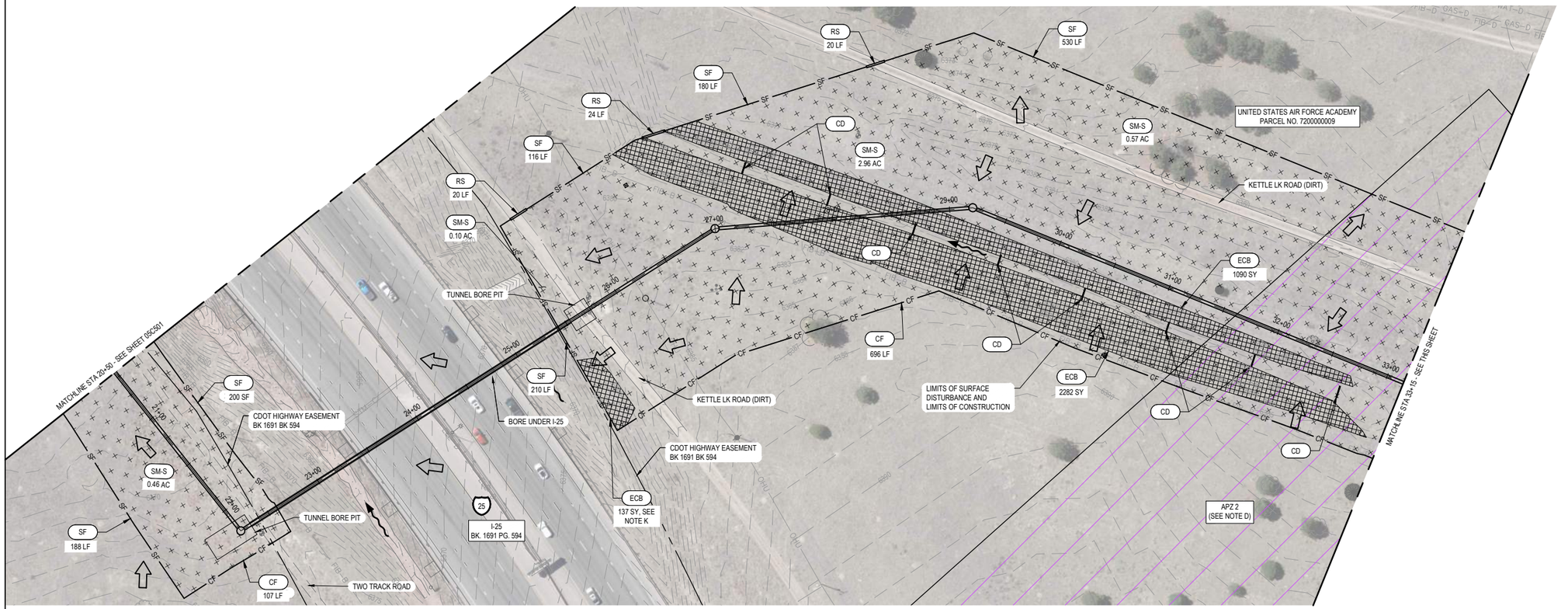
COLORADO SPRINGS UTILITIES NORTHERN MONUMENT CREEK INTERCEPTOR AND MIDDLE TRIBUTARY LIFT STATION INTERCEPTOR CONNECTION

SWMP/GEC
STORM WATER MANAGEMENT PLAN
STA 00+00 TO STA 20+50

0 1" 2"

FILENAME 05C101.DWG
SCALE AS NOTED

SHEET 05C101



GENERAL NOTES

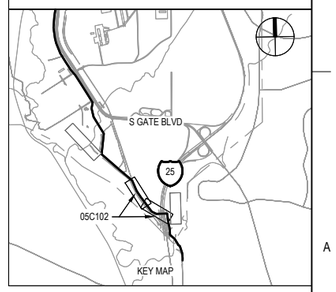
A. SEE SHEET 00G011 FOR SURVEY CONTROL.

D. SEE SPECIFICATIONS 01 14 00 AND 01 35 43 FOR WORK RESTRICTIONS WITHIN HATCHED AREAS.

K. FOR EROSION CONTROL BLANKETS, USE PRODUCTS CORRESPONDING TO APPROPRIATE SLOPE:
- 4:1 SLOPES: USE NETLESS ROLLED EROSION CONTROL BLANKETS
- 3:1 SLOPES: USE SINGLE-NET EROSION CONTROL BLANKETS AND OPEN WEAVE TEXTILES
- 2:1 SLOPES: DOUBLE-NET EROSION CONTROL BLANKET

(CCM) LEGEND:

KEY	TITLE
ECB	EROSION CONTROL BLANKET
IP-2	SUMP INLET PROTECTION
CD	CHECK DAM
RS	ROCK SOCK PROTECTION
SF	SILT FENCE
CF	CONSTRUCTION BOUNDARY FENCE
CIP	CULVERT INLET PROTECTION
ECB	EROSION CONTROL BLANKET
SM-R	RIPARIAN/TRANSITIONAL SEED MIX
SM-L	LOAMY/CLAYEY FOOTHILLS MIX
SM-M	MOUNTAIN MIX
SM-S	SANDY FOOTHILLS MIX
	STAGING AREA
VTC	VEHICLE TRACKING CONTROL
	FLOW DIRECTION



50 0 50 100
SCALE IN FEET
HORIZONTAL SCALE

C:\PW\WORKING\central\01\d437417205C102.dwg, 3/12/2026 2:32:07 PM, THHICK

ISSUE	DATE	DESCRIPTION
D	03/2026	100% DESIGN REVIEW
C	11/2025	90% DESIGN REVIEW
B	07/2025	60% DESIGN REVIEW
A	12/2024	30% DESIGN REVIEW

PROJECT MANAGER	STEVEN T. POOL
PROJECT ENGINEER	R. KEATLEY
QUALITY CONTROL	M. GOSSETT
DRAFTER	T. HICKS
PROJECT NUMBER	10393769

PRELIMINARY
NOT FOR
CONSTRUCTION OR
RECORDING

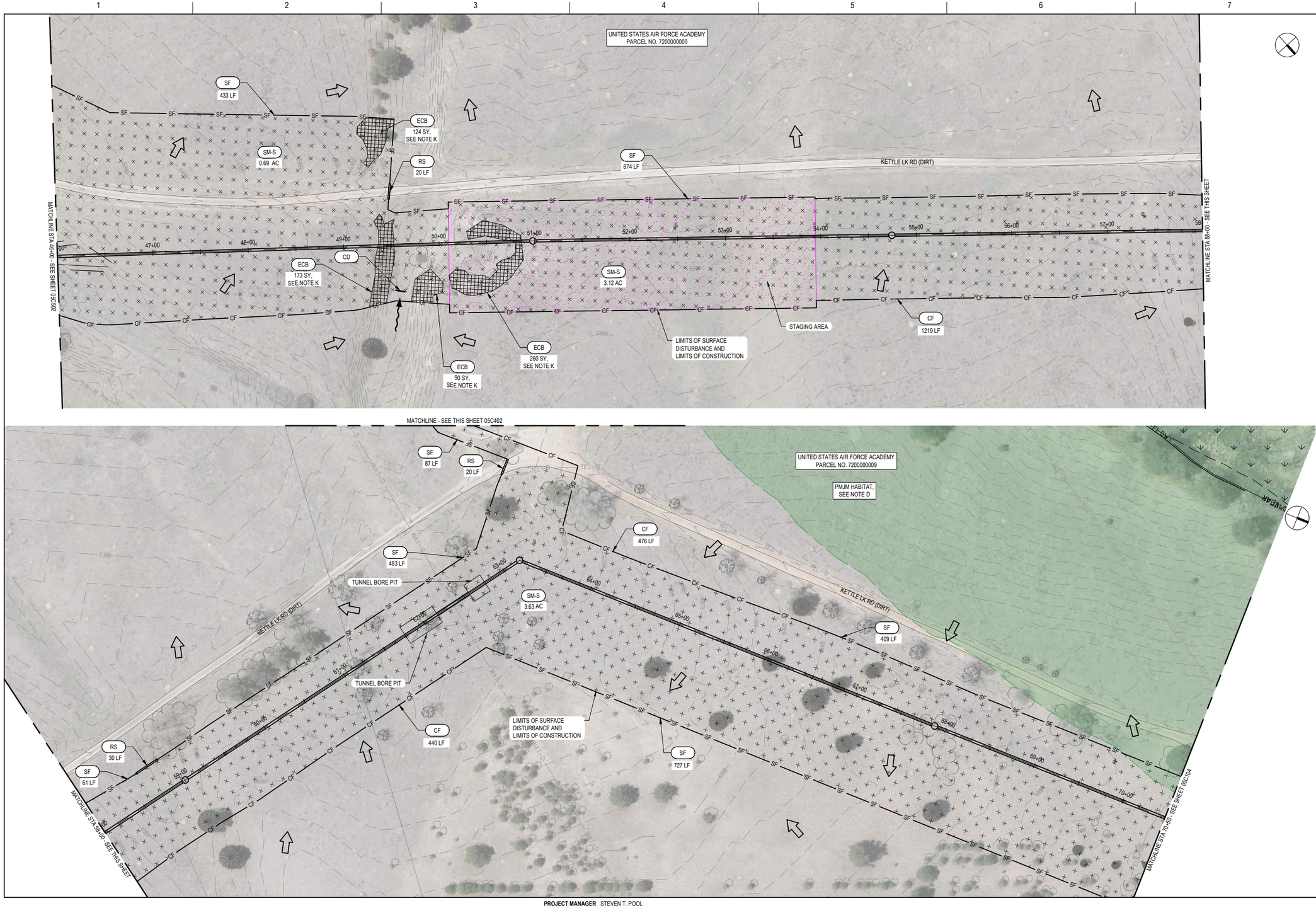
COLORADO SPRINGS UTILITIES
NORTHERN MONUMENT CREEK INTERCEPTOR AND MIDDLE TRIBUTARY LIFT STATION INTERCEPTOR CONNECTION

SWMP/GEC
STORM WATER MANAGEMENT PLAN
STA 20+50 TO STA 46+00

0 1" 2"

FILENAME 05C102.DWG
SCALE AS NOTED

SHEET 05C102



GENERAL NOTES

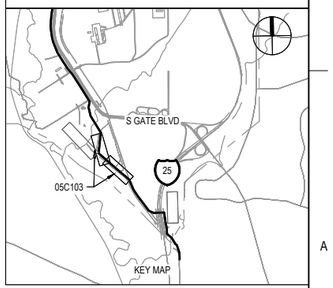
A. SEE SHEET 00G011 FOR SURVEY CONTROL.

D. SEE SPECIFICATIONS 01 14 00 AND 01 35 43 FOR WORK RESTRICTIONS WITHIN HATCHED AREAS.

K. FOR EROSION CONTROL BLANKETS, USE PRODUCTS CORRESPONDING TO APPROPRIATE SLOPE:
- 4:1 SLOPES: USE NETLESS ROLLED EROSION CONTROL BLANKETS
- 3:1 SLOPES: USE SINGLE-NET EROSION CONTROL BLANKETS AND OPEN WEAVE TEXTILES
- 2:1 SLOPES: DOUBLE-NET EROSION CONTROL BLANKET

(CCM) LEGEND:

KEY	TITLE
ECB	EROSION CONTROL BLANKET
IP-2	SUMP INLET PROTECTION
CD	CHECK DAM
RS	ROCK SOCK PROTECTION
SF	SILT FENCE
CF	CONSTRUCTION BOUNDARY FENCE
CIP	CULVERT INLET PROTECTION
ECB	EROSION CONTROL BLANKET
SM-R	RIPARIAN/TRANSITIONAL SEED MIX
SM-L	LOAMY/CLAYEY FOOTHILLS MIX
SM-M	MOUNTAIN MIX
SM-S	SANDY FOOTHILLS MIX
	STAGING AREA
VTC	VEHICLE TRACKING CONTROL
	FLOW DIRECTION



50 0 50 100
SCALE IN FEET
HORIZONTAL SCALE

C:\PWWORKING\central\01\d43741720\05C103.dwg, 3/12/2026 2:33:51 PM, THHICK

ISSUE	DATE	DESCRIPTION
D	03/2026	100% DESIGN REVIEW
C	11/2025	90% DESIGN REVIEW
B	07/2025	60% DESIGN REVIEW
A	12/2024	30% DESIGN REVIEW

PROJECT MANAGER	STEVEN T. POOL
PROJECT ENGINEER	R. KEATLEY
QUALITY CONTROL	M. GOSSETT
DRAFTER	T. HICKS
PROJECT NUMBER	10393769

PRELIMINARY
NOT FOR
CONSTRUCTION OR
RECORDING

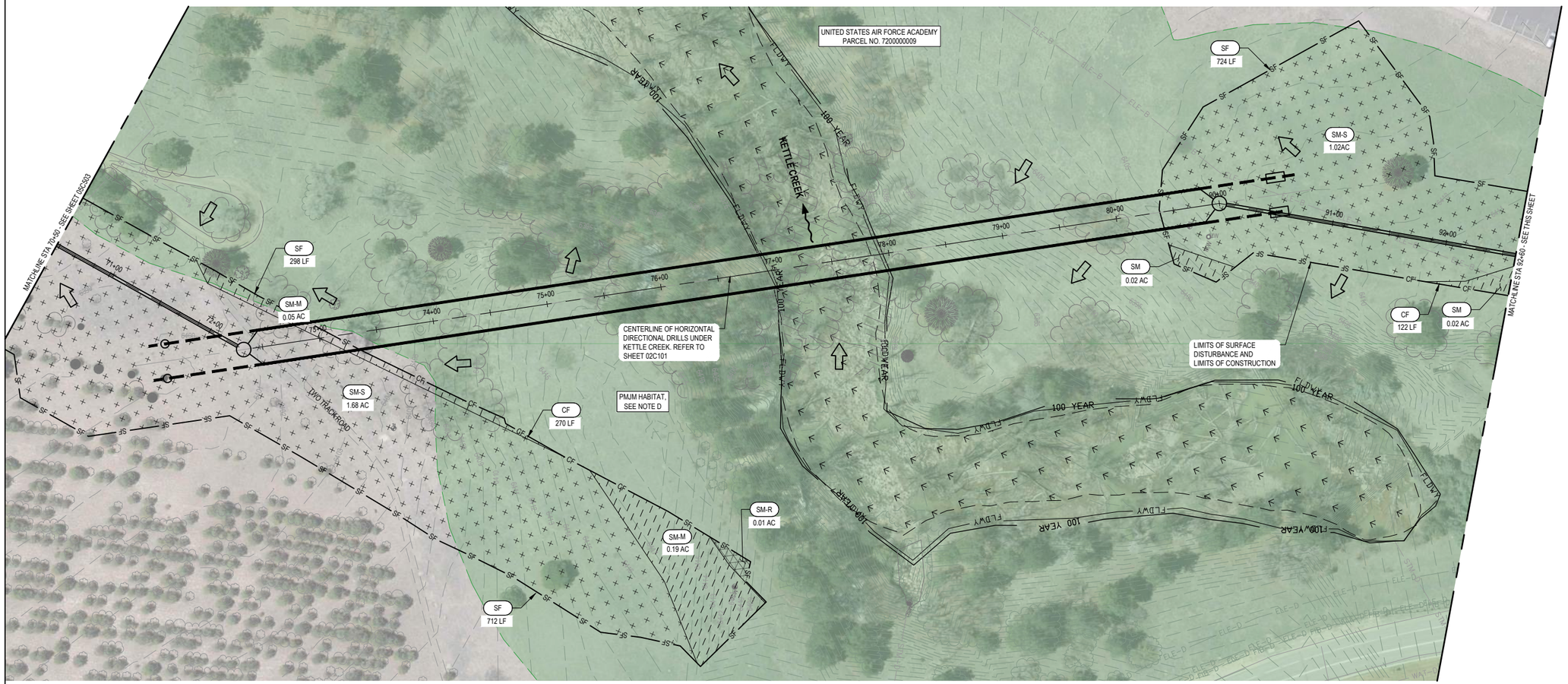
COLORADO SPRINGS UTILITIES
NORTHERN MONUMENT CREEK INTERCEPTOR AND MIDDLE TRIBUTARY LIFT STATION INTERCEPTOR CONNECTION

SWMP/GEC
STORM WATER MANAGEMENT PLAN
STA 46+00 TO STA 70+50

0 1" 2"

FILENAME 05C103.DWG
SCALE AS NOTED

SHEET
05C103



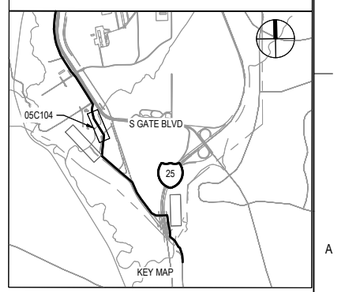
GENERAL NOTES

A. SEE SHEET 00G011 FOR SURVEY CONTROL.

D. SEE SPECIFICATIONS 01 14 00 AND 01 35 43 FOR WORK RESTRICTIONS WITHIN HATCHED AREAS.

(CCM) LEGEND:

KEY	TITLE
ECB	EROSION CONTROL BLANKET
IP-2	SUMP INLET PROTECTION
CD	CHECK DAM
RS	ROCK SOCK PROTECTION
SF	SILT FENCE
CF	CONSTRUCTION BOUNDARY FENCE
CIP	CULVERT INLET PROTECTION
ECB	EROSION CONTROL BLANKET
SM-R	RIPARIAN/TRANSITIONAL SEED MIX
SM-L	LOAMY/CLAYEY FOOTHILLS MIX
SM-M	MOUNTAIN MIX
SM-S	SANDY FOOTHILLS MIX
	STAGING AREA
VTC	VEHICLE TRACKING CONTROL
	FLOW DIRECTION



50 0 50 100
SCALE IN FEET
HORIZONTAL SCALE

C:\PWWORKING\central\d01\d4374172\05C104.dwg, 3/12/2026 2:35:26 PM, THHICK

ISSUE	DATE	DESCRIPTION
D	03/2026	100% DESIGN REVIEW
C	11/2025	90% DESIGN REVIEW
B	07/2025	60% DESIGN REVIEW
A	12/2024	30% DESIGN REVIEW

PROJECT MANAGER	STEVEN T. POOL
PROJECT ENGINEER	R. KEATLEY
QUALITY CONTROL	M. GOSSETT
DRAFTER	T. HICKS
PROJECT NUMBER	10393769

PRELIMINARY
NOT FOR
CONSTRUCTION OR
RECORDING

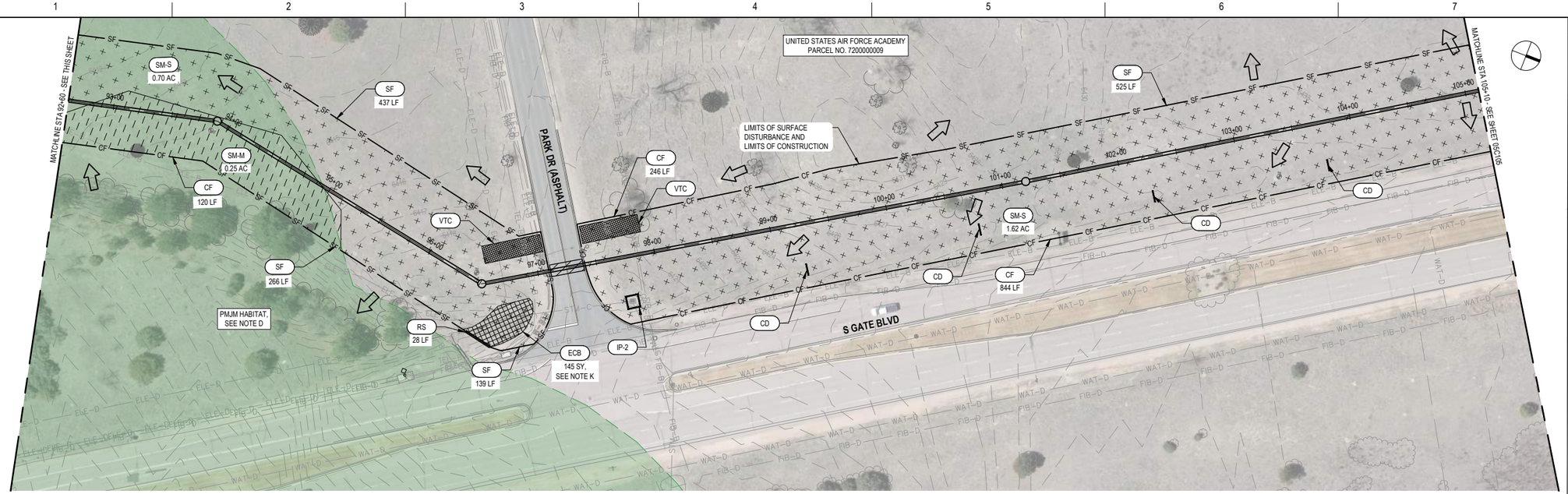
COLORADO SPRINGS UTILITIES
NORTHERN MONUMENT CREEK INTERCEPTOR AND MIDDLE TRIBUTARY LIFT STATION INTERCEPTOR CONNECTION

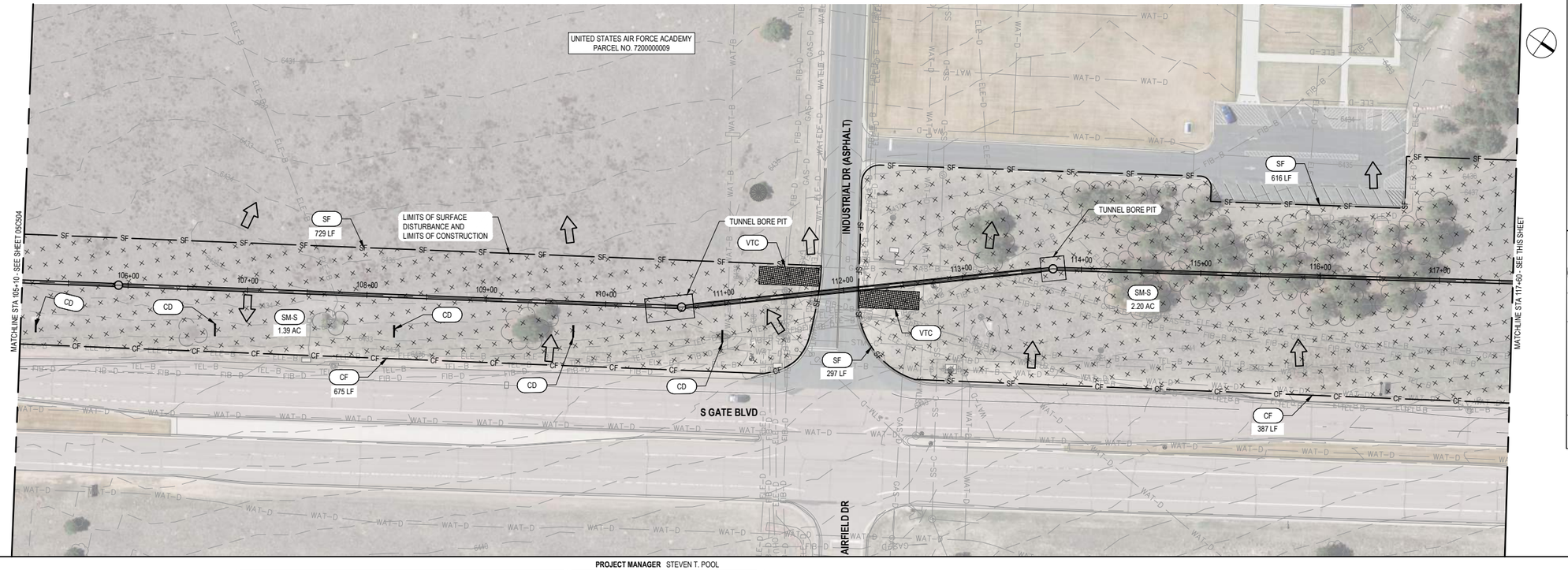
SWMP/GEC
STORM WATER MANAGEMENT PLAN
STA 70+50 TO STA 92+60

0 1" 2"

FILENAME 05C104.DWG
SCALE AS NOTED

SHEET
05C104





GENERAL NOTES

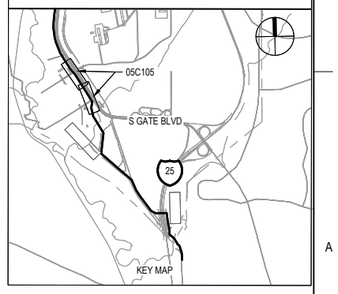
A. SEE SHEET 00G011 FOR SURVEY CONTROL.

D. SEE SPECIFICATIONS 01 14 00 AND 01 35 43 FOR WORK RESTRICTIONS WITHIN HATCHED AREAS.

K. FOR EROSION CONTROL BLANKETS, USE PRODUCTS CORRESPONDING TO APPROPRIATE SLOPE:
- 4:1 SLOPES: USE NETLESS ROLLED EROSION CONTROL BLANKETS
- 3:1 SLOPES: USE SINGLE-NET EROSION CONTROL BLANKETS AND OPEN WEAVE TEXTILES
- 2:1 SLOPES: DOUBLE-NET EROSION CONTROL BLANKET

(CCM) LEGEND:

KEY	TITLE
ECB	EROSION CONTROL BLANKET
IP-2	SUMP INLET PROTECTION
CD	CHECK DAM
RS	ROCK SOCK PROTECTION
SF	SILT FENCE
CF	CONSTRUCTION BOUNDARY FENCE
CIP	CULVERT INLET PROTECTION
ECB	EROSION CONTROL BLANKET
SM-R	RIPARIAN/TRANSITIONAL SEED MIX
SM-L	LOAMY/CLAYEY FOOTHILLS MIX
SM-M	MOUNTAIN MIX
SM-S	SANDY FOOTHILLS MIX
	STAGING AREA
VTC	VEHICLE TRACKING CONTROL
	FLOW DIRECTION



50 0 50 100
SCALE IN FEET
HORIZONTAL SCALE

C:\PWWORKING\central\01\94374172\05C105.dwg, 3/12/2026 2:36:44 PM, THHICK

ISSUE	DATE	DESCRIPTION
D	03/2026	100% DESIGN REVIEW
C	11/2025	90% DESIGN REVIEW
B	07/2025	60% DESIGN REVIEW
A	12/2024	30% DESIGN REVIEW

PROJECT MANAGER	STEVEN T. POOL
PROJECT ENGINEER	R. KEATLEY
QUALITY CONTROL	M. GOSSETT
DRAFTER	T. HICKS
PROJECT NUMBER	10393769

PRELIMINARY NOT FOR CONSTRUCTION OR RECORDING

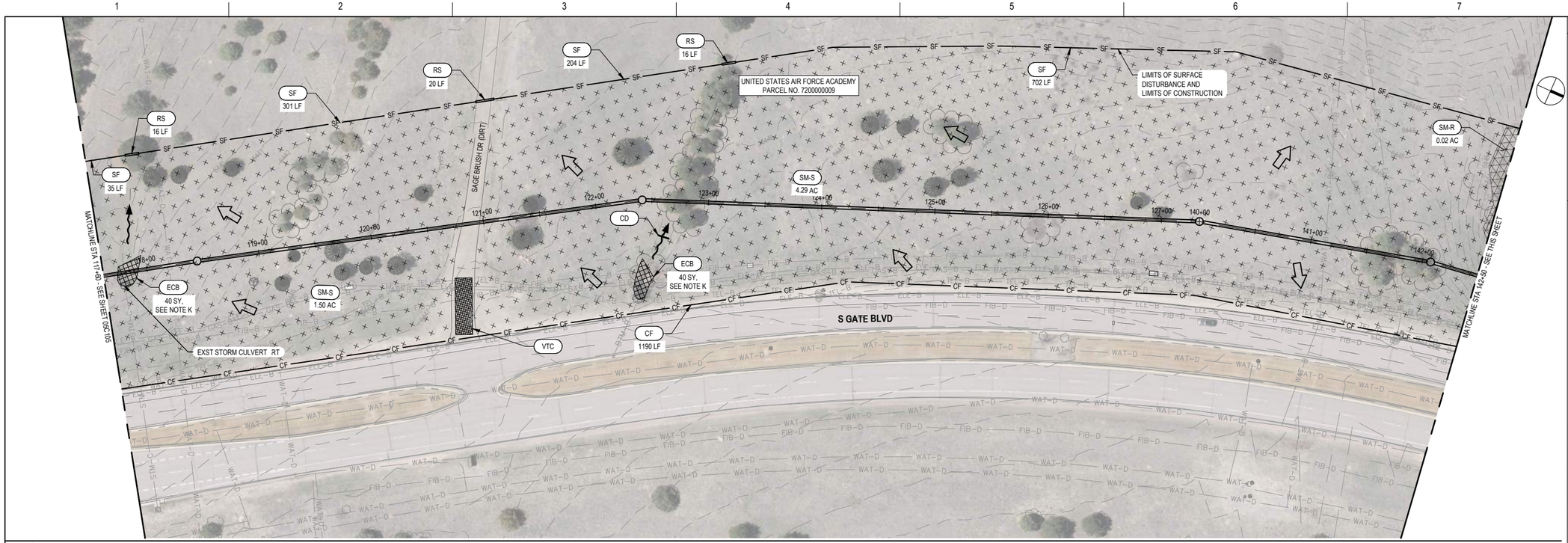
COLORADO SPRINGS UTILITIES NORTHERN MONUMENT CREEK INTERCEPTOR AND MIDDLE TRIBUTARY LIFT STATION INTERCEPTOR CONNECTION

SWMP/GEC
STORM WATER MANAGEMENT PLAN
STA 92+60 TO STA 117+60

0 1" 2"

FILENAME 05C105.DWG
SCALE AS NOTED

SHEET **05C105**



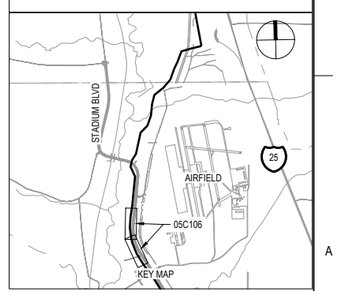
GENERAL NOTES

A. SEE SHEET 00G011 FOR SURVEY CONTROL.

K. FOR EROSION CONTROL BLANKETS, USE PRODUCTS CORRESPONDING TO APPROPRIATE SLOPE:
- 4:1 SLOPES: USE NETLESS ROLLED EROSION CONTROL BLANKETS
- 3:1 SLOPES: USE SINGLE-NET EROSION CONTROL BLANKETS AND OPEN WEAVE TEXTILES
- 2:1 SLOPES: DOUBLE-NET EROSION CONTROL BLANKET

(CCM) LEGEND:

KEY	TITLE
ECB	EROSION CONTROL BLANKET
IP-2	SUMP INLET PROTECTION
CD	CHECK DAM
RS	ROCK SOCK PROTECTION
SF	SILT FENCE
CF	CONSTRUCTION BOUNDARY FENCE
CIP	CULVERT INLET PROTECTION
ECB	EROSION CONTROL BLANKET
SM-R	RIPARIAN/TRANSITIONAL SEED MIX
SM-L	LOAMY/CLAYEY FOOTHILLS MIX
SM-M	MOUNTAIN MIX
SM-S	SANDY FOOTHILLS MIX
	STAGING AREA
VTC	VEHICLE TRACKING CONTROL
	FLOW DIRECTION



50 0 50 100
SCALE IN FEET
HORIZONTAL SCALE

C:\PW\WORKING\central01\d437417205C106.dwg, 3/12/2026 2:38:23 PM, THHICK

ISSUE	DATE	DESCRIPTION
D	03/2026	100% DESIGN REVIEW
C	11/2025	90% DESIGN REVIEW
B	07/2025	60% DESIGN REVIEW
A	12/2024	30% DESIGN REVIEW

PROJECT MANAGER	STEVEN T. POOL
PROJECT ENGINEER	R. KEATLEY
QUALITY CONTROL	M. GOSSETT
DRAFTER	T. HICKS
PROJECT NUMBER	10393769

PRELIMINARY NOT FOR CONSTRUCTION OR RECORDING

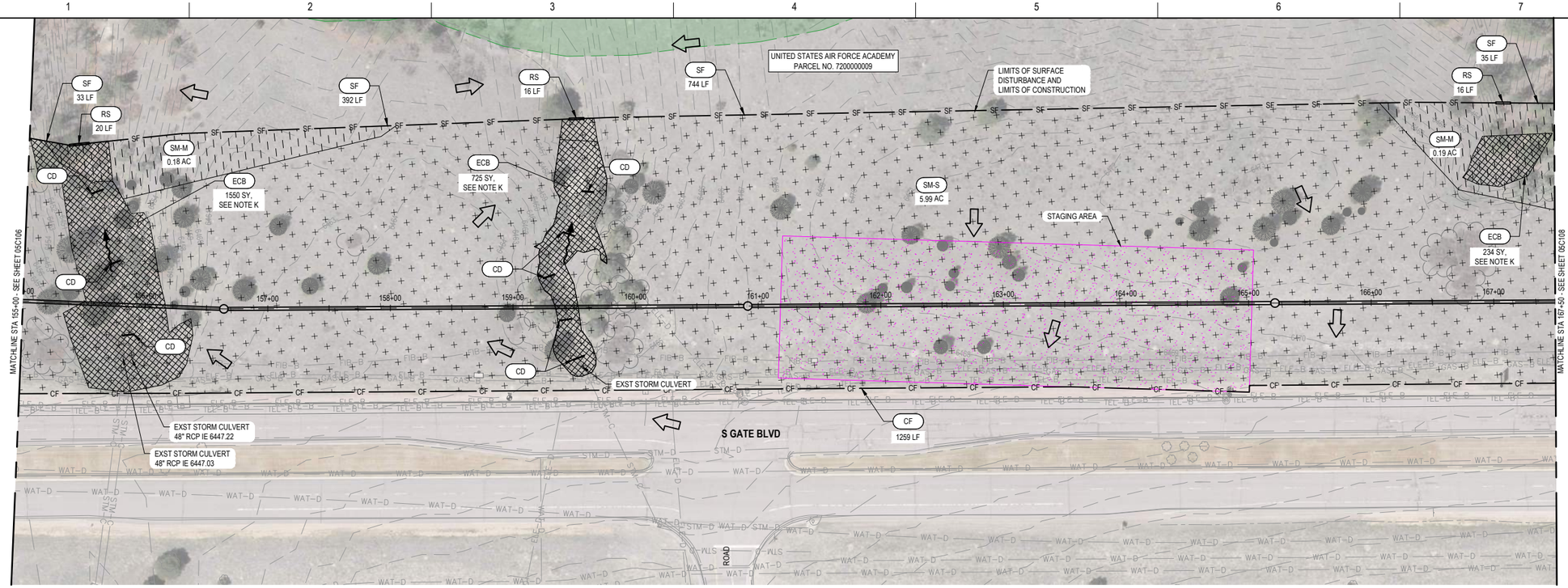
COLORADO SPRINGS UTILITIES NORTHERN MONUMENT CREEK INTERCEPTOR AND MIDDLE TRIBUTARY LIFT STATION INTERCEPTOR CONNECTION

SWMP/GEC
STORM WATER MANAGEMENT PLAN
STA 117+60 TO STA 155+00

0 1" 2"

FILENAME 05C106.DWG
SCALE AS NOTED

SHEET **05C106**



GENERAL NOTES

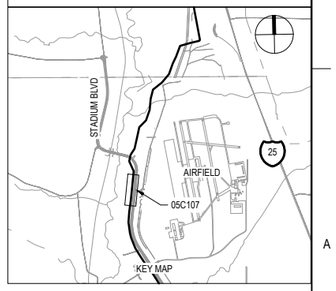
A. SEE SHEET 00G011 FOR SURVEY CONTROL.

D. SEE SPECIFICATIONS 01 14 00 AND 01 35 43 FOR WORK RESTRICTIONS WITHIN HATCHED AREAS.

K. FOR EROSION CONTROL BLANKETS, USE PRODUCTS CORRESPONDING TO APPROPRIATE SLOPE:
- 4:1 SLOPES: USE NETLESS ROLLED EROSION CONTROL BLANKETS
- 3:1 SLOPES: USE SINGLE-NET EROSION CONTROL BLANKETS AND OPEN WEAVE TEXTILES
- 2:1 SLOPES: DOUBLE-NET EROSION CONTROL BLANKET

(CCM) LEGEND:

KEY	TITLE
ECB	EROSION CONTROL BLANKET
IP-2	SUMP INLET PROTECTION
CD	CHECK DAM
RS	ROCK SOCK PROTECTION
SF	SILT FENCE
CF	CONSTRUCTION BOUNDARY FENCE
CIP	CULVERT INLET PROTECTION
ECB	EROSION CONTROL BLANKET
SM-R	RIPARIAN/TRANSITIONAL SEED MIX
SM-L	LOAMY/CLAYEY FOOTHILLS MIX
SM-M	MOUNTAIN MIX
SM-S	SANDY FOOTHILLS MIX
	STAGING AREA
VTC	VEHICLE TRACKING CONTROL
	FLOW DIRECTION



50 0 50 100
SCALE IN FEET
HORIZONTAL SCALE

C:\PWWORKING\central01\d437417\2\05C107.dwg, 3/12/2026 2:39:59 PM, THHICK

ISSUE	DATE	DESCRIPTION
D	03/2026	100% DESIGN REVIEW
C	11/2025	90% DESIGN REVIEW
B	07/2025	60% DESIGN REVIEW
A	12/2024	30% DESIGN REVIEW

PROJECT MANAGER	STEVEN T. POOL
PROJECT ENGINEER	R. KEATLEY
QUALITY CONTROL	M. GOSSETT
DRAFTER	T. HICKS
PROJECT NUMBER	10393769

PRELIMINARY NOT FOR CONSTRUCTION OR RECORDING

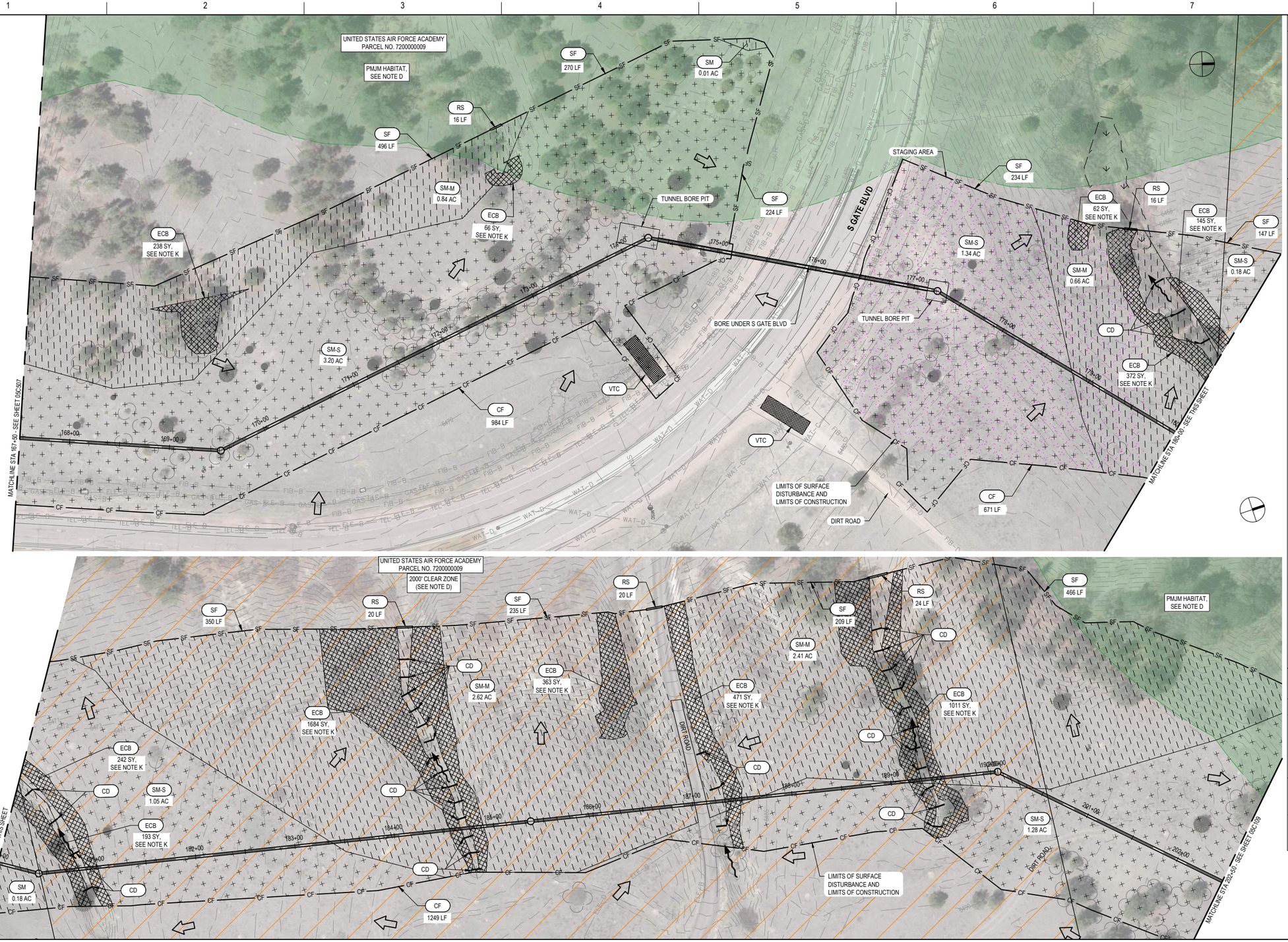
COLORADO SPRINGS UTILITIES NORTHERN MONUMENT CREEK INTERCEPTOR AND MIDDLE TRIBUTARY LIFT STATION INTERCEPTOR CONNECTION

SWMP/GEC
STORM WATER MANAGEMENT PLAN
STA 155+00 TO STA 167+50

0 1" 2"

FILENAME 05C107.DWG
SCALE AS NOTED

SHEET **05C107**



GENERAL NOTES

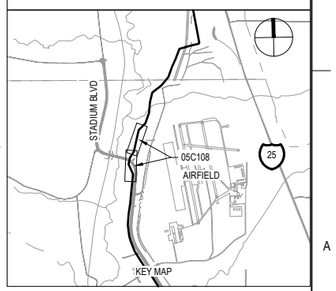
A. SEE SHEET 00G011 FOR SURVEY CONTROL.

D. SEE SPECIFICATIONS 01 14 00 AND 01 35 43 FOR WORK RESTRICTIONS WITHIN HATCHED AREAS.

K. FOR EROSION CONTROL BLANKETS, USE PRODUCTS CORRESPONDING TO APPROPRIATE SLOPE:
- 4:1 SLOPES: USE NETLESS ROLLED EROSION CONTROL BLANKETS
- 3:1 SLOPES: USE SINGLE-NET EROSION CONTROL BLANKETS AND OPEN WEAVE TEXTILES
- 2:1 SLOPES: DOUBLE-NET EROSION CONTROL BLANKET

(CCM) LEGEND:

KEY	TITLE
ECB	EROSION CONTROL BLANKET
IP-2	SUMP INLET PROTECTION
CD	CHECK DAM
RS	ROCK SOCK PROTECTION
SF	SILT FENCE
CF	CONSTRUCTION BOUNDARY FENCE
CIP	CULVERT INLET PROTECTION
ECB	EROSION CONTROL BLANKET
SM-R	RIPARIAN/TRANSITIONAL SEED MIX
SM-L	LOAMY/CLAYEY FOOTHILLS MIX
SM-M	MOUNTAIN MIX
SM-S	SANDY FOOTHILLS MIX
	STAGING AREA
VTC	VEHICLE TRACKING CONTROL
	FLOW DIRECTION



SCALE IN FEET: 50 0 50 100

HORIZONTAL SCALE

C:\pwworking\central\d0143741720\05C108.dwg, 3/12/2026 5:33:03 PM, THHICK

ISSUE	DATE	DESCRIPTION
D	03/2026	100% DESIGN REVIEW
C	11/2025	90% DESIGN REVIEW
B	07/2025	60% DESIGN REVIEW
A	12/2024	30% DESIGN REVIEW

PROJECT MANAGER	STEVEN T. POOL
PROJECT ENGINEER	R. KEATLEY
QUALITY CONTROL	M. GOSSETT
DRAFTER	T. HICKS
PROJECT NUMBER	10393769

PRELIMINARY NOT FOR CONSTRUCTION OR RECORDING

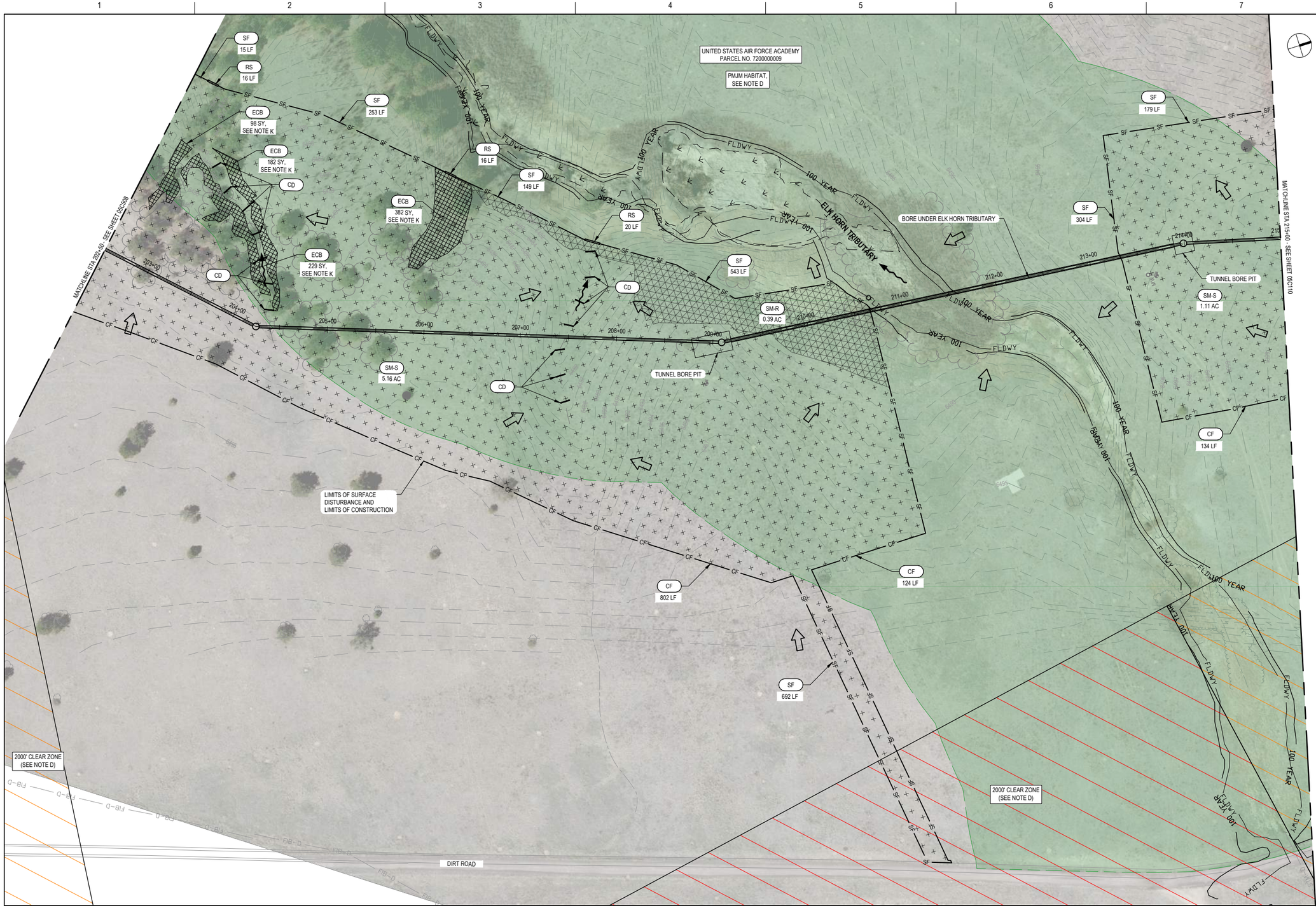
COLORADO SPRINGS UTILITIES NORTHERN MONUMENT CREEK INTERCEPTOR AND MIDDLE TRIBUTARY LIFT STATION INTERCEPTOR CONNECTION

SWMP/GEC
STORM WATER MANAGEMENT PLAN
STA 167+50 TO STA 202+50

0 1" 2"

FILENAME 05C108.DWG
SCALE AS NOTED

SHEET 05C108



GENERAL NOTES

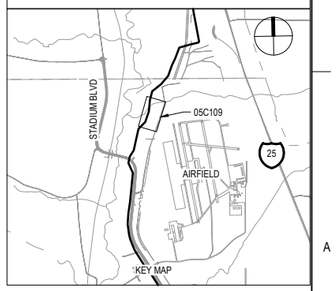
A. SEE SHEET 00G011 FOR SURVEY CONTROL.

D. SEE SPECIFICATIONS 01 14 00 AND 01 35 43 FOR WORK RESTRICTIONS WITHIN HATCHED AREAS.

K. FOR EROSION CONTROL BLANKETS, USE PRODUCTS CORRESPONDING TO APPROPRIATE SLOPE:
- 4:1 SLOPES: USE NETLESS ROLLED EROSION CONTROL BLANKETS
- 3:1 SLOPES: USE SINGLE-NET EROSION CONTROL BLANKETS AND OPEN WEAVE TEXTILES
- 2:1 SLOPES: DOUBLE-NET EROSION CONTROL BLANKET

(CCM) LEGEND:

KEY	TITLE
ECB	EROSION CONTROL BLANKET
IP-2	SUMP INLET PROTECTION
CD	CHECK DAM
RS	ROCK SOCK PROTECTION
SF	SILT FENCE
CF	CONSTRUCTION BOUNDARY FENCE
CIP	CULVERT INLET PROTECTION
ECB	EROSION CONTROL BLANKET
SM-R	RIPARIAN/TRANSITIONAL SEED MIX
SM-L	LOAMY/CLAYEY FOOTHILLS MIX
SM-M	MOUNTAIN MIX
SM-S	SANDY FOOTHILLS MIX
	STAGING AREA
VTC	VEHICLE TRACKING CONTROL
	FLOW DIRECTION



50 0 50 100
SCALE IN FEET
HORIZONTAL SCALE

C:\PW\WORKING\central\d01\d4374172\05C109.dwg, 3/12/2026 2:42:44 PM, THHICK

ISSUE	DATE	DESCRIPTION
D	03/2026	100% DESIGN REVIEW
C	11/2025	90% DESIGN REVIEW
B	07/2025	60% DESIGN REVIEW
A	12/2024	30% DESIGN REVIEW

PROJECT MANAGER	STEVEN T. POOL
PROJECT ENGINEER	R. KEATLEY
QUALITY CONTROL	M. GOSSETT
DRAFTER	T. HICKS
PROJECT NUMBER	10393769

PRELIMINARY
NOT FOR
CONSTRUCTION OR
RECORDING

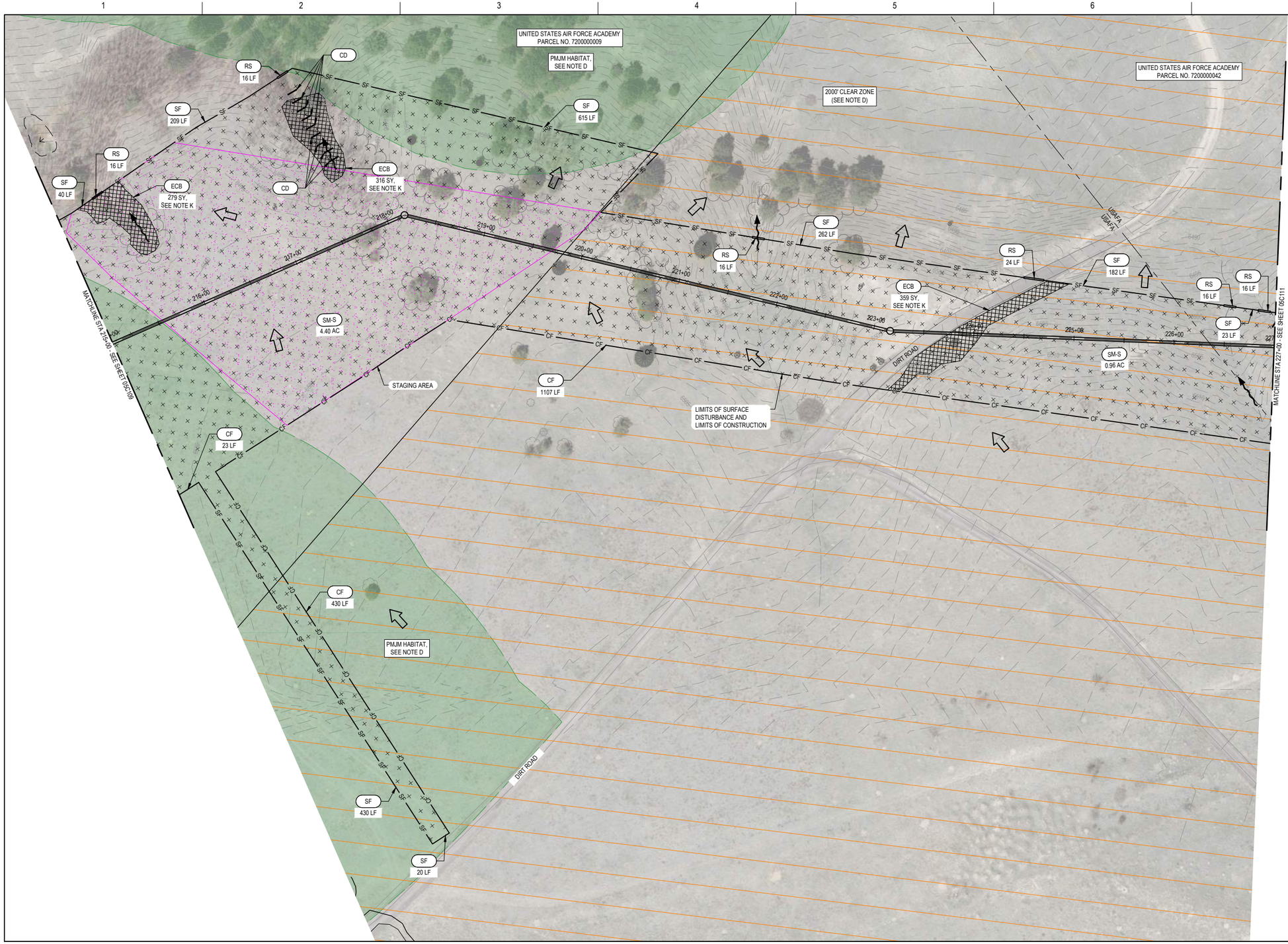
COLORADO SPRINGS UTILITIES
NORTHERN MONUMENT CREEK INTERCEPTOR AND MIDDLE TRIBUTARY LIFT STATION INTERCEPTOR CONNECTION

SWMP/GEC
STORM WATER MANAGEMENT PLAN
STA 202+50 TO STA 215+00

0 1" 2"

FILENAME 05C109.DWG
SCALE AS NOTED

SHEET 05C109



GENERAL NOTES

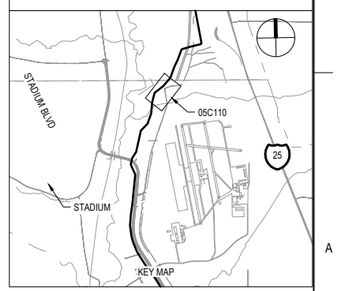
A. SEE SHEET 00G011 FOR SURVEY CONTROL.

D. SEE SPECIFICATIONS 01 14 00 AND 01 35 43 FOR WORK RESTRICTIONS WITHIN HATCHED AREAS.

K. FOR EROSION CONTROL BLANKETS, USE PRODUCTS CORRESPONDING TO APPROPRIATE SLOPE:
- 4:1 SLOPES: USE NETLESS ROLLED EROSION CONTROL BLANKETS
- 3:1 SLOPES: USE SINGLE-NET EROSION CONTROL BLANKETS AND OPEN WEAVE TEXTILES
- 2:1 SLOPES: DOUBLE-NET EROSION CONTROL BLANKET

(CCM) LEGEND:

KEY	TITLE
ECB	EROSION CONTROL BLANKET
IP-2	SUMP INLET PROTECTION
CD	CHECK DAM
RS	ROCK SOCK PROTECTION
SF	SILT FENCE
CF	CONSTRUCTION BOUNDARY FENCE
CIP	CULVERT INLET PROTECTION
ECB	EROSION CONTROL BLANKET
SM-R	RIPARIAN/TRANSITIONAL SEED MIX
SM-L	LOAMY/CLAYEY FOOTHILLS MIX
SM-M	MOUNTAIN MIX
SM-S	SANDY FOOTHILLS MIX
	STAGING AREA
VTC	VEHICLE TRACKING CONTROL
	FLOW DIRECTION



50 0 50 100
SCALE IN FEET
HORIZONTAL SCALE

C:\PWWORKING\central\01\d4374172\05C110.dwg, 3/12/2026 2:43:56 PM, THHICK

ISSUE	DATE	DESCRIPTION
D	03/2026	100% DESIGN REVIEW
C	11/2025	90% DESIGN REVIEW
B	07/2025	60% DESIGN REVIEW
A	12/2024	30% DESIGN REVIEW

PROJECT MANAGER	STEVEN T. POOL
PROJECT ENGINEER	R. KEATLEY
QUALITY CONTROL	M. GOSSETT
DRAFTER	T. HICKS
PROJECT NUMBER	10393769

PRELIMINARY
NOT FOR
CONSTRUCTION OR
RECORDING

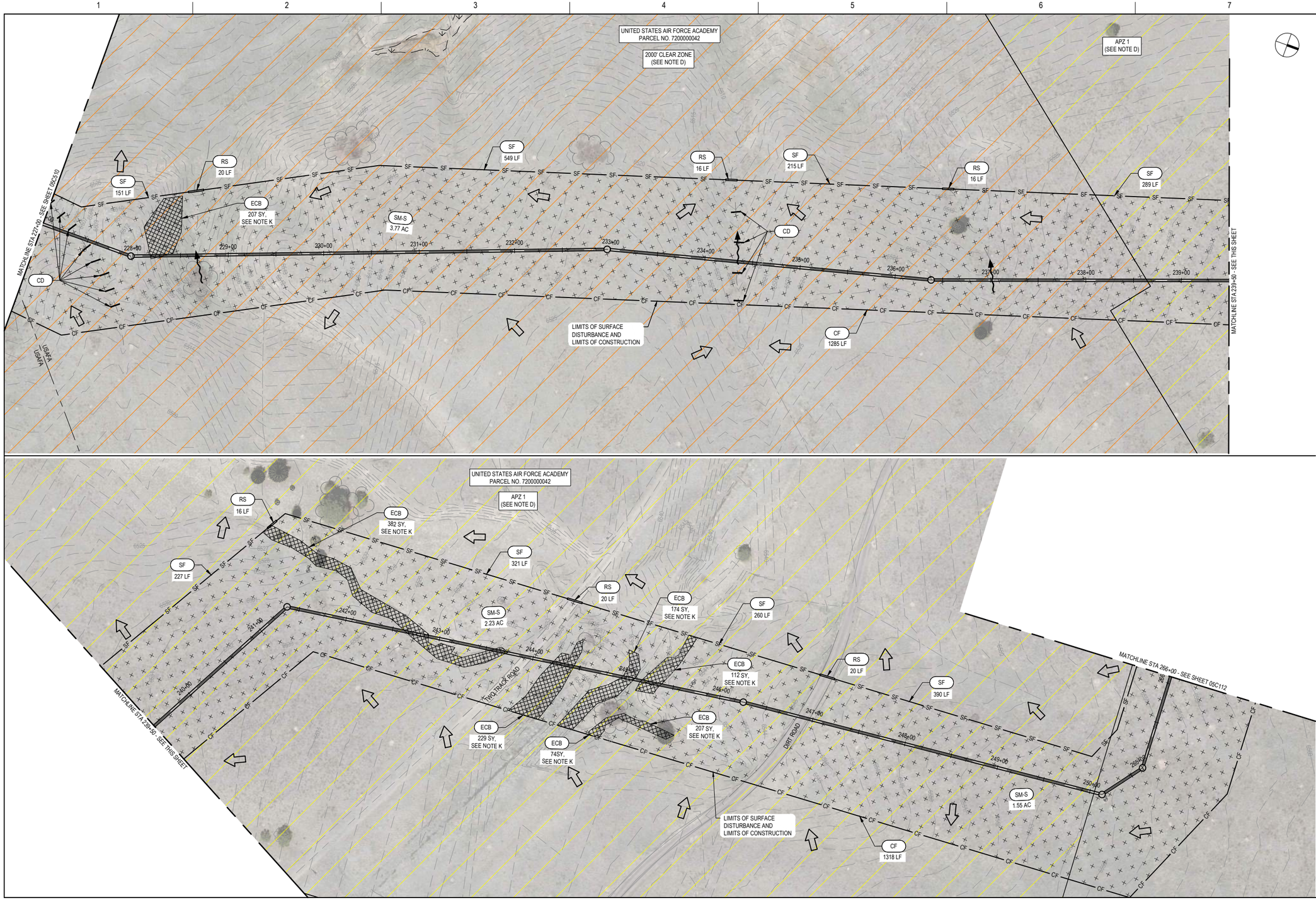
COLORADO SPRINGS UTILITIES
NORTHERN MONUMENT CREEK INTERCEPTOR AND MIDDLE TRIBUTARY LIFT STATION INTERCEPTOR CONNECTION

SWMP/GEC
STORM WATER MANAGEMENT PLAN
STA 215+00 TO STA 227+00

0 1" 2"

FILENAME 05C110.DWG
SCALE AS NOTED

SHEET
05C110



GENERAL NOTES

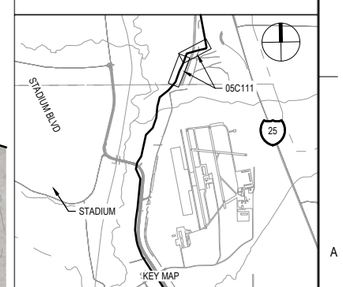
A. SEE SHEET 00G011 FOR SURVEY CONTROL.

D. SEE SPECIFICATIONS 01 14 00 AND 01 35 43 FOR WORK RESTRICTIONS WITHIN HATCHED AREAS.

K. FOR EROSION CONTROL BLANKETS, USE PRODUCTS CORRESPONDING TO APPROPRIATE SLOPE:
- 4:1 SLOPES: USE NETLESS ROLLED EROSION CONTROL BLANKETS
- 3:1 SLOPES: USE SINGLE-NET EROSION CONTROL BLANKETS AND OPEN WEAVE TEXTILES
- 2:1 SLOPES: DOUBLE-NET EROSION CONTROL BLANKET

(CCM) LEGEND:

KEY	TITLE
ECB	EROSION CONTROL BLANKET
IP-2	SUMP INLET PROTECTION
CD	CHECK DAM
RS	ROCK SOCK PROTECTION
SF	SILT FENCE
CF	CONSTRUCTION BOUNDARY FENCE
CIP	CULVERT INLET PROTECTION
ECB	EROSION CONTROL BLANKET
SM-R	RIPARIAN/TRANSITIONAL SEED MIX
SM-L	LOAMY/CLAYEY FOOTHILLS MIX
SM-M	MOUNTAIN MIX
SM-S	SANDY FOOTHILLS MIX
	STAGING AREA
VTC	VEHICLE TRACKING CONTROL
	FLOW DIRECTION



50 0 50 100
SCALE IN FEET
HORIZONTAL SCALE

C:\PW\WORKING\central\01\4437417\205C111.dwg, 3/12/2026 2:45:05 PM, TIHNICK

ISSUE	DATE	DESCRIPTION
D	03/2026	100% DESIGN REVIEW
C	11/2025	90% DESIGN REVIEW
B	07/2025	60% DESIGN REVIEW
A	12/2024	30% DESIGN REVIEW

PROJECT MANAGER	STEVEN T. POOL
PROJECT ENGINEER	R. KEATLEY
QUALITY CONTROL	M. GOSSETT
DRAFTER	T. HICKS
PROJECT NUMBER	10393769

PRELIMINARY NOT FOR CONSTRUCTION OR RECORDING

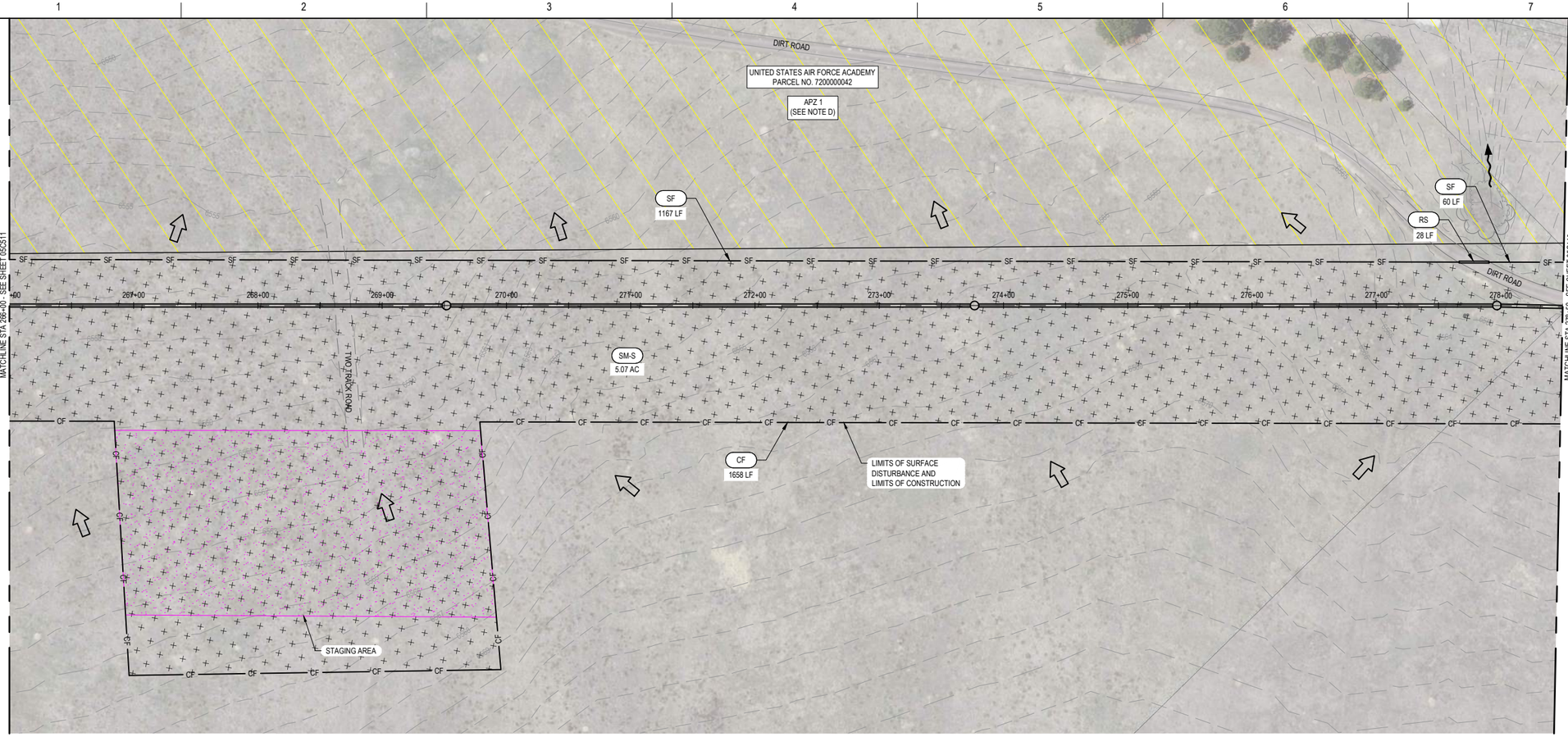
COLORADO SPRINGS UTILITIES NORTHERN MONUMENT CREEK INTERCEPTOR AND MIDDLE TRIBUTARY LIFT STATION INTERCEPTOR CONNECTION

SWMP/GEC
STORM WATER MANAGEMENT PLAN
STA 227+00 TO STA 266+00

0 1" 2"

FILENAME 05C111.DWG
SCALE AS NOTED

SHEET **05C111**



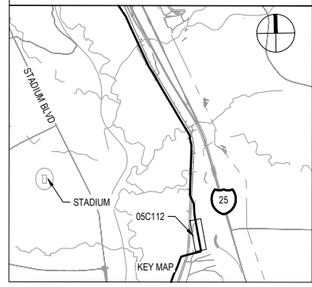
GENERAL NOTES

A. SEE SHEET 00G011 FOR SURVEY CONTROL.

D. SEE SPECIFICATIONS 01 14 00 AND 01 35 43 FOR WORK RESTRICTIONS WITHIN HATCHED AREAS.

(CCM) LEGEND:

KEY	TITLE
ECB	EROSION CONTROL BLANKET
IP-2	SUMP INLET PROTECTION
CD	CHECK DAM
RS	ROCK SOCK PROTECTION
SF	SILT FENCE
CF	CONSTRUCTION BOUNDARY FENCE
CIP	CULVERT INLET PROTECTION
ECB	EROSION CONTROL BLANKET
SM-R	RIPARIAN/TRANSITIONAL SEED MIX
SM-L	LOAMY/CLAYEY FOOTHILLS MIX
SM-M	MOUNTAIN MIX
SM-S	SANDY FOOTHILLS MIX
	STAGING AREA
VTC	VEHICLE TRACKING CONTROL
	FLOW DIRECTION



50 0 50 100
SCALE IN FEET
HORIZONTAL SCALE

C:\PWWORKING\central\01\d4374172\05C112.dwg, 3/12/2026 2:46:44 PM, THHICK

ISSUE	DATE	DESCRIPTION
D	03/2026	100% DESIGN REVIEW
C	11/2025	90% DESIGN REVIEW
B	07/2025	60% DESIGN REVIEW
A	12/2024	30% DESIGN REVIEW

PROJECT MANAGER	STEVEN T. POOL
PROJECT ENGINEER	R. KEATLEY
QUALITY CONTROL	M. GOSSETT
DRAFTER	T. HICKS
PROJECT NUMBER	10393769

PRELIMINARY NOT FOR CONSTRUCTION OR RECORDING

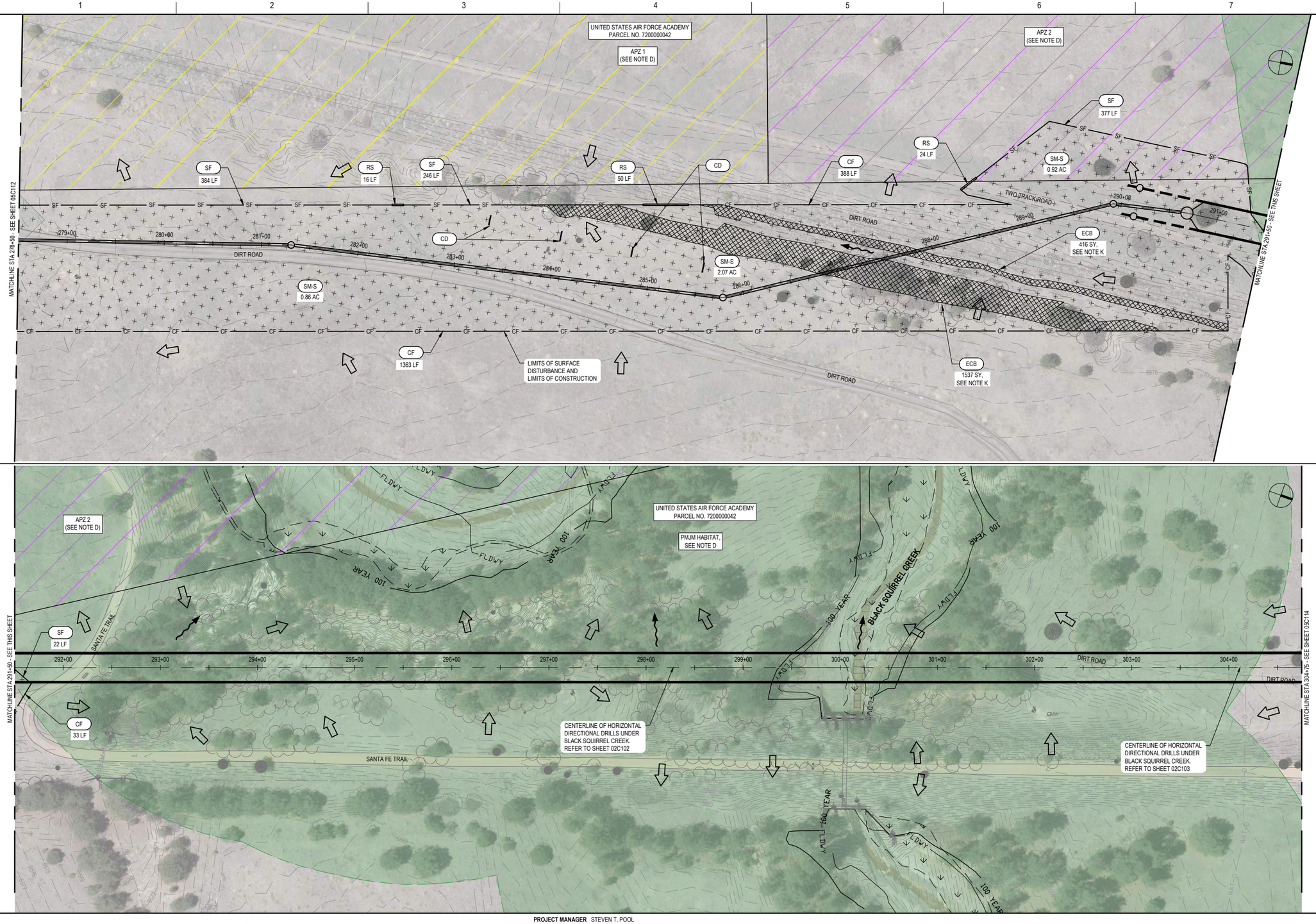
COLORADO SPRINGS UTILITIES NORTHERN MONUMENT CREEK INTERCEPTOR AND MIDDLE TRIBUTARY LIFT STATION INTERCEPTOR CONNECTION

SWMP/GEC
STORM WATER MANAGEMENT PLAN
STA 266+00 TO STA 278+50

0 1" 2"

FILENAME 05C112.DWG
SCALE AS NOTED

SHEET **05C112**



GENERAL NOTES

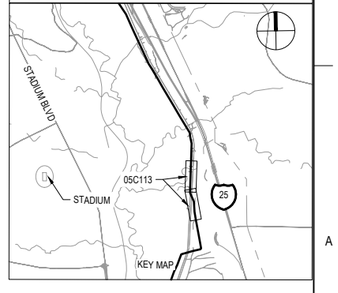
A. SEE SHEET 00G011 FOR SURVEY CONTROL.

D. SEE SPECIFICATIONS 01 14 00 AND 01 35 43 FOR WORK RESTRICTIONS WITHIN HATCHED AREAS.

K. FOR EROSION CONTROL BLANKETS, USE PRODUCTS CORRESPONDING TO APPROPRIATE SLOPE:
- 4:1 SLOPES: USE NETLESS ROLLED EROSION CONTROL BLANKETS
- 3:1 SLOPES: USE SINGLE-NET EROSION CONTROL BLANKETS AND OPEN WEAVE TEXTILES
- 2:1 SLOPES: DOUBLE-NET EROSION CONTROL BLANKET

(CCM) LEGEND:

KEY	TITLE
ECB	EROSION CONTROL BLANKET
IP-2	SUMP INLET PROTECTION
CD	CHECK DAM
RS	ROCK SOCK PROTECTION
SF	SILT FENCE
CF	CONSTRUCTION BOUNDARY FENCE
CIP	CULVERT INLET PROTECTION
ECB	EROSION CONTROL BLANKET
SM-R	RIPARIAN/TRANSITIONAL SEED MIX
SM-L	LOAMY/CLAYEY FOOTHILLS MIX
SM-M	MOUNTAIN MIX
SM-S	SANDY FOOTHILLS MIX
	STAGING AREA
VTC	VEHICLE TRACKING CONTROL
	FLOW DIRECTION



50 0 50 100
SCALE IN FEET
HORIZONTAL SCALE

C:\PWWORKING\central01\d437417205C113.dwg, 3/12/2026 2:48:01 PM, THHICK

ISSUE	DATE	DESCRIPTION
D	03/2026	100% DESIGN REVIEW
C	11/2025	90% DESIGN REVIEW
B	07/2025	60% DESIGN REVIEW
A	12/2024	30% DESIGN REVIEW

PROJECT MANAGER	STEVEN T. POOL
PROJECT ENGINEER	R. KEATLEY
QUALITY CONTROL	M. GOSSETT
DRAFTER	T. HICKS
PROJECT NUMBER	10393769

PRELIMINARY NOT FOR CONSTRUCTION OR RECORDING

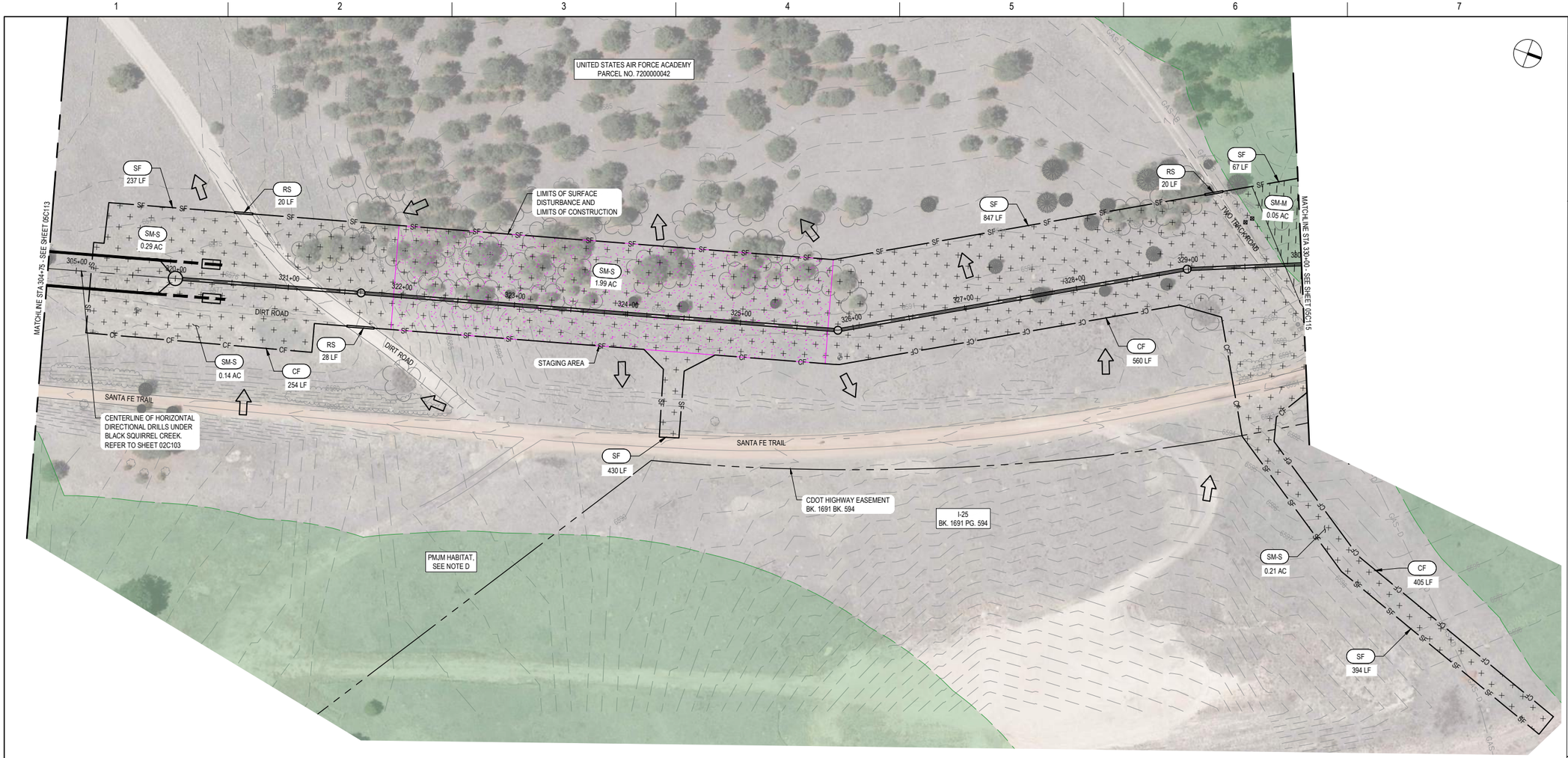
COLORADO SPRINGS UTILITIES NORTHERN MONUMENT CREEK INTERCEPTOR AND MIDDLE TRIBUTARY LIFT STATION INTERCEPTOR CONNECTION

SWMP/GEC
STORM WATER MANAGEMENT PLAN
STA 278+50 TO STA 304+75

0 1" 2"

FILENAME 05C113.DWG
SCALE AS NOTED

SHEET **05C113**



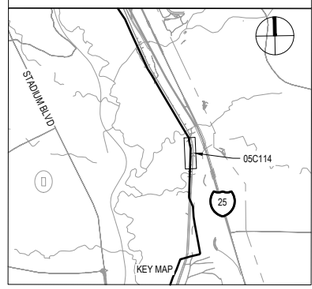
GENERAL NOTES

A. SEE SHEET 00G011 FOR SURVEY CONTROL.

D. SEE SPECIFICATIONS 01 14 00 AND 01 35 43 FOR WORK RESTRICTIONS WITHIN HATCHED AREAS.

(CCM) LEGEND:

KEY	TITLE
ECB	EROSION CONTROL BLANKET
IP-2	SUMP INLET PROTECTION
CD	CHECK DAM
RS	ROCK SOCK PROTECTION
SF	SILT FENCE
CF	CONSTRUCTION BOUNDARY FENCE
CIP	CULVERT INLET PROTECTION
ECB	EROSION CONTROL BLANKET
SM-R	RIPARIAN/TRANSITIONAL SEED MIX
SM-L	LOAMY/CLAYEY FOOTHILLS MIX
SM-M	MOUNTAIN MIX
SM-S	SANDY FOOTHILLS MIX
	STAGING AREA
VTC	VEHICLE TRACKING CONTROL
	FLOW DIRECTION



50 0 50 100
SCALE IN FEET
HORIZONTAL SCALE

C:\PWWORKING\central\01\d4374172\05C114.dwg, 3/12/2026 2:58:37 PM, THHICK

ISSUE	DATE	DESCRIPTION
D	03/2026	100% DESIGN REVIEW
C	11/2025	90% DESIGN REVIEW
B	07/2025	60% DESIGN REVIEW
A	12/2024	30% DESIGN REVIEW

PROJECT MANAGER	STEVEN T. POOL
PROJECT ENGINEER	R. KEATLEY
QUALITY CONTROL	M. GOSSETT
DRAFTER	T. HICKS
PROJECT NUMBER	10393769

PRELIMINARY NOT FOR CONSTRUCTION OR RECORDING

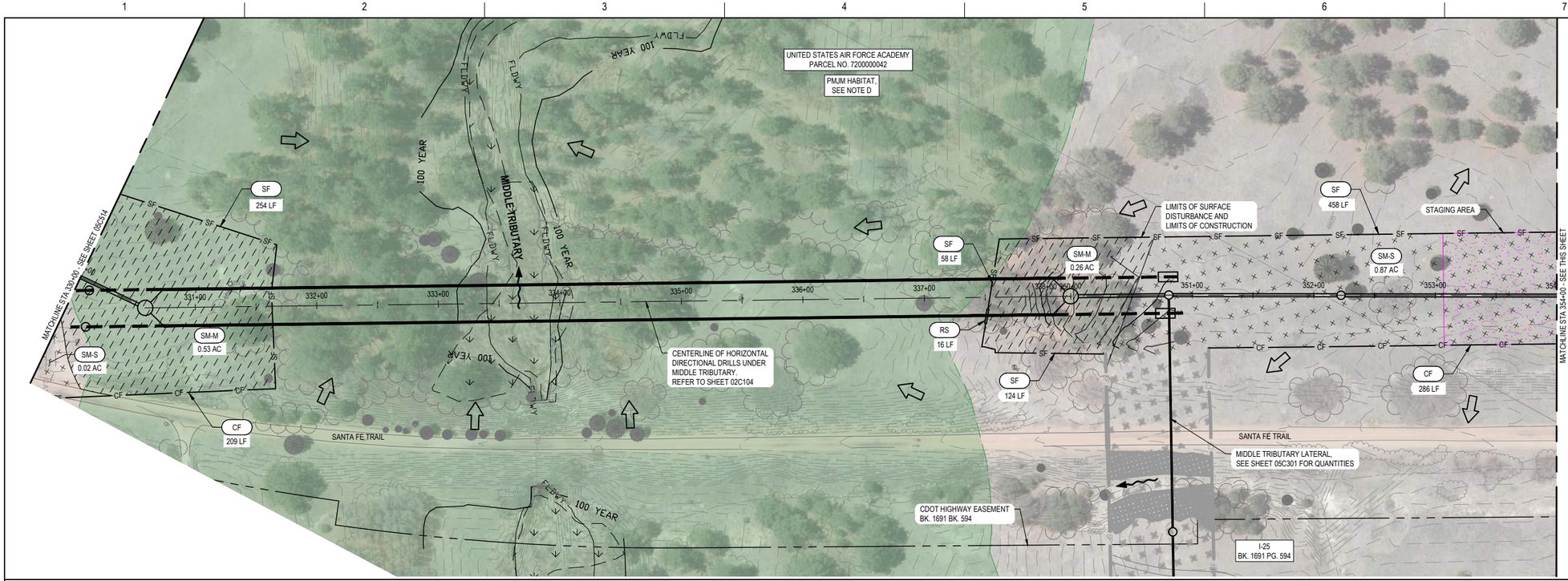
COLORADO SPRINGS UTILITIES NORTHERN MONUMENT CREEK INTERCEPTOR AND MIDDLE TRIBUTARY LIFT STATION INTERCEPTOR CONNECTION

SWMP/GEC
STORM WATER MANAGEMENT PLAN
STA 304+75 TO STA 330+00

0 1" 2"

FILENAME 05C114.DWG
SCALE AS NOTED

SHEET **05C114**



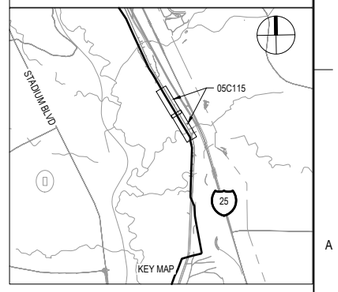
GENERAL NOTES

A. SEE SHEET 00G011 FOR SURVEY CONTROL.

D. SEE SPECIFICATIONS 01 14 00 AND 01 35 43 FOR WORK RESTRICTIONS WITHIN HATCHED AREAS.

(CCM) LEGEND:

KEY	TITLE
ECB	EROSION CONTROL BLANKET
IP-2	SUMP INLET PROTECTION
CD	CHECK DAM
RS	ROCK SOCK PROTECTION
SF	SILT FENCE
CF	CONSTRUCTION BOUNDARY FENCE
CIP	CULVERT INLET PROTECTION
ECB	EROSION CONTROL BLANKET
SM-R	RIPARIAN/TRANSITIONAL SEED MIX
SM-L	LOAMY/CLAYEY FOOTHILLS MIX
SM-M	MOUNTAIN MIX
SM-S	SANDY FOOTHILLS MIX
	STAGING AREA
VTC	VEHICLE TRACKING CONTROL
	FLOW DIRECTION



50 0 50 100
SCALE IN FEET
HORIZONTAL SCALE

C:\PW\WORKING\ventra\d01d4374172\05C115.dwg, 3/12/2026 2:59:52 PM, THHICK

ISSUE	DATE	DESCRIPTION
D	03/2026	100% DESIGN REVIEW
C	11/2025	90% DESIGN REVIEW
B	07/2025	60% DESIGN REVIEW
A	12/2024	30% DESIGN REVIEW

PROJECT MANAGER	STEVEN T. POOL
PROJECT ENGINEER	R. KEATLEY
QUALITY CONTROL	M. GOSSETT
DRAFTER	T. HICKS
PROJECT NUMBER	10393769

**PRELIMINARY
NOT FOR
CONSTRUCTION OR
RECORDING**

COLORADO SPRINGS UTILITIES
NORTHERN MONUMENT CREEK INTERCEPTOR AND MIDDLE TRIBUTARY LIFT STATION INTERCEPTOR CONNECTION

**SWMP/GEC
STORM WATER MANAGEMENT PLAN
STA 330+00 TO STA 366+50**

0 1" 2"

FILENAME 05C115.DWG
SCALE AS NOTED

SHEET
05C115



GENERAL NOTES

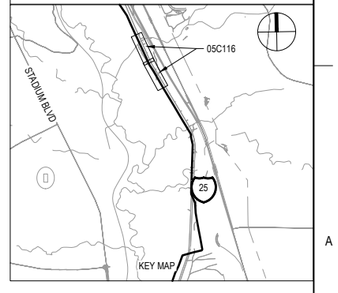
A. SEE SHEET 00G011 FOR SURVEY CONTROL.

D. SEE SPECIFICATIONS 01 14 00 AND 01 35 43 FOR WORK RESTRICTIONS WITHIN HATCHED AREAS.

K. FOR EROSION CONTROL BLANKETS, USE PRODUCTS CORRESPONDING TO APPROPRIATE SLOPE:
- 4:1 SLOPES: USE NETLESS ROLLED EROSION CONTROL BLANKETS
- 3:1 SLOPES: USE SINGLE-NET EROSION CONTROL BLANKETS AND OPEN WEAVE TEXTILES
- 2:1 SLOPES: DOUBLE-NET EROSION CONTROL BLANKET

(CCM) LEGEND:

KEY	TITLE
ECB	EROSION CONTROL BLANKET
IP-2	SUMP INLET PROTECTION
CD	CHECK DAM
RS	ROCK SOCK PROTECTION
SF	SILT FENCE
CF	CONSTRUCTION BOUNDARY FENCE
CIP	CULVERT INLET PROTECTION
ECB	EROSION CONTROL BLANKET
SM-R	RIPARIAN/TRANSITIONAL SEED MIX
SM-L	LOAMY/CLAYEY FOOTHILLS MIX
SM-M	MOUNTAIN MIX
SM-S	SANDY FOOTHILLS MIX
	STAGING AREA
VTC	VEHICLE TRACKING CONTROL
	FLOW DIRECTION



50 0 50 100
SCALE IN FEET
HORIZONTAL SCALE

C:\PW\WORKING\central\01\d4374172\05C116.dwg, 3/12/2026 3:01:25 PM, THHICK

ISSUE	DATE	DESCRIPTION
D	03/2026	100% DESIGN REVIEW
C	11/2025	90% DESIGN REVIEW
B	07/2025	60% DESIGN REVIEW
A	12/2024	30% DESIGN REVIEW

PROJECT MANAGER	STEVEN T. POOL
PROJECT ENGINEER	R. KEATLEY
QUALITY CONTROL	M. GOSSETT
DRAFTER	T. HICKS
PROJECT NUMBER	10393769

PRELIMINARY NOT FOR CONSTRUCTION OR RECORDING

COLORADO SPRINGS UTILITIES NORTHERN MONUMENT CREEK INTERCEPTOR AND MIDDLE TRIBUTARY LIFT STATION INTERCEPTOR CONNECTION

SWMP/GEC
STORM WATER MANAGEMENT PLAN
STA 366+50 TO STA 391+50

0 1" 2"

FILENAME 05C116.DWG
SCALE AS NOTED

SHEET **05C116**



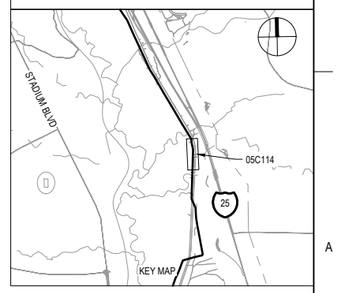
GENERAL NOTES

A. SEE SHEET 00G011 FOR SURVEY CONTROL.

D. SEE SPECIFICATIONS 01 14 00 AND 01 35 43 FOR WORK RESTRICTIONS WITHIN HATCHED AREAS.

(CCM) LEGEND:

KEY	TITLE
ECB	EROSION CONTROL BLANKET
IP-2	SUMP INLET PROTECTION
CD	CHECK DAM
RS	ROCK SOCK PROTECTION
SF	SILT FENCE
CF	CONSTRUCTION BOUNDARY FENCE
CIP	CULVERT INLET PROTECTION
ECB	EROSION CONTROL BLANKET
SM-R	RIPARIAN/TRANSITIONAL SEED MIX
SM-L	LOAMY/CLAYEY FOOTHILLS MIX
SM-M	MOUNTAIN MIX
SM-S	SANDY FOOTHILLS MIX
	STAGING AREA
VTC	VEHICLE TRACKING CONTROL
	FLOW DIRECTION



50 0 50 100
SCALE IN FEET
HORIZONTAL SCALE

ISSUE	DATE	DESCRIPTION
D	03/2026	100% DESIGN REVIEW
C	11/2025	90% DESIGN REVIEW
B	07/2025	60% DESIGN REVIEW
A	12/2024	30% DESIGN REVIEW

PROJECT MANAGER	STEVEN T. POOL
PROJECT ENGINEER	R. KEATLEY
QUALITY CONTROL	M. GOSSETT
DRAFTER	T. HICKS
PROJECT NUMBER	10393769

PRELIMINARY
NOT FOR
CONSTRUCTION OR
RECORDING

COLORADO SPRINGS UTILITIES
NORTHERN MONUMENT CREEK INTERCEPTOR AND MIDDLE TRIBUTARY LIFT STATION INTERCEPTOR CONNECTION

SWMP/GEC
STORM WATER MANAGEMENT PLAN
STA 391+50 TO STA 432+40

0 1" 2"

FILENAME 05C117.DWG
SCALE AS NOTED

SHEET
05C117

C:\PWWORKING\central\01\d4374172\05C117.dwg, 3/12/2026 3:02:58 PM, THHICK



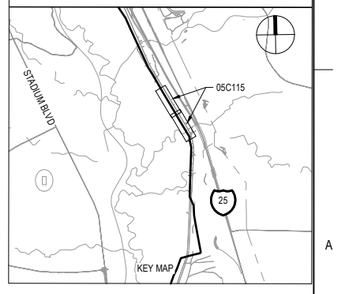
GENERAL NOTES

A. SEE SHEET 00G011 FOR SURVEY CONTROL.

D. SEE SPECIFICATIONS 01 14 00 AND 01 35 43 FOR WORK RESTRICTIONS WITHIN HATCHED AREAS.

(CCM) LEGEND:

KEY	TITLE
ECB	EROSION CONTROL BLANKET
IP-2	SUMP INLET PROTECTION
CD	CHECK DAM
RS	ROCK SOCK PROTECTION
SF	SILT FENCE
CF	CONSTRUCTION BOUNDARY FENCE
CIP	CULVERT INLET PROTECTION
ECB	EROSION CONTROL BLANKET
SM-R	RIPARIAN/TRANSITIONAL SEED MIX
SM-L	LOAMY/CLAYEY FOOTHILLS MIX
SM-M	MOUNTAIN MIX
SM-S	SANDY FOOTHILLS MIX
	STAGING AREA
VTC	VEHICLE TRACKING CONTROL
	FLOW DIRECTION



50 0 50 100
SCALE IN FEET
HORIZONTAL SCALE

C:\PWWORKING\central01\d437417\2\05C118.dwg, 3/12/2026 3:04:23 PM, THHICK

ISSUE	DATE	DESCRIPTION
D	03/2026	100% DESIGN REVIEW
C	11/2025	90% DESIGN REVIEW
B	07/2025	60% DESIGN REVIEW
A	12/2024	30% DESIGN REVIEW

PROJECT MANAGER	STEVEN T. POOL
PROJECT ENGINEER	R. KEATLEY
QUALITY CONTROL	M. GOSSETT
DRAFTER	T. HICKS
PROJECT NUMBER	10393769

PRELIMINARY
NOT FOR
CONSTRUCTION OR
RECORDING

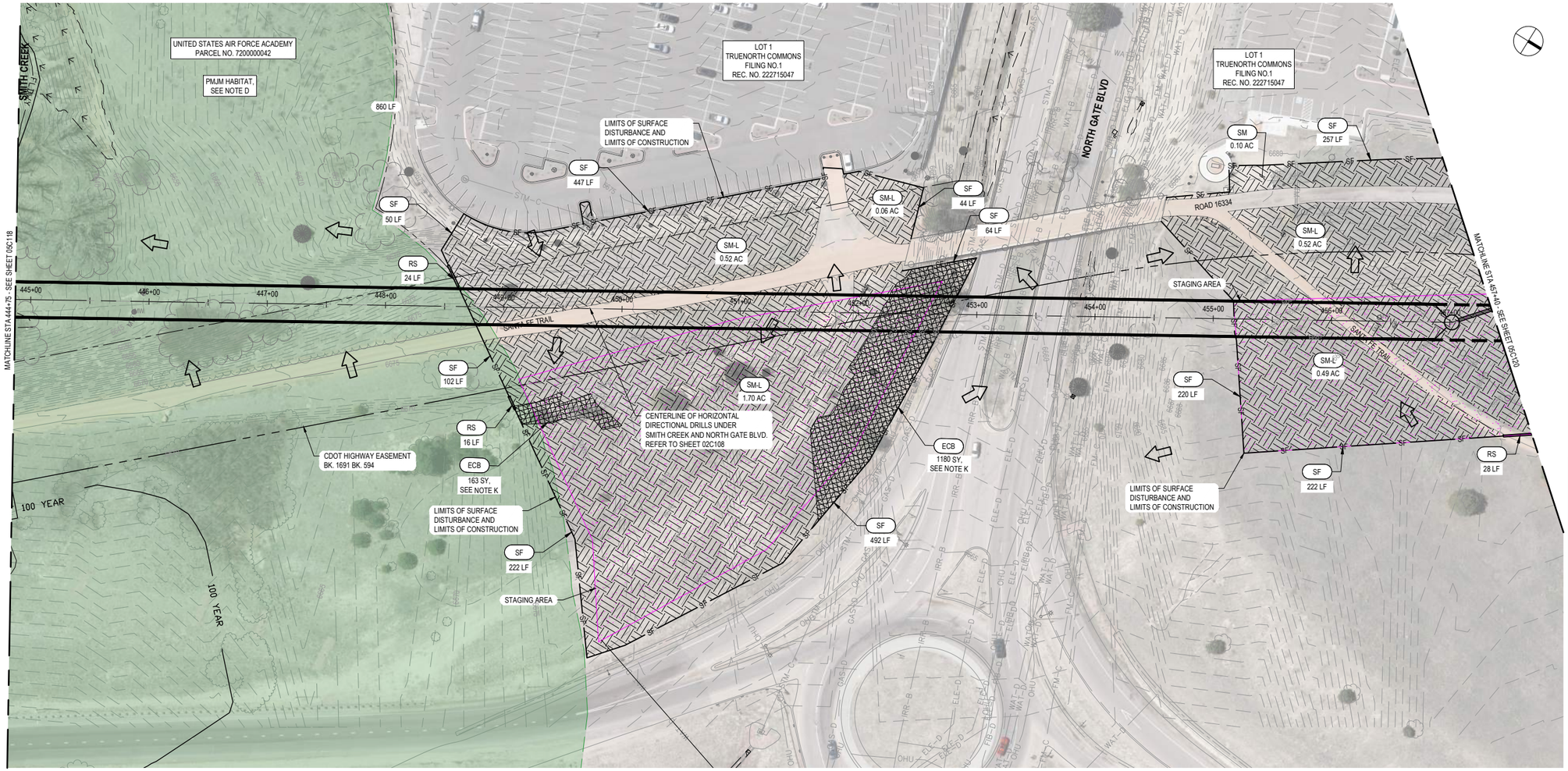
COLORADO SPRINGS UTILITIES
NORTHERN MONUMENT CREEK INTERCEPTOR AND MIDDLE TRIBUTARY LIFT STATION INTERCEPTOR CONNECTION

SWMP/GEC
STORM WATER MANAGEMENT PLAN
STA 432+40 TO STA 444+75

0 1" 2"

FILENAME 05C118.DWG
SCALE AS NOTED

SHEET
05C118



GENERAL NOTES

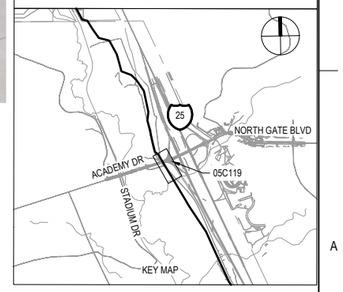
A. SEE SHEET 00G011 FOR SURVEY CONTROL.

D. SEE SPECIFICATIONS 01 14 00 AND 01 35 43 FOR WORK RESTRICTIONS WITHIN HATCHED AREAS.

K. FOR EROSION CONTROL BLANKETS, USE PRODUCTS CORRESPONDING TO APPROPRIATE SLOPE:
- 4:1 SLOPES: USE NETLESS ROLLED EROSION CONTROL BLANKETS
- 3:1 SLOPES: USE SINGLE-NET EROSION CONTROL BLANKETS AND OPEN WEAVE TEXTILES
- 2:1 SLOPES: DOUBLE-NET EROSION CONTROL BLANKET

(CCM) LEGEND:

KEY	TITLE
ECB	EROSION CONTROL BLANKET
IP-2	SUMP INLET PROTECTION
CD	CHECK DAM
RS	ROCK SOCK PROTECTION
SF	SILT FENCE
CF	CONSTRUCTION BOUNDARY FENCE
CIP	CULVERT INLET PROTECTION
ECB	EROSION CONTROL BLANKET
SM-R	RIPARIAN/TRANSITIONAL SEED MIX
SM-L	LOAMY/CLAYEY FOOTHILLS MIX
SM-M	MOUNTAIN MIX
SM-S	SANDY FOOTHILLS MIX
	STAGING AREA
VTC	VEHICLE TRACKING CONTROL
	FLOW DIRECTION



50 0 50 100
SCALE IN FEET
HORIZONTAL SCALE

C:\PWWORKING\central\d0104374172\05C119.dwg, 3/12/2026 3:05:28 PM, THHICK

ISSUE	DATE	DESCRIPTION
D	03/2026	100% DESIGN REVIEW
C	11/2025	90% DESIGN REVIEW
B	07/2025	60% DESIGN REVIEW
A	12/2024	30% DESIGN REVIEW

PROJECT MANAGER	STEVEN T. POOL
PROJECT ENGINEER	R. KEATLEY
QUALITY CONTROL	M. GOSSETT
DRAFTER	T. HICKS
PROJECT NUMBER	10393769

PRELIMINARY
NOT FOR
CONSTRUCTION OR
RECORDING

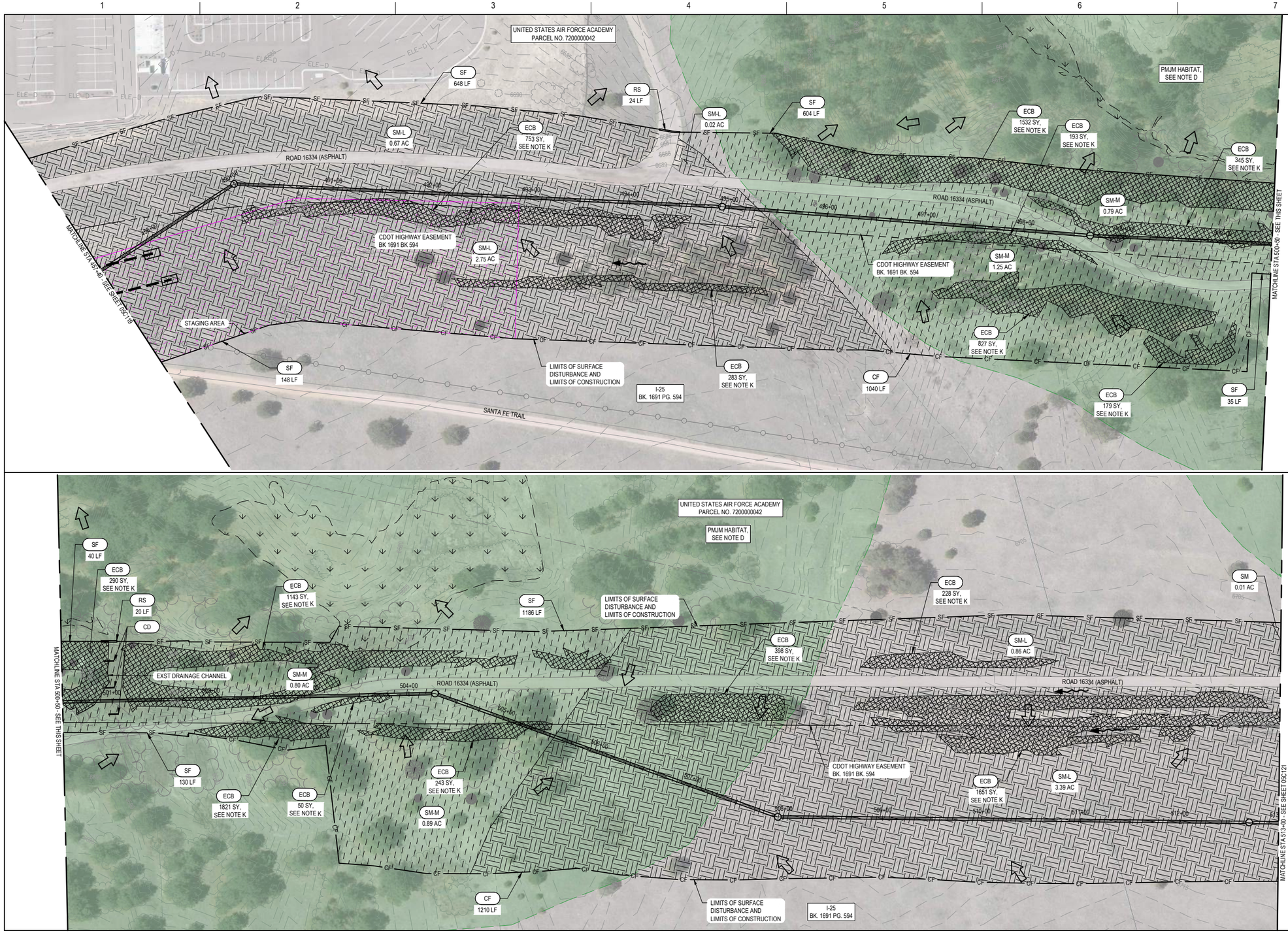
COLORADO SPRINGS UTILITIES
NORTHERN MONUMENT CREEK INTERCEPTOR AND MIDDLE TRIBUTARY LIFT STATION INTERCEPTOR CONNECTION

SWMP/GEC
STORM WATER MANAGEMENT PLAN
STA 444+75 TO STA 457+40

0 1" 2"

FILENAME 05C119.DWG
SCALE AS NOTED

SHEET
05C119



GENERAL NOTES

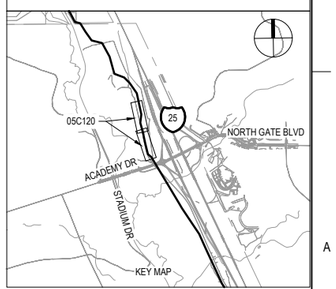
A. SEE SHEET 00G011 FOR SURVEY CONTROL.

D. SEE SPECIFICATIONS 01 14 00 AND 01 35 43 FOR WORK RESTRICTIONS WITHIN HATCHED AREAS.

K. FOR EROSION CONTROL BLANKETS, USE PRODUCTS CORRESPONDING TO APPROPRIATE SLOPE:
- 4:1 SLOPES: USE NETLESS ROLLED EROSION CONTROL BLANKETS
- 3:1 SLOPES: USE SINGLE-NET EROSION CONTROL BLANKETS AND OPEN WEAVE TEXTILES
- 2:1 SLOPES: DOUBLE-NET EROSION CONTROL BLANKET

(CCM) LEGEND:

KEY	TITLE
ECB	EROSION CONTROL BLANKET
IP-2	SUMP INLET PROTECTION
CD	CHECK DAM
RS	ROCK SOCK PROTECTION
SF	SILT FENCE
CF	CONSTRUCTION BOUNDARY FENCE
CIP	CULVERT INLET PROTECTION
ECB	EROSION CONTROL BLANKET
SM-R	RIPARIAN/TRANSITIONAL SEED MIX
SM-L	LOAMY/CLAYEY FOOTHILLS MIX
SM-M	MOUNTAIN MIX
SM-S	SANDY FOOTHILLS MIX
	STAGING AREA
VTC	VEHICLE TRACKING CONTROL
	FLOW DIRECTION



50 0 50 100
SCALE IN FEET
HORIZONTAL SCALE

C:\PWWORKING\central\01\d4374172\05C120.dwg, 3/12/2026 3:06:42 PM, THHICK

ISSUE	DATE	DESCRIPTION
D	03/2026	100% DESIGN REVIEW
C	11/2025	90% DESIGN REVIEW
B	07/2025	60% DESIGN REVIEW
A	12/2024	30% DESIGN REVIEW

PROJECT MANAGER	STEVEN T. POOL
PROJECT ENGINEER	R. KEATLEY
QUALITY CONTROL	M. GOSSETT
DRAFTER	T. HICKS
PROJECT NUMBER	10393769

PRELIMINARY NOT FOR CONSTRUCTION OR RECORDING

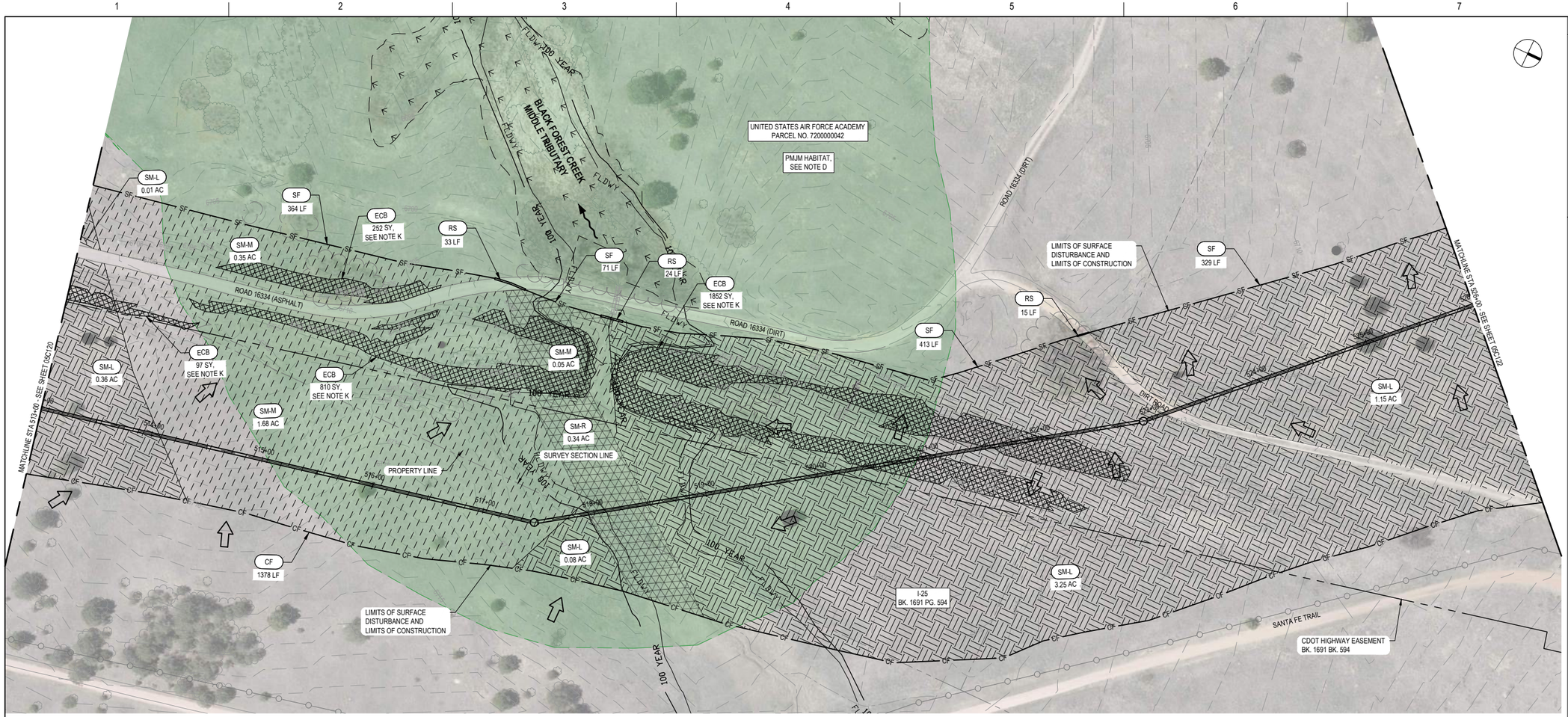
COLORADO SPRINGS UTILITIES NORTHERN MONUMENT CREEK INTERCEPTOR AND MIDDLE TRIBUTARY LIFT STATION INTERCEPTOR CONNECTION

SWMP/GEC
STORM WATER MANAGEMENT PLAN
STA 457+40 TO STA 513+00

0 1" 2"

FILENAME 05C120.DWG
SCALE AS NOTED

SHEET **05C120**



GENERAL NOTES

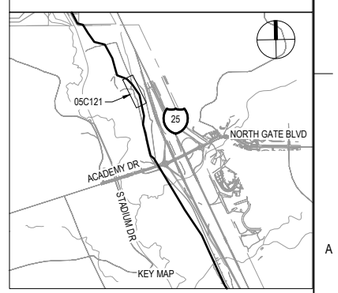
A. SEE SHEET 00G011 FOR SURVEY CONTROL.

D. SEE SPECIFICATIONS 01 14 00 AND 01 35 43 FOR WORK RESTRICTIONS WITHIN HATCHED AREAS.

K. FOR EROSION CONTROL BLANKETS, USE PRODUCTS CORRESPONDING TO APPROPRIATE SLOPE:
- 4:1 SLOPES: USE NETLESS ROLLED EROSION CONTROL BLANKETS
- 3:1 SLOPES: USE SINGLE-NET EROSION CONTROL BLANKETS AND OPEN WEAVE TEXTILES
- 2:1 SLOPES: DOUBLE-NET EROSION CONTROL BLANKET

(CCM) LEGEND:

KEY	TITLE
ECB	EROSION CONTROL BLANKET
IP-2	SUMP INLET PROTECTION
CD	CHECK DAM
RS	ROCK SOCK PROTECTION
SF	SILT FENCE
CF	CONSTRUCTION BOUNDARY FENCE
CIP	CULVERT INLET PROTECTION
ECB	EROSION CONTROL BLANKET
SM-R	RIPARIAN/TRANSITIONAL SEED MIX
SM-L	LOAMY/CLAYEY FOOTHILLS MIX
SM-M	MOUNTAIN MIX
SM-S	SANDY FOOTHILLS MIX
	STAGING AREA
VTC	VEHICLE TRACKING CONTROL
	FLOW DIRECTION



50 0 50 100
SCALE IN FEET
HORIZONTAL SCALE

C:\PWWORKING\central\d01\d4374172\05C121.dwg, 3/12/2026 3:08:08 PM, THHICK

ISSUE	DATE	DESCRIPTION
D	03/2026	100% DESIGN REVIEW
C	11/2025	90% DESIGN REVIEW
B	07/2025	60% DESIGN REVIEW
A	12/2024	30% DESIGN REVIEW

PROJECT MANAGER	STEVEN T. POOL
PROJECT ENGINEER	R. KEATLEY
QUALITY CONTROL	M. GOSSETT
DRAFTER	T. HICKS
PROJECT NUMBER	10393769

PRELIMINARY NOT FOR CONSTRUCTION OR RECORDING

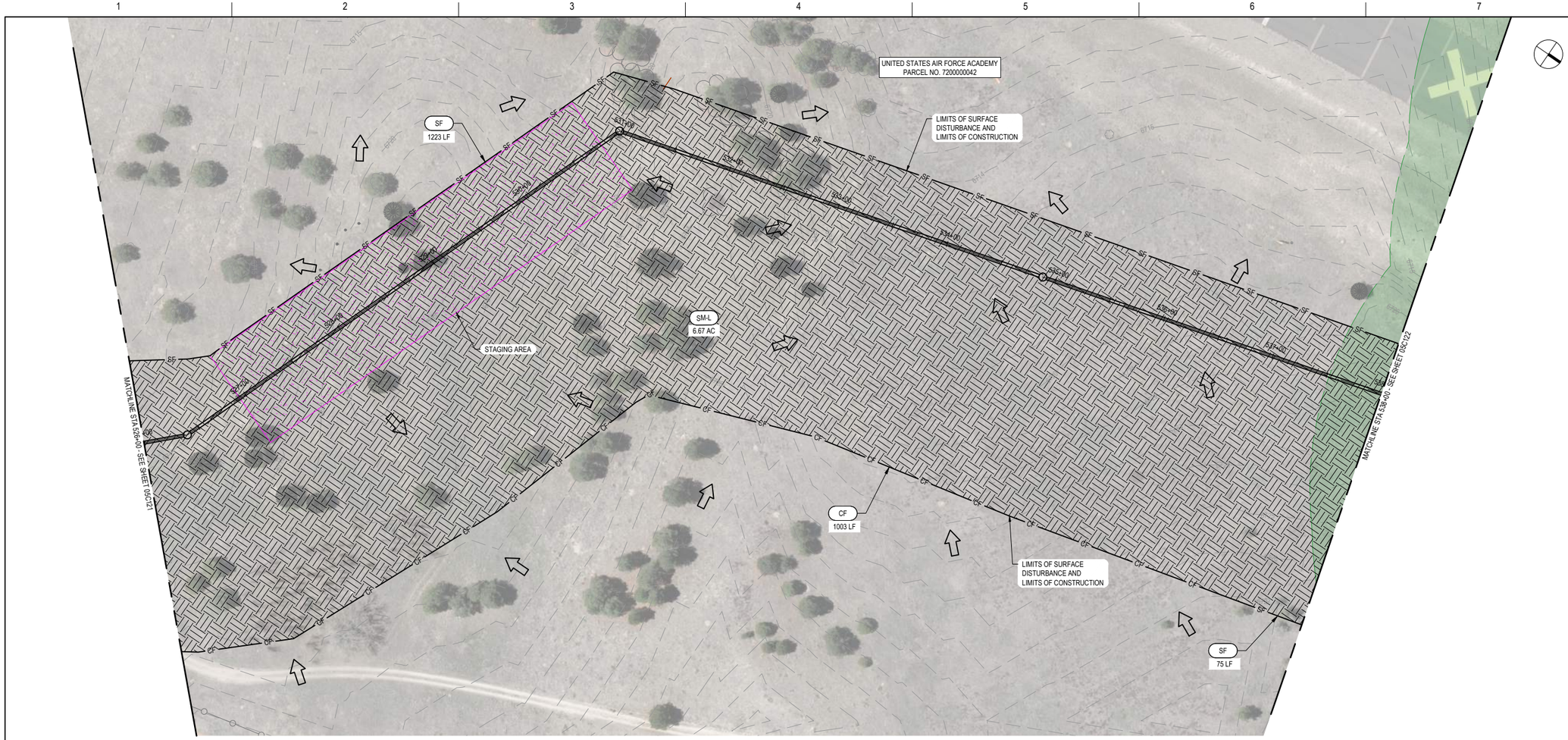
COLORADO SPRINGS UTILITIES NORTHERN MONUMENT CREEK INTERCEPTOR AND MIDDLE TRIBUTARY LIFT STATION INTERCEPTOR CONNECTION

SWMP/GEC
STORM WATER MANAGEMENT PLAN
STA 513+00 TO STA 526+00

0 1" 2"

FILENAME 05C121.DWG
SCALE AS NOTED

SHEET **05C121**



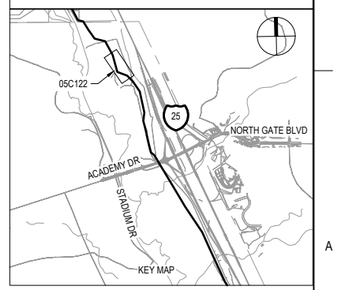
GENERAL NOTES

A. SEE SHEET 00G011 FOR SURVEY CONTROL.

D. SEE SPECIFICATIONS 01 14 00 AND 01 35 43 FOR WORK RESTRICTIONS WITHIN HATCHED AREAS.

(CCM) LEGEND:

KEY	TITLE
ECB	EROSION CONTROL BLANKET
IP-2	SUMP INLET PROTECTION
CD	CHECK DAM
RS	ROCK SOCK PROTECTION
SF	SILT FENCE
CF	CONSTRUCTION BOUNDARY FENCE
CIP	CULVERT INLET PROTECTION
ECB	EROSION CONTROL BLANKET
SM-R	RIPARIAN/TRANSITIONAL SEED MIX
SM-L	LOAMY/CLAYEY FOOTHILLS MIX
SM-M	MOUNTAIN MIX
SM-S	SANDY FOOTHILLS MIX
	STAGING AREA
VTC	VEHICLE TRACKING CONTROL
	FLOW DIRECTION



50 0 50 100
SCALE IN FEET
HORIZONTAL SCALE

C:\PWWORKING\central01\d43741720\5C122.dwg, 3/12/2026 3:09:13 PM, THHICK

ISSUE	DATE	DESCRIPTION
D	03/2026	100% DESIGN REVIEW
C	11/2025	90% DESIGN REVIEW
B	07/2025	60% DESIGN REVIEW
A	12/2024	30% DESIGN REVIEW

PROJECT MANAGER	STEVEN T. POOL
PROJECT ENGINEER	R. KEATLEY
QUALITY CONTROL	M. GOSSETT
DRAFTER	T. HICKS
PROJECT NUMBER	10393769

PRELIMINARY
NOT FOR
CONSTRUCTION OR
RECORDING

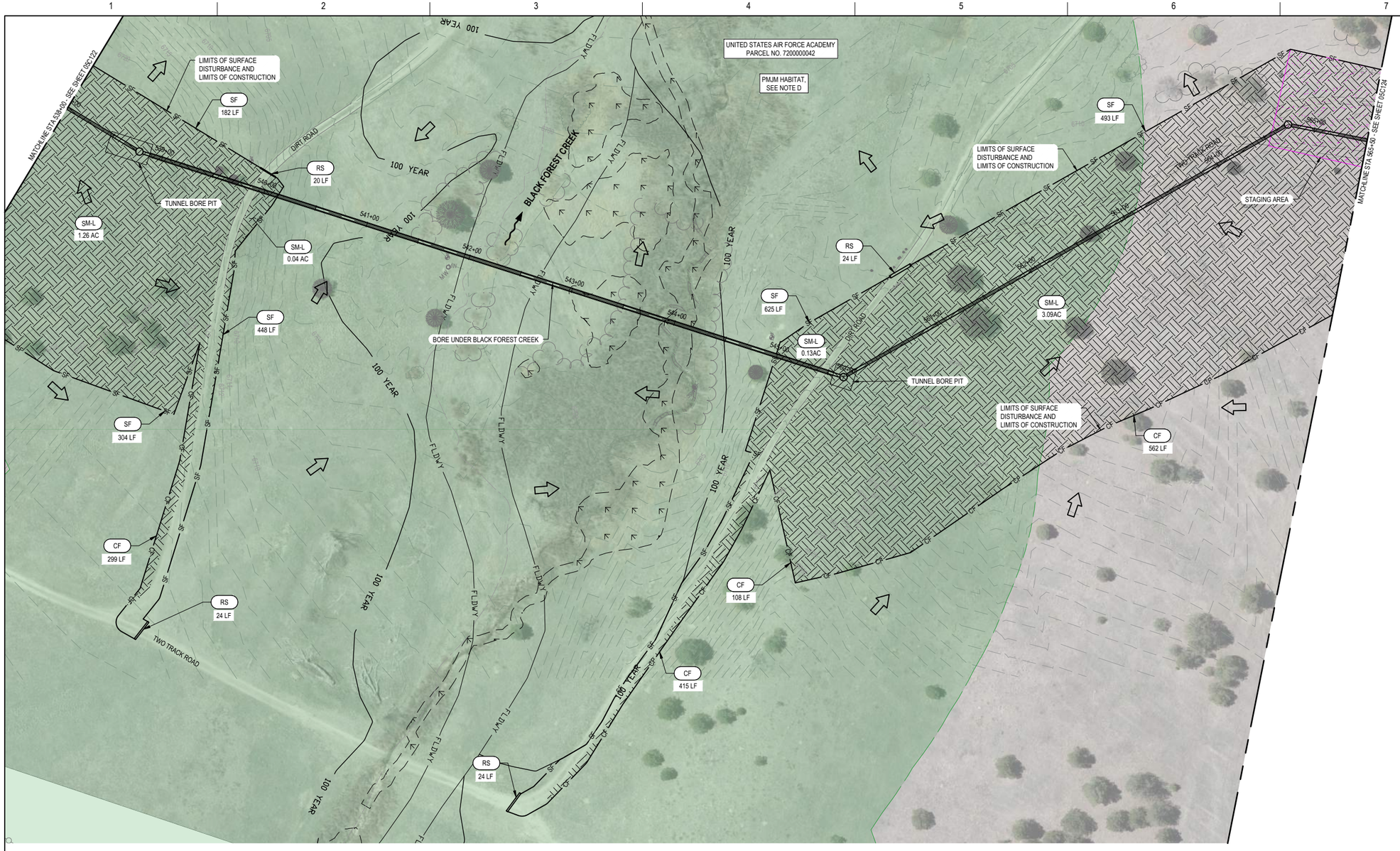
COLORADO SPRINGS UTILITIES
NORTHERN MONUMENT CREEK INTERCEPTOR AND MIDDLE TRIBUTARY LIFT STATION INTERCEPTOR CONNECTION

SWMP/GEC
STORM WATER MANAGEMENT PLAN
STA 526+00 TO STA 538+00

0 1" 2"

FILENAME 05C122.DWG
SCALE AS NOTED

SHEET
05C122



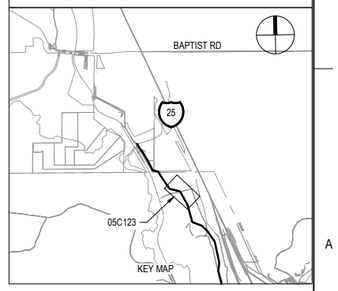
GENERAL NOTES

A. SEE SHEET 00G011 FOR SURVEY CONTROL.

D. SEE SPECIFICATIONS 01 14 00 AND 01 35 43 FOR WORK RESTRICTIONS WITHIN HATCHED AREAS.

(CCM) LEGEND:

KEY	TITLE
ECB	EROSION CONTROL BLANKET
IP-2	SUMP INLET PROTECTION
CD	CHECK DAM
RS	ROCK SOCK PROTECTION
SF	SILT FENCE
CF	CONSTRUCTION BOUNDARY FENCE
CIP	CULVERT INLET PROTECTION
ECB	EROSION CONTROL BLANKET
SM-R	RIPARIAN/TRANSITIONAL SEED MIX
SM-L	LOAMY/CLAYEY FOOTHILLS MIX
SM-M	MOUNTAIN MIX
SM-S	SANDY FOOTHILLS MIX
	STAGING AREA
VTC	VEHICLE TRACKING CONTROL
	FLOW DIRECTION



50 0 50 100
SCALE IN FEET
HORIZONTAL SCALE

C:\PWWORKING\central\d1043741720\05C123.dwg, 3/12/2026 3:10:19 PM, THHICK

ISSUE	DATE	DESCRIPTION
D	03/2026	100% DESIGN REVIEW
C	11/2025	90% DESIGN REVIEW
B	07/2025	60% DESIGN REVIEW
A	12/2024	30% DESIGN REVIEW

PROJECT MANAGER	STEVEN T. POOL
PROJECT ENGINEER	R. KEATLEY
QUALITY CONTROL	M. GOSSETT
DRAFTER	T. HICKS
PROJECT NUMBER	10393769

PRELIMINARY
NOT FOR
CONSTRUCTION OR
RECORDING

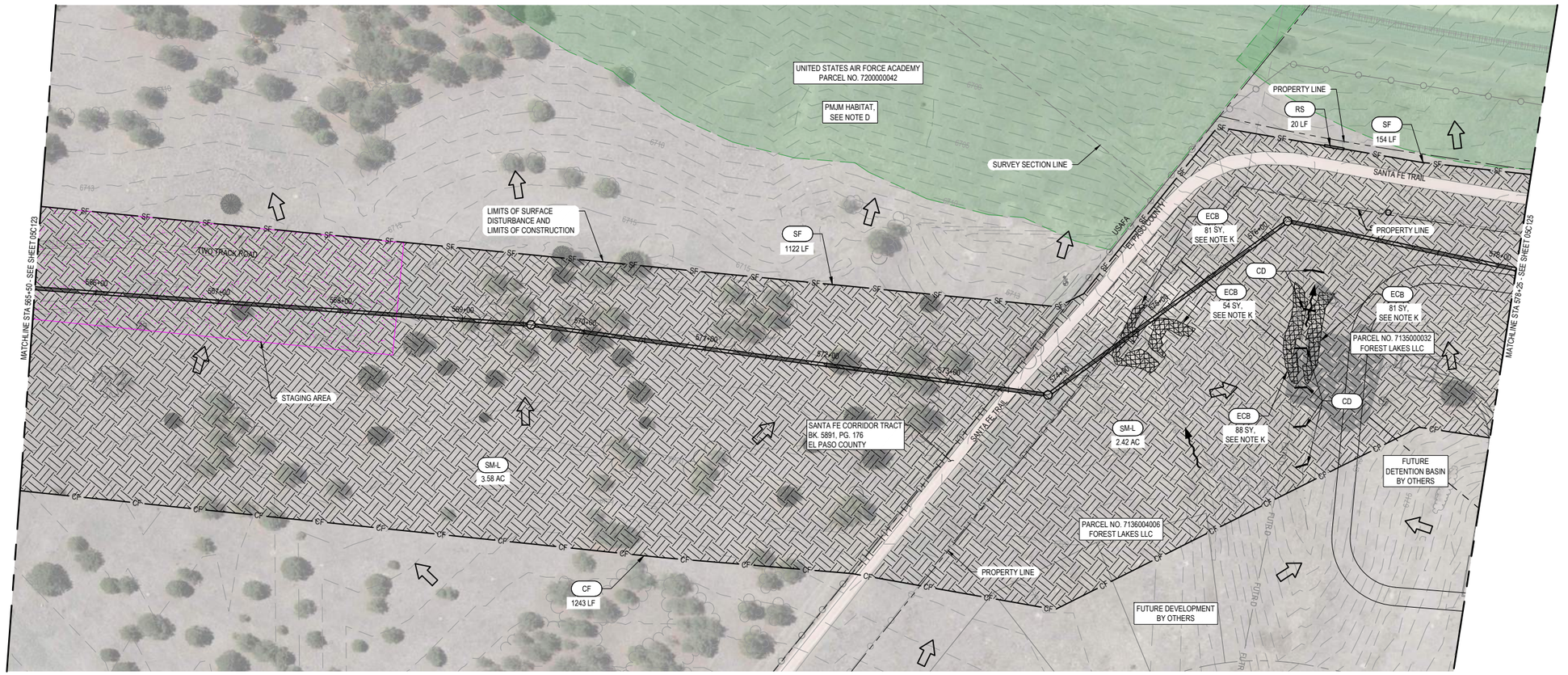
COLORADO SPRINGS UTILITIES
NORTHERN MONUMENT CREEK INTERCEPTOR AND MIDDLE TRIBUTARY LIFT STATION INTERCEPTOR CONNECTION

SWMP/GEC
STORM WATER MANAGEMENT PLAN
STA 538+00 TO STA 565+50

0 1" 2"

FILENAME 05C123.DWG
SCALE AS NOTED

SHEET 05C123



GENERAL NOTES

A. SEE SHEET 00G011 FOR SURVEY CONTROL.

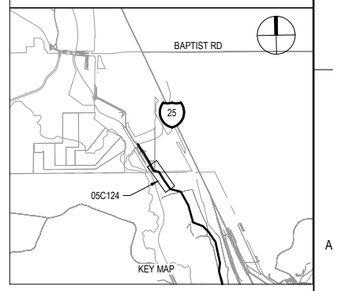
D. SEE SPECIFICATIONS 01 14 00 AND 01 35 43 FOR WORK RESTRICTIONS WITHIN HATCHED AREAS.

K. FOR EROSION CONTROL BLANKETS, USE PRODUCTS CORRESPONDING TO APPROPRIATE SLOPE:
- 4:1 SLOPES: USE NETLESS ROLLED EROSION CONTROL BLANKETS
- 3:1 SLOPES: USE SINGLE-NET EROSION CONTROL BLANKETS AND OPEN WEAVE TEXTILES
- 2:1 SLOPES: DOUBLE-NET EROSION CONTROL BLANKET

L. THIS UTILITY WORK MAY OCCUR IN TANDEM WITH CONSTRUCTION ON THE SANTA FE MEADOWS DEVELOPMENT SITE (BY OTHERS). CONTROL MEASURES SHOWN ARE ONLY APPLICABLE TO UTILITY WORK WITHIN THE NMCI LIMITS OF DISTURBANCE. IF APPLICABLE, NMCI CONTRACTOR TO COORDINATE WITH DEVELOPMENT CONTRACTOR FOR CONSTRUCTION ACCESS ROUTES, CONTROL MEASURES, AND SURFACE STABILIZATION PRACTICES.

(CCM) LEGEND:

KEY		TITLE
ECB		EROSION CONTROL BLANKET
IP-2		SUMP INLET PROTECTION
CD		CHECK DAM
RS		ROCK SOCK PROTECTION
SF		SILT FENCE
CF		CONSTRUCTION BOUNDARY FENCE
CIP		CULVERT INLET PROTECTION
	ECB	EROSION CONTROL BLANKET
	SM-R	RIPARIAN/TRANSITIONAL SEED MIX
	SM-L	LOAMY/CLAYEY FOOTHILLS MIX
	SM-M	MOUNTAIN MIX
	SM-S	SANDY FOOTHILLS MIX
		STAGING AREA
	VTC	VEHICLE TRACKING CONTROL
		FLOW DIRECTION



50 0 50 100
SCALE IN FEET
HORIZONTAL SCALE

C:\PW\WORKING\central\01\04374172\05C124.dwg, 3/12/2026 3:11:34 PM, THHICK

ISSUE	DATE	DESCRIPTION
D	03/2026	100% DESIGN REVIEW
C	11/2025	90% DESIGN REVIEW
B	07/2025	60% DESIGN REVIEW
A	12/2024	30% DESIGN REVIEW

PROJECT MANAGER	STEVEN T. POOL
PROJECT ENGINEER	R. KEATLEY
QUALITY CONTROL	M. GOSSETT
DRAFTER	T. HICKS
PROJECT NUMBER	10393769

PRELIMINARY
NOT FOR
CONSTRUCTION OR
RECORDING

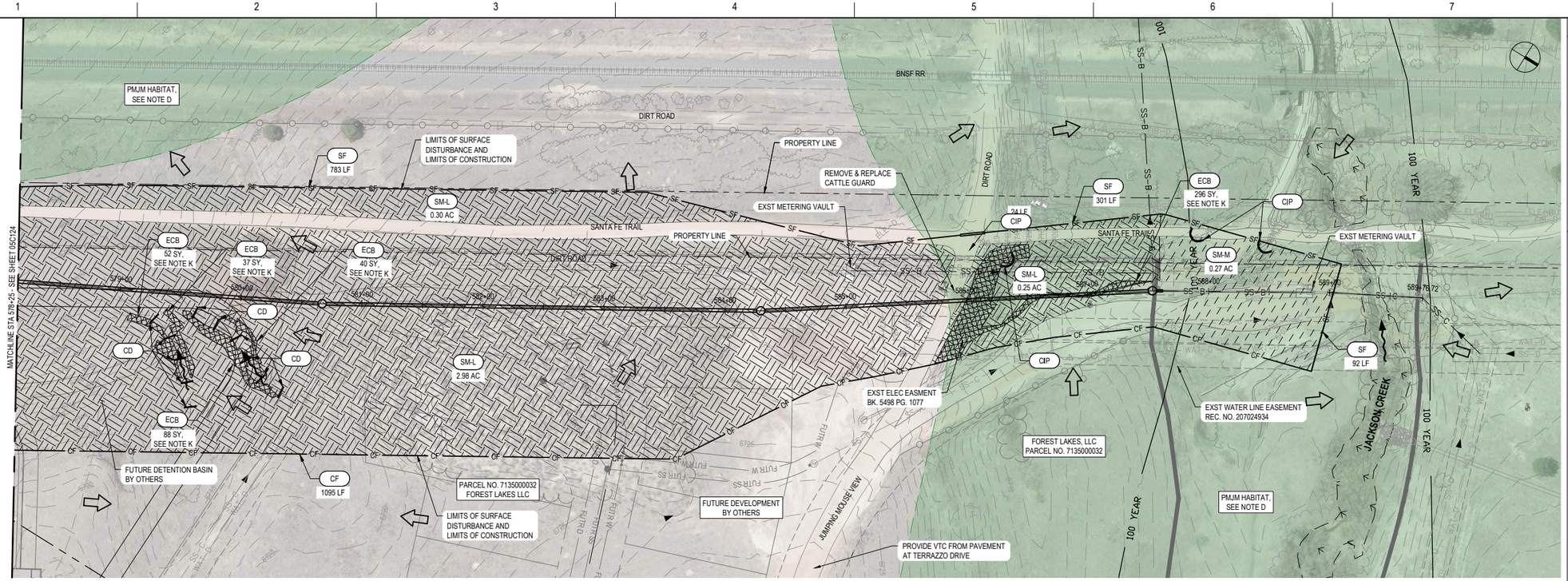
COLORADO SPRINGS UTILITIES
NORTHERN MONUMENT CREEK INTERCEPTOR AND MIDDLE TRIBUTARY LIFT STATION INTERCEPTOR CONNECTION

SWMP/GEC
STORM WATER MANAGEMENT PLAN
STA 565+50 TO STA 578+25

0 1" 2"

FILENAME 05C124.DWG
SCALE AS NOTED

SHEET
05C124



GENERAL NOTES

A. SEE SHEET 00G011 FOR SURVEY CONTROL.

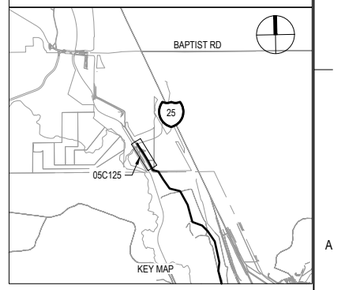
D. SEE SPECIFICATIONS 01 14 00 AND 01 35 43 FOR WORK RESTRICTIONS WITHIN HATCHED AREAS.

K. FOR EROSION CONTROL BLANKETS, USE PRODUCTS CORRESPONDING TO APPROPRIATE SLOPE:
- 4:1 SLOPES: USE NETLESS ROLLED EROSION CONTROL BLANKETS
- 3:1 SLOPES: USE SINGLE-NET EROSION CONTROL BLANKETS AND OPEN WEAVE TEXTILES
- 2:1 SLOPES: DOUBLE-NET EROSION CONTROL BLANKET

L. THIS UTILITY WORK MAY OCCUR IN TANDEM WITH CONSTRUCTION ON THE SANTA FE MEADOWS DEVELOPMENT SITE (BY OTHERS). CONTROL MEASURES SHOWN ARE ONLY APPLICABLE TO UTILITY WORK WITHIN THE NMCI LIMITS OF DISTURBANCE. IF APPLICABLE, NMCI CONTRACTOR TO COORDINATE WITH DEVELOPMENT CONTRACTOR FOR CONSTRUCTION ACCESS ROUTES, CONTROL MEASURES, AND SURFACE STABILIZATION PRACTICES.

(CCM) LEGEND:

KEY	TITLE
ECB	EROSION CONTROL BLANKET
IP-2	SUMP INLET PROTECTION
CD	CHECK DAM
RS	ROCK SOCK PROTECTION
SF	SILT FENCE
CF	CONSTRUCTION BOUNDARY FENCE
CIP	CULVERT INLET PROTECTION
ECB	EROSION CONTROL BLANKET
SM-R	RIPARIAN/TRANSITIONAL SEED MIX
SM-L	LOAMY/CLAYEY FOOTHILLS MIX
SM-M	MOUNTAIN MIX
SM-S	SANDY FOOTHILLS MIX
	STAGING AREA
VTC	VEHICLE TRACKING CONTROL
	FLOW DIRECTION



50 0 50 100
SCALE IN FEET
HORIZONTAL SCALE

C:\PWWORKING\central01\d4374172\05C125.dwg, 3/12/2026 3:12:43 PM, THHICK

ISSUE	DATE	DESCRIPTION
D	03/2026	100% DESIGN REVIEW
C	11/2025	90% DESIGN REVIEW
B	07/2025	60% DESIGN REVIEW
A	12/2024	30% DESIGN REVIEW

PROJECT MANAGER	STEVEN T. POOL
PROJECT ENGINEER	R. KEATLEY
QUALITY CONTROL	M. GOSSETT
DRAFTER	T. HICKS
PROJECT NUMBER	10393769

PRELIMINARY NOT FOR CONSTRUCTION OR RECORDING

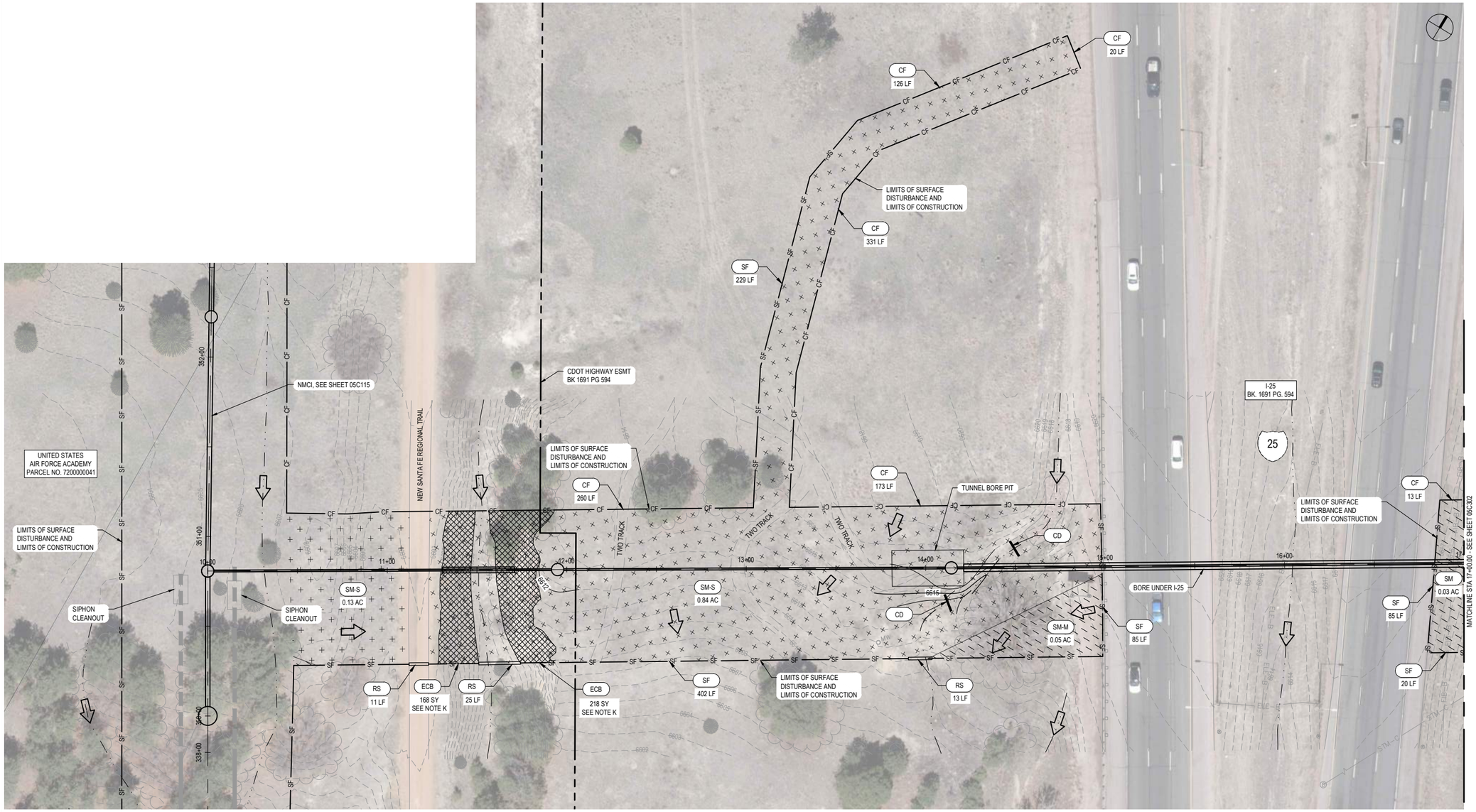
COLORADO SPRINGS UTILITIES NORTHERN MONUMENT CREEK INTERCEPTOR AND MIDDLE TRIBUTARY LIFT STATION INTERCEPTOR CONNECTION

SWMP/GEC
STORM WATER MANAGEMENT PLAN
STA 578+25 TO STA 587+62.67

0 1" 2"

FILENAME 05C125.DWG
SCALE AS NOTED

SHEET 05C125

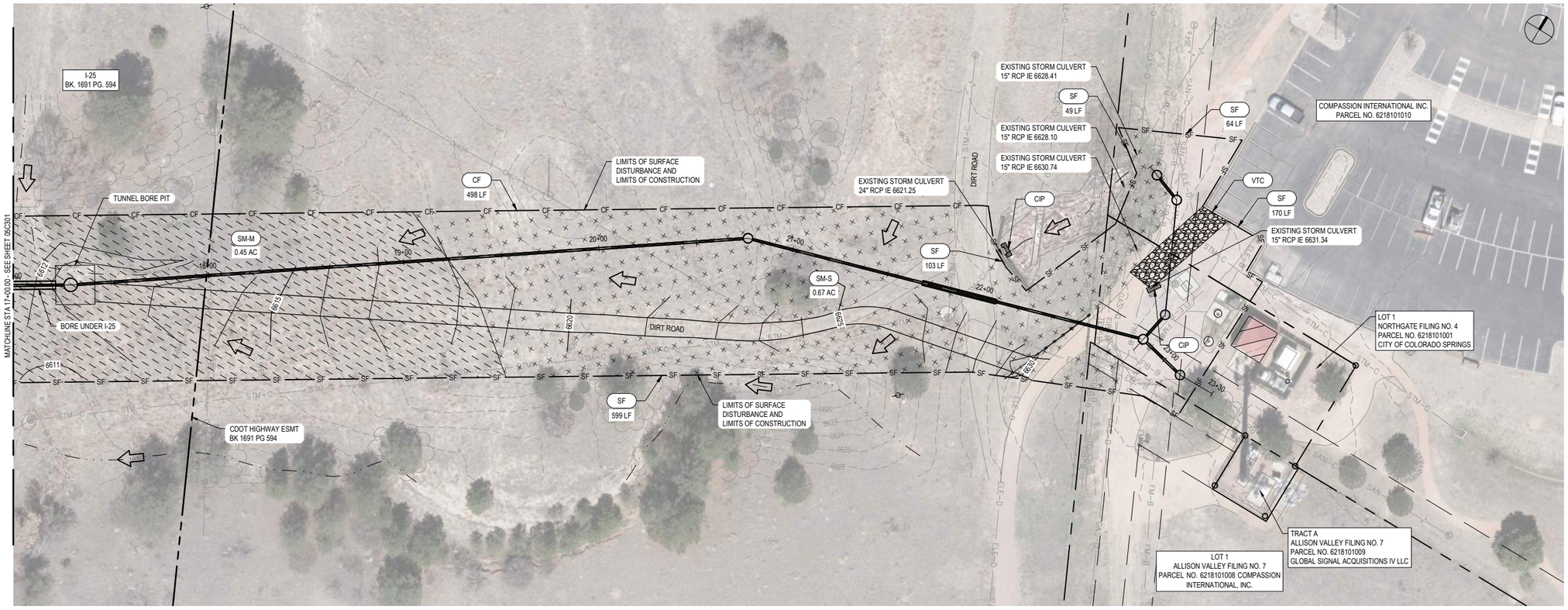

CF 20 LF
CF 126 LF
LIMITS OF SURFACE DISTURBANCE AND LIMITS OF CONSTRUCTION
CF 331 LF
SF 229 LF
CDOT HIGHWAY ESMT BK 1691 PG 594
NMCI, SEE SHEET 05C115
NEW SANTA FE REGIONAL TRAIL
I-25 BK. 1691 PG. 594
25
UNITED STATES AIR FORCE ACADEMY PARCEL NO. 7200000041
LIMITS OF SURFACE DISTURBANCE AND LIMITS OF CONSTRUCTION
CF 260 LF
CF 173 LF
TUNNEL BORE PIT
TWO TRACK
CD
SIPHON CLEANOUT
SIPHON CLEANOUT
SM-S 0.13 AC
SM-S 0.84 AC
SM-M 0.05 AC
BORE UNDER I-25
SM 0.03 AC
SF 85 LF
SF 20 LF
CF 13 LF
RS 11 LF
ECB 168 SY SEE NOTE K
RS 25 LF
ECB 218 SY SEE NOTE K
SF 402 LF
RS 13 LF
MATCHLINE STA 17+00.00 - SEE SHEET 05C302
10+00
11+00
12+00
13+00
14+00
16+00
17+00
351+00
352+00
353+00
6612
6615
6618
6620
6622
6623
6624
6625
6626
6627
6628
6629
6630
6631
6632
6633
6634
6635
6636
6637
6638
6639
6640
6641
6642
6643
6644
6645
6646
6647
6648
6649
6650
6651
6652
6653
6654
6655
6656
6657
6658
6659
6660
6661

GENERAL NOTES

A. STAGING AREA TO BE DETERMINED BY THE CONTRACTOR.

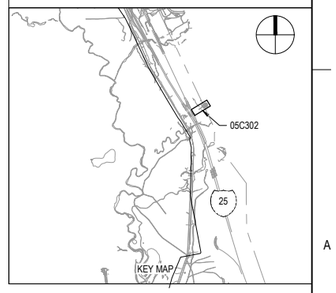
K. FOR EROSION CONTROL BLANKETS, USE PRODUCTS CORRESPONDING TO APPROPRIATE SLOPE:

-4:1 SLOPES - USE NETLESS ROLLED EROSION CONTROL BLANKETS
-3:1 SLOPES - USE SINGLE-NET EROSION CONTROL BLANKETS AND OPEN WEAVE TEXTILES
-2:1 SLOPES - USE DOUBLE-NET EROSION CONTROL BLANKET



(CCM) LEGEND:

KEY	TITLE
ECB	EROSION CONTROL BLANKET
IP-2	SUMP INLET PROTECTION
CD	CHECK DAM
RS	ROCK SOCK PROTECTION
SF	SILT FENCE
CF	CONSTRUCTION BOUNDARY FENCE
CIP	CULVERT INLET PROTECTION
ECB	EROSION CONTROL BLANKET
SM-R	RIPARIAN/TRANSITIONAL SEED MIX
SM-L	LOAMY/CLAYEY FOOTHILLS MIX
SM-M	MOUNTAIN MIX
SM-S	SANDY FOOTHILLS MIX
	STAGING AREA
VTC	VEHICLE TRACKING CONTROL
	FLOW DIRECTION



30 0 30 60
SCALE IN FEET
HORIZONTAL SCALE

Dewberry
Dewberry Engineers Inc.

HDR

ISSUE	DATE	DESCRIPTION
C	03/2026	100% DESIGN REVIEW
B	11/2025	90% DESIGN REVIEW
A	07/2025	60% DESIGN REVIEW

PROJECT MANAGER	E. DESOUZA
PROJECT ENGINEER	P. HOOD
QUALITY CONTROL	M. GOSSETT
DRAFTER	J. JENKINS
PROJECT NUMBER	50180675

PRELIMINARY NOT FOR CONSTRUCTION OR RECORDING

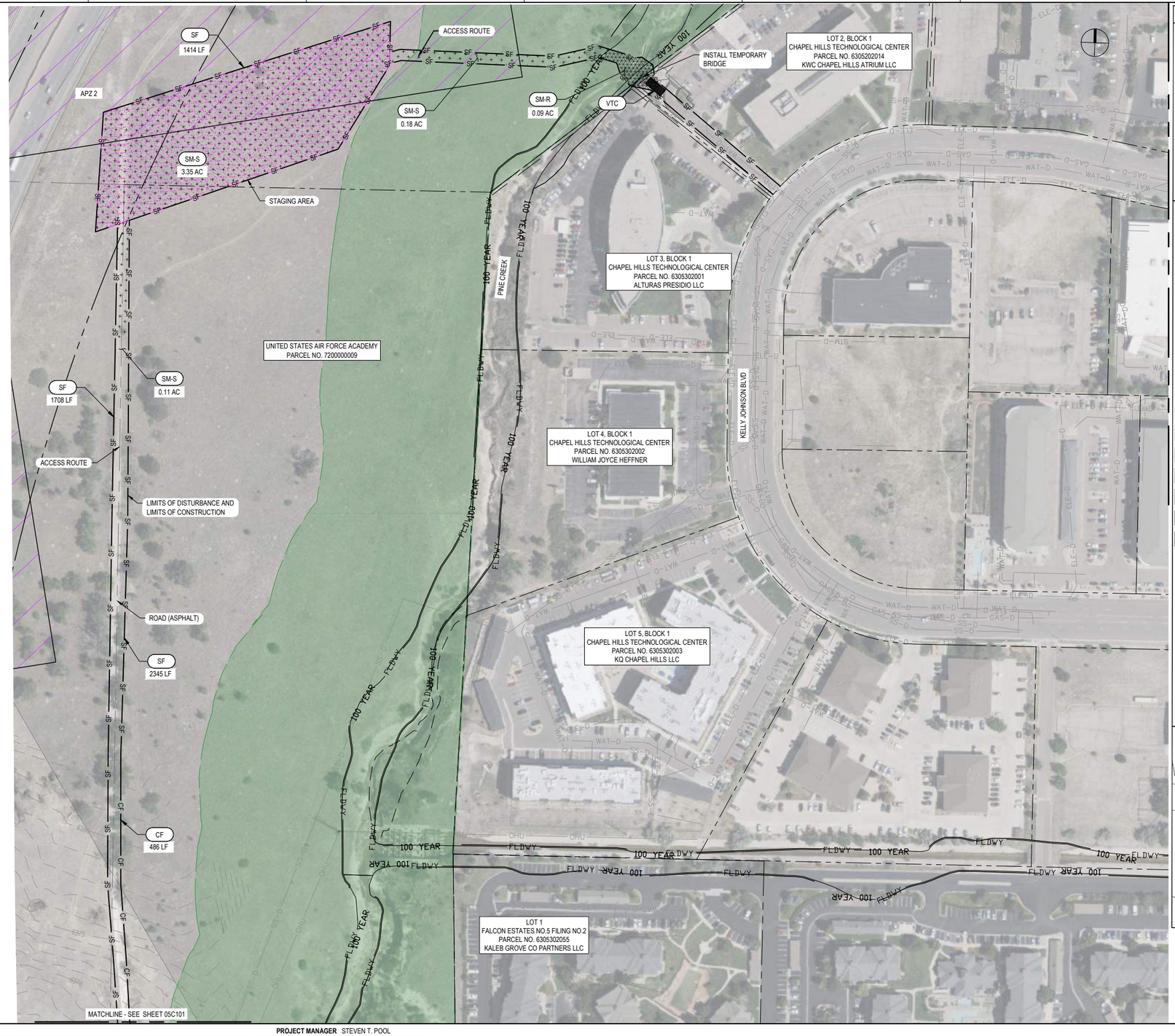
COLORADO SPRINGS UTILITIES NORTHERN MONUMENT CREEK INTERCEPTOR AND MIDDLE TRIBUTARY LIFT STATION INTERCEPTOR CONNECTION

SWMP/GEC
STORM WATER MANAGEMENT PLAN
STA 17+00 TO STA 23+30

0 1" 2"

FILENAME 05C302.DWG
SCALE AS NOTED

SHEET 05C302



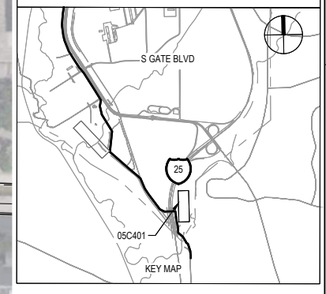
GENERAL NOTES

A. SEE SHEET 00G011 FOR SURVEY CONTROL.

D. SEE SPECIFICATIONS 01 14 00 AND 01 35 43 FOR WORK RESTRICTIONS WITHIN HATCHED AREAS.

(CCM) LEGEND:

KEY	TITLE
ECB	EROSION CONTROL BLANKET
IP-2	SUMP INLET PROTECTION
CD	CHECK DAM
RS	ROCK SOCK PROTECTION
SF	SILT FENCE
CF	CONSTRUCTION BOUNDARY FENCE
CIP	CULVERT INLET PROTECTION
ECB	EROSION CONTROL BLANKET
SM-R	RIPARIAN/TRANSITIONAL SEED MIX
SM-L	LOAMY/CLAYEY FOOTHILLS MIX
SM-M	MOUNTAIN MIX
SM-S	SANDY FOOTHILLS MIX
	STAGING AREA
VTC	VEHICLE TRACKING CONTROL
	FLOW DIRECTION



100 0 100 200
SCALE IN FEET

HORIZONTAL SCALE

C:\PW\WORKING\central\d0143741720\05C401.dwg, 3/12/2026 3:13:54 PM, THHICK

ISSUE	DATE	DESCRIPTION
D	03/2026	100% DESIGN REVIEW
C	11/2025	90% DESIGN REVIEW
B	07/2025	60% DESIGN REVIEW
A	12/2024	30% DESIGN REVIEW

PROJECT MANAGER	STEVEN T. POOL
PROJECT ENGINEER	R. KEATLEY
QUALITY CONTROL	M. GOSSETT
DRAFTER	T. HICKS
PROJECT NUMBER	10393769

PRELIMINARY NOT FOR CONSTRUCTION OR RECORDING

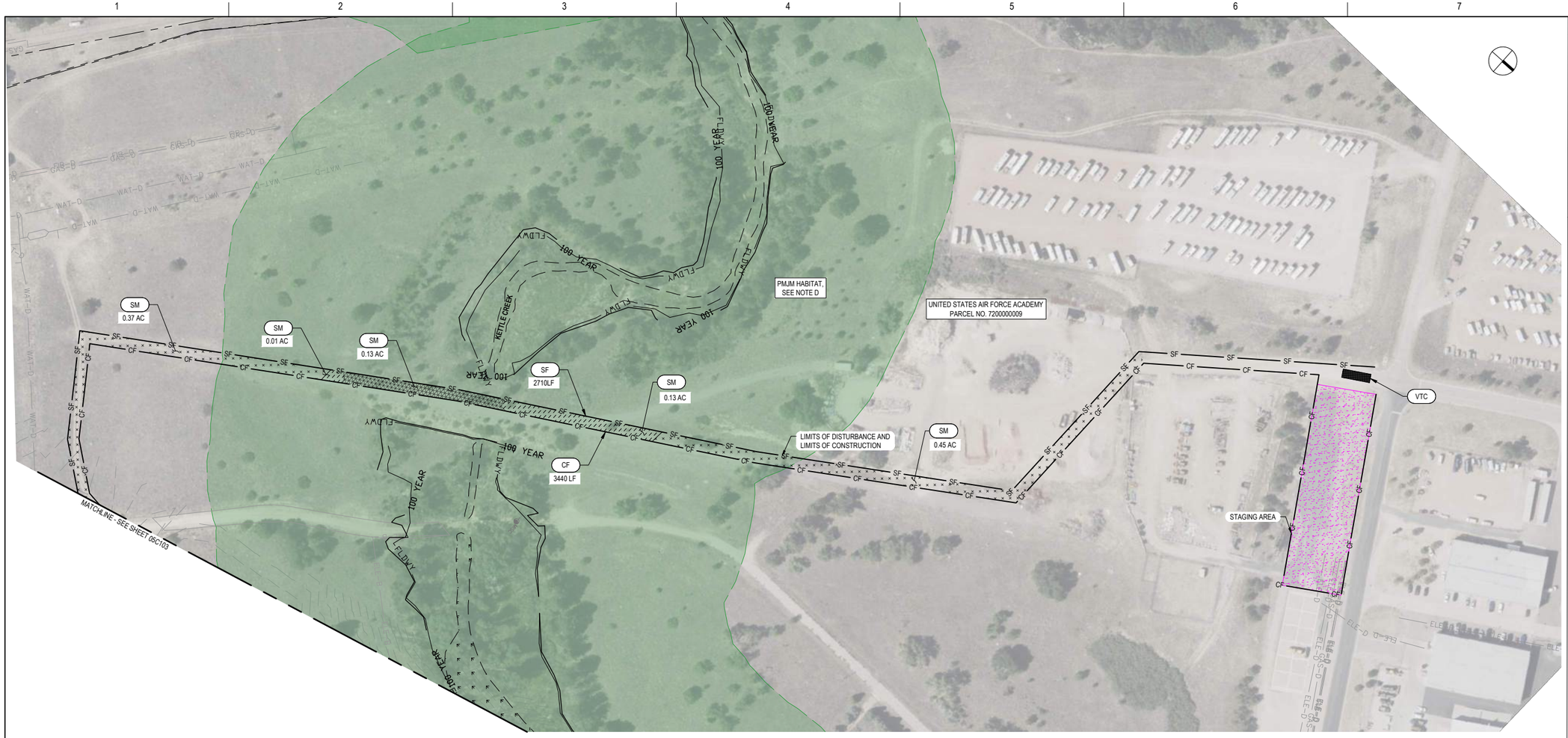
COLORADO SPRINGS UTILITIES NORTHERN MONUMENT CREEK INTERCEPTOR AND MIDDLE TRIBUTARY LIFT STATION INTERCEPTOR CONNECTION

SWMP/GEC
STORM WATER MANAGEMENT PLAN
ACCESS ROUTE TO STAGING AREA 1

0 1" 2"

FILENAME 05C401.DWG
SCALE AS NOTED

SHEET 05C401



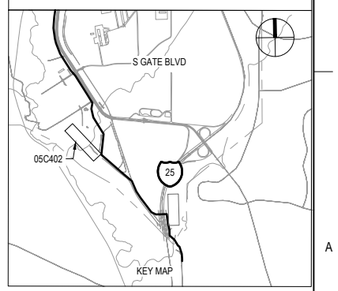
GENERAL NOTES

A. SEE SHEET 00G011 FOR SURVEY CONTROL.

D. SEE SPECIFICATIONS 01 14 00 AND 01 35 43 FOR WORK RESTRICTIONS WITHIN HATCHED AREAS.

(CCM) LEGEND:

KEY	TITLE
ECB	EROSION CONTROL BLANKET
IP-2	SUMP INLET PROTECTION
CD	CHECK DAM
RS	ROCK SOCK PROTECTION
SF	SILT FENCE
CF	CONSTRUCTION BOUNDARY FENCE
CIP	CULVERT INLET PROTECTION
ECB	EROSION CONTROL BLANKET
SM-R	RIPARIAN/TRANSITIONAL SEED MIX
SM-L	LOAMY/CLAYEY FOOTHILLS MIX
SM-M	MOUNTAIN MIX
SM-S	SANDY FOOTHILLS MIX
	STAGING AREA
VTC	VEHICLE TRACKING CONTROL
	FLOW DIRECTION



100 0 100 200
SCALE IN FEET

HORIZONTAL SCALE

C:\PWWORKING\central\d0104374172\05C402.dwg, 3/12/2026 3:14:59 PM, THHICK

ISSUE	DATE	DESCRIPTION
D	03/2026	100% DESIGN REVIEW
C	11/2025	90% DESIGN REVIEW
B	07/2025	60% DESIGN REVIEW
A	12/2024	30% DESIGN REVIEW

PROJECT MANAGER	STEVEN T. POOL
PROJECT ENGINEER	R. KEATLEY
QUALITY CONTROL	M. GOSSETT
DRAFTER	T. HICKS
PROJECT NUMBER	10393769

PRELIMINARY
NOT FOR
CONSTRUCTION OR
RECORDING

COLORADO SPRINGS UTILITIES
NORTHERN MONUMENT CREEK INTERCEPTOR AND MIDDLE TRIBUTARY LIFT STATION INTERCEPTOR CONNECTION

SWMP/GEC
STORM WATER MANAGEMENT PLAN
ACCESS ROUTE TO STAGING AREA 3

0 1" 2"

FILENAME 05C402.DWG
SCALE AS NOTED

SHEET
05C402

Appendix B: General Permits (for Reference)

- EPA General Permit COR12000F
- State CDPS General Permit COR400000

National Pollutant Discharge Elimination System (NPDES)
Construction General Permit (CGP) for Stormwater Discharges from Construction Activities

In compliance with the provisions of the Clean Water Act, 33 U.S.C. §1251 et. seq., (hereafter CWA), as amended by the Water Quality Act of 1987, P.L. 100-4, "operators" of construction activities (defined in Appendix A) that meet the requirements of Part 1.1 of this National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP), are authorized to discharge pollutants in accordance with the effluent limitations and conditions set forth herein. Permit coverage is required from the "commencement of construction activities" (see Appendix A) until one of the conditions for terminating CGP coverage has been met (see Part 8.2).

This permit becomes effective on 12:00 am, April 8, 2025.

This permit and the authorization to discharge expire at 11:59pm, February 16, 2027.

The 2022 CGP was modified to expand the list of areas eligible for coverage to include Lands of Exclusive Federal Jurisdiction in the U.S., to clarify the requirements that apply to projects that discharge to receiving waters within these areas, and to make corresponding changes in Appendices A, B, and D. See *2022 CGP Modification - Fact Sheet* for additional information.

FOR REFERENCE ONLY

Signed and issued this 8th day of April 2025

JAVIER LAUREANO PEREZ
Digitally signed by JAVIER LAUREANO PEREZ
Date: 2025.04.08 09:24:10 -04'00'

Javier Laureano Perez,
Director, Water Division, EPA Region 2.

Signed and issued this 8th day of April 2025

JEFFERY ROBICHAUD
Digitally signed by JEFFERY ROBICHAUD
Date: 2025.04.08 14:31:40 -05'00'

Jeffery Robichaud,
Director, Water Division, EPA Region 7.

Signed and issued this 8th day of April 2025

CARMEN GUERRERO PEREZ
Digitally signed by CARMEN GUERRERO PEREZ
Date: 2025.04.08 12:41:41 -04'00'

Carmen Guerrero Perez,
Director, Caribbean Environmental Protection Division,
EPA Region 2.

Signed and issued this 8th day of April 2025

STEPHANIE DEJONG
Digitally signed by STEPHANIE DEJONG
Date: 2025.04.08 09:32:38 -06'00'

Stephanie DeJong,
Manager, Clean Water Branch, EPA Region 8.

Signed and issued this 8th day of April 2025

KATHLENE BUTLER
Digitally signed by KATHLENE BUTLER
Date: 2025.04.08 14:05:04 -04'00'

Kathlene Butler,
Director, Water Division, EPA Region 4.

Signed and issued this 8th day of April 2025

Digitally signed by TOMAS TORRES
Date: 2025.04.08 09:19:32 -07'00'

Tomas Torres,
Director, Water Division, EPA Region 9.

Signed and issued this 8th day of April 2025

TERA FONG
Digitally signed by TERA FONG
Date: 2025.04.08 15:01:22 -05'00'

Tera Fong,
Director, Water Division, EPA Region 5.

Signed and issued this 8th day of April 2025

MATHEW MARTINSON
MATHEW MARTINSON
2025.04.08 14:41:11 -07'00'

Mathew Martinson,
Director, Water Division, EPA Region 10.

Signed and issued this 8th day of April 2025

TROY HILL
Digitally signed by TROY HILL
Date: 2025.04.08 14:04:26 -05'00'

Troy Hill,
Director, Water Division, EPA Region 6.

For EPA Regions 1 and 3, this modified permit becomes effective at 2:00 pm, June 10, 2025. This permit and the authorization to discharge expire at 11:59pm, February 16, 2027.

The 2022 CGP was modified to expand the list of areas eligible for coverage to include Lands of Exclusive Federal Jurisdiction in the U.S., to clarify the requirements that apply to projects that discharge to receiving waters within these areas, and to make corresponding changes in Appendices A, B, and D. See *2022 CGP Modification - Fact Sheet* for additional information.

Signed and issued this 10th day of June 10, 2025

MARK SANBORN

Digitally signed by MARK SANBORN
Date: 2025.06.10 11:00:04 -04'00'

Mark Sanborn
Regional Administrator, EPA Region 1

Signed and issued this 10th day of June 10, 2025

MICHELLE PRICE-FAY

Digitally signed by MICHELLE PRICE-FAY
Date: 2025.06.10 09:35:25 -04'00'

Michelle Price-Fay
Director, Water Division, EPA Region 3

FOR REFERENCE ONLY

CONTENTS

1 How to Obtain Coverage Under the Construction General Permit (CGP) 3
1.1 Eligibility Conditions 3
1.2 Types of Discharges Authorized 5
1.3 Prohibited Discharges 6
1.4 Submitting your Notice of Intent (NOI) 7
1.5 Requirement to Post a Notice of Your Permit Coverage 9
2 Technology-Based Effluent Limitations 10
2.1 General Stormwater Control Design, Installation, and Maintenance Requirements 10
2.2 Erosion and Sediment Control Requirements 12
2.3 Pollution Prevention Requirements 20
2.4 Construction Dewatering Requirements 24
3 Water Quality-Based Effluent Limitations 25
3.1 General Effluent Limitation to Meet Applicable Water Quality Standards 25
3.2 Water Quality-Based Conditions for Sites Discharging to Certain Impaired and High Quality Receiving Waters 25
3.3 Turbidity Benchmark Monitoring for Sites Discharging Dewatering Water To Protect the Water Quality of Sensitive Waters 26
4 Inspection Requirements 30
4.1 Person(s) Responsible for Conducting Site and Dewatering Inspections 30
4.2 Frequency of Inspections 30
4.3 Increase in Inspection Frequency for Certain Sites. 31
4.4 Reductions in Inspection Frequency 32
4.5 Areas that Must Be Inspected 33
4.6 Requirements for Inspections 34
4.7 Inspection Report 35
4.8 Inspections By EPA 36
5 Corrective Actions 36
5.1 Conditions Triggering Corrective Action 36
5.2 Corrective Action Deadlines 37
5.3 Corrective Action Required by EPA 38
5.4 Corrective Action Log 38
6 Stormwater Team Formation/Staff Training Requirements 38
6.1 Stormwater Team 38
6.2 General Training Requirements For Stormwater Team Members 39
6.3 Training Requirements For Persons Conducting Inspections 39

FOR REFERENCE ONLY

6.4 Stormwater Team's Access To Permit Documents 40
7 Stormwater Pollution Prevention Plan (SWPPP) 40
7.1 General Requirements 40
7.2 SWPPP Contents 41
7.3 On-Site Availability of Your SWPPP 48
7.4 SWPPP Modifications 48
8 How to Terminate Coverage 49
8.1 Minimum Information Required in NOT 49
8.2 Conditions for Terminating CGP Coverage 49
8.3 How to Submit Your NOT 50
8.4 Deadline for Submitting the NOT 51
8.5 Effective Date of Termination of Coverage 51
9 Permit Conditions Applicable to Specific States, Indian Country Lands, or Territories 51
9.1 EPA REGION 1 51
9.2 EPA REGION 2 60
9.3 EPA REGION 3 62
9.4 EPA REGION 4 63
9.5 EPA REGION 5 64
9.6 EPA REGION 6 70
9.7 EPA REGION 7 81
9.8 EPA REGION 8 81
9.9 EPA REGION 9 86
9.10 EPA REGION 10 89
10 ADDITIONAL Permit Conditions Applicable to LANDS OF EXCLUSIVE FEDERAL JURISDICTION 101
Appendix A: Definitions A-1
Appendix B: Permit Areas Eligible for Coverage and EPA Regional Addresses B-1
Appendix C: Small Construction Waivers and Instructions C-1
Appendix D: Eligibility Procedures Relating to Threatened & Endangered Species Protection. D-1
Appendix E: Historic Property Screening Process E-1
Appendix F: Buffer Requirements F-1
Appendix G: Standard Permit Conditions G-1
Appendix H: Notice of Intent (NOI) Form and Instructions H-1
Appendix I: Notice of Termination (NOT) Form and Instructions I-1
Appendix J: Suggested Format for Request for Chemical Treatment J-1
Appendix K: Turbidity Benchmark Monitoring Report Form K-1

FOR REFERENCE ONLY

1 HOW TO OBTAIN COVERAGE UNDER THE CONSTRUCTION GENERAL PERMIT (CGP)

To be covered under this permit, you must meet the eligibility conditions and follow the requirements for obtaining permit coverage in this Part.

1.1 ELIGIBILITY CONDITIONS

1.1.1 You are an "operator" of a construction site for which discharges will be covered under this permit. For the purposes of this permit and in the context of stormwater discharges associated with construction activity, an "operator" is any party associated with a construction project that meets either of the following two criteria:

- **a.** The party has operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications; or
- **b.** The party has day-to-day operational control of those activities at a project that are necessary to ensure compliance with the permit conditions.

Where there are multiple operators associated with the same project, all operators must obtain permit coverage.[1] Subcontractors generally are not considered operators for the purposes of this permit.

1.1.2 Your site's construction activities:

- **a.** Will disturb one or more acres of land, or will disturb less than one acre of land but are part of a common plan of development or sale (as defined in Appendix A) that will ultimately disturb one or more acres of land; or
- **b.** Have been designated by EPA as needing permit coverage under 40 CFR § 122.26(a)(1)(v) or 40 CFR § 122.26(b)(15)(ii);

1.1.3 Your site is located in an area where EPA is the permitting authority and where coverage under this permit is available (see Appendix B).

1.1.4 Discharges from your site are not:

- **a.** Already covered by a different NPDES permit for the same discharge; or
- **b.** In the process of having coverage under a different NPDES permit for the same discharge denied, terminated, or revoked.[2, 3]

1.1.5 You can demonstrate you meet one of the criteria in the Endangered Species Protection section of the Notice of Intent (NOI) that you submit for coverage under this permit, per Part 1.4, with respect to the protection of Federally listed endangered or threatened species and Federally designated critical habitat under the Endangered Species Act (ESA). If the EPA Regional Office grants you a waiver from electronic reporting per Part

FOR REFERENCE ONLY

[1] If the operator of a "construction support activity" (see Part 1.2.1c) is different than the operator of the main site, that operator must also obtain permit coverage. See Part 7.1 for clarification on the sharing of permit-related functions between and among operators on the same site and for conditions that apply to developing a SWPPP for multiple operators associated with the same site.

[2] Parts 1.1.4a and 1.1.4b do not include sites currently covered under the 2017 CGP that are in the process of obtaining coverage under this permit, nor sites covered under this permit that are transferring coverage to a different operator.

[3] Notwithstanding a site being made ineligible for coverage under this permit because it falls under the description of Parts 1.1.4a or 1.1.4b, above, EPA may waive the applicable eligibility requirement after specific review if it determines that coverage under this permit is appropriate.

1.4.2, you must complete the ESA worksheet in Appendix D to demonstrate you meet one of the criteria and submit it with your paper NOI (Appendix I).

1.1.6 You have completed the screening process in Appendix E relating to the protection of historic properties; and

1.1.7 You have complied with all requirements in Part 9 imposed by the applicable State, Indian Tribe, or Territory in which your construction activities and/or discharge will occur.[4]

1.1.8 For "new sources" (as defined in Appendix A) only:

a. EPA has not, prior to authorization under this permit, determined that discharges from your site will not meet applicable water quality standards. Where such a determination is made prior to authorization, EPA may notify you that an individual permit application is necessary. However, EPA may authorize your coverage under this permit after you have included appropriate controls and implementation procedures designed to bring your discharge into compliance with this permit, specifically the requirement to meet water quality standards. In the absence of information demonstrating otherwise, EPA expects that compliance with the requirements of this permit, including the requirements applicable to such discharges in Part 3, will result in discharges that meet applicable water quality standards.

b. Discharges from your site to a Tier 2, Tier 2.5, or Tier 3 water[5] will not lower the water quality of the applicable water. In the absence of information demonstrating otherwise, EPA expects that compliance with the requirements of this permit, including the requirements applicable to such discharges in Part 3.2, will result in discharges that will not lower the water quality of such waters.

1.1.9 If you plan to add "cationic treatment chemicals" (as defined in Appendix A) to stormwater and/or authorized non-stormwater prior to discharge, you may not submit your NOI until you notify your applicable EPA Regional Office (see Appendix J) in advance and the EPA Regional Office authorizes coverage under this permit after you have included appropriate controls and implementation procedures designed to ensure that your use of cationic treatment chemicals will result in discharges that meet applicable water quality standards.

FOR REFERENCE ONLY

[4] EPA notes that the requirements of Part 9 do not apply to projects within Lands of Exclusive Federal Jurisdiction.

[5] Note: Your site will be considered to discharge to a Tier 2, Tier 2.5, or Tier 3 water if the first receiving water to which you discharge is identified by a State, Tribe, or EPA as a Tier 2, Tier 2.5, or Tier 3 water. For discharges that enter a storm sewer system prior to discharge, the first receiving water to which you discharge is the waterbody that receives the stormwater discharge from the storm sewer system. The current list of Tier 2, Tier 2.5, and Tier 3 waters located in the areas eligible for coverage under this permit can be found at https://www.epa.gov/npdes/construction-general-permit-resources-tools-and-templates. You can also use EPA's Discharge Mapping Tool (https://www.epa.gov/npdes/epas-stormwater-discharge-mapping-tools) to assist you in identifying whether any receiving waters to which you discharge are listed as impaired (and the pollutant for which it is impaired) and whether an approved total maximum daily load (TMDL) exists for that waterbody.

1.2 TYPES OF DISCHARGES AUTHORIZED[6]

1.2.1 The following stormwater discharges are authorized under this permit provided that appropriate stormwater controls are designed, installed, and maintained (see Parts 2 and 3):

- **a.** Stormwater discharges, including stormwater runoff, snowmelt runoff, and surface runoff and drainage, associated with construction activity under 40 CFR § 122.26(b)(14) or § 122.26(b)(15)(i);
- **b.** Stormwater discharges designated by EPA as needing a permit under 40 CFR §122.26(a)(1)(v) or § 122.26(b)(15)(ii);
- **c.** Stormwater discharges from on or off-site construction support activities (e.g., concrete or asphalt batch plants, equipment staging yards, material storage areas, excavated material disposal areas, borrow areas) provided that:
  - **i.** The support activity is directly related to the construction site required to have permit coverage for stormwater discharges;
  - **ii.** The support activity is not a commercial operation, nor does it serve multiple unrelated construction sites;
  - **iii.** The support activity does not continue to operate beyond the completion of the construction activity at the site it supports; and
  - **iv.** Stormwater controls are implemented in accordance with Part 2 and Part 3 for discharges from the support activity areas; and
- **d.** Stormwater discharges from earth-disturbing activities associated with the construction of staging areas and the construction of access roads conducted prior to active mining.

1.2.2 The following non-stormwater discharges associated with your construction activity are authorized under this permit provided that, with the exception of water used to control dust and to irrigate vegetation in stabilized areas, these discharges are not routed to areas of exposed soil on your site and you comply with any applicable requirements for these discharges in Parts 2 and 3:

- **a.** Discharges from emergency fire-fighting activities;
- **b.** Fire hydrant flushings;
- **c.** Landscape irrigation;
- **d.** Water used to wash vehicles and equipment, provided that there is no discharge of soaps, solvents, or detergents used for such purposes;
- **e.** Water used to control dust;
- **f.** Potable water including uncontaminated water line flushings;

FOR REFERENCE ONLY

[6] See "Discharge" as defined in Appendix A. Note: Any discharges not expressly authorized in this permit cannot become authorized or shielded from liability under CWA Section 402(k) by disclosure to EPA, State, or local authorities after issuance of this permit via any means, including the Notice of Intent (NOI) to be covered by the permit, the SWPPP, or during an inspection.

g. External building washdown, provided soaps, solvents, and detergents are not used, and external surfaces do not contain hazardous substances (as defined in Appendix A) (e.g., paint or caulk containing polychlorinated biphenyls (PCBs));

h. Pavement wash waters, provided spills or leaks of toxic or hazardous substances have not occurred (unless all spill material has been removed) and where soaps, solvents, and detergents are not used. You are prohibited from directing pavement wash waters directly into any receiving water, storm drain inlet, or constructed or natural site drainage features, unless the feature is connected to a sediment basin, sediment trap, or similarly effective control;

i. Uncontaminated air conditioning or compressor condensate;

j. Uncontaminated, non-turbid discharges of ground water or spring water;

k. Foundation or footing drains where flows are not contaminated with process materials such as solvents or contaminated ground water; and

l. Uncontaminated construction dewatering water[7] discharged in accordance with Part 2.4.

1.2.3 Also authorized under this permit are discharges of stormwater listed above in Part 1.2.1, or authorized non-stormwater discharges listed above in Part 1.2.2, commingled with a discharge authorized by a different NPDES permit and/or a discharge that does not require NPDES permit authorization.

1.3 PROHIBITED DISCHARGES[8]

The discharges listed in this Part are prohibited outright or authorized only under the identified conditions. To prevent the discharges in Parts 1.3.1 through 1.3.5, operators must comply with the applicable pollution prevention requirements in Part 2.3 or ensure the discharge is authorized by another NPDES permit consistent with Part 1.2.3 for commingled discharges.

1.3.1 Wastewater from washout of concrete, unless managed by an appropriate control as described in Part 2.3.4;

1.3.2 Wastewater from washout and/or cleanout of stucco, paint, form release oils, curing compounds, and other construction materials;

1.3.3 Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance;

1.3.4 Soaps, solvents, or detergents used in vehicle and equipment washing or external building washdown; and

1.3.5 Toxic or hazardous substances from a spill or other release.

FOR REFERENCE ONLY

[7] EPA notes that operators may need to comply with additional procedures to verify that the dewatering discharge is uncontaminated. Operators should review Part 9 to determine if any of these requirements apply to their discharge and should ensure that they have complied with any State, Tribal, or local dewatering requirements that apply.

[8] EPA includes these prohibited non-stormwater discharges here as a reminder to the operator that the only non-stormwater discharges authorized by this permit are at Part 1.2.2. Any unauthorized non-stormwater discharges must be covered under an individual permit or alternative general permit.

1.4 SUBMITTING YOUR NOTICE OF INTENT (NOI)

All "operators" (as defined in Appendix A) associated with your construction site who meet the Part 1.1 eligibility conditions, and who seek coverage under this permit, must submit to EPA a complete and accurate NOI in accordance with the deadlines in Table 1 prior to commencement of construction activities (as defined in Appendix A).

Exception: If you are conducting construction activities in response to a public emergency (e.g., mud slides, earthquake, extreme flooding conditions, widespread disruption in essential public services), and the related work requires immediate authorization to avoid imminent endangerment to human health, public safety, or the environment, or to reestablish essential public services, you may discharge on the condition that a complete and accurate NOI is submitted within 30 calendar days after commencing construction activities (see Table 1) establishing that you are eligible for coverage under this permit. You must also provide documentation in your Stormwater Pollution Prevention Plan (SWPPP) to substantiate the occurrence of the public emergency pursuant to Part 7.2.3i.

1.4.1 Prerequisite for Submitting Your NOI

You must develop a SWPPP consistent with Part 7 before submitting your NOI for coverage under this permit.

1.4.2 How to Submit Your NOI

You must use EPA's NPDES eReporting Tool (NeT) to electronically prepare and submit your NOI for coverage under the 2022 CGP unless you received a waiver from your applicable EPA Regional Office.

To access NeT, go to https://cdx.epa.gov/cdx.

Waivers from electronic reporting may be granted based on one of the following conditions:

a. If your operational headquarters is physically located in a geographic area (i.e., ZIP code or census tract) that is identified as under-served for broadband Internet access in the most recent report from the Federal Communications Commission; or

b. If you have limitations regarding available computer access or computer capability.

If the EPA Regional Office grants you approval to use a paper NOI, and you elect to use it, you must complete the form in Appendix H.

1.4.3 Deadlines for Submitting Your NOI and Your Official Date of Permit Coverage

Table 1 provides the deadlines for submitting your NOI and the official start date of your permit coverage, which differ depending on when you commence construction activities.

FOR REFERENCE ONLY

Table 1 NOI Submittal Deadlines and Official Start Date for Permit Coverage.

Type of Operator	NOI Submittal Deadline[9]	Permit Authorization Date[10]
Operator of a new site (i.e., a site where construction activities commence on or after February 17, 2022)	At least 14 calendar days before commencing construction activities.	14 calendar days after EPA notifies you that it has received a complete NOI, unless EPA notifies you that your authorization is delayed or denied.
Operator of an existing site (i.e., a site with 2017 CGP coverage where construction activities commenced prior to February 17, 2022)	No later than May 18, 2022.	14 calendar days after EPA notifies you that it has received a complete NOI, unless EPA notifies you that your authorization is delayed or denied. Provided you submit your NOI no later than May 18, 2022, your authorization under the 2017 CGP is automatically continued until you have been granted coverage under this permit or an alternative NPDES permit, or coverage is otherwise terminated.
New operator of a permitted site (i.e., an operator that through transfer of ownership and/or operation replaces the operator of an already permitted construction site that is either a "new site" or an "existing site")	At least 14 calendar days before the date the transfer to the new operator will take place.	14 calendar days after EPA notifies you that it has received a complete NOI, unless EPA notifies you that your authorization is delayed or denied.
Operator of an "emergency-related project" (i.e., a project initiated in response to a public emergency (e.g., mud slides, earthquake, extreme flooding conditions, disruption in essential public services), for which the related work requires immediate authorization to avoid imminent endangerment to human health or the environment, or to reestablish essential public services)	No later than 30 calendar days after commencing construction activities.	You are considered provisionally covered under the terms and conditions of this permit immediately, and fully covered 14 calendar days after EPA notifies you that it has received a complete NOI, unless EPA notifies you that your authorization is delayed or denied.

FOR REFERENCE ONLY

[9] If you miss the deadline to submit your NOI, any and all discharges from your construction activities will continue to be unauthorized under the CWA until they are covered by this or a different NPDES permit. EPA may take enforcement action for any unpermitted discharges that occur between the commencement of construction activities and discharge authorization.

[10] Discharges are not authorized if your NOI is incomplete or inaccurate or if you are not eligible for permit coverage.

1.4.4 Modifying your NOI

If after submitting your NOI you need to correct or update any fields, you may do so by submitting a "Change NOI" form using NeT. Waivers from electronic reporting may be granted as specified in Part 1.4.2. If the EPA Regional Office has granted you approval to submit a paper NOI modification, you may indicate any NOI changes on the same NOI form in Appendix H.

When there is a change to the site's operator, the new operator must submit a new NOI, and the previous operator must submit a Notice of Termination (NOT) form as specified in Part 8.3.

The following modifications to an NOI form will result in a 14-day review process:

- Changes to the name of the operator;
- Changes to the project or site name;
- Changes to the estimated area to be disturbed;
- Changes to the name of the receiving water[11], or additions to the applicable receiving waters;
- Changes to eligibility information related to endangered species protection or historic preservation;
- Changes to information provided related to the use of chemical treatment at your site; and
- Changes to answers provided regarding the demolition of structures over 10,000 square feet of floor space built or renovated before January 1, 1980.

During the 14-day review process, you may continue to operate based on the information provided in your original NOI, but you must wait until the review period has ended before you may commence or continue activities on any portion of your site that would be affected by any of the above modifications, unless EPA notifies you that the authorization is delayed or denied.

FOR REFERENCE ONLY

1.4.5 Your Official End Date of Permit Coverage

Once covered under this permit, your coverage will last until the date that:

a. You terminate permit coverage consistent with Part 8; or

b. You receive permit coverage under a different NPDES permit or a reissued or replacement version of this permit after expiring on February 16, 2027; or

c. You fail to submit an NOI for coverage under a reissued or replacement version of this permit before the deadline for existing construction sites where construction activities continue after this permit has expired.

1.5 REQUIREMENT TO POST A NOTICE OF YOUR PERMIT COVERAGE

You must post a sign or other notice of your permit coverage at a safe, publicly accessible location in close proximity to the construction site. The notice must be located so it is visible from the public road that is nearest to the active part of the construction

[11] As defined in Appendix A, a "receiving water" is "a "Water of the United States" as defined in 40 CFR §122.2 into which the regulated stormwater discharges.

site, and it must use a font large enough to be readily viewed from a public right-of-way.[12] At a minimum, the notice must include:

a. The NPDES ID (i.e., permit tracking number assigned to your NOI and the EPA webpage where a copy of the NOI can be found (https://permitsearch.epa.gov/epermit-search/ui/search));

b. A contact name and phone number for obtaining additional construction site information;

c. The Uniform Resource Locator (URL) for the SWPPP (if available), or the following statement: "If you would like to obtain a copy of the Stormwater Pollution Prevention Plan (SWPPP) for this site, contact the EPA Regional Office at [*include the appropriate CGP Regional Office contact information found at* https://www.epa.gov/npdes/contact-us-stormwater#regional];" and

d. The following statement "If you observe indicators of stormwater pollutants in the discharge or in the receiving water, contact the EPA through the following website: https://www.epa.gov/enforcement/report-environmental-violations."

2 TECHNOLOGY-BASED EFFLUENT LIMITATIONS

You must comply with the following technology-based effluent limitations in this Part for all authorized discharges.[13]

2.1 GENERAL STORMWATER CONTROL DESIGN, INSTALLATION, AND MAINTENANCE REQUIREMENTS

You must design, install, and maintain stormwater controls required in Parts 2.2, 2.3, and 2.4 to minimize the discharge of pollutants in stormwater from construction activities.[14] To meet this requirement, you must:

2.1.1 Account for the following factors in designing your stormwater controls:

a. The expected amount, frequency, intensity, and duration of precipitation;[15]

b. The nature of stormwater runoff (i.e., flow) and run-on at the site, including factors such as expected flow from impervious surfaces, slopes, and site drainage features. You must design stormwater controls to control stormwater volume, velocity, and peak flow rates to minimize discharges of pollutants in stormwater and to minimize channel and streambank erosion and scour in the immediate vicinity of discharge points; and

c. The soil type and range of soil particle sizes expected to be present on the site.

FOR REFERENCE ONLY

[12] If the active part of the construction site is not visible from a public road, then place the notice of permit coverage in a position that is visible from the nearest public road and as close as possible to the construction site.

[13] For each of the effluent limits in Part 2, as applicable to your site, you must include in your SWPPP (1) a description of the specific control(s) to be implemented to meet the effluent limit; (2) any applicable design specifications; (3) routine maintenance specifications; and (4) the projected schedule for installation/implementation. See Part 7.2.6.

[14] The permit does not recommend or endorse specific products or vendors.

[15] Stormwater controls must be designed using the most recent data available to account for recent precipitation patterns and trends.

If your site is exposed to or has previously experienced major storms, such as hurricanes, storm surge, extreme/heavy precipitation, and flood events, you should also include consideration of and contingencies for whether implementing structural improvements, enhanced/resilient stormwater controls, and other mitigation measures may help minimize impacts from stormwater discharges from such major storm events.

2.1.2 Design and install all stormwater controls in accordance with good engineering practices, including applicable design specifications.[16]

2.1.3 Complete installation of stormwater controls by the time each phase of construction activities has begun.

a. By the time construction activity in any given portion of the site begins, install and make operational any downgradient sediment controls (e.g., buffers, perimeter controls, exit point controls, storm drain inlet protection) that control discharges from the initial site clearing, grading, excavating, and other earth-disturbing activities.[17]

b. Following the installation of these initial controls, install and make operational all stormwater controls needed to control discharges prior to subsequent earth-disturbing activities.

2.1.4 Ensure all stormwater controls are maintained and remain in effective operating condition during permit coverage and are protected from activities that would reduce their effectiveness.

a. Comply with any specific maintenance requirements for the stormwater controls listed in this permit, as well as any recommended by the manufacturer.[18]

b. If at any time you find that a stormwater control needs routine maintenance (i.e., minor repairs or other upkeep performed to ensure the site's stormwater controls remain in effective operating condition, not including significant repairs or the need to install a new or replacement control), you must immediately initiate the needed work, and complete such work by the close of the next business day. If it is infeasible to complete the routine maintenance by the close of the next business day, you must document why this is the case and why the repair or other upkeep to be performed should still be considered routine maintenance in your inspection report under Part 4.7.1c and complete such work no later than seven (7) calendar days from the time of discovery of the condition requiring maintenance.

c. If you must repeatedly (i.e., three (3) or more times) make the same routine maintenance fixes to the same control at the same location, even if the fix can be completed by the close of the next business day, you must either:

i. Complete work to fix any subsequent repeat occurrences of this same problem under the corrective action procedures in Part 5, including keeping any records

FOR REFERENCE ONLY

[16] Design specifications may be found in manufacturer specifications and/or in applicable erosion and sediment control manuals or ordinances. Any departures from such specifications must reflect good engineering practices and must be explained in your SWPPP. You must also comply with any additional design and installation requirements specified for the effluent limits in Parts 2.2, 2.3, and 2.4.

[17] Note that the requirement to install stormwater controls prior to each phase of construction activities for the site does not apply to the earth disturbance associated with the actual installation of these controls. Operators should take all reasonable actions to minimize the discharges of pollutants during the installation of stormwater controls.

[18] Any departures from such maintenance recommendations made by the manufacturer must reflect good engineering practices and must be explained in your SWPPP.

of the condition and how it was corrected under Part 5.4; or

ii. Document in your inspection report under Part 4.7.1c why the specific reoccurrence of this same problem should still be addressed as a routine maintenance fix under this Part.[19]

d. If at any time you find that a stormwater control needs a significant repair or that a new or replacement control is needed, you must comply with the corrective action deadlines for completing such work in in Part 5.2.1c.

2.2 EROSION AND SEDIMENT CONTROL REQUIREMENTS

You must implement erosion and sediment controls in accordance with the following requirements to minimize the discharge of pollutants in stormwater from construction activities.

2.2.1 Provide and maintain natural buffers and/or equivalent erosion and sediment controls for discharges to any receiving waters that is located within 50 feet of the site's earth disturbances.

a. Compliance Alternatives. For any discharges to receiving waters located within 50 feet of your site's earth disturbances, you must comply with one of the following alternatives:

i. Provide and maintain a 50-foot undisturbed natural buffer; or

ii. Provide and maintain an undisturbed natural buffer that is less than 50 feet and is supplemented by erosion and sediment controls that achieve, in combination, the sediment load reduction equivalent to a 50-foot undisturbed natural buffer; or

iii. If infeasible to provide and maintain an undisturbed natural buffer of any size, implement erosion and sediment controls to achieve the sediment load reduction equivalent to a 50-foot undisturbed natural buffer.

See Appendix F, Part F.2 for additional conditions applicable to each compliance alternative.

b. Exceptions. See Appendix F, Part F.2 for exceptions to the compliance alternatives.

2.2.2 Direct stormwater to vegetated areas and maximize stormwater infiltration and filtering to reduce pollutant discharges, unless infiltration would be inadvisable due to the underlying geology (e.g., karst topography) and ground water contamination concerns, or infeasible due to site conditions.[20]

FOR REFERENCE ONLY

[19] Such documentation could include, for example, that minor repairs completed within the required timeframe are all that is necessary to ensure that the stormwater control continues to operate as designed and installed and that the stormwater control remains appropriate for the flow reaching it.

[20] Operators should consider whether factors such as specific contaminant concerns from the construction site, the underlying soils or geology, hydrology, depth to the ground water table, or proximity to source water or wellhead protection area(s) make the site unsuitable for infiltrating construction stormwater. Site conditions that may be of particular concern include proximity to: a current or future drinking water aquifer; a drinking water well or spring (including private/household wells); highly conductive geology such as karst; known pollutant hot spots, such as hazardous waste sites, landfills, gas stations, brownfields; an on-site sewage system or underground storage tank; or soils that do not allow for infiltration. Operators may find it helpful to consult EPA's Drinking Water Mapping Application to Protect Source Waters (DWMAPS). DWMAPS is an online mapping tool that can be used to locate drinking water providers, potential sources of contamination, polluted waterways, and information on protection initiatives in the site area.

2.2.3 Install sediment controls along any perimeter areas of the site that are downslope from any exposed soil or other disturbed areas.[21]

a. The perimeter control must be installed upgradient of any natural buffers established under Part 2.2.1, unless the control is being implemented pursuant to Part 2.2.1a.ii-iii;

b. To prevent stormwater from circumventing the edge of the perimeter control, install the perimeter control on the contour of the slope and extend both ends of the control up slope (e.g., at 45 degrees) forming a crescent rather than a straight line;

c. After installation, to ensure that perimeter controls continue to work effectively:

i. Remove sediment before it has accumulated to one-half of the above-ground height of any perimeter control; and

ii. After a storm event, if there is evidence of stormwater circumventing or undercutting the perimeter control, extend controls and/or repair undercut areas to fix the problem.

d. Exception. For areas at "linear construction sites" (as defined in Appendix A) where perimeter controls are infeasible (e.g., due to a limited or restricted right-of-way), implement other practices as necessary to minimize pollutant discharges to perimeter areas of the site.

2.2.4 Minimize sediment track-out.

a. Restrict vehicle use to properly designated exit points;

b. Use appropriate stabilization techniques[22] at all points that exit onto paved roads;

i. Exception: Stabilization is not required for exit points at linear utility construction sites that are used only episodically and for very short durations over the life of the project, provided other exit point controls[23] are implemented to minimize sediment track-out.

c. Implement additional track-out controls[24] as necessary to ensure that sediment removal occurs prior to vehicle exit; and

d. Where sediment has been tracked-out from your site onto paved roads, sidewalks, or other paved areas outside of your site, remove the deposited sediment by the end of the same business day in which the track-out occurs or by the end of the next business day if track-out occurs on a non-business day. Remove the track-out by sweeping, shoveling, or vacuuming these surfaces, or by using other similarly effective means of sediment removal. You are prohibited from hosing or sweeping tracked-out

FOR REFERENCE ONLY

[21] Examples of perimeter controls include filter berms; different types of silt fence such as wire-backed silt fence, super silt fence, or multi-layer geotextile silt fence; compost filter socks; gravel barriers; and temporary diversion dikes.

[22] Examples of appropriate stabilization techniques include the use of aggregate stone with an underlying geotextile or non-woven filter fabric, and turf mats.

[23] Examples of other exit point controls include preventing the use of exit points during wet periods; minimizing exit point use by keeping vehicles on site to the extent possible; limiting exit point size to the width needed for vehicle and equipment usage; using scarifying and compaction techniques on the soil; and avoiding establishing exit points in environmentally sensitive areas (e.g., *karst areas; steep slopes)*.

[24] Examples of additional track-out controls include the use of wheel washing, rumble strips, and rattle plates.

sediment into any constructed or natural site drainage feature, storm drain inlet, or receiving water.[25]

2.2.5 Manage stockpiles or land clearing debris piles composed, in whole or in part, of sediment and/or soil:[26]

a. Locate the piles outside of any natural buffers established under Part 2.2.1 and away from any constructed or natural site drainage features, storm drain inlets, and areas where stormwater flow is concentrated;

b. Install a sediment barrier along all downgradient perimeter areas of stockpiled soil or land clearing debris piles;[27]

c. For piles that will be unused for 14 or more days, provide cover[28] or appropriate temporary stabilization (consistent with Part 2.2.14);

d. You are prohibited from hosing down or sweeping soil or sediment accumulated on pavement or other impervious surfaces into any constructed or natural site drainage feature, storm drain inlet, or receiving water.

2.2.6 Minimize dust. On areas of exposed soil, minimize dust through the appropriate application of water or other dust suppression techniques to control the generation of pollutants that could be discharged in stormwater from the site.

2.2.7 Minimize steep slope disturbances. Minimize the disturbance of "steep slopes" (as defined in Appendix A).[29]

2.2.8 Preserve native topsoil, unless infeasible.[30]

2.2.9 Minimize soil compaction.[31] In areas of your site where final vegetative stabilization will occur or where infiltration practices will be installed:

FOR REFERENCE ONLY

[25] Fine grains that remain visible (e.g., staining) on the surfaces of off-site streets, other paved areas, and sidewalks after you have implemented sediment removal practices are not a violation of Part 2.2.4.

[26] The requirements in Part 2.2.5 do not apply to the storage of rock, such as rip rap, landscape rock, pipe bedding gravel, and boulders. Refer to Part 2.3.3a for the requirements that apply to these types of materials.

[27] Examples of sediment barriers include berms, dikes, fiber rolls, silt fences, sandbags, gravel bags, or straw bale.

[28] Examples of cover include tarps, blown straw and hydroseeding.

[29] Where disturbance to steep slopes cannot be avoided, operators should consider implementing controls suitable for steep slope disturbances that are effective at minimizing erosion and sediment discharge (e.g., preservation of existing vegetation, hydraulic mulch, geotextiles and mats, compost blankets, earth dikes or drainage swales, terraces, velocity dissipation devices). To identify slopes and soil types that are of comparatively higher risk for sediment discharge in areas of the country where the CGP is in effect, operators can use the tables in Appendix F (see Tables F-2 thru F-6).

[30] Stockpiling topsoil at off-site locations, or transferring topsoil to other locations, is an example of a practice that is consistent with the requirements in Part 2.2.8. Preserving native topsoil is not required where the intended function of a specific area of the site dictates that the topsoil be disturbed or removed. For example, some sites may be designed to be highly impervious after construction, and therefore little or no vegetation is intended to remain, or may not have space to stockpile native topsoil on site for later use, in which case it may not be feasible to preserve topsoil.

[31] Minimizing soil compaction is not required where the intended function of a specific area of the site dictates that it be compacted.

a. Restrict vehicle and equipment use in these locations to avoid soil compaction; and

b. Before seeding or planting areas of exposed soil that have been compacted, use techniques that rehabilitate and condition the soils as necessary to support vegetative growth.

2.2.10 Protect storm drain inlets.

a. Install inlet protection measures that remove sediment from discharges prior to entry into any storm drain inlet that carries stormwater from your site to a receiving water, provided you have authority to access the storm drain inlet.[32] Inlet protection measures are not required for storm drain inlets that are conveyed to a sediment basin, sediment trap, or similarly effective control; and

b. Clean, or remove and replace, the inlet protection measures as sediment accumulates, the filter becomes clogged, and/or performance is compromised. Where there is evidence of sediment accumulation adjacent to the inlet protection measure, remove the deposited sediment by the end of the same business day in which it is found or by the end of the following business day if removal by the same business day is not feasible.

2.2.11 Control stormwater discharges, including both peak flowrates and total stormwater volume, to minimize channel and streambank erosion and scour in the immediate vicinity of discharge points.[33]

2.2.12 If you install a sediment basin or similar impoundment:

a. Situate the basin or impoundment outside of any receiving water. and any natural buffers established under Part 2.2.1;

b. Design the basin or impoundment to avoid collecting water from wetlands;

c. Design the basin or impoundment to provide storage for either:

i. The calculated volume of runoff from a 2-year, 24-hour storm;[34] or

ii. 3,600 cubic feet per acre drained.

d. Utilize outlet structures that withdraw water from the surface of the sediment basin or similar impoundment, unless infeasible;[35]

e. Use erosion controls and velocity dissipation devices to prevent erosion at inlets and outlets; and

FOR REFERENCE ONLY

[32] Inlet protection measures can be removed in the event of flood conditions or to prevent erosion.

[33] Examples of stormwater controls that can be used to comply with this requirement include the use of erosion controls and/or velocity dissipation devices (e.g., check dams, sediment traps), within and along the length of a constructed site drainage feature and at the outfall to slow down stormwater.

[34] Operators may refer to https://www.epa.gov/npdes/construction-general-permit-resources-tools-and-templates for guidance on determining the volume of precipitation associated with their site's local 2-year, 24-hour storm event.

[35] The circumstances in which it is infeasible to design outlet structures in this manner are rare. Exceptions may include areas with extended cold weather, where using surface outlets may not be feasible during certain time periods (although they must be used during other periods). If you determine that it is infeasible to meet this requirement, you must provide documentation in your SWPPP to support your determination, including the specific conditions or time periods when this exception will apply.

f. Remove accumulated sediment to maintain at least one-half of the design capacity and conduct all other appropriate maintenance to ensure the basin or impoundment remains in effective operating condition.

2.2.13 If using treatment chemicals (e.g., *polymers, flocculants, coagulants*):

a. Use conventional erosion and sediment controls before and after the application of treatment chemicals. Chemicals may only be applied where treated stormwater is directed to a sediment control *(e.g., sediment basin, perimeter control)* before discharge.

b. Select appropriate treatment chemicals*.* Chemicals must be appropriately suited to the types of soils likely to be exposed during construction and present in the discharges being treated *(i.e., the expected turbidity, pH, and flow rate of stormwater flowing into the chemical treatment system or area)*.

c. Minimize discharge risk from stored chemicals. Store all treatment chemicals in leak-proof containers that are kept under storm-resistant cover and surrounded by secondary containment structures *(e.g., spill berms, dikes, spill containment pallets),* or provide equivalent measures designed and maintained to minimize the potential discharge of treatment chemicals in stormwater or by any other means *(e.g., storing chemicals in a covered area, having a spill kit available on site and ensuring personnel are available to respond expeditiously in the event of a leak or spill)*.

d. Comply with State/local requirements. Comply with applicable State and local requirements regarding the use of treatment chemicals.

e. Use chemicals in accordance with good engineering practices and specifications of the chemical provider/supplier. Use treatment chemicals and chemical treatment systems in accordance with good engineering practices, and with dosing specifications and sediment removal design specifications provided by the provider/supplier of the applicable chemicals, or document in your SWPPP specific departures from these specifications and how they reflect good engineering practice.

f. Ensure proper training. Ensure all persons who handle and use treatment chemicals at the construction site are provided with appropriate, product-specific training prior to beginning application of treatment chemicals. Among other things, the training must cover proper dosing requirements.

g. Perform additional measures specified by the EPA Regional Office for the authorized use of cationic chemicals. If you have been authorized to use cationic chemicals at your site pursuant to Part 1.1.9, you must perform all additional measures as conditioned by your authorization to ensure the use of such chemicals will not result in discharges that do not meet water quality standards.

2.2.14 Stabilize exposed portions of the site. Implement and maintain stabilization measures (*e.g., seeding protected by erosion controls until vegetation is established,*[36] *sodding, mulching, erosion control blankets, hydromulch, gravel*) that minimize erosion from any areas of exposed soil on the site in accordance with Part.

[36] If you will be evaluating the use of some type of erosion control netting to the site as part of your site stabilization, EPA encourages you to consider employing products that have been shown to minimize

FOR REFERENCE ONLY

a. Stabilization Deadlines:[37]

Table 2 Deadlines for Initiating and Completing Site Stabilization.

Total Amount of Land Disturbance Occurring At Any One Time[38]	Deadline
i. Five acres or less (≤5.0) **Note: this includes sites disturbing more than five acres (>5.0) total over the course of a project, but that limit disturbance at any one time (i.e., *phase the disturbance*) to five acres or less (≤5.0)**	• Initiate the installation of stabilization measures immediately[39] in any areas of exposed soil where construction activities have permanently ceased or will be temporarily inactive for 14 or more calendar days;[40] and • Complete the installation of stabilization measures as soon as practicable, but no later than 14 calendar days

impacts on wildlife. For instance, the U.S. Fish & Wildlife Service provides recommendations on the type of netting practices that are considered "wildlife friendly," including those that use natural fiber or 100 percent biodegradable materials and that use a loose weave with a non-welded, movable jointed netting, as well as those products that are not wildlife friendly including square plastic netting that are degradable (e.g., photodegradable, UV-degradable, oxo-degradable), netting made from polypropylene, nylon, polyethylene, or polyester. Other recommendations include removing the netting product when it is no longer needed. See https://www.fws.gov/midwest/eastlansing/library/pdf/WildlifeFriendlyErosionControlProducts_revised.pdf for further information. There also may be State, Tribal, or local requirements about using wildlife friendly erosion control products.

[37] EPA may determine, based on an inspection carried out under Part 4.8 and corrective actions required under Part 5.3, that the level of sediment discharge on the site makes it necessary to require a faster schedule for completing stabilization. For instance, if sediment discharges from an area of exposed soil that is required to be stabilized are compromising the performance of existing stormwater controls, EPA may require stabilization to correct this problem.

[38] Limiting disturbances to five (5) acres or less at any one time means that at no time during the project do the cumulative earth disturbances exceed five (5) acres. The following examples would qualify as limiting disturbances at any one time to five (5) acres or less:

1. The total area of disturbance for a project is five (5) acres or less.
2. The total area of disturbance for a project will exceed five (5) acres, but the operator ensures that no more than five (5) acres will be disturbed at any one time through implementation of stabilization measures. In this way, site stabilization can be used to "free up" land that can be disturbed without exceeding the five (5)-acre cap to qualify for the 14-day stabilization deadline. For instance, if an operator completes stabilization of two (2) acres of land on a five (5)-acre disturbance, then two (2) additional acres could be disturbed while still qualifying for the longer 14-day stabilization deadline.

[39] The following are examples of activities that would constitute the immediate initiation of stabilization:

1. Prepping the soil for vegetative or non-vegetative stabilization as long as seeding, planting, and/or installation of non-vegetative stabilization products takes place as soon as practicable, but no later than one (1) calendar day of completing soil preparation;
2. Applying mulch or other non-vegetative product to the exposed area;
3. Seeding or planting the exposed area;
4. Starting any of the activities in # 1 – 3 on a portion of the entire area that will be stabilized; and
5. Finalizing arrangements to have stabilization product fully installed in compliance with the deadlines for completing stabilization.

[40] The requirement to initiate stabilization immediately is triggered as soon as you know that construction work on a portion of the site is temporarily ceased and will not resume for 14 or more days, or as soon as you know that construction work is permanently ceased. In the context of this provision, "immediately" means as soon as practicable, but no later than the end of the next business day, following the day when the construction activities have temporarily or permanently ceased.

FOR REFERENCE ONLY

Total Amount of Land Disturbance Occurring At Any One Time[38]	Deadline
	after stabilization has been initiated.[41]
ii. More than five acres (>5.0)	• Initiate the installation of stabilization measures immediately[42] in any areas of exposed soil where construction activities have permanently ceased or will be temporarily inactive for 14 or more calendar days;[43] and • Complete the installation of stabilization measures as soon as practicable, but no later than seven (7) calendar days after stabilization has been initiated.[44]

b. Exceptions:

i. Arid, semi-arid, and drought-stricken areas (as defined in Appendix A)**.** If it is the seasonally dry period (as defined in Appendix A)[45] or a period in which drought is occurring, and vegetative stabilization measures are being used:

(a) Immediately initiate and, within 14 calendar days of temporary or permanent cessation of work in any portion of your site, complete the installation of temporary non-vegetative stabilization measures to the extent necessary to prevent erosion;

(b) As soon as practicable, given conditions or circumstances on the site, complete all activities necessary to seed or plant the area to be stabilized; and

(c) If construction is occurring during the seasonally dry period, indicate in your SWPPP the beginning and ending dates of the seasonally dry period and your site conditions. Also include the schedule you will follow for initiating and completing vegetative stabilization.

ii. Unforeseen circumstances. Operators that are affected by unforeseen circumstances[46] that delay the initiation and/or completion of vegetative stabilization.

FOR REFERENCE ONLY

[41] If vegetative stabilization measures are being implemented, stabilization is considered "installed" when all activities necessary to seed or plant the area are completed, including the application of any non-vegetative protective cover (e.g., mulch, erosion control blanket), if applicable. If non-vegetative stabilization measures are being implemented, stabilization is considered "installed" when all such measures are implemented or applied.

[42] See footnote 39.

[43] See footnote 40.

[44] See footnote 41.

[45] The term "seasonally dry period" as defined in Appendix A refers to a month in which the long-term average total precipitation is less than or equal to 0.5 inches. Refer to EPA's Seasonally Dry Period Locator Tool at https://www.epa.gov/npdes/construction-general-permit-resources-tools-and-templates and supporting maps for assistance in determining whether a site is operating during a seasonally dry period for the area.

[46] Examples include problems with the supply of seed stock or with the availability of specialized equipment and unsuitability of soil conditions due to excessive precipitation and/or flooding.

(a) Immediately initiate and, within 14 calendar days, complete the installation of temporary non-vegetative stabilization measures to prevent erosion;

(b) Complete all soil conditioning, seeding, watering or irrigation installation, mulching, and other required activities related to the planting and initial establishment of vegetation as soon as conditions or circumstances allow it on your site; and

(c) Document in the SWPPP the circumstances that prevent you from meeting the deadlines in Part 2.2.14a and the schedule you will follow for initiating and completing stabilization.

iii. Discharges to a sediment- or nutrient-impaired water or to a water that is identified by your State, Tribe, or EPA as Tier 2, Tier 2.5, or Tier 3 for antidegradation purposes. Complete stabilization as soon as practicable, but no later than seven (7) calendar days after stabilization has been initiated.

iv. Discharges to a receiving water located within Lands of Exclusive Federal Jurisdiction. Complete stabilization as soon as practicable, but no later than seven (7) calendar days after stabilization has been initiated. This deadline applies regardless of whether another exception in this section applies to your site.

c. Final Stabilization Criteria (for any areas not covered by permanent structures)**:**

i. Establish uniform, perennial vegetation *(*i.e.*, evenly distributed, without large bare areas)* to provide 70 percent or more of the vegetative cover native to local undisturbed areas; and/or

ii. Implement permanent non-vegetative stabilization measures[47] to provide effective cover of any areas of exposed soil.

iii. Exceptions:

(a) **Arid, semi-arid, and drought-stricken areas** (as defined in Appendix A). Final stabilization is met if the area has been seeded or planted to establish vegetation that provides 70 percent or more of the vegetative cover native to local undisturbed areas within three (3) years and, to the extent necessary to prevent erosion on the seeded or planted area, non-vegetative erosion controls have been applied to provide cover for at least three years without active maintenance.

(b) **Disturbed areas on agricultural land that are restored to their preconstruction agricultural use.** The Part 2.2.14c final stabilization criteria do not apply.

(c) **Areas that need to remain disturbed.** In limited circumstances, stabilization may not be required if the intended function of a specific area of the site necessitates that it remain disturbed, and only the minimum area needed remains disturbed *(*e.g.*, dirt access roads, utility pole pads, areas being used for storage of vehicles, equipment, materials)*.

FOR REFERENCE ONLY

[47] Examples of permanent non-vegetative stabilization measures include riprap, gravel, gabions, and geotextiles.

2.3 POLLUTION PREVENTION REQUIREMENTS[48]

You must implement pollution prevention controls in accordance with the following requirements to minimize the discharge of pollutants in stormwater and to prevent the discharge of pollutants from spilled or leaked materials from construction activities.

2.3.1 For equipment and vehicle fueling and maintenance:

a. Provide an effective means of eliminating the discharge of spilled or leaked chemicals, including fuels and oils, from these activities;[49]

b. If applicable, comply with the Spill Prevention Control and Countermeasures (SPCC) requirements in 40 CFR part 112 and Section 311 of the CWA;

c. Ensure adequate supplies are available at all times to handle spills, leaks, and disposal of used liquids;

d. Use drip pans and absorbents under or around leaky vehicles;

e. Dispose of or recycle oil and oily wastes in accordance with other Federal, State, Tribal, or local requirements; and

f. Clean up spills or contaminated surfaces immediately, using dry clean up measures (do not clean contaminated surfaces by hosing the area down), and eliminate the source of the spill to prevent a discharge or a continuation of an ongoing discharge.

2.3.2 For equipment and vehicle washing:

a. Provide an effective means of minimizing the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other types of wash waters;[50]

b. Ensure there is no discharge of soaps, solvents, or detergents in equipment and vehicle wash water; and

c. For storage of soaps, detergents, or solvents, provide either (1) cover *(*e.g., *plastic sheeting, temporary roofs)* to minimize the exposure of these detergents to precipitation and to stormwater, or (2) a similarly effective means designed to minimize the discharge of pollutants from these areas.

FOR REFERENCE ONLY

[48] Under this permit, you are not required to minimize exposure for any products or materials where the exposure to precipitation and to stormwater will not result in a discharge of pollutants, or where exposure of a specific material or product poses little risk of stormwater contamination (such as final products and materials intended for outdoor use).

[49] Examples of effective means include:

- Locating activities away from receiving waters, storm drain inlets, and constructed or natural site drainage feature so that stormwater coming into contact with these activities cannot reach waters of the U.S.;
- Providing secondary containment (e.g., *spill berms, dikes, spill containment pallets*) and cover where appropriate; and
- Having a spill kit available on site and ensuring personnel are available to respond expeditiously in the event of a leak or spill.

[50] Examples of effective means include locating activities away from receiving waters and storm drain inlets or constructed or natural site drainage features and directing wash waters to a sediment basin or sediment trap, using filtration devices, such as filter bags or sand filters, or using other similarly effective controls.

2.3.3 For storage, handling, and disposal of building products, materials, and wastes:[51]

a. *For building materials and building products*,[52] provide either (1) cover (e.g., *plastic sheeting, temporary roofs*) to minimize the exposure of these products to precipitation and to stormwater, or (2) a similarly effective means designed to minimize the discharge of pollutants from these areas.

Exception: Minimization of exposure is not required in cases where the exposure to precipitation and to stormwater will not result in a discharge of pollutants, or where exposure of a specific material or product poses little risk of stormwater contamination (such as final products and materials intended for outdoor use).

b. *For pesticides, herbicides, insecticides, fertilizers, and landscape materials:*

i. In storage areas, provide either (1) cover (e.g., *plastic sheeting, temporary roofs*) to minimize the exposure of these chemicals to precipitation and to stormwater, or (2) a similarly effective means designed to minimize the discharge of pollutants from these areas; and

ii. Comply with all application and disposal requirements included on the registered pesticide, herbicide, insecticide, and fertilizer label (see also Part 2.3.5).

c. *For diesel fuel, oil, hydraulic fluids, other petroleum products, and other chemicals:* The following requirements apply to the storage and handling of chemicals on your site. If you are already implementing controls as part of an SPCC or other spill prevention plan that meet or exceed the requirements of this Part, you may continue to do so and be considered in compliance with these provisions provided you reference the applicable parts of the SPCC or other plans in your SWPPP as required in Part 7.2.6b.viii.

i. If any chemical container has a storage capacity of less than 55 gallons:
(a) The containers must be water-tight, and must be kept closed, sealed, and secured when not being actively used;

(b) If stored outside, use a spill containment pallet or similar device to capture small leaks or spills; and

(c) Have a spill kit available on site that is in good working condition (i.e., not damaged, expired, or used up) and ensure personnel are available to respond immediately in the event of a leak or spill.

ii. If any chemical container has a storage capacity of 55 gallons or more:
(a) The containers must be water-tight, and must be kept closed, sealed, and secured when not being actively used;

(b) Store containers a minimum of 50 feet from receiving waters, constructed or natural site drainage features, and storm drain inlets. If infeasible due to site constraints, store containers as far away from these features as the site

FOR REFERENCE ONLY

[51] Compliance with the requirements of this permit does not relieve compliance requirements with respect to Federal, State, or local laws and regulations governing the storage, handling, and disposal of solid, hazardous, or toxic wastes and materials.

[52] Examples of building materials and building products typically present at construction sites include asphalt sealants, copper flashing, roofing materials, adhesives, concrete admixtures, and gravel and mulch stockpiles.

permits. If site constraints prevent you from storing containers 50 feet away from receiving waters or the other features identified, you must document in your SWPPP the specific reasons why the 50-foot setback is infeasible, and how you will store containers as far away as the site permits;

(c) Provide either (1) cover (e.g., temporary roofs) to minimize the exposure of these containers to precipitation and to stormwater, or (2) secondary containment (e.g., curbing, spill berms, dikes, spill containment pallets, double-wall, above-ground storage tank); and

(d) Have a spill kit available on site that is in good working condition (i.e., not damaged, expired, or used up) and ensure personnel are available to respond immediately in the event of a leak or spill. Additional secondary containment measures are listed at 40 CFR § 112.7(c)(1).

iii. Clean up spills immediately, using dry clean-up methods where possible, and dispose of used materials properly. You are prohibited from hosing the area down to clean surfaces or spills. Eliminate the source of the spill to prevent a discharge or a furtherance of an ongoing discharge.

d. *For hazardous or toxic wastes:*[53]

i. Separate hazardous or toxic waste from construction and domestic waste;

ii. Store waste in sealed containers, constructed of suitable materials to prevent leakage and corrosion, and labeled in accordance with applicable Resource Conservation and Recovery Act (RCRA) requirements and all other applicable Federal, State, Tribal, or local requirements;

iii. Store all outside containers within appropriately-sized secondary containment (e.g., *spill berms, dikes, spill containment pallets*) to prevent spills from being discharged, or provide a similarly effective means designed to prevent the discharge of pollutants from these areas *(e.g., storing chemicals in a covered area, having a spill kit available on site);*

iv. Dispose of hazardous or toxic waste in accordance with the manufacturer's recommended method of disposal and in compliance with Federal, State, Tribal, and local requirements;

v. Clean up spills immediately, using dry clean-up methods, and dispose of used materials properly. You are prohibited from hosing the area down to clean surfaces or spills. Eliminate the source of the spill to prevent a discharge or a furtherance of an ongoing discharge; and

vi. Follow all other Federal, State, Tribal, and local requirements regarding hazardous or toxic waste.

e. *For construction and domestic wastes:*[54]

[53] Examples of hazardous or toxic waste that may be present at construction sites include paints, caulks, sealants, fluorescent light ballasts, solvents, petroleum-based products, wood preservatives, additives, curing compounds, and acids.

[54] Examples of construction and domestic wastes include packaging materials, scrap construction materials, masonry products, timber, pipe and electrical cuttings, plastics, styrofoam, concrete, demolition debris; and other trash or discarded materials.

FOR REFERENCE ONLY

i. Provide waste containers *(*e.g., *dumpster, trash receptacle)* of sufficient size and number to contain construction and domestic wastes;

(a) For waste containers with lids, keep waste container lids closed when not in use, and close lids at the end of the business day and during storm events. For waste containers without lids, provide either (1) cover *(*e.g., *a tarp, plastic sheeting, temporary roof)* to minimize exposure of wastes to precipitation, or (2) a similarly effective means designed to minimize the discharge of pollutants *(*e.g., *secondary containment);*

(b) On business days, clean up and dispose of waste in designated waste containers; and

(c) Clean up immediately if containers overflow, and if there is litter elsewhere on the site from escaped trash.

ii. Waste containers are not required for the waste remnant or unused portions of construction materials or final products that are covered by the exception in Part 2.2.3a provided that:

(a) These wastes are stored separately from other construction or domestic wastes addressed by Part 2.3.3e.i (i.e., wastes not covered by the exception in Part 2.3.3a). If the wastes are mixed, they must be stored in waste containers as required in Part 2.3.3e.i; and

(b) These wastes are stored in designated areas of the site, the wastes are described in the SWPPP (see Part 7.2.6b.ix), and identified in the site plan (see Part 7.2.4i).

f. *For sanitary waste*, position portable toilets so they are secure and will not be tipped or knocked over, and are located away from receiving waters, storm drain inlets, and constructed or natural site drainage features.

2.3.4 For washing applicators and containers used for stucco, paint, concrete, form release oils, curing compounds, or other materials:

a. Direct wash water into a leak-proof container or leak-proof and lined pit designed so no overflows can occur due to inadequate sizing or precipitation;

b. Handle washout or cleanout wastes as follows:

i. For liquid wastes:

(a) Do not dump liquid wastes or allow them to enter into constructed or natural site drainage features, storm inlets, or receiving waters;

(b) Do not allow liquid wastes to be disposed of through infiltration or to otherwise be disposed of on the ground;

(c) Comply with applicable State, Tribal, or local requirements for disposal

ii. Remove and dispose of hardened concrete waste consistent with your handling of other construction wastes in Part 2.3.3e; and

c. Locate any washout or cleanout activities as far away as possible from receiving waters, constructed or natural site drainage features, and storm drain inlets, and, to the extent feasible, designate areas to be used for these activities and conduct such activities only in these areas.

FOR REFERENCE ONLY

2.3.5 For the application of fertilizers:

a. Apply at a rate and in amounts consistent with manufacturer's specifications, or document in the SWPPP departures from the manufacturer specifications where appropriate in accordance with Part 7.2.6b.x;

b. Apply at the appropriate time of year for your location, and preferably timed to coincide as closely as possible to the period of maximum vegetation uptake and growth;

c. Avoid applying before heavy rains that could cause excess nutrients to be discharged;

d. Never apply to frozen ground;

e. Never apply to constructed or natural site drainage features; and

f. Follow all other Federal, State, Tribal, and local requirements regarding fertilizer application.

2.3.6 Emergency Spill Notification Requirements

Discharges of toxic or hazardous substances from a spill or other release are prohibited, consistent with Part 1.3.5. Where a leak, spill, or other release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR part 110, 40 CFR part 117, or 40 CFR part 302 occurs during a 24-hour period, you must notify the National Response Center (NRC) at (800) 424-8802 or, in the Washington, DC metropolitan area, call (202) 267-2675 in accordance with the requirements of 40 CFR part 110, 40 CFR part 117, and 40 CFR part 302 as soon as you have knowledge of the release. You must also, within seven (7) calendar days of knowledge of the release, provide a description of the release, the circumstances leading to the release, and the date of the release. State, Tribal, or local requirements may necessitate additional reporting of spills or discharges to local emergency response, public health, or drinking water supply agencies.

2.4 CONSTRUCTION DEWATERING REQUIREMENTS

Comply with the following requirements to minimize the discharge of pollutants from dewatering[55] operations.

2.4.1 Route dewatering water through a sediment control (e.g., sediment trap or basin, pumped water filter bag) designed to prevent discharges with visual turbidity; [56]

2.4.2 Do not discharge visible floating solids or foam;

2.4.3 The discharge must not cause the formation of a visible sheen on the water surface, or visible oily deposits on the bottom or shoreline of the receiving water. Use an oil-water separator or suitable filtration device (such as a cartridge filter) designed to remove oil, grease, or other products if dewatering water is found to or expected to contain these materials;

[55] "Dewatering" is defined in Appendix A as "the act of draining accumulated stormwater and/or ground water from building foundations, vaults, and trenches, or other similar points of accumulation."

[56] For the purposes of this permit, visual turbidity is present where there is a sediment plume in the discharge or the discharge appears cloudy, or opaque, or has a visible contrast that can be identified by an observer.

FOR REFERENCE ONLY

2.4.4 To the extent feasible, use well-vegetated (e.g., grassy or wooded), upland areas of the site to infiltrate dewatering water before discharge.[57] You are prohibited from using receiving waters as part of the treatment area;

2.4.5 To prevent dewatering-related erosion and related sediment discharges:

a. Use stable, erosion-resistant surfaces (e.g., well-vegetated grassy areas, clean filter stone, geotextile underlayment) to discharge from dewatering controls;

b. Do not place dewatering controls, such as pumped water filter bags, on steep slopes (as defined in Appendix A); and

c. At all points where dewatering water is discharged, comply with the velocity dissipation requirements of Part 2.2.11.

2.4.6 For backwash water, either haul it away for disposal or return it to the beginning of the treatment process;

2.4.7 Replace and clean the filter media used in dewatering devices when the pressure differential equals or exceeds the manufacturer's specifications; and

2.4.8 Comply with dewatering-specific inspection requirements in Part 4.

3 WATER QUALITY-BASED EFFLUENT LIMITATIONS

3.1 GENERAL EFFLUENT LIMITATION TO MEET APPLICABLE WATER QUALITY STANDARDS

Discharges must be controlled as necessary to meet applicable water quality standards. Discharges must also comply with any additional State or Tribal requirements that are in Part 9.

In the absence of information demonstrating otherwise, EPA expects that compliance with the conditions in this permit will result in stormwater discharges being controlled as necessary to meet applicable water quality standards. If at any time you become aware, or EPA determines, that discharges are not being controlled as necessary to meet applicable water quality standards, you must take corrective action as required in Parts 5.1 and 5.2 and document the corrective actions as required in Part 5.4.

EPA may insist that you install additional controls (to meet the narrative water quality-based effluent limit above) on a site-specific basis, or require you to obtain coverage under an individual permit, if information in your NOI or from other sources indicates that your discharges are not controlled as necessary to meet applicable water quality standards. This includes situations where additional controls are necessary to comply with a wasteload allocation in an EPA-established or approved TMDL.

If during your coverage under a previous permit, you were required to install and maintain stormwater controls specifically to meet the assumptions and requirements of an EPA-approved or established TMDL (for any parameter) or to otherwise control your discharge to meet water quality standards, you must continue to implement such controls as part of your coverage under this permit.

3.2 WATER QUALITY-BASED CONDITIONS FOR SITES DISCHARGING TO CERTAIN IMPAIRED AND HIGH QUALITY RECEIVING WATERS

For any portion of the site that discharges to a sediment or nutrient-impaired water or to a water that is identified by your State, Tribe, or EPA as Tier 2, Tier 2.5, or Tier 3 for

[57] See footnote 20.

FOR REFERENCE ONLY

antidegradation purposes,[58] you must comply with the inspection frequency specified in Part 4.3 and you must comply with the stabilization deadline specified in Part 2.2.14b.iii.[59]

If you discharge to a water that is impaired for a parameter other than a sediment-related parameter or nutrients, EPA will inform you if any additional controls are necessary for your discharge to be controlled as necessary to meet water quality standards. These controls might include those necessary for your discharge to be consistent with the assumptions of any available wasteload allocation in any applicable TMDL. In addition, EPA may require you to apply for and obtain coverage under an individual NPDES permit.

In addition, on a case-by-case basis, EPA may notify operators of new sites or operators of existing sites with increased discharges that additional analyses, stormwater controls, and/or other measures are necessary to comply with the applicable antidegradation requirements, or notify you that an individual permit application is necessary.

If you discharge to a water that is impaired for polychlorinated biphenyls (PCBs) and are engaging in demolition of any structure with at least 10,000 square feet of floor space built or renovated before January 1, 1980, you must:

a. Implement controls[60] to minimize the exposure of PCB-containing building materials, including paint, caulk, and pre-1980 fluorescent lighting fixtures, to precipitation and to stormwater; and

b. Ensure that disposal of such materials is performed in compliance with applicable State, Federal, and local laws.

3.3 TURBIDITY BENCHMARK MONITORING FOR SITES DISCHARGING DEWATERING WATER TO PROTECT THE WATER QUALITY OF SENSITIVE WATERS

For sites discharging dewatering water to "sensitive waters" (i.e., receiving waters listed as impaired for sediment or a sediment-related parameter (as defined in Appendix A), receiving waters designated as a Tier 2, Tier 2.5, or Tier 3 for antidegradation purposes, or receiving waters located within Lands of Exclusive Federal Jurisdiction) you are required to comply with the benchmark monitoring requirements in this Part and document the procedures you will use at your site in your SWPPP pursuant to Part 7.2.8. A summary of these requirements is included in Table 1.

EPA notes that the benchmark threshold is not an effluent limitation, rather it is an indicator that the dewatering controls may not be working to protect water quality, which the operator must investigate and correct as appropriate. A benchmark exceedance is not a permit violation. However, if a benchmark exceedance triggers

FOR REFERENCE ONLY

[58] Refer to Appendix A for definitions of "impaired water" and "Tier 2," "Tier 2.5," and "Tier 3" waters. For assistance in determining whether your site discharges to impaired waters, EPA has developed a tool that is available at https://www.epa.gov/npdes/epas-stormwater-discharge-mapping-tools. For assistance in determining whether your site discharges to a Tier 2, 2.5, or 3 water, refer to the list of such waters at https://www.epa.gov/npdes/construction-general-permit-resources-tools-and-templates.

[59] If you qualify for any of the reduced inspection frequencies in Part 4.4, you may conduct inspections in accordance with Part 4.4 for any portion of your site that discharges to a sensitive water.

[60] Examples of controls to minimize exposure of PCBs to precipitation and stormwater include separating work areas from non-work areas and selecting appropriate personal protective equipment and tools, constructing a containment area so that all dust or debris generated by the work remains within the protected area, and using tools that minimize dust and heat (<212°F). For additional information, refer to Part 2.3.3 of the CGP Fact Sheet.

corrective action in Part 5.1.5a, failure to conduct any required action is a permit violation.

Where there are multiple operators associated with the same site, the operators may coordinate with one another to carry out the monitoring requirements of this Part in order to avoid duplicating efforts. Such coordinating arrangements must be described in the SWPPP consistent with Part 7.2.8. Regardless of how the operators divide the responsibilities for monitoring and reporting, each operator remains responsible for compliance with these requirements.[61]

3.3.1 Turbidity monitoring requirements[62]

a. **Sampling frequency.** You must collect at least one turbidity sample from your dewatering discharge each day a discharge occurs.

b. **Sampling location.** Samples must be taken at all points where dewatering water is discharged. Samples must be taken after the dewatering water has been treated by installed treatment devices pursuant to Parts 2.4.1 and 2.4.3 and prior to its discharge off site into a receiving water, constructed or natural site drainage feature, or storm drain inlet.

c. **Representative samples.** Samples taken must be representative of the dewatering discharge for any given day as required in Appendix G (standard permit conditions), Part G.10.2.

d. **Test methods.** Samples must be measured using a turbidity meter that reports results in nephelometric turbidity units (NTUs) and conforms with a Part 136-approved method (e.g., methods 180.1 and 2130). You are required to use the meter, and conduct a calibration verification prior to each day's use, consistent with the manufacturer's instructions.

3.3.2 Turbidity benchmark

a. The benchmark threshold for turbidity for this permit is 50 NTUs (referred to elsewhere in this permit as the "standard 50 NTU benchmark") unless EPA has authorized the use of an alternate benchmark in accordance with Part 3.3.2b.

b. **Request for alternate benchmark threshold.**

i. At any time prior to or during your coverage under this permit, you may request that EPA approve a benchmark for your site that is higher than 50 NTUs if you

FOR REFERENCE ONLY

[61] For instance, if Operator A relies on Operator B to meet the Part 3.3.1 turbidity monitoring requirements, the Part 3.3.4 reporting and recordkeeping requirements, and the Part 5.2.2 corrective action provisions when applicable, Operator A does not have to duplicate these same functions if Operator B is implementing them for both operators to be in compliance with the permit. However, Operator A remains responsible for complying with these permit requirements if Operator B fails to take actions that were necessary for Operator A to comply with the permit. See also footnote 84. EPA notes that both Operator A and B are required to submit turbidity monitoring reports as required under Part 3.3.4, however, Operator A's report does not need to include the data collected by Operator B as long as Operator B submits the required data and Operator A's report indicates that it is relying on Operator B to report the data. See Part 3.3.4a.

[62] Operators may find it useful to consult EPA's *Monitoring and Inspection Guide for Construction Dewatering*, available at https://www.epa.gov/npdes/construction-general-permit-resources-tools-and-templates, which provides guidelines on how to correctly monitor for turbidity, determine if the weekly average exceeds the benchmark, and, if so, how to proceed with corrective action.

have information demonstrating the higher number is the same as your receiving water's water quality standard for turbidity. Unless EPA approves an alternate benchmark, you will be required to use the standard 50 NTU benchmark. To request approval of an alternate benchmark, you must submit the following information to your applicable EPA Regional Office (see Appendix K):

(a) The current turbidity water quality standard that applies to your receiving water and the source/citation.[63]

(b) If the applicable turbidity water quality standard requires information on natural or background turbidity levels (e.g., "no more than 10 NTU above natural turbidity levels") to determine the specific standard for the receiving water, include available data that can be used to establish the natural turbidity levels of your receiving water (including literature studies or Federal, State, Tribal, or local government data). Data must be representative of the natural turbidity levels of your specific receiving water. Identify the source(s) of all data provided, including if the data are from samples you collected of the receiving water.

ii. EPA will inform you of its decision on whether to approve the requested alternate benchmark within 30 days. EPA may approve your request, request additional time (e.g., if additional information is needed to substantiate the data you provided), or deny your request. Unless and until EPA approves your request to use an alternate benchmark, you are required to use the standard benchmark of 50 NTUs and take any required corrective actions if an exceedance occurs.

3.3.3 Comparison of turbidity samples to benchmark. Compare the weekly average[64] of your turbidity monitoring results to the standard 50 NTU benchmark, or alternate benchmark if approved by EPA.

a. If the weekly average of your turbidity monitoring results exceeds the standard benchmark (or your approved alternate benchmark), you are required to conduct follow-up corrective action in accordance with Part 5.2.2 and document any corrective action taken in your corrective action log in accordance with Part 5.4.

b. For averaging purposes, a "monitoring week" starts with a Monday and ends on Sunday. Once a new monitoring week starts, you will need to calculate a new average for that week of turbidity monitoring results.[65] A weekly average may consist

FOR REFERENCE ONLY

[63] For instance, if your site is located in Washington, DC, and you are discharging to a Class B water, for which the water quality standard is that turbidity may not increase above ambient levels by more than 20 percent, you would reference "Water Quality Standards for the District of Columbia, Chapter 11, Section 1104.8."

[64] A "weekly average" is defined as the sum of all of the turbidity samples taken during a "monitoring week" divided by the number of samples measured during that week. Average values should be calculated to the nearest whole number.

[65] For example, if turbidity samples from your dewatering discharge in week 1 result in values of 30 NTU on Tuesday, 40 NTU on Wednesday, and 45 NTU on Thursday, your weekly average turbidity value would be 38.33 NTU ((30+40+45) ÷ 3 = 38 NTU). If in week 2, your turbidity samples resulted in values of 45 NTU on Monday, 30 NTU on Tuesday, 25 NTU on Wednesday, and 15 NTU on Thursday, you would calculate a new average for that week, which would yield an average turbidity value of 28.75 NTU ((45+30+25+15) ÷ 4 = 29 NTU). By comparison, if your samples on consecutive days from Friday to Monday were 60 NTU, 45 NTU, 40

of one or more turbidity monitoring results.

c. Although you are not required to collect and analyze more than one turbidity sample per day from your dewatering discharge, if you do collect and analyze more than one sample on any given day, you must include any additional results in the calculation of your weekly average (i.e., add all individual results for that monitoring week and divide by the total number of samples).[66]

d. If you are conducting turbidity monitoring for more than one dewatering discharge point, you must calculate a weekly average turbidity value for each discharge point and compare each to the turbidity benchmark.

3.3.4 Reporting and recordkeeping.

a. You must submit reports of your weekly average turbidity data to EPA no later than 30 days following the end of each monitoring quarter. If there are monitoring weeks in which there was no dewatering discharge, or if there is a monitoring quarter with no dewatering discharge, indicate this in your turbidity monitoring report. If another operator associated with your same site is conducting turbidity monitoring on your behalf pursuant to Part 3.3, indicate this in your turbidity monitoring report.

b. For the purposes of this permit, the following monitoring quarters and reporting deadlines apply:

Table 3. Monitoring Quarters and Deadlines for Reporting Turbidity Benchmark Monitoring Data.

Monitoring Quarter #	**Months**	**Reporting Deadline** (no later than 30 days after end of the monitoring quarter)
1	January 1 – March 31	April 30
2	April 1 – June 30	July 30
3	July 1 – September 30	October 30
4	October 1 – December 31	January 30

c. You must use EPA's NPDES eReporting Tool (NeT) to electronically submit your quarterly turbidity data, unless, consistent with Part 1.4.2, you received a waiver from your applicable EPA Regional Office. If the EPA Regional Office grants you approval to use a paper turbidity monitoring report form, and you elect to use it, you must complete the form in Appendix K. If EPA approves of your request to use an alternate turbidity benchmark pursuant to Part 3.3.2b, EPA will substitute the alternate benchmark in your NeT account.

d. For each day in which you are required to monitor, you must record the monitoring information required by Appendix G, Parts G.10.2 and G.10.3 and retain all such information for a period of at least three years from the date this permit expires or

FOR REFERENCE ONLY

NTU, and 43 NTU, respectively, and there are no other dewatering discharges for the remainder of the week, you would calculate one weekly average for the Friday to Sunday to be 48 NTU ((60+45+40) ÷ 3 = 48 NTU), and a separate weekly average for the one Monday to be 43 NTU (43 ÷ 1 = 43 NTU).

[66] For example, if during a monitoring week you take two turbidity samples on Tuesday with a value of 30 NTU and 35 NTU, three samples on Wednesday with a value of 40 NTU, 45 NTU, and 48 NTU, and one sample on Thursday with a value of 45 NTU, your weekly average turbidity value for this week would be 41 NTU ((30+35+40+45+48+45) ÷ 6 = 41 NTU).

from the date your authorization is terminated.

Table 4. Summary of Turbidity Benchmark Monitoring Requirements.

Applicability	Sampling Requirement	Turbidity Benchmark	Corrective Action	Reporting
Sites discharging dewatering water to a sediment-impaired water, to a water designated as a Tier 2, Tier 2.5, or Tier 3 for antidegradation purposes, or to receiving waters located within Lands of Exclusive Federal Jurisdiction.	Collect at least one turbidity sample per day, from each discharge point, on any day there is a dewatering discharge. Use turbidity sampling procedures specified in Part 3.3.1.	Compare the weekly average of your turbidity monitoring results to the 50 NTU benchmark (or alternate benchmark if approved by EPA).	If the weekly average of turbidity monitoring results exceeds the 50 NTU turbidity benchmark (or alternate benchmark if approved by EPA), you are required to take follow-up corrective action in accordance with Part 5.2.2.	Report all weekly average turbidity monitoring results on a quarterly basis via NeT-CGP (unless use of the paper monitoring form in Appendix K is approved by EPA) no later than 30 days following the end of each monitoring quarter.

FOR REFERENCE ONLY

4 INSPECTION REQUIREMENTS

4.1 PERSON(S) RESPONSIBLE FOR CONDUCTING SITE AND DEWATERING INSPECTIONS

The person(s) inspecting your site may be a person on your staff or a third party you hire to conduct such inspections. You are responsible for ensuring that any person conducting inspections pursuant to this Part is a "qualified person." A qualified person is someone who has completed the training required by Part 6.3.

4.2 FREQUENCY OF INSPECTIONS.[67]

At a minimum, you must conduct a site inspection in accordance with one of the two schedules listed below, unless you are subject to the Part 4.3 site inspection frequency for discharges to sediment or nutrient-impaired or high quality waters, or qualify for a Part 4.4 reduction in the inspection frequency:

4.2.1 At least once every seven (7) calendar days; *or*

4.2.2 Once every 14 calendar days *and* within 24 hours[68] of the occurrence of:

- **a.** A storm event that produces 0.25 inches or more of rain within a 24-hour period.
  - **i.** If a storm event produces 0.25 inches or more of rain within a 24-hour period (including when there are multiple, smaller storms that alone produce less than

[67] Inspections are only required during the site's normal working hours.

[68] For the purposes of the inspection requirements in this Part, conducting an inspection "within 24 hours" means that once either of the two conditions in Parts 4.2.2a or 4.2.2b are met you have 24 hours from that time to conduct an inspection. For clarification, the 24 hours is counted as a continuous passage of time, and not counted by business hours (e.g., 3 business days of 8 hours each). When the 24-hour inspection time frame occurs entirely outside of normal working hours, you must conduct an inspection by no later than the end of the next business day.

0.25 inches but together produce 0.25 inches or more in 24 hours), you are required to conduct one inspection within 24 hours of when 0.25 inches of rain or more has fallen.

ii. If a storm event produces 0.25 inches or more of rain within a 24-hour period on the first day of a storm and continues to produce 0.25 inches or more of rain on subsequent days, you must conduct an inspection within 24 hours of the first day of the storm and within 24 hours after the last day of the storm that produces 0.25 inches or more of rain (i.e., only two inspections would be required for such a storm event).[69]

b. A discharge caused by snowmelt from a storm event that produces 3.25 inches[70] or more of snow within a 24-hour period. You are required to conduct one inspection once the discharge of snowmelt from a 3.25-inch or more snow accumulation occurs. Additional snowmelt inspections are only required if following the discharge from the first snowmelt, there is a discharge from a separate storm event that produces 3.25 inches or more of snow.

4.2.3 To determine whether a storm event meets either of the thresholds in Parts 4.2.2a or 4.2.2b:

a. For rain, you must either keep a properly maintained rain gauge on your site, or obtain the storm event information from a weather station that is representative of your location. For any 24-hour period during which there is 0.25 inches or more of rainfall, you must record the total rainfall measured for that day in accordance with Part 4.7.1d.

b. For snow, you must either take measurements of snowfall at your site,[71] or rely on similar information from a local weather forecasting provider that is representative of your location.

4.3 INCREASE IN INSPECTION FREQUENCY FOR CERTAIN SITES.

The increased inspection frequencies established in this Part take the place of the Part 4.2 inspection frequencies for the portion of the site affected.

4.3.1 For any portion of the site that discharges to a sediment or nutrient-impaired water or to a water that is identified by your State, Tribe, or EPA as Tier 2, Tier 2.5, or Tier 3 for antidegradation purposes (see Part 3.2), or that discharges to receiving waters located within Lands of Exclusive Federal Jurisdiction, you must conduct an inspection once every seven (7) calendar days *and* within 24 hours of the occurrence of a storm event

FOR REFERENCE ONLY

[69] For example, if 0.30 inches of rain falls on Day 1, 0.25 inches of rain falls on Day 2, and 0.10 inches of rain fall on Day 3, you would be required to conduct a first inspection within 24 hours of the Day 1 rainfall and a second inspection within 24 hours of the Day 2 rainfall, but a third inspection would not be required within 24 hours of the Day 3 rainfall.

[70] This is the amount of snow that is equivalent to 0.25 inches of rain, based on information from the National Oceanic and Atmospheric Administration (NOAA) indicating that 13 inches of snow is, on average, equivalent to 1 inch of rain. See https://www.nssl.noaa.gov/education/svrwx101/winter/faq/.

[71] For snowfall measurements, EPA suggests use of NOAA's National Weather Service guidelines at https://www.weather.gov/jkl/snow_measurement. These guidelines recommend use of a "snowboard" (a piece of wood about 16 inches by 16 inches) that is placed in an unobstructed part of the site on a hard surface.

that produces 0.25 inches or more of rain within a 24-hour period, or within 24 hours of a snowmelt discharge from a storm event that produces 3.25 inches or more of snow within a 24-hour period.

Refer to Parts 4.2.3a and 4.2.3b for the requirements to determine if a storm event produces enough rain or snow to trigger the inspection requirement.

4.3.2 **For sites discharging dewatering water,** you must conduct an inspection in accordance with Part 4.6.3 during the discharge once per day on which the discharge occurs. The Part 4.2 inspection frequency still applies to all other portions of the site, unless the site is affected by either the increased frequency in Part 4.3.1 or the reduced frequency in Part 4.4.

FOR REFERENCE ONLY

4.4 REDUCTIONS IN INSPECTION FREQUENCY

4.4.1 Stabilized areas.

a. You may reduce the frequency of inspections to twice per month for the first month, no more than 14 calendar days apart, then once per month until permit coverage is terminated consistent with Part 8 in any area of your site where the stabilization steps in Part 2.2.14a have been completed. If construction activity resumes in this portion of the site at a later date, the inspection frequency immediately increases to that required in Parts 4.2 and 4.3, as applicable. You must document the beginning and ending dates of this period in your SWPPP.

b. **Exception.** For "linear construction sites" (as defined in Appendix A) where disturbed portions have undergone final stabilization at the same time active construction continues on others, you may reduce the frequency of inspections to twice per month for the first month, no more than 14 calendar days apart, in any area of your site where the stabilization steps in Part 2.2.14a have been completed. After the first month, inspect once more within 24 hours of the occurrence of a storm event that produces 0.25 inches of rain or more within a 24-hour period, or within 24 hours of a snowmelt discharge from a storm event that produces 3.25 inches or more of snow within a 24-hour period. If there are no issues or evidence of stabilization problems, you may suspend further inspections. If "wash-out" of stabilization materials and/or sediment is observed, following re-stabilization, inspections must resume at the inspection frequency required in Part 4.4.1a. Inspections must continue until final stabilization is visually confirmed following a storm event that produces 0.25 inches of rain or more within a 24-hour period.

4.4.2 **Arid, semi-arid, or drought-stricken areas** (as defined in Appendix A). If it is the seasonally dry period[72] or a period in which drought is occurring, you may reduce the frequency of inspections to once per month and within 24 hours of the occurrence of a storm event that produces 0.25 inches of rain or more within a 24-hour period, or within 24 hours of a snowmelt discharge from a storm event that produces 3.25 inches or more of snow within a 24-hour period. You must document that you are using this reduced schedule and the beginning and ending dates of the seasonally dry period in your SWPPP. Follow the procedures in Part 4.2.3a and 4.2.3b, accordingly, to determine if a storm event occurs that produces 0.25 inches or more of rain or 3.25 inches or more of snow within a 24-hour period. For any 24-hour period during which there is 0.25 inches or more of rainfall, or 3.25

[72] See footnote 45.

inches or more of snow, you must record the total rainfall or snow measured for that day in accordance with Part 4.7.1d.

4.4.3 Frozen conditions:

a. If you are suspending construction activities due to frozen conditions, you may temporarily suspend inspections on your site until thawing conditions (as defined in Appendix A) begin to occur if:

i. Discharges are unlikely due to continuous frozen conditions that are likely to continue at your site for at least three (3) months based on historic seasonal averages.[73] If unexpected weather conditions (such as above freezing temperatures or rain events) make discharges likely, you must immediately resume your regular inspection frequency as described in Parts 4.2 and 4.3, as applicable;

ii. Land disturbances have been suspended; and

iii. All disturbed areas of the site have been stabilized in accordance with Part 2.2.14a.

b. If you are still conducting construction activities during frozen conditions, you may reduce your inspection frequency to once per month if:

i. Discharges are unlikely due to continuous frozen conditions that are likely to continue at your site for at least three (3) months based on historic seasonal averages. If unexpected weather conditions (such as above freezing temperatures or rain events) make discharges likely, you must immediately resume your regular inspection frequency as described in Parts 4.2 and 4.3, as applicable; and

ii. Except for areas in which you are actively conducting construction activities, disturbed areas of the site have been stabilized in accordance with Part 2.2.14a.

You must document the beginning and ending dates of this period in your SWPPP.

4.5 AREAS THAT MUST BE INSPECTED

During your site inspection, you must at a minimum inspect the following areas of your site:

4.5.1 All areas that have been cleared, graded, or excavated and that have not yet completed stabilization consistent with Part 2.2.14a;

4.5.2 All stormwater controls, including pollution prevention controls, installed at the site to comply with this permit;[74]

4.5.3 Material, waste, borrow, and equipment storage and maintenance areas that are covered by this permit;

4.5.4 All areas where stormwater typically flows within the site, including constructed or natural site drainage features designed to divert, convey, and/or treat stormwater;

FOR REFERENCE ONLY

[73] Use data sets that include the most recent data available to account for recent precipitation patterns and trends.

[74] This includes the requirement to inspect for sediment that has been tracked out from the site onto paved roads, sidewalks, or other paved areas consistent with Part 2.2.4.

4.5.5 All areas where construction dewatering is taking place, including controls to treat the dewatering discharge and any channelized flow of water to and from those controls;

4.5.6 All points of discharge from the site; and

4.5.7 All locations where stabilization measures have been implemented.

You are not required to inspect areas that, at the time of the inspection, are considered unsafe to your inspection personnel.

4.6 REQUIREMENTS FOR INSPECTIONS

4.6.1 During each site inspection, you must at a minimum:

a. Check whether all stormwater controls *(i.e., erosion and sediment controls and pollution prevention controls)* are properly installed, appear to be operational, and are working as intended to minimize pollutant discharges.

b. Check for the presence of conditions that could lead to spills, leaks, or other accumulations of pollutants on the site.

c. Identify any locations where new or modified stormwater controls are necessary to meet the requirements of Parts 2 and/or 3.

d. Check for signs of visible erosion and sedimentation *(i.e., sediment deposits)* that have occurred and are attributable to your discharge at points of discharge and, if applicable, on the banks of any receiving waters flowing within or immediately adjacent to the site;

e. Check for signs of sediment deposition that are visible from your site and attributable to your discharge (e.g., sand bars with no vegetation growing on top in receiving waters or in other constructed or natural site drainage features, or the buildup of sediment deposits on nearby streets, curbs, or open conveyance channels).

f. Identify any incidents of noncompliance observed.

4.6.2 If a discharge is occurring during your inspection:

a. Identify all discharge points at the site; and

b. Observe and document the visual quality of the discharge, and take note of the characteristics of the stormwater discharge, including color; odor; floating, settled, or suspended solids; foam; oil sheen; and other indicators of stormwater pollutants. Check also for signs of these same pollutant characteristics that are visible from your site and attributable to your discharge in receiving waters or in other constructed or natural site drainage features.

4.6.3 For dewatering inspections conducted pursuant to Parts 4.3.2, record the following in a report within 24 hours of completing the inspection:

a. The inspection date;

b. Names and titles of personnel making the inspection;

c. Approximate times that the dewatering discharge began and ended on the day of inspection;[75]

[75] If the dewatering discharge is a continuous discharge that continues after normal business hours,

FOR REFERENCE ONLY

d. Estimates of the rate (in gallons per day) of discharge on the day of inspection;

e. Whether or not any of the following indications of pollutant discharge were observed at the point of discharge to any receiving waters flowing through or immediately adjacent to the site and/or to constructed or natural site drainage features or storm drain inlets:[76]

i. a sediment plume, suspended solids, unusual color, presence of odor, decreased clarity, or presence of foam; and/or

ii. a visible sheen on the water surface or visible oily deposits on the bottom or shoreline of the receiving water; and

f. Photographs of (1) the dewatering water prior to treatment by a dewatering control(s) and the final discharge after treatment; (2) the dewatering control(s); and (3) the point of discharge to any receiving waters flowing through or immediately adjacent to the site and/or to constructed or natural site drainage features, storm drain inlets, and other conveyances to receiving waters.

You must also comply with the Part 4.7.2, 4.7.3, and 4.7.4 requirements for signing the reports, keeping them available on site, and retaining copies.

4.6.4 Based on the results of your inspection:

a. Complete any necessary maintenance repairs or replacements under Part 2.1.4 or under Part 5, whichever applies; and

b. Modify your SWPPP site map in accordance with Part 7.4.1 to reflect changes to your stormwater controls that are no longer accurately reflected on the current site map.

4.7 INSPECTION REPORT

4.7.1 You must complete an inspection report within 24 hours of completing any site inspection. Each inspection report (except for dewatering inspection reports, which are covered in Part 4.6.3) must include the following:

a. The inspection date;

b. Names and titles of personnel making the inspection;

c. A summary of your inspection findings, covering at a minimum the observations you made in accordance with Part 4.6, including any problems found during your inspection that make it necessary to perform routine maintenance pursuant to Part 2.1.4b or corrective action pursuant to Part 5. Include also any documentation as to why the corrective action procedures under Part 5 are unnecessary to fix a problem that repeatedly occurs as described in Part 2.1.4c;

d. If you are inspecting your site at the frequency specified in Part 4.2.2, Part 4.3, or Part 4.4.1b, and you conducted an inspection because of a storm event that produced rainfall measuring 0.25 inches or more within a 24-hour period, you must include the applicable rain gauge or weather station readings that triggered the inspection. Similarly, if you conducted an inspection because of a snowmelt discharge from a

FOR REFERENCE ONLY

indicate that the discharge is continuous.

[76] If the operator observes any of these indicators of pollutant discharge, corrective action is required consistent with Parts 5.1.5b and 5.2.2.

storm event that produced 3.25 inches or more of snow within a 24-hour period, you must include any measurements taken of snowfall at your site, or weather station information you relied on; and

e. If you determined that it is unsafe to inspect a portion of your site, you must describe the reason you found it to be unsafe and specify the locations to which this condition applies.

4.7.2 Each inspection report must be signed by the operator's signatory in accordance with Appendix G, Part G.11 of this permit.

4.7.3 You must keep a copy of all inspection reports at the site or at an easily accessible location, so that it can be made immediately available at the time of an on-site inspection or upon request by EPA.[77]

4.7.4 You must retain all inspection reports completed for this Part for at least three (3) years from the date that your permit coverage expires or is terminated.

4.8 INSPECTIONS BY EPA

You must allow EPA, or an authorized representative of EPA, to conduct the following activities at reasonable times. To the extent that you are utilizing shared controls, that are not on site, to comply with this permit, you must make arrangements for EPA to have access at all reasonable times to those areas where the shared controls are located.

4.8.1 Enter onto all areas of the site, including any construction support activity areas covered by this permit, any off-site areas where shared controls are utilized to comply with this permit, discharge locations, adjoining waterbodies, and locations where records are kept under the conditions of this permit;

4.8.2 Access and copy any records that must be kept under the conditions of this permit;

4.8.3 Inspect your construction site, including any construction support activity areas covered by this permit (see Part 1.2.1c), any stormwater controls installed and maintained at the site, and any off-site shared controls utilized to comply with this permit; and

4.8.4 Sample or monitor for the purpose of ensuring compliance.

5 CORRECTIVE ACTIONS

5.1 CONDITIONS TRIGGERING CORRECTIVE ACTION.

You must take corrective action to address any of the following conditions identified at your site:

5.1.1 A stormwater control needs a significant repair or a new or replacement control is needed, or, in accordance with Part 2.1.4c, you find it necessary to repeatedly (i.e., three (3) or more times) conduct the same routine maintenance fix to the same control at the same location (unless you document in your inspection report under Part 4.7.1c that the specific reoccurrence of this same problem should still be addressed as a routine

[77] Inspection reports may be prepared, signed, and kept electronically, rather than in paper form, if the records are: (a) in a format that can be read in a similar manner as a paper record; (b) legally dependable with no less evidentiary value than their paper equivalent; and (c) immediately accessible to the inspector during an inspection to the same extent as a paper copy stored at the site would be, if the records were stored in paper form. For additional guidance on the proper practices to follow for the electronic retention of inspection report records, refer to the Fact Sheet discussion related to Part 4.7.3.

FOR REFERENCE ONLY

maintenance fix under Part 2.1.4); or

5.1.2 A stormwater control necessary to comply with the requirements of this permit was never installed, or was installed incorrectly; or

5.1.3 Your discharges are not meeting applicable water quality standards;

5.1.4 A prohibited discharge has occurred (see Part 1.3); or

5.1.5 During discharge from site dewatering activities:

a. The weekly average of your turbidity monitoring results exceeds the 50 NTU benchmark (or alternate benchmark if approved by EPA pursuant to Part 3.3.2b); or

b. You observe or you are informed by EPA, State, or local authorities of the presence of the conditions specified in Part 4.6.3e.

5.2 CORRECTIVE ACTION DEADLINES

5.2.1 If responding to any of the Part 5.1.1, 5.1.2, 5.1.3, or 5.1.4 triggering conditions, you must:

a. Immediately take all reasonable steps to address the condition, including cleaning up any contaminated surfaces so the material will not discharge in subsequent storm events; and

b. When the problem does not require a new or replacement control or significant repair, the corrective action must be completed by the close of the next business day; or

c. When the problem requires a new or replacement control or significant repair, install the new or modified control and make it operational, or complete the repair, by no later than seven (7) calendar days from the time of discovery. If it is infeasible to complete the installation or repair within seven (7) calendar days, you must document in your records why it is infeasible to complete the installation or repair within the 7-day timeframe and document your schedule for installing the stormwater control(s) and making it operational as soon as feasible after the 7-day timeframe. Where these actions result in changes to any of the stormwater controls or procedures documented in your SWPPP, you must modify your SWPPP accordingly within seven (7) calendar days of completing this work.

5.2.2 If responding to either of the Part 5.1.5 triggering conditions related to site dewatering activities, you must:

a. Immediately take all reasonable steps to minimize or prevent the discharge of pollutants until you can implement a solution, including shutting off the dewatering discharge as soon as possible depending on the severity of the condition[78] taking safety considerations into account;

b. Determine whether the dewatering controls are operating effectively and whether they are causing the conditions; and

[78] For instance, if the weekly average of your turbidity monitoring results or a single sample is extremely high (e.g., a single turbidity sample results in 355 NTUs or higher), you should take action to safely shut off the discharge so that you can evaluate the cause of the high turbidity. Note: A single turbidity sample of 355 NTUs or higher means that the weekly average turbidity value will exceed 50 NTU regardless of the turbidity values the other days during the week.

FOR REFERENCE ONLY

c. Make any necessary adjustments, repairs, or replacements to the dewatering controls to lower the turbidity levels below the benchmark or remove the visible plume or sheen.

When you have completed these steps and made any changes deemed necessary, you may resume discharging from your dewatering activities.

5.3 CORRECTIVE ACTION REQUIRED BY EPA

You must comply with any corrective actions required by EPA as a result of permit violations found during an inspection carried out under Part 4.8.

5.4 CORRECTIVE ACTION LOG

5.4.1 For each corrective action taken in accordance with this Part, you must record the following in a corrective action log:

a. Within 24 hours of identifying the corrective action condition, document the specific condition and the date and time it was identified.

b. Within 24 hours of completing the corrective action (in accordance with the deadlines in Part 5.2), document the actions taken to address the condition, including whether any SWPPP modifications are required.

5.4.2 Each entry into the corrective action log, consisting of the information required by both Parts 5.4.1a and 5.4.1b, must be signed by the operator's signatory in accordance with Appendix G, Part G.11.2 of this permit.

5.4.3 You must keep a copy of the corrective action log at the site or at an easily accessible location, so that it can be made immediately available at the time of an on-site inspection or upon request by EPA.[79]

5.4.4 You must retain the corrective action log for at least three (3) years from the date that your permit coverage expires or is terminated.

6 STORMWATER TEAM FORMATION/STAFF TRAINING REQUIREMENTS

6.1 STORMWATER TEAM

Each operator, or group of multiple operators, must assemble a "stormwater team" that will be responsible for carrying out activities necessary to comply with this permit. The stormwater team must include the following people:

a. Personnel who are responsible for the design, installation, maintenance, and/or repair of stormwater controls (including pollution prevention controls);

b. Personnel responsible for the application and storage of treatment chemicals (if applicable);

c. Personnel who are responsible for conducting inspections as required in Part 4.1; and

[79] The corrective action log may be prepared, signed, and kept electronically, rather than in paper form, if the records are: (a) in a format that can be read in a similar manner as a paper record; (b) legally dependable with no less evidentiary value than their paper equivalent; and (c) immediately accessible to the inspector during an inspection to the same extent as a paper copy stored at the site would be, if the records were stored in paper form. For additional guidance on the proper practices to follow for the electronic retention of corrective action log records, refer to the Fact Sheet discussion related to Part 4.7.3.

FOR REFERENCE ONLY

d. Personnel who are responsible for taking corrective actions as required in Part 5.

Members of the stormwater team must be identified in the SWPPP pursuant to Part 7.2.2.

6.2 GENERAL TRAINING REQUIREMENTS FOR STORMWATER TEAM MEMBERS

Prior to the commencement of construction activities, you must ensure that all persons[80] assigned to the stormwater team understand the requirements of this permit and their specific responsibilities with respect to those requirements, including the following related to the scope of their job duties:

a. The permit requirements and deadlines associated with installation, maintenance, and removal of stormwater controls, as well as site stabilization;

b. The location of all stormwater controls on the site required by this permit and how they are to be maintained;

c. The proper procedures to follow with respect to the permit's pollution prevention requirements; and

d. When and how to conduct inspections, record applicable findings, and take corrective actions. Specific training requirements for persons conducting site inspections are included in Part 6.3.

You are responsible for ensuring that all activities on the site comply with the requirements of this permit. You are not required to provide or document formal training for subcontractors or other outside service providers (unless the subcontractors or outside service providers are responsible for conducting the inspections required in Part 4, in which case you must provide such documentation consistent with Part 7.2.2), but you must ensure that such personnel understand any requirements of this permit that may be affected by the work they are subcontracted to perform.

6.3 TRAINING REQUIREMENTS FOR PERSONS CONDUCTING INSPECTIONS

For projects that receive coverage under this permit on or after February 17, 2023, to be considered a qualified person under Part 4.1 for conducting inspections under Part 4, you must, at a minimum, either:

a. Have completed the EPA construction inspection course developed for this permit and have passed the exam; or

b. Hold a current valid construction inspection certification or license from a program that, at a minimum, covers the following:[81]

i. Principles and practices of erosion and sediment control and pollution prevention practices at construction sites;

ii. Proper installation and maintenance of erosion and sediment controls and pollution prevention practices used at construction sites; and

FOR REFERENCE ONLY

[80] If the person requiring training is a new employee who starts after you commence construction activities, you must ensure that this person has the proper understanding as required above prior to assuming particular responsibilities related to compliance with this permit. For emergency-related projects, the requirement to train personnel prior to commencement of construction activities does not apply, however, such personnel must have the required training prior to NOI submission.

[81] If one of the following topics (e.g., installation and maintenance of pollution prevention practices) is not covered by the non-EPA training program, you may consider supplementing the training with the analogous module of the EPA course (e.g., Module 4) that covers the missing topic.

iii. Performance of inspections, including the proper completion of required reports and documentation, consistent with the requirements of Part 4.

For projects that receive coverage under this permit prior to February 17, 2023, any personnel conducting site inspections pursuant to Part 4 on your site must, at a minimum, be a person knowledgeable in the principles and practice of erosion and sediment controls and pollution prevention, who possesses the appropriate skills and training to assess conditions at the construction site that could impact stormwater quality, and the appropriate skills and training to assess the effectiveness of any stormwater controls selected and installed to meet the requirements of this permit.[82]

6.4 STORMWATER TEAM'S ACCESS TO PERMIT DOCUMENTS

Each member of the stormwater team must have easy access to an electronic or paper copy of applicable portions of this permit, the most updated copy of your SWPPP, and other relevant documents or information that must be kept with the SWPPP.

7 STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

7.1 GENERAL REQUIREMENTS

All operators associated with a construction site under this permit must develop a SWPPP consistent with the requirements in Part 7 prior to their submittal of the NOI.[83, 84, 85] The SWPPP must be kept up-to-date throughout coverage under this permit.

If a SWPPP was prepared under a previous version of this permit, the operator must review and update the SWPPP to ensure that this permit's requirements are addressed prior to submitting an NOI for coverage under this permit.

FOR REFERENCE ONLY

[82] If you receive coverage for a project prior to February 17, 2023, and construction activities for the same project will continue after February 17, 2023, the personnel conducting inspections do not need to take the additional training specified in Parts 6.3a and 6.3b for inspections conducted on the project site. If the same operator obtains coverage for a different project on or after February 17, 2023, personnel conducting inspections would be required to meet the requirements for a qualified person by completing the training in either Part 6.3a or Part 6.3b.

[83] The SWPPP does not establish the effluent limits and/or other permit terms and conditions that apply to your site's discharges; these limits, terms, and conditions are established in this permit.

[84] Where there are multiple operators associated with the same site, they may develop a group SWPPP instead of multiple individual SWPPPs. Regardless of whether there is a group SWPPP or multiple individual SWPPPs, each operator is responsible for compliance with the permit's terms and conditions. In other words, if Operator A relies on Operator B to satisfy its permit obligations, Operator A does not have to duplicate those permit-related functions if Operator B is implementing them such that both operators are in compliance with the permit. However, Operator A remains responsible for permit compliance if Operator B fails to take actions necessary for Operator A to comply with the permit. In addition, all operators must ensure, either directly or through coordination with other operators, that their activities do not cause a violation or compromise any other operators' controls and/or any shared controls. See also footnote 61.

[85] There are a number of commercially available products to assist operators in developing the SWPPP, as well as companies that can be hired to help develop a site-specific SWPPP. The permit does not state which are recommended, nor does EPA endorse any specific products or vendors. Where operators choose to rely on these products or services, the choice of which ones to use to comply with the requirements of this Part is a decision for the operator alone.

7.2 SWPPP CONTENTS

At a minimum, the SWPPP must include the information specified in this Part and as specified in other parts of this permit.

7.2.1 All Site Operators. Include a list of all other operators who will be engaged in construction activities at the site, and the areas of the site over which each operator has control.

7.2.2 Stormwater Team. Identify the personnel (by name and position) that you have made part of the stormwater team pursuant to Part 6.1, as well as their individual responsibilities, including which members are responsible for conducting inspections.

Include verification that each member of the stormwater team has received the training required by Part 6.2. Include documentation that members of the stormwater team responsible for conducting inspections pursuant to Part 4 have received the training required by Part 6.3. If personnel on your team elect to complete the EPA inspector training program pursuant to Part 6.3a, you must include copies of the certificate showing that the relevant personnel have completed the training and passed the exam. If personnel on your team elect to complete a non-EPA inspector training program pursuant to Part 6.3b, you must include documentation showing that these persons have successfully completed the program and their certification or license is still current. You must also confirm that the non-EPA inspector training program satisfies the minimum elements for such programs in Part 6.3b.

7.2.3 Nature of Construction Activities. Include the following:

- **a.** A description of the nature of your construction activities, including the age or dates of past renovations for structures that are undergoing demolition;
- **b.** The size of the property (in acres or length in miles if a linear construction site);
- **c.** The total area expected to be disturbed by the construction activities (to the nearest quarter acre or nearest quarter mile if a linear construction site);
- **d.** A description of any on-site and off-site construction support activity areas covered by this permit (see Part 1.2.1c);
- **e.** The maximum area expected to be disturbed at any one time, including on-site and off-site construction support activity areas;
- **f.** A description and projected schedule for the following:[86]
  - **i.** Commencement of construction activities in each portion of the site, including clearing and grubbing, mass grading, demolition activities, site preparation (i.e., excavating, cutting and filling), final grading, and creation of soil and vegetation stockpiles requiring stabilization;
  - **ii.** Temporary or permanent cessation of construction activities in each portion of the site;
  - **iii.** Temporary or final stabilization of exposed areas for each portion of the site; and
  - **iv.** Removal of temporary stormwater controls and construction equipment or vehicles, and the cessation of construction-related pollutant-generating activities.

[86] If plans change due to unforeseen circumstances or for other reasons, the requirement to describe the sequence and estimated dates of construction activities is not meant to "lock in" the operator to meeting these dates. When departures from initial projections are necessary, this should be documented in the SWPPP itself, or in associated records, as appropriate.

FOR REFERENCE ONLY

g. A list and description of all pollutant-generating activities[87] on the site. For each pollutant-generating activity, include an inventory of pollutants or pollutant constituents (e.g., *sediment, fertilizers, pesticides, paints, caulks, sealants, fluorescent light ballasts, contaminated substrates, solvents, fuels*) associated with that activity, which could be discharged in stormwater from your construction site. You must take into account where potential spills and leaks could occur that contribute pollutants to stormwater discharges, and any known hazardous or toxic substances, such as PCBs and asbestos, that will be disturbed or removed during construction;

h. Business days and hours for the project;

i. If you are conducting construction activities in response to a public emergency (see Part 1.4), a description of the cause of the public emergency (e.g., *mud slides, earthquake, extreme flooding conditions, widespread disruption in essential public services)*, information substantiating its occurrence (e.g., *State disaster declaration or similar State or local declaration)*, and a description of the construction necessary to reestablish affected public services.

7.2.4 Site Map. Include a legible map, or series of maps, showing the following features of the site:

a. Boundaries of the property;

b. Locations where construction activities will occur, including:

i. Locations where earth-disturbing activities will occur (note any phasing), including any demolition activities;

ii. Approximate slopes before and after major grading activities (note any steep slopes (as defined in Appendix A));

iii. Locations where sediment, soil, or other construction materials will be stockpiled;

iv. Any receiving water crossings;

v. Designated points where vehicles will exit onto paved roads;

vi. Locations of structures and other impervious surfaces upon completion of construction; and

vii. Locations of on-site and off-site construction support activity areas covered by this permit (see Part 1.2.1c).

c. Locations of any receiving waters within the site and all receiving waters within one mile downstream of the site's discharge point(s). Also identify if any of these receiving waters are listed as impaired or are identified as a Tier 2, Tier 2.5, or Tier 3 water;

d. Any areas of Federally listed critical habitat within the action area of the site as defined in Appendix A;

e. Type and extent of pre-construction cover on the site (e.g., vegetative cover, forest, pasture, pavement, structures);

f. Drainage patterns of stormwater and authorized non-stormwater before and after major grading activities;

FOR REFERENCE ONLY

[87] Examples of pollutant-generating activities include paving operations; concrete, paint, and stucco washout and waste disposal; solid waste storage and disposal; and dewatering activities.

g. Stormwater and authorized non-stormwater discharge locations, including:

i. Locations where stormwater and/or authorized non-stormwater will be discharged to storm drain inlets, including a notation of whether the inlet conveys stormwater to a sediment basin, sediment trap, or similarly effective control;[88]

ii. Locations where stormwater or authorized non-stormwater will be discharged directly to receiving waters (i.e., not via a storm drain inlet); and

iii. Locations where turbidity benchmark monitoring will take place to comply with Part 3.3, if applicable to your site.

h. Locations of all potential pollutant-generating activities identified in Part 7.2.3g;

i. Designated areas where construction wastes that are covered by the exception in Part 2.3.3e.ii because they are not pollutant-generating will be stored;

j. Locations of stormwater controls, including natural buffer areas and any shared controls utilized to comply with this permit; and

k. Locations where polymers, flocculants, or other treatment chemicals will be used and stored.

7.2.5 Non-Stormwater Discharges. Identify all authorized non-stormwater discharges in Part 1.2.2 that will or may occur.

7.2.6 Description of Stormwater Controls.

a. For each of the Part 2.2 erosion and sediment control requirements, Part 2.3 pollution prevention requirements, and Part 2.4 construction dewatering requirements, as applicable to your site, you must include the following:

i. A description of the specific control(s) to be implemented to meet these requirements;

ii. The design specifications for controls described in Part 7.2.6a.i (including references to any manufacturer specifications and/or erosion and sediment control manuals/ordinances relied upon);[89]

iii. Routine stormwater control maintenance specifications; and

iv. The projected schedule for stormwater control installation/implementation.

b. You must also include any of the following additional information as applicable.

i. Natural buffers and/or equivalent sediment controls (see Part 2.2.1 and Appendix F). You must include the following:

(a) The compliance alternative to be implemented;

(b) If complying with alternative 2, the width of natural buffer retained;

FOR REFERENCE ONLY

[88] The requirement to show storm drain inlets in the immediate vicinity of the site on your site map only applies to those inlets that are easily identifiable from your site or from a publicly accessible area immediately adjacent to your site.

[89] Design specifications may be found in manufacturer specifications and/or in applicable erosion and sediment control manuals or ordinances. Any departures from such specifications must reflect good engineering practice and must be explained in the SWPPP.

(c) If complying with alternative 2 or 3, the erosion and sediment control(s) you will use to achieve an equivalent sediment reduction, and any information you relied upon to demonstrate the equivalency;

(d) If complying with alternative 3, a description of why it is infeasible for you to provide and maintain an undisturbed natural buffer of any size;

(e) For "linear construction sites" where it is infeasible to implement compliance alternative 1, 2, or 3, a rationale for this determination, and a description of any buffer width retained and/or supplemental erosion and sediment controls installed; and

(f) A description of any disturbances that are exempt under Part 2.2.1 that occur within 50 feet of a receiving water.

ii. Perimeter controls for a "linear construction site" (see Part 2.2.3d). For areas where perimeter controls are not feasible, include documentation to support this determination and a description of the other practices that will be implemented to minimize discharges of pollutants in stormwater associated with construction activities.

Note: Routine maintenance specifications for perimeter controls documented in the SWPPP must include the Part 2.2.3c.i requirement that sediment be removed before it has accumulated to one-half of the above-ground height of any perimeter control.

iii. Sediment track-out controls (see Parts 2.2.4b and 2.2.4c)**.** Document the specific stabilization techniques and/or controls that will be implemented to remove sediment prior to vehicle exit.

iv. Inlet protection measures (see Part 2.2.10a). Where inlet protection measures are not required because the storm drain inlets to which your site discharges are conveyed to a sediment basin, sediment trap, or similarly effective control, include a short description of the control that receives the stormwater flow from the site.

v. Sediment basins (see Part 2.2.12). In circumstances where it is infeasible to utilize outlet structures that withdraw water from the surface, include documentation to support this determination, including the specific conditions or time periods when this exception will apply.

vi. Treatment chemicals (see Part 2.2.13), you must include the following:

(a) A listing of the soil types that are expected to be exposed during construction in areas of the project that will drain to chemical treatment systems. Also include a listing of soil types expected to be found in fill material to be used in these same areas, to the extent you have this information prior to construction;

(b) A listing of all treatment chemicals to be used at the site and why the selection of these chemicals is suited to the soil characteristics of your site;

(c) If the applicable EPA Regional Office authorized you to use cationic treatment chemicals for sediment control, include the specific controls and implementation procedures designed to ensure that your use of cationic

FOR REFERENCE ONLY

treatment chemicals will not lead to a discharge that does not meet water quality standards;

(d) The dosage of all treatment chemicals to be used at the site or the methodology to be used to determine dosage;

(e) Information from any applicable Safety Data Sheet (SDS);

(f) Schematic drawings of any chemically enhanced stormwater controls or chemical treatment systems to be used for application of the treatment chemicals;

(g) A description of how chemicals will be stored consistent with Part 2.2.13c;

(h) References to applicable State or local requirements affecting the use of treatment chemicals, and copies of applicable manufacturer's specifications regarding the use of your specific treatment chemicals and/or chemical treatment systems; and

(i) A description of the training that personnel who handle and apply chemicals have received prior to permit coverage, or will receive prior to use of the treatment chemicals at your site.

vii. Stabilization measures (see Part 2.2.14). You must include the following:

(a) The specific vegetative and/or non-vegetative practices that will be used;

(b) The stabilization deadline that will be met in accordance with Part 2.2.14;

(c) If complying with the deadlines for sites in arid, semi-arid, or drought-stricken areas, the beginning and ending dates of the seasonally dry period (as defined in Appendix A)[90] and the schedule you will follow for initiating and completing vegetative stabilization; and

(d) If complying with deadlines for sites affected by unforeseen circumstances that delay the initiation and/or completion of vegetative stabilization, document the circumstances and the schedule for initiating and completing stabilization.

viii. Spill prevention and response procedures (see Parts 1.3.5, 2.3.3c, 2.3.3d, and 2.3.6). You must include the following:

(a) Procedures for expeditiously stopping, containing, and cleaning up spills, leaks, and other releases. Identify the name or position of the employee(s) responsible for detection and response of spills or leaks; and

(b) Procedures for notification of appropriate facility personnel, emergency response agencies, and regulatory agencies where a leak, spill, or other release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity consistent with Part 2.3.6 and established under either 40 CFR part 110, 40 CFR part 117, or 40 CFR part 302, occurs

FOR REFERENCE ONLY

[90] See footnote 45.

during a 24-hour period. Contact information must be in locations that are readily accessible and available to all employees.

You may also reference the existence of SPCC plans developed for the construction activity under Section 311 of the CWA, or spill control programs otherwise required by an NPDES permit for the construction activity, provided that you keep a copy of that other plan on site.[91]

ix. Waste management procedures (see Part 2.3.3). Describe the procedures you will follow for handling, storing, and disposing of all wastes generated at your site consistent with all applicable Federal, State, Tribal, and local requirements, including clearing and demolition debris, sediment removed from the site, construction and domestic waste, hazardous or toxic waste, and sanitary waste. You must also include the following additional information:

(a) If site constraints prevent you from storing chemical containers 50 feet away from receiving waters or the other site drainage features as required in Part 2.3.3c.ii(b), document in your SWPPP the specific reasons why the 50-foot setback is not feasible, and how you will store containers as far away as the site permits; and

(b) If there are construction wastes that are subject to the exception in Part 2.3.3e.ii, describe the specific wastes that will be stored on your site.

x. Application of fertilizers (see Part 2.3.5). Document any departures from the manufacturer specifications where appropriate.

7.2.7 Procedures for Inspection, Maintenance, and Corrective Action. Describe the procedures you will follow for maintaining your stormwater controls, conducting site inspections, and, where necessary, taking corrective actions, in accordance with Part 2.1.4, Part 4, and Part 5 of this permit, accordingly. Also include:

a. The inspection schedule you will follow, which is based on whether your site is subject to Part 4.2 or Part 4.3, or whether your site qualifies for any of the reduced inspection frequencies in Part 4.4;

b. If you will be conducting inspections in accordance with the inspection schedule in Part 4.2.2, Part 4.3, or Part 4.4.1b, the location of the rain gauge or the address of the weather station you will be using to obtain rainfall data;

c. If you will be reducing your inspection frequency in accordance with Part 4.4.1b, the beginning and ending dates of the seasonally defined arid period for your area or the valid period of drought;

d. If you will be reducing your inspection frequency in accordance with Part 4.4.3, the beginning and ending dates of frozen conditions on your site; and

e. Any maintenance or inspection checklists or other forms that will be used.

7.2.8 Procedures for Turbidity Benchmark Monitoring from Dewatering Discharges (if applicable). If you are required to comply with the Part 3.3 turbidity benchmark

[91] Even if you already have an SPCC or other spill prevention plan in existence, your plans will only be considered adequate if they meet all of the requirements of this Part, either as part of your existing plan or supplemented as part of the SWPPP.

FOR REFERENCE ONLY

monitoring requirements, describe the procedures you will follow to collect and evaluate samples, report results to EPA and keep records of monitoring information, and take corrective action when necessary. Include the specific type of turbidity meter you will use for monitoring, as well as any manuals or manufacturer instructions on how to operate and calibrate the meter. Describe any coordinating arrangement you may have with any other permitted operators on the same site with respect to compliance with the turbidity monitoring requirements, including which parties are tasked with specific responsibilities. If EPA has approved of an alternate turbidity benchmark pursuant to Part 3.3.2b, include any data and other documentation you relied on to request use of the specific alternative benchmark.

7.2.9 Compliance with Other Requirements.

a. Threatened and Endangered Species Protection. Include documentation required in the Endangered Species Protection section of the NOI in NeT or the ESA worksheet in Appendix D, supporting your eligibility with regard to the protection of threatened and endangered species and designated critical habitat.

b. Historic Properties. Include documentation required in Appendix E supporting your eligibility with regard to the protection of historic properties.

c. Safe Drinking Water Act Underground Injection Control (UIC) Requirements for Certain Subsurface Stormwater Controls. If you are using any of the following stormwater controls at your site, document any contact you have had with the applicable State agency[92] or EPA Regional Office responsible for implementing the requirements for underground injection wells in the Safe Drinking Water Act and EPA's implementing regulations at 40 CFR § 144-147. Such controls would generally be considered Class V UIC wells:

i. Infiltration trenches (if stormwater is directed to any bored, drilled, driven shaft or dug hole that is deeper than its widest surface dimension, or has a subsurface fluid distribution system);

ii. Commercially manufactured pre-cast or pre-built proprietary subsurface detention vaults, chambers, or other devices designed to capture and infiltrate stormwater flow; and

iii. Drywells, seepage pits, or improved sinkholes (if stormwater is directed to any bored, drilled, driven shaft or dug hole that is deeper than its widest surface dimension, or has a subsurface fluid distribution system).

7.2.10 SWPPP Certification. Your signatory must sign and date your SWPPP in accordance with Appendix G, Part G.11.

7.2.11 Post-Authorization Additions to the SWPPP. Once you are authorized for coverage under this permit, you must include the following documents as part of your SWPPP:

a. A copy of your NOI submitted to EPA along with any correspondence exchanged between you and EPA related to coverage under this permit;

b. A copy of the acknowledgment letter you receive from NeT assigning your NPDES ID (i.e., *permit tracking number*);

[92] For State UIC program contacts, refer to the following EPA website: https://www.epa.gov/uic.

FOR REFERENCE ONLY

c. A copy of this permit (an electronic copy easily available to the stormwater team is also acceptable).

7.3 ON-SITE AVAILABILITY OF YOUR SWPPP

You must keep a current copy of your SWPPP at the site or at an easily accessible location so that it can be made available at the time of an on-site inspection or upon request by EPA; a State, Tribal, or local agency approving stormwater management plans; the operator of a storm sewer system receiving discharges from the site; or representatives of the U.S. Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service (NMFS).[93]

EPA may provide access to portions of your SWPPP to a member of the public upon request. Confidential Business Information (CBI) will be withheld from the public, but may not be withheld from EPA, USFWS, or NMFS.[94]

If an on-site location is unavailable to keep the SWPPP when no personnel are present, notice of the plan's location must be posted near the main entrance of your construction site.

7.4 SWPPP MODIFICATIONS

7.4.1 You must modify your SWPPP, including the site map(s), within seven (7) days of any of the following conditions:

a. Whenever new operators become active in construction activities on your site, or you make changes to your construction plans, stormwater controls, or other activities at your site that are no longer accurately reflected in your SWPPP. This includes changes made in response to corrective actions triggered under Part 5. You do not need to modify your SWPPP if the estimated dates in Part 7.2.3f change during the course of construction;

b. To reflect areas on your site map where operational control has been transferred (and the date of transfer) since initiating permit coverage;

c. If inspections or investigations by EPA or its authorized representatives determine that SWPPP modifications are necessary for compliance with this permit;

d. Where EPA determines it is necessary to install and/or implement additional controls at your site in order to meet the requirements of this permit, the following must be included in your SWPPP:

i. A copy of any correspondence describing such measures and requirements; and

FOR REFERENCE ONLY

[93] The SWPPP may be prepared, signed, and kept electronically, rather than in paper form, if the records are: (a) in a format that can be read in a similar manner as a paper record; (b) legally dependable with no less evidentiary value than their paper equivalent; and (c) immediately accessible to the inspector during an inspection to the same extent as a paper copy stored at the site would be, if the records were stored in paper form. For additional guidance on the proper practices to follow for the electronic retention of the SWPPP, refer to the Fact Sheet discussion related to Part 4.7.3.

[94] Information covered by a claim of confidentiality will be disclosed by EPA only to the extent of, and by means of, the procedures set forth in 40 CFR part 2, Subpart B. In general, submitted information protected by a business confidentiality claim may be disclosed to other employees, officers, or authorized representatives of the United States concerned with implementing the CWA. The authorized representatives, including employees of other executive branch agencies, may review CBI during the course of reviewing draft regulations.

ii. A description of the controls that will be used to meet such requirements.

e. To reflect any revisions to applicable Federal, State, Tribal, or local requirements that affect the stormwater controls implemented at the site; and

f. If applicable, if a change in chemical treatment systems or chemically enhanced stormwater control is made, including use of a different treatment chemical, different dosage rate, or different area of application.

7.4.2 You must maintain records showing the dates of all SWPPP modifications. The records must include the name of the person authorizing each change (see Part 7.2.9 above) and a brief summary of all changes.

7.4.3 All modifications made to the SWPPP consistent with Part 7.4 must be authorized by a person identified in Appendix G, Part G.11.b.

7.4.4 Upon determining that a modification to your SWPPP is required, if there are multiple operators covered under this permit, you must immediately notify any operators who may be impacted by the change to the SWPPP.

8 HOW TO TERMINATE COVERAGE

Until you terminate coverage under this permit, you must comply with all conditions and effluent limitations in the permit. To terminate permit coverage, you must submit to EPA a complete and accurate Notice of Termination (NOT), which certifies that you have met the requirements for terminating in Part 8.

8.1 MINIMUM INFORMATION REQUIRED IN NOT

8.1.1 NPDES ID (i.e*., permit tracking number)* provided by EPA when you received coverage under this permit;

8.1.2 Basis for submission of the NOT (see Part 8.2);

8.1.3 Operator contact information;

8.1.4 Name of site and address (or a description of location if no street address is available); and

8.1.5 NOT certification.

8.2 CONDITIONS FOR TERMINATING CGP COVERAGE

You may terminate CGP coverage only if one or more of the conditions in Parts 8.2.1, 8.2.2, or 8.2.3 has occurred. Until your termination is effective consistent with Part 8.5, you must continue to comply with the conditions of this permit.

8.2.1 You have completed all construction activities at your site and, if applicable, construction support activities covered by this permit (see Part 1.2.1c), and you have met all of the following requirements:

a. For any areas that (1) were disturbed during construction, (2) are not covered by permanent structures, and (3) over which you had control during the construction activities, you have met the requirements for final vegetative or non-vegetative stabilization in Part 2.2.14c.

To document that you have met these stabilization requirements, you must take either ground or aerial photographs that show your site's compliance with the Part 2.2.14 stabilization requirements and submit them with your NOT. If any portion of your

FOR REFERENCE ONLY

site is covered by one of the exceptions in Part 2.2.14c.iii, indicate which exception applies and include a supplementary explanation with your photographs that provides the necessary context for why this portion of the site is in compliance with the final stabilization criteria even though it appears to be unstabilized. You are not required to take photographs of every distinct part of your site that is being stabilized, however, the conditions of the site portrayed in any photographs that are submitted must be substantially similar[95] to those of the areas that are not photographed. You must also comply with the following related to these photographs:

i. Take photographs both before and after the site has met the final stabilization criteria in Part 2.2.14c;

ii. All photographs must be clear and in focus, and in the original format and resolution; and

iii. Include the date each photograph was taken, and a brief description of the area of the site captured by the photograph (e.g., photo shows application of seed and erosion control mats to remaining exposed surfaces on northeast corner of site).

b. You have removed and properly disposed of all construction materials, waste and waste handling devices, and have removed all equipment and vehicles that were used during construction, unless intended for long-term use following your termination of permit coverage;

c. You have removed all stormwater controls that were installed and maintained during construction, except those that are intended for long-term use following your termination of permit coverage or those that are biodegradable (as defined in Appendix A); and

d. You have removed all potential pollutants and pollutant-generating activities associated with construction, unless needed for long-term use following your termination of permit coverage; or

8.2.2 You have transferred control of all areas of the site for which you are responsible under this permit to another operator, and that operator has submitted an NOI and obtained coverage under this permit; or

8.2.3 Coverage under an individual or alternative general NPDES permit has been obtained.

8.3 HOW TO SUBMIT YOUR NOT

You must use EPA's NPDES eReporting Tool (NeT) to electronically prepare and submit an NOT for the 2022 CGP.

To access NeT, go to https://cdx.epa.gov/cdx.

Waivers from electronic reporting may be granted as specified in Part 1.4.2. If the EPA Regional Office grants you approval to use a paper NOT, and you elect to use it, you must complete the form in Appendix I.

[95] Stabilization conditions that are substantially similar would include areas that are using the same type of stabilization measures and that have similar slopes, soils, and topography, and have achieved the same level of stabilization.

FOR REFERENCE ONLY

8.4 DEADLINE FOR SUBMITTING THE NOT

You must submit an NOT within 30 calendar days after any one of the conditions in Part 8.2 occurs.

8.5 EFFECTIVE DATE OF TERMINATION OF COVERAGE

Your authorization to discharge under this permit terminates at midnight of the calendar day that a complete NOT is submitted to EPA.

9 PERMIT CONDITIONS APPLICABLE TO SPECIFIC STATES, INDIAN COUNTRY LANDS, OR TERRITORIES

The provisions in this Part provide additions to the applicable conditions of this permit to reflect specific additional conditions required as part of the State or Tribal CWA Section 401 certification process, or the Coastal Zone Management Act (CZMA) certification process, or as otherwise established by the permitting authority. The specific additional revisions and requirements only apply to activities in those specific States, Indian country, and areas in certain States with Federal Facilities or areas subject to construction projects by Federal Operators. States, Indian country, and other areas not included in this Part do not have any additions to the applicable conditions of this permit.

9.1 EPA REGION 1

9.1.1 NHR100000 State of New Hampshire

a. Should the permit coverage for an individual applicant be insufficient to achieve water quality standards, the New Hampshire Department of Environmental Services (NHDES) may prepare additional 401 certification conditions for that applicant. Any additional 401 certification conditions will follow all required NHDES public participation requirements.

b. If you disturb 100,000 square feet or more of contiguous area, you must also comply with RSA 485-A:17 and Env-Wq 1500, and, unless exempt, apply for an Alteration of Terrain (AoT) permit from NHDES. This requirement also applies to a lower disturbance threshold of 50,000 square feet or more when construction occurs within the protected shoreline under the Shoreland Water Quality Protection Act (see RSA 483-B and Env-Wq 1400). A permit application must also be filed if your project disturbs an area of greater than 2,500 square feet, is within 50 feet of any surface water, and has a flow path of 50 feet or longer disturbing a grade of 25 percent or greater. Project sites with disturbances smaller than those discussed above, that have the potential to adversely affect state surface waters, are subject to the conditions of an AoT General Permit by Rule (Env-Wq 1503.03).

c. You must determine that any excavation dewatering discharges are not contaminated before they will be authorized as an allowable non-stormwater discharge under this permit (see Part 1.2.2 of the Construction General Permit or CGP). In the absence of information demonstrating otherwise, the water is considered uncontaminated if there is no groundwater contamination within 1,000 feet of the groundwater dewatering location. Information on groundwater contamination can be generated over the Internet via the NHDES web site http:// des.nh.gov/ by using the One Stop Data Mapper. For a toxic substance included in the New Hampshire surface water quality standards, see Env-Wq 1703.21 (see https://www.des.nh.gov/sites/g/fi1es/ehbemt 341/files/documents/2020-01/Env-Wg

FOR REFERENCE ONLY

1700.pdf). If it is determined that the groundwater to be dewatered is near a remediation or other waste site, you must apply for the Remediation General Permit (see https://www3.epa.gov/region1/npdes/rgp.html)

d. As a minimum, you must treat any uncontaminated excavation "dewatering" discharges and "stormwater" discharges, as those terms are defined in Appendix A of the CGP, as necessary, to remove suspended solids and turbidity so that the surface waters receiving the construction discharges[96] meet New Hampshire surface water quality standards for turbidity (Env-Wq 1703.11 and Env-Wq 1703.03(c)(1)c), benthic deposits (Env-Wq 1703.03(c)(1)a), and Env-Wq 1703.08) and foam, debris, scum or other visible substances (i.e., plumes or visual turbidity)[97] (Env-Wq 1703.03(c)(1)b).

i. For all Construction Activities covered under this CGP, the following shall apply to ensure compliance with the aforementioned regulations for turbidity, benthic deposits and visible substances:

Unless otherwise specified, site inspection requirements shall comply with Part 4 of the CGP. As a minimum site inspection frequency shall be in accordance with Part 4.2.2 of the CGP (and Part 4.3.2 of the CGP for sites discharging dewatering water). Site inspection frequency may be reduced in accordance with Part 4.4 of the CGP (Reductions in Inspection Frequency). Monitoring of the receiving water for visible turbidity and benthic sediment deposits shall be conducted each site inspection and results reported in the Inspection Report required in Part 4.7 of the CGP. Should visible turbidity or benthic sediment deposits attributable or partly attributable to your construction activities be present in the receiving water, the "Corrective Actions" specified in Part 5 shall be immediately implemented to correct the water quality standard violations. In addition, daily monitoring (including photographs) of the receiving water shall be conducted until there is no visible turbidity or benthic deposits. Inspection Reports required in Part 4.7 of the CGP shall include, but not be limited to, the distance downstream and the percent of the river width[98] where visible turbidity was observed, and the period of time that the visible turbidity persisted. A copy of the Inspection Report(s) shall be made available to NHDES within 24 hours of receiving a written request from NHDES.

ii. For Construction Activities, disturbing 5 acres or more of land at any one time (excluding areas that have been completely stabilized in accordance with the final stabilization criteria specified in Part 2.2.14.c of the CGP), the following shall

FOR REFERENCE ONLY

[96] Construction Discharges include uncontaminated "dewatering" and "stormwater" discharges as those terms are defined in Appendix A of the CGP. Controlled construction discharges are construction discharges where the rate of flow can be regulated such as from a construction settling basin or NHDES approved flocculation system.

[97] For the definition of visual turbidity, see the definition for "Non-Turbid" in Appendix A of the CGP, which states the following:" "Non-Turbid" - a discharge that is free from visual turbidity. For the purposes of this permit, visual turbidity refers to a sediment plume or other cloudiness in the water caused by sediment that can be identified by an observer." *[EPA interprets the text of this footnote as intending to reference the Appendix A definitions of "visual turbidity" and "non-turbid" in the final permit.]*

[98] The distance downstream and the percent of river width where visible turbidity (i.e., plume) is observed is required to determine the extent of the river affected and to determine if there was a "zone of passage" (i.e., a portion of the receiving water where there was no visible turbidity where mobile organisms could pass without being adversely impacted). The percent of river width affected is equal 100 multiplied by the width of the plume (in feet) divided by the width of the receiving water (in feet).

apply to ensure compliance with the aforementioned regulations for turbidity, benthic deposits and visible substances.

Item 9.1.1.d.i) above shall apply to all construction discharges and the minimum site inspection frequency shall comply with Part 4.3.1 of the CGP (and Part 4.3.2 of the CGP for sites discharging dewatering water). Site inspection frequency may be reduced in accordance with Part 4.4 of the CGP (Reductions in Inspection Frequency).

With regards to controlled construction discharges, if there is no visible turbidity (i.e., plumes) or benthic deposits, and, in the absence of information demonstrating otherwise, turbidity measurements of less than or equal to 50 nephelometric turbidity units (NTU) in the controlled construction discharges at the outlet prior to mixing with the receiving surface waters, shall be presumed to meet New Hampshire surface water quality standards for the parameters listed above. As a minimum, the controlled construction discharges must be sampled at each site inspection.

If any controlled construction discharge exceeds 50 NTU, or if visible turbidity or benthic sediment deposits attributable or partly attributable to any construction discharge are observed in the receiving water, then the "Corrective Actions" specified in Part 5 of the CGP shall be immediately implemented.

In addition, should such violation occur, and, in order to determine compliance with surface water quality standards for turbidity (Env-Wq 1703.11 and Env-Wq 1703.03(c)(1)c), benthic deposits (Env-Wq 1703.03(c)(1)a), and Env-Wq 1703.08) and foam, debris, scum or other visible substances (Env-Wq 1703.03(c)(1)b)), turbidity monitoring shall be immediately implemented as specified below:

Turbidity samples of the receiving water shall be immediately taken in the receiving water upstream and beyond the influence of the construction activity, and, unless a mixing zone[99] is approved by NHDES, no more than 75 feet downstream of each controlled construction discharge that exceeded 50 NTU and no more than 75 feet downstream of each construction discharge that caused visible turbidity.

Downstream samples shall be taken at locations in the receiving water that are most likely influenced by the discharge (e.g., if visible turbidity (i.e., a plume) is present, the sample shall be taken in the plume). Samples shall be collected a minimum of 2 times per day during the daylight hours at times when construction activities are most likely to cause turbidity in the receiving water and shall continue until the turbidity water quality standards are met in the receiving water (i.e., the difference between the upstream and downstream turbidity level is no greater than 10 NTU).

FOR REFERENCE ONLY

[99] Permittees may request a distance greater than 75 feet downstream of a construction discharge for determining compliance with turbidity standards in Class B surface waters, by submitting a mixing zone request to NHDES that complies with Env-Wq 1707.02. If a mixing zone is approved, NHDES is required to include conditions to ensure that the criteria on which the approval is based are met (Env-Wq 1707.03).

If water quality standards are not met during daylight hours on any day, sampling shall resume the next day and continue no fewer than 2 times per day until water quality standards are met. The date, time, location and results of turbidity measurements, as well as a summary identifying the cause of the violations, corrective actions that were implemented, the period of time that the receiving water exceeded turbidity standards and the distance downstream and the percent of the river width where visible turbidity was observed, and the period of time that the visible turbidity persisted, shall be recorded and included in the Inspection Report required in Part 4.7 of the CGP. Turbidity measurements shall be conducted via a field meter in accordance with the requirements for turbidity specified in Table 1B in 40 CFR 136.3 (see 40 CFR §136.3 Identification of test procedures - Code of Federal Regulations ecfr.io). Field meters shall be calibrated every day sampling is conducted and prior to the first sample.

e. Construction site owners and operators are encouraged to consider opportunities for post- construction groundwater recharge using infiltration best management practices (BMPs) during site design and preparation of the SWPPP in order to assure compliance with Env-Wq 1703.03 and Env-Wq 1703.11. If your construction site is in a town that is required to obtain coverage under the NPDES General Permit for discharges from Municipal Separate Storm Sewer Systems (MS4) you may be required to use such practices. The SWPPP must include a description of any on-site infiltration that will be installed as a post-construction stormwater management measure or reasons for not employing such measures such as 1) The facility is located in a wellhead protection area as defined in RSA 485- C:2; or 2) The facility is located in an area where groundwater has been reclassified to GAA, GA1 or GA2 pursuant to RSA 485-C and Env-DW 901; or 3) Any areas that would be exempt from the groundwater recharge requirements contained in Env-Wq 1507.04, including all land uses or activities considered to be a "High-load Area" (see Env-Wq 1502.30). For design considerations for infiltration measures see Env-Wq 1508.06. Note that there may be additional local requirements that fall under the NH MS4 permittee's Authorization to Discharge Permit for those regulated areas.

f. Appendix F of the CGP contains information regarding Tier 2, or high quality waters in the various states. ***[EPA notes that this information has now been moved to https://www.epa.gov/npdes/construction-general-permit-resources-tools-and-templates]*** Although there is no official list of tier 2 waters for New Hampshire, it can be assumed that all New Hampshire surface waters are tier 2 for turbidity unless 1) the surface water that you are proposing to discharge into is listed as impaired for turbidity in the states listing of impaired waters (see https://nhdes-surface-water-quality-assessment-site-nhdes.hub.arcgis.com/) or 2) sampling upstream of the proposed discharge location shows turbidity values greater than 10 NTU (Env-Wq 1703.11). A single grab sample collected during dry weather (no precipitation within 48 hours) is acceptable.

g. To ensure compliance with RSA 485-C, RSA 485-A, RSA 485-A:13, I(a), Env-Wq 1700 and Env-Wq 302, the following information may be requested by NHDES. This information must be kept on site unless you receive a written request from NHDES that it be sent to the address shown below in 9.1.1.h.

FOR REFERENCE ONLY

i. A list of all non-stormwater discharges that occur at the facility, including their source locations and the control measures being used (see Part 1.2.2 of the CGP).

ii. Records of sampling and analysis required for construction dewatering and stormwater discharges (see 9.1.1.d above).

h. All required or requested documents must be sent to: NH Department of Environmental Services, Watershed Management Bureau, P.O. Box 95 Concord, NH 03302-0095.

9.1.2 MAR100000 Commonwealth of Massachusetts (except Indian country)

a. All discharges covered by the Construction General Permit shall comply with the provisions pursuant to 314 CMR 3.00, 314 CMR 4.00, 314 CMR 9.00, including applicable construction stormwater standards and 310 CMR 10.00.

b. Pursuant to 314 CMR 3.11 (2)(a)6., and in accordance with MassDEP's obligation under 314 CMR 4.05(5)(e) to maintain surface waters free from pollutants in concentrations or combinations that are toxic to humans, aquatic life, or wildlife, permittees are prohibited from discharging dewatering water under the CGP from sites that are designated as Superfund/CERCLA or RCRA, and must make accommodations to dispose of the dewatering discharges appropriately, such as coverage under the Remediation General Permit (RGP).

c. Pursuant to 314 CMR 3.11 (2)(a), and in accordance with MassDEP's obligation to protect Outstanding Resource Waters under 314 CMR 4.04(3), applicants seeking coverage under the 2022 CGP that propose to carry out construction activities near Outstanding Resource Waters as identified in 314 CMR 4.06, shall submit to MassDEP for review:

i. a copy of the Stormwater Pollution Prevention Plan (SWPPP),

ii. a copy of the EPA NOI, and

iii. MassDEP's Stormwater BMP Checklist.

For purposes of this review, the permittee shall submit these documents to MassDEP at the same time they are submitted to EPA. Instructions on how to submit these documents to MassDEP and where to find the MassDEP Stormwater BMP Checklist and obtain authorization to discharge can be found here: https://www.mass.gov/how-to/wm-15-npdes-general-permit-notice-of- intent.

d. Pursuant to 314 CMR 3.11 (2)(a)6., and in accordance with MassDEP's obligation under 314 CMR 4.05(5)(e) to maintain surface waters free from pollutants in concentrations or combinations that are toxic to humans, aquatic life, or wildlife, applicants that propose to dewater under the 2022 CGP and plan to discharge to certain waters as described below, shall determine that any dewatering discharges are not contaminated by testing the proposed discharge as described below as part of the application for WM15 authorization. Unless otherwise specified, testing described in this section should be conducted using the methods in 40 CFR 136.

i. Applicants for sites that plan to discharge to Outstanding Resource Waters as identified in 314 CMR 4.06 shall test one sample of the proposed dewatering discharge water for pH, E. Coli (for discharges to freshwater), fecal coliform (for

FOR REFERENCE ONLY

discharges to salt water), Enterococci (for discharges to salt water), total suspended solids, oil and grease, total nitrogen, total phosphorus, and all parameters with numeric criteria listed in the Massachusetts Surface Water Quality Standards at 314 CMR 4.05(e). Results shall be reported to MassDEP as part of the WM15 application. To determine if the dewatering discharge could be covered under the 2022 CGP, the effluent at zero dilution must meet numeric water quality criteria. If the effluent does not meet numeric water quality criteria, the applicant shall contact EPA Region 1 to discuss coverage under the Remediation General Permit.

ii. Applicants for sites that propose to discharge to Public Water Supplies (314 CMR 4.06(1)(d)1) shall also test one sample of the proposed dewatering discharge water for per- and polyfluoroalkyl substances (PFAS), as outlined in the table below. Results shall be reported to MassDEP as part of the WM15 application. If any PFAS compounds are detected, the applicant shall apply for coverage under the NPDES Remediation General Permit for Massachusetts if required.

PFAS Testing Parameters for Discharges to Public Drinking Water Supplies[100]	
Perfluorohexanesulfonic acid (PFHxS), grab	Report ng/L
Perfluoroheptanoic acid (PFHpA), grab	Report ng/L
Perfluorononanoic acid (PFNA), grab	Report ng/L
Perfluorooctanesulfonic acid (PFOS), grab	Report ng/L
Perfluorooctanoic acid (PFOA), grab	Report ng/L
Perfluorodecanoic acid (PFDA), grab	Report ng/L

iii. Applicants for sites that propose to discharge to an impaired water as identified in the most recent final Massachusetts Integrated List of Waters,shall test one sample of the proposed dewatering discharge water for the parameter(s) for which the waterbody is impaired. To determine if the dewatering discharge could be covered under the 2022 CGP, the effluent at zero dilution must meet numeric water quality criteria. If the effluent does not meet numeric water quality criteria, the applicant shall contact EPA Region 1 to discuss coverage under the Remediation GeneralPermit and shall apply for RGP coverage if required.

iv. For dewatering discharges to all other waters, if any pollutants are knownor believed present in the proposed dewatering discharge water, the applicant shall apply for coverage under the NPDES Remediation General Permit for Massachusetts if required. For the purposes of this condition, a pollutant is "known present" if measured above the analytical detection limit using a sufficiently sensitive test method in an environmental sample, and "believed present" if a pollutant has not been measured in an environmental sample but will be added or generated prior to discharge, such as through a treatment process. Consequently, a pollutant is "known absent" if measured as non-detect relative to the analytical detection limit using a sufficiently sensitive test method in an environmental sample, and "believed absent" if a pollutant has not been measured in an environmentalsample but will not be added or generated prior to discharge and is not a parameter that applies to the applicable activity category for a site. If any pollutants are known or believed present in the

[100] PFAS testing shall follow established EPA methods 537 or 537.1 for drinking water until EPA Method 3512 for non-potable water becomes available.

FOR REFERENCE ONLY

proposed dewatering discharge water, the applicant shall test one sample of the proposed dewatering discharge water for the pollutants known or believed to be present. To determine if the dewatering discharge could be covered under the 2022 CGP, the effluent at zero dilution must meet numeric water quality criteria. If the effluent does not meet numeric water quality criteria, the applicant shall contact EPA Region 1 to discuss coverage under the Remediation General Permit.

e. Pursuant to 314 CMR 3.11 (2)(a), and in accordance with MassDEP's obligation to protect Outstanding Resource Waters under 314 CMR 4.04(3), applicants that propose to dewater under the 2022 CGP and discharge to Outstanding Resource Waters as identified in 314 CMR 4.06, shall submit the SWPPP and associated documents to MassDEP to review. MassDEP shall complete review within 30 daysof receipt.

f. Pursuant to 314 CMR 3.11 (2)(a)6., and in accordance with MassDEP's obligation under 314 CMR 4.05 to maintain surface waters free from color and turbidity in concentrations or combinations that are aesthetically objectionable or would impair any use assigned to the waterbody, permittees that have been authorized to dewater under the 2022 CGP and that discharge to Outstanding Resource Waters as identified in 314 CMR 4.06 shall carry out daily benchmark monitoring for turbidity[101] for the duration of dewatering. Permittees shall compare the weekly average of the turbidity monitoring results with the established benchmark turbidity value of 25 Nephelometric Turbidity Units (NTU). If a permittee's weekly average turbidity results exceed the benchmark, the operator shall conduct follow-up corrective action to determine the source of the problem and to make any necessary repairs or upgrades to the dewatering controls to lower the turbidity levels. The permittee shall document any corrective action taken in its corrective action log. Furthermore, permittees at these sites shall carry out inspections at higher frequency, specifically, daily inspections of the dewatering discharge treatment for the duration of the discharge. The permittee shall inspect the site for sediment plume or whether a hydrocarbon sheen is visible at the point of discharge, estimate the flow rate at the point of discharge, and inspect the site downstream to assess whether sedimentation is attributable to the dewatering discharges.

g. Pursuant to 314 CMR 3.11 (2)(a)6., and in accordance with MassDEP's obligation under 314 CMR 4.05 to maintain surface waters free from color and turbidity in concentrations or combinations that are aesthetically objectionable or would impair any use assigned to the waterbody, permittees shall store materials outside the Base Flood Elevation[102] when feasible to prevent displacing runoff and erosion.

h. Pursuant to 314 CMR 3.11 (2)(a), and in accordance with MassDEP's obligation to maintain surface waters free from nutrients in concentrations that would cause or contribute to impairment of existing or designated uses under 314 CMR 4.05(5)(c), all applicants who apply for coverage under the 2022 CGP shall follow guidelines on fertilizer application, including use of fertilizer containing no phosphorus, in accordance with 330 CMR 31.00 Plant Nutrient Application Requirements for

FOR REFERENCE ONLY

[101] Applicants shall follow EPA Method 180.1 to monitor for turbidity

[102] Base Flood Elevation (BFE) is the elevation of surface water resulting from a flood that has a 1% chance of equaling or exceeding that level in any given year. The BFE is shown on the Flood Insurance Rate Map (FIRM) for zones AE, AH, A1–A30, AR, AR/A, AR/AE, AR/A1– A30, AR/AH, AR/AO, V1–V30 and VE. (Source: https://www.fema.gov/node/404233).

Agricultural Land and Non-Agricultural Turf and Lawns. Further, fertilizer shall never be applied to a site when a rain event greater than 0.5 inches is forecast in the next 48 hours.

i. Pursuant to 314 CMR 3.11 (2)(a), all applicants who apply for coverage under the 2022 CGP and elect to carry out site inspections every 14 days shall also inspect sites within 24 hours of 0.25 inches of precipitation events or greater over 24 hours,or within 24 hours of a discharge that occurred due to snowmelt from 3.25 inches or greater of snow accumulation.[103] During the high flow periods in spring (i.e., months of April to June), inspection frequency shall be increased to once per week for all sites.

i. To determine whether 3.25 inches or greater of snow accumulation has occurred at a site, snowfall measurements can be taken at the site,[104] or theoperator can rely on similar information from a local weather forecast.

j. Implementing structural improvements, enhanced/resilient pollution prevention measures, and other mitigation measures can help to minimize impacts from stormwater discharges from major storm events such as hurricanes, storm surge, extreme/heavy precipitation,[105] and flood events. Pursuant to 314 CMR 3.11 (2)(a), if such stormwater control measures are already in place due to existing requirements mandated by other state, local or federal agencies, the SWPPP shall include a brief description of the controls and a reference to the existing requirement(s). If the site may be exposed to or has previously experienced suchmajor storm events[106], additional stormwater control measures that may be considered, and implemented as necessary, include, but are not limited to:

i. Reinforce materials storage structures to withstand flooding and additional exertion of force;

ii. Prevent floating of semi-stationary structures by elevating to the Base Flood Elevation (BFE) level or securing with non-corrosive device;

iii. When a delivery of exposed materials is expected, and a storm is anticipated within 48 hours, delay delivery until after the storm or storematerials as appropriate (refer to emergency procedures);

FOR REFERENCE ONLY

[103] This is the amount of snow that is equivalent to 0.25 inches of rain, based on information from the National Oceanic and Atmospheric Administration (NOAA) indicating that 13 inches of snow is, on average, equivalent to 1 inch of rain. See https://www.nssl.noaa.gov/education/svrwx101/winter/faq/.

[104] NOAA's National Weather Service has guidelines on snowfall measurements at https://www.weather.gov/jkl/snow_measurement. These guidelines recommend use of a "snowboard" (a piece of wood about 16 inches by 16 inches) that is placed in an unobstructed part of the site on a hard surface.

[105] Heavy precipitation refers to instances during which the amount of rain or snow experienced in a location substantially exceeds what is normal. What constitutes a period of heavy precipitation varies according to location and season. Heavy precipitation does not necessarily mean the total amount of precipitation at a location has increased— just that precipitation is occurring in more intense or more frequent events.

[106] To determine if your facility is susceptible to an increased frequency of major storm events that could impact the discharge of pollutants in stormwater, you may reference FEMA, NOAA, or USGS flood map products at https://www.usgs.gov/faqs/where-can-i-find-flood-maps?qt-news_science_products=0#qtnews_science_products.

iv. Temporarily store materials and waste above the Base Flood Elevation ***[EPA notes that it has deleted a footnote reference to the term "Base Flood Elevation" since the same footnote is already included in Part 9.1.2.g, above.]*** level;

v. Temporarily reduce or eliminate outdoor storage;

vi. Temporarily relocate any mobile vehicles and equipment to higher ground;

vii. Develop scenario-based emergency procedures for major storms that are complementary to regular stormwater pollution prevention planning andidentify emergency contacts for staff and contractors; and

viii. Conduct staff training for implementing your emergency procedures atregular intervals.

k. Pursuant to 314 CMR 3.11 (2)(a)6., and in accordance with MassDEP's obligation under 314 CMR 4.05(5)(e) to maintain surface waters free from pollutants in concentrations or combinations that are toxic to humans, aquatic life, or wildlife, permittees who seek coverage under the 2022 CGP and anticipate to carry out dust control shall limit their dust control methodology to using water only and specifically avoid using other techniques, such as solutions containing calcium chloride.

l. If MassDEP requests a copy of the Stormwater Pollution Prevention Plan (SWPPP) for any construction site at any time, the permittee shall submit the SWPPP to MassDEP within 14 days of such a request. MassDEP may conduct an inspection of any site covered by this permit to ensure compliance with state lawrequirements, including state water quality standards.

9.1.3 MTR10F000 Areas in the State of Vermont located at a federal facility

a. Earth disturbance at any one time is limited to five acres.

b. All areas of earth disturbance must have temporary or final stabilization within 14 days of the initial disturbance. After this time, disturbed areas must be temporarily or permanently stabilized in advance of any runoff producing event. A runoff producing event is an event that produces runoff from the construction site. Temporary stabilization is not required if precipitation is not forecast and work is to continue in the next 24-hours or if the work is occurring in a self-contained excavation (i.e. no outlet) with a depth of two feet or greater (e.g. house foundation excavation, utility trenches). Areas of a construction site that drain to sediment basins are not considered eligible for this exemption, and the exemption applies only to the excavated area itself.

c. Site inspections on active construction sites shall be conducted daily during the period from October 15 through April 15.

d. The use of chemical treatments (e.g. polymers, flocculants, and coagulants) for the settling and/or removal of sediment from stormwater runoff associated with construction and construction-related activities requires prior written approval and an approved site and project-specific plan, from the Vermont Agency of Natural Resources. In addition, the use of cationic polymers is prohibited unless approved by the Vermont Agency of Natural Resources under a site and project-specific plan.

e. Any applicant under EPA's CGP shall allow authorized Vermont Agency of Natural Resources representatives, at reasonable times and upon presentation of credentials, to enter upon the project site for purposes of inspecting the project and determining

FOR REFERENCE ONLY

compliance with this Certification.

f. The Vermont Agency of Natural Resources may reopen and alter or amend the conditions of this Certification over the life of the EPA 2022 Construction General Permit when such action is necessary to assure compliance with the VWQS.

9.2 EPA REGION 2

9.2.1 NYR10I000 Indian country within the State of New York

a. Saint Regis Mohawk Tribe

i. Any Responsible-Person/Decision-Maker required under the CGP to submit a Notice of Intent (NOI) to EPA for coverage under the CGP, must concurrently submit an electronic copy of the NOI to the SRMT Environmental Division, Water Resource Program Manager. Additionally, an electronic copy of the Notice of Termination (NOT) must be provided within three business days after electronic confirmation is received from EPA that the NOT has been accepted. The NOI and NOT must be electronically provided to the following addresses:

Mr. Tieman W. Smith
Water Resources Program Manager Saint Regis Mohawk Tribe
449 Frogtown Road
Akwesasne, NY 13655 Tiernan.Smith@srmt-nsn.gov 518.358.2272 ext. 5073

ii. Any Responsible-Person/Decision-Maker that is required as part of the CGP to prepare a Discharge Management Plan (OMP) or Storm Water Management Plan (SWMP) and/or Storm Water Pollution Prevention Plan (SWPPP) must submit an electronic copy of the DMP, SWMP and/or SWPPP to the SRMT Environment Division, Water Resources Program Manager IO business days prior to the start of construction of any work to be conducted under the CGP. The applicable documents must be provided to the electronic address listed above.

iii. Any Responsible-Person/Decision-Maker that is required under the CGP to submit an annual report to EPA must submit an electronic copy of the annual report concurrently to the SRMT Water Resource Program. Additionally, any correspondences between the applicant and EPA related to analytical data, written reports, corrective action, enforcement, monitoring, or an adverse incident must likewise be routed to the SRMT Water Resources Program at the above electronic address.

iv. An "Authorization to Proceed Letter" with site-specific mitigation requirements may be sent out to the permittee when a review of the NOI and OMP, SWMP and /or SWPPP on a case-by-case basis, is completed by the SRMT Environment Division, Water Resource Program. This approval will allow the application to proceed if all mitigation requirements are met.

b. Seneca Nation

i. Under Part 1.1.5 of the CGP, the Seneca Nation requests that an applicant must demonstrate that they meet the eligibility criteria listed in Appendix D (certify in your Notice of Intent (NOI) that you meet one of the eligibility criteria [Criterion A-F]) as well as species and critical habitats that are listed under the Seneca Nation's "Fishing and Conservation Laws" and the "Seneca Nation of Indians Comprehensive Conservation Law".

FOR REFERENCE ONLY

ii. The Tribal Historic Preservation Office (THPO) was established in 2000 after the Seneca Nation received a recognition letter from the National Park Service (NPS); therefore under Part 1.1.6 of the CGP (Appendix E) and prior to submitting a Notice of Intent (NOI) operators must complete the Nation's TPHO, Project Review Form (https://sni.org/media/246603/sni-thpo-project-review-form.pdf) and submit the completed form with associated information to the Tribal Historic Preservation Officer at 90 Ohi:yo' Way, Salamanca, NY 14779. Federal agencies engaging in construction activities must provide for construction review by a certified construction reviewer in accordance with 7 Del. C. §§4010 & 4013 and 7 DE Admin. Code 5101, subsection 6.1.6.

iii. Under Part 1.2 of the CGP, discharges must also follow the Section 13 of the Guide for Construction (Seneca Nation of Indians Source Water Code) and respectively, Council Resolution, dated April 13, 2013 (CN: R-04-13-13-11) to ensure that the health, safety and welfare of the citizens of the Seneca Nation, and all other within the Lands and Territories of the Seneca Nation of Indians, and to facilitate the adequate provisions of water through the elimination or prevention of ground water contamination in the vicinity of wells that supply drinking water for the Nation. The area is known as the Source Water Protection Area (SWPA) and specified activities are regulated within this SWPA, as cited in Section 13 of the Guide for Construction and Section VI, of CN: R-04-13-13-11.

iv. Under Part 1.4, any operator who seeks coverage of the CGP, and is required to submit a notice of intent NOI and Notice of Termination (NOT) (as necessary) to the EPA for coverage, under Part 1.4.2 must also submit a copy of the NOI to the Seneca Nation's Environmental Protection Department (EPD) within three business days of submittal to the EPA, (address shown below). Respectively, a copy of the NOT (as described under Part 8.3 of the CGP), which certifies that you have met the requirements of Part 8, must be provided within three business days after electronic confirmation is received from the EPA that the NOT has been accepted. In addition to a NOI and NOT, the Seneca Nation (Environmental Protection Department [EPD]) would require an Environmental Impact Assessment (EA) (Long Form), as shown in Section 2 of the Seneca Nation of Indians Laws, Ordinances & Policies (Guide for Construction), to be completed and submitted to the EPD prior to any project to determine whether the impacts from a project would create significant and detrimental effects to the Nation's lands, water (violate WQS), and environment. The NOI, NOT, and EA must be submitted electronically to epd@sni.org and provided to the following address:

Seneca Nation
Environmental Protection Department (EPD) Attn: Director of EPD
12837 Route 438
Irving, NY 14081

v. Under Part 3.0 of the CGP, discharges must be controlled as necessary to meet applicable WQS. The Seneca Nation is working actively towards finalizing and implementing the; therefore, the EPD would require an applicant to submit or grant access to the permit to obtain information on the impact of effluents on receiving waters, including the capability of receiving waters to support future designated uses and achieve the WQS of the Nation; and to advise prospective dischargers of discharge requirements, and coordinate with the appropriate

FOR REFERENCE ONLY

permitting agencies. As stated in the Decision Document, under Section 303(c) of the CWA, 33 U.S.C. § 1313(c), states develop, review, and revise (as appropriate) water quality standards for surface waters of the United States. At a minimum, such standards are to include designated water uses, water quality criteria to protect such uses, and an antidegradation policy. 40 C.F.R. § 131.6. In addition, under Section 401 of the CWA states may grant, condition, or deny "certification" for federally permitted or licensed activities that may result in a discharge to the waters of the United States 33 U.S.C. § 1341.

vi. Under Part 7.2.8(a)(b)(c) and for Part 9 of the CGP, the following Sections of the Seneca Nation's Guide for Construction shall be considered, in conjunction with the CGP:

(a) Section 1. Executive Order - To Establish a Policy for Governing Access to Nation Territories and Facilities by Officials of Foreign Government, dated March 31, 2011

(b) Section 3. Natural Resources Committee, Sand and Gravel Law (CN: R-06-24-05-08)

(c) Section 4. Fishing and Conservation Laws - Part 1.1.5 of the CGP

(d) Section 5. Seneca Nation of Indians Comprehensive Conservation Law, adopted January 14, 2012

(e) Section 9. Food is Our Medicine (FIOM) Program/Native Planting Policy (CN: R-03- 08-14-14)

(f) Section 10. Forestry Management Plan (CN: R-08-14-10-23)

(g) Section 11. Timber Ordinance #411-092, dated May 8, 1982

(h) Section 14. Flood Damage Prevention Local Law, dated September 27, 1988

(i) Section 16. Utilities Ordinance No. 87-100

(j) Authorizing Emergency Action and Contingency Plan to Restrain Pollution of Nations Waters, (Council Resolution: R-03-01-18-10), dated March 10, 2018
Seneca Nation of Indians Permit Application for Construction within Waterways Permit, Form NR98-01.00

FOR REFERENCE ONLY

9.3 EPA REGION 3

9.3.1 DCR100000 District of Columbia

a. Discharges authorized by this permit shall comply with the District of Columbia Water Pollution Control Act of 1984, as amended (DC Official Code § 8-103.01 and § 8-103.06, et seq.) to ensure that District of Columbia waters, waters in adjacent and downstream states, and the beneficial uses of these waters will not be harmed or degraded by the discharges.

b. Discharges authorized by this permit must comply with §§ 1104.1 and 1104.8 of Chapter 11 and the provisions of Chapter 19 of Title 21of District of Columbia Municipal Regulations in order to attain and maintain designated uses of the District of Columbia waters.

c. The permittee shall comply with the District of Columbia Stormwater Management and Soil Erosion and Sediment Control regulations in Chapter 5 of Title 21 of the District of Columbia Municipal Regulations.

d. The permittee shall comply with the District of Columbia Flood Management Control regulations in Chapter 31 of Title 20 of the District of Columbia Municipal Regulations.

e. The permittee shall submit a copy of the Stormwater Pollution Prevention Plan (SWPPP) to the Regulatory Review Division, Department of Energy & Environment, Government of the District of Columbia, 1200 First Street, NE, 5th Floor, Washington, DC 20002, during the review and approval of the permittee's DOEE Erosion and Sediment Control Plan in accordance with the provisions of Chapter 542 of Title 21 of the District of Columbia Municipal Regulations.

f. Upon request, the permittee shall submit all inspection and monitoring reports as required by this permit and 40 CFR § 122.41 to the Associate Director, Inspection and Enforcement Division, Department of Energy & Environment, Government of the District of Columbia, 1200 First Street, NE, 5th Floor, Washington, DC 20002; telephone (202) 535-2226, or by email at Joshua.Rodriguez@dc.gov.

g. In the event the permittee intends to discharge dewatering water, groundwater, or groundwater comingled with stormwater from a known contaminated site, the permittee shall contact the Regulatory Review Division, Department of Energy & Environment, Government of the District of Columbia, 1200 First Street, NE, 5th Floor, Washington, DC 20002; telephone (202) 535-2600, or by email at MS4DischargeAuthorization@dc.gov to request authorization to discharge dewatering water, groundwater, or groundwater comingled with stormwater to the District's Municipal Separate Storm Sewer System (MS4) or to a surface water body pursuant to §§ 8-103.02, 8-103.06, and 8-103.07 of the District of Columbia Water Pollution Control Act of 1984, as amended.

9.3.2 DER10F000 Areas in the State of Delaware located at a federal facility (as defined in Appendix A)

a. Federal agencies must submit a sediment and stormwater management plan (SSMP) and receive Department approval prior to undertaking any land clearing, soil movement or construction activity unless conducting an exempt activity.

b. Federal construction activities are required to have a third-party Certified Construction Reviewer (CCR) perform weekly reviews to ensure the adequacy of construction activities pursuant to the approved SSMP and regulations.

Implementation of approved SSMPs requires the daily oversight of construction activity by certified responsible personnel.

c. Implementation of approved SSMPs requires the daily oversight of construction activity by certified responsible personnel.

d. A current copy of the SSMP must be maintained at the construction site.

e. Unless authorized by the Department, not more than 20 acres may be disturbed at any one time.

9.4 EPA REGION 4

No additional conditions

FOR REFERENCE ONLY

9.5 EPA REGION 5

9.5.1 MIR10I000 Indian country within the State of Minnesota

a. Fond du Lac Reservation

i. New dischargers wishing to discharge to an Outstanding Reservation Resource Water (ORRW)[107] must obtain an individual permit from EPA for storm water discharges from large and small construction activities.

ii. A copy of the Storm Water Pollution Prevention Plan (SWPPP) must be submitted to the Office of Water Protection at least fifteen (15) days in advance of sending the Notice of Intent to EPA. The SWPPP can be submitted electronically to richardgitar@FDLREZ.com or by hardcopy sent to:

Fond du Lac Reservation
Office of Water Protection
1720 Big Lake Road
Cloquet, MN 55720

iii. Copies of the Notice of Intent (NOI) and the Notice of Termination (NOT) must be sent to the Fond du Lac Office of Water Protection at the same time they are submitted to EPA. [The condition helps the Office of Water Protection keep track of when a project is about to start and when it has ended. FDL Water Quality Certification Ordinance, Section 204 (a) (2)).

iv. If the project will entail a discharge to any watercourse or open water body, the turbidity limit shall NOT exceed 10% of natural background within the receiving water(s) as determined by Office of Water Protection staff. For such discharges, turbidity sampling must take place within 24 hours of a ½-inch or greater rainfall event. The results of the sampling must be reported to the Office of Water Protection within 7 days of the sample collection. All sample reporting must include the date and time, location (GPS: UTM/Zone 15), and NTU. CGP applicants are encouraged to work with the Office of Water Protection in determining the most appropriate location(s) for sampling. [This condition helps both the Office of Water Protection and the project proponent in knowing whether or not their erosion control efforts are effective. FDL Water Quality Certification, Section 204 (b) (1)).

v. Receiving waters with open water must be sampled for turbidity prior to any authorized discharge as determined by Office of Water Protection staff. This requirement only applies to receiving waters which no ambient turbidity data exists. [This condition allows the Office of Water Protection to obtain a baseline turbidity sample in which to compare to other samples. FDL Water Quality Certification Ordinance, Section 204 (b) (2)].

vi. All work shall be carried out in such a manner as will prevent violations of water quality criteria as stated in the Water Quality Standards of the Fond du Lac Reservation, Ordinance #12/98, as amended. This includes, but is not limited to, the prevention of any discharge that causes a condition in which visible solids, bottom deposits, or turbidity impairs the usefulness of water of the Fond du Lac

FOR REFERENCE ONLY

[107] Although additional waters may be designated in the future, currently Perch Lake, Rice Portage Lake, Miller Lake, Deadfish Lake, and Jaskari Lake are designated as ORRWs.

Reservation for any of the uses designated in the Water Quality Standards of the Fond du Lac Reservation. These uses include wildlife, aquatic life, warm water fisheries, cold water fisheries, subsistence fishing (netting), primary contact recreation, secondary contact recreation, cultural, wild rice areas, aesthetic waters, agriculture, navigation, commercial and wetlands. It also includes the designated uses of wetlands including, but not limited to, baseflow discharge, cultural opportunities, flood flow attenuation, groundwater recharge, indigenous floral and fauna) diversity and abundance, nutrient cycling, organic carbon export/cycling, protection of downstream water quality, recreation, resilience against climactic effects, sediment/shoreline stabilization, surface water storage, wild rice, and water dependent wildlife. [In addition to listing the designated uses of waters of the Fond du Lac Reservation, this condition also limits the project proponent to discharges that will not violate our Water Quality Standards. FDL Water Quality Certification Ordinance, Section 204 (a) (7)).

vii. Appropriate steps shall be taken to ensure that petroleum products or other chemical pollutants are prevented from entering waters of the Fond du Lac Reservation. All spills must be reported to the appropriate emergency management Agency (National Response Center AND the State Duty Officer), and measures shall be taken immediately to prevent the pollution of waters of the Fond du Lac Reservation, including groundwater. The Fond du Lac Office of Water Protection must also be notified immediately of any spill regardless of size. [This condition helps protect water quality and also reminds project proponents of their responsibility in reporting spill events. FDL Water Quality Certification Ordinance, Section 204 (b) (3)).

viii. All seed mixes, whether used for temporary stabilization or permanent seeding, shall NOT contain any annual ryegrass (Lolium species). Wild rye (Elymus species) or Oats (Avena species) may be used as a replacement in seed mixes. [This condition prevents the use of annual ryegrass on the Reservation. Annual ryegrass is allelopathic, which means it produces biochemical in its roots that inhibit the growth of native plants. If used in seed mixes, annual ryegrass could contribute to erosion, especially on slopes. However, the condition also specifies substitute grasses that germinate almost as fast as annual ryegrass for use as a cover crop to help prevent erosion. FDL Water Quality Certification Ordinance, Section 204 (t) (1)).

ix. To prevent the introduction of invasive species, ALL contractors and subcontractors MUST disclose information stating prior equipment location(s) and ALL known invasive species potentially being transported from said location(s). All equipment MUST undergo a high pressure wash (including any equipment mats) BEFORE ENTERING the Fond du Lac Reservation. Personal equipment such as work boots, gloves, vest, etc. MUST be clean of debris, dirt and plant and animal material BEFORE ENTERING the Fond du Lac Reservation. Equipment being transported from known infested areas MUST undergo a high pressure wash as soon as possible after leaving the infested site and again BEFORE ENTERING the Fond du Lac Reservation, to avoid transport of invasive species into areas surrounding the Reservation. Written certification of equipment cleaning MUST be provided to the Fond du Lac Office of Water Protection. Upon arrival, ALL contractor and subcontractor equipment will be inspected by appointed Fond du Lac staff. If equipment is deemed unsatisfactory, the equipment MUST

FOR REFERENCE ONLY

undergo a high pressure washing until the equipment is cleared by the inspector, until such time, minimal travel will be allowed through the Reservation. The contractor shall be held responsible for the control of any invasive species introduced as a result of their project. [This condition requires the project proponent to prevent the inadvertent introduction of invasive species by taking an active role in cleaning all vehicles, equipment, and equipment mats before entering the Reservation. This condition has been placed in certifications since 2012, due to the introduction of Wild Parsnip in 2011 from a pipeline contractor. It is much easier to prevent the introduction of an invasive species than it is to eradicate it once it has been introduced. Many invasive plant species form monocultures, preventing native plants from growing. This situation often leads to cases of erosion, which in turn effects water quality. FOL Water Quality Certification Ordinance, Section 204 (g) (1)].

x. A copy of this certification MUST be kept by the contractor on-site at all times and be available for viewing by all personnel, including inspectors. [This condition ensures that the information contained in the certification, especially the conditions, is readily available onsite for reference. FOL Water Quality Certification Ordinance, Section 204 (a) (9)].

b. The Grand Portage Band of Lake Superior Chippewa

i. The CGP authorization is for construction activities that may occur within the exterior boundaries of the Grand Portage Reservation in accordance to the Grand Portage Land Use Ordinance. The CGP regulates stormwater discharges associated with construction sites of one acre or more in size. Only those activities specifically authorized by the CGP are authorized by this certification (the "Certification").

ii. All construction stormwater discharges authorized by the CGP must comply with the Water Quality Standards and Water Resources Ordinance, as well as Applicable Federal Standards (as defined in the Water Resources Ordinance).

iii. All appropriate steps must be taken to ensure that petroleum products or other chemical pollutants are prevented from entering the Waters of the Reservation. All spills must be reported to the appropriate emergency-management agency, and measures must be taken to prevent the pollution of the Waters of the Reservation, including groundwater.

iv. The 2022 CGP requires inspections and monitoring reports of the construction site stormwater discharges by a qualified person. Monitoring and inspection reports must comply with the minimum requirements contained in the 2022 CGP. The monitoring plan must be prepared and incorporated into the Storm Water Pollution Prevention Plan (the "SWPP"). A copy of the SWPP must be submitted to the Board at least 30 days in advance of sending the requisite Notice of Intent to EPA. The SWPP should be sent to:

Grand Portage Environmental Resources Board
P.O. Box 428
Grand Portage, MN 55605

Copies of the Notice of Intent and Notice of Termination required under the General Permit must be submitted to the Board at the address above at the same time they are submitted to the EPA.

FOR REFERENCE ONLY

v. If requested by the Grand Portage Environmental Department, the permittee must provide additional information necessary for a case-by-case eligibility determination to assure compliance with the Water Quality Standards and any Applicable Federal Standards. The burden is on the applicant to demonstrate compliance with the Water Quality Standards, the Water Resources Ordinance, and Applicable Federal Standards whether or not the application is ultimately eligible for the CGP.

vi. CGP discharges must not cause nuisance conditions as defined in Grand Portage Water Quality Standards.

vii. The Board retains full authority to ensure compliance with and to enforce the provisions of the Water Resource Ordinance and Water Quality Standards, Applicable Federal Standards, and these Certification conditions. Nothing herein affects the scope or applicability of other controlling tribal or federal requirements, including but not limited to impacts to cultural, historical, or archeological features or sites, or properties that may be eligible for listing on the National Register of Historic Places under the National Historic Preservation Act, 54 U.S.C. §§ 300101 et seq.

viii. Appeals related to Board actions taken in accordance with any of the preceding conditions may be heard by the Grand Portage Tribal Court.

c. Leech Lake Band of Ojibwe

i. The water quality standards that apply to the construction site are the standards at the time the operator submits its Notice of Intent (NOI) to EPA and the LLBO WRP (see conditions # 2 and # 3).

ii. A copy of the Stormwater Pollution Prevention Plan (SWPPP) must be submitted to the LLBO WRP at least 30 days in advance of sending the NOI for the project to EPA. See attached LLBO 401 Water Quality Certification Ordinance. Section 304(a)(1). The SWPPP should be submitted electronically to Jeff.Harper@llojibwe.net and by hardcopy sent to:

Leech Lake Band of Ojibwe
ATTN: Water Resources Program - 401 Cert
Division of Resource Management
190 Sailstar Drive NW
Cass Lake, Minnesota 56633

iii. Copies of the NOI and the Notice of Termination (NOT) must be submitted to the LLBO WRP at the same time they are submitted to EPA. See attached LLBO 401 Water Quality Certification Ordinance, Section 304(a)(2). The NOI and NOT should be submitted electronically to Jeff.Harper@llojibwe.net and sent by hardcopy to the address cited in condition # 2.

iv. Any and all other conditions listed in Section 304 of the attached LLBO 401 Water Quality Certification Ordinance shall be observed unless the LLBO WRP deems that certain conditions therein are not applicable to the project in need of a permit under this certification.

v. A copy of this certification MUST be kept by the contractor on-site at all times and be available for viewing by all personnel, including inspectors.

vi. Upon consideration of the NOI, if the LLBO WRP finds that the discharge will not be controlled as necessary to meet applicable water quality standards, the LLBO

FOR REFERENCE ONLY

WRP may insist, consistent with Part 3.1 of the CGP, that additional controls are installed to meet applicable water quality standards, or recommend to EPA that the operator obtain coverage under an individual permit.

9.5.2 WIR10I000 Indian country within the State of Wisconsin

a. Bad River Band of Lake Superior Tribe of Chippewa Indians

i. Only those activities specifically authorized by the CGP are authorized by this Certification. This Certification does not authorize impacts to cultural properties, orhistorical sites, or properties that may be eligible for listing as such.

ii. All projects which are eligible for coverage under the CGP and are located within the exterior boundaries of the Bad River Reservation shall be implemented in such a manner that is consistent with the Tribe's Water Quality Standards (WQS). The Tribe's WQS can be viewed at: http://www.badriver-nsn.gov/wp-content/uploads/2020/01/NRD_WaterQualityStandards_2011.pdf

iii. Operators are not eligible to obtain authorization under the CGP for all new discharges to an Outstanding Tribal Resource Water (OTRW or Tier 3 water). OTRWs, or Tier 3 waters, include the following: Kakagon Slough and the lower wetland reaches of its tributaries that support wild rice, Kakagon River, Bad River Slough, Honest John Lake, Bog Lake, a portion of Bad River, from where it enters the Reservation through the confluence with the White River, and Potato River. OTRWs can be viewed at: https://www.arcgis.com/apps/View/index.html?appid=6f44c371217e4ee8b5f1c2c705c 7c7c5

iv. An operator proposing to discharge to an Outstanding Resource Water (ORW or Tier 2.5 water) under the CGP must comply with the antidegradation provisions of the Tribe's WQS. ORWs, or Tier 2.5 waters, include the following: a portion of Bad River, from downstream the confluence with the White River to Lake Superior, White River, Marengo River, Graveyard Creek, Bear Trap Creek, Wood Creek, Brunsweller River, Tyler Forks, Bell Creek, and Vaughn Creek. ORWs can be viewed at: https://www.arcgis.com/apps/View/index.html?appid=6f44c371217e4ee8b5f1c2c705c 7c7c5. The antidegradation demonstration materials described in provision E.4.iii., and included on the antidegradation demonstration template found at: https://www.badriver-nsn.gov/natural-resources/projectreviews/, must be submitted to the following address:

Bad River Tribe's Natural Resources Department
Attn: Water Regulatory Specialist
P.O. Box 39 Odanah, WI 54861
WaterReg@badriver-nsn.gov

v. An operator proposing to discharge to an Exceptional Resource Water (ERW or Tier 2 water) under the CGP must comply with the antidegradation provisions of the Tribe's WQS. ERWs, or Tier 2 waters, include the following: any surface water within the exterior boundaries of the Reservation that is not specifically classified as an Outstanding Resource Water (Tier 2.5 water) or an Outstanding Tribal Resource Water (Tier 3 water). ERWs can be viewed at: https://www.arcgis.com/apps/View/index.html?appid=6f44c371217e4ee8b5f1c2c705c 7c7c5. The antidegradation demonstration materials described in provision

FOR REFERENCE ONLY

E.4.ii., and included on the antidegradation demonstration template found at: https://www.badriver-nsn.gov/natural-resources/projectreviews/, must be submitted to the following address:

Bad River Tribe's Natural Resources Department
Attn: Water Regulatory Specialist
P.O. Box 39 Odanah, WI 54861
WaterReg@badriver-nsn.gov

vi. Projects utilizing cationic treatment chemicals within the Bad River Reservation boundaries are not eligible for coverage under the CGP.

vii. A discharge to a surface water within the Bad River Reservation boundaries shall not cause or contribute to an exceedance of the turbidity criterion included in the Tribe's WQS, which states: Turbidity shall not exceed 5 NTU over natural background turbidity when the background turbidity is 50 NTU or less, or turbidity shall not increase more than 10% when the background turbidity is more than 50 NTU.

viii. All projects which are eligible for coverage under the CGP within the exterior boundaries of the Bad River Reservation must comply with the Bad River Reservation Wetland and Watercourse Protection Ordinance, or Chapter 323 of the Bad River Tribal Ordinances, including the erosion and sedimentation control, natural buffer, and stabilization requirements. Questions regarding Chapter 323 and requests for permit applications can be directed to the Wetlands Specialist in the Tribe's Natural Resources Department at (715) 682-7123 or wetlands@badriver-nsn.gov.

ix. An operator of a project, which is eligible for coverage under the CGP, that would result in an allowable discharge under the CGP occurring within the exterior boundaries of the Bad River Reservation must notify the Tribe prior to the commencing earth-disturbing activities. The operator must submit a copy of the Notice of Intent (NOI) to the following addresses at the same time it is submitted to the U.S. EPA:

Bad River Tribe's Natural Resources Department
Attn: Water Regulatory Specialist
P.O. Box 39 Odanah, WI 54861
WaterReg@badriver-nsn.gov

Bad River Tribe's Natural Resources Department
Attn: Tribal Historic Preservation Officer (THPO)
P.O. Box 39 Odanah, WI 54861
THPO@badriver-nsn.gov

The operator must also submit a copy of the Notice of Termination (NOT) to the above addresses at the same time it is submitted to the U.S. EPA. Photographs showing the current site conditions must be included as part of the NOT to document the stabilization requirements have been met.

x. The THPO must be provided 30 days to comment on the project.

xi. The operator must obtain THPO concurrence in writing. This written concurrence will outline measures to be taken to prevent or mitigate effects to historic

FOR REFERENCE ONLY

properties. For more information regarding the specifics of the cultural resources process, see 36 CFR Part 800. A best practice for an operator is to consult with the THPO during the planning stages of an undertaking.

xii. An operator of a project, which is eligible for coverage under the CGP, that would result in an allowable discharge under the CGP occurring within the exterior boundaries of the Bad River Reservation must submit a copy of the Stormwater Pollution Prevention Plan (SWPPP) to the following address at the same time as submitting the NOI:

Bad River Tribe's Natural Resources Department
Attn: Water Regulatory Specialist
P.O. Box 39 Odanah, WI 54861
WaterReg@badriver-nsn.gov

xiii. Any corrective action reports that are required under the CGP must be submitted to the following address within one (1) working day of the report completion:

Bad River Tribe's Natural Resources Department
P.O. Box 39 Odanah, WI 54861
WaterReg@badriver-nsn.gov

xiv. An operator of a project, which is eligible for coverage under the CGP, that would result in an allowable discharge under the CGP occurring within the exterior boundaries of the Bad River Reservation must submit a copies of the inspection reports (including photographs) to the following address within 24 hours of completing any site inspection required:

Bad River Tribe's Natural Resources Department Attn: Water Regulatory Specialist
P.O. Box 39 Odanah, WI 54861
WaterReg@badriver-nsn.gov

xv. An operator shall be responsible for meeting any additional permit requirements imposed by the U.S. EPA necessary to comply with the Tribe's antidegradation policies if the discharge point is located upstream of waters designated by the Tribe.

FOR REFERENCE ONLY

9.6 EPA REGION 6

9.6.1 NMR100000 State of New Mexico, except Indian country

a. In Outstanding National Resource Waters (ONRWs) in New Mexico, no degradation is permitted except in limited, specifically defined instances. Therefore, Operators are not eligible to obtain authorization under this general permit for stormwater discharges to waters classified as ONRWs listed in Paragraph D of 20.6.4.9 New Mexico Administrative Code (NMAC), also referred to as "Tier 3 waters" as defined in Appendix A of this permit. Exception: When construction activities are in response to a public emergency (e.g., wildfire, extreme flooding, etc.) and the related work requires immediate authorization to avoid a threat to public health or safety.

i. Operators who conduct construction activities in response to a public emergency to mitigate an immediate threat to public health or safety shall adhere to the requirements in 20.6.4.8(A)(3)(c) NMAC, including notifying the New Mexico Environment Department (NMED) within seven days of initiation of

the emergency action and providing NMED with a summary of the action taken within 30 days of initiation of the emergency action.

ii. For all other scenarios, Operators with proposed discharges to ONRWs in New Mexico shall obtain coverage from EPA under an NPDES Individual Permit and will comply with the additional standards and regulations related to discharges to ONRWs in 20.6.4.8(A) NMAC. Additional information is available from:

New Mexico Environment Department Surface Water Quality Bureau
P.O. Box 5469
Santa Fe, NM 87502-5469 Telephone: 505-827-0187
https://www.env.nm.gov/surface-water-quality/wqs/
https://gis.web.env.nm.gov/oem/?map=swqb

b. If construction dewatering activities are anticipated at a construction site and non-stormwater discharges of groundwater, subsurface water, spring water, and/or other dewatering water are anticipated, the Operators/Permittees must complete the following steps:

1. Review the state's Ground Water Quality Bureau Mapper (https://gis.web.env.nm.gov/GWQB/) and Petroleum Storage Tank Bureau Mapper (https://gis.web.env.nm.gov/GWQB/).

   Check if the following sources are located within the noted distance from the anticipated construction dewatering activity. At a minimum, a list of the following potential sources of contaminants and pollutants at the noted distance is to be kept in the SWPPP.

FOR REFERENCE ONLY

Source of Potential Contamination or Pollutants*	Constituents likely to be required for testing*
Within 0.5 mile of an open Leaking Underground Storage Tank (LUST) site	BTEX (Benzene, Toluene, Ethylbenzene, and Xylene) plus additional parameters depending on site conditions**
Within 0.5 mile of an open Voluntary Remediation site	All applicable parameters or pollutants listed in 20.6.4.13, 20.6.4.52, 20.6.4.54, 20.6.4.97 thru 20.6.4.99, 20.6.4.101 through 20.6.4.899, and 20.6.4.900 NMAC (or an alternate list approved by the NMED-SWQB)*
Within 0.5 mile of an open RCRA Corrective Action Site	
Within 0.5 mile of an open Abatement Site	
Within 0.5 mile of an open Brownfield Site	
Within 1.0 mile or more of a Superfund site or National Priorities List (NPL) site with associated groundwater contamination.	
Construction activity contaminants and/or natural water pollutants	Additional parameters depending on site activities and conditions (Contact NMED- SWQB for an alternate list)*

*For further assistance determining whether dewatering may encounter contaminated sources, please contact the NMED Ground Water Quality Bureau at 505-827-2965 or NMED Surface Water Quality Bureau (SWQB) at 505-827-0187.

** EPA approved sufficiently sensitive methods must be used. For known PCB sources and analysis, EPA Method 1668C must be used (see https://www.epa.gov/cwa-methods).

FOR REFERENCE ONLY

2. If dewatering activities are anticipated, information on the flow rate and potential to encounter contaminated groundwater, subsurface water, spring water, or dewatering water must be provideddirectly to NMED at the following address:

   NMED Surface Water Quality Bureau

   Program Manager, Point Source Regulation
   SectionPO Box 5469, Santa Fe, NM 87502

   Please call the SWQB to obtain the appropriate email address (505-827-0187).

3. In addition, the Operator/Permittee must characterize the quality of the groundwater and subsurface water, spring water, or dewatering water being considered for discharge according to the table above and including dissolved hardness and pH. Considering the contaminant sources listed in the table above, water quality data may already be available. For further assistance, contactthe

NMED Surface Water Quality Bureau (505-827-0187), Ground Water Quality Bureau (505-827- 2965), Petroleum Storage Tank Bureau (505-476-4397), or Hazardous Waste Bureau (505-476- 6000).

i. The Operator/Permittee must submit recent analytical test results (i.e., within the past 5 years) according to the table above, and including dissolved hardness and pH, to the EPA Region 6 Stormwater Permit Contact and the NMED Surface Water Quality Bureau (see contact information in #2 above). If the test data exceed applicable water quality standards, then the groundwater, subsurface water, spring water, or dewatering water cannot be discharged into surface waters under this general permit. Operators/Permittees may submit an NPDES Individual Permit application to treat and discharge to waters of the U.S. or find alternative disposal measures. No discharges to surface waters are allowed until authorized.

ii. If the discharge has the potential to affect groundwater (e.g., land application), the Operator/Permittee must submit an NOI to the NMED Ground Water Quality Bureau (see 20.6.2.1201 NMAC – Notice of Intent to Discharge).

4. The Operator/Permittee must document any findings and all correspondence with NMED and EPA in the SWPPP.

c. Operators who intend to obtain authorization under this permit for new and existing storm water dischargesfrom construction sites must satisfy the following condition:

i. The SWPPP must include site-specific interim and permanent stabilization, managerial, and structural solids, erosion and sediment control best management practices (BMPs) and/or other controls that are designed to prevent to the maximum extent practicable an increase in the sediment yield and flow velocity from pre-construction, pre-development conditions to assure thatapplicable standards in 20.6.4 NMAC, including the antidegradation policy, and TMDL waste load allocations (WLAs) are met. This requirement applies to discharges both during construction and after construction operations have been completed. The SWPPP must identify and document the rationale for selecting these BMPs and/or other controls. The SWPPP must also describe design specifications, construction specifications, maintenance schedules (including a long-term maintenance plan), criteria for inspections, and expected performance and longevity of these BMPs.For sites greater than 5 acres in size, BMP selection must be made based on the use of appropriatesoil loss prediction models (i.e. SEDCAD, RUSLE, SEDIMOT, MULTISED, etc.) OR equivalent generallyaccepted (by professional erosion control specialists) soil loss prediction tools.

ii. For all sites, the Operator(s) must demonstrate, and include documentation in the SWPPP, that implementation of the site-specific practices will ensure that the applicable standards and TMDL WLAs are met, and will result in sediment yields and flow velocities that, to the maximum extent practicable, will not be greater than the sediment yield levels and flow velocities from preconstruction, pre-development conditions.

iii. All SWPPPs must be prepared in accordance with good engineering practices by qualified (e.g., CPESC certified, engineers with appropriate training) erosion control specialists familiar with the use of soil loss prediction models and design of

FOR REFERENCE ONLY

erosion and sediment control systems based on these models (or equivalent soil loss prediction tools). Qualifications of the preparer (e.g., professional certifications, description of appropriate training) must be documented in the SWPPP.The Operator(s) must design, implement, and maintain BMPs in the manner specified in the SWPPP.

NMED supports the use of EPA's small residential lot template if a site qualifies to use it as explained inthe permit, as long as it is consistent with the above requirements. NMED's requirement does not preclude small residential sites from using the template, but it may require an additional short paragraphto justify the selection of specific BMPs for the site.

d. Operators must notify NMED when discharges of toxic or hazardous substances or oil from a spill or other release occurs - see Emergency Spill Notification Requirements, Part 2.3.6 of the permit. For emergencies, Operators can call 505-827-9329 at any time. For non-emergencies, Operators can call 866-428-6535 (voice mail 24-hours per day) or 505-476-6000 during business hours from 8am-5pm, Monday through Friday. Operators can also call the NMED Surface Water Quality Bureau directly at 505-827-0187.

e. Operators of small construction activities (i.e., 1-5 acres) are not eligible to qualify for a waiver in lieu of needing to obtain coverage under this general permit based on Item C.3 of Appendix C (Equivalent Analysis Waiver) in the State of New Mexico.

9.6.2 NMR10I000 Indian country within the State of New Mexico, except Navajo Reservation Lands that are covered under Arizona permit AZR10000I and Ute Mountain Reservation Lands that are covered under Colorado permit COR10000I.

a. Nambe Pueblo

i. The operator must provide a copy of the Notice of Intent (NOI) and Notice of Termination (NOT) to the Nambe Pueblo Governor's Office at the same time it is provided to the US Environmental Protection Agency. The NOI and NOT should be provided to the following address:

Office of the Governor Nambe Pueblo

ISA NPI02 WEST

Nambe Pueblo, New Mexico 87506

ii. The operator must provide a copy of the Storm Water Pollution Prevention Plan (SWPPP) to Nambe Pueblo at the same time it is submitted to the EPA, either by email to governor@nambepueblo.org or mailed to the above address.

iii. The operator must provide copies of inspection reports, a copy of the corrective action log, and modifications made to the SWPPP as a result of inspection findings, upon request by the Nambe Pueblo Department of Environmental and Natural Resources or Nam be Governor.

b. Ohkay Owingeh Tribe

i. All operators obtaining permit coverage under the EPA CGP, must submit a copy of the certified (signed) Notice of Intent (NOI) to the Ohkay Owingeh Office of Environmental Affairs, a copy of NOI modifications and the Notice of Termination (NOT), must be provided within three business days after EPA provides electronic confirmation that the submission has been received. The NOI and NOT must be

FOR REFERENCE ONLY

provided to the following address:

Naomi L. Archuleta - Environmental Programs Manager Ohkay Owingeh Office of Environmental Affairs
P.O. Box 717
Ohkay Owingeh, NM 87566
naomi.archuleta@ohkay.org

Noah Kaniatobe - Environmental Specialist Ohkay Owingeh, Office of Environmental Affairs
P.O. Box 717
Ohkay Owingeh, NM 87566
noah.kaniatohe@ohkay.org

ii. All operators obtaining permit coverage under the EPA CGP, must submit an electronic copy of the Storm Water Pollution Prevention Plan (SWPPP) to Ohkay Owingeh Office of Environmental Affairsat the same time that the NOI is submitted to the tribe (see contact information listed above).

iii. Following each incident where the operator takes a corrective action the operator must provide thecorrective action log to the Ohkay Owingeh Office of Environmental Affairs.

iv. The operator must notify Ohkay Owingeh Office of Environmental Affairs within 24 hours, in the event of an emergency spill in addition to the notification requirements at Part 2.3.6 of the CGP. Please contact: Ohkay Owingeh Tribal Police Department at 505.852.2757.

Please contact:
Ohkay Owingeh
Tribal Police Department
505.852.2757

c. Pueblo of Isleta

i. All operators obtaining permit coverage under the EPA CGP must submit a copy of the certified Notice ofIntent (NOI) to the Pueblo of Isleta at the same time it is submitted to EPA for projects occurring within the exterior boundaries of the Pueblo of Isleta. Additionally, a copy of NOI modifications and the Notice of Termination (NOT), must be provided within three business days after EPA provides electronic confirmation that the submission has been received. The Notices must be provided to the following address:

Water Quality Control OfficerPueblo of Isleta
Environment DepartmentPO Box 1270
Isleta NM 87022
505-869-7565
WQCO@isletapueblo.com

ii. The operator must notify the Pueblo of Isleta's Dispatch at 505-869-3030 as soon as possible and thePueblo of Isleta Water Quality Control Officer within 10 hours, in the event of a spill of hazardous ortoxic substances or if health or the

FOR REFERENCE ONLY

environment become endangered in addition to the notification requirements at Part 2.3.6 and at I.12.6.1 of the CGP.

iii. All operators obtaining permit coverage under the EPA CGP must submit an electronic copy of the Stormwater Pollution Prevention Plan (SWPPP) to the Pueblo of Isleta Water Quality Control Officer atthe above address, 30 days prior to submitting the certified NOI to EPA. If the electronic file is too largeto send through e-mail, a zip file or flash drive may be submitted.

iv. All operators obtaining permit coverage under the EPA CGP must give 2 days advance notice to the Pueblo of Isleta Water Quality Control Officer of any planned changes in the permitted activity whichmay result in noncompliance with permit requirements.

v. All operators obtaining permit coverage under the EPA CGP must post a sign or other notice of permit coverage at a safe, publicly accessible location in close proximity to the construction site. The notice mustbe located so that it is visible from the public road or tribal road that is nearest to the active part of the construction site. The sign must be maintained on site from the time construction activities begin until final stabilization is met.

vi. Erosion and sediment controls shall be designed to retain sediment on-site and project-generatedwaste materials that have the potential to discharge pollutants shall not be placed on open soil or on a surface that is not stabilized. Volumes of sediment over five (5) cubic yards must be removed from the active construction site; additionally, if sediment is placed for disposal withinthe exterior boundaries of the Pueblo of Isleta, disposal must be within a tribally approved sediment disposal site.

d. Pueblo of Laguna

i. All operators obtaining permit coverage under the EPA CGP must submit an electronic copy of the certified (signed) Notice of Intent (NOI) to the Pueblo of Laguna's Environmental & Natural Resources Department (ENRD) within three business days of submittal to the EPA. Additionally, a copy of NOI modifications and the Notice of Termination (NOT), must be provided within three business days after the EPA provides electronic confirmation that the submission has been received. The NOI and NOT must be electronically submitted to info.environmental@pol-nsn.gov.

ii. All operators obtaining permit coverage under the EPA CGP must submit an electronic copy of the Stormwater Pollution Prevention Plan (SWPPP) to the Pueblo of Laguna's ENRD 14 days prior to the submittal of the NOI (see contact information listed above).

iii. The operator must provide copies of corrective actions logs and modifications made to the SWPPP as a result of inspection findings to the Pueblo of Laguna ENRD (see contact information above).

iv. In addition to the notification requirements of Part 2.3.6 of the CPG ***[EPA interprets this intending to refer to the CGP]***, the operator must notify the Pueblo of Laguna ENRD at 505-552-7512 in the event of an emergency spill as soon as possible.

e. Pueblo of Sandia. The following conditions apply only to discharges on the Pueblo of Sandia Reservation:

FOR REFERENCE ONLY

i. All operators obtaining permit coverage under the EPA CGP, must submit a copy of the certified (signed) Notice of Intent (NOI) to the Pueblo of Sandia Environment Department concurrently with submittal to the EPA. Additionally, a copy of NOI modifications and the Notice of Termination (NOT), must be provided concurrently with submittal to the EPA. The NOI and NOT must be provided electronically to the following addresses:

Electronic Addresses:

Amy Rosebrough (Water Quality Manager): rosebrough@sanidapueblo.nsn.us
Greg Kaufman (Environment Director):gkaufman@sandiapueblo.nsn.us

ii. All operators obtaining permit coverage under the EPA CGP, must submit an electronic copy of the Stormwater Pollution Prevention Plan (SWPPP) to the Pueblo of Sandia Environment. Department at least 14 days prior to submittal of the NOI to the Pueblo (see contact information listed above).

iii. If requested by the Pueblo of Sandia Environment Department, the permittee must provide additional information necessary on a case-by-case basis to assure compliance with the Pueblo of Sandia Water Quality Standards and/or applicable Federal Standards.

iv. An "Authorization to Proceed Letter" with site specific mitigation requirements may be sent out to the permittee when a review of the NOI and SWPPP, on a case-by-case basis, is completed by the Pueblo of Sandia Environment Department. This approval will allow the application to proceed if all mitigation requirements are met.

v. The Pueblo of Sandia will not allow Small Construction Waivers (Appendix C) to be granted for any small construction activities.

vi. The operator must provide copies of inspection reports, a copy of the corrective action log, and modifications made to the SWPPP as a result of inspection findings to the Pueblo of Sandia Environment Department upon request. An inspection report and corrective action log must be submitted to the Pueblo within 3 days of any inspection that results in corrective action (see contact information listed above).

vii. The operator must notify the Pueblo of Sandia within 24 hours in the event of an emergency spill, in addition to the notification requirements at Part 2.3.6 of the COP (see contact information listed above).

viii. Before submitting a Notice of Termination (NOT) to the EPA, permittees must clearly demonstrate to the Pueblo of Sandia Environment Department through a site visit or documentation that requirements for site stabilization have been met and any temporary erosion control structures have been removed. A short letter stating that the NOT is acceptable and all requirements have been met will be sent to the permittee to add to the permittee's NOT submission to the EPA.

f. Pueblo of Santa Ana. The following conditions apply only to discharges on the Pueblo of Santa Ana Reservation:

i. All operators obtaining permit coverage under the EPA CGP, must submit a copy of the certified (signed) Notice of Intent (NOI) to the Pueblo's Department of Natural Resources within three business days of submittal to EPA. Additionally, a copy of NOI modifications and the Notice of Termination (NOT), must be

FOR REFERENCE ONLY

provided within three business days after EPA provides electronic confirmation that the submission has been received. The NOI and NOT must be provided to the following address:

Regular U.S. Delivery Mail:
Pueblo of Santa Ana
Department of Natural Resources Water Resources Division
Attn: Andrew Sweetman 02 Dove Rd
Santa Ana Pueblo, NM 87004

Electronically:
Andrew Sweetman
Water Resources Division Manager Andrew.Sweetman@santaana-nsn.gov
Tammy Montoya Hydrologist
Tammy.Montoya@santaana-nsn.gov

ii. All operators obtaining permit coverage under the EPA CGP, must submit an electronic copyof the Stormwater Pollution Prevention Plan (SWPPP) to the to the Pueblo's Department of Natural Resources at the same time that the NOI is submitted to the tribe (see contact information listed above).

iii. The operator must provide copies of inspection reports, a copy of the corrective action log, and modifications made to the SWPPP as a result of inspection findings, upon request by the Pueblo's Department of Natural Resources.

iv. The operator must notify the Pueblo's Department of Natural Resources within 24 hours in the event of an emergency spill, in addition to the notification requirements at Part 2.3.6 of the CGP.

g. Pueblo of Taos

i. All operators obtaining permit coverage under the EPA CGP, must submit a copy of the certified (signed) Notice of Intent (NOi) to the Taos Pueblo Environmental Office and Taos Pueblo Governor's Office within three business days of submittal to EPA. Additionally, a copy of NOi modifications and the Notice of Termination (NOT), must be provided within three business days after EPA provides electronic confirmation that the submission has been received. The NOi and NOTmust be provided to the following addresses:

Honorable Governor of Taos Pueblo PO Box 1846
Taos, New Mexico 87571

Taos Pueblo Environmental Office PO Box 1846
Taos, New Mexico 87571

ii. All operators obtaining permit coverage under the EPA CGP, must submit an electronic copy of theStormwater Pollution Prevention Plan (SWPPP) to the Taos Pueblo Environmental Office when the NOI is submitted to the tribe. Electronic copy of SWPPP downloaded on flash drive may be sent to the above address for the Taos Pueblo Environmental Office.

iii. The operator must provide a copy of the corrective action log following each corrective action undertaken and modifications made to the SWPPP as a result of

FOR REFERENCE ONLY

a corrective action to the Taos Pueblo Environmental Office at address listed above.

h. Pueblo of Tesuque.

i. All operators obtaining permit coverage under the EPA CGP, must submit a copy of the certified (signed) Notice of Intent (NOI) to the Pueblo of Tesuque Department of Environment and Natural Resources (DENR) and the Pueblo's Governor within three business days of submittal to EPA. Additionally, a copy of any NOi modifications and the Notice of Termination (NOT), must be provided within three business days after EPA provides electronic confirmation that the submission has been received. The NOI and NOT must be provided to the following address:

Governor Mark Mitchell Pueblo of Tesuque
20 TP 828
Santa Fe, NM 87506 governor@pueblooftesuque.org

Sage Mountain.flower Pueblo of Tesuque
Department of Environment and Natural Resources Director
20 TP 828

ii. All operators obtaining permit coverage under the EPA CGP, must submit an electronic copyof the Stormwater Pollution Prevention Plan (SWPPP) to Pueblo of Tesuque DENR and the Pueblo's Governor at the same time that the NO! is submitted to the EPA (see contact information listed above).

iii. The operator must provide a copy of the corrective action log, and any modifications made tothe SWPPP as a result of inspection findings, or upon request by the Pueblo of Tesuque DENR.

iv. The operator must notify the Pueblo of Tesuque DENR within 24 hours in the event of an emergency spill, in addition to the notification requirements at Part 2.3.6 of the CGP (seecontact information listed above).

i. Santa Clara Indian Pueblo.

i. All operators obtaining permit coverage under the EPA CGP, must submit a copy of the certified (signed) Notice of Intent (NOI) to the Santa Clara Pueblo Office of Environmental Affairs at the same time the NOI is submitted to the U.S. EPA. Additionally, a copy of the NOI modifications and the Notice of Termination (NOT), must be provided at the same time after electronic confirmation is received from EPA that the NOT has been accepted. The NOI and NOT shall be provided to the following address in electronic format:

Dino Chavarria,
Santa Clara Pueblo
Office of Environmental Affairs
dinoc@santaclarapueblo.org

ii. All operators obtaining permit coverage under the EPA CGP, must submit an electronic copy of the Stormwater Pollution Prevention Plan to the Santa Clara Pueblo Office of Environmental Affairs at the same time the NOI is submitted to the U.S. EPA (see contact information listed above).

FOR REFERENCE ONLY

iii. The operator must notify the Santa Clara Pueblo Office of Environmental Affairs at the address above within 24 hours, in the event of an emergency spill, in addition to the notification requirements at Part 2.3.6 of the CGP

9.6.3 OKR10I000 Indian country within the State of Oklahoma, except areas of Indian country covered by an extension of state program authority pursuant to Section 10211 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act (SAFETEA).

a. Pawnee Nation. The following conditions apply only to discharges within Pawnee Indian country:

i. Copies of the Notice of Intent (NOI) and Notice of Termination (NOT) must be provided to the Pawnee Nation at the same time it is submitted to the Environmental Protection Agency to the following address:

Pawnee Nation Department of Environmental Conservation and Safety
P.O. Box 470
Pawnee, OK 74058
Or email to dnrs@pawneenation.org

ii. An electronic copy of the Storm Water Pollution Prevention Plan (SWPPP) must be submitted to the Pawnee Nation Department of Environmental Conservation and Safety at the same time the NOI is submitted.

iii. The operator must provide access to the site for inspections and for copies of inspection reports, copy of the corrective action log and modifications, made to the SWPPP because of inspection findings, upon request by the Pawnee Nation DECS.

iv. The Pawnee Nation Department of Environmental Conservation and Safety must be notified at 918.762.3655 immediately upon discovery of any noncompliance with any provision of the permit conditions.

9.6.4 OKR10F000 Discharges in the State of Oklahoma that are not under the authority of the Oklahoma Department of Environmental Quality, or the Oklahoma Department of Agriculture and Forestry including activities associated with oil and gas exploration, drilling, operations, and pipelines (includes SIC Groups 13 and 46, and SIC codes 492 and 5171), and point source discharges associated with agricultural production, services, and silviculture (includes SIC Groups 01, 02, 07, 08, 09).

a. For activities located within the watershed of any Oklahoma Scenic River, including the Illinois River, Flint Creek, Barren Fork Creek, Upper Mountain Fork, Little Lee Creek, and Lee Creek or any water or watershed designated "ORW" in Oklahoma's Water Quality Standards, this permit may only be used to authorize discharges from temporary construction activities. Certification is denied for any on-going activities such as sand and gravel mining or any other mineral mining.

b. For activities located within the watershed of any Oklahoma Scenic River, including the Illinois River, Flint Creek, Barren Fork Creek, Upper Mountain Fork, Little Lee Creek, and Lee Creek or any water or watershed designated "ORW" in Oklahoma's Water Quality Standards, certification is denied for any discharges originating from support activities, including, but not limited to, concrete or asphalt batch plants, equipment staging yards, material storage areas, excavated material disposal areas, or borrow areas.

FOR REFERENCE ONLY

c. Dewatering discharges into sediment or nutrient-impaired waters, and waters identified as Tier 2, Tier 2.5, or Tier 3 (OAC 785:46-13) shall be controlled to meet water quality standards for turbidity in those waters as follows:

i. Cool Water Aquatic Community/Trout Fisheries: 10 NTUs (OAC 785: 45-5-12(f)(7)(A)(i)

ii. Lakes: 25 NTUs (OAC 785: 45-5-12(f)(7)(A)(ii)

iii. In waters where background turbidity exceeds these values, turbidity from dewatering discharges should be restricted to not exceed ambient levels (OAC 785: 45-5-12(f)(7)(B)

9.7 EPA REGION 7

No additional conditions.

9.8 EPA REGION 8

9.8.1 MTR10I000 Indian country within the State of Montana

a. Blackfeet Nation.

i. The Applicant and applicants for projects authorized under the NWPs should obtain all other permits, licenses, and certifications that may be required by federal, state, or tribal authority. Primary relevant tribal permit will be ALPO (Ordinance 117). Others may apply. It is the applicant's responsibility to know the tribal and local ordinances and complete all necessary permissions before they can commence work.

ii. If a project is unable to meet the enclosed conditions, or if certification is denied for an applicable NWP, the Applicant may request an individual certification from Blackfeet. An individual certification request must follow the requirements outlined in 40 CFR 121.5 of EPA's CWA § 401 Certification Rule, effective September 11, 2020.

iii. Copies of this certification should be kept on the job site and readily available for reference.

iv. If the project is constructed and/or operated in a manner not consistent with the applicable NWP, general conditions, or regional conditions, the permittee may be in violation of this certification.

v. Blackfeet and EPA representatives may inspect the authorized activity and any mitigation areas to determine compliance with the terms and conditions of the NWP.

vi. This NWP Reissuance does not reduce Tribal authority under any other rule.

vii. The project, including any stream relocations and restoration, must be built as shown and as otherwise described in the application, the construction plans, cross sections, mitigation plans and other supporting documents submitted to this office. Impacts to aquatic systems and restoration efforts will be monitored by an appropriate aquatic resource professional to ensure that disturbed areas are restored to at least their original condition.

viii. All existing water uses will be fully maintained during and after the completion of the project. (If applicable)

FOR REFERENCE ONLY

ix. Where practicable, perform all in-channel and wetland work during periods of low flow or drawn—down or when dry

x. Equipment staging areas must be located out of all delineated wetlands

xi. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during and immediately after construction, and all exposed soil and other fills, as well as any work below the ordinary high-water mark or in a wetland, must be permanently stabilized as soon as possible

xii. Materials such as piling, culverts, sandbags, fabric, mats, timbers used for temporary facilities in wetlands or below the high- water mark of Waters of the US must be free from oil, gas, excess dirt, loose paint and other pollutants.

xiii. Equipment staging areas in wetlands or in stream or river channels must be placed on mats, or other measures must be taken to minimize soil disturbance and compaction.

xiv. Clearing of riparian or wetland vegetation for the sole purpose of constructing work bridges, detours, staging areas or other temporary facilities must be limited to the absolute minimum necessary. When temporary impacts to native riparian or wetland vegetation are unavoidable, it must be mowed or cut above ground with the topsoil and root mass left intact.

xv. Remove all temporary fills and structures in the entirety when they are no longer needed. Restore affected areas to the appropriate original and planned contours where possible. Re-vegetate disturbed areas with appropriate native species when native species are impacted.

xvi. Construction methods and best management practices (BMPs) must minimize aquatic resource impacts to the maximum extent possible. Any BMPs described in the Joint Application must be followed. BMPs should include installation and maintenance of sediment control measures; separation, storage and reuse of any topsoil; and recovery of all disturbed areas where possible. All best management practices must in place prior to the onset of construction or as soon as practicable during the construction process.

xvii. Best available technology and/or best management practices must be utilized to protect existing water uses and maintain turbidity and sedimentation at the lowest practical level.

xviii. Applicant/contractor should manage disturbed streambank topsoil in a manner that optimizes plant establishment for the site.

xix. When operating equipment or otherwise undertaking construction in wetlands and water bodies the following conditions apply:

(k) Work should be done in dry conditions if possible.

(l) All equipment is to be inspected for oil, gas, diesel, anti-freeze, hydraulic fluid or other petroleum leaks. All such leaks will be properly repaired and equipment cleaned prior to being allowed on the project site. Leaks that occur after the equipment is moved to the project site will be fixed the same day or the next day or removed from the project area. The equipment is not allowed to continue operation once a leak is discovered.

FOR REFERENCE ONLY

(m) All equipment is to be inspected and cleaned before and after use to minimize the spread or introduction of invasive or undesirable species.

(n) Construction equipment shall not operate below the existing water surface except as follows:

- Impacts from construction should be minimized through the use of best management practices submitted in the permit application.
- Essential work below the waterline shall be done in a manner to minimize impacts to aquatic system and water quality.

(o) Containment booms and/or absorbent material must be available onsite. Any spills of petroleum products must be reported to the Army Corps, Blackfeet Nation BEO Office and the US EPA within 24 hours.

xx. Upland, riparian and in-stream vegetation should be protected except where its removal is necessary for completion of work. Revegetation should be completed as soon as possible. Applicant/contractor should revegetate disturbed soil in a manner that optimizes plant establishment for the site. Revegetation must include topsoil replacement, planting, seeding, fertilization, liming and weed-free mulching as necessary. Applicant must use native plant material and soils where appropriate and feasible. This certification does not allow for the introduction of non-native flora and fauna. All disturbed surface areas must be restored to pre-construction contours and elevation.

xxi. Spoils piles should not be placed or stored within the delineated wetlands or streams unless protected by a temporary structure designed to divert and handle high flows that can be anticipated during permit activity. Spoils piles should be placed on landscaping fabric or some other material to separate spoils material and allow retrieval of spoils material with minimal impact.

xxii. Impacts to wetlands shall not exceed 4.92 acres.

xxiii. Any unexpected and additional impacts to waters of the US should be reported to the

xxiv. Army Corps, Blackfeet Environmental Office Water Quality Coordinator and the US EPA.

xxv. All instream and stream channel reconstruction work must be completed before the stream is diverted into the new channel.

xxvi. Any temporary crossings, bridge supports, cofferdams, or other structures that are necessary during permit activity should be designed to handle high flows that can be anticipated during permit activity. All temporary structures should be completely removed from the water body at the conclusion of the permitted activity and the area restored to a natural function and appearance.

xxvii. The certification does not authorize any unconfined discharge of liquid cement into the waters of the United States. Grouting riprap must occur under dry conditions with no exposure of wet concrete to the water body.

xxviii. BMPs shall include application of certified weed-free straw or hay across all disturbed wetland areas that are temporarily impacted; installation and maintenance of sediment control measures during construction and if necessary, after construction is completed; use of heavy mud mats if necessary; separation,

FOR REFERENCE ONLY

storage and reuse of all streambank topsoil and wetland topsoil, as appropriate; and recovery of all disturbed wetland and streambank areas where possible. All conditions set by the Blackfeet Tribe and US Army Corps must be followed.

xxix. All applicants, including federal agencies, must notify EPA and the Blackfeet Environmental Office of the use of all NWPs for which certification has been granted prior to commencing work on the project. Notifications must include:

(p) project location (lat. Long., exact point on map);

(q) NWP that will be used and the specific activity that will be authorized under the NWP;

(r) amount of permanent and temporary fills;

(s) a short summary of the proposed activity, and all other federal, state, tribal or local permits or licenses required for the project;

(t) complete contact information of both the applicant and contractor (name, name of the company or property if applicable, telephone, mobile, and email); and,

(u) Summary of best management practices that will be used.

(v) A summary of communications with the affected Tribe's water quality staff regarding the project, including any concerns or issues.

(w) Notify Blackfeet and EPA at least 7 days before the completion of construction and operations begin.

xxx. Point source discharges may not occur: (1) in fens, bogs or other peatlands; (2) within 100 feet of the point of discharge of a known natural spring source; or (3) hanging gardens.

xxxi. Except as specified in the application, no debris, silt, sand, cement, concrete, oil or petroleum, organic material, or other construction related materials or wastes shall be allowed to enter into or be stored where it may enter into waters of the U.S.

xxxii. Silt fences, straw wattles, and other techniques shall be employed as appropriate to protect waters of the U.S. from sedimentation and other pollutants.

xxxiii. Water used in dust suppression shall not contain contaminants that could violate water quality standards.

xxxiv. Erosion control matting that is either biodegradable blankets or loose-weave mesh must be used to the maximum extent practicable.

xxxv. All equipment used in waters of the U.S. must be inspected for fluid leaks and invasive species prior to use on a project. All fluid leaks shall be repaired and cleaned prior to use or when discovered, or if the fluid leak can't be repaired, the equipment shall not be used on site. Equipment used in waters with the possibility of aquatic nuisance species infestation must be thoroughly cleaned and effectively decontaminated before they are used on the project.

FOR REFERENCE ONLY

xxxvi. Vegetation should be protected except where its removal is necessary for completion of the work. Locations disturbed by construction activities should be revegetated with appropriate native vegetation in a manner that optimizes plant establishment for the specific site.

xxxvii. Revegetation may include topsoil replacement, planting, seeding, fertilization, liming, and weed-free mulching, as necessary. Where practical, stockpile weed- seed-free topsoil and replace it on disturbed areas. All revegetation materials, including plants and plant seed shall be on site or scheduled for delivery prior to or upon completion of the earth moving activities.

xxxviii. Activities may not result in any unconfined discharge of liquid cement into waters of the U.S. Grouting riprap must occur under dry conditions with no exposure of wet concrete to the waterbody.

xxxix. Activities that may result in a point source discharge shall occur during seasonal low flow or no flow periods to the extent practicable.

xl. The placement of material (discharge) for the construction of new dams is not certified, except for stream restoration projects.

xli. Any decision-maker that is required under 7.0 of the CGP to prepare a Stormwater Pollution Prevention Plan (SWPPP), must submit an electronic copy of the SWPPP to the Blackfeet Environmental Office at least 30 days before construction starts for review and approval. Any modifications to the SWPPP should be submitted to the Blackfeet Environmental Office.

xlii. Any Decision-maker required under Part 1.4 of the CGP to submit a Notice of Intent (NOI) to EPA for coverage under the CGP, must submit a copy of the NOI to the Blackfeet Environmental Office within three business days of submittal to EPA. Additionally, a copy of the Notice of Termination (NOT) must be provided within three business days after electronic confirmation is received from EPA that the NOT has been accepted. The NOI and NOT must be provided to the following address: Gerald Wagner, Blackfeet Environmental Office Director.

62 Hospital Drive, Browning, MT 59417

beo.director@gmail.com

FOR REFERENCE ONLY

b. Fort Peck Tribes.

i. Any Decision-maker required under Part 1.4 of the CGP to submit a Notice of Intent (NOI) to EPA for coverage under the CGP, must submit a copy of the NOI to the Fort Peck Tribes Office of Environmental Protection within three business days of submittal to EPA. Additionally, a copy of the Notice of Termination (NOT) must be provided within three business days after electronic confirmation is received from EPA that the NOT has been accepted. The NOI and NOT must be provided to the following address:

Martina Wilson, Office of Environmental Protection Director

501 Medicine Bear Rd Poplar, MT 59255

martinawilson@fortpecktribes.net

ii. Any Decision-maker that is required under Part 7.0 of the CGP to prepare a Stormwater Pollution Prevention Plan (SWPPP), must submit an electronic copy of the SWPPP to the Fort Peck Tribes Office of Environmental Protection at least 30 days before construction starts for review and approval. Any modifications to the

SWPPP should be submitted to the Fort Peck Tribes Office of Environmental Protection.

iii. Any Decision-maker that is required under Part 8.0 of the CGP to submit a weekly, bi-weekly, and/or annual report to EPA, must submit an electronic copy of the annual report to the Fort Peck Tribes Office of Environmental Protection within three business days after submittal to EPA.

9.9 EPA REGION 9

9.9.1 CAR10I000 Indian country within the State of California

a. Morongo Band of Mission Indians

i. A copy of the Stormwater Pollution Prevention Plan (SWPPP) must be submitted (either mailed or electronically) to the MEPD no less than thirty (30) days before commencing construction activities:

Morongo Band of Mission Indians
Environmental Protection Department
12700 Pumarra Road
Banning, CA 92220
Email: epd@morongo-nsn.gov

ii. Copies of the Notice of Intent (NOI) and the Notice of Termination (NOT) must be sent to the MEPD at the same time they are submitted to EPA.

iii. Operators of an "emergency-related project" must submit notice to the MEPD within twenty- four (24) hours after commencing construction activities.

iv. Spills, leaks, or unpermitted discharges must be reported to the MEPD within twenty-four (24) hours of the incident, in addition to the reporting requirements of the CGP.

v. Projects utilizing cationic treatment chemicals (as defined in Appendix A of the CGP) within the Morongo Reservation are not eligible for coverage under this certification of the CGP.

vi. Facilities covered under the CGP will be subject to compliance inspections by MEPD staff, including compliance with final site stabilization criteria prior to submitting an NOI ***[EPA assumes this intended to refer to an NOT]***.

FOR REFERENCE ONLY

9.9.2 GUR100000 Island of Guam

a. For purposes of this Order, the term "Project Proponent" shall mean U.S. Environmental Protection Agency, and its agents, assignees, and contractors.

b. For purposes of this Order, the permit "Operator" shall mean any party associated with a construction project that meets either of the following two criteria:

i. The party has operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications (e.g. in most cases this is the owner of the site); or

ii. The party has day-to-day operational control of those activities at a project that are necessary to ensure compliance with the permit conditions (e.g., they are authorized to direct workers at a site to carry out activities required by the permit; in most cases this is the general contractor of the project).

Subcontractors generally are not considered operators for the purposes of this permit.

c. The Project Proponent shall enforce the proposed 2022 CGP and ensure that the Operator complies with the conditions of the permit at all times.[108] (40 CFR §121.11(c))

d. All submittals required by this Order shall be sent to the Guam Environmental Protection Agency Attn: 401 Federal Permit Manager, Non-Point Source Program, EMAS Division, 3304 Mariner Avenue, Bldg. 17-3304, Barrigada, Guam 96913, AND via email to jesse.cruz@epa.guam.gov. The submittals shall be identified with WQC Order #2021- 04 and include the COP Permit Number, certifying representative's name, title, mailing address and phone number. (§51060)(4) 2017 GWQS)

e. A copy of the Operator's signed Stormwater Pollution Prevention Plan (SWPPP) and signed Notice of Intent (NOI) and Notice of Termination (NOT) submitted to EPA for review and approval, shall concurrently be submitted to Guam EPA, consistent with condition A4. Coordination with Guam EPA is encouraged when the receiving water(s) for the proposed discharge is/are being identified. (§10105.B.5.d.) GSESCR; (§51060)(4) 2017 GWQS)

f. The Operator must comply with the conditions and requirements set forth in 22 GAR 10, Guam Soil Erosion and Sediment Control Regulations (GSESCR).

g. Before submitting the NOT to EPA, Operators shall comply with GSESC regulations at §10105.B10. (Stabilization of Affected Areas) and §10107.B. {Final Inspection and Approval)

h. All operators/owners shall comply with the general design criteria for best management practices (BMPs) acceptable for meeting the Construction and Post-construction stormwater criteria in the 2006 CNMI and Guam Stormwater Management Manual. (E.O. 2012-02)

i. Operating reports and monitoring and analytical data (e.g. Discharge Monitoring Reports (DMRs), follow-up monitoring reports, Exceedance Reports for Numerical Effluent Limits, etc.) submitted to EPA shall be concurrently submitted to Guam EPA, consistent with condition A4. §51060)(4) 2017 GWQS

j. The Operators who install a sediment basin or similar impoundment shall maintain the storage capacity of five thousand cubic feet {5,000 cu. ft.) per acre of project area tributary to the basin. (§10105.B.5.i.) GSESCR

k. (1) This Order does not authorize EPA to qualify Rainfall Erosivity Waivers to stormwater discharges associated with small construction activities (i.e. 1-5 acres). Operators are required to apply for an NOI for those projects eligible for coverage under the proposed 2022 CGP. An Erosion and Sediment Control Plan is required for every site that would be covered by the proposed 2022 CGP. (22 GAR §10104) The average annual rainfall for Guam and the CNMI exceeds I00 inches per year in many locations. These climatic conditions combined with the region's unique limestone, volcanic geologic formations, sensitive water resources and significant land

[108] By incorporating this condition into the permit, EPA acknowledges receipt of Guam's certification conditions.

FOR REFERENCE ONLY

development forces make stormwater discharges a very significant environmental and economic issue. (2006 CNMJ/Guam Stormwater Management Manual) E.O. 2012-02

(2) This Order does not authorize EPA to approve a Sediment TMDL Waiver for the Ugum River. Operators of construction activities eligible for a TMDL Waiver in lieu of coverage under the proposed 2022 CGP, shall submit a complete and accurate waiver certification as described in C.2., Appendix C - (Small Construction Waivers) to Guam EPA per condition A4., prior to notifying EPA of its intention to obtain a waiver. §51060)(4) 2017 GWQS

l. The Project Proponent shall submit to Guam EPA a signed Statement of Understanding of Water Quality Certification Conditions.[109] (see Attachment A for an example) per condition A4. §51060)(4) 2017 GWQS

m. The Operator shall comply with applicable provisions of the Guam Pesticides Act of2007 (10 GCA Chapter 50) and implementing regulations at Title 22 GAR Chapter 15 for any use and application of pesticides.

n. Point source discharge(s) to waterbodies under the jurisdiction of Guam EPA must be consistent with the antidegradation policy in 22 GAR §510l(b).

o. The operator shall carry out construction activities in such a manner that will not violate Guam Water Quality Standards (GWQS). Proposed 2022 CGP discharges are prohibited as follows:

- **i.** In Marine Waters, Category M-1 Excellent 22 GAR Chapter 5 §5102(b)(I); and
- **ii.** In Surface Waters, Category S-1 High 22 GAR Chapter 5 §5102(c)(I)

p. In addition to complying with construction dewatering requirements in Part 2.4 and site inspection requirements for all areas where construction dewatering is taking place in Part 4 of the proposed 2022 CGP, Operators shall comply with all dewatering conditions and requirements set forth in 22 GAR 7, Water Resources Development and Operating Regulations, to include securing Guam EPA permits prior to any dewatering activities.

q. The Operator shall develop and implement a Spill Prevention and Containment Plan.

r. The Operator shall have adequate and appropriate spill response materials on hand to respond to emergency release of oil, petroleum or any other material into waters of the territory.

s. Any unpermitted discharge into territorial waters or onto land with a potential for entry into territorial waters, is prohibited. If this occurs, the Operator shall immediately take the following actions:

- **i.** Cease operations at the location of the violation or spill.
- **ii.** Assess the cause of the water quality problem and take appropriate measures to correct the problem and/or prevent further environmental damage.
- **iii.** Notify Guam EPA of the failure to comply. All petroleum spills shall be reported immediately to:

[109] By incorporating this condition into the permit, EPA acknowledges receipt of Guam's certification conditions.

FOR REFERENCE ONLY

(x) Guam's Emergency 911 system

(y) Guam EPA's 24-Hour Spill Response Team at (671) 888-6488 or during working hours (671) 300-4751

(z) US Coast Guard Sector Guam (671) 355-4824

(aa) National Response Center 1-800-424-8802

iv. Submit a detailed written report to Guam EPA within five days of noncompliance that describes the nature of the event corrective action taken and/or planned, steps to be taken to prevent a recurrence, results of any samples taken, and any other pertinent information.

t. Compliance with this condition does not relieve the Operator from responsibility to maintain continuous compliance with the terms and conditions of this Order or the resulting liability from failure to comply.

u. Submittal or reporting of any of this information does not provide relief from any subsequent enforcement actions for unpermitted discharges to waters of the United States.

v. This Order is valid for five (5) Years from Date of Certification, unless otherwise approved by the Guam EPA Administrator.

w. The Operator shall be required to adhere to the current Guam Coral Spawning Moratorium dates for both hard and soft corals where in-water activities and/or construction activity in close proximity with marine waters may impair water quality. These dates can be obtained from the Guam Department of Agriculture, Division of Aquatic and Wildlife Resources, or the NOAA NMFS Pacific Islands Regional Office Habitat Conservation Division.

x. The Operator shall provide notice to Guam EPA consistent with Condition A4:

(a) Immediately upon discovery of noncompliance with the provisions of this Order.

y. A Notice of Violation/Work Stop Order will be issued if certification conditions are not adhered to or when significant or sustained water quality degradation occurs. Work or discharge shall be suspended or halted until the Operator addresses environmental problems/concerns to Guam EPA's satisfaction. Guam EPA may also levy penalties and fines (10 GCA §47111). Invalidity or enforceability of one or more provisions of this certification shall not affect any other provision of this certification.

FOR REFERENCE ONLY

9.10 EPA REGION 10

9.10.1 IDR10I000 Indian country within the State of Idaho, except Duck Valley Reservation lands (see Region 9)

a. Shoshone-Bannock Tribes

i. Copies of the following information must be sent to the SBT-WRD:

(a) Notice of Intents (NOI)

The Notice of Intent shall be forwarded to the SBT-WRD within thirty (30) days of receipt of submitting NOI to the USEPA.

Shoshone-Bannock Tribes Water Resources Department
PO Box 306 Pima Drive
Fort Hall, ID 83203 Phone: (208) 239-4582
Fax: (208) 239-4592
Or Email ctanaka@sbtribes.com

ii. If requested by the SBT-WRD, the permittee must submit a copy of the SWPPP to SBT- WRD within fourteen (14) days of the request.

9.10.2 ORR10I000 Indian country within the State of Oregon, except Fort McDermitt Reservation lands (see Region 9)

a. Confederated Tribes of Coos, Lower Umpqua, and Siuslaw

i. No activities allowed under the CGP shall result in the degradation of any Tribal waters or affect resident aquatic communities or resident or migratory wildlife species at any life stage.

ii. The operator shall be responsible for achieving compliance with CTCLUSI Water Quality Standards and all other tribal codes, regulations, and laws as they exist at the time that the permit is submitted.

iii. The operator shall submit a copy of the Notice of Intent (NOI) to be covered by the general permit to the CTCLUSI Water Quality Program before, or at the same time as, it is submitted to EPA.

iv. The operator shall be responsible for submitting all Stormwater Pollution Prevention Plans (SWPPP) required under this general permit to the CTCLUSI Water Quality Program for review and determination that the SWPPP is sufficient to meet Tribal Water Quality Standards, prior to the beginning of any discharge activities taking place.

v. The operator shall be responsible for reporting an exceedance to Tribal Water Quality Standards to the CTCLUSI Water Quality Program at the same time it is reported to EPA.

vi. The THPO will be provided 30 days to comment on the APE as defined in the permit application.

vii. If the project is an undertaking, a cultural resource assessment must occur. All fieldwork must be permitted by the THPO (as appropriate), conducted by qualified personnel (as outlined by the Secretary of Interior's Standards and Guidelines; http://www.nps.gov/history/local-law/arch_stnds_O.htm) and documented according to Oregon Reporting Standards (Reporting_Guidelines.pdf) (oregon.gov). The resulting report must be submitted to the THPO and the THPO must concur with the finding of effect and recommendations before any ground disturbing work can occur. The THPO requires 30 days to review all reports.

viii. The operator must obtain THPO concurrence in writing. If historic properties are present, this written concurrence will outline measures to be taken to prevent or mitigate adverse effects to historic properties.

b. Confederated Tribes of the Umatilla Indian Reservation

i. The operator shall be responsible for achieving compliance with the Confederated Tribes of the Umatilla Indian Reservation's (CTUIR) Water Quality

FOR REFERENCE ONLY

Standards.

ii. The operator shall submit a copy of the Notice of Intent (NOI) to be covered by the general permit to the CTUIR Water Resources Program at the address below, at the same time it is submitted to EPA.

iii. The operator shall be responsible for submitting all Stormwater Pollution Prevention Plans (SWPPP) required under this general permit to the CTUIR Water Resources Program for review and determination that the SWPPP is sufficient to meet Tribal Water Quality Standards, prior to the beginning of any discharge activities taking place.

iv. The operator shall be responsible for reporting an exceedance to Tribal Water QualityStandards to the CTUIR Water Resources Program at the same time it is reported to EPA.

Confederated Tribes of the Umatilla Indian Reservation
Water Resources Program
46411 Timíne Way
Pendleton, OR 97801
(541) 429-7200

v. The THPO will be provided 30 days to comment on the APE as defined in the permit application.

vi. If the project is an undertaking, a cultural resource assessment must occur. All fieldwork must be permitted by the Tribal Historic Preservation Office (as appropriate), conducted by qualified personnel (as outlined by the Secretary of Interior's Standards and Guidelines; http://www.nps.gov/history/local-law/arch_stnds_0.htm) and documented according to Oregon Reporting Standards (Reporting_Guidelines.pdf (oregon.gov). The resulting report must be submitted to the THPO and the THPO must concur with the finding of effect and recommendations before any ground disturbing work can occur. The THPO requires 30 days to review all reports.

vii. The operator must obtain THPO concurrence in writing. If historic properties are present, this written concurrence will outline measures to be taken to prevent or mitigate adverse effects to historic properties.

FOR REFERENCE ONLY

9.10.3 WAR10F000 Areas in the State of Washington, except those located on Indian country, subject to construction activity by a Federal Operator

a. For purposes of this Order, the term "Project Proponent" shall mean those that are seeking coverage under this permit, and its agents, assignees and contractors.

b. The Federal Agency shall mean the US Environmental Protection Agency. The Federal Agency shall enforce the permit and ensure that the Project Proponent complies with the conditions of the permits at all times.

c. Failure of any person or entity to comply with this Certification may result in the issuance of civil penalties or other actions, whether administrative or judicial, to enforce the terms of this Certification.

d. The Certification conditions within this Order must be incorporated into EPA's final NPDES permit. Per 40 CFR 121.10(a), all certification conditions herein that satisfy the requirements of 40 CFR 121.7(d) must be incorporated into the permit. Per 40 CFR

121.10(b), the permit must clearly identify all certification conditions.

e. This Certification does not authorize exceedances of water quality standards established in chapter 173-201A WAC.

f. Discharges from construction activity must not cause or contribute to violations of the Water Quality Standards for Surface Water of the State of Washington (chapter 173-201A WAC), Ground Water Quality Standards (chapter 173- 200 WAC), Sediment Management Standards (chapter 173-204 WAC), and standards in the EPA's Revision of certain Federal water quality criteria applicable to Washington (40 CFR 131.45). Discharges that do not comply with these standards are prohibited.

g. Prior to discharge of stormwater and non-stormwater to waters of the State, the Permittee must apply all known, available, and reasonable methods of prevention, control, and treatment (AKART). This includes the preparation and implementation of an adequate Stormwater Pollution Prevention Plan (SWPPP), with all appropriate Best Management Practices (BMPs) installed and maintained in accordance with the SWPPP and the terms and conditions of the permit.

i. BMPs must be consistent with:

(a) The Stormwater Management Manual for Western Washington (most current approved edition at the time this permit was issued), for sites west of the crest of the Cascade Mountains; or

(b) The Stormwater Management Manual for Eastern Washington (most current approved edition at the time this permit was issued), for sites east of the crest of the Cascade Mountains; or

(c) Revisions to either manual, or other stormwater management guidance documents or manuals which provide equivalent level of pollution prevention, that are approved by Ecology and incorporated into this permit in accordance with the permit modification requirements of WAC 173-226-230. (For purposes of this section, the stormwater manuals listed in Appendix 10 of the Phase I Municipal Stormwater Permit are approved by Ecology); or

(d) Documentation in the SWPPP that the BMPs selected provided an equivalent level of pollution prevention, compared to the applicable stormwater management manuals, including:

- The technical basis for the selection of all stormwater BMPs (scientific, technical studies, and/or modeling) that support the performance claims for the BMPs being selected.
- An assessment of how the selected BMP will satisfy AKART requirements and the applicable federal technology-based treatment requirements under 40 CFR part 125.3.

The Stormwater Management Manuals for Eastern and Western Washington can be found at: https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Stormwater-permittee-guidance-resources/Stormwater-manuals.

ii. An adequate SWPPP must include a narrative and drawings. All BMPs must be clearly referenced in the narrative and marked on the drawings. The SWPPP narrative must include documentation to explain and justify the pollution

FOR REFERENCE ONLY

prevention decisions made for the project. Documentation must include:

(a) Information about existing site conditions (topography, drainage, soils, vegetation, etc.).

(b) Potential erosion problem areas.

(c) The 13 elements of a SWPPP, including BMPs used to address each element. Unless site conditions render the element unnecessary and the exemption is clearly justified in the SWPPP, the 13 elements are as follows:

- Preserve Vegetation/Mark Clearing Limits
- Establish Construction Access
- Control Flow Rates
- Install Sediment Controls
- Stabilize Soils
- Protect Slopes
- Protect Drain Inlets
- Stabilize Channels and Outlets
- Control Pollutants
- Control Dewatering
- Maintain BMPs
- Manage the Project
- Protect Low Impact Development (LID) BMPs

h. Discharges of stormwater and authorized non-stormwater must be monitored for turbidity (or transparency) and, in the event of significant concrete work or engineered soils, pH must also be monitored. As applicable based on project specifics, monitoring, benchmarks, and reporting requirements contained in Condition S.4. (pp.10-16) of the Washington State Construction Stormwater General Permit, effective January 1, 2021, shall apply.

i. Discharges to segments of waterbodies listed as impaired by the State of Washington under Section 303(d) of the Clean Water Act for turbidity, fine sediment, phosphorus, or pH must comply with the following numeric effluent limits:

Parameter identified in 303(d) listing	Parameter Sampled	Unit	Analytical Method	Numeric Effluent Limit
• Turbidity • Fine Sediment • Phosphorus	Turbidity	NTU	SM2130	25 NTUs at the point where the stormwater is discharged from the site.
High pH	pH	su	pH meter	In the range of 6.5 – 8.5

All references and requirements associated with Section 303(d) of the Clean Water Act mean the most current EPA-approved listing of impaired waters that exists on the

FOR REFERENCE ONLY

effective date of the permit, or the date when the operator's complete permit application is received by EPA, whichever is later.

The EPA approved WQ Assessment can be found at: https://ecology.wa.gov/Water-Shorelines/Water-quality/Water-improvement/Assessment-of-state-waters-303d

j. Discharges to a waterbody that is subject to a Total Maximum Daily Load (TMDL) for turbidity, fine sediment, high pH, or phosphorus must be consistent with the TMDL.

i. Where an applicable TMDL sets specific waste load allocations or requirements for discharges covered by this permit, discharges shall be consistent with any specific waste load allocations or requirements established by the applicable TMDL.

ii. Where an applicable TMDL has established a general waste load allocation for construction stormwater discharges, but no specific requirements have been identified, compliance with this permit will be assumed to be consistent with the approved TMDL.

iii. Where an applicable TMDL has not specified a waste load allocation for construction stormwater discharges, but has not excluded these discharges, compliance with this permit will be assumed to be consistent with the approved TMDL.

iv. Where an applicable TMDL specifically precludes or prohibits discharges from construction activity, the operator is not eligible for coverage under this permit.

Applicable TMDL means a TMDL for turbidity, fine sediment, high pH, or phosphorus which has been completed and approved by EPA as of the effective date of the permit, or prior to the date of the operator's complete application for permit coverage is received by EPA, whichever is later.

k. Discharges to waters of the state from the following activities are prohibited:

i. Concrete wastewater.

ii. Wastewater from washout and clean-up of stucco, paint, form release oils, curing compounds and other construction materials.

iii. Process wastewater as defined by 40 Code of Federal Regulations (CFR) 122.2.

iv. Slurry materials and waste from shaft drilling, including process wastewater from shaft drilling for construction of building, road, and bridge foundations unless managed to prevent discharge to surface water.

v. Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance.

vi. Soaps or solvents used in vehicle and equipment washing.

vii. Wheel wash wastewater, unless managed to prevent discharge to surface water.

viii. Discharges from dewatering activities, including discharges from dewatering of trenches and excavations, unless managed according to appropriate controls described within the permit.

l. This Certification is valid until the expiration date including any administrative extension or termination date of the NPDES 2022 Construction General Permit. (40 CFR § 122.46)

FOR REFERENCE ONLY

m. The Federal Agency shall enforce and the Project Proponent must comply with all the reporting and notification conditions of the NPDES 2022 Construction General Permit in order to comply with this Order and the certification conditions herein (40 CFR § 121.11).

n. You have a right to appeal this Order to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this Order. The appeal process is governed by chapter 43.21B RCW and chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do all of the following within 30 days of the date of receipt of this Order:

- File your appeal and a copy of this Order with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this Order on Ecology in paper form - by mail or in person (see addresses below). E-mail is not accepted.

You must also comply with other applicable requirements in chapter 43.21B RCW and chapter 371-08 WAC.

ADDRESS AND LOCATION INFORMATION

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503 **Pollution Control Hearings Board** 1111 Israel RD SW STE 301 Tumwater, WA 98501	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608 **Pollution Control Hearings Board** PO Box 40903 Olympia, WA 98504-0903

CONTACT INFORMATION

Please direct all questions about this Order to:

Noel Tamboer
Department of Ecology
P.O. Box 47600
Olympia, WA 98503-7600

(360) 701-6171
noel.tamboer@ecy.wa.gov

9.10.4 WAR10I000 Indian country within the State of Washington

a. Lummi Nation

FOR REFERENCE ONLY

i. This certification does not exempt and is provisional upon compliance with other applicable statutes and codes administered by federal and Lummi tribal agencies. Pursuant to Lummi Code of Laws (LCL) 17.05.020(a), the operator must also obtaina land use permit from the Lummi Planning Department as provided in Title 15 of theLummi Code of Laws and regulations adopted thereunder.

ii. Pursuant to LCL 17.05.020(a), each operator shall develop and submit a Storm WaterPollution Prevention Plan to the Lummi Water Resources Division for review and approval by the Water Resources Manager prior to beginning any discharge activities.

iii. Pursuant to LCL Title 17, each operator shall be responsible for achieving compliance with the Water Quality Standards for Surface Waters of the Lummi

iv. Indian Reservation (Lummi Administrative Regulations [LAR] 17 LAR 07.010 through 17 LAR 07.210 together with supplements and amendments thereto).

v. Each operator shall submit a signed copy of the Notice of Intent (NOI) to the Lummi Water Resources Division at the same time it is submitted electronically to the Environmental Protection Agency (EPA) and shall provide the Lummi Water Resources Division the acknowledgement of receipt of the NOI from the EPA and the associated NPDES tracking number provided by the EPA within 7 calendar days of receipt from the EPA.

vi. Each operator shall submit a signed copy of the Notice of Termination (NOT) to the Lummi Water Resources Division at the same time it is submitted electronically to the EPA and shall provide the Lummi Water Resources Division the EPA acknowledgement of receipt of the NOT.

vii. Storm Water Pollution Prevention Plans, Notice of Intent, Notice of Termination and associated correspondence with the EPA shall be submitted to:

Lummi Natural Resources Department
ATTN: Water Resources Manager 2665 Kwina Road
Bellingham, WA 98226-9298

b. Port Gamble S'Klallam Tribe

i. No discharge from the project site shall cause exceedances of Port Gamble S'KlallamSurface Water Quality Standards narrative or numeric criteria in Tribal waters. This includes activities outside of Tribal lands that occur upstream of Tribal waters.

(a) If any exceedance of these water quality standards occurred, the Natural Resources Department shall be notified immediately.

- The Department shall additionally be provided a complete draft of the proposed corrective action within a reasonable timeframe and its approval will be required before any corrective action may be taken.

ii. Operators performing activities under the CGP that may affect Tribal waters will requirea permit and shall submit their plans to the Port Gamble S'Klallam Natural Resources Department for review.

- The Department has the right to require conditions outside of this Water QualityCertification prior to permit approval.

iii. No activities allowed under the CGP shall result in the degradation of any Tribal

FOR REFERENCE ONLY

watersor change in designated uses.

iv. No activities allowed under the CGP shall affect resident aquatic communities or resident/migratory wildlife species at any life stage.
- Biological assessment methods used to determine the effect of an activity allowedunder the CGP shall be approved by the PGST Natural Resources Department.

v. No activities allowed under the CGP shall be conducted within wetland and stream bufferzones, nor shall said activities affect in any way wetland or stream buffers, as defined by *PGST Law and Order Code 24.08.01(c)*.

vi. Concentrations for substances listed within the table in *Water Quality Standards for Surface Waters* sec. 7(7) shall not be exceeded by activities allowed under the CGP.

c. Spokane Tribe of Indians

i. Pursuant to Tribal Law and Order Code (TLOC) Chapter 30 each operator shall be responsible for achieving compliance with the Surface Water Quality Standards of the Spokane Tribe. The operator shall notify the Spokane Tribe, Water Control Board (WCB) of any spills of hazardous material and;

ii. Each operator shall submit a signed hard copy of the Notice of Intent (NOI) to the WCB at the same time it is submitted to EPA.

iii. The permittee shall allow the Tribal Water Control Board or its designee to inspect and sample at the construction site as needed.

iv. Each operator shall submit a signed copy of the Notice of Termination (NOT) to the WCB at the same time it is submitted to EPA

The correspondence address for the Spokane Tribe Water Control Board is:

Water Control Board c/o Brian Crossley PO Box480
Wellpinit WA 99040
(509)626-4409
crossley@spokanetribe.com

d. Swinomish Tribe

i. Owners and operators seeking coverage under this permit must submit a copy of the Notice of Intent (NOI) to the DEP at the same time the NOI is submitted to EPA.

ii. Owners and operators must also submit to the DEP changes in NOI and/or Notices of Termination at the same time they are submitted to EPA.

iii. Owners and operators seeking coverage under this permit must also submit a Stormwater Pollution Prevention Plan to the DEP for review and approval by DEP prior to beginning any discharge activities.

e. Tulalip Tribes

i. Submission of NOI: Copies of the Notice of Intent (NOI),) Certification shall be submitted to the Tribe's Natural Resources Department to notify the Tribes of the pending project and in order for the Tribes to review the projects potential impacts to endangered or threatened species.

FOR REFERENCE ONLY

ii. Submission of SWPPP: A copy of the Stormwater Pollution Plans (SWPPPs) shall be submitted to the Tribe's Natural Resources Department along with the NOI during the 30 day waiting period.

iii. Submission of Monitoring Data and Reports: The results of any monitoring required by this permit and reports must be sent to the Tribe's Natural Resources Depa1tment,

iv. The Tulalip Tribes are federally recognized successors in the interest to the Snohomish, Snoqualmie, Skykomish, and other allied tribes and bands signatory to the Treaty of Point Elliott.

v. including a description of the corrective actions required and undertaken to meet effluent limits or benchmarks (as applicable).

vi. Authorization to Inspect: The Tribe's Natural Resources Department may conduct an inspection of any facility covered by this permit to ensure compliance with tribal water quality standards. The Department may enforce its certification conditions.

vii. Submission of Inspection Reports: Inspection reports must be sent to the Tribe's Natural Resources Department, including a description of the corrective actions required and undertaken to meet effluent limits or benchmarks (as applicable).

viii. Permits on-site: A copy of the pe1mit shall be kept on the job site and readily available for reference by the construction supervisor, construction managers and foreman, and Tribal inspectors.

ix. Project Management: The applicant shall ensure that project managers, construction managers and foreman, and other responsible parties have read and understand conditions of the permit, this certification, and other relevant documents, to avoid violations or noncompliance with this certification.

x. Emergency Spill Notification Requirements: In the event of a spill or the contractor shall immediately take action to stop the violation and correct the problem, and immediately repo1t spill to the Tulalip Tribes Police Department (425) 508-1565. Compliance with this condition does not relieve the applicant from responsibility to maintain continuous compliance with the tem1S and conditions of this certification or the resulting liability from failure to comply.

xi. Discharges to CERCLA Sites: This permit does not autho1ize direct stormwater discharges to certain sites undergoing remedial cleanup actions pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) unless first approved by the appropriate EPA Regional office. In the case of the Tulalip Landfill site (WAD980639256), the Tulalip Tribes also requests notification by the facility and consultation with EPA prior to discharge. Contaminants at this site may include but are not limited to: dioxins, furans, arsenic, copper, lead, zinc, 4- methyl-phenol, Hex-CB, HPAHs, PCBs, PCE, cadmium, mercury, and LPAHs.

xii. Discharge-related Activities that have Potential to Cause an Adverse Effect on Historic Properties: Installation of stormwater controls that involve subsurface disturbances may potentially have an adverse impact on historic properties.

xiii. Procedures detailed in the permit shall be completed. Richard Young, of the Tulalip Tribe's Cultural Resources Department shall be contacted prior to initiating

FOR REFERENCE ONLY

discharge- related activities that may have an impact on historic properties. His contact information is (360) 716-2652, ryoung@tulaliptribes-nsn.gov.

xiv. Invalidation: This certification will cease to be valid if the project is constructed and/or operated in a manner not consistent with the project description contained in

xv. the permit. This certification will also cease to be valid and the applicant must reapply with an updated application if info1mation contained in the permit is voided by subsequent submittals.

xvi. Modification: Nothing in this certification waives the Tulalip Tribes of Washington's authority to issue modifications to this ce1iification if additional impacts due to operational changes are identified, or if additional conditions are necessary to protect water quality or further protect the Tribal Communities interest.

xvii. incorporation by reference: TI1is certification does not exempt the applicant from compliance with other statues and codes administered by the Tribes, county, state and federal agencies.

xviii. Compliance with Tribe's I996 Water Quality Standards: Each permittee shall be responsible for controlling discharges and achieving compliance with the T1ibe's Water Quality Standards.

xix. Compliant with Tulalip Tribes Tidelands Management Policy: Permittee shall be responsible for achieving compliance with applicable sections of the Tulalip Tribe's Tidelands Management Policy. (Tulalip Tribal Code Title 8 Chapter 8.30).

xx. Compliant with Tulalip Tribes Environmental Infractions: Permittee shall be responsible for achieving compliance with applicable sections of the Tulalip Tribe's Environmental Infractions. (Tulalip Tribal Code Title 8 Chapter 8.20).

xxi. Where to Submit information and for further Coordination: All requested documents should be sent to the: Tulalip Tribes Natural Resources Environmental Department c/o Kurt Nelson and Valerie Streeter, 6704 Marine Drive, Tulalip, Washington 98271. For further 40 I Certification coordination with the Tulalip Tribes Natural Resources Department, please contact Mr. Kurt Nelson (360) 716-4617 knelson@tu1aliptribes- nsn.gov. 6406 Marine Dr., Tulalip WA 98271.

FOR REFERENCE ONLY

f. Makah Tribe

i. The permittee shall be responsible for meeting any additional permit requirements imposed by EPA necessary to comply with the Makah Tribe's Water Quality Standards if the discharge point is located within the Makah's U&A treaty reserved areas.

ii. Each permittee shall submit a copy of the Notice of Intent (NOI) to be covered by the general permit to Makah Fisheries Management, Water Quality Department at the address listed below at the same time it is submitted to the EPA.

Makah Water Quality
Makah Fisheries Management (MFM)
ray.colby@makah.com
PO Box 115
Neah bay, WA 98357

iii. All supporting documentation and certifications in the NOI related to coverage under the general permit for Endangered Species Act purposes shall be submitted to the Tribe's Habitat programs for their review.

iv. If EPA requires coverage under an individual or alternative permit, the permittee shall submit a copy of the permit to Assistant Fisheries Director, ray.colby@makah.com.

v. The permittee shall submit all Stormwater Pollution Prevention plan (SWPP) to MFM for review and approval prior to beginning any activities resulting in a discharge to Makah tribal waters.

vi. The permittee shall notify Ray Colby, ray.colby@makah.com (360) 645-3150 prior to conducting inspections at construction sites generating stormwater discharges to tribal waters.

vii. The operator shall treat dewatering discharges with controls necessary to minimize discharges of pollutants to surface waters, or ground waters, and from stormwater runoff onsite from excavations, trenches, foundations, or storage areas. To the extent feasible, at all points where dewatering is discharged, comply with the velocity dissipation using check dams, sediment traps, and grouted outlets.

g. Puyallup Tribe of Indians

i. The permittee shall be responsible for meeting any additional permit requirements imposed by EPA necessary to comply with the Puyallup Tribe's antidegradation procedures.

ii. Each permittee shall submit a copy of the Notice of Intent (NOI) to be covered by the general permit to Char Naylor, Tribal Water Quality Manager at the following e-mail address: (char.naylor@puyalluptribe-nsn.gov) at the same time it is submitted to EPA.

iii. All supporting documentation and certifications in the NOI related to coverage under the general permit for Endangered Species Act purposes shall be submitted to Char Naylor, Tribal Water Quality Manager/Assistant Fisheries Director (char.naylor@puyalluptribe-nsn.gov) for review.

iv. If EPA requires coverage under an individual or alternative permit, the permittee shall submit a copy of the permit to Char Naylor at the email address listed above.

v. The permittee shall submit all stormwater pollution prevention plans to Char Naylor for review and approval prior to beginning any activities resulting in a discharge to Puyallup tribal waters.

vi. The permittee shall contact Brandon Reynon (Brandon.reynon@puyalluptribe-nsn-gov), Tribe's Historic Preservation Officer or Jennifer Keating (Jennifer.keating@puyalluptribe-nsn.gov), Tribe's Assistant Historic Preservation Officer regarding historic properties and cultural resources.

vii. To minimize the discharge of pollutants to groundwater or surface waters from stormwater that is removed from excavations, trenches, foundations, vaults, or other storage areas, treat dewatering discharges with controls necessary to minimize discharges of pollutants. Examples of appropriate controls include sediment basins or sediment traps, sediment socks, dewatering tanks, tube

FOR REFERENCE ONLY

settlers, weir tanks, and filtration systems (e.g., bag or sand filters) that are designed to remove sediment.

To the extent feasible, utilize vegetated, upland areas of the site to infiltrate dewatering water before discharge. At all points where dewatering water is discharged, utilize velocity dissipation controls. Examples of velocity dissipation devices include check dams, sediment traps, riprap, and grouted riprap at outlets.

viii. The permittee shall provide and maintain natural buffers to the maximum extent possible (and/or equivalent erosion and sediment controls) when tribal waters are located within 100 feet of the boundaries. If infeasible to provide and maintain an undisturbed 100 foot natural buffer, erosion and sediment controls to achieve the sediment load reduction equivalent to a 100-foot undisturbed natural buffer shall be required.

10 ADDITIONAL PERMIT CONDITIONS APPLICABLE TO LANDS OF EXCLUSIVE FEDERAL JURISDICTION

All projects that discharge to receiving waters located within Lands of Exclusive Federal Jurisdiction must comply with the provisions in this Part in addition to Parts 1, 2, and 3.2 thru 8 of this permit.[110] [111] [112]

10.1 INSPECTION FREQUENCIES

You must comply with the increased inspection frequencies specified in Part 4.3.1.

10.2 STABILIZATION DEADLINES

You must comply with the stabilization deadlines specified in Part 2.2.14b.iv.

10.3 TURBIDITY BENCHMARK MONITORING FOR DEWATERING DISCHARGES

You must comply with the benchmark monitoring requirements in Part 3.3 for sites discharging dewatering water.

10.4 ADDITIONAL WATER QUALITY-BASED LIMITATIONS FOR STORMWATER AND AUTHORIZED NON-STORMWATER DISCHARGES

Your discharge must not contain:

a. Observable deposits of floating solids, scum, sheen, or other substances;

b. An observable film, sheen, or discoloration from oil and grease; or

c. Foam or substances that produce an observable change in color, odor, or cloudiness in the discharge.

FOR REFERENCE ONLY

[110] The requirements of Part 9 do not apply to projects within Lands of Exclusive Federal Jurisdiction.

[111] This section does not apply to projects within Denali National Park and Preserve or projects that are eligible for coverage in Appendix B for federal facilities in Vermont, Delaware, and Colorado and for areas in Washington where construction activities are carried out by a Federal Operator.

[112] EPA notes that reference to water quality standards in Part 7.2.6(b)(vi)(c) for projects that discharge to receiving waters in Lands of Exclusive Federal Jurisdiction means the requirements of Part 10.4.a-c.

If any of these conditions are observed, except with respect to dewatering discharges, you must treat this as triggering corrective action under Part 5, which requires that you take corrective action and document the corrective actions as required in Part 5.2.[113]

For sites discharging from dewatering operations, you must implement corrective actions if any of the conditions described in Part 5.1.5 occur and comply with the requirements of Part 5.2.2 for responding to these conditions.

FOR REFERENCE ONLY

[113] Consistent with this requirement, with respect to projects discharging to receiving waters in Lands of Exclusive Federal Jurisdiction, the triggering condition in Part 5.1.3 relating to water quality standards means that one of the discharge conditions in this section (Part 10.4.a-c) has occurred.

APPENDIX A

1. Detailed list of Areas Where the EPA Holds Permitting Authority for the proposed CGP

FOR REFERENCE ONLY

Appendix B - Permit Areas Eligible for Coverage

Permit coverage for stormwater discharges from construction activity occurring within the following areas is provided by legally separate and distinctly numbered permits:

1. EPA Region 1: CT, MA, ME, NH, RI, VT

US EPA, Region 0
Office of Ecosystem Protection
NPDES Stormwater Program
1 Congress St, Suite 1100 (CMU)
Boston, MA 02114-2023

The States of Connecticut, Maine, Rhode Island, and Vermont are the NPDES Permitting Authority for the majority of discharges within their respective states.

Permit No.	Areas of Coverage/Where EPA is Permitting Authority
MAR100000	Commonwealth of Massachusetts (except Indian country)
MAR10000I	Indian country within the State of Massachusetts
CTR10000I	Indian country within the State of Connecticut
NHR100000	State of New Hampshire
RIR10000I	Indian country within the State of RhodeIsland
VTR10000F	Federal Facilities in the State of Vermont

2. EPA Region 2: NJ, NY, PR, VI

For NJ, NY, and VI:
US EPA, Region 02
NPDES Stormwater Program
290 Broadway, 24th Floor
New York, NY 10007-1866

For PR:
US EPA, Region 02
Caribbean Environmental Protection Division
NPDES Stormwater Program
1492 Ponce de Leon Ave
Central Europa Building, Suite 417
San Juan, PR 00907-4127

The State of New York is the NPDES Permitting Authority for the majority of discharges within its state. The State of New Jersey and the Virgin Islands are the NPDES Permitting Authority for all discharges within their respective states.

Permit No.	Areas of Coverage/Where EPA is Permitting Authority
NYR10000I	Indian country within the State of New York
PRR100000	The Commonwealth of Puerto Rico

FOR REFERENCE ONLY

3. EPA Region 3: DE, DC, MD, PA, VA, WV

US EPA, Region 03
NPDES Stormwater Program
1650 Arch St
Philadelphia, PA 19103

The State of Delaware is the NPDES Permitting Authority for the majority of discharges within its state. Maryland, Pennsylvania, Virginia, and West Virginia are the NPDES Permitting Authority for all discharges within their respective states.

Permit No.	Areas of Coverage/Where EPA is Permitting Authority
DCR100000	The District of Columbia
DER10000F	Federal Facilities in the State of Delaware

4. EPA Region 4: AL, FL, GA, KY, MS, NC, SC, TN

US EPA, Region 04
Water Protection Division
NPDES Stormwater Program
61 Forsyth St SW
Atlanta, GA 30303-3104

The States of Alabama, Florida, Mississippi, and North Carolina are the NPDES Permitting Authority for the majority of discharges within their respective States. EPA Region 4 is the NPDES Permitting Authority for all Indian country lands within any other Region 4 State except Catawba lands in South Carolina.

Permit No.	Areas of Coverage/Where EPA is Permitting Authority
ALR10000I	All Indian Country lands within the State of Alabama
FLR10000I	All Indian Country lands within the State of Florida
MSR10000I	All Indian Country lands within the State of Mississippi
NCR10000I	All Indian Country lands within the State of North Carolina
RE410000I	All Indian Country lands within any other Region 4 State (except Catawba lands in South Carolina

FOR REFERENCE ONLY

5. EPA Region 5: IL, IN, MI, MN, OH, WI

US EPA, Region 05
NPDES & Technical Support
NPDES Stormwater Program
77 W Jackson Blvd
(WN-16J)
Chicago, IL 60604-3507

The States of Michigan, Minnesota, and Wisconsin are the NPDES Permitting Authority for the majority of discharges within their respective states. The States of Illinois, Indiana, and Ohio are the NPDES Permitting Authorities for all discharges within their respective states.

Permit No.	Areas of Coverage/Where EPA is Permitting Authority
MIR10000I	Indian country within the State of Michigan
MNR10000I	Indian country within the State of Minnesota, except the Grand Portage Band of Chippewa
WIR10000I	Indian country within the State of Wisconsin, except the Sokaogon Chippewa (Mole Lake) Community.

6. EPA Region 6: AR, LA, OK, TX, NM (except see Region 9 for Navajo lands, and see Region 8 for Ute Mountain Reservation lands)

US EPA, Region 06
NPDES Stormwater Program
1445 Ross Ave, Suite 1200
Dallas, TX 75202-2733

The States of Louisiana, Oklahoma, and Texas are the NPDES Permitting Authority for the majority of discharges within their respective state. The State of Arkansas is the NPDES Permitting Authority for all discharges within its respective state.

Permit No.	Areas of Coverage/Where EPA is Permitting Authority
LAR10000I	Indian country within the State of Louisiana
NMR100000	The State of New Mexico, except Indian country
NMR10000I	Indian country within the State of New Mexico, except Navajo Reservation Lands that are covered under Arizona permit AZR10000I and Ute Mountain Reservation Lands that are covered under Colorado permit COR10000I
OKR10000I	Indian country within the State of Oklahoma
OKR10000F	Discharges in the State of Oklahoma that are not under the authority of the Oklahoma Department of Environmental Quality, including activities associated with oil and gas exploration, drilling, operations, and pipelines (includes SIC Groups 13 and 46, and SIC codes 492 and 5171), and point source discharges associated with agricultural production, services, and silviculture (includes SIC Groups 01, 02, 07, 08, 09).
TXR10000F	Discharges in the State of Texas that are not under the authority of the Texas Commission on Environmental Quality (formerly TNRCC), including activities associated with the exploration, development, or production of oil or gas or geothermal resources, including transportation of crude oil or natural gas by pipeline.
TXR10000I	Indian country within the State of Texas.

FOR REFERENCE ONLY

7. EPA Region 7: IA, KS, MO, NE (except see Region 8 for Pine Ridge Reservation Lands)

US EPA, Region 07
NPDES Stormwater Program
901 N 5th St
Kansas City, KS 66101

The States of Iowa, Kansas, and Nebraska are the NPDES Permitting Authority for the majority of discharges within their respective states. The State of Missouri is the NPDES Permitting Authority for all discharges within its state.

Permit No.	Areas of Coverage/Where EPA is Permitting Authority
IAR10000I	Indian country within the State of Iowa
KSR10000I	Indian country within the State of Kansas
NER10000I	Indian country within the State of Nebraska, except Pine Ridge Reservation lands (see Region 8)

8. EPA Region 8: CO, MT, ND, SD, WY, UT (except see Region 9 for Goshute Reservation and Navajo Reservation Lands), the Ute Mountain Reservation in NM, and the Pine Ridge Reservation in NE.

US EPA, Region 08
NPDES Stormwater Program
999 18th St, Suite 300
(EPR-EP)
Denver, CO 80202-2466

The States of Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming are the NPDES Permitting Authority for the majority of discharges within their respective states.

Permit No.	Areas of Coverage/Where EPA is Permitting Authority
COR10000F	Federal Facilities in the State of Colorado, except those located on Indian country
COR10000I	Indian country within the State of Colorado, as well as the portion of the Ute Mountain Reservation located in New Mexico
MTR10000I	Indian country within the State of Montana
NDR10000I	Indian country within the State of North Dakota, as well as that portion of the Standing Rock Reservation located in South Dakota (except for the portion of the lands within the former boundaries of the Lake Traverse Reservation which is covered under South Dakota permit SDR10000I listed below)
SDR10000I	Indian country within the State of South Dakota, as well as the portion of the Pine Ridge Reservation located in Nebraska and the portion of the lands within the former boundaries of the Lake Traverse Reservation located in North Dakota (except for the Standing Rock Reservation which is covered under North Dakota permit NDR10000I listed above)
UTR10000I	Indian country within the State of Utah, except Goshute and Navajo Reservation lands (see Region 9)
WYR10000I	Indian country within the State of Wyoming

FOR REFERENCE ONLY

9. EPA Region 9: CA, HI, NV, Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, the Goshute Reservation in UT and NV, the Navajo Reservation in UT, NM, and AZ, the Duck Valley Reservation in ID, and the Fort McDermitt Reservation in OR.

US EPA, Region 09
NPDES Stormwater Program
75 Hawthorne St
San Francisco, CA 94105-3901

The States of Arizona, California and Nevada are the NPDES Permitting Authority for the majority of discharges within their respective states. The State of Hawaii is the NPDES Permitting Authority for all discharges within its state.

Permit No.	Areas of Coverage/Where EPA is Permitting Authority
ASR100000	The Island of American Samoa
AZR10000I	Indian country within the State of Arizona, as well as Navajo Reservation lands in New Mexico and Utah
CAR10000I	Indian country within the State of California
GUR100000	The Island of Guam
JAR100000	Johnston Atoll
MWR100000	Midway Island and Wake Island
MPR100000	Commonwealth of the Northern Mariana Islands
NVR10000I	Indian country within the State of Nevada, as well as the Duck Valley Reservation in Idaho, the Fort McDermitt Reservation in Oregon and the Goshute Reservation in Utah

10. EPA Region 10: AK, WA, ID (except see Region 9 for Duck Valley Reservation Lands), and OR (except see Region 9 for Fort McDermitt Reservation).

US EPA, Region 10
NPDES Stormwater Program
1200 6th Ave (OW-130)
Seattle, WA 98101-1128
Phone: (206) 553-6650

The States of Oregon and Washington are the NPDES Permitting Authority for the majority of discharges within their respective states.

Permit No.	Areas of Coverage/Where EPA is Permitting Authority
AKR10000I	Indian country within the state of Alaska
AKR10-000F	Facilities operating in the Denali National Park and Preserve
IDR100000	The State of Idaho, except Indian country
IDR10000I	Indian country within the State of Idaho, except Duck Valley Reservation lands (see Region 9)
ORR10000I	Indian country within the State of Oregon, except Fort McDermitt Reservation lands (see Region 9)
WAR10000F	Federal Facilities in the State of Washington, except those located on Indian country
WAR10000I	Indian country within the State of Washington

FOR REFERENCE ONLY

Appendix A - Definitions and Acronyms

1. Definitions

"Action Area" – all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. See 50 CFR 402. For the purposes of this permit and for application of the threatened and endangered species protection eligibility requirements, the following areas are included in the definition of action area:

- The areas on the construction site where stormwater discharges originate and flow toward the point of discharge into the receiving waters. This includes:
    - areas on the construction site where excavation, site development, or other ground disturbance activities occur, and
    - areas where stormwater controls will be constructed and operated, including any areas where stormwater flows to and from the stormwater controls.
- The areas in the vicinity of the construction site where stormwater discharges flow from the construction site to one or more points of discharge into receiving waters. (Example: Where stormwater flows into an off-site ditch, swale, or gully that leads to receiving waters.
- The extent of the receiving water potentially affected by stormwater discharges from your construction site through alteration of water chemistry, turbidity, temperature, or bank structure (i.e., erosive flow), regardless of whether the construction site is adjacent to the receiving water.

"Agricultural Land" - cropland, grassland, rangeland, pasture, and other agricultural land, on which agricultural and forest-related products or livestock are produced and resource concerns may be addressed. Agricultural lands include cropped woodland, marshes, incidental areas included in the agricultural operation, and other types of agricultural land used for the production of livestock.

"Antidegradation Policy" or "Antidegradation Requirements" - the water quality standards regulation that requires States and Tribes to establish a three-tiered antidegradation program:

1. Tier 1 maintains and protects existing uses and water quality conditions necessary to support such uses. An existing use can be established by demonstrating that fishing, swimming, or other uses have actually occurred since November 28, 1975, or that the water quality is suitable to allow such uses to occur. Where an existing use is established, it must be protected even if it is not listed in the water quality standards as a designated use. Tier 1 requirements are applicable to all surface waters.
2. Tier 2 maintains and protects "high quality" waters -- waterbodies where existing conditions are better than necessary to support CWA § 101(a)(2) "fishable/swimmable" uses. Water quality can be lowered in such waters. However, State and Tribal Tier 2 programs identify procedures that must be followed and questions that must be answered before a reduction in water quality can be allowed. In no case may water quality be lowered to a level which would interfere with existing or designated uses.
3. Tier 3 maintains and protects water quality in outstanding national resource waters (ONRWs). Except for certain temporary changes, water quality cannot be lowered in such waters. ONRWs generally include the highest quality waters of the United States. However, the ONRW classification also offers special protection for waters of exceptional ecological significance, i.e., those which are important, unique, or sensitive ecologically.

FOR REFERENCE ONLY

Decisions regarding which water bodies qualify to be ONRWs are made by States and authorized Indian Tribes.

"Arid Areas" – areas with an average annual rainfall of 0 to 10 inches. For assistance in determining average annual rainfall in specific locations, refer to the NOAA National Mapping webpage (https://www.ncdc.noaa.gov/cag/national/mapping), the PRISM Climate Group's Time Series Values for individual locations (https://prism.oregonstate.edu/explorer/), or EPA's US EPA EnviroAtlas (https://www.epa.gov/enviroatlas).

"Bank" (e.g., stream bank or river bank) – the rising ground bordering the channel of a water of the U.S.

"Biodegradable" – capable of decomposing under ambient soil conditions into naturally occurring materials over a period of time (e.g., one year).

"Bluff" – a steep headland, promontory, riverbank, or cliff.

"Borrow Areas" – the areas where materials are dug for use as fill, either onsite or off-site.

"Business day" – for the purposes of this permit, a business day is a calendar day on which construction activities will take place.

"Bypass" – the intentional diversion of waste streams from any portion of a treatment facility. See 40 CFR 122.41(m)(1)(i).

"Cationic Treatment Chemical" – polymers, flocculants, or other chemicals that contain an overall positive charge. Among other things, they are used to reduce turbidity in stormwater discharges by chemically bonding to the overall negative charge of suspended silts and other soil materials and causing them to bind together and settle out. Common examples of cationic treatment chemicals are chitosan and cationic PAM.

"Commencement of Construction Activities" – the initial disturbance of soils (or 'breaking ground') associated with clearing, grading, or excavating activities or other construction-related activities (e.g., grubbing; stockpiling of fill material; placement of raw materials at the site).

"Common Plan of Development or Sale" – A contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under one common plan. The "common plan" of development or sale is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, sales pitch, advertisement, drawing, permit application, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating construction activities may occur on a specific plot.

"Construction Activities" – earth-disturbing activities, such as the clearing, grading, and excavation of land, and other construction-related activities (e.g., grubbing; stockpiling of fill material; placement of raw materials at the site) that could lead to the generation of pollutants. Some of the types of pollutants that are typically found at construction sites are:

- sediment;
- nutrients;
- heavy metals;
- pesticides and herbicides;
- oil and grease;
- bacteria and viruses;
- trash, debris, and solids;

FOR REFERENCE ONLY

- treatment polymers; and
- any other toxic chemicals.

"Construction and Development Effluent Limitations and New Source Performance Standards" (C&D Rule) – as published in 40 CFR § 450, the regulation requiring effluent limitations guidelines (ELGs) and new source performance standards (NSPS) for controlling the discharge of pollutants from construction sites.

"Construction Site" or "Site" – the land or water area where construction activities will occur and where stormwater controls will be installed and maintained. The construction site includes construction support activities, which may be located at a different part of the property from where the primary construction activity will take place, or on a different piece of property altogether.

"Construction Support Activity" – a construction-related activity that specifically supports the construction activity and involves earth disturbance or pollutant-generating activities of its own, and can include activities associated with concrete or asphalt batch plants, equipment staging yards, materials storage areas, excavated material disposal areas, and borrow areas.

"Construction Waste" – discarded material (such as packaging materials; scrap construction materials; masonry products; timber, steel, pipe, and electrical cuttings; plastics; and styrofoam).

"Conveyance Channel" – a temporary or permanent waterway designed and installed to safely convey stormwater flow within and out of a construction site.

"Critical Habitat" – as defined in the Endangered Species Act at 16 U.S.C. 1531 for a threatened or endangered species, (i) the specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the provisions of section 4 of the Endangered Species Act, on which are found those physical or biological features essential to the conservation of the species and which may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by the species at the time it is listed in accordance with the provisions of section 4 of the Endangered Species Act, upon a determination by the Secretary that such areas are essential for the conservation of the species.

"CWA" – the Clean Water Act or the Federal Water Pollution Control Act, 33 U.S.C. section 1251 et seq.

"Dewatering" – the act of draining accumulated stormwater and/or ground water from building foundations, vaults, and trenches, or other similar points of accumulation. Examples can include, but are not limited to:

- Surface area dewatering: water pumped from disturbed surface areas (e.g., trenches, sumps, excavation pits, or other excavations associated with construction where sediment-laden ground water or surface water/storm inflow must be removed) or from sediment basins or similar impoundments for maintenance or decommissioning purposes.
- Ground water dewatering: water discharged from well development, well pump tests, or pumping of ground water from a construction area. Common methods of ground water dewatering from a construction area include sumps and wells, generally described as follows:
  - Sumps: lowers ground water levels near the construction area. Dewatering using sumps consists of pumping ground water out of a lower collection point(s) typically gravity-fed by local ground water.
  - Wells: drilled wells, including bored/augured, driven, or jetted, which use vacuum or pumping to lower the ground water at greater depths than sumps. The two most common types of wells used for dewatering ground water are:

FOR REFERENCE ONLY

- Wellpoints: small-diameter shallow wells which are connected via a header pipe. A pump creates a vacuum in the header pipe.
- Deep Wells: larger-diameter holes, drilled relatively deep (typically greater than 10 feet), pumped by submersible electric pumps.

"Dewatering Water" – as used in this permit, water discharged from dewatering operations.

"Discharge" – when used without qualification, means the "discharge of a pollutant."

"Discharge of a Pollutant" – any addition of any "pollutant" or combination of pollutants to "waters of the United States" from any "point source," or any addition of any pollutant or combination of pollutants to the waters of the "contiguous zone" or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation. This includes additions of pollutants into waters of the United States from: surface runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works. See 40 CFR 122.2.

"Discharge Point" – for the purposes of this permit, the location where collected and concentrated stormwater flows or dewatering water are discharged from the construction site.

"Discharge-Related Activity" – activities that cause, contribute to, or result in stormwater and allowable non-stormwater point source discharges, and measures such as the siting, construction, and operation of stormwater controls to control, reduce, or prevent pollutants from being discharged.

"Discharge to an Impaired Water" – for the purposes of this permit, a discharge to an impaired water occurs if the first water of the U.S. to which you discharge is identified by a State, Tribe, or EPA pursuant to Section 303(d) of the Clean Water Act as not meeting an applicable water quality standard and (1) requires development of a total maximum daily load (TMDL) (pursuant to section 303(d) of the CWA; or (2) is addressed by an EPA-approved or established TMDL; or (3) is not in either of the above categories but the waterbody is covered by a pollution control program that meets the requirements of 40 CFR 130.7(b)(1). For discharges that enter a storm sewer system prior to discharge, the water of the U.S. to which you discharge is the first water of the U.S. that receives the stormwater discharge from the storm sewer system.

"Domestic Waste" – for the purposes of this permit, typical household trash, garbage or rubbish items generated by construction activities.

"Drainageway" – an open linear depression, whether constructed or natural, that functions for the collection and drainage of surface water.

"Drought-Stricken Area" – for the purposes of this permit, an area in which the National Oceanic and Atmospheric Administration's U.S. Seasonal Drought Outlook indicates for the period during which the construction will occur that any of the following conditions are likely: (1) "Drought to persist or intensify", (2) "Drought ongoing, some improvement", (3) "Drought likely to improve, impacts ease", or (4) "Drought development likely". See http://www.cpc.ncep.noaa.gov/products/expert_assessment/sdo_summary.php.

"Earth-Disturbing Activity"– actions taken to alter the existing vegetation and/or underlying soil of a site, such as clearing, grading, site preparation (e.g., excavating, grubbing, cutting, and filling), soil compaction, and movement and stockpiling of top soils.

"Earth-Disturbing Activities Conducted Prior to Active Mining Activities" – Consists of two classes of earth-disturbing (i.e., clearing, grading and excavation) activities:

a. activities performed for purposes of mine site preparation, including: cutting new rights of way (except when related to access road construction); providing access to a mine site for vehicles and equipment (except when related to access road construction); other earth disturbances associated with site preparation activities on any areas where active mining

FOR REFERENCE ONLY

activities have not yet commenced (e.g., for heap leach pads, waste rock facilities, tailings impoundments, wastewater treatment plants); and

b. construction of staging areas to prepare for erecting structures such as to house project personnel and equipment, mill buildings, etc., and construction of access roads.

Note: only earth-disturbing activities associated with the construction of staging areas and the construction of access roads conducted prior to active mining (see (b) above) are considered to be "construction" and therefore stormwater discharges from these activities are eligible for coverage under this permit. See Part 1.2.1.b. The activities described in (a) above are not considered to be "construction" and therefore stormwater discharges associated with this activity are not eligible for coverage under this permit.

"Effective Operating Condition" – for the purposes of this permit, a stormwater control is kept in effective operating condition if it has been implemented and maintained in such a manner that it is working as designed to minimize pollutant discharges.

"Effluent Limitations" – for the purposes of this permit, any of the Part 2 or Part 3 requirements.

"Effluent Limitations Guideline" (ELG) – defined in 40 CFR § 122.2 as a regulation published by the Administrator under section 304(b) of the CWA to adopt or revise effluent limitations.

"Eligible" – for the purposes of this permit, refers to stormwater and allowable non-stormwater discharges that are authorized for coverage under this general permit.

"Emergency-Related Project" – a project initiated in response to a public emergency (e.g., mud slides, earthquake, extreme flooding conditions, disruption in essential public services), for which the related work requires immediate authorization to avoid imminent endangerment to human health or the environment, or to reestablish essential public services.

"Endangered Species" – defined in the Endangered Species Act at 16 U.S.C. 1531 as any species which is in danger of extinction throughout all or a significant portion of its range other than a species of the Class Insecta determined by the Secretary to constitute a pest whose protection under the provisions of this Act would present an overwhelming and overriding risk to man.

"Excursion" – a measured value that exceeds a specified limit.

"Existing Site" – a site where construction activities commenced prior to February 16, 2017.

"Exit Points" – any points of egress from the construction site to be used by vehicles and equipment during construction activities.

"Exposed Soils" – for the purposes of this permit, soils that as a result of earth-disturbing activities are left open to the elements.

"Federal Facility" – any buildings, installations, structures, land, public works, equipment, aircraft, vessels, and other vehicles and property, owned by, or constructed or manufactured for the purpose of leasing to, the Federal government.

"Federal Operator" – an entity that meets the definition of "Operator" in this permit and is either any department, agency or instrumentality of the executive, legislative, and judicial branches of the Federal government of the United States, or another entity, such as a private contractor, performing construction activity for any such department, agency, or instrumentality.

"Final Stabilization" – on areas not covered by permanent structures, either (1) uniform, perennial vegetation *(e.g., evenly distributed, without large bare areas)* has been established, or for arid or semi-arid areas, will be established that provides 70 percent or more of the cover that is provided by vegetation native to local undisturbed areas, and/or (2) permanent non-

FOR REFERENCE ONLY

vegetative stabilization measures (e.g., riprap, gravel, gabions, and geotextiles) have been implemented to provide effective cover for exposed portions of the site

"General Contractor" – for the purposes of this permit, the primary individual or company solely accountable to perform a contract. The general contractor typically supervises activities, coordinates the use of subcontractors, and is authorized to direct workers at a site to carry out activities required by the permit.

"Hazardous Substances" or "Hazardous or Toxic Waste" – for the purposes of this permit, any liquid, solid, or contained gas that contain properties that are dangerous or potentially harmful to human health or the environment. See also 40 CFR §261.2.

"Historic Property" – as defined in the National Historic Preservation Act regulations, means any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian Tribe or Native Hawaiian organization and that meet the National Register criteria.

"Impaired Water"– a water identified by the State, Tribe, or EPA as not meeting an applicable water quality standard and (1) requires development of a TMDL (pursuant to section 303(d) of the CWA; or (2) is addressed by an EPA-approved or established TMDL; or (3) is not in either of the above categories but the waterbody is covered by a pollution control program that meets the requirements of 40 CFR 130.7(b)(1).

"Impervious Surface" – for the purpose of this permit, any land surface with a low or no capacity for soil infiltration including, but not limited to, pavement, sidewalks, parking areas and driveways, packed gravel or soil, or rooftops.

"Indian Country" or "Indian Country Lands" – defined at 40 CFR §122.2 as:

1. All land within the limits of any Indian reservation under the jurisdiction of the United States Government, notwithstanding the issuance of any patent, and, including rights-of-way running through the reservation;
2. All dependent Indian communities with the borders of the United States whether within the originally or subsequently acquired territory thereof, and whether within or without the limits of a State; and
3. All Indian allotments, the Indian titles to which have not been extinguished, including rights-of-ways running through the same.

"Infeasible" – for the purpose of this permit, infeasible means not technologically possible or not economically practicable and achievable in light of best industry practices. EPA notes that it does not intend for any permit requirement to conflict with State water rights law.

"Install" or "Installation" – when used in connection with stormwater controls, to connect or set in position stormwater controls to make them operational.

"Jar test" – a test designed to simulate full-scale coagulation/flocculation/sedimentation water treatment processes by taking into account the possible conditions.

Lands of Exclusive Federal Jurisdiction – all land where the Federal government has exclusive jurisdiction in relative respects.

"Landward" – positioned or located away from a waterbody, and towards the land.

"Large Construction Activity" – defined at 40 CFR § 122.26(b)(14)(x) and incorporated here by reference. Large construction activity includes clearing, grading, and excavating resulting in a land disturbance that will disturb equal to or greater than five acres of land or will disturb less

FOR REFERENCE ONLY

than five acres of total land area but is part of a larger common plan of development or sale that will ultimately disturb equal to or greater than five acres. Large construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the site.

"Linear Construction Site" – includes the construction of roads, bridges, conduits, substructures, pipelines, sewer lines, towers, poles, cables, wires, connectors, switching, regulating and transforming equipment and associated ancillary facilities in a long, narrow area.

"Minimize" – to reduce and/or eliminate to the extent achievable using stormwater controls that are technologically available and economically practicable and achievable in light of best industry practices.

"Mining Activity" – for the purposes of this permit, includes mining-related construction activities defined at 40 CFR 122.26(b)(14)(x) and 122.26(b)(15)(i), and active mining activities defined at 40 CFR 122.26(b)(14)(iii). Both of these sub categories of activities include earth-disturbing activities, with the latter also including such activities as: extraction, removal or recovery, and beneficiation of mined material from the earth; removal of overburden and waste rock to expose mineable material; and site reclamation and closure activities.

"Mining Operations" – for the purposes of this permit, mining operations are grouped into two distinct categories, with distinct effluent limits and requirements applicable to each: 1) earth-disturbing activities conducted prior to active mining activities; and 2) active mining activities, which includes reclamation.

"Municipal Separate Storm Sewer System" or "MS4" – defined at 40 CFR §122.26(b)(8) as a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains):

1. Owned and operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian Tribe or an authorized Indian Tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States;
2. Designed or used for collecting or conveying stormwater;
3. Which is not a combined sewer; and
4. Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR §122.2.

"National Pollutant Discharge Elimination System" (NPDES) – defined at 40 CFR §122.2 as the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under sections 307, 402, 318, and 405 of CWA. The term includes an 'approved program.'

"Native Topsoil" – the uppermost layer of naturally occurring soil for a particular area, and is often rich in organic matter, biological activity, and nutrients.

"Natural Buffer" – for the purposes of this permit, an area of undisturbed natural cover surrounding waters of the United States within which construction activities are restricted. Natural cover includes the vegetation, exposed rock, or barren ground that exists prior to commencement of earth-disturbing activities.

FOR REFERENCE ONLY

"Natural Vegetation" – vegetation that occurs spontaneously without regular management, maintenance, or species introductions or removals, and that generally has a strong component of native species..

"New Operator of a Permitted Site" – an operator that through transfer of ownership and/or operation replaces the operator of an already permitted construction site that is either a "new site" or an "existing site".

"New Site" – a site where construction activities commenced on or after February 16, 2017.

"New Source" – for the purposes of this permit, a construction project that commenced construction activities after February 1, 2010.

"New Source Performance Standards (NSPS)" – for the purposes of this permit, NSPS are technology-based standards that apply to construction sites that are new sources under 40 CFR 450.24.

"Non-Stormwater Discharges" – discharges that do not originate from storm events. They can include, but are not limited to, discharges of process water, air conditioner condensate, non-contact cooling water, vehicle wash water, sanitary wastes, concrete washout water, paint wash water, irrigation water, or pipe testing water.

"Non-Turbid" – a discharge that is free from visual turbidity.

"Notice of Intent" (NOI) – the form (electronic or paper) required for authorization of coverage under the Construction General Permit.

"Notice of Termination" (NOT) – the form (electronic or paper) required for terminating coverage under the Construction General Permit.

"NPDES eReporting Tool" (NeT) – EPA's online system for submitting electronic Construction General Permit forms.

"Operational" – for the purposes of this permit, stormwater controls are made "operational" when they have been installed and implemented, are functioning as designed, and are properly maintained.

"Operator" – for the purposes of this permit and in the context of stormwater discharges associated with construction activity, any party associated with a construction project that meets either of the following two criteria:

1. The party has operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications *(*e.g. *in most cases this is the owner of the site)*; or
2. The party has day-to-day operational control of those activities at a project that are necessary to ensure compliance with the permit conditions (e.g.*, they are authorized to direct workers at a site to carry out activities required by the permit; in most cases this is the general contractor of the project)*.

This definition is provided to inform permittees of EPA's interpretation of how the regulatory definitions of "owner or operator" and "facility or activity" are applied to discharges of stormwater associated with construction activity. Subcontractors generally are not considered operators for the purposes of this permit.

"Ordinary High Water Mark" – the line on the shore established by fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, and/or the presence of litter and debris.

FOR REFERENCE ONLY

"Permitting Authority" – for the purposes of this permit, EPA, a Regional Administrator of EPA, or an authorized representative.

"Point(s) of Discharge" – see "Discharge Point."

"Point Source" – any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural stormwater runoff.

"Pollutant" – defined at 40 CFR §122.2. A partial listing from this definition includes: dredged spoil, solid waste, sewage, garbage, sewage sludge, chemical wastes, biological materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial or municipal waste.

"Pollution Prevention Controls" – stormwater controls designed to reduce or eliminate the addition of pollutants to construction site discharges through analysis of pollutant sources, implementation of proper handling/disposal practices, employee education, and other actions.

"Polymers" – for the purposes of this permit, coagulants and flocculants used to control erosion on soil or to enhance the sediment removal capabilities of sediment traps or basins. Common construction site polymers include polyacrylamide (PAM), chitosan, alum, polyaluminum chloride, and gypsum.

"Prohibited Discharges" – discharges that are not allowed under this permit, including:

1. Wastewater from washout of concrete;
2. Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;
3. Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance;
4. Soaps or solvents used in vehicle and equipment washing;
5. Toxic or hazardous substances from a spill or other release; and
6. Waste, garbage, floatable debris, construction debris, and sanitary waste.

FOR REFERENCE ONLY

"Provisionally Covered Under this Permit" – for the purposes of this permit, EPA provides temporary coverage under this permit for emergency-related projects prior to receipt of a complete and accurate NOI. Discharges from earth-disturbing activities associated with the emergency-related projects are subject to the terms and conditions of the permit during the period of temporary coverage.

"Qualified Person" – a person knowledgeable in the principles and practice of erosion and sediment controls and pollution prevention, who possesses the appropriate skills and training to assess conditions at the construction site that could impact stormwater quality, and the appropriate skills and training to assess the effectiveness of any stormwater controls selected and installed to meet the requirements of this permit.

"Receiving Water" – a "Water of the United States" as defined in 40 CFR §122.2 into which the regulated stormwater discharges.

"Run-On" – sources of stormwater that drain from land located upslope or upstream from the regulated site in question.

"Seasonally Dry Period" – a month in which the long-term average total precipitation is less than or equal to 0.5 inches. Refer to EPA's Seasonally Dry Period Locator and supporting maps for assistance in determining whether a site is operating during a seasonally dry period for the area,

located at https://www.epa.gov/npdes/construction-general-permit-resources-tools-and-templates.

"Sediment-Related parameter" – for the purposes of this permit, a pollutant parameter that is closely related to sediment such as turbidity, total suspended solids (TSS), transparency, sedimentation, and siltation.

"Semi-Arid Areas" – areas with an average annual rainfall of 10 to 20 inches. For assistance in determining average annual rainfall in specific locations, refer to the NOAA National Mapping webpage (https://www.ncdc.noaa.gov/cag/national/mapping), the PRISM Climate Group's Time Series Values for individual locations (https://prism.oregonstate.edu/explorer/), or EPA's US EPA EnviroAtlas (https://www.epa.gov/enviroatlas).

"Shared Control" - for the purposes of this permit, a stormwater control, such as a sediment basin or pond, used by two or more operators that is installed and maintained for the purpose of minimizing and controlling pollutant discharges from a construction site with multiple operators associated with a common plan of development or sale. Any operators that are contributing stormwater from their construction activities to a shared control are considered to rely upon a shared control.

"Small Construction Activity" – defined at 40 CFR §122.26(b)(15) and incorporated here by reference. A small construction activity includes clearing, grading, and excavating resulting in a land disturbance that will disturb equal to or greater than one (1) acre and less than five (5) acres of land or will disturb less than one (1) acre of total land area but is part of a larger common plan of development or sale that will ultimately disturb equal to or greater than one (1) acre and less than five (5) acres. Small construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the site.

"Small Residential Lot" – for the purpose of this permit, a lot being developed for residential purposes that will disturb less than 1 acre of land, but is part of a larger residential project that will ultimately disturb greater than or equal to 1 acre.

"Snowmelt" – the conversion of snow into overland stormwater and ground water flow as a result of warmer temperatures.

"Spill" – for the purpose of this permit, the release of a hazardous or toxic substance from its container or containment.

"Stabilization" – the use of vegetative and/or non-vegetative cover to prevent erosion and sediment loss in areas exposed through the construction process.

"Steep Slopes" – where a State, Tribe, local government, or industry technical manual (e.g., stormwater BMP manual) has defined what is to be considered a "steep slope", this permit's definition automatically adopts that definition. Where no such definition exists, steep slopes are automatically defined as those that are 15 percent or greater in grade.

"Storm Sewer System" – a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains) designed or used for collecting or conveying stormwater.

"Stormwater" – stormwater runoff, snowmelt runoff, and surface runoff and drainage.

"Stormwater Control" - refers to any best management practice or other method (including narrative effluent limitations) used to prevent or reduce the discharge of pollutants to waters of the United States.

"Stormwater Discharge Associated with Construction Activity" – as used in this permit, a discharge of pollutants in stormwater to waters of the United States from areas where earth-

FOR REFERENCE ONLY

disturbing activities (e.g., clearing, grubbing, grading, or excavation) occur, or where construction materials or equipment storage or maintenance (e.g., fill piles, borrow area, concrete truck chute washdown, fueling), or other industrial stormwater directly related to the construction process (e.g., concrete or asphalt batch plants), are located.

"Stormwater Inlet" – a structure placed below grade to conduct water used to collect stormwater runoff for conveyance purposes.

"Stormwater Team" – the group of individuals responsible for oversight of the development and modifications of the SWPPP, and oversight of compliance with the permit requirements. The individuals on the "Stormwater Team" must be identified in the SWPPP.

"Storm Event" – a precipitation event that results in a measurable amount of precipitation.

"Storm Sewer" – a system of pipes (separate from sanitary sewers) that carries stormwater runoff from buildings and land surfaces.

"Subcontractor" – for the purposes of this permit, an individual or company that takes a portion of a contract from the general contractor or from another subcontractor.

"SWPPP" (Stormwater Pollution Prevention Plan) – a site-specific, written document that, among other things: (1) identifies potential sources of stormwater pollution at the construction site; (2) describes stormwater controls to reduce or eliminate pollutants in stormwater discharges from the construction site; and (3) identifies procedures the operator will implement to comply with the terms and conditions of this general permit.

"Temporary Stabilization" – a condition where exposed soils or disturbed areas are provided temporary vegetative and/or non-vegetative protective cover to prevent erosion and sediment loss. Temporary stabilization may include temporary seeding, geotextiles, mulches, and other techniques to reduce or eliminate erosion until either final stabilization can be achieved or until further construction activities take place to re-disturb this area.

"Thawing Conditions" – for the purposes of this permit, thawing conditions are expected based on the historical likelihood of two or more days with daytime temperatures greater than 32˚F. This date can be determined by looking at historical weather data. Note: the estimation of thawing conditions is for planning purposes only. During construction the permittee will be required to conduct site inspections based upon actual conditions (i.e., if thawing conditions occur sooner than expected, the permittee will be required to conduct inspections at the regular frequency).

"Threatened Species" – defined in the Endangered Species Act at 16 U.S.C. 1531 as any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

"Tier 2 Waters" – for antidegradation purposes, pursuant to 40 CFR 131.12(a)(2), those waters that are characterized as having water quality that exceeds the levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water.

"Tier 2.5 Waters" – for antidegradation purposes, those waters designated by States or Tribes as requiring a level of protection equal to and above that given to Tier 2 waters, but less than that given Tier 3 waters. Some States have special requirements for these waters.

"Tier 3 Waters" – for antidegradation purposes, pursuant to 40 CFR 131.12(a)(3), Tier 3 waters are identified by States as having high quality waters constituting an Outstanding National Resource Water (ONRW), such as waters of National Parks and State Parks, wildlife refuges, and waters of exceptional recreational or ecological significance.

"Total Maximum Daily Load" or "TMDL" – the sum of the individual wasteload allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources and natural background. If receiving water has only one point source discharger, the TMDL is the sum of that point source

FOR REFERENCE ONLY

WLA plus the LAs for any nonpoint sources of pollution and natural background sources, tributaries, or adjacent segments. TMDLs can be expressed in terms of mass per time, toxicity, or other appropriate measure.

"Toxic Waste" – see "Hazardous Substances."

"Treatment Chemicals" – polymers, flocculants, or other chemicals used to reduce turbidity in stormwater.

"Turbidity" – a condition of water quality characterized by the presence of suspended solids and/or organic material.

"Uncontaminated Discharge" – in the context of authorized non-stormwater discharges, a discharge that meets applicable water quality standards.

"Upland" – the dry land area above and 'landward' of the ordinary high water mark.

"Upset" – Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond your reasonable control. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. See 40 CFR 122.41(n)(1).

"Visual Turbidity" – for the purposes of this permit, visual turbidity is present when there is a sediment plume in the discharge or the discharge appears cloudy, opaque, or has a visible contrast that can be visually identified by an observer.

"Water-Dependent Structures" – structures or facilities that are required to be located directly adjacent to a waterbody or wetland, such as a marina, pier, boat ramp, etc.

"Water Quality Standards" – defined in 40 CFR § 131.3, and are provisions of State (including Tribal) or Federal law which consist of a designated use or uses for the waters of the United States, water quality criteria for such waters based upon such uses, and an antidegradation policy to protect high-quality waters. Water quality standards protect the public health or welfare, enhance the quality of water and serve the purposes of the Act.

"Waters of the United States" - see definition at 40 CFR 122.2.

"Wetland" – those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. On-site evaluations are typically required to confirm the presence and boundaries of wetlands.

FOR REFERENCE ONLY

2. Acronyms

ACHP – Advisory Council on Historic Preservation

BMP – Best Management Practice

CBI – Confidential Business Information

CGP – Construction General Permit

CFR – Code of Federal Regulations

CWA – Clean Water Act

CZMA – Coastal Zone Management Act

ECHO – EPA Enforcement and Compliance History Online

ELG – Effluent Limitations Guideline
EPA – United States Environmental Protection Agency
ESA – Endangered Species Act
FR – Federal Register
MS4 – Municipal Separate Storm Sewer System
MSGP – Multi-Sector General Permit
NEPA – National Environmental Policy Act
NeT – NPDES eReporting Tool
NTU - Nephelometric turbidity units
NHPA – National Historic Preservation Act
NMFS – United States National Marine Fisheries Service
NPDES – National Pollutant Discharge Elimination System
NOI – Notice of Intent
NOT – Notice of Termination
NPDES – National Pollutant Discharge Elimination System
NRC – National Response Center
NRCS – National Resources Conservation Service
NSPS – New Source Performance Standards
ONRW – Outstanding National Resource Water
PAM – Polyacrylamide
POTW – Publicly Owned Treatment Works
RUSLE – Revised Universal Soil Loss Equation
SDS – Safety Data Sheet
SHPO – State Historic Preservation Office
SPCC – Spill Prevention Control and Countermeasure
SWPPP – Stormwater Pollution Prevention Plan
THPO – Tribal Historic Preservation Office
TMDL – Total Maximum Daily Load
TSS – Total Suspended Solids
UIC – Underground Injection Control
USDA – United States Department of Agriculture
USFWS – United States Fish and Wildlife Service
USGS – United States Geological Survey
WQS – Water Quality Standard

FOR REFERENCE ONLY

COLORADO
Department of Public Health & Environment

Dedicated to protecting and improving the health and environment of the people of Colorado

CDPS GENERAL PERMIT COR400000

STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY

AUTHORIZATION TO DISCHARGE UNDER THE

COLORADO DISCHARGE PERMIT SYSTEM (CDPS)

In compliance with the provisions of the Colorado Water Quality Control Act, (25-8-101 et seq., CRS, 1973 as amended) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq.; the "Act"), this permit authorizes the discharge of stormwater associated with construction activities, as defined in this permit, to be certified under this permit from those locations authorized to discharge from authorized locations throughout the State of Colorado to specified surface waters of the state, in accordance with the eligibility and permit application requirements, effluent limitations, monitoring requirements, inspection requirements, and other conditions set forth in this general permit.

This permit specifically authorizes the facility listed on the certification to discharge in accordance with permit requirements and conditions set forth in Parts I and II hereof. All discharges authorized herein must be consistent with the terms and conditions of this permit.

This permit becomes effective on, 04/01/2024 and will expire at midnight 03/31/2029.

Issued and signed this 31st day of January, 2024 and Effective April 1, 2024.

Andrew Sayers-Fay, Permits Section Manager Water Quality Control Division

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

PERMITS ACTION SUMMARY

Issued January 31, 2024, Effective April 1, 2024

FOR REFERENCE ONLY

Table of Contents

PART I 2
A. COVERAGE UNDER THIS PERMIT 2
1. Authorized Discharges 2
2. Limitations on Coverage 2
3. Permit Certification and Submittal Procedures 3
B. EFFLUENT LIMITATIONS 7
1. Requirements for Control Measures Used to Meet Effluent Limitations 7
2. Discharges to an Impaired Waterbody or Outstanding Water 10
3. General Requirements 11
C. STORMWATER MANAGEMENT PLAN REQUIREMENTS 11
1. Stormwater Management Plan General Requirements 11
2. Stormwater Management Plan Content 12
3. Stormwater Management Plan Review and Revisions 14
4. Stormwater Management Plan Availability 15
D. SITE INSPECTIONS 15
1. Person Responsible for Conducting Inspections 15
2. Inspection Frequency 15
3. Inspection Frequency for Discharges to Outstanding Waters 16
4. Reduced Inspection Frequency 16
5. Inspection Scope 16
E. DEFINITIONS 18
F. MONITORING 21
G. OIL AND GAS CONSTRUCTION 21
PART II 22
A. DUTY TO COMPLY 22
B. DUTY TO REAPPLY 22
C. NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE 22
D. DUTY TO MITIGATE 23
E. PROPER OPERATION AND MAINTENANCE 23
F. PERMIT ACTIONS 23
G. PROPERTY RIGHTS 23
H. DUTY TO PROVIDE INFORMATION 23
I. INSPECTION AND ENTRY 23
J. MONITORING AND RECORDS 24
K. SIGNATORY REQUIREMENTS 24
L. REPORTING REQUIREMENTS 25
M. BYPASS 27
N. UPSET 27
O. REOPENER CLAUSE 28
P. OTHER INFORMATION 28
Q. SEVERABILITY 28
R. NOTIFICATION REQUIREMENTS 28
S. RESPONSIBILITIES 29
T. OIL AND HAZARDOUS SUBSTANCES LIABILITY 29
U. EMERGENCY POWERS 29
V. CONFIDENTIALITY 29
W. FEES 29
X. DURATION OF PERMIT 29
Y. SECTION 307 TOXICS 29

FOR REFERENCE ONLY

PART I

Note: At the first mention of terminology that has a specific connotation for the purposes of this permit, the terminology is electronically linked to the definitions section of the permit in Part I.E.

A. COVERAGE UNDER THIS PERMIT

1. Authorized Discharges

This general permit authorizes permittee(s) to discharge the following to state waters: stormwater associated with construction activity and specified non-stormwater associated with construction activity. The following types of stormwater and non-stormwater discharges are authorized under this permit:

a. Stormwater Discharges

i. Stormwater discharges associated with construction activity.

ii. Stormwater discharges associated with producing earthen materials, such as soils, sand, and gravel dedicated to providing material to a single contiguous site, or within ¼ mile of the construction site covered by this permit (e.g. borrow or fill areas).

iii. Stormwater discharges associated with dedicated asphalt, concrete batch plants, and masonry mixing stations (Coverage under this permit is not required if alternative coverage has been obtained).

b. Non-Stormwater Discharges

The following non-stormwater discharges are allowable under this permit if the discharges are identified in the stormwater management plan in accordance with Part I.C and if they have appropriate control measures in accordance with Part I.B.1.

i. Discharges from uncontaminated springs that do not originate from an area of land disturbance.

ii. Discharges to the ground of concrete or masonry washout water associated with the washing of concrete or masonry tools and concrete or masonry mixer chutes, and water used to wash vehicles, equipment and external buildings. Discharges of concrete or masonry washout water must not leave the site as surface runoff or reach receiving waters as defined by this permit. The addition of soaps, solvents and detergents is prohibited. Concrete or masonry on-site waste disposal is not authorized by this permit except in accordance with Part I.B.1.a.ii(c).

iii. Discharges of landscape irrigation return flow.

iv. Discharges from diversions of state waters within the permitted site.

c. Emergency Fire Fighting

Discharges resulting from emergency firefighting activities during the active emergency response are authorized by this permit.

2. Limitations on Coverage

Discharges not authorized by this permit include, but are not limited to, the discharges and activities listed below. Permittees may seek individual or alternate general permit coverage for the discharges, or utilize low risk discharge guidance (i.e. Surface Cosmetic Power Washing Operations to Land) or clean water policy documents (i.e. Clean Water Policy #14) as appropriate and available.

a. Discharges of non-stormwater

Discharges of non-stormwater, except the authorized non-stormwater discharges listed in Part I.A.1.b., are not eligible for coverage under this permit. Note: The prohibited discharges listed here are not an exhaustive list.

i. Discharges to surface water from water used to wash vehicles, equipment and external building washdown water. The addition of soaps, solvents and detergents is prohibited.

ii. Discharges from washout water for paint, form release oils, curing compounds, or other similar

FOR REFERENCE ONLY

construction materials. See Part I.B.1.a.ii(f).

iii. Discharges of fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance.

iv. Discharges of reclaimed water, as defined in Regulation 84, that are approved for the use of construction dust suppression but are not applied in accordance with Regulation 84.

v. Discharges related to the application of potable water for dust suppression. See Part I.B.1.a.i(j).

b. Discharges currently covered by another individual or general permit.

c. Discharges currently covered by a Water Quality Control Division (division) Low Risk Guidance document or Clean Water Policy.

d. Discharges to outstanding waters that are long-term and/or have no or only short-term ecological or water quality benefit or clear public interest. See Part I.B.2.b.

e. Chemical additions.

Any chemical addition for the treatment of stormwater associated with construction activities is not authorized. This includes but is not limited to flocculants, polymers, and coagulants.

3. Permit Certification and Submittal Procedures

a. Duty to Apply

The owner(s)/operator(s) must apply for coverage under this permit for discharges from the following activities:

i. Construction activity that will disturb one acre or more; or

ii. Construction activity that is part of a common plan of development or sale; or

iii. Stormwater discharges that are designated by the division as needing a stormwater permit because the discharge:

(a) Contributes to a violation of a water quality standard; or

(b) Is a significant contributor of pollutants to state waters.

b. Application Requirements

To obtain authorization to discharge under this permit, applicants applying for coverage following the effective date of the renewal permit must meet the following requirements:

i. Owners and operators submitting an application for permit coverage will be co-permittees subject to the same benefits, duties, and obligations under this permit.

ii. Signature requirements: Both the owner and operator (permittees) of the construction site, as defined in Part I.E., must agree to the terms and conditions of the permit and submit a completed application that includes the signature of both the owner and the operator. In cases where the duties of the owner and operator are managed by the owner, both application signatures may be completed by the owner. Both the owner and operator are responsible for ensuring compliance with all terms and conditions of the permit, including implementation of the stormwater management plan.

iii. The applicant(s) must develop a stormwater management plan in accordance with the requirements of Part I.C. The applicant(s) must also certify that the stormwater management plan is complete, or will be complete, prior to commencement of any construction activity.

iv. In order to apply for certification under this general permit, the applicant(s) must submit a complete, accurate, and signed permit application form as provided by the division by electronic delivery at least 10 days prior to the commencement of construction activity, except those construction activities that are in response to a public emergency related site. Public emergency related sites must apply for coverage no later than 14 days after the commencement of construction activities. The provisions of this part in no way remove a violation of the Colorado Water Quality Control Act if a point source discharge occurs prior to the issuance of a CDPS permit.

FOR REFERENCE ONLY

v. The application in its entirety must be submitted via the division's online permitting system unless a waiver is granted by the division. If a waiver is granted, the application in its entirety, including signatures by both the owner and operator, must be submitted to:

Colorado Department of Public Health and Environment

Water Quality Control Division

Permits Section, WQCD-PS-B2

4300 Cherry Creek Drive South

Denver, CO 80246

vi. The applicant(s) must receive written notification that the division granted permit coverage prior to conducting construction activities, except for construction activities that are in response to a public emergency related site.

c. Division Review of Permit Application

Within 10 days of receipt of the application, and following review of the application, the division may:

i. Issue a certification of coverage under this general permit;

ii. Request additional information necessary to evaluate the discharge;

iii. Delay the authorization to discharge pending further review;

iv. Notify the applicant that additional terms and conditions are necessary; or

v. Deny the authorization to discharge under this general permit.

d. Alternative Permit Coverage

i. Division Required Alternative Permit Coverage:

The division may require an applicant or permittee to apply for an individual permit or an alternative general permit if it determines the discharge does not fall under the scope of this general permit, including if any additional terms and conditions are necessary in order to ensure that discharges authorized by this permit will not cause, have the reasonable potential to cause, or measurably contribute to an exceedance of any applicable water quality standard, including narrative standards for water quality. In this case, the division will notify the applicant or permittee that an individual permit application is required.

ii. Permittee Request for Alternative Permit Coverage:

A permittee authorized to discharge stormwater under this permit may request to be excluded from coverage under this general permit by applying for an individual permit. In this case, the permittee must submit an individual application, with reasons supporting the request, to the division at least 180 days prior to any discharge. When an individual permit is issued, the permittee's authorization to discharge under this permit is terminated on the effective date of the individual permit.

e. Submittal Signature Requirements

Documents required for submittal to the division in accordance with this permit, including applications for permit coverage and other documents as requested by the division, must include signatures by **both** the owner and the operator, except for instances where the duties of the owner and operator are managed by the owner.

Signatures on all documents submitted to the division as required by this permit must meet the Standard Signatory Requirements in Part II.K of this permit in accordance with 40 C.F.R.122.41(k).

i. Signature Certification

Any person(s) signing documents required for submittal to the division must make the following certification:

FOR REFERENCE ONLY

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

f. Field Wide Permit Coverage for Oil and Gas Construction

At the discretion of the division, a single permit certification may be issued to a single oil and gas permittee to cover construction activity related discharges from an oil and gas field at multiple locations that are not necessarily contiguous.

g. Permit Coverage without Application

Qualifying Local Program: When a small construction site is within the jurisdiction of a qualifying local program, the owner and operator of the construction activity are authorized to discharge stormwater associated with small construction activity under this general permit without the submittal of an application to the division. Sites covered by a qualifying local program are exempt from the following sections of this general permit: Part I.A.3.a.; Part I.A.3.b. (division application requirements); Part I.A.3.c. (division review); Part I.A.3.d. (division alternate permit coverage); Part I.A.3.f. (oil and gas field wide coverage); Part I.A.3.h. (permittee initiated actions); Part I.A.3.i. (residential lot coverage); Part I.A.3.j. (permit expiration and continuation of coverage); Part II.L.3 (transfer of ownership or control); II.W (fees).

Sites covered by a qualifying local program are subject to the following requirements:

i. Local Agency Authority: This permit does not pre-empt or supersede the authority of local agencies to prohibit, restrict, or control discharges of stormwater to storm drain systems or other water courses within their jurisdiction.

ii. Permit Coverage Termination: When a site under a Qualifying Local Program is finally stabilized, coverage under this permit is automatically terminated.

iii. Compliance with Qualifying Local Program: Qualifying Local Program requirements that are equivalent to the requirements of this permit are incorporated by reference. Permittees authorized to discharge under this permit must comply with the equivalent requirements of the Qualifying Local Program that has jurisdiction over the site as a condition of this permit.

iv. Compliance with Remaining Permit Conditions. Requirements of this permit that are in addition to or more stringent than the requirements of the Qualifying Local Program apply in addition to the requirements of the Qualifying Local Program.

v. Written Authorization of Coverage: The division or local municipality may require any owner/operator within the jurisdiction of a Qualifying Local Program covered under this permit to apply for, and obtain written authorization of coverage under this permit. The permittee must be notified in writing that an application for written authorization of coverage is required.

h. Permittee Initiated Permit Actions

Permittee initiated permit actions, including but not limited to modifications, contact changes, transfers, and terminations, must be conducted following Part II.L, Part I.A.3.e, division guidance and using appropriate division-provided forms.

i. When a permittee modifies or terminates all or portions of permit coverage to another permittee, the "old" permittee completing the modification or termination must provide to the division the new permittee's certification number(s) (ie. a land developer selling lots to home builders, etc.).

ii. When a permittee transfers permit coverage to another permittee, the "new" permittee completing the transfer must provide to the division an agreement completed and signed by the "old" permittee.

FOR REFERENCE ONLY

iii. When a permittee transfers permit coverage or modifies or terminates all or portions of permit coverage to another permittee, the "old" permittee completing the transfer, modification, or termination must provide to the division documentation of due diligence when the new permittee is not obtaining permit coverage. Documentation of due diligence may include certified letters, multiple attempts at email and phone contact.

i. Sale of Residence to Homeowner

Residential construction sites only: The permittee may remove residential lots from permit coverage once the lot(s) meets all of the following criteria:

i. The residential lot(s) has(have) been sold to the homeowner(s) for private residential use;

ii. A certificate of occupancy, or equivalent, is maintained on-site or electronically and is available during division inspections;

iii. The lot(s) is (are) less than one acre of disturbance;

iv. All construction activity conducted on the lot(s) by the permittee is complete, including the installation of sediment or erosion control measures that minimize sediment from exiting the lot, or the installation of temporary stabilization on remaining disturbance where the permittee is not responsible for final stabilization (i.e. backyard of single family home, etc.);

v. The permittee is not responsible for final stabilization of the lot(s); and

vi. The stormwater management plan was modified to indicate the lot(s) is (are) no longer part of the construction activity.

If the residential lot(s) meets the criteria listed above, then activities occurring on the lot(s) are no longer considered to be construction activities with a duty to apply and maintain permit coverage. Therefore, the permittee is not required to meet the final stabilization requirements and may terminate permit coverage for the lot(s).

j. Permit Expiration and Continuation of Permit Coverage

Authorization to discharge under this general permit will expire at midnight on March 31, 2029. While Regulation 61.4 requires the permittee to submit an application for continuing permit coverage 180 days before the permit expires, the division requires that a permittee or permittees desiring continued coverage under this general permit must reapply at least 90 days in advance of this permit expiration. The division will determine if the permittee(s) may continue to discharge stormwater under the terms of the general permit. An individual permit may be required for any facility not reauthorized to discharge under the reissued general permit.

If this permit is not reissued or replaced prior to the expiration date, it will be administratively continued and remain in force and effect. For permittees that have applied for continued permit coverage, discharges authorized under this permit prior to the expiration date will automatically remain covered by this permit until the earliest of:

i. An authorization to discharge under a reissued permit, or a replacement of this permit, following the timely and appropriate submittal of a complete application requesting authorization to discharge under the new permit and compliance with the requirements of the new permit. (Note: the division may not reissue a permit certification if there are outstanding past due fees per Regulation 61.15(d)); or

ii. The issuance and effect of a termination issued by the division; or

iii. The issuance or denial of an individual permit for the facility's discharges; or

iv. A formal permit decision by the division not to reissue this general permit, at which time the division will identify a reasonable time period for covered dischargers to seek coverage under an alternative general permit or an individual permit. Coverage under this permit will cease when coverage under another permit is granted/authorized; or

v. The division has informed the permittee that discharges previously authorized under this permit are no longer covered under this permit.

FOR REFERENCE ONLY

B. EFFLUENT LIMITATIONS

1. Requirements for Control Measures Used to Meet Effluent Limitations

The permittee must implement control measures to minimize the discharge of pollutants from all potential pollutant sources at the site which, if applicable, includes run-on. Control measures used to meet effluent limitations must be installed prior to commencement of construction activities and prior to each phase of construction that introduces new potential pollutant sources. Control measures must be selected, designed, installed and maintained in accordance with good engineering, hydrologic and pollution control practices. Control measures implemented at the site must be designed to prevent pollution or degradation of state waters.

a. Stormwater Pollution Prevention

The permittee must implement structural and/or nonstructural control measures that effectively minimize erosion, sediment transport, and the release of other pollutants related to construction activity.

i. Control Measures for Erosion and Sediment Control

Structural and non-structural control measures for erosion and sediment control may include, but are not limited to, wattles/sediment control logs, silt fences, earthen dikes, drainage swales, sediment traps, filter bags, subsurface drains, pipe slope drains, inlet protection, outlet protection, gabions, sediment basins, temporary vegetation, permanent vegetation, mulching, geotextiles, sod stabilization, and slope roughening, maintaining existing vegetation, preserving native topsoil, protection of trees, preservation of mature vegetation, phasing of site development, preserving natural topography, minimizing soil compaction in areas of vegetative final stabilization, and minimizing site access.

Specific control measures must meet the requirements listed below.

(a) Vehicle tracking controls must be implemented to minimize vehicle tracking of sediment from disturbed areas. Vehicle tracking controls must include a structural control measure (e.g. tracking pad or wash rack) and may include a non-structural control measure (e.g. sweeping or restricting vehicle traffic to paved areas).

(b) Stormwater runoff from all disturbed areas and soil storage areas must utilize or flow to one or more control measures to minimize erosion or sediment in the discharge. The control measure(s) must be selected, designed, installed and adequately sized in accordance with good engineering, hydrologic and pollution control practices for the intended application. The control measure(s) must contain or filter flows in order to prevent the bypass of flows without treatment and must be appropriate for stormwater runoff from disturbed areas and for the expected flow rate, duration, and flow conditions (e.g. sheet or concentrated flow).

(c) Selection of control measures should prioritize the use of control measures that minimize the potential for erosion (i.e. covering materials). Selection should also prioritize phasing construction activities to minimize the amount of soil disturbance at any point in time throughout the duration of construction.

(d) Outlets that withdraw water from or near the surface must be installed when discharging from basins and impoundments, unless infeasible.

(e) Maintain pre-existing vegetation for areas within 50 horizontal feet of receiving waters as defined by this permit, unless infeasible. In addition to maintaining 50 horizontal feet of pre-existing vegetation upgradient of a receiving water (unless infeasible), the permittee must install control measures upgradient of the vegetative buffer that meets the requirements of this section, Part I.B.1.a.i.

(f) Soil compaction must be minimized for areas where infiltration control measures are implemented or where final stabilization will be achieved through vegetative cover. If compaction does occur in areas where final stabilization will be achieved through vegetative cover, then decompaction of the soil must be completed prior to planting.

FOR REFERENCE ONLY

(g) Unless infeasible, topsoil must be preserved for those areas of a site that will utilize vegetative final stabilization. Preserved topsoil can be left in place or stockpiled.

(h) Minimize the amount of soil exposed during construction activity, including the disturbance of steep slopes.

(i) Diversion control measures used for clean water diversions must minimize soil transport and erosion within the entire diversion, minimize erosion during discharge, and minimize run-on into the diversion. The permittee must minimize the discharge of pollutants throughout the installation, implementation and removal of the diversion. Diversions must meet one or more of the following conditions:

(1) Lined or piped structures that result in no erosion for anticipated flow conditions.

(2) Diversion channels, berms, and coffer dams must be lined or composed of a material that minimizes potential for soil loss in the entire wetted perimeter during anticipated flow conditions (e.g. vegetated swale, non-erosive soil substrate). The entire length of the diversion channel must be designed such that the maximum flow velocity for the type of material(s) exposed to the anticipated flows ensures the calculated maximum shear stress of flows in the channel is not expected to result in physical damage to the channel or liner nor result in discharge of pollutants. Additionally, the conditions relied on to minimize soil loss must be maintained for the projected life of the diversion (e.g. use of a vegetated swale must be limited to a period of time that ensures vegetative growth, minimizes erosion and maintains stable conditions).

(3) An alternative diversion criteria, approved by the division prior to implementation. The diversion method must be designed to minimize the discharge of pollutants and to prevent the potential for pollution or degradation to state waters as a result of the diverted flow through the diversion structure. In addition, the alternative diversion method must minimize the discharge of pollutants throughout the installation, implementation and removal of the diversion.

(j) Minimize dust. On areas of exposed soil, minimize dust through the appropriate application of water or other dust suppression techniques. Water application must be conducted in a manner to prevent discharge offsite unless authorized by a separate CDPS or NPDES permit.

(k) Control stormwater discharges, including both peak flowrates and total stormwater volume, to minimize channel and streambank erosion and scour in the immediate vicinity of discharge points.

ii. Practices for Other Common Pollutants

(a) Bulk storage (individual containers of 55 gallons or greater) for petroleum products and other liquid chemicals must have secondary containment, or equivalent protection, in order to contain spills and to prevent spilled material from entering state waters.

(b) Spills and leaks must be minimized. Upon identification, spills and leaks must immediately be contained and mitigated per the spill prevention and response plan, as applicable (i.e. oil, grease, fluids associated with vehicle and equipment maintenance, toxic chemicals, hazardous substances, etc.).

(c) Control measures designed for concrete washout waste, masonry operations, stucco waste, vehicle/equipment washing, and external building washdown must be implemented. This includes washout waste discharged to the ground as authorized under this permit and washout waste from concrete trucks and masonry operations contained on site. The permittee must ensure washing activities do not contribute pollutants to stormwater runoff, or receiving waters in accordance Part I.A.1.b.ii. Discharges that may reach groundwater must flow through soil that has buffering capacity prior to reaching groundwater, as necessary to meet the effluent limits in this permit, including Part I.B.3.a. The concrete or masonry washout location (including vehicle/equipment and external building washdown water, if applicable) must not be located in an area where shallow groundwater may be present and would result in buffering capacity not being adequate, such as near natural drainages, springs, or wetlands. This permit authorizes discharges to the ground of

FOR REFERENCE ONLY

concrete washout waste, but does not authorize on-site waste disposal per Part I.B.3.d.

(d) In the event that water remains onsite and contains pollutants either from firefighting activities or picked up from the site (i.e. in a gutter, sediment basin, etc.) after active emergency response is complete, the permittee must ensure the remaining water containing pollutants is properly removed and disposed of in order to minimize pollutants from discharging from the site, unless infeasible.

(e) Minimize the exposure of fertilizers, pesticides, and herbicides to stormwater during storage. Store and apply fertilizers, pesticides, and herbicides per manufacturer's directions.

(f) For washing applicators and containers used for paint, form release oils, curing compounds, or other similar construction materials, the wash water must be directed into a leak-proof container or leak-proof and lined pit designed so no discharges to groundwater occur or overflows occur due to inadequate sizing or precipitation. Liquid and hardened wastes must be appropriately disposed.

iii. Stabilization Requirements

The following requirements must be implemented for each site.

(a) Temporary stabilization must be implemented for earth disturbing activities on any portion of the site where ground disturbing construction activity has permanently ceased, or temporarily ceased for more than 14 calendar days. Temporary stabilization methods may include, but are not limited to, tarps, soil tackifier, and hydromulch. The permittee may exceed the 14-day schedule when either the function of the specific area of the site requires it to remain disturbed or physical characteristics of the terrain and climate prevent stabilization. The stormwater management plan must document the constraints necessitating the alternative schedule, provide the alternate stabilization schedule, and identify all locations where the alternative schedule is applicable on the site map. Minimum inspection frequency and scope, as directed in Part I.D., must be followed for temporarily stabilized areas.

(b) Final stabilization must be implemented for all construction sites covered under this permit. Final stabilization is reached when the following are complete:

(1) All construction activities are complete.

(2) Permanent stabilization methods are complete. Permanent stabilization methods include, but are not limited to, permanent pavement or concrete, hardscape, xeriscape, stabilized driving surfaces and storage areas, vegetative cover, or equivalent permanent alternative stabilization methods. The division may approve alternative final stabilization criteria for specific operations. Vegetative cover must include the following criteria:

a. Evenly distributed perennial vegetation, which may include trees and shrubs;

b. Vegetation coverage, at a minimum, equal to 70 percent of what would have been provided by native vegetation in a local, undisturbed area or adequate reference site; and

c. If applicable, adherence to stabilization requirements does not negate the permittee's requirement to comply with the local jurisdiction's plant species requirements.

(c) Final stabilization must be designed and installed as a permanent feature. All control measures must be removed from the construction site, except when the control measure specifications allow the control measure to be left in place (i.e. bio-degradable control measures, permanent sedimentation basin, etc). Final stabilization measures for obtaining a vegetative cover or alternative stabilization methods include, but are not limited to, the following as appropriate:

(1) Seed mix selection and application methods;

(2) Soil preparation and amendments;

(3) Soil stabilization methods to provide adequate protection to minimize erosion (e.g. crimped straw, hydro mulch or rolled erosion control products);

(4) Appropriate sediment control measures as needed until final stabilization is achieved;

FOR REFERENCE ONLY

(5) Permanent pavement, hardscape, xeriscape, stabilized driving surfaces;

(6) Conversion of construction site back to prior cropland use. The permittee is not required to plant the crop prior to termination; and

(7) Other alternative stabilization practices as applicable.

b. Routine Maintenance

The permittee must ensure that all control measures remain in effective operating condition and are protected from activities that would reduce their effectiveness. Control measures must be routinely maintained in accordance with good engineering, hydrologic and pollution control practices. Observations leading to the required routine maintenance of control measures can be made during a site inspection, or during general observations of site conditions. The necessary repairs or modifications to a control measure requiring routine maintenance, as defined in Part I.E., must be conducted to maintain an effective operating condition. Control measures requiring routine maintenance are not subject to the requirements in Part I.B.1.c below.

c. Corrective Actions

The permittee must assess the adequacy of control measures at the construction site, and the need for changes to those control measures, to ensure continued effective performance.

When an inadequate control measure, as defined in Part I.E., is identified, the following corrective action requirements apply. The permittee is not in compliance with the permit until the inadequate control measure is replaced or corrected and returned to effective operating condition in compliance with Part I.B.1 and the general requirements in Part I.B.3. If the inadequate control measure results in noncompliance that meets the conditions of Part II.L, the permittee must also meet the requirements of that section.

i. The permittee must take all necessary steps to minimize or prevent the discharge of pollutants from the permitted area and manage any stormwater run-on onto the site until a control measure is implemented and made operational and/or an inadequate control measure is replaced or corrected and returned to effective operating condition. If it is infeasible to install or repair the control measure immediately after discovering the deficiency, the following must be documented in the stormwater management plan in Part I.D.5.c and kept on record in accordance with the recordkeeping requirements in Part II.

(a) Describe why it is infeasible to initiate the installation or repair immediately; and

(b) Provide a schedule for installing or repairing the control measure and returning it to an effective operating condition as soon as possible.

ii. If applicable, the permittee must remove and properly dispose of any unauthorized release or discharge within and from the permitted area (e.g., discharge of non-stormwater, untreated stormwater containing pollutants such as sediment, spill, or leak not authorized by this permit.) The permittee must clean up any contaminated surfaces, if feasible, to minimize discharges of the material in subsequent storm events, including water remaining from the response that contains pollutants after active emergency firefighting response is complete. Permittees are prohibited from hosing down an area to clean surface spills or leaks unless the wash water is adequately captured to not discharge off the site or to land and the captured water is properly disposed. In addition, the permittee must mitigate any accumulation of sediment outside of the site boundaries.

2. Discharges to an Impaired Waterbody or Outstanding Water

a. Total Maximum Daily Load (TMDL)

If the discharge from the site of permit coverage flows to or could reasonably be expected to flow to any water body for which a TMDL has been approved, and stormwater discharges associated with construction activity were assigned a pollutant-specific Wasteload Allocation (WLA) under the TMDL, the division may:

i. Ensure the WLA is implemented properly through alternative local requirements, such as by a municipal stormwater permit; or

FOR REFERENCE ONLY

ii. Notify the permittee of the WLA and amend the permittee's certification to add specific effluent limits, other requirements, and compliance schedules, as necessary and appropriate. The permittee may be required to do the following:

(a) Under the permittee's stormwater management plan, implement specific control measures based on requirements of the WLA, and evaluate whether the requirements are met through implementation of existing stormwater control measures or if additional control measures are necessary. Document the calculations or other evidence demonstrating that the requirements are expected to be met; and

(b) If the evaluation shows that additional or modified control measures are necessary, describe the type and schedule for the control measure additions or modifications.

iii. Discharge monitoring may also be required. The permittee may maintain coverage under the general permit provided they comply with the applicable requirements outlined above.

b. Outstanding Waters

i. Discharges to outstanding waters must be short-term and have a long-term ecological or water quality benefit or clear public interest. A state outstanding waters map can be found here.

ii. Sites that discharge to outstanding waters are required to have an increased inspection frequency found in Part I.D.3.

c. The division may require individual or alternate general permit coverage per Part I.A.3.d.i.

3. General Requirements

a. Discharges authorized by this permit must not cause, have the reasonable potential to cause, or measurably contribute to an exceedance of any applicable water quality standard, including narrative standards for water quality.

b. The division may require sampling and testing, on a case-by-case basis, in the event that there is reason to suspect that the stormwater management plan is not adequately minimizing pollutants in stormwater or in order to measure the effectiveness of the control measures in removing pollutants in the effluent. Such monitoring may include Whole Effluent Toxicity testing.

c. The permittee must comply with the lawful requirements of federal agencies, municipalities, counties, drainage districts and other local agencies including applicable requirements in Municipal Stormwater Management Programs developed to comply with CDPS permits. The permittee must comply with local stormwater management requirements, policies and guidelines including those for erosion and sediment control.

d. The division may include additional requirements as specified in the applicable watershed protection Control Regulations 71-74.

e. All construction site wastes must be properly managed to prevent potential pollution of state waters. This permit does not authorize on-site waste disposal.

f. This permit does not relieve the permittee of the reporting requirements in 40 CFR 110, 40 CFR 117 or 40 CFR 302. Any discharge of hazardous material must be handled in accordance with the division's Noncompliance Notification Requirements (see Part II.L of the permit).

C. STORMWATER MANAGEMENT PLAN REQUIREMENTS

1. Stormwater Management Plan General Requirements

a. The permittee must develop, implement, and maintain a stormwater management plan for each construction site listed under Part I.A.3.a, including, but not limited to, construction activity that will disturb one acre or more and/or are part of a common plan of development or sale covered by this permit.

i. The plan must be prepared in accordance with good engineering, hydrologic and pollution control practices.

FOR REFERENCE ONLY

ii. For public emergency related sites, the plan must be created no later than 14 days after the commencement of construction activities.

b. The permittee must implement the provisions of the plan as written and updated, from commencement of construction activity until final stabilization is complete. The division may review the plan.

c. A copy of the plan must be retained onsite or be onsite when construction activities are occurring at the site unless the permittee specifies another location and obtains written approval from the division. The plan and inspection reports may be prepared, signed, and kept electronically, rather than in paper form, if the records are:

i. In a format that can be read in a similar manner as a paper record; and

ii. Immediately accessible to the inspector during an inspection to the same extent as a paper copy stored at the site would be.

2. Stormwater Management Plan Content

The stormwater management plan, at a minimum, must include the following elements.

a. Qualified Stormwater Manager. The plan must list individual(s) by title and name who are designated as responsible for implementing the stormwater management plan in its entirety and meet the definition of a Qualified Stormwater Manager. This role may be filled by more than one individual.

b. Other Permits. The plan must list the applicable CDPS permits and low-risk discharge guidance documents associated with the permitted site (including the COR400000 general permit and the certification associated with the site) and the activities occurring on the permitted site (e.g. a CDPS Dewatering Permit). The plan must also list applicable US Army Corps of Engineers Section 404 permits. A copy of this general permit, applicable permit certification, and any applicable low-risk discharge guidance documents must be included in the stormwater management plan for each construction site.

c. Site Description. The plan must include a site description which includes, at a minimum, the following:

i. The nature of the construction activity at the site, including if it is a public emergency related site;

ii. The proposed schedule for the sequence for major construction activities and the planned implementation of control measures for each phase. (e.g. clearing, grading, utilities, vertical, etc.);

iii. Estimates of the total acreage of the site, and the acreage expected to be disturbed by clearing, excavation, grading, or any other construction activities;

iv. A summary of any existing data and sources used in the development of the construction site plans or stormwater management plan that describe the soil types found in the permitted area and the erodibility of the identified soil types;

v. A description of the percent cover from native vegetation on the site if the site is undisturbed, or the percent cover from native vegetation in a similar, local undisturbed area or adequate reference area if the site is disturbed. Include the source or methodology for determining the percentage. If a percent cover is not appropriate for the site location (i.e. arid), describe the technique and justification for the identified cover of native vegetation;

vi. A description of any allowable non-stormwater discharges at the site, including those being discharged under a separate CDPS permit, discharges under Part I.A.1.b, or a division low risk discharge guidance, and applicable control measures installed;

vii. A description of the general flow direction and where or how the discharge leaves the site, including a description of the immediate conveyance or area receiving the discharge and the receiving water(s) of the discharge, if different than the immediate conveyance or area. If the stormwater discharge is to a municipal separate storm sewer system, include the name of the entity owning that system, the location(s) of the stormwater discharge, and the receiving water(s);

viii. A description of all stream crossings located within the construction site boundary, if applicable;

ix. A description of the alternate temporary stabilization schedule, if applicable (Part I.B.1.a.iii(a); and

FOR REFERENCE ONLY

x. A description of the alternative diversion criteria as approved by the division, if applicable (Part I.B.1.a.i(i)(3)).

xi. A description of any effluent limitations that the permittees determines are infeasible and why they are infeasible, if applicable (Part I.B.1.a.i.(d, e, and g) and I.B.1.a.ii.(d).

d. Site Map. The plan must include a site map which includes, at a minimum, the following:

i. Construction site boundaries;

ii. Flow arrows that depict stormwater flow directions on and off-site;

iii. All areas of ground disturbance including areas of borrow and fill;

iv. Areas used for storage of soil;

v. Locations of all waste accumulation areas, including areas for liquid, concrete, masonry, and asphalt;

vi. Locations of dedicated asphalt, concrete batch plants and masonry mixing stations;

vii. Locations of other potential sources of pollution not listed in iii. through vi.

viii. Locations of all structural control measures;

ix. Locations of all non-structural control measures (e.g. temporary stabilization);

x. Locations and names, as listed in Part I.C.2.c.vii, of springs, streams, wetlands, diversions and other state waters within or bordering the site, including areas that require pre-existing vegetation be maintained within 50 feet of a receiving water, where determined feasible in accordance with Part I.B.1.a.i(e) (e.g. MS4 to unnamed tributary to the South Platte River);

xi. Locations of all stream crossings located within the construction site boundary;

xii. Locations where alternative temporary stabilization schedules apply; and

e. Potential Sources of Pollution. The plan must list all potential sources of pollution which may reasonably be expected to affect the quality of stormwater discharges associated with construction activity from the site.

i. The plan must include the following pollutant sources as these pollutants relate to every construction site:

(a) Disturbed and stored soils;

(b) Vehicle tracking of sediments;

(c) On-site waste management practices (waste piles, liquid wastes, dumpsters);

ii. The plan may include, but is not limited to, the following pollutant sources:

(a) Management of contaminated soils (contaminated soils may also occur from onsite spills or leaks), if known to be present, or if contaminated soils are found during construction;

(b) Loading and unloading operations;

(c) Outdoor storage activities (erodible building materials, fertilizers, chemicals, etc.);

(d) Vehicle and equipment maintenance and fueling;

(e) Significant dust or particulate generating processes (e.g., saw cutting material, including dust);

(f) Routine maintenance activities involving fertilizers, pesticides, herbicides, detergents, fuels, solvents, oils, etc.;

(g) Concrete/masonry truck/equipment washing, including washing of the concrete truck chute and associated fixtures and equipment;

(h) Dedicated asphalt, concrete batch plants and masonry mixing stations;

(i) Non-industrial waste sources such as worker trash and portable toilets; and

FOR REFERENCE ONLY

(j) Reclaimed water approved for use in construction dust suppression.

f. Materials Handling. The plan must describe handling procedures of all control measures implemented at the site to minimize impacts from handling significant materials that could contribute pollutants to runoff. These handling procedures can include control measures for pollutants and activities such as, exposed storage of building materials, paints and solvents, landscape materials, fertilizers or chemicals, sanitary waste material, trash and equipment maintenance or fueling procedures.

g. Spill Prevention and Response Plan. The plan must have a spill prevention and response plan. The plan may incorporate by reference any part of a Spill Prevention Control and Countermeasure (SPCC) plan under section 311 of the Clean Water Act (CWA) or a Spill Prevention Plan required by a separate CDPS permit. The relevant sections of any referenced plans must be available as part of the stormwater management plan consistent with Part I.C.4.

h. Implementation of Control Measures. The plan must include design specifications that contain information on the implementation of all the control measures in use on the site in accordance with good engineering, hydrologic and pollution control practices; including, as applicable, drawings, dimensions, installation information, materials, implementation processes, control measure-specific inspection expectations, and maintenance requirements.

i. The plan must include a documented use agreement between the permittee and the owner or operator of any control measures located outside of the permitted area that are utilized by the permittee's construction site for compliance with this permit, but not under the direct control of the permittee. The permittee is responsible for ensuring that all control measures located outside of their permitted area, that are being utilized by the permittee's construction site, are properly maintained and in compliance with all terms and conditions of the permit. The plan must include all information required of and relevant to any such control measures located outside the permitted area, including location, installation specifications, design specifications and maintenance requirements.

j. Temporary Stabilization, Final Stabilization and Long Term Stormwater Management.

   i. The plan must document the constraints necessitating an alternative temporary stabilization schedule, as referenced in Part I.B.1.a.iii(a), provide the alternate stabilization schedule, and identify all locations where the alternative schedule is applicable on the site map.

   ii. The plan must document all residential lots that utilize the Sale of Residence to Homeowner, as referenced in Part I.A.3.i, the lots that received temporary stabilization and meet all the requirements under Part I.A.3.i, and identify all the lot locations where Part I.A.3.i is applicable on the site map.

   iii. The plan must describe or locate where all final stabilization methods are used and what methods are used to achieve final stabilization of all disturbed areas at the site (e.g. pavement, vegetative cover, etc), as listed in Part I.B.1.a.iii(b).

   iv. The plan must describe how the permittee will establish final stabilization through vegetative cover or alternative stabilization method, as referenced in Part I.B.1.a.iii(c), and describe and locate any temporary control measures in place during the process of final stabilization (e.g. seed mix, soil amendments, final stabilization methods, return to cropland, etc.).

   v. The plan must describe and locate any planned permanent control measures to control pollutants in stormwater discharges that will occur after construction operations are completed, including but not limited to, detention/retention ponds, rain gardens, stormwater vaults, etc.

k. Inspection Reports. The plan must include documented inspection reports in accordance with Part I.D.5.c.

3. Stormwater Management Plan Review and Revisions

Permittees must keep the stormwater management plan current and maintain a record of changes made that includes the date and identification of the changes. The plan must be amended when the following occurs:

FOR REFERENCE ONLY

a. A change in design, construction, operation, or maintenance of the site requiring implementation of new or revised control measures;

b. The plan proves ineffective in controlling pollutants in stormwater runoff in compliance with the permit conditions;

c. Control measures identified in the plan are no longer necessary and are removed;

d. Corrective actions are taken onsite that result in a change to the plan; and

e. The site or areas of the site qualifying for reduced frequency inspections under Part I.D.4.

For stormwater management plan revisions made prior to or following a change(s) onsite, including revisions to sections addressing site conditions and control measures, a notation must be included in the plan that identifies the date of the site change, the control measure removed, or modified, the location(s) of those control measures, and any changes to the control measure(s). The methods for notation may include notations on site maps, a log of changes, redline changes in the, or other measures. The permittee must ensure the site changes are reflected in the plan. The permittee is noncompliant with the permit until the plan revisions have been made.

4. Stormwater Management Plan Availability

A copy of the stormwater management plan must be provided upon request to the division, EPA, and any local agency with authority for approving sediment and erosion plans, grading plans or stormwater management plans within the time frame specified in the request. If the plan is required to be submitted to any of these entities, the submission must include a signed certification in accordance with Part I.A.3.e, certifying that the plan is complete and compliant with all terms and conditions of the permit.

All stormwater management plans required under this permit are considered reports that must be available to the public under Section 308(b) of the CWA and Section 61.5(4) of the CDPS regulations. The permittee must make plans available to members of the public upon request. However, the permittee may claim any portion of a stormwater management plan as confidential in accordance with 40 CFR Part 2.

D. SITE INSPECTIONS

Site inspections must be conducted in accordance with the following requirements. The required inspection schedules are a minimum frequency and do not affect the permittee's responsibility to implement control measures in effective operating condition as prescribed in the stormwater management plan, Part I.C.2.a.vi, as proper maintenance of control measures may require more frequent inspections. Site inspections must start within 7 calendar days of the commencement of construction activities on site.

1. Person Responsible for Conducting Inspections

The person(s) inspecting the site may be on the permittee's staff or a third party hired to conduct stormwater inspections under the direction of the permittee(s). The permittee is responsible for ensuring that the inspector meets the definition of a Qualified Stormwater Manager. The inspector may be different than the individual(s) listed in Part I.C.2.a.

2. Inspection Frequency

Permittees must conduct site inspections in accordance with one of the following minimum frequencies, unless the site meets the requirements of Part I.D.3. All inspections must be recorded per Part I.D.5.c.

a. At least one inspection every 7 calendar days; or

b. At least one inspection every 14 calendar days, if post-storm event inspections are conducted within 24 hours after the end of any precipitation or snowmelt event that causes surface erosion. Post-storm inspections may be used to fulfill the 14-day routine inspection requirement.

c. When site conditions make the schedule required in this section impractical, the permittee may petition the division to grant an alternate inspection schedule. The alternative inspection schedule must not be implemented prior to written approval by the division and incorporation into the stormwater management plan.

FOR REFERENCE ONLY

3. **Inspection Frequency for Discharges to Outstanding Waters**

Permittees must conduct site inspections at least once every 7 calendar days for sites that discharge to a water body designated as an Outstanding Water by the Water Quality Control Commission. In order to determine if the immediate receiving water is to an Outstanding Water, the permittee can use this map of Outstanding Waters.

4. **Reduced Inspection Frequency**

The permittee may perform site inspections at the following reduced frequencies when one of the following conditions exists:

a. Post-Storm Inspections at Temporarily Idle Sites

For permittees choosing an inspection frequency pursuant to Part I.D.2.b and if no construction activities will occur following a storm event, post-storm event inspections must be conducted prior to re-commencing construction activities, and no later than 72 hours after the end of any precipitation or snowmelt event that causes surface erosion. If the post-storm event inspection qualifies under this section, the inspection delay must be documented in the inspection record per Part I.D.5.c. Routine inspections must still be conducted at least every 14 calendar days.

b. Inspections at Sites Awaiting Final Stabilization

When the site, or portions of a site, are awaiting establishment of a vegetative ground cover and final stabilization, the permittee must conduct a thorough inspection of the construction site and control measures at least once every 30 days. Post-storm event inspections are not required under this schedule. This reduced inspection schedule is allowed if all of the following criteria are met:

i. All construction activities resulting in ground disturbance are complete;

ii. All activities required for final stabilization, in accordance with Part I.B.1.a.iii(b) & (c) and with the stormwater management plan, have been completed, with the exception of the application of sod or seed that has not occurred due to seasonal conditions or the necessity for additional seed application to augment previous efforts; and

iii. The stormwater management plan has been amended to locate those areas to be inspected in accordance with the reduced schedule allowed for in this paragraph.

c. Winter Conditions Inspections Exclusion

Typically, this exclusion applies to elevations or locations where snow melt does not occur in the winter months. Inspections are not required for sites that meet all of the following conditions:

i. Construction activities are temporarily halted for the winter season (e.g. December – February due to site being inaccessible);

ii. Snow cover exists over the entire site for an extended period (i.e. high-elevation winter season); and

iii. Melting conditions posing a risk of surface erosion do not exist.

This inspection exception is applicable only during the period where melting conditions do not exist, and applies to the routine 7-day, 14-day and monthly inspections, as well as the post-storm-event inspections. When this inspection exclusion is implemented, the following information must be documented in accordance with the requirements in Part I.C.3 and Part I.D.5.c:

(a) Dates when snow cover existed;

(b) Date when construction activities ceased; and

(c) Date melting conditions began.

5. **Inspection Scope**

a. Areas to Be Inspected

When conducting a site inspection the following areas, if applicable, must be inspected for evidence of, or

FOR REFERENCE ONLY

the potential for, pollutants leaving the construction site boundaries, entering the stormwater drainage system, or discharging to state waters:

i. Construction site perimeter;

ii. All disturbed areas, including areas that are temporarily stabilized;

iii. Locations of installed control measures;

iv. Designated haul routes;

v. Material and waste storage areas exposed to precipitation;

vi. Locations of pumped stormwater;

vii. Locations where stormwater has the potential to discharge offsite, including visible erosion and sedimentation; and

viii. Locations where vehicles exit the site.

b. Inspection Requirements

Inspections must assess the following components:

i. Visually verify whether all implemented control measures are in effective operational condition and are working as designed in their specifications to minimize pollutant discharges.

(a) For pumped stormwater, assessment may include sediment plume, suspended solids, unusual color, decreased clarity, presence of odor or foam, etc.

ii. Determine if there are new potential sources of pollutants.

iii. Assess the adequacy of control measures at the site to identify areas requiring new or modified control measures to minimize pollutant discharges.

iv. Identify all areas of non-compliance with the permit requirements and, if necessary, implement corrective action(s) in accordance with Part I.B.1.c.

c. Inspection Reports

The permittee must keep a record of all inspections conducted for each permitted site. Inspection reports must identify any incidents of noncompliance with the terms and conditions of this permit. All inspection reports must be signed and dated in accordance with Part I.D.5.c.xiii and xiv below. Inspection records must be retained in accordance with Part II.J. At a minimum, the inspection report must include:

i. The inspection date;

ii. Name(s) and title(s) of personnel conducting the inspection;

iii. Weather conditions at the time of inspection;

iv. Phase of construction at the time of inspection;

v. Estimated acreage of disturbance at the time of inspection;

vi. Location(s) and identification of control measures requiring routine maintenance;

vii. Location(s) and identification of discharges of sediment or other pollutants from the site;

viii. Location(s) and identification of inadequate control measures;

ix. Location(s) and identification of additional control measures needed that were not in place at the time of inspection;

x. Description of corrective action(s) for items vii, viii, ix, above, dates corrective action(s) were completed, including requisite changes to the stormwater management plan, as necessary;

xi. Description of the minimum inspection frequency (either in accordance with Part I.D.2, Part I.D.3 or Part I.D.4.) utilized when conducting each inspection;

FOR REFERENCE ONLY

xii. Deviations from the minimum inspection schedule as required in Part I.D.2. This would include documentation of division approval for an alternate inspection schedule outlined in Part I.D.2.c;

xiii. After adequate corrective action(s) have been taken, or where a report does not identify any incidents requiring corrective action, the report must contain the following statement and provide the date of the statement:

"I verify that, to the best of my knowledge and belief, that if any corrective action items were identified during the inspection, those corrective actions are complete, and the site is currently in compliance with the permit."; and

xiv. Inspection reports must be signed by the individual(s) designated as a Qualified Stormwater Manager, as defined in Part I.E.

E. DEFINITIONS

For the purposes of this permit:

(1) Bypass the intentional diversion of waste streams from any portion of a treatment facility in accordance with 40 CFR 122.41(m)(1)(i) and Regulation 61.2(12).

(2) Common Plan of Development or Sale - A contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules, but remain related. The division has determined that "contiguous" means construction activities located in close proximity to each other (within ¼ mile). Construction activities are considered to be "related" if they share the same development plan, builder or contractor, equipment, storage areas, etc. "Common plan of development or sale" includes construction activities that are associated with the construction of field wide oil and gas permits for facilities that are related.

(3) Construction Activity - Ground surface disturbing and associated activities (land disturbance), which include, but are not limited to, clearing, grading, excavation, demolition, installation of new or improved haul roads and access roads, staging areas, stockpiling of fill materials, and borrow areas. Construction does not include routine maintenance to maintain the original line and grade, hydraulic capacity, or original purpose of the facility. Activities to conduct repairs that are not part of routine maintenance or for replacement are construction activities and are not routine maintenance. Repaving activities where underlying and/or surrounding soil is exposed as part of the repaving operation are considered construction activities. Construction activity is from initial ground breaking to final stabilization regardless of ownership of the construction activities.

(4) Construction Site – The location where construction activity is occurring and associated discharges are covered by this permit, including offsite locations for storage, staging, etc. For use in this permit, the terms construction site, site, and facility are used interchangeably.

(5) Control Measure - Any best management practice or other method used to prevent or reduce the discharge of pollutants to state waters. Control measures include, but are not limited to, best management practices. Control measures can include other methods such as the installation, operation, and maintenance of structural controls and treatment devices.

(6) Control Measure Requiring Routine Maintenance - Any control measure that is still operating in accordance with its design and the requirements of this permit, but requires preventative maintenance to prevent a breach of the control measure in subsequent storms.

(7) Dedicated Asphalt, Concrete Batch Plants and Masonry Mixing Stations – Are batch plants or mixing stations located on, or within ¼ mile of, a construction site and that provide materials only to that specific construction site.

(8) Disturbed area – Any ground disturbance prior to final stabilization.

(9) Diversion – Discharges of state waters that are temporarily routed through channels or structures (e.g. in-stream, uncontaminated springs, non-pumped groundwater, temporary rerouting of surface waters, fords). For purposes of this permit, these diversions can also be referred to as clean water diversions.

FOR REFERENCE ONLY

(10) Final Stabilization - The condition reached when construction activities at the site have been completed, permanent stabilization methods are complete, and temporary control measures are removed. Areas being stabilized with a vegetative cover must have evenly distributed perennial vegetation. The vegetation coverage must be, at a minimum, equal to 70 percent of what would have been provided by native vegetation in a local, undisturbed area or adequate reference site.

(11) Good Engineering, Hydrologic and Pollution Control Practices: are methods, procedures, and practices that:

a. Are based on basic scientific fact(s).

b. Reflect best industry practices and standards.

c. Are appropriate for the conditions and pollutant sources.

d. Provide appropriate solutions to meet the associated permit requirements, including practice based effluent limits.

(12) Inadequate Control Measure - Any control measure that is not designed or implemented in accordance with the requirements of the permit and/or any control measure that is not implemented to operate in accordance with its design.

(13) Infeasible – Not technologically possible, or not economically practicable and achievable in light of best industry practices.

(14) Minimize - Reduce or eliminate to the extent achievable using control measures that are technologically available and economically practicable and achievable in light of best industry practice.

(15) Municipality - A city, town, county, district, association, or other public body created by, or under, State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes, or a designated and approved management agency under section 208 of CWA (1987).

(16) Municipal Separate Storm Sewer System (MS4) - A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

a. Owned or operated by a State, city, town, county, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or a designated and approved management agency under section 208 of the CWA that discharges to state waters;

b. Designed or used for collecting or conveying stormwater;

c. Are not a combined sewer; and

d. Are not part of a Publicly Owned Treatment Works (POTW). See 5 CCR 1002-61.2(62).

(17) Municipal Stormwater Management Program - A stormwater program operated by a municipality, typically to meet the requirements of the municipality's MS4 discharge certification.

(18) Native Vegetation – Plant species that are naturally occurring for the particular area (or region) and have adapted to and are well suited for the soil, temperature, nutrients, and precipitation of the particular area (region).

(19) Operator - The party that has operational control over day-to-day activities at a project site which are necessary to ensure compliance with the permit. This party is authorized to direct individuals at a site to carry out activities required by the permit (i.e. the general contractor).

(20) Outstanding Waters - Waters designated as outstanding waters pursuant to Regulation 31, Section 31.8(2)(a). The highest level of water quality protection applies to certain waters that constitute an outstanding state or national resource.

(21) Owner - The party that has overall control of the activities and that has funded the implementation of the construction plans and specifications. This is the party that may have ownership of, a long term lease of, or easements on the property on which the construction activity is occurring (e.g. the developer).

FOR REFERENCE ONLY

(22) Permittee(s) - The owner and operator named in the discharge certification issued under this general permit for the construction site specified in the certification.

(23) Point Source - Any discernible, confined, and discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. Point source does not include irrigation return flow. See 5 CCR 102-61.2(75).

(24) Pollutant - Dredged spoil, dirt, slurry, solid waste, incinerator residue, sewage, sewage sludge, garbage, trash, chemical waste, biological nutrient, biological material, radioactive material, heat, wrecked or discarded equipment, rock, sand, or any industrial, municipal or agricultural waste. See 5 CCR 1002-61.2(76).

(25) Presentation of credentials – A government issued form of identification, if in person; or (ii) providing name, position and purpose of inspection if request to enter is made via telephone, email or other form of electronic communication. A permittee's non-response to a request to enter upon presentation of credentials constitutes a denial to such request, and may result in violation of the permit.

(26) Process Water - Any water which, during manufacturing or processing, comes into contact with or results from the production of any raw material, intermediate product, finished product, by product or waste product.

(27) Public Emergency Related Site - A project initiated in response to an unanticipated emergency (e.g., mud slides, earthquake, extreme flooding conditions, disruption in essential public services), for which the related work requires immediate authorization to avoid imminent endangerment to human health or the environment, or to reestablish essential public services.

(28) Qualified Stormwater Manager - An individual knowledgeable in the principles and practices of erosion and sediment control and pollution prevention, and with the skills to assess conditions at construction sites that could impact stormwater quality and to assess the effectiveness of stormwater control measures implemented to meet the requirements of this permit.

(29) Qualifying Local Program - A municipal program for stormwater discharges associated with small construction activity that was formally approved by the division as a qualifying local program (Regulation 61.8(12).

(30) Receiving Water - Any surface state water into which stormwater associated with construction activities discharges. Examples include all water courses, even if they are usually dry, such as borrow ditches, arroyos, and other unnamed waterways.

(31) Severe Property Damage - Substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. See 40 CFR 122.41(m)(1)(ii).

(32) Significant Materials - Include, but not limited to, raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under section 101(14) of CERCLA; any chemical the permittee is required to report under section 313 of Title III of the Superfund Amendments and Reauthorization Act (SARA); fertilizers; pesticides; and waste products such as ashes, slag and sludge that have the potential to be released with stormwater discharges.

(33) Small Construction Activity - The discharge of stormwater from construction activities that result in land disturbance of equal to, or greater than, one acre and less than five acres. Small construction activity also includes the disturbance of less than one acre of total land area that is part of a larger common plan of development or sale, if the larger common plan ultimately disturbs equal to, or greater than, one acre and less than five acres.

(34) Spill - An unintentional release of solid or liquid material which may pollute state waters.

(35) State Waters - Any and all surface and subsurface waters which are contained in or flow in or through this state, but does not include waters in sewage systems, waters in treatment works of disposal systems, waters in potable water distribution systems, and all water withdrawn for use until use and treatment have been

FOR REFERENCE ONLY

completed.

(36) Steep Slopes - Where a local government, or industry technical manual (e.g. stormwater BMP manual) has defined what is to be considered a “steep slope”, this permit’s definition automatically adopts that definition. Where no such definition exists, steep slopes are automatically defined as those that are 3:1 or greater.

(37) Stormwater - Precipitation runoff, snow melt runoff, and surface runoff and drainage. See 5 CCR 1002-61.2(103).

(38) Total Maximum Daily Loads (TMDLs) - The sum of the individual wasteload allocations (WLA) for point sources and load allocations (LA) for nonpoint sources and natural background. For the purposes of this permit, a TMDL is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources. A TMDL includes WLAs, LAs, and must include a margin of safety (MOS), and account for seasonal variations. See section 303(d) of the CWA and 40 C.F.R. 130.2 and 130.7.

(39) Upset - An exceptional incident in which there is unintentional and temporary noncompliance with permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation in accordance with 40 CFR 122.41(n) and Regulation 61.2(114).

F. MONITORING

The division may require sampling and testing, on a case-by-case basis. If the division requires sampling and testing, the division will send a notification to the permittee. Sampling and reporting procedures for any monitoring data collected will be included in the notification.

If monitoring is required, the following applies:

The thirty (30) day average must be determined by the arithmetic mean of all samples collected during a thirty (30) consecutive-day period; and

A grab sample, for monitoring requirements, is a single “dip and take” sample.

G. OIL AND GAS CONSTRUCTION

Stormwater discharges associated with construction activities directly related to oil and gas exploration, production, processing, and treatment operations or transmission facilities are regulated under the Colorado Discharge Permit System Regulations (5 CCR 1002-61), and require coverage under this permit in accordance with that regulation. However, references in this permit to specific authority under the CWA do not apply to stormwater discharges associated with these oil and gas related construction activities, to the extent that the references are limited by the federal Energy Policy Act of 2005.

FOR REFERENCE ONLY

PART II

Part II contains standard conditions required by federal regulation to be included in all NPDES permits (see 40 C.F.R. 122.41). Part I contains permit specific requirements.

A. DUTY TO COMPLY

1. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Colorado Water Quality Control Act and is grounds for: 1) enforcement action; 2) permit termination, revocation and reissuance, or modification; or 3) denial of a permit renewal application.
2. Federal Enforcement:
   a. The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal (see 40 CFR 122.2) established under section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.
   b. The Clean Water Act provides that any person who violates section 301, 302, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any such sections in a permit issued under section 402, or any requirement imposed in a pretreatment program approved under sections 402(a)(3) or 402(b)(8) of the Act, is subject to a civil penalty not to exceed $25,000 per day for each violation. The Clean Water Act provides that any person who *negligently* violates sections 301, 302, 306, 307, 308, 318, or 405 of the Act, or any condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, or any requirement imposed in a pretreatment program approved under section 402(a)(3) or 402(b)(8) of the Act, is subject to criminal penalties of $2,500 to $25,000 per day of violation, or imprisonment of not more than 1 year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than $50,000 per day of violation, or by imprisonment of not more than 2 years, or both. Any person who *knowingly* violates such sections, or such conditions or limitations is subject to criminal penalties of $5,000 to $50,000 per day of violation, or imprisonment for not more than 3 years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than $100,000 per day of violation, or imprisonment of not more than 6 years, or both. Any person who knowingly violates section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than $250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than $500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in section 309(c)(3)(B)(iii) of the CWA, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than $1,000,000 and can be fined up to $2,000,000 for second or subsequent convictions.
   c. Any person may be assessed an administrative penalty by the Administrator for violating section 301, 302, 306, 307, 308, 318 or 405 of this Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of this Act. Administrative penalties for Class I violations are not to exceed $10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed $25,000. Penalties for Class II violations are not to exceed $10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed $125,000.

B. DUTY TO REAPPLY

If the permittee plans to continue an activity regulated by this permit after the expiration date of this permit, the permittee must submit a permit application at least 180 days before this permit expires as required by Regulations 61.4 and 61.10.

C. NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or

FOR REFERENCE ONLY

reduce the permitted activity in order to maintain compliance with the conditions of this permit.

D. DUTY TO MITIGATE

The permittee must take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

E. PROPER OPERATION AND MAINTENANCE

The permittee must at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of this permit. See 40 C.F.R. §122.41(e).

F. PERMIT ACTIONS

This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition. Any request for modification, revocation, reissuance, or termination under this permit must comply with all terms and conditions of Regulation 61.8(8). See also 40 C.F.R. § 122.41(f).

G. PROPERTY RIGHTS

In accordance with 40 CFR §122.41(g) and Regulation 61.8(9): The issuance of a permit does not convey any property or water rights in either real or personal property, or stream flows or any exclusive privilege.

1. The issuance of a permit does not authorize any injury to person or property or any invasion of personal rights, nor does it authorize the infringement of federal, state, or local laws or regulations.
2. Except for any toxic effluent standard or prohibition imposed under Section 307 of the Clean Water Act or any standard for sewage sludge use or disposal under Section 405(d) of the Federal act, compliance with a permit during its term constitutes compliance, for purposes of enforcement, with Sections 301, 302, 306, 318, 403, and 405(a) and (b) of the Clean Water Act. However, a permit may be modified, revoked and reissued, or terminated during its term for cause as set forth in Section 61.8(8) of the Colorado Discharge Permit System Regulations. See 61.8(9)(c).

H. DUTY TO PROVIDE INFORMATION

The permittee shall furnish to the Division, within a reasonable time, any information which the Division may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Division, upon request, copies of records required to be kept by this permit in accordance with 40 C.F.R. §122.41(h) and/or Regulation 61.8(3)(q).

I. INSPECTION AND ENTRY

The permittee shall allow the Division and the authorized representative, including U.S. EPA, and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials as required by law, to conduct inspections in accordance with 40 C.F.R. §122.41(i), Regulation 61.8(3), and Regulation 61.8(4):

1. To enter upon the permittee's premises where a regulated facility or activity is located or conducted in which any records are required to be kept under the terms and conditions of this permit;
2. At reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit and to inspect any facilities, equipment (including monitoring and control equipment), practices, operations or monitoring method regulated or required in the permit;
3. To enter upon the permittee's premises in a reasonable manner and at a reasonable time to inspect or investigate, any actual, suspected, or potential source of water pollution, or to ascertain compliance or noncompliance with the Colorado Water Quality Control Act or any other applicable state or federal statute or regulation or any order promulgated by the Division, and;

FOR REFERENCE ONLY

4. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act, any substances or parameters at any location.

J. MONITORING AND RECORDS

1. Samples and measurements taken for the purpose of monitoring must be representative of the volume and nature of the monitored activity. See 40 C.F.R. § 122.41(j)(1).

2. Monitoring must be conducted according to test procedures approved under 40 C.F.R. part 136 for the analyses of pollutants unless another method is required under 40 C.F.R. subchapters N or O. In the case of pollutants for which there are no approved methods under 40 C.F.R. part 136 or otherwise required under 40 C.F.R. subchapters N or O, monitoring must be conducted according to a test procedure specified in this permit for such pollutants. See 40 C.F.R. § 122.41(j)(4); 122.44(i)(1)(iv)(A).

3. Except for records of monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR part 503), the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application. This period of retention shall be extended during the course of any unresolved litigation regarding the discharge of pollutants by the permittee or when requested by the Division or Regional Administrator.

4. Records of monitoring information must include:

   a. The date, exact place, and time of sampling or measurements;
   b. The individual(s) who performed the sampling or measurements;
   c. The date(s) analyses were performed
   d. The individual(s) who performed the analyses;
   e. The analytical techniques or methods used; and
   f. The results of such analyses.

5. The permittee shall install, calibrate, use and maintain monitoring methods and equipment, including biological and indicated pollutant monitoring methods. See Regulation 61.8(4)(b)(iii). All sampling shall be performed by the permittee according to sufficiently sensitive test procedures required by 40 C.F.R. 122.44(i)(1)(iv) or methods approved by the Division, in the absence of a method specified in or approved pursuant to 40 C.F.R. Part 136.

6. The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or both.

7. Documentation required by this permit, including records of all data used to complete the application for permit coverage to be covered by this permit, stormwater management plans, inspection reports, etc., must be retained for at least three years from the date that permit coverage expires or is terminated. This period may be extended by request of EPA or the division at any time.

K. SIGNATORY REQUIREMENTS

1. Authorization to Sign: All documents required to be submitted to the Division by the permit must be signed in accordance with 40 CFR §122.22, Regulation 61.4, and the following criteria:

   a. For a corporation: By a responsible corporate officer. For the purpose of this subsection, a responsible corporate officer means: (i) a president, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term

FOR REFERENCE ONLY

environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. The responsible official may be a project manager if the project manager has level of control at a corporation as required in this subpart a.

b. For a partnership or sole proprietorship: By a general partner or the proprietor, respectively; or
c. For a municipality, state, federal, or other public agency: By either a principal executive officer or ranking elected official. For purposes of this subsection, a principal executive officer of a federal agency includes (i) the chief or principal executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency. (e.g., Regional Administrator of EPA), and at the city, municipal, state or other government entity it typically will include a program director (e.g. Director of Public Works, Director of Transportation, Director of Parks and Recreation, etc.). For purposes of this section, a principal executive officer has responsibility for the overall operation of the facility from which the discharge originates.
d. By a duly authorized representative in accordance with 40 C.F.R. 122.22(b), only if:

   i. the authorization is made in writing by a person described in Part II.K.1.a, b, or c above;
   ii. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and,
   iii. The written authorization is submitted to the Division.

2. Any person(s) signing documents required for submittal to the Division must make the following certification:

   "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

3. The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both. See 40 C.F.R. §122.41(k)(2).

FOR REFERENCE ONLY

L. REPORTING REQUIREMENTS

1. Planned Changes: The permittee shall give advance notice to the Division, in writing, of any planned physical alterations or additions to the permitted facility in accordance with 40 CFR §122.41(l) and Regulation 61.8(5)(a) and Part II.O. of this permit. Notice is required only when:

   a. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR §122.29(b); or
   b. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under 40 CFR §122.41(a)(1).
   c. The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. See 40 C.F.R. §122.41(l)(1)(iii).

2. Anticipated Non-Compliance: The permittee shall give advance notice to the Division, in writing, of any planned changes in the permitted facility or activity that may result in noncompliance with permit requirements. The timing of notification requirements differs based on the type of non-compliance as described below.

3. Transfer of Ownership or Control: The permittee shall notify the Division, in writing, ten (10) calendar days in advance of a proposed transfer of the permit. The notice must include a written agreement between the existing and new permittee(s) containing a specific date for transfer of permit responsibility, coverage and liability between them. This permit is not transferable to any person except after notice to the Division. The Division may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Clean Water Act. See Regulation 61.8(6); 40 C.F.R. §§ 122.41(l)(iii) and 122.61.

4. Monitoring reports: Monitoring results must be reported at the intervals specified in this permit.

   a. If the permittee monitors any pollutant at the approved monitoring locations listed in Part I more frequently than that required by this permit using test procedures approved under 40 CFR Part 136, or another method required for an industry-specific waste stream under 40 CFR subchapters N or O, the results of such monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Division. See 40 CFR 122.41(l)(4).
   b. Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the Division in the permit.

5. Submission of Discharge Monitoring Reports (DMRs): DMRs shall be submitted electronically through NetDMR system unless the permittee requests and is granted a waiver of the electronic reporting requirement by the Division pursuant to Regulation 61.8(4)(d).

6. Compliance Schedules: Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule in the permit, shall be submitted on or before the date listed in the compliance schedule section. The fourteen (14) calendar day provision in Regulation 61.8(4)(n)(i) has been incorporated into the due date.

7. Twenty-four hour reporting:

   a. In addition to the reports required elsewhere in this permit, the permittee shall report the following circumstances on the Division's submission form within twenty-four (24) hours from the time the permittee becomes aware of the circumstances, and shall submit to the Division a written report containing the information requested within five (5) working days after becoming aware of the following circumstances:
      i. Circumstances leading to any noncompliance which may endanger health or the environment regardless of the cause of the incident;
      ii. Circumstances leading to any unanticipated bypass which exceeds any effluent limitations in the permit;
      iii. Circumstances leading to any upset which causes an exceedance of any effluent limitation in the permit; or
      iv. Daily maximum violations for any of the pollutants limited by Part I.A of this permit as specified in Part III of this permit. This includes any toxic pollutant or hazardous substance or any pollutant specifically identified as the method to control any toxic pollutant or hazardous substance.
   b. The report shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.
   c. For noncompliance events related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports must include the data described above (with the exception of time of discovery) as well as the type of event (combined sewer overflows, sanitary sewer overflows, or bypass events), type of sewer overflow structure (e.g., manhole, combine sewer overflow outfall), discharge volumes untreated by the treatment works treating domestic sewage, types of human health and environmental impacts of the sewer overflow event, and whether the noncompliance was related to wet weather. See 40 CFR 122.41(l)(6)(i).

FOR REFERENCE ONLY

i. As of December 21, 2020 all reports related to combined sewer overflows, sanitary sewer overflows, or bypass events submitted in compliance with this section must be submitted electronically by the permittee to the Division.

8. Other non-compliance: A permittee must report all instances of noncompliance at the time monitoring reports are due. These reports may be submitted annually in accordance with Regulation 61.8(4)(p) and/or 61.8(5)(f), but may be submitted at a more frequent interval.

M. BYPASS

1. Definitions:

   a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility in accordance with 40 CFR §122.41(m)(1)(i) and/or Regulation 61.2(12).
   b. Severe property damage means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. See 40 CFR §122.41(m)(1)(ii).

2. Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of 40 CFR 122.41(m)(3) and (m)(4). See 40 CFR §122.41(m)(2).

3. Notice of bypass:

   a. Anticipated bypass. If the permittee knows in advance of the need for a bypass, the permittee shall submit prior notice, if possible, at least ten (10) days before the date of the bypass. See 40 CFR §122.41(m)(3)(i) and/or Regulation 61.9(5)(c).
   b. Unanticipated bypass. You must submit notice of an unanticipated bypass as required in Part II.L.7. See also 40 CFR §122.41(m)(3)(ii).

4. Prohibition of Bypass: Bypasses are prohibited and the Division may take enforcement action against the permittee for bypass, unless:

   a. the bypass is unavoidable to prevent loss of life, personal injury, or severe property damage;
   b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
   c. Proper notices were submitted to the Division.
      i. The Division may approve an anticipated bypass, after considering its adverse effects, if the Division determines that it will meet the three conditions listed.

N. UPSET

1. Definition: "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation. See 40 CFR §122.41(n) and Regulation 61.2(113).

2. Effect of an upset: An upset constitutes an affirmative defense to an action brought for noncompliance with permit effluent limitations if the requirements of section 3 are met. A determination made during administrative review of claims that noncompliance was caused by upset is final administrative action subject to judicial review in accordance with Regulation 61.8(3)(j).

   ***special note:** this provision is consistent with the definition of "Upset" as codified in Regulation 61.2(113). However, the Colorado regulatory definition of upset is less stringent than the federal code of regulations, which restricts the use of an upset defense to noncompliance with technology-based permit effluent limitations only.*

FOR REFERENCE ONLY

3. Conditions necessary for demonstration of an Upset: A permittee who wishes to establish the affirmative defense of upset shall demonstrate through properly signed contemporaneous operating logs, or other relevant evidence that:

   a. an upset occurred and the permittee can identify the cause(s) of the upset;
   b. the permitted facility was at the time being properly maintained; and
   c. the permittee submitted notice of the upset as required in Part II.L.7 (24-hour notice); and
   d. The permittee complied with any remedial measure necessary to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment. See also 40 C.F.R. 122.41(n)(3)(i)-(iv).

   special note: this provision is consistent with the definition of "Conditions necessary for demonstration of upset" as codified in Regulation 61.8(3)(j)(ii). However, the Colorado regulatory definition of upset is less stringent than the federal code of regulations, which restricts the use of an upset defense to demonstrate that a facility was properly operated and maintained. Colorado's regulatory definition of "Conditions necessary for demonstration of upset" is less stringent than the requirements of the federal Clean Water Act.*

4. In addition to the demonstration required above, a permittee who wishes to establish the affirmative defense of upset for a violation of effluent limitations based upon water quality standards shall also demonstrate through monitoring, modeling or other methods that the relevant standards were achieved in the receiving water.

5. Burden of Proof: In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

O. REOPENER CLAUSE

Procedures for modification or revocation. Permit modification or revocation of this permit or coverage under this permit will be conducted according to Regulation 61.8(8). This permit may be reopened and modified (following proper administrative procedures) to include the appropriate effluent limitations (and compliance schedule, if necessary), or other appropriate requirements if one of the following events occurs, including but not limited to:

1. Water Quality Standards: The water quality standards of the receiving water(s) to which the permittee discharges are modified in such a manner as to require different effluent limits than contained in this permit.

2. Wasteload Allocation: A wasteload allocation is developed and approved by the State of Colorado and/or EPA for incorporation in this permit.

3. Discharger-specific variance: A variance is adopted by the Water Quality Control Commission.

P. OTHER INFORMATION

When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Division or U.S. EPA, the Discharger shall promptly submit such facts or information. See 40 C.F.R. § 122.41(l)(8).

Q. SEVERABILITY

The provisions of this permit are severable. If any provisions or the application of any provision of this permit to any circumstances, is held invalid, the application of such provision to other circumstances and the application of the remainder of this permit shall not be affected.

R. NOTIFICATION REQUIREMENTS

1. Notification to Parties: All notification requirements, excluding application information submitted using the CEOS portal or twenty-four hour reporting via the submission form, shall be directed as follows:

   a. Oral Notifications, during normal business hours shall be to:

      CDPHE-Emergency Reporting Line: 1-877-518-5608; or

      Water Quality Protection Section – Compliance Program
      Water Quality Control Division

FOR REFERENCE ONLY

Telephone: (303) 692-3500
After hours notifications should be made to the CDPHE-Emergency Reporting Line: 1-877-518-5608.

b. Written notification shall be to:
Water Quality Protection Section – Compliance Program
Water Quality Control Division
Colorado Department of Public Health and Environment
WQCD-WQP-B2
4300 Cherry Creek Drive South
Denver, CO 80246-1530

S. RESPONSIBILITIES

Reduction, Loss, or Failure of Treatment Facility: The permittee has the duty to halt or reduce any activity if necessary to maintain compliance with the effluent limitations of the permit. It shall not be a defense for a permittee in an enforcement action that it would be necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

T. OIL AND HAZARDOUS SUBSTANCES LIABILITY

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject to under Section 311 (Oil and Hazardous Substance Liability) of the Clean Water Act.

U. EMERGENCY POWERS

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority granted by Section 510 of the Clean Water Act. Nothing in this permit shall be construed to prevent or limit application of any emergency power of the Division.

V. CONFIDENTIALITY

Any information relating to any secret process, method of manufacture or production, or sales or marketing data which has been declared confidential by the permittee, and which may be acquired, ascertained, or discovered, whether in any sampling investigation, emergency investigation, Colorado Open Records Act (CORA) request, or otherwise, shall not be publicly disclosed by any member, officer, or employee of the Water Quality Control Commission or the Division, but shall be kept confidential. Any person seeking to invoke the protection of this section shall bear the burden of proving its applicability. This section shall never be interpreted as preventing full disclosure of effluent data.

W. FEES

The permittee is required to submit payment of an annual fee as set forth in the 2016 amendments to the Water Quality Control Act. Section 25-8-502 (1.1) (b), and the Regulation 61.15 as amended. Failure to submit the required fee when due and payable is a violation of the permit and will result in enforcement action pursuant to Section 25-8-601 et. seq., C.R.S.1973 as amended.

X. DURATION OF PERMIT

The duration of a permit shall be for a fixed term and shall not exceed five (5) years. If the permittee desires to continue to discharge, a permit renewal application shall be submitted at least one hundred eighty (180) calendar days before this permit expires. Filing of a timely and complete application shall cause the expired permit to continue in force to the effective date of the new permit. The permit's duration may be extended only through administrative extensions and not through interim modifications. If the permittee anticipates there will be no discharge after the expiration date of this permit, the Division should be promptly notified so that it can terminate the permit in accordance with Regulation 61.

Y. SECTION 307 TOXICS

If a toxic effluent standard or prohibition, including any applicable schedule of compliance specified, is established

FOR REFERENCE ONLY

by regulation pursuant to Section 307 of the Clean Water Act for a toxic pollutant which is present in the permittee's discharge and such standard or prohibition is more stringent than any limitation upon such pollutant in the discharge permit, the Division shall institute proceedings to modify or revoke and reissue the permit to conform to the toxic effluent standard or prohibition.

FOR REFERENCE ONLY

Appendix C: NOI Application and EPA Authorization

Appendix D: Inspection Form

Project Name: _____
NPDES ID Number: _____

Section A – General Information (If necessary, complete additional inspection reports for each separate inspection location.)	
Inspector Information	
Inspector Name:	**Title:**
Company Name:	**Email:**
Address:	**Phone Number:**
Inspection Details	
Inspection Date:	**Inspection Location:**
Inspection Start Time:	**Inspection End Time:**
Current Phase of Construction:	**Weather Conditions During Inspection:**

Did you determine that any portion of your site was unsafe for inspection per CGP Part 4.5? ☐ Yes ☐ No

If "Yes," provide the following information:

Location of unsafe conditions:

The conditions that prevented you inspecting this location:

Indicate the required inspection frequency: (Check all that apply. You may be subject to different inspection frequencies in different areas of the site.)

Standard Frequency (CGP Part 4.2):

☐ At least once every 7 calendar days; **OR**

☐ Once every 14 calendar days *and* within 24 hours of the occurrence of either:

- A storm event that produces 0.25 inches or more of rain within a 24-hour period, or
- A snowmelt discharge from a storm event that produces 3.25 inches or more of snow within a 24-hour period

Increased Frequency (CGP Part 4.3.1) (If site discharges to sediment or nutrient-impaired waters or to waters designated as Tier 2, Tier 2.5, or Tier 3):

☐ Once every 7 calendar days *and* within 24 hours of the occurrence of either:

- A storm event that produces 0.25 inches or more of rain within a 24-hour period, or
- A snowmelt discharge from a storm event that produces 3.25 inches or more of snow within a 24-hour period

Reduced Frequency (CGP Part 4.4):

☐ For stabilized areas: Twice during first month, no more than 14 calendar days apart; then once per month after first month until permit coverage is terminated

☐ For stabilized areas on "linear construction sites": Twice during first month, no more than 14 calendar days apart; then once more within 24 hours of the occurrence of either:

- A storm event that produces 0.25 inches or more of rain within a 24-hour period, or
- A snowmelt discharge from a storm event that produces 3.25 inches or more of snow within a 24-hour period

☐ For arid, semi-arid, or drought-stricken areas during seasonally dry periods or during drought: Once per month and within 24 hours of the occurrence of either:

- A storm event that produces 0.25 inches or more of rain within a 24-hour period, or
- A snowmelt discharge from a storm event that produces 3.25 inches or more of snow within a 24-hour period

☐ For frozen conditions where construction activities are being conducted: Once per month

Was this inspection triggered by a storm event producing 0.25 inches or more of rain within a 24-hour period? ☐ Yes ☐ No

If "Yes," how did you determine whether the storm produced 0.25 inches or more of rain?

☐ On-site rain gauge
☐ Weather station representative of site.
Weather station location:

Total rainfall amount that triggered the inspection (inches):

Was this inspection triggered by a snowmelt discharge from a storm event producing 3.25 inches or more of snow within a 24-hour period? ☐ Yes ☐ No

If "Yes," how did you determine whether the storm produced 3.25 inches or more of snow?

☐ On-site rain gauge
☐ Weather station representative of site.
Weather station location:

Total snowfall amount that triggered the inspection (inches):

Project Name: _____

NPDES ID Number: _____

Section B – Condition and Effectiveness of Erosion and Sediment (E&S) Controls (CGP Part 2.2) (Insert additional rows if needed)					
Type and Location of E&S Control	**Conditions Requiring Routine Maintenance?[1]**	**If "Yes," How Many Times (Including This Occurrence) Has This Condition Been Identified?**	**Conditions Requiring Corrective Action?[2, 3]**	**Date on Which Condition First Observed (If Applicable)?**	**Description of Conditions Observed**
1.	☐ Yes ☐ No		☐ Yes ☐ No		
2.	☐ Yes ☐ No		☐ Yes ☐ No		
3.	☐ Yes ☐ No		☐ Yes ☐ No		
4.	☐ Yes ☐ No		☐ Yes ☐ No		
5.	☐ Yes ☐ No		☐ Yes ☐ No		
If the same routine maintenance was found to be necessary three or more times for the same control at the same location (including this occurrence), follow the corrective action requirements and record the required information in your corrective action log, or describe here why you believe the specific condition should still be addressed as routine maintenance:					

[1] Routine maintenance includes minor repairs or other upkeep performed to ensure that the site's stormwater controls remain in effective operating condition, not including significant repairs or the need to install a new or replacement control. Routine maintenance is also required for specific conditions: (1) for perimeter controls, whenever sediment has accumulated to half or more the above-ground height of the control (CGP Part 2.2.3.c.i); (2) where sediment has been tracked-out from the site onto paved roads, sidewalks, or other paved areas (CGP Part 2.2.4.d); (3) for inlet protection measures, when sediment accumulates, the filter becomes clogged, and/or performance is compromised (CGP Part 2.2.10.b); and (4) for sediment basins, as necessary to maintain at least half of the design capacity of the basin (CGP Part 2.2.12.f)

[2] Corrective actions are triggered only for specific conditions (CGP Part 5.1):

1. A stormwater control needs a significant repair or a new or replacement control is needed, or, in accordance with Part 2.1.4.c, you find it necessary to repeatedly (i.e., three (3) or more times) conduct the same routine maintenance fix to the same control at the same location (unless you document in your inspection report under Part 4.7.1.c that the specific reoccurrence of this same problem should still be addressed as a routine maintenance fix under 2.1.4); or
2. A stormwater control necessary to comply with the requirements of this permit was never installed, or was installed incorrectly; or
3. Your discharges are not meeting applicable water quality standards; or
4. A prohibited discharge has occurred (see CGP Part 1.3); or
5. During the discharge from site dewatering activities:
   a. The weekly average of your turbidity monitoring results exceeds the 50 NTU benchmark (or alternate benchmark if approved by EPA pursuant to Part 3.3.2.b); or
   b. You observe or you are informed by EPA, State, or local authorities of the presence of the conditions specified in Part 4.6.3.e.

[3] If a condition on your site requires a corrective action, you must also fill out a corrective action log found at https://www.epa.gov/npdes/construction-general-permit-resources-tools-and-templates. See CGP Part 5.4 for more information.

Project Name: _____
NPDES ID Number: _____

Section C – Condition and Effectiveness of Pollution Prevention (P2) Practices and Controls (CGP Part 2.3) (Insert additional rows if needed)					
Type and Location of P2 Practices and Controls	**Conditions Requiring Routine Maintenance?[1]**	**If "Yes," How Many Times (Including This Occurrence) Has This Condition Been Identified?**	**Conditions Requiring Corrective Action?[2, 3]**	**Date on Which Condition First Observed (If Applicable)?**	**Description of Conditions Observed**
1.	☐ Yes ☐ No		☐ Yes ☐ No		
2.	☐ Yes ☐ No		☐ Yes ☐ No		
3.	☐ Yes ☐ No		☐ Yes ☐ No		
4.	☐ Yes ☐ No		☐ Yes ☐ No		
5.	☐ Yes ☐ No		☐ Yes ☐ No		
If the same routine maintenance was found to be necessary three or more times for the same control at the same location (including this occurrence), follow the corrective action requirements and record the required information in your corrective action log, or describe here why you believe the specific condition should still be addressed as routine maintenance:					

Section D – Stabilization of Exposed Soil (CGP Part 2.2.14) (Insert additional rows if needed)					
Specific Location That Has Been or Will Be Stabilized	**Stabilization Method and Applicable Deadline**	**Stabilization Initiated?**	**Final Stabilization Criteria Met?**	**Final Stabilization Photos Taken?**	**Notes**
1.		☐ Yes ☐ No If "Yes," date initiated:	☐ Yes ☐ No If "Yes," date criteria met:	☐ Yes ☐ No	
2.		☐ Yes ☐ No If "Yes," date initiated:	☐ Yes ☐ No If "Yes," date criteria met:	☐ Yes ☐ No	
3.		☐ Yes ☐ No If "Yes," date initiated:	☐ Yes ☐ No If "Yes," date criteria met:	☐ Yes ☐ No	
4.		☐ Yes ☐ No If "Yes," date initiated:	☐ Yes ☐ No If "Yes," date criteria met:	☐ Yes ☐ No	
5.		☐ Yes ☐ No If "Yes," date initiated:	☐ Yes ☐ No If "Yes," date criteria met:	☐ Yes ☐ No	

Section E – Description of Discharges (CGP Part 4.6.2)

(Insert additional rows if needed)

Was a discharge (not including dewatering) occurring from any part of your site at the time of the inspection?[4] ☐ Yes ☐ No

If "Yes," for each point of discharge, document the following:

- The visual quality of the discharge.
- The characteristics of the discharge, including color; odor; floating, settled, or suspended solids; foam; oil sheen; and other indicators of stormwater pollutants.
- Signs of the above pollutant characteristics that are visible from your site and attributable to your discharge in receiving waters or in other constructed or natural site drainage features.

Discharge Location	Observations
1.	
2.	
3.	
4.	
5.	

[4] If a dewatering discharge was occurring, you must conduct a dewatering inspection pursuant to CGP Part 4.3.2 and complete a separate dewatering inspection report.

Section F – Signature and Certification (CGP Part 4.7.2)	
"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information contained therein. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information contained is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."	
MANDATORY: Signature of Operator or "Duly Authorized Representative:"	
Signature:	**Date:**
Printed Name:	**Affiliation:**
OPTIONAL: Signature of Contractor or Subcontractor	
Signature:	**Date:**
Printed Name:	**Affiliation:**

General Tips for Using This Template

This Site Inspection Report Template is provided to assist you in preparing site inspection reports for EPA's 2022 Construction General Permit (CGP). If you are covered under the 2022 CGP, you can use this template to create a site inspection report form that is customized to the specific circumstances of your site and that complies with the minimum reporting requirements of Part 4.7 of the permit. Note that the use of this form is optional; you may use your own site inspection report form provided it includes the minimum information required in Part 4.7 of the CGP.

This template does not address the CGP's inspection reporting requirements related to dewatering activities. A separate inspection template has been developed specifically for dewatering activities and is available at https://www.epa.gov/npdes/construction-general-permit-resources-tools-and-templates.

Keep in mind that this document is a template and not an "off-the-shelf" inspection report that is ready to use without some modification. You must first customize this form to include the specifics of your project in order for it to be useable for your inspection reports. Once you have entered all of your site-specific information into the blank fields, you may use this form to complete inspection reports.

The following tips for using this template will help you ensure that the minimum permit requirements are met:

- **Review the inspection requirements.** Before you start developing your inspection report form, read the CGP's Part 4 inspection requirements. This will ensure that you have a working understanding of the permit's underlying inspection requirements.
- **Complete all required blank fields.** Fill out all blank fields. Only by filling out all fields will the template be compliant with the requirements of the permit. (Note: Where you do not need the number of rows provided in the template form for your inspection, you may delete these or cross them off as you see fit. Or, if you need more space to document your findings, you may insert additional rows in the electronic version of this form or use the bottom of the page in the field version of this form.)
- **Use your site map to document inspection findings.** In several places in the template, you are directed to specify the location of certain features of your site, including where stormwater controls are installed and where you will be stabilizing exposed soil. You are also asked to fill in location information for unsafe conditions and the locations of any discharges occurring during your inspections. Where you are asked for location information, EPA encourages you to reference the point on your SWPPP site map that corresponds to the requested location on the inspection form. Using the site map as a tool in this way will help you conduct efficient inspections, will assist you in evaluating problems found, and will ensure proper documentation.
- **Complete the inspection report within 24 hours of completing a site inspection.** You must complete an inspection report in accordance with Part 4.7.1 of the CGP.
- **Include the inspection form with your SWPPP.** Once your form is complete, make sure to include a copy of the inspection form in your SWPPP in accordance with Part 7.2.7.e of the CGP.
- **Retain copies of all inspection reports with your records.** You must also retain in your records copies of all inspection reports in accordance with the requirements in Part 4.7.3 of the CGP. These reports must be retained for at least 3 years from the date your permit coverage expires or is terminated in accordance with the requirements in Part 4.7.4 of the CGP.

Instructions for Section A

Inspector Name

Enter the name of the person that conducted the inspection. Include the person's contact information (title, affiliated company name, address, email, and phone number).

Inspection Date and Time

Enter the date you performed the inspection and the time you started and ended the inspection.

Weather Conditions During Inspection

Enter the weather conditions occurring during the inspection, e.g., sunny, overcast, light rain, heavy rain, snowing, icy, windy.

Current Phase of Construction
If this project is being completed in more than one phase, indicate which phase it is currently in.

Inspection Location
If your project has multiple locations where you conduct separate inspections, specify the location where this inspection is being conducted. If only one inspection is conducted for your entire project, enter "Entire Site." If necessary, complete additional inspection report forms for each separate inspection location.

Unsafe Conditions for Inspection (CGP Part 4.5.7)
Inspections are not required where a portion of the site or the entire site is subject to unsafe conditions. These conditions should not regularly occur and should not be consistently present on a site. Generally, unsafe conditions are those that render the site (or a portion of it) inaccessible or that would pose a significant probability of injury to applicable personnel. Examples could include severe storm or flood conditions, high winds, and downed electrical wires.

If your site, or a portion of it, is affected by unsafe conditions during the time of your inspection, provide a description of the conditions that prevented you from conducting the inspection and what parts of the site were affected. If the entire site was considered unsafe, specify the location as "Entire Site."

Inspection Frequency
Check all the inspection frequencies that apply to your project. Note that you may be subject to different inspection frequencies in different areas of your site.

Inspection Triggered by a Storm Event
If you were required to conduct this inspection because of a storm event that produced 0.25 inches or more of rain within a 24-hour period, indicate whether you relied on an on-site rain gauge or a nearby weather station (and where the weather station is located). Also, specify the total amount of rainfall for this specific storm event.

If you were required to conduct this inspection because of a snowmelt discharge from a storm event that produced 3.25 inches or more of snow within a 24-hour period, then indicate whether you relied on an on-site measurement or a nearby weather station (and where the weather station is located). Also, specify the total amount of snowfall for this specific storm event.

Instructions for Section B

Type and Location of Erosion and Sediment (E&S) Controls
Provide a list of all erosion and sediment (E&S) controls that your SWPPP indicates will be installed and implemented at your site. This list must include at a minimum all E&S controls required by CGP Part 2.2. Include also any natural buffers established under CGP Part 2.2.1. Buffer requirements apply if your project's earth-disturbing activities will occur within 50 feet of a discharge to receiving water. You may group your E&S controls on your form if you have several of the same type of controls (e.g., you may group "Inlet Protection Measures," "Perimeter Controls," and "Stockpile Controls" together on one line), but if there are any problems with a specific control, you must separately identify the location of the control, whether routine maintenance or corrective action is necessary, and in the notes section you must describe the specifics about the problem you observed.

Conditions Requiring Routine Maintenance?
Answer "Yes" if the E&S control requires routine maintenance as defined in footnote 1 of this template. Note that in many cases, "Yes" answers are expected and indicate a project with an active operation and maintenance program. You should also answer "Yes" if work to fix the problem is still ongoing from the previous inspection, though necessary work must be initiated immediately and completed by the end of the next business day or within seven calendar days if documented in accordance with CGP Part 2.1.4.b.

If "Yes," How Many Times (Including this Occurrence) Has this Condition Been Identified?
Indicate how many times the routine maintenance has been required for the same control at the same location.

Conditions Requiring Corrective Action?
Answer "Yes" if you found any of the conditions listed in footnote 2 in this template to be present during your inspection (CGP Part 5.1). If you answer "Yes," you must take corrective action and complete a corrective action log, found at https://www.epa.gov/npdes/construction-general-permit-resources-tools-and-templates. You should also answer "Yes" if work to fix the problem from a previous inspection is still ongoing, though the operator must comply with the corrective action deadlines in CGP Part 5.2.

Date on Which Condition First Observed (If Applicable)?
Provide the date on which the condition that triggered the need for routine maintenance or corrective action was first identified. If the condition was just discovered during this inspection, enter the inspection date. If the condition is a carryover from a previous inspection, enter the original date of the condition's discovery.

Description of Conditions Observed
For each E&S control and the area immediately surrounding it, describe whether the control is properly installed and whether it appears to be working to minimize sediment discharge. Indicate also whether a new or modified control is necessary to comply with the permit. Describe any problem condition(s) you observed such as the following:

1. Failure to install or to properly install a required E&S control
2. Damage or destruction to an E&S control caused by vehicles, equipment, or personnel, a storm event, or other event
3. Mud or sediment deposits found downslope from E&S controls, including in receiving waters, or on nearby streets, curbs, or open conveyance channels
4. Sediment tracked out onto paved areas by vehicles leaving construction site
5. Noticeable erosion or sedimentation at discharge outlets or at adjacent streambanks or channels
6. Erosion of the site's sloped areas (e.g., formation of rills or gullies)
7. E&S control is no longer working due to lack of maintenance
8. Other incidents of noncompliance

Describe also why you think the problem condition(s) occurred as well as actions (e.g., routine maintenance or corrective action) you will take or have taken to fix the problem.

For buffer areas, make note of whether they are marked off as required, whether there are signs of construction disturbance within the buffer, which is prohibited under the CGP, and whether there are visible signs of erosion resulting from discharges through the area.

If routine maintenance or corrective action is required, briefly note the reason. If routine maintenance or corrective action has been completed, make a note of the date it was completed and what was done. *If corrective action is required, note that you will need to complete a separate corrective action log describing the condition and your work to fix the problem*.

Routine Maintenance Need Has Been Found to be Necessary Three (3) or More Times for the Same Control at the Same Location (Including this Occurrence)
If routine maintenance has been required three (3) or more times for the same control at the same location, the permit requires (CGP Part 2.1.4.c) you to fix the problem using the corrective action procedures in CGP Part 5 or to document why you believe the reoccurring problem can be addressed as a routine maintenance fix. If you believe the problem can continue to be fixed as routine maintenance, describe why you believe the specific condition should still be addressed as routine maintenance.

Instructions for Section C

Type and Location of Pollution Prevention (P2) Practices and Controls
Provide a list of all pollution prevention (P2) practices and controls that are implemented at your site. This list must include all P2 practices and controls required by CGP Part 2.3 and those that are described in your SWPPP.

Conditions Requiring Routine Maintenance?
Answer "Yes" if the P2 practice or control requires routine maintenance as defined in footnote 1of this template. Note that in many cases, "Yes" answers are expected and indicate a project with an active operation and maintenance program. You should also answer "Yes" if work to fix the problem is still ongoing

from the previous inspection, though necessary work must be initiated immediately and completed by the end of the next business day or within seven calendar days if documented in accordance with CGP Part 2.1.4.b.

If "Yes," How Many Times (Including this Occurrence) Has this Condition Been Identified?
Indicate how many times the routine maintenance has been required for the same practice or control at the same location.

Conditions Requiring Corrective Action?
Answer "Yes" if you found any of the conditions listed in footnote 2 in this template to be present during your inspection (CGP Part 5.1). If you answer "Yes," you must take corrective action and complete a corrective action log, found at https://www.epa.gov/npdes/construction-general-permit-resources-tools-and-templates. You should also answer "Yes" if work to fix the problem from a previous inspection is still ongoing, though the operator must comply with the corrective action deadlines in CGP Part 5.2.

Date on Which Condition First Observed (If Applicable)?
Provide the date on which the condition that triggered the need for maintenance or corrective action was first identified. If the condition was just discovered during this inspection, enter the inspection date. If the condition is a carryover from a previous inspection, enter the original date of the condition's discovery.

Description of Conditions Observed
For each P2 control and the area immediately surrounding it, describe whether the control is properly installed, and whether it appears to be working to minimize or eliminate pollutant discharges. Indicate also whether a new or modified control is necessary to comply with the permit. Describe any problem condition(s) you observed such as the following:

1. Failure to install or to properly install a required P2 control
2. Damage or destruction to a P2 control caused by vehicles, equipment, or personnel, or a storm event
3. Evidence of a spill, leak, or other type of pollutant discharge, or failure to have properly cleaned up a previous spill, leak, or other type of pollutant discharge
4. Spill response supplies are absent, insufficient, or not where they are supposed to be located
5. Improper storage, handling, or disposal of chemicals, building materials or products, fuels, or wastes
6. P2 control is no longer working due to lack of maintenance
7. Other incidents of noncompliance

Describe also why you think the problem condition(s) occurred as well as actions (e.g., routine maintenance or corrective action) you will take or have taken to fix the problem.

If routine maintenance or corrective action is required, briefly note the reason. If routine maintenance or corrective action has been completed, make a note of the date it was completed and what was done. *If corrective action is required, note that you will need to complete a separate corrective action log describing the condition and your work to fix the problem*.

Routine Maintenance Need Was Found to be Necessary Three (3) or More Times for the Same Control at the Same Location (Including this Occurrence)
If routine maintenance has been required three (3) or more times for the same control at the same location, the permit requires (CGP Part 2.1.4.c) you to fix the problem using the corrective action procedures in CGP Part 5 or to document why you believe the reoccurring problem can be addressed as a routine maintenance fix. If you believe the problem can continue to be fixed as routine maintenance, describe why you believe the specific condition should still be addressed as routine maintenance.

Instructions for Section D

Specific Location That Has Been or Will Be Stabilized
List all areas where soil stabilization is required to begin because construction work in that area has permanently stopped or temporarily stopped (i.e., work will stop for 14 or more days), and all areas where stabilization has been implemented (CGP Part 2.2.14).

Stabilization Method and Applicable Deadline
For each area, specify the method of stabilization (e.g., hydroseed, sod, planted vegetation, erosion control blanket, mulch, rock).

Specify also which of the following stabilization deadlines apply to this location:

1. 5 acres or less of land disturbance occurring at any one time at site: Complete no later than 14 calendar days after stabilization initiated.
2. More than 5 acres of land disturbance occurring at any one time at site: Complete no later than 7 calendar days after stabilization initiated.
3. Arid, semi-arid, and drought-stricken areas: See CGP Part 2.2.14.b.i.
4. Unforeseen circumstances: See CGP Part 2.2.14.b.ii.
5. Discharges to a sediment- or nutrient-impaired water or to a water identified as Tier 2, 2.5, or 3 for antidegradation purposes: Complete no later than 7 days after stabilization initiated.

Stabilization Initiated?
For each area, indicate whether stabilization has been initiated. If "Yes," then enter the date stabilization was initiated.

Final Stabilization Criteria Met?
For each area, indicate whether the final stabilization criteria in CGP Part 2.2.14.c have been met. If "Yes," then enter the date final stabilization criteria were met.

Final Stabilization Photos Taken?
Answer "Yes" if you have taken photos before and after meeting the stabilization criteria as required in CGP Part 8.2.1.a.

Notes
For each area where stabilization has been initiated, describe the progress that has been made and what additional actions are necessary to complete stabilization. Note the effectiveness of stabilization in preventing erosion. If stabilization has been initiated but not completed, make a note of the date it is to be completed. If stabilization has been completed, make a note of the date it was completed. If stabilization has not yet been initiated, make a note of the date it is to be initiated and the date it is to be completed.

Instructions for Section E

You are only required to complete this section if a discharge is occurring at the time of the inspection (CGP Part 4.6.2).

Was a discharge (not including dewatering) occurring from any part of your site at the time of the inspection?
During your inspection, examine all points of discharge from your site, and determine whether a discharge is occurring. If a dewatering discharge was occurring, you must conduct a dewatering inspection pursuant to CGP Part 4.3.2. If there is a discharge, answer "Yes" and complete the questions below regarding the specific discharge. If there is not a discharge, answer "No" and skip to the next page.

Discharge Location (Repeat as necessary if there are multiple points of discharge.)
Specify the location on your site where the discharge is occurring. The location may be an outlet from a stormwater control or constructed stormwater channel, a discharge into a storm sewer inlet, or a specific point on the site. Be as specific as possible; it is recommended that you refer to a precise point on your site map.

Observations
Document the visual quality of the discharge and take note of the characteristics of the stormwater discharge, including color; odor; floating, settled, or suspended solids; foam; oily sheen; and other indicators of stormwater pollutants. Also, document signs of these same pollutant characteristics that are visible from your site and attributable to your discharge in receiving waters or in other constructed or natural site drainage features.

Instructions for Section F

Each inspection report must be signed and certified to be considered complete (CGP Part 4.7.2).

Operator or "Duly Authorized Representative" – MANDATORY (CGP Appendix G Part G.11.2 and CGP Appendix H Section X)

At a minimum, the site inspection report must be signed by either (1) the person who signed the NOI, or (2) a duly authorized representative of that person. The following requirements apply:

If the signatory will be the person who signed the NOI for permit coverage, as a reminder, that person must be one of the following types of individuals:

- *For a corporation*: By a responsible corporate officer. For the purpose of this subsection, a responsible corporate officer means: (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
- *For a partnership or sole proprietorship*: By a general partner or the proprietor, respectively.
- *For a municipality, State, Federal, or other public agency*: By either a principal executive officer or ranking elected official. For purposes of this subsection, a principal executive officer of a Federal agency includes (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrator of EPA).

If the signatory will be a duly authorized representative, the following requirements must be met:

- The authorization is made in writing by the person who signed the NOI (see above);
- The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and
- The signed and dated written authorization is included in the SWPPP. A copy must be submitted to EPA, if requested.

Sign, date and print your name and affiliation.

Contractor or Subcontractor - OPTIONAL

Where you rely on a contractor or subcontractor to complete the site inspection report, you should consider requiring the individual(s) to sign and certify each report. Note that this does not relieve you, the permitted operator, of the requirement to sign and certify the site inspection report as well. If applicable, sign, date, and print your name and affiliation.

Note

While EPA has made every effort to ensure the accuracy of all instructions contained in this template, it is the permit, not this template, that determines the actual obligations of regulated construction stormwater discharges. In the event of a conflict between this template and any corresponding provision of the CGP, you must abide by the requirements in the permit. EPA welcomes comments on this Site Inspection Report Template at any time and will consider those comments in any future revision. You may contact EPA for CGP-related inquiries at cgp@epa.gov

Appendix E: Corrective Action Log and Form

2022 CGP Corrective Action Log
Project Name: _____
NPDES ID Number: _____

Section A – Individual Completing this Log	
Name:	**Title:**
Company Name:	**Email:**
Address:	**Phone Number:**
Section B – Details of the Problem (CGP Part 5.4.1.a) Complete this section within 24 hours of discovering the condition that triggered corrective action.	
Date problem was first identified:	**Time problem was first identified**:
What site conditions triggered this corrective action? *(Check the box that applies. See instructions for a description of each triggering condition (1 thru 6).)* ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5a ☐ 5b ☐ 6	
Specific location where problem identified:	
Provide a description of the specific condition that triggered the need for corrective action and the cause (if identifiable):	
Section C – Corrective Action Completion (CGP Part 5.4.1.b) Complete this section within 24 hours after completing the corrective action.	
For site condition # 1, 2, 3, 4, or 6 (those not related to a dewatering discharge) confirm that you met the following deadlines (CGP Part 5.2.1):	
☐ Immediately took all reasonable steps to address the condition, including cleaning up any contaminated surfaces so the material will not discharge in subsequent storm events. **AND**	
☐ Completed corrective action by the close of the next business day, unless a new or replacement control, or significant repair, was required. **OR**	
☐ Completed corrective action within seven (7) calendar days from the time of discovery because a new or replacement control, or significant repair, was necessary to complete the installation of the new or modified control or complete the repair. **OR**	
☐ It was infeasible to complete the installation or repair within 7 calendar days from the time of discovery. Provide the following additional information: Explain why 7 calendar days was infeasible to complete the installation or repair:	

Provide your schedule for installing the stormwater control and making it operational as soon as feasible after the 7 calendar days:

For site condition # 5a, 5b, or 6 (those related to a dewatering discharge), confirm that you met the following deadlines:

- ☐ Immediately took all reasonable steps to minimize or prevent the discharge of pollutants until a solution could be implemented, including shutting off the dewatering discharge as soon as possible depending on the severity of the condition taking safety considerations into account.
- ☐ Determined whether the dewatering controls were operating effectively and whether they were causing the conditions.
- ☐ Made any necessary adjustments, repairs, or replacements to the dewatering controls to lower the turbidity levels below the benchmark or remove the visible plume or sheen.

Describe any modification(s) made as part of corrective action: (Insert additional rows below if applicable)	**Date of completion:**	**SWPPP update necessary?**	**If yes, date SWPPP was updated:**
1.		☐ Yes ☐ No	
2.		☐ Yes ☐ No	

Section D - Signature and Certification (CGP Part 5.4.2)

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information contained therein. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information contained is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

MANDATORY: Signature of Operator or "Duly Authorized Representative:"	
Signature:	**Date:**
Printed Name:	**Affiliation:**
OPTIONAL: Signature of Contractor or Subcontractor	
Signature:	**Date:**
Printed Name:	**Affiliation:**

General Instructions

This Corrective Action Log Template is provided to assist you creating a corrective action log that complies with the minimum reporting requirements of Part 5.4 of the EPA's Construction General Permit (CGP). For each triggering condition on your site, you will need to fill out a separate corrective action log.

The entire form must be completed to be compliant with the requirements of the permit. (Note: In Section C, if you do not need the number of rows provided in the corrective action log, you may delete these or cross them off. Alternatively, if you need more space to describe any modifications, you may insert additional rows in the electronic version of this form or use the bottom of the page in the field version of this form.)

If you are covered under a State CGP, this template may be helpful in developing a log that can be used for that permit; however, you will likely need to modify this form to meet the specific requirements of any State-issued permit. If your permitting authority requires you to use a specific corrective action log, you should not use this template.

Instructions for Section A

Individual completing this form Enter the name of the person completing this log. Include the person's contact information (title, affiliated company name, address, email, and phone number).

Instructions for Section B

You must complete Section B within 24 hours of discovering the condition that triggered corrective action. (CGP Part 5.4)

When was the problem first discovered?

Specify the date and time when the triggering condition was first discovered.

What site conditions triggered this corrective action? (CGP Parts 5.1 and 5.3)

Check the box corresponding to the numbered triggering condition below that applies to your site.

1. A stormwater control needs a significant repair or a new or replacement control is needed, or, in accordance with Part Error! Reference source not found., you find it necessary to repeatedly (i.e., 3 or more times) conduct the same routine maintenance fix to the same control at the same location (unless you document in your inspection report under Part Error! Reference source not found. that the specific reoccurrence of this same problem should still be addressed as a routine maintenance fix under Part Error! Reference source not found.);
2. A stormwater control necessary to comply with the requirements of this permit was never installed, or was installed incorrectly;
3. Your discharges are not meeting applicable water quality standards;
4. A prohibited discharge has occurred (see Part 1.3);
5. During discharge from site dewatering activities:
   a. The weekly average of your turbidity monitoring results exceeds the 50 NTU benchmark (or alternate benchmark if approved by EPA pursuant to Part **Error! Reference source not found.**); or
   b. You observe or you are informed by EPA, State, or local authorities of the presence of any of the following at the point of discharge to a receiving water flowing through or immediately adjacent to your site and/or to constructed or natural site drainage features or storm drain inlets:
      - sediment plume
      - suspended solids
      - unusual color
      - presence of odor
      - decreased clarity
      - presence of foam
      - visible sheen on the water surface or visible oily deposits on the bottom or shoreline of the receiving water
6. EPA requires corrective action as a result of permit violations found during an inspection carried out under Part 4.8.

Provide a description of the problem (CGP Part 5.4.1.a)
Provide a summary description of the condition you found that triggered corrective action, the cause of the problem (if identifiable), and the specific location where it was found. Be as specific as possible about the location; it is recommended that you refer to a precise point on your site map.

Instructions for Section C

You must complete Section C within 24 hours after completing the correction action. (CGP Part 5.4)

Deadlines for completing corrective action for condition # 1, 2, 3, 4, or 6 (if not relating to a dewatering discharge) (CGP Part 5.2.1)
Check the box to confirm that you met the deadlines that apply to each triggering condition. You are always required to check the first box (i.e., Immediately took all reasonable steps to address the condition, including cleaning up any contaminated surfaces so the material will not discharge in subsequent storm events.). Only one of the next three boxes should be checked depending on the situation that applies to this corrective action.

Check the second box if the corrective action for this particular triggering condition does not require a new or replacement control, or a significant repair. These actions must be completed by the close of the next business day from the time of discovery of the condition.

Check the third box if the corrective action for this particular triggering condition requires a new or replacement control, or a significant repair. These actions must be completed by no later than seven calendar days from the time of discover of the condition.

Check the fourth box if the corrective action for this particular triggering condition requires a new or replacement control, or a significant repair, and if it is infeasible to complete the work within seven calendar days. Additionally, you will need to fill out the table below the checkbox that requires:

1. An explanation as to why it was infeasible to complete the installation or repair within seven calendar days of discovering the condition.
2. Provide the schedule you will adhere to for installing the stormwater control and making it operational as soon as feasible after the seventh day following discovery.

Note: Per Part 5.2.1.c, where these actions result in changes to any of the stormwater controls or procedures documented in your SWPPP, you must modify your SWPPP accordingly within seven calendar days of completing this work.

Deadlines for completing corrective action for condition # 5a, 5b, or 6 related to a dewatering discharge (CGP Part 5.2.2)
These deadlines apply to conditions relating to construction dewatering activities. Check the box to confirm that you met the deadlines that apply to each triggering condition. You are required to check all of the boxes in this section to indicate your compliance with the corrective action deadlines.

List of modification(s) to correct problem
Provide a list of modifications you completed to correct the problem.

Date of completion
Enter the date you completed the modification. The work must be completed by the deadline you indicated above.

SWPPP update necessary?
Check "Yes" or "No" to indicate if a SWPPP update is necessary consistent with Part 7.4.1.a in order to reflect changes implemented at your site. If "Yes," then enter the date you updated your SWPPP. The SWPPP updates must be made within seven calendar days of completing a corrective action. (CGP Part 5.2.1.c)

Instructions for Section D

Each corrective action log entry must be signed and certified following completion of Section D to be considered complete. (CGP Part 5.4.2)

Operator or "Duly Authorized Representative" – MANDATORY (CGP Appendix G Part G.11.2 and CGP Appendix H Section X)

At a minimum, the corrective action log must be signed by either (1) the person who signed the NOI, or (2) a duly authorized representative of that person. The following requirements apply:

If the signatory will be the person who signed the NOI for permit coverage, as a reminder, that person must be one of the following types of individuals:

- *For a corporation*: By a responsible corporate officer. For the purpose of this subsection, a responsible corporate officer means: (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
- *For a partnership or sole proprietorship*: By a general partner or the proprietor, respectively.
- *For a municipality, State, Federal, or other public agency*: By either a principal executive officer or ranking elected official. For purposes of this subsection, a principal executive officer of a Federal agency includes (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrator of EPA).

If the signatory will be a duly authorized representative, the following requirements must be met:

- The authorization is made in writing by the person who signed the NOI (see above);
- The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and
- The signed and dated written authorization is included in the SWPPP. A copy must be submitted to EPA, if requested.

Sign, date and print your name and affiliation.

Contractor or Subcontractor - OPTIONAL

Where you rely on a contractor or subcontractor to complete this log and the associated corrective action, you should consider requiring the individual(s) to sign and certify each log entry. Note that this does not relieve you, the permitted operator, of the requirement to sign and certify the log as well. If applicable, sign, date, and print your name and affiliation.

Recordkeeping

Logs must be retained for at least 3 years from the date your permit coverage expires or is terminated. (CGP Part 5.4.4)

Keep copies of your signed corrective action log entries at the site or at an easily accessible location so that it can be made immediately available at the time of an on-site inspection or upon request by EPA. (CGP Part 5.4.3) Include a copy of the corrective action log in your SWPPP. (CGP Part 7.2.7.e)

Note

While EPA has made every effort to ensure the accuracy of all instructions contained in this template, it is the permit, not this template, that determines the actual obligations of regulated construction stormwater discharges. In the event of a conflict between this template and any corresponding provision of the CGP, you must abide by the requirements in the permit. EPA welcomes comments on this Corrective Action Log Template at any time and will consider those comments in any future revision. You may contact EPA for CGP-related inquiries at cgp@epa.gov

Appendix F: SWPPP Amendment Log

No.	Description of the Amendment	Date of Amendment	Amendment Prepared by [Name(s) and Title]

Appendix G: Subcontractor Certification and Agreements

Appendix G – *Sample* Subcontractor Certifications/Agreements

SUBCONTRACTOR CERTIFICATION
STORMWATER POLLUTION PREVENTION PLAN

Project Number: _____

Project Title: _____

Operator(s): _____

As a subcontractor, you are required to comply with the Stormwater Pollution Prevention Plan (SWPPP) for any work that you perform on-site. Any person or group who violates any condition of the SWPPP may be subject to substantial penalties or loss of contract. You are encouraged to advise each of your employees working on this project of the requirements of the SWPPP. A copy of the SWPPP is available for your review at the office trailer.

Each subcontractor engaged in activities at the construction site that could impact stormwater must be identified and sign the following certification statement:

I certify under the penalty of law that I have read and understand the terms and conditions of the SWPPP for the above designated project and agree to follow the practices described in the SWPPP.

This certification is hereby signed in reference to the above named project:

Company: _____

Address: _____

Telephone Number: _____

Type of construction service to be provided: _____

_____

_____

Signature: _____

Title: _____

Date: _____

Appendix H: Grading and Stabilization Log

Appendix H – *Sample* Grading and Stabilization Activities Log

Date Grading Activity Initiated	**Description of Grading Activity**	**Description of Stabilization Measure and Location**	**Date Grading Activity Ceased** (Indicate Temporary or Permanent)	**Date When Stabilization Measures Initiated**
INSERT DATE			INSERT DATE ☐ Temporary ☐ Permanent	INSERT DATE
INSERT DATE			INSERT DATE ☐ Temporary ☐ Permanent	INSERT DATE
INSERT DATE			INSERT DATE ☐ Temporary ☐ Permanent	INSERT DATE
INSERT DATE			INSERT DATE ☐ Temporary ☐ Permanent	INSERT DATE
INSERT DATE			INSERT DATE ☐ Temporary ☐ Permanent	INSERT DATE
INSERT DATE			INSERT DATE ☐ Temporary ☐ Permanent	INSERT DATE
INSERT DATE			INSERT DATE ☐ Temporary ☐ Permanent	INSERT DATE
INSERT DATE			INSERT DATE ☐ Temporary ☐ Permanent	INSERT DATE

Appendix I: Training Documentation

- To be provided by contractor

Appendix J: Delegation of Authority

Appendix J – *Sample* Delegation of Authority Form

Delegation of Authority

I, _____ (name), hereby designate the person or specifically described position below to be a duly authorized representative for the purpose of overseeing compliance with environmental requirements, including the EPA's Construction General Permit (CGP), at the _____ construction site. The designee is authorized to sign any reports, stormwater pollution prevention plans and all other documents required by the permit.

_____ (name of person or position)
_____ (company)
_____ (address)
_____ (city, State, zip)
_____ (phone)

By signing this authorization, I confirm that I meet the requirements to make such a designation as set forth in Appendix G of EPA's CGP, and that the designee above meets the definition of a "duly authorized representative" as set forth in Appendix G.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name: _____

Company: _____

Title: _____

Signature: _____

Date: _____

Appendix K: Record of Environmental Consideration (NEPA)

FINDING OF NO SIGNIFICANT IMPACT (FONSI)
AND
FINDING OF NO PRACTICABLE ALTERNATIVE (FONPA)

Northern Monument Creek Interceptor
U.S. Air Force Academy, Colorado

Pursuant to provisions of the National Environmental Policy Act (NEPA), Title 42 United States Code Sections 4321 to 4347, implemented by Council on Environmental Quality (CEQ) Regulations, Title 40, Code of Federal Regulations (CFR) §1500-1508, and 32 CFR §989, Environmental Impact Analysis Process, the U.S. Air Force (Air Force) assessed the potential environmental consequences associated with the Northern Monument Creek Interceptor (NMCI) project (NMCI or project) at the U.S. Air Force Academy (USAFA) in El Paso County, Colorado.

The purpose of the project is for Colorado Springs Utilities (Utilities) and for two northern sanitary sewer service providers: Forest Lakes Metropolitan District and Triview Metropolitan District (the northern entities) to consolidate wastewater treatment systems into a centralized system that is environmentally and fiscally responsible, provides for increased system reliability, accommodates future growth, and maintains compliance with more stringent water quality regulations. The project is needed to comply with water quality regulations by consolidating regional providers within the upper Monument Creek watershed, meet future treatment capacity limits, and improve system reliability and sustainability.

The Environmental Assessment (EA), incorporated by reference into this FONSI and FONPA, analyzes the potential environmental consequences of activities associated with the project and provides environmental protection measures to avoid or reduce adverse environmental impacts.

The EA considers all potential impacts of Alternative 1 – No Action Alternative, Alternative 2 – Eastern Alignment (Preferred Alternative) and Alternative 3 – Western Alignment. The EA also considers cumulative environmental impacts with other projects.

ALTERNATIVE 1 – No Action Alternative

Under the No Action Alternative, the Preferred Alternative would not occur and the Air Force would not approve the construction, operation, and maintenance of the NMCI and associated facilities within the USAFA boundary, and the NMCI would not be constructed. The northern entities and Utilities would continue their current operations by operating and maintaining their existing facilities. The northern entities and Utilities would improve their wastewater treatment facility (WWTF) as needed to meet future hydraulic and organic loadings, and to comply with future regulations.

ALTERNATIVE 2 – Eastern Alignment (Preferred Alternative)

Under Alternative 2, Utilities would construct the NMCI along a generally easterly alignment, for a total length of approximately 10.1 miles, including laterals. The NMCI pipeline would be constructed with 30-inch- and 36-inch-diameter pipe. Generally, the pipeline would be constructed within a 100-foot-wide permanent easement and supplemented by a variable temporary construction easement, as necessary. The Air Force would grant the easements for the portion of the NMCI that crosses the USAFA. Several directionally drilled bores and inverted

siphons would be required at road or stream crossings to minimize impacts on traffic during construction and reduce impacts on natural and cultural resources.

The alignment for Alternative 2 would start at the Upper Monument Creek WWTF intake and would continue south. From the USAFA northern boundary, the pipeline would be constructed west of Interstate 25 (I-25) adjacent to the New Santa Fe Trail to the northern side of the USAFA Davis Airfield. At that point, the pipeline would cross perpendicularly north of the airfield to minimize impacts on airfield operations. The pipeline would continue south along the eastern side of Monument Creek and then turn east, cross I-25, and connect to the existing Pine Creek Interceptor. Wastewater flows would then be conveyed through the existing collection system to the J.D. Phillips Water Resource Recovery Facility (J.D. Phillips WRRF) in Colorado Springs.

Alternative 2 would also include construction of four lateral connections to the NMCI from the Smith Creek, Monument Branch, Middle Tributary, and Black Squirrel Creek No. 2 (the Farm) lift stations and closure of the lift stations. The Middle Tributary lateral would be completed concurrently with the NMCI pipeline, while the other three laterals would be completed at a later date.

ALTERNATIVE 3 – Western Alignment

Under Alternative 3, Utilities would construct the NMCI along a more westerly alignment that generally follows Monument Creek. Alternative 3 differs from Alternative 2 south of the USAFA boundary. North of the northern boundary of the USAFA, Alternative 3 would be the same as Alternative 2. The southern portion of Alternative 3 would parallel Monument Creek and the Burlington Northern Santa Fe Railroad. The total length of the NMCI under Alternative 3 would be approximately 12.4 miles, including laterals. The Smith Creek, Monument Branch, Middle Tributary, and Black Squirrel Creek No. 2 laterals would be longer than in Alternative 2 because they would be extended further west to connect to the more western location of the NMCI and would require additional crossings of Monument Creek. Alternative 3 would also require construction of a permanent crossing of Monument Creek to access a section of proposed pipeline that is situated between the railroad alignment and Monument Creek just north of North Gate Boulevard.

SUMMARY OF FINDINGS

The analyses of the affected environment and environmental consequences of implementing the Preferred Alternative presented in the EA concluded that by implementing standing environmental protection measures and operational planning, the Air Force would be in compliance with all terms and conditions and reporting requirements for implementation of the reasonable and prudent measures stipulated by the United States Fish and Wildlife Service (USFWS) in the Biological Opinion issued March 11, 2024, and with the conditions stipulated in the Memorandum of Agreement signed by USAFA, Utilities, the Colorado State Historic Preservation Office, and the Southern Ute Indian Tribe.

The Air Force has concluded that no significant adverse effects would result to the following resources as a result of the Preferred Alternative: air installation compatible use zones, noise, air quality, water resources, hazardous materials/waste, biological/natural resources, cultural resources, and recreation. No significant adverse cumulative impacts would result from activities associated with Alternative 2 (Preferred Alternative) when considered with past, present, or reasonably foreseeable future projects.

Air Installation Compatible Use Zones (AICUZ): As described in Section 4.2.2 of the EA, the Preferred Alternative would require construction activities to occur within the AICUZ. Work within the AICUZ under Alternative 2 would be carefully monitored and restricted to avoid hazards to airfield operations and would be carefully coordinated with airfield operations to

avoid conflicts. The work would be scheduled for times when the airfield is not in use. Operations of the airfield may be briefly adversely affected during construction. Utilities would work closely with the construction contractor and the airfield to minimize disruptions. A risk assessment, including mitigation measures, would be developed for work within the AICUZs. Mitigation measures could include night work or other restrictions on timing of work and high visibility flagging on equipment. With the implementation of design measures such as timing restrictions for work within the AICUZ, and implementation of additional mitigation measures developed through the risk assessment, impacts on the AICUZ would be temporary and minor, and would not be significant.

Noise: As described in Section 4.3.2 of the EA, short-term increases in noise would occur from operation of construction equipment as well as the increase in construction vehicle traffic noise along roads used for access. Impacts would be short-term, minor, and adverse and would last only for the 12-month duration of construction. Increases in noise levels would be detectible at some residences within 0.5 mile of the construction area. Increased noise levels above ambient levels would only occur for about one to two weeks at any one location and would not be significant.

Air Quality: As described in Section 4.4.2 of the EA, the project would not result in exceedance of the general conformity de minimis threshold for any of the criteria pollutants; therefore, impacts on air quality would be minimal. Overall, impacts on air quality would be short-term, lasting only during construction, and would not be significant**.**

Water Resources: As described in Section 4.5.2 of the EA, pipeline construction would disturb soils and increase the potential for erosion and sedimentation. Mitigation measures and Best Management Practices implemented as part of a Stormwater Pollution Prevention Plan would minimize related storm water pollution and surface water runoff. Directional drilling for construction of inverted siphons would minimize surface disturbances and would minimize impacts on streams. Pipeline construction disturbances would be temporary and following construction completion and reclamation, no additional impacts on water resources are expected to occur.

Following completion of the NMCI, wastewater flows from the TriView and Forest Lakes wastewater districts that were formerly treated at the Upper Monument Creek WWTF would flow into the NMCI pipeline and would be treated at the J.D. Phillips WRRF by Utilities. This would reduce stream flows and point source pollutants in upper Monument Creek where the current WWTFs discharge but would increase stream flows and point source pollutants discharged into lower Monument Creek where discharges from the J.D. Phillips WRRF occur. Reductions in average flows in Monument Creek would range from about 4.4% at the Upper Monument Creek WWTF to about 1.9% at Woodmen Road. Monument Creek is unlikely to be reduced to zero flow at any time because stream flow modelling did not identify any expected time periods with no flow. The project would benefit water resources by allowing Utilities and the northern entities to consolidate wastewater treatment into a centralized system, comply with water quality regulations, meet future treatment capacity needs, and improve system reliability and sustainability. Overall impacts on water resources would not be significant.

Hazardous Materials/Waste: As described in Section 4.6.2 of the EA, the Preferred Alternative alignment would avoid the existing landfill site at the USAFA. Potential impacts would be reduced or avoided by implementing the measures described in the *Mitigation Measures* Section 2.4 of the EA. If soil or groundwater contamination is encountered during construction of project facilities, mitigation procedures would be implemented to minimize the risk to construction workers and to the future operation of the project. Overall, adverse effects are expected to be minor and would not be significant.

Biological/Natural Resources: As described in Section 4.7.1.2 of the EA, all temporary impacts on vegetation would be restored and revegetated with native vegetation, and only 0.191 acre of vegetation would be permanently affected. Overall, with implementation of the restoration and mitigation measures described in the EA, impacts would not be significant.

As described in Section 4.7.2.2 of the EA, the Preferred Alternative would result in temporary impacts on 2.285 acres of riparian habitat, and 0.10 acre of wetland habitat. The Proposed Action would not result in permanent impacts on wetlands or other waters of the U.S. Most stream crossings would be bored using directional drilling, greatly reducing impacts on streams, wetlands, and riparian areas. Temporarily disturbed areas would be revegetated with native plant species, as described in the *Mitigation Measures* section of the EA. With avoidance and restoration of temporary impacts, impacts on riparian habitat and wetlands would not be significant.

Executive Order 11990, *Protection of Wetlands*, requires that each federal agency, to the extent permitted by law, "shall avoid undertaking or providing assistance for new construction located in wetlands unless the head of the agency finds: (1) that there is no practicable alternative to such construction and (2) that the proposed action includes all practicable measures to minimize harm to wetlands." Complete avoidance of wetlands is not practicable due to the need for the project to cross multiple drainages and tributaries. Utilities has taken all practicable measures to minimize harm to wetlands, including boring most stream crossings using directional drilling and restoring 0.10 acre of temporary wetland impacts, with no permanent loss of wetlands. Utilities will obtain a Section 404 permit for impacts on wetlands, and restoration of riparian and wetland areas will be subject to success criteria and monitoring as required by Section 404 permitting.

The Preferred Alternative would result in temporary surface disturbances to 0.872 acre and permanent disturbance to 0.002 acre within the 100-year floodplain. The 100-year floodplain is defined as an area adjacent to a water body that has a 1 percent or greater chance of inundation in any given year. The Preferred Alternative would not change surface elevations and would not substantially affect floodplain functions or increase the risk of flooding in the Monument Creek watershed. Most stream crossings would be bored using directional drilling, greatly reducing disturbance within the 100-year floodplain. With avoidance and restoration of temporary impacts, impacts on floodplains would not be significant.

Executive Order 11988, *Floodplain Management*, requires federal agencies to determine whether a proposed action will occur within a floodplain and to avoid floodplains to the maximum extent possible when there is a practicable alternative. Because the NMCI would cross multiple streams and tributaries, it would not be practicable to completely avoid floodplains. Utilities has avoided and minimized harm to the floodplain to the greatest extent practicable by boring most crossings with directional drilling and using a design that would not permanently change surface elevations.

As described in Section 4.7.2.2 of the EA, construction would result in temporary disturbance of wildlife during construction and temporary habitat loss. All temporarily affected areas would be restored with appropriate native vegetation following construction. Because most riparian habitat would be avoided and temporary impacts would be restored following construction, impacts would not be significant.

Effects on the threatened Preble's meadow jumping mouse (Preble's) would be avoided and minimized by using directional drilling to minimize impacts on riparian and wetland habitat where this species occurs. Under the Preferred Alternative, temporary impacts would occur on 24.526 acres of Preble's habitat along Jackson Creek, Black Forest Creek, Smith Creek, Monument Branch, Middle Tributary, Black Squirrel Creek, Monument Creek, Elkhorn Creek, Kettle Creek,

and two unnamed tributaries to Monument Creek including 24.084 acres in the USAFA conservation zone and 0.442 acre of critical habitat. About 0.040 acre of Preble's habitat will be impacted permanently from placement of manhole covers. A biological assessment (BA) has been prepared for the Preferred Alternative, which describes conservation measures that would be implemented to avoid, minimize, and mitigate for impacts on Preble's. These measures will include boring under most drainages where Preble's occurs to avoid and minimize impacts on Preble's and its habitat. Additional conservation measures will be implemented by Utilities, as outlined in the BA, including limiting construction access and staging areas to protect Preble's habitat and revegetating temporarily disturbed areas with native seed mixes. Utilities will monitor the extent of habitat impacted and monitor restoration to ensure success. The BA determined that the NMCI project "may affect, is likely to adversely affect" Preble's, "is not likely to adversely affect" Preble's critical habitat and would have no effect on other federally listed species. The USFWS concurred with this determination in a Biological Opinion dated December 11, 2023. The USAFA will adhere to the terms and conditions of the USAFA's Preble's Conservation Agreement, and Preble's conservation measures developed during consultation with the USFWS would be implemented, including meeting specific success criteria for Preble's habitat as outlined in the BA. With implementation of these mitigation measures, impacts on Preble's and its habitat would not be significant.

Cultural Resources: As described in Section 4.8.2 of the EA, impacts on cultural resources would occur in the project limits of disturbance, and adverse impacts on historic properties (i.e., cultural resources eligible or potentially eligible for listing in the National Register of Historic Places (NRHP)) would be resolved through mitigative treatments. There are 33 sites or segments of linear resources and 9 isolated finds located in the limits of disturbance that would be partially or entirely directly impacted. Most of these resources are not eligible or potentially eligible for listing in the NRHP; however, potential historic properties would be directly impacted. The project would have an adverse effect on the linear cultural feature Atchison, Topeka, & Santa Fe Railroad (5EP1003) due to impacts to its segments 5EP1003.6 and 5EP1003.24. USAFA executed a Memorandum of Agreement (MOA) among the State Historic Preservation Officer, USAFA, and Utilities, with the Southern Ute Indian Tribe as a concurring party. The MOA outlines how USAFA and Utilities will resolve the adverse impacts by preparing Level II documentation of 5EP1003.6 and 5EP1003.24 as outlined in "Historic Resource Documentation Standards for Level I, II, and III documentation" in Office of Archaeology and Historic Preservation Publication #1595. In addition, the MOA includes construction of two interpretive signs portraying the engineering design and significance of the Atchison, Topeka, & Santa Fe Railroad, the associated ranches, and the indigenous perspective on railroad development along Colorado's Front Range. Overall, impacts would be insignificant because impacts on cultural resources eligible or potentially eligible for listing in the NRHP (i.e., historic properties) would be mitigated by implementing the measures outlined in the MOA.

Recreation: As described in Section 4.9.2 of the EA, impacts on access to the New Santa Fe Trail would be temporary, occurring only during the construction period. Operation and maintenance of the NMCI would have very little impact on recreational users. For these reasons, impacts on recreation would not be significant.

Cumulative Effects: Section 4.11 of the EA reviewed cumulative impacts that could result from the incremental impact of the Proposed Action when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts that would result from the Preferred Alternative would not be significant.

FINDING OF NO SIGNIFICANT IMPACT (FONSI)/FINDING OF NO PRACTICABLE ALTERNATIVE (FONPA)

Based on my review of the facts and analyses contained in the attached EA, conducted under the provisions of NEPA, CEQ Regulations, and 32 CFR §989, I conclude that the Preferred Alternative for the Northern Monument Creek Interceptor Project would not have a significant environmental impact, either by itself or cumulatively with other known projects. Accordingly, an Environmental Impact Statement is not required. Pursuant to Executive Order 11990, Protection of Wetlands; Executive Order 11988, Floodplain Management; Air Force Manual 32-7003, April 20, 2020, Civil Engineering, Environmental Conservation; and the authority delegated by Secretary of the Air Force Order 791.1, and taking the above information into account, I find that there is no practicable alternative to this action and that the Proposed Action includes all practicable measures to minimize harm to the wetland and floodplain environments. The signing of this FONSI/FONPA completes the environmental impact analysis process.

Carlos R. Cruz-Gonzalez

Mr. Carlos Cruz-Gonzalez
Director of Logistics, Engineering & Force Protection
Headquarters US Air Force Academy

7 Aug 2024

Date

ERO

Consultants in Natural Resources and the Environment

Biological Assessment
Northern Monument Creek Interceptor Project
El Paso County, Colorado

Prepared for –

U.S. Air Force Academy
8120 Edgerton Drive, Suite 40
U.S. Air Force Academy, Colorado 80840
(719) 333-9739

On Behalf of—

Colorado Springs Utilities
111 South Cascade Avenue
Colorado Springs, Colorado 80903
(719) 448-4800

Prepared by—

ERO Resources Corporation
1842 Clarkson Street
Denver, Colorado 80218
(303) 830-1188
ERO Project #10857

August 2023

Contents

Introduction **1**

Federal Action **2**
Consultation History 2

Project Alternatives **2**

Project Location **2**
Project Area Description 5

Ecological and Other Features of the Project Area **5**

Project Description **8**
Other Project Elements 9

Federally Threatened and Endangered Species Potentially Affected by the Project **26**
South Platte River Species 27
Eastern Black Rail 27
Mexican Spotted Owl 28
Gray Wolf 28
Tricolored Bat 29
Greenback Cutthroat Trout 29
Monarch Butterfly 30
Pawnee Montane Skipper 30
Ute Ladies'-Tresses Orchid 31
Preble's Meadow Jumping Mouse 31

Effects of the Proposed Project **34**
Direct Effects 35
Indirect Effects 36
Effects on Critical Habitat 37
Cumulative Effects 37

Effects Determination **38**

Conservation Measures **39**
Impact Minimization 39
Habitat Enhancement/Revegetation 39
Performance and Monitoring Standards 44
Success Criteria 44

Conclusions **45**

References **47**

Tables

Table 1. Federally threatened, endangered, and candidate species potentially found in El Paso County or potentially affected by projects in El Paso County. 26

Table 2. Permanent and Temporary impacts on Preble's habitat throughout the project area. 35

Table 3. Wetland/riparian seed mix. 40
Table 4. Upland seed mix. 41
Table 5. Preliminary effects determination for federally threatened, endangered, and candidate species. 46

Figures

Figure 1. Vicinity Map 4
Figure 2. Preble's Habitat Overview 6
Figure 3. Preble's Habitat Overview 7
Figure 4. Jackson Creek 10
Figure 5. Black Forest Creek 11
Figure 6. Black Forest Creek Middle Tributary 12
Figure 7. Unnamed Tributary to Monument Creek 13
Figure 8. North Gate Boulevard 14
Figure 9. Smith Creek 15
Figure 10. Monument Branch 16
Figure 11. Monument Branch 17
Figure 12. Middle Tributary 18
Figure 13. Black Squirrel Creek 19
Figure 14. Elkhorn Creek 20
Figure 15. Elkhorn Creek 21
Figure 16. Monument Creek 22
Figure 17. Kettle Creek 23
Figure 18. Kettle Creek 24
Figure 19. Pine Creek 25
Figure 20. Potential Tree Mitigation Areas 42
Figure 21. Potential Tree Mitigation Areas 43

Appendices

Appendix A Photo Log
Appendix B Cross Section of Pipeline Trench

Biological Assessment
Northern Monument Creek Interceptor Project
El Paso County, Colorado

August 2023

Introduction

ERO Resources Corporation (ERO), on behalf of the United States Air Force Academy (USAFA) and Colorado Springs Utilities (Utilities), prepared this Biological Assessment (BA) for the Northern Monument Creek Interceptor (NMCI) Pipeline Project for submittal to the U.S. Fish and Wildlife Service (Service).

Utilities is proposing to construct the NMCI, a new wastewater conveyance pipeline from the existing Upper Monument Creek Regional Wastewater Treatment Facility (Upper Monument Creek WWTF) approximately 8.6 miles south to the existing Colorado Springs Utilities wastewater collection system in Colorado Springs (project area). The NMCI was originally designed to provide service for up to six northern sanitary sewer service providers: Palmer Lake, Woodmoor, Monument, Forest Lakes, Triview, and Donala wastewater districts (the northern districts). Since the original design, four of the northern districts (Donala, Monument, Palmer Lake, and Woodmoor) have opted out of NMCI. Triview and Forest Lakes Metropolitan districts will participate in the NMCI. The NMCI would also allow for the closure of several of Utilities' lift stations.

Most of the length of the proposed alignment for the NMCI would traverse the USAFA. Portions of the proposed alignment would also traverse nonfederal lands north and south of the USAFA. The proposed project would result in the temporary removal and replacement of material into wetlands and riparian areas that provide habitat for the federally threatened Preble's meadow jumping mouse (Preble's). Preble's has been identified within Monument Creek and its tributaries in the project area. The NMCI would be bored under several creeks that contain known populations of Preble's, Preble's critical habitat, or Preble's conservation zone habitat located on the USAFA.

Federally threatened and endangered species are protected under the Endangered Species Act (ESA). Adverse effects on a federally listed species or its habitat require consultation with the Service under Section 7 of the ESA when there is a federal nexus such as issuance of a federal permit, use of federal funds, or if the project takes place on federal lands. The purpose of this BA is to determine the presence or absence of threatened and endangered species or their habitat within or adjacent to the project area and, if a listed species or its habitat is present, the potential effects of the proposed project on the species. This BA includes a description of the proposed project, a description of the existing conditions in the project area, an analysis of potential project-related impacts on threatened and endangered species, and a description of proposed conservation measures for potential impacts on local threatened and endangered species.

Federal Action

Consultation History

The federal action triggering the Section 7 consultation is preparation of an Environmental Assessment (EA) under the National Environmental Policy Act (NEPA) by the USAFA and U.S. Air Force. The U.S. Air Force is the lead agency on the project.

In April 2000, the USAFA prepared a Conservation and Management Plan (conservation plan) for Preble's to provide guidance for management decisions on the USAFA (CNHP 1999). The conservation plan included designating a buffer around Monument Creek and its tributaries that extends out 300-feet from the best estimated 100-year floodplain. This buffer is referred to as the Preble's conservation zone in this document. The Service accepted the conservation plan and typically renews it on a 5-year basis. The conservation plan is currently in effect but is being updated and revised by USAFA for re-initiation of ESA consultation prior to the next renewal.

In 2011, Utilities prepared a Memorandum of Understanding (MOU) with the USAFA (ERO 2011) with which the Service concurred. The MOU between Utilities and the USAFA outlines roles, responsibilities, and conservation measures pertaining to operation and maintenance of Utilities infrastructure on USAFA lands. The purpose of the MOU is to ensure that Utilities projects on the USAFA align with USAFA's conservation plan. Although the MOU doesn't address new construction projects, to ensure consistency with USAFA mitigation standards, the NMCI will follow the guidelines outlined in the MOU as well as USAFA's site restoration specifications.

Project Alternatives

Two alternatives were originally reviewed for the project. Both the preferred and alternative pipelines originated at the Tri-Lakes Wastewater Treatment Plant (WWTP) in Monument, Colorado and end at the J.D. Phillips Water Resource Recovery Facility (WRRF). Since the original alternatives analysis was performed, the participants of the Tri-Lakes WWTP have opted out of NMCI. Therefore, both alternative alignments would begin at the Upper Monument WWTF.

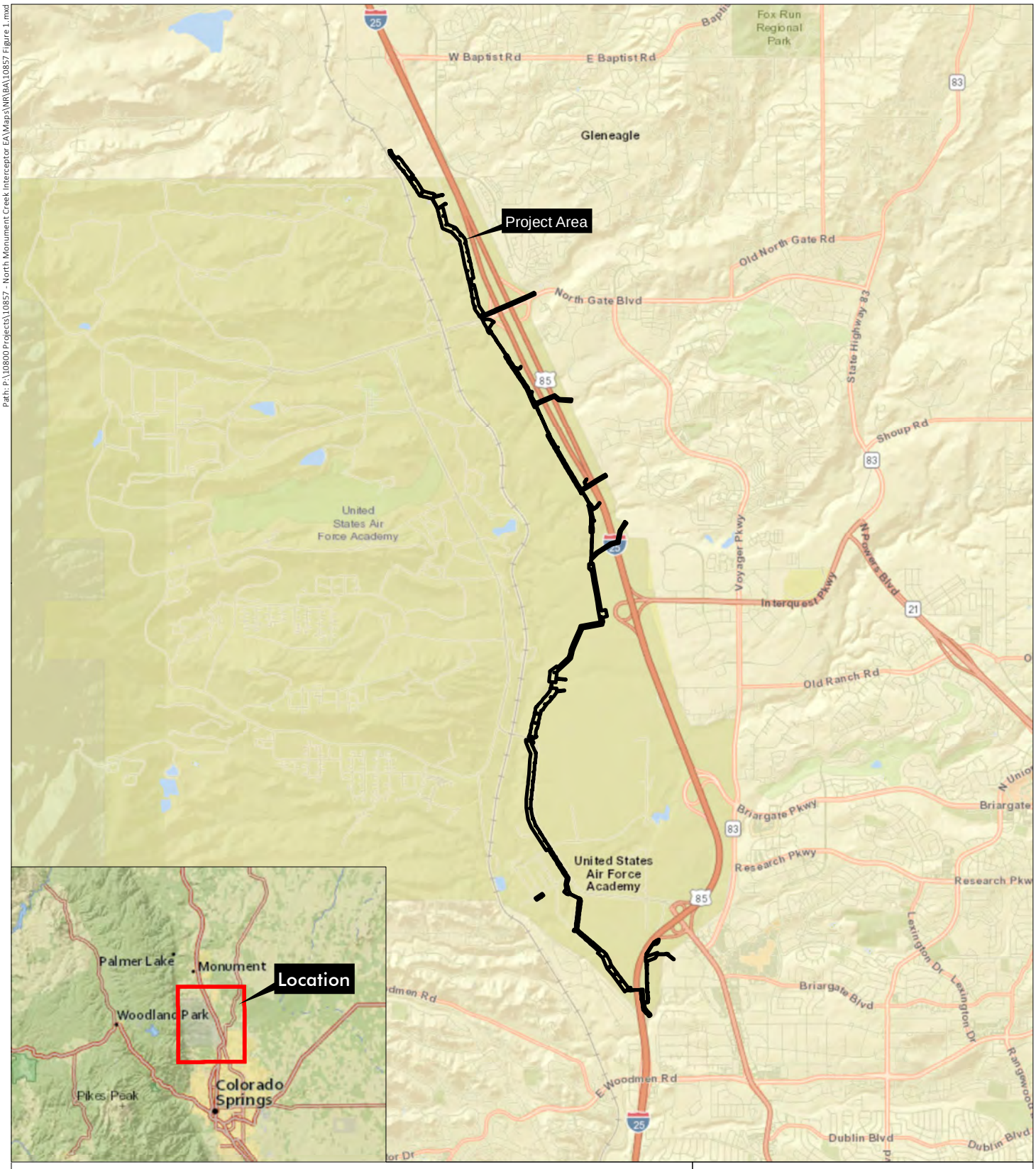
The preferred alignment generally parallels the Interstate 25 (I-25) corridor for about 4 miles before turning west towards the east edge of the Monument Creek riparian corridor. The (non-preferred) alternative alignment generally follows the west edge of Monument Creek. Laterals originating from potentially decommissioned lift stations enter USAFA lands from the east to tie into either the preferred or alternative alignment. This BA analyzes the potential effects of the preferred alignment and associated laterals.

Project Location

The project area begins north of the USAFA and would convey Forest Lakes and Triview Metropolitan Districts (which currently treat their wastewater at the Upper Monument WWTF) wastewater flows south through the USAFA to the existing Pine Creek Interceptor, which would then convey flows to the

J.D. Phillips WRRF. The line would generally be bounded by Monument Creek to the west, I-25 to the east, Jackson Creek to the north, and Pine Creek to the south. The project area is in Sections 35 and 36, Township 11 South, Range 67 West; Sections 1, 12, 25, and 36, Township 12 South, Range 67 West; Sections 7, 18, 19, 30, and 31, Township 12 South, Range 66 West; and Sections 5 and 6, Township 13 South, Range 66 West of the 6th Principal Meridian in El Paso County, Colorado (Figure 1). The UTM coordinates for the approximate center of the project area are 514163mE and 4317386mN, Zone 13. The longitude/latitude for the approximate center of the project area are 104.830604°W/38.995200°N. The elevation of the project area is approximately 6,650 feet above sea level. Photos of the project area are in Appendix A.

Path: P:\10800 Projects\10857 - North Monument Creek Interceptor EA\Maps\NR\BA\10857 Figure 1.mxd



Northern Monument Creek Interceptor Biological Assessment

Sections 35 and 36, T11S, R67W; Sections 1, 12, 25, and 36, T12S, R67W;
Sections 7, 18, 19, 30, and 31, T12S, R66W; Sections 5 and 6, T13S, R66W; 6th PM

UTM NAD 83: Zone 13N; 514669mE, 4316258mN

Longitude 104.830604°W, Latitude 38.995200°N

USGS Monument and Pikeview, CO Quadrangles

El Paso County, Colorado

0 3,000 6,000 Feet

N

Figure 1
Vicinity Map

Prepared for: Colorado Springs Utilities
File: 10857 Figure 1.mxd (GS)
June 22, 2023

ERO Resources Corp.

Portions of this document include intellectual property of ESRI and its licensors and are used herein under license. Copyright © 2023 ESRI and its licensors. All rights reserved.

Project Area Description

The overall project area consists of an 8.6-mile linear corridor between Monument Creek and I-25 from the south side of the town of Monument to northern Colorado Springs. The majority of the project area would be located in short- and mid-grass prairie uplands and shrublands (Photos 1 and 2). Riparian and wetland habitat occur along most of the streams in the project area. The NMCI would begin on the south side of Jackson Creek and cross portions of Black Forest Creek, Black Forest Creek Middle Tributary, Smith Creek, Monument Branch, Middle Tributary, Black Squirrel Creek, Elkhorn Creek, and Kettle Creek (Photos 3 through 14). Some isolated pockets of wetland and riparian habitat also occur where seeps are exposed (mostly north of North Gate Boulevard). Figures 2 and 3 show critical habitat and the Preble's conservation zone habitat in relation to the project area.

Ecological and Other Features of the Project Area

The project area straddles two ecoregions: the foothill shrublands ecoregion and foothills grasslands ecoregion (Chapman et al. 2006). The foothill shrublands ecoregion consists of a transition zone between higher montane forests to the Great Plains ecoregion. Vegetation in this ecoregion consists of ponderosa pine, pinyon-juniper woodlands, mountain mahogany, and Gambel oak. Similarly, the foothills grasslands ecoregion is a transitional area consisting primarily of grasslands interspersed with shrublands and woodlands (Chapman et al. 2006). The ecoregions are characteristic of the southern portion of the Palmer Divide, an east-west elevated ridge that separates the South Platte River and Arkansas River basins. The Rampart Range, a north-south uplifted portion of the Front Range, forms the western boundary of the USAFA property. The different physiogeographic regions provide a transitional ecosystem where Great Plains and montane vegetation communities converge (USAFA 2018).

Common plants in upland prairie habitat include native and nonnative grasses such as smooth brome (*Bromus inermis*), sand dropseed (*Sporobolis cryptandrus*), green needlegrass (*Nassella viridula*), blue grama (*Bouteloua gracilis*), buffalograss (*Bouteloua dactyloides*), little bluestem (*Schizachyrium scoparium*), Indian ricegrass (*Oryzopsis hymenoides*), and Indiangrass (*Sorghastrum nutans*). Other upland plants include wild licorice (*Glycyrrhiza lepidota*), fringed sage (*Artemisia frigida*), yucca (*Yucca glauca*), and prickly pear cactus (*Opuntia polyacantha*). Shrubs including rubber rabbitbrush (*Ericameria nauseosa*), three-leaf sumac (*Rhus trilobata*), and Gambel oak (*Quercus gambelii*) are also common in drier areas. Riparian and wetland areas are dominated by grasses and forbs including reed canarygrass (*Phalaris arundinacea*), redtop (*Agrostis gigantea*), switchgrass (*Panicum virgatum*), prairie cordgrass (*Spartina pectinata*), goldenrod (*Solidago canadensis*), Arctic rush (*Juncus arcticus*), Nebraska sedge (*Carex nebrascensis*), Emory's sedge (*Carex emoryii*), and cattail (*Typha* sp.). Some noxious weeds including yellow toadflax (*Linaria vulgaris*), leafy spurge (*Euphorbia esula*), diffuse knapweed (*Centaurea diffusa*), and Canada thistle (*Cirsium arvensis*) also occur. Woody plants that are common in riparian and wetland areas include plains cottonwood (*Populus deltoides*), narrowleaf cottonwood (*Populus angustifolia*), peachleaf willow (*Salix amygdaloides*), and sandbar willow (*Salix exigua*).

Path: P:\10800 Projects\10857 - North Monument Creek Interceptor EA\Maps\NR\BA\10857 Figures 2-3.mxd

Jackson Creek
Struthers Road
See Figure 4
Black Forest Creek
See Figure 20
See Figure 5
Jack Valley Road
See Figure 21
See Figure 6
See Figure 7
See Figure 8
Smith Creek
North Gate Boulevard
Spectrum Loop
See Figure 9
North Gate Boulevard
Voyager Parkway
See Figure 10
Stadium Boulevard
Monument Branch
See Figure 11
Monument Creek
See Figure 12
Middle Tributary
Black Squirrel Creek
See Figure 13
2
3
85
25

Northern Monument Creek Interceptor Biological Assessment

- Bore Location
- Haul Route
- Project Area
- Preble's Conservation Zone
- Preble's Critical Habitat
- Potential Preble's Mitigation Area

0 750 1,500 Feet

N

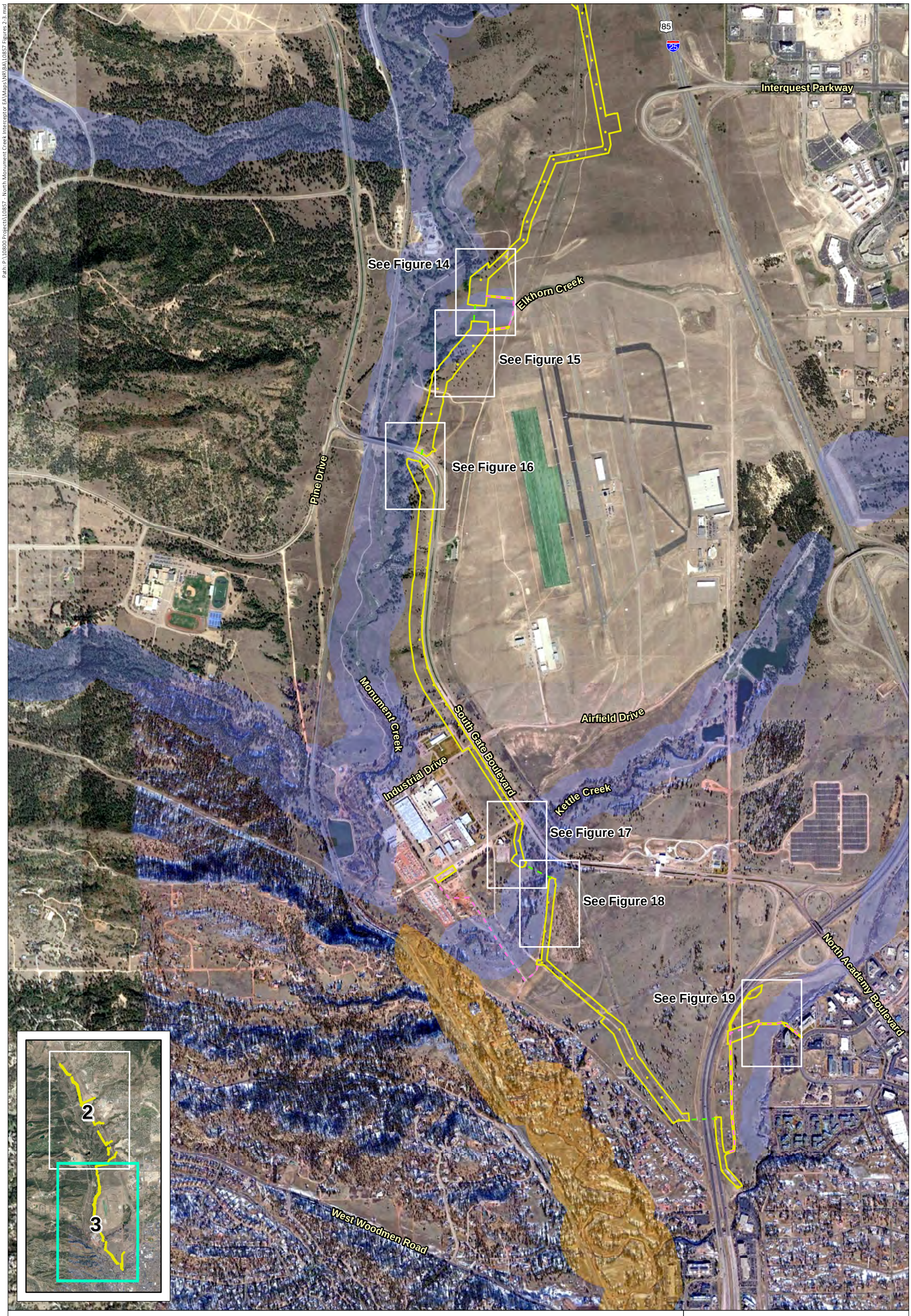
Figure 2
Preble's Habitat Overview

Image Source: Google Earth©, October 2019

Prepared for: Colorado Springs Utilities
File: 10857 Figures 2-3.mxd (GS)
August 7, 2023

ERO Resources Corp.

Path: P:\10800 Projects\10857 - North Monument Creek Interceptor EA\Maps\NR\BA\10857 Figures 2-3.mxd



Northern Monument Creek Interceptor Biological Assessment

- Bore Location
- Haul Route
- Project Area
- Preble's Conservation Zone
- Preble's Critical Habitat
- Potential Preble's Mitigation Area

0 750 1,500 Feet

N

Figure 3
Preble's Habitat Overview

Image Source: Google Earth©, October 2019

Prepared for: Colorado Springs Utilities
File: 10857 Figures 2-3.mxd (GS)
August 7, 2023

ERO Resources Corp.

The Natural Resources Conservation Service (NRCS) mapped the primary soil in the project area as Tomah-Crowfoot complex on 8 to 15 percent slopes (U.S. Department of Agriculture, NRCS 2020). These soils typically occur in alluvial fans and consist of loamy sand near the surface with more coarse sand at lower depths.

Project Description

Between Baptist Road and Black Forest Creek, the preferred alternative would tie into part of an existing 21-inch sanitary sewer line (Figure 5). Reused portions of the pipeline that would tie into the existing sanitary sewer line would not require excavation.

The route would continue south following the Atchison, Topeka & Santa Fe (AT&SF) Railroad, which has been decommissioned. At the USAFA boundary, a series of pipeline bores would begin. Bores would occur beneath Black Forest Creek, North Gate Boulevard, Smith Creek, Monument Branch, Middle Tributary, and Black Squirrel Creek (Figures 5 through 13). After the last bore, the pipeline would continue south and southwest through portions of the Davis Airfield Clear Zone and Accident Potential Zone I area before turning south and boring beneath Elkhorn Creek (Figures 14 and 15). The route would continue south and bore under South Gate Boulevard (Figure 16) and then would follow the southwestern edge of South Gate Boulevard. The proposed pipeline would open cut two roads, Industrial Drive and Park Drive, before reaching Kettle Creek. Another bore is proposed at Kettle Creek (Figures 17 and 18), after which the pipeline would continue southeast following the AT&SF Railroad until it reaches I-25. The pipeline would bore under I-25 and then turn south to its terminus south of the USAFA's southern boundary where the NMCI would tie into existing infrastructure. At the south terminus a bridge over Pine Creek would be required to access the existing line to tie in NMCI (Figure 19). Equipment would access the area from Kelly Johnson Boulevard on the south side of Pine Creek. Pine Creek is very incised near the project area (Photo 14). The bridge at Pine Creek would consist of a spanning bridge and would not impact wetlands or Pine Creek.

At each bore location, a bore pit would be excavated at the beginning of each bore and a receiving pit excavated at the end. Double- or triple-barrel siphons would be installed at each of the bored pipeline locations. Manways (manholes and access ways) would be placed at each bore pit location.

Access routes and staging areas would generally follow existing two track roads, the Santa Fe trail, established roads and some open grassland areas south of Black Squirrel Creek and through the airfield Accident Potential Zone. Staging areas would generally occur along the alignment corridor in upland areas or areas of existing disturbance. No staging areas would be located within riparian habitat along streams or wetlands.

Four lateral connections to the NMCI would be constructed from existing lift stations (Smith Creek, Monument Branch, Middle Tributary, and Black Squirrel Creek No. 2 lift stations) (Figure 2).

Other Project Elements

Temporary impacts would occur in uplands within critical habitat or the USAFA Preble's conservation zone. These impacts would be managed using appropriate Best Management Practices (BMPs), including erosion- and sediment-control measures (e.g., silt fencing and sediment control logs), diverting stormwater temporarily around work sites (possibly by creating diversion dams/ditches), and limiting overall construction access. Temporary water diversion in streams will be avoided to the greatest extent practicable. In addition, any temporary impacts from on-site construction activities would be mitigated with BMPs in accordance with approved grading and erosion-control plans.

Path: P:\10800 Projects\10857 - North Monument Creek Interceptor EA\Maps\NR\BA\10857 Figures 4-19.mxd



Northern Monument Creek Interceptor Biological Assessment

- Bore Location
- Haul Route
- Project Area
- Preble's Conservation Zone
- Preble's Critical Habitat
- Preble's High-Quality Habitat
- Preble's Moderate-Quality Habitat
- Preble's Low-Quality Habitat
- Nonhabitat

Image Source: Google Earth©, October 2019

0 50 100 Feet

N

Figure 4
Jackson Creek

Prepared for: Colorado Springs Utilities
File: 10857 Figures 4-19.mxd (GS)
August 7, 2023

ERO Resources Corp.

Path: P:\10800 Projects\10857 - North Monument Creek Interceptor EA\Maps\NR\BA\10857 Figures 4-19.mxd



Northern Monument Creek Interceptor Biological Assessment

- Bore Location
- Haul Route
- Project Area
- Preble's Conservation Zone
- Preble's Critical Habitat
- Preble's High-Quality Habitat
- Preble's Moderate-Quality Habitat
- Preble's Low-Quality Habitat
- Nonhabitat

0 50 100 Feet

N

Image Source: Google Earth©, October 2019

Figure 5
Black Forest Creek

Prepared for: Colorado Springs Utilities
File: 10857 Figures 4-19.mxd (GS)
August 7, 2023

ERO Resources Corp.

Path: P:\10800 Projects\10857 - North Monument Creek Interceptor EA\Maps\NR\BA\10857 Figures 4-19.mxd

Northern Monument Creek Interceptor Biological Assessment

- Bore Location
- Haul Route
- Project Area
- Preble's Conservation Zone
- Preble's Critical Habitat
- Preble's High-Quality Habitat
- Preble's Moderate-Quality Habitat
- Preble's Low-Quality Habitat
- Nonhabitat

Image Source: Google Earth©, October 2019

0 50 100 Feet

N

Figure 6
Black Forest Creek
Middle Tributary

Prepared for: Colorado Springs Utilities
File: 10857 Figures 4-19.mxd (GS)
August 7, 2023

ERO Resources Corp.

Path: P:\10800 Projects\10857 - North Monument Creek Interceptor EA\Maps\NR\BA\10857 Figures 4-19.mxd

Northern Monument Creek Interceptor Biological Assessment

- Bore Location
- Haul Route
- Project Area
- Preble's Conservation Zone
- Preble's Critical Habitat
- Preble's High-Quality Habitat
- Preble's Moderate-Quality Habitat
- Preble's Low-Quality Habitat
- Nonhabitat

0 50 100 Feet

N

Image Source: Google Earth©, October 2019

Figure 7
Unnamed Tributary to Monument Creek

Prepared for: Colorado Springs Utilities
File: 10857 Figures 4-19.mxd (GS)
August 7, 2023

ERO Resources Corp.

Path: P:\10800 Projects\10857 - North Monument Creek Interceptor EA\Maps\NRA\BA\10857 Figures 4-19.mxd

North Gate Boulevard

Northern Monument Creek Interceptor Biological Assessment

- Bore Location
- Haul Route
- Project Area
- Preble's Conservation Zone
- Preble's Critical Habitat
- Preble's High-Quality Habitat
- Preble's Moderate-Quality Habitat
- Preble's Low-Quality Habitat
- Nonhabitat

Image Source: Google Earth©, October 2019

0 50 100 Feet

N

Figure 8
North Gate Boulevard

Prepared for: Colorado Springs Utilities
File: 10857 Figures 4-19.mxd (GS)
August 7, 2023

ERO Resources Corp.

Path: P:\10800 Projects\10857 - North Monument Creek Interceptor EA\Maps\NR\BA\10857 Figures 4-19.mxd

Smith Creek

Northern Monument Creek Interceptor Biological Assessment

Bore Location
Haul Route
Project Area
Preble's Conservation Zone
Preble's Critical Habitat
Preble's High-Quality Habitat
Preble's Moderate-Quality Habitat
Preble's Low-Quality Habitat
Nonhabitat

0 50 100 Feet

N

Image Source: Google Earth©, October 2019

Figure 9
Smith Creek

Prepared for: Colorado Springs Utilities
File: 10857 Figures 4-19.mxd (GS)
August 7, 2023

ERO Resources Corp.

Path: P:\10800 Projects\10857 - North Monument Creek Interceptor EA\Maps\NR\BA\10857 Figures 4-19.mxd



Northern Monument Creek Interceptor Biological Assessment

- Bore Location
- Haul Route
- Project Area
- Preble's Conservation Zone
- Preble's Critical Habitat
- Preble's High-Quality Habitat
- Preble's Moderate-Quality Habitat
- Preble's Low-Quality Habitat
- Nonhabitat

Image Source: Google Earth©, October 2019

0 50 100 Feet

N

Figure 10
Monument Branch

Prepared for: Colorado Springs Utilities
File: 10857 Figures 4-19.mxd (GS)
August 7, 2023

ERO Resources Corp.

Path: P:\10800 Projects\10857 - North Monument Creek Interceptor EA\Maps\NRA\BA\10857 Figures 4-19.mxd



Northern Monument Creek Interceptor Biological Assessment

- Bore Location
- Haul Route
- Project Area
- Preble's Conservation Zone
- Preble's Critical Habitat
- Preble's High-Quality Habitat
- Preble's Moderate-Quality Habitat
- Preble's Low-Quality Habitat
- Nonhabitat

Image Source: Google Earth©, October 2019

0 50 100 Feet

N

Figure 11
Monument Branch

Prepared for: Colorado Springs Utilities
File: 10857 Figures 4-19.mxd (GS)
August 7, 2023

ERO Resources Corp.

Path: P:\10800 Projects\10857 - North Monument Creek Interceptor EA\Maps\NR\BA\10857 Figures 4-19.mxd

Middle Tributary

Northern Monument Creek Interceptor Biological Assessment

Bore Location
Haul Route
Project Area
Preble's Conservation Zone
Preble's Critical Habitat
Preble's High-Quality Habitat
Preble's Moderate-Quality Habitat
Preble's Low-Quality Habitat
Nonhabitat

0 50 100 Feet

N

Image Source: Google Earth©, October 2019

Figure 12
Middle Tributary

Prepared for: Colorado Springs Utilities
File: 10857 Figures 4-19.mxd (GS)
August 7, 2023

ERO Resources Corp.

Path: P:\10800 Projects\10857 - North Monument Creek Interceptor EA\Maps\NRA\BA\10857 Figures 4-19.mxd



Northern Monument Creek Interceptor Biological Assessment

- Bore Location
- Haul Route
- Project Area
- Preble's Conservation Zone
- Preble's Critical Habitat
- Preble's High-Quality Habitat
- Preble's Moderate-Quality Habitat
- Preble's Low-Quality Habitat
- Nonhabitat

Image Source: Google Earth©, October 2019

0 50 100 Feet

N

Figure 13
Black Squirrel Creek

Prepared for: Colorado Springs Utilities
File: 10857 Figures 4-19.mxd (GS)
August 7, 2023

ERO Resources Corp.

Path: P:\10800 Projects\10857 - North Monument Creek Interceptor EA\Maps\NRA\BA\10857 Figures 4-19.mxd

Elkhorn Creek

Northern Monument Creek Interceptor Biological Assessment

Bore Location
Haul Route
Project Area
Preble's Conservation Zone
Preble's Critical Habitat
Preble's High-Quality Habitat
Preble's Moderate-Quality Habitat
Preble's Low-Quality Habitat
Nonhabitat

Image Source: Google Earth©, October 2019

0 50 100 Feet

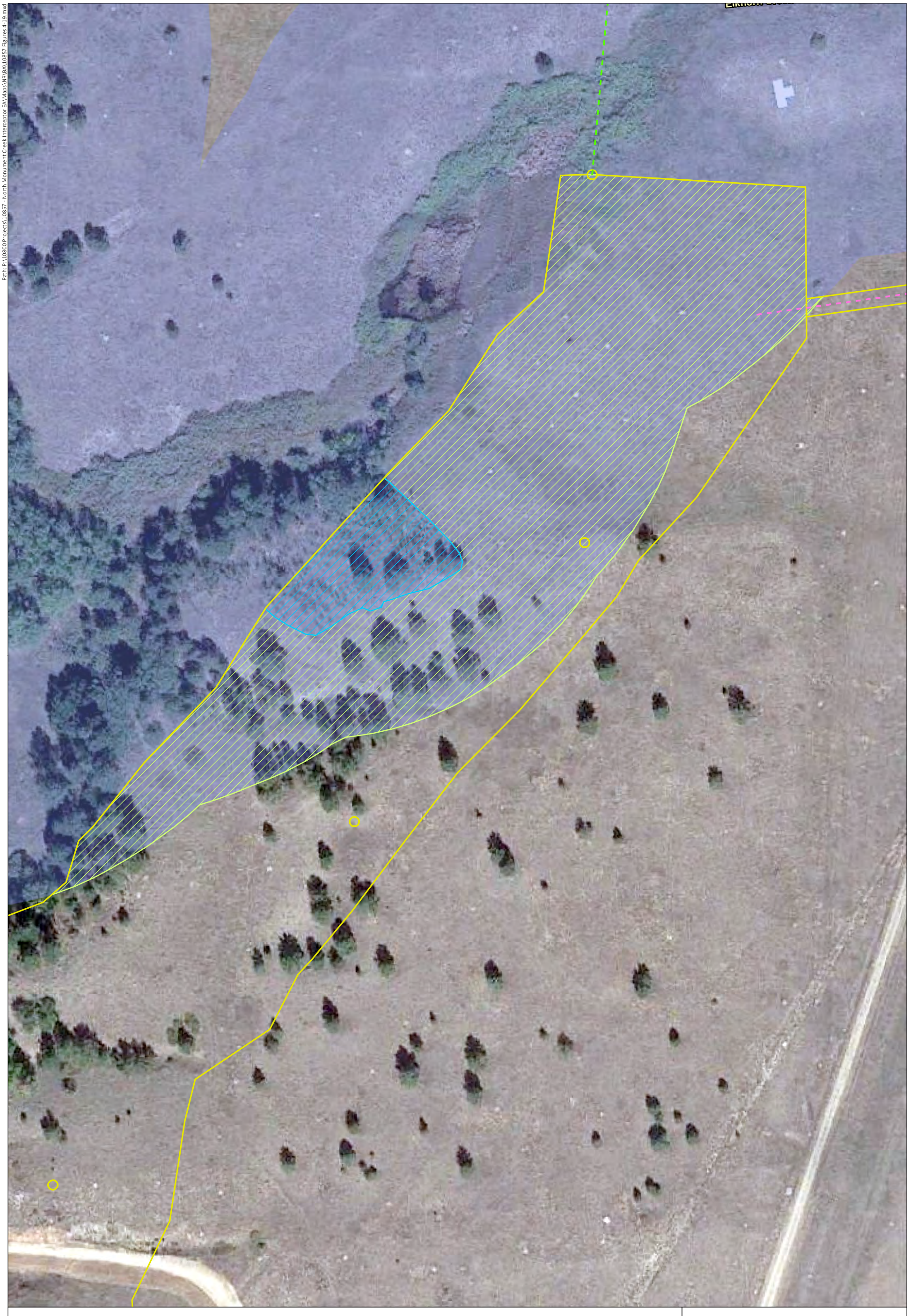
N

Figure 14
Elkhorn Creek

Prepared for: Colorado Springs Utilities
File: 10857 Figures 4-19.mxd (GS)
August 7, 2023

ERO Resources Corp.

Path: P:\10800 Projects\10857 - North Monument Creek Interceptor EA\Maps\NR\BA\10857 Figures 4-19.mxd



Northern Monument Creek Interceptor Biological Assessment

- Bore Location
- Haul Route
- Project Area
- Preble's Conservation Zone
- Preble's Critical Habitat
- Preble's High-Quality Habitat
- Preble's Moderate-Quality Habitat
- Preble's Low-Quality Habitat
- Nonhabitat

0 50 100 Feet

N

Image Source: Google Earth©, October 2019

Figure 15
Elkhorn Creek

Prepared for: Colorado Springs Utilities
File: 10857 Figures 4-19.mxd (GS)
August 7, 2023

ERO Resources Corp.

Path: P:\10800 Projects\10857 - North Monument Creek Interceptor EA\Maps\NRA\BA\10857 Figures 4-19.mxd

Northern Monument Creek Interceptor Biological Assessment

- Bore Location
- Haul Route
- Project Area
- Preble's Conservation Zone
- Preble's Critical Habitat
- Preble's High-Quality Habitat
- Preble's Moderate-Quality Habitat
- Preble's Low-Quality Habitat
- Nonhabitat

Image Source: Google Earth©, October 2019

0 50 100 Feet

N

Figure 16
Monument Creek

Prepared for: Colorado Springs Utilities
File: 10857 Figures 4-19.mxd (GS)
August 7, 2023

ERO Resources Corp.

Path: P:\10800 Projects\10857 - North Monument Creek Interceptor EA\Maps\NRA\BA\10857 Figures 4-19.mxd

Kettle Creek

Northern Monument Creek Interceptor Biological Assessment

- Bore Location
- Haul Route
- Project Area
- Preble's Conservation Zone
- Preble's Critical Habitat
- Preble's High-Quality Habitat
- Preble's Moderate-Quality Habitat
- Preble's Low-Quality Habitat
- Nonhabitat

0 50 100 Feet

N

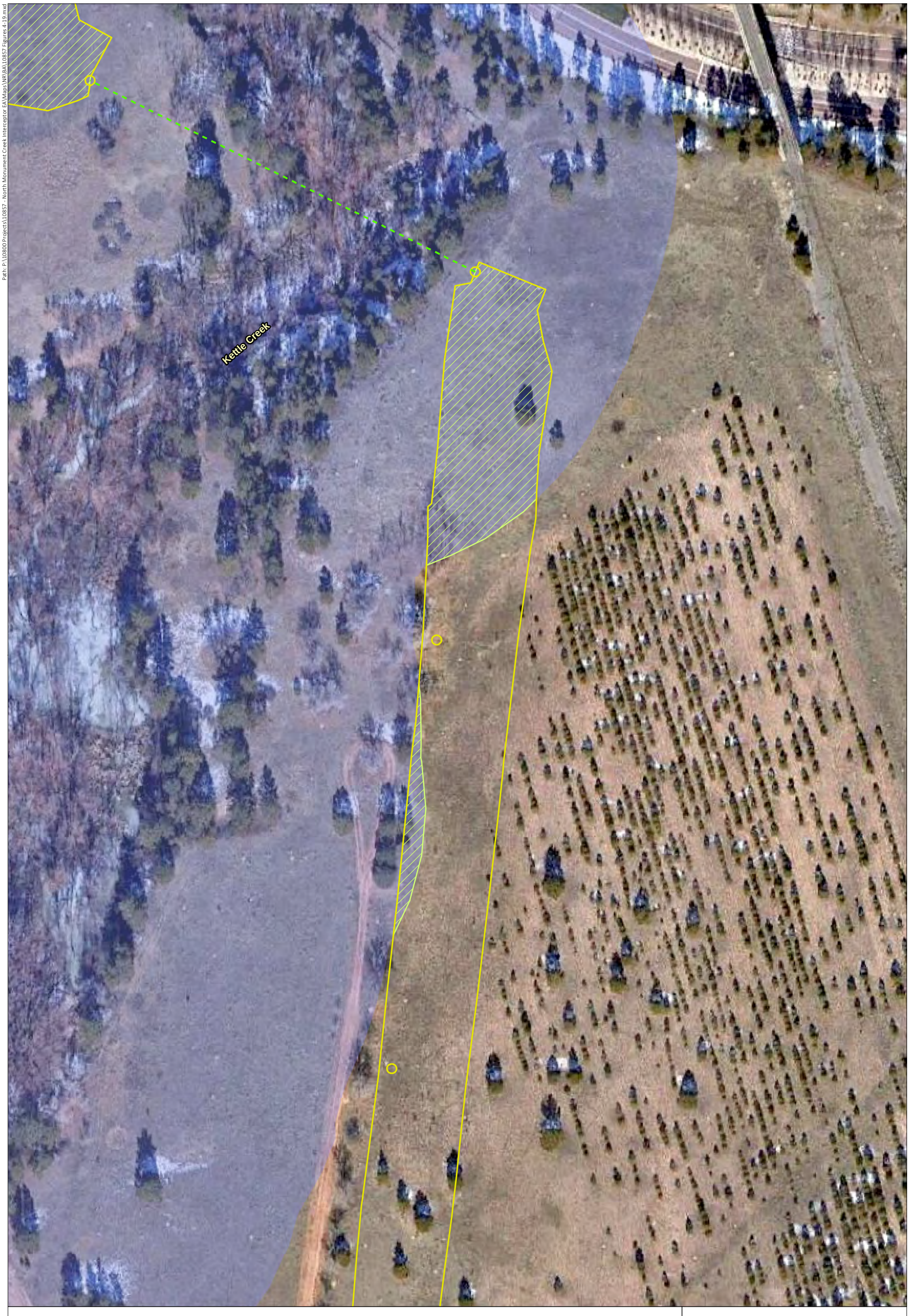
Image Source: Google Earth©, October 2019

Figure 17
Kettle Creek

Prepared for: Colorado Springs Utilities
File: 10857 Figures 4-19.mxd (GS)
August 7, 2023

ERO Resources Corp.

Path: P:\10800 Projects\10857 - North Monument Creek Interceptor EA\Maps\NR\BA\10857 Figures 4-19.mxd



Northern Monument Creek Interceptor Biological Assessment

- Bore Location
- Haul Route
- Project Area
- Preble's Conservation Zone
- Preble's Critical Habitat
- Preble's High-Quality Habitat
- Preble's Moderate-Quality Habitat
- Preble's Low-Quality Habitat
- Nonhabitat

0 50 100 Feet

N

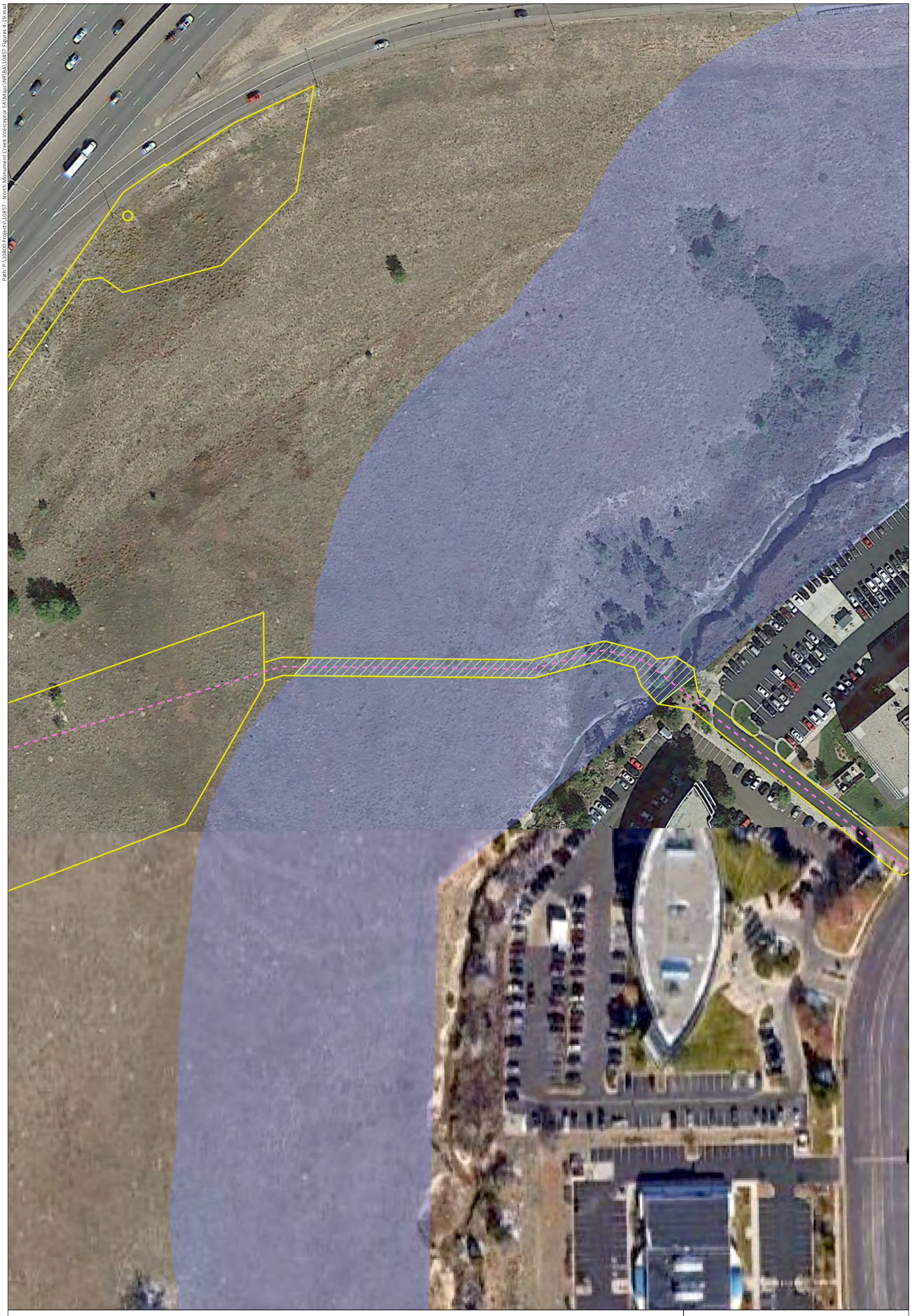
Image Source: Google Earth©, October 2019

Figure 18
Kettle Creek

Prepared for: Colorado Springs Utilities
File: 10857 Figures 4-19.mxd (GS)
August 7, 2023

ERO Resources Corp.

Path: P:\10800 Projects\10857 - North Monument Creek Interceptor EA\Maps\NRA\BA\10857 Figures 4-19.mxd



Northern Monument Creek Interceptor Biological Assessment

- Bore Location
- Haul Route
- Project Area
- Preble's Conservation Zone
- Preble's Critical Habitat
- Preble's High-Quality Habitat
- Preble's Moderate-Quality Habitat
- Preble's Low-Quality Habitat
- Nonhabitat

Image Source: Google Earth©, October 2019

0 50 100 Feet

N

Figure 19
Pine Creek

Prepared for: Colorado Springs Utilities
File: 10857 Figures 4-19.mxd (GS)
August 7, 2023

ERO Resources Corp.

Federally Threatened and Endangered Species Potentially Affected by the Project

Biologists with ERO, the USAFA, Utilities, and the Service visited the project area on August 4, 2020 to assess the project area for the presence of suitable habitat for federally listed threatened and endangered species protected under the ESA. Table 1 lists federally listed species likely to be present in El Paso County or that could be affected by projects in El Paso County. The table includes the species listing status and if potential habitat is present in the project area.

Table 1. Federally threatened, endangered, and candidate species potentially found in El Paso County or potentially affected by projects in El Paso County.

Species (common name)	Scientific Name	Listing Status[1]	Habitat	Potential Habitat Present
Birds				
Eastern black rail	*Laterallus jamaicensis jamaicensis*	T	Wetlands, marshes, and moist riparian areas.	Potential
Interior least tern	*Sterna antillarum athalassos*[2]	E	Sandy/pebble beaches on lakes, reservoirs, and rivers	No South Platte depletions
Mexican spotted owl	*Strix occidentalis lucida*[3]	T	Closed canopy forests in steep canyons	No
Piping plover	*Charadrius melodus*[2]	T	Sandy lakeshore beaches and river sandbars	No South Platte depletions
Whooping crane	*Grus americana*[2]	E	Mudflats around reservoirs and in agricultural areas	No South Platte depletions
Mammals				
Gray wolf	*Canus lupus*	E	Temperate forests, mountains, tundra, taiga, grasslands, and deserts	No
Tricolored bat	*Perimyotis subflavus*	PE	Forests, culverts, caves, and mines	Potential
Preble's meadow jumping mouse (Preble's)	*Zapus hudsonius preblei*[3]	T	Shrub riparian and wet meadows	Yes
Fish				
Greenback cutthroat trout	*Oncorhynchus clarki stomias*	T	Gravelly headwater streams or mountain lakes	No
Pallid sturgeon	*Scaphirhynchus albus*[2]	E	Large, turbid, free-flowing rivers with a strong current and gravelly or sandy substrate	No South Platte depletions
Insects				
Monarch butterfly	*Danaus plexippus plexippus*	C	Dependent on milkweeds (Asclepiadoideae) as host plants and forage on blooming flowers; a summer resident	Potential
Pawnee montane skipper	*Hesperia leonardus montana*	T	Dry, open ponderosa pine forests containing open meadows dominated by blue grama and prairie gayfeather in foothill locations	No
Plants				
Ute ladies'-tresses orchid (ULTO)	*Spiranthes diluvialis*	T	Moist to wet alluvial meadows, floodplains of perennial streams, and around springs and lakes below 7,800 feet in elevation	No
Western prairie-fringed orchid	*Platanthera praeclara*[2]	T	Mesic and wet prairies and sedge meadows	No South Platte depletions

[1]T = Threatened Species, E = Endangered Species; C = Candidate for listing; PE = Proposed Endangered
[2]Water depletions in the South Platte River may affect the species and/or critical habitat in downstream reaches in other

counties or states.
[3]There is critical habitat for the species in the county.
Source: Service 2023.

South Platte River Species

Species Background

The interior least tern, piping plover, whooping crane, pallid sturgeon, and western prairie fringed orchid are species that rely heavily on habitat provided by the Platte River system. The interior least tern, piping plover, and whooping crane may migrate through Colorado or may occasionally nest on wide sandy shores of reservoirs, typically in eastern Colorado. The pallid sturgeon is a fish found in the Missouri and middle Mississippi Rivers. The western prairie fringed orchid is a plant found in tallgrass prairie ecosystem habitats west of the Mississippi River.

Potential Habitat and Effects of the Proposed Project

Suitable habitat for the interior least tern, piping plover, whooping crane, pallid sturgeon, and western prairie fringed orchid is not found in the project area. Given the absence of suitable habitat, the proposed project would have no effect on the interior least tern, piping plover, whooping crane, pallid sturgeon, or western prairie fringed orchid. The project would occur in the Monument Creek watershed. Monument Creek eventually flows into the Arkansas River and would not result in water depletions to the Platte River system; therefore, there would be no effect from the project on Platte River species.

Eastern Black Rail

Species Background

The eastern black rail (EBR) is listed as threatened by the Service. The EBR ranges throughout central and eastern North America, south through the Caribbean and to Brazil. This species has been documented along the Arkansas River Valley in southeastern Colorado and the Republican River in east-central Colorado. Threats include habitat loss and fragmentation due to fire suppression, grazing, invasive species, drought, and human alteration. There are no exact counts of EBR populations at the present time, so analysis units based on habitat have been identified across the United States. Colorado is included in the Great Plains analysis unit (Service 2020a).

EBR is dependent on wetland and marsh habitat that contain a mix of wet, saturated and some dry edges around the periphery. In Colorado they have been documented in cattail/bullrush marshes and near pond edges. Along the Republican River in northeastern Colorado and western Kansas they have been documented in riparian habitat (USAFA 2020a).

Potential Habitat and Effects of the Proposed Project

The project area contains very limited wetland habitat that would be considered suitable for this species. Wetland areas on the Academy that could contain habitat would be largely avoided and bored under. The EBR was recently detected at Fort Carson Army Base, in 2022, but has not been detected on

the USAFA (Mihlbachler pers. com. 2022). Due to the avoidance of impacts to suitable habitat for the EBR, the proposed project would have no effect on the eastern black rail.

Mexican Spotted Owl

Species Background

The Mexican spotted owl (MSO) is listed as threatened by the Service. The MSO ranges throughout Utah and portions of Colorado, Arizona, Texas, New Mexico, and Mexico. Threats include habitat loss, degradation, and fragmentation. Data suggest the population trend is downward because of past and continuing loss and/or fragmentation of habitat, especially even-age timber management and possibly slow recolonization rates. The MSO is also threatened in some areas by the potential for high-severity stand-replacing fire (Service 2012). There are no exact counts of MSO populations, although the Service (1991) reported a total of 2,160 owls throughout the U.S. The MSO is a medium-sized species (16 to 19 inches tall) marked with a series of horizontal spots that form near the beak and continue to the tail.

In Colorado, the MSO typically inhabits areas with steep, exposed cliffs; canyons that are characterized by pinyon-juniper; and old-growth forests mixed with Douglas-fir, ponderosa pine, and white fir (Andrews and Righter 1992; Service 1995). Designated critical habitat occurs in the Pike National Forest in western Douglas and El Paso Counties and eastern Teller and Fremont Counties (69 Federal Register (FR) 53182 (August 31, 2004)).

Potential Habitat and Effects of the Proposed Project

There is no suitable habitat for the MSO in the project area. Additionally, the project area is not near any designated critical habitat. The nearest critical habitat for this species is in the Pike National Forest in western Douglas and El Paso Counties. The MSO is unlikely to occur in the project area. Because there is no suitable habitat in the project area, the proposed project would have no effect on the Mexican spotted owl.

Gray Wolf

Species Background

The gray wolf inhabits a variety of habitats including grasslands, montane and alpine forests, and tundra throughout its current range. This species used to occur throughout much of western and central North America from the Arctic to southern Mexico. This species was extirpated throughout much of its range and was listed as endangered in 1978. Wolves were reintroduced to portions of Wyoming, Montana, and Idaho in Yellowstone National Park in 1995. Since the reintroductions, the wolf was at one point removed from the endangered species list but has since been added back to the list as an endangered species.

Potential Habitat and Effects of the Proposed Project

Wolves from the Yellowstone populations have made it into northern Colorado. One pack has been confirmed in North Park in Jackson County, Colorado. A second pack is suspected in the White River National Forest in northern Colorado but has not been confirmed. Several individual wolves have also

been spotted in northwestern Colorado. Beginning in 2023, Colorado Parks and Wildlife will begin introducing wolves into portions of Colorado.

Due to the dense development near the USAFA and known geographic range of gray wolves in Colorado, it is highly unlikely that wolves occur anywhere near the USAFA boundaries. Furthermore, if wolves were near the project area, they would likely remain west of the project area in more remote areas of the Academy and adjacent Pike National Forest. For these reasons, the project will have no effect on the gray wolf.

Tricolored Bat

Species Background

The tri-colored bat (TCB) (formerly known as the eastern pipistrelle) are small bats that have tricolored fur. The TCB may range from yellowish to chocolate brown in color. The TCB ranges throughout the eastern 2/3 of the United States and has been found roosting in trees, culverts, rock crevices, and mines. The species has been known to hibernate in caves, mines, and occasionally abandoned buildings (Armstrong et al. 2011; Service 2021). This species is declining throughout it range largely due to white-nose syndrome, which is a fungal disease that invades the skin and nose of bats that results in physiological and behavioral changes that often results in death of the animal (Service 2021).

Potential Habitat and Effects of the Proposed Project

In recent years TCB records have been increasing in Colorado. Prior to 2011, TCB had been documented in Pueblo, Huerfano, and Baca counties (Armstrong et al. 2011). Since then, the TCB has been documented in Boulder and Weld counties (Adams et al. 2018). The TCB has not been documented in El Paso County. While it is possible that the TCB could at some point become established in El Paso County, it is unlikely that the project would result in significant effects to suitable (contiguous) forested bat habitat. Therefore, the project would have no effect on TCB.

Greenback Cutthroat Trout

Species Background

The greenback cutthroat trout (trout) is a federally threatened species found in isolated headwaters of mountain streams of the Colorado Front Range. The trout inhabits clear, cold, and well-oxygenated streams with gravelly to rocky substrate and abundant riparian vegetation (Service 1998a). The trout requires instream cover and does best in waters where competing trout species are absent (Service 1998a).

In Colorado, it was thought that this species inhabited about 167 hectares of lake and 228 hectares of stream habitat. Recent genetic information revealed that the fish in those habitats are not pure greenback cutthroat trout, but hybrids with other nonnative salmonids (Greenback Cutthroat Recovery Team 2012). The only pure cutthroats remaining are in Bear Creek in El Paso County approximately 20 miles southwest of the project area. Reintroduction efforts have been conducted at Zimmerman Lake, Herman Gulch, Dry Gulch, and an unnamed tributary to the Poudre River in Larimer County.

Potential Habitat and Effects of the Proposed Project

There is no suitable habitat for the greenback cutthroat trout in the project area. The project area is lower in elevation than known greenback cutthroat trout habitat (above 8,000 feet). The proposed project would have no effect on the greenback cutthroat trout.

Monarch Butterfly

Species Background

Monarch butterflies migrate through Colorado in the summer from winter habitat in California and central Mexico. Although the project area is not within a designated migration corridor or breeding or overwintering area for this species, the species may occur in eastern Colorado during the warmer months between spring and fall (Service 2020b). Monarch butterflies are dependent on milkweeds (primarily *Asclepias* spp.) as a host plant for egg laying and larval development (Service 2020b) and nectar plants for foraging.

Potential Habitat and Effects of the Proposed Project

Scattered milkweeds occur in the project area near wetland and riparian areas. Because it is possible that some milkweed plants may be removed during construction, milkweed is included in the revegetation seed mixes. This species may occasionally travel through the project area but are not likely to be adversely affected because host plants are not widespread and will be planted as part of the revegetation efforts following project construction.

Pawnee Montane Skipper

Species Background

The federally threatened Pawnee montane skipper (skipper) is a small brownish-yellow butterfly with a wingspan slightly greater than 1 inch. The skipper occurs only on the Pikes Peak Granite Formation in the South Platte River drainage system in Colorado in portions of Douglas, Jefferson, Park, and Teller Counties. The range of the skipper is centered at Deckers, Colorado; extends northwest just beyond Pine, Colorado; and south to the point where the county lines of Douglas, Jefferson, Park, and Teller Counties nearly converge (Service 1998b). The skipper occurs in dry, open ponderosa pine woodlands at elevations from 6,000 to 7,500 feet. The skipper requires blue grama (the larval food plant) and prairie gayfeather (*Liatris punctata*) as the two necessary components of the ground cover.

Potential Habitat and Effects of the Proposed Project

The project area contains the blue grama and prairie gayfeather habitat that the skipper requires but is located outside the known geographical range for the species, which occurs in southern Jefferson County and northern Douglas County about 30 miles northwest of the project area. Therefore, the proposed project would have no effect on the Pawnee montane skipper.

Ute Ladies'-Tresses Orchid

Species Background

Ute ladies'-tresses orchid (ULTO) occurs at elevations below 7,800 feet in moist to wet alluvial meadows, floodplains of perennial streams, and around springs and lakes (Service 1992a). Generally, the preferred vegetative cover for ULTO is relatively open; dense overgrown sites are not conducive to establishment of the species. Where ULTO is found, soils are typically alluvial deposits of sandy, gravelly material that are saturated to within 18 inches of the surface for at least part of the growing season.

The main reason for this species' decline appears to be drastic modification of riparian habitat by urbanization and stream channelization. Because of this decline, the Service listed this species as threatened under the ESA in 1992 (Service 1992b). When listing occurred, ULTO was found only in Colorado, Utah, and Nevada. Since then, the species has been found in Wyoming, Montana, Nebraska, and Idaho. Other historic populations in Utah, Colorado, and Nevada are presumed to be extirpated (Service 1992a).

Potential Habitat and Effects of the Proposed Project

Although most of the creek riparian corridors meet broad habitat criteria for ULTO, suitable ULTO habitat is not present in the project area because channel degradation and areas with frequent scour events limit ULTO establishment. In addition, the vegetation in the wetland and riparian areas is dominated by species not typically found with ULTO. A persistent population of ULTO would not be able to become established under these conditions and there is no known seed source of this species in the Monument Creek basin. Because suitable habitat is not present, the proposed project would have no effect on ULTO.

Preble's Meadow Jumping Mouse

Species Background

Preble's meadow jumping mouse (Preble's) was listed as a federally threatened subspecies under the ESA in May 1998 (63 FR 26517 (May 13, 1998)). Threats include habitat loss, degradation, and fragmentation associated with urban development. Habitat change due to climate change and resulting changes in precipitation patterns, fire regime or habitat degradation due to the spread of invasive plants are future trends that could affect Preble's. On the Academy, habitat erosion elevated by stormwater runoff from adjacent urban development has been the primary threat (Grunau, et al. 2017).

On July 9, 2008, the Service issued a final ruling to amend the listing for Preble's. The amended final rule states that Preble's is a distinct subspecies and will remain listed as a federally threatened species in Colorado. The Service's amended final rule stated that because of development along Colorado's Front Range, the long-term survival of the subspecies in Colorado remains threatened. The Service also announced that Preble's would not remain protected in Wyoming because threats from development and other habitat-altering practices are not prevalent. On August 5, 2011, the Service reinstated ESA protection for Preble's in Wyoming because of interpretations regarding the definition of a threatened species being "in danger of extinction throughout all or a significant portion of its range," which was

invalidated by two court rulings. The Service requested that the courts remand the Preble's decision back to the Service. The court granted the request and the Service reinstated the listing of Preble's as a federally threatened species in Wyoming. Previous critical habitat designation in Wyoming was not reinstated. In 2011, two petitions to delist Preble's were filed with the Service. In May 2013, the Service completed a 12-month finding in response to the petitions and ruled that delisting was not warranted at the time. Therefore, Preble's remains protected under the ESA.

Habitat

Along Colorado's Front Range, Preble's is found below 7,600 feet in elevation, generally in lowlands with medium to high moisture along permanent or intermittent streams. Preble's typically inhabits areas characterized by well-developed plains riparian vegetation with relatively undisturbed grassland and a water source nearby (Armstrong et al. 1997, 2011). Previous studies suggested that Preble's may have a wider ecological tolerance than initially thought and that the requirement for diverse vegetation and well-developed cover can be met under a variety of circumstances (Meaney et al. 1997). Radio-tracking studies conducted by Colorado Parks and Wildlife (CPW), formerly Colorado Division of Wildlife, have documented Preble's using upland habitat adjacent to wetlands and riparian areas (Shenk and Sivert 1999). Additional research by CPW has suggested that habitat quality for Preble's can be predicted by the amount of shrub cover available at a site (White and Shenk 2000).

Critical Habitat

In June 2003, the Service designated critical Preble's habitat (50 Code of Federal Regulations (CFR) 17). Critical habitat consists of specific areas that are designated for threatened and endangered species recovery (Service 2010). In addition to several tributaries within the Monument Creek watershed (Figures 2 and 3), critical habitat was designated along portions of the North Fork of the Cache la Poudre and Cache la Poudre Rivers in Larimer County, and along the South Platte River in portions of Douglas County. Critical habitat was also designated along portions of Ralston Creek in Jefferson County and Buckhorn Creek in Larimer County (Service 2003). In 2009, the Service proposed revision of designated Preble's critical habitat (74 FR 52102 (October 8, 2009)). On December 14, 2010, the Service issued a final rule for revised critical habitat designation (50 FR 78430 (December 14, 2010)). The newly revised critical habitat includes 38 miles of streams within the Monument Creek watershed (including portions of Beaver Creek, Dirty Woman Creek, Teachout Creek, Jackson Creek, Smith Creek, Monument Branch, Middle Tributary, Black Squirrel Creek, Kettle Creek, and Monument Creek. Critical habitat is not designated on the USAFA due to a Department of Defense exemption under Section 4(a)(3)(B)(i) of the ESA (16 United States Code) and 50 CFR 424 pertaining to the implementation of an approved Integrated Natural Resources Management Plan.

The physical and biological features (formerly referred to as Primary Constituent Elements) of Preble's habitat are those habitat components essential for the biological needs of reproducing, rearing of young, foraging, sheltering, hibernation, dispersal, and genetic exchange (68 FR 37301 (June 23, 2003)) and include:

- Space for individual and population growth and for normal behavior;

- Food, water, air, light, minerals, or other nutritional or physiological requirements;
- Cover or shelter
- Sites for breeding, reproduction, or rearing (or development) of offspring; and
- Habitats that are protected from disturbance or are representative of the historic, geographical, and ecological distributions of a species.

Distribution

Preble's is found along the foothills of southeastern Wyoming, southward along the eastern edge of the Colorado Front Range to Colorado Springs (Armstrong et al. 2011). The semiarid climate in southeastern Wyoming and eastern Colorado limits the extent of riparian corridors and, therefore, restricts Preble's range, which is associated with these corridors. In El Paso County, Preble's is known to occur throughout the Monument Creek watershed, including portions of Dirty Woman Creek, Teachout Creek, Beaver Creek, Jackson Creek, Smith Creek, Black Squirrel Creek, Kettle Creek, Black Forest Creek, Middle Tributary, Pine Creek, West Monument Creek, Stanley Creek, Deadman's Creek, and Monument Branch. Preble's has been captured along nearly every drainage adjacent to the project area in recent years (USAFA 2020b).

Habitat Mapping

ERO mapped habitat using a combination of existing habitat mapping provided by the USAFA and critical habitat boundaries and assessed site conditions during site visits during the 2020 spring and summer months. In the USAFA's conservation plan with the Service, the USAFA mapped primary Preble's habitat extending 300 feet from the 100-year floodplain of Monument Creek and its tributaries (CNHP 1999). Habitat mapped by USAFA natural resource staff includes all of the habitat components essential for the biological needs of reproducing, rearing of young, foraging, sheltering, hibernation, dispersal, and genetic exchange. Although critical habitat does not exist on any of the USAFA property, it does exist within the project area along the southern end of Jackson Creek. Figure 2 and Figure 3 show the boundaries of the USAFA's Preble's conservation zone and critical habitat identified within the project area.

Affected Environment

To quantify the effects of the proposed project on Preble's habitat and describe conditions following project activities, ERO assessed the project area and identified the most suitable habitat in the project area (Figure 4 through Figure 19). Overall, the majority of the pipeline would be located in upland habitat away from high-quality Preble's habitat, and most impacts would be temporary. ERO defines high-, moderate-, and low-quality habitat in the project area as follows:

- **High-quality habitat** includes wetland vegetation and areas adjacent to a creek with at least 50 percent cover of woody vegetation such as sandbar willows, plains cottonwood trees, and peachleaf willow trees. The percent cover of herbaceous vegetation varies between 40 and 80 percent, including both native and nonnative species.
- **Moderate-quality habitat** includes dry terraces and floodplain areas adjacent to streams in the project area, but is several feet above the active channel, and has less than 50 percent cover of

woody vegetation. Woody vegetation consists mostly of sandbar willows with a sparse to moderate herbaceous cover (20 to 70 percent) in the understory that includes both native and nonnative species.

- **Low-quality habitat** includes disturbed uplands that have mostly nonnative plant cover and no canopy cover except for a few scattered mature cottonwood and ponderosa pine trees. Dense stands of smooth brome are dominant, along with small to moderate sized populations of noxious weeds.
- **Nonhabitat** includes disturbed upland areas that have little herbaceous vegetation cover dominated by nonnative species, and previously disturbed areas with no vegetation such as pedestrian trails and dirt access roads.

Preble's Habitat in the Project Area

The majority of the habitat throughout the project area is upland habitat and is nonhabitat or low-quality habitat for Preble's. The banks along each drainage that the NMCI would cross generally contain wetland and riparian shrubs and trees, as well as wetland and riparian habitat. Habitat within riparian and wetland areas is considered high- or moderate-quality habitat. A mix of native and nonnative grasses including sand dropseed, smooth brome, blue grama, and buffalograss are prevalent in upland areas that surround the high- and moderate-quality habitat. Ponderosa pine is the prominent tree throughout most of the upland woodlands in the project area. Where wetlands and riparian habitat are present, sandbar willow, cattail, and Nebraska and Emory's sedges are prominent. Figures 4 through 19 show habitat quality for each of the stream crossings, critical habitat, and Preble's conservation zone habitat in the project area.

Effects of the Proposed Project

This BA assumes Preble's habitat that exists along each stream in the project area, mapped critical habitat, and Preble's conservation zone habitat is occupied because of known capture sites along each stream.

The majority of the NMCI would result in temporary impacts throughout the project area from excavation for pipeline placement. Manways over bore pit locations would be permanent. The pipeline would consist of 30-inch- and 36-inch-diameter pipe that would be buried at an average depth of 17 to 18 feet and with a temporary disturbance width of about 100 feet. All temporarily disturbed areas would be returned to preconstruction grade and revegetated with native vegetation. See Appendix B for a cross sectional view of the proposed project. Since the majority of impacts would be temporary, it is not anticipated that the NMCI would result in long-term effects on Preble's. All permanent impacts (manways) would be located in low-quality habitat.

The disturbance near known Preble's populations would consist mostly of excavation of upland grassland. It is anticipated that very few riparian shrubs and wetland plants would be removed. Any shrubs removed in Preble's habitat would be replaced at a 1.5:1 ratio.

Direct Effects

Direct impacts are anticipated from the proposed project on Preble's habitat. Approximately 0.002 acre of permanent impacts to moderate quality and 0.03 acre of permanent impacts to low-quality habitat would occur from placement of manhole covers and caps at bore pit locations. No permanent impacts would occur to high-quality habitat. Each manway and cap would be about 96ft^2. Other potential direct effects include inadvertent mortality or injury to individuals from construction vehicles.

Temporary impacts would be a result of trenching for the pipeline, construction access, and excavating for bore pits. Approximately 0.76 acre of high-quality habitat, 3.38 acres of moderate-quality habitat, and 17.4 acres of low-quality upland habitat would be temporarily affected by the project. All temporary impacts would occur in designated critical habitat or the USAFA Preble's conservation zone. All temporarily impacted areas would be returned to preconstruction grade and revegetated with appropriate native vegetation per the applicable USAFA Site Restoration, Revegetation, and Tree Care Specifications in-place at the conclusion of construction (see USAFA 2019). Figures 4 through 19 show the extent of the impacts from the proposed pipeline, staging, and construction access. Table 2 shows the temporary and permanent impacts from the project by habitat quality and the representative figure.

Table 2. Permanent and Temporary impacts on Preble's habitat throughout the project area.

Stream/Area (North to South)	Permanent Impacts (acres)			Temporary Impacts (acres)			Critical Habitat (Y/N)	Photo Number	Figure Number
	High-Quality	Moderate-Quality	Low-Quality	High Quality	Moderate Quality	Low Quality			
Jackson Creek	0.000	0.000	0.002	0.023	0.012	0.405	Y	4	2, 4
Black Forest Creek	0.000	0.000	0.003	0.000	0.000	3.229	N	5	2, 5
Black Forest Creek Middle Tributary	0.000	0.002	0.006	0.000	2.939	4.114	N	N/A	2,6
Unnamed Tributary to Monument Creek	0.000	0.000	0.002	0.741	0.00	0.929	N	3	2, 7
Smith Creek	0.000	0.000	0.002	0.000	0.000	0.404	N	6	2, 9
Monument Branch	0.000	0.000	0.001	0.000	0.000	0.252	N	N/A	2, 10, 11
Middle Tributary	0.000	0.000	0.001	0.000	0.000	0.569	N	7	2, 12
Black Squirrel Creek	0.000	0.000	0.002	0.000	0.000	0.816	N	8	2, 13
Elkhorn Creek	0.000	0.000	0.004	0.000	0.424	5.940	N	N/A	3, 14, 15
Monument Creek[1]	0.000	0.000	0.011	0.000	0.000	1.139	N	9	3, 16
Kettle Creek	0.000	0.000	0.004	0.000	0.000	2.323	N	12, 13	3, 17, 18
Pine Creek	0.000	0.000	0.000	0.000	0.000	0.227	N	14	3, 19
Total	**0.000**	**0.002**	**0.038**	**0.764**	**3.375**	**20.347**			

[1]Pipeline would not cross Monument Creek; pipeline would enter portions of the conservation zone buffer south of the Davis Airfield.

Indirect Effects

General

Indirect impacts may occur from construction-related activities which may disrupt Preble's behavior or patterns of use in the project area. Indirect effects may include temporary displacement from habitat and use of adjacent areas during construction. Noise associated with construction and occasional inspections may disrupt Preble's behavior or patterns of use in the project area.

Hydrology

Other indirect effects may include changes in the Monument Creek flow regime. Data analyzed by Matt Brown with Confluence Water Consulting (CWC) documented potential effects from operation of the NMCI on water resources in Monument Creek. A review of median and average flows from 1985 to 2020 revealed that Monument Creek flows are generally lowest during the winter and fall months and highest in the spring between March and June. Between 2014 and 2019, monthly native flow in Monument Creek ranged from 44% (in September) to 93% (in May) of total stream flow, with the remainder of the flow coming from the upstream wastewater treatment facilities (WWTF) (Berlemann per comm. 2021). More specifically, the additional flow in Monument Creek comes from treated wastewater effluent discharged from the Tri-Lakes WWTF and Upper Monument WWTF into Monument Creek. The treated effluent flows from both facilities contributes an average of about 3.1 cfs of streamflow to Monument Creek. This flow would be unaffected by the NMCI project.

The NMCI would reduce the effluent discharge from the Upper Monument WWTF by collecting a portion of that wastewater and piping it to the J.D. Phillips WRRF downstream of the Academy and discharging the treated effluent into Monument Creek downstream of the J.D. Phillips WRRF. CWC reviewed historical flows in Monument Creek from existing USGS flow gauge data near the Upper Monument WWTF in the northern portion of the project area, USAFA Wastewater Treatment Facility in the central portion of the project area, and near Woodmen Road at the southern end of the project area. When applying this reduction of approximately 0.5 cfs in flows across the project area, data shows a 9.2% reduction of flow near the Upper Monument WWTF, a 6.8% reduction of flows at the USAFA WWTF location, and a 3.4% reduction of flows at the Woodmen Road location. The percentage of flow reduction decreases moving south through the project area due to tributaries that enter Monument Creek from the east and west. A reduction of about 0.5 cfs would likely not be visibly noticeable during the spring and summer high-flow months, which are typically the wettest months of the year in this region (resulting in higher stream flow). However, during the drier fall and winter months when Preble's is hibernating, flows in Monument Creek may be visibly lower.

Based on existing data that CWC provided to Utilities and the Academy, it is unlikely that the slight reductions in water flow from the NMCI operation would result in significant groundwater or surface water declines and therefore would not result in adverse effects to Preble's or its habitat.

Effects on Critical Habitat

Destruction or adverse modification of critical habitat is defined as direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species (Service 1998b). Construction activities are not expected to result in changes to vegetation within Preble's designated critical habitat. Most of the impacts from construction will be temporary and occur in upland areas on the edge of critical habitat boundaries. The most important habitat components such as dense riparian vegetation, adjacent floodplains with limited human disturbance, habitat connectivity, and dynamic geomorphological and hydrological processes will be retained. Additionally, the project will not eliminate physical and biological factors (PBFs) for the mouse. At Jackson Creek, the pipeline would begin south of the creek in an area adjacent to an existing road and railroad (see photo 5). The project would temporarily affect 0.023 acre of high-quality habitat and 0.012 acre of moderate quality habitat. The location where construction would occur contains minimal shrub cover and would not result in removal of riparian habitat that would restrict space, water, or prevent shelter. Sites for breeding and larger swaths of riparian and wetland habitat upstream of the pipeline location would be unaffected by the project. Based on the above information, ERO, on behalf of the USAFA, concludes that the project is not likely to adversely affect critical habitat because of the lack of PBF's at the pipeline location.

Cumulative Effects

Cumulative effects are the effects of past, present, and reasonably foreseeable future activities of state, local, or private actions in the action area. As defined under Section 7 of the ESA, the BA should consider "those effects of future state or private activities, not involving federal activities, that are reasonably certain to occur within the action area of the federal action subject to consultation" (50 CFR 402.02). Cumulative effects involve only future actions; "past and present impacts of nonfederal actions are part of the environmental baseline. Future federal actions requiring separate consultation (unrelated to the proposed action) are not considered in the cumulative effects section" (Service 1998c). Section 7 of the ESA only requires consideration of future private actions that are reasonably certain to occur. Future federal actions that are unrelated to the proposed project are not considered in this section because they require separate consultation pursuant to Section 7 of the ESA. Examples of future federal actions include issuance of individual permits by the U.S. Army Corps of Engineers for projects elsewhere on Monument Creek or its tributaries, changes in management of federal or state lands, and federal road and highway projects across Preble's habitat.

Nonfederal activities that destroy or fragment the habitat of threatened, endangered, and candidate species may adversely affect Preble's. Such activities include livestock grazing, development, recreation, and habitat degradation by nonnative plant species.

Livestock Grazing

Livestock potentially compete for forage with Preble's and reduce the amount of cover available to Preble's. Grazing historically occurred in northern portions of the project area and has been substantially reduced over the last decade. Grazing still occurs on some nearby private land to the north

of the USAFA property line. Livestock grazing on other nearby private lands will likely continue unless these lands are developed for residential use.

Development

The surrounding lands outside of the USAFA boundary could be developed for residential or commercial use in the future as the populations of Colorado Springs and Monument increase. New development is occurring or proposed in properties adjacent to several of the Monument Creek tributaries near northern portions of the project area, including south of Baptist Road. Projects that would affect Preble's habitat but that do not have a federal nexus may require consultation with the Service under Section 10 of the ESA. Other projects may not directly affect Preble's habitat but may have indirect effects, such as reducing water quality, contributing to increased baseflows, and introducing domestic pets to areas occupied by Preble's.

Recreation

Recreation levels in the project area could increase with the establishment of trailheads and because of more people utilizing the amenities of new residential development. Recreation will likely increase on surrounding properties as well, as additional areas are developed for residential use in Monument and the surrounding areas. Adverse effects on Preble's are expected to be minimal because recreational use will generally occur during daylight hours, and Preble's are nocturnal.

Habitat Degradation by Nonnative Plants

Portions of El Paso County, including the project area, have infestations of nonnative and noxious species, including knapweed (*Centaurea* spp.) and thistle species (*Cirsium* spp.). Nonnative and noxious species do not pose a significant threat to Preble's habitat but may reduce the amount of desirable forage, restricting population sizes and productivity.

Effects Determination

After assessing the habitat in the field and working with the project design team to minimize impacts along the NMCI route, permanent and temporary effects to some riparian and upland habitat is unavoidable. Since there will be effects to riparian and upland habitat, it is ERO's professional opinion, on behalf of the USAFA, that the project may affect, and is likely to adversely affect, Preble's and that the Project is not likely to adversly affect critical habitat that occurs off USAFA (Jackson Creek). Measures taken to reduce adverse effects to Preble's include:

- Impacts on streams with known Preble's populations would be mostly avoided due to boring the pipeline under streams.
- Impacts from excavation due to trenching would be mostly confined to upland grassland habitat.
- Utilities plans to plant native seed, shrubs, and trees (if necessary) throughout the project area. Revegetation efforts would include a greater diversity of native plants that would result in a net benefit to riparian flora and fauna.
- Utilities would abide by the mitigation guidelines outlined in the MOU between Utilities and USAFA (ERO 2011).

Conservation Measures

Conservation measures are elements of the proposed project that would be implemented to minimize adverse effects and further the recovery of Preble's. Conservation measures in the project area include impact minimization and habitat enhancement/revegetation, as described below.

Impact Minimization

In addition to minimizing direct impacts on Preble's habitat during the design phase, impacts on Preble's would be further minimized during construction by limiting access to the site and implementing erosion-, stormwater-, and pollution-control BMPs.

Measures that would be implemented during construction to help minimize impacts on vegetation include boring under riparian and wetland areas along streams and installing temporary fencing to define construction limits and deter access into areas that are not to be impacted.

Standard BMPs that would be implemented during construction include:

- Equipment access in the construction area would be strictly limited.
- Equipment staging would be restricted to uplands and, where possible, existing roads, trails, or parking areas.
- Construction access would be limited to existing areas of low-quality habitat as much as possible.
- Revegetating all temporarily disturbed areas with native seed mixes to reduce erosion and replace habitat value.
- Installing sediment- and erosion-control devices, such as silt fence, to minimize surface runoff in disturbed areas.
- Placing vehicle tracking control devices at the site entrance(s).
- Locating equipment refueling and staging areas on inactive roads or upland areas away from wetlands and riparian areas.
- Placing biodegradable erosion-control blankets on newly seeded steep slopes to control erosion and promote vegetation establishment.
- When conducting future inspections on manholes and accessways, different routes would be used for access to avoid forming roadways.

Habitat Enhancement/Revegetation

All areas disturbed during construction would be revegetated with a native seed mix (Table 3 and Table 4) per the USAFA Erosion Control Revegetation, and Tree Care Standards in place at the time construction is completed. Utilities does not anticipate that a significant number of tree or shrubs would be removed. Native shrub plantings are included in the seed mixes below.

The Service typically requests that permanent impacts to moderate and low quality habitat be replaced at a 2:1 ratio. There are no permanent impacts to high quality habitat. Because of temporal loss, the Service also requests that temporary impacts to high and moderate quality habitat be mitigated at a 1.5:1 ratio. All temporary impacts to low-quality habitat will be mitigated at a 1:1 ratio. To meet all

mitigation requirements, Utilities and USAFA will mitigate for permanent and temporary impacts by installing mitigation over 2.1 acres of land (in addition to restoration in place). Utilities and USAFA propose planting about 850 cottonwood and peachleaf willow trees over 2.1 acres of land on benches adjacent to Monument Creek in the northern portion of the Academy (Figures 20 and 21). Cottonwood and peachleaf willow poles would be planted at a density of about 8 feet-on center. Installation of woody vegetation would help stabilize portions of Monument Creek and provide habitat for several species in addition to Preble's. Exact location of tree and shrub plantings will be determined by representatives from the Service, USAFA, and Utilities in the field following construction.

Table 3. Wetland/riparian seed mix.

Scientific Name	Common Name	Pounds of Live Seed (PLS) Rate Per Acre*
Grasses		
Agrostis scabra	Ticklegrass	0.08
Carex nebrascensis	Nebraska sedge	1.0
Elymus canadensis	Canada wildrye	4.0
Elymus lanceolatus lanceolatus	Thickspike wheatgrass	4.0
Elymus trachycaulus	Slender wheatgrass	2.7
Juncus arcticus	Arctic rush	0.04
Juncus torreyi	Torrey's rush	0.3
Panicum virgatum	Switchgrass	2.0
Pascopyrum smithii	Western wheatgrass	4.0
Poa palustris	Fowl bluegrass	0.25
Schoenoplectus acutus	Hardstem bulrush	0.8
Schoenoplectus tabernaemontani	Softstem bulrush	0.7
Sporobolus airoides	Alkali sacaton	0.25
Sporobolus cryptandrus	Sand dropseed	0.08
Forbs		
Asclepias incarnata	Swamp milkweed	1.87
Asclepias tuberosa	Butterfly milkweed	2.2
Geranium viscosissimum	Sticky geranium	6.2
Helianthus nutallii	Nutall's sunflower	0.34
Solidago canadensis	Canada goldenrod	0.07
Verbena hastata	Swamp verbena	0.52
Vicia americana	American vetch	5.0
Shrubs		
Fallugia paradoxa	Apache plume	0.4
Rhus trilobata	Three leaf sumac	4.0
Rosa woodsii	Wood's rose	2.2
Total		**43.0**

*This seed mix is based on a rate of 80 seeds per square foot. This mix is based on the contractor using a drill seed application. Mix should be doubled if hand broadcasted. All materials shall be free of Colorado state-listed noxious weeds.

Table 4. Upland seed mix.

Scientific Name	Common Name	PLS Rate Per Acre
Grasses		
Acantherum hymenoides	Indian ricegrass	1.5
Hesperostipa comata	Needle and thread	2.0
Bouteloua curtipendula	Sideoats grama, Hachita	3.5
Bouteloua gracilis	Blue grama, Lovington	1.0
Elymus lanceolatus lanceolatus	Thickspike wheatgrass	3.5
Koeleria macrantha	Junegrass	0.15
Nasella viridula	Sandberg bluegrass	0.5
Pascopyrum smithii	Western wheatgrass	3.0
Schizachyrium scoparium	Little bluestem	1.2
Sporobolis cryptandrus	Sand dropseed	0.14
Festuca Idahoensis	Idaho fescue	1.0
Forbs		
Achillea millifolium var. occidentalis	Western yarrow	0.05
Penstemon secundiflorus	Sidebells penstemon	0.4
Gallardia aristate	Gallardia	1.0
Ragibida columnifera	Prairie coneflower	0.3
Solidago canadensis	Canada goldenrod	0.05
Shrubs		
Artemisia frigida	Fringed sage	0.05
Artemisia lucoviciana	Prairie sage	0.05
Cerocarpus ledifolius	Curl-leaf mountain mahogany	3.0
Total		**22.39**

*This seed mix is based on a rate of 73 seeds per square foot. This mix is based on the contractor using a drill seed application. Mix should be doubled if hand broadcasted. All materials shall be free of Colorado state-listed noxious weeds.

Path: P:\10800 Projects\10857 - North Monument Creek Interceptor EA\Maps\WR\BA\10857 Figures 20-21.mxd

Northern Monument Creek Interceptor Biological Assessment

Potential Preble's Mitigation Area (3.05 ac)

Project Area

Image Source: Google Earth©, October 2019

0 75 150 Feet

N

Figure 20
Preble's Mitigation

Prepared for: Colorado Springs Utilities
File: 10857 Figures 20-21.mxd (GS)
August 7, 2023

ERO Resources Corp.

Path: P:\10800 Projects\10857 - North Monument Creek Interceptor EA\Maps\WR\BA\10857 Figures 20-21.mxd

Northern Monument Creek Interceptor Biological Assessment

Potential Preble's Mitigation Area (3.05 ac)

Project Area

Image Source: Google Earth©, October 2019

0 75 150 Feet

N

Figure 21
Preble's Mitigation

Prepared for: Colorado Springs Utilities
File: 10857 Figures 20-21.mxd (GS)
August 7, 2023

ERO Resources Corp.

Performance and Monitoring Standards

The objective of monitoring is to ensure the Preble's habitat enhancement measures have been properly implemented, evaluate the success of the efforts by identifying problems that could prevent or interfere with establishment of self-sustaining mitigation and enhancement areas, and suggest recommendations to remedy the problems. Monitoring evaluates the status of the mitigation and enhancement measures, including plant composition and density and site hydrology. Documentation of the data collection methods ensures that monitoring is carried out consistently over time.

Monitoring and measured success criteria will be done in accordance with the existing MOU between the USAFA and Utilities (ERO 2011) as described below and will abide by the following parameters:

- A qualified ecologist or landscape architect will supervise the implementation of restoration and enhancement.
- Annual mitigation monitoring will be conducted during the growing season and an annual monitoring report will be submitted to USAFA and the Service before December 1 of each year and will extend for five years after completion of the mitigation installation or until project regulators determine that the success criteria have been met.
- Problems that could prevent or interfere with the establishment of the mitigation area will be brought to the attention of the project engineer and project regulators.
- The project engineer will review and approve alterations to the mitigation area design necessary for successful mitigation.
- All recommended remedial actions will be communicated to the project team and will be implemented after they have been approved by the project regulators.

Success Criteria

To quantify the progress and final attainment of project mitigation, minimum success criteria have been developed. Although a given area may meet the success criteria based on post-mitigation assessments, this does not necessarily mean that the habitat will closely resemble the original habitat in terms of composition, structure, and productivity. The mitigation metrics assume that after five years, the vegetation will likely be stable and regenerating so that a quality upland and riparian community will establish in the near term. The minimum success criteria are as follows:

- Areas of temporarily disturbed woody vegetation must be revegetated with appropriate native woody vegetation.
- Disturbed areas must be revegetated to a density of woody vegetation similar to the disturbed area prior to the disturbance.
- The replanted area should generally be the same area that was disturbed.

Specific Success Criteria

The following criteria will be used to assess the success of mitigation efforts. These minimum standards must be met at the end of two growing seasons for revegetation to be considered successful and, hence, to be released from monitoring requirements:

- For upland areas, the combined canopy cover of grasses, forbs, and shrubs will be at least 70 percent of the preexisting cover. At least 50 percent of the canopy cover will consist of native perennial grasses and forbs.
- Seventy percent of willow stake, willow bundles, pole plantings, and replacement trees and shrubs must survive at least two years.
- State-listed noxious weeds will be controlled following the USAFA's Integrated Noxious Weed Management Plan (CNHP 2015) to prevent competition with the planted vegetation. Noxious weeds will not exceed 5 percent canopy cover in the revegetated areas. This minor degree of noxious weed infestation will likely not be detrimental to Preble's based on documentation that Preble's are not precluded by the presence of weedy species (Meaney et al. 1997; Bakeman and Deans 1997).
- Upland sites will be adequately stabilized to prevent gullying, severe rill erosion, and stream sedimentation. Areas of soil instability will be promptly treated (e.g., riprap, silt fence, erosion matting, and hay bales) to prevent further site degradation beyond that found preconstruction.

For a multitude of reasons, some project areas may not fully achieve the success criteria within five years post-disturbance, regardless of the level of management input. In these cases, Utilities will review the monitoring data with the Service and USAFA to determine which measures, if any, should be taken to further promote habitat development. In this scenario, monitoring, as described above, would continue until it can be documented that the mitigation criteria have been achieved.

Conclusions

Approximately 0.76 acre of high-quality habitat, 3.38 acres of moderate-quality habitat, and 17.4 acres of low-quality upland habitat would be temporarily affected by the project. Additionally, approximately 0.002 acre of permanent impacts to moderate quality and 0.01 acre of permanent impacts to low-quality habitat would occur. No permanent impacts would occur to high quality habitat. Native seed would be planted in all disturbance areas. Although it is not anticipated that a high number of trees and shrubs will be removed, any trees and shrubs that are removed will be replaced at a 1.5:1 ratio.

The combination of avoidance and minimization of impacts and conservation measures would reduce the potential for the incidental take of Preble's associated with the proposed project. However, the project would result in temporary effects to riparian habitat suitable for Preble's. Therefore, since the project would result in permanent and temporary disturbance to some upland and riparian habitat, ERO, on behalf of the USAFA, has preliminarily determined that the project may affect, and is likely to adversely affect, Preble's and that the project may affect, not likely to adversely affect critical habitat that occurs off USAFA (Jackson Creek). It is not anticipated that effects to Preble's populations or large swaths of connected habitat would occur as a result of the project. Because all temporary impacts on critical habitat would be restored, and permanent impacts of only 0.002 acres would occur in moderate quality habitat and 0.01 acre in low quality habitat, it is anticipated that the project would not likely adversly affect designated critical habitat. The proposed project would likely result in long-term negligible impacts on Preble's since habitat disturbance would be mostly temporary, and the footprint of the project has been minimized to the greatest extent possible.

Because of the lack of habitat in or near the project area, the proposed project would have no effect on other federally listed species (Table 5).

Table 5. Preliminary effects determination for federally threatened, endangered, and candidate species.

Species	Preliminary Conclusion
Eastern black rail	No effect
Interior least tern	No effect
Mexican spotted owl	No effect
Piping plover	No effect
Whooping crane	No effect
Gray wolf	No effect
Tricolored bat	No Effect
Preble's meadow jumping mouse	Likely to adversely affect
Preble's meadow jumping mouse critical habitat	Not likely to adversely affect
Greenback cutthroat trout	No effect
Pallid sturgeon	No effect
Monarch butterfly	No effect
Pawnee montane skipper	No effect
Ute ladies'-tresses orchid	No effect
Western prairie fringed orchid	No effect

References

Adams, T.A., B. Stoner, D. Nespoli and S.M. Bexell. New Records of Tricolored Bats (*Perimyotis subflavus*) in Colorado, with Frist evidence of Reproduction. Western North American Naturalist 78(2), 212-215, (3 July 2018). Available at https://doi.org/10.3398/064.078.0213.

Andrews, R. and R. Righter. 1992. Colorado Birds. Denver Museum of Natural History.

Armstrong, D.M., J.P. Fitzgerald, and C.A. Meaney. 2011. Mammals of Colorado - 2nd ed. Denver, CO.

Armstrong, D.M., M.E. Bakeman, A. Deans, C.A. Meaney, and T.R. Ryon. 1997. Report on habitat findings of the Preble's meadow jumping mouse. Report to the U.S. Fish and Wildlife Service and Colorado Division of Wildlife. Boulder, CO.

Bakeman M.E. and A. Deans. 1997. Habitat of the Preble's meadow jumping mouse at Rocky Flats, Colorado (M. Bakeman, ed.). Pp. 19- 35 in Report on Habitat Findings on the Preble's Meadow Jumping Mouse. Prepared for the U.S. Fish and Wildlife Service, Denver, Colorado and the Colorado Division of Wildlife, Denver, CO.

Berlemann, A. 2021. Personal communication between A. Berlemann (Utilities) and D. Garcia (Utilities), K. Hinton (Utilities), K. Scherff-Norris (Utilities), S. Butler (ERO), and C. Henke (ERO). February 5. – .

Chapman, S.S., G.E. Griggith, J.M. Omernik, A.B. Price, and D.L. Schrupp. 2006. Ecoregions of Colorado (color poster with map, descriptive text, summary tables, and photographs): Reston, VA, U.S. Geological Survey (map scale 1:1,200,000). ftp://ftp.epa.gov/wed/ecoregions/co/co_front.pdf.

Colorado Natural Heritage Program (CNHP). 1999. Conservation and Management Plan for the Preble's Meadow Jumping Mouse on the U.S. Air Force Academy. Colorado State University, Fort Collins, Colorado.

Colorado Natural Heritage Program (CNHP). 2015. Integrated Noxious Weed Management Plan, U.S. Air Force Academy and Farish Recreation Area. Warner College of Natural Resources, Fort Collins, Colorado.

ERO Resources Corporation (ERO). 2011. Memorandum of Understanding Defining Roles and Responsibilities of Colorado Springs Utilities and the U.S. Air Force Academy Pertaining to the Conservation Agreement for Preble's Meadow Jumping Mouse. Denver, Colorado.

Greenback Cutthroat Recovery Team. 2012. Study reveals secrets of Colorado's cutthroats. http://cpw.state.co.us/Documents/Research/Aquatic/CutthroatTrout/GreenbackPressRelease.pdf. Last accessed May 10, 2017.

Grunau, L., K. Decker, M. Fink, B. Kuhn, R. Schorr, J. Sovell, R. Cook, and D. Jones. 2017. Threats and Stressors to SAR Ecological Systems, Practical Implications, and Management Strategies for Installations in Colorado and the Western U.S. Prepared by Colorado State University for the DoD Legacy Program. Fort Collins, Colorado.

Meaney, C.A., A. Deans, N.W. Clippenger, M. Rider, N. Daly, and M. O'Shea-Stone. 1997. Third year survey for Preble's meadow jumping mouse (*Zapus hudsonius preblei*) in Colorado. Under contract to Colorado Division of Wildlife. Boulder, CO.

Mihlbachler, B. 2022. Personal communication between Brian Mihlbachler (USAFA) and Clint Henke (ERO) regarding recent detections of easter black rail on Fort Carson Army Base. November 14.

Shenk, T.M. and M.M. Sivert. 1999. Movement patterns of the Preble's meadow jumping mouse as they vary across time and space. Colorado Division of Wildlife. Fort Collins, CO.

U.S. Air Force Academy (USAFA). 2018. Integrated Natural Resource Management Plan. U.S. Air Force Academy, Colorado Springs, CO.

U.S. Air Force Academy (USAFA). 2019. Standard Specifications: Section 01351 Erosion Control, Revegetation and Tree Care Specifications. U.S. Air Force Academy, Colorado Springs, CO.

U.S. Air Force Academy (USAFA). 2020a. Personal communication between Brian Mihlbachler (USAFA) and April Estep. December 3.

U.S. Air Force Academy (USAFA). 2020b. Personal communication between Brian Mihlbachler (USAFA), Leslie Ellwood (Service), and Clint Henke (ERO). August 4.

U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS). 2020. Web Soil Survey. http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx. Last accessed September 2020.

U.S. Fish and Wildlife Service (Service). 1991. Mexican spotted owl status review. Endangered species report 20. Albuquerque, NM.

U.S. Fish and Wildlife Service (Service). 1992a. Endangered and Threatened Wildlife and Plants: Final Rule to List the Plant *Spiranthes diluvialis* (Ute ladies'-tresses) as a Threatened Species. Federal Register 50 CFR Part 17, Vol. 57, No. 12, pp. 2048-2054. January 17.

U.S. Fish and Wildlife Service (Service). 1992b. Interim Survey Requirements for *Spiranthes diluvialis*.

U.S. Fish and Wildlife Service (Service). 1995. Recovery Plan for the Mexican Spotted Owl. December.

U.S. Fish and Wildlife Service (Service). 1998a. Greenback Cutthroat Trout Recovery Plan. March.

U.S. Fish and Wildlife Service (Service). 1998b. Pawnee Montane Skipper Recovery Plan. March.

U.S. Fish and Wildlife Service (Service). 1998c. Endangered species consultation handbook. Procedures for conducting consultation and conference activities under section 7 of the Endangered Species Act. Final.

U.S. Fish and Wildlife Service (Service). 2003. Designation of Critical Habitat; Final Rule. http://www.fws.gov/mountain-prairie/species/mammals/preble/CRITICAL_HABITAT/criticalhabitatindex.htm. Last accessed September 2020.

U.S. Fish and Wildlife Service (Service). 2010. Endangered and Threatened Wildlife and Plants; Revised Critical Habitat for the Preble's Meadow Jumping Mouse in Colorado; December. http://www.fws.gov/mountain-prairie/species/mammals/preble/CRITICAL%20HABITAT/12142010TempFR.pdf. Last accessed September 2018.

U.S. Fish and Wildlife Service (Service). 2012. Recovery Plan for the Mexican Spotted Owl. December 17.

U.S. Fish and Wildlife Service (Service). 2019. Species Status Assessment Report for the eastern black rail (*Laterallus jamaicensis jamaicensis*), Version 1.3. August 2019. Atlanta, GA.

U.S. Fish and Wildlife Service (Service). 2020a. Services Finalizes Listing of the Eastern Black Rail as Threatened under the Endangered Species Act (press release). October 1.

https://www.fws.gov/press-release/2020-10/eastern-black-rail-threatened-under-esa. Last accessed July 3, 2023.

U.S. Fish and Wildlife Service (Service). 2020b. Monarch (*Danaus plexippus*) Species Status Assessment Report. Version 2.1. 96pp = appendices.

U.S. Fish and Wildlife Service (Service). 2021. Species Status Assessment Report of the Tricolored Bat (*Perimyotis subflavus*), Version 1.1. December 2021. Hadley, MA.

U.S. Fish and Wildlife Service (Service). 2022. Endangered, Threatened, Proposed and Candidate Species. https://ecos.fws.gov/ipac/location/index. Last accessed October 2022.

White, G.C. and T.M. Shenk. 2000. Relationship of Preble's Meadow Jumping Mouse Densities to Vegetation Cover. Colorado Division of Wildlife. Fort Collins, CO.

Appendix A Photo Log



Photo 1 - Upland habitat in the norther portion of the project area June 4, 2020. View is to the northwest.



Photo 2 - Typical upland grassland habitat east of Monument Creek on USAFA property September 1, 2020. View is to the west.



Photo 3 - Wetlands and riparian habitat along Teachout Creek in the northern portion of the project area August 10, 2020. View is to the northeast.



Photo 4 - Wetland swale associated with Teachout Creek August 10, 2020. View is to the north.



Photo 5 - Jackson Creek near the 21-inch existing pipeline tie-in May 27, 2020. View is to the west.



Photo 6 - Black Forest Creek corridor April 20, 2020. View is to the west.



Photo 7 - Smith Creek corridor in the project area April 24, 2020. View is to the southwest.



Photo 8 - Middle Tributary in the project area April 24, 2020. View is to the northeast.



Photo 9 - Black Squirrel Creek near the project area April 30, 2020. View is to the southwest.



Photo 10 - Uplands above Monument Creek within the Preble's conservation zone April 30, 2020. View is to the southwest.



Photo 11 - Vegetation along Elkhorn Creek June 11, 2020. View is to the southwest.



Photo 12 - Elkhorn Creek near the project area June 11, 2020. View is to the west.



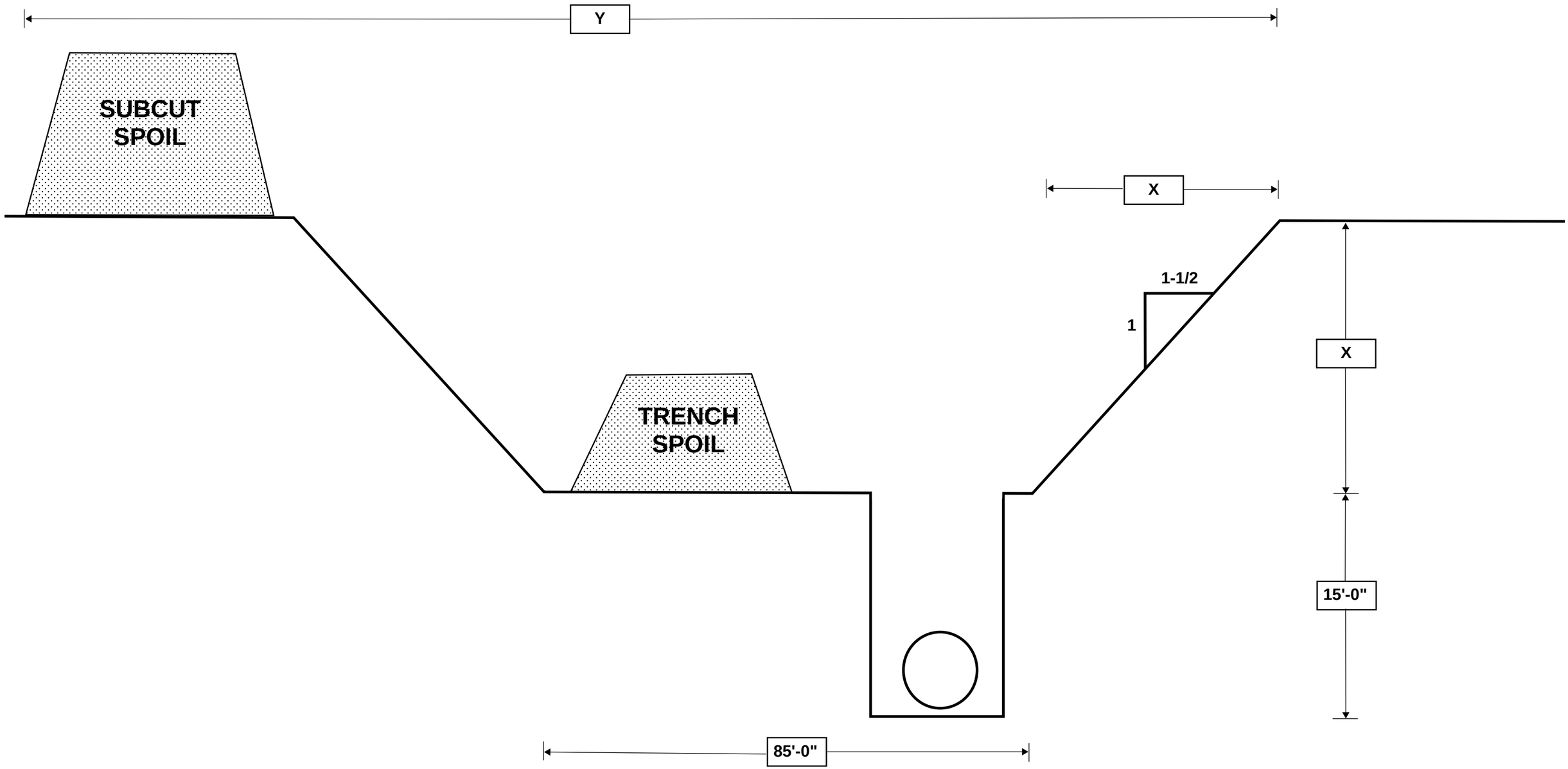
Photo 13 - Kettle Creek near the project area April 24, 2020. View is to the north.



Photo 14 - Uplands above Kettle Creek near the proposed bore pit location September 1, 2020. View is to the east.

Appendix B Cross Section of Pipeline Trench

NMCI SUBCUT CROSS SECTIONAL



ENVIRONMENTAL ASSESSMENT (EA)
FOR
NORTHERN MONUMENT CREEK INTERCEPTOR

PREPARED BY:

Department of the Air Force
U.S. Army Corps of Engineers (Cooperating Agency)

March 2024

Letters or other written comments provided may be published in the Final EA. As required by law, substantive comments will be addressed in the Final EA and made available to the public. Any personal information provided will be kept confidential. Private addresses will be compiled to develop a mailing list for those requesting copies of the Final EA. However, only the names of the individuals making comments and their specific comments will be disclosed. Personal home addresses and phone numbers will not be published in the Final EA.

This page is intentionally left blank.

TABLE OF CONTENTS

Section **Page**

1.0 PURPOSE OF AND NEED FOR ACTION....1-1
1.1 INTRODUCTION....1-1
1.2 PURPOSE OF THE ACTION....1-1
1.3 NEED FOR THE ACTION....1-2
1.3.1 Compliance with Water Quality Regulations by Consolidating Sanitary Sewer Treatment within the Upper Monument Creek Watershed....1-2
1.3.2 Meet Future Treatment Capacity Limits....1-4
1.3.3 Improve System Reliability and Sustainability....1-4
1.4 COOPERATING AGENCY AND INTERGOVERNMENTAL COORDINATION/ CONSULTATIONS....1-4
1.4.1 Cooperating Agency – U.S. Army Corps of Engineers....1-4
1.4.2 Interagency and Intergovernmental Coordination and Consultations....1-5
1.4.3 Government-to-Government Consultations....1-5
1.5 PUBLIC AND AGENCY REVIEW OF EA....1-5

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES....2-1
2.1 SELECTION STANDARDS....2-1
2.1.1 Engineering (30% of score)....2-1
2.1.2 Construction (30% of score)....2-1
2.1.3 Environmental and Cultural (25% of score)....2-1
2.1.4 Social (15% of score)....2-2
2.2 SCREENING OF ALTERNATIVES....2-2
2.3 DETAILED DESCRIPTION OF THE ALTERNATIVES....2-6
2.3.1 Alternative 1 – No Action Alternative....2-6
2.3.2 Features Common to the Action Alternatives....2-6
2.3.2.1 Pipeline Construction....2-6
2.3.2.2 Lateral Construction....2-8
2.3.2.3 Access and Staging....2-8
2.3.2.4 Schedule....2-8
2.3.2.5 Easements....2-8
2.3.3 Alternative 2 – Eastern Alignment (Preferred Alternative)....2-9
2.3.3.1 Pipeline Construction....2-9
2.3.3.2 Lateral Construction....2-11
2.3.4 Alternative 3 – Western Alignment....2-11
2.3.4.1 Pipeline Construction....2-12
2.3.4.2 Lateral Construction....2-14
2.3.4.3 Additional Disturbance for Access....2-14
2.4 RESOURCE PROTECTION MEASURES....2-14
2.4.1 General Measures....2-15
2.4.2 Mitigation Measures from the Biological Assessment....2-16
2.4.3 Mitigation Measures from the Section 106 Mitigation Memorandum of Agreement....2-18
2.5 ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION....2-20
2.5.1 Segment North 1....2-20
2.5.2 Segment North 2....2-20

2.5.3 Segment South 1 2-20
2.5.4 Segment South 2 2-20
2.5.5 Kettle Creek Lateral 2-20
2.5.6 Alignment through USAFA Landfill Site 2-21

3.0 AFFECTED ENVIRONMENT 3-1

3.1 SCOPE OF THE ANALYSIS 3-1
3.2 AIR INSTALLATION COMPATIBLE USE ZONES (AICUZ) 3-3
3.3 NOISE 3-5
3.4 AIR QUALITY 3-6
3.5 WATER RESOURCES 3-7
3.6 HAZARDOUS MATERIALS/WASTE 3-9
3.7 BIOLOGICAL/NATURAL RESOURCES 3-12
3.7.1 Vegetation 3-12
3.7.2 Wetlands, Floodplains, and Riparian 3-16
3.7.2.1 Wetland and Riparian Habitat 3-16
3.7.2.2 Floodplains 3-19
3.7.3 Wildlife 3-19
3.7.4 Special Status Species 3-19
3.7.4.1 Federally Threatened and Endangered Species 3-22
3.7.4.2 Other Sensitive Species 3-26
3.8 CULTURAL RESOURCES 3-27
3.9 RECREATION 3-32

4.0 ENVIRONMENTAL CONSEQUENCES 4-1

4.1 INTRODUCTION 4-1
4.2 AIR INSTALLATION COMPATIBLE USE ZONES 4-2
4.2.1 Alternative 1 – No Action Alternative 4-2
4.2.2 Alternative 2 – Eastern Alignment (Preferred Alternative) 4-2
4.2.3 Alternative 3 – Western Alignment 4-3
4.3 NOISE 4-4
4.3.1 Alternative 1 – No Action Alternative 4-4
4.3.2 Alternative 2 – Eastern Alignment (Preferred Alternative) 4-4
4.3.3 Alternative 3 – Western Alignment 4-5
4.4 AIR QUALITY 4-6
4.4.1 Alternative 1 – No Action Alternative 4-6
4.4.2 Alternative 2 – Eastern Alignment (Preferred Alternative) 4-6
4.4.3 Alternative 3 – Western Alignment 4-7
4.5 WATER RESOURCES 4-8
4.5.1 Alternative 1 – No Action Alternative 4-8
4.5.2 Alternative 2 – Eastern Alignment (Preferred Alternative) 4-8
4.5.3 Alternative 3 – Western Alignment 4-9
4.6 HAZARDOUS MATERIALS/WASTE 4-10
4.6.1 Alternative 1 – No Action Alternative 4-10
4.6.2 Alternative 2 – Eastern Alignment (Preferred Alternative) 4-10
4.6.3 Alternative 3 – Western Alignment 4-10
4.7 BIOLOGICAL/NATURAL RESOURCES 4-11
4.7.1 Vegetation 4-11
4.7.1.1 Alternative 1 – No Action Alternative 4-11
4.7.1.2 Alternative 2 – Eastern Alignment (Preferred Alternative) 4-11
4.7.1.3 Alternative 3 – Western Alignment 4-12

4.7.2 Wetlands, Riparian, and Floodplains 4-13
4.7.2.1 Wetlands and Riparian 4-13
4.7.2.2 Floodplains 4-14
4.7.3 Wildlife 4-15
4.7.3.1 Alternative 1 – No Action Alternative 4-15
4.7.3.2 Alternative 2 – Eastern Alignment (Preferred Alternative) 4-16
4.7.3.3 Alternative 3 – Western Alignment 4-18
4.7.4 Special Status Species 4-18
4.7.4.1 Federally Threatened and Endangered Species 4-18
4.7.4.2 Other Sensitive Species 4-20
4.8 CULTURAL RESOURCES 4-22
4.8.1 Alternative 1 – No Action Alternative 4-22
4.8.2 Alternative 2 – Eastern Alignment (Preferred Alternative) 4-22
4.8.3 Alternative 3 – Western Alignment 4-23
4.8.4 Comparison of Alternatives 4-25
4.9 RECREATION 4-27
4.9.1 Alternative 1 – No Action Alternative 4-27
4.9.2 Alternative 2 – Eastern Alignment (Preferred Alternative) 4-27
4.9.3 Alternative 3 – Western Alignment A 4-27
4.10 OTHER NEPA CONSIDERATIONS 4-29
4.10.1 Unavoidable Adverse Effects 4-29
4.10.2 Relationship of Short-Term Uses and Long-Term Productivity 4-29
4.10.3 Irreversible and Irretrievable Commitments of Resources 4-30
4.11 CUMULATIVE EFFECTS 4-31
4.11.1 Alternative 1 – No Action Alternative 4-31
4.11.2 Air Installation Compatible Use Zones 4-32
4.11.3 Noise 4-32
4.11.4 Air Quality 4-32
4.11.5 Water Resources 4-33
4.11.6 Hazardous Materials/Waste 4-33
4.11.7 Biological/Natural Resources 4-33
4.11.7.1 Vegetation 4-33
4.11.7.2 Wetlands, Riparian, and Floodplains 4-34
4.11.7.3 Wildlife 4-34
4.11.7.4 Special Status Species 4-35
4.11.8 Cultural Resources 4-35
4.11.9 Recreation 4-36
5.0 LIST OF PREPARERS 5-1
6.0 PERSONS AND AGENCIES CONSULTED/COORDINATED 6-1
7.0 REFERENCES 7-1

LIST OF TABLES

Page

Table 2-1. NMCI Alignments and Segments Considered in Screening. 2-3
Table 2-2. Alternative 2 Siphon and Bore Locations. 2-11
Table 2-3. Alternative 3 Siphon and Bore Locations. 2-12
Table 3-1. Monument Creek Streamflow. 3-8

Table 3-2. Federally Threatened, Endangered, and Candidate Species Potentially Found in El Paso County or Potentially Affected by Projects in El Paso County. 3-22
Table 3-3. State Threatened, Endangered, Species of Concern, Tier 1 Species, and CNHP Imperiled Species Potentially Found in the Project Area or Potentially Affected by Projects in the Project Area. 3-26
Table 4-1. Noise Produced by Typical Construction Equipment. 4-4
Table 4-2. Pollutant Emissions and General Conformity Threshold. 4-7
Table 4-3. Pre-Project and Post-Project Streamflow for Monument Creek 4-8
Table 4-4. Alternative 2 Vegetation Impacts. 4-11
Table 4-5. Alternative 3 Vegetation Impacts. 4-12
Table 5-1. List of Preparers. 5-1
Table 6-1. Persons and Agencies Consulted/Coordinated. 6-1

LIST OF FIGURES

Page

Figure 1-1. The Northern Entities, Tri-Lakes WWTF, Upper Monument Creek WWTF, and USAFA. 1-3
Figure 2-1. NMCI Alignments and Segments Considered in Screening. 2-4
Figure 2-2. Alignment Alternatives Evaluated in the EA. 2-5
Figure 2-3. NMCI Pipeline Typical Cross Section. 2-7
Figure 2-4. Alternative 2 Eastern Alignment (Preferred Alternative). 2-10
Figure 2-5. Alternative 3 Western Alignment. 2-13
Figure 3-1. Air Installation Compatible Use Zones. 3-4
Figure 3-2. USAFA Landfill. 3-11
Figure 3-3. Vegetation Communities, Northern Portion of Project Area. 3-14
Figure 3-4. Vegetation Communities, Southern Portion of Project Area. 3-15
Figure 3-5. Wetlands, Northern Portion of Project Area. 3-17
Figure 3-6. Wetlands, Southern Portion of Project Area. 3-18
Figure 3-7. 100-year Floodplains, Northern Portion of Project Area. 3-20
Figure 3-8. 100-year Floodplains, Southern Portion of Project Area. 3-21
Figure 3-9. Preble's Meadow Jumping Mouse Habitat, Northern Portion of Project Area. 3-24
Figure 3-10. Preble's Meadow Jumping Mouse Habitat, Southern Portion of Project Area. 3-25
Figure 3-11. APE for Cultural Resources 3-28
Figure 3-12. New Santa Fe Regional Trail. 3-33

LIST OF APPENDICES

Appendix A Interagency/Intergovernmental Coordination
Appendix B Air Pollutant Emissions Calculations
Appendix C Documented Cultural Resources and Section 106 Memorandum of Agreement
Appendix D Notice of Availability

GLOSSARY OF ABBREVIATIONS AND ACRONYMS

AF	Air Force
AFB	Air Force Base
AICUZ	Air Installation Compatible Use Zones
BA	Biological Assessment
BMPs	Best Management Practices
CCR	Code of Colorado Regulations
CDLE/OPS	Colorado Department of Labor and Employment Division of Oil and Public Safety
CDPHE	Colorado Department of Public Health and Environment
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
cfs	Cubic feet per second
CNHP	Colorado Natural Heritage Program
Corps	United States Army Corps of Engineers
CWA	Clean Water Act
DNL	Day-night Average Sound Level
EA	Environmental Assessment
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
FONSI	Finding of No Significant Impact
GHG	Greenhouse gas
IF	Isolated Find
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMCI	Northern Monument Creek Interceptor
NOA	Notice of Availability
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
OAHP	Office of Archaeology and Historic Preservation
POTW	Publicly Owned Treatment Works
PPACG	Pikes Peak Area Council of Governments
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
SHPO	Colorado State Historic Preservation Officer
THPO	Tribal Historic Preservation Officer
TIN	Total inorganic nitrogen
TN	Total nitrogen
TP	Total phosphorus
tpy	Tons per year
USAF	United States Air Force
USAFA	United States Air Force Academy
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
Utilities	Colorado Springs Utilities
WRRF	Water resource recovery facility
WWTF	Wastewater treatment facility

This page is intentionally left blank.

1.0 PURPOSE OF AND NEED FOR ACTION

1.1 INTRODUCTION

Colorado Springs Utilities (Utilities) is proposing to construct the Northern Monument Creek Interceptor (NMCI), a new wastewater conveyance pipeline from the existing Upper Monument Creek Regional Wastewater Treatment Facility (Upper Monument Creek WWTF) approximately 8.6 miles south to the J.D. Phillips Water Resource Recovery Facility (J.D. Phillips Water Resource Recovery Facility [WRRF]) in Colorado Springs (Figure 1-1). The NMCI would provide service for two northern sanitary sewer service providers: Forest Lakes Metropolitan District and Tri-View Metropolitan District (the Northern Entities). The NMCI would also allow for the closure of several of Utilities' lift stations and would include about 1.5 mile of lateral pipeline connections.

Because most of the length of the proposed alignments for the NMCI would traverse the United States Air Force Academy (USAFA), the United States Air Force (USAF) is preparing an environmental assessment (EA) to consider how the project would affect the human and natural environment. Construction and operation of the NMCI would require approval of easements or other real property agreements between USAFA and Utilities. Portions of the proposed alignments would also traverse nonfederal lands north and south of the USAFA. This EA is an evaluation of environmental impacts that would occur if the NMCI is constructed.

The Council on Environmental Quality (CEQ) issued new NEPA regulations on September 14, 2020 (40 CFR 85 1684-1730). The CEQ also issued revisions to the NEPA regulations in April 2022, which became effective on May 20, 2022 (87 FR 23466 (April 20, 2022). The 2022 NEPA regulations included a reversal of several of the changes made under the 2020 NEPA regulations. For NEPA reviews in process that agencies began before September 14, 2020, agencies may choose whether to apply the revised regulations or proceed under the 1978 NEPA regulations (43 FR 55978 (Nov. 29, 1978)) or the 2022 NEPA regulations, and their existing agency NEPA procedures. Under USAF policy, actions initiated prior to the September 14, 2020 effective date of the 2020 CEQ regulations fall under the 1978 CEQ regulations. This EA conforms to the 1978 NEPA regulations and is consistent with the 2022 NEPA regulations. This EA is 75 pages or shorter using the definition in 40 CFR Section 1508.1, where a page is 500 words and does not include explanatory maps, diagrams, graphs, tables, and other means of graphically displaying quantitative or geospatial information.

1.2 PURPOSE OF THE ACTION

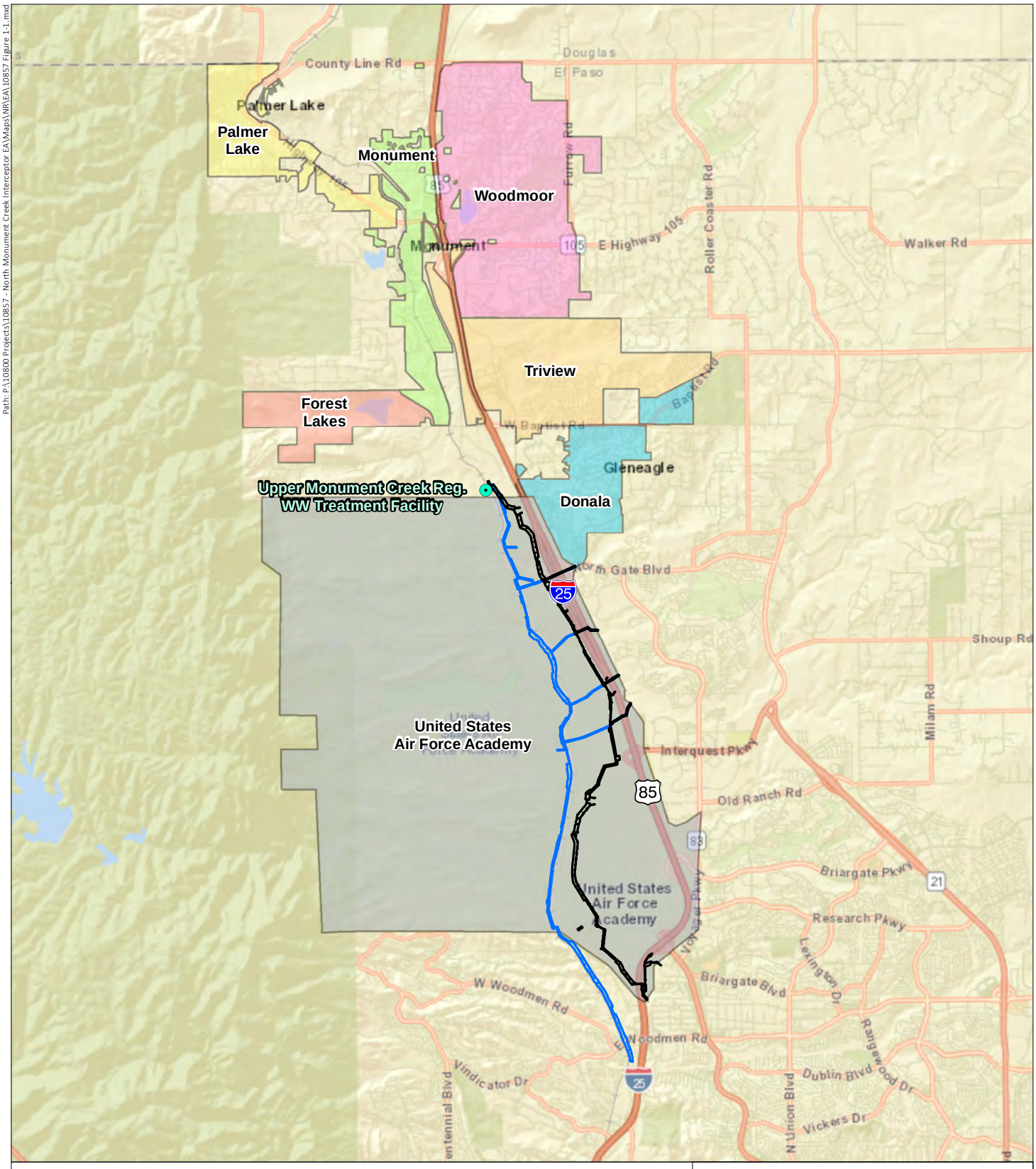
The purpose of the NMCI (or Proposed Action) is for Utilities and the Northern Entities to consolidate wastewater treatment systems into a centralized system that is environmentally and fiscally responsible, provides for increased system reliability, accommodates future growth, and maintains compliance with more stringent water quality regulations.

1.3 NEED FOR THE ACTION

The need for the Proposed Action is to comply with water quality regulations by consolidating regional providers within the upper Monument Creek watershed, meet future treatment capacity limits, and improve system reliability and sustainability.

1.3.1 Compliance with Water Quality Regulations by Consolidating Sanitary Sewer Treatment within the Upper Monument Creek Watershed

Monument Creek is on the 303(d) List of Impaired Water Bodies under the Clean Water Act (CWA). The 303(d) list provides guidance for determining if a waterbody meets water quality standards and whether it supports its designated use. In 2012, the Colorado Department of Public Health and Environment (CDPHE) adopted Regulation 85 (5 Code of Colorado Regulations (CCR) 1002-85) establishing total inorganic nitrogen (TIN) and total phosphorus (TP) effluent requirements for large facilities and reporting requirements for all facilities. In 2012, the CDPHE announced revisions to Regulation 31 (5 CCR 1002-31) developing stream-based surface water quality regulations that will be used starting in 2027 to potentially apply more stringent total nitrogen (TN) and TP standards to facilities (targeting large facilities first).



Northern Monument Creek Interceptor Environmental Assessment

- Existing Treatment Facility
- Alternative 2
- Alternative 3

0 5,000 10,000 Feet

N

Figure 1-1
The Northern Entities, Upper Monument Creek Regional WWTP, and USAFA

Prepared for: Colorado Springs Utilities
File: 10857 Figure 1-1.mxd (GS)
December 11, 2023

ERO Resources Corp.

Portions of this document include intellectual property of ESRI and its licensors and are used herein under license. Copyright © 2023 ESRI and its licensors. All rights reserved.

Beginning November 1, 2020, the CDPHE requires that TP effluent limits be met to comply with Regulation 85. The Forest Lakes Metropolitan District and Triview Metropolitan District wastewater is treated at the Upper Monument Creek WWTF administered under Colorado Discharge Permit CO0042030. The permit requires TIN monitoring for two days per month and has a daily maximum effluent TIN requirement. The TIN requirement will be subject to more stringent effluent requirements with Regulation 85 and Regulation 31 starting in 2027.

Meeting these nutrient requirements would be challenging for many small Publicly Owned Treatment Works (POTW) facilities, such as those operated by the Northern Entities, without significant plant upgrades to Biological Nutrient Removal treatment configurations. Installation of the infrastructure to mitigate constituents of concern will be costly for smaller operations. Consolidation of POTW facilities would benefit a larger ratepayer base and would allow the Northern Entities to more easily implement the technology and infrastructure required to meet future Regulation 85 and Regulation 31 requirements.

In addition to complying with state regulations, Utilities is cognizant of local guidance from the Pikes Peak Area Council of Governments (PPACG) (updated in 2020) that states: “Where site conditions require wastewater collection and central treatment, efforts should be made to consolidate treatment plants” and “Every effort should be made to consolidate management agencies and special district boundaries where possible and financially feasible” (PPACG 2020). Through the consolidation of treatment facilities, a larger ratepayer base could more easily implement the technology and infrastructure required to meet future regulations.

1.3.2 Meet Future Treatment Capacity Limits

El Paso County has a current population of approximately 675,000 and has grown steadily in the past decade (State Demographer data 2010-2018). The population in El Paso County is anticipated to continue to grow, requiring investment in wastewater system capacity upgrades to convey and treat increased flow.

1.3.3 Improve System Reliability and Sustainability

Utilities operates several wastewater lift stations in the upper Monument Creek watershed. A lift station uses mechanical operations to increase pressure and convey wastewater to a point in the system where gravity flow can occur. Because of the mechanical nature of lift stations, there is inherently more risk of a sanitary sewer overflow resulting from equipment failures than in gravity systems. Ultimately, the goal of the NMCI is to invest in consolidating the treatment of wastewater, currently performed by multiple wastewater treatment plants, into a larger integrated collection and treatment system transported by gravity and to eliminate several of Utilities’ lift stations to create a more reliable and sustainable system to meet new water quality regulations.

1.4 COOPERATING AGENCY AND INTERGOVERNMENTAL COORDINATION/ CONSULTATIONS

1.4.1 Cooperating Agency – U.S. Army Corps of Engineers

In February 2020, the U.S. Army Corps of Engineers Albuquerque District, Southern Colorado Regulatory Branch (Corps) became a cooperating agency in the preparation of this EA. The

USAF has obtained technical input from the Corps to prepare this EA. The USAF works cooperatively with the Corps to ensure that adoption of the findings of this EA will consider impacts on wetlands and other waters of the United States.

1.4.2 Interagency and Intergovernmental Coordination and Consultations

Federal, state, and local agencies with jurisdiction that could be affected by the alternative actions were notified and consulted during the development of this EA.

Appendix A contains the list of agencies consulted during this analysis and copies of correspondence.

1.4.3 Government-to-Government Consultations

The National Historic Preservation Act Section 106, its implementing regulations at 36 CFR Part 800, Executive Order 13175 (Consultation and Coordination With Indian Tribal Nations), and Department of the Air Force Instruction 90-2002, Interactions with Federally Recognized 25 Tribes (updated and published 24 August 2020), direct the Air Force to consult with federally-recognized Native American tribal governments who are historically affiliated with federally administered lands in the area of potential effects (APE) for the undertaking. To comply with legal mandates, federally recognized tribes that are affiliated historically with the USAFA geographic region have been invited to consult on the project. The tribal coordination process is distinct from the National Environmental Policy Act (NEPA) consultation or the Interagency/ Intergovernmental Coordination for Environmental Planning processes and requires separate notification of all relevant tribes consistent with *NEPA and NHPA, A Handbook for Integrating NEPA and Section 106* (2013). The timelines for tribal consultation are also distinct from those of intergovernmental consultations. The USAFA point-of-contact for Native American tribes is the Installation Commander or their designated representative. The USAFA point-of-contact for consultation with the Tribal Historic Preservation Officer (THPO) and the Advisory Council on Historic Preservation is the Installation Tribal Liaison Officer with advisement from the Cultural Resources Manager.

The Native American tribal governments that were coordinated with regarding this action are listed in Appendix A.

1.5 PUBLIC AND AGENCY REVIEW OF EA

This EA was released for a 30-day public comment period. A Notice of Availability (NOA) of the Draft EA and FONSI/Finding of No Practicable Alternative (FONPA) were published in the newspapers of record (listed below) and on the USAFA news website at https://www.usafa.af.mil/News/, announcing the availability of this EA and the draft FONSI/FONPA for review. The NOA invited the public to review and comment on the Draft EA and FONSI/FONPA.

The NOA was published in the following newspapers: the *Colorado Springs Gazette*, Colorado Springs, Colorado and *Our Community News,* Monument, Colorado.

Copies of the Draft EA and FONSI were also made available for review at the following locations:

https://www.usafa.af.mil/Units/10th-Air-Base-Wing/Mission-Support-Group/Civil-Engineer-Squadron/Installation-Management/Environmental-Management/

Library 21C
1175 Chapel Hills Drive
Colorado Springs, CO 80920

Base Library
5136 Redtail Drive
USAFA, CO 80840

Monument Library
1706 Lake Woodmoor Drive
Monument, CO 80132

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 SELECTION STANDARDS

NEPA and the Council on Environmental Quality (CEQ) regulations mandate the consideration of reasonable alternatives for the proposed action. “Reasonable alternatives” are those that also could be used to meet the purpose of and need for the proposed action. Per the requirements of 32 Code of Federal Regulations (CFR) 989, the USAF Environmental Impact Analysis Process regulations and selection standards are used to identify alternatives for meeting the purpose and need for the USAF action.

Utilities developed site selection screening criteria to compare potential sites within the identified geographic area, and explain of why the criteria were selected, providing alternative ways of fulfilling the objectives of the Proposed Action in accordance with 32 CFR 989.8(c). A routing study was developed that identified selection criteria related to engineering, construction, environmental and cultural, and social factors. Categories and key factors were established to guide planners and engineers in the evaluation and selection of an alternative that would best meet the purpose and need for the project. The following criteria were considered in the routing study (AECOM 2020).

2.1.1 Engineering (30% of score)

- Maximize alignment access and suitability.
- Maximize engineering and construction feasibility.
- Minimize stream crossing impacts.
- Minimize impacts from lift station lateral connections.
- Minimize impacts on flight operations, including Accident Potential Zones and the Clear Zone at the USAFA Davis Airfield.

2.1.2 Construction (30% of score)

- Minimize total construction costs.
- Minimize operations and maintenance costs.

2.1.3 Environmental and Cultural (25% of score)

- Minimize floodplain impacts.
- Minimize wetland and waters of the U.S. impacts.
- Minimize impacts on threatened and endangered species, primarily known habitat for Preble’s meadow jumping mouse (Preble’s).
- Minimize impacts on known cultural resources.

2.1.4 Social (15% of score)

- Minimize construction impacts on the public, including visitors to the USAFA, and residents and businesses along the route.
- Minimize the need for permanent or temporary easements.
- Minimize impacts on recreation users, including New Santa Fe Regional Trail users.
- Minimize impacts on traffic from road closures and detours.
- Minimize impacts on safe and adequate access to the USAFA and residences and businesses in the local area.

2.2 SCREENING OF ALTERNATIVES

Utilities and USAFA developed options for pipeline alignments that meet the purpose and need for Utilities and the Northern Entities to consolidate wastewater treatment into a centralized system. Although two northern alignments (North 1 and North 2) from the Tri-Lakes WWTF to the Upper Monument Creek WWTF were initially considered in screening, the northern alignments have been eliminated from consideration because the Monument Sanitation District, Palmer Lake Sanitation District, and Woodmoor Water and Sanitation District No. 1, which operate the Tri-Lakes WWTF, have opted not to participate in the NMCI project. The following southern alignment segments were considered, from the Upper Monument Creek WWTF to the J.D. Phillips WRRF (AECOM 2020):

1) **Segment South 1: I-25 Alignment** – Located south of the northern USAFA property boundary, this alignment would extend through the USAFA property and connect to the existing Pine Creek Interceptor. Segment South 1 would convey flow along I-25 and would be close to Utilities' lift stations, allowing for shorter lift station lateral connections as well as connections to the Upper Monument Creek WWTF.
2) **Segment South 2: Central Alignment** – Located south of the northern USAFA property boundary, this alignment differs from Segment South 1 only for a short section on the northern portion of USAFA and was developed early in the design process.
3) **Segment South 3: Monument Creek Alignment** – Located south of the northern USAFA property boundary, this alignment would extend through the USAFA property and connect to the existing Monument Creek Interceptor. Segment South 3 would parallel Monument Creek and the Union Pacific Railroad and is the westernmost alignment. Lateral connections would be extended to Utilities' lift stations, which would require additional Monument Creek crossings.
4) **Segment South 4: I-25/Monument Creek Alignment** – Located south of the northern USAFA property boundary, this alignment would extend through the USAFA property and connect to the existing Pine Creek Interceptor. The alignment route along I-25 would be close to Utilities' lift stations, allowing for shorter connections. Segment South 4 considers USAFA Davis Airfield operations and minimizes impacts

by avoiding higher risk airfield zones. Lateral connections would be extended to Utilities' lift stations.

The six segments described above were combined to form preliminary alignments, each including a north segment and a south segment. The preliminary alignments evaluated in screening are shown in Table 2-1 and on Figure 2-1.

Table 2-1. NMCI Alignments and Segments Considered in Screening.

NMCI Alignment	Segment Considered in Screening
I-25 Alignment	South 1
Central Alignment	South 2
Monument Creek Alignment	South 3
I-25/Monument Creek Alignment	South 4

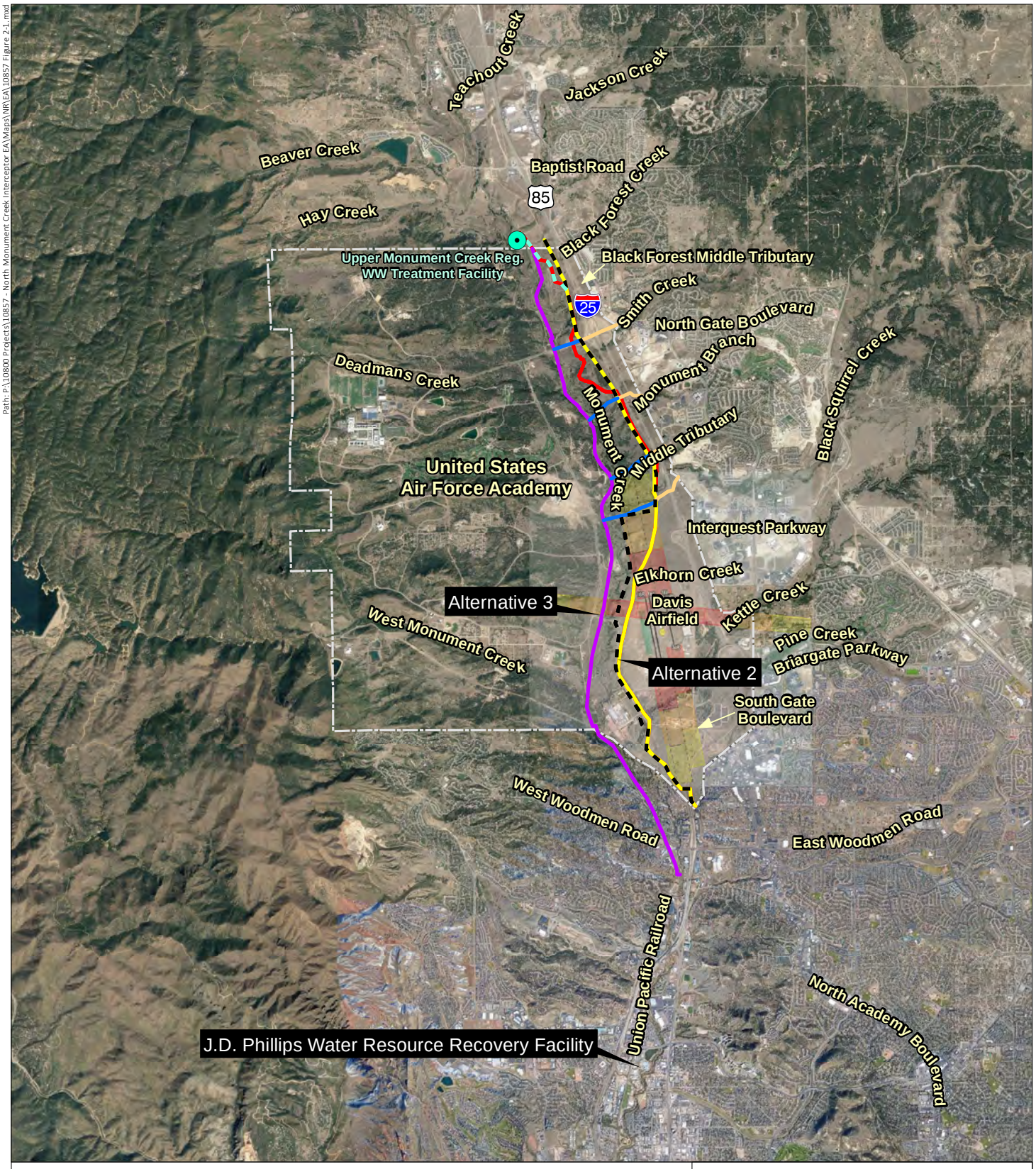
Source: AECOM 2020.

The selection standards described in Section 2.2 were applied to these alternatives to determine which alternatives could allow Utilities and the Northern Entities to consolidate wastewater treatment into a centralized system and would fulfill the purpose and need for the action. An alternatives decision matrix was used to rank the preliminary alternatives (AECOM 2020). The preliminary alternatives developed in the routing study were evaluated by an interdisciplinary team consisting of planners, engineers, and subject matter experts from USAFA and Utilities.

The outcome of this analysis was that Segments South 1 and South 2 were eliminated as described below under Section 2.5 *Alternatives Eliminated from Further Consideration*. During further development of the EA, Segment South 4 was carried forward for analysis in the EA as Alternative 2. Alternative 2 was further refined to avoid the USAFA landfill site, as described below under Section 2.5 *Alternatives Eliminated from Further Consideration*. Segment South 3 was carried forward as Alternative 3 in the EA. In summary, two alternatives, in addition to the No Action Alternative, were identified for evaluation in this EA (Figure 2-2):

- Alternative 1 – No Action Alternative
- Alternative 2 – Eastern Alignment (modified from South 4)
- Alternative 3 – Western Alignment (South 3)

Path: P:\10800 Projects\10857 - North Monument Creek Interceptor EA\Maps\NR\EA\10857 Figure 2-1.mxd



Northern Monument Creek Interceptor Environmental Assessment

- Existing Treatment Facility
- South 1 Segment
- South 2 Segment
- South 3 Segment
- South 4 Segment
- I-25 Lateral
- Monument Lateral
- N2 to S4 Transition
- Accident Potential Zone I
- Accident Potential Zone II
- Clear Zone

0 4,500 9,000 Feet

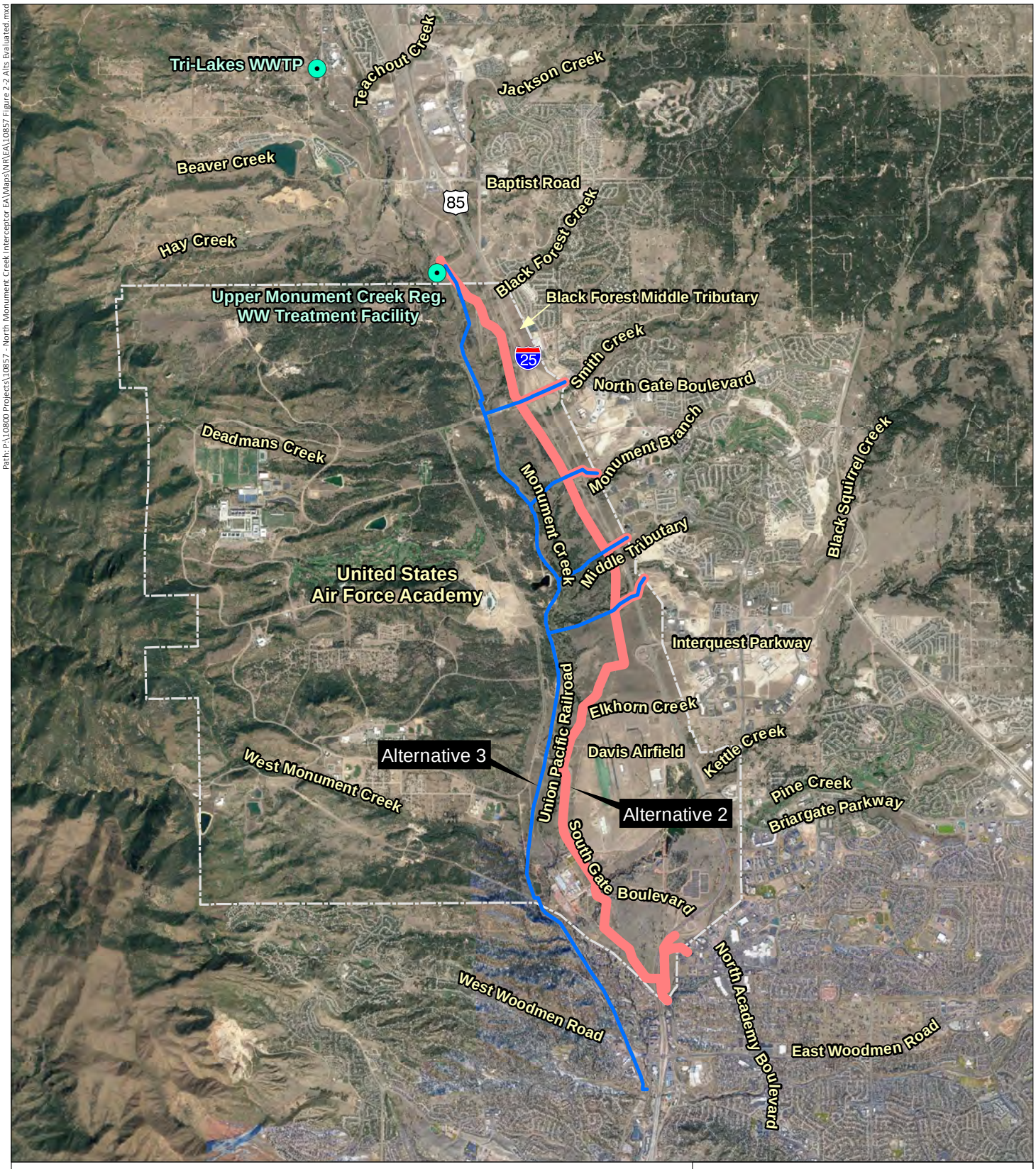
N

Figure 2-1
NMCI Alignments and Segments Considered in Screening

Image Source: Google Earth©, October 2019

Prepared for: Colorado Springs Utilities
File: 10857 Figure 2-1.mxd (GS)
November 10, 2022

ERO Resources Corp.



Northern Monument Creek Interceptor Environmental Assessment

Existing Treatment Facility

Alternative 2 Eastern Alignment

Alternative 3 Western Alignment

Image Source: Google Earth©, October 2019

0 3,500 7,000 Feet

N

Figure 2-2
Alignment Alternatives
Evaluated in the EA

Prepared for: Colorado Springs Utilities
File: 10857 Figure 2-2 Alts Evaluated.mxd (GS)
October 2, 2023

ERO Resources Corp.

Path: P:\10800 Projects\10857 - North Monument Creek Interceptor EA\Maps\NR\EA\10857 Figure 2-2 Alts Evaluated.mxd

2.3 DETAILED DESCRIPTION OF THE ALTERNATIVES

The No Action Alternative and four Action Alternatives are analyzed in the detailed description of the alternatives.

2.3.1 Alternative 1 – No Action Alternative

The No Action Alternative is the continuation of existing conditions of the affected environment (without implementation of the Proposed Action). The No Action Alternative serves as a benchmark against which the Action Alternatives can be evaluated. A no action alternative is required by CEQ regulations and will be carried forward for further analysis in this EA.

In the No Action Alternative, the USAF would not approve the construction, operation, and maintenance of the NMCI and associated facilities within the USAFA boundary, and the NMCI would not be constructed. The Northern Entities and Utilities would continue their current operations by operating and maintaining their existing facilities. The Northern Entities and Utilities would improve their respective WWTFs as needed to meet future hydraulic and organic loadings, and to comply with future regulations. Under the No Action Alternative, the existing Upper Monument Creek WWTF would need to be upgraded at some time in the future to meet Regulation 31 and to have sufficient capacity to meet regulatory needs and population growth. In addition, it is likely that the Northern Entities would eventually reuse their effluent flows as water needs increase in the future. The timing and method of this reuse are unknown. Utilities would maintain its lift stations and increase its respective capacities to meet future flow requirements.

2.3.2 Features Common to the Action Alternatives

The two alternatives carried forward for analysis in this EA (the Action Alternatives) have several features in common. Under both Action Alternatives, wastewater flows would be conveyed from the Northern Entities south to the J.D. Phillips WRRF in Colorado Springs via the NMCI pipeline. It is assumed that the Upper Monument Creek WWTF would continue to be operated by the Donala Water and Sanitation District.

Alternative elements under the Action Alternatives would include:

- Approximately 10.1 to 12.4 miles of new pipeline constructed from between the Northern Entities' wastewater collection systems and the J.D. Phillips WRRF
- Lateral connections constructed for Smith Creek, Monument Branch, Middle Tributary, and Black Squirrel Creek No. 2 (the Farm) lift stations
- Access and staging areas used during construction
- Permanent easements for operation and maintenance of the NMCI, temporary easements during construction, and permanent easements established after construction

2.3.2.1 Pipeline Construction

The NMCI pipeline would be constructed with 30-inch- and 36-inch-diameter pipe. Generally, the pipeline would be constructed within a 100-foot-wide permanent easement and supplemented by a variable temporary construction easement, as necessary. It is anticipated

that the NMCI would generally be constructed on a 25-foot offset of the easement boundary, though this may change based on location-specific engineering and construction requirements. The amount of permanent and temporary easement required to construct the pipeline is based on the depth of the pipeline. The average depth would be 17 to 18 feet and the typical width of temporary disturbance would be 85 to 120 feet. About 500 feet of open trench would typically be present at any time during construction. One pipeline section north of South Gate Boulevard and west of the USAFA Davis Airfield would have a depth of approximately 40 feet and a width of temporary disturbance of approximately 180 feet. Another section just north of South Gate Boulevard would be approximately 30 feet deep with a width of temporary disturbance of approximately 150 feet. Temporarily disturbed areas used for pipeline installation would be reclaimed with native vegetation following construction. Revegetation within the USAFA would follow USAFA revegetation specifications (USAFA 2019). A typical cross section of pipeline construction is shown on Figure 2-3.

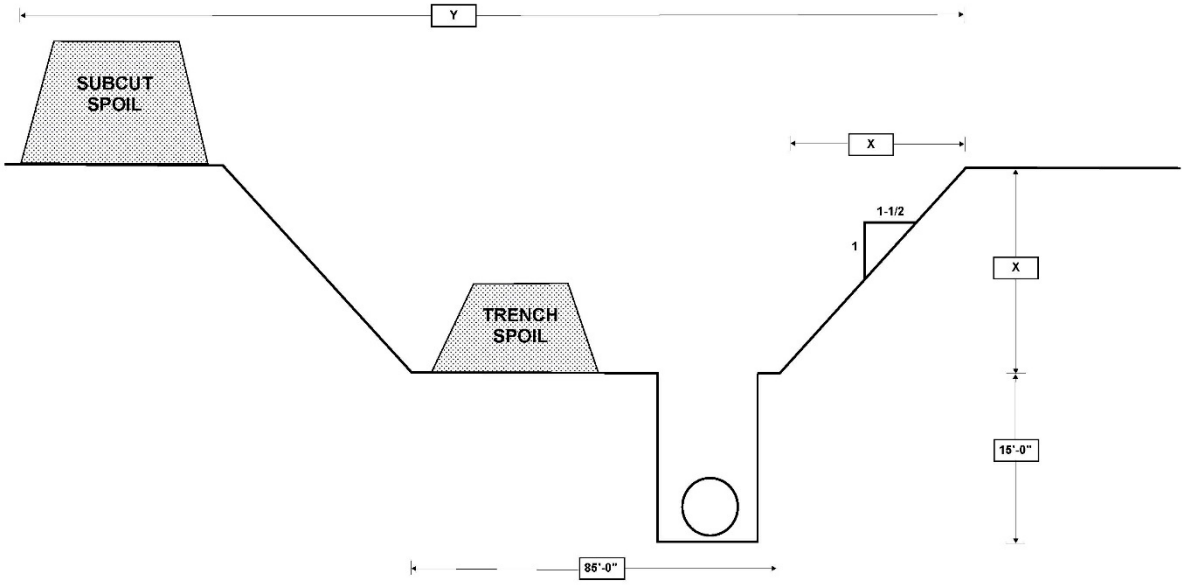


Figure 2-3. NMCI Pipeline Typical Cross Section.

Several bores and inverted siphons would be required at road or stream crossings to minimize impacts on traffic during construction and reduce impacts on natural and cultural resources. Inverted siphons would be directionally drilled and would be constructed with triple barrel consisting of three high-density polyethylene (HDPE) pipes. Siphons are depressed sewers that would remain full with no flow. They are used to cross obstacles like streams and roads where maintaining constant grade is impractical or impossible. Using inverted siphons would reduce the depth of excavation, which would reduce the overall surface disturbance. Bored sections underneath major roads and streams would be constructed with bored pipe with steel pipe encasement. Directionally drilled bores and siphons would not result in surface

disturbance along the length of the drilled area; however, a pit and construction area would be required at one end of each directionally drilled area. An area of approximately 80 by 200 feet would be temporarily disturbed at each directional drilling site to accommodate the pit and drilling equipment during construction. The temporarily disturbed areas would be reclaimed with native vegetation following construction.

2.3.2.2 Lateral Construction

Laterals would consist of 12-inch-diameter pipe constructed with a 50-foot-wide permanent easement and a temporary construction easement ranging from 25 to 50 feet depending on pipe depth and required area for construction. The width of disturbance would generally be the same as described above for the main alignment of the NMCI. An area of approximately 80 by 200 feet would be temporarily disturbed to accommodate the pit and drilling equipment during construction for each bored section. Temporarily disturbed areas would be reclaimed with native vegetation following construction following USAFA revegetation specifications (USAFA 2019). The existing lift stations would eventually be decommissioned after completion of the NMCI and laterals. Because the timing and method of decommissioning are unknown, decommissioning of these facilities is not analyzed in this EA.

2.3.2.3 Access and Staging

Access during construction would generally be from existing roads and within a 150-foot-wide temporary construction easement. The construction easement may be wider in select areas as needed to accommodate areas where the pipe is deeper than 30 feet or where access is needed for directional drilling. Staging would generally occur within the 150-foot-wide temporary construction easement (described below); however, staging and access would also extend beyond this area in select locations as needed.

2.3.2.4 Schedule

Due to budget constraints, construction would occur over about 17 months likely beginning in 2027 or 2028. The typical rate of pipeline installation would be 80 feet per day per crew. The Western Alignment (Alternative 3) would likely take longer due to the longer length and more challenging terrain and is expected to take about 12 to 14 months.

2.3.2.5 Easements

Temporary construction easements would be needed during construction, and would be acquired along the alignment, as necessary. Easements would generally be 150 feet wide but may need to be wider in select locations where the width of disturbance is larger, such as areas where the pipeline is more than 30 feet deep.

Permanent easements would be purchased or acquired along the alignment, as necessary. Permanent easements would be 100 feet wide and would be used for operation and maintenance access. Gravity-fed pipelines generally require little maintenance; the pipeline would need to be cleaned once every 10 years. No road would be needed for permanent access, except as described for a crossing of Monument Creek as described in Alternative 3.

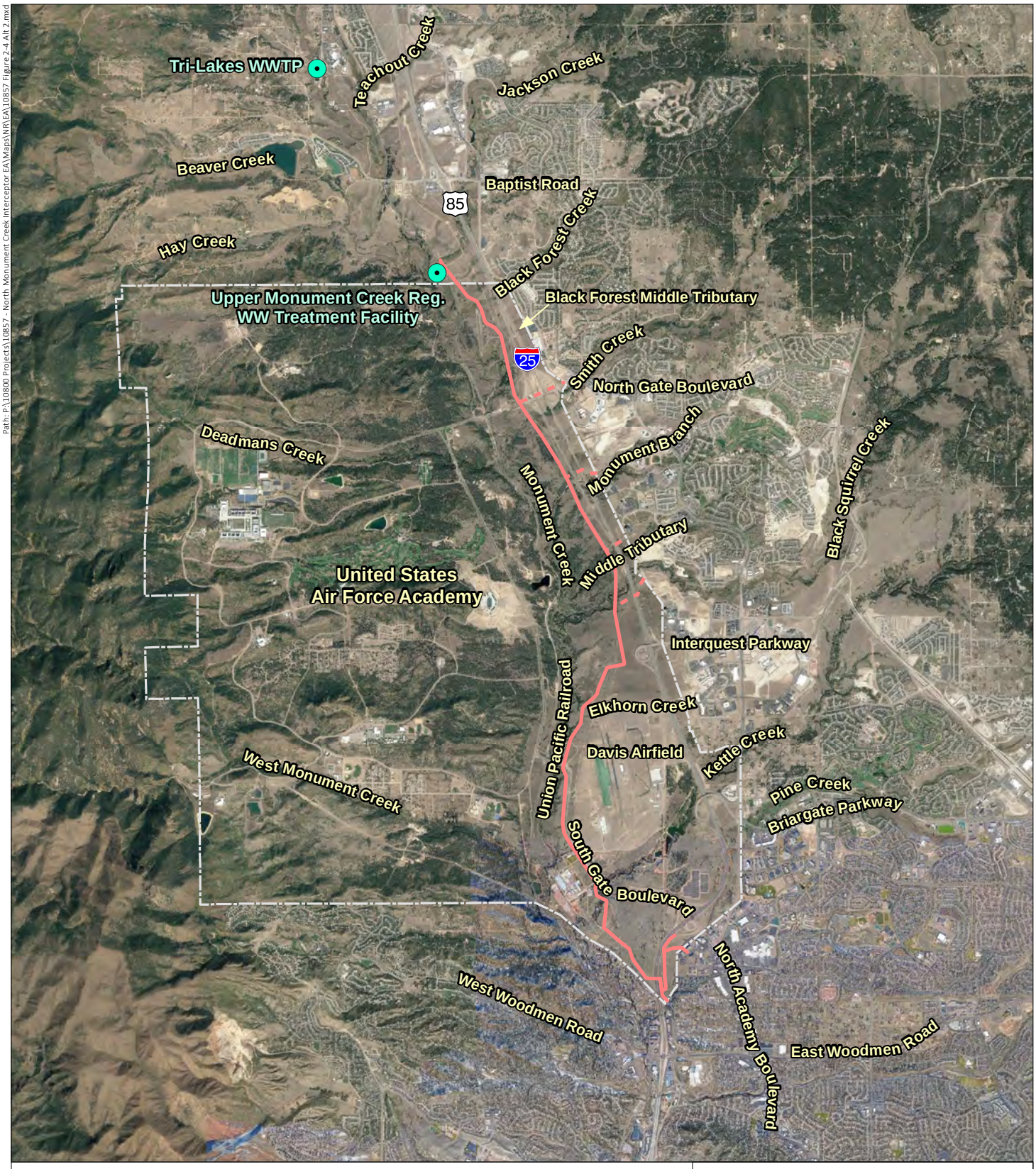
The number of easements varies between the alternatives, and all Action Alternatives would require an easement or similar property right from the USAFA.

2.3.3 Alternative 2 – Eastern Alignment (Preferred Alternative)

Under Alternative 2, Utilities would construct the NMCI along the Segment South 4 alignment south of the USAFA northern boundary, for a total length of approximately 10.1 miles including laterals (Figure 2-4).

2.3.3.1 Pipeline Construction

The alignment for Alternative 2 would start at the Upper Monument Creek WWTF intake. From the USAFA northern boundary, the pipeline would be constructed west of I-25 adjacent to the El Paso County Regional New Santa Fe Regional Trail to the northern side of the USAFA Davis Airfield. At this point, the pipeline would cross perpendicularly through Accident Potential Zone I and the Clear Zone at the airfield. The pipeline would continue south along the eastern side of Monument Creek and then turn east, cross I-25, and connect to the existing Pine Creek Interceptor (Figure 2-4). Construction of Alternative 2, including the NMCI pipeline, laterals, and access and staging would result in about 163 acres of temporary disturbance and 0.25 acre of permanent disturbance.



Northern Monument Creek Interceptor Environmental Assessment

Existing Treatment Facility

Alternative 2 Eastern Alignment

Lateral

Image Source: Google Earth©, October 2019

0 3,500 7,000 Feet

N

Figure 2-4
Alternative 2 Eastern Alignment

Prepared for: Colorado Springs Utilities
File: 10857 Figure 2-4 Alt 2.mxd (GS)
October 2, 2023

ERO Resources Corp.

Path: P:\10800 Projects\10857 - North Monument Creek Interceptor EA\Maps\NR\EA\10857 Figure 2-4 Alt 2.mxd

Alternative 2 would include four inverted siphons and six bored sections (not including laterals). Siphons and bores are summarized in Table 2-2.

Table 2-2. Alternative 2 Siphon and Bore Locations.

Siphon or Bore	Location (North to South)
Bore	Black Forest Creek
Bore	North Gate Boulevard
Bore	Smith Creek
Siphon	Monument Branch
Siphon	Middle Tributary
Siphon	Black Squirrel Creek
Bore	South Gate Boulevard
Bore	Elkhorn Creek
Siphon	Kettle Creek
Bore	I-25

In addition to the inverted siphon creek crossings shown in Table 2-2, Alternative 2 would require a creek crossing at Black Forest Middle Tributary. This creek crossing would be an open-cut trench and would be restored to preconstruction contours after construction and reclaimed with native vegetation.

2.3.3.2 Lateral Construction

Alternative 2 would include construction of at least one lateral connection to the NMCI from the Middle Tributary lift station. Up to three other lateral connections to the NMCI from the Smith Creek, Monument Branch and Black Squirrel Creek No. 2 (the Farm) lift stations would possibly be built in the future.

- Middle Tributary Lateral – The Middle Tributary Lateral would extend approximately 1,300 feet from the Middle Tributary lift station to connect with the NMCI just west of I-25. The Middle Tributary Lateral would include a bore under I-25.
- Smith Creek Lateral – The Smith Creek Lateral would extend approximately 4,120 feet from the Smith Creek lift station to connect with the NMCI just west of I-25. The Smith Creek Lateral would include bores under Struthers Road, the I-25 on-ramp, I-25, and the I-25 off-ramp.
- Monument Branch Lateral – The Monument Branch Lateral would extend approximately 1,864 feet from the Monument Branch lift station to connect with the NMCI just west of I-25. The Monument Branch Lateral would include a bore under I-25.
- Black Squirrel Creek No. 2 Lateral – The Black Squirrel Creek No. 2 Lateral would extend approximately 2,700 feet from the Black Squirrel Creek No. 2 (the Farm) lift station to connect with the NMCI west of I-25. The Black Squirrel Creek No. 2 Lateral would include a bore under I-25.

2.3.4 Alternative 3 – Western Alignment

Under Alternative 3, Utilities would construct the NMCI along the Segment South 3 alignment south of the USAFA northern boundary (Figure 2-5). Alternative 3 would parallel Monument Creek and the Union Pacific Railroad and follows a more western alignment than Alternative

2. The total length of the NMCI under Alternative 3 would be approximately 12.4 miles including laterals. The Smith Creek, Monument Branch, Middle Tributary, and Black Squirrel Creek No. 2 laterals would be longer than in Alternative 2 because they would be extended further west to connect to the more western location of the NMCI and would require additional crossings of Monument Creek.

2.3.4.1 Pipeline Construction

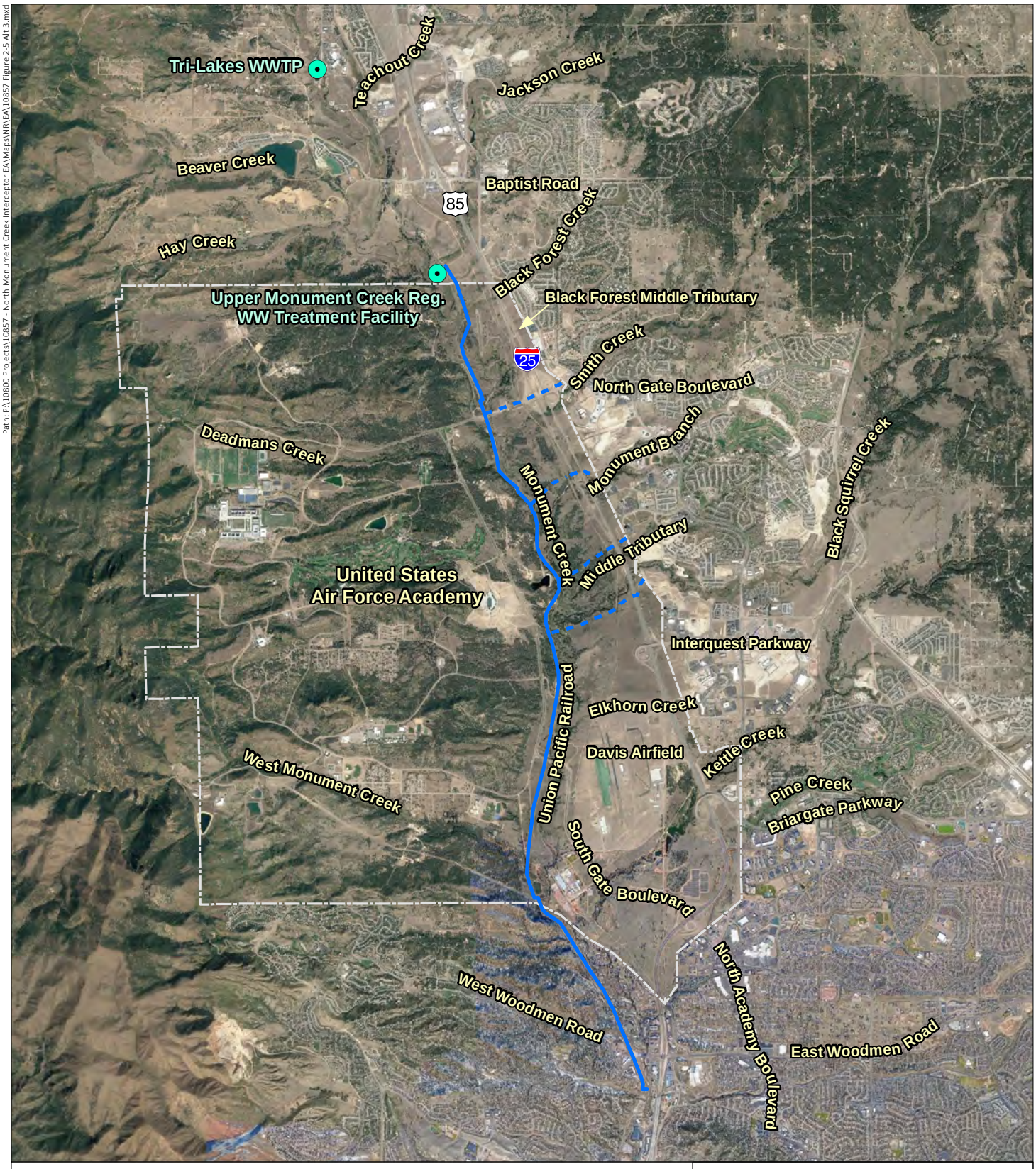
The alignment for Alternative 3 would convey flows from the Upper Monument Creek WWTF intake and would continue south following Segment South 3. Pipeline size and construction methods would be the same as described for Alternative 2. Construction of Alternative 3, including the NMCI pipeline, laterals, and access and staging would result in about 193 acres of temporary disturbance and 2.8 acres of permanent disturbance.

Alternative 3 would include 1 inverted siphon and 9 bored sections along the NMCI, not including the laterals. Siphons and bores are summarized in Table 2-3.

Table 2-3. Alternative 3 Siphon and Bore Locations.

Siphon or Bore	Location (North to South)
Siphon	Monument Creek
Bore	Union Pacific Railroad
Bore	Black Forest Creek
Bore	North Gate Boulevard
Bore	Deep Section (40 feet)
Bore	Deep Section (50 feet maximum)
Bore	Deep Section (60 feet maximum)
Bore	South Gate Boulevard
Bore	Union Pacific Railroad

In addition to the inverted siphon creek crossing shown in Table 2-3, Alternative 3 would require creek crossings at Deadmans Creek, two unnamed tributaries to Monument Creek, and West Monument Creek. These creek crossings would be open-cut trenches and would be restored to preconstruction contours after construction and reclaimed with native vegetation.



Path: P:\10800 Projects\10857 - North Monument Creek Interceptor EA\Maps\NR\EA\10857 Figure 2-5 Alt 3.mxd

Northern Monument Creek Interceptor Environmental Assessment

Existing Treatment Facility

Alternative 3 Western Alignment

Lateral

Image Source: Google Earth©, October 2019

0 3,500 7,000 Feet

N

Figure 2-5
Alternative 3 Western Alignment

Prepared for: Colorado Springs Utilities
File: 10857 Figure 2-5 Alt 3.mxd (GS)
November 8, 2022

ERO Resources Corp.

2.3.4.2 Lateral Construction

Alternative 3 would include construction of four lateral connections to the NMCI from the Smith Creek, Monument Branch, Middle Tributary, and Black Squirrel Creek No. 2 (the Farm) lift stations; however, the laterals would be longer than for Alternatives 2 and 3 because they would cross Monument Creek to connect with the NMCI.

- Smith Creek Lateral – The Smith Creek Lateral would extend approximately 5,941 feet from the Smith Creek lift station to connect with the NMCI just west of Monument Creek. The Smith Creek Lateral would include bores under Struthers Road, the I-25 on-ramp, I-25, and the I-25 off-ramp and an inverted siphon under Monument Creek.
- Monument Branch Lateral – The Monument Branch Lateral would extend approximately 4,198 feet from the Monument Branch lift station to connect with the NMCI just west of Monument Creek. The Monument Branch Lateral would include a bore under I-25 and an inverted siphon under Monument Creek.
- Middle Tributary Lateral – The Middle Tributary Lateral would extend approximately 4,262 feet from the Middle Tributary lift station to connect with the NMCI just west of Monument Creek. The Middle Tributary Lateral would include a bore under I-25 and an inverted siphon under Monument Creek.
- Black Squirrel Creek No. 2 Lateral – The Black Squirrel Creek No. 2 Lateral would extend approximately 6,109 feet from the Black Squirrel Creek No. 2 (the Farm) lift station to connect with the NMCI west of Monument Creek. The Black Squirrel Creek No. 2 Lateral would include a bore under I-25 and an inverted siphon under Monument Creek.

2.3.4.3 Additional Disturbance for Access

In addition to the access and staging areas previously described, Alternative 3 would require construction of a permanent crossing of Monument Creek to access a section of proposed pipeline that is situated between the railroad alignment and Monument Creek just north of North Gate Boulevard. A bridge or culverted creek crossing and access road would be required to construct this section and would need to be maintained as a permanent easement to provide access to this section of the pipeline. The access road would be constructed in a corridor about 30 feet wide and about 1,000 feet long. These impacts are included in the 2.8 acres of permanent disturbance described above.

2.4 RESOURCE PROTECTION MEASURES

Utilities, with cooperation from USAFA, would be responsible for implementing, funding, and monitoring the following resource protection measures and standard Best Management Practices (BMPs) into the project design to reduce environmental impacts. Construction specifications developed during final design would include detailed requirements for implementing these measures. Specific mitigation measures to address impacts on federally listed threatened and endangered species and cultural resources are also listed below.

2.4.1 General Measures

General construction-related measures would be:

- Silt fences would be used to protect wetlands and other sensitive sites.
- Construction staging areas would be limited to areas of disturbance.
- Equipment would not be serviced or refueled near streams, and all chemicals and petroleum products would be stored and contained away from water sources.
- Vehicle tracking control devices would be placed at the site entrance(s).
- Biodegradable erosion-control blankets would be placed on newly seeded steep slopes to control erosion and promote vegetation establishment.
- When conducting future inspections on manholes and accessways, different routes would be used for access to avoid forming roads.
- All hazardous material use would require contractor compliance with applicable federal and state laws.
- Prior to construction of project facilities, a more detailed hazardous materials assessment in conformance with the scope and limitations of DAFI32-7020: Environmental Restoration Program dated December 15, 2020 would be conducted to identify sites with soil or groundwater contamination that are not documented in readily ascertainable agency files (DAF 2020).
- If soil or groundwater contamination is encountered during construction of project facilities, mitigation procedures would be implemented to minimize the risk to construction workers and to the future operation of the project. Vehicle traffic would be managed within the construction zone and contractor hauling of materials, supplies, and equipment would be controlled.
- A risk assessment would be prepared by USAFA, in cooperation with Utilities, to assess and evaluate risks to aviation in the Air Installation Compatible Use Zones (AICUZ). The risk assessment would require approval by the USAFA superintendent and airfield leadership and would consider the length of time for construction within the AICUZ, type of equipment, number of workers, and mitigation measures. Mitigation measures would be developed as part of the risk assessment and could include night work or other restrictions on timing of work and high visibility flagging on equipment.
- Should any cultural resources, other than those previously recorded, be uncovered during construction, work would stop at the subject site, and the site would be evaluated in accordance with 36 CFR 800.13 of the National Historic Preservation Act (NHPA) prior to continuing work in the affected area. If the resource is determined significant, adverse effects on the resource would be resolved in a method appropriate for the resource (e.g., data recovery excavation or Office of Archaeology and Historic Preservation (OAHP) Level II Historic Resource Documentation) in accordance with

36 CFR 800.6 of the NHPA. In addition, any mitigation measures developed during tribal and Colorado State Historic Preservation Officer (SHPO) consultation would be implemented to protect cultural resources.

- Methods for prevention and noxious weed management described in the Integrated Noxious Weed Management Plan (Smith et al. 2015) would be implemented during and following construction. The site would be monitored following construction to manage potential infestations.
- Areas of removed vegetation would be revegetated with native seed mixes according to the USAFA's *Section 01351 Site Restoration, Revegetation and Tree Care Specifications* (USAFA 2019). Seed mixes for upland grasslands and riparian/wetland areas are provided in the BA (ERO 2021).
- A Stormwater Pollution Prevention Plan would be prepared, and a Notice of Intent would be filed with the CDPHE for coverage under the United States Environmental Protection Agency's (EPA) National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges from Construction Activities #COR10000F.
- An Air Pollutant Emission Notice would be submitted to the CDPHE if required.
- Surveys for nesting birds would be conducted in areas proposed for disturbance and, if active nests are identified in the disturbance area, ground-disturbing activities would be delayed until the nesting and fledging process is complete; or alternatively, a Depredation Permit would be obtained from the USFWS.
- The USAFA would adhere to the terms and conditions of the Preble's Conservation Agreement (U.S. Fish and Wildlife Service (USFWS) 2009).

2.4.2 Mitigation Measures from the Biological Assessment

The USAFA and Utilities would adhere to all additional Preble's conservation measures developed during consultation with the USFWS would be implemented, including meeting specific success criteria in Preble's habitat as outlined in the Biological Assessment (BA; ERO Resources Corporation (ERO) 2023):

- All temporary impacts on low-quality habitat will be mitigated at a 1:1 ratio by reseeding with a native seed mix as described in the BA.
- Utilities and USAFA would mitigate permanent and temporary impacts by installing mitigation over 2.1 acres of land (in addition to restoration in place). Utilities and USAFA would plant about 850 cottonwood and peachleaf willow trees over 2.1 acres of land on benches adjacent to Monument Creek in the northern portion of USAFA. Cottonwood and peachleaf willow poles would be planted at a density of about 8 feet-on center. Installation of woody vegetation would help stabilize portions of Monument Creek and provide habitat for several species in addition to Preble's. The exact location of tree and shrub plantings will be determined by representatives from the USFWS, USAFA, and Utilities in the field following construction.

- Monitoring and measured success criteria will be done in accordance with the existing MOU between the USAFA and Utilities (ERO 2011) as described below and will abide by the following parameters:
    - A qualified ecologist or landscape architect will supervise the implementation of restoration and enhancement.
    - Annual mitigation monitoring will be conducted during the growing season and an annual monitoring report will be submitted to USAFA and USFWS before December 1 of each year and will extend for five years after completion of the mitigation installation or until project regulators determine that the success criteria have been met.
    - Problems that could prevent or interfere with the establishment of the mitigation area will be brought to the attention of the project engineer and project regulators.
    - The project engineer will review and approve alterations to the mitigation area design necessary for successful mitigation.
    - All recommended remedial actions will be communicated to the project team and will be implemented after they have been approved by the project regulators.
- Minimum success criteria have been developed to quantify the progress and final attainment of Project mitigation. The mitigation metrics assume that after five years, the vegetation will likely be stable and regenerating so that a quality upland and riparian community will establish in the near term. The minimum success criteria are as follows:
    - Areas of temporarily disturbed woody vegetation must be revegetated with appropriate native woody vegetation.
    - Disturbed areas must be revegetated to a density of woody vegetation similar to the disturbed area prior to the disturbance.
    - The replanted area should generally be the same area that was disturbed.
- The following criteria will be used to assess the success of mitigation efforts. These minimum standards must be met at the end of two growing seasons for revegetation to be considered successful, and hence, to be released from monitoring requirements:
    - For upland areas, the combined canopy cover of grasses, forbs, and shrubs will be at least 70 percent of the preexisting cover. At least 50 percent of the canopy cover will consist of native perennial grasses and forbs.
    - Seventy percent of willow stake, willow bundles, pole plantings, and replacement trees and shrubs must survive at least two years.

- State-listed noxious weeds will be controlled following USAFA's Integrated Noxious Weed Management Plan (CNHP 2015) to prevent competition with the planted vegetation. Noxious weeds will not exceed 5 percent canopy cover in the revegetated areas.
- Upland sites will be adequately stabilized to prevent gullying, severe rill erosion, and stream sedimentation. Areas of soil instability will be promptly treated (e.g., riprap, silt fence, erosion matting, and hay bales) to prevent further site degradation beyond that found during preconstruction.

2.4.3 Mitigation Measures from the Section 106 Mitigation Memorandum of Agreement

The USAFA and Utilities would adhere to the Memorandum of Agreement among the SHPO, USAFA, Utilities and with the Southern Ute Indian Tribe as a concurring party (Appendix C). The Memorandum includes the following mitigation measures:

- Level II Documentation
  - Using one or more cultural resource professionals meeting the Secretary of the Interior's (SOI) Historic Preservation Professional Qualification Standards for the applicable field (see 48 FR 44716, September 29, 1983 and FR 33708, June 20, 1997), Utilities in close coordination with USAFA will complete Level II documentation of 5EP1003.6 and 5EP1003.24 as outlined in "Historic Resource Documentation Standards for Level I, II, and III Documentation" (Office of Archaeology and Historic Preservation Publication #1595). Rather than supplying film negatives, as specified within the guidelines, a digital copy of the images along with a photo inventory will be submitted on an archival quality CD.
  - As part of the Level II documentation, Utilities' cultural resource professional(s) will render a measured drawing depicting up to three representative elevations perpendicular to each segment's impacted grade and two elevations along center line of each segment's impacted grade. Measured drawings also will be rendered of the trestle bridge remains (F6, F9, and F11) of 5EP1003.6 and F3 (trestle bridge remains) and F4 (culvert) of 5EP1003.24, as those features exist today. Copies of historic engineering plans will also be included, if available from the Colorado State Archives, History Colorado, Denver Public Library, or the Colorado Railroad Museum.
  - The USAFA will review the draft Level II documentation and will submit a copy of the Level II documentation to the SHPO. The Level II documentation will be subject to SHPO review and approval. USAFA will provide SHPO 30 days from receipt of the documentation for review of and comment on the documentation. The SHPO will notify USAFA, copying Utilities, that the Level II documentation is approved or disapproved. Comments will be provided by the SHPO so that the USAFA and Utilities may revise such documentation, if applicable.

- After SHPO approval, Utilities will submit a final copy of Level II documentation to the USAFA and the SHPO for its records.
- Utilities will not commence construction and/or any earth disturbances at pertinent portions of 5EP1003.6 and 5EP1003.24 until the draft Level II documentation is approved by USAFA and SHPO.

- Public Interpretation
  - Using the Level II documentation, Utilities will design two durable, professional quality, interpretive signs. The signs will measure about 28 inches by 46 inches and will consist of a horizontal fiberglass sign with 2 inch by 4 inch aluminum tubing frame consistent with existing signage in the USAFA Cadet Look-out area. Sign 1 will portray the engineering design and significance of the Atchison, Topeka & Santa Fe Railroad (originally the Denver & Santa Fe Railroad) as an early transportation route across the state of Colorado. Sign 1 will also incorporate Indigenous perspective on railroad development along the Colorado Front Range and the development's impact on Indigenous communities. Sign 2 sign will portray the associated ranches (e.g., 5EP1992 and 5EP1574) and/or other contemporary land use activities that surrounded the railroad sidings such as East Husted (5EP2250) and discuss the importance of the railroad in relation to these resources. Archival photographs and engineering plans would be included, if available.
  - The USAFA will review draft sign designs and submit a copy of the draft sign designs and proposed installation locations to the SHPO and SUIT and provide SHPO and SUIT 30 days from receipt of the drafts for review of and comment on the drafts. Installation locations will be on USAFA property in areas accessible to the public. Possible locations include, but are not limited to, public parking areas or along publicly accessible recreational trails in the vicinity of the affected resources and thematically associated resources. SHPO will provide any comments to USAFA. The USAFA and Utilities will address any comments made and revise the drafts as necessary.
  - Once the drafts are agreed to by SHPO and USAFA, Utilities will install the interpretive signs within one year after completion of project construction.
  - Utilities will provide USAFA documented evidence of the installation within 30 days of it occurring. The USAFA will provide the SHPO with a copy of the documentation, and notification that the commitment of Stipulation II is complete.

- Monitoring and Reporting
  - Following execution of the MOA until it expires or is terminated, Utilities on behalf of USAFA annually (on or before January 31) will provide to the signatories a summary report detailing work undertaken pursuant to its terms. Utilities will include in this report a summary of the status and SHPO/USAFA

review of the Level II documentation, implementation of public interpretation as described under Stipulation II, any scheduling changes, problems encountered, and any disputes and objections received during Utilities' and USAFA's efforts to carry out the terms of the MOA.

2.5 ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION

During the screening of alternatives described above, several components or options initially considered were eliminated. The alternatives or components described below have been eliminated from further consideration because of impacts on the AICUZ, because they would be poorly located to connect with existing and proposed sewer systems, because of potential impacts on the USAFA landfill site, or because they are no longer needed due to changes in the project scope.

2.5.1 Segment North 1

Located north of the USAFA property boundary, this alignment would convey Tri-Lakes WWTF wastewater flow southeast to align with various southern segment alignments through the USAFA property. This component was eliminated because Tri-Lakes WWTF and its operating entities opted not to participate in the NMCI project.

2.5.2 Segment North 2

Located north of the USAFA property boundary, this alignment would convey Tri-Lakes WWTF wastewater flow south to align with the various southern segment alignments through the USAFA property. This component was eliminated because Tri-Lakes WWTF and its operating entities opted not to participate in the NMCI project.

2.5.3 Segment South 1

Segment South 1 would follow an easterly alignment across the USAFA, just west of I-25. This alignment segment was eliminated due to encroachment within the Clear Zone during construction and resulting impacts on Davis Airfield operations. Segment South 4 was developed as a variation of this alignment that would have fewer impacts on airfield operations. Although the Preferred Alternative would also involve construction within the David Airfield Clear Zone, impacts would be less than Segment 1.

2.5.4 Segment South 2

Segment South 2 would cross the eastern portion of the USAFA and follow generally the same alignment as Segment 1, with some differences in the northern portion of USAFA. In addition, Segment South 2 was eliminated for the same reasons as Segment 1 South and because it scored lower than Segment 4 in the routing study due to greater natural and cultural resource impacts (AECOM 2020).

2.5.5 Kettle Creek Lateral

In the initial design evaluation, Utilities considered constructing a pipeline lateral to capture flows from the Kettle Creek lift station and convey them to the proposed NMCI. Through the

evaluation process, it was determined that the Kettle Creek lift station must remain in operation and not convey flows to the NMCI. The Kettle Creek sewer lateral was dismissed to reduce impacts on the USAFA Davis Airfield runway Clear Zone. Therefore, no sewer lateral is proposed for the Kettle Creek lift station.

2.5.6 Alignment through USAFA Landfill Site

A preliminary alternative was developed that would have crossed the Site 6 Landfill site (USAFA landfill site), which was operated as a municipal waste landfill from 1972 to 1978 and consists of about 15 acres. In December 2011, an environmental covenant was placed on the site that included use restrictions (CDPHE 2011) and groundwater and surface water monitoring. Although this alignment would have reduced encroachment within Air Installation Compatible Use Zones at the USAFA Davis Airfield, it would have also involved trenching through the landfill, with the potential to unearth debris, including potentially hazardous materials. This alignment was dismissed after an alternate alignment was identified that would not require excavation within the USAFA landfill site.

These alternatives are not carried forward for analysis in this EA.

This page is intentionally left blank.

3.0 AFFECTED ENVIRONMENT

The Region of Influence for the Proposed Action is the limits of disturbance for the proposed construction of the pipeline, unless otherwise specified below for a particular resource area where a resource would have a different Region of Influence.

3.1 SCOPE OF THE ANALYSIS

This chapter describes the current conditions of the environmental resources, either man-made or natural, that would be affected by implementing the Action Alternatives or the No Action Alternative.

The following topics were carried forward for detailed analysis in this EA:

- Air Installation Compatible Use Zones
- Noise
- Air Quality
- Water Resources
- Hazardous Materials/Waste
- Biological/Natural Resources
- Cultural Resources
- Recreation

Based on the scope of the Proposed Action, issues with minimal or no impacts were identified through a preliminary screening process. The following describes those resource areas not carried forward for a detailed analysis, along with the rationale for their elimination. Regardless of the alternative selected, the following resources would not be affected by the Proposed Action and are not discussed in detail in this EA:

- ***Utilities/Transportation Resources:*** The Proposed Action would not involve disruption of utility services. Construction activity would result in minor increases to local traffic; however, these increases would be temporary and cease once the project is complete. As a result, the USAF anticipates no significant short- or long-term adverse impacts, and this resource area was not carried forward for detailed analysis. There would be no significant impacts on *Utilities/Transportation Resources*. For these reasons, utilities/transportation resources were not assessed further in this EA.
- ***Safety and Occupational Health:*** The contractor would develop a site-specific health and safety plan for the project. The contractor would safeguard USAFA personnel and the public through signage, security, and compliance with construction permits, as appropriate. Before construction, the contractor would ensure that a USAF Form 103, Base Civil Engineering Work Clearance Request, is coordinated through the USAFA, including the USAFA Safety Office. Flight safety would not be impacted because no part of the Proposed Action would employ or influence airspace operations or air traffic management at or around the USAFA. Flight safety is addressed in greater detail under Air Installation Compatible Use Zones. For these reasons, safety and occupational health was not analyzed in detail in this EA.
- ***Land Use:*** Construction of the NMCI would not affect land use. All surface disturbance would be temporary, except for small impacts from the addition of new manholes. As a

result, the USAF anticipates no significant short- or long-term adverse impacts, and this resource was not carried forward for detailed analysis in this EA.

- ***Earth Resources:*** Earth resources include geology, soils, and topography. The Proposed Action would involve excavation and directional drilling. Any excess excavated soil or rock would be disposed of offsite. Standard BMPs would be implemented to minimize soil erosion during construction activities. Sedimentation patterns would not be notably altered and no structural movements or changes in seismicity would result. Therefore, there would be negligible impacts on geology and soils from implementing the Proposed Action. For these reasons, earth resources were not analyzed in detail in this EA.
- ***Paleontological Resources:*** Only one known paleontological locality is present in the vicinity of the NMCI. This known site is not within the limits of disturbance of any of the alternatives and would not be impacted by construction. Therefore, paleontological resources were not carried forward for detailed analysis in this EA.
- ***Socioeconomic Resources:*** Funding for construction of the NMCI is being provided by Utilities and the Northern Entities. Local construction crews would be used for construction. The proposed project would not alter socioeconomic factors such as changes in local economic bases, salary levels, land use zoning, plans or programs of other agencies, or a particular socioeconomic group. Although the project would increase short-term employment, no substantial change to economic factors from the proposed construction activities or long-term operation of the NMCI would occur. For these reasons, socioeconomic resources were not assessed further in this EA.
- ***Environmental Justice:*** Executive Order 12898 requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. None of the alternatives would have disproportionately high and adverse effects on minorities or low-income populations or communities. Consequently, this topic was dismissed from detailed analysis in this EA.

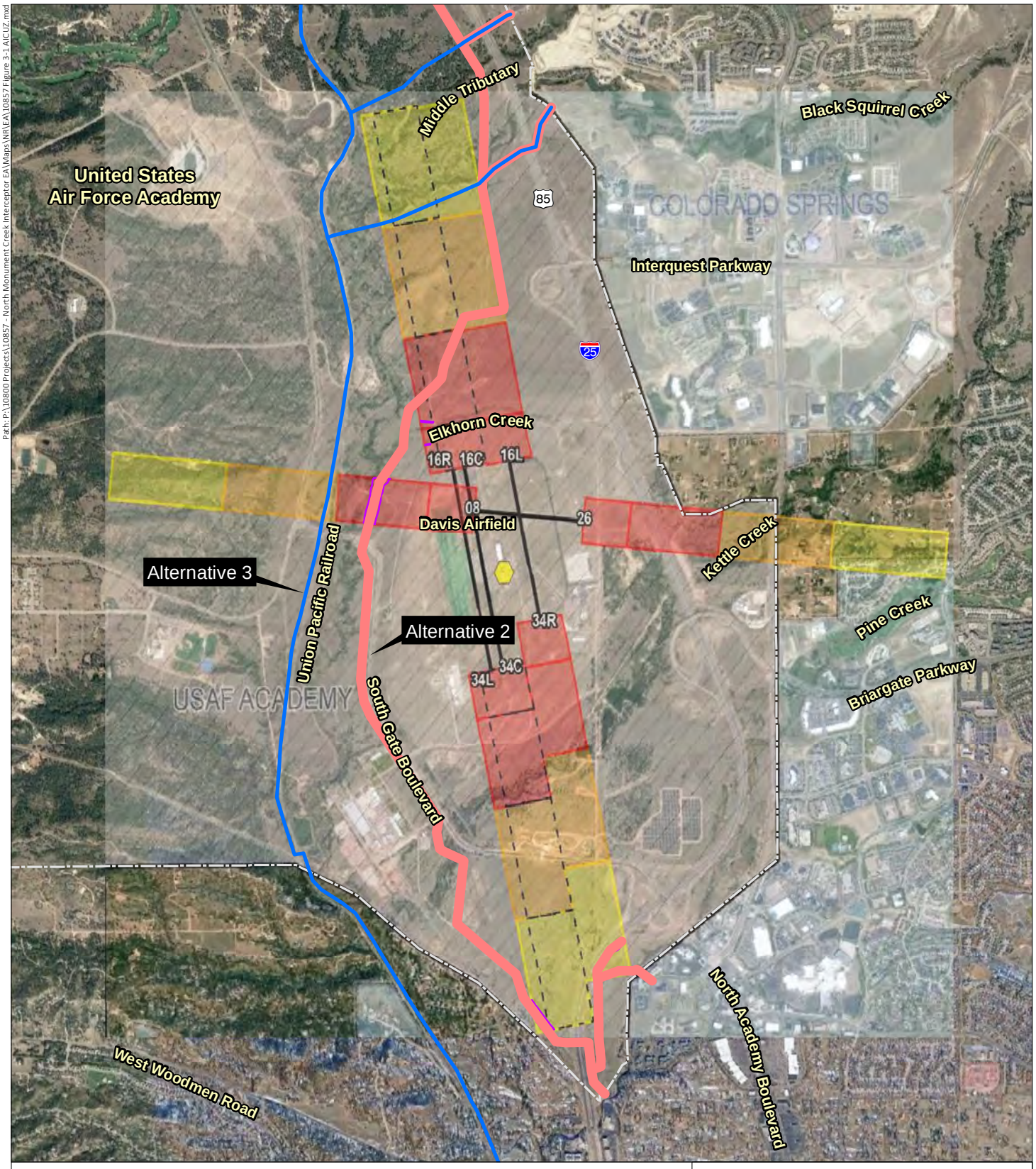
3.2 AIR INSTALLATION COMPATIBLE USE ZONES (AICUZ)

The USAFA Davis Airfield is located at the southeast end of the USAFA. The airfield has three parallel north–south runways (west, center, and east); a crosswind (east-west) runway; and an artificial turf sailplane landing area. Bordering the runways are the two primary areas for flight line buildings and hangars. This airfield is the primary location for cadet flight-related training, parachute training, and water survival training. The Aero Club uses the airfield as well, including times when the USAFA is not using it for training. The airfield only operates during daylight hours, and the airfield is closed for a 10-day window over the holidays.

In association with the airfield, the AICUZ program was developed to protect local citizens from noise and potential accidents associated with flying activities. The program also was intended to prevent degradation of the USAF's capability to achieve its mission by promoting compatible land use planning.

The USAFA has a Class A runway with a Clear Zone 500 feet to each side of the centerline and a 1,000-foot-wide corridor extending from the runway threshold along the extended runway centerline for 3,000 feet. Three zones were established based on crash patterns: the Clear Zone, Accident Potential Zone I, and Accident Potential Zone II (Figure 3-1). The Clear Zone starts at the end of the runway and extends outward 3,000 feet. Within the Clear Zone, most uses are incompatible with military aircraft operations. The Clear Zone has the highest accident potential of the three zones. The USAF has adopted a policy of acquiring property rights to areas designated as Clear Zones because of the high accident potential. In general, the USAF (or others under a USAF permit) must not plan, locate, or construct a new use or facility within the boundaries of the Clear Zone (USAF 2019). Rights-of-way for communications and utilities, provided all facilities are at grade level or underground, are an allowed use. For Class A runways, such as the existing USAFA runways, Accident Potential Zone I extends from the Clear Zone an additional 2,500 feet. Accident Potential Zone I includes an area of reduced accident potential. Accident Potential Zone II extends 2,500 feet from Accident Potential Zone I in an area of further reduced accident potential. The required width for all zones is 1,000 feet for a Class A runway.

Path: P:\10800 Projects\10857 - North Monument Creek Interceptor EA\Maps\NR\EA\10857 Figure 3-1 AICUZ.mxd



Northern Monument Creek Interceptor Environmental Assessment

- Alternative 2 Eastern Alignment
- Alternative 3 Western Alignment
- Accident Potential Zone I
- Accident Potential Zone II
- Clear Zone

0 1,500 3,000 Feet

N

Figure 3-1
Air Installation Compatible Use Zones

Image Source: Google Earth©, October 2019

Prepared for: Colorado Springs Utilities
File: 10857 Figure 3-1 AICUZ.mxd (GS)
September 29, 2023

ERO Resources Corp.

3.3 NOISE

Aircraft are the primary source of noise at the USAFA. Additional sources of noise in the project area include I-25 and other roads. The level of noise exposure from aircraft varies depending on the aircraft type, engine power setting, altitude flown, direction of the aircraft, flight track, temperature, relative humidity, frequency, and time of operation. The types of aircraft based at or operating transiently at the USAFA, the number of flights conducted at the airfield, and the resulting noise levels are described in detail in the AICUZ study (USAF 2019).

Noise exposure over time is measured at the USAFA using a metric called the “Day-night Average Sound Level” (DNL). DNL was created by the EPA and is used throughout the United States. The AICUZ study presents noise contours developed for the USAFA using the Department of Defense standard model for assessing noise exposure from military aircraft operations at air installations, NOISEMAP (USAF 2019). Noise modeling shows that aircraft noise levels exceeding 55 decibels (dB) DNL are limited to the areas surrounding the Davis Airfield and Bullseye Auxiliary Field and do not extend beyond the USAFA boundary, although aircraft noise does occur beyond these areas (USAF 2019).

Ambient noise levels for portions of the project area that are not near the AICUZ are generally less than 55 dB (USAF 2019). Daytime ambient noise levels in the project area have not been directly measured but are expected to be similar to other urban and rural areas. Typical ambient noise levels range from about 70 dB near busy streets (such as I-25), about 50 dB in quiet developed areas in the daytime, to about 25 dB in quiet rural areas during the nighttime.

3.4 AIR QUALITY

The EPA has established the National Ambient Air Quality Standards (NAAQS), which are maximum allowable atmospheric concentrations for several pollutants including carbon monoxide (CO), nitrogen dioxide, sulfur dioxide (SO_2), particulate matter less than or equal to 10 micrometers in diameter (PM_{10}), particulate matter less than or equal to 2.5 micrometers in diameter ($PM_{2.5}$), and ozone (O_3).

The project area is within the Pikes Peak region, which consists of El Paso and Teller Counties, and is one of eight multicounty areas used by the Colorado Air Pollution Control Division of the CDPHE to monitor local air pollution conditions within the state. The Pikes Peak region currently has four active monitoring stations, which monitor for one or more of CO, SO_2, PM_{10}, $PM_{2.5}$, and O_3 (CDPHE 2019). One of the four Pikes Peak region monitoring stations is located at the USAFA (near the south entrance along Monument Creek) and has monitored for O_3 since June 1996. The other three monitoring stations are located at Manitou Springs, Colorado College, and Highway 24 in Colorado Springs. The Pikes Peak region is currently in compliance with federal air quality standards. However, two exceedances of the SO_2 standard were observed at the Highway 24 monitoring station during 2014-2015. These elevated values have not resulted in a violation of the NAAQS, and SO_2 concentrations have been trending downward at the Highway 24 site since 2016 (CDPHE 2019).

The EPA General Conformity Rule, established under the Clean Air Act (Section 176(c)(4)), applies to federal actions occurring in nonattainment or maintenance areas when the total direct and indirect emissions of nonattainment pollutants (or their precursors) exceed specified thresholds. The emissions thresholds that trigger requirements for a conformity analysis are called *de minimis* levels. *De minimis* levels (in tons per year [tpy]) vary by pollutant and also depend on the severity of the nonattainment status for the air quality management area in question. El Paso County is classified as a maintenance area for CO (carbon monoxide), with a general conformity threshold of 100 tpy. El Paso County is classified as an attainment area for all other criteria pollutants.

Air emission sources within and near the project area include vehicles entering the USAFA, vehicles using other local roads and I-25, boilers, water heaters, fuel storage tanks, fuel service stations, and paint booths.

3.5 WATER RESOURCES

Water resources include surface water and groundwater and the relationship to the Proposed Action and potential effects on Monument Creek hydrology and water quality.

Surface Water. The main surface water feature in the project area is Monument Creek, which flows north to south. Monument Creek is a perennial stream in the 148,830-acre Monument Creek watershed, which is part of the upper Arkansas River water basin. Streams in the project area flowing into Monument Creek include Beaver Creek, Hay Creek, Deadmans Creek, West Monument Creek, Black Forest Creek, Smith Creek, Black Squirrel Creek, Kettle Creek, Elkhorn Creek, Pine Creek, and Douglass Creek. Lehman Run, Black Forest Creek (Middle Tributary), unnamed creek north of north Gate, Middle Tributary, and Monument Branch. Monument Creek is a headwater stream and native flows display seasonal variations that are primarily related to snow melt and storm precipitation runoff. In addition to natural drainages flowing into Monument Creek, the creek receives wastewater treatment effluent discharge from WRRFs, including the Tri-Lakes WWTF and Upper Monument Creek WWTF, which currently discharge treated wastewater effluent into Monument Creek as part of normal operations. Within the project area, the United States Geologic Survey (USGS) maintains two monitoring/gage stations along Monument Creek: 07103780 located above North Gate Boulevard and 07104000 located at Monument Creek at Pikeview.

The CWA establishes federal limits, through the NPDES, on the amounts of specific pollutants that are discharged to surface waters to restore and maintain the quality of the water. Section 303(d) of the CWA requires states to identify and develop a list of impaired water bodies where controls have not provided attainment of water quality standards. Monument Creek is on the 303(d) List of Impaired Water Bodies for the following water quality parameters: *Escherichia coli* (*E. coli*), manganese, macroinvertebrate (provisional), and temperature. Manganese is a naturally occurring pollutant in the environment while *E. coli* is primarily a nonpoint source pollutant. WRRF effluent discharges to Monument Creek can impact its temperature with typically higher temperatures compared to the receiving water. Effluent discharged from the J.D. Phillips WRRF typically has lower concentrations of total phosphorus and dissolved manganese, while effluent discharged from the Tri-Lakes and Upper Monument Creek WRRFs typically had lower concentrations of total nitrogen concentrations with *E. coli* concentrations similar in the effluent of the three WRRFs (Berleman 2020).

A hydrologic study modeled the streamflow conditions at several locations along Monument Creek in and near the project area (Confluence Water Consulting 2022). Streamflow in Monument Creek is cyclical, following seasonal rain and snow runoff events and is highly variable ranging from a low of 0.96 cfs (at Upper Monument Creek WWTF on August 24, 2003) to a high of 2,000 cfs (at Woodmen Road on April 30, 1999). Monument Creek streamflow increases from upstream to downstream with average streamflow ranging from 6.2 cfs at Tri-lakes WWTF to 27.7 cfs at Woodmen Road and with median streamflow ranging from 2.8 cfs at Tri-lakes WWTF to 16.0 cfs at Woodmen Road. Average and median stream flows in Monument Creek are shown in Table 3-1. Flows in Monument Creek have likely

increased, and will continue to increase over time, from increased runoff caused by upstream urban development.

Table 3-1. Monument Creek Streamflow.

Study Location	Average Streamflow (1996-2021) (cfs)	Median Streamflow (1996-2021) (cfs)
Tri-lakes WWTF	6.2	2.8
Upper Monument Creek WWTF	12.3	5.7
USAFA WWTF	15.3	7.9
Woodmen Road	27.7	16.0

Groundwater Aquifers. Groundwater underlies the project area at various depths below ground surface. The project area is on the western edge of the Denver Basin Aquifer, which consists vertically of several individual aquifers separated by confining layers. Groundwater present in these aquifers was deposited millions of years ago as the basin was formed. Due to the lack of connectivity between aquifers and to surface water (infiltration or recharge of aquifer from surface water), groundwater in the aquifers is not considered renewable.

3.6 HAZARDOUS MATERIALS/WASTE

"Hazardous materials" is a generic term that encompasses the range of contaminants within the scope of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and petroleum products. CERCLA, commonly known as Superfund, was enacted by Congress in 1980. This law created a tax on the chemical and petroleum industries and provided broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA established prohibitions and requirements concerning closed and abandoned hazardous waste sites, provided for liability of persons responsible for releases of hazardous waste at these sites, and established a trust fund to provide for cleanup when no responsible party could be identified. The EPA is the lead agency in addressing CERCLA sites.

Hazardous materials include hazardous waste regulated under the Resource Conservation and Recovery Act (RCRA). Passed in 1976, RCRA established the framework for managing both solid and hazardous waste. In 1984, Colorado was authorized by the EPA to administer the hazardous waste management programs in lieu of the federal RCRA program. The laws governing the management of hazardous waste in the State of Colorado are contained in the Colorado Hazardous Waste Regulations (CDPHE 2020).

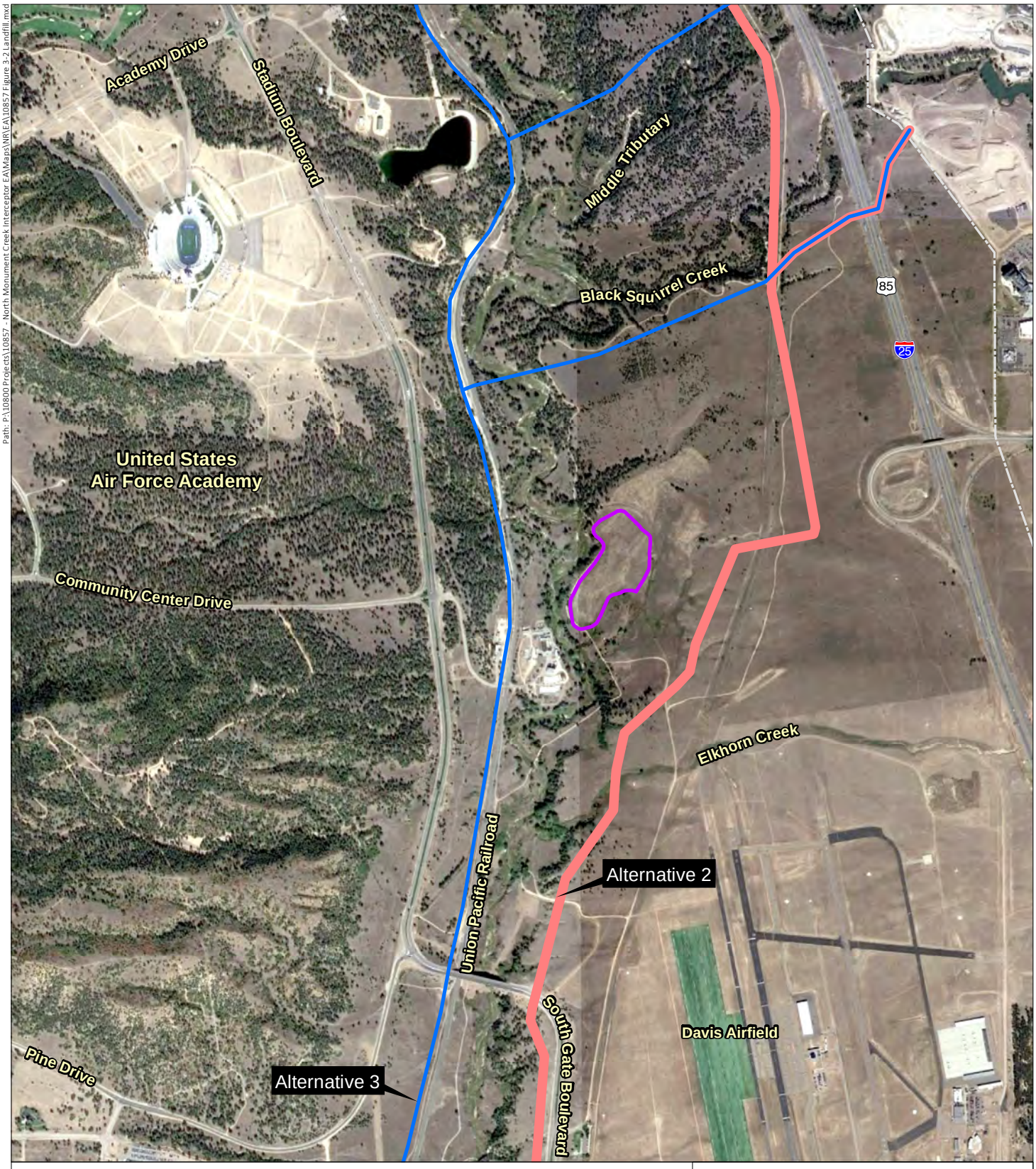
The analysis area for hazardous materials consists of a 0.5-mile buffer around all proposed project facilities. The methods consisted of a review of reasonably ascertainable records maintained by the EPA, CDPHE, and Colorado Department of Labor and Employment Division of Oil and Public Safety (CDLE/OPS).

The hazardous materials assessment was not exhaustive and does not eliminate the uncertainty that sites containing hazardous substances or petroleum products may be present in the NMCI project area. Sites not listed in the reasonably ascertainable records maintained by the EPA, CDPHE, and CDLE/OPS were not addressed by the assessment.

The records review identified the following sites within 0.5 mile of proposed project facilities: 2 sites investigated under the CERCLA Information System, 1 RCRA Corrective Action site, 12 leaking underground storage tank sites closed by CDLE/OPS, and 2 historical landfill sites. Based on a review of agency files, none of the identified sites are likely to have adversely affected the soil or groundwater at any of the proposed project facilities except for a historical landfill site on the USAFA property discussed below.

The Site 6 Landfill 1 site (USAFA landfill site) was operated as a municipal waste landfill from 1972 to 1978 and consists of about 15 acres. The site is located on the east side of Monument Creek directly northeast of the USAFA wastewater treatment plant (

Figure 3-2). The Preferred Alternative alignment footprint does not include the USAFA landfill site. Wastes were disposed in trenches measuring about 40 feet wide by 30 feet deep by 500 feet long. The trenches were backfilled with soil and the entire landfill area was covered with an earthen cap in 1997. In 1998, long-term surface water and groundwater monitoring began that included analysis for volatile organic compounds, arsenic, iron, manganese, phenols, and 1,4-dioxane. In 2005, a landfill cover was installed on the site and annual monitoring of the cover has been conducted since then (AECOM 2019).



Path: P:\10800 Projects\10857 - North Monument Creek Interceptor EA\Maps\NR\EA\10857 Figure 3-2 Landfill.mxd

Northern Monument Creek Interceptor Environmental Assessment

Alternative 2 Eastern Alignment

Alternative 3 Western Alignment

USAFA Solid Waste Landfill

Image Source: Google Earth©, October 2019

0 750 1,500 Feet

N

Figure 3-2
USAFA Landfill

Prepared for: Colorado Springs Utilities
File: 10857 Figure 3-2 Landfill.mxd (GS)
October 2, 2023

ERO Resources Corp.

3.7 BIOLOGICAL/NATURAL RESOURCES

3.7.1 Vegetation

The project area is located along the southern portion of the Palmer Divide, an east-west elevated landform characterized by higher ridges and valleys that separates the South Platte River watershed from the Arkansas River watershed. Tributaries and streams along the south face of the Palmer Divide drain into Monument Creek, which flows from north to south from the town of Monument, through the USAFA to Colorado Springs where it merges with Fountain Creek.

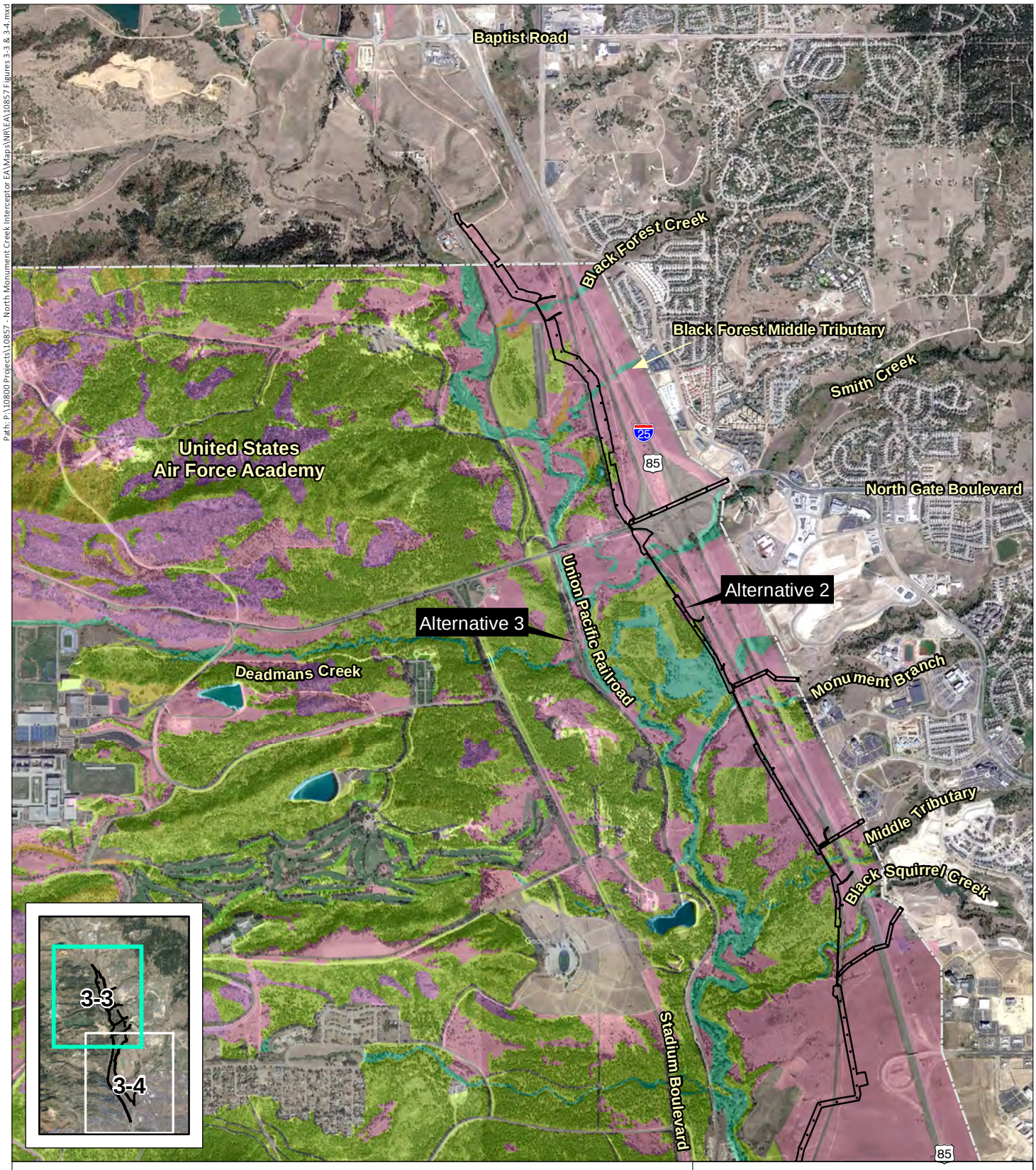
The project area is in a transitional zone due to the elevation gradient from high plains grassland habitat to high-elevation montane vegetation in the region. Due to topographic variation, the location at the convergence of north-south and plains-mountains transition zones, the presence of high-quality grassland and riparian habitat, and the proximity to the undeveloped forested expanses of the Pike National Forest, there are larger areas of native plant communities in the project area, particularly on the USAFA than would be expected in an area of equivalent size and proximity to an urban center.

Vegetation communities mapped in the project area include upland grassland, upland shrub/scrub, upland forest, riparian, and wetland (USAFA 2018). Most of the project area is within upland grassland habitat, which covers about 5,120 acres at USAFA (USAFA 2018) and covers most of the surrounding nonfederal lands. Common plants in upland grassland habitat include native and nonnative grasses such as smooth brome (*Bromus inermis*), sand dropseed (*Sporobolis cryptandrus*), green needlegrass (*Nassella viridula*), blue grama (*Bouteloua gracilis*), buffalograss (*Bouteloua dactyloides*), little bluestem (*Schizachyrium scoparium*), Indian ricegrass (*Oryzopsis hymenoides*), and Indiangrass (*Sorghastrum nutans*). Other upland plants include wild licorice (*Glycyrrhiza lepidota*), fringed sage (*Artemisia frigida*), yucca (*Yucca glauca*), and prickly pear cactus (*Opuntia polyacantha*). Shrubs including rubber rabbitbrush (*Ericameria nauseosa*), three-leaf sumac (*Rhus trilobata*), and Gambel oak (*Quercus gambelii*) are common in upland shrub/scrub habitats. Upland forests include areas dominated by ponderosa pine (*Pinus ponderosa*), often with an understory of Gambel oak. Although uncommon in the project area, upland forests are common at USAFA, covering about 9,000 acres (USAFA 2018). Upland grassland – shrub/scrub mosaic and upland shrub/scrub – grassland mosaic are areas that contain both grassland shrub/scrub habitats intermingled.

Riparian and wetland areas are dominated by grasses and forbs including reed canarygrass (*Phalaris arundinacea*), redtop (*Agrostis gigantea*), switchgrass (*Panicum virgatum*), prairie cordgrass (*Spartina pectinata*), goldenrod (*Solidago canadensis*), Arctic rush (*Juncus arcticus*), Nebraska sedge (*Carex nebrascensis*), Emory's sedge (*Carex emoryii*), and cattail (*Typha* sp.). Woody plants that are common in riparian and wetland areas include plains cottonwood (*Populus deltoides*), narrowleaf cottonwood (*Populus angustifolia*), peachleaf willow (*Salix amygdaloides*), and sandbar willow (*Salix exigua*). Wetlands and riparian areas in the project area are described in greater detail in the *Wetlands, Floodplains, and Riparian*

section of this EA. Vegetation communities in the project area are shown on Figure 3-3 and Figure 3-4.

Surveys conducted by the Colorado Natural Heritage Program (CNHP) have documented 25 noxious weed species at the USAFA, including widespread occurrences of yellow toadflax (*Linaria vulgaris*), leafy spurge (*Euphorbia esula*), diffuse knapweed (*Centaurea diffusa*), hoary cress (*Cardaria draba*), musk thistle (*Carduus nutans*), and Canada thistle (*Cirsium arvensis*) (Smith and Greenwell 2019). The USAFA actively controls noxious weeds within its boundaries in accordance with the USAFA Noxious Weed Management Plan (Smith et al. 2015). A complete list of noxious weeds found at the USAFA is found in Smith and Greenwell (2019). Noxious weeds are also present on nonfederal lands in the project area, north and south of the USAFA boundary.



Path: P:\10800 Projects\10857 - North Monument Creek Interceptor EA\Maps\NR\EA\10857 Figures 3-3 & 3-4.mxd

Northern Monument Creek Interceptor Environmental Assessment

- Disturbance Boundary
- Wetland
- Lake/Pond
- Upland Forest
- Riparian Shrub/ Tree/Forb
- Upland Grassland
- Upland Grassland-Shrub/Scrub Mosaic
- Upland Shrub/Scrub Grassland Mosaic
- Developed/Disturbed/ Unvegetated

0 1,600 3,200 Feet

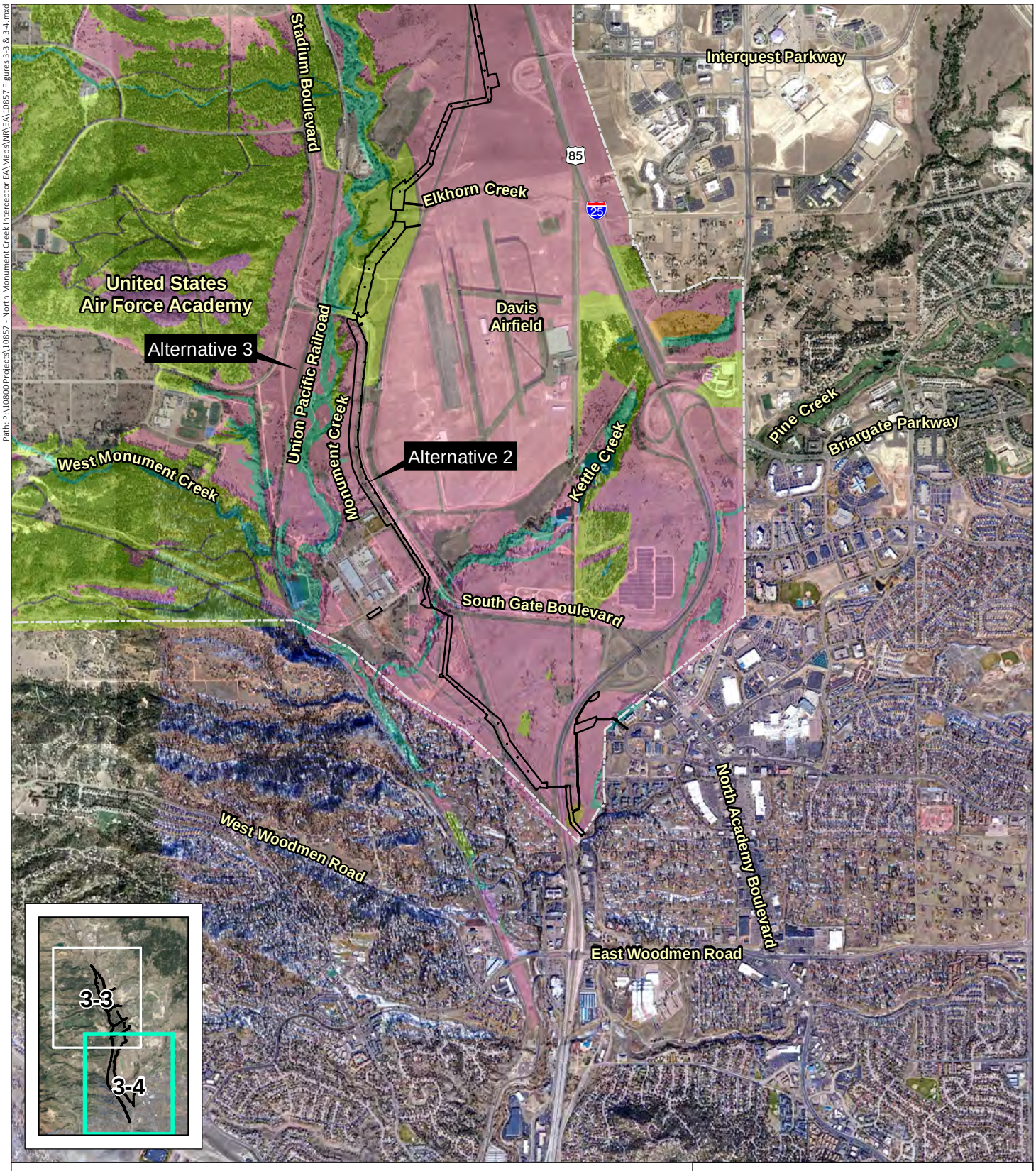
N

Figure 3-3
Vegetation Communities,
Northern Portion of Project Area

Image Source: Google Earth©, October 2019

Prepared for: Colorado Springs Utilities
File: 10857 Figures 3-3 & 3-4.mxd (GS)
October 17, 2023

ERO Resources Corp.



Path: P:\10800 Projects\10857 - North Monument Creek Interceptor EA\Maps\NR\EA\10857 Figures 3-3 & 3-4.mxd

Northern Monument Creek Interceptor Environmental Assessment

- Disturbance Boundary
- Wetland
- Lake/Pond
- Upland Forest
- Riparian Shrub/ Tree/Forb
- Upland Grassland
- Upland Grassland-Shrub/Scrub Mosaic
- Upland Shrub/Scrub Grassland Mosaic
- Developed/Disturbed/ Unvegetated

0 1,600 3,200 Feet

N

Figure 3-4
Vegetation Communities, Southern Portion of Project Area

Image Source: Google Earth©, October 2019

Prepared for: Colorado Springs Utilities
File: 10857 Figures 3-3 & 3-4.mxd (GS)
October 17, 2023

ERO Resources Corp.

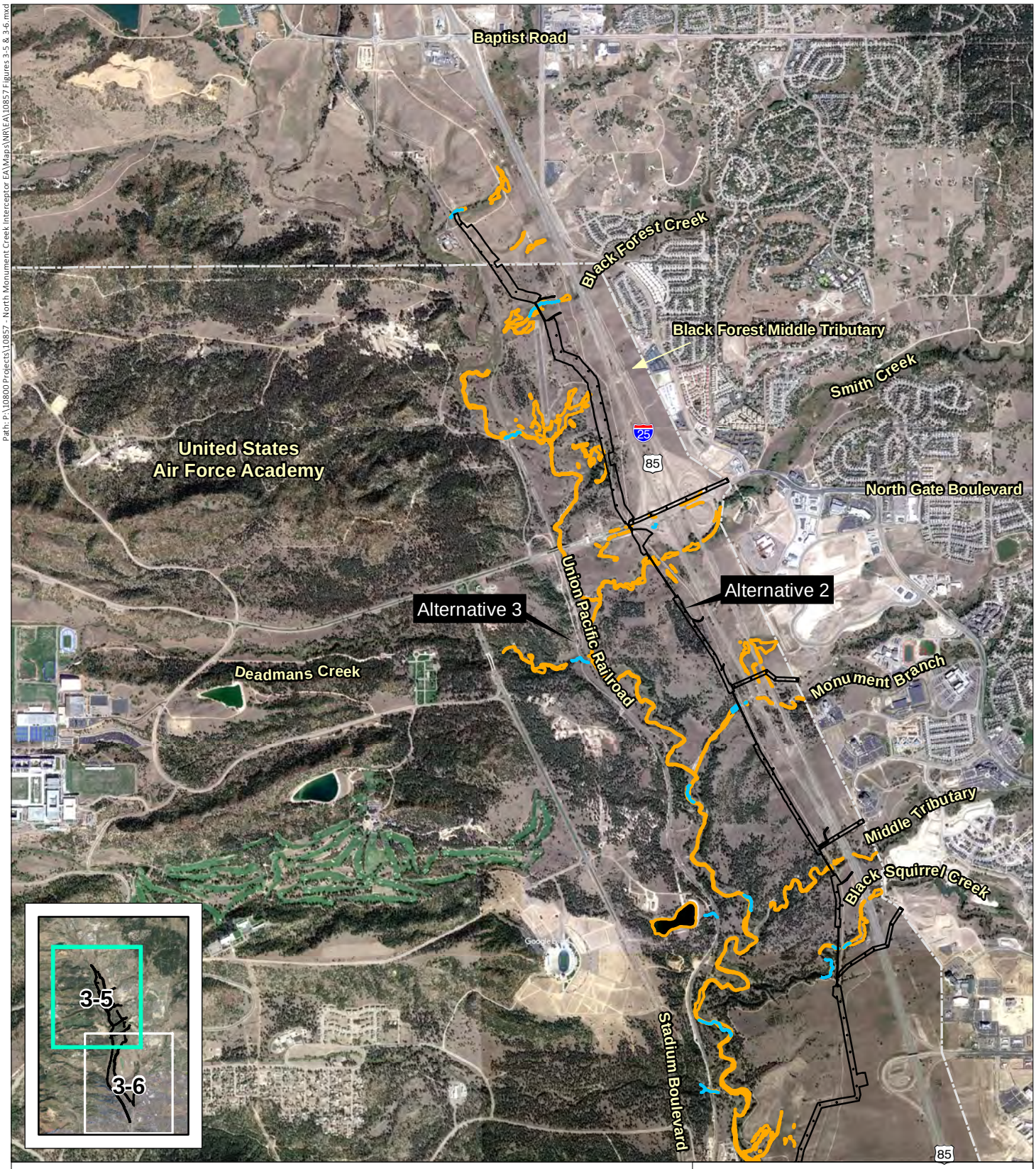
3.7.2 Wetlands, Floodplains, and Riparian

3.7.2.1 Wetland and Riparian Habitat

Wetlands in the project area were mapped between April 20 and August 14, 2020 (ERO 2021). Two general wetland communities are present in the project area: herbaceous grassland-forb wetland community and willow wetland community. Past mapping has identified about 104 acres of wetlands at USAFA (USAFA 2018 and ERO 2021).

The herbaceous grassland-forb wetlands occur most commonly as fringe wetlands along portions of some of the streams, especially in the northern portion of the project area along Teachout and Jackson Creeks. Species common in this community include reed canarygrass, Emory's sedge, Nebraska sedge, prairie cordgrass, broadleaf cattail (*Typha latifolia*), narrowleaf cattail (*Typha angustifolia*), soft-stem bulrush (*Schoenoplectus tabernaemontani*), and Arctic rush. Other species present, but not dominant, in this community include sandbar willow, redtop, and small amounts of upland grasses and forbs such as western wheatgrass, smooth brome, Canada thistle, and Kentucky bluegrass (*Poa pratensis*). The Cowardin et al. (1979) classification for the herbaceous grassland-forb wetland community is palustrine persistent emergent.

The willow wetland community is the most dominant wetland community in the project area. The majority of the streams in the project area contain sandbar willow shrubs as well as other riparian species such as narrowleaf cottonwood, peachleaf willow, and bluestem willow (*Salix irrorrata*). Understory species common in this community include Emory's sedge, Nebraska sedge, reed canarygrass, redtop, and Arctic rush. The Cowardin et al. (1979) classification for the willow-cottonwood wetland community is riverine scrub-shrub persistent emergent.
Riparian habitat consists of a transition zone between wetland habitat and upland habitat that often contains species from both communities. Past mapping has identified about 687 acres of riparian habitat at USAFA (USAFA 2018). Common shrubs in riparian areas include willow shrubs (sandbar and bluestem), three-leaf sumac, snowberry (*Symphoricarpos* sp.), chokecherry (*Prunus pensylvanica*), and American plum (*Prunus americana*). Herbaceous species include switchgrass, prairie cordgrass, smooth brome, little bluestem, common mullein (*Verbascum thapsus*), annual sunflower (*Helianthus annuus*), and Canada thistle. Portions of the NMCI pipeline alignments that intersect wetlands and waters of the U.S. are shown on Figure 3-5 and Figure 3-6.



Path: P:\10800 Projects\10857 - North Monument Creek Interceptor EA\Maps\NR\EA\10857 Figures 3-5 & 3-6.mxd

Northern Monument Creek Interceptor Environmental Assessment

Disturbance Boundary

Ordinary High Water Mark

Wetland

0 1,600 3,200 Feet

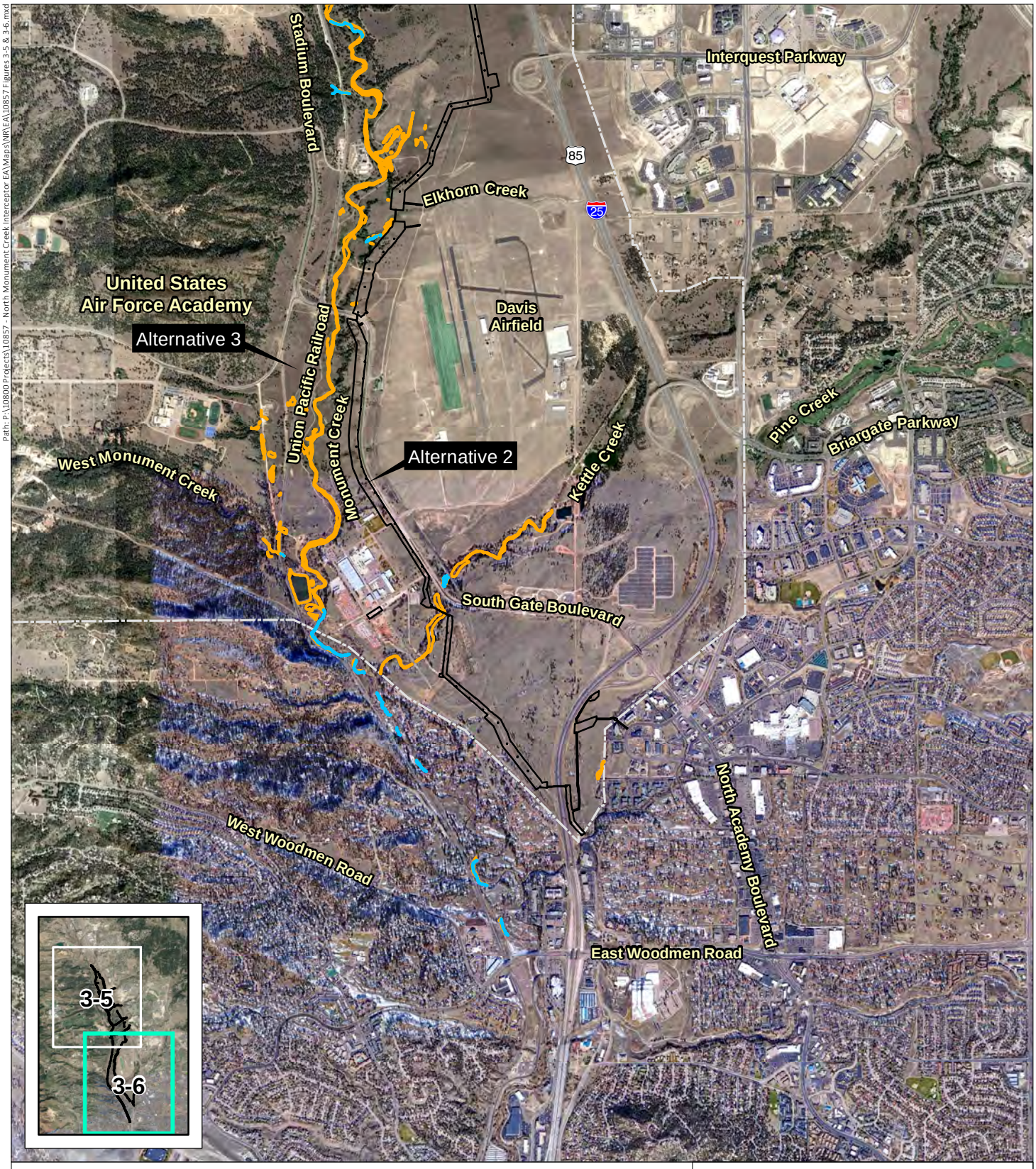
N

Figure 3-5
Wetlands,
Northern Portion of Project Area

Image Source: Google Earth©, October 2019

Prepared for: Colorado Springs Utilities
File: 10857 Figures 3-5 & 3-6.mxd (GS)
October 17, 2023

ERO Resources Corp.



Path: P:\10800 Projects\10857 - North Monument Creek Interceptor EA\Maps\NR\EA\10857 Figures 3-5 & 3-6.mxd

Northern Monument Creek Interceptor Environmental Assessment

Disturbance Boundary

Ordinary High Water Mark

Wetland

0 1,600 3,200 Feet

N

Figure 3-6
Wetlands,
Southern Portion of Project Area

Image Source: Google Earth©, October 2019

Prepared for: Colorado Springs Utilities
File: 10857 Figures 3-5 & 3-6.mxd (GS)
October 17, 2023

ERO Resources Corp.

3.7.2.2 Floodplains

Floodplains associated with Monument Creek occur in the project area. The Monument Creek watershed has a total drainage area of about 236 square miles (Armstrong and Stevens 2002). The Monument Creek watershed is part of the Arkansas River drainage, Colorado's largest river basin, draining 24,904 square miles of land area, and is described in greater detail in the *Water Resources* section. The 100-year floodplain boundaries at the USAFA were mapped in 2003, and flood hazard zones, including the 100-year floodplain, on nonfederal lands in the project area have been mapped by the Federal Emergency Management Agency (FEMA 2018). Portions of the NMCI pipeline alignments are within the 100-year floodplain, as shown on Figure 3-7 and Figure 3-8.

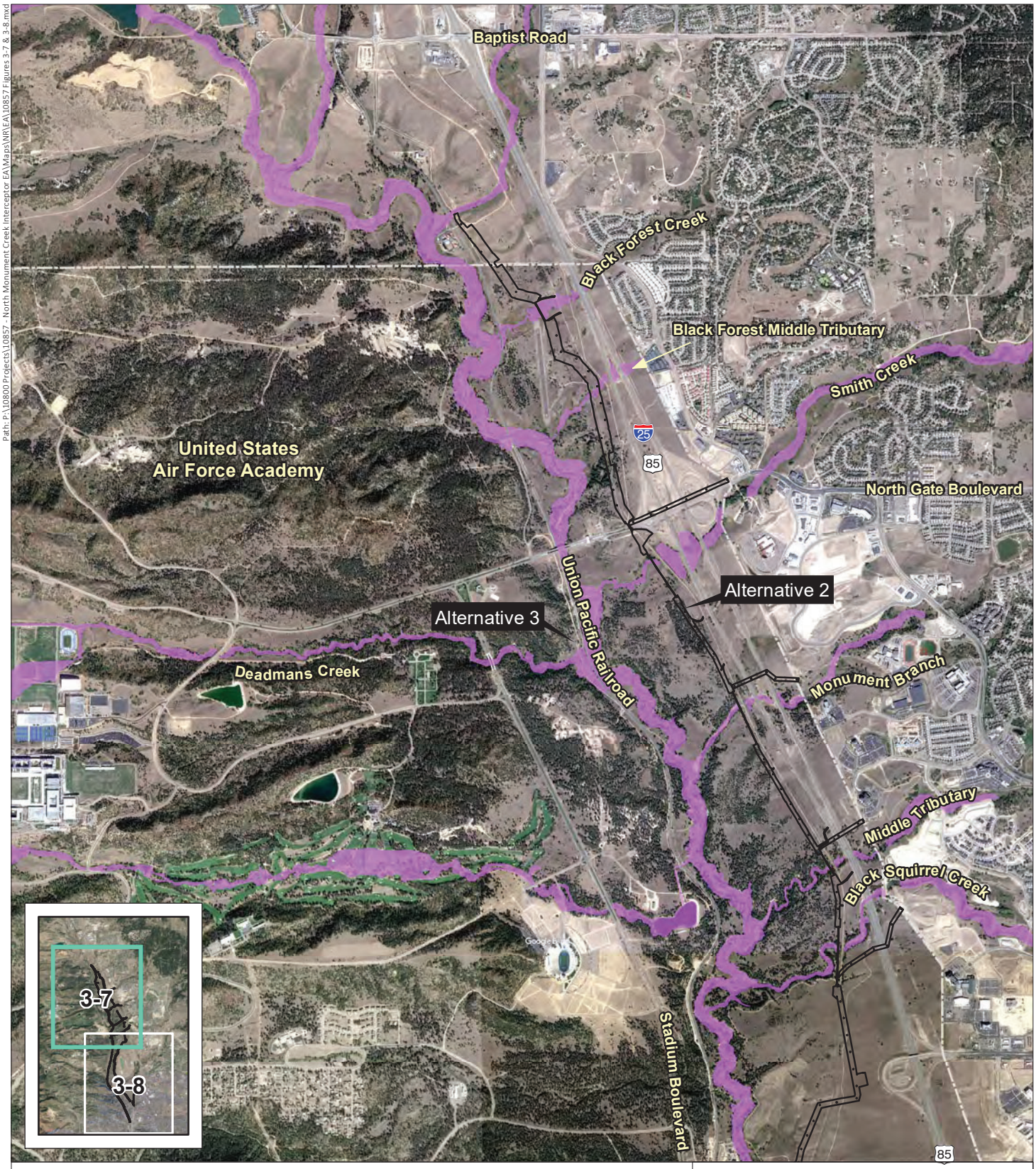
3.7.3 Wildlife

The diverse vegetation communities including grasslands, riparian and wetland habitat, shrublands, and montane forested habitat that occur on the USAFA and surrounding project area supports a wide variety of wildlife. Monument Creek and its tributaries provide riparian habitat and serve as migration corridors important to wildlife such as white-tailed deer, amphibians, neotropical migratory birds, and native fish species. Grassland and shrubland habitat in the project area provides nesting habitat for several migratory bird species including prairie falcon, western scrub jay, spotted towhee, meadowlark, and western kingbird. Common large and small mammals include species such as mule deer, western harvest mouse, spotted ground squirrel, coyote, and red fox. Some reptiles including short-horned lizard and bullsnake are also found in these habitats. Mid-sized mammals, such as coyote, red fox, striped skunk, and raccoon, occur throughout the project area (USAFA 2018). Fisheries surveys conducted on the USAFA in 2014 and 2018 on Monument Creek, West Monument Creek, Stanley Creek, and Kettle Creek yielded six species: white sucker, brook stickleback, fathead minnow, longnose dace, creek chub, and brook trout. Each of the six species, with the exception of brook trout, were captured on Monument Creek near the project area. In 2018 the creek chub was the most abundant fish sampled with 438 individuals captured, while fathead minnow were the least abundant with a total of four captures (USFWS 2019).

3.7.4 Special Status Species

Special status species including those that are listed under the Endangered Species Act (ESA) of 1973, as amended (16 United States Code 1531 et seq.), and state sensitive species (including species of greatest conservation need outlined in the 2015 State Wildlife Action Plan (CPW 2016) occur throughout portions of the USAFA and project area.

Path: P:\10800 Projects\10857 - North Monument Creek Interceptor EA\Maps\NR\EA\10857 Figures 3-7 & 3-8.mxd



Northern Monument Creek Interceptor Environmental Assessment

Disturbance Boundary

100-Year Floodplain

0 1,600 3,200 Feet

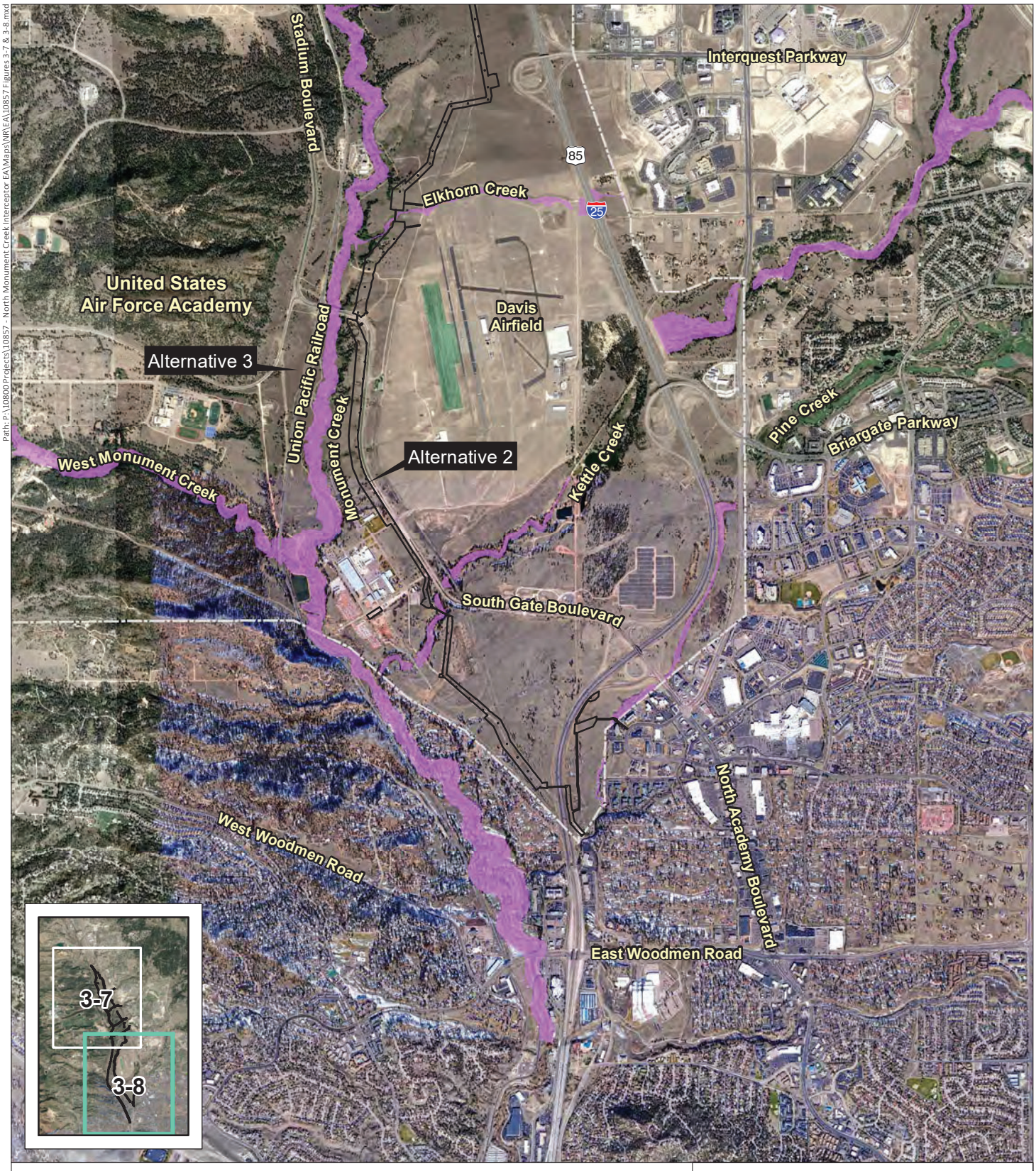
N

Figure 3-7
100-Year Floodplains,
Northern Portion of Project Area

Image Source: Google Earth©, October 2019

Prepared for: Colorado Springs Utilities
File: 10857 Figures 3-7 & 3-8.mxd (GS)
October 17, 2023

ERO Resources Corp.



Path: P:\10800 Projects\10857 - North Monument Creek Interceptor EA\Maps\NR\EA\10857 Figures 3-7 & 3-8.mxd

Northern Monument Creek Interceptor Environmental Assessment

Disturbance Boundary

100-Year Floodplain

0 1,600 3,200 Feet

N

Figure 3-8
100-Year Floodplains,
Southern Portion of Project Area

Image Source: Google Earth©, October 2019

Prepared for: Colorado Springs Utilities
File: 10857 Figures 3-7 & 3-8.mxd (GS)
October 17, 2023

ERO Resources Corp.

3.7.4.1 Federally Threatened and Endangered Species

According to the USFWS's Information for Planning and Consultation (IPaC) website, 10 federally threatened or endangered species potentially occur in, or are affected by projects near, the project area in El Paso County (USFWS 2021) (Table 3-2). The project area does not fall within USFWS habitat or survey guidelines for most of the species listed in Table 3-2.

Table 3-2. Federally Threatened, Endangered, and Candidate Species Potentially Found in El Paso County or Potentially Affected by Projects in El Paso County.

Species (Common Name)	Scientific Name	Listing Status[1]	Habitat	Habitat Present
Birds				
Eastern black rail	*Laterallus jamaicensis jamaicensis*	T	Expansive wetlands and marshes with dense emergent vegetation	Potential – unlikely due to small wetland sizes in project area
Mexican spotted owl	*Strix occidentalis lucida*[2]	T	Closed canopy forests in steep canyons	No
Piping plover	*Charadrius melodus*[3]	T	Sandy lakeshore beaches and river sandbars	No habitat; no depletions anticipated
Whooping crane	*Grus americana*[3]	E	Mudflats around reservoirs and in agricultural areas	No habitat; no depletions anticipated
Mammals				
Gray wolf	*Canus lupis*	E	Temperate forests, mountains, tundra, taiga, grasslands, and deserts	No
Tricolored bat	*Perimyotis subflavus*	PE	Forests, culverts, caves, mines	Potential
Preble's meadow jumping mouse (Preble's)	*Zapus hudsonius preblei*[2]	T	Shrub riparian/wet meadows	Yes
Insects				
Pawnee montane skipper	*Hesperia leonardus montana*	T	Meadows dominated by blue grama and gayfeather (*Liatris punctata*) in areas surrounded by pine/fir forests	No
Fish				
Greenback cutthroat trout	*Oncorhynchus clarki stomias*	T	Gravelly headwater streams or mountain lakes	No
Pallid sturgeon	*Scaphirhynchus albus*[3]	E	Large, turbid, free-flowing rivers with a strong current and gravelly or sandy substrate	No habitat; no depletions anticipated
Plants				
Ute ladies'-tresses orchid	*Spiranthes diluvialis*	T	Moist to wet alluvial meadows, floodplains of perennial streams, and around springs and lakes below 7,800 feet in elevation	No
Western prairie-fringed orchid	*Platanthera praeclara*[3]	T	Mesic and wet prairies, sedge meadows	No habitat; no depletions anticipated

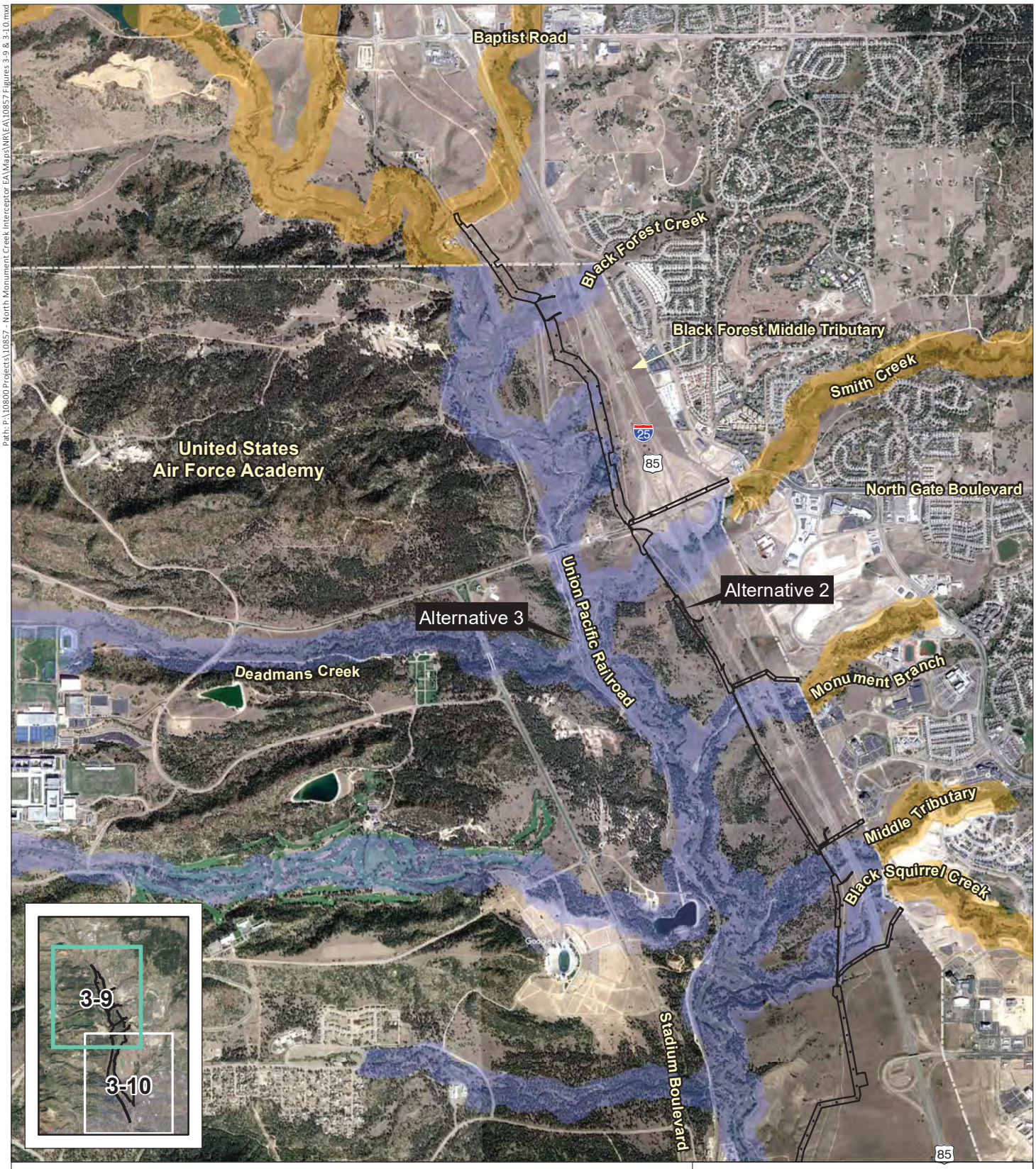
[1]T = Threatened Species, E = Endangered Species.
[2]There is critical habitat for the species in the county.
[3]Water depletions in the South Platte River may affect the species and/or critical habitat in downstream reaches in other counties or states.
Source: USFWS 2021.

The eastern black rail (EBR) is a small marsh bird that inhabits wetland complexes. The EBR is known to occur east of the project area, particularly near John Martin Reservoir in Bent

County. The EBR was recently detected at Fort Carson Army Base, south of Colorado Springs in 2022. EBR has not been detected on the USAFA. The tricolored bat (TCB) has been detected in recent year further west than previously know, including in Boulder County near the foothills (Adams et al. 2018). The TCB has not been detected in El Paso County, but could occur in forested habitat near the project area.

Preble's is the only federally listed species with potential to occur in the project area. Preble's was initially found on the USAFA and nearby tributaries in 1994 by the CNHP and listed as threatened in 1998 by the USFWS (63 FR 26517 (May 13, 1998)). In response to the listing, the USAFA prepared a Conservation and Management Plan (conservation plan) for Preble's to provide guidance for management decisions on the USAFA (USAFA 1999). The conservation plan included designating a buffer around Monument Creek and its tributaries that extends 300 feet from the 100-year floodplain. The USFWS accepted the conservation plan and renews it on a five-year basis. The conservation plan is currently in the process of being renewed. USAFA has requested re-initiation of consultation on the Conservation Agreement to address increased habitat restoration needs, authorize habitat restoration performed on USAFA by off-base partners, and to better track and account for "incidental take" from military training and natural resources management activities. No Preble's critical habitat exists on any of the USAFA property. Critical habitat does not need to be designated on Department of Defense property if the installation's Integrated Natural Resource Management Plan provides sufficient conservation benefit and management for the species (Section 4(a)(3)(B)(i) of the ESA and AFMAN32-7001). Critical habitat for Preble's exists along most tributaries to Monument Creek, and Monument Creek itself, outside of the USAFA (Figure 3-9 and Figure 3-10).

Path: P:\10800 Projects\10857 - North Monument Creek Interceptor EA\Maps\NR\EA\10857 Figures 3-9 & 3-10.mxd



Northern Monument Creek Interceptor Environmental Assessment

Disturbance Boundary

Preble's Critical Habitat

Preble's Conservation Zone

Image Source: Google Earth©, October 2019

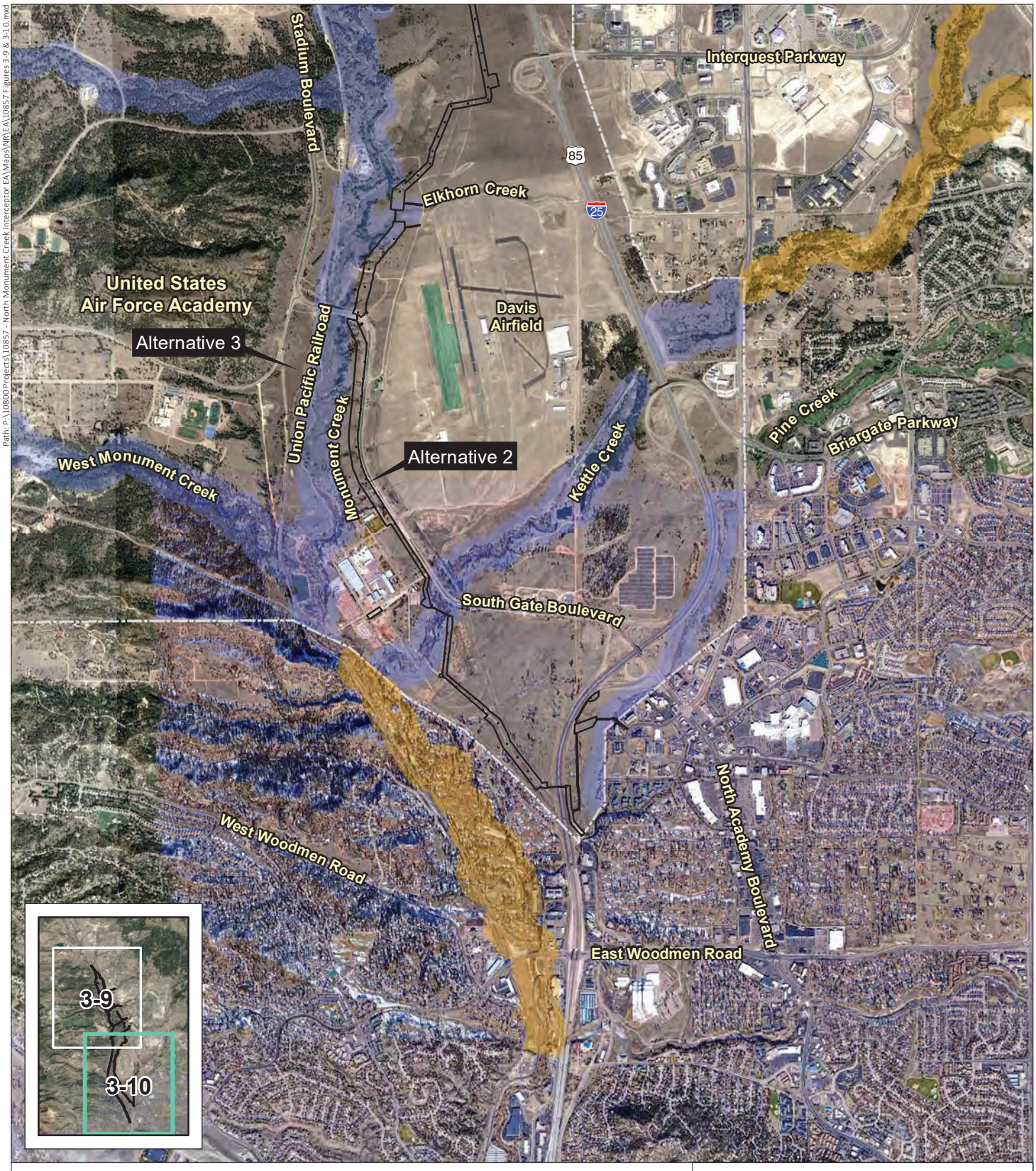
0 1,600 3,200 Feet

N

Figure 3-9
Preble's Meadow
Jumping Mouse Habitat,
Northern Portion of Project Area

Prepared for: Colorado Springs Utilities
File: 10857 Figures 3-9 & 3-10.mxd (GS)
October 17, 2023

ERO Resources Corp.



Path: P:\10800 Projects\10857 - North Monument Creek Interceptor EA\Maps\NR\EA\10857 Figures 3-9 & 3-10.mxd

Northern Monument Creek Interceptor Environmental Assessment

Disturbance Boundary

Preble's Critical Habitat

Preble's Conservation Zone

Image Source: Google Earth©, October 2019

0 1,600 3,200 Feet

N

Figure 3-10
Preble's Meadow
Jumping Mouse Habitat,
Southern Portion of Project Area

Prepared for: Colorado Springs Utilities
File: 10857 Figures 3-9 & 3-10.mxd (GS)
October 17, 2023

ERO Resources Corp.

3.7.4.2 Other Sensitive Species

One state threatened and four state species of concern have potential to occur in or adjacent to the project area. Additionally, five Tier 1 species (excluding those that are both state species of concern and Tier 1 species) in the State Wildlife Action Plan and two species considered imperiled by the CNHP have been documented or have potential to occur in the project area (Table 3-3).

Table 3-3. State Threatened, Endangered, Species of Concern, Tier 1 Species, and CNHP Imperiled Species Potentially Found in the Project Area or Potentially Affected by Projects in the Project Area.

Species (Common Name)	Scientific Name	Status[1]	Habitat	Habitat Present in Project Area
Amphibians				
Northern leopard frog	*Lithobates pipiens*	SC, Tier 1	Wetlands, marshes, ponds, and streams	Yes
Birds				
Ferruginous hawk	*Buteo regalis*	SC	Northwestern, eastern Colorado; open grasslands and shrub-steppe communities	Yes
Ovenbird	*Seiurus aurocapilla*	S2	Deciduous and coniferous forests on the western portions of the USAFA	No
Mammals				
Fringed myotis	*Myotis thysanodes*	Tier 1	Coniferous forests above 7,500 feet in elevation	No
Little brown myotis	*Myotis lucifugus*	Tier 1	Occurs statewide; prefers wooded areas, buildings, woodpiles, and occasionally caves or mines	Yes
Northern pocket gopher	*Thomomys talpoides macrotis*	SC	Grasslands, shrublands, upward to montane areas; *T.t. macrotis* is only known to occur in Douglas County	Yes
Olive-backed pocket mouse	*Perognanthus fasciatus*	Tier 1	Grasslands, shrublands, semi-desert, and lower foothills	Yes
Townsend's big-eared bat	*Corynorhinus townsendii*	SC, Tier 1	Open montane areas, shrublands, woodlands with caves, mines, and rocky outcrops	No
Insects				
Hops azure	*Celastrina humulus*	S2	Riparian areas containing wild hops	Yes
Fish				
Arkansas darter	*Etheostoma cragini*	ST, Tier 1	Shallow first and second order streams with sandy, silty bottoms; known to occur on Fountain Creek south of the USAFA	No
Southern red-bellied dace	*Phoxinus erythrogaqster*	Tier 1	Clear, shallow, sandy, and spring-fed streams; known to occur on Fountain Creek near Pueblo	No

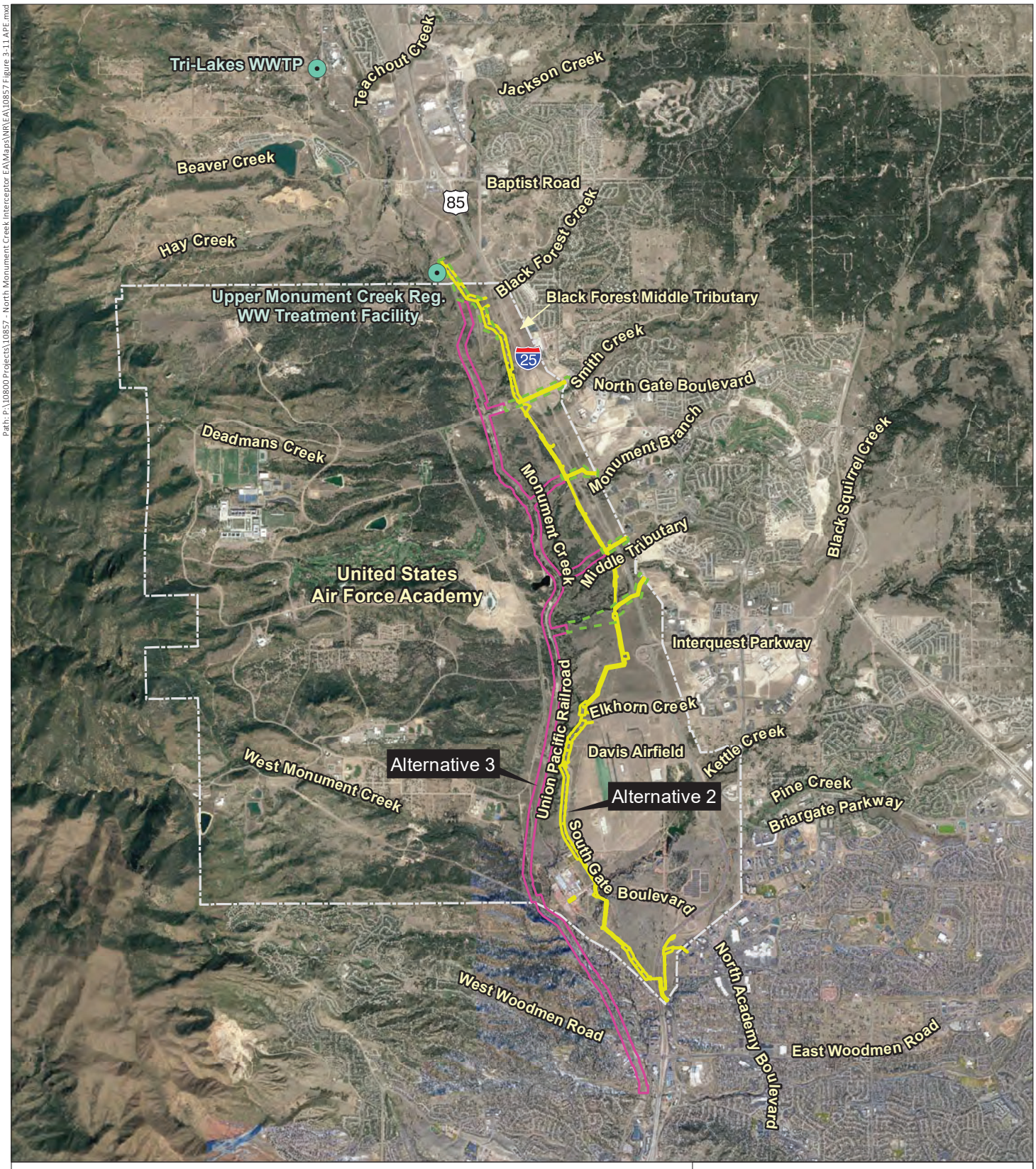
ST – State Threatened; SC – State Species of Concern; Tier 1 – Species of highest conservation priority per the 2015 State Wildlife Action Plan. S2 – Considered imperiled; at risk of extirpation in the state.
Sources: CPW 2016, 2021; NatureServe 2021; Schorr and Smith 2019.

The northern leopard frog and hops azure have been documented on the USAFA near the project area. Additionally, habitat for ferruginous hawk, little brown myotis, northern pocket gopher, and olive-backed pocket mouse exists in portions of the project area. The ovenbird, fringed myotis, and Townsend's big-eared bat have been documented in the western portions of the USAFA near the Pike National Forest boundary. The Arkansas darter and southern red-bellied dace occur downstream of the USAFA, but have not been documented on the USAFA (Kennedy 2019).

3.8 CULTURAL RESOURCES

USAFA property and the private property north and south of the USAFA contain a variety of plant and animal communities that reflect diverse mountain, plains, and riparian environments. This diversity and direct access to water from Monument Creek and its tributaries would have provided an abundance of resources for Native American and recent historic occupants. All of the Action Alternatives parallel Monument Creek but there is variation between the alternatives in the kinds of landforms they would traverse and the direct impacts on cultural resources, historic properties (cultural resources eligible for listing in the National Register of Historic Places [NRHP]), or landforms that might contain buried cultural resources. Section 106 of the National Historic Preservation Act (NHPA) is the primary structure for analysis of cultural resources for this project's planning. Impacts are assumed to potentially take place at any location in the proposed APE designated for Section 106 of the NHPA. Participants in the Section 106 process are consulted in developing the APE for the project included the Colorado SHPO and the tribal agencies listed in Table 6-1. The APE is shown in Figure 3-11. While Section 106 consultation is ongoing for purposes of this draft EA released for public comment, the cultural resource inventory for affected environment is unlikely to change. That includes that a small amount of the project area required additional (and final) cultural resource survey in summer 2023, due to a minor change in the preferred routing of the pipeline. The Section 106 mitigation Memorandum of Agreement (Appendix C) documents finalization of the project's APE, and completeness of CR inventory.

Path: P:\10800 Projects\10857 - North Monument Creek Interceptor EA\Maps\NR\EA\10857 Figure 3-11 APE.mxd



Northern Monument Creek Interceptor Environmental Assessment

Existing Treatment Facility

Shared Alignment

Preferred Alignment

Alternative Alignment APE

Image Source: Google Earth©, October 2019

0 3,500 7,000 Feet

N

Figure 3-11
Area of Potential Effect

Prepared for: Colorado Springs Utilities
File: 10857 Figure 3-11 APE.mxd (GS)
October 2, 2023

ERO Resources Corp.

In 2020, a Class I file search and literature review was conducted for the entire APE. A Class I file search and literature review is a desktop analysis of existing state and federal cultural resource databases as well as a thorough review of historical maps, aerial images, land patent documents, and property records. The goal of a Class I file search and literature review is to obtain a full scope all previous cultural surveys, previously documented cultural resources, and potential undocumented resources. Also reviewed are geological maps that identify landforms where archaeological sites may be buried. The Colorado OAHP Database and USAFA files indicate 42 surveys and 317 previously recorded resources are in or overlap a 1-mile buffer of Alternatives 2 and 3 (Hedlund et al. 2021). Files obtained from the USAFA include survey reports and GIS data that have not yet been made available by the OAHP. Data from the recent surveys include an additional 5 surveys and 19 resources. The previous surveys cover 77.11 percent of the project area. Two surveys completed by the University of Colorado – Colorado Springs – Cultural Resources Survey of the United States Air Force Academy Including Farish Memorial Recreation Area (EP.AF.R19) and Cultural Resources Survey of Jack's Valley Training Area, United States Air Force Academy (EP.AF.R13) – covered large portions of the alternatives in 1995 and 1992, respectively (Arbogast et al. 1993; Arbogast et al. 1996). Other surveys, including five surveys associated with the I-25 corridor (EP.CH.NR21, EP.CH.NR9, EP.CH.R2, EP.CH.R40, and EP.CH.R48), also cover significant portions of the project area and overlap much of the two previously mentioned surveys. Additional linear and block surveys, associated with transmission line, hydroelectric, road, and trail projects, cover minor portions of the alternatives project area and overlap much of the previously described surveys.

In 2020, a Class III cultural resource pedestrian survey, exploratory testing, and evaluative testing of the Alternative 2 – Eastern Alignment A was completed in compliance with Section 106 of the NHPA (Cultural Resource Report for the NMCI Pipeline Project (Cultural Resources Report)) (Hedlund et al. 2021). A pedestrian survey entails teams of archaeologists walking systematic transects across the survey area to identify cultural resources. Later, teams of archaeologists hand excavated shovel tests to evaluate the potential for buried cultural resources not visible on the ground surface. The Cultural Resource Report was completed specifically for the NMCI project in an APE that exceeded the limits of disturbance by 577.2 acres so that as many identified historic proprieties could be avoided as possible. Unshared unique alternative alignments were not subject to the same level of review because review beyond a Class I file search and literature review was not necessary for the alternatives to be equally compared and allowed for project redesign in the Preferred Alternative to minimize impacts.

Sixty-eight (68) cultural resources, including 28 linear segments or entire linear resources (e.g., roads, railroads, ditches, or wagon roads), 12 Native American archaeological sites, 21 historical archaeological sites (e.g., the remains of ranches, homesteads, trash dumps, or other structures), 5 multicomponent archaeological sites (e.g., cultural resources that contain Native American and non-Native American cultural material), and 2 bridges were documented. Of these, 29 cultural resources (also referred to as “sites”) were previously documented and 3 sites were not relocated. The Cultural Resources Report also documented

24 isolated finds (IFs) (one or two isolated artifacts), although 7 previously documented IFs were not relocated. Cultural resources intersected by the alternatives and associated laterals are listed in Appendix C.

Historical resources are primarily related to transportation, but also present are water conveyance structures and historical archaeological sites related to habitation and ranching. Transportation resources generally fall into three categories: wagon roads that predate railroads; railroad segments, sidings, and roads that functioned concurrently with the railroad; and roads constructed as part of the USAFA campus design. The transportation resources have varying levels of physical integrity, but the majority no longer serve their original transportation function. For instance, much of the Atchison, Topeka, & Santa Fe (AT&SF) Railroad (5EP1003) now serves as a recreation trail or vehicle access.

Water conveyance resources are related to the conveyance of water (e.g., ditches) or the control of water to reduce erosion. All documented ditch segments are abandoned and, in many cases, difficult to identify in the field. Erosion-control structures were built during USAFA development and retain varying levels of physical integrity.

Historical archaeological sites are typically the remains of ranches or agricultural complexes that have been completely or nearly completely destroyed during USAFA development. No intact features remain and all that remains of once larger structures or buildings are generally scattered rubble or foundation remnants. Trash dumps are typically concentrated areas of historical refuse that are often found in gullies. Most of the trash dumps date to the 1940s or 1950s. Artifact scatters are typically broad and sparse and likely represent an activity area of some kind rather than one or two dumping episodes and are often associated with late 1800s to early 1900s activities. One gravel pit (5EP8879) is present that dates to USAFA development in the 1950s to 1960s. Also present is the limited remains of a small townsite called Breed (5EP1628).

Native American archaeological sites are small simple lithic scatters consisting primarily of debitage and an occasional tool. Only a few fragments of ground stone are present, and indications of thermal features (such as fire-cracked rock) are also rare. No diagnostic artifacts such as ceramics or projectile points are present. Sites are primarily located on the western margins of Pleistocene-age terraces that overlook Monument Creek to the west. The small sites with limited assemblages suggest that upper terraces were primarily used for short-term individual tasks rather than sustained or intensive processing or habitation. The latter activities may have happened closer to Monument Creek. Five tested sites (5EP2326, 5EP8873, 5EP8874, 5EP8877, and 5EP8391) and two IFs (5EP8949 and 5EP8950) confirmed that sites situated on older Pleistocene-age landforms do not have potential to contain buried cultural deposits unless there is evidence of eolian or another form of deposition on the Pleistocene-age surface. Only two sites, 5EP8874 and 5EP8877, buried in Holocene-age alluvium, yielded significant subsurface cultural deposits.

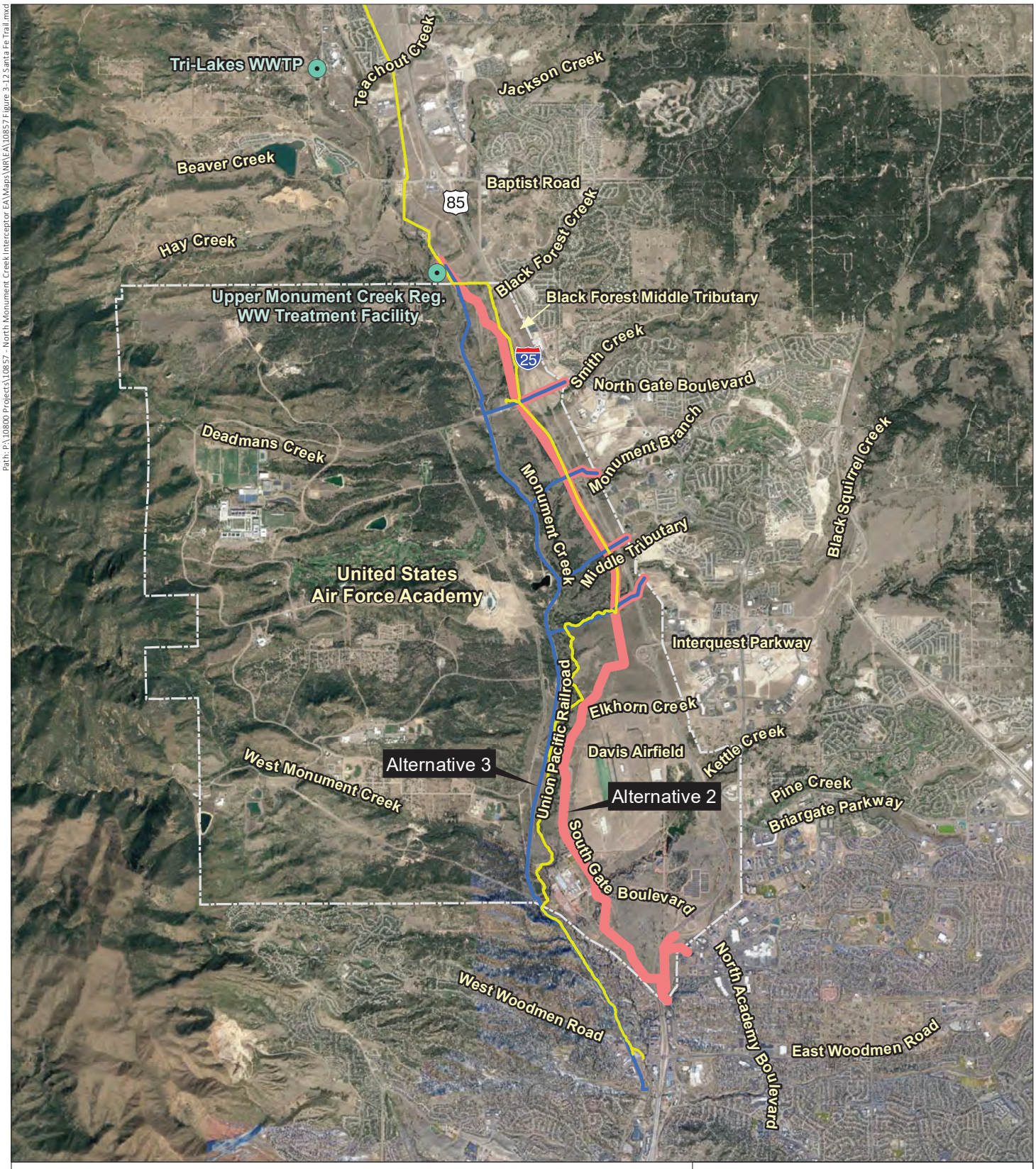
The Cultural Resources Report did not include unshared portions of Alternatives 4 and 5 beyond a Class I file search and literature review because there are no anticipated effects under Section 106 of the NHPA. Despite different review methods, comparison can be

achieved despite the following challenges: more data and more refined data for the preferred alignment including subsurface exploratory testing have been collected and no previous exploratory testing has occurred along the alternative alignment; and the alternative alignment has been almost completely previously surveyed on the USAFA, but not on private property.

3.9 RECREATION

The USAFA property contains more than 23 miles of paved and unpaved trails, including the New Santa Fe Regional Trail, Falcon Trail, Stanley Canyon Trail, and West Monument Creek Trail. The New Santa Fe Regional Trail is the only trail that would be crossed by the proposed alignments (Figure 3-12). The New Santa Fe Regional Trail is maintained by El Paso County and extends from the Palmer Lake Recreation Area in northern El Paso County, connecting the Tri-Lakes area (Palmer Lake, Woodmoor, and Monument) and northern Colorado Springs. The trail is also part of the Pikes Peak Greenway and Front Range Trail systems and provides the only nonmotorized connection between Colorado Springs, Monument, and Palmer Lake. Sections of the New Santa Fe Regional Trail are a cultural resource (see Section 3.8 *Cultural Resources*). The trail also serves as a commuter route for individuals traveling to and from work or school. This gravel surface regional trail generally follows a straight and level course for the first 6.5 miles beginning at Palmer Lake. An easement agreement by the USAFA provides access to a 6.9-mile stretch of this trail. Trail users are prohibited from leaving the 6-foot-wide trail surface as it passes through the USAFA. The section of the trail through the USAFA is also subject to closure for security reasons. Portions of the trail also follow the right-of-way of the historic AT&SF railroad. The wide gravel trail offers a panoramic view of the Rampart Range, USAFA grounds, and riparian habitat along Monument Creek. The New Santa Fe Regional Trail is used for running, hiking, and biking; however, the USAFA and El Paso County do not collect use statistics for the trail.

Trailheads for the New Santa Fe Regional Trail are located at Palmer Lake, Third Street in Monument, and at Baptist Road. Other trail access points are located at Highway 105 in Monument, North Gate Road Boulevard, and Ice Lake at the USAFA. The trailhead at Baptist Road, in the northern portion of the project area, has a parking area and restroom. The parking area outside the USAFA North Gate entrance is planned to permanently close to allow construction of the new USAFA Visitor’s Center. Edmondson trailhead at Woodmen Road south of the project area also has a small parking area.



Northern Monument Creek Interceptor Environmental Assessment

Existing Treatment Facility

New Santa Fe Regional Trail

Alternative 2 Eastern Alignment

Alternative 3 Western Alignment

Image Source: Google Earth©, October 2019

0 3,500 7,000 Feet

N

Figure 3-12
New Santa Fe Regional Trail

Prepared for: Colorado Springs Utilities
File: 10857 Figure 3-12 Santa Fe Trail.mxd (GS)
October 3, 2023

ERO Resources Corp.

Path: P:\10800 Projects\10857 - North Monument Creek Interceptor EA\Maps\NR\EA\10857 Figure 3-12 Santa Fe Trail.mxd

This page is intentionally left blank.

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

This chapter describes the potential environmental consequences that are likely to occur as a result of implementation of all alternatives that are being considered and analyzed. Impacts described in this chapter are evaluated in terms of type (positive/beneficial or adverse); context (setting or location); intensity (none, negligible, minor, moderate, or severe); and duration (short-term/temporary or long-term/permanent). The type, context, and intensity of an impact on a resource are explained under each resource area. Unless otherwise noted, short-term impacts are those that would result from the activities associated with a project's construction or demolition phase, and that would end upon completion of those phases. Long-term impacts are generally those resulting from the operation of a proposed project.

4.2 AIR INSTALLATION COMPATIBLE USE ZONES

4.2.1 Alternative 1 – No Action Alternative

In the No Action Alternative, the NMCI would not be constructed and there would be no new impacts on the Davis Airfield flight operations.

4.2.2 Alternative 2 – Eastern Alignment (Preferred Alternative)

Alternative 2 would require construction activities to occur within the Airspace of Davis Airfield, and within Safety Zones and under Imaginary Surfaces as set forth in UFC 3-260-01 (Airfield and Heliport Planning and Design). The pipeline alignment would cross about 1,196 linear feet of Accident Potential Zone II and 1,879 linear feet of the Clear Zone north of the USAFA Davis Airfield (Figure 3-1). The depth of the trench in this area would be about 10 feet. The pipeline would also cross about 1,042 linear feet of the Clear Zone for the smaller east-west runway to the west of the airfield. The depth of the trench in this area would be about 25 to 40 feet. South of the airfield, the pipeline and associated temporary access routes would cross about 2,232 linear feet of Accident Potential Zone II. The depth of the trench would be about 20 to 25 feet. The estimated working time in the Accident Potential Zones and Clear Zone would be 20 working days for the section north of the airfield, 19 working days for the section to the west, and 10 working days for the section to the south. The tallest equipment needed in the Accident Potential Zones/Clear Zone would be an excavator; no cranes would be required.

Construction activity, including equipment and open trenches in safety zones, are considered “obstructions” to airfield operations. However, utility lines are considered an acceptable use provided that the facilities are constructed at grade (USAF 2019). The north-south runways are used much more often than the smaller east-west runway, and construction within the Clear Zone of the north-south runways would be a much greater safety concern. Because of this concern, work within the Clear Zone for the north-south runways under Alternative 2 would be carefully monitored and restricted to avoid hazards to airfield operations. Work within the Clear Zone and Accident Potential Zones would be carefully coordinated with airfield operations to avoid conflicts. The work would be scheduled for times when the airfield is not in use. Operations of the airfield may be briefly adversely affected during construction. Utilities would work closely with the construction contractor and the airfield to minimize disruptions. Procedures for coordination would be determined in a risk assessment, as described below.

The east-west (Cross Wind) runway is used much less often than the north-south runways. Construction activity and related obstructions in the Clear Zone west present a potential risk to flight operations, but mitigation controls that would be applied to construction activity would likely be sufficient for the ABW Commander to accept the operational risks. In addition, utility lines are considered an acceptable use provided that the facilities are constructed at grade (USAF 2019).

An Airfield Construction Waiver and risk assessment would be prepared by USAFA 10 CES personnel in cooperation with the CSU, to assess and evaluate risks to flight operations. The

risk assessment would require approval by the 10 ABW Commander and would consider all obstructions and risks caused by construction activity. Mitigation measures would be developed as part of the risk assessment and could include night work or other restrictions on timing of work and high visibility flagging on equipment.

Overall, impacts on the AICUZ would be temporary and minor. Impacts would be minor because the project would not result in an unacceptable increase in risk to flight operations with the implementation of design measures such as timing restrictions on construction in the AICUZ at the airfield, and implementation of additional mitigation measures developed through the risk assessment.

4.2.3 Alternative 3 – Western Alignment

Alternative 3 would require construction activities to occur within the Airspace of Davis Airfield, and within Safety Zones and under Imaginary Surfaces as set forth in UFC 3-260-01 (Airfield and Heliport Planning and Design). The Black Squirrel Creek No. 2 lateral pipeline alignment would cross about 2,302 linear feet of Accident Potential Zone II north of the airfield (Figure 3-1). The pipeline would also cross about 1,030 linear feet of Accident Potential Zone I for the smaller east-west runway to the west of the airfield. The estimated working time within the Accident Potential Zones and Clear Zone would be 20 working days for the section in Accident Potential Zone II north of the airfield and 19 working days for the section to the west. The tallest equipment needed in the Accident Potential Zones/Clear Zone would be an excavator; no cranes would be required.

As described above for Alternative 2, there are risks to flight operations from the proposed presence of construction equipment and open trenches within airfield safety zones. As previously described, utility lines are considered an acceptable use provided that the facilities are constructed at grade (USAF 2019). Additionally, the construction activity within the Clear Zone is considered to be the greatest related risk of the project. However, operation and mitigation controls that will be applied to construction activity will likely be sufficient for the ABW Commander to accept the operational risks.

If this alternative were selected, a risk assessment would be prepared by Utilities, in cooperation with the USAFA, to assess and evaluate risks to aviation, and mitigation measures would be developed as part of the risk assessment as described above for Alternative 2.

Overall, impacts on the AICUZ would be temporary and minor. Impacts would be minor because the project would not result in an unacceptable increase in risk to flight operations with the implementation of design measures such timing restrictions on construction in the AICUZ at the airfield, and implementation of additional mitigation measures developed through the risk assessment.

4.3 NOISE

4.3.1 Alternative 1 – No Action Alternative

In the No Action Alternative, the NMCI would not be constructed and there would be no change in noise levels in the project area.

4.3.2 Alternative 2 – Eastern Alignment (Preferred Alternative)

Impacts on the USAFA ambient noise environment would occur from operation of construction equipment as well as the increase in construction vehicle traffic noise along roads used for access. Noise levels from construction would vary depending on the types of equipment being used on a given day, the topography of the area where the project would occur, the distance of the receptor from the generating source, and the presence of trees or buildings. Because the USAFA has two active airfields, the temporary increases in construction noise would be a fraction of the noise generated routinely at the USAFA.

L_{max} is the maximum sound energy over a given period. The L_{max} analysis allows for a comparative analysis of maximum potential noise impacts, such as for construction equipment noise that is limited in duration. Predicted noise levels from construction equipment are shown in Table 4-1.

Table 4-1. Noise Produced by Typical Construction Equipment.

Equipment	L_{max} at 50 feet (dBA)	L_{max} at 250 feet (dBA)	L_{max} at 500 feet (dBA)	L_{max} at 0.5 mile (dBA)
Excavator	81	67	61	47
Dozer	82	68	62	48
Grader	85	71	65	51
Scraper	84	70	64	50

Source: Federal Highway Administration 2006.

The alignment for Alternative 2 would generally be more than 0.5 mile from residential areas or would be separated from residential areas by I-25. However, the limits of disturbance would be within 250 feet of residences at the southern end of the project area. In these areas, construction-related noise could temporarily be up to 67 to 71 dBA. For comparison, 70 dBA is comparable to the noise level near a busy street, while 60 dBA is comparable to a normal conversation or an automobile at 100 feet, while 50 dBA is comparable to the noise level from moderate rainfall. For residences east of I-25, noise levels would be less than noise levels from the highway. These increases above average daytime noise levels (around 55 dB or less as previously described) would be short-term, lasting only during the construction period, and would only be within 0.5 mile of residences for a period of about one to two weeks for each residence.

No long-term impacts on the ambient noise environment of the project area would occur from operation of the proposed NMCI. Impacts would be short-term, minor, and adverse and would last only for the 12-month duration of construction. Impacts would be minor because noises during operation of the proposed NMCI would not be appreciably louder than existing conditions in the project area.

4.3.3 Alternative 3 – Western Alignment

Noise levels under Alternative 3 would be the same as described for Alternative 2; however, the impacts on nearby residents would be greater because there would be more private residences affected by elevated noise levels during construction. Alternative 3 would include a section through a narrow area constrained by the railroad, Monument Creek, and surrounding residential development on nonfederal land south of the USAFA boundary, thus resulting in increased impacts compared to Alternative 2. As previously described, noise levels for residences east of I-25 would be less than noise levels from the highway. Overall, noise impacts during construction would be short-term and minor, and would be greater than under Alternative 2 because there would be more residences within 500 feet of the construction area.

As described for the Alternative 2, no long-term impacts on the ambient noise environment of the project area would occur from operation of the proposed NMCI under Alternative 3. Impacts would be minor because noises during operation of the proposed NMCI would not be appreciably louder than existing conditions in the project area.

4.4 AIR QUALITY

4.4.1 Alternative 1 – No Action Alternative

If the No Action Alternative is selected, the NMCI would not be constructed and there would be no new impacts on air quality.

4.4.2 Alternative 2 – Eastern Alignment (Preferred Alternative)

During construction, motorized equipment would emit gaseous emissions, and surface disturbance would generate dust. The project would have a short-term impact on air quality, lasting for the approximately 1.4 year construction period. Criteria pollutant and greenhouse gas (GHG) air emissions would be produced from the combustion of fuels in heavy equipment. Particulate matter air emissions, such as fugitive dust, would be produced from ground-disturbing activities and from the combustion of fuels in heavy equipment. Fugitive dust air emissions would result from ground disturbance and excavation for trenching and would vary depending on the work phase, level of activity, and prevailing weather conditions. Construction would incorporate BMPs and environmental control measures such as wetting the ground surface to minimize fugitive particulate matter air emissions. Construction workers commuting daily to and from the job sites in their personal vehicles and vehicles hauling construction materials to and from the job site would also result in criteria pollutant and GHG air emissions. All impacts on air quality would be temporary and no new long-term impacts on air quality would occur.

Pollutant emissions were calculated using the USAF Air Conformity Applicability Model. Emissions calculations are summarized in Appendix B. Pollutants emitted would include volatile organic compounds (VOC), nitrogen oxides (NO_x), CO, sulfur oxides (SO_x), PM_{10}, $PM_{2.5}$, ammonia (NH_3), and carbon dioxide (CO_2). Table 4-2 summarizes the criteria pollutant and GHG air emissions resulting from Alternative 2 and the applicable general conformity threshold for CO (carbon monoxide). Overall, impacts on air quality would be short-term, lasting only during construction, and minor. Impacts would be minor because the project would not result in exceedance of the general conformity *de minimis* threshold for any of the criteria pollutants. Although construction activities associated with implementation of the preferred alternative would contribute GHG emissions, such emissions would be short-term, ending with construction completion. Any effects of construction related GHG emissions on climate change would not be discernible at a regional scale.

Table 4-2. Pollutant Emissions and General Conformity Threshold.

Pollutant	Emissions (tpy*)	General Conformity	
		Threshold (tpy)	Exceedance (Yes or No)
VOC	3.946	250	No
NO_x	1.902	250	No
CO	3.396	100	No
SO_x	0.007	250	No
PM_{10}	33.854	250	No
$PM_{2.5}$	0.069	250	No
Lead	0.000	25	No
NH_3	0.010	250	No
CO_2	739.7	N/A	N/A

*Tpy = tons per year.

4.4.3 Alternative 3 – Western Alignment

As described for Alternative 2, Alternative 3 would have a short-term impact on air quality, lasting for the construction period. Impacts would be the same as described for Alternative 2, except that there would be slightly more ground disturbance, resulting in slightly more fugitive dust. The length of construction, type and number of construction vehicles, and other sources of air pollution would be the same as described for Alternative 2, except that construction could take about 15 to 17 months. The project would not result in exceedance of the general conformity *de minimis* threshold for any of the criteria pollutants; therefore, impacts on air quality would be minor. As described for the other alternatives, impacts from GHG emissions would be short term and would not be discernable at a regional scale.

4.5 WATER RESOURCES

4.5.1 Alternative 1 – No Action Alternative

In the No Action Alternative, the NMCI would not be constructed and there would be no impact on water resources from the proposed project. The Northern Entities and Utilities would continue their current operations by operating and maintaining their existing facilities and improving their respective WWTFs as needed to meet future hydraulic and organic loadings, and to comply with future regulations. Current water quality conditions, including impairment for *E. coli*, manganese, macroinvertebrate (provisional), and temperature would continue.

4.5.2 Alternative 2 – Eastern Alignment (Preferred Alternative)

NMCI pipeline construction would disturb soils and increase the potential for erosion and sedimentation. Resource protection measures and BMPs implemented as part of a Stormwater Pollution Prevention Plan would minimize related storm water pollution and surface water runoff. Directional drilling for construction of inverted siphons would minimize surface disturbances and would minimize impacts on streams. Pipeline construction disturbances would be temporary and following construction completion and reclamation, no additional impacts on water resources are expected to occur. The average depth of the pipelines would not likely encounter groundwater, but if encountered, groundwater would be temporarily impacted but longer term impacts are not expected.

Following completion of the NMCI, wastewater flows from the Tri-View and Forest Lakes wastewater districts that were formerly treated at the Upper Monument Creek WWTF would flow into the NMCI pipeline and would be treated at the J.D. Phillips WRRF by Utilities. This would both reduce stream flows and point source pollutants in upper Monument Creek where the current WWTF discharges but could result in a small or negligible increase in stream flows and point source pollutants discharged into lower Monument Creek where discharges from the J.D. Phillips WRRF occur. Modeled expected changes in streamflow in Monument Creek are summarized in Table 4-3 (Confluence Water Consulting 2022).

Table 4-3. Pre-Project and Post-Project Streamflow for Monument Creek .

Study Location	Average Streamflow (1996-2021)			Median Streamflow (1996-2021)		
	Pre-Project (cfs)	Post-Project (cfs)	Reduction	Pre-Project (cfs)	Post-Project (cfs)	Reduction
Tri-Lakes WWTF	6.2	6.2	0.0%	2.8	2.8	0.0%
Upper Monument Creek WWTF	12.3	11.8	4.4%	5.7	5.2	9.2%
USAFA WWTF	15.3	14.7	3.5%	7.9	7.3	6.8%
Woodmen Road	27.7	27.2	1.9%	16.0	15.5	3.4%

Impacts on water resources would be as follows:

- If Upper Monument Creek WWTF effluents are removed, average Monument Creek flows would be reduced at Woodmen Road by 0.5 cfs, representing a 1.9 percent decrease on average (Table 4-3).
- Average flow reductions would be greatest at Upper Monument Creek WWTF, where the average flow reduction would be 4.4 percent (Table 4-3).
- Monument Creek is unlikely to be reduced to zero flow at any time because stream flow modelling did not identify any expected time periods with no flow (Confluence Water Consulting 2022).
- Reduced flow would reduce the dilution effect and likely increase the concentrations of manganese and *E. coli* in the creek (Berleman 2020). These increases would be small, due to the relatively small reduction in average stream flow.
- Potential benefits to Monument Creek include temperature reduction. Since WRRF effluents have higher temperatures compared to the receiving water in the creek, removal of a portion of the effluent from the Upper Monument Creek WWTF to Monument Creek would result in a reduction of stream temperatures, most notable in the winter.
- Specific to Utilities, which diverts water from Monument Creek to Pikeview Reservoir, reducing flows on the upper reaches of Monument Creek would have minimal impact on the diversion at Pikeview Reservoir as native flows at any time of the year are above 80 percent. However, a reduction in nutrients from wastewater effluent could improve Pikeview Reservoir water quality since it is prone to algae blooms.
- Additionally, GEI Consultants (GEI) reviewed the project area and used existing gauge data and rating curves to evaluate whether surface flow reductions would reduce groundwater levels (GEI 2021). GEI concluded that stream sections where Monument Creek is gaining, groundwater levels are likely higher than the stream channel and where it is losing, groundwater is likely lower that the stream channel. GEI also concluded that a reduction in surface flows that results in a few inches of decreased water level, would not likely alter groundwater levels (GEI 2021).

4.5.3 Alternative 3 – Western Alignment

Water resource impacts related to this alternative would be the same as for Alternative 2. Although Alternative 3 would vary in length and location compared to Alternative 2, resource protection measures and BMPs would minimize short-term impacts related to construction of the pipeline. Monument Creek flow impacts would be same as Alternative 2 since varying the alignment locations would not alter the changes in effluent discharge locations associated with the WWTF.

4.6 HAZARDOUS MATERIALS/WASTE

4.6.1 Alternative 1 – No Action Alternative

If the No Action Alternative is selected, the NMCI would not be constructed and there would be no new impacts on hazardous materials and waste.

4.6.2 Alternative 2 – Eastern Alignment (Preferred Alternative)

Under Alternative 2, short-term, minor, and adverse cumulative impacts from the use of hazardous materials and the generation of hazardous wastes would occur during construction. All hazardous materials, petroleum products, and hazardous wastes supporting construction would be contained and stored appropriately in accordance with state and federal regulations to minimize the potential for releases. Impacts would be minor because the NMCI is not expected to result in noncompliance with applicable federal or state regulations, disturb or create contaminated sites resulting in negative effects on human health or the environment, or make it substantially more difficult or costly to remediate existing contaminated sites.

As previously described, a review of reasonably ascertainable records did not identify any sites likely to have adversely affected the soil or groundwater at any of the proposed project facilities. The Preferred Alternative alignment would avoid the landfill site, as previously described. Operation and maintenance of the pipeline would not affect the landfill site.

All solid waste generated during construction would be removed by the contractor and disposed of at an appropriate disposal facility outside of the USAFA. The contractor would be required to comply with all applicable state and federal laws related to hazardous material use. Potential impacts would be reduced or avoided by implementing the measures described in Section 2.4 *Resource Protection Measures.*

In addition, prior to construction of project facilities, a more detailed hazardous materials assessment in conformance with the scope and limitations of DAFI32-7020: Environmental Restoration Program dated December 15, 2020 would be conducted to identify sites with soil or groundwater contamination that are not documented in readily ascertainable agency files (DAF 2020). If soil or groundwater contamination is encountered during construction of project facilities, mitigation procedures would be implemented to minimize the risk to construction workers and to the future operation of the project. The proposed resource protection measures would identify areas of potential contamination from hazardous materials and would remediate the soil and groundwater if any contamination were identified. Overall adverse effects are expected to be minor because implementation of resource protection measures would minimize the risk to construction workers and to the future operation of the project, and because there would be no long-term effects on the landfill.

4.6.3 Alternative 3 – Western Alignment

Impacts and resource protection measures under Alternative 3 would be the same as described for Alternative 2.

4.7 BIOLOGICAL/NATURAL RESOURCES

4.7.1 Vegetation

4.7.1.1 Alternative 1 – No Action Alternative

If the No Action Alternative is selected, the NMCI would not be constructed and there would be no new impacts on vegetation.

4.7.1.2 Alternative 2 – Eastern Alignment (Preferred Alternative)

Alternative 2 would result in temporary impacts on about 140.6 acres and permanent impacts on 0.196 acre of vegetation communities in the project area. Vegetation impacts are summarized in Table 4-4.

Table 4-4. Alternative 2 Vegetation Impacts.

Vegetation Community	Temporary Impact (acres)	Permanent Impact (acres)
Upland grassland	108.664	0.162
Upland shrub/scrub	0	0
Upland grassland – shrub/scrub mosaic	0	0
Upland shrub/scrub – grassland mosaic	1.077	0.004
Upland forest	28.566	0.026
Riparian	2.285	0.004
Wetland	0	0
Total disturbance – vegetated areas	**140.592**	**0.196**
Developed/disturbed/unvegetated	31.288	0.057

All temporary disturbances would be returned to preconstruction grade and revegetated with appropriate native vegetation per USAFA Erosion Control Revegetation, and Tree Care Standards (USAFA 2019) and the BA (ERO 2023). Utilities does not anticipate that a high number of trees or shrubs would be removed. Native shrub plantings would be included in the seed mixes. If necessary, native tree and shrub planting locations would be determined in the field following construction. Seed mixes for upland grasslands and riparian/wetland areas are provided in the BA (ERO 2023). Temporarily disturbed grasslands would be expected to recover to preconstruction conditions in about two to five years. Upland shrub/scrub communities would likely take longer to recover due to the slow-growing nature of upland shrubs in the dry climate of the project area. Upland forest areas could take decades to recover to preconstruction conditions. Restoration of riparian and wetland areas would be subject to additional success criteria and monitoring as required by Section 404 permitting and consultation for impacts on Preble's habitat as described in the *Wetlands, Floodplains, and Riparian* and *Special Status Species* sections of this EA.

Disturbance from construction activities or trenching could increase the abundance and diversity of noxious weeds. Methods for prevention and noxious weed management described in the Integrated Noxious Weed Management Plan (Smith et al. 2015) would be

implemented during and following construction. The site would be monitored following construction to manage potential infestations.

Overall, with implementation of the restoration and resource protection measures described above, Alternative 2 would result in temporary, moderate impacts on vegetation. The 140 acres of temporary vegetation impacts would be a relatively small impact compared to the 18,445 acres contained within USAFA and the many thousands of additional acres of mostly upland grasslands also found on surrounding nonfederal lands. The impacts would be moderate because the existing vegetation is common locally and Alternative 2 would only remove a small percentage of similar vegetation available in the surrounding area. Permanent impacts on vegetation would occur in a small area (0.196 acre) and would result mostly from permanent manholes placed in upland grasslands throughout the pipeline alignment.

4.7.1.3 Alternative 3 – Western Alignment

As described for Alternative 2, Alternative 3 would result in impacts on vegetation communities in the project area, as summarized in Table 4-5.

Table 4-5. Alternative 3 Vegetation Impacts.

Vegetation Community	Temporary Impact (acres)	Permanent Impact (acres)
Upland grassland	59.020	1.686
Upland shrub/scrub	0	0
Upland grassland – shrub/scrub mosaic	3.980	0.004
Upland shrub/scrub – grassland mosaic	0	0
Upland forest	45.641	0.363
Riparian	25.973	0.570
Wetland	2.007	0.045
Total disturbance – vegetated areas	**136.621**	**2.668**
Developed/disturbed/unvegetated	56.129	0.123

As described for Alternative 2, temporary disturbances would be returned to preconstruction grade and revegetated with appropriate native vegetation following USAFA requirements (USAFA 2019). Seed mixes for upland grasslands and riparian/wetland areas are provided in the BA (ERO 2023). Restoration and monitoring requirements would be the same as described for Alternative 2, and methods for prevention and noxious weed management described in the Integrated Noxious Weed Management Plan (Smith et al. 2015) would be implemented during and following construction.

Overall, with implementation of the restoration and resource protection measures described above, Alternative 3 would result in temporary and permanent moderate impacts on vegetation. As previously described, temporary impacts would be moderate because the existing vegetation is common locally and the amount of vegetation affected (about 137 acres) would be a small percentage of similar vegetation available in the surrounding area. Permanent impacts on vegetation would result mostly from construction of a permanent access road and crossing of Monument Creek just north of North Gate Boulevard, which

would affect upland grassland, upland forest, and riparian habitats. Permanent vegetation loss would be about 2.624 acres, which would be substantially more permanent impacts than Alternative 2 (permanent impacts of 0.191 acre).

4.7.2 Wetlands, Riparian, and Floodplains

4.7.2.1 Wetlands and Riparian

4.7.2.1.1 Alternative 1 – No Action Alternative

If the No Action Alternative is selected, the NMCI would not be constructed and there would be no new impacts on wetland or riparian habitat.

4.7.2.1.2 Alternative 2 – Eastern Alignment (Preferred Alternative)

Alternative 2 would result in temporary surface disturbance from trenching on 2.285 acres of riparian habitat and 0.10 acre of wetlands along tributaries. There would also be temporary impacts on 0.07 acre of wetlands that are isolated along North Gate Boulevard. No stream channels would be impacted under this alternative. For comparison, there are about 687 acres of riparian habitat and about 104 acres of wetlands within the USAFA boundary, and an unknown area of riparian habitat, waters of the U.S., and wetlands on nonfederal lands in the surrounding area. Alternative 2 would not permanently impact any waters of the U.S. or wetlands. Resource protection measures discussed in Section 2.4 *Resource Protection Measures* would minimize impacts on water quality from sedimentation during construction, thus no impacts on wetlands from changes in water quality are expected.

All temporary disturbances would be returned to preconstruction grade and revegetated with appropriate native vegetation per USAFA Erosion Control Revegetation, and Tree Care Standards (USAFA 2019). Utilities does not anticipate that a high number of trees or shrubs would be removed from wetland and riparian areas. Native shrub plantings would be included in the seed mixes. Seed mixes for riparian/wetland areas are provided in the BA (ERO 2023). Temporarily disturbed herbaceous wetlands would be expected to recover to preconstruction conditions in about two to five years. Riparian and wetland willow communities would likely take longer to recover since willow shrubs would take longer to mature. Restoration of riparian and wetland areas would be subject to additional success criteria and monitoring as required by Section 404 permitting and consultation for impacts on Preble's, which is typically a duration of five years.

Overall, with implementation of the restoration and resource protection measures described above, Alternative 2 would result in temporary minor impacts on riparian habitat. The impacts would be minor because Alternative 2 would only affect a small percentage of similar riparian habitat available in the surrounding area. Permanent impacts on riparian habitat would occur in a small area (0.004 acre) and would result mostly from permanent manholes placed throughout the pipeline alignment. No permanent impacts would occur to wetlands under Alternative 2 (see Table 4-4).

4.7.2.1.3 Alternative 3 – Western Alignment

Alternative 3 would result in temporary surface disturbance from trenching on 25.973 acres of riparian habitat, 1.336 acres of waters of the U.S., and 2.007 acres of wetland habitat. Alternative 3 would not permanently impact any waters of the U.S. but would permanently impact 0.570 acre of riparian habitat and 0.045 acre of wetland habitat (see Table 4-5). As previously described, resource protection measures discussed in Section 2.4 *Resource Protection Measures* of this EA would minimize impacts on water quality from sedimentation during construction, thus no impacts on wetlands from changes in water quality are expected.

As described for the other Action Alternatives, temporary disturbances would be returned to preconstruction grade and revegetated with appropriate native vegetation following USAFA requirements (USAFA 2019). Restoration and monitoring requirements would be the same as described for Alternative 2.

Overall, with implementation of the restoration and resource protection measures described above, Alternative 3 would result in temporary and permanent moderate impacts on riparian and wetland vegetation. The impacts would be moderate because, although only a small percentage of similar wetlands and riparian habitat available in the surrounding area would be affected, temporary impacts would be substantially greater than under Alternative 2. Permanent impacts on riparian and wetland habitat would result mostly from construction of a permanent access road and crossing of Monument Creek just north of North Gate Boulevard. Permanent impacts on riparian and wetland habitat would be 0.615 acre. This would be substantially more permanent impacts than Alternative 2, which would not permanently impact wetlands and would permanently impact 0.004 acre of riparian habitat (see Table 4-4).

4.7.2.2 Floodplains

4.7.2.2.1 Alternative 1 – No Action Alternative

If the No Action Alternative is selected, the NMCI would not be constructed and there would be no new impacts on floodplains.

4.7.2.2.2 Alternative 2 – Eastern Alignment (Preferred Alternative)

Alternative 2 would result in temporary surface disturbances to 0.872 acre and permanent disturbance to 0.002 acre within the 100-year floodplain. The permanent surface disturbance would result from placing manholes and would not affect surface elevations. Measures would be implemented to minimize adverse effects on floodplains; these resource protection measures are discussed in Section 2.4 *Resource Protection Measures*.

The floodplain would be slightly negatively impacted during construction due to the presence of staging areas, construction equipment and materials in the floodplain and possible erosion from bare soils prior to revegetation. Construction activities would be monitored, and erosion- and sediment-control BMPs would be implemented to minimize erosion and sediment movement. Disturbed areas would be revegetated following construction, as described in Section *4.7.1 Vegetation*.

Alternative 2 would not have long-term impacts on floodplains following construction. The pipeline would be designed to withstand flood events without the need for maintenance and repairs, which would reduce impacts on the floodplain. Alternative 2 would not change surface elevations, would not substantially affect floodplain functions or increase the risk of flooding in the Monument Creek watershed, would minimize the impact of floods on human safety, and would be resilient against flooding. The overall effect on the Monument Creek floodplain would be temporary and minor because the surface contours would be restored to preconstruction conditions within floodplain areas and there would be no permanent impacts.

4.7.2.2.3 Alternative 3 – Western Alignment

As described for Alternative 2, Alternative 3 would result in temporary impacts on the 100-year floodplain during construction. Alternative 3 would temporarily disturb about 26.27 acres within the 100-year floodplain. Most impacts would be temporary; however, construction would result in 0.931 acre of permanent impacts on the 100-year floodplain. Most of this impact (about 0.911 acre) would result from construction of a permanent access road and creek crossing of Monument Creek. This impact would be required to construct a section of the pipeline that can only be accessed by crossing the creek and would need to be maintained as a permanent easement to provide access to this section of the pipeline, as described in Section 2.3.4.3 of this EA. The access road would be constructed in a corridor about 30 feet wide and about 1,000 feet long.

As described for Alternative 2, the floodplain would be slightly negatively impacted during construction due to the presence of staging areas, construction equipment, and materials in the floodplain and possible erosion from bare soils prior to revegetation. Construction activities would be monitored, and erosion- and sediment-control BMPs would be implemented to minimize erosion and sediment movement. Disturbed areas would be revegetated following construction.

Construction of a permanent access road and crossing of Monument Creek just north of North Gate Boulevard would result in a permanent change in the ground surface elevation within a 0.911-acre area of the 100-year floodplain. The new access road and crossing would be designed to avoid restricting flood flows and would be designed to avoid erosion or other damage to the floodplain. Because the section of Monument Creek within the USAFA contains about 820 acres of 100-year floodplain, the permanent alteration of 0.931 acre of floodplain would be a minor impact but would be greater than the permanent impacts under Alternative 2, which would not result in permanent alteration to surface elevations within the 100-year floodplain.

4.7.3 Wildlife

4.7.3.1 Alternative 1 – No Action Alternative

Under the No Action Alternative, the NMCI would not be constructed and there would be no new impacts on terrestrial or aquatic wildlife.

4.7.3.2 Alternative 2 – Eastern Alignment (Preferred Alternative)

The NMCI may affect wildlife including terrestrial and aquatic species. Effects common to all species from the NMCI include temporary loss of habitat due to surface disturbances and vegetation removal; direct mortality or injury to wildlife; behavioral shifts that result in displacement of individuals; or disturbance of normal breeding, feeding, or sheltering behavior. Behavioral shifts in wildlife may result from increased noise, traffic, and human encroachment during construction, which would be common for all Action Alternatives. The effects on wildlife are generally related to impacts on plant communities, as described in Section 4.7.1 *Vegetation*. All temporarily affected areas would be restored with appropriate native vegetation following construction, which would offset some adverse impacts on wildlife.

In general, each Action Alternative would have similar effects on wildlife. Large game such as mule deer (*Odocoileus hemionus*) may be temporarily displaced to other areas adjacent to the project area. Mule deer are habitat generalists and ample nearby suitable habitat is available surrounding the project area. Elk (*Cervus canadensis*) may occasionally forage in the project area but are more common in higher elevations west of the project area. Effects on large game are generally expected to be temporary and minor. Impacts would be minor because the area affected would be small relative to the amount of nearby similar habitat.

Larger carnivores such as coyote (*Canis latrans*), black bear (*Ursus americanus*), red fox (*Vulpes vulpes*), and mountain lion (*Puma concolor*) are somewhat nomadic in nature and pass through areas while foraging. Therefore, effects on carnivorous species are expected to be relatively temporary and minor. Individual animals may avoid the project area during construction, leading to temporary increases in competition in areas adjacent to the project area.

Effects on smaller mammals, including bats, small carnivores, and reptiles and amphibians, would be temporary and minor to moderate due to clearing of vegetation and excavation since many smaller animals use burrows for shelter. Impacts would be minor because the area affected would be small relative to the amount of nearby similar habitat. The pipeline would be constructed in segments, resulting in displacement of individual animals and possible localized populations in certain areas at certain times (versus the entire project area at once). Some small animals may be displaced to adjacent land, which could lead to increased competition. Generalist species may reestablish in disturbed areas more quickly than those with specialized habitat requirements.

Clearing of vegetation may result in abandonment by ground-, shrub-, and tree-nesting birds during construction. Removal of vegetation would temporarily reduce available habitat for breeding, roosting, and foraging songbirds and other avian species until restoration of habitat is complete. Loss of habitat would be temporary and minor. Impacts would be minor because the area affected would be small relative to the amount of nearby similar habitat. If possible, vegetation clearing would be done outside of the breeding and nesting seasons for most species. If some areas of vegetation removal cannot be done outside of the breeding and nesting seasons, breeding bird surveys would be conducted prior to land disturbance.

Under Alternative 2, temporary effects on about 141 acres and permanent effects on about 0.196 acre of wildlife habitat, represented in different vegetation communities, would occur. Temporary effects on about 109 acres and permanent effects on 0.162 acre of upland grassland and shrubland habitat would occur. This would result in mostly a temporary and minor loss of habitat for grassland species including habitat generalists such as mule deer, coyote, rabbit (*Sylvilagus* sp.), deer mouse (*Peromyscus maniculatus*), bullsnake (*Pituophis catinifer*), prairie rattlesnake (*Crotalus viridis*), red-tailed hawk (*Buteo jamaicensis*), American robin (*Turdus migratorius*), common nighthawk (*Chordeiles minor*), and mourning dove (*Zenaida macroura*). Habitat for specialized upland grassland or shrubland species such as pocket gopher (*Thomomys talpoides*), short-horned lizard (*Phrynosoma hernandesi*), eastern yellow-bellied racer (*Coluber coluber*), western meadowlark (*Sturnella neglecta*), and grasshopper sparrow (*Ammodramus savannarum*) would also be temporarily impacted. Alternative 2 would also temporarily impact about 29 acres and permanently impact 0.026 acre of upland forest habitat, which is located in the southern portions of the alignment. Species such as Abert's squirrel (*Sciurus aberti*), American kestrel (*Falco sparverius*), and mountain chickadee (*Poecile gambeli*) may inhabit these areas. Impacts on species that occur in this habitat would be temporary and minor. Impacts would be minor because the area affected would be small relative to the amount of nearby similar habitat. Utilities would minimize tree removal to the greatest extent possible.

As described in Section 4.7.1.1, wetland and riparian habitat impacts would be temporary and minor. Most wetland and riparian areas would be avoided. About 2.3 acres of riparian habitat would be temporarily impacted and 0.004 acre of riparian habitat would be permanently impacted under Alternative 2. Temporary impacts may affect habitat for species such as racoon (P*rocyon lotor*), vole (*Microtus* sp.), western terrestrial (*Thamophis elegans*) or plains gartersnake (*T. radix*), tiger salamander (*Ambystoma tigrinum*), northern harrier (*Circus cyaneus*), great-horned owl (*Bubo virginianus*), red-winged blackbird (*Agelaius phoeniceus*), and Bullock's oriole (*Icterus bullockii*). Alternative 2 would result in reduced flows to Monument Creek during certain times of the year, as described in Section 4.5 *Water Resources*. Reduced flows could limit aquatic species migration. Flow reductions would likely be most notable during the fall and winter months when the flows are lowest. The impacts on aquatic species would be permanent and minor. Impacts on aquatic species would be minor because, as described in Section 4.5.2, impacts on streamflow in Monument Creek would not be substantial.

As mentioned in Section 4.7.1 *Vegetation* and Section 4.7.2 *Wetlands, Riparian, and Floodplains,* all temporary disturbances would be returned to preconstruction grade and revegetated with appropriate native vegetation per USAFA Erosion Control Revegetation, and Tree Care Standards (USAFA 2019). Seed mixes for riparian/wetland areas are provided in the BA (ERO 2021).

4.7.3.3 Alternative 3 – Western Alignment

The types of impacts from displacement and disturbance to wildlife would be the same under Alternative 3 as described for Alternative 2; however, the magnitude of impacts would be greater due to a higher acreage of disturbance in Alternative 3.

Permanent impacts on wildlife habitat would be higher under Alternative 3, 2.657 acres versus 0.227 acre under Alternative 2. Temporary impacts on wildlife habitat would be about 158 acres, which is similar to temporary impacts under Alternative 2. Temporary effects on about 81 acres and permanent effects on 1.719 acres of upland grassland and shrubland habitat would occur under Alternative 3. Additionally, about 45.6 acres of forest habitat and about 28 acres of wetland and riparian habitat would be temporarily impacted. Permanent impacts on forest habitat and wetland and riparian habitat would be slightly higher under Alternative 3, 0.363 and 0.571 acre, respectively, compared to those under Alternative 2. Impacts on wildlife species would be greater under Alternative 3 because of overall greater disturbance from a longer pipeline, staging, and access. Additionally, under Alternative 3, a permanent access and maintenance road would be required north of North Gate Boulevard, which would cross Monument Creek and would result in permanent loss of habitat. Impacts on wildlife would be mostly temporary and minor under Alternative 3 for the reasons described under Alternative 2, above.

As stated under the other Action Alternatives, all temporary disturbances would be returned to preconstruction grade and revegetated with appropriate native vegetation per USAFA Erosion Control Revegetation, and Tree Care Standards (USAFA 2019).

4.7.4 Special Status Species

4.7.4.1 Federally Threatened and Endangered Species

Each Action Alternative would result in temporary and permanent impacts on Preble's habitat in the project area. No habitat for any other federally listed threatened or endangered species would be impacted under either Action Alternative. Preble's habitat impacts from each alternative are shown on Figure 3-9 and Figure 3-10. Much of the NMCI would be bored under streams and riparian areas known to contain populations of Preble's.

As stated under Sections *4.7.1 Vegetation*; *4.7.2 Wetlands, Riparian, and Floodplains*; and *4.7.3 Wildlife* of this EA, all temporary disturbances would be returned to preconstruction grade and revegetated with appropriate native vegetation per USAFA Erosion Control Revegetation, and Tree Care Standards (USAFA 2019). Native seed mixes would be used as described in the BA (ERO 2023).

4.7.4.1.1 Alternative 1 – No Action Alternative

Under the No Action Alternative, the NMCI would not be constructed and there would be no new impacts on threatened, endangered, or sensitive species habitat.

4.7.4.1.2 Alternative 2 – Eastern Alignment (Preferred Alternative)

Potential direct effects on individual Preble's could include being crushed by machinery or disruption of normal dispersal, foraging, breeding, or hibernation behaviors during construction from noise and increased human activity. Disruptions to normal behaviors could result in death or reduced productivity. The potential for direct effects on individual Preble's would be greatly reduced by avoidance measures such as directional drilling under most Preble's habitat in the project area.

Under Alternative 2, temporary impacts would occur on 24.486 acres of Preble's habitat along Jackson Creek, Black Forest Creek, Smith Creek, Monument Branch, Middle Tributary, Black Squirrel Creek, Monument Creek, Elkhorn Creek, Kettle Creek, and two unnamed tributaries to Monument Creek. For comparison, there are about 3,238 acres of Preble's habitat in the conservation zone at USAFA and an additional 3,294 acres of Preble's critical habitat along Monument Creek and its tributaries on nonfederal land near USAFA. Permanent and temporary impacts from the project add up to 24.526 acres of direct impacts, including 24.084 acres in the USAFA conservation zone and 0.442 acre of critical habitat. Of the 24.526 acres of direct impacts, about 0.040 acre would be impacted permanently from placement of manhole covers, including 0.038 acre in the USAFA conservation zone and 0.002 acre of critical habitat. All manhole covers would be placed in low-quality upland habitat and would be located out of critical habitat and the USAFA conservation zone where possible. The remaining acreage would be temporarily impacted from trenching and access.

A BA has been prepared for the Preferred Alternative, which describes conservation measures that would be implemented to avoid, minimize, and mitigate impacts on Preble's (ERO 2023). The BA determined that the NMCI project "may affect, is likely to adversely affect" Preble's and "may affect, not likely to adversely affect" its critical habitat and would have no effect on other federally listed species. The USFWS concurred with this determination in a Biological Opinion dated March 11, 2024. Mitigation measures would include boring under most drainages where Preble's occurs to avoid and minimize impacts on Preble's and its habitat. The USAFA would adhere to the terms and conditions of the Preble's Conservation Agreement (USFWS 2009), and all additional Preble's conservation measures developed during consultation with the USFWS would be implemented, including meeting specific success criteria in Preble's habitat as outlined in the BA (ERO 2023). Under Alternative 2, impacts would be mostly temporary and minor to moderate because only a small portion of the Preble's habitat at USAFA and nearby nonfederal lands would be affected, and the project would not jeopardize the continued existence of Preble's at the USAFA. All temporarily impacted areas would be restored to preconstruction conditions and revegetated areas in Preble's habitat would be monitored following construction.

4.7.4.1.3 Alternative 3 – Western Alignment

The types of potential direct effects on Preble's under Alternative 3 would be the same as those described under Alternative 2. The potential for direct effects would be greater because there would be more project work within Preble's habitat, as described below.

Alternative 3 would have a higher impact on Preble's habitat compared with Alternative 2. Under Alternative 3, temporary impacts would occur on 101.76 acres of Preble's habitat along Black Forest Creek, Smith Creek, Monument Branch, Middle Tributary, Black Squirrel Creek, Monument Creek, Elkhorn Creek, Kettle Creek, and two unnamed tributaries to Monument Creek, including 53.32 acres in the USAFA conservation zone and 48.43 acres of critical habitat on nonfederal lands. Although impacts would be reduced by boring under most drainages occupied by Preble's, the total amount of impacts on Preble's habitat from Alternative 3 would be more than three times the amount of Preble's habitat affected under Alternative 2. About 1.88 acres of Preble's habitat would be impacted permanently from placement of manhole covers and a permanent access and maintenance road north of North Gate Boulevard, which would cross Monument Creek and result in permanent loss of habitat. Permanent impacts would include 1.83 acre in the conservation zone and 0.047 acre of critical habitat. The remaining acreage would be temporarily impacted from trenching and access. Impacts would be mostly temporary and moderate under Alternative 3 because only a small portion of the more than 6,500 acres of Preble's habitat at USAFA and nearby nonfederal lands would be affected. All temporarily impacted areas would be restored to preconstruction conditions and monitored following construction.

4.7.4.2 Other Sensitive Species

4.7.4.2.1 Alternative 1 – No Action Alternative

Under the No Action Alternative, the NMCI would not be constructed and there would be no new impacts on any sensitive species habitat.

4.7.4.2.2 Alternative 2 – Eastern Alignment (Preferred Alternative)

As discussed in Section 4.7.3, effects on sensitive species are generally the same for all wildlife species from the NMCI including temporary loss of habitat due to surface disturbances and vegetation removal, direct mortality or injury to wildlife from construction activities, and behavioral shifts that result in displacement of individuals or disturbance of normal breeding, feeding, or sheltering behavior. Behavioral shifts in wildlife may result from increased noise, traffic, and human encroachment during construction, which would be common for all Action Alternatives. While the impacts may result in behavioral changes or displacement of individuals during construction, impacts are not expected to result in a trend toward federal listing of any sensitive species that may occur in the project area.

Alternative 2 would temporarily impact some sensitive species habitat. The project would temporarily impact about 109 acres and permanently impact about 0.20 acre of grassland habitat, which could result in temporary minor to moderate impacts on species such as ferruginous hawk, northern pocket gopher, and olive-backed pocket mouse. Impacts would be minor because, as previously described, there is about 5,120 acres of upland grassland habitat at USAFA, and an unknown amount of additional upland grasslands on nearby nonfederal lands. Alternative 2 would also temporarily impact 2.6 acres of wetland and riparian habitat that provide habitat for the northern leopard frog and hops azure. No wetlands would be permanently impacted, and 0.004 acre of riparian habitat would be impacted. The

2.6 acres of temporary impacts would likely have minor impacts on wetland and riparian species. Impacts would be minor because, as previously described, there is about 687 acres of riparian and 104 acres of wetland habitat at USAFA, with additional habitat on nearby federal lands, Alternative 2 would also temporarily impact about 29 acres and permanently impact about 0.03 acre of upland woodland habitat that provides habitat for sensitive bats that may roost in trees. Temporary impacts on upland woodlands would result in minor effects on woodland species since there is an abundance of woodland habitat adjacent to the project area. Effects would be minor because, as previously described, there are more than 9,000 acres of upland woodland habitat at USAFA.

Alternative 2 would permanently impact about 0.19 acre of habitat throughout the project area, mainly from manhole placement. All temporarily affected areas would be restored with appropriate native vegetation following construction, which would offset some adverse impacts on wildlife.

4.7.4.2.3 Alternative 3 – Western Alignment

The types of potential effects on sensitive species under Alternative 3 would be the same as those described under Alternative 2; however, Alternative 3 would impact a higher amount of habitat for sensitive species compared to Alternative 2. The project would temporarily impact less grassland habitat than Alternative 2 (59 acres versus 97 acres for Alternative 2). Alternative 3 would temporarily impact 28 acres of wetland and riparian habitat and permanently impact 0.045 acre of wetland habitat and 0.57 acre of riparian habitat. Alternative 3 would also temporarily impact 46 acres and permanently impact 0.3 acre of upland forest habitat. Generally, impacts on sensitive species would be slightly higher under Alternative 3 than Alternative 2. Temporary impacts on 26 acres of riparian habitat and 46 acres of upland forest habitat would have a possible moderate effect on riparian and forest sensitive species in the project area.

All temporarily impacted areas would be revegetated following construction. The impacts under Alternative 3 may result in behavioral changes or displacement of individuals but would not result in a trend toward federal listing of any sensitive species that may occur in the project area.

4.8 CULTURAL RESOURCES

4.8.1 Alternative 1 – No Action Alternative

In the No Action Alternative, the NMCI would not be constructed and there would be no impacts on historic properties (i.e., cultural resources eligible or potentially eligible for listing in the NRHP).

4.8.2 Alternative 2 – Eastern Alignment (Preferred Alternative)

Under Alternative 2, direct impacts on cultural resources would occur in the project limits of disturbance, and Alternative 2 would have an adverse impact on one historic property. Alternative 2 crosses a variety of landforms ranging from Holocene-age channel alluvium that flanks most of the spring-fed and perennial drainages to pre-Holocene deposits of Pleistocene-age alluvium or earlier bedrock deposits on the upper landforms. Many of these landforms have been heavily disturbed by historical and modern development, terraforming, and tree plantations.

Undisturbed Holocene-age alluvial deposits are present on Jackson Creek, Black Forest Creek, Smith Creek, and Kettle Creek; however, exploratory archaeological testing demonstrates that there are no buried cultural resources at the proposed pipeline bore locations. No archaeological exploratory testing was conducted across the upper landforms because testing at Native American archaeological sites on the upper landforms demonstrated that there is little to no potential for buried cultural material in upper landform settings.

Alternative 2 generally crosses upper landforms mostly composed of pre-Holocene age alluvium and bedrock above and east of Monument Creek (Thorson et al. 2001; Thorson and Madole 2003). The upper landforms were deposited before the generally accepted age of human occupation in Colorado and, consequently, the potential for intact buried Native American cultural deposits is very low. Holocene-aged deposits that could contain buried Native American cultural deposits flank Monument Creek and the tributaries of Monument Creek; however, these deposits would be bored. Holocene-aged deposits would largely be avoided, and therefore direct effects would largely be avoided. Boring beneath historic properties like Native American archaeological sites would, however, still be considered by the SHPO an adverse effect under Section 106 of the NHPA. Laterals extending east from Alternative 2 would not impact any Holocene-age sediments and are mostly characterized by existing I-25 right-of-way and associated disturbance.

Under Alternative 2, 33 sites or segments of linear resources and 9 IFs are located in the limits of disturbance and would be partially or entirely directly impacted. Most of these resources are not eligible or potentially eligible for listing in the NRHP. Alternative 2 limits of disturbance were modified to completely avoid two Native American archaeological sites that are potential historic properties (5EP8874 and 5EP8877). Efforts were made to reduce the limits of disturbance near other resources regardless of their significance.

Three historic properties would be directly impacted under Alternative 2. The resources are three segments of the AT&SF Railroad (5EP1003.6, 5EP1003.23, 5EP1003.24), one segment of the Great North & South Highway (5EP5133.6) and one segment of Park Drive 5EP8927.1. During Section 106 consultation, the Colorado SHPO advised and USAFA agreed and determined that the project would have an adverse effect on 5EP1003.6, 5EP1003.23, and 5EP1003.24. USAFA executed a Memorandum of Agreement among the SHPO, USAFA, Utilities and with the Southern Ute Indian Tribe as a concurring party (Appendix C). The Memorandum of Agreement outlines how USAFA will resolve the adverse impacts on 5EP1003.

Impacts on 5EP1003.6 would affect about 0.75 mile of the trackbed north of Northgate Boulevard. Impacted features include pier remnants from two trestle bridges, a modern culvert, a concrete footer, a utility pole stump, and a portion of a borrow area.

Impacts on 5EP1003.23 are generally minimal except for impacts on the trackbed south of Black Squirrel Creek. No impacts on contributing features like culverts or bridges would occur.

Impacts on 5EP1003.24 would affect about 0.4 mile of the trackbed west of I-25. Impacted features include a wood box culvert and a concrete footer.

Impacts on 5EP5133.6 are limited to use of the former highway for construction access and would not alter or affect the resource.

Impacts on 5EP8927.1 include open cutting the road in areas previously cut by existing utilities and the road would be restored to its original condition.

Under Alternative 2, direct and permanent impacts on most potential historic properties would be minimized through complete or nearly complete avoidance or restoration. Exploratory testing demonstrates that Alternative 2 would not impact or bore beneath any historic properties buried in Holocene-age sediment. Alternative 2 would partially or completely directly impact 38 cultural resources that are not eligible or nonsupporting for listing in the NRHP. Overall, impacts would be permanent, but minor, because most impacts on cultural resources eligible or potentially eligible for listing in the NRHP (i.e., historic properties) would be avoided or minimized. Impacts on 5EP1003.6, 5EP1003.23, and 5EP1003.24, however, are unavoidable and those impacts in SHPO’s opinion are adverse; therefore there would be an adverse impact on historic properties.

4.8.3 Alternative 3 – Western Alignment

South of USAFA’s northern boundary, Alternative 3 would turn west, crossing Monument Creek, and then would parallel Monument Creek and the D&RGW Railroad until Alternative 3’s southern terminus. Outside of USAFA property, previous survey is only partial and primarily located near the southern end of Alternative 3.

Alternative 3 diverges from Alternative 2 where both alternatives enter USAFA property. Alternative 3 would impact several areas with identified Holocene-age deposits where there is potential for buried intact cultural deposits. Otherwise, Alternative 3 primarily crosses upper

landforms that have low potential to contain intact buried precontact cultural deposits or follow existing disturbance created by Denver & Rio Grande Western Railroad construction (Thorson et al. 2001; Thorson and Madole 2003). The laterals extending east from Alternative 3 would cross Monument Creek four times, increasing the potential that sediments containing buried archaeological sites would be impacted.

Based on previous survey on USAFA property, Alternative 3 and its associated laterals would partially or completely directly impact 46 cultural resources including 4 new sites, 7 new segments of linear resources, 2 new IFs, 18 previously recorded sites, 9 previously recorded segments of linear resources, and 6 previously recorded IFs. Most of these resources are not eligible or potentially eligible for listing in the NRHP. Table C-2 in Appendix C lists all of the documented cultural resources, their temporal period, and eligibility recommendations.

Two historic properties and three potential historic properties would be directly impacted under Alternative 3. The West Husted railroad siding (5EP2265) and the Edgerton townsite (5EP1627) are both officially eligible for listing in the NRHP and are located within the Alternative 3 limits of disturbance. The potential historic properties include a precontact culturally modified tree (5EP8295), a segment of the historical Denver to Pueblo Stage Road (5EP205.5), and a segment of the AT&SF Railroad (5EP1003.23). The culturally modified tree was recorded in 2018 by SWCA and is awaiting tribal consultation.

Impacts on 5EP205.5 would be limited to a section of the wagon road that does not convey any physical or historical integrity and, therefore, there would be no impacts on any of the aspects of integrity that contribute to the segment's ability to support the eligibility of the entire resource.

Impacts on 5EP1003.23 would be limited to disturbance associated with construction of the pipeline laterals and would only affect small portions of the railroad trackbed that contribute to the segment's ability to support the eligibility of the entire resource. Other contributing features like culverts or the elevated trackbed would not be impacted.

Although much of proposed Alternative 3 is previously surveyed, no exploratory testing has been conducted along the proposed alignment. Alternative 3 would impact multiple large deposits of untested Holocene-age alluvium that have potential to contain intact buried cultural deposits (Thorson et al. 2001; Thorson and Madole 2003). Holocene-age alluvium are mapped flanking Monument Creek north of North Gate Boulevard. South of North Gate Boulevard, Alternative 3 would impact mapped Holocene-age alluvium and slopewash along Deadmans Creek. South of Community Center Drive, Alternative 3 would impact a 1-mile-long stretch of mapped Pleistocene to Holocene-age colluvial sheetwash that overlooks Monument Creek to the east. Similar deposits have not been tested on the USAFA, but they have potential to contain buried cultural resources. South of South Gate Boulevard, Alternative 3 would impact additional deposits of colluvial sheetwash as well as large Holocene-age alluvial deposits on West Monument Creek near the creek's confluence with Monument Creek.

South of the USAFA, Alternative 3 would parallel the D&RGW Railroad's west side after which it would bore beneath the D&RGW Railroad and then would follow a narrow corridor between Monument Creek and the D&RGW Railroad for the remainder of Alternative 3's length. The final 2.5 miles of Alternative 3 would directly impact late Pleistocene and Holocene-age landforms likely to contain undocumented precontact and historical archaeological sites. Previous survey outside USAFA property is limited; however, one survey identified a historical site (5EP2184) and a precontact archaeological site (5EP2185) that would be impacted by Alternative 3. Nearby, but outside of Alternative 3, is the eligible Teachout Ranch and stage stop (5EP2182). These data indicate that additional cultural resources are likely present and would be directly impacted.

Under Alternative 3, four long laterals would extend east across the USAFA, each crossing Monument Creek. Monument Creek would likely be bored, but mapped and unmapped Holocene-age alluvium flanking Monument Creek would be impacted at all of the crossings except for the lateral at North Gate Boulevard. Currently, all tested Holocene-age alluvium occurred in tributaries of Monument Creek, but not along Monument Creek. Precontact site density increases in proximity to Monument Creek; therefore, greater numbers of buried archaeological sites likely occur and are more likely to be directly impacted under Alternative 3.

Alternative 3 would impact fewer known cultural resources but would have greater direct and permanent impacts on known historic properties than Alternative 2. There would be unavoidable permanent impacts on historic properties such as the Edgerton Townsite (5EP1627) and the Husted Siding (5EP2265). Unavoidable permanent impacts on a culturally modified tree (5EP8295) may also be present in the northernmost lateral. Further, four of the seven permanently impacted precontact archaeological sites have not been evaluated since the late 1990s. Modern review of these resources could result in revaluation of the eligibility of those resources. Alternative 3 would also impact greater areas of untested Holocene-age sediments compared to Alternative 2. This increased impact is due to the numerous Monument Creek crossings by the main alignment and the laterals as well as large Holocene-age deposits south of South Gate Boulevard. Although unconfirmed, it is likely that there are buried cultural resources contained in these deposits.

In summary, Alternative 3 is not completely surveyed for cultural resources; however, despite incomplete survey, Alternative 3 would have greater permanent impacts on historic properties or landforms potentially containing unknown historic properties than Alternative 2. Complete survey of Alternative 3 would not diminish those impacts.

4.8.4 Comparison of Alternatives

Although Alternative 2 has undergone more in-depth review and Alternative 3 will remain unsurveyed on private property, comparison between Alternative 2 and Alternative 3 is feasible. The Cultural Resources Report demonstrates three important conclusions. First, the previous surveys are largely reliable in terms of the presence or absence of sites and site NRHP eligibility recommendations. Therefore, there is no expectation for large numbers of unrecorded new sites on the USAFA, and the current site data allow for comparison. Second,

expectations on site locations can be established in unsurveyed areas based on the data from the previous surveys on the USAFA and the recent survey north of the USAFA on private property. Based on previous surveys, Native American archaeological sites are expected to be present on the margins of upper landforms overlooking Monument Creek, and historical sites are reliably identified through archival research. Subsurface exploratory testing demonstrates that buried cultural resources are present in Holocene-age sediments; therefore, buried sites are expected to be present in untested sediments along Alternative 3.

Based on this review of the alternatives, it can be concluded that although Alternative 2 will have adverse impacts on three segments of the AT&SF Railroad (5EP1003.6, 5EP1003.23 and 5EP1003.24), these adverse impacts will be less severe than the impact potential of Alternative 3.

4.9 RECREATION

4.9.1 Alternative 1 – No Action Alternative

In the No Action Alternative, the NMCI would not be constructed and there would be no impacts on recreation.

4.9.2 Alternative 2 – Eastern Alignment (Preferred Alternative)

Under Alternative 2, direct effects on the New Santa Fe Regional Trail would occur at several locations along the pipeline alignment. The NMCI would cross the trail just north of the USAFA boundary, impacting a 100-foot section of the trail. Within the USAFA property, the alignment would run parallel and just west of the New Santa Fe Regional Trail for about 3.6 miles in the northern portion of the USAFA, from the point where the alignment crosses the trail just north of the airfield. The portion of the New Santa Fe Regional Trail in the southern part of the USAFA would be directly affected in several sections north and west of the airfield. Impacts would occur to sections of the trail about 200, 300, 300, and 550 feet long, from north to south. Sections of the trail directly disturbed by trenching or damaged by construction traffic would be restored to preconstruction conditions following construction. Restoration of impacts would be done as part of Section 106 mitigation as described in Section 4.8 *Cultural Resources*.

Short-term moderate adverse impacts on recreational users would occur due to temporary closures of the New Sana Fe Trail during construction. Impacts would be moderate during construction because impacts on trail users from temporary closures would be unavoidable. Access and haul routes during construction would be along the pipeline route with occasional detours onto the New Santa Fe Regional Trail to go across drainages. As necessary, access restriction on the New Santa Fe Regional Trail would also be applied to the City's La Foret Trail connection. The timing of trail closures is difficult to predict but would include temporary closures especially in the northern portion of the project area. Trail closures could last hours or days depending on the type of work being completed along the trail. Trail closures are not expected to exceed a few days at a time. These periodic closures would have adverse impacts on recreational users of the New Santa Fe Regional Trail because they would affect access and the quality of visitors' experience. The USAFA and El Paso County would advertise trail closures in advance, which would reduce impacts on visitors by allowing visitors to adjust their plans. In addition to public notification of trail closures, mitigation measures would include the use of flaggers. All impacts on trail access would be temporary, occurring only during the construction period. Operation and maintenance of the NMCI would have very little impact on recreational users. Gravity-fed pipelines such as the NMCI generally require little maintenance; the pipeline would need to be cleaned once every 10 years, and no road would be needed for permanent access under Alternative 2.

4.9.3 Alternative 3 – Western Alignment A

Alternative 3 would directly affect the New Santa Fe Regional Trail at several locations along the pipeline alignment. The NMCI would cross a 100-foot section of the trail just north of the USAFA boundary. Within the USAFA, the alignment would be generally west of the New

Santa Fe Regional Trail, although the trail could be used for hauling or access during construction. All four of the proposed laterals would cross the New Santa Fe Regional Trail under Alternative 3, resulting in temporary impacts on short sections of the trail. From the southern boundary of the USAFA to the southern end of the NMCI, the alignment would traverse non-federal property and would directly or indirectly affect about 1.7 miles of the trail as it passes through a narrow area constrained by the railroad right-of-way, Monument Creek, and surrounding residential development.

As described for Alternative 2, impacts on recreational trail users would be short-term, moderate, and adverse. Temporary adverse impacts on recreational users would occur due to temporary closures of the New Sana Fe Trail during construction. As previously described, trail closures could last hours or days depending on the type of work being completed along the trail. Trail impacts and closures would be more extensive for the portion of the New Santa Fe Regional Trail south of the USAFA boundary, compared to Alternative 2, which would mostly affect the trail within the USAFA property. All impacts on trail access would be temporary, occurring only during the construction period.

4.10 OTHER NEPA CONSIDERATIONS

4.10.1 Unavoidable Adverse Effects

This EA identifies any unavoidable adverse impacts that would be required to implement the Proposed Action and the significance of the potential impacts on resources and issues. 40 CFR 1508.27 specifies that a determination of significance requires consideration of context and intensity. Construction of the NMCI would impact the local project area at the USAFA and on nonfederal lands in the project area. The severity of potential impacts would be limited by regulatory compliance for the protection of the human and natural environment.

Unavoidable short-term adverse impacts associated with implementing the Proposed Action would include: a temporary increase in fugitive dust and air emissions during construction, intermittent noise, temporary erosion and sedimentation from soil disturbance, temporary disturbance to vegetation and habitat for wildlife, temporary changes in access for recreational users during construction as described in Chapter 4.0 *Environmental Consequences*. However, these effects are considered minor and would be confined to the immediate area. Unavoidable long-term consequences would include permanent impacts on about 0.196 acre of vegetation and 0.023 acre of Preble's habitat. Unavoidable effects on water resources would include both a reduction in stream flows and point source pollutants in upper Monument Creek where the current WWTFs discharge and an increase in stream flows and point source pollutants discharged into lower Monument Creek where discharges from the J.D. Phillips WRRF occur. Use of resource protection measures described in Section 2.4 and implementing controls required in permits and approvals obtained would minimize these potential impacts. The SHPO advised, and USAFA agreed and determined that the Proposed Action would also have unavoidable permanent adverse effects on two segments of the AT&SF Railroad (5EP1003.6 and 5EP1003.24). These adverse effects would be resolved through the Section 106 process of the NHPA.

For the Proposed Action to be accomplished, these impacts would occur. The action is required to comply with water quality regulations by consolidating sanitary sewer treatment within the upper Monument Creek watershed, to meet future treatment capacity limits, and to improve system reliability and sustainability. No other alternatives would provide the engineering solution to meet these requirements.

4.10.2 Relationship of Short-Term Uses and Long-Term Productivity

The relationship between short-term uses and enhancement of long-term productivity from implementation of the Proposed Action is evaluated from the standpoint of short-term effects and long-term effects. Short-term effects would be those associated with the construction activities to construct the NMCI. The long-term effects on productivity would be those effects associated with operation and maintenance of the NMCI after construction.

No croplands, pastureland, or wetlands would be permanently modified or affected because of implementing the Proposed Action and, consequently, productivity of the area would not be degraded. The negative effects on productivity during construction activities would be minor.

4.10.3 Irreversible and Irretrievable Commitments of Resources

This EA identifies any irreversible and irretrievable commitments of resources that would be involved in the Proposed Action if implemented. An irreversible effect results from the use or destruction of resources (e.g., energy) that cannot be replaced within a reasonable time. An irretrievable effect results from loss of resources (e.g., endangered species) that cannot be restored as a result of the Proposed Action. The short-term irreversible commitments of resources that would occur would include planning and engineering costs, building materials and supplies and their cost, use of energy resources during construction, labor, generation of fugitive dust emissions, and creation of temporary construction noise. Long-term effects would include permanent loss of 0.023 acre of Preble's habitat and 0.196 acre of vegetation as previously described.

4.11 CUMULATIVE EFFECTS

This EA also considers the effects of cumulative impacts as required in 40 CFR 1508.7 and concurrent actions as required in 40 CFR 1508.25[1]. A cumulative impact, as defined by the CEQ (40 CFR 1508.7) is the "…impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of which agency (Federal or non-Federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

Actions announced for the region of influence for the NMCI that could occur during the same period as the Proposed Action are:

- I-25 improvements including the construction of the Powers Boulevard and I-25 interchange
- Commercial and residential development along the I-25 corridor
- City of Colorado Springs' Monument Branch Creek restoration
- I-25/North Gate/Struthers storm drain network (future)
- TrueNorth Commons Development and USAFA Gateway visitor center (future)
- Kettle Creek Dry Dam repair (future)
- Prescribed fire near building 8120 (future)
- Channel stabilization and habitat restoration of Black Squirrel Creek, Monument Creek, and Pine Creek (future)
- Monument Creek Corridor Study (future)

For this EA analysis, these announced actions are addressed from a cumulative perspective and are analyzed in this section. These announced future actions would be evaluated under separate NEPA actions conducted by the appropriate involved federal agency. Based on the best available information for these proposals by others, the cumulative impact analysis considers them. The cumulative effects analysis also considers the potential effects of climate change. The cumulative region of influence (ROI) is the project area and the areas affected by the announced actions listed above.

Descriptions of the cumulative effects for the resource areas follow.

4.11.1 Alternative 1 – No Action Alternative

Although past, present, and reasonably foreseeable future actions have affected, and would continue to affect, AICUZ, air quality, water resources, hazardous materials, biological resources, cultural resources, and recreation, the No Action Alternative would have no effects on these resources and, therefore, would not contribute to cumulative effects.

4.11.2 Air Installation Compatible Use Zones

Past actions have had have minor effects on the AICUZ at the USAFA from construction of residential development in Accident Potential Zones I and II just east of the USAFA. Future residential or commercial development would not affect AICUZ because the land in these zones are either within the USAFA boundary or already developed (Figure 3-1). No other past, present, or reasonably foreseeable future actions are expected to affect the AICUZ. As previously described, the Action Alternatives would result in short-term minor impacts on aviation safety from the presence of construction equipment and open trenches during construction. Thus, when the effects of construction of the NMCI are combined with the effects of other past, present, and reasonably foreseeable future actions, the total cumulative impacts on the AICUZ would be adverse, with a small adverse incremental contribution from construction of the NMCI.

4.11.3 Noise

The impacts of past, present, and reasonably foreseeable future actions on noise levels in the project area would result from highway construction projects and construction of residential and commercial development along the I-25 corridor. These projects have had, and would continue to have, adverse effects on noise levels from use of construction equipment during construction and by increasing the amount of vehicle traffic. Overall, collective impacts from past, present, and reasonably foreseeable future actions would be adverse. The Action Alternatives would contribute some short-term adverse effects on noise levels during construction. Therefore, when the effects of the Action Alternatives are combined with the effects of other past, present, and reasonably foreseeable future actions, the total cumulative impacts would continue to be adverse, with a moderate contribution from the NMCI during construction. Because there would be no long-term effects on noise levels from the NMCI, there would be no long-term cumulative effects.

4.11.4 Air Quality

Past, present, and reasonably foreseeable future actions would result in long-term adverse impacts on air quality from increased vehicle traffic resulting from residential and commercial development and beneficial effects from improved air quality resulting from improving traffic flow along I-25. Future actions such as construction of residential and commercial development, construction of the new USAFA visitor center, and use of prescribed fire near Building 8120 would result in short-term localized effects on air quality. Overall, long-term adverse cumulative impacts from past, present, and reasonably foreseeable future actions would occur, but would not cause air pollutant levels to exceed air quality standards. As previously described, the Action Alternatives would contribute short-term minor impacts from dust and emissions from equipment used during construction but would have no long-term effects on air quality. Thus, when the effects of construction of the NMCI are combined with the effects of other past, present, and reasonably foreseeable future actions, the total cumulative impacts on air quality would be adverse, with a small adverse incremental contribution during construction of the NMCI. There would be no long-term cumulative effects on air quality and regional air quality standards would continue to be met.

4.11.5 Water Resources

Past, present, and reasonably foreseeable future actions would result in an increase in the amount of relatively impermeable surfaces added to the project area from land development. This would result in reduced precipitation infiltrating the ground and recharging groundwater. For surface water, this would result in an increase in the amount of precipitation being directed to storm water outfalls that ultimately discharge to surface water. This could potentially result in larger fluctuations in surface water flows as precipitation is more efficiently conveyed to surface water. Future climate change is expected to result in changes in the timing of runoff and reduction in summer flows in the Monument Creek watershed and other streams in the region (Rood et al 2008; Grunau et al. 2017; Colorado State University 2021). As previously described, construction of the NMCI would reduce stream flows and point source pollutants in upper Monument Creek where the current WWTF discharges, but would increase stream flows and point source pollutants discharged into lower Monument Creek where discharges from the J.D. Phillips WRRF occur. Overall, past, present, and reasonably foreseeable future actions have the potential to counteract the flow reductions in upper Monument Creek and would increase the variability of the frequency and volume of future Monument Creek flows.

4.11.6 Hazardous Materials/Waste

Past, present, and reasonably foreseeable future actions would result in generation of hazardous materials and waste, but impacts would be mitigated by compliance with state and federal regulations. Overall, long-term adverse cumulative impacts from past, present, and reasonably foreseeable future actions would occur. As previously described, short-term, minor, and adverse impacts from the use of hazardous materials and the generation of hazardous wastes would occur during construction. All hazardous materials, petroleum products, and hazardous wastes supporting construction would be contained and stored appropriately in accordance with the state and federal regulations to minimize the potential for releases. The cumulative projects are not expected to have significant impacts on special hazards or any impact on existing contaminated sites. Therefore, no significant cumulative adverse impacts from hazardous materials and wastes would occur.

4.11.7 Biological/Natural Resources

4.11.7.1 Vegetation

Past development in and around the project area has resulted in the loss and degradation of native vegetation. Construction of the NMCI, under any of the Action Alternatives, would contribute to the cumulative losses and degradation of vegetation communities, especially upland grasslands at the USAFA. Future actions such as construction of residential and commercial development, future highway projects along the I-25 corridor, construction of the new USAFA visitor center, and use of prescribed fire near Building 8120 would result in both permanent losses of vegetation and short-term localized effects on vegetation. Overall, adverse cumulative impacts from past, present, and reasonably foreseeable future actions would be long-term and moderate. As described in Section 4.7.1 *Vegetation*, most impacts would be temporary and would be restored following construction. The long-term losses of

vegetation would be 0.196 acre under the Preferred Alternative. Cumulatively, the loss of 0.196 acre of the mostly upland grasslands in the project area would be insignificant relative to the total acreage of upland grasses in the cumulative ROI. With BMPs for noxious weed management during and after construction of the NMCI, the cumulative effects from noxious weeds would be insignificant. Thus, when the effects of construction of the NMCI are combined with the effects of other past, present, and reasonably foreseeable future actions, the total cumulative impacts on vegetation would be adverse, with a small adverse incremental contribution from construction of the NMCI.

4.11.7.2 Wetlands, Riparian, and Floodplains

Past development in and around the project area has resulted in the loss and degradation of native wetlands and riparian habitat. Similarly, development has encroached into floodplains in several locations in and near the project area. Construction of the NMCI, under the Action Alternatives, would contribute to the cumulative losses and degradation of wetland and riparian communities. Future actions such as construction of residential and commercial development, and future highway projects along the I-25 corridor, may result in permanent losses of wetland and riparian vegetation and modification of floodplains. Future climate change may result in changes in timing of runoff in Rocky Mountain streams, including a reduction in flows in summer that may result in loss of riparian forests region-wide (Rood et al. 2008). Overall, long-term adverse cumulative impacts from past, present, and reasonably foreseeable future actions would be long-term and moderate to high from residential and commercial development and climate change. As described in the W*etlands, Floodplains, and Riparian* section, most impacts would be temporary and would be restored following construction. The long-term losses of riparian habitat and floodplains would be 0.004 acre and 0.002, respectively, under the Preferred Alternative. Cumulatively, the loss of 0.004 and 0.002 acre of riparian habitat and floodplains in the project area would be insignificant relative to the total acreage of wetland and riparian habitat and floodplains in the cumulative ROI. When the effects of construction of the NMCI are combined with the effects of other past, present, and reasonably foreseeable future actions, the total cumulative impacts on wetlands and riparian habitat and floodplains would be adverse, with a small adverse incremental contribution from construction of the NMCI.

4.11.7.3 Wildlife

Past development in and around the project area has resulted in the loss and degradation of native wildlife numbers and habitat. Construction of the NMCI, under the Action Alternatives, would contribute to the cumulative losses and degradation of wildlife habitat, especially upland grasslands at the USAFA. Future actions such as construction of residential and commercial development, future highway projects along the I-25 corridor, construction of the new USAFA visitor center, and use of prescribed fire near Building 8120 would result in both permanent losses of habitat and short-term localized effects on some wildlife populations, especially species such as small mammals, reptiles, and amphibians, which are not as mobile and able to flee as larger animals. Overall, long-term adverse cumulative impacts from past, present, and reasonably foreseeable future actions would be long-term and moderate. As

described in the *Wildlife* section, most impacts would be temporary and would be restored following construction. The long-term losses of wildlife habitat would be 0.2 acre under the Preferred Alternative. Cumulatively, the loss of 0.2 acre of the mostly upland grasslands in the project area would be insignificant relative to the total acreage of similar habitat in the cumulative ROI. Thus, when the effects of construction of the NMCI are combined with the effects of other past, present, and reasonably foreseeable future actions, the total cumulative impacts on wildlife would be adverse, with a small adverse incremental contribution from construction of the NMCI.

4.11.7.4 Special Status Species

Past development in and around the project area has resulted in the loss and degradation of sensitive species habitat. Construction of the NMCI, under any of the Action Alternatives, would contribute to the cumulative losses and degradation of sensitive species habitat, including riparian habitat for Preble's and hops azure and upland grasslands that provide habitat for sensitive migratory birds including the ferruginous hawk. Future actions such as construction of residential and commercial development, future highway projects along the I-25 corridor, construction of the new USAFA visitor center, and use of prescribed fire near Building 8120 would result in both permanent losses of habitat and short-term localized effects on sensitive wildlife habitats. Future climate change may result in changes in the timing and abundance of water in Monument Creek and its tributaries at USAFA, which could negatively impact riparian vegetation which supports Preble's (Rood et al 2008; Grunau et al. 2017; Colorado State University 2021). Overall, long-term adverse cumulative impacts from past, present, and reasonably foreseeable future actions would be long-term and moderate to high from residential and commercial development and climate change. As described in the *Wildlife* and *Special Status Species* sections, most impacts from the NMCI project would be temporary and would be restored following construction. The long-term losses of Preble's habitat would be 0.04 acre under the Preferred Alternative and 0.2 acre of vegetation in general. Cumulatively, the loss of 0.04 acre of sensitive species habitat in the project area would be insignificant relative to the total acreage of habitat for these species in the cumulative ROI. Thus, when the effects of construction of the NMCI are combined with the effects of other past, present, and reasonably foreseeable future actions, the total cumulative impacts on sensitive species would be adverse. The NMCI would provide a small adverse incremental contribution to other past, present and reasonably foreseeable future actions.

4.11.8 Cultural Resources

Past development in and around the project area resulted in direct impacts on known and unknown cultural resources and likely unknown historic properties. Future actions without federal, state, or local nexuses that require consideration of historic properties, such as residential and commercial development construction, would result in permanent impacts on cultural resources and potential adverse impacts on unknown historic properties. Construction of the new USAFA visitor center, future highway projects along the I-25 corridor, use of prescribed fire near Building 8120, and the Monument Branch Creek restoration could result in permanent impacts on cultural resources, but adverse impacts on historic properties would be

avoided, minimized, or treated under Section 106 of the NHPA. Construction of the NMCI, under any of the Action Alternatives, would contribute to cumulative direct and indirect impacts on known and unknown cultural resources. NMCI construction under Alternative 3 would contribute to cumulative adverse impacts on known and potentially unknown historic properties. In contrast, the Preferred Alternative's adverse impacts are limited to portions of the AT&SF Railroad (5EP1003); that would be resolved through treatment. Cumulative impacts from maintenance of the NMCI and use of the NMCI permanent easement for access would be insignificant because of prior direct and permanent impacts on cultural resources. Thus, when the effects of the construction of the Preferred Alternative are combined with the effects of other past, present, and reasonably foreseeable future actions, the total cumulative impacts on historic properties would be adverse, with treated adverse impact contribution from construction of the Preferred Alternative. When the effects of construction of Alternative 2 are combined with past, present, and reasonably foreseeable future actions, the total cumulative impacts on more historic properties would be adverse, with a large contribution from construction of the NMCI.

4.11.9 Recreation

Past, present, and reasonably foreseeable future actions would result in possible short-term adverse impacts on recreation from construction activities associated with the TrueNorth Commons Development, USAFA Gateway visitor center, and construction of residential and commercial development on non-federal land north of the USAFA. Effects from future actions would be beneficial from construction of a 2,400-square-foot trailhead center for the New Santa Fe Regional Trail, which is proposed as part of the TrueNorth Commons Development and USAFA Gateway visitor center. Overall, cumulative impacts from past, present, and reasonably foreseeable future actions would be minor and adverse over the short term and would be beneficial over the long term. As previously described, the Preferred Alternative and the other Action Alternatives would contribute short-term moderate impacts from temporary closures that would reduce public access to the New Santa Fe Regional Trail and the City's La Floret Trail during construction. Thus, when the effects of construction of the NMCI are combined with the effects of other past, present, and reasonably foreseeable future actions, the total cumulative impacts on recreation would be minor and adverse, with a moderate adverse incremental contribution from construction of the NMCI. There would be no long-term effects on recreation from the NMCI; therefore, there would be no long-term cumulative effects on recreation.

5.0 LIST OF PREPARERS

This EA has been prepared by ERO Resources Corporation under the direction of USAF personnel. The individuals that contributed to the preparation of this EA are listed in Table 5-1.

Table 5-1. List of Preparers.

Name/Organization	Education	Years of Experience
Steve Butler, ERO Resources Corporation	M.E.M. Duke University	26
Clint Henke, ERO Resources Corporation	M.S. University of Colorado, Denver	24
Jonathan Hedlund, ERO Resources Corporation	M.A. University of Colorado, Denver	14
Brian Olmstead, ERO Resources Corporation	M.S. New Mexico Institute of Mining and Technology	19
Craig Sovka, ERO Resources Corporation	B.S. Princeton University	29
Garth Smith, ERO Resources Corporation	M.A. University of Denver	26
Kay Wall, ERO Resources Corporation	B.A. Metropolitan State College	39
Andy Muser, Colorado Springs Utilities	B.S. South Dakota State University	25
Justin Fecteau, Colorado Springs Utilities		
Jennifer McCorkle, U.S. Air Force Academy	B.A. University of Colorado, Colorado Springs	13
Erwin Roemer, U.S. Air Force Academy	B.A. University of Texas M.A. Texas A&M University	30+
Brian Mihlbachler, U.S. Air Force Academy	Ph.D. Texas A&M University	30

This page is intentionally left blank.

6.0 PERSONS AND AGENCIES CONSULTED/COORDINATED

The following persons and agencies (Table 6-1) were contacted in the preparation of this EA. Copies of correspondence are provided in Appendix A.

Table 6-1. Persons and Agencies Consulted/Coordinated.

Federal Agencies	
Ms. Leslie Ellwood U.S. Fish and Wildlife Service Colorado Ecological Services Field Office 134 Union Boulevard, Suite 670 Lakewood, CO 80228	Mr. Tony Martinez U.S. Army Corps of Engineers Albuquerque District Southern Colorado Regulatory Branch 201 West 8th Street, Suite 350 Pueblo, CO 81003
State Agencies	
Mr. Steve Turner, AIA Executive Director & State Historic Preservation Officer History Colorado 1200 Broadway Denver, CO 80203	Colorado Department of Public Health and Environment Engineering Section 4300 Cherry Creek Drive South Denver, CO 80246
Colorado Department of Transportation 1480 Quail Lake Loop #A Colorado Springs, CO 80906	Colorado Parks and Wildlife 4255 Sinton Road Colorado Springs, CO 80907
Colorado Water Quality Control Division 4300 Cherry Creek Drive South WQCD-B2 Denver, CO 80246	
Local Agencies	
City of Colorado Springs PO Box 1575, Mail Code 155 Colorado Springs, CO 80903	City of Monument 645 Beacon Lite Road Monument, CO 80132
Donala Water and Sanitation District 15850 Holbein Drive Colorado Springs, CO 80921	El Paso County Planning & Community Development 2880 International Circle Colorado Springs, CO 80910
El Paso County Parks 2002 Creek Crossing Colorado Springs, CO 80905	Forest Lakes Metropolitan District 2 N. Cascade Ave, Suite 1280 Colorado Springs, CO 80903
Monument Sanitation District PO Box 205 Monument, CO 80132	Palmer Lake Sanitation District PO Box 687 Palmer Lake, CO 80133
Pikes Peak Area Council of Governments 15 South 7th Street Colorado Springs, CO 80905	Pikes Peak Regional Building Department 2880 International Circle Colorado Springs, CO 80910
Town of Palmer Lake PO Box 208 Palmer Lake, CO 80133	Tri-View Metropolitan District PO Box 849 Monument, CO 80132
Woodmoor Water and Sanitation District PO Box 1407 Monument, CO 80132	

Persons and Agencies Consulted/Coordinated

Other Stakeholders	
Burlington Northern Santa Fe Railroad (BNSF) 3700 Globeville Road Denver, CO 80216	Western Museum of Mining and Industry 225 North Gate Boulevard Colorado Springs, CO 80921
Union Pacific Railroad DCPeters02@up.com	Mountain View Electric Association
Qwest/Century Link	
Tribal Agencies (all Federally Recognized Tribes)	
Apache Tribe of Oklahoma Bobby Komardley, Chairman and THPO PO Box 1330 Anadarko, OK 73005	Cheyenne River Sioux Tribe (CRST) of the Cheyenne River Reservation Steven Vance, THPO, CRST Preservation Office PO Box 590 Eagle Butte, SD 57625
Assiniboine and Sioux Tribe of the Fort Peck Indian Reservation Dyan Youpee, THPO PO Box 1027 Poplar, MT 59255	Comanche Nation of Oklahoma Martina M. Callahan, THPO Comanche Nation Historic Preservation Office PO Box 908 Lawton, OK 73507
Cheyenne & Arapaho Tribes of Oklahoma Max Bear, Director, Cultural, Acting THPO PO Box 167 Concho, OK 73022	Crow Nation William Big Day, THPO PO Box 159 Crow Agency, MT 59022
Eastern Shoshone Tribe (Wind River Reservation) Joshua Mann, THPO PO Box 538 Fort Washakie, WY 82514-0538	Flandreau Santee Sioux Tribe of South Dakota Garrie Kills A Hundred, THPO PO Box 283 Flandreau, SD 57028-0283
Fort Belknap Indian Community Michael J. Black Wolf, THPO 656 Agency Main Street Harlem, MT 59526	Fort Sill Apache Tribe Leland Darrow, Tribal Historian 43187 US Highway 281 Apache, OK 73006-8038
Jicarilla Apache Nation Jeffrey Blythe, Ph.D., THPO Office of Cultural Affairs PO Box 1367 Dulce, NM 87528	Kiowa Tribe of Oklahoma Phil Dupoint, Acting THPO and NAGPRA Representative PO Box 50 Carnegie, OK 73015
Lower Brule Sioux Tribe of the Lower Brule Reservation Clair Green, THPO PO Box 187 Lower Brule, SD 57548-0187	Mescalero Apache Tribe Holly Houghton, THPO PO Box 227 Mescalero, NM 88340
Navajo Nation Richard Begay, THPO PO Box 4950 Window Rock, AZ 86515	Northern Cheyenne Tribe Teanna Limpy, THPO PO Box 128 Lame Deer, MT 59043
Northern Arapaho Tribe Crystal C-bearing, THPO Director PO Box 396 Fort Washakie, WY 82514	Pawnee Nation of Oklahoma Matt Reed, THPO PO Box 470 Pawnee, OK 74058-0470
Oglala Sioux Tribe Thomas Brings, THPO PO Box 320 Pine Ridge, SD 57770	Pueblo de Cochiti Jacob Pecos, Historic Preservation Office PO Box 70 Cochiti Pueblo, NM 87072

Persons and Agencies Consulted/Coordinated

Pueblo of Picuris Cecilia Shields, Tourism Director Historic Preservation Office PO Box 127 Penasco, NM 87553	Pueblo of Santa Ana Timothy Menchego, THPO 2 Dove Road Santa Ana, NM 87004
Pueblo of Santa Clara Ben Chavarria, THPO PO Box 580 Española, NM 87532	Pueblo of Taos Bernard Lujan, War Chief (Historic Preservation) PO Box 2596 Taos, NM 87571-1846
Rosebud Sioux Tribe of the Rosebud Indian Reservation Benjamin K. Rhodd, THPO and NAGPRA Contact PO Box 809 Rosebud, SD 57570	San Ildefonso Pueblo Joseph Aguilar, Interim THPO 02 Tunyo Po Santa Fe, NM 87506
Santee Sioux Nation Thelma Thomas, THPO 425 Frazier Avenue North, Suite 2 Niobrara, NE 68760	Southern Ute Indian Tribe Cassandra Atencio, NAGPRA Coordinator PO Box 737 Ignacio, CO 81137
Spirit Lake Nation Eric Longie, Ph.D., THPO PO Box 76 Fort Totten, ND 58335	Standing Rock Sioux Tribe Jon Eagle, THPO PO Box D Fort Yates, ND 58538
Three Affiliated Tribes of the Mandan, Hidatsa, and Arikara Nation Pete Coffey, Acting THPO/Compliance Officer 404 Frontage Road New Town, ND 58763-9402	Upper Sioux Indian Community Samantha Odegard, THPO 5722 Travers Lane, PO Box 147 Granite Falls, MN 56241
Ute Indian Tribe of the Uintah & Ouray Reservation Betsy Chapoose, Director, Cultural Rights and Protection NAGPRA Representative PO Box 190 Fort Duchesne, UT 84026	Yankton Sioux Tribe Kip Spotted Eagle, THPO PO Box 1153 Wagner, SD 57380-1153
Ute Mountain Ute Tribe Terry Knight, Sr., THPO and NAGPRA Representative PO Box 468 Towaoc, CO 81334-0188	Pueblo of Zuni Kurt Dongoske, Acting THPO Zuni Heritage and Historic Preservation Office PO Box 1149 Zuni, NM 87327

This page is intentionally left blank.

7.0 REFERENCES

AECOM. 2019. 2018 Annual Long-Term Monitoring/Compliance Monitoring Report, Environmental Restoration Program Sites 6 and 7, U.S. Air Force Academy, Colorado Springs, Colorado. March 28.

AECOM. 2020. North Monument Creek Interceptor Routing Study. April 24.

Arbogast, William R., Art Grundmann, Thomas Wynn, and Michelle Zupan. 1993. Cultural Resources Survey, Jack's Valley Training Area, United States Air Force Academy, Colorado Springs, El Paso County, Colorado. Prepared for Clifford S. Nakata and Associates, P.C., by Department of Anthropology, University of Colorado at Colorado Springs. EP-AF-R13.

Arbogast, William R., Michael Hertz, and Thomas Wynn. 1996. Cultural Resources Survey, Final Report, United States Air Force Academy Including Farish Memorial Recreation Area, Colorado Springs, El Paso County, Colorado. Prepared for Clifford S. Nakata and Associates, P.C., by Department of Anthropology, University of Colorado at Colorado Springs. EP-AF-R19.

Armstrong, J. and J. Stevens. 2002. Monument Creek Watershed Landscape Assessment. Prepared for United States Air Force Academy. Prepared by Colorado Natural Heritage Program.

American Society for Testing Materials (ASTM). 2013. Annual Book of ASTM Standards. "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process." Philadelphia: ASTM E 1527-13.

Berlemann, A. 2020. NMCI – Preliminary Review of Potential Effects on Monument Creek. Report prepared by Annie Berlemann, Fountain Creek Watershed Project Manager, Watershed Planning. Prepared for Colorado Springs Utilities.

Colorado Department of Public Health and Environment (CDPHE). 2011. Notice of Environmental Use Restrictions, USAFA Site 6. December 27.

Colorado Department of Public Health and Environment (CDPHE). 2019. Air Pollution Control Division. 2019 Air Quality Data Report. https://www.colorado.gov/airquality/tech_doc_repository.aspx?action=open&file=2019AnnualDataReport.pdfColorado Department of Public Health and Environment (CDPHE). 2020. Colorado Hazardous Waste Regulations. July 15.

Colorado Parks and Wildlife (CPW). 2016. State Wildlife Action Plan; A strategy for conserving wildlife in Colorado. https://cpw.state.co.us/aboutus/Pages/StateWildlifeActionPlan.aspx. Last accessed March 8, 2021.

Colorado Parks and Wildlife (CPW). 2021. Colorado Parks and Wildlife Threatened and Endangered List. https://cpw.state.co.us/learn/Pages/SOC-ThreatenedEndangeredList.aspx. Last accessed April 28, 2021.

Colorado State University. 2021. Climate Change Assessments for Integrated Natural Resource Management Plans: U.S. Air Force Academy, Bullseye Auxiliary Airfield, and Farish Recreation Area. Prepared for Air Force Civil Engineer Center. Prepared by Colorado State University Center for Environmental Management of Military Lands, in cooperation with U.S. Army Corps of Engineers, Fort Worth District.

Council on Environmental Quality, Executive Office of the President, and the Advisory Council on Historic Preservation. 2013. NEPA and NHPA Handbook for Integrating NEPA and Section 106. https://www.achp.gov/sites/default/files/2017-02/NEPA_NHPA_Section_106_Handbook_Mar2013_0.pdf

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Fish and Wildlife Service, Office of Biological Services Program. FWS/OBS-79/31.

ERO Resources Corporation (ERO). 2023. Biological Assessment Northern Monument Creek Interceptor Project. October.

Federal Highway Administration. 2006. Construction Noise Handbook. Prepared by U.S. Department of Transportation Research and Innovative Technology Administration, John A. Volpe National Transportation Systems Center, Environmental Measurement and Modeling Division, Acoustics Facility, Cambridge, MA. https://www.fhwa.dot.gov/Environment/noise/construction_noise/handbook/. Last accessed February 22, 2021.

Federal Emergency Management Agency (FEMA). 2018. Flood Insurance Rate Maps, El Paso County, CO, and unincorporated areas, Map No. 08041C0504G, 08041C0286G, and 08041C0278G. Available at: http://msc.fema.gov.portal.

GEI Consultants (GEI). 2021. Monument Creek Water Level Reductions. Memo from Don Conklin, GEI, to Clint Henke, ERO Resources. May 25, 2021.

Grunau, L., K. Decker, M. Fink, B. Kuhn, R. Schorr, J. Sovell, R. Cook, and D. Jones. 2017. Threats and Stressors to SAR and Ecological Systems, Practical Implications, and Management Strategies for Installations in Colorado and the Western U.S. Prepared by Colorado State University for the DoD Legacy Program.

Hedlund, J., S. Ottman, J. Batista, A. Sanocki, M. Espinosa, and M. Seymore. 2021. Cultural Resource Research Design and Report, Northern Monument Creek Interceptor Pipeline Project, El Paso County, Colorado. Prepared by ERO Resources Corporation for Colorado Springs Utilities. Submitted to the United States Air Force Academy. On file at the Office of Archaeology and Historic Preservation, Denver.

Kennedy, C. 2019. U.S. Fisheries Survey Report, 2018, U.S. Air Force Academy. U.S. Fish and Wildlife Service Colorado Fish and Wildlife Conservation Office.

NatureServe. 2021. NatureServe Explorer [web application]. NatureServe, Arlington, Virginia. https://explorer.natureserve.org/. Last accessed March 5, 2021.

Pikes Peak Area Council of Governments (PPACG). 2020. Water Quality Management Plan (208) Plan. 2020 Update. Available at: http://www.ppacg.org/water-quality-plan/#1597253045176-95950afa-aa73

Rood, S.B., J. Pan, K.M. Gill, C.G. Franks, G.M. Samuelson, A. Shepherd. 2008. Declining summer flows of Rocky Mountain rivers: Changing seasonal hydrology and probable impacts on floodplain forests. Journal of Hydrology (2008) 349, 397– 410.

Schorr, R.A. and P. Smith. 2019. United States Air Force Academy Biological Inventory Update 2018: Emphasis on rare plants, plant communities, reptiles and ovenbird populations. Report to U.S. Air Force Academy. Colorado Natural Heritage Program, Fort Collins, CO.

Smith, P. and A. Greenwell. 2019. Noxious Weed Monitoring (Year 14) & Mapping at the U.S. Air Force Academy and Farish. Colorado Natural Heritage Program, Colorado State University, Fort Collins, CO.

Smith, P., S. Panjabi, and J. Handwerk. 2015. Integrated Noxious Weed Management Plan-U.S. Air Force Academy and Farish Outdoor Recreation Area. El Paso County, Colorado. Produced for the U.S. Air Force Academy by the Colorado Natural Heritage Program.

State Demographer data. 2010-2018. Colorado Department of Local Affairs, population data. https://demography.dola.colorado.gov/population/.

Thorson, J.P. and R.F. Madole. 2003. Geologic Map of the Monument Quadrangle, El Paso County, Colorado. Open file Report 02-04. Colorado Geological Survey, Department of Natural Resources, Denver, CO.

Thorson, J.P., C.J. Carroll, and M.L. Morgan. 2001. Geologic Map of the Pikeview Quadrangle, El Paso County, Colorado. Open-File Report Number 01-03. Colorado Geological Survey, Department of Natural Resources, Denver, CO.

U.S. Air Force (USAF). 2019. United States Air Force Academy, Colorado. Air Installations Compatible Use Zones (AICUZ) Study. Air Force Civil Engineer Center, Joint Base San Antonio, Lackland, Texas. July. https://www.usafa.af.mil/Portals/21/USAFA_AICUZ_Study_2019_for_Web.pdf?ver=2019-07-24-165416-287

U.S. Air Force Academy (USAFA). 1999. Conservation and management plan for the Preble's meadow jumping mouse. U.S. Air Force Academy, Colorado Springs, CO. Available at: https://cnhp.colostate.edu/download/documents/1999/Cons_and_Mgmt_PMJM_USAFA_1999.pdf

U.S. Air Force Academy (USAFA). 2018. Integrated Natural Resource Management Plan. U.S. Air Force Academy, Colorado Springs, CO.

U.S. Air Force Academy (USAFA). 2019. Standard Specifications: Section 01351 Site Restoration, Revegetation and Tree Care Specifications. U.S. Air Force Academy, Colorado Springs, CO.

U.S. Fish and Wildlife Service (USFWS). 2009. Preble's meadow jumping mouse Conservation Agreement 5-year Extension at the U.S. Air Force Academy. December 15.

U.S. Fish and Wildlife Service (USFWS). 2019. Fisheries Survey Report, 2018. U.S. Air Force Academy. April 2019.

U.S. Fish and Wildlife Service (USFWS). 2021. Endangered, Threatened, Proposed and Candidate Species. https://ecos.fws.gov/ipac/location/index. Last accessed March 2021.

Appendix A Interagency/Intergovernmental Coordination

In accordance with Executive Order 12372, Intergovernmental Review of Federal Programs, emails were sent on May 4, 2020 to federal, state, and local agencies and other stakeholder entities soliciting comments concerning the proposed project and any potential environmental consequences of the action. Comments were requested within 30 days. The email also requested information regarding other recently completed, ongoing, or proposed projects in the vicinity that would create cumulative impacts in association with the alternatives. The Colorado State Historic Preservation Officer's staff have requested to be consulted only under provisions of National Historic Preservation Act, Section 106, and therefore History Colorado with its State Historic Preservation Office program is not listed below. The email was sent to the following entities:

- BNSF Railway (BNSF)
- City of Colorado Springs
- City of Monument
- Colorado Department of Public Health and Environment (CDPHE)
- Colorado Department of Transportation
- Colorado Parks and Wildlife (CPW)
- Colorado Water Quality Control Division
- Donala Water and Sanitation District
- El Paso County Planning and Community Development
- El Paso County Parks
- Forest Lakes Metropolitan District
- Monument Sanitation District
- Palmer Lake Sanitation District
- Pikes Peak Area Council of Governments (PPACG)
- Pikes Peak Regional Building Department
- Town of Palmer Lake
- Triview Metropolitan District (Triview)
- Union Pacific Railroad
- U.S. Army Corps of Engineers (Corps)
- U.S. Fish and Wildlife Service (USFWS)
- Western Museum of Mining and Industry
- Woodmoor Water and Sanitation District

An example email soliciting comments is attached below. Responses are also attached below. No response was received from the city of Monument, Colorado Water Quality Control Division, Donala Water and Sanitation District, Monument Sanitation District, or Pikes Peak Regional Building Department.

Copies of correspondence related to the May 4, 2020 email are attached below. Copies of NHPA Section 106-related correspondence with the SHPO and tribal agencies, initiated in May 2020, are also attached below.

This page is intentionally left blank.

Appendix B Air Pollutant Emissions Calculations

This page is intentionally left blank.

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF CONFORMITY ANALYSIS (ROCA)

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform an analysis to assess the potential air quality impact/s associated with the action in accordance with the Air Force Manual 32-7002, Environmental Compliance and Pollution Prevention; the Environmental Impact Analysis Process (EIAP, 32 CFR 989); and the General Conformity Rule (GCR, 40 CFR 93 Subpart B). This report provides a summary of the ACAM analysis.

a. Action Location:

Base: USAF ACADEMY
State: Colorado
County(s): El Paso
Regulatory Area(s): Colorado Springs, CO

b. Action Title: Northern Monument Creek Interceptor

c. Project Number/s (if applicable): N/A

d. Projected Action Start Date: 1 / 2023

e. Action Description:

Colorado Springs Utilities (Utilities) is proposing to construct the Northern Monument Creek Interceptor (NMCI), a new wastewater conveyance pipeline from the existing Tri-Lakes Joint Use Authority Wastewater Treatment Facility (Tri-Lakes WWTF) and Upper Monument Creek Regional Wastewater Treatment Facility (Upper Monument Creek WWTF) approximately 10 miles south to the J.D. Phillips Water Resource Recovery Facility (J.D. Phillips Facility WRRF) in Colorado Springs. The NMCI would provide service for up to six northern sanitary sewer service providers: Donala Water and Sanitation District, Forest Lakes Metropolitan District, Monument Sanitation District, Palmer Lake Sanitation District, Triview Metropolitan District, and Woodmoor Water and Sanitation District No. 1 (the northern districts). The NMCI would also allow for the closure of several of Utilities' lift stations.
Because most of the length of the proposed alignments for the NMCI would traverse the United States Air Force Academy (USAFA), the United States Air Force (USAF) is preparing an environmental assessment (EA) to consider how the project would affect the human and natural environment. Portions of the proposed alignments would also traverse nonfederal lands north and south of the USAFA.

f. Point of Contact:

Name: Steve Butler
Title: Senior Biologist
Organization: ERO Resources Corp
Email: sbutler@eroresources.com
Phone Number: 303-830-1188

2. Analysis: Total combined direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the "worst-case" and "steady state" (net gain/loss upon action fully implemented) emissions. General Conformity under the Clean Air Act, Section 1.76 has been evaluated for the action described above according to the requirements of 40 CFR 93, Subpart B.

Based on the analysis, the requirements of this rule are: _____ applicable
__X__ not applicable

Conformity Analysis Summary:

2023

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF CONFORMITY ANALYSIS (ROCA)

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Colorado Springs, CO			
VOC	3.946		
NOx	1.902		
CO	3.396	100	No
SOx	0.007		
PM 10	33.854		
PM 2.5	0.069		
Pb	0.000		
NH3	0.010		
CO2e	739.7		

2024 - (Steady State)

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Colorado Springs, CO			
VOC	0.000		
NOx	0.000		
CO	0.000	100	No
SOx	0.000		
PM 10	0.000		
PM 2.5	0.000		
Pb	0.000		
NH3	0.000		
CO2e	0.0		

None of estimated emissions associated with this action are above the conformity threshold values established at 40 CFR 93.153 (b); Therefore, the requirements of the General Conformity Rule are not applicable.

_____ _____

Steve Butler, Senior Biologist DATE

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

1. General Information

- Action Location

Base: USAF ACADEMY
State: Colorado
County(s): El Paso
Regulatory Area(s): Colorado Springs, CO

- Action Title: Northern Monument Creek Interceptor

- Project Number/s (if applicable): N/A

- Projected Action Start Date: 1 / 2023

- Action Purpose and Need:

The purpose of the NMCI is for Colorado Springs Utilities and Northern El Paso County sanitation providers to consolidate wastewater treatment systems into a centralized system that is environmentally and fiscally responsible, provides for increased system reliability, accommodates future growth, and maintains compliance with more stringent water quality regulations.

The need for the Proposed Action is to comply with water quality regulations by consolidating regional providers within the upper Monument Creek watershed, meet future treatment capacity limits, and improve system reliability and sustainability.

- Action Description:

Colorado Springs Utilities (Utilities) is proposing to construct the Northern Monument Creek Interceptor (NMCI), a new wastewater conveyance pipeline from the existing Tri-Lakes Joint Use Authority Wastewater Treatment Facility (Tri-Lakes WWTF) and Upper Monument Creek Regional Wastewater Treatment Facility (Upper Monument Creek WWTF) approximately 10 miles south to the J.D. Phillips Water Resource Recovery Facility (J.D. Phillips Facility WRRF) in Colorado Springs. The NMCI would provide service for up to six northern sanitary sewer service providers: Donala Water and Sanitation District, Forest Lakes Metropolitan District, Monument Sanitation District, Palmer Lake Sanitation District, Triview Metropolitan District, and Woodmoor Water and Sanitation District No. 1 (the northern districts). The NMCI would also allow for the closure of several of Utilities' lift stations.
Because most of the length of the proposed alignments for the NMCI would traverse the United States Air Force Academy (USAFA), the United States Air Force (USAF) is preparing an environmental assessment (EA) to consider how the project would affect the human and natural environment. Portions of the proposed alignments would also traverse nonfederal lands north and south of the USAFA.

- Point of Contact

Name: Steve Butler
Title: Senior Biologist
Organization: ERO Resources Corp
Email: sbutler@eroresources.com
Phone Number: 303-830-1188

- Activity List:

	Activity Type	Activity Title
2.	Degreaser	Degreaser
3.	Construction / Demolition	Pipeline construction
4.	Personnel	Construction Personnel
5.	Tanks	Storage tank use

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Emission factors and air emission estimating methods come from the United States Air Force's Air Emissions Guide for Air Force Stationary Sources, Air Emissions Guide for Air Force Mobile Sources, and Air Emissions Guide for Air Force Transitory Sources.

2. Degreaser

2.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: El Paso
Regulatory Area(s): Colorado Springs, CO

- Activity Title: Degreaser

- Activity Description:
Pipe lubricant will be used at joints.

- Activity Start Date
Start Month: 1
Start Year: 2023

- Activity End Date
Indefinite: No
End Month: 12
End Year: 2023

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	1.628250
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Total Emissions (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

2.2 Degreaser Assumptions

- Degreaser
Net solvent usage (total less recycle) (gallons/year): 500

- Default Settings Used: Yes

- Degreaser Consumption
Solvent used: Mineral Spirits CAS#64475-85-0 (default)
Specific gravity of solvent: 0.78 (default)
Solvent VOC content (%): 100 (default)
Efficiency of control device (%): 0 (default)

2.3 Degreaser Formula(s)

- Degreaser Emissions per Year
DE_{VOC}= (VOC / 100) * NS * SG * 8.35 * (1 - (CD / 100)) / 2000

DE_{VOC}: Degreaser VOC Emissions (TONs per Year)
VOC: Solvent VOC content (%)
(VOC / 100): Conversion Factor percent to decimal
NS: Net solvent usage (total less recycle) (gallons/year)
SG: Specific gravity of solvent
8.35: Conversion Factor the density of water
CD: Efficiency of control device (%)
(1 - (CD / 100)): Conversion Factor percent to decimal (Not effected by control device)
2000: Conversion Factor pounds to tons

3. Construction / Demolition

3.1 General Information & Timeline Assumptions

- Activity Location
County: El Paso
Regulatory Area(s): Colorado Springs, CO

- Activity Title: Pipeline construction

- Activity Description:
• Approximately 11.0 to 11.7 miles of new pipeline constructed from between the northern entities' wastewater collection systems and the J.D. Phillips Facility WRRF
• Lateral connections constructed for Smith Creek, Monument Branch, Middle Tributary, and Black Squirrel Creek No. 2 (the Farm) lift stations

- Activity Start Date
Start Month: 1
Start Month: 2023

- Activity End Date
Indefinite: False
End Month: 12
End Month: 2023

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.306876
SO_x	0.006419
NO_x	1.802925
CO	2.173255
PM 10	33.850496

Pollutant	Total Emissions (TONs)
PM 2.5	0.065928
Pb	0.000000
NH_3	0.003369
CO_2e	630.2

3.1 Trenching/Excavating Phase

3.1.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date
Start Month: 1
Start Quarter: 1
Start Year: 2023

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Phase Duration
Number of Month: 12
Number of Days: 0

3.1.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
Area of Site to be Trenched/Excavated (ft^2): 283000
Amount of Material to be Hauled On-Site (yd^3): 36500
Amount of Material to be Hauled Off-Site (yd^3): 50800

- Trenching Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Excavators Composite	2	8
Other General Industrial Equipmen Composite	1	8
Tractors/Loaders/Backhoes Composite	1	8

- Vehicle Exhaust
Average Hauling Truck Capacity (yd^3): 20 (default)
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

3.1.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0757	0.0014	0.4155	0.5717	0.0191	0.0191	0.0068	132.91
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0483	0.0012	0.2497	0.3481	0.0091	0.0091	0.0043	122.61
Rollers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0464	0.0007	0.2939	0.3784	0.0158	0.0158	0.0041	67.139
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1830	0.0024	1.2623	0.7077	0.0494	0.0494	0.0165	239.49
Scrapers Composite								

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.1640	0.0026	1.0170	0.7431	0.0406	0.0406	0.0148	262.85
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0364	0.0007	0.2127	0.3593	0.0080	0.0080	0.0032	66.879

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.301	000.002	000.232	003.362	000.009	000.008		000.023	00323.384
LDGT	000.363	000.003	000.402	004.534	000.011	000.010		000.024	00417.507
HDGV	000.719	000.005	001.095	015.968	000.026	000.023		000.045	00767.415
LDDV	000.125	000.003	000.135	002.442	000.004	000.004		000.008	00312.138
LDDT	000.268	000.004	000.390	004.199	000.007	000.006		000.008	00443.722
HDDV	000.480	000.013	005.052	001.697	000.168	000.155		000.028	01480.669
MC	002.615	000.003	000.838	013.632	000.029	000.025		000.054	00399.467

3.1.4 Trenching / Excavating Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (20 * ACRE * WD) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
$HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
VMT_{WT} = WD * WT * 1.25 * NE

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

4. Personnel

4.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: El Paso
Regulatory Area(s): Colorado Springs, CO

- Activity Title: Construction Personnel

- Activity Description:
50 personnel estimated to commute to the site.

- Activity Start Date
Start Month: 1
Start Year: 2023

- Activity End Date
Indefinite: No
End Month: 12
End Year: 2023

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.109571
SO_x	0.000753
NO_x	0.099280
CO	1.222699
PM 10	0.003033

Pollutant	Total Emissions (TONs)
PM 2.5	0.002730
Pb	0.000000
NH_3	0.006925
CO_2e	109.5

4.2 Personnel Assumptions

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Number of Personnel

Active Duty Personnel:	0
Civilian Personnel:	0
Support Contractor Personnel:	50
Air National Guard (ANG) Personnel:	0
Reserve Personnel:	0

- Default Settings Used: Yes

- Average Personnel Round Trip Commute (mile): 20 (default)

- Personnel Work Schedule

Active Duty Personnel:	5 Days Per Week (default)
Civilian Personnel:	5 Days Per Week (default)
Support Contractor Personnel:	5 Days Per Week (default)
Air National Guard (ANG) Personnel:	4 Days Per Week (default)
Reserve Personnel:	4 Days Per Month (default)

4.3 Personnel On Road Vehicle Mixture

- On Road Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	37.55	60.32	0	0.03	0.2	0	1.9
GOVs	54.49	37.73	4.67	0	0	3.11	0

4.4 Personnel Emission Factor(s)

- On Road Vehicle Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.301	000.002	000.232	003.362	000.009	000.008		000.023	00323.384
LDGT	000.363	000.003	000.402	004.534	000.011	000.010		000.024	00417.507
HDGV	000.719	000.005	001.095	015.968	000.026	000.023		000.045	00767.415
LDDV	000.125	000.003	000.135	002.442	000.004	000.004		000.008	00312.138
LDDT	000.268	000.004	000.390	004.199	000.007	000.006		000.008	00443.722
HDDV	000.480	000.013	005.052	001.697	000.168	000.155		000.028	01480.669
MC	002.615	000.003	000.838	013.632	000.029	000.025		000.054	00399.467

4.5 Personnel Formula(s)

- Personnel Vehicle Miles Travel for Work Days per Year

$VMT_P = NP * WD * AC$

VMT_P: Personnel Vehicle Miles Travel (miles/year)
NP: Number of Personnel
WD: Work Days per Year
AC: Average Commute (miles)

- Total Vehicle Miles Travel per Year

$VMT_{Total} = VMT_{AD} + VMT_C + VMT_{SC} + VMT_{ANG} + VMT_{AFRC}$

VMT_{Total}: Total Vehicle Miles Travel (miles)
VMT_{AD}: Active Duty Personnel Vehicle Miles Travel (miles)
VMT_C: Civilian Personnel Vehicle Miles Travel (miles)
VMT_{SC}: Support Contractor Personnel Vehicle Miles Travel (miles)
VMT_{ANG}: Air National Guard Personnel Vehicle Miles Travel (miles)

VMT_{AFRC}: Reserve Personnel Vehicle Miles Travel (miles)

- Vehicle Emissions per Year
$V_{POL} = (VMT_{Total} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{Total}: Total Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Personnel On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

5. Tanks

5.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: El Paso
Regulatory Area(s): Colorado Springs, CO

- Activity Title: Storage tank use

- Activity Description:
Fuel will be stored onsite. Tanks will be double contained.

- Activity Start Date
Start Month: 1
Start Year: 2023

- Activity End Date
Indefinite: No
End Month: 12
End Year: 2023

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	1.901485
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Total Emissions (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

5.2 Tanks Assumptions

- Chemical
Chemical Name: Gasoline (RVP 6)
Chemical Category: Petroleum Distillates
Chemical Density: 5.6
Vapor Molecular Weight (lb/lb-mole): 69
Stock Vapor Density (lb/ft^3): 0.0331725401626428
Vapor Pressure: 2.6533

Vapor Space Expansion Factor (dimensionless): 0.068

- Tank

Type of Tank:	Horizontal Tank
Tank Length (ft):	5.4
Tank Diameter (ft):	4
Annual Net Throughput (gallon/year):	112000

5.3 Tank Formula(s)

- Vapor Space Volume

$VSV = (PI / 4) * D^2 * L / 2$

VSV: Vapor Space Volume (ft^3)
PI: PI Math Constant
D^2: Tank Diameter (ft)
L: Tank Length (ft)
2: Convertion Factor (Vapor Space Volume is assumed to be one-half of the tank volume)

- Vented Vapor Saturation Factor

$VVSF = 1 / (1 + (0.053 * VP * L / 2))$

VVSF: Vented Vapor Saturation Factor (dimensionless)
0.053: Constant
VP: Vapor Pressure (psia)
L: Tank Length (ft)

- Standing Storage Loss per Year

$SSL_{VOC} = 365 * VSV * SVD * VSEF * VVSF / 2000$

SSL_{VOC}: Standing Storage Loss Emissions (TONs)
365: Number of Daily Events in a Year (Constant)
VSV: Vapor Space Volume (ft^3)
SVD: Stock Vapor Density (lb/ft^3)
VSEF: Vapor Space Expansion Factor (dimensionless)
VVSF: Vented Vapor Saturation Factor (dimensionless)
2000: Conversion Factor pounds to tons

- Number of Turnovers per Year

$NT = (7.48 * ANT) / ((PI / 4.0) * D * L)$

NT: Number of Turnovers per Year
7.48: Constant
ANT: Annual Net Throughput
PI: PI Math Constant
D^2: Tank Diameter (ft)
L: Tank Length (ft)

- Working Loss Turnover (Saturation) Factor per Year

$WLSF = (18 + NT) / (6 * NT)$

WLSF: Working Loss Turnover (Saturation) Factor per Year
18: Constant
NT: Number of Turnovers per Year
6: Constant

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Working Loss per Year

WL_{VOC} = 0.0010 * VMW * VP * ANT * WLSF / 2000

0.0010: Constant
VMW: Vapor Molecular Weight (lb/lb-mole)
VP: Vapor Pressure (psia)
ANT: Annual Net Throughput
WLSF: Working Loss Turnover (Saturation) Factor
2000: Conversion Factor pounds to tons

Appendix C Documented Cultural Resources and Section 106 Memorandum of Agreement

This page is intentionally left blank.

Appendix C. Resources Intersected by Alternative 2 (Preferred) Alignment and Laterals LOD

Smithsonian Site No.	Resource Name/Type	NRHP Eligibility Recommendation (Date)
5EP205.1	Historical – Denver to Pueblo Stage Road (segment)	Eligible, nonsupporting (2020)
5EP205.3	Historical – Denver to Pueblo Stage Road (segment)	Eligible, nonsupporting (2020)
5EP1003.6	Historical – Atchison, Topeka, and Santa Fe (AT&SF) Railroad (segment)	Eligible, supporting (2020)
5EP1003.23	Historical – Atchison, Topeka, and Santa Fe (AT&SF) Railroad (segment)	Eligible, supporting (2023)
5EP1003.24	Historical – Atchison, Topeka, and Santa Fe (AT&SF) Railroad (segment)	Eligible, supporting (2023)
5EP1574	Historical – Habitation	Not eligible (2020)
5EP1581	Historical – Habitation	Not eligible (2020)
5EP1583	Precontact – Open lithic scatter	Not eligible (2020)
5EP2246	Multicomponent – Historical artifact scatter/Open lithic scatter	Not eligible (2020)
5EP2250	Historical – East Husted railroad siding	Not eligible (2020)
5EP2264	Multicomponent – Historical artifact scatter/Open lithic scatter	Not eligible (2020)
5EP2296	Historical – Trash scatter	Not eligible (2023)
5EP2408	Precontact IF – Lithic	Not eligible (2023)
5EP2464	Precontact IF – Lithic	Not eligible (2020)
5EP8871	Historical – Habitation	Not eligible (2020)
5EP8879	Historical – Gravel pit	Not eligible (2020)
5EP8918.1	Historical – Road	Not eligible, nonsupporting (2020)
5EP8919.1	Historical – South Gate Blvd (segment)	Eligible, nonsupporting, contributes to 5EP595 (2020)
5EP8920.1	Historical – Monitor Extension Ditch (segment)	Eligible, nonsupporting (2020)
5EP8922	Historical – Edgerton Road	Not eligible, does not contribute to 5EP595 (2020)
5EP8925	Historical – Sagebrush Drive	Not eligible, does not contribute to 5EP595 (2020)
5EP8926.1	Historical – Industrial Drive (segment)	Eligible, nonsupporting, contributes to 5EP595 (2020)
5EP8927.1	Historical – Park Drive (segment)	Eligible, supporting, contributes to 5EP595 (2020)
5EP8928.1	Historical – East Husted - West Husted Road (segment)	Eligible, nonsupporting (2020)
5EP8929.1	Historical – Road	Eligible, nonsupporting (2023)
5EP8930	Historical – Erosion-control feature	Not eligible, does not contribute to 5EP595 (2020)
5EP8931	Multicomponent – Historical trash dump/Open lithic scatter	Not eligible (2020)
5EP8932	Precontact – Open lithic scatter	Not eligible (2020)
5EP8935	Historical – Erosion-control feature	Not eligible, does not contribute to 5EP595 (2020)
5EP8936	Historical – Erosion-control feature	Not eligible, does not contribute to 5EP595 (2020)
5EP8937	Historical – Erosion-control feature	Not eligible, does not contribute to 5EP595 (2020)
5EP8938	Historical – Road	Not eligible (2020)
5EP8939	Historical – Erosion-control feature	Not eligible (2020)
5EP8943	Precontact IF – Lithic	Not eligible (2020)
5EP8945	Precontact IF – Lithic	Not eligible (2020)
5EP8947	Historical IF – Benchmark	Not eligible (2020)
5EP8949	Precontact IF – Lithic	Not eligible (2020)
5EP8951	Precontact IF – Lithic	Not eligible (2020)
5EP9004	Precontact IF – Lithic	Not eligible (2020)
5EP9005	Precontact IF – Lithic	Not eligible (2020)
5EP9412	Historical – Trash dump	Not eligible (2023)
5EP9413	Historical – Trash dump	Not eligible (2023)

Appendix C. Resources Intersected by Alternative 3 and Laterals LOD.

Smithsonian Site No.	Resource Name/Type	NRHP Eligibility Status (Date)
5EP205.1	Historical — Denver to Pueblo Stage Road (segment)	Officially not eligible (1996)
5EP205.3	Historical — Denver to Pueblo Stage Road (segment)	Field eligible, nonsupporting (2020)
5EP205.5	Historical — Denver to Pueblo Stage Road (segment)	Field eligible, supporting (2020)
5EP205.6	Historical — Denver to Pueblo Stage Road (segment)	Field eligible, nonsupporting (2020)
5EP996	Historical — Ice making depressions	Officially not eligible (2019)
5EP1003.6	Historical — AT&SF Railroad (segment)	Field eligible, nonsupporting (2020)
5EP1003.18	Historical — AT&SF Railroad (segment)	Field eligible, nonsupporting (2019)
5EP1003.23	Historical — AT&SF Railroad (segment)	Field eligible, supporting (2020)
5EP1584	Precontact — Open lithic scatter	Officially not eligible (1999)
5EP1627	Historical — Edgerton townsite	Officially eligible (2019)
5EP1992	Historical — Habitation	Field not eligible (2021)
5EP2026	Precontact IF – Lithic	Field not eligible (1992)
5EP2181.2	Historical — D&RGW Railroad (segment)	Officially eligible (1996)
5EP2181.3	Historical — D&RGW Railroad (segment)	Officially eligible, field nonsupporting (2019)
5EP2181.5	Historical — D&RGW Railroad (segment)	Officially eligible (n.d.)
5EP2181.6/5EP8713	Historical — Water control berm	Officially not eligible (2019)
5EP2181.7/5EP8714	Historical — Water control berm	Officially not eligible (2019)
5EP2181.29	Historical — D&RGW Railroad (segment)	Officially eligible, field nonsupporting (2019)
5EP2183	Precontact IF – Lithic	Field not eligible (1994)
5EP2184	Precontact — Open lithic scatter	Officially not eligible (1997)
5EP2185	Historical IF — Animal control feature/ marker	Field not eligible (1994)
5EP2239	Precontact — Open lithic scatter	Field not eligible (2020)
5EP2250	Historical — East Husted railroad siding	Field not eligible (2020)
5EP2263	Precontact — Lithic quarry	Officially not eligible (1999)
5EP2265	Historical — West Husted railroad siding	Officially eligible (2013)
5EP2267	Historical — Trash dump	Field not eligible (2019)
5EP2268	Historical — Habitation	Officially not eligible (2019)
5EP2270	Precontact — Open lithic scatter	Field not eligible (1999)
5EP2324	Historical — Clay quarry	Officially not eligible (1999)
5EP2328	Precontact IF – Lithic	Officially not eligible (1994)
5EP2360	Historical IF — Railroad artifacts	Field not eligible (1994)
5EP2516	Precontact IF – Lithic	Field not eligible (1996)
5EP3551	Historical -- Air Force Academy Road Overpass H-17-BC	Officially not eligible (2019)
5EP3552	Historical -- Air Force Academy Road Overpass H-17-BD	Officially not eligible (2019)
5EP5133.7	Historical — GN&SH (segment)	Field eligible, nonsupporting (2020)
5EP8295	Precontact — Culturally modified tree	Field eligible (2018)
5EP8304.1	Historical — North Gate Blvd (segment)	Field eligible, nonsupporting, contributes to 5EP595 (2020)
5EP8878	Historical — Trash dump	Field not eligible (2020)
5EP8889.1	Historical — Unnamed ditch (segment)	Field eligible, nonsupporting (2020)
5EP8920.1	Historical — Monitor Extension Ditch (segment)	Field eligible, nonsupporting (2020)
5EP8929.1	Historical — Unnamed road (segment)	Field eligible, nonsupporting (2020)
5EP8930	Historical — Erosion-control feature	Field not eligible, does not contribute to 5EP595 (2020)
5EP8931	Multicomponent — Historical trash dump and precontact open lithic scatter	Field not eligible (2020)
5EP8932	Precontact — Open lithic scatter	Field not eligible (2020)
5EP8949	Precontact IF – Lithic	Field not eligible (2020)
5EP8955	Precontact IF – Lithic	Field not eligible (2020)

Appendix D Notice of Availability

Environmental Assessment for
Northern Monument Creek Interceptor
United States Air Force Academy, Colorado

The United States Air Force (USAF) invites the public to review and comment on the Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) for the proposed Northern Monument Creek Interceptor (NMCI) project at the USAF Academy (USAFA), Colorado. Colorado Springs Utilities proposes to construct the NMCI, a new wastewater pipeline from the Upper Monument Creek Regional Wastewater Treatment Facility approximately 8.6 miles south to the J.D. Phillips Water Resource Recovery Facility in Colorado Springs. The proposed NMCI would traverse USAFA and nearby non-federal lands and would include a total of 10.1 miles of pipeline when laterals are included. The NMCI would consolidate wastewater treatment systems into a centralized system that is environmentally and fiscally responsible, provides for increased system reliability, accommodates future growth, and maintains compliance with more stringent water quality regulations.

A copy of the Draft EA and Draft FONSI will be available for review beginning 27 March 2024 at the following locations:

https://www.usafa.af.mil/News/#Public_Notice

csu.org/Pages/NorthernMonumentCreekInterceptorProject.aspx

Library 21C
1175 Chapel Hills Drive
Colorado Springs, CO. 80920

Base Library
5136 Redtail Drive
USAFA, CO. 80840

Monument Library
1706 Lake Woodmoor Drive
Monument, CO. 80132

Please provide comments on the analysis presented in the EA by 27 April, 2024 to:
csu.org/Pages/NorthernMonumentCreekInterceptorProject.aspx

191389

AFFIDAVIT OF PUBLICATION

STATE OF COLORADO
COUNTY OF El Paso

I, Kate Dickens, being first duly sworn, deposes and says that she is the Legal Sales Representative of The Colorado Springs Gazette, LLC., a corporation, the publishers of a daily/weekly public newspapers, which is printed and published daily/weekly in whole in the County of El Paso, and the State of Colorado, and which is called Colorado Springs Gazette; that a notice of which the annexed is an exact copy, cut from said newspaper, was published in the regular and entire editions of said newspaper **2 time(s) to wit 03/27/2024, 04/10/2024**

That said newspaper has been published continuously and uninterruptedly in said County of El Paso for a period of at least six consecutive months next prior to the first issue thereof containing this notice; that said newspaper has a general circulation and that it has been admitted to the United States mails as second-class matter under the provisions of the Act of March 3, 1879 and any amendment thereof, and is a newspaper duly qualified for the printing of legal notices and advertisement within the meaning of the laws of the State of Colorado.

Kate Dickens

Kate Dickens
Sales Center Agent

Subscribed and sworn to me this 04/10/2024, at said City of Colorado Springs, El Paso County, Colorado.
My commission expires June 23, 2026.

Karen Hogan

Karen Hogan
Notary Public
The Gazette

KAREN HOGAN
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20224024441
MY COMMISSION EXPIRES 06/23/2026

Document Authentication Number
20224024441-031229

PUBLIC NOTICE

Environmental Assessment for
Northern Monument Creek Interceptor
United States Air Force Academy, Colorado

The United States Air Force (USAF) invites the public to review and comment on the Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) for the proposed Northern Monument Creek Interceptor (NMCI) project at the USAF Academy (USAFA), Colorado. Colorado Springs Utilities proposes to construct the NMCI, a new wastewater pipeline from the Upper Monument Creek Regional Wastewater Treatment Facility approximately 8.6 miles south to the J.D. Phillips Water Resource Recovery Facility in Colorado Springs. The proposed NMCI would traverse USAFA and nearby non-federal lands and would include a total of 10.1 miles of pipeline when laterals are included. The NMCI would consolidate wastewater treatment systems into a centralized system that is environmentally and fiscally responsible, provides for increased system reliability, accommodates future growth, and maintains compliance with more stringent water quality regulations.

A copy of the Draft EA and Draft FONSI will be available for review beginning 27 March 2024 at the following locations:

https://www.usafa.af.mil/News/#Public_Notice

csu.org/Pages/NorthernMonumentCreekInterceptorProject.aspx

Library 21C
1175 Chapel Hills Drive
Colorado Springs, CO. 80920

Base Library
5136 Redtail Drive
USAFA, CO. 80840

Monument Library
1706 Lake Woodmoor Drive
Monument, CO. 80132

Please provide comments on the analysis presented in the EA by 27 April, 2024 to: csu.org/Pages/NorthernMonumentCreekInterceptor-Project.aspx

Published in The Gazette March 27 & April 10, 2024.

191392

AFFIDAVIT OF PUBLICATION

STATE OF COLORADO
COUNTY OF El Paso

I, Kate Dickens, being first duly sworn, deposes and says that she is the Legal Sales Representative of The Tri Lakes Tribune, LLC., a corporation, the publishers of a daily/weekly public newspapers, which is printed and published daily/weekly in whole in the County of El Paso, and the State of Colorado, and which is called Tri Lakes Tribune; that a notice of which the annexed is an exact copy, cut from said newspaper, was published in the regular and entire editions of said newspaper **2 time(s) to wit 03/27/2024, 04/10/2024**

That said newspaper has been published continuously and uninterruptedly in said County of El Paso for a period of at least six consecutive months next prior to the first issue thereof containing this notice; that said newspaper has a general circulation and that it has been admitted to the United States mails as second-class matter under the provisions of the Act of March 3, 1879 and any amendment thereof, and is a newspaper duly qualified for the printing of legal notices and advertisement within the meaning of the laws of the State of Colorado.

Kate Dickens

Kate Dickens
Sales Center Agent

Subscribed and sworn to me this 04/10/2024, at said City of Colorado Springs, El Paso County, Colorado.
My commission expires June 23, 2026.

Karen Hogan

Karen Hogan
Notary Public
The Gazette

KAREN HOGAN
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20224024441
MY COMMISSION EXPIRES 06/23/2026

Document Authentication Number
20224024441-032341

PUBLIC NOTICE

Environmental Assessment for
Northern Monument Creek Interceptor
United States Air Force Academy, Colorado

The United States Air Force (USAF) invites the public to review and comment on the Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) for the proposed Northern Monument Creek Interceptor (NMCI) project at the USAF Academy (USAFA), Colorado. Colorado Springs Utilities proposes to construct the NMCI, a new wastewater pipeline from the Upper Monument Creek Regional Wastewater Treatment Facility approximately 8.6 miles south to the J.D. Phillips Water Resource Recovery Facility in Colorado Springs. The proposed NMCI would traverse USAFA and nearby non-federal lands and would include a total of 10.1 miles of pipeline when laterals are included. The NMCI would consolidate wastewater treatment systems into a centralized system that is environmentally and fiscally responsible, provides for increased system reliability, accommodates future growth, and maintains compliance with more stringent water quality regulations.

A copy of the Draft EA and Draft FONSI will be available for review beginning 27 March 2024 at the following locations:

https://www.usafa.af.mil/News/#Public_Notice

csu.org/Pages/NorthernMonumentCreekInterceptorProject.aspx

Library 21C
1175 Chapel Hills Drive
Colorado Springs, CO. 80920

Base Library
5136 Redtail Drive
USAFA, CO. 80840

Monument Library
1706 Lake Woodmoor Drive
Monument, CO. 80132

Please provide comments on the analysis presented in the EA by 27 April, 2024 to: csu.org/Pages/NorthernMonumentCreekInterceptorProject.aspx

Published in the Tri-Lakes Tribune March 27 & April, 10, 2024.

Appendix L: Seeding Specifications

United States Air Force Academy
Revegetation and Erosion Control Standards

Last Updated: September 2024

Table of Contents

SECTION 01351: REVEGETATION AND EROSION CONTROL STANDARDS 1

1.0 Introduction 1

2.0 Site Preparation 3

2.1 General 3

2.2 Existing Resource Protection 3

2.3 Topsoil Salvage 4

2.4 Interim Erosion Control 5

2.5 Soil Testing 5

2.6 Soil Preparation 6

3.0 Revegetation Installation 10

3.1 Seed Mix Analysis and Certification 10

3.2 Time of Seeding 10

3.3 Seeding Installation 10

3.4 Container, Ball and Burlap, Plugs, and Sod Mat Stock 11

3.5 Salvaged Plantings and Reuse of On-Site Materials 11

3.6 Weed Control During Construction 14

4.0 Watering and Irrigation 15

5.0 Erosion Control 15

5.1 General 15

5.2 Erosion Control Materials 16

5.3 Final Inspection and Seeding Success Criteria 24

6.0 Post-Construction Revegetation Establishment and Maintenance 26

6.1 General 26

6.2 Vegetation Establishment Warranty Period 26

6.3 Container Stock and Salvaged Materials Warranty 27

6.4 Weed Control 27

Appendix A: Revegetation and Erosion Control Design Standards 28

A.1.0 Revegetation Plan Development ..... Error! Bookmark not defined.

A.1.1 General 28

A.1.2 Revegetation Design Objectives 28

A.1.3 Revegetation Plan Design 30

A.1.4 Existing Plant Communities 32

A.1.5 Seeding Selection 33

A.1.6 Plant Selection 48

A.1.7 Irrigation 52

Appendix B: Revegetation and Erosion Control Construction Checklist 53

Appendix C: Revegetation and Erosion Control Post-Construction Maintenance Checklist 55

SECTION 01351: REVEGETATION AND EROSION CONTROL STANDARDS

1.0 Introduction

Native revegetation and erosion control is required for any project that disturbs soil or vegetation within the United States Air Force Academy (USAFA), Farish Recreation Area, and Bullseye Auxiliary Airfield. Compliance with the USAFA Revegetation and Erosion Control Standards (Standards) is mandatory to promote natural resource objectives, meet project-related permit requirements, and to comply with the **USAFA ENVIRONMENTAL STANDARDS** and its component plans. Landscaped areas adjacent to buildings (or other common locations) that include ornamental plantings and are regularly manicured, etc. are not required to comply with these standards and are regulated by a separate process and document.

Information provided in these Standards does not relieve the Contractor or other personnel from responsibility to comply with all state, local, and federal environmental laws, regulations, and operating standards during performance of work on USAFA. The USAFA Environmental Standards should be referenced for a more comprehensive list of environmental laws, regulations, and operating standards above those pertinent to revegetation and erosion control plan development. These Standards are separate or are in addition to the requirements set forth in this document.

In general, if discrepancies between regulatory agency requirements are found, the most stringent requirement shall prevail. Compliance with these Standards does not affect obligations to comply with other applicable state and federal criteria and regulations.

These Standards identify the minimum requirements for design, construction, and maintenance of projects on USAFA, Farish Recreation Area, and Bullseye Auxiliary Airfield (USAFA Lands) and includes the following sections:

1.0 Introduction
2.0 Site Preparation
3.0 Revegetation Installation
4.0 Watering and Irrigation
5.0 Erosion Control
6.0 Post-Construction Revegetation Establishment and Maintenance

Appendix A Revegetation Design Standards
Appendix B Revegetation and Erosion Control Construction Checklist
Appendix C Revegetation and Erosion Control Post-Construction Maintenance Checklist

Contact the USAFA Natural Resources Department at (719) 333-3308

The Standards are intended to be used by designers, contractors, and inspectors (Standards Users) working on projects on USAFA lands. Depending on the type, size, and scope of the project, the Standards are enforced by one or more Government Representatives: the 10th Contracting Squadron (Contracting Officer), the 10th Civil Engineer Squadron (CES; Construction Inspector, Project Manager, or Permit Inspector), and/or the USAFA Natural Resources Office (Natural Resources Manager). **Standards Users shall consult with these offices for assistance in understanding and implementing these Standards.**

To fulfill Standard requirements, Standards Users shall coordinate and receive approval from the CES assigned during design or implementation phases of the project. During construction, the Standards User shall receive on-site approval from the CES but shall also coordinate with the NR-Manager as necessary. After construction is complete, the Standards User shall coordinate and receive approval from the CES for post-construction maintenance phase requirements. Any deviations from these Standards must be approved by the appropriate Government Representative identified above. Individual Government Representative roles that will fulfill these specifications will be determined on a project specific basis during permitting and design reviews and are generally identified as “Government Representatives” herein.

APPENDIX A contains guidance on **Revegetation and Erosion Control Design Standards** intended to provide ecologically based design approaches for large-scale projects on USAFA Lands. The guidance provided here is recommended for USAFA projects larger than one acre or is being conducted by outside consultants.

The **Revegetation and Erosion Control Standards Checklist** in **APPENDIX B** shall be used by the Standards User and the Government Representative(s) to document compliance with the Standards during and after construction.

The **Post-Construction Monitoring Checklist** in **APPENDIX C** shall be used by the Standards User and the Government Representative(s) to document compliance with the Standards during post-construction erosion control and vegetation establishment. The checklist provided is intended to serve as an example and shall be modified by the Government Representative and Contractor to be project specific.

2.0 Site Preparation

2.1 General

For native revegetation, the beginning of site preparation and subsequent revegetation should be adequately scheduled based on seasonal considerations to the extent practicable. Correct timing of revegetation, especially if the site will be non-irrigated, is very important to establishment success.

Site preparation will include understanding existing soil conditions and the creation of suitable growing conditions for seeding or planting operations through site manipulations and modifications including, but not limited to, soil sampling, topsoil salvage or import, grading, seedbed preparation, and erosion control.

2.2 Existing Resource Protection

Impacts to existing natural resources such as trees, shrubs, wildlife habitat or nests, wetlands, waterbodies, and high-quality native vegetation communities shall be avoided and minimized to the best extent practicable during design and construction phases. Prior to construction, these natural resources shall be fenced off in a manner that prevents intentional or unintentional impacts during construction. Limits of disturbance shall be clearly marked by the Contractor and approved by the Government Representative(s) prior to commencement of construction.

Tree protection fencing shall be installed around trees to be protected prior to commencement of any demolition or construction activities. Fencing around protected trees shall be placed outside of the Critical Root Zone (CRZ) to prevent damage to the tree. The CRZ is defined as the dripline, further extent of the tree canopy, or is equal to one foot radially from the tree for every one inch (1”) of trunk diameter at breast height, or whichever is greater. Any digging, grubbing, excavating, trenching, changing of grade, or other actions that may impact the roots of the tree are strictly prohibited. Additional tree trunk protection is required if construction occurs within ten feet (10’) of trunk. No materials, debris, equipment, or site amenities shall be stored within the CRZ. Tree protection fencing shall be “orange plastic safety fencing”, minimum 48-inches (48”) tall, top secured to metal T-posts with 12-gauge wire woven through top of fencing for entire length. Heavy duty T-posts shall be placed so that wire and fencing are taut.

Biosecurity

Vehicles, equipment, and personal protective equipment, including tire tread and boot soles, shall be free of any organics or dirt prior to entering a project site. Noxious and non-natives weed species are detrimental to wildlife habitats by outcompeting native vegetation species which wildlife rely on, and which may further exacerbate wildfire risks. Furthermore, any item coming from another wetland project and not properly disinfected and dried may directly introduce disease pathogens afflicting rare and sensitive species.

To prevent the introduction and spread of noxious weeds and other non-native and invasive plants, all construction equipment shall be free of dirt, seed, and plant parts prior to entering the base and/or construction site. The construction site shall have construction track-out controls installed prior to construction equipment entering the site and shall remain until all construction tasks have been completed and the entire site has been stabilized.

2.3 Topsoil Salvage

The upper four to six inches (4-6”) of native soil shall be salvaged for re-distribution over the restoration area. At the beginning of salvage activities, review the soil profile to understand the anticipated topsoil depth of salvage. The soil profile will include:

Topsoil – The top layer of soil which contains the highest concentration of organic matter (humus) and microorganisms and where plants have most of their roots. Topsoil depth varies greatly across regions and in Colorado the topsoil is generally found to be two inches (2”) to twelve inches (12”) deep. The topsoil layer is typically darker in color and less dense than subsoil.

Subsoil – The layer of soil immediately below the topsoil layer. It generally contains much lower percentages of organic matter and microorganisms. A smaller percentage of plant roots are found within this layer. Subsoil depth varies greatly across regions and in Colorado is generally found to be twelve inches (12”) to six feet (6’) deep.

Deep Cut Soil - the lowest layer of soils located below the subsoil layer. These soils are generally low in organic matter and deficient in plant nutrients to support vegetation establishment objectives. Avoid exposing or intermixing these soils with subsoil or topsoil during grading activities.

Well salvaged topsoil can significantly reduce soil amendment costs. All existing surface objects and protruding objects not designated to remain shall be cleared and grubbed prior to topsoil salvage. This includes but is not limited to, trees, brush, stumps, logs, grass, weeds, roots, loose boulders. Care should be taken to limit removal of viable topsoil resources during clearing and grubbing activities. Do not commence site clearing activities until temporary erosion- and sedimentation-control and tree and or plant protection measures are in place and approved by the Government Representative.

Topsoil stockpiles shall not have side slopes greater than 3:1 (horizontal:vertical), to reduce possible erosion, and shall be placed in areas indicated in the drawings or as approved by the Government Representative. Topsoil should be stockpiled as shallow as possible and shall not exceed ten feet (10’) in height to allow oxygen exchange to preserve soil microorganisms. Topsoil stockpiles shall be seeded with the temporary seed mix in **TABLE 12** or with the appropriate permanent native seed mix within 14 days of stockpiling. Erosion control best management practices (BMPs) shall be used around the downgradient perimeter of all stockpiles, including topsoil stockpiles. Similar to all areas impacted during construction, exposed topsoil stockpiles shall be maintained for weed intrusion through appropriate weed management practices.

Following rough grading, topsoil quality shall be retested to inform or potentially revise site specific amendments. Soil sampling of rough graded areas shall also occur to ensure appropriate soil quality extends into the top 12 inches (12”) of the soil column. It is possible that soil recommendations differ between the subsoils and topsoil, but it is the responsibility of the Contractor to sample and amend the subsoils, if necessary, based on soil testing results, prior to the placement of topsoil. Failure to demonstrate sampling and application of recommended amendments prior to topsoil placement may result in the Contractor having to redo the work at the Contractor’s expense.

If topsoil cannot be salvaged and stockpiled appropriately, soils can be amended based on appropriate soil sample results and scarified before the site is revegetated.

Wetland topsoil shall be salvaged and stockpiled separately. Stockpiled wetland topsoil shall only be used in areas where wetlands will be reestablished. Wetland topsoil should be salvaged and replaced in wetland establishment areas as soon as possible to avoid a loss in viability. Wetland topsoil stockpiles shall not exceed three feet (3') in height or width and shall not be kept for more than four weeks. Stockpiling wetland topsoil in the summer or during periods of high temperatures should be avoided when possible.

Topsoil containing dense noxious or invasive non-native weed seed banks shall not be salvaged for reuse. The top two to four inches (2-4") of topsoil in areas dominated by noxious or invasive non-native weeds shall be scraped and buried to limit establishment and spread of these species post-construction.

2.4 Interim Erosion Control

Interim erosion control BMPs, such as silt fence, wattles, check dams, shall be implemented prior to any earth moving activities and comply with all applicable standards as described in *Section 5.0 Erosion Control*. For projects greater than one (1) acre in size, interim erosion control BMPs shall comply with the USAFA Construction Storm Water Pollution Prevention Plan (SWPPP) or other applicable permits.

2.5 Soil Testing

Soil conditions can play a major role in the success of a project's revegetation efforts. Because of this, soil testing should be completed as early as possible during the design or construction phase to guide plant selection and to determine the appropriate soil amendment needs. Depending on the scale and techniques of earth movement, soil chemistry can also change throughout the construction period and additional soil testing shall be completed during construction to verify the type and quantity of soil amendments.

The Contractor, in coordination with the Government Representative(s) shall collect soil samples following the below protocol for the purpose of understanding soil quality for subsoil and topsoil resources.

Soil Sample Collection Protocol

1. Minimum of three (3) composite samples for projects up to one (1) acre in size and one (1) additional composite sample for each additional acre of project size. More samples may be warranted based on soil complexity and heterogeneity. Samples shall be collected randomly throughout the areas to receive similar soil preparation for native seeding. Provide a site plan of the sampling locations to the Government Representative(s) for approval, prior to sampling.
2. Procedures and Depth of Samples: Collect composite samples to a depth of six inches (6") and combine them in a clean plastic container to create on soil sample. At least four grab samples, spaced at least 20 feet (20') apart, shall be used to create one composite sample.
3. Mixing of Samples: Mix grab samples together thoroughly, removing plant debris and breaking up clods.
4. Labeling: Label each sample with the date, location keyed to a site plan or other location system, visible soil condition, and sampling depth.

Topsoil sampling from stockpiles can be simplified, but the number of samples taken from the stockpile should still equal the number required based on the area of disturbance. Samples should still be collected as composite samples with samples collected from different parts of the stockpile.

Soil Testing Laboratories

Testing Agency: Retain an Agricultural Laboratory Testing Association accredited or university-operated laboratory experienced in soil science, soil testing, and plant nutrition.

Subsoil Testing

Subsoil sampling should follow the same process described for topsoil sampling once rough grading is completed. It should be assumed that results will require 7-10 business days, so plan accordingly to avoid disruption to construction schedules.

Testing Requirements

Soil samples should be tested for the following parameters and shall be submitted as part of the Environmental Deliverables List for evaluation of the topsoil's compliance with the Standards:

1. Soil Texture: Soil-particle, size-distribution analysis by the following methods according to SSSA's "Methods of Soil Analysis – Part 1 – Physical and Mineralogical Methods":

    a. Sieving Method: Report sand-gradation percentages for very coarse, coarse, medium, fine, and very fine sand; and fragment-gradation (gravel) percentages for fine, medium, and coarse fragments; according to USDA sand and fragment sizes.
    b. Hydrometer Method: Report percentages of sand, silt, and clay.

2. Fertility Testing: Soil-fertility analysis shall include the following:

    a. Percentage of organic matter.
    b. Cation exchange capacity (CEC), calcium percent of CEC, and magnesium percent of CEC.
    c. Soil reaction (acidity/alkalinity pH value).
    d. Buffered acidity or alkalinity.
    e. Lime Estimate.
    f. Soil texture estimate.
    g. Nitrogen ppm.
    h. Phosphorous ppm.
    i. Potassium ppm.
    j. Manganese ppm.
    k. Zinc ppm.
    l. Iron ppm.
    m. Boron ppm.
    n. Copper ppm.
    o. Sodium ppm.
    p. Sodium absorption ratio (SAR).
    q. Soluble-salts ppm.
    r. Presence and quantities of problem materials including salts and metals cited in the Standard protocol. If such problem materials are present, provide additional recommendations for corrective action.
    s. Other deleterious materials, including their characteristics and content of each.

2.6 Soil Preparation

General

Proper seed bed preparation is one of the most important, and often most overlooked, steps to successful revegetation. Overly compacted soils can hinder revegetation success in upland, riparian, and wetland areas; however, soil that is too loose can lead to erosion or deeper seeding than anticipated and insufficient seed-soil contact.

Process

Scarify subsoil prior to placing topsoil to a depth of 12 inches (12”) in two passes perpendicular to each other, using methods such as disking, ripping, plowing, or rototilling. Topsoil shall be placed on top of the scarified subsoil to a depth of 6 inches (6”). Following topsoil placement, soil amendments shall be added and incorporated into the top 6 inches (6”) creating a total of 18 inches (18”) of scarified soil. There are instances where premixing soil amendments with topsoil is easier and more effective than post-placement incorporation, but this should be determined on a project-by-project basis. After amendment incorporation, fine grading shall be completed to support a planting and seeding surface that promotes germination and plant establishment. The soil surface following proper seed bed preparation shall be rough to facilitate infiltration and microtopography for better seedling germination and establishment.

Topsoil quantities shall be verified by reviewing the area ground disturbance requiring revegetation after initial construction efforts. The disturbance area shall be calculated in acres by tape/wheel measurement or Global Positioning System (GPS) mapping performed by the Contractor and verified by the Government Representative(s). Topsoil quantities may be modified if additional disturbance is incurred passed the original area determined.

Imported topsoil shall be free of rocks, noxious and invasive weeds, large woody debris, or trash. Topsoil shall not be used from areas infested with noxious weeds.

For multi-year or multi-season projects, a new soil laboratory analysis for imported topsoil shall be conducted by the Contractor within one month (30 days) of the delivery date and approved by the Government Representative(s) for each phase of revegetation.

For shorter-term projects, if the required topsoil delivery shall take the Contractor more than one month (30 days) to deliver, the Government Representative shall be responsible for determining whether the topsoil source still conforms to the Standard, or if a new soil analysis at the Contractor’s expense needs to be performed.

Soil Amendments

When considering soil amendment approaches, it is important to consider how to build up soil health and create functioning nutrient cycles in the soil. Soil is a complex ecosystem with microscopic organisms, fungi, and bacteria that influence soil and plant health. If these biotas are not cared for or considered when planning for revegetation actions, an opportunity to reduce long-term maintenance may be missed. Soil organisms need organic matter to complete their lifecycles, so soils shall have adequate amounts (2-4%) of organic matter prior to planting. This will help form a basis for proper nutrient cycling as well as help with infiltration rates, soil moisture capacity, and nutrient retention. Organic matter can be increased by the incorporation of weathered wood chips, humate, and or compost. It is important to understand the seed bank, soil texture, and nutrient quality of site soils before using compost as this product can cause a flush of nutrients that will benefit weedy species more than native species.

Manipulating soil chemistry using appropriate soil amendments can have long lasting positive benefits for revegetated areas. A multitude of soil amendment products can be used, and approaches can be taken to support revegetation establishment objectives. However, misapplied, or excess fertilization can have long lasting negative impacts.

Compost and fertilizers shall not be applied to areas within 50 horizontal feet (50’) from waterbodies to avoid impacts to water quality.

Soil amendment quantities shall be verified by reviewing the area of ground disturbance requiring revegetation after initial construction efforts. The disturbance area shall be calculated in acres by tape/wheel measurement or GPS mapping performed by the Contractor and verified by the Government Representative(s). Soil amendment quantities may be modified if additional disturbance is incurred passed the original area determined. Soil amendments not listed in these Standards must be approved by the Government Representative(s) prior to application.

Fertilizer

Fertilizers, which can be inorganic or organic, are used to increase the nutrient content of soils. All fertilizers shall be a standard commercial product of uniform composition and shall conform to applicable local, state, and federal laws. Fertilizers shall be used for soils with adequate organic matter (2-4%) but inadequate macro- or micronutrient levels based on the soil testing analysis.

Compost

Compost is used to increase organic matter and nutrient content of soils. Compost shall be stable, well decomposed, and free of viable noxious or invasive weed seeds. Compost shall not contain more than one percent non-decomposable material. Compost shall be tested by a STA Compost-Certified Laboratory and test results shall represent the compost source to be used onsite. Compost test results shall be provided to the Government Representative(s) and approved prior to procurement. Compost shall have the following characteristics:

- pH Range: 5.5 - 8.0
- Moisture Content: 35 – 55%
- Particle Size: 1-inch (1”) or smaller
- Stability: Stable – Highly Stable
- Maturity: >80% Seedling Vigor
- Soluble Salts: 2.5 mmhos/cm or less
- Organic Matter: 30 – 70%

Humate

Humate is used to add cation exchange capacity to the soil, improve water retention, encourage seed germination, increase nutrient availability, and stimulate root growth. Humate soil conditioners shall have the following characteristics:

- pH Range: 3 - 5
- Humic Acids: >50%
- Organic Matter: >85%
- Nitrogen: 1 - 3%
- Phosphorus (P_2O_5): <0.1%
- Potassium (K_{20}): <0.1%
- Mountain peat, aspen humus, gypsum, and sand will not be accepted.

Imported Topsoil

Imported topsoil is another option to create suitable growth media for planting. However, cost and availability may limit its use for a project. In addition, to meet revegetation establishment objectives, imported topsoil is not always the best or appropriate approach. Imported topsoil can introduce viable noxious or invasive weed seeds or have a different soil texture than site soils, leading to a misalignment of seed mix and soils. Imported topsoil shall be tested by a state-certified laboratory and test results shall represent the imported topsoil source to be used onsite. Imported topsoil test results shall be provided to the Government Representative(s) and approved prior to procurement. Imported topsoil shall have the following characteristics:

- pH Range: 6.0 - 8.0
- Soil Texture:
    - Sand: thirty percent (30%) – fifty percent (50%)
    - Silt: thirty percent (30%) – fifty percent (50%)
    - Clay: five percent (5%) – thirty percent (30%)
- Particle Size: 1-inch (1”) or smaller
- Cation Exchange Capacity: 10-30 MEQ/100G
- Soluble Salts: 1.0 mmhos/cm or less
- Organic Matter: 2 – 4%
- Nitrogen: < 15 ppm
- Phosphorus: if pH is <= to 7.1 (20-40 ppm); if pH is > 7.1 (10-25 ppm)
- Potassium: 150-250 ppm

3.0 Revegetation Installation

3.1 Seed Mix Analysis and Certification

All seed shall be tested and certified for purity and germination in accordance with testing provisions of the Association of Official Seed Analysts (AOSA) within one year of the planting date. All seed mixes shall be free of noxious weeds and seed lot certifications and analyses shall be submitted to the Government Representative(s) prior to seed purchase or installation. Seed lot analyses shall identify date of analysis, seed lot number, purity analysis, and number of native, non-native, or noxious weed seeds found during the analysis. Seed lots may be rejected for testing date, noxious or invasive non-native weeds, or inadequate purity or germination. Seed mixes shall be mixed uniformly by a wholesale seed provider to achieve specified Pure Live Seed (PLS) rates.

3.2 Time of Seeding

Fall should always be the target seeding window so seeds are in the ground before spring to allow germination when conditions are optimal; however, this practice may be difficult when faced with construction schedule changes and delays. On irrigated sites, seeding can take place for most of the year; however, seeding in September and the first half of October before irrigation systems are shut off for the winter presents the risk of a frost event killing recently germinated seeds, further hindering revegetation. For this reason, caution should be used when seeding irrigated sites in September and early October. Fall through spring (October 15 to April 15) is the preferred window for non-irrigated seeding. Areas seeded in fall benefit from winter and spring moisture and many cool season native species require freeze-thaw cycles to break seed dormancy to germinate. Sites shall not be seeded if they are frozen, snow covered, or muddy.

When seeding must occur outside of the preferred seeding window, the site shall be seeded with the standard Temporary Seed Mix and reseeded during the preferred seeding window. For areas that require erosion control blanket but need to be seeded outside the preferred seeding window, these areas shall be seeded with the appropriate standard seed mix or an approved modified standard seed mix at one and a half times the suggested rate. TABLE 13 outlines preferred seeding windows based on site conditions and time of year. Seeding outside of preferred windows must be approved by the Government Representative(s).

Table 13: Seeding Windows

Conditions	Mixes	Seeding Window											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Irrigated Areas	All												
Non-Irrigated Areas	All												
Outside of Non-Irrigated Seeding Window	Temporary Mix Only												

Note: Green fill indicates the preferred seeding window for each condition, yellow indicates riskier seeding window depending on irrigated versus non-irrigated, and red fill indicates times of the year when no permanent seeding should occur due to increased risk of revegetation failure.

3.3 Seeding Installation

Drill seeding is the preferred seeding method and shall be used to seed areas greater than 0.10 acre with slopes 3:1 or less that lack steep or rocky terrain. Seeds shall be installed at a depth of one quarter to one half inch (¼ - ½") with drill row spacing of seven to ten inches (7-10") apart and shall be drilled in two directions, perpendicular to one another with the final pass following the land contour. If drill seeding in multiple directions is not possible, the Contractor shall alert the

Government Representative(s) and develop a drill seeding plan that will ensure even distribution of seed. The drill shall have double-disk furrow openers with depth bands and packer wheels.

When seeding areas smaller than 0.10 acre, or areas with greater than 3:1 slopes or having rocky terrain, mechanical broadcasting using mechanized rotary, cyclone seeders, or hand broadcasting shall be used and the standard PLS seeding rate shall be doubled.

Disturbed areas shall be raked or harrowed prior to seeding and then raked or harrowed again to encourage seed to soil contact. Raking or harrowing shall be performed in a manner to achieve a seeding depth between one-quarter and one-half inch (¼ - ½").

Shrub overseed mixes shall be installed in areas designated on design plans and installed at the same time as grass and forb seeding, and prior to final raking or harrowing. Mechanical broadcasting shall be used to install shrub seed and the area shall be raked or harrowed again following seed installation.

All seed mixes shall be installed with a minimum overlap of two feet (2') with the adjacent seeding zone.

3.4 Container, Ball and Burlap, Plugs, and Sod Mat Stock

Container stock including ball and burlap, plugs, and sod mats should be sourced from a local nursery. Several nurseries may need to be sourced from depending on seasonal availability of different plant species. The Contractor should coordinate closely with the Government Representative(s) to determine a suitable substitute if the proposed species or container size is unavailable.

Plant stock should be inspected by the Revegetation Contractor at the nursery prior to transferring onto the site. The stock should be free of diseases and the roots should not be growing out through the bottom or at the periphery of the container. Plants that are not as well-proportioned but still portray high vigor are suitable for native revegetation areas.

When plant stock is brought onto the site, the plant stock shall be watered and kept properly sheltered from the sun, wind, or storm events until the planting is properly installed. Container stock shall not be stockpiled for longer than 2 weeks.

Plants shall be placed in a hole dug two times the size of the root ball (see **FIGURE 3**). Typically, add a minimum of three inches (3") of mulch to support water retainage, including for native revegetation areas. The mulch shall be placed to be kept away from the root flare and kept in place with a mulch ring landform. Remove any injured or dead branches.

3.5 Salvaged Plantings and Reuse of On-Site Materials

General

Salvaged plantings should be included in the project during the revegetation design phase. However, early construction activities such as initial laydown, staking, site assessment, laydown planning and clearing and grubbing can provide more data on the onsite materials available.

Careful consideration should be given to ensure the structural integrity of materials salvaged for reuse, but reusing site materials saves project costs and help achieve sustainability goals.

The following sections highlight commonly available onsite plant materials that can be used as part of the revegetation process and how they can be salvaged and reused.

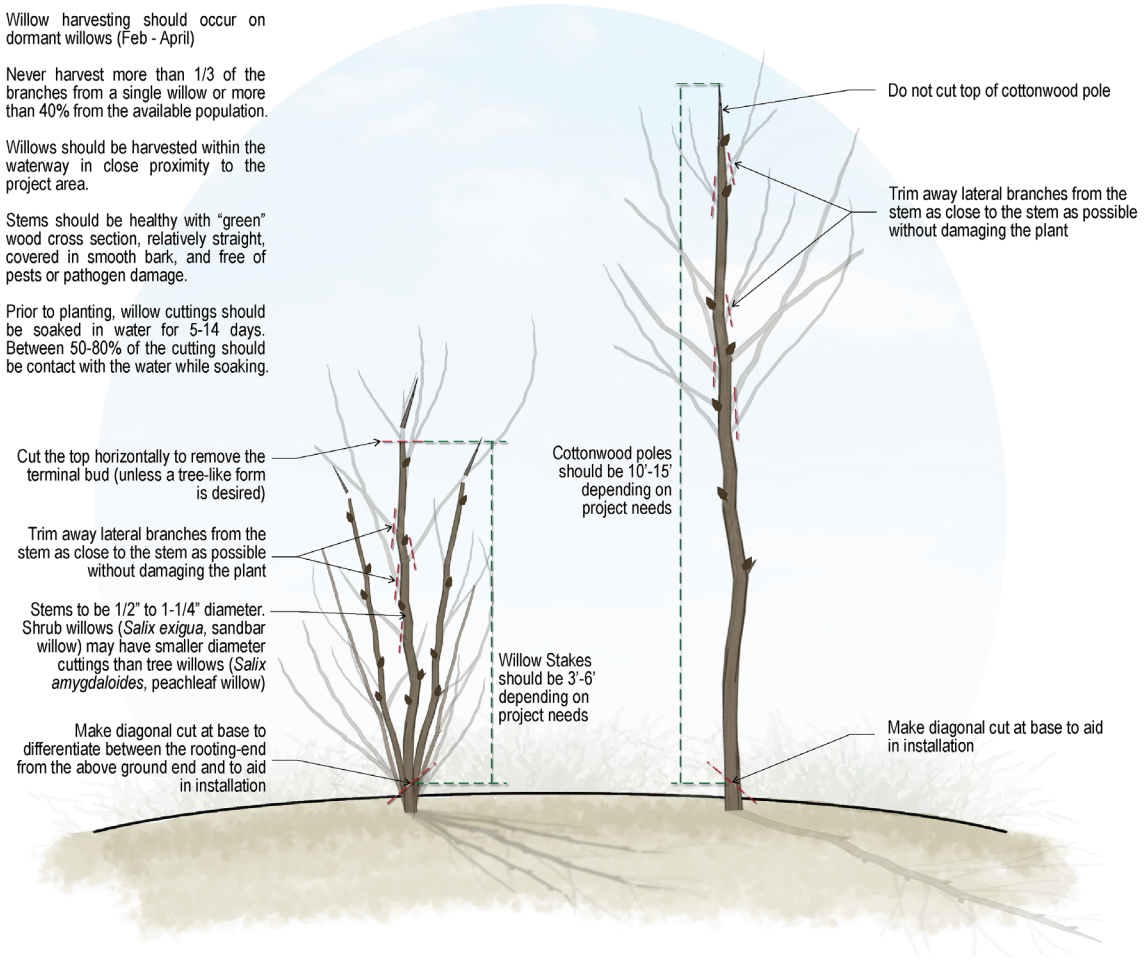
Live Willow Stake Salvage and Installation

Prior to planting, the NR-Manager shall identify and approve any on-site locations for the harvesting of plant materials. All willow stakes shall be disease and insect free. Off-site plant materials shall only be used with prior approval from the NR-Manager.

Willow stakes shall be harvested and planted in late-winter to early-spring during dormancy and before dormancy is broken. “Bud break” can be identified by swelling lateral and terminal buds. Planting shall only be conducted when the weather and soil conditions are appropriate. Stakes shall not be planted when the ground is frozen or otherwise unsuitable.

Live stakes shall typically be coyote willow (*Salix exigua*) cuttings that are one-half inch (1/2”) to one inch (1”) in diameter. Other native willow species can be utilized if found prevalent throughout the project site and as approved by the NR-Manager. The length shall be determined by the project specific needs for the live stake to be planted with access to ground water but are typically between three feet (3’) to six feet (6’) in length. Stakes shall be harvested with sharp

Figure 4: Live Willow Salvage



pruning shears with the base cut at a forty-five-degree (45°) angle and all side branches removed.

Harvested willow stakes shall be soaked prior to installation. Approximately 50-80 percent of the length of the cuttings shall be submerged in water for a minimum of 36 hours but no longer than 14 days. If willow harvesting happens during clearing and grubbing activities, the willow stakes shall be kept in cold storage until the site is ready for planting. Conditions for cold storage should be dark with near 100% relative humidity and temperatures near 24^0 F. The goal of cold storage is to prevent water loss and fungal infection in the cuttings.

Stakes shall be kept moist, cool, shaded, and protected from wind until installed. During transport or storage, the stakes shall be covered to protect them from heat, light and wind damage.

A planting hole shall be excavated to the groundwater using a hammer drill and a one-inch (1") drill bit, rebar probe, dibble bar, or other approved method. Damage to any erosion blanket shall be avoided to the maximum extent possible and any erosion control blanket damage shall be repaired by the Contractor. Stakes shall be gently placed in the hole, ensuring that the butt end reaches below the groundwater level. Each hole shall be backfilled, hand-tamped, and/or watered to eliminate air pockets around the stake. Stakes shall be cut-off at 18-24" from the ground surface with at least two lateral buds remaining above- ground (**FIGURE 4**).

Live Cottonwood Pole Salvage and Installation

Prior to planting, the NR-Manger shall identify and approve any on-site and/or off-site locations for the harvesting of plant materials. All cottonwood poles shall be disease and insect free. Off-site plant materials shall only be used with prior approval from the NR-Manager.

Cottonwood poles shall be harvested and planted in **late-winter to early-spring** during dormancy and before dormancy is broken. "Bud break" can be identified by swelling lateral and terminal buds. Planting shall only be conducted when the weather and soil conditions are appropriate. Stakes shall not be planted when the ground is frozen or otherwise unsuitable.

Cottonwood poles shall be plains cottonwood (*Populus deltoides*) or narrow-leaf cottonwood (*Populus angustifolia*) cuttings that are approximately one inch (1") in diameter. A different native cottonwood species can be utilized if found prevalent throughout the project site and as approved by the NR-Manager. The length shall be determined by the project specific needs for the live stake to be planted with access to ground water but are at least ten feet (10') in length. Poles shall be harvested with sharp pruning shears with the base cut at a forty-five-degree (45°) angle and all side branches removed.

Harvested poles shall be soaked prior to installation. The bottom end of the cuttings shall be submerged in water for a minimum of 24 hours but no longer than seven days. Only the portion of the pole where root development is encouraged shall be soaked.

Poles shall be kept moist, cool, shaded, and protected from wind until installed. During transport or storage, the poles shall be covered to protect them from heat, light and wind damage.

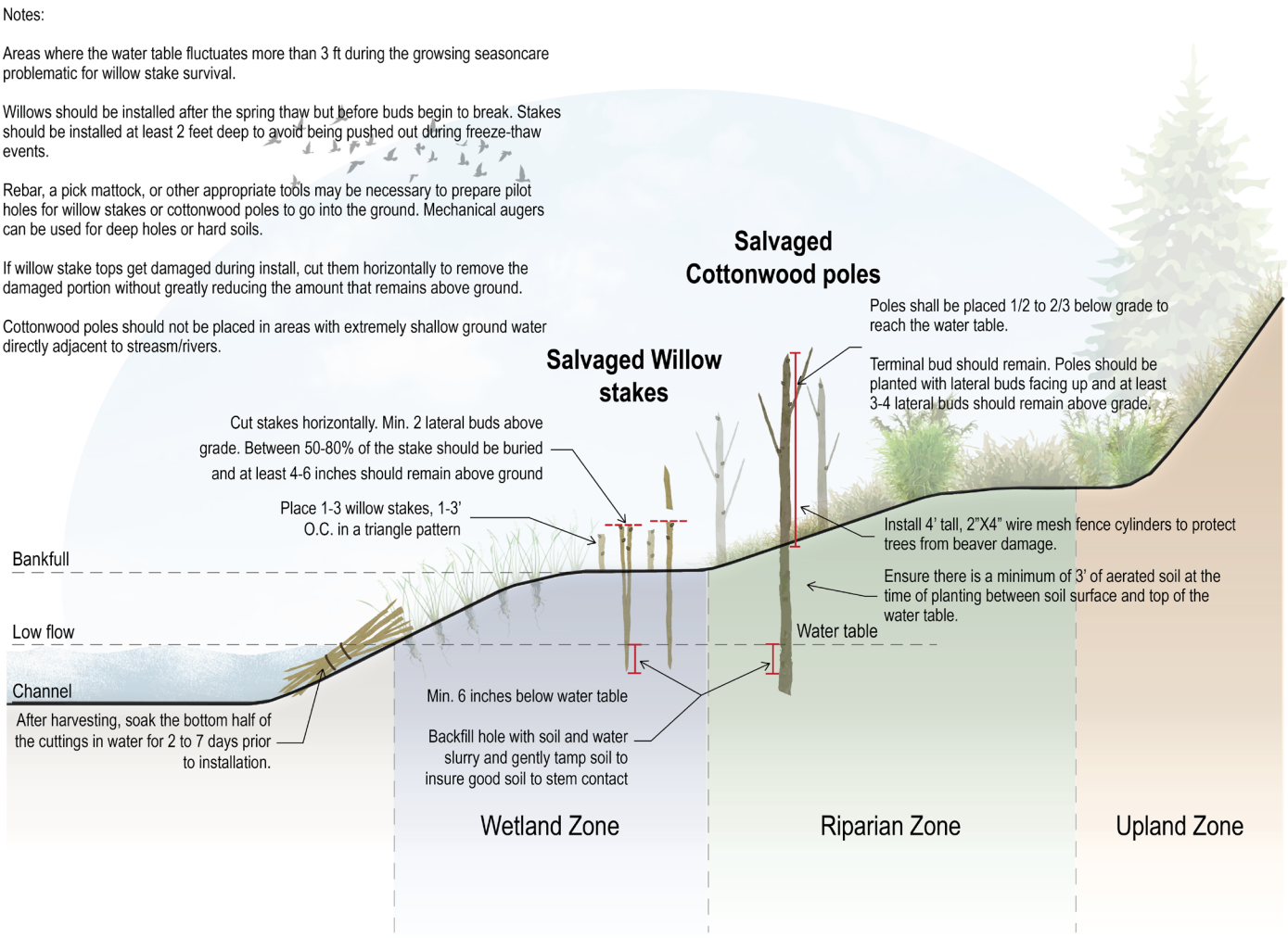
A planting hole shall be excavated to the groundwater using an auger or other approved method. Damage to any erosion blanket shall be avoided to the maximum extent possible and any erosion control blanket damage shall be repaired by the Contractor. Poles shall be gently placed in the hole, ensuring that the butt end reaches below the groundwater level. Each hole shall be backfilled, hand-tamped, and/or watered to eliminate air pockets around the pole.

Wire cages constructed of two inch by four inch (2”x4”) wire mesh with a 30-inch (30”) diameter shall be constructed around each cottonwood pole and anchored by t-posts or rebar to the ground to prevent beaver damage.

3.6 Weed Control During Construction

Weed control is required during construction. While construction activities are still on-going, maintaining weeds over the entire site, including on topsoil stockpiles, will reduce weed density once topsoil is replaced and revegetation commences. (Reference Integrated Weed Management Plan). Construction should anticipate the need to control weeds prior to seed production through mechanical or chemical means. Weeds shall be controlled prior to seed production. Construction teams shall have a licensed herbicide applicator available for weed control efforts. No broadscale chemical or physical weed management, such as spraying or mowing, is allowed unless approved by the Government Representative.

Figure 5: Willow and Cottonwood Pole Install



4.0 Watering and Irrigation

Temporary irrigation or watering during the establishment period shall be required for any projects that propose container stock beyond the use of willow cuttings and cottonwood poles. A Supplemental Irrigation Plan will be required for sites that do not provide an Irrigation Plan in the Construction Document set. Supplemental irrigation is not required for sites that only contain seed and salvaged material plantings if the seeding is accomplished during the required fall and spring planting periods. The Government Representative(s) may require a Supplemental Irrigation Plan if seeding does not occur in the required planting periods.

The Contractor is to verify actual available water pressure before beginning irrigation system installation. Contractor shall notify the Government Representative(s) if available water pressure exceeds 5 PSI higher or lower than the design water pressure. Irrigation systems connected to potable water supply shall have a backflow preventer installed per local requirements.

All visible temporary irrigation components must be removed by the Revegetation Warranty Contractor within 30 days after the system is no longer necessary.

Irrigation watering should not occur during the day between the hours of 10:00 am and 6:00 pm, when water loss from sun and wind will be greatest.

5.0 Erosion Control

5.1 General

An erosion and sediment control plan shall be developed and shall conform with local and state erosion control standards and requirements.

All disturbed areas shall be stabilized in conformance with any USAFA Storm Water Management Plan (SWMP) requirements or BMPs which supplement this manual. This includes temporary and final erosion control.

The type of erosion control selected shall be site specific and consider factors such as proximity to a water body, storm flow paths, slopes, soil nutrient profile and texture, tolerance of shear stress, and frequency and intensity of inundation. Erosion control measures for all disturbed areas shall be installed prior to grading or disturbances have begun.

For designed projects, the erosion control materials will be identified and approved during the design development stage. For all other projects and for any deviations from the approved design plans, the Contractor shall use this document to determine acceptable erosion control materials or equivalent products to implement effective control measures. The CES may require submittal of the anticipated erosion control materials for approval.

Contractors shall minimize creating new roads and trails adjacent to the project area. Any new trails, roads, parking areas, or staging areas shall be rehabilitated as part of the project.

Formal inspection by the Construction Inspector of all erosion control measures shall occur every two (2) weeks and immediately following storm events to ensure no damage has occurred and a plan to replace damaged materials can be developed.

5.2 Erosion Control Materials

All erosion control materials shall be installed in accordance with the manufacturer's instructions and recommendations, unless otherwise specified by the Government Representative.

Erosion control blankets, straw wattles, and other manufactured materials shall be 100% biodegradable, net-free, and consist of wood fiber (excelsior) or coconut fiber materials with at least a two-year functional longevity (Western Excelsior Excel S-1 All Natural, Excel R-2 All Natural, Excel S-2 All Natural, Excel CC-4 All Natural, or equivalent). Photodegradable mesh and other synthetic materials are not allowed as they are known to have deleterious effects on water quality and wildlife. Silt fence is the exception, as that product is to be removed from the site following site stabilization.

All erosion control material shall be certified weed-free to limit the introduction of undesirable species to a site and ultimately reduce competition for desirable native plants.

Manufactured biodegradable stakes or wooden stakes shall be used to anchor all erosion materials. See **FIGURE 6** for sizing information. Do not use metal stakes to secure blankets.

Erosion control blankets, straw coir logs, and/or soil berms shall be used whenever reclaiming and stabilizing slopes greater than 4:1, or along drainageways. The type of erosion control blanket (netless, single-net, double-net, etc.) shall depend on the slope. Netless rolled erosion control blankets shall be used on slopes of 4:1 or less, single-net erosion control blankets and open weave textiles shall be used on 3:1 slopes, and double-net erosion control blankets shall be used on 2:1 slopes.

Hydromulch may be used for temporary stabilization and erosion control on slopes of 4:1 or less but shall not be used in areas that may experience sheet flow or concentrated flow.

For erosion control and revegetation on slopes greater than 3:1, commercially available soil binder / tackifiers and fiber matrixes applied via hydraulic application may offer the greatest feasibility. Flexible Growth Medium (FGM) and Bonded Fiber Matrix (BFM) provide more durability and prolonged stabilization compared to hydromulch or cellulose and can be applied with similar equipment. Additionally, in areas away from concentrated flows FGM and BFM allow easier adaptive management actions to be employed. Products shall be applied at the manufacturer's specified rate and approach for the corresponding slope gradient and condition. All spray on products must be applied from at least two angles to ensure proper and complete coverage. Spray on products are not allowed in areas where concentrated flows are expected. This is typically below the elevation of the 10-year storm event.

The following table provides an overview of site conditions and erosion control approaches appropriate for meeting site conditions.

Table 14: Suitable Erosion Control Materials based on Site Conditions

Erosion Control	
Hydromulch	Slopes of 4:1 or less and outside of areas subject to concentrated flows.
Erosion Control Blanket	Slopes of 4:1 or greater, within low-flow channels, and/or areas immediately adjacent to the channel.
Soil Binder/Tackifiers and Fiber Matrixes	Slopes of 3:1 or greater.

Erosion Control Blanket

Erosion control blankets (ECB), including coir, jute, and coconut-type blankets, are best reserved for use within low-flow channels and areas immediately adjacent to the channel such as within the 2- to 5-year flood zone, and slopes of 4:1 or greater. The type of blanket to be used shall be site specific and based on slope conditions, soil types, allowable maximum shear stress, and the maximum velocity during storm events. Refer to the blanket manufacturer's standards and specifications for velocity and shear stress thresholds. Coconut blanket is typically required, but straw-only or coconut-straw mixture blankets can be allowed for certain projects depending on time frame needs for blanket to remain and as determined by the NR-Manager.

Erosion control blankets shall be installed over uniform surfaces without any large rocks, vegetation, dirt clods, or rills. Blanket edges shall overlap a minimum of eight inches (8") with the edges folded over. All blanket areas shall have a 12-inch (12") deep perimeter anchor trench for securing the ends of the ECB unless otherwise specified by the product manufacturer. The staking/securing pattern shall be 18 inches (18") on-center (O.C.) along all seams and 18 inches (18") O.C. across the center of the fabric. Steep slopes shall have the staking pattern decreased to 12 inches (12") O.C. Anchor slots at structures or blanket termination shall bury a fold of fabric into a six-inch (6") trench, tamp firmly, and be secured with stakes 12 inches (12") O.C. parallel to the trench. There shall be no gaps, tenting, or folds in the fabric when complete. If there are any imperfections as described, the fabric shall be repaired immediately.

Figure 6: Erosion Control Blanket on Slope Installation

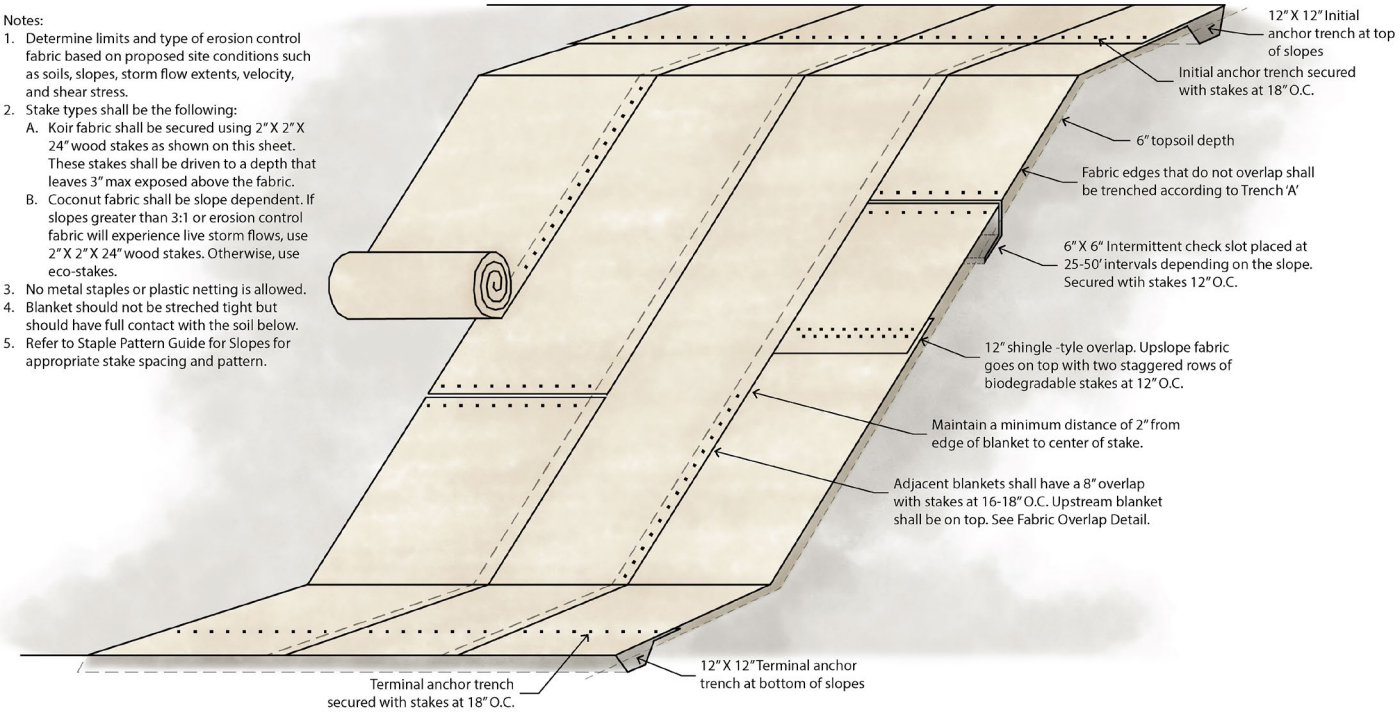


Figure 7: Erosion Control Blanket at Channel Installation

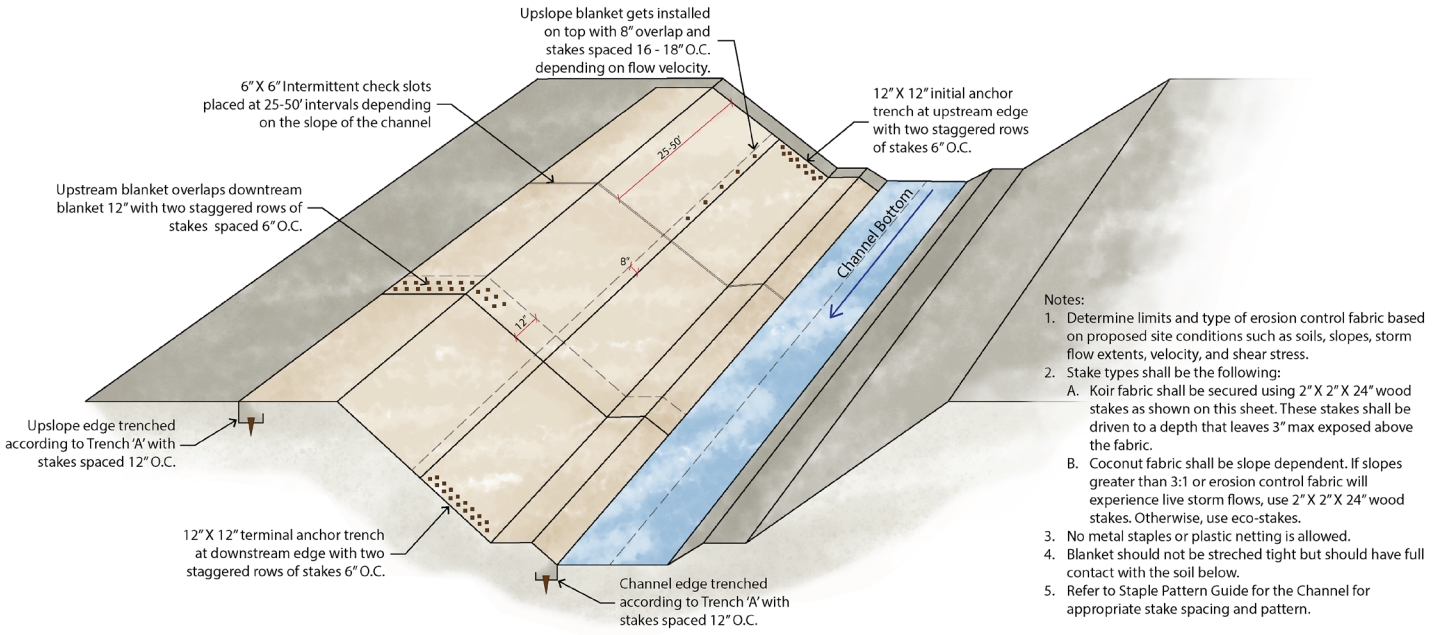
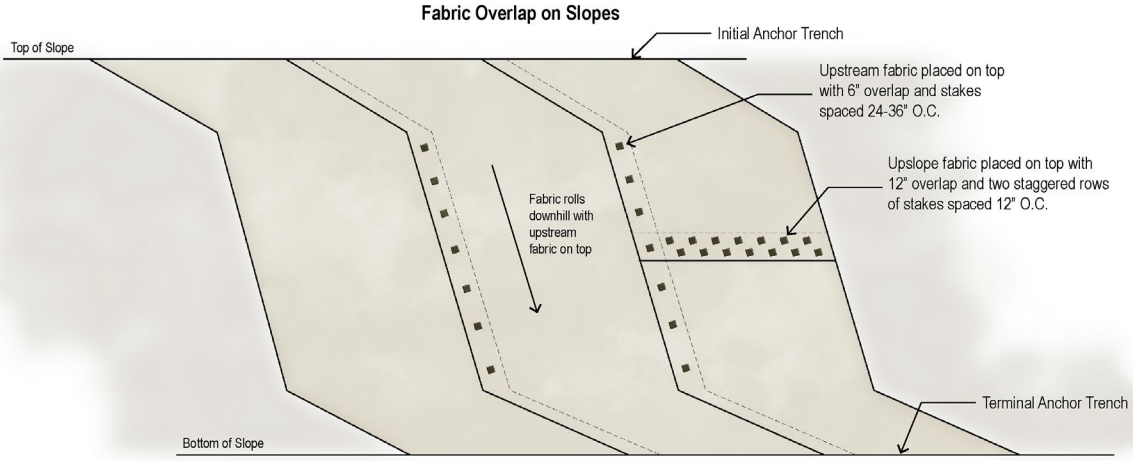


Figure 8: Erosion Control Blanket at Fabric Overlap



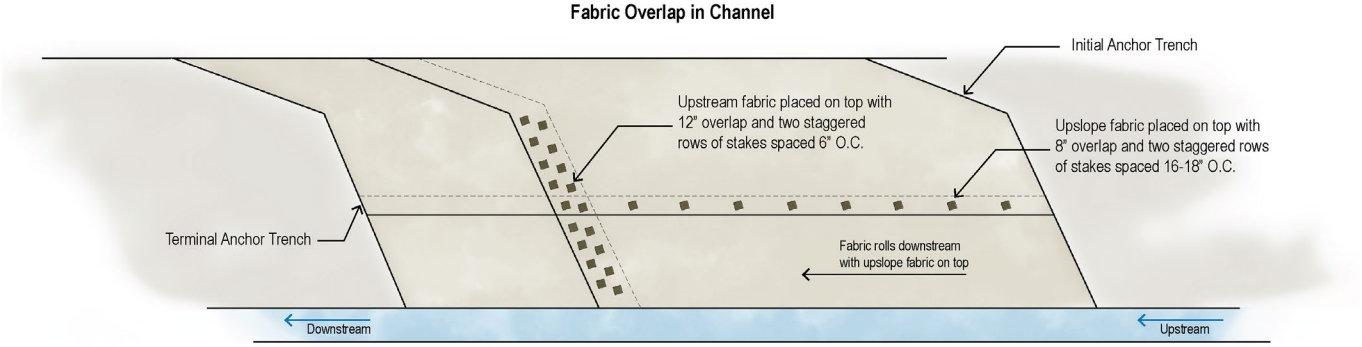
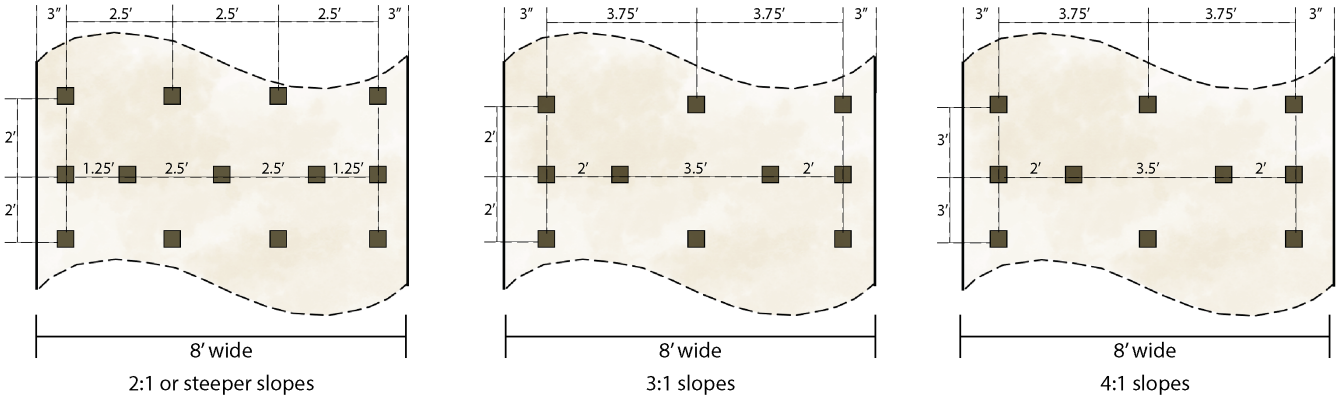
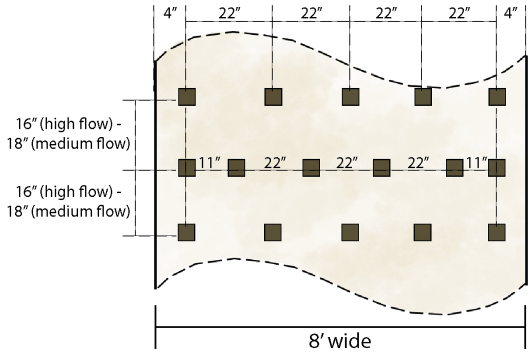


Figure 9: Erosion Control Blanket Staking Patterns

Staple Pattern for Slopes

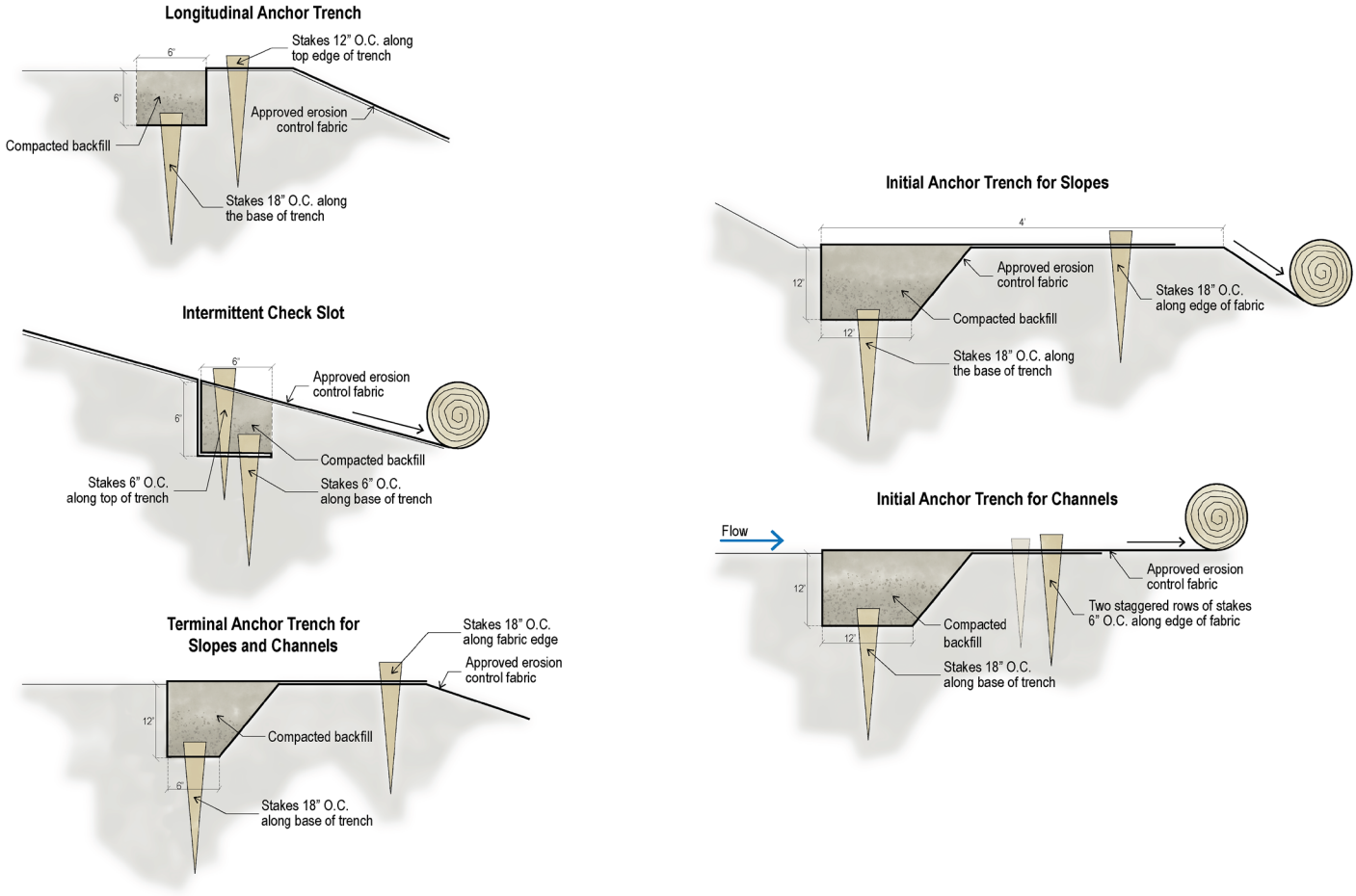


Staple Pattern for along the Channel



High-Medium Flow
Channels & Shorelines

Figure 10: Erosion Control Blanket Anchor Trenches and Intermittent Check Slots



Blankets should not be used on sites with over 30% rock coverage (of rocks greater than 4 inches [4"] in diameter) because the blanket will not make solid contact with the soil below. On steep slopes (greater than 3:1), additional trenching shall be made every 15 feet (15'). Staking for check slots shall be applied every 12 inches (12") along the trench to hold the fabric in place. In areas with loose soil or rocky subgrades, alternative anchoring methods can be used with prior approval from the engineer.

Any ECB that is damaged or pulled out shall be repaired or reinstalled immediately. If the soil under the placed fabric erodes and creates rills or tenting, voids shall be refilled with soil, reseeded and the fabric shall be replaced. Any broken or damaged staking must be repaired as soon as possible after being identified.

Erosion Control Mat

Erosion control mats are typically more expensive compared to standard erosion control blankets but should be used in situations where long-term slope erosion protection is needed in areas with high shear forces and flow rates. Mats are used most effectively in areas where water flows are expected to consistently exceed the soil's maximum permissible velocities, such as channel edges. As with blankets, the type of erosion control mat used shall be selected based on site-specific characteristics related to expected design velocity, shear stress, and slope. Refer to the mat

manufacturer's standards and specifications for velocity and shear stress thresholds.

Any erosion control mat that is damaged or pulled out shall be repaired or reinstalled immediately. Avoid vehicle traffic over the mat as much as possible, especially in wet conditions or in areas of loose soil. If the soil under the placed mat erodes and creates rills or tenting, voids shall be refilled with soil, reseeded and the mat shall be replaced. Any broken or damaged staking must be repaired as soon as it has been identified.

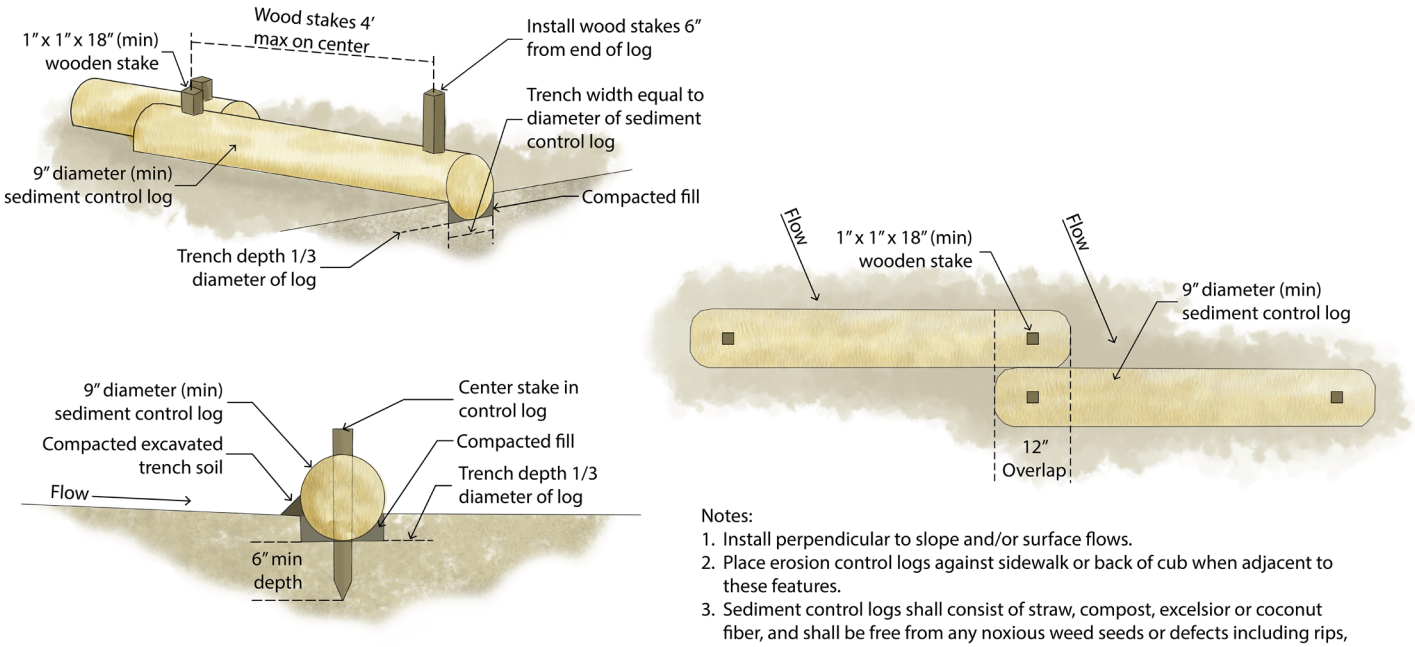
Straw Wattles

Straw wattles, or erosion control logs, are cylindrical bundles of excelsior, straw, coconut fibers, woodchips, or compost that are anchored to the ground with wooden stakes to capture sediment and allow surface runoff to flow across stabilized areas. They are most applicable to reduce flow velocities and capture sediments moving across the site from disturbed soils. They can be utilized to prevent concentrated flows on long slopes and capture sediment and debris before water enters adjacent stormwater inlets. Straw wattles are not intended for use in ditches with continuous flows or below any high-water mark in or near bodies of water. Without proper anchoring, straw wattles may become dislodged and clog stormwater inlets or move away from the site.

The type of straw wattle or erosion control log will depend on the anticipated application on the site of the flow line intended to intercept the wattle. Wattles shall be placed perpendicular to the anticipated concentrated flow and parallel to the contour of the slope. Wattles shall be trenched into the ground at least 2 to 3 inches (2-3") to prevent runoff and sediment from flowing underneath. Wooden stakes shall be used to anchor the wattle and shall be anchored at least 12 inches (12") into the ground. When placing wattles or erosion control logs at the toe of a slope, place them five to ten feet (5-10') from the toe of slope to provide storage capacity and maintenance access. When placed at the base of a slope, flare the ends of the log upslope to capture sediment that may flow around the long in higher flow events.

Wattles and erosion control logs shall be inspected regularly to ensure sediment is not moving around or underneath. If the log splits or rips, it shall be replaced immediately. If sediment accumulates behind the log the sediment shall be removed if it reaches up to half the height of the log. If the log sags or slumps, additional wooden stakes can be used. If the wooden stakes are damaged or missing, they shall be replaced immediately.

Figure 11: Straw Wattles Installation



Notes:
1. Install perpendicular to slope and/or surface flows.
2. Place erosion control logs against sidewalk or back of cub when adjacent to these features.
3. Sediment control logs shall consist of straw, compost, excelsior or coconut fiber, and shall be free from any noxious weed seeds or defects including rips, holes, and obvious wear.

Silt Fencing

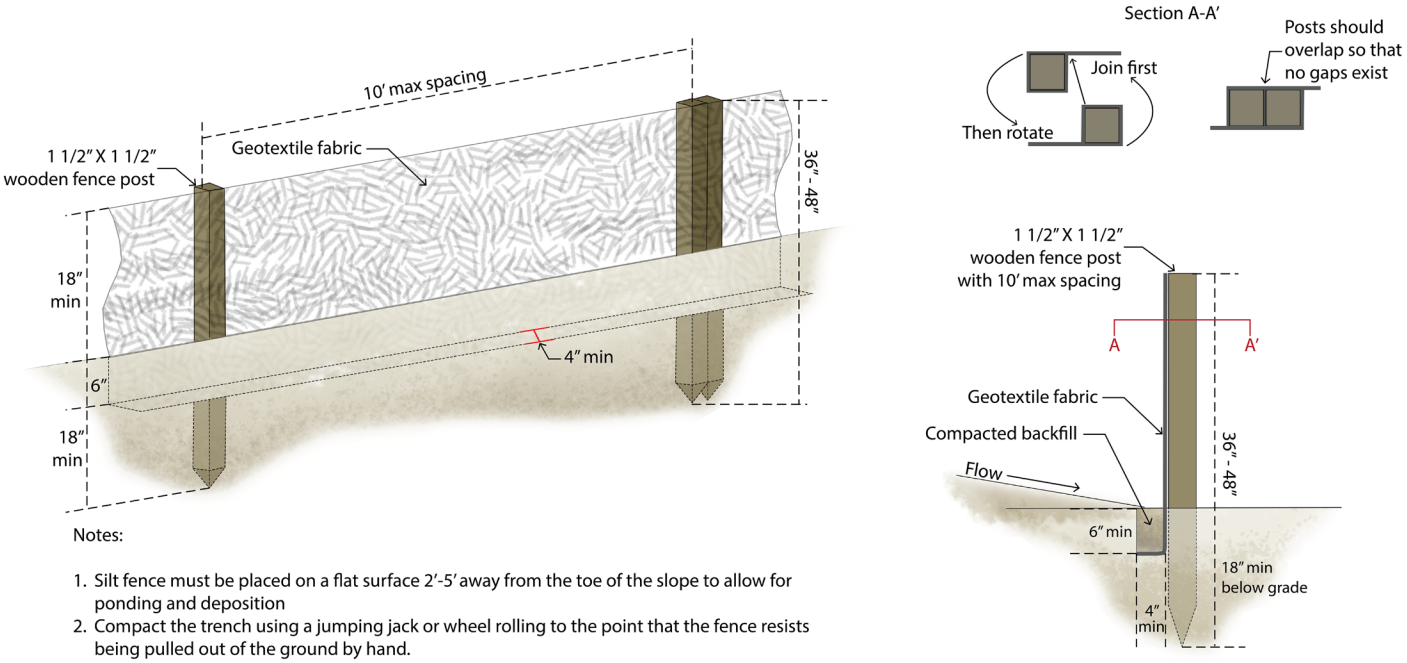
Silt fencing is a temporary sediment control barrier made from a woven geotextile fabric that is used to contain sediment from runoff before surface water leaves the site. It is most applicable for use along the perimeter of construction sites including staging areas and access roads, around stockpiles, and at the toe of exposed and erodible slopes. Silt fencing is not appropriate for use in areas with concentrated water flows, mid-slop protection on slopes steeper than 4H:1V, or for use as means to divert water flows.

Silt fencing shall consist of a woven geotextile fabric, secure to wooden posts spaced a maximum distance of eight feet (8’) apart and buried 12 inches (12”) into a six inch by four inch (6”x4”) trench below the fence to capture sediment. When placing silt fence below an exposed slope, it should be installed at least five feet (5’) from the toe of slope to allow maintenance access between the slope and silt fence. The maximum linear distance of installed silt fencing shall not exceed 500 linear feet (500’) and the disturbed slope length shall not exceed 150 feet (150’) per 100 linear feet (100’) of fence installed.

The fence shall be inspected regularly to identify any areas that may need repair from ripping, slumping, or undercuts from high flows. Fencing shall be inspected prior to storm events to ensure the fence is ready to capture any moving sediment and directly after any storm event to ensure no repairs are needed. Damaged fencing shall be replaced or repaired immediately upon discovery. Silt fencing has a general lifespan of 5 to 8 months, therefore, projects with timelines exceeding this may need to replace all or a portion of the fence during construction activities.

Upon completion of construction activities, the silt fencing shall be removed from the site and the area returned to pre-construction condition. This may include filling and compacting post holes, removing sediment accumulation, and ensuring the disturbed area blends into the surrounding landscape.

Figure 12: Silt Fence Installation



Notes:

1. Silt fence must be placed on a flat surface 2′-5′ away from the toe of the slope to allow for ponding and deposition
2. Compact the trench using a jumping jack or wheel rolling to the point that the fence resists being pulled out of the ground by hand.
3. Silt fence shall be taut with no sags after it has been anchored.
4. Fabric shall be attached to the posts with 1″ heavy duty staples or nails placed 3″ apart down the post.

Hydraulically Applied Mulch

Hydraulically Applied Mulch (hydromulch) can be used for interim and permanent stabilization on areas with lower slopes compared to blanket and mat. Hydraulic seeding or mixing seed with hydromulch is not an approved construction method. An approved hydromulch product may be used on slopes of 4:1 or less and outside of areas subject to concentrated water flows with approval by the Government Representative(s). Hydromulch should not be applied on saturated soils, areas with seeps, or seasonal springs. Hydromulch should be applied per the manufacturer's recommendations, including the use of tackifier. Water should be applied in the field to meet the manufacturer's recommendations. When feasible, hydromulch shall be applied at multiple angles to ensure full coverage of the exposed soil surface. Re-apply hydromulch as needed to repair failed areas throughout the construction period due to construction traffic or large storm events.

Mulching

Mulching can be used for interim and permanent stabilization on areas with lower slopes compared to ECB and coir mat. Mulching assists seed germination by conserving moisture and protecting seeds from erosion. Straw mulch shall be applied per the manufacturer's recommendations, including the use of tackifier. Tackifier shall be applied either simultaneously or immediately after mulching and crimping to provide uniform coverage. Only certified weed-free mulch may be used.

Straw mulch must be one hundred percent (100%) certified weed free. The minimum stem length for straw mulch shall be six inches (6") with at least half of the material being ten inches (10") or longer, the use of fine materials is not allowed. Straw mulch shall be applied evenly at 2,000 pounds per acre and crimped to a minimum depth of two inches (2") following the contours of the slope or perpendicular to the prevailing wind directions on flat areas. On slopes up to 4:1, a

mulching rate of 2,500 pounds/acre shall be used. Straw mulching shall not be used within streams, drainage channels, walls, sidewalks, pathways, or over existing vegetation.

Fencing and Barriers

Fencing and barriers aid in reducing runoff, erosion vulnerability, and protect existing landscapes and trees in place during construction activities. Temporary fencing or other barriers shall be installed around any identified areas for protection, defined by the Government Representative(s) or regulatory agency, to exclude pedestrian and vehicle access. All fencing and barriers shall be maintained in good condition and any barriers that are damaged or broken shall be repaired or replaced immediately. Areas of protection must be clearly marked with high visibility tape prior to the start of construction activities. Markings must be distinctly different from those used to mark trees or vegetation for removal. Government Representative shall coordinate with the Contractor to ensure markings are clearly understood prior to any demolition or construction activities.

Once final stabilization of disturbed areas directly adjacent to protection areas is complete, protection fencing, barriers, and markings can be removed and reused or disposed.

5.3 Final Inspection and Seeding Success Criteria

A punch list site visit shall be conducted with the Government Representative(s) following completion of revegetation work to document items that need to be addressed by the Revegetation Contractor according to design plans and construction specifications. Substantial completion shall be awarded when all punch list items have been completed and approved by the Government Representative.

Revegetation success criteria shall be based on applicable permits and/or pre-existing site conditions; however, the following success criteria shall be met for all projects after two full growing seasons:

- For drill seeded areas, continuous planting rows shall be visually apparent by the end of the first full growing season.
- Seeded areas shall contain a minimum of eight seedlings per square foot by the end of the first full growing season.
- Seeded areas shall not contain bare areas greater than 100 square feet.
- Species designated as List A noxious weeds by the Colorado Department of Agriculture shall not be present within the project area.
- Species designated as List B noxious weeds by the Colorado Department of Agriculture shall not exceed five percent of total cover.
- Species designated as noxious weeds by the Colorado Department of Agriculture, including List C and Watch List species, shall not exceed 10 percent of total cover.
- Native vegetation species shall make up a minimum of 50 percent of the total cover present within seeded areas.
- Non-native weeds shall be controlled to the maximum extent practicable using mechanical or chemical treatments to prevent competition with native species.
- No areas of erosion that impact site stability or integrity, vegetation establishment, or water quality shall be present within the project area.

- Planted woody material or herbaceous plugs shall have a minimum survival rate of 80 percent.
- Seeded areas shall support at least 70% aerial plant cover in comparison to the pre-construction site cover or adjacent undisturbed area.

Table 15. Minimum Establishment Standards for Final Acceptance

Percent Vegetation Cover	Percent Native Vegetation Cover	Maximum List A Noxious Weed Cover	Maximum List B Noxious Weed Cover	Maximum Noxious Weed Cover (including List C and Watch List Species)	Maximum Size Bare Ground Patch
70% of baseline	50%	0%	5%	10%	100 SF

A list of final success criteria required by these Standards and all applicable permits shall be developed by the Contractor or Revegetation Plan Developer and sent to the Construction Inspector, Permits Inspector, and NR-Manager for approval prior to substantial completion.

6.0 Post-Construction Revegetation Establishment and Maintenance

6.1 General

The vegetation establishment warranty period shall include vegetation monitoring, vegetation maintenance, and adaptive management following construction to achieve success criteria and promote site stabilization and resilience.

For all projects, the Vegetation Warranty Contractor shall be responsible for vegetation monitoring, vegetation maintenance including container stock watering, and adaptive management for a two-year warranty/maintenance period or until success criteria are met to close out applicable permits. The Vegetation Warranty Contractor shall use individuals knowledgeable of native Colorado plant species.

The requirement for the vegetation warranty period may be waived if there is agreement from the Government Representative that a vegetation warranty is not needed.

6.2 Vegetation Establishment Warranty Period

Vegetation warranty requirements should be conducted by a landscape contractor knowledgeable of native Colorado plant species or in tandem with a qualified ecologist. The vegetation establishment warranty period shall begin following substantial completion or as determined by the Government Representative.

Monitoring is required for all projects on a monthly basis for the first year and quarterly basis (three total site visits, one to occur each quarter), at minimum, during the growing season (April to October) for the following year to document vegetation establishment. Monitoring should include documentation of native, non-native, and noxious species, vegetation cover including areas experiencing erosion or areas of bare ground that may be susceptible to erosion, and survival of planted woody vegetation and herbaceous plugs. Photos should be taken at fixed-photo monitoring points throughout the site to document revegetation progress over time.

Adaptive management and vegetation maintenance shall be performed based on monitoring observations and can include, but is not limited to, weed control, reseeding or interseeding, woody plant replacement, erosion control and repairs, soil amendment application, and biomass reduction. Weed control efforts shall be performed at appropriate times in the year based on species observed. Weed control technique selection varies depending on target species and time of year and shall be determined by a qualified ecologist or weed control contractor knowledgeable of native Colorado plant species in coordination with the NR-Manager.

Revegetation success criteria will depend on permits applicable to each project and vegetation data collected during the initial site assessment. Vegetation management includes, but is not limited to, weed control, container stock watering and replacement, live willow and cottonwood pole replacement, herbaceous plug replacement, erosion control and repairs, and reseeding or interseeding. If a partial or total seeding failure is apparent, poorly vegetated areas shall be reseeded in the same manner described above or as specified in design documents. Areas that erode before plant establishment can occur shall be repaired and immediately reseeded during the same growing season. A defined schedule for monitoring and vegetation management shall be prepared by the Contractor and approved by the Government Representative(s) to follow the **POST CONSTRUCTION MAINTENANCE CHECKLIST** identified in **APPENDIX B.**

The Contractor shall prepare a monitoring report at the end of each growing season during the vegetation establishment warranty period documenting monitoring observations and adaptive management efforts during the growing season. The report shall include an evaluation of progress in meeting required success criteria and a plan for the following growing season to meet success criteria that have not been met at the time of reporting.

6.3 Container Stock and Salvaged Materials Warranty

All installed container stock and salvaged materials shall be warrantied for a minimum of one year. After the one-year warranty, the material is still expected to be watered for the entire Vegetation Establishment Warranty Period (two-years). If no irrigation system has been installed, the Contractor is responsible for watering the container stock appropriately, depending on climatic conditions of the year, to receive the minimum rainfall requirement for the species needed for establishment.

After the one-year warranty period, any container stock not showing signs of establishment (e.g. dead or stressed plants) must be replaced at the Contractor's expense. If salvaged materials were improperly installed or did not succeed in budding after the one-year warranty period, a minimum of 80% of the dead or stressed material is to be replaced at the Contractor's expense.

6.4 Weed Control

The seasonal timing of weed control implementation is a critical component to support revegetation establishment objectives. Best weed control practices should be followed to identify when it is appropriate to control weeds by mechanical and/or chemical means.

Mechanical

Properly timed mechanical weed control can be very effective at controlling annual and biennial weeds. Mechanical weed control can include mowing, hand-pulling, weed whacking, and mulching. Selective mechanical control should be employed to reduce cover by non-native and noxious weeds while protecting establishing native plants. Indiscriminate weed control such as site-wide mowing can have negative impacts on native species establishment and can reduce the resilience of a site by disrupting seed production. Additionally, indiscriminate weed control can be detrimental to native forbs while in bloom and can reduce pollinator habitat. Assessment of site conditions prior to mowing is critical to ensure proper adaptive management.

Chemical

Utilizing only mechanical weed control approaches can be difficult to successfully control perennial weeds due to these species' extensive root systems and reproductive characteristics. Herbicide application is recommended to provide long-term control of perennial weeds; however, selective herbicides and spot treatments should be used to avoid negative impacts to native grasses, forbs, and shrubs often associated with non-selective herbicides and broadcast applications. Herbicides shall only be mixed and applied by a licensed herbicide applicator. Only herbicides pre-approved by the Air Force and USAFA Pest Management Officer are allowed.

The Vegetation Warranty Contractor shall reference the **USAFA AND FARISH RECREATION AREA INTEGRATED NOXIOUS WEED MANAGEMENT PLAN** for treatment priorities, treatment methods, and noxious weeds that may be found within the project site.

Appendix A: Revegetation and Erosion Control Design Standards

A.1.1 General

The following section provides guidance and requirements in the design and development of revegetation and erosion control plans and component plans for projects on USAFA lands.

Ensure revegetation and erosion control design compliance with the **UNITED STATES AIR FORCE INSTALLATION DEVELOPMENT PLAN** and its component plans including the **USAFA INSTALLATION FACILITIES STANDARDS** (IFS).

A.1.2 Revegetation Design Objectives

USAFA is situated in a semi-arid region of Colorado. Revegetation plan development shall be contextual to the landscape and take into consideration natural conditions of the land where the project is located such as annual precipitation, elevation, prevailing winds, aspect, landforms/topography, soil composition, soil texture, soil moisture potential, soil drainage, stormwater, groundwater, natural drainages, site uses including wildlife use, and maintenance needs. Revegetation can be challenging and requires proper planning, installation, monitoring, and maintenance to be successful due to Colorado's climate, prevalence of introduced weeds, and difficult soil conditions encountered on many projects.

Revegetation plans should not only consider the project site needs but should account for the surrounding landscape and how the project can impact contiguous lands and the USAFA landscape as a whole. The Standards User shall work with the project's assigned Government Representatives to determine appropriate site improvements with this context in mind.

Natural Resource Protection and Preservation

Revegetation design shall prioritize the minimization of impacts and preserve the existing, or pre-disturbance, function of the landscape. Projects that are in close proximity to or contain natural drainages should limit development within these channels to maintain natural processes, such as water quality and wildlife habitat. Projects that contain wetlands and/or streams must comply with all state and federal permitting requirements.

Soil disturbance is a major driver to weedy species introduction and should be minimized or phased appropriately during construction to limit bare ground and subsoil exposure. Projects should consider impacts to existing tree canopy, promote tree canopy replacement and consider tree canopy age and successional plantings.

Revegetation design shall also consider the reuse of onsite materials that are to be cleared and grubbed. This can include reuse of stumps, wood debris, and boulders to promote ecosystem services and functions and potential cost savings.

Revegetation layout shall consider factors such as hydrologic zones, soil characteristics, slope, aspect, wildlife habitat, erosion control, and water quality.

If a site is properly prepared before revegetating, the plant palette is adapted to onsite conditions, and planting occurs in the appropriate season, average annual rainfall should be adequate for vegetation establishment. However, revegetation planning should consider

natural changes to the landscape and environment including the potential for drought years

during establishment. For this reason, appropriate consideration should be given to the need for supplemental watering if a water source is readily available. A lack of water sources or water rights limits the opportunity for supplemental watering on most native revegetation projects. Therefore, the seasonal timing of seed installation is very important to plan for and measures should be taken during the design phase to ensure proper seed installation timing. Additional information is provided on watering considerations in *Section 4.0 Watering and Irrigation*.

Green Infrastructure

Site design is significantly tied to revegetation success. Infrastructure improvements should consider the sustainable use of materials and natural resource resiliency that promote ecosystem function and process-based design in the revegetation of the site. Green infrastructure design tools and techniques should be utilized. In Colorado, the smart use of water through site design is a major objective for green infrastructure. This can include design solutions that minimize impact to the existing conditions of the site or replicate the natural landform and surface water flow paths. Directing stormflows across revegetation areas by careful placement of building downspouts, snow pile holding and melt path areas for winter road clearing, use of permeable pavement, and parking lot swale features can help to treat water quality while providing moisture and nutrients for vegetation. Revegetation areas that receive stormwater flows in locations where water quality is impacted such as roadways and parking lots, should include design elements adept at water quality improvement such as grass buffers, bioswales, bioretention, and sand filters, among other techniques.

Site and revegetation design should also take into consideration heat mitigation strategies that can include high albedo materials, passive cooling, natural ventilation, and appropriate revegetation strategies such as promoting areas of tree canopy.

Defensible Space

Defensible space is a critical line of defense against spreading wildfires in urban and wildland urban interface areas. Planting and revegetation materials that allow fires to spread unchecked should be removed or modified to slow the rate and/or intensity of wildfires. The safety zone should be kept clear of all highly flammable materials, with the distance varying by fuel-type.

All projects should reference the Ignition Resistant Construction Design Manual published by the Colorado Springs Fire Department, as a basis for Firewise landscaping for all new development and revegetation within the Wildland Urban Interface. Additional resources on appropriate Firewise plant materials are available from Colorado State University Extension office.

Wildlife Corridors

Wildlife corridors are widespread throughout USAFA Lands, and every project should consider its interactions with them. It is easier to think about large mammal corridors as these are the most commonly referred to and studied, however, corridors for Federal or State designated special status species may have overlap. Other areas, such as near runways, landing pads, or heavier travelled roads may discourage a revegetated structure providing wildlife cover and eliminating fruit-bearing species attracting black bears and birds that may collide with vehicles.

Pollinator Habitat

Pollinator habitat is important to perpetuating and maintaining healthy ecosystems and providing forage and habitat for sensitive species. Seed mixes may be adjusted as appropriate to target certain pollinators, but otherwise should consist of perennial native grasses and forbs with a variable and habitat-appropriate color palette. Seed mixes and plant palettes should contain pollinator species that bloom throughout the growing season and provide different colors to provide a wide variety of opportunities for pollinators throughout a longer seasonal window. Plant selection should also include consideration for wind pollinated species.

Erosion Control, Establishment Maintenance, and Construction Laydowns Requirements

Revegetation design shall consider temporary and final erosion control best management practices (BMPs) as well as the planned establishment period, ongoing USAFA land management, and warranty needs such as the need for irrigation and site access. All planting material, including seed, shall include a warranty and/or maintenance period to occur after construction completion. Laydown areas shall be properly sited to minimize disturbance to protected resources, such as, but not limited to, wetlands, waters, sensitive species habitat, and cultural resources, and be included in the revegetation plan. For projects that impact channels, the Revegetation Plan shall plan for dewatering as needed and provide a phasing plan. Construction laydown and access areas are typically heavily trafficked by large equipment and frequent trips. These areas shall include additional consideration for scarification and decompaction, revegetation, and erosion control needs.

A.1.3 Revegetation Plan Design

A Revegetation Plan, a formal design plan or informal component submittal documenting how revegetation is planned to take place, is required for all native revegetation projects on USAFA lands. For smaller and/or simpler projects, the Revegetation Plan Developer can be part of a contracted project design team or can be the NR-Manager. For these projects, a formal design plan document is not required but submittals of the required plan components will be provided to and reviewed by the Government Representatives. The plan components anticipated for submittal include:

- Planting and seeding schedule including quantities and seeding extents
- Any proposed modifications to these Standards

These Standards and clear coordination with the Government Representatives will provide guidance on revegetation. A formal design plan document may be required as determined by the Government Representatives.

For larger and/or more complex projects and/or for projects that take place along a natural drainage, a multi-disciplinary design team that includes engineers, landscape architects, ecologists, and wildlife biologists should be assembled. For these projects, the Revegetation Plan Developer shall be a revegetation specialist who is an ecologist and/or registered landscape architect experienced in restoration ecology and local native plant communities. For these projects, a Revegetation Plan is required and shall, at minimum, contain the following information:

- Layout plan showing location of all proposed revegetation materials
- Planting and seeding schedule including quantities

Notes and details that identify best construction standards and practices for revegetation installation
Revegetation plans shall be developed by the Revegetation Plan Developer following the guidelines outlined in these Standards with an understanding of the goals and objectives of the project. The following steps are required to complete the Revegetation Plan design.

Initial Site Analysis and Assessment

An initial site analysis, conducted by the Revegetation Plan Developer, shall be completed to inform site-specific revegetation design objectives for the project. A site assessment should be completed during the growing season. The analysis and assessment shall evaluate relevant site conditions such as:

- Existing site conditions such as sun exposure, shading patterns, existing urban heat island effects. These conditions may change throughout the day and season, which should also be considered.
- Existing habitat such as signs of herbivory, nests or dens to inform protection fencing planning or construction survey needs
- Surface and subsurface geological and hydrological conditions
    - Groundwater, surface water, and precipitation
        - Include as able, depth to groundwater, fluctuations in the groundwater depths should be monitored for at least one year if schedule and budget allows.
        - If limited data is available for groundwater such as geotechnical reports or only one year of monitoring, it is important to understand that data in the hydrologic context (wet year, dry year) and season in which the data was collected.
    - Depth to bedrock or other subsurface impediments to revegetation as determined by a geotechnical investigation
- Existing topsoil conditions
    - Topsoil sampling and analysis utilizing methodology outlined in Section 3.0
- Existing vegetation total cover
    - Conduct photo documentation of representative area of vegetation by taking plot level and landscape level photos at pre-construction photo points or capture up-to-date aerial imaging to determine a quantitative estimate of:
        - Total native and non-native cover
        - Total tree, shrub, and groundcover cover
        - Total area of bare ground
- Existing vegetation species composition, within the project area and immediately adjacent to the project area.
    - Conduct ocular assessments and documentation of all species, including invasive weed species that may be present in the topsoil seedbank or in close proximity to the site, to help inform seed mix composition and or preventative weed control efforts. Collect documentation on location and percent cover of dominant species.
- Existing site materials (i.e., trees or shrubs that will be removed, woody debris, rock) that may be used during construction for stabilization, wildlife habitat, or revegetation.

If existing site conditions are significantly degraded or if the site is dominated by non-native or noxious species, an ecological reference site that represents conditions that would be expected on the project site should be assessed to inform site specific opportunities. In addition, Natural Resource Conservation Service (NRCS) Ecological Site Descriptions (ESDs) and Center for Environmental Management of Military Lands (CEMML) USAFA Vegetation Classification and Mapping can be used to understand plant community composition for degraded sites. The Government Representatives shall determine if this requirement shall be waived depending on project needs.

A.1.4 Existing Plant Communities

The Revegetation Plan design should be informed by the existing plant communities found at the project site. The following hydrological zones are represented across USAFA and may be present within project extents.

Upland Hydrological Zone

Native upland areas at USAFA include grasslands, shrubland, and/or woodland/forest. Native upland vegetation is generally xeric and are well adapted to the region with average rainfall of between 15 to 20 inches (15-20") per year.

Additional information on vegetation communities found within the upland hydrological zone can be found within the vegetation zone descriptions below.

Riparian Hydrological Zone

The main riparian hydrological zone on USAFA is along Monument Creek and its major tributaries comprising approximately 2.2 acres of riverine systems and 210 acres of palustrine system wetlands. Across USAFA, there are 301 identified wetlands and other water bodies.

Vegetation communities in this zone consist of various cottonwood species (*Populus angustifolia and P. deltoides*) and willows (*Salix* spp.). Also in this zone are small showy herbs and forbs such as darkthroat shootingstar (*Dodecatheon pulchellum*), bunchberry dogwood (*Cornus canadense*), and twinflower (*Linnaea borealis*) and a variety of grass species. Monument Creek is an important system for native fish communities and provides habitat for Preble's meadow jumping mouse (*Zapus hudsonius preblei*), Hops azure butterfly (*Celestrina humulus*), cedar waxwing (*Bombycilla cedrorum*), gray catbird (*Dumetella carolinensis*), and the northern leopard frog (*Lithobates pipiens*).

The following vegetation zones are represented across USAFA and may be present within project extents.

Foothills Zone (6,000 – 8,000 ft)

The Foothills Zone may contain both upland and riparian areas. It is subdivided into four community types: Douglas-fir woodlands, ponderosa pine woodlands, oak shrublands, and grassland. Douglas-fir (*Pseudotsuga menziesii*) woodlands are mixed woodlands with white fir (*Abies concolor*) primarily on north-facing slopes. Often associated with common juniper (*Juniperus communis*) waxflower (*Jamesia americana*), and mountain mahogany (*Cercocarpus montanus*). Ponderosa Pine (*Pinus ponderosa*) *w*oodlands are the primary woodland type on the Academy, occupying drier areas than the Douglas-fir woodlands. Trees in this system are often grouped together with more open park-like ground cover. Often associated with gooseberries and currants (*Ribes aureum and R. cereum),* alpine false spring parsley (*Pseudocymopterus montanus*), mountain muhly (*Muhlenbergia montana*), ninebark (*Physocarpus monogynus*), and Gambel oak (*Quercus gambelii*). Oak shrubland occupy the dry mesas and south-facing slopes along the foothills on the Academy. The dominant species in this zone is Gambel oak (*Quercus gambelii*) that form dense thickets. This zone is often associated with pinion pine (*Pinus edulis*), one-seed juniper (*Juniperus monosperma*), ponderosa pine, mountain mahogany, oceanspray (*Holodiscus discolor*), Boulder raspberry (*Oreobatus deliciosus),* and snowberry (*Symphoricarpos albus*). The grassland communities on the Academy occupy most of the eastern portion of the site. They are dominated by short-grass prairie species including smooth brome (*Bromis inermis*), crested wheatgrass (*Agropyron cristatum*), blue grama (*Bouteloua gracilis*), little bluestem (*Schizachyrium scoparium*), fringed sage (*Artemisia frigida),* and Spanish bayonet (*Yucca glauca*).

Montane Zone (8,000 – 9,000 ft)

The Montane Zone may contain both upland and riparian areas. It is comprised of mixed conifer forests along the western boundary of the Academy extending into Rampart Range. Dominant tree species include: Douglas-fir, ponderosa pine, white fir, limber pine (*Pinus flexilis*), blue spruce (*Picea pungens*), Engelmann spruce *(Picea engelmannii*), and common juniper. Dominant shrubs include: kinnikinnick (*Arctostaphylos uva-ursi*), waxflower, and mountain mahogany.

Urban Development

The Urban Development area is generally comprised of Cadet areas and housing, a Community Center, golf course, roads, sidewalks, parking lots, buildings, and hardscaped features. These areas are typically comprised of irrigated, ornamental landscapes containing non-native vegetation, turf lawns, and ornamental trees and shrubs.

Noxious and Non-Native Vegetation Species

Noxious and non-native vegetation species are pervasive in many areas on USAFA lands, particularly in locations where Urban Development is localized and associated land disturbance has occurred. Invasion of noxious and non-native species can be anticipated on newly disturbed sites. The USAFA and Farish Recreation Area Integrated Noxious Weed Management Plan developed by Colorado Natural Heritage Program (2015) should be referenced to understand what noxious weeds may exist and appropriate treatment and control strategies to implement prior to and during construction. Projects on Bullseye Auxiliary Airfield should reference State Land Board noxious weed control guidance.

Weed control should be considered a year or more prior to soil disturbance and should be evaluated for all habitat zones. If a site has annual or perennial weed growth, weed management before revegetation is crucial for minimizing weeds and weed seed and to allow for desirable species establishment. Removing the weed source will help reduce competition for soil moisture and nutrients during desirable plant species establishment. Implementing weed control practices prior to and/or during construction can reduce the level of effort required for weed control later as new vegetation is becoming established. Remove or bury the topsoil from the site if infested by undesirable species.

A.1.5 Seeding Selection

Seed Mix Selection

All Revegetation Plans shall use the USAFA standard grass/forb and shrub overseed mixes. The USAFA Seed Mix Map (**FIGURE 1**) shall be used to determine the standard native seed mix(es) to use during revegetation efforts.

The standard seed mix(es) provided in this section may be modified based on pre-construction site observations of vegetation species and composition or other project specific design objectives, if approved by the Government Representatives after conducting the initial site assessment. Modifications may include, but are not limited to, substituting or adding native species and increasing or decreasing rates for individual native species. Species should be chosen that are adapted to the environmental conditions at the project site such as water availability, soil texture and chemistry, and elevations. Sites with unique soil chemistry and texture should use species adapted for those soil conditions. Modified seed mixes shall contain a variety of warm and cool-season species and early-, mid-, and late-seral species to promote process-based design and account for successional trajectories. Riparian seed mixes shall contain a variety of species adapted to a range of hydrologic conditions including wetland, riparian, and upland species to account for periods of high-water and drought and to maximize revegetation opportunity by

providing a high-quality seed bank. Modifications to shrub overseed mixes shall consider species germination requirements, cost, and market availability. Seeding is generally not feasible for trees and select shrubs due to these factors.

When available, locally adapted seed ecotypes collected from a similar elevation as USAFA (6,300-8,000'), Farish Recreation Area (~9,000'), and Bullseye Auxiliary Airfield (~6,000') with between 15 and 20 inches (15-20") of annual precipitation, as indicated by NRCS Land Resource Region descriptions, shall be used.

The standard Mountain Seed Mix or a site-specific mix approved by the NR-Manager shall be used for revegetation efforts in upland areas at Farish Recreation Area. Site specific riparian and/or wetland seed mixes shall be developed for projects disturbing these environments at Farish Recreation Area. All site-specific seed mixes developed for Farish Recreation Area shall be approved by the NR-Manager prior to procurement and installation.

For projects located at Bullseye Auxiliary Airfield, coordinate with the NR-Manager and defer to the Colorado State Land Board for seed mix development.

Seed Zone Limits

Determining appropriate seed zone limits requires an understanding of regulatory requirements, anticipated hydrologic conditions, aspect, slopes, and project goals and objectives. The Revegetation Plan Developer shall use **FIGURE 1** to determine the appropriate seed mix(es) to use on revegetation plans. In general, when a project involves impacts to waterbodies, wetland, riparian, and upland seed mixes shall be used. Shrub overseed mixes can be incorporated into the grass/forb seed mix or, at minimum, shall be used in select areas determined by the Revegetation Plan Developer or NR-Manager to increase vegetation structural diversity.

Figure 1: USAFA Seed Mix Map

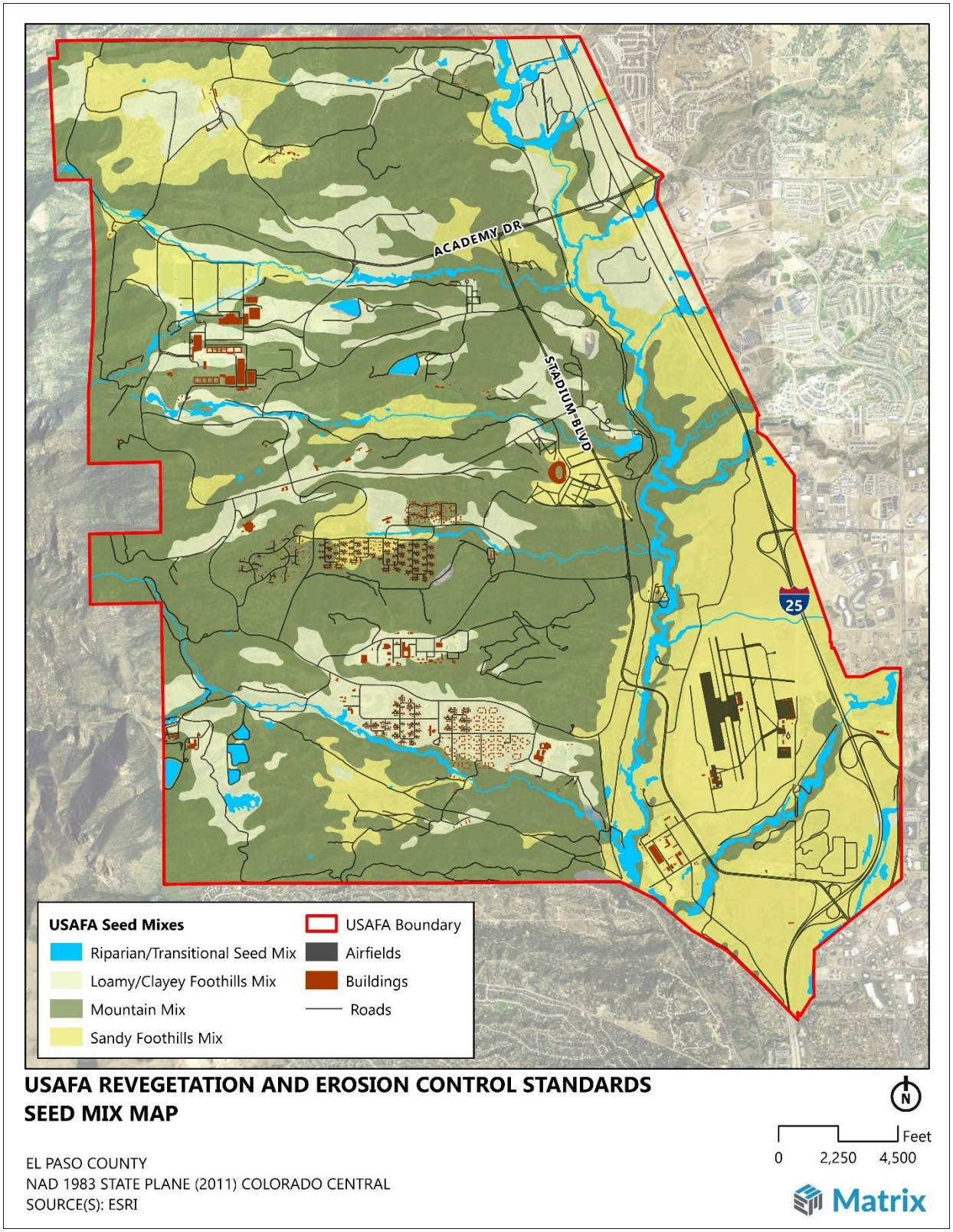
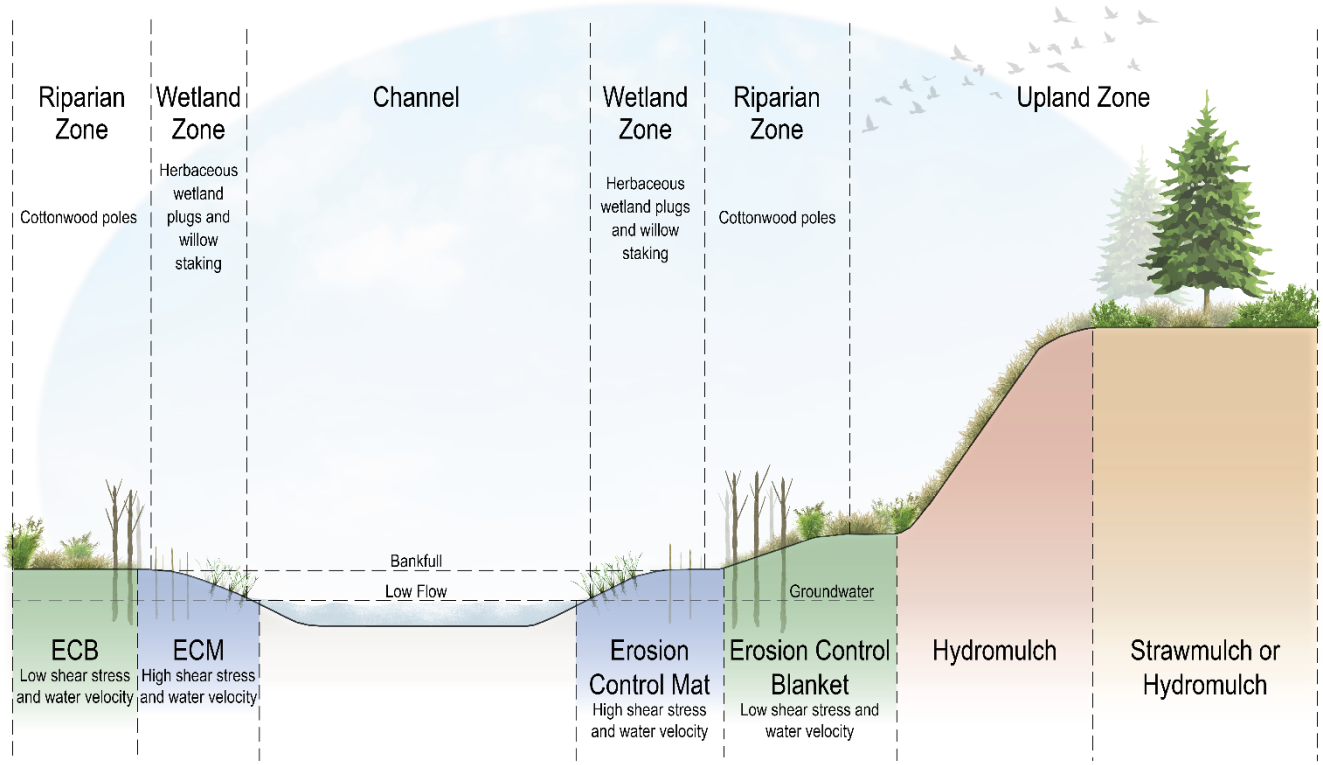


Figure 2: Standard Seeding Extents



Wetland Seed Mix

The standard Wetland Seed Mix or an approved modified Wetland Seed Mix shall be used in areas that are inundated or saturated frequently during the growing season. In general, wetland seeding shall be located in areas that are within six inches (6”) vertically from a water source that provides saturation for up to 14 days of the year. While not shown on **FIGURE 1**, the Revegetation Plan Developer shall use their discretion to determine if the Wetland Seed Mix or Plug List are appropriate on a project-by-project basis. If deemed necessary, wetland plugs shall be shown on revegetation plans where groundwater is within 18 inches (18”) or less of the soil surface.

Table 1: Wetland Seed Mix

Wetland Seed Mix						
Scientific Name	**Variety***	**Common Name**	**PLS lbs/ac**	**% by Weight**	**PLS/ sq ft**	**% of PLS/sq ft**
Graminoids						
Calamagrostis canadensis	vns.	bluejoint	0.10	1	9	6
Carex nebrascensis	vns.	Nebraska sedge	0.70	4	9	5
Carex utriculata	vns.	Northwest Territory sedge	1.20	6	10	6
Distichlis spicata	vns.	inland saltgrass	0.70	4	8	5
Eleocharis palustris	vns.	creeping spikerush	0.70	4	10	6
Elymus elymoides	vns.	bottlebrush squirreltail	2.00	11	9	6
Elymus trachycaulus	San Luis or White River	slender wheatgrass	2.20	12	8	5
Juncus arcticus ssp. littoralis	vns.	mountain rush	0.06	0	15	9
Panicum virgatum	vns.	switchgrass	2.80	15	17	10
Poa palustris	vns.	fowl bluegrass	0.10	1	7	5
Sporobolus airoides	Salado	alkali sacaton	0.25	1	10	6
Sporobolus cryptandrus	vns.	sand dropseed	0.07	0	9	5
		Graminoid Totals	10.88	57	120	75
Forbs						
Asclepias incarnata	vns.	swamp milkweed	2.50	13	9	6
Asclepias speciosa	vns.	showy milkweed	5.00	26	8	5
Monarda fistulosa	vns.	wild bergamont	0.20	1	6	4
Rudbeckia hirta	vns.	blackeyed Susan	0.20	1	8	5
Verbena hastata	vns.	swamp verbena	0.20	1	8	5
		Forb Totals	8.10	43	39	25
		Total	**18.98**	**100**	**159**	**100**

*vns. = variety not specified

Table 2: Wetland Plug Mix

Wetland Plug Mix				
Scientific Name	**Common Name**	**Percent Mix**	**Size**	**Spacing**
Carex nebrascensis	Nebraska sedge	15	10 ci	12"
Carex utriculata	Northwest Territory sedge	20	10 ci	12"
Deschampsia cespitosa	tufted hairgrass	15	10 ci	18"
Eleocharis palustris	creeping spikerush	20	10 ci	12"
Juncus arcticus ssp. littoralis	mountain rush	20	10 ci	12"
Schoenoplectus acutus	hardstem bulrush	10	10 ci	24"

Riparian Seed Mix

The Riparian Seed Mix zone shall occupy the zone between the wetland seeding zone and upland seeding zone. Riparian seeding limits will generally start within three to six feet (6') vertical and/or horizontal from a seasonal water source or that experiences storm flows within an anticipated maximum 10-year interval. Riparian and wetland seeding placement should consider anticipated capillary fringe based on soil texture. **FIGURE 2** depicts general seeding zone extents; however, site-specific considerations should be considered when developing revegetation plans.

Table 3: Riparian Seed Mix

Riparian Mix						
Scientific Name	**Variety***	**Common Name**	**PLS lbs/ac**	**% by Weight**	**PLS/ sq ft**	**% of PLS/sq ft**
Graminoids						
Carex nebrascensis	vns.	Nebraska sedge	1.50	4	18	12
Distichlis spicata	vns.	inland saltgrass	1.20	3	14	9
Elymus canadensis	vns.	Canada wildrye	6.30	16	17	11
Elymus lanceolatus ssp. lanceolatus	vns.	thickspike wheatgrass	4.00	10	14	9
Elymus trachycaulus	San Luis or White River	slender wheatgrass	3.00	8	11	7
Juncus arcticus ssp. littoralis	vns.	mountain rush	0.06	0	15	10
Panicum virgatum	vns.	switchgrass	3.00	8	18	11
Pascopyrum smithii	Arriba	western wheatgrass	1.00	3	3	2
Sporobolus airoides	Salado	alkali sacaton	0.25	1	10	6
Sporobolus cryptandrus	vns.	sand dropseed	0.08	0	10	6
Triticum aestivum x Secale cereale	vns.	Quickguard	10.00	26	3	2
		Graminoid Totals	30.39	78	133	85
Forbs						
Asclepias speciosa	vns.	showy milkweed	4.50	12	7	5
Cleome serrulata	vns.	Rocky Mountain beeplant	3.00	8	5	3
Helianthus maximiliani	vns.	Maxmilian sunflower	0.90	2	4	3
Rudbeckia hirta	vns.	blackeyed susan	0.12	0	5	3
Verbena hastata	vns.	swamp verbena	0.08	0	3	2
		Forb Totals	8.60	22	24	15
		Total	**38.99**	**100**	**157**	**100**

*vns. = variety not specified

Table 4: Riparian Shrub Overseed Mix

Riparian Shrub Overseed Mix						
Scientific Name	**Variety***	**Common Name**	**PLS lbs/ac**	**% by Weight**	**PLS/ sq ft**	**% of PLS/sq ft**
Artemisia ludoviciana	vns.	white sagebrush	0.04	0	4	27
Prunus virginiana	vns.	western chokeberry	10.00	56	1	7
Rosa woodsii	vns.	Woods' rose	5.00	28	5	34
Symphoricarpos albus	vns.	common snowberry	2.80	16	5	32
		Total	**17.84**	**100**	**15**	**100**

*vns. = variety not specified

Loamy & Clayey Foothills Seed Mix

The Loamy and Clayey Foothills Seed Mix shall be used in upland areas with loamy and clayey soils as indicated on **FIGURE 1** or confirmed with site-specific soil sampling. These soil types are often dominated by similar vegetation communities due to similarities in water retention and general soil structure.

Table 5: Loamy/Clayey Foothills Seed Mix

Loamy/Clayey Foothills Mix						
Scientific Name	**Variety***	**Common Name**	**PLS lbs/ac**	**% by Weight**	**PLS/ sq ft**	**% of PLS/sq ft**
Graminoids						
Andropogon gerardii	vns.	big bluestem	2.00	4	6	4
Bouteloua curtipendula	vns.	sideoats grama	3.20	6	14	10
Bouteloua dactyloides	vns.	buffalograss	7.20	14	9	6
Bouteloua gracilis	CO Native	blue grama	0.85	2	16	11
Elymus elymoides	vns.	bottlebrush squirreltail	2.50	5	11	8
Hesperostipa comata ssp. comata	vns.	needle and thread	2.60	5	7	5
Koeleria macrantha	Sims Mesa	prairie junegrass	0.29	1	15	11
Nassella viridula	vns.	green needlegrass	3.10	6	13	9
Pascopyrum smithii	Arriba	western wheatgrass	6.50	13	16	11
Schizachyrium scoparium	Cimarron	little bluestem	2.00	4	12	8
Triticum aestivum x Secale cereale	vns.	Quickguard	15.00	30	5	3
		Graminoid Totals	45.24	90	125	85
Forbs						
Artemisia frigida	vns.	prairie sagewort	0.03	0	3	2
Dalea purpurea var. purpurea	vns.	purple prairie clover	1.20	2	6	4
Ratibida columnifera	vns.	upright prairie coneflower	0.30	1	5	3
Sphaeralcea coccinea	vns.	scarlet globemallow	0.50	1	6	4
Vicia americana	vns.	American vetch	3.00	6	2	2
		Forb Totals	5.03	10	22	15
		Total	**50.27**	**100**	**147**	**100**

*vns. = variety not specified

Table 6: Loamy/Clayey Foothills & Mountain Shrub Overseed Mix

Loamy/Clayey Foothills & Mountain Shrub Overseed Mix						
Scientific Name	**Variety***	**Common Name**	**PLS lbs/ac**	**% by Weight**	**PLS/ sq ft**	**% of PLS/sq ft**
Amelanchier utahensis	vns.	Utah serviceberry	6.00	51	4	22
Atriplex canescens	vns.	fourwing saltbush	3.50	30	4	25
Ericameria nauseosa	vns.	rubber rabbitbrush	0.40	3	4	22
Krascheninnikovia lanata	vns.	winterfat	1.80	15	5	31
		Total	**11.70**	**100**	**16**	**100**

*vns. = variety not specified

Sandy Foothills Seed Mix

The Sandy Foothills Seed Mix shall be used in upland areas with sandy soils as indicated on **FIGURE 1** or confirmed with site-specific soil sampling. Sandy soils typically have high infiltration rates and thus offer little water retention. Sandy soils typically support xeric species adapted to low moisture and nutrient availability.

Table 7: Sandy Foothills Seed Mix

Sandy Foothills Mix						
Scientific Name	**Variety***	**Common Name**	**PLS lbs/ac**	**% by Weight**	**PLS/sq ft**	**% of PLS/sq ft**
Graminoids						
Andropogon hallii	vns.	sand bluestem	3.40	8	9	6
Bouteloua gracilis	CO Native	blue grama	0.80	2	15	10
Calamovilfa longifolia	vns.	prairie sandreed	2.50	6	16	10
Hesperostipa comata ssp. comata	vns.	needle and thread	6.00	14	16	10
Koeleria macrantha	Sims Mesa	prairie junegrass	0.12	0	6	4
Muhlenbergia montana	vns.	mountain muhly	0.25	1	9	6
Pascopyrum smithii	Arriba	western wheatgrass	6.00	14	15	10
Schizachyrium scoparium	Cimarron	little bluestem	2.00	5	12	8
Sorghastrum nutans	vns.	yellow Indiangrass	3.80	9	15	10
Sporobolus cryptandrus	vns.	sand dropseed	0.12	0	15	9
Triticum aestivum x Secale cereale	vns.	Quickguard	10.00	24	3	2
		Graminoid Totals	34.99	82	131	85
Forbs						
Achillea millefolium	vns.	common yarrow	0.08	0	5	3
Dalea purpurea var. purpurea	vns.	purple prairie clover	1.00	2	5	3
Heterotheca villosa	vns.	hairy false goldenaster	0.90	2	7	5
Ipomopsis aggregata	vns.	scarlet gilia	0.50	1	4	3
Lupinus argenteus	vns.	silvery lupine	5.00	12	2	1
		Forb Totals	7.48	18	23	15
		Total	**42.47**	**100**	**154**	**100**

*vns. = variety not specified

Table 8: Sandy Foothills Shrub Overseed Mix

Sandy Foothills Shrub Overseed Mix						
Scientific Name	**Variety***	**Common Name**	**PLS lbs/ac**	**% by Weight**	**PLS/sq ft**	**% of PLS/sq ft**
Artemisia frigida	vns.	prairie sagewort	3.00	31	5	29
Ericameria nauseosa	vns.	rubber rabbitbrush	0.50	5	5	29
Gutierrezia sarothrae	vns.	broom snakeweed	0.10	1	4	24
Rhus trilobata	vns.	skunkbush sumac	6.00	63	3	18
		Total	**9.60**	**100**	**16**	**100**

*vns. = variety not specified

Mountain Seed Mix

The Mountain Seed Mix shall be used in high elevation upland areas that are typically dominated by evergreen forests as indicated on **FIGURE 1**. These areas typically support species adapted to higher elevations and shade or low-light conditions.

The standard Mountain Seed Mix or site-specific mix approved by the NR-Manager shall be used for revegetation efforts in upland areas at Farish Recreation Area.

Table 9: Mountain Seed Mix

Mountain Mix						
Scientific Name	**Variety***	**Common Name**	**PLS lbs/ac**	**% by Weight**	**PLS/ sq ft**	**% of PLS/sq ft**
Graminoids						
Achnatherum hymenoides	White River or Paloma	indian ricegrass	4.00	9	13	8
Andropogon gerardii	vns.	big bluestem	2.50	6	7	5
Andropogon hallii	vns.	sand bluestem	2.40	5	6	4
Bouteloua gracilis	CO Native	blue grama	1.00	2	19	12
Elymus elymoides	vns.	bottlebrush squirreltail	2.60	6	11	7
Elymus lanceolatus ssp. lanceolatus	vns.	thickspike wheatgrass	6.00	13	21	14
Festuca arizonica	vns.	Arizona fescue	1.10	2	14	9
Hesperostipa comata ssp. comata	vns.	needle and thread	6.00	13	16	10
Poa fendleriana	vns.	muttongrass	0.30	1	14	9
Schizachyrium scoparium	Cimarron	little bluestem	1.80	4	11	7
Triticum aestivum x Secale cereale	vns.	Quickguard	10.00	22	3	2
		Graminoid Totals	37.70	84	136	88
Forbs						
Artemisia ludoviciana	vns.	white sagebrush	0.05	0	5	3
Heterotheca villosa	vns.	hairy false goldenaster	0.50	1	4	2
Lupinus argenteus	vns.	silvery lupine	6.00	13	3	2
Penstemon strictus	vns.	Rocky Mountain penstemon	0.20	0	3	2
Ratibida columnifera	vns.	upright prairie coneflower	0.30	1	5	3
		Forb Totals	7.05	16	19	12
		Total	**44.75**	**100**	**155**	**100**

*vns. = variety not specified

Table 10: Mountain Shrub Overseed Mix

Mountain Shrub Overseed Mix						
Scientific Name	Variety*	Common Name	PLS lbs/ac	% by Weight	PLS/ sq ft	% of PLS/sq ft
Artemisia frigida	vns.	prairie sagewort	3.00	14	5	21
Cercocarpus montanus	vns.	alderleaf mountain mahogany	3.00	14	3	15
Rosa woodsii	vns.	Woods' rose	3.00	14	3	15
Rhus trilobata	vns.	skunkbush sumac	6.00	29	3	13
Symphoricarpos oreophilus	vns.	mountain snowberry	6.00	29	8	35
		Total	**21.00**	**100**	**21**	**100**

*vns. = variety not specified

Low-Grow Seed Mix

The Low-Grow Seed Mix was developed for use in upland areas adjacent to trails, sidewalks, and roads, or areas that require a lower growing plant palette to achieve a desired design intent or aesthetic. While not shown on **FIGURE 1**, the Revegetation Plan Developer shall use their discretion to determine if the Low-Grow Seed Mix is appropriate on a project-by-project basis.

Table 11: Low Grow Mix

Low Grow Mix						
Scientific Name	**Variety***	**Common Name**	**PLS lbs/ac**	**% by Weight**	**PLS/ sq ft**	**% of PLS/sq ft**
Graminoids						
Bouteloua curtipendula	vns.	sideoats grama	3.50	10	13	9
Bouteloua dactyloides	vns.	buffalo grass	10.00	30	13	9
Bouteloua gracilis	CO Native	blue grama	1.20	4	23	17
Distichlis spicata	vns.	inland saltgrass	1.30	4	15	11
Elymus trachycaulus	San Luis or White River	slender wheatgrass	4.00	12	15	11
Festuca arizonica	vns.	Arizona fescue	1.80	5	20	14
Festuca idahoensis	vns.	Idaho fescue	1.30	4	13	10
Koeleria macrantha	Sims Mesa	prairie junegrass	0.20	1	11	8
Poa secunda	Boulder County	Sandberg's bluegrass	0.50	1	12	9
Triticum aestivum x Secale cereale	vns.	Quickguard	10.00	30	3	2
		Total	**33.80**	**100**	**138**	**100**

*vns. = variety not specified

Temporary Seed Mix

The standard temporary seed mix shall be used on disturbed upland areas or soil stockpiles that will remain in an interim state for more than 30 days, but less than one year. If disturbed areas or soil stockpiles are to remain in an interim state for more than one year the appropriate standard seed mix shall be used for long-term stabilization.

Table 12: Temporary Seed Mix

Temporary Seed Mix						
Scientific Name	**Variety***	**Common Name**	**PLS lbs/ac**	**% by Weight**	**PLS/ sq ft**	**% of PLS/sq ft**
Graminoids						
Bouteloua curtipendula	vns.	sideoats grama	4.50	11	20	19
Bouteloua gracilis	vns.	blue grama	1.00	2	19	18
Elymus canadensis	vns.	Canada wildrye	7.00	17	18	18
Elymus trachycaulus	vns.	slender wheatgrass	6.00	15	22	21
Pascopyrum smithii	vns.	western wheatgrass	7.50	18	19	18
Triticum aestivum x Secale cereale	vns.	Quickguard	15.00	37	5	5
		Total	**41.00**	**100**	**103**	**100**

*vns. = variety not specified

A.1.6 Plant Selection

All Revegetation Plans shall use the USAFA standard shrub and tree container stock list. The USAFA Seed Mix Map (FIGURE 1) shall be used to determine the standard shrub and tree container stock lists to use during revegetation efforts.

The standard shrub and tree container stock lists provided in this section may be modified based on pre-construction site observations of vegetation species and composition or other project specific design objectives, if approved by the Government Representatives after conducting the initial site assessment. Modifications may include, but are not limited to, substituting or adding native species or using a cultivated variety of the native species as approved by the Government Representative.

Selecting appropriate plants is essential for all projects at USAFA. When selecting plants for the revegetation design, it is important to choose vegetation species that are drought tolerant. Because native plants are adapted to the climatic conditions found at USAFA, native plantings or native cultivars should be considered for native revegetation. Plant selection should focus on creating a diverse plant palette, consider long-term performance, and minimize maintenance needs. Consideration should be given to the site's unique micro-climatic conditions, including solar aspect, wind exposure, and potential shading from nearby structures.

Plant selection should take into account the anticipated water regime and whether the site will be irrigated, receive surface water flows, or remain non-irrigated. Other factors to consider include above and below ground conditions, such as utilities, soil volume, adjacent structures, and environmental conditions specific to the location. Whenever possible, plants should be sourced locally or from regions with similar growing conditions to ensure adaptability and success in the restoration process.

Table 13: USAFA Shrub Container Stock List

USAFA Shrub Container Stock			
Scientific Name	**Common Name**	**Seed Mix Zone**	**Ignition Resistant**
Amorpha canescens	leadplant	Sandy Foothills Mix	No
Arctostaphylos uva-ursi	kinnikinnick	Sandy Foothills Mix, Mountain Mix	Yes
Atriplex canescens	fourwing saltbush	Loamy/Clayey Foothills Mix, Sandy Foothills Mix	No
Cercocarpus montanus	alderleaf mountain mahogany	All	Yes
Dasiphora fruticosa	shrubby cinquefoil	Loamy/Clayey Foothills Mix	Yes
Ericameria nauseosa	rubber rabbitbrush	Sandy Foothills Mix	No
Gutierrezia sarothrae	broom snakeweed	Loamy/Clayey Foothills Mix, Sandy Foothills Mix, Mountain Mix	No
Humulus lupulus	common hop	Riparian/Transition Mix	No
Lonicera morrowii	Morrow's honeysuckle	Riparian/Transition Mix	No
Prunus americana	American plum	Riparian/Transition Mix	No
Prunus pumila	western sandcherry	Sandy Foothills Mix	No
Prunus virginiana	chokecherry	Riparian/Transition Mix	No
Quercus gambelii	Gambel oak	All	No
Rhus trilobata	skunkbush sumac	All	No
Ribes aureum	golden currant	Riparian/Transition Mix	Yes
Ribes cereum	wax currant	Loamy/Clayey Foothills Mix, Sandy Foothills Mix, Mountain Mix	No
Rosa woodsii	Woods' rose	All	Yes
Symphoricarpos albus	common snowberry	All	Yes
Symphoricarpos occidentalis	western snowberry	Riparian/Transition Mix	Yes
Symphoricarpos oreophilus	mountain snowberry	Loamy/Clayey Foothills Mix, Mountain Mix, Riparian/Transition Mix	Yes
Yucca glauca	soapweed yucca	All	Yes

Table 14: USAFA Tree Container Stock List

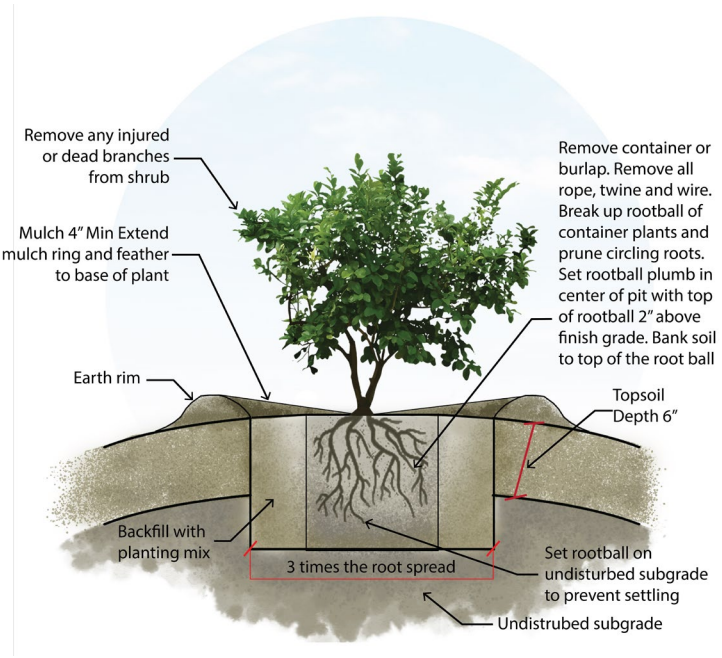
USAFA Tree Container Stock			
Scientific Name	**Common Name**	**Seed Mix Zone**	**Ignition Resistant**
Abies concolor	white fir	Loamy Clayey Foothills Mix, Sandy Foothills Mix, Mountain Mix	No
Betula occidentalis	water birch	Riparian/Transition Mix	Yes
Juniperus monosperma	oneseed juniper	Sandy Foothills Mix	No
Juniperus scopulorum	Rocky Mountain juniper	Loamy/Clayey Foothills Mix, Sandy Foothills Mix, Mountain Mix	No
Picea engelmannii	Engelmann spruce	Loamy/Clayey Foothills Mix, Mountain Mix, Riparian/Transition Mix	No
Picea pungens	blue spruce	Loamy/Clayey Foothills Mix, Sandy Foothills Mix, Mountain Mix	No
Pinus flexilis	limber pine	Sandy Foothills Mix, Mountain Mix	No
Pinus ponderosa	ponderosa pine	Loamy/Clayey Foothills Mix, Sandy Foothills Mix, Mountain Mix	No
Populus angustifolia	narrowleaf cottonwood	Riparian/Transition Mix	No
Populus deltoides ssp. monilifera	plains cottonwood	Riparian/Transition Mix	No
Populus tremuloides	quaking aspen	Loamy/Clayey Foothills Mix	Yes
Pseudotsuga menziesii	douglas fir	Loamy/Clayey Foothills Mix, Sandy Foothills Mix, Mountain Mix	No
Salix amygdaloides	peachleaf willow	Riparian/Transition Mix	No

Container, Ball and Burlap, Plugs, and Sod Mat Stock

If containerized plants are being considered, it is essential to establish an irrigation plan that includes a permanent irrigation system, temporary irrigation system, or watering plan. The irrigation plan should outline a watering schedule for a minimum of two years. Conversely, if no irrigation is available during the establishment period, no containerized plants should be proposed unless the species is adapted to deep planting to ensure contact with groundwater.

When utilizing containerized plants on-site, it is prudent to strategically position them in designated pockets or clusters to facilitate efficient watering post-construction. Additionally, careful consideration should be given to selecting appropriate container sizes. For instance, deep-rooted containers or tubelings are more suitable when irrigation is limited or temporary. Consulting with plant suppliers can provide valuable insights into selecting the most suitable containers for the project's specific requirements.

Figure 3: Container Stock Planting



Salvaged Plantings and Reuse of On-Site Materials

For native revegetation areas, the reuse of onsite materials should be considered whenever possible. Onsite rock, root wads, tree trunks, and other woody materials can be used for bank stabilization, check dams, revegetation, and other stream restoration approaches. Salvaged plant material has the advantage of having local genetics and allowing the use of plant material that would otherwise be destroyed.
The design should consider existing areas to be impacted by the project to determine if materials located within the project extents should be salvaged for re-use. Coordinate with the NR-Manager to determine if a local host-site is available to harvest healthy plantings from. All salvaged materials for riparian restoration projects should be harvested from within the same watershed as the project.

Cottonwood and willows are a great choice for salvaged plantings. The length of cottonwood and willow poles should be determined by the project specific needs for the live stake to be planted with access to ground water. Willow stakes shall be between three feet (3') to six feet (6') in length unless a longer stake is required based on approximate depth to groundwater. Live stakes shall typically be coyote willow (*Salix exigua*) cuttings that are one-half inch (1/2") to one inch (1") in diameter. Willow stakes shall normally be planted on 24" to 36" centers in a staggered pattern, but the pattern and spacing may need to be adjusted depending on the availability of groundwater and plant materials.

For Cottonwood poles, the length shall be determined by the project specific needs for the live pole to be planted with access to ground water but are typically at least ten feet (10') in length. Cottonwood poles shall be plains cottonwood (*Populus deltoides*) or narrow-leaf cottonwood

(*Populus angustifolia*) cuttings that are approximately one inch (1”) in diameter. The number and location of pole plantings shall be determined by groundwater conditions and the availability of plant materials. Herbivory protection, such as beaver cages, may be necessary as determined by the initial site assessment or as required by the NR-Manager.

A.1.7 Irrigation

Temporary irrigation needs should be determined during the design phase. Generally, sites that only propose salvaged materials and seed for revegetation do not require temporary irrigation assuming adequate soil preparation and correct seasonal timing of implementation was met. Temporary irrigation or watering during the establishment period shall be required for any projects that propose container stock. Generally, watering at three quarters to one inch (3/4 – 1”) per week is recommended during the April-October growing season depending on rainfall. However, the water regime of proposed container stock should consider the amount of water typically needed for establishment without overwatering to prevent dependency of the plant on the irrigation system. If an irrigation plan is developed for the project, the irrigation plan should consider zone layout and watering rates shall be verified by the landscape architect and irrigation designer based on site specific characteristics including seed mix watering needs, slope, storm event frequency and intensity, watering zones, and water pressure. Supplemental irrigation of seeded areas shall not displace or negatively impact seed bed preparations, such as by watering truck spray heads/water cannons.

Irrigation water sources can include city domestic (potable) water and non-potable water (reclaimed water) depending on the site location and associated water rights of the property.

Appendix B: Revegetation and Erosion Control Construction Checklist

Standards Section	Description of Standard	Contractor Acknowledgement Date and Initials	Government Representative Approval Date and Initials
2.1	A clear construction schedule was prepared that accounts for proper revegetation timing.		
Comments			
2.2	Existing resources were protected to the best extent practicable.		
Comments			
2.3	Existing topsoil was salvaged and stockpiled properly.		
Comments			
2.4	Interim erosion control BMPs were installed properly and prior to earth moving activities.		
Comments			
2.5	Existing topsoil was sampled correctly, and the correct number of soil samples were collected.		
Comments			
2.5	Existing topsoil was submitted to an accredited soil laboratory and soil fertility testing was performed.		
Comments			
2.6	Topsoil and subsoils were prepared adequately for revegetation, including determination and incorporation of appropriate soil amendments.		
Comments			
3.1	All seed lots were tested and analyzed, and seed lots are free of noxious or invasive non-native weeds.		
Comments			
3.2	Seed was installed during the ideal window and installed in favorable ground and weather conditions.		
Comments			
3.3	Seed was installed at an appropriate depth using the correct equipment based on site terrain.		
Comments			
3.4	Containerized material was sourced, transported, stored, and planted correctly.		
Comments			
3.5	Salvaged plant material was salvaged, stored, and planted correctly.		
Comments			

3.6	Weeds were controlled appropriately during construction.		
Comments			
4.0	An Irrigation Plan or Supplemental Irrigation Plan was developed and implemented, if required.		
Comments			
5.1	An erosion and sediment control plan were developed and complies with local and state standards.		
Comments			
5.2	Erosion control materials were appropriate for the site and installed correctly.		
Comments			
5.2	Appropriate fencing and barriers were installed properly and removed at the appropriate time.		
Comments			
5.3	All punch list items were addressed by the contractor.		
Comments			
5.3	Revegetation success criteria was reviewed and acknowledged by the contractor.		
Comments			

Appendix C: Revegetation and Erosion Control Post-Construction Maintenance Checklist

Example Post-Construction Maintenance Checklist

The following checklist and weed treatment table are provided as examples but should be updated by the NR Manager to be project specific.

Month	Maintenance Task	Date Completed	Contractor Initials	Government Representative Initials
January	Winter water Site inspection			
February				
March				
December				

April	Remove tree wrap			
	Remove weeds, as needed			
	Weed treatment, as needed			
	Re-mulch bed, as needed (if applicable)			
	Site inspection			

May	Fertilize trees and shrubs (approved by NR-Manager)			
	Re-mulch beds, as needed (if applicable)			
	Activate/troubleshoot irrigation system (if applicable)			
	Native grass germination irrigation schedule (if applicable)			
	Prune trees and shrubs, as needed			
	Remove weeds, as needed			
	Weed treatment, as needed			
	Site inspection			

June	Check all trees and shrubs for insect pests			
	Native grass germination irrigation schedule (if applicable)			
	Inspect irrigation system / adjust timing as needed (if applicable			
	Remove weeds as needed			
	Weed treatment as needed			
	Re-mulch beds as needed (if applicable)			
	Site inspection			

July	Inspect irrigation system / adjust timing as needed (if applicable)			
	Native grass root establishment irrigation schedule (if applicable)			
	Remove weeds as needed			
	Weed treatment as needed			
	Re-mulch beds as needed (if applicable)			
	Site inspection			

Month	Maintenance Task	Date Completed	Contract or Initials	Government Representative Initials
August	Inspect irrigation system / adjust timing as needed (if applicable)			
	Native grass root establishment irrigation schedule (if applicable)			
	Remove weeds as needed			
	Weed treatment as needed			
	Re-mulch beds as needed (if applicable)			
	Interseed problematic or bare areas			
	Site inspection			
September	Inspect irrigation system / adjust timing as needed (if applicable)			
	Native grass established, reduce irrigation run time (if applicable)			
	Remove weeds as needed			
	Re-mulch beds as needed (if applicable)			
	Site inspection			
October	Adjust staking of new trees			
	Winterize irrigation sprinkler system (if applicable)			
	Weed treatment as needed			
	Site inspection			
November	Wrap trees (if applicable)			
	Weed treatment as needed			
	Dormant interseeding of problematic or bare areas			
	Winter water			
	Site inspection			

Weed Maintenance Timeline							
	April	May	June	July	August	October	November
cheatgrass							
kochia							
mustard sp.							
musk thistle							
Scotch thistle							
Canada thistle							
hoary cress							
curly dock							
field bindweed							
Other state-listed species							
	Some treatment needed			Focus of treatments			

Appendix M: Dewatering Inspection Form

2022 Construction General Permit Dewatering Inspection Report

Project Name: _____
NPDES ID Number: _____

Section A – Dewatering Discharges (CGP Part 4.6.3) Complete this section within 24 hours of completing the inspection. (If necessary, complete additional inspection reports for each separate inspection location.)	
Inspector Information	
Inspector Name:	**Title:**
Company Name:	**Email:**
Address:	**Phone Number:**
Inspection Details	
Inspection Date:	**Inspection Location:**
Discharge Start Time:	**Discharge End Time:**
Rate of Discharge (gallons per day):	**Corrective Action Required?**[1] ☐ Yes ☐ No
Describe Indicators of Pollutant Discharge at Point of Dewatering Discharge:[1]	
Attach Photographs of: 1. Dewatering water prior to treatment by a dewatering control(s) and the final discharge after treatment; and 2. Dewatering control(s); and 3. Point of discharge to any receiving waters flowing through or immediately adjacent to the site and/or to constructed or natural site drainage features, storm drain inlets, and other conveyances to receiving waters.	

[1] If you observe any of the following indicators of pollutant discharge, you are required to take corrective action under Part 5.1.5.b:

- a sediment plume, suspended solids, unusual color, presence of odor, decreased clarity, or presence of foam; or
- a visible sheen on the water surface or visible oily deposits on the bottom or shoreline of the receiving water.

Project Name: _____

NPDES ID Number: _____

Section B – Signature and Certification (CGP Part 4.7.2)	
"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information contained therein. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information contained is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."	
MANDATORY: Signature of Operator or "Duly Authorized Representative:"	
Signature:	**Date:**
Printed Name:	**Affiliation:**
OPTIONAL: Signature of Contractor or Subcontractor	
Signature:	**Date:**
Printed Name:	**Affiliation:**

General Tips for Using This Template

This Dewatering Inspection Report Template is provided to assist you in preparing dewatering inspection reports for EPA's 2022 Construction General Permit (CGP). If you are covered under the 2022 CGP, you can use this template to create a dewatering inspection report form that complies with the minimum reporting requirements of Part 4.6.3 of the permit. Note that the use of this form is optional; you may use your own inspection report form provided it includes the minimum information required in Part 4.6.3 of the CGP.

This template is for dewatering inspections only. A separate site inspection report template that does not include dewatering inspections and complies with the minimum reporting requirements of Part 4.7 of the permit is available at https://www.epa.gov/npdes/construction-general-permit-resources-tools-and-templates.

If you are covered under a State CGP, this template may be helpful in developing a report that can be used for that permit; however, it will need to be modified to meet the specific requirements of that permit. If your permitting authority requires you to use a specific inspection report form, you should not use this form.

The following tips for using this template will help you ensure that the minimum permit requirements are met:

- **Review the inspection requirements.** Before you start developing your inspection report form, read the CGP's Part 4 inspection requirements. This will ensure that you have a working understanding of the permit's underlying inspection requirements.
- **Complete all required blank fields.** Fill out all blank fields. Only by filling out all fields will the template be compliant with the requirements of the permit. (Note: Where you do not need the number of rows provided in the template form for your inspection, you may delete these as you see fit. Or, if you need more space to document your findings, you may insert additional rows in the electronic version of this form or use the bottom of the page in the field version of this form.)
- **Use your site map to document inspection findings.** In several places in the template, you are directed to specify the location of certain features of your site, including where stormwater controls are installed and where you will be stabilizing exposed soil. You are also asked to fill in location information for unsafe conditions and the locations of any discharges occurring during your inspections. Where you are asked for location information, EPA encourages you to reference the point on your SWPPP site map that corresponds to the requested location on the inspection form. Using the site map as a tool in this way will help you conduct efficient inspections, will assist you in evaluating problems found, and will ensure proper documentation.
- **Include the inspection form with your SWPPP.** Once your form is complete, make sure to include a copy of the inspection form in your SWPPP in accordance with Part 7.2.7.e of the CGP.
- **Retain copies of all inspection reports with your records.** You must also retain copies of all inspection reports in your records in accordance with the requirements in Part 4.7.3 of the CGP. These reports must be retained for at least 3 years from the date your permit coverage expires or is terminated in accordance with the requirements in Part 4.7.4 of the CGP.

Instructions for Section A

Inspector Name

Enter the name of the person that conducted the inspection. Include the person's contact information (title, affiliated company name, address, email, and phone number).

Inspection Date

Enter the date you performed the inspection.

Inspection Location

If your project has multiple locations where you conduct separate dewatering inspections, specify the location where this inspection is being conducted. Otherwise, you can enter "dewatering operation."

Discharge Start and End Times

Enter the approximate time the dewatering discharge started and ended on the day of the inspection.

Rate of Discharge
Enter the rate of discharge in gallons per day on the day of inspection.

To estimate the approximate discharge rate on the day of dewatering inspection, one approach is to use the manufacturer's design pump rating for the pump model in use. For example, a pump rated at 164 gpm (gallons per minute) by the manufacturer can be assumed to be discharging at 164 gpm in most cases. To convert to gallons per day, multiply the rate in gpm by the ratio of minutes in one-day (1,440 minutes per day), resulting in a discharge rate of 236,160 gallons per day.

In cases where the dewatering discharge is being pumped over long distances or a substantial distance uphill, which will result in a reduced pump rate relative to manufacturer's specification, the operator may improve the accuracy of the estimate by estimating the time required to fill a container of a known volume. For example, if it takes 60 seconds to fill an empty 55-gallon barrel, the estimated discharge rate is 55 gpm, or 79,200 gallons per day.

Indicators of Pollutant Discharge
For the point of discharge, describe any observed sediment plume, suspended solids, unusual color, presence of odor, decreased clarity, or presence of foam; and/or a visible sheen on the water surface or visible oily deposits on the bottom or shoreline of the receiving water.

Corrective Action Required?
Answer "Yes" if during your inspection you found any of the conditions listed above in the instructions for the Indicators of Pollutant Discharge section. If you answer "Yes," you must take corrective action and complete a corrective action log, found at https://www.epa.gov/npdes/construction-general-permit-resources-tools-and-templates. Answer "No" if you did not observe any of the listed pollutant indicators.

Photographs
As required in CGP Part 8.2.1.a, attach photos of: (1) dewatering water prior to treatment by a dewatering control(s) and the final discharge after treatment; (2) the dewatering control(s); and (3) the point of discharge to any receiving waters flowing through or immediately adjacent to the site and/or to constructed or natural site drainage features, storm drain inlets, and other conveyances to receiving waters.

Instructions for Section B

Each inspection report must be signed and certified to be considered complete (CGP Part 4.7.2).

Operator or "Duly Authorized Representative" – MANDATORY (CGP Appendix G Part G.11.2 and CGP Appendix H Section X)
At a minimum, the dewatering inspection report must be signed by either (1) the person who signed the NOI, or (2) a duly authorized representative of that person. The following requirements apply:

If the signatory will be the person who signed the NOI for permit coverage, as a reminder, that person must be one of the following types of individuals:

- *For a corporation*: By a responsible corporate officer. For the purpose of this subsection, a responsible corporate officer means: (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
- *For a partnership or sole proprietorship*: By a general partner or the proprietor, respectively.

- *For a municipality, State, Federal, or other public agency*: By either a principal executive officer or ranking elected official. For purposes of this subsection, a principal executive officer of a Federal agency includes (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrator of EPA).

If the signatory will be a duly authorized representative, the following requirements must be met:

- The authorization is made in writing by the person who signed the NOI (see above);
- The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and
- The signed and dated written authorization is included in the SWPPP. A copy must be submitted to EPA, if requested.

Sign, date and print your name and affiliation.

Contractor or Subcontractor - OPTIONAL

Where you rely on a contractor or subcontractor to complete the dewatering inspection report, you should consider requiring the individual(s) to sign and certify each report. Note that this does not relieve you, the permitted operator, of the requirement to sign and certify the dewatering inspection report as well. If applicable, sign, date, and print your name and affiliation.

Note

While EPA has made every effort to ensure the accuracy of all instructions contained in this template, it is the permit, not this template, that determines the actual obligations of regulated construction stormwater discharges. In the event of a conflict between this template and any corresponding provision of the CGP, you must abide by the requirements in the permit. EPA welcomes comments on this Dewatering Inspection Report Template at any time and will consider those comments in any future revision. You may contact EPA for CGP-related inquiries at cgp@epa.gov

Appendix N: Spill Plan and Action Guidance

- To be provided by contractor

Appendix O: Pre-Construction Photos



FIGURE 1.



FIGURE 2.



FIGURE 3.



FIGURE 4.



FIGURE 5.

Appendix P: El Paso County Permitting

2880 International Circle, Suite 110
Colorado Springs, CO 80910
Phone: 719-520-6300
Email: Stormwater@elpasoco.com
publicworks.elpasoco.com/stormwater/

Stormwater Permit Number: ESQ_____

EL PASO COUNTY
STORMWATER PERMIT FORM
Erosion and Stormwater Quality Control Permit (ESQCP)

EPC Project Number: CDR266_____

There are multiple Stormwater Permits. Please refer to Engineering Criteria Manual (ECM) Appendix I to determine which permit is applicable to your project.

This form initially acts as the permit application. Only once this form has been signed & approved, all other required documents have been submitted & approved, and the Notice to Proceed has been issued, does this form become an active permit.

Part I. Property Owner or Authorized Representative (Co-Permit Holder)	
Company/Organization	Colorado Springs Utilities
Name or Name of Representative	Andy Muser
Title	Project Manager
Physical Address (not PO Box)	
Street Number and Street Name	1521 Hancock Expy
City, State, Zip Code	Colorado Springs, CO 80903
Mailing Address (if differs from above)	
Street Number and Street Name	
City, State, Zip Code	
Phone Number - Office	719-668-8373
Phone Number - Cell	
Email Address	amuser@csu.org

Part II. Contractor/Operator (Co-Permit Holder)*	
Company/Organization	Garney Construction
Name or Name of Representative	Sean Voss
Title	Project Manager
Physical Address (not PO Box)	
Street Number and Street Name	611 North Weber Street, Suite 103
City, State, Zip Code	Colorado Springs, CO 80903
Mailing Address (if differs from above)	
Street Number and Street Name	
City, State, Zip Code	
Phone Number - Office	
Phone Number - Cell	719-233-2923
Email Address	svoss@garney.com

*This section can be left blank through design review but must be filled in no later than at the Pre-Con Meeting.

2880 International Circle, Suite 110
Colorado Springs, CO 80910
Phone: 719-520-6300
Email: Stormwater@elpasoco.com
publicworks.elpasoco.com/stormwater/

Stormwater Permit Number: ESQ_____

EL PASO COUNTY
STORMWATER PERMIT FORM
Erosion and Stormwater Quality Control Permit (ESQCP)

EPC Project Number: CDR266_____

Part III. Qualified Stormwater Manager (QSM)*	
Company/Organization	
Name	
Phone Number - Office	
Phone Number - Cell	
Email Address	

*This section can be left blank through design review but must be filled in no later than at the Pre-Con Meeting.

Part IV. Project Information	
Project Name	Northern Monument Creek Interceptor
Address (or nearest major cross streets)	Southeast of 14770 Jumping Mouse View, Colorado Springs, CO 80921
Acreage	Total: 2.68 acres Proposed Disturbance: 2.68 acres
Description of Project	Linear project to install a new underground sanitary sewer interceptor line. Grade will be restored to existing conditions.
Schedule (input estimated month or season)	Start of Construction: Summer 2026 Completion of Construction: Fall 2028 Final Stabilization: Fall 2028 (linear)

2880 International Circle, Suite 110
Colorado Springs, CO 80910
Phone: 719-520-6300
Email: Stormwater@elpasoco.com
publicworks.elpasoco.com/stormwater/

Stormwater Permit Number: ESQ_____

EL PASO COUNTY
STORMWATER PERMIT FORM
Erosion and Stormwater Quality Control Permit (ESQCP)

EPC Project Number: CDR266_____

REQUIRED SUBMISSIONS

See ECM Appendix I for the documentation required to be submitted, reviewed, and approved in conjunction with this Stormwater Permit Form.

RESPONSIBILITY FOR DAMAGE

The County and its officers and employees, including but not limited to the ECM Administrator, shall not be answerable or accountable in any manner for damage to property or for injury to or death of any person, including but not limited to the Permit Holder(s), persons employed by the Permit Holder(s), or persons acting on behalf of the Permit Holder(s), from any cause. The Permit Holder(s) shall be responsible for any liability imposed by law and for damage to property or injuries to or death of any person, including but not limited to the Permit Holder(s), persons employed by the Permit Holder(s), and persons acting on behalf of the Permit Holder(s), arising out of work or other activity permitted and done under a permit, or arising out of the failure to perform the obligations under any permit with respect to maintenance or any other obligations, or resulting from defects or obstructions, or from any cause whatsoever during the progress of the work or other activity, or at any subsequent time work or other activity is being performed under the obligations provided by and contemplated by the permit.

The Permit Holder(s) shall indemnify, save, and hold harmless the County and its officers and employees, including but not limited to the Board of County Commissioners (BoCC) and ECM Administrator, from all claims, suits or actions of every name, kind and description brought for or on account of damage to property or injuries to or death of any person, including but not limited to the Permit Holder(s), persons employed by the Permit Holder(s), persons acting in behalf of the Permit Holder(s) and the public, resulting from the performance of work or other activity under the permit, or arising out of the failure to perform obligations under any permit with respect to maintenance or any other obligations, or resulting from defects or obstructions, or from any cause whatsoever during the progress of the work or other activity, or at any subsequent time work or other activity is being performed under the obligations provided by and contemplated by the permit, except as otherwise provided by state law. The Permit Holder(s) waives any and all rights to any type of expressed or implied indemnity against the County, its officers or employees. It is the intent of the parties that the Permit Holder(s) will indemnify, save, and hold harmless the County, its officers and employees from any and all claims, suits or actions as set forth above regardless of the existence or degree of fault of or negligence, whether active or passive, primary or secondary, on the part of the County, the Permit Holder(s), persons employed by the Permit Holder(s), or persons acting in behalf of the Permit Holder(s).

2880 International Circle, Suite 110
Colorado Springs, CO 80910
Phone: 719-520-6300
Email: Stormwater@elpasoco.com
publicworks.elpasoco.com/stormwater/

Stormwater Permit Number: ESQ_____

EL PASO COUNTY
STORMWATER PERMIT FORM
Erosion and Stormwater Quality Control Permit (ESQCP)

EPC Project Number: CDR266_____

APPLICATION AND PERMIT CERTIFICATION – PERMIT HOLDERS

We, as the Permit Holder(s), hereby certify that this application is correct and complete as per the requirements presented in the El Paso County Engineering Criteria Manual (ECM) and Drainage Criteria Manual (DCM) Volume 2. We, as the Permit Holder(s), have read and will comply with all of the requirements of the submitted Stormwater Management Plan (SWMP), Grading & Erosion Control (GEC) Plan, and any other documents specifying construction control measures to be used on the site, including permit conditions that may be required by the ECM Administrator. We understand that the approved plans are an enforceable part of the ESQCP. We further understand that we are to comply with all requirements set forth by the ECM and DCM Volume 2. We understand that the permitted area is that which is shown as the Limits of Disturbance on the GEC Plans. We further understand that a Construction Permit must be obtained and all necessary construction control measures are to be installed in accordance with the SWMP, GEC Plan, ECM, and DCM Volume 2 before land disturbance begins and that failure to comply will result in a Stop Work Order and may result in other penalties as allowed by law. We understand that the construction control measures are to be maintained on the site and be modified as necessary to protect stormwater quality as the project progresses. We further understand and agree to indemnify, save, and hold harmless the County and its officers and employees, including but not limited to the BoCC and ECM Administrator, from all claims, suits or actions of every name, kind and description as outlined in Responsibility for Damage section above.

_____ _____
Signature of Owner or Representative Date

_____
Print Name of Owner or Representative

_____ _____
Signature of Contractor/Operator or Representative* Date
*If signed by a Rep, an Affidavit of Signature Authority must be included

_____
Print Name of Contractor/Operator or Representative

APPLICATION AND PERMIT CERTIFICATION – EL PASO COUNTY

The following signature from the ECM Administrator signifies the approval of this ESQCP Application.

_____ _____
Signature of ECM Administrator Date

Appendix Q: Additional Reference Documents

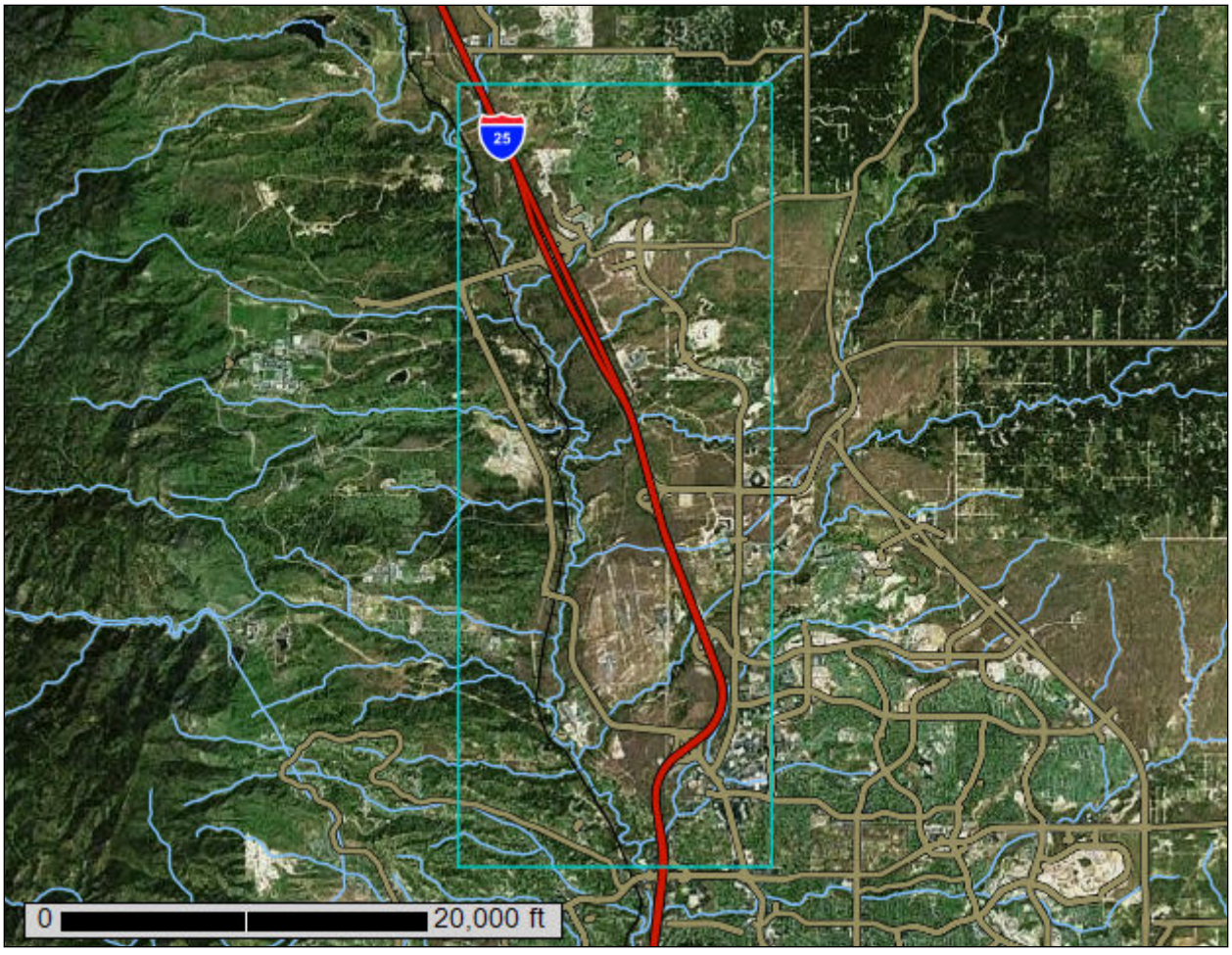
United States Department of Agriculture

NRCS

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



October 7, 2025

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.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

Preface.....2
How Soil Surveys Are Made.....6
Soil Map.....9
Soil Map.....10
Legend.....11
Map Unit Legend.....12
Map Unit Descriptions.....13
El Paso County Area, Colorado.....15
1—Alamosa loam, 1 to 3 percent slopes.....15
8—Blakeland loamy sand, 1 to 9 percent slopes.....16
10—Blendon sandy loam, 0 to 3 percent slopes.....17
12—Bresser sandy loam, cool, 3 to 5 percent slopes.....18
14—Brussett loam, 1 to 3 percent slopes.....19
18—Chaseville-Midway complex.....21
19—Columbine gravelly sandy loam, 0 to 3 percent slopes.....23
21—Cruckton sandy loam, 1 to 9 percent slopes.....24
28—Ellicott loamy coarse sand, 0 to 5 percent slopes.....25
37—Jarre gravelly sandy loam, 1 to 8 percent slopes.....26
38—Jarre-Tecolote complex, 8 to 65 percent slopes.....27
40—Kettle gravelly loamy sand, 3 to 8 percent slopes.....29
41—Kettle gravelly loamy sand, 8 to 40 percent slopes.....30
42—Kettle-Rock outcrop complex.....31
45—Kutch clay loam, 5 to 20 percent slopes.....32
54—Midway clay loam, 3 to 25 percent slopes.....33
56—Nelson-Tassel fine sandy loams, 3 to 18 percent slopes.....35
67—Peyton sandy loam, 5 to 9 percent slopes.....37
68—Peyton-Pring complex, 3 to 8 percent slopes.....38
69—Peyton-Pring complex, 8 to 15 percent slopes.....40
70—Pits, gravel.....41
71—Pring coarse sandy loam, 3 to 8 percent slopes.....42
78—Sampson loam, 0 to 3 percent slopes.....43
83—Stapleton sandy loam, 3 to 8 percent slopes.....44
84—Stapleton sandy loam, 8 to 15 percent slopes.....46
85—Stapleton-Bernal sandy loams, 3 to 20 percent slopes.....47
92—Tomah-Crowfoot loamy sands, 3 to 8 percent slopes.....49
93—Tomah-Crowfoot complex, 8 to 15 percent slopes.....50
94—Travessilla-Rock outcrop complex, 8 to 90 percent slopes.....52
95—Truckton loamy sand, 1 to 9 percent slopes.....54
96—Truckton sandy loam, 0 to 3 percent slopes.....55
97—Truckton sandy loam, 3 to 9 percent slopes.....57
98—Truckton-Blakeland complex, 9 to 20 percent slopes.....58
101—Ustic Torrifluvents, loamy.....61
111—Water.....62
Soil Information for All Uses.....63

Soil Properties and Qualities..... 63
Soil Erosion Factors.....63
Wind Erodibility Group.....63
K Factor, Whole Soil.....67
K Factor, Rock Free..... 72
Soil Qualities and Features.....77
Hydrologic Soil Group..... 78
References.....83

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.

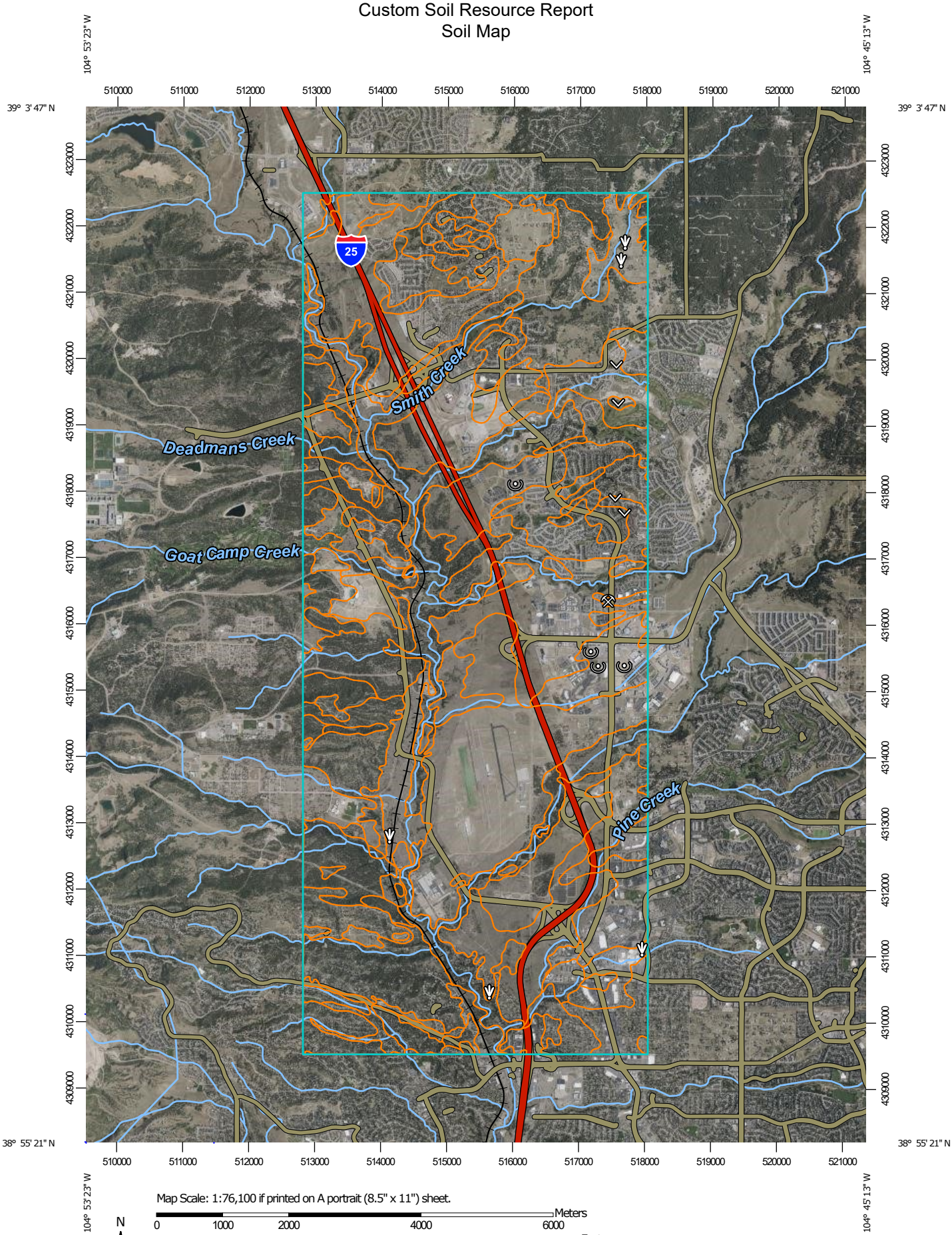
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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 Scale: 1:76,100 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 1000 2000 4000 6000

Feet: 0 3500 7000 14000 21000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

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 23, Aug 29, 2025

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
1	Alamosa loam, 1 to 3 percent slopes	8.4	0.1%
8	Blakeland loamy sand, 1 to 9 percent slopes	1,166.0	6.9%
10	Blendon sandy loam, 0 to 3 percent slopes	123.6	0.7%
12	Bresser sandy loam, cool, 3 to 5 percent slopes	37.6	0.2%
14	Brussett loam, 1 to 3 percent slopes	11.5	0.1%
18	Chaseville-Midway complex	8.3	0.0%
19	Columbine gravelly sandy loam, 0 to 3 percent slopes	2,210.1	13.1%
21	Cruckton sandy loam, 1 to 9 percent slopes	79.4	0.5%
28	Ellicott loamy coarse sand, 0 to 5 percent slopes	86.3	0.5%
37	Jarre gravelly sandy loam, 1 to 8 percent slopes	213.8	1.3%
38	Jarre-Tecolote complex, 8 to 65 percent slopes	694.1	4.1%
40	Kettle gravelly loamy sand, 3 to 8 percent slopes	912.4	5.4%
41	Kettle gravelly loamy sand, 8 to 40 percent slopes	1,907.7	11.3%
42	Kettle-Rock outcrop complex	323.6	1.9%
45	Kutch clay loam, 5 to 20 percent slopes	253.3	1.5%
54	Midway clay loam, 3 to 25 percent slopes	4.9	0.0%
56	Nelson-Tassel fine sandy loams, 3 to 18 percent slopes	8.4	0.1%
67	Peyton sandy loam, 5 to 9 percent slopes	132.9	0.8%
68	Peyton-Pring complex, 3 to 8 percent slopes	580.6	3.5%
69	Peyton-Pring complex, 8 to 15 percent slopes	129.0	0.8%
70	Pits, gravel	6.7	0.0%
71	Pring coarse sandy loam, 3 to 8 percent slopes	2,070.8	12.3%
78	Sampson loam, 0 to 3 percent slopes	23.3	0.1%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
83	Stapleton sandy loam, 3 to 8 percent slopes	2,139.9	12.7%
84	Stapleton sandy loam, 8 to 15 percent slopes	24.1	0.1%
85	Stapleton-Bernal sandy loams, 3 to 20 percent slopes	141.2	0.8%
92	Tomah-Crowfoot loamy sands, 3 to 8 percent slopes	615.9	3.7%
93	Tomah-Crowfoot complex, 8 to 15 percent slopes	2,059.9	12.2%
94	Travessilla-Rock outcrop complex, 8 to 90 percent slopes	416.5	2.5%
95	Truckton loamy sand, 1 to 9 percent slopes	27.1	0.2%
96	Truckton sandy loam, 0 to 3 percent slopes	21.4	0.1%
97	Truckton sandy loam, 3 to 9 percent slopes	241.4	1.4%
98	Truckton-Blakeland complex, 9 to 20 percent slopes	5.2	0.0%
101	Ustic Torrifluvents, loamy	127.2	0.8%
111	Water	15.1	0.1%
Totals for Area of Interest		**16,828.1**	**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

1—Alamosa loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 3670
Elevation: 7,200 to 7,700 feet
Farmland classification: Farmland of statewide importance

Map Unit Composition

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

Description of Alamosa

Setting

Landform: Fans, flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

A - 0 to 6 inches: loam
Bt - 6 to 14 inches: clay loam
Btk - 14 to 33 inches: clay loam
Cg1 - 33 to 53 inches: sandy clay loam
Cg2 - 53 to 60 inches: sandy loam

Properties and qualities

Slope: 1 to 3 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 (0.20 to 0.60 in/hr)
Depth to water table: About 12 to 18 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Very slightly saline to strongly saline (2.0 to 16.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: D
Ecological site: R048AY241CO - Mountain Meadow
Hydric soil rating: Yes

Minor Components

Other soils

Percent of map unit: 15 percent
Hydric soil rating: No

8—Blakeland loamy sand, 1 to 9 percent slopes

Map Unit Setting

National map unit symbol: 369v
Elevation: 4,600 to 5,800 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

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

Description of Blakeland

Setting

Landform: Flats, hills
Landform position (three-dimensional): Side slope, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock and/or eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 11 inches: loamy sand
AC - 11 to 27 inches: loamy sand
C - 27 to 60 inches: sand

Properties and qualities

Slope: 1 to 9 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: 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: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water supply, 0 to 60 inches: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
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

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

12—Bresser sandy loam, cool, 3 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2tlpd
Elevation: 6,300 to 6,800 feet
Mean annual precipitation: 13 to 19 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 125 to 140 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

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

Description of Bresser, Cool

Setting

Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Tertiary aged alluvium derived from arkose

Typical profile

Ap - 0 to 5 inches: sandy loam
Bt1 - 5 to 8 inches: sandy loam
Bt2 - 8 to 27 inches: sandy clay loam
Bt3 - 27 to 36 inches: sandy loam
C - 36 to 80 inches: loamy coarse sand

Properties and qualities

Slope: 3 to 5 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 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.1 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.4 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: B
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Minor Components

Truckton

Percent of map unit: 10 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Yoder

Percent of map unit: 5 percent
Landform: Alluvial fans
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R049XY214CO - Gravelly Foothill
Hydric soil rating: No

14—Brussett loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 367j
Elevation: 7,200 to 7,500 feet
Frost-free period: 115 to 125 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

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

Description of Brussett

Setting

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

Typical profile

A - 0 to 8 inches: loam
BA - 8 to 12 inches: loam
Bt - 12 to 26 inches: clay loam
Bk - 26 to 60 inches: silt loam

Properties and qualities

Slope: 1 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
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3c
Hydrologic Soil Group: B
Ecological site: R048AY222CO - Loamy Park
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 15 percent
Hydric soil rating: No

18—Chaseville-Midway complex

Map Unit Setting

National map unit symbol: 367n
Elevation: 6,100 to 7,000 feet
Mean annual precipitation: 16 to 18 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

Chaseville and similar soils: 70 percent
Midway and similar soils: 28 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Chaseville

Setting

Landform: Hills, hills, breaks
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from arkose

Typical profile

A1 - 0 to 6 inches: gravelly sandy loam
A2 - 6 to 19 inches: very gravelly sandy loam
C1 - 19 to 40 inches: extremely gravelly loamy coarse sand
C2 - 40 to 60 inches: very gravelly loamy sand

Properties and qualities

Slope: 8 to 50 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively 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
Available water supply, 0 to 60 inches: Very low (about 2.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: R049XY214CO - Gravelly Foothill
Hydric soil rating: No

Description of Midway

Setting

Landform: Hills
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Slope alluvium over residuum weathered from shale

Typical profile

A - 0 to 4 inches: clay loam
C - 4 to 13 inches: clay
Cr - 13 to 17 inches: weathered bedrock

Properties and qualities

Slope: 5 to 25 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 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: 15 percent
Maximum salinity: Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 15.0
Available water supply, 0 to 60 inches: Very low (about 2.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R049XB212CO - Shaly 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

19—Columbine gravelly sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 367p
Elevation: 6,500 to 7,300 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 125 to 145 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Columbine

Setting

Landform: Fans, fan terraces, flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

A - 0 to 14 inches: gravelly sandy loam
C - 14 to 60 inches: very gravelly loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well 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: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.5 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: R049XY214CO - Gravelly Foothill
Hydric soil rating: No

Minor Components

Fluvaquentic haplaquolls
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

21—Cruckton sandy loam, 1 to 9 percent slopes

Map Unit Setting
National map unit symbol: 367s
Elevation: 7,200 to 7,600 feet
Mean annual precipitation: 16 to 18 inches
Mean annual air temperature: 42 to 46 degrees F
Frost-free period: 110 to 120 days
Farmland classification: Not prime farmland

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

Description of Cruckton

Setting
Landform: Flats, hills
Landform position (three-dimensional): Side slope, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from arkose

Typical profile
A - 0 to 11 inches: sandy loam
Bt - 11 to 28 inches: sandy loam
C - 28 to 60 inches: loamy coarse sand

Properties and qualities
Slope: 1 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
Available water supply, 0 to 60 inches: Low (about 5.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: R049XY216CO - Sandy Divide
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 15 percent
Hydric soil rating: No

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: Frequent
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

37—Jarre gravelly sandy loam, 1 to 8 percent slopes

Map Unit Setting
National map unit symbol: 368b
Elevation: 6,700 to 7,500 feet
Farmland classification: Not prime farmland

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

Description of Jarre

Setting
Landform: Alluvial fans, terraces
Down-slope shape: Linear
Across-slope shape: Linear

Parent material: Alluvium

Typical profile

A - 0 to 5 inches: gravelly sandy loam
Bt - 5 to 22 inches: gravelly sandy clay loam
2C - 22 to 60 inches: very gravelly sandy loam

Properties and qualities

Slope: 1 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 (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: R048AY222CO - Loamy Park
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 15 percent
Hydric soil rating: No

38—Jarre-Tecolote complex, 8 to 65 percent slopes

Map Unit Setting

National map unit symbol: 368c
Elevation: 6,700 to 7,500 feet
Frost-free period: 90 to 125 days
Farmland classification: Not prime farmland

Map Unit Composition

Jarre and similar soils: 45 percent
Tecolote and similar soils: 40 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Jarre

Setting

Landform: Alluvial fans
Down-slope shape: Linear

Across-slope shape: Linear
Parent material: Alluvium

Typical profile

A - 0 to 5 inches: gravelly sandy loam
Bt - 5 to 22 inches: gravelly sandy clay loam
2C - 22 to 60 inches: very gravelly sandy loam

Properties and qualities

Slope: 8 to 30 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 (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R048AY222CO - Loamy Park
Hydric soil rating: No

Description of Tecolote

Setting

Landform: Alluvial fans
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

A - 0 to 3 inches: very stony loam
E - 3 to 12 inches: very gravelly loamy sand
Bt - 12 to 45 inches: extremely gravelly sandy clay loam
C - 45 to 60 inches: extremely gravelly loamy sand

Properties and qualities

Slope: 8 to 65 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
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
Available water supply, 0 to 60 inches: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: R048AY255CO - Pine Grasslands

Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 15 percent
Hydric soil rating: No

40—Kettle gravelly loamy sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 368g
Elevation: 7,000 to 7,700 feet
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Kettle

Setting

Landform: Hills
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy alluvium derived from arkose

Typical profile

E - 0 to 16 inches: gravelly loamy sand
Bt - 16 to 40 inches: gravelly sandy loam
C - 40 to 60 inches: extremely gravelly loamy sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively 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
Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B

Ecological site: F048AY908CO - Mixed Conifer
Hydric soil rating: No

Minor Components

Other soils
Percent of map unit: 10 percent
Hydric soil rating: No

Pleasant
Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

41—Kettle gravelly loamy sand, 8 to 40 percent slopes

Map Unit Setting
National map unit symbol: 368h
Elevation: 7,000 to 7,700 feet
Farmland classification: Not prime farmland

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

Description of Kettle

Setting
Landform: Hills
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy alluvium derived from arkose

Typical profile
E - 0 to 16 inches: gravelly loamy sand
Bt - 16 to 40 inches: gravelly sandy loam
C - 40 to 60 inches: extremely gravelly loamy sand

Properties and qualities
Slope: 8 to 40 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively 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
Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: F048AY908CO - Mixed Conifer
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 10 percent
Hydric soil rating: No

Pleasant

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

42—Kettle-Rock outcrop complex

Map Unit Setting

National map unit symbol: 368j
Elevation: 6,800 to 7,700 feet
Frost-free period: 110 to 130 days
Farmland classification: Not prime farmland

Map Unit Composition

Kettle and similar soils: 60 percent
Rock outcrop: 25 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kettle

Setting

Landform: Hills
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy alluvium derived from arkose

Typical profile

E - 0 to 16 inches: gravelly loamy sand
Bt - 16 to 40 inches: gravelly sandy loam
C - 40 to 60 inches: extremely gravelly loamy sand

Properties and qualities

Slope: 8 to 40 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively 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
Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: F048AY908CO - Mixed Conifer
Hydric soil rating: No

Description of Rock Outcrop

Typical profile

R - 0 to 60 inches: unweathered bedrock

Properties and qualities

Slope: 8 to 60 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Available water supply, 0 to 60 inches: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 15 percent
Hydric soil rating: No

45—Kutch clay loam, 5 to 20 percent slopes

Map Unit Setting

National map unit symbol: 368m
Elevation: 6,300 to 6,800 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 125 to 145 days
Farmland classification: Not prime farmland

Map Unit Composition

Kutch and similar soils: 99 percent
Minor components: 1 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kutch

Setting

Landform: Hills
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Calcareous residuum weathered from clayey shale

Typical profile

A - 0 to 10 inches: clay loam
Bt1 - 10 to 17 inches: clay loam
Bt2 - 17 to 28 inches: clay loam
Bk - 28 to 36 inches: extremely gravelly clay loam
Cr - 36 to 40 inches: weathered bedrock

Properties and qualities

Slope: 5 to 20 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: 5 percent
Gypsum, maximum content: 2 percent
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): 6e
Hydrologic Soil Group: C
Ecological site: R049XB208CO - Clayey Foothill
Hydric soil rating: No

Minor Components

Other soils

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

54—Midway clay loam, 3 to 25 percent slopes

Map Unit Setting

National map unit symbol: 368y
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

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

Description of Midway

Setting

Landform: Hills
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Slope alluvium over residuum weathered from shale

Typical profile

A - 0 to 4 inches: clay loam
C - 4 to 13 inches: clay
Cr - 13 to 17 inches: weathered bedrock

Properties and qualities

Slope: 3 to 25 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 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: 15 percent
Maximum salinity: Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 15.0
Available water supply, 0 to 60 inches: Very low (about 2.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R069XY046CO - 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

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): Crest, side slope
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): Crest, side slope
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

67—Peyton sandy loam, 5 to 9 percent slopes

Map Unit Setting

National map unit symbol: 369d
Elevation: 6,800 to 7,600 feet
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 115 to 125 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Peyton

Setting

Landform: Hills
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Arkosic alluvium derived from sedimentary rock and/or arkosic residuum weathered from sedimentary rock

Typical profile

A - 0 to 12 inches: sandy loam
Bt - 12 to 25 inches: sandy clay loam
BC - 25 to 35 inches: sandy loam
C - 35 to 60 inches: sandy loam

Properties and qualities

Slope: 5 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 (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: R049XY216CO - Sandy Divide
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 10 percent
Hydric soil rating: No

Pleasant

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

68—Peyton-Pring complex, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 369f
Elevation: 6,800 to 7,600 feet
Farmland classification: Not prime farmland

Map Unit Composition

Peyton and similar soils: 45 percent
Pring and similar soils: 35 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Peyton

Setting

Landform: Hills
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Arkosic alluvium derived from sedimentary rock and/or arkosic residuum weathered from sedimentary rock

Typical profile

A - 0 to 12 inches: sandy loam
Bt - 12 to 25 inches: sandy clay loam
BC - 25 to 35 inches: sandy loam
C - 35 to 60 inches: sandy loam

Properties and qualities

Slope: 3 to 5 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

Available water supply, 0 to 60 inches: Moderate (about 7.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: B
Ecological site: R049XY216CO - Sandy Divide
Hydric soil rating: No

Description of Pring

Setting

Landform: Hills
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Arkosic alluvium derived from sedimentary rock

Typical profile

A - 0 to 14 inches: coarse sandy loam
C - 14 to 60 inches: gravelly sandy loam

Properties and qualities

Slope: 3 to 8 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
Available water supply, 0 to 60 inches: Low (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: R048AY222CO - Loamy Park
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 15 percent
Hydric soil rating: No

Pleasant

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

69—Peyton-Pring complex, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 369g
Elevation: 6,800 to 7,600 feet
Farmland classification: Not prime farmland

Map Unit Composition

Peyton and similar soils: 45 percent
Pring and similar soils: 35 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Peyton

Setting

Landform: Hills
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Arkosic alluvium derived from sedimentary rock and/or arkosic residuum weathered from sedimentary rock

Typical profile

A - 0 to 12 inches: sandy loam
Bt - 12 to 25 inches: sandy clay loam
BC - 25 to 35 inches: sandy clay loam
C - 35 to 60 inches: sandy loam

Properties and qualities

Slope: 8 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 (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: R049XY216CO - Sandy Divide
Hydric soil rating: No

Description of Pring

Setting

Landform: Hills
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Arkosic alluvium derived from sedimentary rock

Typical profile

A - 0 to 14 inches: coarse sandy loam
C - 14 to 60 inches: gravelly sandy loam

Properties and qualities

Slope: 8 to 15 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
Available water supply, 0 to 60 inches: Low (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R048AY222CO - Loamy Park
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 15 percent
Hydric soil rating: No

Pleasant

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

70—Pits, gravel

Map Unit Composition

Pits, gravel: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pits, Gravel

Typical profile

H1 - 0 to 6 inches: extremely gravelly sand
H2 - 6 to 60 inches: extremely gravelly sand

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 4 percent
Landform: Marshes
Hydric soil rating: Yes

Aquolls

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

71—Pring coarse sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 369k
Elevation: 6,800 to 7,600 feet
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Pring

Setting

Landform: Hills
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Arkosic alluvium derived from sedimentary rock

Typical profile

A - 0 to 14 inches: coarse sandy loam
C - 14 to 60 inches: gravelly sandy loam

Properties and qualities

Slope: 3 to 8 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
Available water supply, 0 to 60 inches: Low (about 6.0 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: R048AY222CO - Loamy Park
Hydric soil rating: No

Minor Components

Other soils
Percent of map unit: 10 percent
Hydric soil rating: No

Pleasant
Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

78—Sampson loam, 0 to 3 percent slopes

Map Unit Setting
National map unit symbol: 369s
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: 135 to 155 days
Farmland classification: Prime farmland if irrigated

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

Description of Sampson

Setting
Landform: Terraces, alluvial fans, depressions
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile
A - 0 to 15 inches: loam

Bt - 15 to 34 inches: clay loam
Bk - 34 to 60 inches: sandy 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 (0.60 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 9.2 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 3c
Hydrologic Soil Group: B
Ecological site: R049XB202CO - Loamy Foothill
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

83—Stapleton sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 369z
Elevation: 6,500 to 7,300 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

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

Description of Stapleton

Setting

Landform: Hills
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy alluvium derived from arkose

Typical profile

A - 0 to 11 inches: sandy loam
Bw - 11 to 17 inches: gravelly sandy loam
C - 17 to 60 inches: gravelly loamy sand

Properties and qualities

Slope: 3 to 8 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
Available water supply, 0 to 60 inches: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: R049XY214CO - Gravelly Foothill
Hydric soil rating: No

Minor Components

Fluvaquentic haplaquolls

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

84—Stapleton sandy loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 36b0
Elevation: 6,500 to 7,300 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

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

Description of Stapleton

Setting

Landform: Hills
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy alluvium derived from arkose

Typical profile

A - 0 to 11 inches: sandy loam
Bw - 11 to 17 inches: gravelly sandy loam
C - 17 to 60 inches: gravelly loamy sand

Properties and qualities

Slope: 8 to 15 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
Available water supply, 0 to 60 inches: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: R049XY214CO - Gravelly Foothill
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

85—Stapleton-Bernal sandy loams, 3 to 20 percent slopes

Map Unit Setting

National map unit symbol: 36b1
Elevation: 6,500 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

Stapleton and similar soils: 55 percent
Bernal and similar soils: 44 percent
Minor components: 1 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Stapleton

Setting

Landform: Hills
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy alluvium derived from arkose

Typical profile

A - 0 to 11 inches: sandy loam
Bw - 11 to 17 inches: gravelly sandy loam
C - 17 to 60 inches: gravelly loamy sand

Properties and qualities

Slope: 3 to 15 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
Available water supply, 0 to 60 inches: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: R049XY214CO - Gravelly Foothill
Hydric soil rating: No

Description of Bernal

Setting

Landform: Hills
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from sandstone

Typical profile

A - 0 to 4 inches: sandy loam
Bt - 4 to 11 inches: sandy clay loam
C - 11 to 13 inches: sandy loam
R - 13 to 17 inches: unweathered bedrock

Properties and qualities

Slope: 3 to 20 percent
Depth to restrictive feature: 8 to 20 inches to lithic 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
Available water supply, 0 to 60 inches: Very low (about 1.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: R049XB204CO - Shallow Foothill
Hydric soil rating: No

Minor Components

Other soils

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

92—Tomah-Crowfoot loamy sands, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 36b9
Elevation: 7,300 to 7,600 feet
Farmland classification: Not prime farmland

Map Unit Composition

Tomah and similar soils: 50 percent
Crowfoot and similar soils: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tomah

Setting

Landform: Alluvial fans, hills
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from arkose and/or residuum weathered from arkose

Typical profile

A - 0 to 10 inches: loamy sand
E - 10 to 22 inches: coarse sand
Bt - 22 to 48 inches: stratified coarse sand to sandy clay loam
C - 48 to 60 inches: coarse sand

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
Available water supply, 0 to 60 inches: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: R049XY216CO - Sandy Divide
Hydric soil rating: No

Description of Crowfoot

Setting

Landform: Hills, alluvial fans
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

A - 0 to 12 inches: loamy sand
E - 12 to 23 inches: sand
Bt - 23 to 36 inches: sandy clay loam
C - 36 to 60 inches: coarse sand

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
Available water supply, 0 to 60 inches: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: R049XY216CO - Sandy Divide
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 15 percent
Hydric soil rating: No

Pleasant

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

93—Tomah-Crowfoot complex, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 36bb
Elevation: 7,300 to 7,600 feet

Farmland classification: Not prime farmland

Map Unit Composition

Tomah and similar soils: 50 percent
Crowfoot and similar soils: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tomah

Setting

Landform: Hills, alluvial fans
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from arkose and/or residuum weathered from arkose

Typical profile

A - 0 to 10 inches: loamy sand
E - 10 to 22 inches: coarse sand
Bt - 22 to 48 inches: stratified coarse sand to sandy clay loam
C - 48 to 60 inches: coarse sand

Properties and qualities

Slope: 8 to 15 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
Available water supply, 0 to 60 inches: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R049XY216CO - Sandy Divide
Hydric soil rating: No

Description of Crowfoot

Setting

Landform: Hills, alluvial fans
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

A - 0 to 12 inches: loamy sand
E - 12 to 23 inches: sand
Bt - 23 to 36 inches: sandy clay loam
C - 36 to 60 inches: coarse sand

Properties and qualities

Slope: 8 to 15 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
Available water supply, 0 to 60 inches: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R049XY216CO - Sandy Divide
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 15 percent
Hydric soil rating: No

Pleasant

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

94—Travessilla-Rock outcrop complex, 8 to 90 percent slopes

Map Unit Setting

National map unit symbol: 36bc
Elevation: 6,200 to 6,700 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 130 to 150 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Travessilla

Setting

Landform: Hills
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from sandstone

Typical profile

A1 - 0 to 3 inches: sandy loam
C - 3 to 11 inches: sandy loam
R - 11 to 15 inches: unweathered bedrock

Properties and qualities

Slope: 8 to 45 percent
Depth to restrictive feature: 6 to 20 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
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
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): 7e
Hydrologic Soil Group: D
Ecological site: F048AY924CO - Douglas Fir/Gambel Oak
Hydric soil rating: No

Description of Rock Outcrop

Typical profile

R - 0 to 60 inches: unweathered bedrock

Properties and qualities

Slope: 8 to 90 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Available water supply, 0 to 60 inches: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

95—Truckton loamy sand, 1 to 9 percent slopes

Map Unit Setting

National map unit symbol: 2yvrm
Elevation: 5,800 to 7,100 feet
Mean annual precipitation: 12 to 19 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 90 to 155 days
Farmland classification: Not prime farmland

Map Unit Composition

Truckton and similar soils: 87 percent
Minor components: 13 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Truckton

Setting

Landform: Interfluves, fan remnants
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Wind re-worked alluvium derived from arkose

Typical profile

A - 0 to 4 inches: loamy sand
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: 1 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 to very slightly saline (0.1 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.5 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: 5 percent
Landform: Interfluves, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Bresser

Percent of map unit: 5 percent
Landform: Interfluves, terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Urban land

Percent of map unit: 2 percent
Hydric soil rating: No

Ellicott, occasionally flooded

Percent of map unit: 1 percent
Landform: Flood plains, drainageways
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: R067BY031CO - Sandy Bottomland
Hydric soil rating: No

96—Truckton sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2yvrd
Elevation: 5,400 to 7,000 feet
Mean annual precipitation: 14 to 23 inches
Mean annual air temperature: 45 to 52 degrees F
Frost-free period: 90 to 155 days
Farmland classification: Farmland of statewide importance

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: Fan remnants, interfluves
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Wind 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: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very 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 to very slightly saline (0.1 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.6 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Minor Components

Blakeland

Percent of map unit: 5 percent
Landform: Hills, interfluves
Landform position (two-dimensional): Shoulder, backslope, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Bresser

Percent of map unit: 5 percent
Landform: Terraces, interfluves
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Pleasant, frequently ponded

Percent of map unit: 2 percent
Landform: Closed depressions
Down-slope shape: Concave, linear
Across-slope shape: Concave
Ecological site: R067BY010CO - Closed Depression
Hydric soil rating: Yes

Urban land

Percent of map unit: 2 percent
Hydric soil rating: No

Ellicott, occasionally flooded

Percent of map unit: 1 percent
Landform: Drainageways, flood plains
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: R067BY031CO - Sandy Bottomland
Hydric soil rating: No

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: Convex, linear
Across-slope shape: Convex, linear
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: Concave, linear
Across-slope shape: Concave, linear
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

98—Truckton-Blakeland complex, 9 to 20 percent slopes

Map Unit Setting

National map unit symbol: 2yvrn
Elevation: 6,000 to 7,000 feet
Mean annual precipitation: 12 to 19 inches
Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 90 to 155 days
Farmland classification: Not prime farmland

Map Unit Composition

Truckton and similar soils: 60 percent
Blakeland and similar soils: 25 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Truckton

Setting

Landform: Hillslopes, fans
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear, convex
Parent material: Wind 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: 9 to 20 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 to very slightly saline (0.1 to 2.0 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: R049XC210CO - Sandy Foothill Palmer Divide
Hydric soil rating: No

Description of Blakeland

Setting

Landform: Hillslopes, fans
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear, convex
Parent material: Alluvium and/or eolian deposits derived from arkose

Typical profile

A - 0 to 11 inches: loamy sand
AC - 11 to 27 inches: loamy sand
C - 27 to 80 inches: sand

Properties and qualities

Slope: 9 to 20 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 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 to very slightly saline (0.1 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.0 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: R049XC210CO - Sandy Foothill Palmer Divide
Hydric soil rating: No

Minor Components

Bresser

Percent of map unit: 5 percent
Landform: Fans, interfluves
Down-slope shape: Linear
Across-slope shape: Linear, convex
Ecological site: R049XC210CO - Sandy Foothill Palmer Divide
Hydric soil rating: No

Stapleton

Percent of map unit: 5 percent
Landform: Hillslopes, fans
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear, convex
Ecological site: R049XC210CO - Sandy Foothill Palmer Divide
Hydric soil rating: No

Yoder

Percent of map unit: 4 percent
Landform: Hillslopes, fans
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear, convex
Ecological site: R049XC214CO - Gravelly Foothill Palmer Divide
Hydric soil rating: No

Urban land
Percent of map unit: 1 percent
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: Prime farmland if irrigated

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

111—Water

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

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

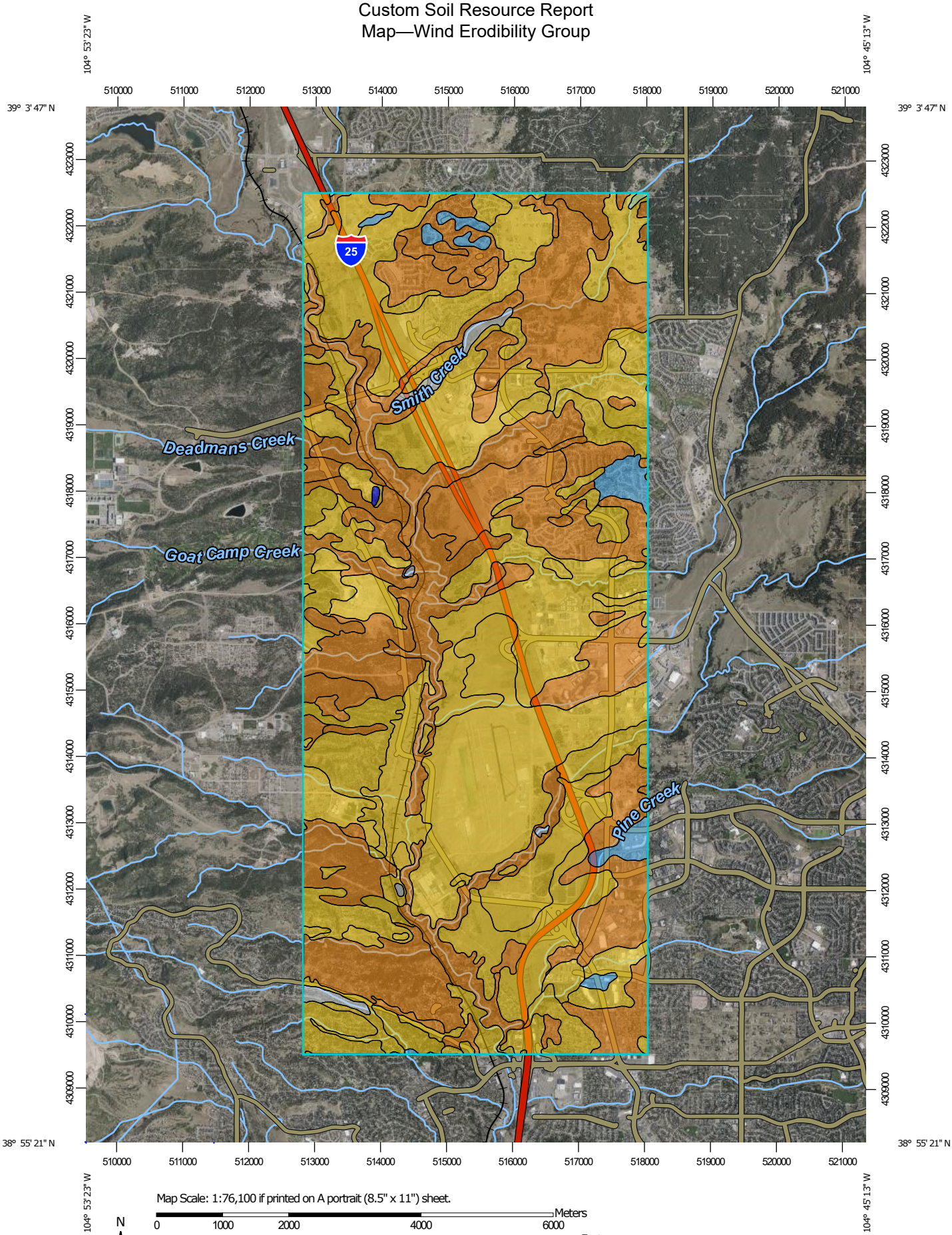
Soil Erosion Factors

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.

Wind Erodibility Group

A wind erodibility group (WEG) consists of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible.

Custom Soil Resource Report
Map—Wind Erodibility Group



Map Scale: 1:76,100 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 1000 2000 4000 6000

Feet: 0 3500 7000 14000 21000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

1
2
3
4
4L
5
6
7
8
Not rated or not available

Soil Rating Lines

1
2
3
4
4L
5
6
7
8
Not rated or not available

Soil Rating Points

1
2
3
4
4L
5
6
7
8
Not rated or not available

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 23, Aug 29, 2025

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.

Table—Wind Erodibility Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
1	Alamosa loam, 1 to 3 percent slopes	4L	8.4	0.1%
8	Blakeland loamy sand, 1 to 9 percent slopes	2	1,166.0	6.9%
10	Blendon sandy loam, 0 to 3 percent slopes	3	123.6	0.7%
12	Bresser sandy loam, cool, 3 to 5 percent slopes	3	37.6	0.2%
14	Brussett loam, 1 to 3 percent slopes	6	11.5	0.1%
18	Chaseville-Midway complex	3	8.3	0.0%
19	Columbine gravelly sandy loam, 0 to 3 percent slopes	3	2,210.1	13.1%
21	Cruckton sandy loam, 1 to 9 percent slopes	3	79.4	0.5%
28	Ellicott loamy coarse sand, 0 to 5 percent slopes	2	86.3	0.5%
37	Jarre gravelly sandy loam, 1 to 8 percent slopes	3	213.8	1.3%
38	Jarre-Tecolote complex, 8 to 65 percent slopes	3	694.1	4.1%
40	Kettle gravelly loamy sand, 3 to 8 percent slopes	2	912.4	5.4%
41	Kettle gravelly loamy sand, 8 to 40 percent slopes	2	1,907.7	11.3%
42	Kettle-Rock outcrop complex	2	323.6	1.9%
45	Kutch clay loam, 5 to 20 percent slopes	6	253.3	1.5%
54	Midway clay loam, 3 to 25 percent slopes	6	4.9	0.0%
56	Nelson-Tassel fine sandy loams, 3 to 18 percent slopes	3	8.4	0.1%
67	Peyton sandy loam, 5 to 9 percent slopes	3	132.9	0.8%
68	Peyton-Pring complex, 3 to 8 percent slopes	3	580.6	3.5%
69	Peyton-Pring complex, 8 to 15 percent slopes	3	129.0	0.8%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
70	Pits, gravel	8	6.7	0.0%
71	Pring coarse sandy loam, 3 to 8 percent slopes	3	2,070.8	12.3%
78	Sampson loam, 0 to 3 percent slopes	6	23.3	0.1%
83	Stapleton sandy loam, 3 to 8 percent slopes	3	2,139.9	12.7%
84	Stapleton sandy loam, 8 to 15 percent slopes	3	24.1	0.1%
85	Stapleton-Bernal sandy loams, 3 to 20 percent slopes	3	141.2	0.8%
92	Tomah-Crowfoot loamy sands, 3 to 8 percent slopes	2	615.9	3.7%
93	Tomah-Crowfoot complex, 8 to 15 percent slopes	2	2,059.9	12.2%
94	Travessilla-Rock outcrop complex, 8 to 90 percent slopes	3	416.5	2.5%
95	Truckton loamy sand, 1 to 9 percent slopes	2	27.1	0.2%
96	Truckton sandy loam, 0 to 3 percent slopes	3	21.4	0.1%
97	Truckton sandy loam, 3 to 9 percent slopes	3	241.4	1.4%
98	Truckton-Blakeland complex, 9 to 20 percent slopes	3	5.2	0.0%
101	Ustic Torrifluvents, loamy		127.2	0.8%
111	Water		15.1	0.1%
Totals for Area of Interest			**16,828.1**	**100.0%**

Rating Options—Wind Erodibility Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

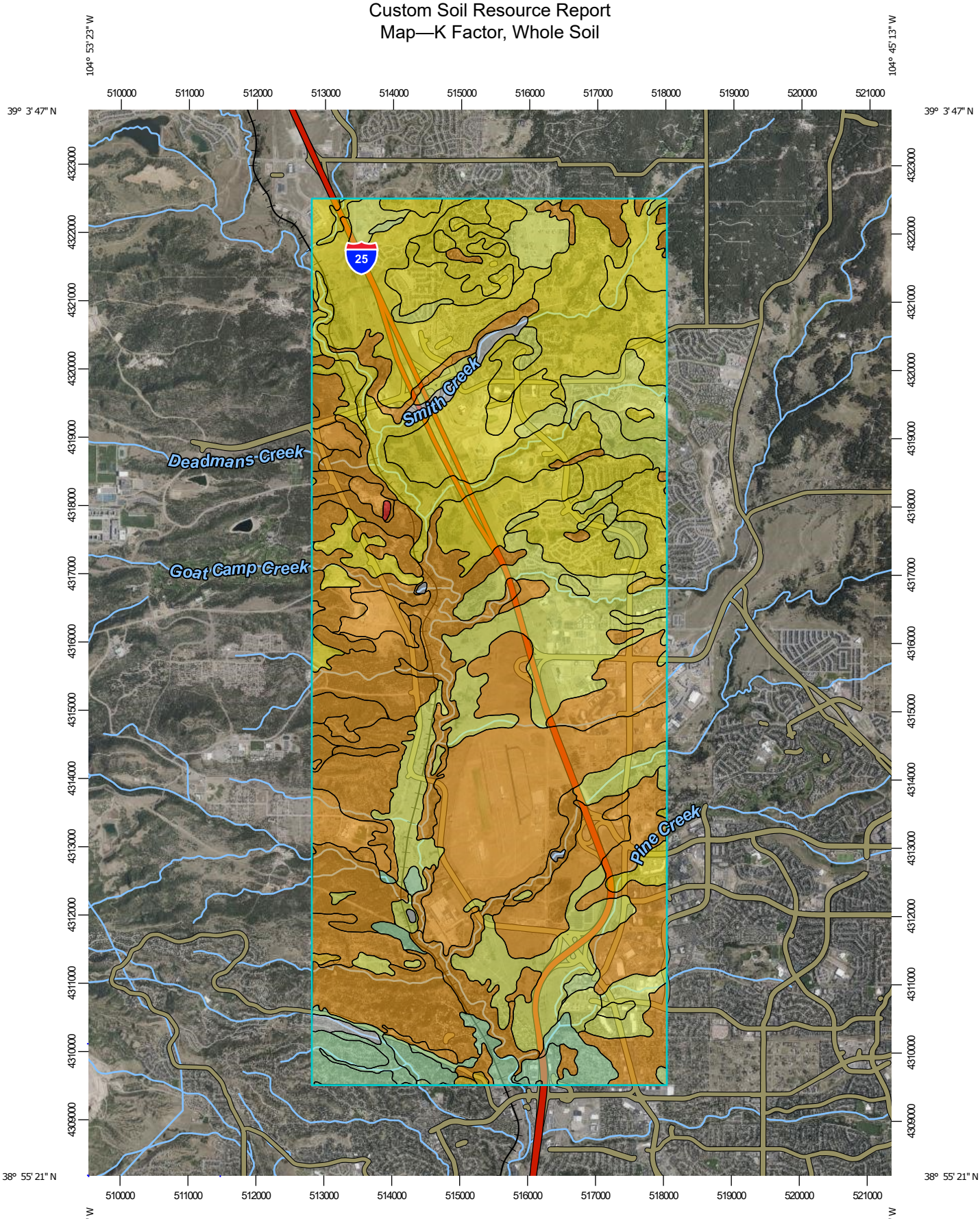
K Factor, Whole Soil

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year.

The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

"Erosion factor Kw (whole soil)" indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Factor K does not apply to organic horizons and is not reported for those layers.



Map Scale: 1:76,100 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 1000 2000 4000 6000

Feet
0 3500 7000 14000 21000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

.02
.05
.10
.15
.17
.20
.24
.28
.32
.37
.43
.49
.55
.64
Not rated or not available

Soil Rating Lines

.02
.05
.10
.15
.17
.20
.24
.28
.32
.37
.43
.49
.55
.64
Not rated or not available

Soil Rating Points

.02
.05
.10
.15
.17
.20
.24
.28
.32
.37
.43
.49
.55
.64
Not rated or not available

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 23, Aug 29, 2025

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.

Table—K Factor, Whole Soil

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
1	Alamosa loam, 1 to 3 percent slopes	.20	8.4	0.1%
8	Blakeland loamy sand, 1 to 9 percent slopes	.10	1,166.0	6.9%
10	Blendon sandy loam, 0 to 3 percent slopes	.20	123.6	0.7%
12	Bresser sandy loam, cool, 3 to 5 percent slopes	.15	37.6	0.2%
14	Brussett loam, 1 to 3 percent slopes	.24	11.5	0.1%
18	Chaseville-Midway complex	.15	8.3	0.0%
19	Columbine gravelly sandy loam, 0 to 3 percent slopes	.10	2,210.1	13.1%
21	Cruckton sandy loam, 1 to 9 percent slopes	.20	79.4	0.5%
28	Ellicott loamy coarse sand, 0 to 5 percent slopes	.17	86.3	0.5%
37	Jarre gravelly sandy loam, 1 to 8 percent slopes	.10	213.8	1.3%
38	Jarre-Tecolote complex, 8 to 65 percent slopes	.10	694.1	4.1%
40	Kettle gravelly loamy sand, 3 to 8 percent slopes	.10	912.4	5.4%
41	Kettle gravelly loamy sand, 8 to 40 percent slopes	.10	1,907.7	11.3%
42	Kettle-Rock outcrop complex	.10	323.6	1.9%
45	Kutch clay loam, 5 to 20 percent slopes	.17	253.3	1.5%
54	Midway clay loam, 3 to 25 percent slopes	.24	4.9	0.0%
56	Nelson-Tassel fine sandy loams, 3 to 18 percent slopes	.24	8.4	0.1%
67	Peyton sandy loam, 5 to 9 percent slopes	.20	132.9	0.8%
68	Peyton-Pring complex, 3 to 8 percent slopes	.20	580.6	3.5%
69	Peyton-Pring complex, 8 to 15 percent slopes	.20	129.0	0.8%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
70	Pits, gravel	.02	6.7	0.0%
71	Pring coarse sandy loam, 3 to 8 percent slopes	.17	2,070.8	12.3%
78	Sampson loam, 0 to 3 percent slopes	.20	23.3	0.1%
83	Stapleton sandy loam, 3 to 8 percent slopes	.20	2,139.9	12.7%
84	Stapleton sandy loam, 8 to 15 percent slopes	.20	24.1	0.1%
85	Stapleton-Bernal sandy loams, 3 to 20 percent slopes	.20	141.2	0.8%
92	Tomah-Crowfoot loamy sands, 3 to 8 percent slopes	.17	615.9	3.7%
93	Tomah-Crowfoot complex, 8 to 15 percent slopes	.17	2,059.9	12.2%
94	Travessilla-Rock outcrop complex, 8 to 90 percent slopes	.28	416.5	2.5%
95	Truckton loamy sand, 1 to 9 percent slopes	.24	27.1	0.2%
96	Truckton sandy loam, 0 to 3 percent slopes	.28	21.4	0.1%
97	Truckton sandy loam, 3 to 9 percent slopes	.28	241.4	1.4%
98	Truckton-Blakeland complex, 9 to 20 percent slopes	.28	5.2	0.0%
101	Ustic Torrifluvents, loamy		127.2	0.8%
111	Water		15.1	0.1%
Totals for Area of Interest			**16,828.1**	**100.0%**

Rating Options—K Factor, Whole Soil

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Layer Options (Horizon Aggregation Method): Surface Layer (Not applicable)

K Factor, Rock Free

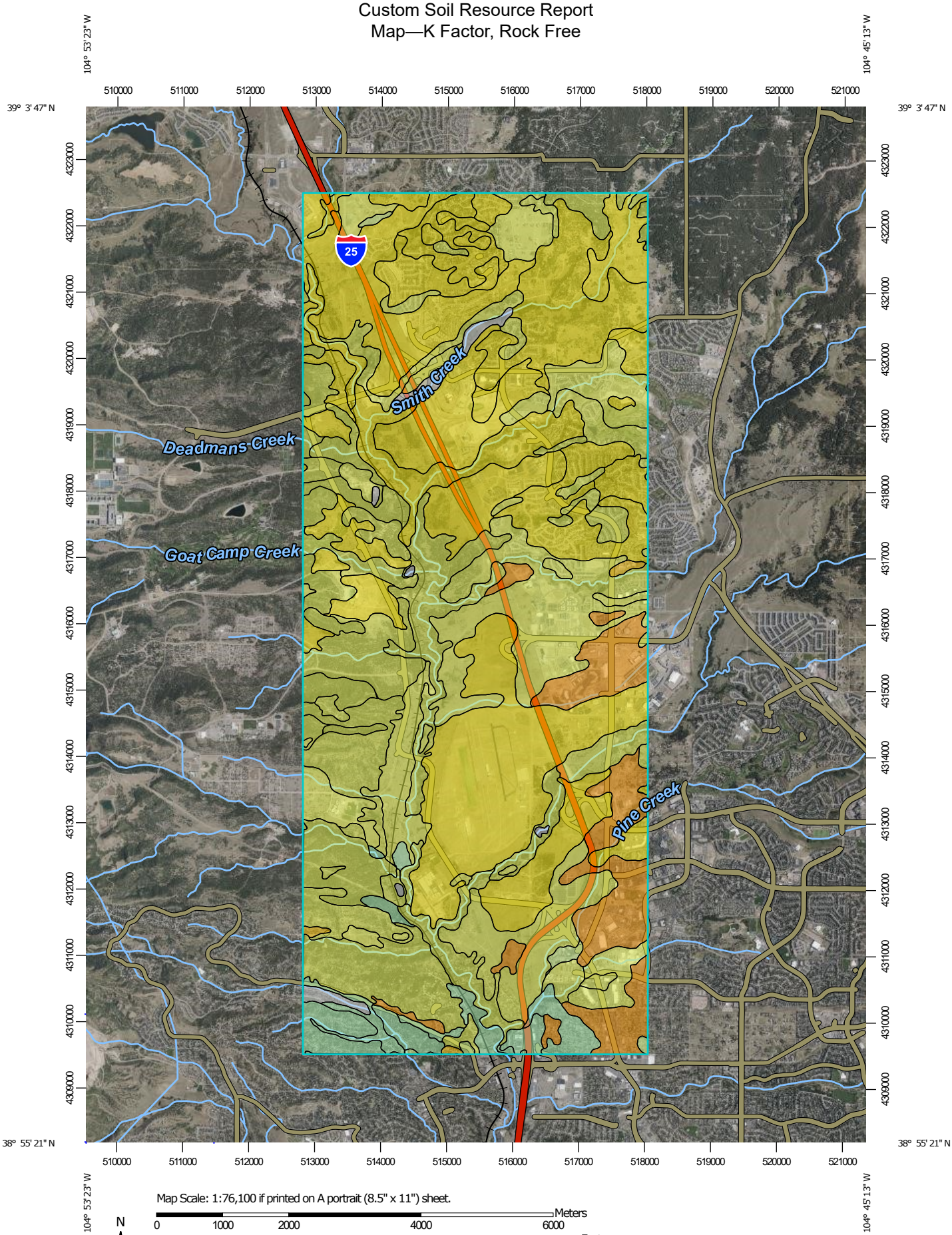
Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation

(USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

"Erosion factor Kf (rock free)" indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Factor K does not apply to organic horizons and is not reported for those layers.

Custom Soil Resource Report
Map—K Factor, Rock Free



Map Scale: 1:76,100 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 1000 2000 4000 6000

Feet: 0 3500 7000 14000 21000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

.02
.05
.10
.15
.17
.20
.24
.28
.32
.37
.43
.49
.55
.64
Not rated or not available

Soil Rating Lines

.02
.05
.10
.15
.17
.20
.24
.28
.32
.37
.43
.49
.55
.64
Not rated or not available

Soil Rating Points

.02
.05
.10
.15
.17
.20
.24
.28
.32
.37
.43
.49
.55
.64
Not rated or not available

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 23, Aug 29, 2025

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.

Table—K Factor, Rock Free

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
1	Alamosa loam, 1 to 3 percent slopes	.20	8.4	0.1%
8	Blakeland loamy sand, 1 to 9 percent slopes	.10	1,166.0	6.9%
10	Blendon sandy loam, 0 to 3 percent slopes	.20	123.6	0.7%
12	Bresser sandy loam, cool, 3 to 5 percent slopes	.15	37.6	0.2%
14	Brussett loam, 1 to 3 percent slopes	.24	11.5	0.1%
18	Chaseville-Midway complex	.24	8.3	0.0%
19	Columbine gravelly sandy loam, 0 to 3 percent slopes	.17	2,210.1	13.1%
21	Cruckton sandy loam, 1 to 9 percent slopes	.20	79.4	0.5%
28	Ellicott loamy coarse sand, 0 to 5 percent slopes	.17	86.3	0.5%
37	Jarre gravelly sandy loam, 1 to 8 percent slopes	.20	213.8	1.3%
38	Jarre-Tecolote complex, 8 to 65 percent slopes	.20	694.1	4.1%
40	Kettle gravelly loamy sand, 3 to 8 percent slopes	.20	912.4	5.4%
41	Kettle gravelly loamy sand, 8 to 40 percent slopes	.20	1,907.7	11.3%
42	Kettle-Rock outcrop complex	.20	323.6	1.9%
45	Kutch clay loam, 5 to 20 percent slopes	.17	253.3	1.5%
54	Midway clay loam, 3 to 25 percent slopes	.24	4.9	0.0%
56	Nelson-Tassel fine sandy loams, 3 to 18 percent slopes	.24	8.4	0.1%
67	Peyton sandy loam, 5 to 9 percent slopes	.20	132.9	0.8%
68	Peyton-Pring complex, 3 to 8 percent slopes	.20	580.6	3.5%
69	Peyton-Pring complex, 8 to 15 percent slopes	.20	129.0	0.8%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
70	Pits, gravel		6.7	0.0%
71	Pring coarse sandy loam, 3 to 8 percent slopes	.17	2,070.8	12.3%
78	Sampson loam, 0 to 3 percent slopes	.20	23.3	0.1%
83	Stapleton sandy loam, 3 to 8 percent slopes	.20	2,139.9	12.7%
84	Stapleton sandy loam, 8 to 15 percent slopes	.20	24.1	0.1%
85	Stapleton-Bernal sandy loams, 3 to 20 percent slopes	.20	141.2	0.8%
92	Tomah-Crowfoot loamy sands, 3 to 8 percent slopes	.17	615.9	3.7%
93	Tomah-Crowfoot complex, 8 to 15 percent slopes	.17	2,059.9	12.2%
94	Travessilla-Rock outcrop complex, 8 to 90 percent slopes	.28	416.5	2.5%
95	Truckton loamy sand, 1 to 9 percent slopes	.24	27.1	0.2%
96	Truckton sandy loam, 0 to 3 percent slopes	.28	21.4	0.1%
97	Truckton sandy loam, 3 to 9 percent slopes	.28	241.4	1.4%
98	Truckton-Blakeland complex, 9 to 20 percent slopes	.28	5.2	0.0%
101	Ustic Torrifluvents, loamy		127.2	0.8%
111	Water		15.1	0.1%
Totals for Area of Interest			**16,828.1**	**100.0%**

Rating Options—K Factor, Rock Free

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Layer Options (Horizon Aggregation Method): Surface Layer (Not applicable)

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil

properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group

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 soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

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.

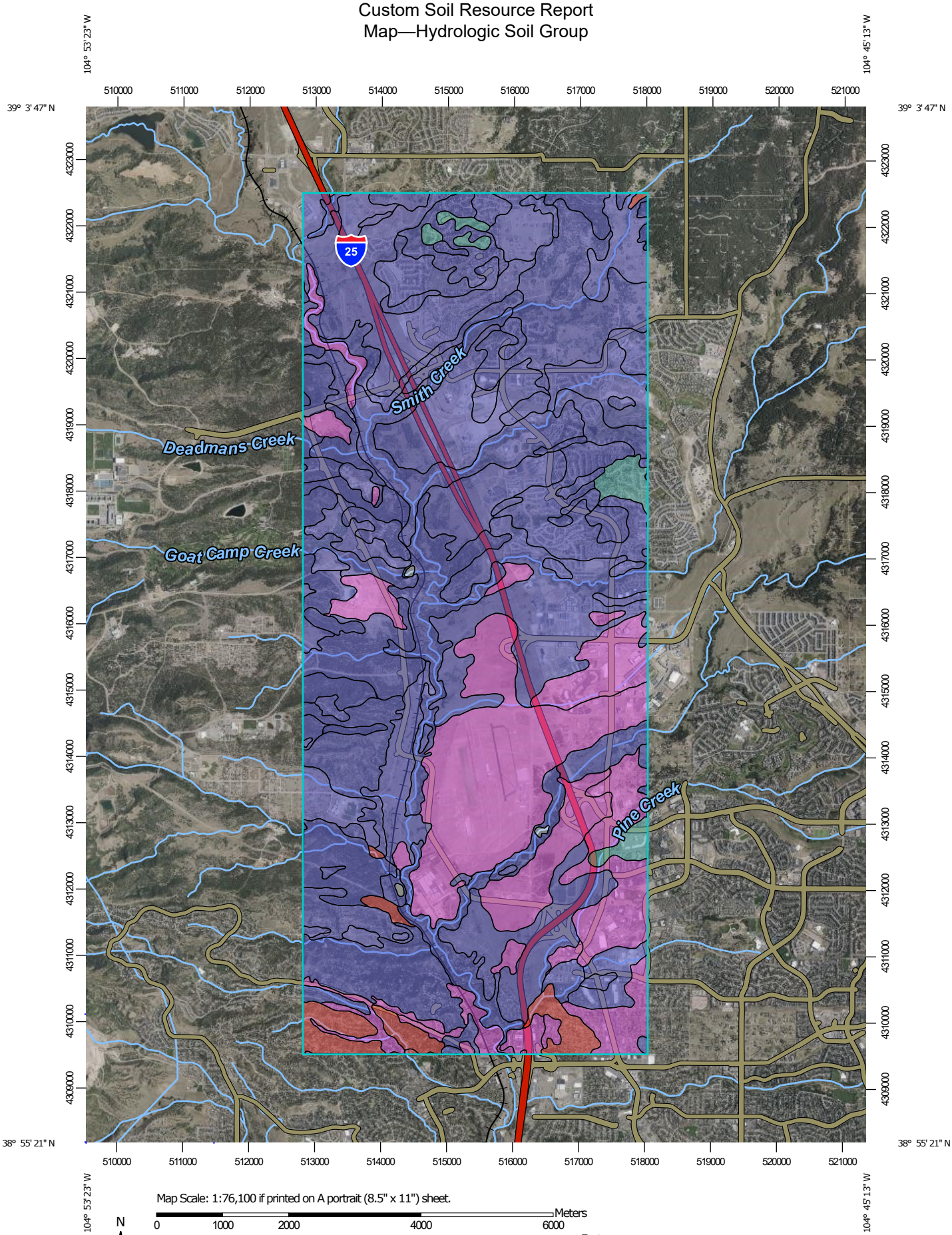
Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

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. Only the soils that in their natural condition are in group D are assigned to dual classes.

Custom Soil Resource Report
Map—Hydrologic Soil Group



Map Scale: 1:76,100 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 1000 2000 4000 6000

Feet: 0 3500 7000 14000 21000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

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 23, Aug 29, 2025

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.

Table—Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
1	Alamosa loam, 1 to 3 percent slopes	D	8.4	0.1%
8	Blakeland loamy sand, 1 to 9 percent slopes	A	1,166.0	6.9%
10	Blendon sandy loam, 0 to 3 percent slopes	B	123.6	0.7%
12	Bresser sandy loam, cool, 3 to 5 percent slopes	B	37.6	0.2%
14	Brussett loam, 1 to 3 percent slopes	B	11.5	0.1%
18	Chaseville-Midway complex	A	8.3	0.0%
19	Columbine gravelly sandy loam, 0 to 3 percent slopes	A	2,210.1	13.1%
21	Cruckton sandy loam, 1 to 9 percent slopes	B	79.4	0.5%
28	Ellicott loamy coarse sand, 0 to 5 percent slopes	A	86.3	0.5%
37	Jarre gravelly sandy loam, 1 to 8 percent slopes	B	213.8	1.3%
38	Jarre-Tecolote complex, 8 to 65 percent slopes	B	694.1	4.1%
40	Kettle gravelly loamy sand, 3 to 8 percent slopes	B	912.4	5.4%
41	Kettle gravelly loamy sand, 8 to 40 percent slopes	B	1,907.7	11.3%
42	Kettle-Rock outcrop complex	B	323.6	1.9%
45	Kutch clay loam, 5 to 20 percent slopes	C	253.3	1.5%
54	Midway clay loam, 3 to 25 percent slopes	D	4.9	0.0%
56	Nelson-Tassel fine sandy loams, 3 to 18 percent slopes	B	8.4	0.1%
67	Peyton sandy loam, 5 to 9 percent slopes	B	132.9	0.8%
68	Peyton-Pring complex, 3 to 8 percent slopes	B	580.6	3.5%
69	Peyton-Pring complex, 8 to 15 percent slopes	B	129.0	0.8%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
70	Pits, gravel	A	6.7	0.0%
71	Pring coarse sandy loam, 3 to 8 percent slopes	B	2,070.8	12.3%
78	Sampson loam, 0 to 3 percent slopes	B	23.3	0.1%
83	Stapleton sandy loam, 3 to 8 percent slopes	B	2,139.9	12.7%
84	Stapleton sandy loam, 8 to 15 percent slopes	B	24.1	0.1%
85	Stapleton-Bernal sandy loams, 3 to 20 percent slopes	B	141.2	0.8%
92	Tomah-Crowfoot loamy sands, 3 to 8 percent slopes	B	615.9	3.7%
93	Tomah-Crowfoot complex, 8 to 15 percent slopes	B	2,059.9	12.2%
94	Travessilla-Rock outcrop complex, 8 to 90 percent slopes	D	416.5	2.5%
95	Truckton loamy sand, 1 to 9 percent slopes	A	27.1	0.2%
96	Truckton sandy loam, 0 to 3 percent slopes	A	21.4	0.1%
97	Truckton sandy loam, 3 to 9 percent slopes	A	241.4	1.4%
98	Truckton-Blakeland complex, 9 to 20 percent slopes	A	5.2	0.0%
101	Ustic Torrifluvents, loamy	B	127.2	0.8%
111	Water		15.1	0.1%
Totals for Area of Interest			**16,828.1**	**100.0%**

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

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. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. 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. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

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. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

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.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf