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STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

Implementation Check List

This form provides a list of items which must be completed by the Operator or its authorized representative prior to initiating any earth disturbing activities or over the course of the project.

Completed	Compliance Activity	Deadline
	Tab 1: Sign and date the Operator's SWPPP certification statement	Immediately
	Tab 2: Add the NOI Authorization Letter when received from the EPA if not included when you receive the SWPPP.	Immediately Upon Receipt
	Tab 3: From each subcontractor, collect signed Subcontractor Certification Statement acknowledging their responsibility to comply with the SWPPP and CGP. Blank forms are included in Tab 4.	Ongoing
	Tab 3: Complete and add *Delegation of Authority* forms for any internal or external party which may act or sign forms on behalf of the Operator.	Immediately
	Confirm a rain gauge is installed onsite in an open area to collect precipitation.	Prior to Earth Disturbing Activities
	Install temporary sediment and erosion controls as identified on the site map.	Prior to Earth Disturbing Activities
	Update the site map with the actual locations and installation dates of each BMP and stabilization measure as they are installed.	After BMP Installation
	If applicable, identify and protect any sensitive habitats or historical/archaeological sites to prevent construction interference.	Prior to Earth Disturbing Activities
	Provide key stakeholders who need to receive inspection reports to E2RC, LLC.	Immediately
	Review the SWPPP and familiarize your staff with its requirements. Pay special attention to monitoring requirements, maintenance, housekeeping, corrective action reporting and stabilization deadlines.	Immediately and Ongoing
	Conduct staff and subcontractor training on SWPPP requirements.	Monthly
	Notify E2RC of project completion and certify Notice of Termination (NOT).	After Final Stabilization

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PRECIPITATION EVENT NOTIFICATION REQUIREMENTS

YOU ARE REQUIRED TO INFORM E2RC OF RAIN EXCEEDING 0.25" (ONE –QUARTER OF AN INCH) OR SNOW EVENTS EXCEEDING 3.25" (THREE AND ONE – QUARTER OF AN INCH).

REPORT RAIN OR SNOW EVENTS AT
HTTPS://WWW.E2RC.COM/REPORT-RAIN

E2RC IS NOT LIABLE FOR DELAYED OR MISSED PRECIPITATION EVENT INSPECTIONS IF THEY ARE NOT REPORTED TO E2RC OR ARE REPORTED AFTER THE 24 – HOUR INSPECTION WINDOW IS CLOSED.

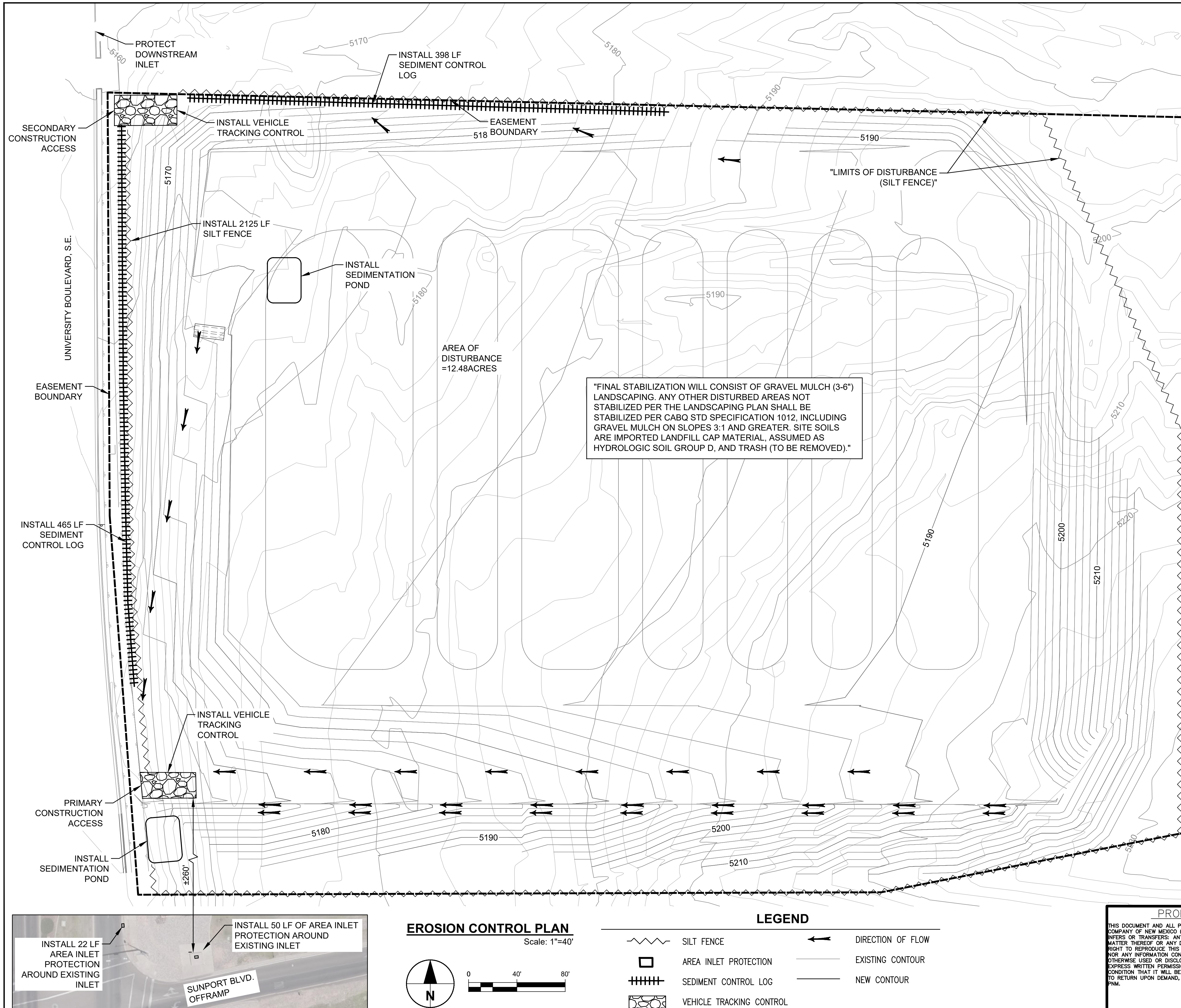
This project is subject to the following inspection schedule:

☒ **Every 14 calendar days *and* within 24 – hours of precipitation events generating ≥0.25" of precipitation**

☐ **Every seven (7) calendar days *and* within 24 – hours of precipitation events generating ≥0.25" of precipitation**

☐ **Every seven (7) calendar days (no post – precipitation inspections required)**

www.e2rc.com ■ 505-867-4040 ■ 439 South Hill Road, Bernalillo, NM 87004 ■ *Fax:* 505-867-4044



ERROSION CONTROL PLAN

Scale: 1"=40'

0 40' 80'

N

LEGEND

SILT FENCE	DIRECTION OF FLOW
AREA INLET PROTECTION	EXISTING CONTOUR
SEDIMENT CONTROL LOG	NEW CONTOUR
VEHICLE TRACKING CONTROL	

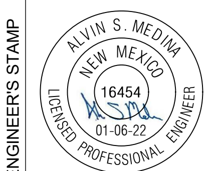
GENERAL NOTES

1. ALL EROSION AND SEDIMENT CONTROL (ESC) WORK ON THESE PLANS, EXCEPT AS OTHERWISE STATED OR PROVIDED HEREON SHALL BE PERMITTED, CONSTRUCTED, INSPECTED, AND MAINTAINED IN ACCORDANCE WITH:
   a. THE CITY ORDINANCE § 14–5–2–11, THE ESC ORDINANCE,
   b. THE EPA'S 2017 CONSTRUCTION GENERAL PERMIT (CGP), AND
   c. THE CITY OF ALBUQUERQUE CONSTRUCTION BMP MANUAL.
2. ALL BMP'S MUST BE INSTALLED PRIOR TO BEGINNING ANY EARTH MOVING ACTIVITIES EXCEPT AS SPECIFIED HEREON IN THE PHASING PLAN. CONSTRUCTION OF EARTHEN BMP'S SUCH AS SEDIMENT TRAPS, SEDIMENT BASINS, AND DIVERSION BERMS SHALL BE COMPLETED AND INSPECTED PRIOR TO ANY OTHER CONSTRUCTION OR EARTHWORK. SELF–INSPECTION IS REQUIRED AFTER INSTALLATION OF THE BMPS AND PRIOR TO BEGINNING CONSTRUCTION.
3. SELF–INSPECTIONS – AT A MINIMUM A ROUTINE COMPLIANCE SELF–INSPECTION IS REQUIRED TO REVIEW THE PROJECT FOR COMPLIANCE WITH THE CONSTRUCTION GENERAL PERMIT ONCE EVERY 14 DAYS AND AFTER ANY PRECIPITATION EVENT OF 1/4 INCH OR GREATER UNTIL THE SITE CONSTRUCTION HAS BEEN COMPLETED AND THE SITE DETERMINED AS STABILIZED BY THE CITY. REPORTS OF THESE INSPECTIONS SHALL BE KEPT BY THE PERSON OR ENTITY AUTHORIZED TO DIRECT THE CONSTRUCTION ACTIVITIES ON THE SITE AND MADE AVAILABLE UPON REQUEST.
4. CORRECTIVE ACTION REPORTS MUST BE KEPT BY THE PERSON OR ENTITY AUTHORIZED TO DIRECT THE CONSTRUCTION ACTIVITIES ON THE SITE AND MADE AVAILABLE UPON REQUEST.
5. STABILIZATION REPORTS MUST BE KEPT BY THE PERSON OR ENTITY AUTHORIZED TO DIRECT THE CONSTRUCTION ACTIVITIES ON THE SITE AND MADE AVAILABLE UPON REQUEST. REPORTS SHOULD INCLUDE RECORDS OF WEED REMOVAL PER CITY ORDINANCE (§ 9–8–1), STERILIZATION, SOIL TEST RESULTS AND RECOMMENDATION, MATERIALS AND MANUFACTURER'S SPECIFICATIONS FOR APPLICATION RATES, ESTIMATED FUNCTIONAL LONGEVITY, METHODS OF APPLICATION, INSPECTION AND MAINTENANCE. THE REDUCED SELF–INSPECTION SCHEDULE IN CGP 4.4.1 APPLIES TO STABILIZED AREA AND ANY DAMAGED OR WORN STABILIZATION MUST BE IDENTIFIED IN THE REPORTS ALONG WITH WEED PROBLEMS. CORRECTIVE ACTIONS FOR STABILIZATION SHALL BE DOCUMENTED IN A STABILIZATION REPORT INCLUDING ACTUAL RATES AND DATES OF STABILIZATION, AND THE MATERIALS AND MANUFACTURER'S SPECIFICATIONS USED.
6. BMPS SHALL BE INSPECTED AND MAINTAINED UNTIL ALL DISTURBED AREAS ARE STABILIZED IN ACCORDANCE WITH THE FINAL STABILIZATION CRITERIA (CGP 2.2.14.B). GENERALLY, ALL DISTURBED AREAS, OTHER THAN STRUCTURES AND IMPERVIOUS SURFACES, MUST HAVE UNIFORM PERENNIAL VEGETATION THAT PROVIDES 70 PERCENT OR MORE OF THE COVER PROVIDED BY NATIVE VEGETATION OR SEED THE DISTURBED AREA AND PROVIDE NON–VEGETATIVE MULCH THAT PROVIDES COVER FOR AT LEAST THREE YEARS WITHOUT ACTIVE MAINTENANCE. FINAL STABILIZATION MUST BE APPROVED BY THE CITY OF ALBUQUERQUE PRIOR TO REMOVAL OF BMPS AND DISCONTINUATION OF INSPECTIONS.
7. NATURE OF CONSTRUCTION ACTIVITIES: THIS PROJECT ENTAILS THE REMOVAL OF A PORTION OF THE CLOSED YALE LANDFILL, SEPERATION AND DISPOSAL OF TRASH, SITE STABILIZATION, CONSTRUCTION OF A POWER SUBSTATION, AND FINAL STABILZATION OF THE DISTURBED AREA.
8. THE PROJECT SITE IS A NEW PNM EASEMENT (SIZE 20.88AC) LOCATED ON TRACT A–1, SUNPORT MUNICIPAL ADDITION (SIZE 2286AC). THE LIMIT OF DISTURBANCE IS EXPECTED TO BE 12.48 ACRES.
9. WORK IS EXPECTED TO COMMENCE IN MARCH 2022, SUBSTANTIAL COMPLETION IN JULY 2022, AND FINAL COMPLETION AND STABILIZATION OF THE SITE IN SEPTEMBER 2022.

DEVELOPER CONTACT: PNM, DEREK KASTENDIECK,
505–241–2922, DEREK.KASTENDIECK@PNM.COM
DEVELOPERS ENGINEER: AECOM, SCOTT MEDINA,
505–855–7477, SCOTT.MEDINA@AECOM.COM
GENERAL CONTRACTOR: (TBD) ______
CONTRACTOR'S STORMWATER TEAM: (TBD) ______

REVISION		
NO.	DATE	BY

ENGINEER'S STAMP



PNM PUBLIC SERVICE COMPANY OF NEW MEXICO

EROSION CONTROL PLAN
--
SAGEBRUSH SUBSTATION

DR: JSH		DATE: 12/21/21
CKD: REM	OK:	SCALE: As Noted
APP:	SBD–7602–S9	9 OF 41
REV. NO.		

Stormwater Pollution Prevention Plan (SWPPP)

STORMWATER POLLUTION PEVENTION PLAN

2022 CONSTRUCTION GENERAL PERMIT (CGP) COMPLIANCE DOCUMENTATION

AECOM

SAGEBRUSH SUBSTATION SITE DEVELOPMENT

ALBUQUERQUE, NEW MEXICO

NPDES PERMIT: NMR1004S2

PREPARED ON: MAY 20, 2022

DEVELOPED BY: E2RC, LLC

(505) 867-4040

E2RC

SWPPP
Stormwater
Erosion Control
Reclamation
Seeding

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ACRONYMS

BMP – Best Management Practice
CAR – Corrective Action Report
CGP – Construction General Permit
CFR – Code of Federal Regulations
CWA – Clean Water Act
DMR - Discharge Monitoring Report
ELG – Effluent Limitation Guideline
EPA – Environmental Protection Agency
ESA - Endangered Species Act
ESCP – Erosion and Sediment Control Plan
MS4 – Municipal Separate Storm Sewer System
NeT/NET – NPDES eReporting Tool
NMED – New Mexico Environment Department
NMFS – United States National Marine Fisheries Service
NOAA – National Oceanic and Atmospheric Administration
NOI – Notice of Intent
NOT – Notice of Termination
NPDES – National Pollutant Discharge Elimination System
NRC – National Response Center
NRCS – Natural Resources Conservation Service
NRHP – National Register of Historic Places
NTU – Nephelometric Turbidity Unit
ORW – Outstanding Resource Water
PFDS – Precipitation Frequency Data Server
RQ – Reportable Quantity
RUSLE – Revised Universal Soil Loss Equation
SCM – Stormwater Control Measures
SDS – Safety Data Sheet
S&EC – Sediment and Erosion Controls
SHPO – State Historic Preservation Office
SPCC – Spill Prevention Control and Countermeasure
SWPPP, SWP3 – Stormwater Pollution Prevention Plan
SWQB – Stormwater Quality Bureau
TESCP – Temporary Erosion and Sediment Control Plan
THPO – Tribal Historic Preservation Office
TMDL – Total Maximum Daily Load
USFWS – United States Fish and Wildlife Service
WOTUS – Waters of the U.S.

1 INTRODUCTION

In compliance with the provisions of the CWA, the NPDES General Permit authorizes Operators of construction activities to discharge pollutants in accordance with effluent limitations and conditions set forth in the NPDES Construction General Permit ("CGP"). Operators with permit coverage must perform and meet its requirements from the "commencement of earth-disturbing activities" until "final stabilization".

The U.S. EPA requires a SWPPP for Phase II of the current NPDES General Permit for stormwater discharges. This SWPPP provides an engineered design for the operations of **Sagebrush Substation Site Development**. It is based in good engineering practices as required by the CGP and defined by the New Mexico Board of Engineering. The designer's professional engineering (PE) seal and recognition as a Certified Storm Water Quality Professional (CPSWQ) support this plan.

This SWPPP recommends appropriate best management practices ("BMPs") and control measures to improve the quality of receiving waters by reducing and controlling the amount of pollutants contained in the stormwater runoff. The document provides for periodic review and updating of the plan ensuring it complies with the 'living document intent' of the EPA requirements.

This SWPPP documentation intends to:

- Identify potential sources of contamination to stormwater and non-stormwater to the storm water drainage system.
- Design appropriate BMPs to prevent stormwater contamination.
- Recommend practices to reduce pollutants in contaminated stormwater prior to discharge by:
    - *Describing the Structural Practices used during the Construction Phases* (e.g., sediment control barriers, sediment traps, and temporary or permanent sediment basins, etc.),
    - *Describing Other Controls* (e.g., waste disposal, procedures to minimize off-site vehicle tracking, dust control, etc.),
- Determine the action(s) needed to either bring non-stormwater discharges under compliance or to remove the discharges from the storm drainage system using:
    - *Stormwater Management Controls used for Stabilization* (e.g., detention or retention structures, vegetated swales, etc.) to be installed during the construction process to reduce pollutants in stormwater discharging from the site after construction has been completed,
    - *Description of Interim and Permanent Stabilization Practices* (e.g., seeding, mulching, etc.) dependent on the phase of the project when the practice is employed,
- Prescribe an implementation schedule to ensure the stormwater management procedures and controls designed for the SWPPP are carried out and evaluated on a regular basis.

2 RESPONSIBLE PARTY INFORMATION

2.1 OPERATORS AND PROJECT CONTACTS

PROJECT OWNER:

Public Service Company of New Mexico
414 Silver Ave. NW
Albuquerque, NM 87158
Office: (505) 241-3618
Contact: Todd Fridley, Vice President - New Mexico Operations

PRIMARY OPERATOR:

AECOM
40 British American Blvd.
Latham, NM 12110
Office: (978) 337-1519
Contact: Steve Kostage, Associate Vice President

SECONDARY OPERATOR:

Public Service Company of New Mexico
414 Silver Ave. NW
Albuquerque, NM 87158
Office: (505) 241-3618
Contact: Todd Fridley, Vice President - New Mexico Operations

SWPPP CONTACT:

AECOM
40 British American Blvd.
Latham, NM 12110
Office: (978) 337-1519

24 – HOUR EMERGENCY CONTACT:

AECOM
Bill Haynes
(865) 394-8129

2.2 STORMWATER POLLUTION PREVENTION TEAM

The stormwater pollution prevention team is responsible for developing, implementing, maintaining, and revising this SWPPP. The members of the team are familiar with the management and operations of Sagebrush Substation Site Development.

AECOM oversees all aspects of this SWPPP development and implementation and requested the origination of this SWPPP. E2RC, LLC is delegated and authorized by AECOM to originate and design the SWPPP for NPDES Compliance. Table 2.2.a identifies the responsible parties. Table 2.2.b provides detailed responsibilities and the responsible party.

Table 2.2.a

NAME & TITLE	POSITION	RESPONSIBILITY
AECOM **(978) 337-1519**	Steve Kostage, Associate Vice President	Operator Signatory
AECOM **(505) 855-7477**	Scott Medina Senior Project Manager	AECOM Project Management
PNM **(505) 241-3618**	Todd Fridley, Vice President - New Mexico Operations	Operator Signatory
PNM **(505) 241-2162**	Nancy Nething, Project Manager	PNM Project Management
PNM **(505) 241-2025**	Hector Alvarez Environmental Scientist	PNM SWPPP Contact
E2RC, LLC **505-867-4040**	Kelley Fetter, P.E, CPSWQ, CPMSM President	SWPPP Development
E2RC, LLC **(505) 867-4040**	NPDES Inspector – See Section 8.4 for Names	Site Inspections
E2RC, LLC **(505) 867-4040**	Carlos Flores, Construction Manager	BMP Implementation Team
AECOM **(978) 337-1519**	Bill Haynes, Site Manager	BMP Maintenance Team
E2RC, LLC **(505) 867-4040**	Carlos Flores, Construction Manager	Corrective Actions Team
AECOM **(978) 337-1519**	Bill Haynes, Site Manager	Dewatering Inspections, Sampling and Reporting

Table 2.2.b

RESPONSIBILITY	PNM	AECOM	E2RC, LLC
1. Provide copies and access to approved construction documents for SWPPP preparation.	X	X	
2. Provide updated or revised construction documents to appropriate parties.	X	X	
3. Prepare SWPPP in compliance with EPA 2022 CGP.			X
4. Prepare and submit NOI.			X
5. Certify NOI.	X	X	
6. Notify MS4 operator that construction will be taking place in their jurisdiction.	X	X	
7. Provide access/entry to site property.	X	X	
8. Install erosion and sediment controls.			X
9. Complete BMP Installation logs.	X	X	
10. Maintain erosion and sediment BMPs.		X	
11. Conduct daily dewatering inspections and reporting during dewatering activities, if applicable.		X	
12. Collect dewatering samples, if applicable.		X	
13. Complete quarterly dewatering reporting to EPA, if applicable.	X	X	
14. Complete Corrective Action measures.	X	X	X
15. Complete Corrective Action Log	X	X	X
16. Complete temporary stabilization in disturbed areas per applicable deadlines.			X
17. Remove erosion and sediment controls following permanent stabilization.		X	X
18. Complete final stabilization.			X
19. Perform daily housekeeping – trash and contaminated soil removal, anchoring sanilets, chemical/material storage, etc.		X	
20. Street sweeping and sediment removal.		X	
21. Daily visual inspections during course of work.		X	
22. Perform SWPPP inspections and complete inspection reports.			X
23. Notify inspecting party of rain events exceeding 0.25”.	X	X	
24. Update SWPPP and site map as changes occur.	X	X	
25. Complete SWPPP Amendment log.	X	X	
26. Conduct onsite SWPPP training and complete training logs.	X	X	
27. Prepare and submit Notice of Termination (“NOT”).			X
28. Certify NOT.	X	X	

3 SITE INFORMATION, ASSESSMENT AND PLANNING

3.1 PROJECT LOCATION

Project Name: Sagebrush Substation Site Development
Project Location: University Blvd. SE & Flightway Ave.
City: Albuquerque
County: Bernalillo
State: New Mexico
ZIP Code: 87106
GPS Location: 35.050502°N, 106.629207°W
Method for determining latitude/longitude: Google Maps
Horizontal Reference Datum: WGS 84

Anticipated Hours of Operation: Monday - Friday, 7:00 AM to Close; excluding federal holidays

3.2 FEDERAL CONSIDERATIONS

Is the project located on Indian country lands, or located on a property of religious or cultural significance to an Indian tribe?

No

If yes, provide the name of the Indian tribe associated with the area of Indian country (including the name of Indian reservation if applicable), or if not in Indian country, provide the name of the Indian tribe associated with the property:

Not Applicable

Are you conducting earth-disturbing activities in response to a public emergency, document the cause of the public emergency (e.g., natural disaster, extreme flooding conditions), information substantiating its occurrence (e.g., state disaster declaration)?

No

If yes, describe the construction is necessary to reestablish effective public services:

Not Applicable

Are you applying for permit coverage as a "federal operator" as defined in Appendix A of the 2022 CGP?

No

3.3 NATURE OF CONSTRUCTION ACTIVITY

Sagebrush Substation Site Development consists of preparing the site and removing landfill materials to prepare the location for a new 115 kV substation.

Soil disturbing activities will include but are not necessarily limited to:

- Installation of erosion and sediment management control measures;
- Clearing and Grubbing;
- Rough Grading;
- Infrastructure Construction;
- Utility Installation;
- Installing Permanent Drainage; and
- Final Stabilization

3.4 PROJECT AREA AND AREA OF SOIL DISTURBANCE

The total project area is approximately 12.5 gross acres with an approximate disturbed area of 12.5 acres for construction. The maximum area of disturbance at any one time will consist of 12.5 acres. The Permittee will construct the site in one phase(s) and each phase will have disturbance.

Most of the major earth moving and soil disturbing activities are expected to occur during the initial portion of each phase of construction. The activities will continue throughout the selected areas of construction with minor amounts of earth moving and soil disturbance occurring during later phasing

sequences. The appropriate control measures, practices and implementation schedules have been considered and will be implemented to prevent pollutants and sediments from discharging from the disturbed area into identified drainage reaches and channels during the related construction activities.

For this project, the removal of vegetation (area of soil disturbance) is that area which will be designated for grading, excavation, and permanent stabilization.

3.5 DESIGN REQUIREMENTS

The controlling state's engineering licensing agency develop and manage the stormwater flow characteristics, design requirements and the effects of each element.

The temporary stormwater controls and practices are designed around the two-year, 24-hour event. The individual storm event duration is 30 minutes. The data is based on the project's latitude and longitude and NOAA PFDS reporting. The site-specific data supports the RUSLE calculation protocol and output generated from the latest version of NRCS RUSLE programming. The project design hydraulic conditions are significantly greater, likely, from the design hydraulics used for temporary stormwater control development.

The RUSLE2 analysis for the project captures the nature of the surface flow, its direction and the factors affecting the flow rates. The design includes and notes drainage features and flow management devices when appropriate.

The NRCS Soil Report provides the soil particle size, erodibility, and historical vegetative data for the project location. This information is derived from data gathered by the NRCS to support the tools utilized to manage lands of the US.

The information specific to the site is found in the 'Engineering – RUSLE2 and NRCS Soil Report' Appendix of the SWPPP binder.

3.5.1 PLANS INCORPORATED BY REFERENCE

The following plan(s) or document(s) is/are incorporated into the SWPPP or by reference:

- General Construction Drawings
- Temporary Erosion and Sediment Control Plan (TESCP)
- Specifications per E2RC, LLC including all references:
    - Code of Federal Regulations (CFR)

        - I.e., Occupational Safety and Health Administration (OSHA) Emergency Action Plan (29 CFR 1910) Spill Controls and Countermeasures Requirement (40 CFR 112) etc.
    - New Mexico Administrative Code (NMAC)
    - American Association of Highway Transportation Officials (AASHTO)
    - American Society of Testing Materials (ASTM)

3.6 SEQUENCE OF SOIL DISTURBING ACTIVITIES

Major soils disturbing activities will likely occur at the same time. However, construction is a fluid process. Some activities may be performed out of sequence and others presently unidentified may occur depending on site-specific needs. The Operator and Contractors will utilize additional source area controls and appropriate Best Management Practices on a temporary, as required basis, when it is necessary to maintain compliance with the global intent of the SWPPP (e.g., (compost) mulch socks used around temporary spoil piles at excavation locations, temporary earth berms for runoff management and sediment capture in areas where the time of disturbance is limited).

CONSTRUCTION ACTIVITY	DATE COMPLETED
Project Start: June 3, 2022	See Operator's Construction Schedule for Current Completion Dates
Install Temporary BMPs	
Prepare Project Site	
Clearing and Grubbing	
Rough Grading	
Infrastructure	
Concrete, as required and if applicable	
Final Grading	
Temporary Stabilization: See Section 6 for Initiation and Completion Deadlines	
Paving, if applicable	
Site Clean – Up	
Landscaping, Planting, Seeding or Final Stabilization: See Section 6 for Initiation and Completion Deadlines	
Project End: February 28, 2023	

3.7 SUPPORT ACTIVITIES

SUPPORT ACTIVITY	LOCATION	CONTACT FOR ACTIVITY
Concrete Plant	Not Applicable	AECOM
Asphalt Plant	Not Applicable	AECOM

Equipment Staging Area	Designated Staging Area	AECOM
Parking Area	Designated Staging Area	AECOM
Material Storage Area	Designated Staging Area	AECOM
Excavated Material Disposal Area	Offsite	AECOM
Borrow Area	Not Applicable	AECOM
Material Stockpile	Prosperity Material Stockpile (Offsite)	AECOM

3.8 PROHIBITED DISCHARGES

The CGP prohibits the discharge of the following:

- Wastewater from concrete washouts;
- Wastewater from washout and/or cleanout of stucco, paint, form release oils, curing compounds and other construction materials;
- Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance;
- Soaps, solvents, or detergents used in vehicle and equipment washing or external building washdown; and
- Toxic or hazardous substances from a spill or other release.

3.9 ALLOWABLE NON – STORMWATER DISCHARGES

The CGP authorizes certain non – stormwater discharges. Watering used to control dust or to promote vegetation growth may be routed to exposed soils. All other allowable non – stormwater discharge are not to be routed to exposed soils. Instead, these discharges must be routed to a sediment control measure described in this SWPPP.

NON-STORMWATER DISCHARGE	EXPECTED ON PROJECT
Discharges from Firefighting Activities	No
Fire Hydrant Flushing	No
Water used without soap, solvents, or detergents to wash vehicles and equipment	Yes
Water used to control dust	Yes
Potable water including uncontaminated water line flushing	Yes
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.*	Yes

Uncontaminated air conditioning or compressor condensate.	No
Uncontaminated, non-turbid discharges or ground water or spring water.	No
Re-vegetation or landscape irrigation	No
Foundation and footing drains where flows are not contaminated with process materials (e.g., solvents, contaminated ground water) ****Applies only if expected on project**	No
Uncontaminated construction dewatering	No
External building washdown used without soaps, solvents or detergents and external surfaces do not contain hazardous substances (e.g., paint, caulk).	No

*The CGP prohibits the Operator(s) from directing pavement wash waters directly into any receiving water, storm drain inlet, or constructed/natural site drainage feature unless that feature is connected to a sediment basin, trap, or similarly effective control.

Foundation and footing drains where a filtering media is attached to the drain outlet or used in a temporary storm water quality unit to capture process materials, solvents, detergents, or similar materials. **The media must be inspected during each inspection cycle to ensure it is able to perform adequate absorption through the succeeding inspection. The media must be replaced if it is unable to perform adequate absorption through the next inspection.

Non-stormwater discharges which are not allowed under this permit will not occur. However, if it becomes necessary to discharge a substance not covered by this permit, the Operators will obtain a separate NPDES permit.

3.9.1 LIMITATION ON NON-STORMWATER DISCHARGE(S)

The Operator(s) and subcontractors acknowledge by their signature that this plan has coverage limitations on non-stormwater discharges. Limitations include:

1. Post-Construction Discharges
    a. Discharges originating from the site after final stabilization has been acknowledged and documented. An example of post-construction discharge is roof drainage channeled to a stabilized pond.
2. Discharges covered by an individual permit or an alternative permit. An example of this type of discharge is imported deposition from a separate project under construction that is upstream from the site covered by this plan.

Discharges determined by EPA to exceed an applicable water quality standard providing EPA has made its designation prior to the authorization of the 2022 CGP. If EPA identifies discharges that exceed an applicable water quality standard coverage may be extended under the 2022 CGP if appropriate controls, implementation procedures and supporting mechanisms have been developed to comply with the new water quality standard.

3.10 DISCHARGE INFORMATION

Does the project discharge stormwater into an MS4?

Yes

Are there any receiving waters that are located within one linear mile of the project?

Yes

Are there any receiving waters that are located within fifty feet of the project?

No

Does the project discharge ***directly*** into any segment of and impaired water?

No

Does the project discharge into a receiving water designated as a Tier 2, Tier 2.5, or Tier 3 water by the regulating authority?

No

3.11 RECEIVING WATERS

An MS4 is not considered receiving water. Table 3-3 provides the receiving waters for each discharge point identified during the site planning and SWPPP design. If the project discharges to an MS4 the name of the receiving water to which the MS4 discharges is listed as the first identified receiving water.

It is important for the Operator(s) to determine if the noted discharge points have been protected to eliminate offsite discharge. If BMPs are in place to keep all stormwater onsite, there is no discharge offsite and the listing is provided to demonstrate the Operator(s) are knowledgeable about the receiving waters in proximity of the project.

E2RC utilized the following sources to determine if the site discharges to an impaired or tiered receiving water:

- **EPA WATERS GeoViewer**
- **EPA's Stormwater Discharge Mapping Tool**
- **EPA – How's My Waterway?**
- **NMED SWQB Mapper**
- **2020-2022 New Mexico 303(d)/305(b) Integrated Report**

Table 3-3

OUTFALL ID	RECEIVING WATER	ASSESSMENT ID	TIER STATUS	CAUSE OF IMPAIRMENT	COMPLETED TMDLS	DISTANCE (MI.)
001	Unnamed Tributary	NM-97.A_015	None	None	None	0.34

4 ADDITIONAL FEDERAL REQUIREMENTS

4.1 ENDANGERED OR THREATENED SPECIES

The research and documentation included in this SWPPP and permit application support selecting criterion A.

The SWPPP designer utilized the ESA eligibility procedures and worksheet in CGP Appendix D. Formal contact, if required by a determination of the USFWS Critical Habitat Mapping tool, was coordinated with:

Ecological Services Field Office
US Fish and Wildlife
2105 Osuna NE
Albuquerque, NM 87113

The basis statement requirement for the selected criterion is:

- **For criterion A**, indicate the basis for your determination that no federally listed threatened or endangered species or their designated critical habitat(s) are present in your site's action area.

  Basis Statement: The supporting documentation listed above indicate there are no endangered or threatened species and no critical habitats present in the project's action area. The nearest critical habitat is approximately 1.7 miles from the project and the project does not provide suitable habitat for the species.

4.1.1 SUPPORTING DOCUMENTATION

The following documentation supports the selection and is included in the *Endangered Species* appendix of the SWPPP:

- ✓ IPaC Mapping Tool and Species Report (https://ipac.ecosphere.fws.gov/user/login)
- ✓ ECOS Online Mapping Tool (https://ecos.fws.gov/ecp/report/table/critical-habitat.html)
- ✓ NMFS Southeast Region Endangered Species List
- ✓ 2022 CGP Appendix D ESA Worksheet

4.2 PRESERVATION OF HISTORIC PROPERTIES

It is important for the document user to recall the intent of the NPDES program is to prevent degradation of the WOTUS. Operators are expected to maintain and improve, if possible, the quality

of the receiving waters. Additionally, it is important to ensure locations designated as historically valuable are protected and preserved during the construction process.

Appendix E of the CGP is a 'screening process' intended to determine if 'subsurface earth disturbing' stormwater controls will be used and if their use will effect existing historic properties. If the site will not utilize any ground disturbing stormwater controls, then no action is required.

The screening process stops at the successful completion of the appropriate step in the procedure.

STEP	CRITERIA	RESPONSE
1.	Are you installing any stormwater controls described in Appendix E that require subsurface earth disturbances?	Yes
2.	Have prior surveys or evaluations conducted on the site already determined historic properties do not exist, or that prior disturbances have precluded the existence of historic properties?	Yes
3.	Have you determined that your installation of subsurface earth-disturbing stormwater controls will have no effect on historic properties?	-
4.	Did the SHPO, THPO, or other tribal representative (whichever applies) respond to you within the fifteen calendar days to indicate whether the subsurface earth disturbances caused by the installation of stormwater controls affect historic properties?	-
4a	Describe the nature of the SHPO response:	
	Written indicated that no historic properties will be affected by the installation of stormwater controls.	-
	Written indicated that adverse effect to historic properties from the installation of stormwater controls can be mitigated by agreed upon actions.	-
	No agreement has been reached regarding measures to mitigate affects to historic properties from the installation of stormwater controls.	-

STORMWATER CONTROL	INSTALLED AT PROJECT SITE
Dike	No
Berm	No

Catch Basin	No
Pond	Yes
Ditches	No
Trenches	Yes
Stormwater Conveyance Channel (e.g., channels, swale)	No
Culvert	No
Other Type of Ground-Disturbing Stormwater Control:	Silt Fence

E2RC utilized the National Register of Historic Places supported by the National Park Service. E2RC did not submit a formal inquiry to the New Mexico Historic Preservation Office. The supporting documentation and responses are included in the *Cultural and Historic Properties* section of the SWPPP.

4.3 SAFE DRINKING WATER ACT REQUIREMENTS

The Safe Drinking Water Act has requirements for **controlling injections of storm water into the ground and groundwater**. The rule requires identification of the controls and documented contact between the Operator(s) and the EPA/Responsible State Agency to ensure installation compliance occurs. The process requires identification and selection of the controls that are intended to be used and then contact with the appropriate agency. If none of the controls in the list are designed for use in the project, then nothing further is required for compliance.

The state contact for Underground Injection Controls is found at: https://www.epa.gov/uic

No underground controls are designed into the project for storm water management.

NA - 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)

NA - Commercially manufactured pre-cast or pre-built proprietary subsurface detention vaults, chambers, or other devices designed to capture and infiltrate stormwater flow

NA - 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)

A copy of the contact between the appropriate agency and the applicant under this permit is included in the Engineering Section of this Plan if any of the controls are employed on the project.

5 EROSION AND SEDIMENT CONTROLS

5.1 NATURAL BUFFERS

The CGP requires Operators to identify, delineate and maintain naturally occurring vegetated buffers nears the area of disturbance. The goal for the Operator(s) is to have the sediment reduction delivered by the 50-foot natural barrier or design an equivalent barrier with controls to deliver the same sediment reduction. Operators are reminded the regulation requires the buffer or the establishment of controls supported by calculations to create an equivalent buffer for *any section* of the project that is closer than fifty feet to the receiving water. Projects which have a naturally occurring vegetated 50 – foot buffer are still required to implement and maintain downslope erosion and sediment control practices to treat discharge.

It is possible the project may have exceptions to the regulation. It is a requirement to provide documentation supporting the exception if an exception is noted.

5.1.1 BUFFER COMPLIANCE AND ALTERNATIVES

Are there any receiving waters that are located within fifty feet of the project?

No

The compliance alternative for the site is:

1. **X:** Receiving waters are nearby but not within 50 – feet of the project's earth disturbing activities. The Operator(s) will provide and maintain a 50-foot undisturbed natural buffer.

   The Erosion and Sediment Control drawing shows:

   - The 50-foot boundary line of the natural buffer on the site map; and,
   - The erosion and sediment control methods by which all the discharges from the construction disturbances through the natural buffer area will first be treated. Velocity dissipation devices are noted if they are used to prevent erosion within the natural buffer.

2. **NA:** Receiving waters can be found within 50 feet of earth disturbing activities. The Operator will provide and maintain an undisturbed natural buffer that is less than 50 feet. It is supplemented by additional erosion and sediment controls, which in combination achieves the sediment load reduction equivalent to a 50-foot undisturbed natural buffer.

3. **NA:** Receiving waters can be found within 50 feet of earth disturbing activities. It is infeasible to provide and maintain an undisturbed natural buffer of any size. The Operator will implement erosion and sediment controls that achieve the sediment load reduction equivalent to a 50-foot undisturbed natural buffer.

5.1.2 BUFFER EXCEPTIONS

The EPA acknowledges exceptions to the buffer requirement may exist. Specific information is necessary to support the selection of an exception to the requirement.

The site **will not** qualify for one of the exceptions in Appendix F.2.2 of the CGP. An affirmative selection is supported by a condition chosen in the following list:

1. **NA:** Discharge of the site's stormwater to the receiving water that is located within 50 feet of the construction disturbances ***does not occur***. Additional engineering beyond the RUSLE calculations is not required.

2. **NA:** A natural buffer does not exist on the site due to preexisting development disturbances. The development disturbances occurred prior to the initiation of planning for this project.

3. **NA:** For a "linear project", (e.g., a road, bridge or other project defined by a long, narrow area), site constraints (e.g., limited right-of-way) make it infeasible for me to meet any of the compliance alternatives provided in CGP Part 2.2.1.a.

4. **NA**: The project qualifies as "small residential lot" construction (defined in the 2022 CGP, Appendix F).

5. **NA**: Buffer disturbances are authorized under a CWA Section 404 permit.

6. **NA**: Buffer disturbances will occur for the construction of a water-dependent structure or water access area (e.g., pier, boat ramp, and trail). The buffer disturbances in the buffer zone are not applicable. No further documentation is required if this option is selected.

5.2 DESCRIPTION OF BMP SELECTIONS

The Operator(s) will use BMPs designed to prevent the 12.5 acres of disturbed area from contaminating stormwater to the maximum extent possible. The site will utilize and implement BMPs to reduce the amount of pollutants in stormwater discharged from Sagebrush Substation Site Development as defined in this SWPPP and the Erosion and Sediment Control drawing location at the front of this plan.

CONTROL or PRACTICE	CONTRACTOR	IMPLEMENTATION SCHEDULE (ESTIMATED)
NPDES NOTIFICATION BOARD	E2RC, LLC	SEE SCHEDULE NOTE*
CONSTRUCTION ENTRANCE(S)	AECOM	SEE SCHEDULE NOTE*
CONCRETE WASHOUT (If concrete is used on project)	AECOM	SEE SCHEDULE NOTE*
SANILET PROTECTION	AECOM	SEE SCHEDULE NOTE*
COVERED DUMPSTER	AECOM	SEE SCHEDULE NOTE*
SPILL KIT	AECOM	SEE SCHEDULE NOTE*
SEDIMENT CONTROL LOGS	E2RC, LLC	SEE SCHEDULE NOTE*
VEHICLE TRACKING PAD	E2RC, LLC	SEE SCHEDULE NOTE*
SILT FENCE	E2RC, LLC	SEE SCHEDULE NOTE*
INLET PROTECTION	E2RC, LLC	SEE SCHEDULE NOTE*
SEDIMENT BASIN	AECOM	SEE SCHEDULE NOTE*
		SEE SCHEDULE NOTE*
*SEE THE CONTRACTOR'S SCHEDULE FOR EXACT ACTIVITY DATES. ALTERNATIVELY, THE INSTALLATION DATES FOR BMPs ARE AVAILABLE IN THE SWPPP SITE MAP, IN THE INSPECTION REPORTS OR PROJECT BMP INSTALLATION LOG.		

5.3 SEDIMENT CONTROLS

COMMON PERIMETER CONTROLS:

- Silt Fence Barrier
- Compacted Berm
- Compost/Wood Chip/Straw/Rock Sock ("Wattle" or "Sediment Control Log")

- Check Structures (Rock/Bale/Geosynthetic)

OBJECTIVE:

To reduce or prevent sediment discharge from the project site and prevent sediment from entering receiving waters. Sediment controls are designed to capture sediment while allowing stormwater to flow through the control. Sediment controls are not designed to influence or alleviate drainage issues. Sediment barriers decrease water velocity thereby trapping and slowly metering sediment release through the system.

INSTALLATION:

Sediment barriers are effective in locations of highly erodible and sensitive soils and in areas with threats of sedimentation to downstream water quality. Specifically, sediment barriers may be installed:

- Below discharge locations;
- Areas with increased slope gradient resulting in increased sediment flow and water velocity from slope sides;
- Areas without natural sediment catch basins, such as small depressions; or
- Areas without native material, such as rocks or logs.

Perimeter sediment barriers should be installed in a way that will not produce concentrated flows.

INSPECTION AND MAINTENANCE:

Inspect the sediment barriers and perimeter controls to determine if they were installed correctly and per the applicable specifications (e.g., project engineer or manufacturer specifications). Confirm the control is adequately trenched (if required), backfilled, staked, anchored, tied, etc. There should be no gaps between the sediment barrier and the adjacent ends of the control, or between the control and the soil surface. Are the controls properly spaced and in the correct locations?

Ensure the material is in operating condition and does not present significant gaps, holes, or tears. It is important to determine if runoff is flowing under, over or around the perimeter control. If so, maintenance or re-installation may be necessary to return the control to effective operation. It may also be necessary to determine if, after multiple instances of maintenance or corrective activities, the temporary control is inadequate and should be upgraded. This may occur in areas of high concentrated runoff, wind, or public interference.

5.4 SEDIMENT TRACK-OUT MANAGEMENT

OBJECTIVE:

Sediment track – out is dirt, mud or other debris that is tracked onto an impervious public roadway, generally by a vehicle leaving the construction site. Sediment that leaves a construction site contributes directly to the degradation of air and water quality. As stormwater interacts with the sediment, it may wash into a public conveyance or U.S. water.

A project site's access points experience concentrated and loose sediment. The EPA suggests this directive as a minimum performance guideline, "At a minimum, you must provide for maintenance that meets the following requirement in CGP Part 2.2.4.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 sediment into any stormwater conveyance, storm drain inlet, or water of the U.S."

The entrance may utilize several types of controls to capture sediment and prevent its movement offsite. Specifically, rumble mats or round stone approximately ≥4" in diameter have proven as effective dry approaches. Wash stations are effective wet solutions although the expense and maintenance of this method is significantly greater than a dry method.

INSTALLATION:

Stabilize all entrances to a site before construction and site disturbance begin. The stabilized entrances need to be large enough to allow the largest construction vehicle that will enter the site to fit through with room to spare. If many vehicles are expected to use an entrance in any one day, make the site entrance wide enough for two vehicles to pass at the same time with room on either side of each vehicle, and long enough to allow two full tire rotations.

If a site entrance leads to a paved road, make the end of the entrance flared so that long vehicles do not leave the stabilized area when they turn onto or off the paved roadway. If a construction site entrance

crosses a stream, swale, or other depression, provide a bridge or culvert to prevent erosion from unprotected banks.

Make sure stone and gravel used to stabilize the construction site entrance are large enough so that they are not carried offsite by vehicles. Avoid sharp-edged stone to reduce the possibility of puncturing tires. Install stone or gravel at a depth of at least six inches for the entire length and width of the stabilized construction entrance.

INSPECTION:

Common items to consider when inspecting a rock construction entrance is to determine if the rock is the appropriate size, if the rock is compacted due to frequent use and no longer effective, and if the rock has been placed over a filter cloth or blanket material. Similarly, it is important to determine if the entrance is of sufficient length and width and allow for adequate wheel rotation. Ineffective installation and maintenance of a construction entrance or track – out pad may lead to increased offsite sediment tracking and pollutant discharge.

5.5 STOCKPILED MATERIALS, SEDIMENT, OR SOIL

OBJECTIVE:

Stockpiles of soil, Portland Cement Concrete (PCC), Asphalt Concrete (AC), Hot Mix Asphalt Cement (HMAC) and rubble are potential storm water pollutants if not properly managed. Eliminate stockpiles whenever possible. Elimination is the most certain method available to prevent sediment discharge. Secondary protection may include perimeter control or covering with blankets to minimize the stockpile's exposure to stormwater and non-stormwater discharge.

The following are requirements that apply to all stockpiles, regardless of season or material, if elimination is not possible:

- Locate stockpiles away from drainage courses, drain inlets or concentrated flows of stormwater.
- For wind erosion control, apply water or other dust palliative to stockpiles.
- Small stockpiles may be covered as an alternative.
- Place bagged materials on pallets and cover them with a tarp or similar material.

Soil Stockpiles

The temporary perimeter sediment barriers (e.g., wattles, dikes, silt fence) will contain any soil stockpiles. The description of the structural practice employed is included in the Perimeter Control section of this document. The design, installation and maintenance requirements are included in the description. In addition to utilizing structural perimeter barriers, perform the following as required by Part 2.2.5 of the CGP:

- Locate all stockpiles outside of any natural buffers and away from stormwater conveyances, drain inlets or areas of concentrated stormwater flow.

- Do not hose down or sweep soil or accumulated sediment into any stormwater conveyance, drain or water of the U.S.
- Cover or temporarily stabilize piles that will not be used for 14 days or more. See Section 6 of this plan for stabilization timeframe requirements.
- Year-round, active soil stockpiles are to be protected with temporary linear sediment barriers prior to the onset of rain.

Paving Material & Waste Stockpiles

Stockpiles of PCC, AC/HMAC, aggregate base course, aggregate subgrade materials or rubbles are to be managed as follows:

- Cover non - active stockpiles or protect them with temporary perimeter sediment barriers prior to the onset of rain;
- Year – round, protect active stockpiles with temporary linear sediment barriers prior to the onset of rain.

Asphalt Stockpiles

During the non-rainy season, place non-active stockpiles of asphalt on plastic or a comparable material and cover the stockpile prior to the onset of rain.

During the rainy season, place asphalt stockpiles on plastic and always cover them. Year-round, active asphalt stockpiles are to be placed on plastic and covered prior to rain.

INSPECTION AND MAINTENANCE

Inspect stockpiles as part of the routine storm water inspection. The Operator(s) may repair or replace perimeter controls and covers to ensure proper function.

5.6 MINIMIZE DUST

OBJECTIVE:

Dust control BMPs reduce surface activities and air movement that causes dust to be generated from disturbed soil surfaces. Construction sites can generate large areas of soil disturbance and open space

for wind to pick up dust particles. Limited research at construction sites has established an average dust emission rate of 1.2 tons/acre/month for active construction (WA Dept. of Ecology, 1992).

Airborne particles pose a dual threat to the environment and human health. First, dust can be carried offsite, thereby increasing soil loss from the construction area, and increasing the likelihood of sedimentation and water pollution. Second, blowing dust particles can contribute to respiratory health problems and create an inhospitable working environment.

Dust control measures are applicable to any construction site where there is the potential for air and water pollution from dust traveling across the landscape or through the air. Dust control measures are especially important in arid or semiarid regions, where soil can become extremely dry and vulnerable to transport by high winds.

INSTALLATION:

Implement dust control measures on all construction sites where there will be major soil disturbances or heavy equipment construction activity such as clearing, excavation, demolition, or excessive vehicle traffic. Earthmoving activities are the major source of dust from construction sites, but traffic and general disturbances can also be major contributors (WA Dept. of Ecology, 1992). The dust control measures that are implemented at a site will depend on the topography and land cover of the site and its soil characteristics and expected rainfall.

DUST CONTROL METHODS

When designing a dust control plan for a site, the amount of soil exposed will dictate the quantity of dust generation and transport. Therefore, construction sequencing and disturbing only small areas at a time can greatly reduce problematic dust from a site. If land must be disturbed, consider using temporary stabilization measures before disturbance. Several methods exist which can be used to control dust from a site but not all will be applicable to a site.

Consider site-specific assessments and weather conditions to determine which method may be most effective. The following lists some control measures and design criteria:

- Sprinkling/Irrigation

  Sprinkling the ground surface with water until it is moist is an effective dust control method for haul roads and other traffic routes. This practice can be applied to almost any site.

- Vegetative Cover

  In areas not expected to handle vehicle traffic, vegetative stabilization of disturbed soil is often desirable. Vegetative cover provides coverage to surface soils and slows wind velocity at the ground surface, thus reducing the potential for dust to become airborne.

- Mulch

  Mulching can be a quick and effective means of dust control for a recently disturbed area and may reduce wind erosion by up to 80 percent.

- Wind Breaks

  Wind breaks are barriers (either natural or constructed) that reduce wind velocity through a site and, therefore, reduce the possibility of suspended particles. Wind breaks can be trees or shrubs left in place during site clearing or constructed barriers such as a wind fence, snow fence, tarp curtain, hay bale, crate wall, or sediment wall.

  For each foot of vertical height, and 8 to 10-foot deposition zone develops on the leeward side of the barrier. The permeability of the barrier will change the breaks effectiveness at capturing windborne sediment.

- Tillage

  Deep tillage in large open areas brings soil clods to the surface where they rest on top of dust, preventing it from becoming airborne. Roughening the soil can reduce losses by approximately 80 percent in some situations.

- Stone

  Stone can be an effective dust deterrent for construction roads and entrances or as a mulch in areas where vegetation cannot be established. The size of the stones can affect the amount of erosion taking place. In areas of high wind, small stones are not as effective as 20 cm stones, for example.

- Spray-on Chemical Soil Treatments (Palliatives)

  Chemical palliatives should be used only on mineral soils. When considering chemical application to suppress dust, determine whether the chemical is biodegradable or water-soluble and what effect its application could have on the surrounding environment, including waterbodies and wildlife. Per limited research, the effectiveness of polymer stabilization methods ranges from 70 percent to 90 percent.

  Examples of palliatives include:

  - Guar
  - M-Binder
  - Resin

INSPECTION AND MAINTENANCE:

Because dust controls are dependent on specific site and weather conditions, inspection and maintenance requirements are unique for each site. Generally, however, dust control measures involving application of either water or chemicals require more monitoring than structural or vegetative controls to remain effective. If structural controls are used, inspect them regularly for deterioration to ensure that they are still achieving their intended purpose.

5.7 MINIMIZE STEEP SLOPE DISTURBANCE

The project **has** steep slope areas. This section will not apply if the project does not have a steep slope.

Steep slopes have many definitions. Generally, slopes that are 15 percent or greater in grade meet the steep slope requirements of the 2017 CGP unless a state, tribe, local government, or industry technical manual has otherwise defined 'steep slope'. The methods of compliance are linked with the phase of construction.

Consider using spray-on chemical treatments as described in Section 5.8 of this plan to minimize steep slope disturbance and erosion. The palliative may be applied by hydraulic methods or executed with a spray truck (hydroseeder).

INSPECTION AND MAINTENANCE:

Inspect the palliative treatment during each regularly scheduled inspection and after each rain event. If there is evidence of erosion or sediment subsistence at the toe of the slope, reapply the temporary treatment.

5.7.1.1 TOPSOIL

This project **does not have** extensive paving, concrete, or other impervious structures.

Topsoil, if the project is not highly impervious, will be stockpiled in an area of the project where it can be preserved by sediment barriers at the base of the pile combined with the mitigation measures described in the Minimization of Dust section in nearby sections of the document. Alternatively, the topsoil pile can be covered with geotextile or other impenetrable barrier to preserve the material in the pile.

INSPECTION AND MAINTENANCE:

Maintenance Requirements for the topsoil pile will follow those listed in the Stockpile discussion included in the document.

5.7.1.2 SOIL COMPACTION

Where engineered infiltration or vegetation practices are the stabilization methods and compaction has occurred, it is necessary to condition the area to accept the stabilization practice. Determining the level

of compaction is a site-specific activity. The area to be vegetated should be marked to prevent traffic and to notify site employees to avoid the area until the vegetation activities take place.

If the conditioning method is not listed in the specification documents, the specification for installation of vegetative means or infiltrations practices will be provided by the provider. The specifications are included in the Product Data section of this binder if available.

5.8 STORM DRAIN INLET PROTECTION


OBJECTIVE:

Storm Drain Inlet Protection devices are structures designed to reduce flow and capture sediment from runoff entering the structure. Inlet protection methods are most effective when used in combination with pavement sweeping programs and maintenance activities focused on ensuring sediment removal at the structure.

INSTALLATION:

Conventional storm drain (drop) inlet protection methods consist of wire-backed silt fence covering the inlet opening and held in place with 1" to 2" round, washed stone to reduce flow velocity.

Alternative methods to stone use include placing a wattle (compost or wood chip sock) across the opening of the inlet or around the perimeter of a median inlet. The wattle is anchored by bags containing washed stone or consistently placed stakes. The rock-filled backs must act as a complete barrier around the entire perimeter of the grated are to interrupt flow and allow sediment deposition.

A final alternative utilizes a natural fiber product cut to fit the grate opening and anchored with a zip-tie or similar mechanism.

To install storm drain inlet protection:

1. Clean and prepare the inlet:
    a. Remove all sediment from the curb and gutter as it approaches the inlet.
    b. Remove all rocks, trash, sediment, and vegetation along the curb and around the inlet structure.

c. Confirm the grate and frame is in place.
d. Ensure the inlet opening is free from any obstructions.

2. Cover the grate opening with wire-backed silt fence. Each end of the fence must extend beyond the frame.
    a. If using gravel, extend the gravel 2' into the roadway area.
    b. If using wattles and rock- filled bags, place the bags around the perimeter of the grate frame. Extend the wire-backed silt fence to the outer edge of the bags.
3. Cover the inlet opening:
    a. If using gravel, wire backed silt fence must cover the entire opening and extend over the inlet top 6" fully covered by gravel.
    b. If using a wattle and rock filled bag, the wattle will cover the inlet opening and will be held in place by at least one rock filled bag on each side of the opening.
4. If using a manufactured product, install the control per the manufacturer's specifications ***AND*** in accordance with project specifications. Project specifications control unless indicated otherwise by project management.

INSPECTION AND MAINTENANCE:

Inspect the inlet protection during each inspection cycle, after each rainfall event and each maintenance activity to ensure the structure can perform per the specifications.

1. If gravel is used and it is filled with sediment to 33% of the height of the opening or pile:
    a. Remove and wash the stone to eliminate the captured sediment.
    b. Replace the stone with washed, sediment free material.
2. If a wattle and rock filled bags are used and the sediment is 50% of the height of the bag:
    a. Remove the bags from around the structure and inspect them for damage.
    b. Replace damaged bags with new material.
    c. Bags that are not damaged should be cleaned to free captured sediment from the surface and reset around the structure.
    d. Reset the bags around the structure to ensure compliance with the specification and deliver designed performance.
    e. Inspect the wattle and clean it if sediment has accumulated on its surface. The wattle can be re-used if the netting or fabric has minor damage.
        i. Minor damage to netting is a cut or tear, 4" strands or less 'in a row'.
        ii. Minor damage to fabric is a cut or tear 2" or less.
    f. Wattles having more damage than described as minor damage should be discarded and replaced.
3. The wire backed silt fence should be cleaned from collected sediment. If the material is damaged – punctured/torn – then it should be replaced.

Material damage will be the decision of the Project Engineer. Replacement of damaged materials is considered incidental to the project.

5.9 CONSTRUCTION STORMWATER CONVEYANCES

OBJECTIVE:

Incorporating conveyance channels into a project demonstrates well-developed engineering practices. Control methods must address and prevent channel deterioration to ensure the channel does not contribute to sedimentation and pollution of waters of the U.S. It is equally important to include velocity dissipation measures to ensure:

- The velocity gradient in the channel is moderated
- The geometry of the channel is maintained
- Pollutants are controlled
- Sediment is captured and contained onsite

5.9.1 CHANNEL CONTROLS

5.9.1.1 CHECK DAMS

OBJECTIVE:

Check dams slow the velocity of concentrated water flows. They are relatively small, temporary structures constructed across a swale or channel. As stormwater runoff flows through the structure, the check dam catches sediment from the channel itself or from the contributing drainage area.

However, check dams should not be used as a substitute for other sediment-trapping and erosion-control measures. Check dams are typically constructed out of silt fence, gravel or rock, or wattles. They are most effective when used with other stormwater, erosion, and sediment-control measures.

INSTALLATION:

When using rock, the material diameter should be two to 15-inches. Silt fence should be at least 24” in exposed height from trenching. A check dam should not be more than three-feet high, and the center of the dam should be at least six-inches lower than its edges. This design creates a weir effect that helps to channel flows away from the banks and prevent further erosion. Dams can be made more stable by implanting the material approximately six inches into the sides and bottom of the channel (VDCR, 1995).

When installing a series of check dams in a channel, install outlet stabilization measures below the final dam in the series. Because this area is likely to be vulnerable to further erosion, the use of other stabilization measures like riprap or reinforced turf reinforcement blankets are recommended.

INSPECTION AND MAINTENANCE:

When inspecting the check dams, the center should be lower than the two endpoints. The top of a lower check dam should be level with the base of the preceding (higher) check dam. If erosion or heavy storm flows cause the ends of the dams to fall to a height equal to or below the center, repair and reset the check dam immediately.

During the inspection, remove large debris, trash or natural material which may alter the stormflow around the check dam structure.

When sediment reaches a height of approximately 50% of the original height of the check dam, remove the accumulated sediment from the upstream side.

Before removing a check dam, remove all accumulated sediment.

After removing check dams, ensure that all dam materials are removed to ensure proper channel flow. Additionally, use permanent vegetation measures to stabilize the area from which the dam material is removed.

5.9.1.2 SEDIMENT BASINS

OBJECTIVE:

Sediment traps are small impoundments that allow sediment to settle from construction runoff. They are usually installed in a drainage way or other discharge point. Sediment traps are most commonly used at channels, slope drains, dewatering locations, construction site entrance wash tracks, conveyance discharge points or any other runoff outlet.

Sediment traps detain sediments in stormwater runoff to protect receiving streams, lakes, drainage systems and the surrounding area. The traps are formed by excavating an area or by placing an earthen embankment across a low area or drainage swale.

Drainage swales, sediment traps or sediment basins capture runoff and sediment on a larger scale than smaller BMPs. They are sized to manage large storm or drainage areas. Sediment basins also allow for the controlled return of surface water in dewatering situations while simultaneously capturing sediment. Lastly, sediment traps provide collections points for sediment at the perimeter of site discharge locations meeting the ELG regulatory requirements.

INSTALLATION:

When excavating an area for a sediment trap, the side slopes should not be steeper than 2:1 and the top of the embankment no more than five feet from the original ground surface.

Ensure stability of side walls, mounds, and barriers by machine-compacting all embankments. If the trap is created above grade, it should be lined with well-graded stone to reduce flow rate from the trap the outlet.

The spillway weir for each temporary sediment trap should be at least four feet long for a 1-acre drainage area and increase by 2 feet for each additional drainage acre added, up to a maximum drainage area of 5 acres.

INSPECTION AND MAINTENANCE:

At each inspection, ensure the trap is draining properly. Remove sediments when the basin reaches 50% sediment capacity. Inspect the structure for damage from erosion by reviewing the depth of the spillway and maintain it at a minimum of eighteen inches below the lowest point of the trap embankment.

Take care to situate sediment traps for easy access by maintenance crews. The primary maintenance consideration for temporary sediment traps is to remove accumulated sediment. Do this periodically to ensure ongoing operation. Perform re-compaction of side walls, mounds, and barriers after extended periods of water retention to ensure each is competent to accept future flows.

5.10 CHEMICAL TREATMENT

Chemical treatment is not employed as a BMP on this project.

5.11 DEWATERING PRACTICES

Dewatering is not required or anticipated on the project. Should project conditions or activities change such that dewatering is necessary, the Operator will update its NOI within seven (7) calendar days to indicate dewatering is occurring. The Operator will perform the following activities for dewatering protection measures, inspections, and reporting.

5.11.1 DEWATERING MANAGEMENT PRACTICES AND PROCEDURES

At no point will dewatering water be discharged offsite without first being routed through a sediment control designed to prevent discharges with visual turbidity.

Do not discharge dewatering water with:

- Visible floating solids or foam;
- A visible sheen;
- Visible oily deposits; or
- A visible sediment plume (e.g., cloudy, opaque)

If possible, keep dewatering water onsite by conveying discharge to a well – vegetated area upland and within the limits of construction. The vegetation provides an effective filtration method to capture sediment and potential pollutants as the discharge water percolates downhill.

If no vegetation exists onsite, convey discharge water into an onsite sediment basin or sediment trap (Section 5.9). Ensure the basin is of adequate size to hold the anticipated volume of dewatering water.

5.11.2 FEDERAL DEWATERING REQUIREMENTS

5.11.2.1 Inspection Requirements

The Operator must inspect the dewatering activities and discharge once per day on each day discharge occurs. The Operator will complete a Dewatering Inspection Report within 24 – hours of completing the inspection. A Dewatering Inspection Report is included in the *Dewatering Monitoring* Appendix of the SWPPP.

5.11.2.2 Turbidity Monitoring

The Sagebrush Substation Site Development does not discharge directly into an impaired or tiered receiving water.

Projects which discharge to a Tier 2, 2.5 or Tier 3 water, or a receiving water impaired for sediment or a sediment – related parameter are required to fulfill the turbidity monitoring requirements in Part 3.3.1.

To complete the turbidity monitoring:

1. Collect at least one dewatering discharge sample each day discharge occurs;
2. Take a sample at each dewatering water discharge point, after the dewatering water has been treated by the dewatering management practice and before it enters the receiving water;
3. Measure the sample using a turbidity meter that reports in NTUs. Conduct a calibration verification prior to using each day;
4. Document the daily sampling results;
5. Determine the weekly NTU average (Monday – Sunday constitutes the monitoring week)
6. If the average weekly NTC exceeds 50 NTUs, complete a corrective action to improve the turbidity.

5.11.2.3 Corrective Actions

If the weekly monitoring average exceeds 50 NTUs, the Operator will stop dewatering activities and stop all discharge. The Operator will contact E2RC, LLC to determine if the dewatering practices are operating effectively or require additional measures.

5.11.2.4 Turbidity Quarterly Reporting

The Operator(s) will submit the weekly average information to the EPA through the EPA's CDX platform. The Associate Vice President or delegated authority will submit the quarterly reporting no later than 30 days after each quarter.

5.11.3 ADDITIONAL STATE DEWATERING REQUIRMENTS

The State of New Mexico has additional requirements if dewatering activities are anticipated. The following potential sources of pollution were identified as within the distances identified in Part 9.6.1.a.i:

SOURCE	DISTANCE	TESTING CONSTITUENTS	WITHIN DISTANCE
Leaking Underground Storage Tank	0.5 Miles	Benzene, Toluene, Ethylbenzene, Xylene	Yes
Open Voluntary Remediation Site	0.5 Miles	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	Yes
RCRA Corrective Action Site	0.5 Miles		No
Open Abatement Site	0.5 Miles		No
Open Brownfield Site	0.5 Miles		No
Superfund or National Priorities List site	1.0 Miles		No
Construction Activity Contaminants and/or Natural Water Pollutants	Not Provided	Not Provided	Not Provided

5.12 OTHER STORMWATER CONTROLS

5.12.1 NPDES NOTIFICATION BOARD

OBJECTIVE:

To ensure the soil disturbance information for the project is readily for review and use by the public and site personnel. The NPDES notification must be large enough to contain information about the project and all notifications and posting. The NPDES notification must provide the NPDES tracking number, contact for additional information, directive to the SWPPP location, and a directive to contact the EPA if there is an indication of stormwater pollutants in site discharge or a receiving waterbody, in accordance with Part 1.5 of the 2022 CGP.

INSTALLATION:

The NPDES Notification must be installed or posted at a location which is safely and easily accessible to the public. It must be located so that it is visible from the public road that is nearest the active part of the construction site, and it must use font large enough to be readily viewed from public right-of-way.

INSPECTION AND MAINTENANCE:

The NPDES Notification Board will be inspected during the scheduled site inspections. The board should always be in proper condition with a rain gauge attached. Any identified board maintenance will be scheduled for repair.

5.12.2 TEMPORARY SANILET FACILITIES

OBJECTIVE:

To provide personal waste facilities for site personnel for the proper collection, disposal, and prevention of waste products in compliance with OSHA regulations. Temporary sanilet facilities encourage good housekeeping measures at the construction site. Their installation meets OSHA regulations and prevents pollution and stormwater contamination.

INSTALLATION:

The sanilet provider may install the device at locations throughout the project site which provide convenient access to both site personnel and equipment maintenance or removal operators. Sanilets should not be installed near any discharge or inlet location, such as on top of or uphill from a storm drain or drop inlet. The sanilet provider should securely anchor the facility to prevent tipping. It may be necessary to install a secondary control measure, such as a wattle perimeter or earth berm, to further ensure minimal runoff.

INSPECTION AND MAINTENANCE:

Inspect sanilet facilities daily to determine if they have reached 50% volume capacity. The facilities should be removed, replaced, or emptied when they have reached or exceeded this amount. Daily inspection should check that all plastic structures are intact and do not show signs of damage from construction, vandalism, or weather – related activities. Inspectors should also determine if the location is appropriate and not near discharge or inlet locations.

Sanilets are designed to promote safe and sanitary use. However, if stored liquids have not been removed and the sanilet is nearing capacity, vacuum and dispose of them in an approved manner - check with the local sanitary sewer authority to determine if there are special disposal requirements.

6 SITE STABILIZATION

6.1 STABILIZATION TIMEFRAME REQUIREMENTS

The stabilization initiation and completion deadlines vary according to the amount of land disturbed at any one time, the noted receiving waters, and the location of the project.

Per Part 2.2.14 of the CGP, for any exposed areas, you must initiate stabilization measures immediately upon knowing any construction activities have temporarily or permanently ceased for 14 – calendar days or more.

The CGP clarifies and defines 'permanently' and 'temporarily' to assist Operators to determine which requirements apply to the project area:

- *"Earth-disturbing activities have **permanently** ceased* when clearing and excavation within any area of your construction site that will not include permanent structures has been completed."
- *"Earth-disturbing activities have **temporarily** ceased* when clearing, grading, and excavation within any area of the site that will not include permanent structures will not resume (i.e., the land will be idle) for a period of 14 or more calendar days, but such activities will resume in the future."

EXPOSED AREA	INITIATE STABILIZATION	DEADLINE
Five Acres or Less (≤5.0 Acres)	Immediately	No Later Than 14 – Calendar Days After Initiating
More Than Five Acres (>5.0 Acres)	Immediately	No Later Than 7 – Calendar Days After Initiating

The term "immediately" is used to define the deadline for initiating stabilization measures. 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.

6.1.1 STABILIZATION TIMEFRAME EXCEPTIONS

The project qualifies for one of the exceptions to the stabilization deadlines. The exceptions are:

- The project is in an arid, semi – arid or drought – stricken area;
- The project experienced an unforeseen circumstance, such as seed stock, which delays initiating stabilization; or
- The project discharges to a tiered, sediment – or nutrient – impaired receiving water.

The project is located in an arid, semi-arid or drought-stricken area. The seasonally dry period for the project site is January and February. If the project is using vegetative stabilization measures, install temporary non – vegetative stabilization measures (e.g., erosion control blankets) within 14 – calendar days. Complete all seeding activities as soon as practicable based on site conditions.

The project does not discharge to a tiered receiving water or receiving water impaired for sediment or nutrients. If the project qualifies for this exception, you must complete stabilization no later than seven calendar days after initiating the work.

If the project experiences unforeseen circumstances, document those which prevent you from meeting the deadlines below and add the anticipated schedule to complete the stabilization.

UNFORSEEN CIRCUMSTANCE	ANTICIPATED SCHEDULE

6.2 STABILIZATION – INITIATION ACTIVITIES

Part 2.2.14 of the CGP provides the following list of initiation examples as a guide to Operators. This list is not exhaustive:

- Prepping the soil for vegetative or non-vegetative stabilization;
- Applying mulch or other non-vegetative product to the exposed area (e.g., temporary soil stabilizer);
- Seeding or planting the exposed area;
- Starting any of the activities in # 1 – 3 on a portion of the area to be stabilized, but not on the entire area; and
- Finalizing arrangements to have stabilization product fully installed in compliance with the applicable deadline for completing stabilization in Parts 2.2.14.

The disturbed areas will exclude locations in which construction has not started or locations in which construction has implemented permanent stabilization.

6.3 STABILIZATION PRACTICES FOR TEMPORARILY CEASED ACTIVITIES

Sagebrush Substation Site Development may use the following stabilization methods to comply with Part 2.2.14 of the CGP. Descriptions of the mechanism and maintenance protocols for non-vegetative controls are available in BMP Measures and Product Details Tab of this plan. Descriptions of the mechanism and maintenance protocols for Vegetative Controls are available in *Training and BMP Details* appendix of the SWPPP.

TABLE 6.0 SITE STABILIZATION PRACTICES FOR TEMPORARILY CEASED ACTIVITIES

STABILIZATION PRACTICE	STABILIZATION TYPE	IMPLEMENTATION SCHEDULE (EST.)	CONVERT TO PERMANENT?
Surface Roughening	Non – Vegetative	SEE SCHEDULE NOTE*	No
Soil Binders	Non – Vegetative	SEE SCHEDULE NOTE*	No
Temporary Soil Stabilizer	Non - Vegetative	SEE SCHEDULE NOTE*	No
Silt Fence	Non - Vegetative	SEE SCHEDULE NOTE*	No
Sediment Control Logs	Non - Vegetative	SEE SCHEDULE NOTE*	No
Sediment Basins	Non - Vegetative	SEE SCHEDULE NOTE*	No

*SEE THE CONTRACTOR'S SCHEDULE FOR EXACT ACTIVITY DATES. ALTERNATIVELY, THE INSTALLATION DATES FOR BMPs ARE AVAILABLE IN THE SWPPP SITE MAP, IN THE INSPECTION REPORTS OR PROJECT BMP INSTALLATION LOG.

6.3.1 SURFACE ROUGHENING

OBJECTIVE:

Surface roughening may involve tracking, tilling, scarifying, or imprinting exposed soil to create surface variations to minimize wind and water erosion. Surface 41roughening can be used in disturbed areas in which final stabilization is pending due to seasonal or other limitations, or areas which will be temporarily inactive.

INSTALLATION:

Surface roughening generally requires utilizing heavy construction machinery to create depressions 2" to 6" deep and 6" apart. The machinery should follow the contours of the slope and create horizontal grooves using the equipment treads. Ripping or tilling is most effective for flatter surfaces and tracking for sloped surfaces.

The Operators need to be aware the heavy equipment may cause soil compaction which may inhibit vegetative reclamation unless the soil is ripped or tilled prior to seeding operations.

Install secondary erosion control or velocity dissipation measures on the downslope areas of roughened soils to capture discharge as a result of inadequate roughening.

INSPECTION & MAINTENANCE:

Inspect roughened areas for signs of erosion. Do not allow vehicles or equipment to drive over the roughened area as tires will smooth the horizontal variations allowing runoff to occur.

6.3.2 TEMPORARY SOIL BINDERS

OBJECTIVE:

Soil binders provide temporary protection against wind and water erosion. They can be applied alone or in conjunction with mulching or seeding practices. Soil binders encompass a broad range of treatments which vary in longevity, resistance to abrasion, application rate, required equipment, and other factors.

INSTALLATION:

See section 5.6 for common methods.

INSTALLATION & MAINTENANCE:

See section 5.6 for installation and maintenance considerations.

6.4 STABILIZATION PRACTICE FOR PERMANENTLY CEASED ACTIVITIES

Stabilization is more than establishing of vegetation. Site stabilization is coverage of the entire disturbed area with a constructed element (e.g., a building or stabilized channel) or a natural element (e.g., seeding or planted vegetation). Prevention of sediment transport is attainable using constructed elements as well as natural elements. It is important for the SWPPP Reviewer to acknowledge projects may include both constructed and natural elements that can deliver stabilization equivalent to the 'pre-construction condition'. The site around which this plan is developed incorporates the contract documents for constructed elements, permanent erosion control or other stabilization means.

If the contract documents do not detail permanent vegetative stabilization practices, then permanent vegetative stabilization will follow the methods listed in this SWPPP.

TABLE 6.1 SITE STABILIZATION PRACTICES FOR PERMANENTLY CEASED ACTIVITIES

STABILIZATION PRACTICE	STABILIZATION TYPE	IMPLEMENTATION SCHEDULE (EST.)	CONVERTED FROM TEMPORARY?
Gravel Mulch	Non - Vegetative	SEE SCHEDULE NOTE*	No
APWA 1012 Seeding	Vegetative	SEE SCHEDULE NOTE*	No
Landscaping	Vegetative	SEE SCHEDULE NOTE*	No
		SEE SCHEDULE NOTE*	
		SEE SCHEDULE NOTE*	
*SEE THE CONTRACTOR'S SCHEDULE FOR EXACT ACTIVITY DATES. ALTERNATIVELY, THE INSTALLATION DATES FOR BMPs ARE AVAILABLE IN THE SWPPP SITE MAP, IN THE INSPECTION REPORTS OR PROJECT BMP INSTALLATION LOG.			

6.4.1 VEGETATIVE STABILIZATION

See the landscaping plans for planned stabilization and gravel mulches. Areas not stabilized through landscaping or gravel mulch will be seeded per NM APWA 1012 seeding specification using hydraulic mulch in lieu of straw.

6.5 FINAL STABILIZATION CRITERIA

Stabilized areas meet the CGP stabilization requirements if any disturbed areas which are not covered by a permanent structure are completely covered (i.e., 100% coverage) by a vegetative stabilization method or non – vegetative stabilization method.

It is not accurate nor compliant if any exposed area that is less than one acre remains uncovered following the completion of construction activities.

The final stabilization criteria have been met if:

- The vegetative stabilization method utilized establishes uniform, perennial vegetation to provide ≥70% or more of the vegetative cover native to the project area; and/or

- The Operator has implemented permanent non – vegetative stabilization measures to provide effective cover of any exposed soils.

The project does qualify for an exception to the final stabilization criteria because it is located in arid, semi – arid or drought – stricken environment. Under this exception, the Operator meets the final stabilization criteria if:

- The exposed areas have been seeded or planted to establish vegetation that will provide ≥70% of the vegetative cover native to the area within three years; and
- If necessary, implemented non – vegetative erosion control measures to provide cover for at least three years, without active maintenance, while the seeded area germinates.

7 POLLUTION PREVENTION PRACTICES

7.1 POTENTIAL SOURCES OF POLLUTION

The following list provides the elements of potential pollution sources specific to the project at the time the plan was generated.

POLLUTANT GENERATING ACTIVITY	POLLUTANTS OR POLLUTANT CONSTITUENTS	LOCATION ON SITE
Vehicle and Equipment Maintenance or Fueling	Oil, Petroleum Distillates, Greases, Fuels	Equipment and Vehicle Parking
Clearing & Grading	Sediment	Entire Disturbed Area
Construction Debris, Waste	Material Waste, Worker Waste, Debris	Dumpsters, Waste Bins
Vehicle Fluid Storage	Hydraulic Oils, Fluids, Greases, Engine Oil, Mineral Oil, Petroleum Distillates, Naphthalene, Xylenes	Staging Area or Storage Unit
Sanitary Toilets	Bacteria, Parasites, Viruses	Temporary Toilet Stations
Concrete, Grout Mixing and Wash Water	Limestone, Sand, pH, Chromium, Admixtures	Concrete Washout
Rough Grading/Final Grading	Sediment	Entire Disturbed Area
Trenching & Backfill	Sediment	Silt Fence Perimeter, Underground Utilities
Excavation and Compaction	Sediment	Sediment Basins
Grout Mixing, Pouring	Limestone, Sand, pH, Chromium, Admixtures	Retaining Wall Installation

7.2 SPILL PREVENTION AND RESPONSE

The discharge or spill of hazardous substances is not expected to occur due to or during construction activities. The project and its activities are not expected to use any substance in a manner or quantity that might require the reporting of a release in excess of reportable quantities. Substances and reportable values include:

HAZARDOUS SUBSTANCES	WHERE RELEASED	REPORTABLE QUANTITY
Engine Oil, fuel, hydraulic and brake fluids	Land	25 Gallons
Engine Oil, fuel, hydraulic and brake fluids	Water	Visible Sheen
Antifreeze, battery acid, gasoline, engine degreasers, radiator fluid	Air, Land, or Water	100 lbs. or 13 Gallons
Paints, solvents, and thinners	Land	100 lbs. or 13 Gallons
Freon	Air	1 lb.

When an incident (spill of hazardous material in excess of reportable quantities) occurs within the project during construction activities, the following measures will be employed:

THE OPERATOR WILL:	TIME ACTION REQUIRED	RESPONSIBLE EMPLOYEE ONSITE
Stop the source of the spill	Immediately	Superintendent
Contain the spill utilizing (compost) mulch socks or soil berms	Immediately	Superintendent
Clean up the spill	Once Spill is Contained	Superintendent
Dispose of material contaminated by the spill in an approved disposal site	Within 24 Hours	Superintendent

Notify:
• The National Response Center, 800-424-8802;
• NMED Emergency Response - 505-827-9329
  ○ 24/7 Response
• NMED Non – Emergency Response
  ○ 505-476-660, Mon. – Friday, 8am -5pm
  ○ 866-428-6535, 24-Hour Voice Mail
• NMED Surface Water Quality Bureau, 505-827-0187
• Hazardous Waste Bureau (1-505-476-6000) providing a release of hazardous materials in excess of reportable quantities has occurred.
	Within 24 Hours	Superintendent

Submit a written description of the incident to the appropriate authorities (NRC, SWQB)	7 Calendar Days	Superintendent or Project Manager
Modify SWPPP, if appropriate, and identify prevention measures.	7 Calendar Days	E2RC, LLC

This site does not require a Spill Prevention Control and countermeasure (SPCC) plan. If a plan is required, it will be found in a separate binder at the construction site office.

7.3 FUELING AND EQUIPMENT MAINTENANCE

OBJECTIVE:

To minimize or eliminate the discharge of fuel spills and other pollutants into the storm water management system on construction sites. Key areas include all construction sites where storage and maintenance occur on – site, and all fueling areas within a construction site.

INSTALLATION:

Limitations:

- Fuel vehicles on-site only when off-site fueling is impractical.
- Comply with local codes regarding fluid disposal and on-site equipment maintenance.

Standards and Specifications:

- Spill cleanup kits should be available in fueling areas and on fueling trucks. Proper disposal is required.
- A drip pan or absorbent pad should be used unless fueling or maintenance activities occur over an impervious surface.
- When a vehicle is located over a water body (dock, barge) and is planned to be idle for more than one hour, a drip pan or sheet should be placed under the vehicle.
- Fueling areas should be:
    - Located at least one hundred feet from waterways, channels, and storm drains.
    - Protected from run-on or runoff.
    - Located on a level-graded area.
    - Attended always during fueling.
- Fueling equipment should be equipped with an automatic shut-off nozzle to contain drips.
- Fuel tanks should not be “topped-off”.
- Avoid mobile fueling.
- Observe federal, state, and local requirements relating to any stationary aboveground storage tanks. Double containment mechanisms should be employed whenever possible.
- Do not dump fuels and lubricants onto the ground.
- Do not bury used tires.
- Do not dispose of oil in a dumpster or pour it down the storm drain.
- Properly dispose of used batteries.
- Conduct washing, fueling, and major maintenance off-site whenever possible.
- Inspect vehicles for leaky hoses, gaskets, or other problems.
- Locate vehicle services areas away from waterways, storm drains, gutters, and curbs.
- Use berms, sandbags, or other barriers to contain areas.

- Do not use detergents, solvents, degreasers, or other chemical products to do on-site cleaning.
- Use a drip pan or drip cloth if fluids will be drained and replaced on-site.
- Collect all used fluids, store in separate labeled containers, and either recycle or dispose of properly.

INSPECTION AND MAINTENANCE:

- Inspect on all containment structures.
- Maintain waste fluid containers in a leak proof condition.
- Service sumps associated with wash areas regularly.
- Inspect daily for leaks on vehicles and equipment.
- Keep an ample supply of spill cleanup materials available on-site.
- Clean up spills immediately and dispose of waste properly.
- Prevent boil-over by regularly cleaning equipment radiators.

7.4 EQUIPMENT OR VEHICLE WASHING

OBJECTIVE:

To minimize or eliminate the discharge of pollutants entering the storm drain system from vehicle and equipment cleaning operations at all construction sites where vehicle cleaning occurs.

INSTALLATION:

Limitations:

- Wash water discharges may need to be pretreated before release into the sanitary sewer.
-

Standards and Specifications:

- On-site vehicle and equipment washing are discouraged.
- Do not clean vehicles and equipment with detergent, solvents, or steam on the project site.
- Contain wash water away from storm drain inlets or waterways for evaporative drying or percolation.
- Off-site cleanings are encouraged for all vehicles and equipment that regularly enter and leave the construction site.
- Conduct washing, fueling, and major maintenance off-site whenever possible.
- If equipment or vehicle washing must occur on-site:
- Locate cleaning area away from storm drain inlets, drainage facilities, or waterways.
- Perform the washing in a paved area with concrete or asphalt utilizing a berm to contain wash waters and prevent run-on or runoff.
- Install a sump to collect wash water.
- Do not discharge wash waters to storm drains or waterways.
- Use only when necessary.

- When cleaning vehicles with water:
- Consider using a high-pressure sprayer or a positive shut-off valve to reduce water usage.

INSPECTION AND MAINTENANCE:

- Inspect the control measure at a minimum of once per week.
- Monitor employees and subcontractors to ensure they are implementing or following proper practices.
- Regularly inspect and maintain the sump. Remove sediments and liquids as needed.

7.5 STORAGE, HANDLING AND DISPOSAL OF CONSTRUCTION PRODUCTS, MATERIALS AND WASTES

Building Products are found on the site per CGP Part 2.3.3a. Section 7.9 Construction and Domestic Waste describes the practices utilized for this area.

Pesticides, Herbicides, Insecticides, Fertilizers, and Landscape Materials are found on the site per CGP Part 2.3.3b. Section 7.7 Fuels, Oils, Hydraulic Fluids, Other Petroleum Products, and Chemicals and Section 7.8 Hazardous and Toxic Waste describes the practices utilized for this area.

OBJECTIVE:

To minimize the exposure of these products to precipitation and stormwater:

PRODUCT/MATERIAL/WASTE	PROTECTION	LOCATION*	DISPOSAL
Building Materials/Products	Covered Containers, Conex Boxes, Plastic Sheeting or Temporary Roofing	See TESC Plan	Offsite
Pesticides, Herbicides, Insecticides	Covered Containers, Conex Boxes, Plastic Sheeting or Temporary Roofing	See TESC Plan	Offsite
Fertilizers, Landscape Materials	Covered Containers, Conex Boxes, Plastic Sheeting or Temporary Roofing	See TESC Plan	Offsite
Fuels, Oils, Hydraulic Fluids, etc.	Water – tight containers, Spill Kit, Plastic Sheeting, Temporary Roofs or Secondary Containment	Staging Area	Offsite
Hazardous or Toxic Wastes**	Labeled Sealed Containers, Secondary Containment or Store in Covered Area, Spill Kit	See TESC Plan	Offsite
Construction Waste	Closed/Covered Waste Receptacle	See TESC Plan	Offsite

Sanitary Waste	Anchored Portable Toilets	See TESC Plan	Offsite

*The location is a preliminary location as of the design date of this SWPPP. Refer to the updated TESC drawings for current location.

**Separate hazardous waste from construction and domestic waste. Dispose of hazardous and toxic waste in accordance with local, state, or federal requirements.

7.6 WASHING AREAS AND CONTAINERS FOR CONCRETE, GROUT OR OTHER MATERIALS

ONLY INCORPORATED AND APPLICABLE IF THE PERMITTEE IS UNABLE TO WASHOUT OFFSITE

OBJECTIVE:

Concrete washouts are used to collect and contain concrete and liquids when the chutes of concrete mixers and hoppers of concrete pumps are rinsed after delivery. The washout controls consolidate solids for easier disposal and prevent runoff of liquids. Proper containment prevents caustic material from reaching the soil surface and migrating to receiving waters or ground water.

The wash water is alkaline and contains high levels of chromium, which can leach into the ground and contaminate groundwater. It can also migrate to a storm drain, which can increase the pH of area waters and harm aquatic life. Solids that are improperly disposed of can clog storm drainpipes and cause flooding. Installing concrete washout facilities not only prevents pollution but also is a matter of good housekeeping at your construction site.

INSTALLATION:

Install the washout in an area that is convenient and provides easy access for concrete trucks, preferably near the area in which the concrete is being poured. There are various types of washout containers the Contractor may use at a jobsite to collect and contain wash water. Such methods include but are not limited to chute washout boxes, buckets and pumps, lined washout pits surrounded by an adequate berm or bale barrier, vinyl washout containers, and metal washout containers.

Washout containers should be leak proof and of adequate size to accommodate anticipated material use and waste without causing spillage. Each method should be installed in concurrence with manufacturer specifications of design specifications.

INSPECTION AND MAINTENANCE:

Inspect all concrete washout facilities daily to determine if they have filled to 75 percent capacity, which is when materials need to be removed. Washouts should be inspected daily to ensure that plastic linings are intact, and sidewalls have not been damaged by construction activities. Inspectors should also note whether the facilities are being used regularly. If drivers have washed their chutes or hoppers in other locations, place additional washouts in more convenient locations.

Concrete washouts are designed to promote evaporation where feasible. However, if stored liquids have not evaporated and the washout is nearing capacity, vacuum and dispose of the waste in an approved manner. Check with the local sanitary sewer authority to determine if there are special disposal requirements for concrete wash water.

- Remove liquids or cover the structures before predicted rainstorms to prevent overflows.
- Remove hardened solids whole or break them up depending on available equipment for removal and local regulations.
- Following material removal, build a new structure, or if the previous structure is still intact, inspect the structure for signs of weakening or damage and make any necessary repairs.
- Line the concrete structure with new plastic that is free of holes or tears each time concrete removal is performed.
- Replace signage if necessary.

7.7 FUELS, OILS, HYDRAULIC FLUIDS, OTHER PETROLEUM PRODUCTS AND CHEMICALS

OBJECTIVE:

To minimize or eliminate the discharge of hazardous or non-hazardous materials to storm drains, watercourses, or drainage channels. These practices are applicable to all construction sites that have delivery and/or storage of:

- Fuel, oil, grease
- Herbicides, pesticides, fertilizers
- Asphalt, concrete, and their components
- Acids, curing and form compounds
- Other hazardous materials

INSTALLATION:

Limitations:

- All temporary storage buildings must meet building codes.
- Storage must meet fire codes.

- All secondary containment structures and materials should be removed from the site upon completion of the project and disposed of per regulations.

Standards and Specifications:

- Designate a storage area that is not near a storm drain or watercourse.
- Follow manufacturers' instructions on application, storage, and disposal of materials.
- Store on-site only the amount of material necessary for the job.
- Use non-hazardous and environmentally friendly products.
- Provide indoor storage or cover stockpiled materials and wastes with a tarp.
- Provide covered storage for secondary containment of hazardous materials.
- Use secondary storage to prevent soil contamination.
- Monitor employees and subcontractors to ensure that proper practices are being implemented.
- Keep all material in original containers.
- Label all stored materials per state, local and federal regulations.
- Do not store incompatible materials together.
- Keep adequate supply of cleanup materials on site at all times.
- Report all spills.
- Do not apply hazardous chemicals during wet or windy conditions.

INSPECTION AND MAINTENANCE:

- Inspect storage areas weekly to ensure neatness.
- Post proper storage instructions and Material Safety Data Sheets (MSDS) for all currently stored materials.
- Repair and replace damaged secondary containment facilities.
- Remove all empty containers and packaging from site.
- Store materials with adequate clearances for access and emergency response.

7.8 HAZARDOUS OR TOXIC WASTE

OBJECTIVE:

To minimize or eliminate the discharge of hazardous wastes from construction sites to storm drains, gutters, watercourses, and drainage channels. These practices are applicable to the following products:

- Petroleum products
- Asphalt products
- Concrete products
- Herbicides and pesticides
- Acids for cleaning masonry
- Soil stabilization chemicals

- Septic wastes
- Paints, solvents, stains, and wood preservatives
- Materials that were used to treat or adsorb other wastes
- Hazardous construction wastes such as lead, asbestos, or lead paint

INSTALLATION:

Limitations:

- Does not address preexisting contamination or site assessments.
- Large spills or other serious hazardous wastes require immediate response from specialists.
- Contractor is required to follow all federal, state, and local laws regarding handling, storing, and transporting waste materials.

Standards and Specifications:

- Waste containers shall be constructed of a suitable material and properly labeled according to regulations. Labels must include type of material, time of collection and site location.
- Temporary containment for stored materials should be sized at 1.5 times the volume of the stored material. Materials must be stored in sealed drums.
- Temporary containment areas shall be free of accumulated storm water and spills.
- Temporary containment areas shall have room between containers for emergency response and cleanup.
- Incompatible materials shall be stored separately.
- Do not store different materials in the same container.
- Do not locate temporary containment areas near storm drains, gutters, watercourses, or drainage channels.
- Provide adequate access to temporary containment areas.
- Store containers on pallets under a covered, protected area unless containers are watertight.
- Do not dispose of liquid waste in dumpsters or other solid waste containers.
- Collect water from decontamination procedures, treat it and dispose of it at an appropriate disposal site.
- Educate employees and subcontractors in waste storage and disposal. Ensure that proper procedures are followed.
- Immediately repair all dikes and liners used for storage or containment.
- Recycle materials if appropriate.

INSPECTION AND MAINTENANCE:

- Ensure that all wastes are properly labeled and stored.
- Verify that all hazardous wastes are disposed of properly.
- Hazardous wastes must be collected, labeled, and disposed of at authorized disposal sites.

- Keep supplies on-site for cleanup of spills.
- Post SDS sheets for all materials stored on-site.
- Immediately repair all dikes and liners used for storage or containment.

7.9 CONSTRUCTION AND DOMESTIC WASTE

DESCRIPTION

Building materials and other construction site wastes must be properly managed and disposed of to reduce the risk of pollution from materials such as surplus or refuse building materials or hazardous wastes. Practices such as trash disposal, recycling, proper material handling, and spill prevention and cleanup measures can reduce the potential for stormwater runoff to mobilize construction site wastes and contaminate surface or ground water.

APPLICABILITY

The proper management and disposal of wastes should be practiced at every construction site to reduce stormwater runoff. Use waste management practices to properly locate refuse piles, to cover materials that might be displaced by rainfall or stormwater runoff, and to prevent spills and leaks from hazardous materials that were improperly stored.

SITING AND DESIGN CONSIDERATIONS

Solid Wastes:

- Designate a waste collection area on the site that does not receive a substantial amount of runoff from upland areas and does not drain directly to a waterbody.
- Ensure that containers have lids so they can be covered before periods of rain and keep containers in a covered area whenever possible.
- Schedule waste collection to prevent the containers from overfilling.
- Clean up spills immediately. For hazardous materials, follow cleanup instructions on the package. Use an absorbent material such as sawdust or kitty litter to contain the spill.
- During the demolition phase of construction, provide extra containers and schedule more frequent pickups.
- Collect, remove, and dispose of all construction site wastes at authorized disposal areas. Contact a local environmental agency to identify these disposal sites.

To ensure the proper disposal of contaminated soils that have been exposed to and still contain hazardous substances, consult with state or local solid waste regulatory agencies or private firms. Some landfills might accept contaminated soils, but they require laboratory tests first.

Paint and dirt are often removed from surfaces by sandblasting. Sandblasting grits are the byproducts of this procedure and consist of the sand used and the paint and dirt particles that are removed from the

surface. These materials are considered hazardous if they are removed from older structures because they are more likely to contain lead-, cadmium-, or chrome-based paints. Ensure proper disposal of sandblasting grits by contracting with a licensed waste management or transport and disposal firm.

Detergents:

Phosphorous and nitrogen containing detergents are used in wash water for cleaning vehicles. Excesses of these nutrients can be a major source of water pollution. Use detergents only as recommended and limit their use on the site. Do not dump wash water containing detergents into the storm drain system; direct it to a sanitary sewer or contain it so that it can be treated at a wastewater treatment plant.

LIMITATIONS

An effective waste management system requires training and signage to promote awareness of the hazards of improper storage, handling, and disposal of wastes. The only way to be sure that waste management practices are being followed is to be aware of worker habits and to inspect storage areas regularly. Extra management time may be required to ensure that all workers are following the proper procedures.

MAINTENANCE CONSIDERATIONS

Inspect storage and use areas and identify containers or equipment that could malfunction and cause leaks or spills. Check equipment and containers for leaks, corrosion, support or foundation failure, or other signs of deterioration, and test them for soundness. Immediately repair or replace any that are found to be defective.

7.10 SANITARY WASTE

OBJECTIVE:

To minimize or eliminate the discharge of sanitary wastes from construction sites to storm drains, gutters, watercourses, and drainage channels. These controls apply to construction sites that have portable or temporary sanitary waste systems.

INSTALLATION:

Limitations:

- To dispose of wastes to the sanitary sewer, the leasing company must be permitted.
- On-site disposal systems must comply with all local, and state regulations.
- Temporary connections to the sanitary sewer should meet codes and regulations.

Standards and Specifications:

- Locate toilets and disposal systems where accidental discharge cannot flow to storm drains, gutters, watercourses, and drainage channels.
- Anchor portable toilets so they do not overturn during high winds.
- All sanitary wastes shall eventually be discharged to a sanitary sewer.
- Employ licensed sanitary services to ensure facilities are in working order at all times.

INSPECTION AND MAINTENANCE:

- Monitor employees and subcontractors to ensure that proper practices are being implemented.
- Sanitary storage and disposal should be inspected at least once per week. Units should be properly maintained, repaired, or replaced.

7.11 FERTILIZERS

Fertilizer is not planned for use on the project.

8 INSPECTION SCHEDULE AND PROCEDURES

Successful SWPPP compliance requires regular BMP control inspections, preventive maintenance, and SWPPP plan review. Inspections help to uncover conditions that might lead to a release of discharges and non-compliance violations. Planned maintenance should prevent discharges and violations. Revisions to the plan ensure it is viable and effective for the life of the project. The following activities and supporting procedures will be included in the preventive maintenance program.

8.1 GENERAL SITE AWARENESS

The Operator shall continuously (during scheduled and unscheduled specific site visits) monitor the implemented erosion and sediment control measures during site - specific (and project) construction activities to ensure the effectiveness and operation condition of the measures. If changes or repairs are needed to improve the effectiveness and operation of a sediment control measure, they will be implemented as soon as practicable and in no case greater than seven (7) days after the discovery of the needed corrective action.

8.2 SPECIFIC COMPLIANCE INSPECTION

The Operator or his designee' (qualified personnel) will inspect disturbed areas and structures for erosion and sediment control effectiveness and for the potential of pollutants entering the drainage system. All erosion and sediment control measures, including final stabilization, will be inspected to ensure proper operation. Discharge locations will be inspected to assure effectiveness. Inspections will document effectiveness of measures and potential impacts to receiving waters.

All erosion and sediment control structures, measures and practices will be inspected according to the inspection frequency identified in Section 8.5.1. Inspectors will review all BMPs installed onsite and listed in the current plan.

Inspectors will document BMP performance and recommend corrective measures be implemented ONLY for listed BMPs requiring maintenance or in a corrective action. BMPs exhibiting acceptable performance (BMPs that do not require maintenance or are not in a failed (upset) condition) will not be specifically listed in the inspection report and will be considered compliant with the CGP and specific SWPPP documents. Inspectors will document sediment accumulation and if necessary, recommend that corrective measures be implemented immediately. Also, if emergency repairs and measures are needed after a significant rainfall (greater than 0.25 inches), such measures and repairs will be performed and completed immediately, and before the next significant rainfall event (if weather, supplies/materials, and site conditions will permit).

The project will be inspected every 14 days per the NPDES requirements effective with the project start date until the NOT is submitted. Inspectors will ensure control measures are maintained in good operating condition. The Inspector will sign the inspection report and must comply with the signatory requirements set forth in the General Construction Permit (GCP).

8.3 RAIN GAUGE LOCATION

A rain gauge is located on the posting board for the project. Onsite personnel should check the rain gauge at the same time each day. If 0.25" of precipitation has occurred in that 24 – hour period, they need to report it per the instructions on the 'Precipitation Event Notification Requirements' page located at the front of the binder. We also recommend utilizing the 'Storm Event Log' in the *Engineering – Precipitation Data* section of the SWPPP.

8.4 PERSONNEL RESPONSIBLE FOR INSPECTIONS

All personnel conducting site inspections are required to be certified. E2RC requires its Inspectors to undergo training and examination by StormwaterONE, Envirocert International or CISEC to demonstrate and maintain their qualifications to perform site inspections. Each of these providers has developed an instruction platform supported by an examination to ensure the Inspector can perform inspections according to the CGP requirements.

The supporting qualification documentation for the E2RC personnel is included in the *Inspector Qualifications* appendix of the SWPPP.

The following personnel are qualified to inspect Sagebrush Substation Site Development:

NAME	CERTIFICATIONS	COMPANY
Kelley V. Fetter	P.E., CISEC, CPSWQ, CPMSM	E2RC, LLC
Sydney Fetter	CISEC	E2RC, LLC
Ryan Higdon	CISEC	E2RC, LLC
Ray Welton, Jr.	StormwaterONE	E2RC, LLC
Jessie Gilliam, Jr.	StormwaterONE	E2RC, LLC

Pedro Calabaza	ACNM	E2RC, LLC
Carlos Flores	CISEC	E2RC, LLC

8.5 INSPECTION SCHEDULE

8.5.1 SPECIFIC INSPECTION FREQUENCY

Inspections will occur according to the following schedule:

☐ Every 7 – calendar days and within 24 – hours of each precipitation event generating ≥ 0.25 inches of rain or ≥3.25 inches of snow within a 24 – hour period

☐Every seven days, no post – precipitation event inspections

☒ Every 14 – calendar days and within 24 – hours of each precipitation event generating ≥ 0.25 inches of rain or ≥3.25 inches of snow within a 24 – hour period

8.5.2 REDUCTION IN INSPECTION FREQUENCY

The inspection frequency for the project ***will not be reduced*** if work occurs during the seasonally dry period as the risk of non – compliant activities or prohibited discharges is still present. Although seasonally dry, the possibility the project may experience a spill, illegal discharge, or other violation exists, regardless of the potential of precipitation.

The inspection frequency for the project ***will not be reduced*** for projects which enter 'winter suspension' as the CGP does not provide for such a reduction in inspections.

The inspection frequency for projects which have achieved the final stabilization criteria may be reduced to bi-weekly the first month following final stabilization, then monthly thereafter.

8.6 INSPECTION REPORT FORMS

A copy of the inspection form is included in the *Completed Inspections* appendix of the SWPPP. Complete inspection reports are available electronically. AECOM may access complete inspection reports using their unique user account on the Comply26, LLC platform. Designated project stakeholders also receive each inspection report by email.

9 CORRECTIVE ACTIONS

Each inspection report identifies corrective actions for the site BMPs, if they exist at the time of the inspection. Onsite personnel may also identify corrective actions outside of the regular inspection schedule.

Work to complete the corrective actions should be initiated 'immediately'. Immediately is defined by EPA as a requirement of operators to initiate all reasonable steps to minimize or prevent the discharge

of pollutants until a permanent solution is installed and made operational. This includes cleaning up any contaminated surfaces to prevent discharges from subsequent events.

9.1 CONDITIONS TRIGGERING A CORRECTIVE ACTION

- CGP Part 5.1.1: A stormwater control needs significant repair or replacement (beyond routine maintenance required under Part 2.1.4 of the CGP); or
- CGP Part 5.1.2: A stormwater control necessary to comply with the requirements of this permit was never installed, or was installed incorrectly; or
- CGP Part 5.1.3: Your discharges are causing and exceedance of applicable water quality standards;
- CGP Part 5.1.4: A prohibited discharge has occurred under Part 1.3 of the CGP; or
- CGP Part 5.1.5: During discharge from site dewatering activities,
    - The weekly average of the turbidity monitoring results exceeds the 50NTU benchmark; or
    - You observe an indicator of pollutant discharge at a discharge point to any receiving water (e.g., sediment plume, suspended solids, unusual color, oily deposits, visual sheen).

9.2 CORRECTIVE ACTION DEADLINES

The EPA provides baseline deadlines to complete corrective activities, according to their severity and level of repair. However, it may occur that local or state agencies establish maintenance or corrective deadlines. In the event both exist and are applicable to a project, the more stringent requirement applies. For example, projects submitted to New Mexico Department of Transportation specifications must complete repairs within three (3) days of discovery.

For any corrective action triggering conditions in Part 5.1.1, 5.1.2, 5.1.3 or 5.1.4 of the CGP, the Operator(s) must:

- 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;
- 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;
- 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.

9.3 CORRECTIVE ACTION LOG

The EPA requires the Permittees complete a Corrective Action Log. **A log is included in the Site Housekeeping section of this plan.** The Operator(s) will utilize the inspection report to identify the areas where corrective actions are required. The inspection report will list the conditions of the site, nature of the conditions identified for correction and the date and time of the identification.

For each corrective action taken in accordance with Part 5.1, you must complete a log entry in accordance with the following:

- Part 5.4.1: Document the specific condition and the date and time it was identified within 24-hours of identifying the corrective action condition. Document the actions taken to address the condition, including whether any SWPPP modifications are required within 24 - hours of completing the corrective action (in accordance with the deadlines in Part 5.2).
- Part 5.4.2: Sign each corrective action report must be signed in accordance with Appendix G, Part G.11.2.
- Part 5.4.3: Keep a copy of all corrective action log 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.
- Part 5.4.4: Retain the corrective action logs for at least three (3) years from the date that your permit coverage expires or is terminated.

10 TRAINING REQUIREMENTS

Prior to the commencement of construction activities, the following personnel on the stormwater team must understand the requirements of the CGP and their specific responsibilities with respect to those requirements, including those related to the scope of their job duties:

- Permit requirements and deadlines associated with:
    - Installation;
    - Maintenance;
    - Removal of Stormwater Controls
    - Temporary and Permanent Stabilization
- Location of all stormwater controls onsite and how to maintain them;
- Pollution Prevention Requirements
- How to conduct Inspections
- How to take and complete Corrective Actions

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, 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.

11 DOCUMENT RETENTION

All NPDES documents associated with this project must be kept for three years after the date the NOT is certified.

STORMWATER POLLUTION PREVENTION PLAN

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

SITE OPERATOR – EXECUTION OF DAILY ACTIVITIES

AECOM

Site Operator: Date:

By: Steve Kostage, Associate Vice President

SITE OPERATOR – PLAN CONTROL AND DIRECTION

PNM

Site Operator: Date:

By: Todd Fridley, Vice President - New Mexico Operations

Disclaimer

The decisions of operational control and implementation of BMP'S by the Operator(s) of the project, Sagebrush Substation Site Development and components of the construction are the responsibility of the listed operators. E2RC, LLC and the Engineer are not liable for the operational decisions of the Operator(s) or the failure of the same to follow the recommendations outlined in the SWPPP documentation. The operator(s) agree to hold E2RC, LLC or the Engineer harmless for any potential violations the Operator(s) may receive for violations from regulatory agencies such as federal governments, city governments, the State, or EPA. E2RC, LLC offers to answer inquiries on the preparation and recommendations made therein including the defense of such recommendations or preparations to any regulatory agencies. By accepting the SWPPP, the operator(s) accept the disclaimer and its conditions.

The Stormwater Pollution Prevention Plan prepared by:

E2RC, LLC

Sealed: Date: 5/20/2022

Kelley V. Fetter, P.E., CPSWQ
E2RC, LLC
439 S. Hill Road
Bernalillo, NM 87004
505-867-4040

By my signature, E2RC, LLC is delegated and authorized to originate and develop this Stormwater Pollution Protection Plan (SWPPP) for Sagebrush Substation Site Development to meet the National Pollution Discharge Elimination System (NPDES) compliance requirements.

SWPPP AMENDMENT RECORD

Project Name: Sagebrush Substation Site Development

NPDES ID: NMR1004S2

Date: _____

Description:

Amendment Authorized and Certified by:

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.

Name: _____

Title: _____

Company: _____

Signature: _____

Notice of Intent &
Authorization

INTEGRATED
ENVIRONMENTAL
CONSTRUCTION
ENGINEERING

Design I Comply I Restore

INSERT ACTIVE NOI AUTHORIZATION EMAIL HERE.

NOI CERTIFIER RECEIVES THIS EMAIL WHEN THE NOI IS ACTIVE.

www.e2rc.com ■ 505-867-4040 ■ 439 South Hill Road, Bernalillo, NM 87004 ■ *Fax:* 505-867-4044

NPDES FORM 3510-9		UNITED STATES ENVIRONMENTAL PROTECTION AGENCY WASHINGTON, DC 20460 NOTICE OF INTENT (NOI) FOR THE 2022 NPDES CONSTRUCTION PERMIT	FORM Approved OMB No. 2040-0305

Submission of this Notice of Intent (NOI) constitutes notice that the operator identified in Section III of this form requests authorization to discharge pursuant to the NPDES Construction General Permit (CGP) permit number identified in Section II of this form. Submission of this NOI also constitutes notice that the operator identified in Section III of this form meets the eligibility requirements of Part 1.1 CGP for the project identified in Section IV of this form. Permit coverage is required prior to commencement of construction activity until you are eligible to terminate coverage as detailed in Part 8 of the CGP. To obtain authorization, you must submit a complete and accurate NOI form. Discharges are not authorized if your NOI is incomplete or inaccurate or if you were never eligible for permit coverage. Refer to the instructions at the end of this form.

Permit Information

NPDES ID: NMR1004S2

State/Territory to which your project/site is discharging: NM

Is your project/site located on federally recognized Indian Country lands? No

Are you requesting coverage under this NOI as a *"Federal Operator"* or a *"Federal Facility"* as defined in Appendix A (https://www.epa.gov/system/files/documents/2022-01/2022-cgp-final-appendix-a-definitions.pdf)?

No

Have stormwater discharges from your current construction site been covered previously under an NPDES permit? No

Will you use polymers, flocculants, or other treatment chemicals at your construction site? No

Has a Stormwater Pollution Prevention Plan (SWPPP) been prepared in advance of filling this NOI, as required? Yes

Are you able to demonstrate that you meet one of the criteria listed in Appendix D (https://www.epa.gov/system/files/documents/2022-01/2022-cgp-final-appendix-d-endangered-species-protection.pdf) with respect to protection of threatened or endangered species listed under the Endangered Species Act (ESA) and federally designated critical habitat?

Yes

Have you completed the screening process in Appendix E (https://www.epa.gov/system/files/documents/2022-01/2022-cgp-final-appendix-e-historic-properties.pdf) relating to the protection of historic properties?

Yes

Indicating "Yes" below, I confirm that I understand that CGP only authorized the allowable stormwater discharges in Part 1.2.1 and the allowable non-stormwater discharges listed in Part 1.2.2. 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 Stormwater Pollution Prevention Plan (SWPPP), during an Inspection, etc. If any discharges requiring NPDES permit coverage other than the allowable stormwater and non-stormwater discharges listed in Parts 1.2.1 and 1.2.2 will be discharged, they must be covered under another NPDES permit.

Yes

Operator Information

Operator Information

Operator Name: AECOM

Operator Mailing Address:

Address Line 1: 40 British American Blvd.

Address Line 2:

City: Latham

ZIP/Postal Code: 12110

State: NY

County or Similar Division: Albany

Operator Point of Contact Information

First Name Middle Initial Last Name: Bill Haynes

Title: Site Manager

Phone: 865-394-8129

Ext.:

Email: bill.haynes@aecom.com

NOI Preparer Information

☑ **This NOI is being prepared by someone other than the certifier.**

First Name Middle Initial Last Name: Sydney Fetter

Organization: E2RC, LLC

Phone: 505-867-4040

Ext.:

Email: swppp@e2rc.com

Project/Site Information

Project/Site Name: Sagebrush Substation Site Development

Project/Site Address

Address Line 1: Univserity Blvd. SE & Flightway Ave.

Address Line 2:

City: Albuquerque

ZIP/Postal Code: 87106

State: NM

County or Similar Division: Bernalillo

Latitude/Longitude: 35.050502°N, 106.629207°W

Latitude/Longitude Data Source: Google Earth **Horizontal Reference Datum:** WGS 84

Project Start Date: 06/03/2022 **Project End Date:** 02/28/2023 **Estimated Area to be Disturbed:** 12.5

Types of Construction Sites:

- Utility

Will there be demolition of any structure built or renovated before January 1, 1980? No

Will you be discharging dewatering water from your site? No

Was the pre-development land use used for agriculture? No

Are there other operators that are covered under this permit for the same project site? No

Have earth-disturbing activities commenced on your project/site? No

Is your project/site located on federally recognized Indian Country lands? No

Is your project/site located on a property of religious or cultural significance to an Indian tribe? No

Discharge Information

Does your project/site discharge stormwater into a Municipal Separate Storm Sewer System (MS4)? Yes

Are there any waters of the U.S. within 50 feet of your project's earth disturbances? No

Are any of the waters of the U.S. to which you discharge designated by the state or tribal authority under its antidegradation policy as a Tier 2 (or Tier 2.5) water (water quality exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water) or as a Tier 3 water (Outstanding National Resource Water)? See Resources, Tools and Templates (https://www.epa.gov/npdes/construction-general-permit-resources-tools-and-templates)

No

001: Unnamed Tributary (South Diversion Channel to I -

Latitude/Longitude: 35.051335°N, 106.630506°W

Tier Designation: N/A

Is this receiving water impaired (on the CWA 303(d) list)? No

Has a TMDL been completed for this receiving waterbody? No

Stormwater Pollution Prevention Plan (SWPPP)

Will all required personnel, including those conducting inspections at your site, meet the training requirements in Part 6 of this permit? Yes

First Name Middle Initial Last Name: Kelley Fetter, P.E., CPSWQ, CPMSM

Organization:

Title: President

Phone: 505-867-4040 **Ext.:**

Email: info@e2rc.com

Endangered Species Protection Worksheet: Criterion A

Determine ESA Eligibility Criterion

Are your discharges and discharge-related activities already addressed in another operator's valid certification of eligibility for your "action area" under the current 2022 CGP? No

Has consultation between you, a Federal Agency, and the USFWS and/or the NMFS under section 7 of the Endangered Species Act (ESA) concluded? No

Are your construction activities the subject of a permit under section 10 of the ESA by the USFWS and/or NMFS, and this authorization addresses the effects of your site's discharges and discharge-related activities on ESA-listed species and/or designated critical habitat?

No

You must determine whether species listed as either threatened or endangered, or their critical habitat(s) are located in your site's action area (i.e., all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action, including areas beyond the footprint of the site that are likely to be affected by stormwater discharges, discharge-related activities, and authorized non-stormwater discharges).

Determine your Action Area

You must consider the following in determining the action area for your site, and **confirm that all the following are true**:

In determining my "action area", I have considered that discharges of pollutants into downstream areas can expand the action area well beyond the footprint of my site and the discharge point(s). I have taken into account the controls I will be implementing to minimize pollutants and the receiving waterbody characteristics (e.g., perennial, intermittent, ephemeral) in determining the extent of physical, chemical, and/or biotic effects of the discharges. I confirm that all receiving waterbodies that could receive pollutants from my site are included in my action area.

True

In determining my "action area", I have considered that discharge-related activities must also be accounted for in determining my action area. I understand that discharge-related activities are any activities that cause, contribute to, or result in stormwater and authorized non-stormwater point source discharges, and measures such as the siting, construction timing, and operation of stormwater controls to control, reduce, or prevent pollutants from being discharged. I understand that any new or modified stormwater controls that will have noise or other similar effects, and any disturbances associated with construction of controls, are part of my action area.

True

Determine is ESA-listed species and/or critical habitat are in your site action area.

ESA-listed species and designated critical habitat are under the purview of the NMFS and the USFWS, and in many cases, you will need to acquire species and critical habitat lists from both federal agencies.

National Marine Fisheries Service (NMFS)

For NMFS species and designated critical habitat information, use the following webpage:

- https://www.epa.gov/npdes/construction-general-permit-cgp-threatened-and-endangered-species-eligibility (https://www.epa.gov/npdes/construction-general-permit-cgp-threatened-and-endangered-species-eligibility)

I have checked the webpage listed above and confirmed that:

- (●) There are no NMFS-protected species and/or designated critical habitat in my action area.
- ( ) There are NMFS-protected species and/or designated critical habitat in my action area.

U.S. Fish and Wildlife Service (USFWS)

For USFWS species and critical habitat information, use the following webpage:

- https://www.epa.gov/npdes/construction-general-permit-cgp-threatened-and-endangered-species-eligibility (https://www.epa.gov/npdes/construction-general-permit-cgp-threatened-and-endangered-species-eligibility)

I have checked the webpage listed above and confirmed that:

- (●) There are no FWS-protected species and/or designated critical habitat in my action area.
- ( ) There are FWS-protected species and/or designated critical habitat in my action area.

You are eligible under **Criterion A**.

Identify the USFWS information sources used (Note: state resources are not acceptable):

```
USFWS Online Critical Habitat Mapping Tool
USFWS Online IPaC Species Report Tool, Project Code: 2022-0043676
```

Identify the NMFS information sources used (Note: state resources are not acceptable):

```
NMFS Southeast Region Endangered Species List
```

You must attach:

- Aerial image(s) of the site.
- A printout of the species' list(s) showing no ESA-listed species or designated critical habitat in my action area.

Name	Uploaded Date	Size
Species List_ New Mexico Ecological Services Field Office.pdf (attachment/1529419)	05/18/2022	781.39 KB
Critical Habitat for Threatened & Endangered Species [USFWS].pdf (attachment/1529418)	05/18/2022	761.32 KB
Aerial View.jpg (attachment/1529417)	05/18/2022	1.22 MB

Have you attached aerial image(s) of the site? Yes

Have you attached a printout of the species' list(s) showing no ESA-listed species or designated critical habitat in my action area? Yes

Have you provided documentation in your SWPPP supporting your eligibility under Criterion A? Yes

Historic Preservation

Are you installing any stormwater controls as described in Appendix E (https://www.epa.gov/system/files/documents/2022-01/2022-cgp-final-appendix-e-historic-properties.pdf) that require subsurface earth disturbances? (Appendix E (https://www.epa.gov/system/files/documents/2022-01/2022-cgp-final-appendix-e-historic-properties.pdf), Step 1)

Yes

Have prior surveys or evaluations conducted on the site already determined historic properties do not exist, or that prior disturbances have precluded the existence of historic properties? (Appendix E (https://www.epa.gov/system/files/documents/2022-01/2022-cgp-final-appendix-e-historic-properties.pdf), Step 2):

Yes

Certification Information

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. Signing an electronic document on behalf of another person is subject to criminal, civil, administrative, or other lawful action.

Certified By: Steve Kostage

Certifier Title: Associate vice president

Certifier Email: steve.kostage@aecom.com

Certified On: 05/18/2022 1:33 PM ET

Delegation of Authority & Subcontractor Agreements

DELEGATION OF AUTHORITY

I, Steve Kostage, 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 Construction General Permit, at the Sagebrush Substation Site Development construction site. The designee is authorized to sign any reports, stormwater pollution prevention plans, and all other documents required by the permit.

NPDES Inspector, Construction Manager, Foreman, President, Vice President
E2RC, LLC
439 S. Hill Road
Bernalillo, NM 87004
505-867-4040

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 Construction General Permit (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 am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Steve Kostage, Associate Vice President

AECOM

Signature:_____

Date:_____

DELEGATION OF AUTHORITY

I, Steve Kostage, 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 Construction General Permit, at the Sagebrush Substation Site Development construction site. The designee is authorized to sign any reports, stormwater pollution prevention plans, and all other documents required by the permit.

Project Manager, Superintendent, Site Manager
AECOM
40 British American Blvd.
Latham, NM 12110
(978) 337-1519

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 Construction General Permit (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 am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Steve Kostage, Associate Vice President

AECOM

Signature:_____

Date:_____

DELEGATION OF AUTHORITY

I, Steve Kostage, 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 Construction General Permit, at the Sagebrush Substation Site Development 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 Construction General Permit (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 am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Steve Kostage, Associate Vice President

AECOM

Signature:_____

Date:_____

SUBCONTRACTOR CERTIFICATION
STORMWATER POLLUTION PREVENTION PLAN

Project: Sagebrush Substation Site Development

To Whom It May Concern:

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. 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.

The certification is hereby signed in reference to the above-named project:

Print Name: Kelley V. Fetter, P.E., CPSWQ, CPMSM

Title: President

Company: E2RC, LLC

Address: 439 S. Hill Rd., Bernalillo, NM 87004

Telephone Number: (505) 867-4040

Type of Construction Service Provided:

SWPPP Design, Site Inspections, Sediment and Erosion Control Measure Installation, Maintenance or Removal, Vegetative Stabilization

Signature:  Date: May 20, 2022

SUBCONTRACTOR CERTIFICATION
STORMWATER POLLUTION PREVENTION PLAN

Project: Sagebrush Substation Site Development

To Whom It May Concern:

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. 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.

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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.

The certification is hereby signed in reference to the above-named project:

Print Name:_____

Title:_____

Company: _____

Address:_____

Telephone Number:_____

Type of Construction Service Provided:

_____

_____

Signature:_____ Date:_____

Complete Inspections

INTEGRATED
ENVIRONMENTAL
CONSTRUCTION
ENGINEERING

Design I Comply I Restore

INSPECTION MANAGEMENT PLATFORM

E2RC utilizes a web – based compliance management platform, Comply26, to submit and retain the Inspection Reports for this project. All reports are available electronically through individualized user accounts, 24/7, from any device with internet or cellular capabilities.

Each accountholder and designated report recipients will receive each inspection report by email as soon as they are completed by the Inspector. The emails are autogenerated and come from 'donotreply@comply26.com'. We recommend adding this email to your Address Book or Safe Senders List to prevent filtering the notifications to a spam folder.

Additional Compliance Features Available:

- Update your SWPPP map and view updates created by E2RC or other project personnel
- Track, view and close maintenance activities and corrective actions
- Update and finalize Corrective Action Reports online
- Create, view and close Work Orders
- Access all inspection reports completed for each project you manage and share them with other team members
- Upload key project or SWPPP documentation to the project's Document Portal
- Track Maintenance, Sweeping, SWPPP Amendment and Precipitation Events in the individual logs
- Automatically receive precipitation alerts when it rains or snows above a certain amount at your project site

If you do not currently have an account on the Comply26 platform (https://app.comply26.com) please contact E2RC to receive a user name and password.

A sample inspection report and Comply26 User Guide follow this letter.

INSPECTION REPORT

GENERAL INFORMATION

DATE OF INSPECTION:	5/24/2018
COMPANY NAME:	Example Company
PROJECT NAME:	Example SWPPP Project
LOCATION:	439 S. Hill Rd,Bernalillo,New Mexico,87004
TRACKING NO:	NMR12000
COMPLIANCE EVALUATION:	Satisfactory
TYPE OF INSPECTION:	14Day
START TIME:	4:15 PM
END TIME:	4:30 PM
INSPECTOR'S NAME:	Example Inspector
INSPECTOR'S TITLE:	SWPPP Inspector
INSPECTOR'S QUALIFICATIONS:	CISEC
INSPECTOR'S CONTACT:	123-456-7890
PHASE OF CONSTRUCTION:	☐ Clear and Grub ☑ Excavation ☐ Building (vertical) ☐ Rough Grading ☐ Infrastructure ☐ Final Grading ☐ Final Stabilization

WEATHER INFORMATION

HAS A STORM EVENT OCCURRED SINCE THE LAST INSPECTION?	◉ Yes ○ No
IF YES, PROVIDE:	Rain/Thunderstorm

#	STORM DATE	ESTIMATED STORM DURATION (HOURS)	APPROXIMATE PRECIPITATION (INCHES)
1	5/23/2018	3.0	1.50
2	5/22/2018	2.5	0.35

WEATHER AT TIME OF THIS INSPECTION: Clear

TEMPERATURE:	80
HAVE ANY DISCHARGES OCCURRED SINCE THE LAST INSPECTION?	○ Yes ◉ No
ARE ANY DISCHARGES OCCURRING NOW?	○ Yes ◉ No
ARE ANY PORTIONS OF YOUR SITE UNSAFE TO INSPECT?	○ Yes ◉ No

POLLUTION PREVENTION, SEDIMENT AND EROSION CONTROL BMP'S

#	S&E/P2 CONTROLS	MAINTENANCE	CORRECTIVE ACTION	LOCATION	QUANTITY	UNIT	PHOTO
1	NPDES Permit Notification	None	None	Entrance	1	EA	
2	Silt Fence	None	None	Perimeter	400	LF	

GENERAL SITE INSPECTION ITEMS

#	INSPECTION ITEM	INSPECTOR'S OBSERVATION	ACTION REQUIRED?	NOTES
1	Is the SWPPP signage clearly posted with the correct information and properly displayed at an obvious perimeter location?	◉ Yes ○ No ○ N/A	○ Yes ◉ No	
2	Are steep slope areas not actively being worked properly stabilized?	◉ Yes ○ No ○ N/A	◉ Yes ○ No	
3	Are disturbed areas not actively being worked properly stabilized?	◉ Yes ○ No ○ N/A	○ Yes ◉ No	
4	Are natural resource areas (e.g. streams, wetlands, mature trees, etc.) protected with barriers or similar BMPs?	◉ Yes ○ No ○ N/A	○ Yes ◉ No	
5	Are discharge points and receiving waters free of any sediment deposits?	◉ Yes ○ No ○ N/A	○ Yes ◉ No	
6	Is trash/litter from work areas collected and placed in covered dumpsters?	◉ Yes ○ No ○ N/A	○ Yes ◉ No	
7	Are washout facilities (e.g. paint, stucco, concrete) available, clearly marked and maintained?	◉ Yes ○ No ○ N/A	○ Yes ◉ No	
8	Are vehicle and equipment fueling, cleaning, and maintenance areas free of spills, leaks or any other deleterious material?	◉ Yes ○ No ○ N/A	○ Yes ◉ No	

#	INSPECTION ITEM	INSPECTOR'S OBSERVATION	ACTION REQUIRED?	NOTES
9	Are materials that are potential stormwater contaminants stored inside or in containers?	(•) Yes ( ) No ( ) N/A	( ) Yes (•) No	
10	Are offsite flows entering the construction site?	( ) Yes (•) No ( ) N/A	( ) Yes (•) No	
11	Is there any evidence that pollutants are leaving the site or are not properly contained on site?	( ) Yes (•) No ( ) N/A	( ) Yes (•) No	
12	Are traffic and parking areas restricted so as to reduce soil erosion and dust?	(•) Yes ( ) No ( ) N/A	( ) Yes (•) No	
13	Are non-stormwater discharges properly controlled?	( ) Yes (•) No ( ) N/A	(•) Yes ( ) No	
14	Is the project being operated in compliance with the SWPPP and with permit conditions at this time?	(•) Yes ( ) No ( ) N/A	( ) Yes (•) No	
15	Are changes to the SWPPP necessary at this time?	( ) Yes (•) No ( ) N/A	( ) Yes (•) No	
16	Are dust control measures being properly implemented?	(•) Yes ( ) No ( ) N/A	( ) Yes (•) No	
17	Are the SWPPP documentation and records up to date and accurately reflect the current conditions? (e.g. Site Map, Inspection Reports, Installation Dates)	(•) Yes ( ) No ( ) N/A	( ) Yes (•) No	

CERTIFICATION AND SIGNATURE BY INSPECTOR

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 am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

INSPECTED BY: Example Inspector **DATE:** May 24, 2018

SIGNATURE AND AFFILIATION: Test

CERTIFICATION AND SIGNATURE BY PERMITTEE

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 am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

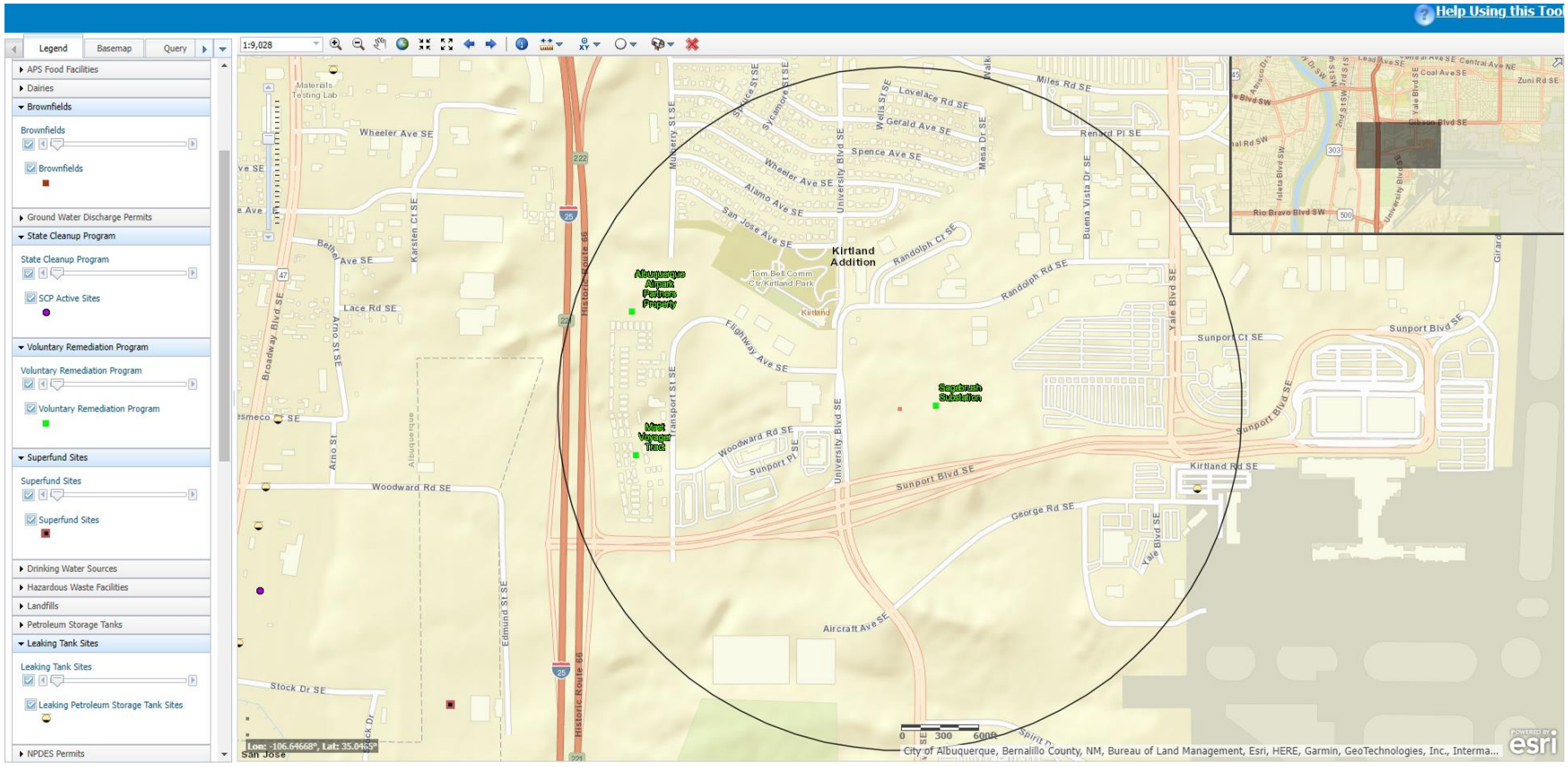
PRINT NAME AND TITLE: , **DATE:**

SIGNATURE:

NMED SURFACE WATER QUALITY BUREAU - DEWATERING

Project: Sagebrush Substation Site Development

Radius: 0.5 Mile



DEWATERING DISCHARGE INSPECTION REPORT

Complete one inspection report for each dewatering discharge location inspected. Complete the report within 24 – hours of performing the inspection. Keep the signed inspection report in the SWPPP and for three – years after the NOT is submitted.

INSPECTOR INFORMATION	
INSPECTOR NAME:	
TITLE:	
PHONE:	
COMPANY:	

PROJECT INFORMATION	
PROJECT NAME:	Sagebrush Substation Site Development
NPDES ID:	NMR1004S2
LOCATION:	University Blvd. SE & Flightway Ave., Albuquerque, NM 87106

DEWATERING DISCHARGE DETAILS	
INSPECTION DATE:	
DISCHARGE LOCATION:	
DISCHARGE START TIME:	
DISCHARGE END TIME:	

RATE OF DISCHARGE (GALLONS PER DAY):	
POLLUTANT INDICATORS: ☐ Sediment Plume ☐ Suspended Solids ☐ Unusual Color ☐ Odor ☐ Decreased Clarity ☐ Foam ☐ Visible Sheen ☐ Visible Oily Deposits ☐ Other	
CORRECTIVE ACTION REQUIRED:	☐ Yes – If you observe any indicators above, you are required to take corrective action. ☐ No
PHOTOGRAPHS:	Include or 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.

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 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"	
NAME:	
SIGNATURE:	**DATE:**
TITLE:	

EPA 833-B-22-001

Inspection and Monitoring Guide for Construction Dewatering

EPA's 2022 Construction General Permit

February 2022

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Contents

List of Appendices

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Section 1: Introduction

This guide describes how to conduct inspections and turbidity benchmark monitoring for discharges from construction dewatering activities. Its target audience is operators covered under EPA's 2022 Construction General Permit (CGP) who will be discharging dewatering water.

Authorized dewatering discharges under EPA's CGP

The CGP defines dewatering as "the act of draining accumulated stormwater and/or groundwater from building foundations, vaults, and trenches, or other similar points of accumulation" (CGP, Appendix A). The CGP includes **uncontaminated** construction dewatering water as an authorized (i.e., allowed) non-stormwater discharge, provided the operator satisfies the conditions specified in Part 2.4 of the CGP.

This guide does not impose any new legally binding requirements on EPA, States, Tribes, territories, or the regulated community; it does not confer legal rights or impose legal obligations upon any member of the public. In the event of a conflict between this document and any statute, regulation, or permit, this document would not be controlling.

Interested parties are free to raise questions and objections about this guide's substance, and about its applicability to a particular situation. EPA retains the discretion to adopt approaches on a case-by-case basis that differ from those described in this guide, where appropriate.

1.A Introduction to CGP Dewatering Inspection and Monitoring Requirements

The 2022 CGP established inspection and turbidity benchmark monitoring requirements for dewatering discharges. These include the following:

- **Dewatering inspections for all sites.** All sites discharging dewatering water must complete inspections of dewatering operations once per day on any day there is a dewatering discharge. Operators must check for signs of sediment or other visual indicators of pollution in dewatering discharges and take corrective action, when needed.
- **Turbidity benchmark monitoring for operators discharging to sensitive waters.** Operators that discharge dewatering water to sensitive waters must sample that dewatering water once per day for turbidity analysis. They must then compare the weekly average results with the assigned benchmark threshold. Where weekly average turbidity results exceed the benchmark, the operator must take corrective action.

Sensitive waters

The CGP defines "sensitive waters" as receiving waters listed as impaired for sediment or a sediment-related parameter, or receiving waters designated as a Tier 2, Tier 2.5, or Tier 3 for antidegradation purposes. See CGP, Part 3.3.

- **State, Tribal, or territorial required monitoring.** Dewatering discharges may be subject to additional State-, Tribe-, or territory-specific requirements. Consult CGP, Part 9, to determine if you must conduct additional monitoring at each dewatering discharge point.

Section 2: Prepare for Inspection and Monitoring

Preparing to inspect and monitor dewatering discharges requires that you collect information about your construction site and your site's dewatering operations. Most of this information should have been collected previously, to be used in submitting a Notice of Intent (NOI) for coverage under the CGP and developing the monitoring procedures section of the site's stormwater pollution prevention plan (SWPPP).

You will need to compile the dewatering information if it has not already been developed. This guide suggests resources for doing so—for example, determining receiving waters and evaluating SWPPP site map components. Note that EPA has a suggested template for SWPPPs, the *Construction Stormwater Pollution Prevention Plan (SWPPP) Template*, available at https://www.epa.gov/npdes/construction-general-permit-resources-tools-and-templates.

2.A Determine Where Dewatering Discharges Are Occurring

What if my site does not discharge dewatering water?

The CGP does not require dewatering inspections or turbidity benchmark monitoring if dewatering water stays on-site. Retained water may, for instance, be allowed to evaporate or infiltrate into the soil (unless ground water contamination concerns exist as described in CGP, Part 2.2.2) or be used for on-site dust control, irrigation, or other construction-related purposes.

The following documents will direct you to the location(s) of dewatering discharges from your site, the first step toward planning for inspection of dewatering discharges and possible turbidity benchmark monitoring.

- A copy of the CGP and the accompanying fact sheet.
- A copy of the CGP NOI submitted to EPA. The NOI identifies the site's discharge points and receiving waters and indicates whether there will be a discharge of dewatering water.
- The SWPPP, which must include:
  - Procedures for dewatering inspection, maintenance, and corrective action (CGP, Part 7.2.7).
  - Procedures for turbidity benchmark monitoring from dewatering discharges, if applicable (CGP, Part 7.2.8).
  - A site map that:
    - Shows the location(s) of any receiving waters within the site and all receiving waters within 1 mile downstream of the site's discharge point(s) (CGP, Part 7.2.4.c).

Discharge point

For the purposes of the CGP, the discharge point is the location where concentrated stormwater flows or dewatering water are discharged from the construction site. See CGP, Appendix A.

- Identifies if any receiving waters are listed as impaired or identified as a Tier 2, Tier 2.5, or Tier 3 water (CGP, Part 7.2.4.c).
- Shows all discharge locations, as well as the location(s) where turbidity benchmark monitoring will take place, if applicable to your site (CGP, Part 7.2.4.g).

You should visit all dewatering operations and dewatering discharge points to verify the information in the SWPPP. For each dewatering operation, note:

- Whether ground water, accumulated stormwater, or a combination of the two is being dewatered. Ground water and stormwater have different potential pollutants.
- Whether the dewatering operation is continuous or intermittent and the expected frequency of dewatering discharges. Continuous dewatering may occur at sites with high ground water or alluvial aquifers, or when work is done next to receiving waters. Intermittent dewatering may occur during wet weather periods.
- Whether dewatering water is discharged to a municipal separate storm sewer system (MS4). If you discharge to an MS4, you should contact the operator of the system (e.g., the local public works department, the highway department) to alert them to the discharge.
- Whether the receiving water is a sensitive water.

You should consider taking photos of each dewatering operation and discharge point before commencing dewatering. You will later be able to use these initial photos as a baseline to identify erosion or other adverse impacts from dewatering.

Municipal separate storm sewer systems (MS4s)

An MS4 is "a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains)…Owned and operated by a…public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes…that discharges to waters of the United States" and is "Designed or used for collecting or conveying storm water; which is not a combined sewer; and which is not part of a Publicly Owned Treatment Works" [40 CFR 122.26(b)(8)].

2.B Determine Which CGP Requirements Apply at Each Dewatering Discharge Point

Daily Dewatering Inspections

All operators must inspect dewatering operations once per day when dewatering discharge is occurring (CGP, Part 4.3.2). Daily dewatering inspections are in addition to site inspections required by CGP Part 4.2.

Turbidity Benchmark Monitoring

You must carry out turbidity benchmark monitoring if you discharge dewatering water to sensitive waters (CGP, Part 3.3). You must collect at least one turbidity sample from each dewatering discharge point, each day a discharge occurs. Samples may be taken at any time during the day while dewatering water is being discharged. You may consider taking the daily turbidity sample while you conduct daily dewatering inspections.

What is turbidity?

The CGP defines turbidity as "a condition of water quality characterized by the presence of suspended solids and/or organic material" (CGP, Appendix A). Water with low turbidity appears clear; water with higher turbidity appears cloudy or murky.

Turbidity samples must be analyzed using a turbidity meter that reports results in nephelometric turbidity units (NTUs) and conforms with an EPA-approved method under 40 CFR Part 136 (e.g., EPA Method 180.1). Compare the turbidity level in each sample to the CGP turbidity benchmark threshold to determine if corrective action is required to reduce turbidity levels in dewatering discharges.

The turbidity benchmark threshold is 50 NTUs (referred to as the "standard 50 NTU benchmark"). However, if you can demonstrate that your receiving water's water quality standard for turbidity is higher than 50 NTUs, CGP Part 3.3.2.b describes a process to request EPA approval of a turbidity benchmark for your site that is higher than the standard 50 NTU benchmark.

Benchmarks as used in the CGP are not effluent limits. Instead, a benchmark acts as a trigger to require corrective action when the weekly average of turbidity monitoring results exceeds it. Corrective actions include steps such as shutting off the dewatering discharge, investigating whether dewatering controls are operating effectively and could be the cause of the exceedance, and adjusting the controls as needed to lower the turbidity levels below the benchmark. Corrective actions are described in more detail in Section 4.

What Is a Sensitive Water?

CGP Part 3.3 defines a "sensitive water" as a receiving water that is either or both of the following:

- Impaired for sediment or a sediment-related parameter. (An impaired water is a water that a State, a Tribe, or EPA identifies as not meeting water quality standards for a specific parameter.)
- Designated as a Tier 2, 2.5, or 3 water for antidegradation purposes.

Sediment-related parameters

The CGP defines a "sediment-related parameter" as a pollutant parameter that is closely related to sediment such as turbidity, total suspended solids, total suspended sediment, transparency, sedimentation, and siltation (CGP, Appendix A).

The Federal antidegradation policy at 40 CFR 131.12 requires different levels of protection, or "tiers," for waters of the United States. For antidegradation purposes, Tier 2 waters are those waters whose quality exceeds the levels needed to support propagation of fish, shellfish, and wildlife, as well as recreation in and on the water. Tier 3 waters are Outstanding Natural Resource Waters, such as waters of national and State parks and wildlife refuges and waters of exceptional recreational or ecological significance. Some States and Tribes designate Tier 2.5 high quality waters, which require a level of protection equal to or greater than Tier 2 waters, but less than that given to Tier 3 waters.

How Do I Know If I Am Discharging to a Sensitive Water?

If you filed an NOI to obtain CGP coverage, you will have already identified your receiving waters and whether they are impaired or designated as Tier 2, 2.5, or 3 waters.

Waters impaired for sediment and sediment-related parameters are identified on each State's Clean Water Act, Section 303(d) list—that is, the list of impaired and threatened waters (e.g., stream/river segments, lakes). States submit their 303(d) lists for EPA approval every 2 years.

For each water on the list, the State identifies the pollutant causing the impairment, when known (EPA, 2021).

EPA's Stormwater Discharge Mapping Tools publishes information on waterbody impairments by segment. You can also refer to the State's 303(d) list, but you will need to know the name of the waterbody and the segment identification number. EPA's How's My Waterway? webpage is useful for identifying which waterbody segment receives discharges from your construction site.

EPA's Construction General Permit Resources, Tools, and Templates webpage provides links to a list of currently designated Tier 2, Tier 2.5, and Tier 3 waters in the areas where the CGP is in effect. You should not assume that a water does not receive Tier 2, Tier 2.5, or Tier 3 protection solely based on the absence of information contained in this list. Contact your State or Tribal authority if you need help determining whether your site discharges to a Tier 2, Tier 2.5, or Tier 3 water.

2.C Determine Where You Will Collect Samples

If your site has one or more discharge points through which treated dewatering water flows to a sensitive receiving water, each of these dewatering discharges must be sampled and analyzed for turbidity each day a discharge occurs. As previously mentioned, the SWPPP site map must identify discharge points, receiving waters, and the specific turbidity sampling locations (CGP, Part 7.2.4.g).

The CGP does not prescribe an exact sampling location for turbidity benchmark monitoring; you are responsible for identifying a safe and accessible sampling location that is representative of the discharge. (A sample is representative if it has the same physical and chemical characteristics as the dewatering discharge.) CGP Part 3.3.1.b stipulates that "[s]amples must be taken after the dewatering water has been treated by installed treatment devices…and prior to its discharge off site into a receiving water, constructed or natural site drainage feature, or storm drain inlet"—that is, before the treated dewatering water commingles with stormwater or other pollutant sources.

Note that the sampling location for turbidity benchmark monitoring may be different than the discharge point based on the configuration of the dewatering operation. However, the sampling location for a particular discharge point should be the same from sample to sample unless adverse conditions prevent safe access.

Sampling from a Pipe or Hose

If dewatering water flows from the treatment control through a pipe or hose to the discharge point, take the sample directly from the pipe or hose. Typically, a cuvette is used to collect the sample and the same cuvette is used for the analysis. This avoids having to transfer the sample from the sampling container to the cuvette for analysis.

What is a cuvette?

A cuvette is a small tube-like container with straight sides and a circular or square cross section. It is sealed at one end, and made of a clear, transparent material such as plastic, glass, or fused quartz. Cuvettes hold the sample, and the turbidity meter passes a beam of light through the sample within the cuvette to measure turbidity.

For hard-to-reach locations, you may need to fasten a collection bottle to a pole. If you take the sample in a bottle or other container, you must transfer the sample to the cuvette for analysis. Before transferring the sample, gently agitate or mix it to keep solids in suspension while transferring. (Otherwise, the transfer process can cause a turbidity result that is artificially low

and is not representative of the discharge.) Take care when transferring to the cuvette to minimize formation of air bubbles, which can cause a turbidity result that is artificially high and is not representative of the discharge.

Sampling Overland Flow

In some areas of your site, it may be difficult to obtain a sample because the dewatering discharge drains overland flow and is not deep enough to collect a sample. If the flow is too shallow to directly fill a cuvette, consider:

- Concentrating overland flow by excavating a small depression in an existing ditch or other location where stormwater runoff flows.

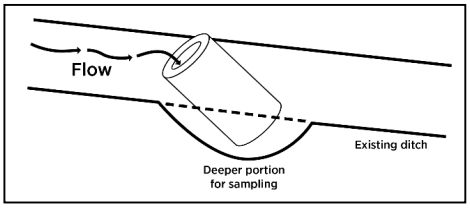


Figure 1. Sampling overland flow by deepening an existing ditch

- Installing a trough, gutter, or ditch to intercept and concentrate dewatering flow.

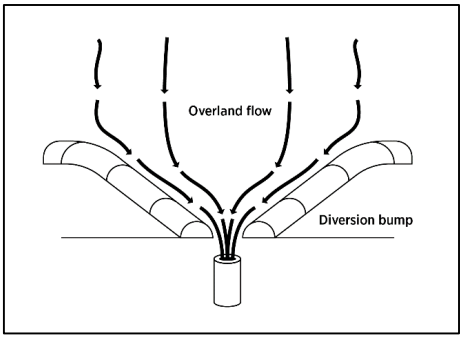


Figure 2. Sample overland flow from vegetated areas by constructing a shallow ditch to intercept the runoff and a deepened area to place bottles to catch the runoff.

- Installing "speed" bumps to convey and concentrate overland flow. A container positioned on the edge of the collection area can collect samples directly.

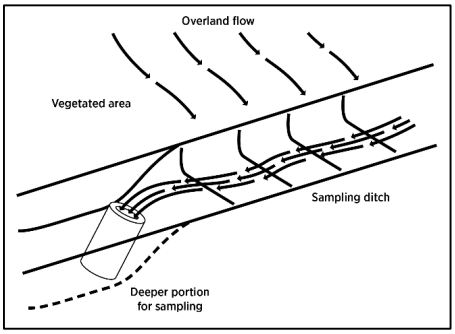


Figure 3. Sample overland flow by constructing diversion bumps to collect and concentrate the flow.

If you dig a ditch or disturb the earth in some way, line the disturbance with concrete or plastic to avoid contaminating stormwater samples with sediment or other pollutants.

Sampling from a Drainage Ditch or Swale

If dewatering water is discharged via a drainage ditch or vegetated swale, collect the sample from a consistently flowing part of the ditch/swale. If the ditch/swale is too small or shallow, install a barrier device in the channel or deepen a small area so you can sample directly into the bottles. If you dig a ditch or disturb the earth in some way, line the disturbance with concrete or plastic so that you do not contaminate your stormwater samples with sediment or other pollutants.

Sampling from a Stormwater Detention/Retention Basin

If you need to sample from a detention or retention basin, only do so at the structure's outlet and only when a discharge from the basin occurs. You are not required to conduct turbidity benchmark monitoring if the on-site basin that receives dewatering water is not discharging, but you should check the basin outlet for discharge every day dewatering is occurring. Note that if the basin receives other inflows in addition to dewatering water (e.g., stormwater), the discharge from the basin must still meet the turbidity benchmark.

Potential Sampling Issues

Potential problems for dewatering sampling include adverse weather and lack of accessibility.

- **Adverse weather.** High tides and high flow or flood conditions can make it difficult to reach the dewatering sampling location, pipes and hoses may be clogged or submerged, and dewatering treatment controls may be overloaded. You should use your best professional judgment when choosing sampling locations during adverse weather. In some cases, you may need to sample at a point before the discharge point.
- **Discharge point/sampling location is inaccessible.** Discharge points and sampling locations may not be accessible for a variety of reasons. In these instances, you may need to identify an alternate, representative sampling location. Go upstream of the dewatering sampling location until a sample can be taken. If you cannot collect a sample, make a note on your turbidity benchmark monitoring data table (see the sample in Appendix A) and take photos if possible.

2.D Select Dewatering Inspection and Monitoring Staff

Each operator, or group of multiple operators, covered under the CGP must have a "stormwater team" responsible for monitoring activities and corrective actions.[1] Section 6 of this guide provides an overview of training requirements and recommendations for stormwater team members who will inspect and monitor dewatering operations. It may be advantageous to have the person or persons performing dewatering inspections also conduct turbidity benchmark monitoring, when required. Using the same person or team for inspections and turbidity benchmark monitoring will help produce consistent, comparable samples over time.

Some permitted construction sites have one operator each; others may have multiple operators. Where multiple operators are operating on one site, they may coordinate representation on the stormwater team to avoid duplicating efforts (CGP, Part 3.3). CGP Part 7.2.8 requires that your

[1] Part 6.1 of the 2022 CGP lists which construction site staff must be represented on the stormwater team. Part 6.2 of the CGP lists the general training requirements for members of the stormwater team.

SWPPP describe any coordinating arrangement you may have with any other permitted operators on the same site for compliance with the turbidity benchmark monitoring requirements, including which parties have which specific responsibilities.

A written agreement is the best practice when stormwater compliance, monitoring, and corrective actions are shared among multiple operators. A written agreement that assigns specific monitoring responsibilities to specific members of the stormwater team, identified by operator and position, will help to make sure that dewatering inspection and turbidity benchmark monitoring activities are not missed because of communication breakdowns and will clarify each operator's monitoring responsibilities during a regulatory inspection.

2.E Select a Turbidity Meter That Meets EPA Requirements

Only purchase a turbidity meter that conforms with an EPA-approved method in 40 CFR Part 136 (e.g., EPA Method 180.1). This information should be readily available from the manufacturer or retailer.

Samples must be measured using a turbidity meter that reports results in NTUs. EPA-compliant (field or benchtop) turbidity meters comply with the methods outlined in 40 CFR Part 136. The most common approved method used for turbidity monitoring is *EPA Method 180.1: Determination of Turbidity by Nephelometry*, the standard for determining turbidity in drinking, ground, surface, waste, and seawater samples. The applicable range of EPA Method 180.1 is 0–40 NTUs, making it ideal for low-range samples. The method can be modified for higher levels of turbidity with dilution of the sample. EPA has approved other methods for turbidity.[2] Some methods are better suited for measuring higher or lower levels of turbidity; choose a method to reflect the expected level of turbidity of the dewatering discharge.

Things to look for when purchasing a turbidity meter include, but are not limited to:

- The meter complies with an approved EPA method. (This is usually highlighted by the manufacturer.)
- The meter is durable and weather-resistant if it will be used in the field.
- Calibration materials are readily available.

Potential issues with turbidity meters include:

- **Malfunctions**. If the turbidity meter malfunctions or fails to calibrate correctly, it should be repaired or recalibrated, or another sampling device should be used.
- **Turbidity sample exceeds the meter's range.** If the sample's turbidity level is outside the meter's range, refer to the manufacturer's manual. You may need to dilute the sample to obtain a result. *EPA Method 180.1: Determination of Turbidity by Nephelometry* describes how to dilute a sample to obtain a turbidity result.

[2] Standard Method 2130 B-2011, ASTM D1889-00, and USGS 1-3860-85 are also approved methods under 40 CFR Part 136.

2.F Document Dewatering Inspection and Monitoring Procedures in Your SWPPP

You must correctly document dewatering inspection and turbidity benchmark monitoring procedures in your SWPPP (CGP, Parts 7.2.7 and 7.2.8). If your site is required to conduct turbidity benchmark monitoring, the SWPPP must describe the procedures for collecting and evaluating samples, reporting results to EPA, keeping records of monitoring information, and taking corrective action when necessary. The SWPPP must identify the specific type of turbidity meter used for monitoring and all manuals or manufacturer instructions on how to operate and calibrate the meter (CGP, Part 7.2.8).

2.G Collect and Organize Inspection and Monitoring Supplies

You should make a list and collect all the supplies you will need for the required turbidity benchmark monitoring. These supplies should be stored and organized in a common location to ensure they are accessible when you need to sample. They include, but are not limited to:

- **Sampling equipment.** Ensure the turbidity meters are in working condition, calibration solutions are available and not expired, and that any other needed sampling materials (e.g., cuvettes, wipes, extra batteries) are stocked.
- **Personal protective equipment.** Hard hats, vests, safety glasses, etc., should be readily accessible on-site for inspection and monitoring activities.
- **Documentation**. Appendix A provides a sample turbidity benchmark monitoring data table.

Section 3: Conduct Inspections and Monitoring and Evaluate Results

This section addresses how to conduct dewatering inspections, perform turbidity benchmark monitoring of dewatering discharges (if required), and evaluate inspection observations and sampling results. The section covers inspection procedures, how to collect and analyze samples, and how to record the results. Recall that operators must inspect dewatering discharges every day these discharges are occurring. Turbidity benchmark monitoring must be performed every day discharges are occurring, but only for discharges to a sensitive water.

3.A Inspect Dewatering Operations

You must inspect dewatering operations once each day when dewatering water is being discharged to ensure that dewatering treatment controls are working correctly; to evaluate whether there are observable indicators of pollutant discharges; and, if so, to know whether you need to take action to correct any problems at the site or with the dewatering controls that may have contributed to the pollutant discharges. CGP Part 4.6.3.e identifies two general conditions to watch for during dewatering inspections, either of which would mean you must take corrective actions:

- A sediment plume, sheen, suspended solids, unusual color, presence of odor, decreased clarity, or presence of foam.
- A visible sheen or visible hydrocarbon or sediment deposits on the bottom or shoreline of the receiving water.

Figure 4. Dewatering discharge operations.

You should give special attention to the dewatering operation during initial setup, when the dewatering operation changes, and after major storm events. If you observe any of the pollutant indicators identified above during your inspection, you must conduct corrective action under CGP Parts 5.1.5.b and 5.2.2. Section 4 presents corrective actions to consider when you observe pollutant indicators in dewatering discharges.

CGP Part 4.6.3.f requires photo documentation of dewatering inspections. You must take 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.

Field personnel will also need to estimate the rate of discharge, in gallons per day (gpd), if the dewatering treatment control does not have a flow gauge. Operators may rely on the manufacturer's design pump rating for the pump model in use. For example, a pump rated at 164 gallons per minutes (gpm) by the manufacturer can be assumed to be discharging at 164 gpm in most cases. To convert to gpd, multiply the rate in gpm by 1,440 (the number of minutes in one day), resulting in a daily discharge rate of 236,160 gallons.[3] If the dewatering discharge is being pumped over long distances or a substantial distance uphill—which will result in a pump rate lower than the 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 gpd.

Refer to Section 5.A of this guide for dewatering inspection recordkeeping requirements.

Operators not subject to turbidity benchmark monitoring can skip to Section 4.

3.B Collect and Analyze Turbidity Benchmark Monitoring Samples

The protocol below outlines the appropriate steps for collecting a grab sample for turbidity benchmark monitoring. A grab sample is a single sample obtained by filling up a container directly from the source. Always wear clean, disposable, powder-free gloves during sampling activities. To avoid sample contamination, dispose of the gloves after using them once. You should refer to the turbidity meter manufacturer's instructions for details on calibrating and using your meter.

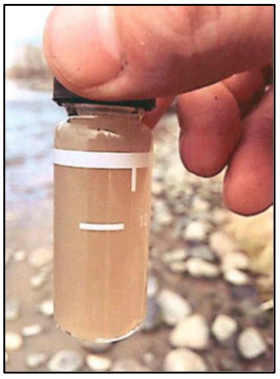


Figure 5. Turbidity sample collected in a cuvette.

- Conduct a daily calibration verification consistent with the manufacturer's instructions.
- Fill the cuvette (or other sample container) directly from the sampling location. Make sure not to set its opening on the ground, or against the mouth of the discharge point, to avoid contaminating the sample.
- If you have used a different container to collect the sample, transfer the sample to the cuvette.
    - Gently agitate or mix the sample before transferring to keep the solids in suspension during the transfer.
    - Pour the sample onto the interior wall of the cuvette to avoid bubble formation.
- Wipe the outside of the cuvette with a clean cloth or tissue and gently agitate the sample to disperse the solids before inserting the turbidity meter.

[3] The example assumes that the site is dewatering 24 hours per day. If not, use the number of minutes the pump is operating each day to calculate the daily discharge.

- Run the meter and record the result in NTUs on the sampling form, as described in Section 3.C below.
- Empty the cuvette and other sampling container (if you used one). Rinse and dry them before collecting and analyzing another sample.

If you are taking multiple dewatering samples for analysis with a benchtop turbidity meter in the trailer, be sure to properly label the containers so the sample results can be matched to each sampling location.

3.C Record Information for Each Monitoring Event

You must keep records of the following information for each turbidity sample (CGP, Standard Condition G.10.3).

- The date, time, and exact location of the turbidity sample.
- The person(s) who performed the sampling and analyses.
- The analytical techniques or methods used. For this, it is sufficient to record the make and model of the turbidity meter.
- The date and time each sample was analyzed. Note that sampling and analysis times may be the same if using a field meter, or they may be different if samples are collected and taken to a different location for analysis, such as a benchtop turbidity meter in the trailer, office, or elsewhere nearby. 40 CFR Part 136 specifies that turbidity samples must be analyzed within 48 hours of collection, which is the maximum holding time.
- The turbidity result for each sample. The CGP requires turbidity monitoring results to be rounded to the nearest whole number.

Record the required information on your monitoring data table (a sample table is provided in Appendix A).

3.D Evaluate Turbidity Benchmark Monitoring Results

The analysis of your turbidity benchmark monitoring results will determine if you must perform corrective action to reduce weekly average turbidity below the standard 50 NTU benchmark or the EPA-approved alternate benchmark for your dewatering discharges. The turbidity benchmark is not an effluent limit; rather it provides an action level that if exceeded indicates that the dewatering controls may not be working to protect water quality, in which case you must investigate and take appropriate corrective actions.

For each week that dewatering water is being discharged, you must compare the weekly average of turbidity monitoring results to the standard 50 NTU benchmark, or alternate benchmark if approved by EPA. The weekly average is calculated as the sum of the turbidity results divided by the number of samples. If you analyze more than one turbidity sample in a day, each result must be included in the weekly average calculation (Table 1). See CGP Part 3.3.3.c. For averaging purposes, a "monitoring week" starts with a Monday

Alternate benchmark thresholds

CGP Part 3.3.2.b allows you to request a turbidity benchmark that is higher than 50 NTUs if you have information showing the higher number is the same as your receiving water's water quality standard for turbidity. You must, however, use the standard 50 NTU benchmark until EPA approves an alternate benchmark.

and ends on the Sunday. Once a new monitoring week starts, you will need to calculate a new average for that week of turbidity monitoring results.

In the example shown in Table 1, the operator collected six samples within a monitoring week, with two samples taken on Friday and none taken on days when dewatering discharges did not occur. The resulting weekly average is 53 NTUs (rounded to the nearest whole number). In this case, the operator must take corrective action to reduce turbidity in their dewatering discharges because the weekly average exceeds the standard 50 NTU benchmark. See Section 4 for information on potential corrective actions.

Table 1. Example Weekly Average Turbidity Calculation, Intermittent Discharge

Day of the Week	Number of Turbidity Samples	Result (NTUs)
Monday	1	43
Tuesday	1	68
Wednesday	0	No discharge
Thursday	1	41
Friday	2	72
		48
Saturday	1	45
Sunday	0	No discharge
Weekly total	*6*	*317*
Weekly average	**—**	**53**

Similarly, if the operator only discharges dewatering water on one day during a monitoring week the turbidity result(s) from that day is the weekly average for that monitoring week, as shown in Table 2.

Table 2. Example Weekly Average Turbidity Calculation, One Sampling Event

Day of the Week	Number of Turbidity Samples	Result (NTUs)
Monday	0	No discharge
Tuesday	0	No discharge
Wednesday	0	No discharge
Thursday	1	28
Friday	0	No discharge
Saturday	0	No discharge
Sunday	0	No discharge
Weekly total	*1*	*28*
Weekly average	**—**	**28**

Section 4: Take Corrective Action

You must take corrective action if any of the following triggering conditions occurs:

- The weekly average of your turbidity monitoring results exceeds the standard 50 NTU benchmark or an alternate EPA-approved benchmark (CGP, Part 5.1.5.a).
- During dewatering discharge, you observe a sediment plume, suspended solids, unusual color, presence of odor, decreased clarity, or foam (CGP, Parts 4.6.3.e and 5.1.5.b) at the point of discharge to receiving waters or to constructed or natural site drainage features or storm drain inlets.
- During dewatering discharge, you observe a visible sheen on the water surface or visible oily deposits on the receiving water's bottom or shoreline (CGP, Parts 4.6.3.e and 5.1.5.b).
- EPA, State, or local authorities inform you that your dewatering discharge or the receiving water for the discharge has visual pollution indicators described above (CGP, Part 5.1.5.b).

4.A Corrective Action Deadlines

If your inspection observations or turbidity benchmark monitoring results trigger a corrective action, you must document the triggering condition in your corrective action log within 24 hours of identifying it, as well as the date and time it was identified. (See CGP Part 5.4 and Section 5.C of this guide.) You must also do all of the following:

- 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 and taking safety considerations into account).
- Determine whether the dewatering controls are operating effectively and whether they are causing the conditions.
- 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.

4.B Corrective Action Options

A successful corrective action will minimize or eliminate indicators of pollutants (e.g., sediment plume or sheen) observed in dewatering discharge or, if you are required to conduct turbidity benchmark monitoring, reduce turbidity such that the weekly average is below the benchmark threshold.

Pollutant Indicators Observed During a Dewatering Inspection

Table 3 presents possible corrective actions to address inspection observations of pollutant indicators. Some of them—such as evaluating the effectiveness of the dewatering treatment control—may require the assistance of an engineer, the vendor who provided the control, or another subject matter expert.

Table 3. Corrective Actions to Consider When Pollutant Indicators Are Observed in Dewatering Discharge

Observed Pollutant Indicator	Potential Corrective Actions
Dewatering water is causing erosion between the treatment control and the receiving water.	• Stop dewatering if the downgradient area shows signs of instability or erosion. • Investigate whether channels used to convey dewatering discharges are stabilized and protected with vegetation, riprap, erosion control blankets, or a similar erosion control measure. If not, implement appropriate erosion control measures. • Move dewatering controls installed on steep slopes to a flatter area. • Install outlet protection or a velocity dissipation device. • Move the discharge location, if possible, to a stable, erosion-resistant surface (e.g., well-vegetated grassy areas, clean filter stone, geotextile underlayment). • Check for leaking pumps, hoses, and pipe connections and fix if identified. Leaks under pressure can be significant causes of erosion.
Pollutant indicators such as a sediment plume, suspended solids, unusual color, odor, decreased clarity, or foam are observed in or on the dewatering water discharge.	• If ongoing construction activity is identified as the pollutant source, install or maintain stormwater control measures between active construction areas and the dewatering operation to minimize the transport of sediment and other pollutants into the dewatering operation. • If the dewatering control is not operating properly, maintain the dewatering treatment control to remove accumulated sediment and other pollutants. Sediment is typically removed before storage volume is reduced by one-third. • If you observe a distinct color or odor, look for raw materials, chemicals, or other materials used or stored near the area being dewatered. Move these materials away from the dewatering operation if you determine them to be the source of color, odor, foam, or sheen. • If you observe foam, check for and clean up any leaks or spills near the dewatering operation. • Stop dewatering and evaluate whether the installed dewatering treatment control is the correct treatment control for the site. Visual turbidity may indicate that installed dewatering controls are ineffective for the soil composition or site conditions, are undersized, or were incorrectly installed. For example, sediment filtration practices

Observed Pollutant Indicator	Potential Corrective Actions
	(e.g., dewatering bag filters, silt fence enclosures, sediment traps, basins) are effective at removing larger sediment particles, but fine particles need advanced treatment technology. An undersized or incorrectly installed treatment control may result in the discharge of untreated or partially treated dewatering water. An undersized treatment control will also need more frequent maintenance than a correctly sized one.
The water surface has a visible sheen or the receiving water's bottom or shoreline has visible oily deposits.	• Check upstream and downstream of the dewatering discharge location to see if a sheen or oily deposits may be coming from a different source such as a spill or other discharge from your site or a neighboring property. • Verify that your dewatering treatment control is equipped with an oil-water separator to remove oil, grease, and other hydrocarbons. If not, add an oil-water separator to the dewatering treatment control. • If an oil-water separator is already in place, perform any necessary maintenance to ensure that it is operating properly.

Exceedances of the Turbidity Benchmark Threshold

If the weekly average turbidity result exceeds the standard 50 NTU benchmark or an EPA-approved alternate benchmark, the magnitude of the exceedance may drive your corrective action response.

For example, if the weekly average of your turbidity monitoring results is slightly above the benchmark threshold, then maintenance of treatment controls and retraining sampling and analysis personnel (to ensure that related errors are not compromising the accuracy of the results) may be enough to reduce the site's weekly average turbidity result below the threshold.

You should safely shut off the discharge if the weekly average of your turbidity monitoring results significantly exceeds 50 NTUs or a single sample is extremely high (e.g., 355 NTUs or greater). In the latter case, the weekly average turbidity value will exceed 50 NTUs regardless of the turbidity values the other days during the week. See CGP Part 5.2.2.a. Evaluate the cause of the high turbidity; you may need to install a different treatment control or additional treatment controls to reduce turbidity levels below the benchmark threshold in highly turbid dewatering water.

You should also look at the individual turbidity results. Are they similar or was the weekly average influenced by an outlier that is significantly higher or lower than the other results for the week? For example, if most of the turbidity results are around 70 NTUs, one would expect the weekly average to be around 70 NTUs—but an outlier may be influencing that average. In the Table 1 example in Section 3.D, four of the six samples were between 40 and 50 NTUs, while the other two were 68 and 72 NTUs.

You should consider the possibility of unusual events or sampling conditions. (For example, were the two high-turbidity samples shown in Table 1 taken during unusual conditions?) You should evaluate outliers across weeks to see if a pattern emerges. Note that if you try to reduce the influence of outliers on the weekly average by performing more turbidity tests, each test result must be included in the weekly average calculation (CGP, Part 3.3.3.c).

Table 4 presents possible corrective actions to consider when the weekly average of your turbidity monitoring results exceeds 50 NTUs or an EPA-approved alternate benchmark threshold. If you consistently exceed the turbidity benchmark, consider whether you can avoid discharging to a sensitive water. Depending on dewatering flow rate, climate, and regulatory requirements, you may be able to land-apply and infiltrate (unless ground water contamination could result) dewatering water on-site.

Table 4. Corrective Actions to Consider for Weekly Turbidity Benchmark Monitoring Result Exceedances

Possible Cause of Turbidity Benchmark Monitoring Exceedance	Potential Corrective Actions
Sampling and analysis errors	• Reevaluate sampling locations to ensure the samples are representative of treated dewatering water. (For example, the designated sampling location may have been inaccessible; a dewatering sample may have been taken from a different location and therefore returned an unexpected turbidity result.) • Verify that the meter was calibrated before the analysis. • Make sure the cuvette, or other sampling container, is cleaned before the sample is collected. Solids or other residual pollutants from a previous sampling event may contaminate the sample. • Clean the outside of the cuvette prior to analysis. Dirt, smears, and ink can interfere with the meter's analysis, potentially resulting in an incorrect, elevated result. Refer to the meter's manual for directions on preparing cuvettes. • Check the cuvette for bubbles in the sample. Bubbles can cause an artificially high turbidity result.
Inadequate operation or maintenance of the dewatering treatment control	• Maintain the dewatering treatment control to remove accumulated sediment and other pollutants. Sediment is typically removed before storage volume is reduced by one-third. • Replace and clean filter media used in dewatering controls when the pressure differential equals or exceeds the manufacturer's specifications (CGP, Part 2.4.7). • Evaluate whether the installed dewatering treatment control is the correct treatment control for the site. Elevated turbidity may indicate that installed dewatering controls are ineffective for the soil composition or site conditions, are undersized, or were incorrectly installed. For example, sediment filtration practices (e.g., dewatering bag filters, silt

Possible Cause of Turbidity Benchmark Monitoring Exceedance	Potential Corrective Actions
	fence enclosures, sediment traps, basins) are effective at removing larger sediment particles, but fine particles need advanced treatment technology. An undersized or incorrectly installed treatment control may result in the discharge of untreated or partially treated dewatering water. An undersized treatment control will also need more frequent maintenance than a correctly sized one.
Erosion between the dewatering treatment control and the sampling location	• Stop dewatering if the downgradient area shows signs of instability or erosion. • Investigate whether channels used to convey dewatering discharges are stabilized and protected with vegetation, riprap, erosion control blankets, or a similar erosion control measure. If not, implement appropriate erosion control measures. • Move dewatering controls installed on steep slopes to a flatter area. • Install outlet protection or a velocity dissipation device. • Relocate discharge location, if possible, to a stable, erosion-resistant surface (e.g., well-vegetated grassy areas, clean filter stone, geotextile underlayment). • Check for leaking pumps, hoses, and pipe connections and fix if identified. Leaks under pressure can be significant causes of erosion.

You may resume discharging from your dewatering activities after completing the relevant corrective actions, including making any adjustments, repairs, or replacements to the dewatering controls. You should consider taking photographs of corrective actions, when possible, to supplement the descriptions in your corrective action log.

Section 5: Reporting and Recordkeeping

It is important that accurate recordkeeping of dewatering inspections and turbidity benchmark monitoring become a standard operating procedure at your construction site. You need to be able to show that records of dewatering inspections and turbidity benchmark monitoring, if required, meet all permit requirements. It is always preferable to document more than less when dealing with permit compliance. Create easy-to-use logbooks for keeping track of dewatering events. Ensure that your site map is current and easy to understand. Develop simple instruction sheets for recording inspection information and turbidity benchmark monitoring activities. Your SWPPP must include these instruction sheets (CGP, Part 7.2.7.e), and you should keep copies of the sheets with the sampling equipment.

When possible, record information on standardized forms such as EPA's dewatering inspection report template and corrective action log template (both available at EPA's CGP resources, tools, and templates webpage), as well as the sample Turbidity Benchmark Monitoring Data Table in Appendix A of this guide. This will provide consistency in information reported.

If possible, regularly transfer inspection and turbidity benchmark monitoring information into databases or spreadsheets. This will provide back-up records for hard-copy logs or forms as well as provide an easy way to analyze your sampling data.

5.A Recordkeeping for Dewatering Inspections

The following information must be recorded for each dewatering inspection (CGP, Part 4.6.3):

- The inspection date.
- Names and titles of personnel conducting the inspection.
- The approximate time that the dewatering discharge began and ended on the day of inspection. If dewatering is continuous, include this information in the record.
- Estimates of the rate (in gpd) of discharge on the day of inspection. You will need to read the flow meter, or estimate flow rate, and convert gpm into gpd using the number of minutes the site was discharging dewatering water. A continuous discharge, for example, would multiply gpm by 1,440 minutes to obtain gpd. See also Section 3.A.
- Evidence of pollutants at the point of discharge, including:
    - a 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.
- Photographs of:
    - the dewatering water before treatment by a dewatering control(s) and the final discharge after treatment;
    - the dewatering treatment control(s); and

- 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 do not need to submit your inspection records to EPA, but you must maintain them at the permitted site, or at an easily accessible location, so that they are immediately available at the time of an on-site inspection or upon request by EPA. You must keep these records for at least three years after permit coverage is terminated or expires.

5.B Reporting Turbidity Monitoring Results

You must submit reports of your weekly average turbidity results to EPA no later than 30 days following the end of each monitoring quarter, shown in Table 5. If there are monitoring weeks in which there was no dewatering discharge, or if there is a monitoring quarter with no dewatering discharge, you must indicate this in the quarterly turbidity monitoring report.

Table 5. Monitoring Quarters and Deadlines for Reporting Monitoring Data

Monitoring Quarter	Months	Reporting Deadline
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

When you report your turbidity monitoring results for the quarter, you will be entering data for each monitoring week that have been given pre-assigned dates to ensure accuracy. Refer to Table K-1 in CGP Appendix K for a table of these dates.

Operators covered under the CGP submit all records and forms through the National Pollutant Discharge Elimination System Electronic Reporting Tool (NeT-CGP), including the quarterly turbidity monitoring reports, unless the applicable EPA Regional Office grants a waiver from electronic reporting. If you are granted such a waiver, you will use the Turbidity Monitoring Report Form in CGP Appendix K. Your NeT-CGP account will include the alternate turbidity benchmark if approved by EPA. You can find more information on electronic reporting at https://www.epa.gov/compliance/npdes-ereporting.

Reporting requirements for sites with multiple operators

Where multiple operators are subject to the turbidity monitoring requirements associated with the same site, and one operator has agreed to be responsible for the monitoring activities, only that operator is required to report the site's weekly average turbidity results. The operator submitting the turbidity monitoring reports must indicate that it is fulfilling the obligations of other operators covered under the permit for the same project site, and must identify the NPDES ID number(s) for all other such operators (Turbidity Monitoring Report Form, CGP, Appendix K).

5.C Corrective Action Log

You must record each corrective action related to your dewatering operations in the site's corrective action log. This log is a CGP-required record of the operator's responses to observed indicators of pollutants or turbidity benchmark exceedances (CGP, Part 5.4). Record corrective actions as follows:

- Within 24 hours of identifying the corrective action trigger, document the specific trigger and the date and time it was identified.
- Within 24 hours of completing the corrective action (in accordance with the deadlines in CGP Part 5.2), document the actions taken to address the condition, including whether any SWPPP modifications are required.
- Each entry to the corrective action log must be signed by the operator's signatory in accordance with the CGP's Standard Permit Conditions (CGP, Appendix G). The signatory may be either the person holding the position that signed the NOI for coverage under the CGP or a duly authorized representative of that person. See CGP Appendix G, Section G.11.2.

You may prepare, sign, and maintain an electronic corrective action log, instead of a paper log, if the records are:

- in a format that can be read in a similar manner as a paper record;
- legally dependable with no less evidentiary value than their paper equivalent; and
- 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. See footnote to CGP Part 5.4.3.

As mentioned previously, you may use EPA's Corrective Action Log Template, available at https://www.epa.gov/npdes/construction-general-permit-resources-tools-and-templates, to document your corrective actions as required under CGP Part 5.4.

The corrective action log, or an up-to-date copy, must be kept at the site or at an easily accessible location, so that it is immediately available at the time of an on-site inspection or upon request by EPA (CGP, Part 5.4.3). Additionally, the operator must keep the complete corrective action log for at least three years from the date CGP coverage expires or is terminated.

Section 6: Train Personnel

Each operator, or group of multiple operators on a single site, must assemble a "stormwater team" that will carry out activities, including those related to dewatering discharges, necessary to comply with the CGP. Each stormwater team member must understand the CGP requirements (CGP, Part 6.2), including:

- The permit requirements and deadlines associated with installation, maintenance, and removal of stormwater controls and stabilization.
- The locations of all stormwater and dewatering controls on the site required by this permit and how they are to be maintained.
- The proper procedures to follow with respect to the permit's pollution prevention requirements.
- When and how to conduct stormwater and dewatering inspections, record applicable findings, and take corrective action.

Any stormwater team member who performs dewatering inspections must be a "qualified person."

Before February 17, 2023, the qualified person, or persons, must be "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" (CGP, Part 6.3).

Beginning February 17, 2023, all qualified persons conducting site inspections, including dewatering inspections, must:

- have completed the EPA construction inspection course developed for this permit and have passed the exam or
- hold a current valid construction inspection certification or license from a program that, at a minimum, covers the following:
    - principles and practices of erosion and sediment control and pollution prevention practices at construction sites;
    - proper installation and maintenance of erosion and sediment controls and pollution prevention practices used at construction sites; and
    - performance of inspections, including the proper completion of required reports and documentation, consistent with the CGP's site inspection requirements (CGP, Part 6.3).

The EPA CGP construction inspection course is offered free of charge. Several private companies and some State governments and municipalities offer construction stormwater inspection training and certification, usually for a fee.

In addition to these training requirements, you should train staff responsible for turbidity benchmark monitoring in the procedures for sample collection, reporting, and recordkeeping. Trainings should be held regularly to update staff on any changes to the permit or SWPPP related to procedures for turbidity benchmark monitoring from dewatering discharges. Employees who will be responsible for turbidity benchmark monitoring should be trained on the following:

- Where to monitor.
- How to collect and analyze samples for turbidity.
- How to interpret turbidity results.
- How to keep accurate and complete records.
- How to report turbidity benchmark monitoring results to EPA.

Section 7: References

U.S. Environmental Protection Agency. (1992). *NPDES storm water sampling guidance document*. EPA 833-8-92-001.

U.S. Environmental Protection Agency. (2015). *Getting up to speed: Groundwater contamination*. EPA 625-R-93-002.

U.S. Environmental Protection Agency. (2021). *Overview of listing impaired waters under CWA Section 303(d)*.

U.S. Environmental Protection Agency. (2022). *NPDES general permit for discharges from construction activities (CGP).*

U.S. Geological Survey. 2019. *Water-quality benchmarks for contaminants*.

Appendix A: Sample Turbidity Benchmark Monitoring Data Table

Turbidity Benchmark Monitoring Data Table

Operator:	**Project Name:**
Dewatering Discharge Point ID (if multiple discharge points)**:**	**Sample Location:**
Turbidity Meter (make and model)**:**	**Test Method** (e.g., EPA 180.1)**:**

Sample Collection			Turbidity Analysis					
Name of Individual Collecting Sample	**Date**	**Time**	**Name of Individual Analyzing Sample**	**Date**	**Time**	**Meter Calibrated?**	**Turbidity Result (NTUs)**	**Notes**
						☐ Yes		
						☐ Yes		
						☐ Yes		
						☐ Yes		
						☐ Yes		
						☐ Yes		
						☐ Yes		
						☐ Yes		
						☐ Yes		
						☐ Yes		
						☐ Yes		
						☐ Yes		

Corrective Action & Activity Logs

CORRECTIVE ACTION LOG

Complete the corrective action details within 24 – hours of discovering the trigger of the corrective action. Complete with corrective action completion deadline within 24 hours of completing the corrective action. Keep the signed log in the SWPPP and for three – years after the NOT is submitted.

PROJECT INFORMATION	
PROJECT NAME:	Sagebrush Substation Site Development
NPDES ID:	NMR1004S2
LOCATION:	University Blvd. SE & Flightway Ave., Albuquerque, NM 87106

CORRECTIVE ACTION DETAILS	
DATE IDENTIFIED:	**TIME IDENTIFIED:**
LOCATION:	
DESCRIPTION OF THE ISSUE THAT CAUSED THE CORRECTIVE ACTION:	
TRIGGER:	☐ A stormwater control needs significant repair or a new or replacement control is needed ☐ The same control measure requires upgrading to prevent frequent or repeat maintenance ☐ A stormwater control was never installed or was installed incorrectly ☐ The project's discharge does not meet applicable water quality standards ☐ A prohibited discharge occurred ☐ During dewatering, the weekly average NTU exceeds the 50 NTU benchmark ☐ During dewatering, the Inspector observed indicators or pollutants in the discharge ☐ The EPA requires corrective action as a result of permit violations found during its inspection

CORRECTIVE ACTION COMPLETION DEADLINE
☐ Immediately took all reasonable steps to address the trigger, including cleaning up any contaminated surfaces so the material will not discharge in subsequent storm events; and
☐ Completed the corrective action by the close of the next business day, unless new or replacement control or significant repair was required; or

☐	Completed the corrective action within seven (7) calendar days from the time of discovery because it required replacement controls, significant repair; or
☐	It was infeasible to complete the corrective action within seven (7) calendar days because:
	The corrective action was completed on:

DEWATERING CORRECTIVE ACTION COMPLETION DEADLINE	
☐	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.

MODIFICATIONS AS PART OF THE CORRECTIVE ACTION

DESCRIPTION	DATE COMPLETED	SWPPP UPDATED	DATE SWPPP UPDATED

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 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"

NAME:

SIGNATURE: **DATE:**

TITLE:

BMP MAINTENANCE LOG

PROJECT:	**Sagebrush Substation Site Development**		
BMP LOCATION	ACTION PERFORMED	DATE PERFORMED	PERFORMED BY:

BMP MAINTENANCE LOG

PROJECT:	**Sagebrush Substation Site Development**		
BMP LOCATION	ACTION PERFORMED	DATE PERFORMED	PERFORMED BY:

WATERING/DUST CONTROL SCHEDULE

PROJECT:	**Sagebrush Substation Site Development**		
DATE	LOCATION	DATE	LOCATION

WATERING/DUST CONTROL SCHEDULE

PROJECT:	**Sagebrush Substation Site Development**		
DATE	LOCATION	DATE	LOCATION

SEDIMENT TRACK OUT REMOVAL/SWEEPING LOG

PROJECT:	**Sagebrush Substation Site Development**		
DATE	LOCATION	DURATION	PERFORMED BY

SEDIMENT TRACK OUT REMOVAL/SWEEPING LOG

PROJECT:	**Sagebrush Substation Site Development**		
DATE	LOCATION	DURATION	PERFORMED BY

Training Logs and Guides

SWPPP TRAINING LOG

Project Name: Sagebrush Substation Site Development

Instructor Name: _____

Training Location: _____

Training Date: _____

Training Duration: _____

Training Topics: _____

☐ Erosion Control BMPs
☐ Sediment Control BMPs
☐ Good Housekeeping BMPs
☐ Non – Stormwater BMPs
☐ Emergency Procedures
☐ SWPPP Provisions
☐ Prohibited Discharges
☐ Other (Specify): _____

Attendee Roster:

NAME OF ATTENDEE	COMPANY OR AGENCY

Instructor's Signature: _____

Date: _____

STORMWATER BEST MANAGEMENT PRACTICE

NPDES Posting Board Training Guide

Purpose:

The EPA's Construction General Permit requires all permitted project post specific information pertaining to the project. The information must be posted in a location accessible to the public and easy to view from a parked position.

Installation:

- The board must be installed at the most active location of the project where it can be viewed by the public (e.g. project site entrance).
- The text must be large enough to view for a moderate distance.
- The posting must provide: the project's NPDES tracking number, contact person for additional information, directive to the SWPPP location and a directive to contact the EPA if indication that stormwater pollutants in the site discharge to a receiving waterbody.

Maintenance:

- Replace or reset the posting when it has been removed, fallen, or placed elsewhere that is not publicly accessible.
- Ensure the posting provides the required information.
- A rain gauge must always be attached to the board. Remove excess debris frequently to insure correct precipitation collection.
- Move the posting to the most active part of the project if the project is long or large. For example, a linear roadway or utility project.

Flags for Potential Violation:

- No posting onsite.
- Posted information is incorrect.
- Posted information is not publicly accessible or viewable.

Operating Posting Board

Non-Operating Posting Board

STORMWATER BEST MANAGEMENT PRACTICE

Silt Fence Training Guide

Purpose:

Silt Fence keeps disturbed soil from leaving a construction site until earth disturbance has been completed and the construction site has been permanently stabilized.

Installation:

- Install Silt Fence perpendicularly to the slope of the site. Dig a minimum 4'' X 4'' trench UPSTREAM of the silt fence.
- Drive the stakes into the ground so that 2" remains above the top of the silt fence, at least 1' deep on the downstream edge, with a MAXIMUM of a 10' space between the stakes. Install Silt Fence on the upstream side of the stakes. Ensure the stakes or posts are on the downstream side of the fence fabric. Secure fencing with hog rings, wire ties, or staples.
- Overlap the fencing at least the width of the stake if one CONTINUOUS piece of fabric is not available. Secure with hog rings, wire ties, or staples.
- Cover and compact the trench with backfilled soil, gravel, or rocks.

Maintenance:

- High Sediment Accumulation: If sediment is up to half (1/2) the height of the fencing, that sediment MUST be removed.
- Gaps, Positioning and Tears: Mend gaps and tears with Duct Tape or wire ties. Replace the fencing if needed. If the silt fence has fallen over or moved due to precipitation, re-position the fencing and consider stronger fence fabric or posts that will withstand heavy drainage.
- Strains: Locate any strains in the fencing, remove any sediment causing the strain.

Flags for Potential Violation:

- Silt fence has not been installed.
- Gaps or tears in the fabric or the silt fence has fallen over.
- Sediment build-up preventing BMP effectiveness.
- Water and drainage undercutting (flowing under) the fencing.

Silt Fence **should** be used in . . .	Silt Fence **should NOT** be used in . . .
• An Area accepting sheet slow conditions • Downstream perimeter at the toe of slope • Upstream of sediment basins/traps, along streams and channels • Around temporary spoil areas	• Ditch lines, streams, or other areas of concentrated flows • Areas where the slope percentage is greater than 50% • Soil conditions the prevent proper installment

Operating Silt Fence

Non-Operating Silt Fence

STORMWATER BEST MANAGEMENT PRACTICE

Wattles Training Guide

Purpose:

Wattles are used to slow stormwater velocity and spread the flow of sheet runoff and small streams. The sediment control measure also captures and filters sediment contained in stormwater runoff.

Installation:

- Install wattle on the downstream side of the project, specifically where stormwater has the potential to discharge offsite.
- Secure wattle with an 18''-24'' wood stake per the project plan set standard, with stakes on each end of the wattle. Drive stakes perpendicularly to the slope, through the middle of the wattle. Leave a minimum 2-3'' of the stake above the wattle.
- For multiple wattles in 1 row, install with 1' overlap. Ensure the overlapping ends will not allow discharge to pass through the wattle seam. The overlap should help the water move downstream like the shingles on a house.
- Vertical spacing is dependent on slope gradient. Steeper slopes may require additional rows placed nearer together than flatter slopes.

Maintenance:

- Replace or repair split, torn, unraveling, slumped or dislodged wattles.
- Remove built up sediment that is ½ the height of the wattle and inspect for undercutting (water flowing beneath the wattle). The removed sediment must be placed back onsite.
- Inspect regularly and within 24 hours of a triggering precipitation event.

Flags for Potential Violation:

- Splits, tears, unraveling, slumping, and dislodging.
- Sediment build-up preventing filtering or containment effectiveness.
- Water and drainage undercutting (flowing under) the wattles.

When to use Wattles	When **NOT** to use Wattles
• Perimeter control measure on flat slopes • To capture inlet sedimentation • Flow diversion to stormwater treatment areas • Areas along sidewalks and curbs to prevent runoff into gutters • Around temporary spoil and or stockpiles	• Ditch lines, streams, or other areas of concentrated flows • Areas where the slope percentage is greater than 50% • Soil conditions that prevent proper installment

Operating Wattles

Non-Operating Wattles

STORMWATER BEST MANAGEMENT PRACTICE

Concrete Washout Training Guide

Purpose:

Concrete washouts are used to collect and contain concrete and liquids when the chutes of concrete mixers and hoppers of concrete pumps are rinsed after delivery.

Washouts should also be utilized when mixing and using grout, mortar, stucco, etc.

Installation:

- Locate the washout at least 50' from storm drains, open ditches, water bodies or water conveyances. A "Concrete Washout" sign must be installed adjacent to the washout.
- The washout must be large enough to contain all the concrete and liquid waste.
- If using an in – ground washout, line the washout with plastic. The plastic liner must be a minimum of 6 millimeters and free of holes, rips, tears or other defects.
- Anchor the liner to prevent sagging or leaking material.

Maintenance:

- Remove and dispose of hardened concrete when the capacity reaches 75%.
- If liquids have not evaporated and the washout is nearing 75% capacity, vacuum and dispose of the waste.
- Pull – away or manufactured washouts must be cleaned or replaced once the existing washout is 75% full.
- Multiple washout areas around a large project may be necessary to prevent concrete spillage onsite.

Flags for Potential Violation:

- The washout area does not have a required sign.
- The washout is more than 75% full.
- Concrete is spilling out of the container or directly dumped next to the washout.
- The plastic liner has holes, tears, rips or other defects.
- Side walls are damaged.
- The washout was installed on uneven ground causing spillage and ground contamination.
- Wet concrete or concrete spillage is frequently observed onsite.
- Concrete subcontractors or operators are washing chutes, tools, or pumps directly into a stormwater conveyance or multiple storm sewer system (e.g. inlet)

Operating Concrete Washout

Non-Operating Concrete Washout

VEHICLE TRACKING PADS

Vehicle tracking pads and entrances are used to prevent soil and mud from being carried offsite and deposited on parking lots, public paved roads, and other areas by work vehicles. These BMPs reduce the amount of sediment and other pollutants which may leaving the site.

Installation:

- Install prior to any land disturbing activity.
- Install the entrance on a level surface where an unpaved road meets a paved road. Typically, at the project access area. Grade the entrance toward the construction site.
- The entrance should measure up to 50’ long, or four - times the circumference of the largest construction vehicle tire, whichever is greater, and wide enough to allow two vehicles to pass without obstruction.
- Utilize aggregate of adequate size (e.g., 4-6” cobble).

Maintenance:

- Inspect the entrance daily for sediment track – out, compaction and torn or ineffective lining.
- Remove sediment and mud that has tracked – offsite using dry methods by the end of the day on which the track out occurs. Replace the sediment onsite in the disturbed area.
- Entrances utilizing rock may become compacted overtime. Compacted stone should be removed and replaced or roughened to remain effective.

Flags for Potential Violation:

- The construction entrance is not long or wide enough to accommodate machinery and work vehicles.
- The entrance is not restricted to require vehicles to use the construction entrance.
- The entrance is compacted.
- There is frequent sediment track – out onto the public roadways or sidewalks.

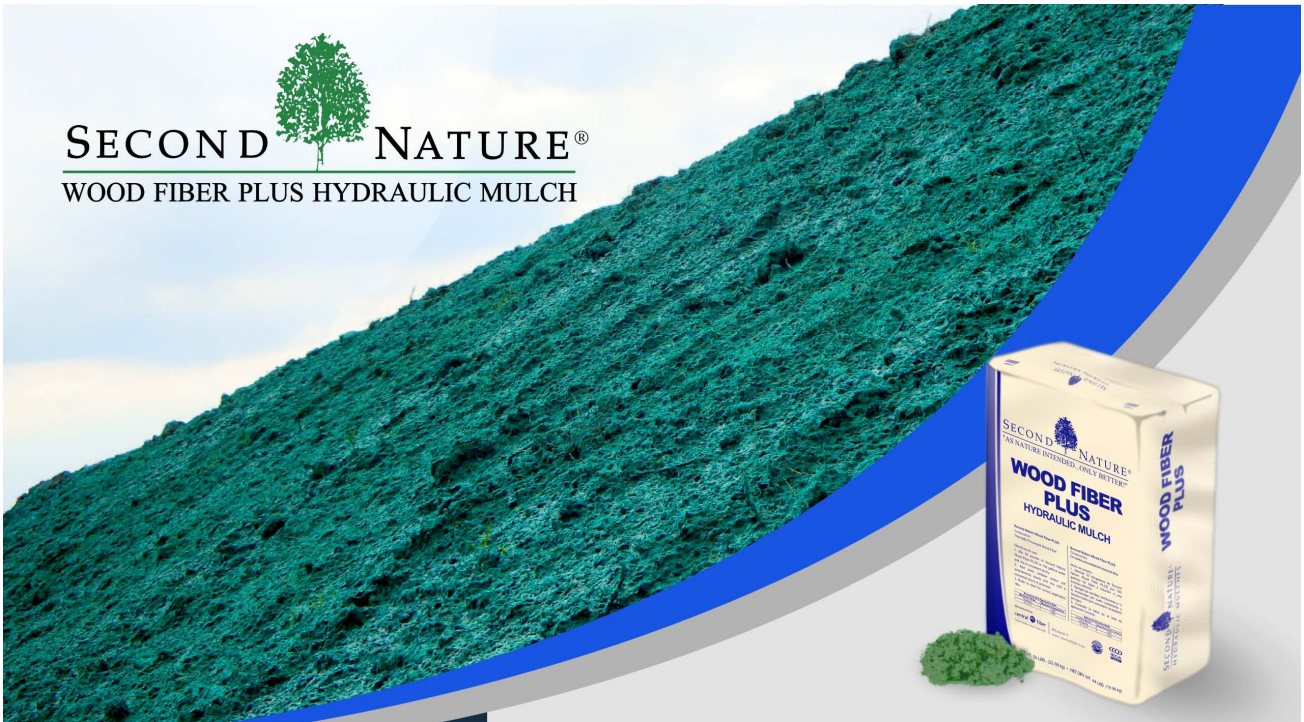
Operating Entrance

Non-Operating Entrance

BMP Details

SECOND NATURE®

WOOD FIBER PLUS HYDRAULIC MULCH



To Us, Effective Erosion Control Is SECOND NATURE®

QUALITY INGREDIENTS

Non-Toxic and fully biodegradable; Produced using only 100% virgin wood fiber, **Thermo-Mechanically Processed** and pre-blended with a **Premium Organic Polymer Based Tackifier** for added protection.

SIMPLE APPLICATION

Accelerated water absorption creates a consistent slurry for **Even Seed Dispersal** and the pre-blended tackifier **Eliminates the Mess of Field-Mixing**.

TOP CHOICE

Meets or exceeds all requirements for Wood Fiber Hydraulic Mulch and comes packaged in convenient 50 pound **Vinyl/UV/Weather-Resistant** bags.

MOISTURE RESERVOIR

Excellent Water Holding Capacity provides enhanced blending with seed and fertilizer for superior turf establishment.

PROFESSIONAL RESULTS

Vibrant green color provides a **Professional** look as well as an easy visual guide for **Accurate Metering**.

central fiber

Dependable, Smart. Naturally.

800.654.6117

www.centralfiber.com

ECTC

IECA

SECOND NATURE®
WOOD FIBER PLUS HYDRAULIC MULCH

TECHNICAL DATA

Second Nature Wood Fiber PLUS Hydraulic Mulch (HM) is manufactured from thermo-mechanically processed 100% virgin wood chips. An organic polymer tackifier is premixed during the manufacturing process. It is non-toxic, 100% biodegradable and contaminant free. Applying the HM forms a porous bond with the soil surface, enhancing seed germination and growth.

Mixing

Mix Second Nature Wood Fiber PLUS Hydraulic Mulch with approximately 100 gallons of water per 50 pound bag. Seed, fertilizer, and soil amendments may be added at specified rates for a one-step installation of hydro seeding and erosion control projects. Loading rates should be per the machine manufacturer's guidelines.

Application

Second Nature Wood Fiber PLUS Hydraulic Mulch can be applied after adding seed and fertilizer or as a separate application. Good soil preparation is essential. Slurry containing seed and fertilizer is best applied from the hose by pointing the nozzle (fan-type / 50° tip recommended) straight down to drive the material into the soil. The application should then be finalized by allowing the material to "rain" on the surface to achieve approximately 75% coverage. Use cross-directional application of material to achieve optimal surface coverage.

Recommended Application Rates*		
Slope Gradient	US	Metric
Moderate	1500lbs / Acre	1700kg / Ha
4:1 to 3:1	2000lbs / Acre	2300kg / Ha

*Rates represent typical site conditions; Not recommended for channels or high concentrated flow areas

Equipment

Second Nature Wood Fiber PLUS Hydraulic Mulch is mixed and applied with a standard hydro seeding machine. *Note*: A mechanically agitated hydro seeding machine is recommended. Follow equipment manufacturer's installation instructions and recommendations.

Product Composition / Property Values

Thermo-Mechanically Processed Virgin Wood Fiber	97% (minimum)
Organic Polymer Tackifier	3% (±1%)
Moisture Content	12% (±3%)
EcoToxicity	Non-Toxic (EPA 821/R-02/012)
Water Holding Capacity	1200% (minimum)
Applied Color	Green
Functional Longevity	Up to 3 Months
Biodegradability	100%

Packaging and Shipping

Bag Dimensions, Net Weight	18" x 10" x 26", 50lbs *(UV/Weather-Resistant Plastic)*
Pallet Dimensions, Quantity	46" x 46" x 101", 40 Bags *(UV/Weather-Resistant Stretch-Wrap)*
Full Truckload	22 pallets, 880 Bags

Technical Assistance

Technical Department: (800) 654-6117

Distributed By:

Call 800.654.6117 or visit:

central fiber
Dependable, Smart. Naturally.

YOUR

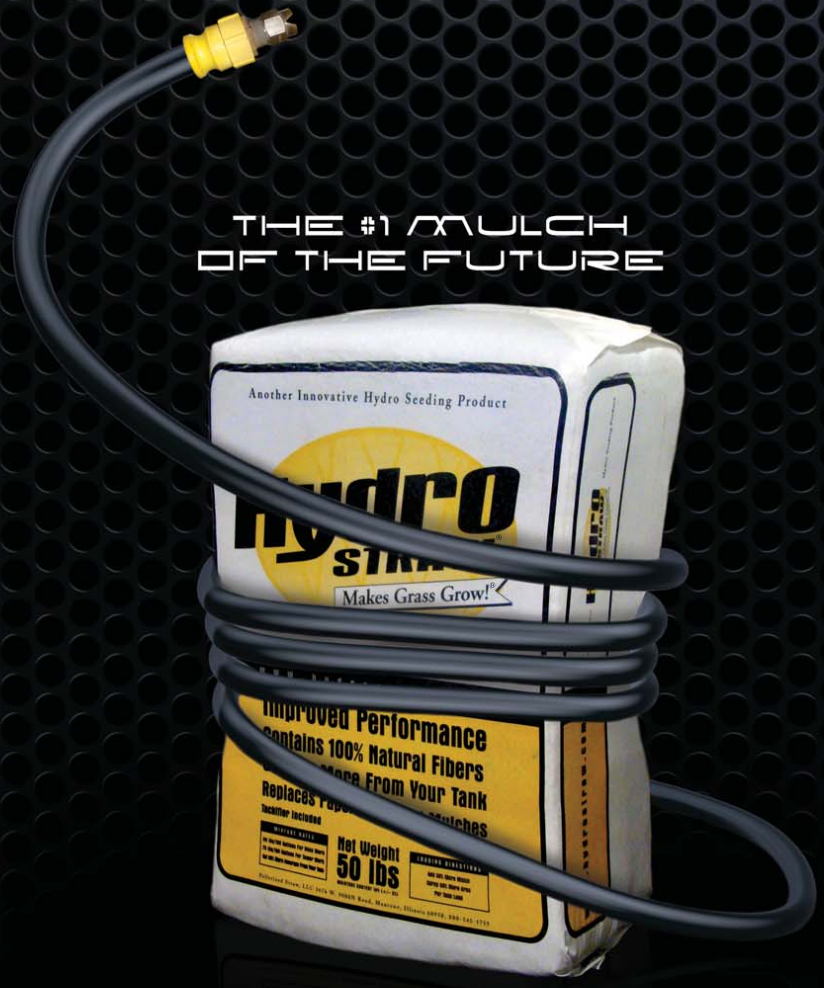
HYDROSEEDER

WILL LOVE

HYDROSTRAW®

MULCH

THE #1 MULCH
OF THE FUTURE



THE NATURAL PROGRESSION

Replaces Blown Straw | Uniform Coverage | Wood Mulch Replacement

Saves Money & Time | Faster Loading & Application Times | Get More Per Tank Load

VISIT: www.hydrostraw.com

WHY HYDROSTRAW?

In today's market every dollar counts, take advantage of Hydro Straw's load more spray more and get more square footage from your machine and use less water. These benefits can quickly be realized in reduced labor, less time filling and trips to water sources. See first hand what others are already experiencing. HydroStraw® hydro seeding mulch "The Natural Progression". Our specially formulated composition of annually renewable natural fibers, binders, and other additives provides a new alternative to the old conventional mulches of the past. You'll now experience more uniform coverage, quicker and much easier loading procedures, and a product that requires less water to apply making you more efficient. You can now add 50% more mulch and spray 50% more area per tank load, this additional coverage can quickly translate into more productive work days and less time filling your tank. Or, look at this way, if you now do 10,000 square feet per load with your conventional wood or paper mulch, you will be able to cover 15,000 square feet per load with HydroStraw® Mulch. When you do the math it's hard to find a reason why you wouldn't use HydroStraw®.

HydroStraw® makes your 3,000 gallon machine a 5,000 gallon hydroseeding beast

Mulch LOADING Rates

*Above Calculations Based on a 2000lb/acre Application Rate

CONTACT US:

HydroStraw, LLC | 3676 W 9000 N Road | Manteno, IL 60950
Phone: 815.468.3610 | Toll Free: 800.545.1755 | info@hydrostraw.com
www.hydrostraw.com

Conwed Fibers® Hydro Mulch® 1000 with TriFlo™

Hydraulic Mulch — Wood

GREEN DESIGN ENGINEERING™
EARTH-FRIENDLY SOLUTIONS FOR SUSTAINABLE RESULTS™

Description

Conwed Fibers® Hydro Mulch® 1000 with TriFlo™ is a fully biodegradable, Hydraulic Mulch (HM) composed of 100% recycled Thermally Refined™ wood fibers. The HM is phyto-sanitized, free from plastic netting, and upon application forms an intimate bond with the soil surface to create a porous and absorbent layer that enhances germination and plant growth.

Recommended Applications

- Erosion control and revegetation for moderate slopes (≤2H:1V)
- Rough graded slopes
- Enhancement of vegetation establishment

Technical Data

Physical Properties*	**Test Method**	**Units**	**Minimum Value**
Water Holding Capacity	ASTM D7367	%	1100
Material Color	Observed	n/a	Green
Performance Properties*	**Test Method**	**Units**	**Value**
Cover Factor[1]	Large Scale[2]	n/a	0.55 maximum
Percent Effectiveness[3]	Large Scale[2]	%	45 minimum
Environmental Properties*	**Test Method**	**Units**	**Typical Value**
Functional Longevity[4]	ASTM D5338	n/a	Up to 3 months
Ecotoxicity	EPA 2021.0	%	96-hr LC50 > 100%
Biodegradability	ASTM D5338	%	100
Product Composition			**Typical Value**
Thermally Processed Wood Fiber[5]			100%
TriFlo			< 1%

* When uniformly applied at a rate of 2000 pounds per acre (2250 kilograms/hectare) under laboratory conditions. 1. Cover Factor is calculated as soil loss ratio of treated surface versus an untreated control surface. 2. Large scale testing conducted at Utah Water Research Laboratory. For specific testing information please contact a Profile technical service representative at 866-325-6262. 3. % Effectiveness = One minus Cover Factor multiplied by 100%. 4. Functional Longevity is the estimated time period, based upon ASTM D5338 testing and field observations, that a material can be anticipated to provide erosion control and agronomic benefits as influenced by composition, as well as site-specific conditions, including; but not limited to – temperature, moisture, light conditions, soils, biological activity, vegetative establishment and other environmental factors. 5. Heated within a pressurized vessel to a temperature greater than 380 degrees Fahrenheit (193 degrees Celsius) for 5 minutes at a pressure greater than 50 psi (345 kPa) in order to be Thermally Refined™/Processed and to achieve phyto-sanitization.

Packaging Data

Properties	**Test Method**	**Units**	**Nominal Value**
Bag Weight	Scale	kg (lb)	22.7 (50)
Bags per Pallet	Observed	#	40

UV and weather-resistant plastic bags. Pallets are weather-proof stretch wrapped with UV resistant pallet cover.

Profile Products
750 Lake Cook Road, Ste. 440
Buffalo Grove, IL 60089
800-508-8681
www.profileproducts.com

M-BINDER

MULCH TACKIFIER / SOIL STABILIZER

A Naturally Perfect Tackifier

M-Binder is a botanical glue used as an aid in hydroseeding, to stabilize soils, and for dust control. M-Binder is unsurpassed as a tackifier setting the standard for the industry since the early 1970's. It is 100% organic, made from the plantago (Plantago insularis) plant. The material used to make the glue is the protective coating of the plantago seed, known as psyllium. This outer coating's purpose in nature is to stick the seed to the soil to improve germination. M-Binder is composed of the finely ground outer coating of this seed. It works perfectly as a tackifier, doing exactly the job that nature intended.

Where to use M-Binder

M-Binder may be used anywhere you need to tack straw or mulch, or control dust and erosion, such as for highway, mine and pipeline reclamation, for revegetation and restoration projects, fire rehabilitation, landscaping and beautification.

Application

M-Binder may be applied as a dry powder or as a wet slurry to dry or wet surfaces. It may even be applied during rain. It does not require set-up or drying time because when it is wet it is a heavy muciloid material and when dry it is a firm but rewettable membrane.

M-binder may be used at varying rates depending on factors such as slope, porosity of the soil and wind conditions. We have found that a good general rate is 150 lb./acre.

- To tack straw: Apply M-Binder at 150-200 lbs./acre. We also recommend mixing with wood fiber at a rate of 200-300 lbs. per acre (to help keep tackifier on top of straw) and sufficient water to produce good slurry flow.
- For use with mulch: Apply M-Binder at 100-200 lbs./acre and wood fiber or paper mulch as specified.
- For use in dust control: Apply M-Binder at 100-200 lbs./acre depending on site conditions.

Cost Effective

Increases plant density and seed retention.

Easy...

to handle, to apply and easy to clean up.

Versatile

Used for dust abatement, hydroseeding, straw and fiber tacking.

Improves...

slurry suspension and slurry flow.

Durable

Forms a firm, resilient, rewettable membrane which fastens seed to soil surface.

Safe

All organic, non-toxic, non-corrosive, safe for animals and plants.

Technical Specifications

Protein content	*1.62*
Ash content	*2.70*
Fiber	*4.00*
pH of 1% solution	*6.80*
Settleable solids	*5.00*

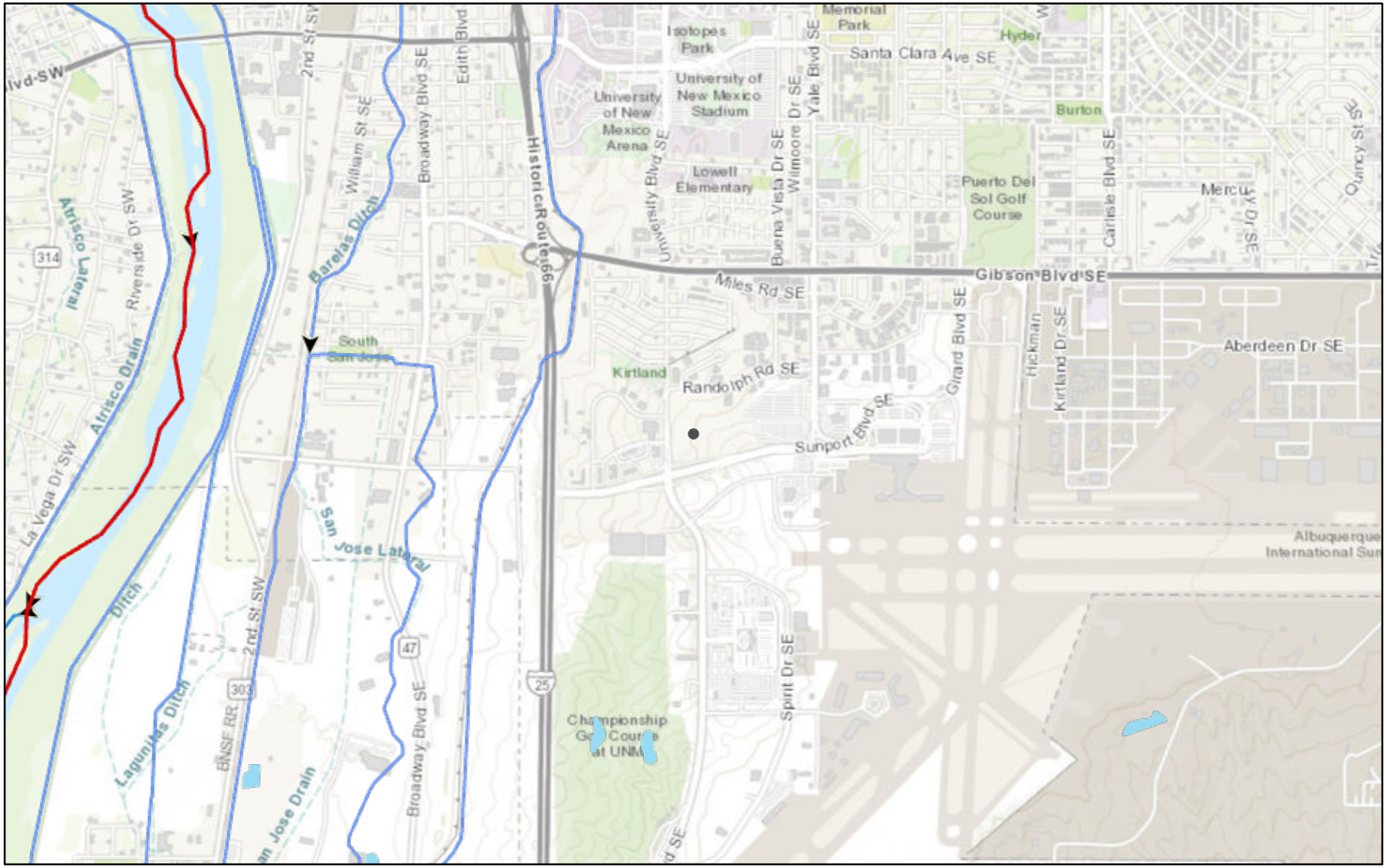
M-Binder is distributed by

granite SEED

1697 West 2100 North, Lehi, UT 84043 • (801) 768-4422 • Fax (801) 768-3967 • granite@graniteseed.com

Receiving Waters &
TMDL Data

Sagebrush Substation Site Development



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0 0.4 0.8 1.6 km

Canals

Waterbodies

Flow Direction

TMDLs Line

305(b) Line

303(d) Line

Streams

US EPA, Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL,

US Environment Protection Agency

Bernalillo County, NM, City of Albuquerque, Bureau of Land Management, Texas Parks & Wildlife, Esri, HERE, Garmin, GeoTechnologies, Inc., USGS, METI/NASA, EPA, USDA | US EPA |

U.S. Fish and Wildlife Service
National Wetlands Inventory

Sagebrush Substation Site Development

May 17, 2022

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

Tijeras Arroyo (Four Hills Bridge to headwaters)			AU IR CATEGORY	LOCATION DESCRIPTION	
			4A	HUC: 13020203 Rio Grande-Albuquerque	
AU ID	**WQS REF**	**WATER TYPE**	**SIZE**	**ASSESSED**	**MONITORING SCHEDULE**
NM-9000.A_001	20.6.4.99	STREAM, PERENNIAL	15.65 MILES	2018	2023
USE	**ATTAINMENT**	**CAUSE(S)**	**FIRST LISTED**	**TMDL DATE**	**PARAMETER IR CATEGORY**
LW	Fully Supporting				
PC	Fully Supporting				
WWAL	Not Supporting	Nutrients	2008	10/12/2017	4A
WH	Fully Supporting				
AU Comment: This entire AU may not be perennial. This upper AU is often referred to as Tijeras Creek or Tijeras Canyon. TMDL for nutrients (2017).					

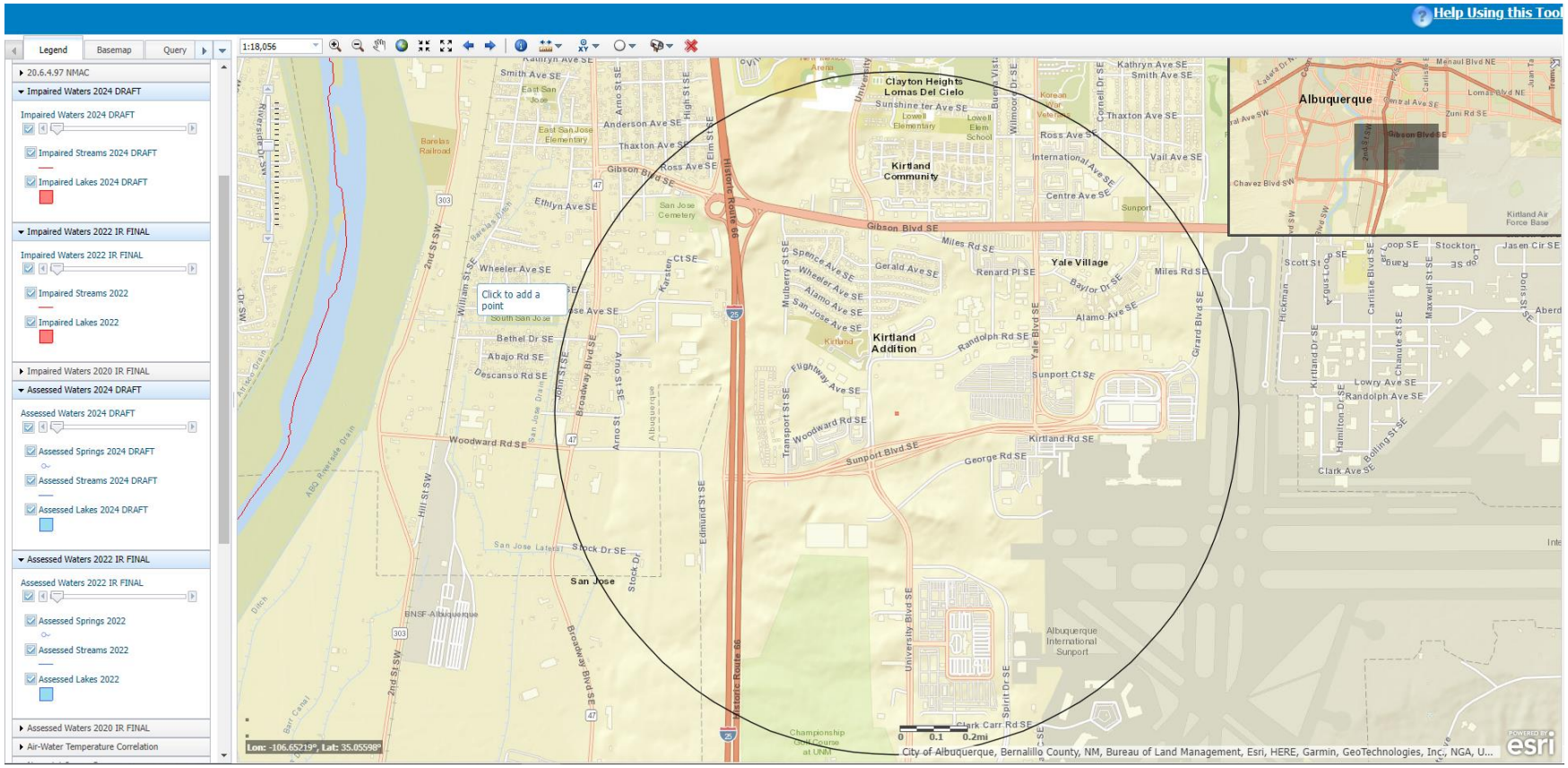
Tijeras Arroyo (Rio Grande to Four Hills Bridge)			AU IR CATEGORY	LOCATION DESCRIPTION	
			3/3A	HUC: 13020203 Rio Grande-Albuquerque	
AU ID	**WQS REF**	**WATER TYPE**	**SIZE**	**ASSESSED**	**MONITORING SCHEDULE**
NM-9000.A_070	20.6.4.98	STREAM, INTERMITTENT	13.42 MILES	2008	2023
USE	**ATTAINMENT**	**CAUSE(S)**	**FIRST LISTED**	**TMDL DATE**	**PARAMETER IR CATEGORY**
LW	Not Assessed				
MWWAL	Not Assessed				
PC	Not Assessed				
WH	Not Assessed				
AU Comment: Application of the SWQB Hydrology Protocol (survey date 6/24/09) indicate this assessment unit is ephemeral (Hydrology Protocol score of 3.0 with 89.1% days with no flow at USGS gage 08330600 - see http://www.nmenv.state.nm.us/swqb/Hydrology/ for additional details on the protocol). The process detailed in 20.6.4.15 NMAC Subsection C must be completed in order to a waterbody under 20.6.4.97 NMAC. Until such time, this waterbody will remain under 20.6.4.98 NMAC.					

Unnamed tributary (South Diversion Channel to I-25)			AU IR CATEGORY	LOCATION DESCRIPTION	
			3/3A	HUC: 13020203 Rio Grande-Albuquerque	
AU ID	**WQS REF**	**WATER TYPE**	**SIZE**	**ASSESSED**	**MONITORING SCHEDULE**
NM-97.A_015	20.6.4.97	STREAM, EPHEMERAL	0.87 MILES	2016	2023
USE	**ATTAINMENT**	**CAUSE(S)**	**FIRST LISTED**	**TMDL DATE**	**PARAMETER IR CATEGORY**
LAL	Not Assessed				
LW	Not Assessed				
SC	Not Assessed				
WH	Not Assessed				
AU Comment: Ephemeral AU subject to 20.6.4.97 NMAC, included in UAA for 18 Unclassified Non-Perennial Watercourses with NPDES Permitted Facilities, June 2012. EPA provided technical approval January 30, 2013.					

NMED SURFACE WATER QUALITY BUREAU

Project: Sagebrush Substation Site Development

Radius: One – Mile



ALL TMDL DOCS

HUC	TMDL document	AU_ID	Assessment Unit	TMDL parameter	WQCC approval	EPA approval	EPA approval
11040001	TMDL for the Dry Cimarron Watershed	NM-2701_00	Dry Cimarron River (perennial reaches OK bnd to Long Canyon)	sulfate, TDS	4/14/2009	6/2/2009	
11040001	TMDL for the Dry Cimarron Watershed	NM2701_02	Dry Cimarron River (Long Canyon to Oak Creek	E.coli, TDS	4/15/2009	6/2/2009	
11040001	TMDL for the Dry Cimarron Watershed	NM2701_20	Long Canyon (perennial reaches above Dry Cimarron)	E.coli, selenium	4/16/2009	6/2/2009	
11040001	TMDL for the Dry Cimarron Watershed	NM-2701_10	Oak Creek (Dry Cimarron to headwaters)	E.coli, plant nutrients	4/17/2009	6/2/2009	
11080001	TMDL for the Canadian Watershed - Part One	NM-2306.A_151	Caliente Canyon (Vermejo River to headwaters)	specific conductance	8/14/2007	9/21/2007	
11080004	TMDL for the Canadian Watershed - Part One	NM-2306.A_020	Coyote Creek (Mora River to Black Lake)	specific conductance, temperature	8/14/2007	9/21/2007	
11080004	TMDL for the Canadian Watershed - Part One	NM-2306.A_024	Little Coyote Creek (Black Lake to headwaters)	plant nutrients, pH	8/14/2007	9/21/2007	
11080004	TMDL for the Canadian Watershed - Part One	NM-2305.A_00	Mora River (USGS gage east of Shoemaker to Hwy 434)	plant nutrients	8/14/2007	9/21/2007	
11080004	TMDL for the Canadian Watershed - Part One	NM-2306.A_00	Mora River (Hwy 434 to headwaters)	specific conductance, sedimentation	8/14/2007	9/21/2007	
11080004	TMDL for the Canadian Watershed - Part One	NM-2305.3.A_20	Sapello River (Mora River to Manuelitas Creek)	sedimentation	8/14/2007	9/21/2007	
11080001	TMDL for the Canadian Watershed - Part One	NM-2305.A_220	Vermejo River (Rail Canyon to York Canyon)	specific conductance, temperature	8/14/2007	9/21/2007	
11080001	TMDL for the Canadian Watershed - Part One	NM-2305.A_230	Vermejo River (York Canyon to headwaters)	temperature	8/14/2007	9/21/2007	
11080001	TMDL for the Canadian Watershed - Part Two	NM-2305.A_200	Canadian River (Cimarron River to Colorado border)	plant nutrients	9/30/2011	11/21/2011	
11080003	TMDL for the Canadian Watershed - Part Two	NM-2305.A_000	Canadian River (Conchas River to Mora River)	E.coli	9/30/2011	11/21/2011	
11080006	TMDL for the Canadian Watershed - Part Two	NM-2303_00	Canadian River (Ute Reservoir to Conchas Reservoir)	E.coli	9/30/2011	11/21/2011	
11080006	TMDL for the Canadian Watershed - Part Two	NM-2303_10	Pajarito Creek (Canadian River to headwaters)	E.coli, plant nutrients	9/30/2011	11/21/2011	
11080008	TMDL for the Canadian Watershed - Part Two	NM-2301_10	Revuelto Creek (Canadian River to headwaters)	boron	9/30/2011	11/21/2011	
11080001	TMDL for the Canadian Watershed - Part Two	NM-2305.A_254	Una de Gato Creek (Chicorica Creek to Highway 64)	plant nutrients	9/30/2011	11/21/2011	
11080001	TMDL for the Canadian Watershed - Part Two	NM-2305.A_030	Una de Gato Creek (Highway 64 to headwaters)	plant nutrients	9/30/2011	11/21/2011	
11080002	TMDL for the Cimarron Watershed	NM-2306.A_065	Cieneguilla Creek (Eagle Nest Lake to headwaters)	E.coli, temperature, plant nutrients	8/10/2010	9/3/2010	
11080002	TMDL for the Cimarron Watershed	NM-2305.1.A_10	Cimarron River (Canadian River to Cimarron Village)	plant nutrients	8/10/2010	9/3/2010	
11080002	TMDL for the Cimarron Watershed	NM-2306.A_040	Cimarron River (Cimarron Village to Turkey Creek)	arsenic, temperature	8/10/2010	9/3/2010	
11080002	TMDL for the Cimarron Watershed	NM-2306.A_130	Cimarron River (Turkey Creek to Eagle Nest Lake)	arsenic, plant nutrients	8/10/2010	9/3/2010	
11080002	TMDL for the Cimarron Watershed	NM-2306.A_060	Moreno Creek (Eagle Nest Lake to headwaters)	temperature, plant nutrients	8/10/2010	9/3/2010	
11080002	TMDL for the Cimarron Watershed	NM-2306.A_110	North Ponil Creek (South Ponil Creek to Seally Canyon)	E.coli	8/10/2010	9/3/2010	
11080002	TMDL for the Cimarron Watershed	NM-2306.A_100	Ponil Creek (Cimarron River to US 64)	E.coli	8/10/2010	9/3/2010	
11080002	TMDL for the Cimarron Watershed	NM-2306.A_101	Ponil Creek (US 64 to confluence of North & South Ponil)	E.coli, plant nutrients	8/10/2010	9/3/2010	
11080002	TMDL for the Cimarron Watershed	NM-2305.3.A_80	Rayado Creek (Cimarron River to Miami Lake Diversion)	plant nutrients	8/10/2010	9/3/2010	
11080002	TMDL for the Cimarron Watershed	NM-2306.A_051	Rayado Creek (Miami Lake Diversion to headwaters)	E.coli, temperature	8/10/2010	9/3/2010	
11080002	TMDL for the Cimarron Watershed	NM-2306.A_064	Sixmile Creek (Eagle Nest Lake to headwaters)	E.coli, temperature, plant nutrients	8/10/2010	9/3/2010	
11080002	TMDL for the Cimarron Watershed	NM-2306.A_120	South Ponil Creek (Ponil Creek to Middle Ponil)	temperature	8/10/2010	9/3/2010	
11080002	TMDL for the Cimarron Watershed	NM-2306.A_068	Ute Creek (Cimarron River to headwaters)	arsenic, E.coli, temperature	8/10/2010	9/3/2010	
11080002	TMDL for Metals in Cieneguilla Creek	NM-2306.A_065	Cieneguilla Creek (Eagle Nest Lake to headwaters)	aluminum	1/13/2004	5/19/2004	
11080002	TMDL for turbidity, SBD, and phosphorus in Cimarron watershed	NM-2306.A_066	Cieneguilla Creek (Eagle Nest Lake to headwaters)	turbidity, SBD, total phosphorus	1/13/2004	5/19/2004	
11080002	TMDL for turbidity, SBD, and phosphorus in Cimarron watershed	NM-2306.A_067	Cieneguilla Creek (Eagle Nest Lake to headwaters)	turbidity, SBD	8/10/1999	9/30/1999	
11080002	TMDL for SBD in Rayado Creek and metals in Cimarron River	NM-2306.A_040	Cimarron River (Canadian River to to Turkey Creek)	chronic aluminum	12/12/2000	2/16/2001	
11080002	TMDL for temperature on Middle Ponil Creek	NM-2306.A_121	Middle Ponil Creek (South Ponil Creek to headwaters)	temperature	7/10/2001	9/27/2001	
11080002	TMDL for turbidity in Middle Ponil and Ponil Creek	NM-2306.A_121	Middle Ponil Creek (South Ponil Creek to headwaters)	turbidity	7/10/2001	9/27/2001	
11080002	TMDLs for Waters of the Valle Vidal	NM-2306.A_124	Middle Ponil Creek (Greenwood Creek to headwaters)	nutrients	9/30/2011	11/8/2011	
11080002	TMDL for turbidity, SBD, and phosphorus in Cimarron watershed	NM-2306.A_060	Moreno Creek (Eagle Nest Lake to headwaters)	turbidity	1/13/2004	5/19/2004	
11080002	TMDL for turbidity, SBD, and phosphorus in Cimarron watershed	NM-2306.A_110	North Ponil Creek (South Ponil Creek to McCrystal Creek)	SBD, total phosphorus, turbidity	1/13/2004	5/19/2004	
11080002	TMDL for temperature on North Ponil Creek	NM-2306.A_110	North Ponil Creek (South Ponil Creek to McCrystal Creek)	temperature	11/9/1999	12/17/1999	
11080002	TMDLs for Waters of the Valle Vidal	NM-2306.A_162	North Ponil Creek (Seally Canyon to headwaters)	temperature	9/30/2011	11/8/2011	
11080002	TMDL for metals in Ponil Creek	NM-2306.A_100	Ponil Creek (Cimarron River to confluence of North and South Ponil Creeks)	chronic aluminum	7/10/2001	9/27/2001	
11080002	TMDL for temperature on Ponil Creek	NM-2306.A_100	Ponil Creek (Cimarron River to confluence of North and South Ponil Creeks)	temperature	7/10/2001	9/27/2001	
11080002	TMDL for turbidity in Middle Ponil and Ponil Creek	NM-2306.A_100	Ponil Creek (Cimarron River to confluence of North and South Ponil Creeks)	turbidity	7/10/2001	9/27/2001	
11080002	TMDL for SBD in Rayado Creek and metals in Cimarron River	NM-2305.A_80	Rayado Creek (Cimarron River to Miami Lake Diversion)	sedimentation	12/12/2000	2/16/2001	
11080002	TMDL for turbidity, SBD, and phosphorus in Cimarron watershed	NM-2306.A_064	Sixmile Creek (Eagle Nest Lake to headwaters)	turbidity	1/13/2004	5/19/2004	
11080004	Updated Mora River nutrient TMDL	NM-2305.A_00	Mora River (USGS gage east of Shoemaker to Hwy 434)	nutrients	6/10/2015	7/22/2015	
11080004	Updated Mora River sedimentation and conductance TMDL	NM-2306.A_00	Mora River (Hwy 434 to Luna Creek)	sedimentation, specific conductance	9/30/2011	11/28/2011	
13010005	TMDL for the Upper Rio Grande Watershed Part One	NM-2120.A_900	Rio de los Pinos (Colorado border to headwaters)	temperature	11/9/2004	12/17/2004	
13010005	TMDL for the Upper Rio Grande Watershed Part One	NM-2120.A_901	Rio San Antonio (Montoya Canyon to headwaters)	temperature	11/9/2004	12/17/2004	
13020101	TMDL for Upper Rio Grande Watershed	NM-98.A_002	Apache Canyon (Rio Fernando de Taos to headwaters)	E.coli	8/14/2012	9/13/2012	
13020101	TMDL for Red River Watershed	NM-2120.A_705	Bitter Creek (Red River to headwaters)	acute aluminum, SBD	1/10/2006	3/17/2006	
13020101	TMDL for the Upper Rio Grande Watershed Part One	NM-2120.A_827	Comanche Creek (Costilla Creek to Little Costilla Creek)	temperature	11/9/2004	12/17/2004	
13020101	TMDL for turbidity, SD and total phosphorus for Cordova Creek	NM-2120.A_823	Cordova Creek (Costilla Creek to headwaters)	SBD, phosphorus, turbidity	11/9/1999	12/17/1999	
13020101	TMDL for the Upper Rio Grande Watershed Part One	NM-2120.A_820	Costilla Creek (diversion above Costilla to Comanche Creek)	temperature	11/9/2004	12/17/2004	
13020101	TMDL for the Upper Rio Grande Watershed Part Two	NM-2111_41	Embudo Creek (Rio Grande to Canada de Ojo Sarco)	SBD, turbidity	4/12/2005	6/2/2005	
13020101	TMDL for Galisteo Creek	NM-2118.A_12	Galisteo Creek (perennial portions 2.2 mile above Lamy to headwaters)	temperature	7/11/2017	8/22/2017	
13020101	TMDL for Galisteo Creek	NM-2118.A_10	Galisteo Creek (perennial portions Kewa bnd to 2.2 miles above Lamy)	temperature	7/11/2017	8/22/2017	
13020101	TMDLs for Waters of the Valle Vidal	NM-2120.A_835	Gold Creek (Comanche Creek to headwaters)	temperature	9/30/2011	11/8/2011	

last updated 12/01/2020

13020101	TMDLs for Waters of the Valle Vidal	NM-2120.A_837	Holman Creek (Comanche Creek to headwaters)	temperature	9/30/2011	11/8/2011	
13020101	TMDLs for Waters of the Valle Vidal	NM-2120.A_839	LaBelle Creek (Comanche Creek to headwaters)	temperature	9/30/2011	11/8/2011	
13020101	TMDL for the Upper Rio Grande Watershed Part Two	NM-2118.A_34	Little Tesuque Creek (Ro Tesuque to headwaters)	chronic aluminum	4/12/2005	6/2/2005	
13020101	TMDL for Red River Watershed	NM-2120.A_703	Pioneer Creek (Red River to headwaters)	turbidity	1/10/2006	3/17/2006	
13020101	TMDL for Red River Watershed	NM-2120.A_706	Placer Creek (Red River to headwaters)	acute aluminum	1/10/2006	3/17/2006	
13020101	TMDL for Red River Watershed	NM-2119_10	Red River (Rio Grande to Placer Creek)	acute aluminum	1/10/2006	3/17/2006	
13020101	TMDL for Red River Watershed withdrawal	NM-2119_10	Red River (Rio Grande to Placer Creek)	acute aluminum	12/11/2012	1/23/2013	
13020101	TMDL for Upper Rio Grande Watershed	NM-98.A_001	Rio Fernando de Taos (Tienditas Creek to headwaters)	E.coli	8/14/2012	9/13/2012	
13020101	TMDL for Upper Rio Grande Watershed	NM-2120.A_512	Rio Fernando de Taos (Rio Pueblo de Taos to USFS bnd at canyon)	E.coli	8/14/2012	9/13/2012	
13020101	TMDL for Upper Rio Grande Watershed	NM-2120.A_513	Rio Fernando de Taos (USFS bnd at canyon to Tienditas Creek)	E.coli	8/14/2012	9/13/2012	
13020101	TMDL for the Upper Rio Grande Watershed Part One	NM-2120.A_512	Rio Fernando de Taos (Rio Pueblo de Taos to headwaters)	specific conductance, temperature	11/9/2004	12/17/2004	
13020101	TMDL for the Upper Rio Grande Watershed Part One	NM-2119_05	Rio Grande (Red River to NM-CO border)	temperature	11/9/2004	12/17/2004	
13020101	TMDL for the Upper Rio Grande Watershed Part Two	NM-2111_12	Rio Grande (non-pueblo Santa Clara to Embudo Creek)	turbidity	4/12/2005	6/2/2005	
13020101	TMDL for the Upper Rio Grande Watershed Part One	NM-2120.A_501	Rio Grande del Rancho (Rio Pueblo de Taos to Hwy 518)	specific conductance	11/9/2004	12/17/2004	
13020101	TMDL for the Upper Rio Grande Watershed Part One	NM-2120.A_600	Rio Hondo (Rio Grande to USFS boundary)	temperature	11/9/2004	12/17/2004	
13020101	TMDL for Rio Hondo (South Form to Lake Fork Creek)	NM-2120.A_602	Rio Hondo (South Fork Rio Hondo to Lake Fork Creek)	plant nutrients	6/14/2005	9/14/2005	
13020101	TMDL for Upper Rio Grande Watershed	NM-2120.A_511	Rio Pueblo de Taos (Rio Grande del Rancho to Taos Pueblo bnd)	E.coli	8/14/2012	9/13/2012	
13020101	TMDL for the Upper Rio Grande Watershed Part One	NM-2119_30	Rio Pueblo de Taos (Arroyo del Alamo to Rio Grande del Rancho)	SBD, temperature	11/9/2004	12/17/2004	
13020101	TMDL for the Upper Rio Grande Watershed Part One	NM-2120.A_511	Rio Pueblo de Taos (Rio Grande del Rancho to Taos Pueblo bnd)	temperature	11/9/2004	12/17/2004	
13020101	TMDL for the Upper Rio Grande Watershed Part One	NM-2119_20	Rio Pueblo de Taos (Rio Grande to Arroyo del Alamo)	temperature	11/9/2004	12/17/2004	
13020101	TMDL for Upper Rio Grande Watershed	NM-2118.A_52	Rio Quemado (Santa Cruz River to Rio Arriba County bnd)	E.coli	8/14/2012	9/13/2012	
13020101	TMDL for Upper Rio Grande Watershed	NM-2120.A_901	Rio San Antonio (Montoya Canyon to headwaters)	E.coli	8/14/2012	9/13/2012	
13020101	TMDL for Upper Rio Grande Watershed	NM-2120.A_419	Rio Santa Barbara (non-pueblo Embudo Creek to USFS bnd)	E.coli	8/14/2012	9/13/2012	
13020101	TMDL for the Upper Rio Grande Watershed Part Two	NM-2120.A_419	Rio Santa Barbara (Picuris Pueblo bnd to USFS bnd)	turbidity	4/12/2005	6/2/2005	
13020101	TMDL for Upper Rio Grande Watershed	NM-2120.A_419	Santa Cruz River (Santa Clara Pueblo bnd to Santa Cruz Dam)	E.coli	8/14/2012	9/13/2012	
13020102	TMDL for Lower Chama	NM-2113_50	Abiquiu Creek (Rio Chama to headwaters)	dissolved oxygen	6/8/2004	9/3/2004	
13020102	TMDL for Rio Chama	NM-2116.A_030	Canjilon Creek (perennial portions Abiquiu Reservoir to headwaters)	specific conductance, temperature	7/12/2011	8/16/2011	
13020102	TMDL for Lower Chama	NM-2116.A_010	Canones Creek (Abiquiu Reservoir to headwaters)	chronic aluminum, fecal coliform, turbidity	6/8/2004	9/3/2004	
13020102	TMDL for Upper Chama	NM-2116.A_081	Chavez Creek (Rio Brazos to headwaters)	temperature	9/9/2003	3/4/2004	
13020102	TMDL for Lower Chama	NM-2116.A_023	Poleo Creek (Rio Puerco de Chama to headwaters)	turbidity	6/8/2004	9/3/2004	
13020102	TMDL for Lower Chama	NM-2116.A_011	Polvadera Creek (Canones Creek to headwaters)	temperature	6/8/2004	9/3/2004	
13020102	TMDL for Upper Chama	NM-2116.A_080	Rio Brazos (Rio Chama to Chavez Creek)	temperature	9/9/2003	3/4/2004	
13020102	TMDL for Rio Chama	NM-2116.A_041	Rio Capulin (Rio Gallina to headwaters)	E.coli	7/12/2011	8/16/2011	
13020102	TMDL for Upper Chama	NM-2116.A_001	Rio Chama (Rio Brazos to Little Willow Creek)	temperature	9/9/2003	3/4/2004	
13020102	TMDL for Rio Chama	NM-2116.A_001	Rio Chama (Rio Brazos to Little Willow Creek)	E.coli, nutrients, temperature	7/12/2011	8/16/2011	
13020102	TMDL for Rio Chama	NM-2116.A_000	Rio Chama (El Vado Reservoir to Rio Brazos)	E.coli, nutrients, temperature	7/12/2011	8/16/2011	
13020102	TMDL for Rio Chama	NM-2116.A_002	Rio Chama (Little Willow Creek to CO border)	E.coli, temperature	7/12/2011	8/16/2011	
13020102	TMDL for Rio Chama	NM-2116.A_110	Rio Chamita (Rio Chama to CO border)	E.coli, nutrients	7/12/2011	8/16/2011	
13020102	TMDL for Upper Chama	NM-2116.A_110	Rio Chamita (Rio Chama to CO border)	chronic aluminum	9/9/2003	3/4/2004	
13020102	Rio Chamita TMDL withdrawal	NM-2116.A_110	Rio Chamita (Rio Chama to CO border)	chronic aluminum	3/13/2018	4/24/2018	
13020102	TMDL for Rio Chamita	NM-2116.A_110	Rio Chamita (Rio Chama to CO border)	total ammonia, total phosphorus, fecal col	8/10/1999	9/30/1999	
13020102	TMDL for temperature for Rio Chamita	NM-2116.A_110	Rio Chamita (Rio Chama to CO border)	temperature	11/9/1999	12/17/1999	
13020102	TMDL for Lower Chama	NM-2116.A_060	Rio Nutrias (Rio Chama to headwaters)	turbidity	6/8/2004	9/3/2004	
13020102	TMDL for Rio Chama	NM-2115_20	Rio Puerco de Chama (Abiquiu Reservoir to Hwy 96)	E.coli, temperature	7/12/2011	8/16/2011	
13020102	TMDL for Rio Chama	NM-2113_30	Rio Tusas (Rio Vallecitos to headwaters)	nutrients	7/12/2011	8/16/2011	
13020102	TMDL for Lower Chama	NM-2112.A_00	Rio Vallecitos (Rio Tusas to headwaters)	chronic aluminum, temperature, turbidity	6/8/2004	9/3/2004	
13020102	TMDL for Upper Chama	NM-2116.A_070	Rito de Tierra Amarilla (Rio Chama to Hwy 64)	SBD, temperature, turbidity	9/9/2003	3/4/2004	
13020201	Sandia Canyon 4b	NM-9000.A_047	Sandia Canyon (Sigma Canyon to NPDES outfall 001)	acute dissolved copper	9/9/2014	11/18/2014	
13020201	Santa Fe River TMDL for chlorine and SBD	NM-2110_00	Santa Fe River (Cochiti Pueblo bnd to Santa Fe WWTP)	chlorine, SBD	1/11/2000	3/20/2000	
13020201	Santa Fe River TMDL for DO and pH	NM-2110_00	Santa Fe River (Cochiti Pueblo bnd to Santa Fe WWTP)	dissolved oxygen, pH	12/12/2000	1/11/2001	
13020201	Santa Fe River TMDL	NM-2110_00	Santa Fe River (Cienega Creek to Santa Fe WWTP)	E.coli	4/11/2017	5/3/2017	
13020201	Santa Fe River TMDL	NM-9000.A_061	Santa Fe River (Santa Fe WWTP to Guadalupe Stree)	E.coli	4/11/2017	5/3/2017	
13020201	Santa Fe River TMDL	NM-9000.A_062	Santa Fe River (Guadalupe Stree to Nichols Reservoir)	E.coli	4/11/2017	5/3/2017	
13020202	Jemez River Watershed TMDL - 2016	NM-2106.A_54	Clear Creek (Rio de las Vacas to San Gregorio Lake)	E.coli, plant nutrients	9/13/2016	9/23/2016	
13020202	Jemez River TMDL	NM-2106.A_54	Clear Creek (Rio de las Vacas to San Gregorio Lake)	TOC, turbidity	12/16/2002	6/3/2003	
13020202	Jemez River Watershed TMDL - 2016	NM-2106.A_55	Clear Creek (San Gregorio Lake to headwaters)	plant nutrients	9/13/2016	9/23/2016	
13020202	Jemez River TMDL	NM-2106.A_10	East Fork Jemez (East Fork Jemez to headwaters)	turbidity	12/16/2002	6/3/2003	
13020202	Valles Caldera TMDL	NM-2106.A_10	East Fork Jemez (East Fork Jemez to headwaters)	temperature	8/8/2006	10/11/2006	
13020202	Jemez River Watershed TMDL - 2009	NM-2106.A_13	East Fork Jemez (San Antonio Creek to VCNP bnd)	arsenic, temperature	8/11/2009	9/15/2009	
13020202	Jemez River Watershed TMDL - 2016	NM-2106.A_10	East Fork Jemez (VCNP to headwaters)	plant nutrients	9/13/2016	9/23/2016	
13020202	Valles Caldera TMDL	NM-2106.A_12	Jaramillo Creek (VCNP bnd to headwaters)	temperature, turbidity	8/8/2006	10/11/2006	
13020202	Jemez River Watershed TMDL - 2016	NM-2106.A_12	Jaramillo Creek (VCNP bnd to headwaters)	plant nutrients	9/13/2016	9/23/2016	
13020202	Jemez River and Rio Guadalupe turbidity and SBD TMDL	NM-2109.A_00	Jemez River (Hwy 4 near Jemez Springs to East Fork)	SBD, turbidity	4/13/2004	7/30/2004	12/2/1999
13020202	Jemez River TMDL	NM-2109.A_00	Jemez River (Hwy 4 near Jemez Springs to East Fork)	chronic aluminum	12/16/2002	6/3/2003	

13020202	Jemez River and Rio Guadalupe turbidity and SBD TMDL	NM-2105.5_10	Jemez River (Rio Guadalupe to Hwy 4 near Jemez Springs)	SBD, turbidity	4/13/2004	7/30/2004	12/2/1999
13020202	Jemez River TMDL	NM-2105.5_10	Jemez River (Rio Guadalupe to Hwy 4 near Jemez Springs)	chronic aluminum	12/16/2002	6/3/2003	
13020202	Middle Rio Grande TMDL revisions	NM-2105.5_10	Jemez River (Rio Guadalupe to Hwy 4 near Jemez Springs)	chronic aluminum	3/13/2018	4/27/2018	
13020202	Jemez River Watershed TMDL - 2009	NM-2105_75	Jemez River (Zia Pueblo bnd to Jemez Pueblo bnd)	arsenic, boron	8/11/2009	9/15/2009	
13020202	Jemez River Watershed TMDL - 2016	NM-2105_75	Jemez River (Zia Pueblo bnd to Jemez Pueblo bnd)	E.coli	9/13/2016	9/23/2016	
13020202	Jemez River Watershed TMDL - 2009	NM-2105_71	Jemez River (Jemez Pueblo bnd to Rio Guadalupe)	arsenic, boron	8/11/2009	9/15/2009	
13020202	Jemez River Watershed TMDL - 2016	NM-2105_71	Jemez River (Jemez Pueblo bnd to Rio Guadalupe)	E.coli	9/13/2016	9/23/2016	
13020202	Jemez River Watershed TMDL - 2009	NM-2105.5_10	Jemez River (Rio Guadalupe to Hwy 4 near Jemez Springs)	arsenic, boron, temperature, nutrients	8/11/2009	9/15/2009	
13020202	Jemez River Watershed TMDL - 2016	NM-2105.5_10	Jemez River (Rio Guadalupe to Hwy 4 near Jemez Springs)	E.coli	9/13/2016	9/23/2016	
13020202	Jemez River Watershed TMDL - 2009	NM-2106.A_00	Jemez River (Soda Dam near Jemez Springs to East Fork)	arsenic	8/11/2009	9/15/2009	
13020202	Jemez River Watershed TMDL - 2016	NM-2106.A_00	Jemez River (Soda Dam near Jemez Springs to East Fork)	E.coli	9/13/2016	9/23/2016	
13020202	TMDL for total phosphorus for Redondo Creek	NM-2106.A_21	Redondo Creek (Sulphur Creek to headwaters)	total phosphorus	10/12/1999	12/2/1999	
13020202	Jemez River TMDL	NM-2106.A_21	Redondo Creek (Sulphur Creek to headwaters)	temperature, turbidity	12/16/2002	6/3/2003	
13020202	Jemez River TMDL	NM-2106.A_52	Rio Cebolla (Fenton Lake to headwaters)	SBD, temperature	12/16/2002	6/3/2003	
13020202	Jemez River TMDL	NM-2106.A_50	Rio Cebolla (Rio de las Vacas to Fenton Lake)	SBD	12/16/2002	6/3/2003	
13020202	Jemez River Watershed TMDL - 2009	NM-2106.A_40	Rio de las Vacas (Rio Cebolla to Clear Creek)	nutrients	8/11/2009	9/15/2009	
13020202	Jemez River TMDL	NM-2106.A_40	Rio de las Vacas (Rio Cebolla to Rito de las Palomas)	temperature, TOC	12/16/2002	6/3/2003	
13020202	Jemez River TMDL	NM-2106.A_30	Rio Guadalupe (Jemez River to the confluence with Rio Cebolla)	chronic aluminum	12/16/2002	6/3/2003	
13020202	Jemez River and Rio Guadalupe turbidity and SBD TMDL	NM-2106.A_30	Rio Guadalupe (Jemez River to the confluence with Rio Cebolla)	SBD, turbidity	4/13/2004	7/30/2004	12/2/1999
13020202	Jemez River Watershed TMDL - 2009	NM-2106.A_30	Rio Guadalupe (Jemez River to the confluence with Rio Cebolla)	temperature	8/11/2009	9/15/2009	
13020202	Jemez River Watershed TMDL - 2016	NM-2106.A_30	Rio Guadalupe (Jemez River to the confluence with Rio Cebolla)	plant nutrients	9/13/2016	9/23/2016	
13020202	Jemez River Watershed TMDL - 2009	NM-2106.A_43	Rito de las Palomas (Rio de las Vacas to headwaters)	temperature, sedimentation	8/11/2009	9/15/2009	
13020202	Jemez River TMDL	NM-2106.A_42	Rito Pena Negas (Rio de las Vacas to headwaters)	SBD, temperature, TOC	12/16/2002	6/3/2003	
13020202	Jemez River Watershed TMDL - 2009	NM-2106.A_42	Rito Pena Negas (Rio de las Vacas to headwaters)	nutrients	8/11/2009	9/15/2009	
13020202	Jemez River TMDL	NM-2106.A_20	San Antonio Creek (East Fork Jemez to headwaters)	temperature, turbidity	12/16/2002	6/3/2003	
13020202	Jemez River Watershed TMDL - 2009	NM-2106.A_20	San Antonio Creek (East For Jemez to VCNP bnd)	arsenic	8/11/2009	9/15/2009	
13020202	Jemez River TMDL	NM-2106.A_22	Sulphur Creek (Redondo Creek to headwaters)	specific conductance, pH	12/16/2002	6/3/2003	
13020203	Middle Rio Grande E.coli TMDL	NM-2105.1_00	Rio Grande (non-Pueblo Alameda to Angostura Diversion)	E.coli	4/13/2010	6/30/2010	
13020203	Middle Rio Grande fecal coliform TMDL	NM-2105.1_00	Rio Grande (Alameda Bridge to Santa Ana Pueblo bnd)	fecal coliform	11/13/2001	5/3/2002	
13020203	Middle Rio Grande E.coli TMDL	NM-2105_50	Rio Grande (Isleta Pueblo bnd to Alameda Bridge)	E.coli	4/13/2010	6/30/2010	
13020203	Middle Rio Grande fecal coliform TMDL	NM-2105_50	Rio Grande (Isleta Pueblo bnd to Alameda Bridge)	fecal coliform	11/13/2001	5/3/2002	
13020203	Middle Rio Grande E.coli TMDL	NM-2105_40	Rio Grande (Rio Puerco to Isleta Pueblo bnd)	E.coli	4/13/2010	6/30/2010	
13020203	Middle Rio Grande E.coli TMDL	NM-2105_10	Rio Grande (San Marcial at USGS gage to Rio Puerco)	E.coli, aluminum	4/13/2010	6/30/2010	
13020203	Middle Rio Grande TMDL revisions	NM-2105_10	Rio Grande (San Marcial at USGS gage to Rio Puerco)	aluminum	3/13/2018	4/27/2018	
13020203	Tijeras Arroyo TMDL	NM-9000.A_001	Tijeras Arroyo (Four Hills Bridge to headwaters)	plant nutrients	9/12/2017	10/12/2017	
13020204	Rio Puerco Part Two TMDL	NM-2107.A_46	La Jara Creek (perennial reaches above Arroyo San Jose)	chronic aluminum	8/14/2007	9/21/2007	
13020204	Upper Rio Puerco TMDL	NM-2107.A_46	La Jara Creek (perennial reaches above Arroyo San Jose)	acute aluminum, chronic aluminum	5/10/2016	6/16/2016	
13020204	Rio Puerco Part One TMDL	NM-2107.A_40	Rio Puerco (Arroyo Chijuilla to northern bnd Cuba)	sedimentation	11/14/2006	8/10/2007	
13020204	Rio Puerco Part Two TMDL	NM-2107.A_40	Rio Puerco (Arroyo Chijuilla to northern bnd Cuba)	chronic aluminum, nutrients	8/14/2007	9/21/2007	
13020204	Rio Puerco TMDL withdrawal	NM-2107.A_40	Rio Puerco (Arroyo Chijuilla to northern bnd Cuba)	aluminium	3/13/2018	4/24/2018	
13020204	Upper Rio Puerco TMDL	NM-2107.A_44	Rio Puerco (perennial portions northern bnd Cuba to headwaters)	sedimentation	5/10/2016	6/16/2016	
13020204	Upper Rio Puerco TMDL	NM-2107.A_42	Nacimiento Creek (perennial portions Hwy 126 to San Gregorio Reservoir)	acute aluminum, chronic aluminum	5/10/2016	6/16/2016	
13020207	Rio Puerco Part Two TMDL	NM-2107.A_01	Bluewater Creek (Bluewater Reservoir to headwaters)	temperature, nutrients	8/14/2007	9/21/2007	
13020207	Rio Puerco Part Two TMDL	NM-2107.A_00	Bluewater Creek (non-tribal Rio San Jose to Bluewater Reservoir)	temperature, nutrients	8/14/2007	9/21/2007	
13020207	Rio Puerco Part Two TMDL	NM-2107.A_10	Rio Moquino (Laguna Pueblo to Seboyettia Creek)	temperature, nutrients	8/14/2007	9/21/2007	
13030102	LRG TMDL	NM-2101_00	Rio Grande (International Mexico bnd to Leasburg Dam)	E.coli	5/8/2007	6/11/2007	
13030102	LRG TMDL	NM-2101_10	Rio Grande (Leasburg Dam to Percha Dam)	E.coli	5/8/2007	6/11/2007	
13030202	Upper Gila, Mimbres, and San Francisco TMDLs	NM-2803_11	Cold Springs Creek (Hot Springs to headwaters)	cadmium, lead	9/9/2014	9/11/2014	
13030202	Upper Gila, Mimbres, and San Francisco TMDLs	NM-2803_00	Mimbres River (perennial reaches downstream of Willow Springs)	E.coli	9/9/2014	9/11/2014	
15040001	Black Canyon Creek temperature TMDL	NM-2503_21	Black Canyon Creek (East Fork Gila to headwaters)	temperature	11/13/2001	4/5/2002	
15040001	Canyon Creek nutrients TMDL	NM-2503_43	Canyon Creek (Middle Fork Gila River to headwaters)	plant nutrients	12/11/2001	4/10/2002	
15040001	Canyon Creek turbidity TMDL	NM-2503_43	Canyon Creek (Middle Fork Gila River to headwaters)	turbidity	12/11/2001	4/10/2002	
15040001	Metals TMDL for Gila River and Taylor Creek	NM-2503_20	Gila River (East Fork)	chronic aluminum	11/13/2001	4/15/2002	
15040001	Metals TMDL for Mogollon Creek	NM-2503_02	Mogollon Creek (perennial reaches above USGS gage)	chronic aluminum	11/13/2001	4/5/2002	
15040001	TOC TMDL for Sapillo Creek	NM-2503_04	Sapillo Creek (Gila River to Lake Roberts)	TOC	12/11/2001	4/12/2002	
15040001	Turbidity TMDL for Sapillo Creek	NM-2503_04	Sapillo Creek (Gila River to Lake Roberts)	turbidity	12/11/2001	4/12/2002	
15040001	Metals TMDL for Gila River and Taylor Creek	NM-2503_23	Taylor Creek (Beaver Creek to Wall Lake)	chronic aluminum	11/13/2001	4/15/2002	
15040001	Temperature TMDL for Taylor Creek	NM-2503_23	Taylor Creek (Beaver Creek to Wall Lake)	temperature	11/13/2001	8/5/2002	
15040001	Upper Gila, Mimbres, and San Francisco TMDLs	NM-2503_47	Willow Creek (Gilita Creek to headwaters)	chronic aluminum	9/9/2014	9/11/2014	
15040003	Nutrient TMDL for Mangas Creek	NM-2502.A_21	Mangas Creek (Gila River to Mangas Springs)	plant nutrients	12/11/2001	4/16/2002	
15040004	Conductivity TMDL for Centerfire Creek	NM-2603.A_50	Centerfire Creek (San Francisco River to headwaters)	conductivity	11/13/2001	4/16/2002	
15040004	Nutrient TMDL for Centerfire Creek	NM-2603.A_50	Centerfire Creek (San Francisco River to headwaters)	plant nutrients	12/11/2001	4/16/2002	
15040004	Upper Gila, Mimbres, and San Francisco TMDLs	NM-2603.A_50	Centerfire Creek (San Francisco River to headwaters)	E.coli, turbidity	9/9/2014	9/11/2014	
15040004	Temperature TMDL for Negrito Creek	NM-2603.A_43	Negrito Creek (San Francisco River to headwaters)	temperature	11/13/2001	4/5/2002	

15040004	Upper Gila, Mimbres, and San Francisco TMDLs	NM-2603.A_43	Negrito Creek (San Francisco River to headwaters)	E.coli	9/9/2014	9/11/2014	
15040004	Upper Gila, Mimbres, and San Francisco TMDLs	NM-2602_10	San Francisco River (NM 12 at Reserve to Centerfire Creek)	E.coli, turbidity	9/9/2014	9/11/2014	
15040004	Temperature TMDL for San Francisco River	NM-2602_20	San Francisco River (Centerfire Creek to AZ border)	temperature	11/13/2001	4/12/2002	
15040004	Nutrient TMDL for San Francisco River	NM-2602_20	San Francisco River (Centerfire Creek to AZ border)	plant nutrients	12/11/2001	8/5/2002	
15040004	Upper Gila, Mimbres, and San Francisco TMDLs	NM-2503_22	San Francisco River (Willow Springs Canyon to NM 12 at Reserve)	E.coli	9/9/2014	9/11/2014	
15040004	Conductivity TMDL for Tularosa River	NM-2603.A_40	Tularosa River (San Francisco River to Apache Creek)	conductivity	11/13/2001	4/5/2002	
15040004	Upper Gila, Mimbres, and San Francisco TMDLs	NM-2603.A_40	Tularosa River (San Francisco River to Apache Creek)	E.coli, turbidity	9/9/2014	9/11/2014	
15040004	Turbidity TMDL for Whitewater Creek	NM-2603.A_10	Whitewater Creek (San Francisco River to Whitewater Campground)	turbidity	12/11/2001	4/12/2002	
15040004	Chronic aluminum TMDL for Whitewater Creek	NM-2603.A_10	Whitewater Creek (San Francisco River to Whitewater Campground)	chronic aluminum	12/11/2001	4/12/2002	
15040004	Whitewater Creek TMDL withdrawal	NM-2603.A_10	Whitewater Creek (San Francisco River to Whitewater Campground)	chronic aluminum	3/13/2018	4/24/2018	
13050003	Sacramento Mountains TMDL	NM-2801_10	Nogal Creek (Tularosa Creek to Mescalero Apache bnd)	E.coli	8/11/2015	9/21/2015	
13060008	Sacramento Mountains TMDL	NM-2209.A_22	Carrizo Creek (Rio Ruidoso to Mescalero Apache bnd)	E.coli	8/11/2015	9/21/2015	
13060008	Rio Hondo Watershed TMDL	NM-2209.A_22	Carrizo Creek (Rio Ruidoso to Mescalero Apache bnd)	fecal coliform	12/13/2005	2/10/2006	
13060008	Rio Hondo Watershed TMDL	NM-2209.A_10	Rio Bonito (Angus Canyon to headwaters)	fecal coliform	12/13/2005	2/10/2006	
13060008	Sacramento Mountains TMDL	NM-2209.A_10	Rio Bonito (NM 48 near Angus to headwaters)	E.coli	8/11/2015	9/21/2015	
13060008	Rio Hondo Watershed TMDL	NM-2208_30	Rio Hondo (perennial reaches Pecos River to headwaters)	fecal coliform	12/13/2005	2/10/2006	
13060008	Sacramento Mountains TMDL	NM-2209.A_21	Rio Ruidoso (US Hwy 70 bridge to Carrizo Creek)	E.coli	8/11/2015	9/21/2015	
13060008	Rio Ruidoso TMDL	NM-2209.A_21	Rio Ruidoso (US Hwy 70 bridge to Carrizo Creek)	plant nutrients	11/15/2016	12/13/2016	
13060008	Rio Hondo Watershed TMDL	NM-2208_20	Rio Ruidoso (Rio Bonito to US Hwy 70)	plant nutrients	12/13/2005	2/10/2006	
13060008	Sacramento Mountains TMDL	NM-2208_20	Rio Ruidoso (Eagle Creek to Hwy 70 bridge)	E.coli, turbidity	8/11/2015	9/21/2015	
13060008	Rio Ruidoso TMDL	NM-2208_20	Rio Ruidoso (Eagle Creek to Hwy 70 bridge)	plant nutrients	11/15/2016	12/13/2016	
13060008	Rio Hondo Watershed TMDL	NM-2209.A_20	Rio Ruidoso (US Hwy 70 to Mescalero Apache bnd)	temperature, turbidity	12/13/2005	2/10/2006	
13060008	Rio Ruidoso TMDL	NM-2209.A_20	Rio Ruidoso (Carrizo Creek to Mescalero Apache bnd)	total phosphorus	11/15/2016	12/13/2016	
13060010	Sacramento Mountains TMDL	NM-2208_01	Agua Chiquita (perennial portions McEwan Canyon to headwaters)	turbidity	8/11/2015	9/21/2015	
13060010	Sacramento Mountains TMDL	NM-2208_00	Rio Penasco (Hwy 24 to Cox Canyon)	turbidity	8/11/2015	9/21/2015	
13060001	Pecos Headwaters TMDL	NM-2214.A_091	Bull Creek (Cow Creek to headwaters)	temperature	6/14/2005	9/13/2005	
13060001	Pecos Headwaters TMDL	NM-2214.A_102	Cow Creek (Bull Creek to headwaters)	temperature, turbidity	6/14/2005	9/13/2005	
13060001	Pecos Headwaters TMDL	NM-2214.A_090	Cow Creek (Pecos River to Bull Creek)	temperature, turbidity	6/14/2005	9/13/2005	
13060001	Upper Pecos TMDL	NM-2214.A_070	Dalton Creek (Pecos River to headwaters)	specific conductance	9/10/2013	9/25/2013	
13060001	Upper Pecos TMDL	NM-9000.A_050	El Rito Creek (Pecos River to headwaters)	E.coli	9/10/2013	9/25/2013	
13060001	Upper Pecos TMDL	NM-2212_12	Falls Creek (Tecolote Creek to headwaters)	specific conductance	9/10/2013	9/25/2013	
13060001	Pecos Headwaters TMDL	NM-2212_00	Gallinas River (Las Vegas diversion to headwaters)	temperature	6/14/2005	9/13/2005	
13060001	Upper Pecos TMDL	NM-2214.A_071	Macho Canyon Creek (Pecos River to headwaters)	specific conductance	9/10/2013	9/25/2013	
13060001	Upper Pecos TMDL	NM-2213_22	Pecos Arroyo (Gallinas River to headwaters)	E.coli	9/10/2013	9/25/2013	
13060001	Pecos Headwaters TMDL	NM-2214.A_002	Pecos River (Alamitos Canyon to Willow Creek)	turbidity	6/14/2005	9/13/2005	
13060001	Pecos Headwaters TMDL	NM-2214.A_003	Pecos River (Canon de Manzanita to Alamitos Canyon)	temperature, turbidity	6/14/2005	9/13/2005	
13060001	Upper Pecos TMDL	NM-2211.A_10	Pecos River (Santa Rosa Reservoir to Tecolote Creek)	E.coli	9/10/2013	9/25/2013	
13060001	Upper Pecos TMDL	NM-2114.A_030	Willow Creek (Pecos River to headwaters)	specific conductance	9/10/2013	9/25/2013	
13060011	Lower Pecos TMDL	NM-2201_00	Pecos River (Texas border to Black River)	E.coli	9/13/2016	9/23/2016	
13060011	Lower Pecos TMDL	NM-2202.A_00	Pecos River (Black River to Six Mile Dam Lake)	E.coli	9/13/2016	9/23/2016	
13060001	Tecolote Creek TMDL	NM-2212_10	Tecolote Creek (I-25 to Blue Creek)	temperature	8/15/2018	9/13/2018	
14080101	San Juan Watershed Part One	NM-9000.A_060	Gallegos Canyon (San Juan to Navajo bnd)	selenium	6/14/2005	8/26/2005	
14080101	San Juan Watershed Part One	NM-2104_00	San Juan River (Animas River to Canon Largo)	sedimentation, E.coli	6/14/2005	8/26/2005	2/26/2010
14080104	Animas River TMDL	NM-2403.A_00	Animas River (San Juan River to Estes Arroyo)	temperature, E.coli	9/10/2013	9/30/2013	
14080104	San Juan Watershed Part Two	NM-2403.A_00	Animas River (San Juan River to Estes Arroyo)	total nitrogen, total phosphorus	12/13/2005	1/17/2006	
14080104	Animas River TMDL	NM-2404_00	Animas River (Estes Arroyo to Southern Ute bnd)	E.coli, total phosphorus	9/10/2013	9/30/2013	
14080105	San Juan Watershed Part One	NM-2402.A_01	La Plata River (McDermott Arroyo to CO border)	E.coli	6/14/2005	8/26/2005	2/26/2010
14080105	San Juan Watershed Part Two	NM-2402.A_01	La Plata River (McDermott Arroyo to CO border)	dissolved oxygen	12/13/2005	1/17/2006	
14080105	San Juan Watershed Part One	NM-2402.A_00	La Plata River (San Juan River to McDermott Arroyo)	sedimentation, E.coli	6/14/2005	8/26/2005	2/26/2010
14080105	San Juan Watershed Part One	NM-2401_10	San Juan River (Navajo bnd at Hogback to Animas River)	E.coli	6/14/2005	8/26/2005	2/26/2010
11080005	Canadian River Watershed TMDL	NM-2305.A_010	Conchas River (Conchas Reservoir to Salitre Creek)	chronic aluminum, E.coli, plant nutrients	8/13/2019	9/18/2019	
11080004	Canadian River Watershed TMDL	NM-2306.A_021	Coyote Creek (Black Lake to headwaters)	temperature, plant nutrients	8/13/2019	9/18/2019	
11080004	Canadian River Watershed TMDL	NM-2306.A_020	Coyote Creek (Mora River to Amola Ridge)	plant nutrients	8/13/2019	9/18/2019	
11080004	Canadian River Watershed TMDL	NM-2306.A_022	Coyote Creek (Williams Canyon to Black Lake)	plant nutrients	8/13/2019	9/18/2019	
11080004	Canadian River Watershed TMDL	NM-2306.A_023	Coyote Creek (Amola Ridge to Williams Canyon)	plant nutrients	8/13/2019	9/18/2019	
11080001	Canadian River Watershed TMDL	NM-2305.A_255	Doggett Creek (Raton Creek to headwaters)	E.coli, plant nutrients	8/13/2019	9/18/2019	
11040001	Canadian River Watershed TMDL	NM-2701_00	Dry Cimarron River (perennial reaches OK bnd to Long Canyon)	temperature, plant nutrients	8/13/2019	9/18/2019	
11040001	Canadian River Watershed TMDL	NM-2701_02	Dry Cimarron River (Long Canyon to Oak Creek	plant nutrients	8/13/2019	9/18/2019	
11040001	Canadian River Watershed TMDL	NM-2701_01	Dry Cimarron River (Oak Creek to headwaters)	plant nutrients	8/13/2019	9/18/2019	
11080001	Canadian River Watershed TMDL	NM-2305.A_252	East Fork Chicorica Creek (Chicorica Creek to headwaters)	E.coli	8/13/2019	9/18/2019	
11040001	Canadian River Watershed TMDL	NM-2701_20	Long Canyon (perennial reaches above Dry Cimarron)	temperature, plant nutrients	8/13/2019	9/18/2019	
11080004	Canadian River Watershed TMDL	NM-2305.3.A_00	Mora River (USGS gage east of Shoemaker to Hwy 434)	E.coli	8/13/2019	9/18/2019	
11080006	Canadian River Watershed TMDL	NM-2303_10	Pajarito Creek (perennial portions Canadian River to Vigil Canyon)	temperature	8/13/2019	9/18/2019	
11080001	Canadian River Watershed TMDL	NM-2305.A_253	Raton Creek (Chicorica Creek to headwaters)	E.coli, plant nutrients	8/13/2019	9/18/2019	

11080001	Canadian River Watershed TMDL	NM-9000.A_019	Tinaja Creek (West Fork Tinaja Creek to headwaters)	E.coli	8/13/2019	9/18/2019
13020102	Chama River Watershed TMDL	NM-2116.A_010	Cañones Creek (Abiquiu Reservoir to Chihuahueños Creek)	E.coli	10/13/2020	12/1/2020
13020102	Chama River Watershed TMDL	NM-2116.A_022	Coyote Creek (Rio Puerco de Chama to headwaters)	sedimentation	10/13/2020	12/1/2020
13020102	Chama River Watershed TMDL	NM-2112.A_03	Placer Creek (Hopewell Lake to headwaters)	temperature	10/13/2020	12/1/2020
13020102	Chama River Watershed TMDL	NM-2116.A_023	Poleo Creek (Rio Puerco de Chama to headwaters)	sedimentation	10/13/2020	12/1/2020
13020102	Chama River Watershed TMDL	NM-2116.A_060	Rio Nutrias (Perennial portions Rio Chama to headwaters)	E.coli	10/13/2020	12/1/2020
13020102	Chama River Watershed TMDL	NM-2113_30	Rio Tusas (Perennial portions Rio Vallecitos to headwaters)	temperature	10/13/2020	12/1/2020
13020102	Chama River Watershed TMDL	NM-2116.A_021	Rito Encino (Rio Puerco de Chama to headwaters)	sedimentation	10/13/2020	12/1/2020
13020102	Chama River Watershed TMDL	NM-2116.A_112	Sixto Creek (Rio Chamita to CO border)	temperature	10/13/2020	12/1/2020

Engineering:
Precipitation Data

Seasonally Dry Period Locator Tool

Supplement to Appendix A of the 2022 Construction General Permit

This tool allows permittees to determine if their construction project site is in an arid or semi-arid area, and if any months out of the year are considered seasonally dry. Classifications are based on long-term (1981-2010) climate data obtained from the PRISM Climate Group. Maps of arid and semi-arid areas, as well as seasonally dry areas by month, can be found on EPA's Construction General Permit website.

U.S. EPA Construction General Permit Resources, Tools, and Templates Website

PRISM Climate Group Website

Definitions:

Arid area: Areas with average annual rainfall of 0 to 10 inches.

Semi-arid area: Areas with average annual rainfall of 10 to 20 inches.

Seasonally dry: In arid and semi-arid areas, a month in which the long-term average total precipitation is less than or equal to 0.5 inches.

Enter your five-digit ZIP Code in the cell to the right:* **87106**

Your project site is located in a semi-arid area.

The months of January & February are considered seasonally dry at your project site

*Average annual rainfall in the State of Hawaii and U.S. Territories (American Samoa, Guam, Mariana Islands, Puerto Rico, U.S. Minor Outlying Islands, and U.S. Virgin Islands) is greater than 20 inches per year. ZIP Codes in these areas are therefore not included in this tool.

PRECIPITATION EVENT LOG MAY ALSO BE UPDATED OR AVAILABLE ELECTRONICALLY THROUGH THE COMPLY26 PLATFORM. CONTACT E2RC (505.867.4040) FOR ACCOUNT CREDENTIALS.

PRECIPITATION EVENT LOG

PROJECT:	Sagebrush Substation Site Development		
DATE:	STORM START TIME:	STORM END TIME:	RAIN GAUGE READING (INCHES)

PRECIPITATION EVENT LOG MAY ALSO BE UPDATED OR AVAILABLE ELECTRONICALLY THROUGH THE COMPLY26 PLATFORM. CONTACT E2RC (505.867.4040) FOR ACCOUNT CREDENTIALS.

PRECIPITATION EVENT LOG

PROJECT:	Sagebrush Substation Site Development		
DATE:	STORM START TIME:	STORM END TIME:	RAIN GAUGE READING (INCHES)

NOAA Atlas 14, Volume 1, Version 5
Location name: Albuquerque, New Mexico, USA*
Latitude: 35.0505°, Longitude: -106.6292°
Elevation: 5197.97 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.176** (0.155-0.202)	**0.228** (0.199-0.261)	**0.303** (0.264-0.347)	**0.363** (0.315-0.413)	**0.444** (0.384-0.504)	**0.505** (0.434-0.574)	**0.570** (0.487-0.649)	**0.639** (0.541-0.725)	**0.730** (0.612-0.832)	**0.802** (0.668-0.914)
10-min	**0.268** (0.235-0.307)	**0.347** (0.304-0.397)	**0.461** (0.403-0.528)	**0.552** (0.480-0.628)	**0.675** (0.584-0.767)	**0.768** (0.661-0.874)	**0.868** (0.741-0.987)	**0.972** (0.823-1.10)	**1.11** (0.932-1.26)	**1.22** (1.02-1.39)
15-min	**0.332** (0.292-0.380)	**0.430** (0.376-0.492)	**0.572** (0.499-0.655)	**0.684** (0.594-0.779)	**0.837** (0.724-0.951)	**0.952** (0.819-1.08)	**1.08** (0.918-1.22)	**1.21** (1.02-1.37)	**1.38** (1.16-1.57)	**1.51** (1.26-1.72)
30-min	**0.447** (0.393-0.512)	**0.579** (0.507-0.662)	**0.770** (0.672-0.882)	**0.921** (0.800-1.05)	**1.13** (0.975-1.28)	**1.28** (1.10-1.46)	**1.45** (1.24-1.65)	**1.62** (1.37-1.84)	**1.86** (1.56-2.11)	**2.04** (1.70-2.32)
60-min	**0.553** (0.486-0.634)	**0.716** (0.627-0.820)	**0.953** (0.831-1.09)	**1.14** (0.990-1.30)	**1.39** (1.21-1.58)	**1.59** (1.36-1.81)	**1.79** (1.53-2.04)	**2.01** (1.70-2.28)	**2.30** (1.93-2.61)	**2.52** (2.10-2.87)
2-hr	**0.630** (0.552-0.728)	**0.805** (0.703-0.932)	**1.06** (0.927-1.23)	**1.26** (1.10-1.45)	**1.55** (1.34-1.78)	**1.78** (1.52-2.03)	**2.02** (1.71-2.30)	**2.26** (1.91-2.58)	**2.61** (2.17-2.98)	**2.89** (2.39-3.31)
3-hr	**0.666** (0.588-0.768)	**0.845** (0.744-0.975)	**1.11** (0.973-1.27)	**1.31** (1.15-1.50)	**1.60** (1.39-1.83)	**1.83** (1.57-2.08)	**2.07** (1.77-2.36)	**2.32** (1.97-2.65)	**2.67** (2.24-3.05)	**2.96** (2.46-3.39)
6-hr	**0.777** (0.687-0.889)	**0.974** (0.861-1.12)	**1.25** (1.11-1.43)	**1.47** (1.30-1.67)	**1.76** (1.54-2.01)	**1.99** (1.73-2.27)	**2.24** (1.93-2.54)	**2.48** (2.14-2.82)	**2.83** (2.41-3.22)	**3.11** (2.62-3.55)
12-hr	**0.857** (0.762-0.963)	**1.08** (0.964-1.21)	**1.36** (1.21-1.52)	**1.59** (1.40-1.77)	**1.89** (1.67-2.11)	**2.11** (1.86-2.36)	**2.35** (2.05-2.63)	**2.60** (2.25-2.90)	**2.93** (2.52-3.28)	**3.19** (2.72-3.59)
24-hr	**0.977** (0.878-1.09)	**1.23** (1.10-1.37)	**1.53** (1.37-1.71)	**1.77** (1.59-1.97)	**2.09** (1.87-2.33)	**2.35** (2.09-2.61)	**2.60** (2.32-2.89)	**2.86** (2.53-3.18)	**3.21** (2.82-3.57)	**3.49** (3.04-3.87)
2-day	**1.03** (0.931-1.15)	**1.29** (1.17-1.43)	**1.61** (1.45-1.78)	**1.85** (1.67-2.04)	**2.19** (1.97-2.41)	**2.44** (2.19-2.69)	**2.70** (2.42-2.97)	**2.96** (2.64-3.27)	**3.32** (2.94-3.66)	**3.58** (3.17-3.96)
3-day	**1.11** (1.02-1.22)	**1.39** (1.27-1.52)	**1.71** (1.56-1.87)	**1.97** (1.80-2.15)	**2.32** (2.11-2.53)	**2.58** (2.34-2.81)	**2.85** (2.58-3.10)	**3.12** (2.81-3.40)	**3.47** (3.12-3.79)	**3.75** (3.35-4.09)
4-day	**1.19** (1.10-1.29)	**1.48** (1.37-1.61)	**1.82** (1.68-1.97)	**2.09** (1.92-2.26)	**2.44** (2.25-2.64)	**2.72** (2.50-2.94)	**2.99** (2.74-3.23)	**3.27** (2.98-3.53)	**3.63** (3.31-3.93)	**3.91** (3.54-4.23)
7-day	**1.37** (1.27-1.48)	**1.70** (1.57-1.84)	**2.07** (1.92-2.24)	**2.36** (2.19-2.55)	**2.74** (2.54-2.95)	**3.03** (2.80-3.26)	**3.31** (3.06-3.57)	**3.59** (3.31-3.86)	**3.95** (3.62-4.26)	**4.21** (3.85-4.55)
10-day	**1.51** (1.40-1.63)	**1.87** (1.74-2.02)	**2.29** (2.13-2.47)	**2.62** (2.44-2.82)	**3.06** (2.84-3.28)	**3.39** (3.13-3.63)	**3.72** (3.43-3.98)	**4.05** (3.71-4.33)	**4.46** (4.08-4.79)	**4.78** (4.35-5.13)
20-day	**1.91** (1.77-2.06)	**2.37** (2.20-2.55)	**2.88** (2.67-3.09)	**3.26** (3.03-3.50)	**3.75** (3.48-4.03)	**4.11** (3.80-4.40)	**4.46** (4.11-4.77)	**4.78** (4.40-5.11)	**5.19** (4.77-5.55)	**5.48** (5.03-5.88)
30-day	**2.28** (2.12-2.44)	**2.83** (2.63-3.03)	**3.41** (3.16-3.65)	**3.83** (3.56-4.11)	**4.37** (4.05-4.67)	**4.75** (4.40-5.07)	**5.11** (4.73-5.46)	**5.46** (5.04-5.83)	**5.87** (5.41-6.27)	**6.16** (5.67-6.59)
45-day	**2.77** (2.59-2.97)	**3.43** (3.20-3.68)	**4.09** (3.82-4.37)	**4.56** (4.26-4.87)	**5.13** (4.79-5.48)	**5.53** (5.16-5.90)	**5.89** (5.49-6.27)	**6.21** (5.78-6.61)	**6.57** (6.12-6.99)	**6.79** (6.33-7.22)
60-day	**3.20** (2.98-3.43)	**3.96** (3.69-4.25)	**4.73** (4.41-5.05)	**5.27** (4.92-5.64)	**5.93** (5.54-6.34)	**6.38** (5.96-6.81)	**6.79** (6.34-7.26)	**7.17** (6.69-7.66)	**7.59** (7.09-8.12)	**7.86** (7.35-8.41)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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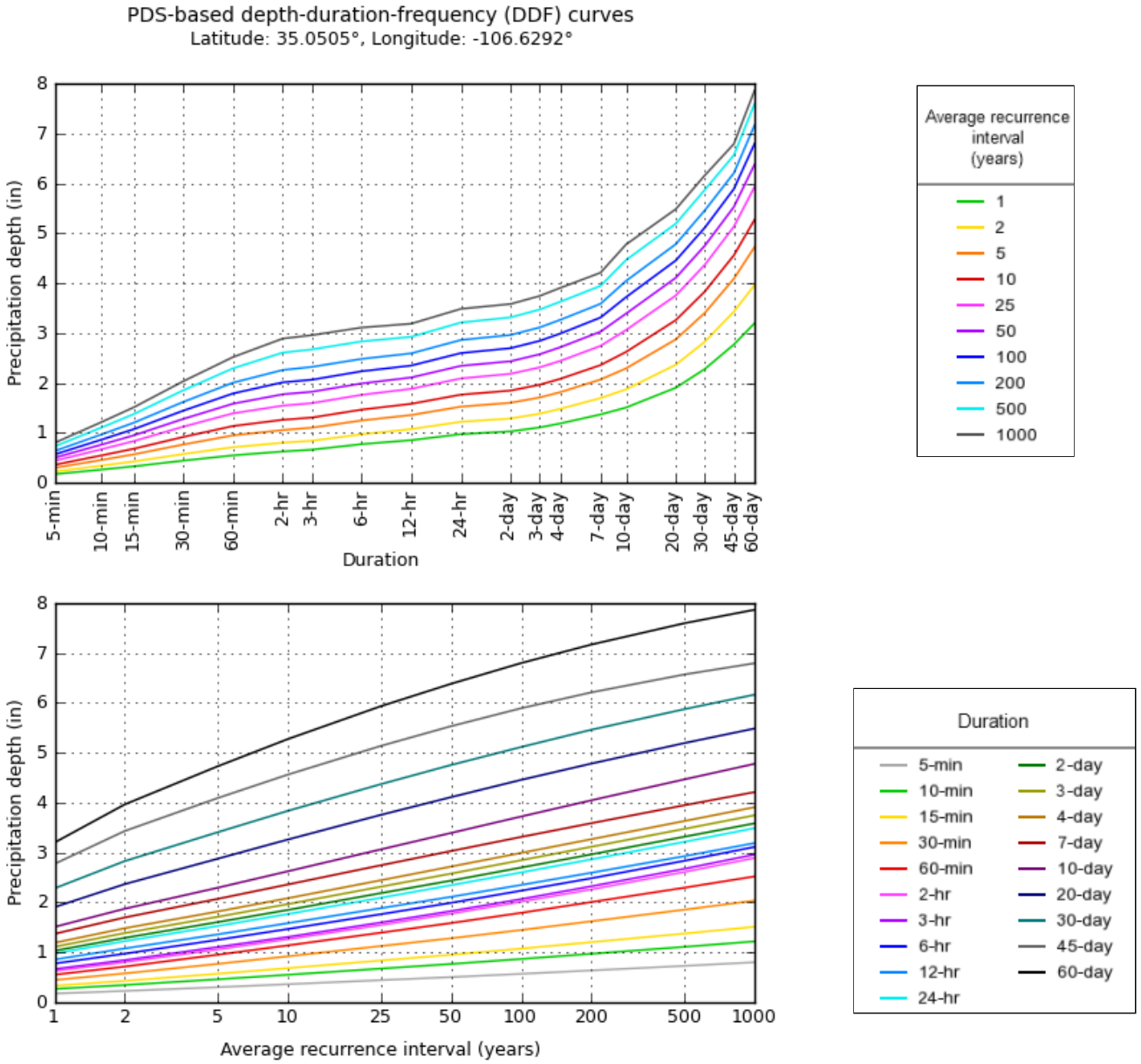
PF graphical



NOAA Atlas 14, Volume 1, Version 5

Created (GMT): Tue May 17 16:48:18 2022

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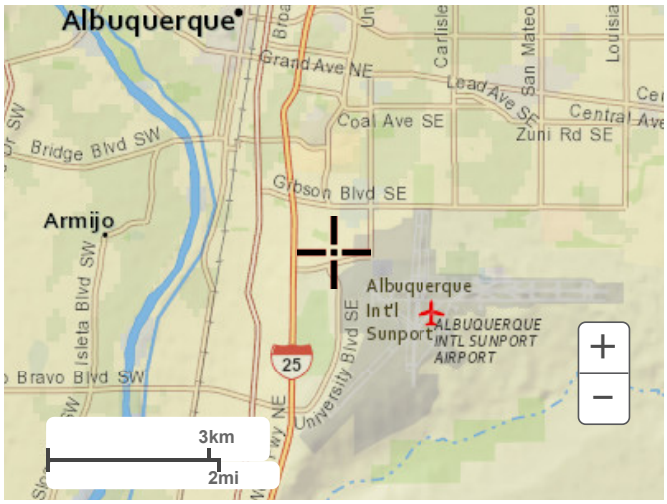
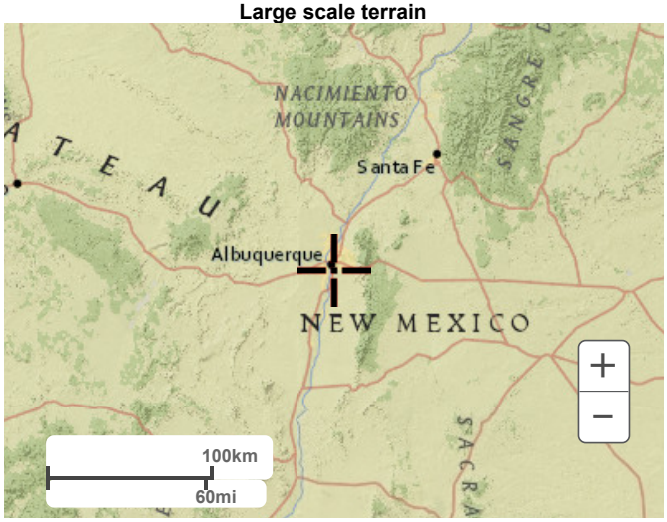
Maps & aerials

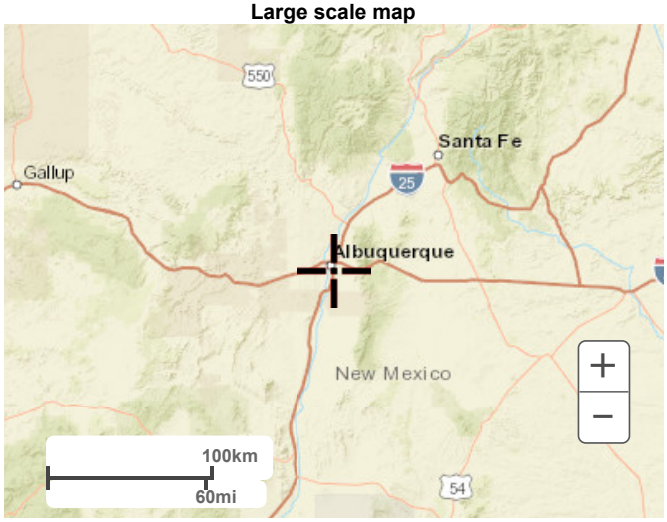
Small scale terrain



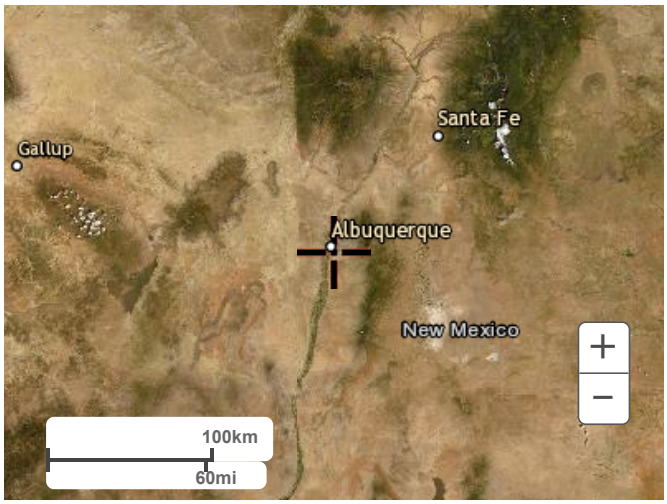
Large scale terrain



Large scale map



Large scale aerial



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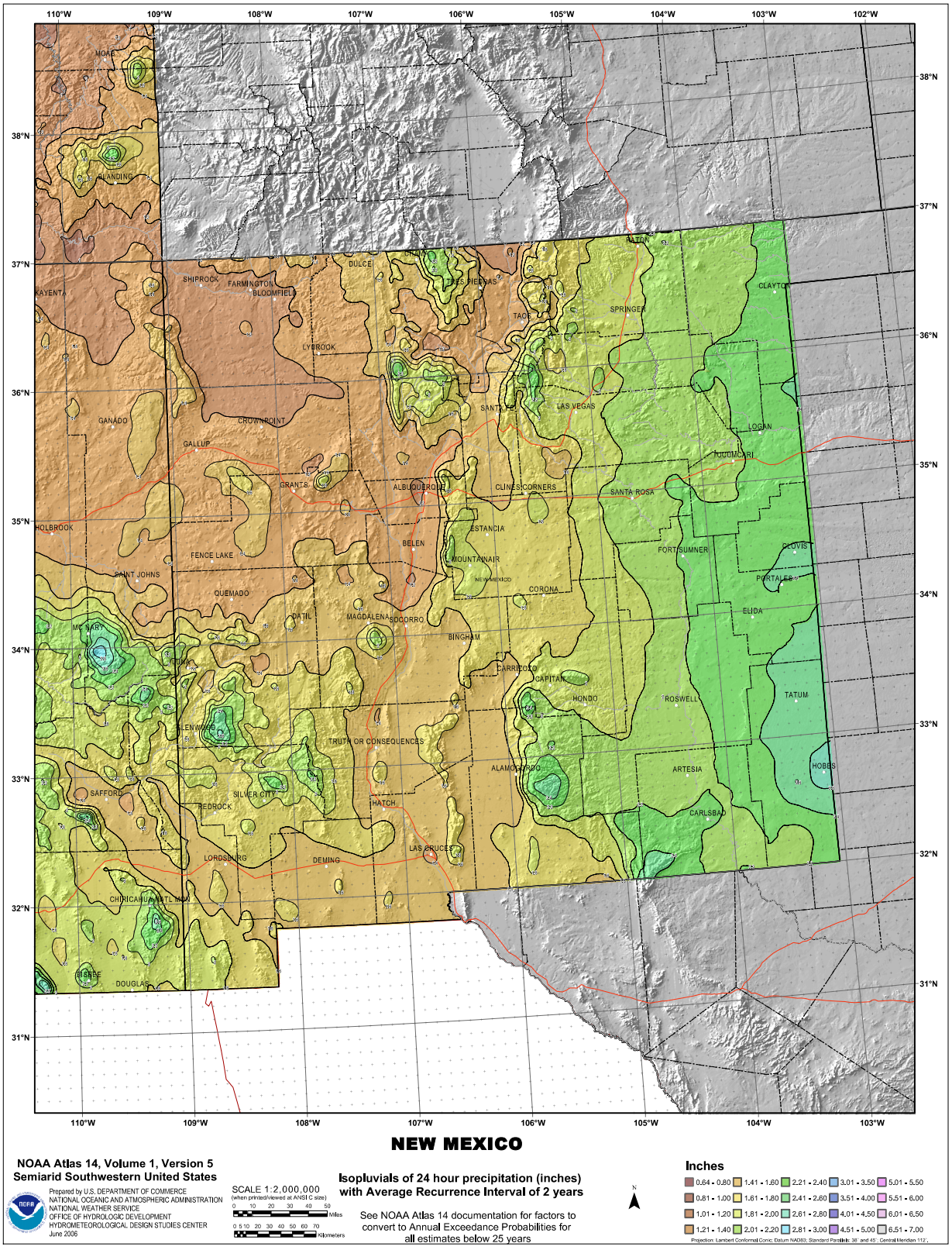
US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov



NOAA Atlas 14, Volume 1, Version 5
Semiarid Southwestern United States

Prepared by U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE
OFFICE OF HYDROLOGIC DEVELOPMENT
HYDROMETEOROLOGICAL DESIGN STUDIES CENTER
June 2006

SCALE 1:2,000,000
(when printed/viewed at ANSI C size)
0 10 20 30 40 50 Miles
0 5 10 20 30 40 50 60 70 Kilometers

Isopluvials of 24 hour precipitation (inches) with Average Recurrence Interval of 2 years

See NOAA Atlas 14 documentation for factors to convert to Annual Exceedance Probabilities for all estimates below 25 years

N

Inches

0.64 - 0.80	1.41 - 1.60	2.21 - 2.40	3.01 - 3.50	5.01 - 5.50		
0.81 - 1.00	1.61 - 1.80	2.41 - 2.60	3.51 - 4.00	5.51 - 6.00		
1.01 - 1.20	1.81 - 2.00	2.61 - 2.80	4.01 - 4.50	6.01 - 6.50		
1.21 - 1.40	2.01 - 2.20	2.81 - 3.00	4.51 - 5.00	6.51 - 7.00		

Projection: Lambert Conformal Conic; Datum NAD83; Standard Parallels: 36° and 45°; Central Meridian 112°.

Engineering: RUSLE
and NRCS Soil Report

USDA NRCS Natural Resources Conservation Service

RUSLE2 Worksheet Erosion Calculation Record

Inputs:
Project: Sagebrush Substation Site Development
Operator: AECOM
Location: Albuquerque, NM

Outputs:

Hillslope	*Climate*	*Management*	*Soil*	*Soil loss erod. portion, t/ac/yr*	*Soil detachment, t/ac/yr*	*Cons. plan. soil loss, t/ac/yr*	*Sediment delivery, t/ac/yr*
Highly disturbed land\Bernalillo County, NM	New Mexico\Bernalillo county average (Albuquerque)	smooth bare, no disturbance	Bernalillo County\nm600\WaB Wink fine sandy loam, 0 to 5 percent slopes\Wink Fine sandy loam 85%	1.7	1.7	1.7	1.73
Highly disturbed land\Bernalillo County, NM#6*	New Mexico\Bernalillo county average (Albuquerque)	rough bare, freshly disturbed	Bernalillo County\nm600\WaB Wink fine sandy loam, 0 to 5 percent slopes\Wink Fine sandy loam 85%	4.1	4.1	4.1	4.14
Highly disturbed land\Bernalillo County, NM#7*	New Mexico\Bernalillo county average (Albuquerque)	Highly disturbed land\Construction With No Practices\bare cut slope, smooth	Bernalillo County\nm600\WaB Wink fine sandy loam, 0 to 5 percent slopes\Wink Fine sandy loam 85%	4.5	4.5	4.5	4.49
Highly disturbed land\Bernalillo County, NM#8*	New Mexico\Bernalillo county average (Albuquerque)	Highly disturbed land\Construction With Temporary Practices\BMPs\Silt Fence - Standard	Bernalillo County\nm600\WaB Wink fine sandy loam, 0 to 5 percent slopes\Wink Fine sandy loam 85%	1.7	1.7	1.7	1.73
Highly disturbed land\Bernalillo County, NM#9*	New Mexico\Bernalillo county average (Albuquerque)	Highly disturbed land\gravel surface\gravel road, fresh	Bernalillo County\nm600\WaB Wink fine sandy loam, 0 to 5 percent slopes\Wink Fine sandy loam 85%	0.48	0.48	0.48	0.480

USDA NRCS Natural Resources Conservation Service

RUSLE2 Worksheet Erosion Calculation Record

Inputs:
Project: Sagebrush Substation Site Development
Operator: AECOM
Location: Albuquerque, NM

Outputs:

Hillslope	*Climate*	*Management*	*Soil*	*Soil loss erod. portion, t/ac/yr*	*Soil detachment, t/ac/yr*	*Cons. plan. soil loss, t/ac/yr*	*Sediment delivery, t/ac/yr*
Highly disturbed land\Bernalillo County, NM	New Mexico\Bernalillo county average (Albuquerque)	smooth bare, no disturbance	Bernalillo County\nm600\BCC Bluepoint loamy fine sand, 1 to 9 percent slopes MLRA 42\Bluepoint Loamy fine sand 85%	1.7	1.7	1.7	1.66
Highly disturbed land\Bernalillo County, NM#2*	New Mexico\Bernalillo county average (Albuquerque)	rough bare, freshly disturbed	Bernalillo County\nm600\BCC Bluepoint loamy fine sand, 1 to 9 percent slopes MLRA 42\Bluepoint Loamy fine sand 85%	5.3	5.3	5.3	5.31
Highly disturbed land\Bernalillo County, NM#3*	New Mexico\Bernalillo county average (Albuquerque)	Highly disturbed land\Construction With No Practices\bare cut slope, smooth	Bernalillo County\nm600\BCC Bluepoint loamy fine sand, 1 to 9 percent slopes MLRA 42\Bluepoint Loamy fine sand 85%	5.3	5.3	5.3	5.32
Highly disturbed land\Bernalillo County, NM#4*	New Mexico\Bernalillo county average (Albuquerque)	Highly disturbed land\Construction With Temporary Practices\BMPs\Silt Fence - Standard	Bernalillo County\nm600\BCC Bluepoint loamy fine sand, 1 to 9 percent slopes MLRA 42\Bluepoint Loamy fine sand 85%	1.7	1.7	1.7	1.66
Highly disturbed land\Bernalillo County, NM#5*	New Mexico\Bernalillo county average (Albuquerque)	Highly disturbed land\gravel surface\gravel road, fresh	Bernalillo County\nm600\BCC Bluepoint loamy fine sand, 1 to 9 percent slopes MLRA 42\Bluepoint Loamy fine sand 85%	0.47	0.47	0.47	0.469

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 Bernalillo County and Parts of Sandoval and Valencia Counties, New Mexico

AECOM - Sagebrush Substation Site Development

May 17, 2022

Preface

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

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

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

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

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

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

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Contents

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.

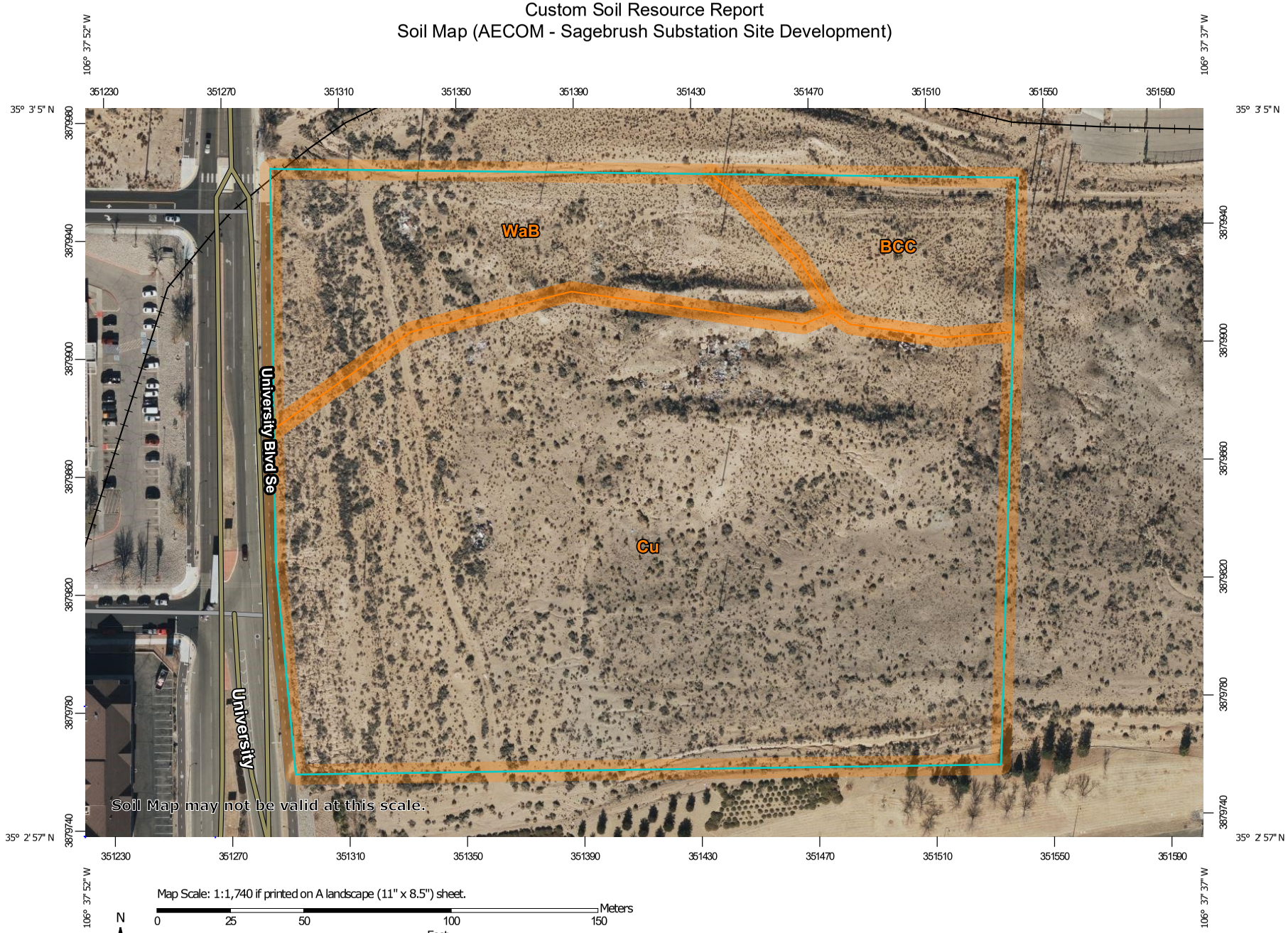
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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 (AECOM - Sagebrush Substation Site Development)



Map Scale: 1:1,740 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 25 50 100 150

Feet: 0 50 100 200 300

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.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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

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

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

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Soil Survey Area: Bernalillo County and Parts of Sandoval and Valencia Counties, New Mexico
Survey Area Data: Version 16, Sep 12, 2021

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

Date(s) aerial images were photographed: Nov 22, 2020—Jan 1, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND	MAP INFORMATION
	imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend (AECOM - Sagebrush Substation Site Development)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BCC	Bluepoint loamy fine sand, 1 to 9 percent slopes	1.0	8.1%
Cu	Cut and fill land	9.2	73.6%
WaB	Wink fine sandy loam, 0 to 5 percent slopes	2.3	18.3%
Totals for Area of Interest		**12.5**	**100.0%**

Map Unit Descriptions (AECOM - Sagebrush Substation Site Development)

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.

Bernalillo County and Parts of Sandoval and Valencia Counties, New Mexico

BCC—Bluepoint loamy fine sand, 1 to 9 percent slopes

Map Unit Setting

National map unit symbol: 2sy14
Elevation: 4,460 to 6,000 feet
Mean annual precipitation: 6 to 12 inches
Mean annual air temperature: 57 to 70 degrees F
Frost-free period: 170 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Bluepoint

Setting

Landform: Stream terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Alluvium and/or eolian deposits

Typical profile

C1 - 0 to 5 inches: loamy fine sand
C2 - 5 to 28 inches: loamy fine sand
C3 - 28 to 53 inches: loamy fine sand
C4 - 53 to 60 inches: loamy 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 (6.00 to 20.04 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: 1 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Ecological site: R042XA054NM - Deep Sand

Hydric soil rating: No

Minor Components

Bluepoint family
Percent of map unit: 6 percent
Hydric soil rating: No

Wink
Percent of map unit: 3 percent
Hydric soil rating: No

Pajarito
Percent of map unit: 2 percent
Hydric soil rating: No

Caliza
Percent of map unit: 2 percent
Hydric soil rating: No

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

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

Cu—Cut and fill land

Map Unit Setting
National map unit symbol: 1vwr
Elevation: 4,850 to 6,000 feet
Mean annual precipitation: 7 to 10 inches
Mean annual air temperature: 58 to 60 degrees F
Frost-free period: 170 to 195 days
Farmland classification: Not prime farmland

Map Unit Composition
Cut and fill land: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cut And Fill Land

Setting
Landform: Scarp slopes
Down-slope shape: Linear
Across-slope shape: Linear

WaB—Wink fine sandy loam, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 1vz2
Elevation: 3,900 to 6,000 feet
Mean annual precipitation: 7 to 10 inches
Mean annual air temperature: 57 to 61 degrees F
Frost-free period: 170 to 210 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Wink

Setting

Landform: Fan piedmonts, alluvial fans
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous and sedimentary rock

Typical profile

H1 - 0 to 6 inches: fine sandy loam
H2 - 6 to 60 inches: sandy loam

Properties and qualities

Slope: 0 to 5 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: 10 percent
Gypsum, maximum content: 3 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Moderate (about 7.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: R042XA052NM - Loamy
Hydric soil rating: No

Minor Components

Latene

Percent of map unit: 15 percent
Ecological site: R042XA052NM - Loamy
Hydric soil rating: No

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.

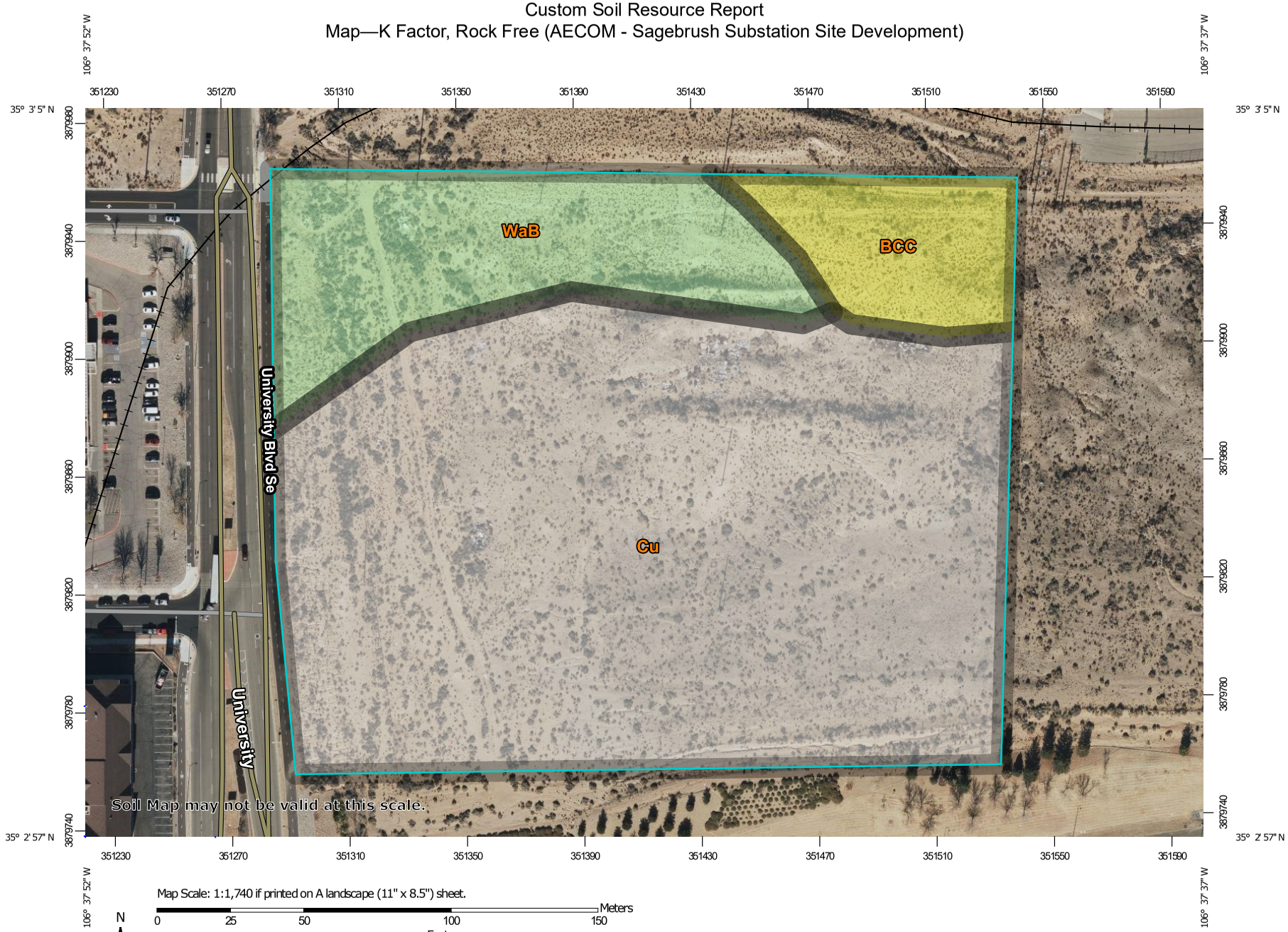
K Factor, Rock Free (AECOM - Sagebrush Substation Site Development)

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 (AECOM - Sagebrush Substation Site Development)



Map Scale: 1:1,740 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 25 50 100 150

Feet: 0 50 100 200 300

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.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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

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

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

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

Soil Survey Area: Bernalillo County and Parts of Sandoval and Valencia Counties, New Mexico
Survey Area Data: Version 16, Sep 12, 2021

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

Date(s) aerial images were photographed: Nov 22, 2020—Jan 1, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND	MAP INFORMATION
	imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—K Factor, Rock Free (AECOM - Sagebrush Substation Site Development)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BCC	Bluepoint loamy fine sand, 1 to 9 percent slopes	.20	1.0	8.1%
Cu	Cut and fill land		9.2	73.6%
WaB	Wink fine sandy loam, 0 to 5 percent slopes	.28	2.3	18.3%
Totals for Area of Interest			**12.5**	**100.0%**

Rating Options—K Factor, Rock Free (AECOM - Sagebrush Substation Site Development)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Layer Options (Horizon Aggregation Method): Surface Layer (Not applicable)

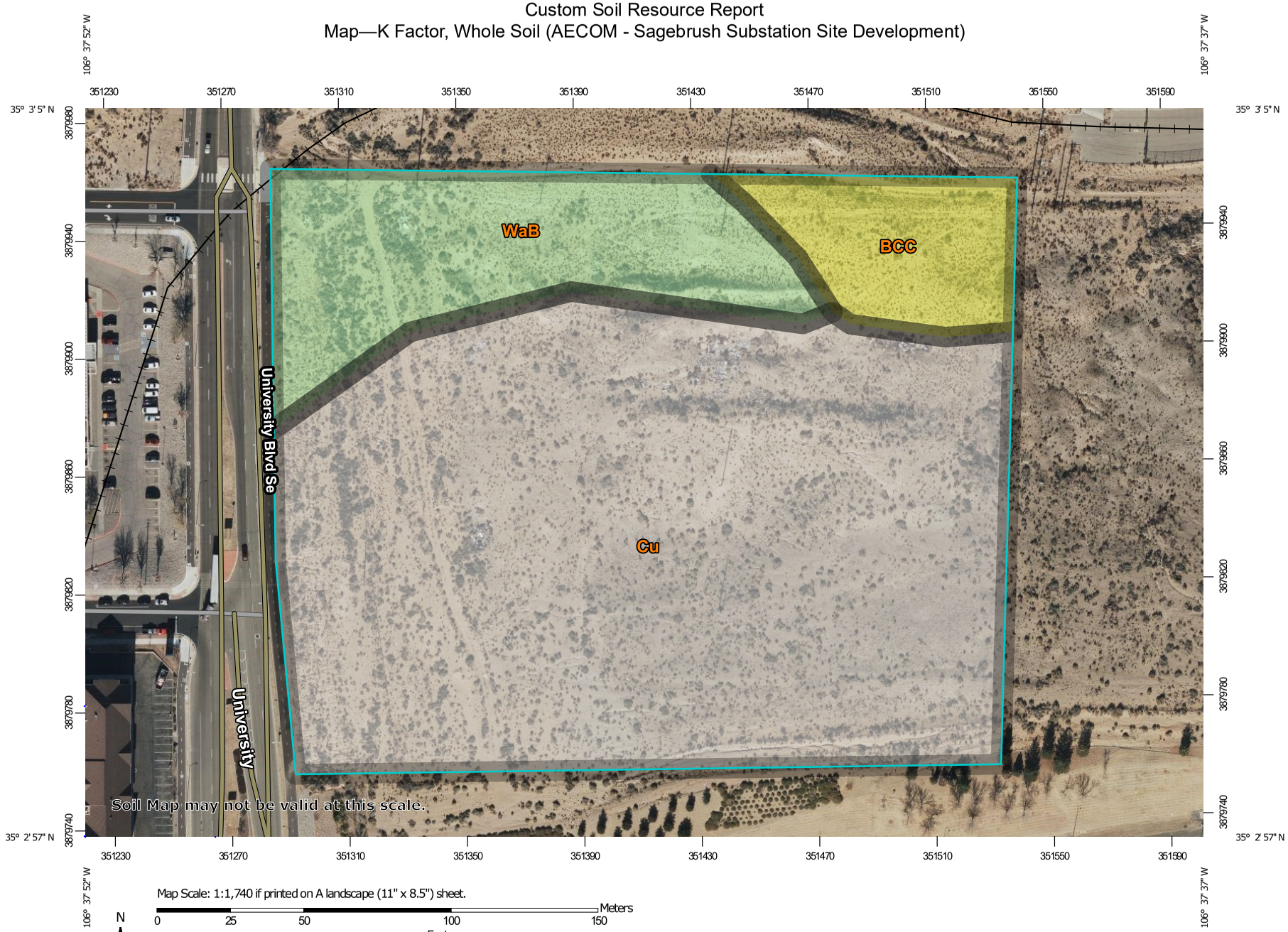
K Factor, Whole Soil (AECOM - Sagebrush Substation Site Development)

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.

Custom Soil Resource Report
Map—K Factor, Whole Soil (AECOM - Sagebrush Substation Site Development)



Map Scale: 1:1,740 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 25 50 100 150

Feet
0 50 100 200 300

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.

Warning: Soil Map may not be valid at this scale.

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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)

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Survey Area Data: Version 16, Sep 12, 2021

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

Date(s) aerial images were photographed: Nov 22, 2020—Jan 1, 2021

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MAP LEGEND	MAP INFORMATION
	imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—K Factor, Whole Soil (AECOM - Sagebrush Substation Site Development)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BCC	Bluepoint loamy fine sand, 1 to 9 percent slopes	.20	1.0	8.1%
Cu	Cut and fill land		9.2	73.6%
WaB	Wink fine sandy loam, 0 to 5 percent slopes	.28	2.3	18.3%
Totals for Area of Interest			**12.5**	**100.0%**

Rating Options—K Factor, Whole Soil (AECOM - Sagebrush Substation Site Development)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

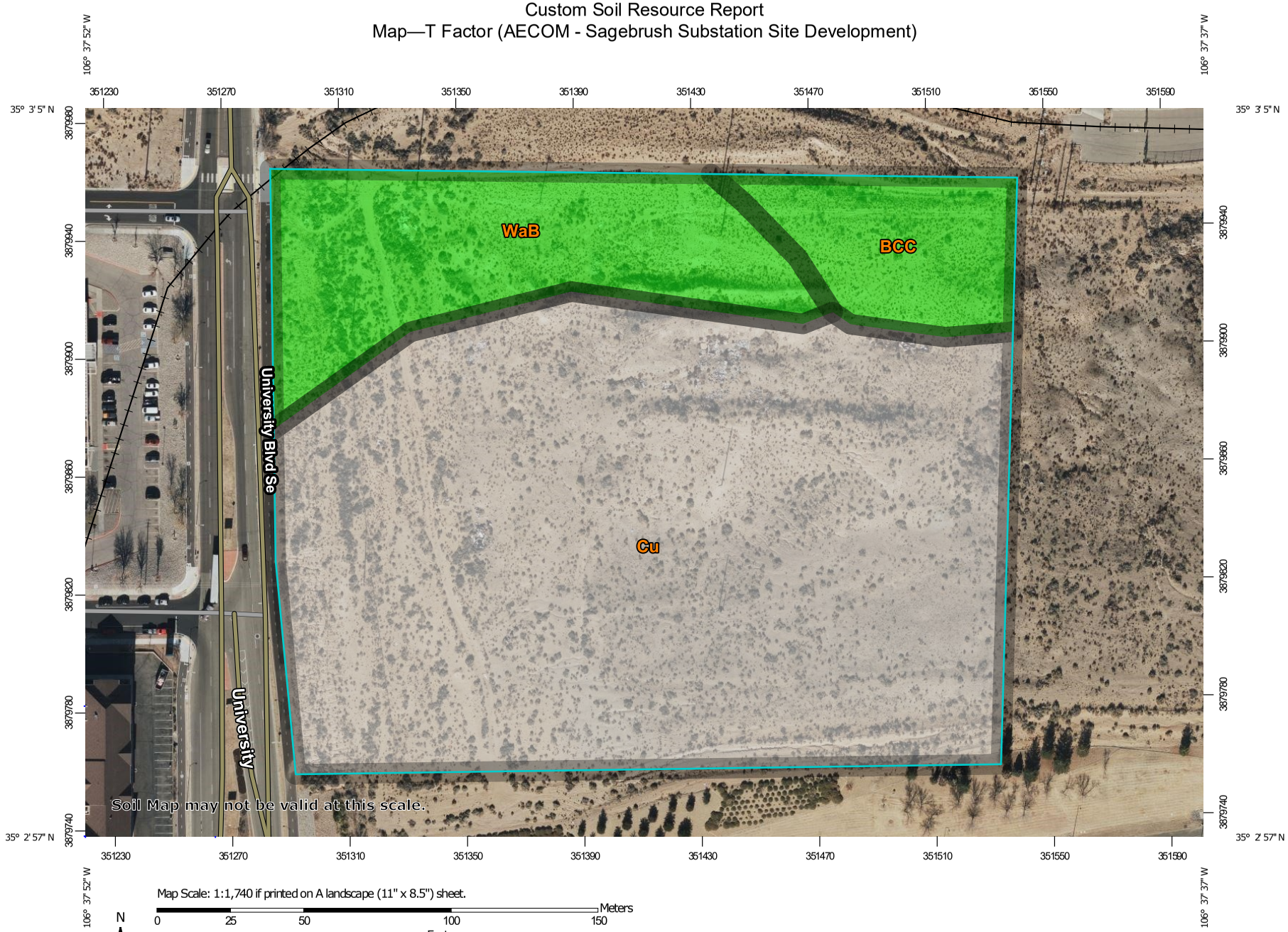
Tie-break Rule: Higher

Layer Options (Horizon Aggregation Method): Surface Layer (Not applicable)

T Factor (AECOM - Sagebrush Substation Site Development)

The T factor is an estimate of the maximum average annual rate of soil erosion by wind and/or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Custom Soil Resource Report
Map—T Factor (AECOM - Sagebrush Substation Site Development)



Map Scale: 1:1,740 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 25 50 100 150

Feet
0 50 100 200 300

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
- 5
- Not rated or not available

Soil Rating Lines

- 1
- 2
- 3
- 4
- 5
- Not rated or not available

Soil Rating Points

- 1
- 2
- 3
- 4
- 5
- 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.

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Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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

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MAP LEGEND	MAP INFORMATION
	imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—T Factor (AECOM - Sagebrush Substation Site Development)

Map unit symbol	Map unit name	Rating (tons per acre per year)	Acres in AOI	Percent of AOI
BCC	Bluepoint loamy fine sand, 1 to 9 percent slopes	5	1.0	8.1%
Cu	Cut and fill land		9.2	73.6%
WaB	Wink fine sandy loam, 0 to 5 percent slopes	5	2.3	18.3%
Totals for Area of Interest			**12.5**	**100.0%**

Rating Options—T Factor (AECOM - Sagebrush Substation Site Development)

Units of Measure: tons per acre per year

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

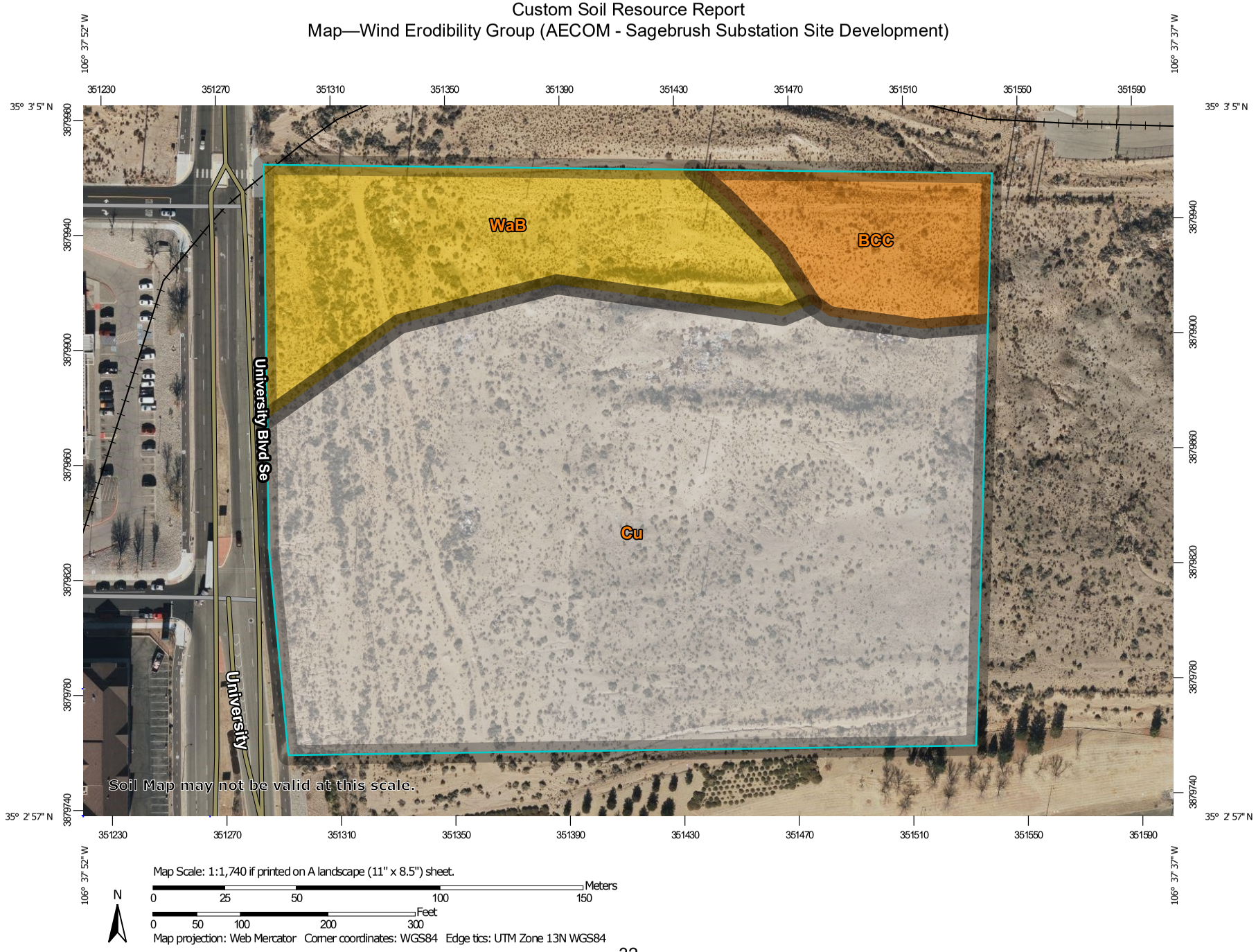
Tie-break Rule: Lower

Interpret Nulls as Zero: No

Wind Erodibility Group (AECOM - Sagebrush Substation Site Development)

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 (AECOM - Sagebrush Substation Site Development)



Map Scale: 1:1,740 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 25 50 100 150

Feet: 0 50 100 200 300

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.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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

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

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

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

Soil Survey Area: Bernalillo County and Parts of Sandoval and Valencia Counties, New Mexico
Survey Area Data: Version 16, Sep 12, 2021

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

Date(s) aerial images were photographed: Nov 22, 2020—Jan 1, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND	MAP INFORMATION
	imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Wind Erodibility Group (AECOM - Sagebrush Substation Site Development)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BCC	Bluepoint loamy fine sand, 1 to 9 percent slopes	2	1.0	8.1%
Cu	Cut and fill land		9.2	73.6%
WaB	Wink fine sandy loam, 0 to 5 percent slopes	3	2.3	18.3%
Totals for Area of Interest			**12.5**	**100.0%**

Rating Options—Wind Erodibility Group (AECOM - Sagebrush Substation Site Development)

Aggregation Method: Dominant Condition

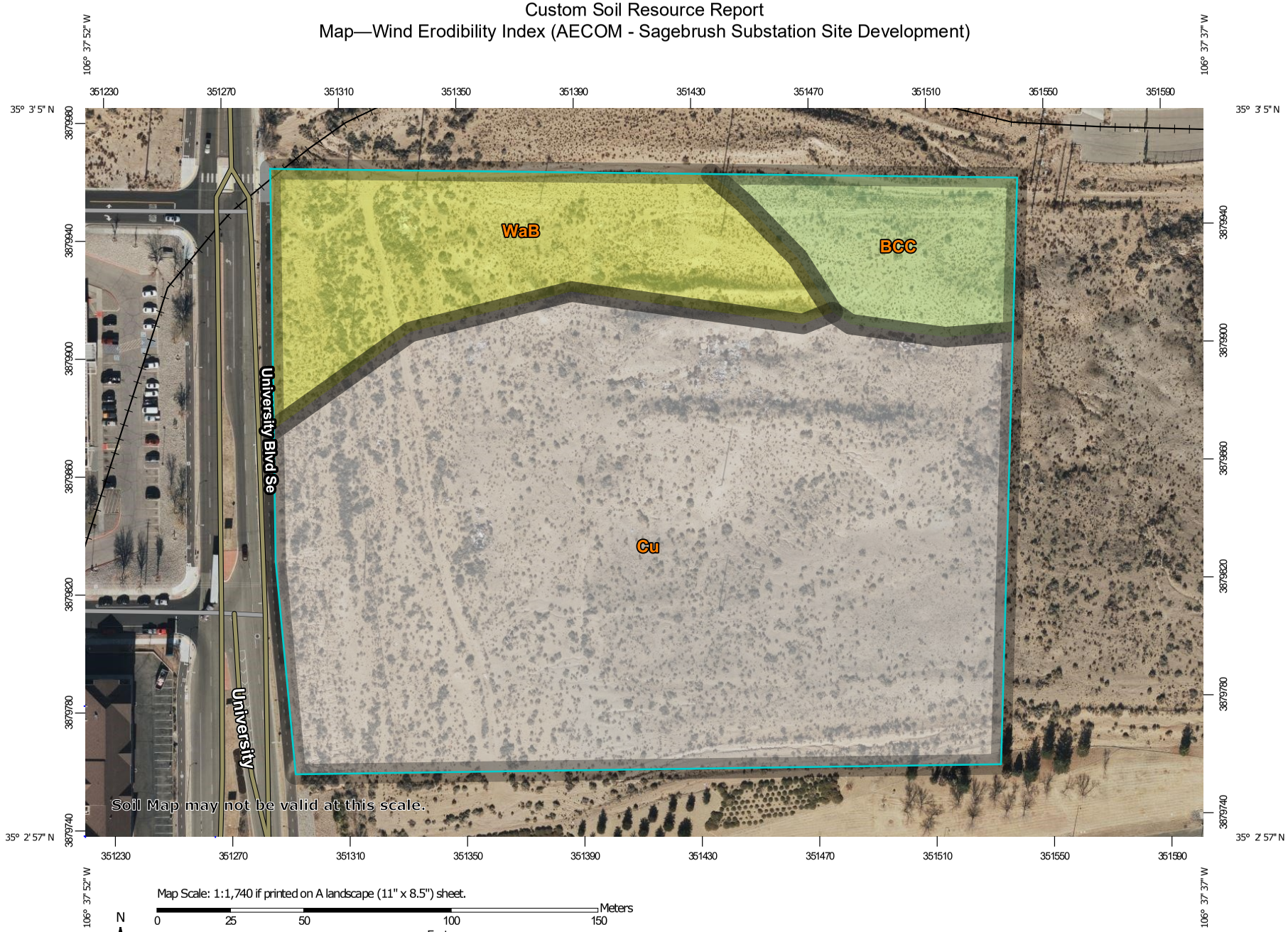
Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Wind Erodibility Index (AECOM - Sagebrush Substation Site Development)

The wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Custom Soil Resource Report
Map—Wind Erodibility Index (AECOM - Sagebrush Substation Site Development)



Map Scale: 1:1,740 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 25 50 100 150

Feet
0 50 100 200 300

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

0
38
48
56
86
134
160
180
220
250
310
Not rated or not available

Soil Rating Lines

0
38
48
56
86
134
160
180
220
250
310
Not rated or not available

Soil Rating Points

0
38
48
56
86
134
160
180
220
250
310
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.

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

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MAP LEGEND	MAP INFORMATION
	imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Wind Erodibility Index (AECOM - Sagebrush Substation Site Development)

Map unit symbol	Map unit name	Rating (tons per acre per year)	Acres in AOI	Percent of AOI
BCC	Bluepoint loamy fine sand, 1 to 9 percent slopes	134	1.0	8.1%
Cu	Cut and fill land		9.2	73.6%
WaB	Wink fine sandy loam, 0 to 5 percent slopes	86	2.3	18.3%
Totals for Area of Interest			**12.5**	**100.0%**

Rating Options—Wind Erodibility Index (AECOM - Sagebrush Substation Site Development)

Units of Measure: tons per acre per year

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

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.

AASHTO Group Classification (Surface) (AECOM - Sagebrush Substation Site Development)

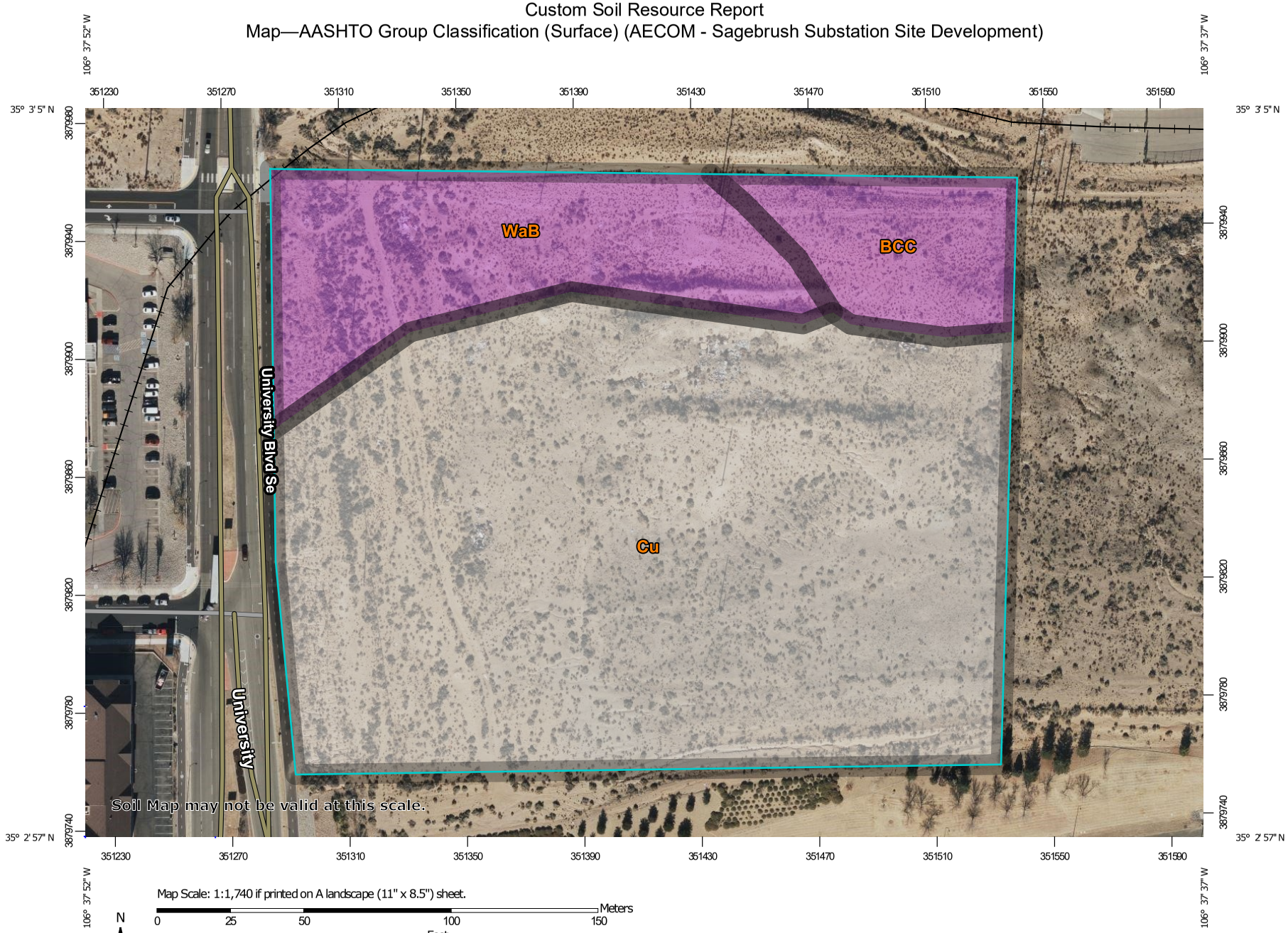
AASHTO group classification is a system that classifies soils specifically for geotechnical engineering purposes that are related to highway and airfield construction. It is based on particle-size distribution and Atterberg limits, such as liquid limit and plasticity index. This classification system is covered in AASHTO Standard No. M 145-82. The classification is based on that portion of the soil that is smaller than 3 inches in diameter.

The AASHTO classification system has two general classifications: (i) granular materials having 35 percent or less, by weight, particles smaller than 0.074 mm in diameter and (ii) silt-clay materials having more than 35 percent, by weight,

particles smaller than 0.074 mm in diameter. These two divisions are further subdivided into seven main group classifications, plus eight subgroups, for a total of fifteen for mineral soils. Another class for organic soils is used.

For each soil horizon in the database one or more AASHTO Group Classifications may be listed. One is marked as the representative or most commonly occurring. The representative classification is shown here for the surface layer of the soil.

Map—AASHTO Group Classification (Surface) (AECOM - Sagebrush Substation Site Development)



Map Scale: 1:1,740 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 25 50 100 150

Feet: 0 50 100 200 300

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-1
A-1-a
A-1-b
A-2
A-2-4
A-2-5
A-2-6
A-2-7
A-3
A-4
A-5
A-6
A-7
A-7-5
A-7-6
A-8
Not rated or not available

Soil Rating Lines

A-1
A-1-a
A-1-b
A-2
A-2-4
A-2-5
A-2-6
A-2-7
A-3
A-4
A-5
A-6
A-7
A-7-5
A-7-6
A-8
Not rated or not available

Soil Rating Points

A-1
A-1-a
A-1-b
A-2
A-2-4
A-2-5
A-2-6
A-2-7
A-3
A-4
A-5
A-6
A-7
A-7-5
A-7-6
A-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

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

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Survey Area Data: Version 16, Sep 12, 2021

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Date(s) aerial images were photographed: Nov 22, 2020—Jan 1, 2021

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MAP LEGEND	MAP INFORMATION
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Table—AASHTO Group Classification (Surface) (AECOM - Sagebrush Substation Site Development)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BCC	Bluepoint loamy fine sand, 1 to 9 percent slopes	A-2-4	1.0	8.1%
Cu	Cut and fill land		9.2	73.6%
WaB	Wink fine sandy loam, 0 to 5 percent slopes	A-2-4	2.3	18.3%
Totals for Area of Interest			**12.5**	**100.0%**

Rating Options—AASHTO Group Classification (Surface) (AECOM - Sagebrush Substation Site Development)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Layer Options (Horizon Aggregation Method): Surface Layer (Not applicable)

AASHTO Group Index (AECOM - Sagebrush Substation Site Development)

The AASHTO Group Index is a refinement to the seven major groups of the AASHTO soil classification system. According to

this system, soil is classified into seven major groups: A -l through A-7. Soils classified into groups A-1, A-2. and A-3 are granular materials of which 35% or less of the particles pass through the No. 200 sieve. Soils of which more than 35% pass through the No. 200 sieve are classified into groups A-4, A-5, A-6, and A-7. These soils are mostly silt and clay-type materials.

The classifications system is based on the following criteria:

1. Grain size

a. Gravel ; fraction passing the 75-mm(3-in.) sieve and retained on the No. 10 (2-mm) U.S. sieve

b. sand: fraction passing the No. 10 (2-mm) U.S. sieve and retained on the No.200 (0.075-mm) U.S. sieve

c. Silt and clay: fraction passing the No. 200 U.S. sieve

2. Plasticity The term silty is applied when the fine fractions of the soil have a plasticity index of 10 or less. The term clayey is applied when the fine fractions have a plasticity index of 11 or more.

3. If cobbles and boulders (size larger than 75 mm) are encountered, they are excluded from the portion of the soil sample from which classification is made.

To evaluate the quality of a soil as a highway subgrade material, one must also incorporate a number called the group index (GI) with the groups and subgroups of the soil. This index is written in parentheses after the group or subgroup designation.

The group index is given by the equation:

GI = (F200-35)[0.2+ 0.005(LL- 40)] + 0.01(.F200-15)(PI- 10)

where:

F200 = percentage passing through the No. 200 sieve

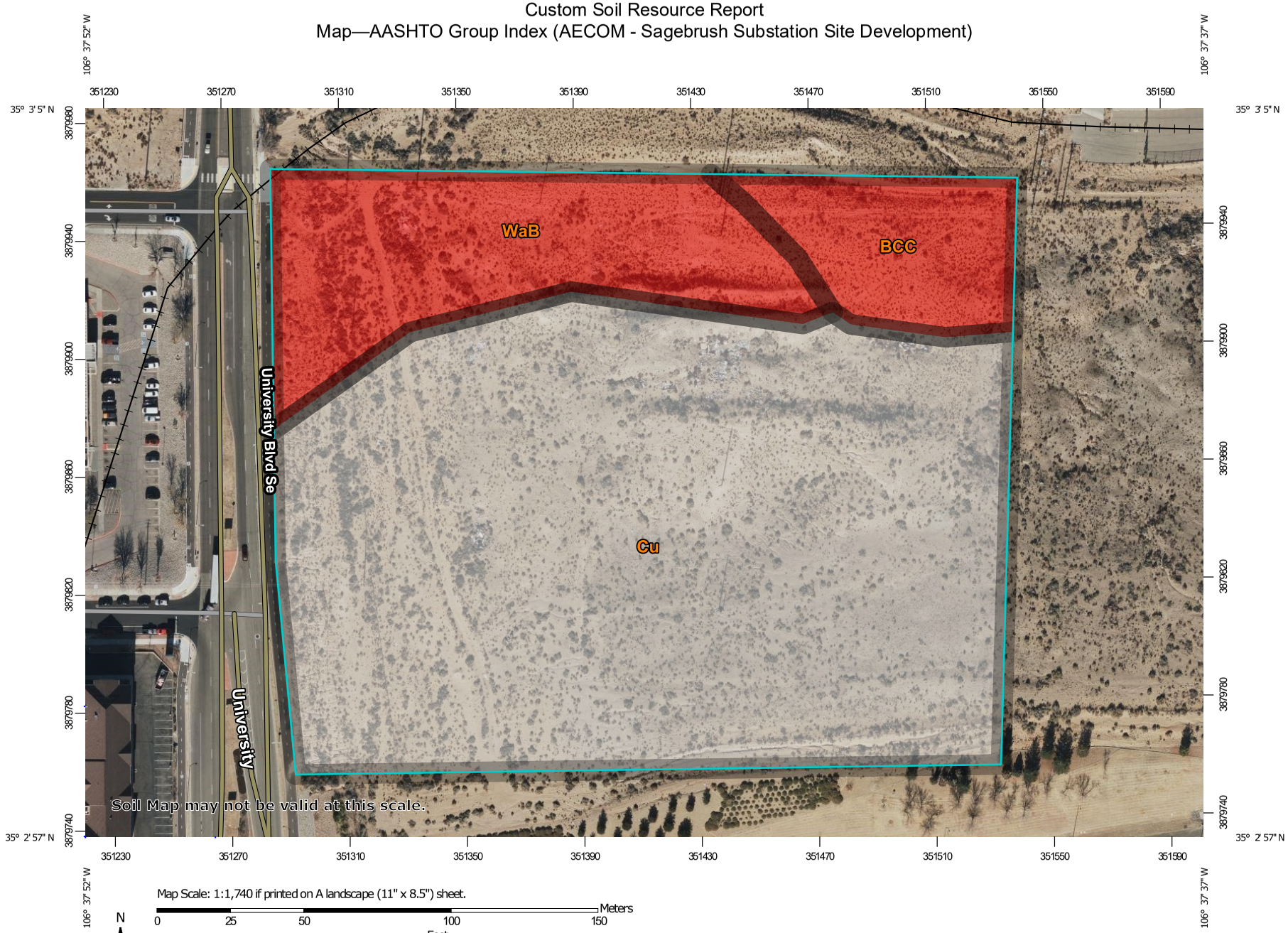
LL — liquid limit

PI : plasticity index

The group index is used typically to refine an AASHTO class but in the soil survey database is often used as a standalone soil attribute.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Custom Soil Resource Report
Map—AASHTO Group Index (AECOM - Sagebrush Substation Site Development)



Map Scale: 1:1,740 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 25 50 100 150

Feet: 0 50 100 200 300

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

= 0

Not rated or not available

Soil Rating Lines

= 0

Not rated or not available

Soil Rating Points

= 0

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

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Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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MAP LEGEND	MAP INFORMATION
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Table—AASHTO Group Index (AECOM - Sagebrush Substation Site Development)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BCC	Bluepoint loamy fine sand, 1 to 9 percent slopes	0	1.0	8.1%
Cu	Cut and fill land		9.2	73.6%
WaB	Wink fine sandy loam, 0 to 5 percent slopes	0	2.3	18.3%
Totals for Area of Interest			**12.5**	**100.0%**

Rating Options—AASHTO Group Index (AECOM - Sagebrush Substation Site Development)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Interpret Nulls as Zero: No

Layer Options (Horizon Aggregation Method): All Layers (Weighted Average)

Hydrologic Soil Group (AECOM - Sagebrush Substation Site Development)

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.

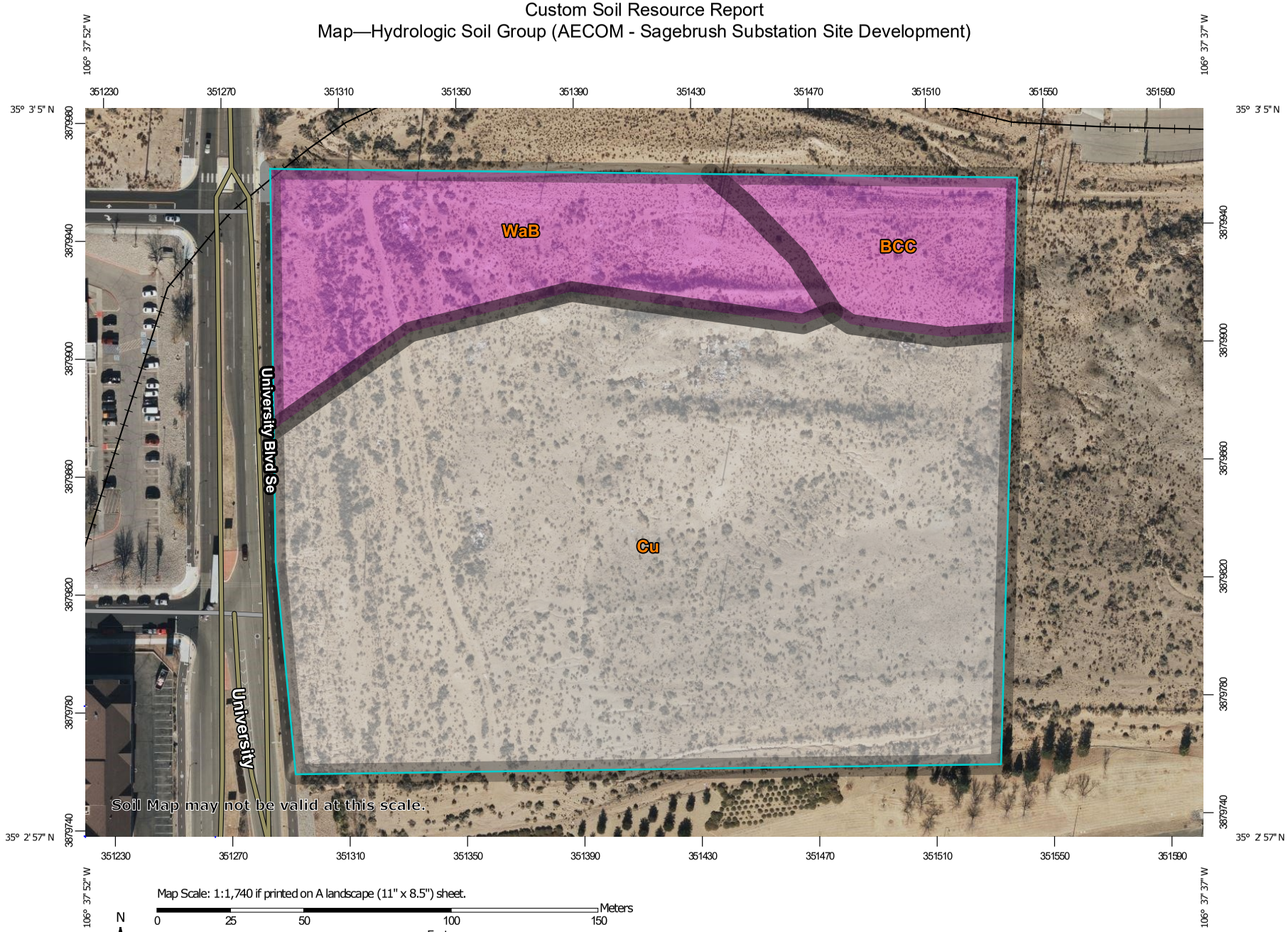
Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or

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 (AECOM - Sagebrush Substation Site Development)



Map Scale: 1:1,740 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 25 50 100 150

Feet: 0 50 100 200 300

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

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MAP LEGEND	MAP INFORMATION
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Table—Hydrologic Soil Group (AECOM - Sagebrush Substation Site Development)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BCC	Bluepoint loamy fine sand, 1 to 9 percent slopes	A	1.0	8.1%
Cu	Cut and fill land		9.2	73.6%
WaB	Wink fine sandy loam, 0 to 5 percent slopes	A	2.3	18.3%
Totals for Area of Interest			**12.5**	**100.0%**

Rating Options—Hydrologic Soil Group (AECOM - Sagebrush Substation Site Development)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

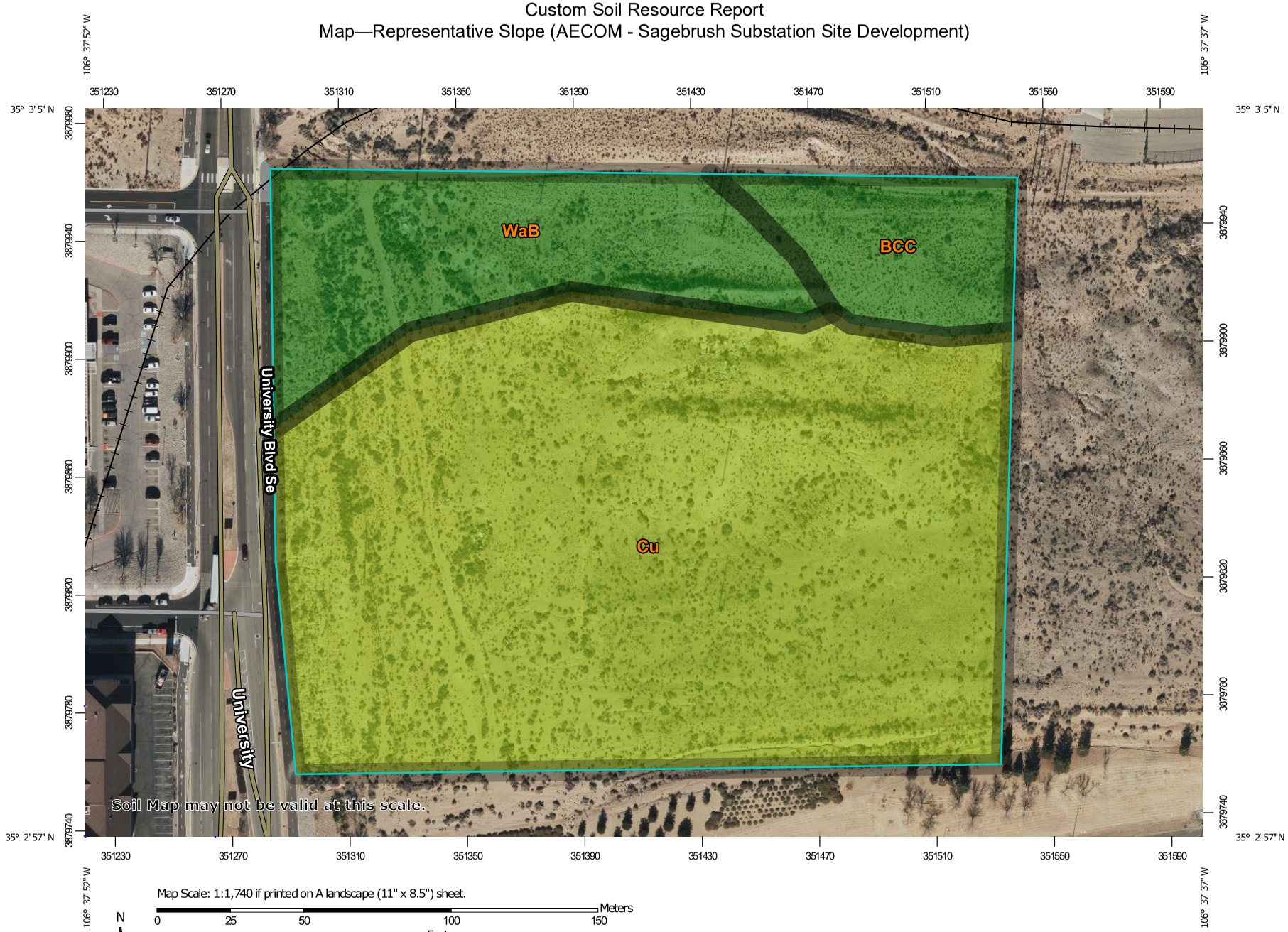
Tie-break Rule: Higher

Representative Slope (AECOM - Sagebrush Substation Site Development)

Slope gradient is the difference in elevation between two points, expressed as a percentage of the distance between those points.

The slope gradient is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Custom Soil Resource Report
Map—Representative Slope (AECOM - Sagebrush Substation Site Development)



Map Scale: 1:1,740 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 25 50 100 150

Feet
0 50 100 200 300

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

- 0 - 5
- 5 - 15
- 15 - 45
- 45 - 60
- 60 - 100
- Not rated or not available

Soil Rating Lines

- 0 - 5
- 5 - 15
- 15 - 45
- 45 - 60
- 60 - 100
- Not rated or not available

Soil Rating Points

- 0 - 5
- 5 - 15
- 15 - 45
- 45 - 60
- 60 - 100
- 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

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Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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MAP LEGEND	MAP INFORMATION
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Table—Representative Slope (AECOM - Sagebrush Substation Site Development)

Map unit symbol	Map unit name	Rating (percent)	Acres in AOI	Percent of AOI
BCC	Bluepoint loamy fine sand, 1 to 9 percent slopes	5.0	1.0	8.1%
Cu	Cut and fill land	13.0	9.2	73.6%
WaB	Wink fine sandy loam, 0 to 5 percent slopes	3.0	2.3	18.3%
Totals for Area of Interest			**12.5**	**100.0%**

Rating Options—Representative Slope (AECOM - Sagebrush Substation Site Development)

Units of Measure: percent

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Interpret Nulls as Zero: No

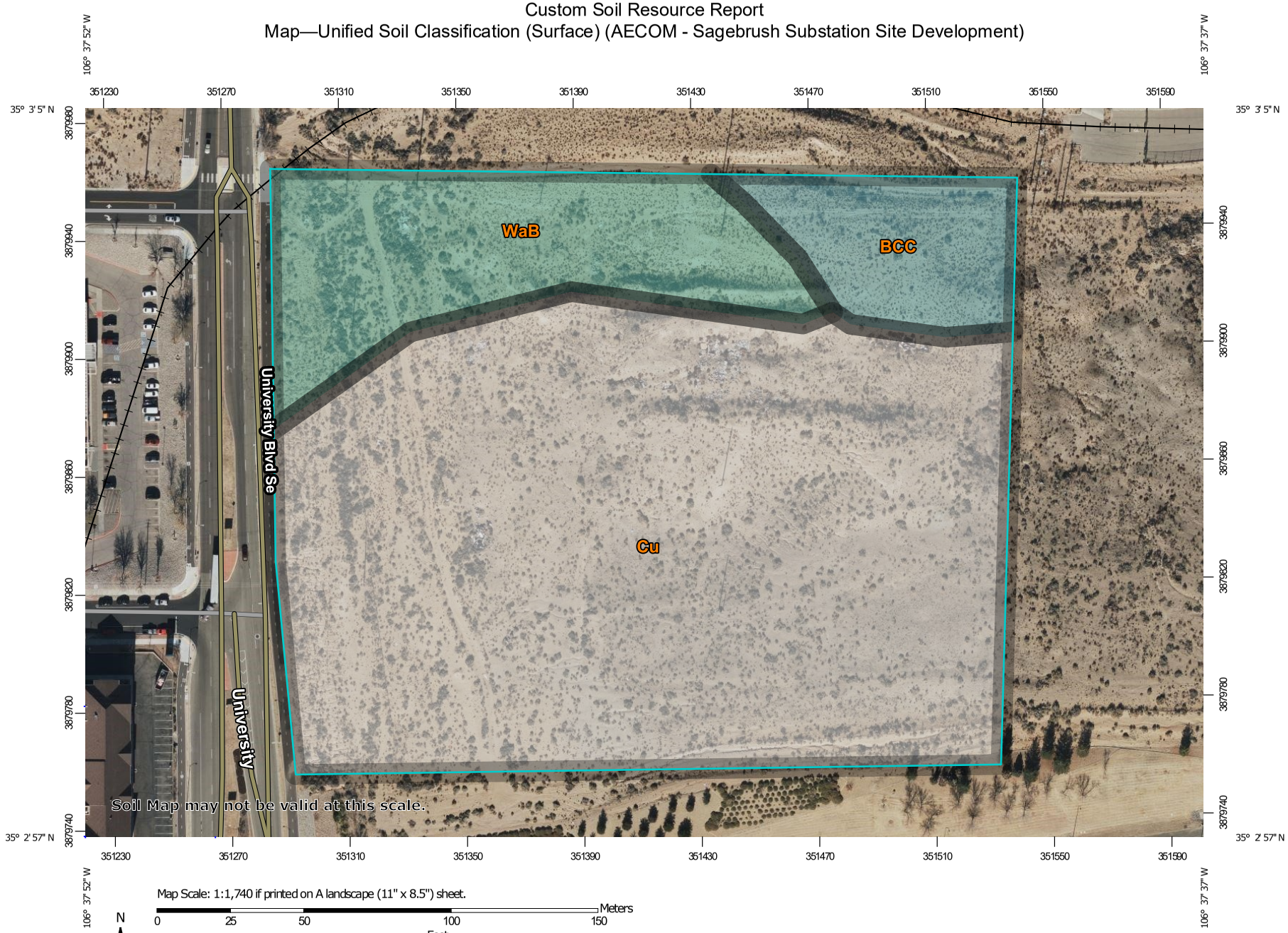
Unified Soil Classification (Surface) (AECOM - Sagebrush Substation Site Development)

The Unified soil classification system classifies mineral and organic mineral soils for engineering purposes on the basis of particle-size characteristics, liquid limit, and plasticity index. It identifies three major soil divisions: (i) coarse-grained soils having less than 50 percent, by weight, particles smaller than 0.074 mm in diameter; (ii) fine-grained soils having 50 percent or more, by weight, particles smaller than 0.074 mm in diameter; and (iii) highly organic soils that demonstrate certain organic characteristics. These divisions are further subdivided into a total of 15 basic soil groups. The major soil divisions and basic soil groups are determined on the basis of estimated or measured values for grain-size distribution and Atterberg limits. ASTM D 2487 shows the criteria chart used for classifying soil in the Unified system and the 15 basic soil groups of the system and the plasticity chart for the Unified system.

The various groupings of this classification correlate in a general way with the engineering behavior of soils. This correlation provides a useful first step in any field or laboratory investigation for engineering purposes. It can serve to make some general interpretations relating to probable performance of the soil for engineering uses.

For each soil horizon in the database one or more Unified soil classifications may be listed. One is marked as the representative or most commonly occurring. The representative classification is shown here for the surface layer of the soil.

Custom Soil Resource Report
Map—Unified Soil Classification (Surface) (AECOM - Sagebrush Substation Site Development)



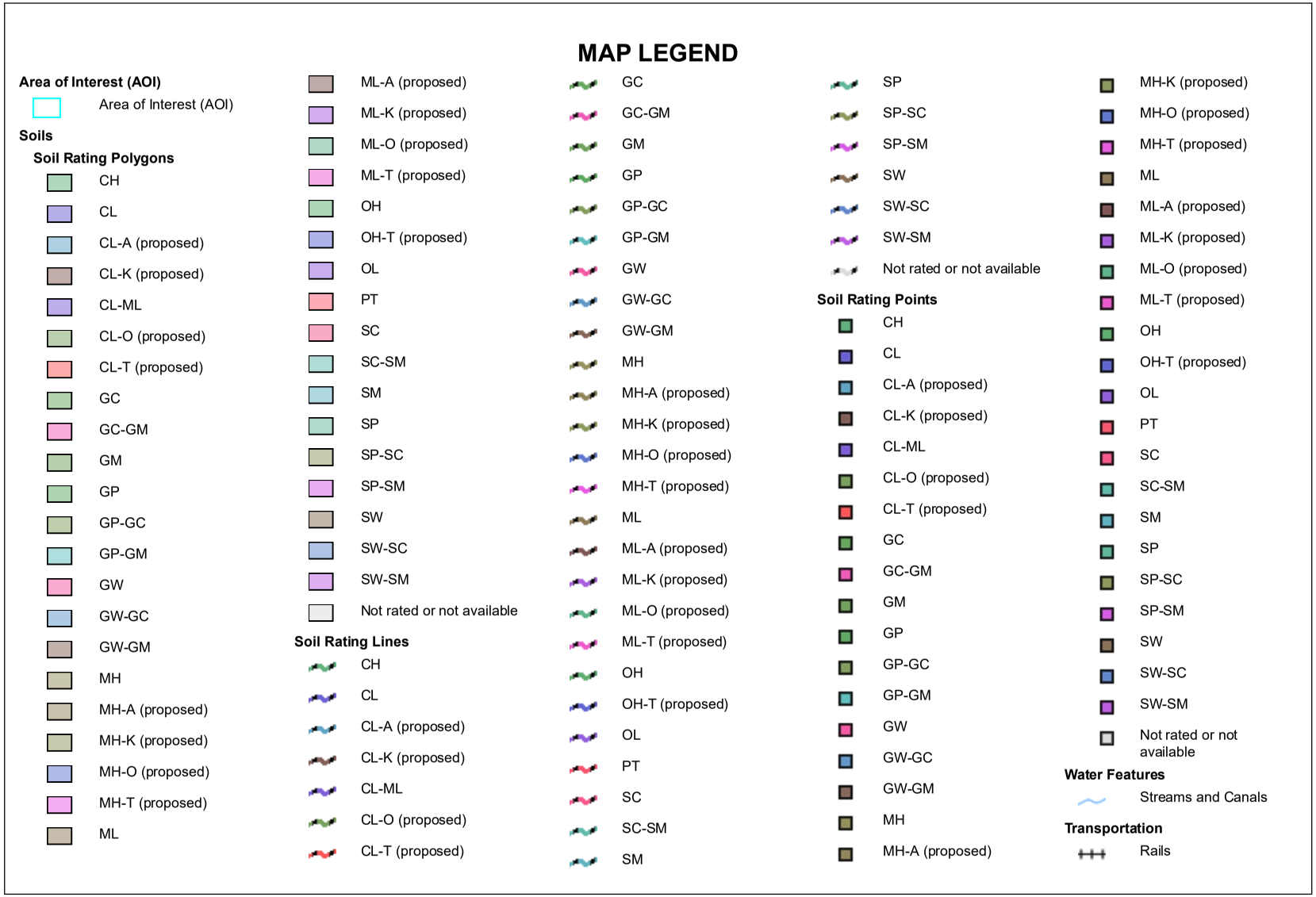
Map Scale: 1:1,740 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 25 50 100 150

Feet: 0 50 100 200 300

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
CH
CL
CL-A (proposed)
CL-K (proposed)
CL-ML
CL-O (proposed)
CL-T (proposed)
GC
GC-GM
GM
GP
GP-GC
GP-GM
GW
GW-GC
GW-GM
MH
MH-A (proposed)
MH-K (proposed)
MH-O (proposed)
MH-T (proposed)
ML
ML-A (proposed)
ML-K (proposed)
ML-O (proposed)
ML-T (proposed)
OH
OH-T (proposed)
OL
PT
SC
SC-SM
SM
SP
SP-SC
SP-SM
SW
SW-SC
SW-SM
Not rated or not available
Soil Rating Lines
CH
CL
CL-A (proposed)
CL-K (proposed)
CL-ML
CL-O (proposed)
CL-T (proposed)
GC
GC-GM
GM
GP
GP-GC
GP-GM
GW
GW-GC
GW-GM
MH
MH-A (proposed)
MH-K (proposed)
MH-O (proposed)
MH-T (proposed)
ML
ML-A (proposed)
ML-K (proposed)
ML-O (proposed)
ML-T (proposed)
OH
OH-T (proposed)
OL
PT
SC
SC-SM
SM
SP
SP-SC
SP-SM
SW
SW-SC
SW-SM
Not rated or not available
Soil Rating Points
CH
CL
CL-A (proposed)
CL-K (proposed)
CL-ML
CL-O (proposed)
CL-T (proposed)
GC
GC-GM
GM
GP
GP-GC
GP-GM
GW
GW-GC
GW-GM
MH
MH-A (proposed)
MH-K (proposed)
MH-O (proposed)
MH-T (proposed)
ML
ML-A (proposed)
ML-K (proposed)
ML-O (proposed)
ML-T (proposed)
OH
OH-T (proposed)
OL
PT
SC
SC-SM
SM
SP
SP-SC
SP-SM
SW
SW-SC
SW-SM
Not rated or not available
Water Features
Streams and Canals
Transportation
Rails

MAP INFORMATION


Interstate Highways


US Routes

Major Roads

Local Roads

Background


Aerial Photography

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

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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

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

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

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

Soil Survey Area: Bernalillo County and Parts of Sandoval and Valencia Counties, New Mexico
Survey Area Data: Version 16, Sep 12, 2021

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

Date(s) aerial images were photographed: Nov 22, 2020—Jan 1, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Unified Soil Classification (Surface) (AECOM - Sagebrush Substation Site Development)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BCC	Bluepoint loamy fine sand, 1 to 9 percent slopes	SM	1.0	8.1%
Cu	Cut and fill land		9.2	73.6%
WaB	Wink fine sandy loam, 0 to 5 percent slopes	SC-SM	2.3	18.3%
Totals for Area of Interest			**12.5**	**100.0%**

Rating Options—Unified Soil Classification (Surface) (AECOM - Sagebrush Substation Site Development)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Layer Options (Horizon Aggregation Method): Surface Layer (Not applicable)

Ecological Sites

Individual soil map unit components can be correlated to a particular ecological site. The Ecological Site Assessment section includes ecological site descriptions, plant growth curves, state and transition models, and selected National Plants database information.

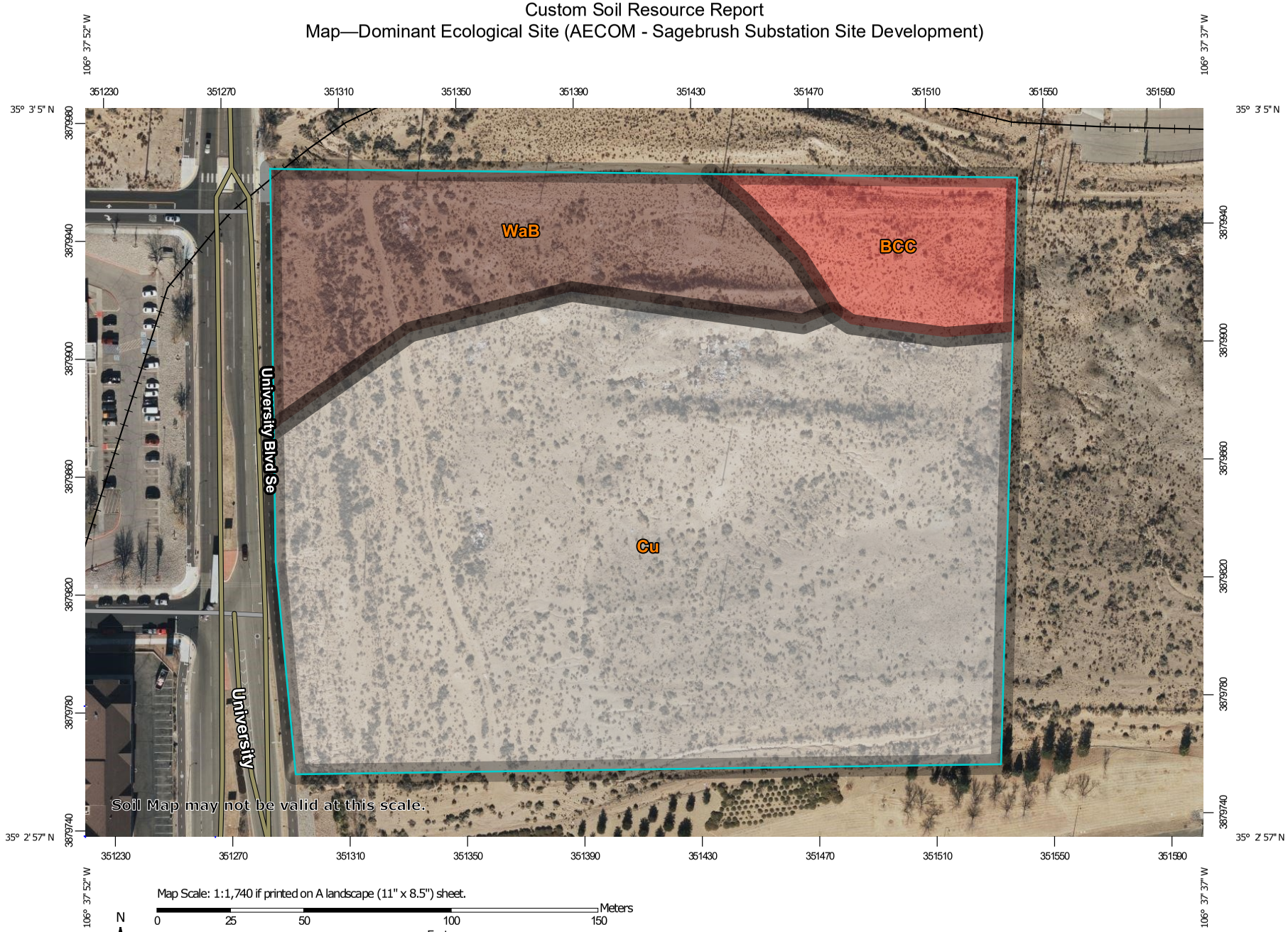
All Ecological Sites — (AECOM - Sagebrush Substation Site Development)

An "ecological site" is the product of all the environmental factors responsible for its development. It has characteristic soils that have developed over time; a characteristic hydrology, particularly infiltration and runoff, that has developed over time; and a characteristic plant community (kind and amount of vegetation). The vegetation, soils, and hydrology are all interrelated. Each is influenced by the others and influences the development of the others. For example, the hydrology of the site is influenced by development of the soil and plant community. The plant community on an ecological site is typified by an association of species that differs from that of other ecological sites in the kind and/or proportion of species or in total production.

An ecological site name provides a general description of a particular ecological site. For example, "Loamy Upland" is the name of a rangeland ecological site. An "ecological site ID" is the symbol assigned to a particular ecological site.

The map identifies the dominant ecological site for each map unit, aggregated by dominant condition. Other ecological sites may occur within each map unit. Each map unit typically consists of one or more components (soils and/or miscellaneous areas). Each soil component is associated with an ecological site. Miscellaneous areas, such as rock outcrop, sand dunes, and badlands, have little or no soil material and support little or no vegetation and therefore are not linked to an ecological site. The table below the map lists all of the ecological sites for each map unit component in your area of interest.

Custom Soil Resource Report
Map—Dominant Ecological Site (AECOM - Sagebrush Substation Site Development)



Map Scale: 1:1,740 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 25 50 100 150

Feet
0 50 100 200 300

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
- R042XA052NM
- R042XA054NM
- Not rated or not available

Soil Rating Lines
- R042XA052NM
- R042XA054NM
- Not rated or not available

Soil Rating Points
- R042XA052NM
- R042XA054NM
- 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.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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

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

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

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

Soil Survey Area: Bernalillo County and Parts of Sandoval and Valencia Counties, New Mexico
Survey Area Data: Version 16, Sep 12, 2021

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

Date(s) aerial images were photographed: Nov 22, 2020—Jan 1, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND	MAP INFORMATION
	imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Ecological Sites by Map Unit Component (AECOM - Sagebrush Substation Site Development)

Map unit symbol	Map unit name	Component name (percent)	Ecological site	Acres in AOI	Percent of AOI
BCC	Bluepoint loamy fine sand, 1 to 9 percent slopes	Bluepoint (85%)	R042XA054NM — Deep Sand	1.0	8.1%
		Bluepoint family (6%)			
		Wink (3%)			
		Caliza (2%)			
		Pajarito (2%)			
		Arizo (1%)			
		Madurez (1%)			
Cu	Cut and fill land	Cut and fill land (100%)		9.2	73.6%
WaB	Wink fine sandy loam, 0 to 5 percent slopes	Wink (85%)	R042XA052NM — Loamy	2.3	18.3%
		Latene (15%)	R042XA052NM — Loamy		
Totals for Area of Interest				**12.5**	**100.0%**

Soil Reports

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

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

Soil Erosion

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

RUSLE2 Related Attributes (AECOM - Sagebrush Substation Site Development)

This report summarizes those soil attributes used by the Revised Universal Soil Loss Equation Version 2 (RUSLE2) for the map units in the selected area. The report includes the map unit symbol, the component name, and the percent of the component in the map unit. Soil property data for each map unit component include the hydrologic soil group, erosion factor Kf for the surface horizon, erosion factor T, and the representative percentage of sand, silt, and clay in the mineral surface horizon. Missing surface data may indicate the presence of an organic layer.

Report—RUSLE2 Related Attributes (AECOM - Sagebrush Substation Site Development)

Soil properties and interpretations for erosion runoff calculations. The surface mineral horizon properties are displayed or the first mineral horizon below an organic surface horizon. Organic horizons are not displayed.

RUSLE2 Related Attributes–Bernalillo County and Parts of Sandoval and Valencia Counties, New Mexico

Map symbol and soil name	Pct. of map unit	Slope length (ft)	Hydrologic group	Kf	T factor	Representative value		
						% Sand	% Silt	% Clay
BCC—Bluepoint loamy fine sand, 1 to 9 percent slopes								
Bluepoint	85	499	A	.20	5	80.0	16.0	4.0

RUSLE2 Related Attributes–Bernalillo County and Parts of Sandoval and Valencia Counties, New Mexico								
Map symbol and soil name	Pct. of map unit	Slope length (ft)	Hydrologic group	Kf	T factor	Representative value		
						% Sand	% Silt	% Clay
WaB—Wink fine sandy loam, 0 to 5 percent slopes								
Wink	85	200	A	.28	5	70.5	16.5	13.0

Soil Physical Properties

This folder contains a collection of tabular reports that present soil physical properties. The reports (tables) include all selected map units and components for each map unit. Soil physical properties are measured or inferred from direct observations in the field or laboratory. Examples of soil physical properties include percent clay, organic matter, saturated hydraulic conductivity, available water capacity, and bulk density.

Engineering Properties (AECOM - Sagebrush Substation Site Development)

This table gives the engineering classifications and the range of engineering properties for the layers of each soil in the survey area.

Hydrologic soil group is a group of soils having similar runoff potential under similar storm and cover conditions. The criteria for determining Hydrologic soil group is found in the National Engineering Handbook, Chapter 7 issued May 2007(http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba). Listing HSGs by soil map unit component and not by soil series is a new concept for the engineers. Past engineering references contained lists of HSGs by soil series. Soil series are continually being defined and redefined, and the list of soil series names changes so frequently as to make the task of maintaining a single national list virtually impossible. Therefore, the criteria is now used to calculate the HSG using the component soil properties and no such national series lists will be maintained. All such references are obsolete and their use should be discontinued. Soil properties that influence runoff potential are those that influence the minimum rate of infiltration for a bare soil after prolonged wetting and when not frozen. These properties are depth to a seasonal high water table, saturated hydraulic conductivity after prolonged wetting, and depth to a layer with a very slow water transmission rate. Changes in soil properties caused by land management or climate changes also cause the hydrologic soil group to change. The influence of ground cover is treated independently. There are four hydrologic soil groups, A, B, C, and D, and three dual groups, A/D, B/D, and C/D. In the dual groups, the first letter is for drained areas and the second letter is for undrained areas.

The four hydrologic soil groups are described in the following paragraphs:

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.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly."

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Percentage of rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves,

numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

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.

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash. The criteria for determining the hydrologic soil group for individual soil components is found in the National Engineering Handbook, Chapter 7 issued May 2007(http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba). Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Engineering Properties–Bernalillo County and Parts of Sandoval and Valencia Counties, New Mexico														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
BCC—Bluepoint loamy fine sand, 1 to 9 percent slopes														
Bluepoint	85	A	0-5	Loamy fine sand	SM	A-2-4	0- 0- 0	0- 0- 0	84-92-100	84-91-100	78-87-97	27-31-36	0-17 -19	NP-1 -3
			5-28	Loamy fine sand, loamy sand, fine sand	SM	A-2-4	0- 0- 0	0- 0- 0	85-92-100	84-92-100	78-87-97	27-32-36	0-16 -18	NP-1 -3
			28-53	Loamy fine sand, loamy sand, fine sand	SM	A-2-4	0- 0- 0	0- 0- 0	85-92-100	84-92-100	78-87-97	27-32-36	0-16 -18	NP-1 -3
			53-60	Loamy fine sand, loamy sand, fine sand	SM	A-2-4	0- 0- 0	0- 0- 0	85-92-100	85-92-100	65-72-81	23-26-31	0-16 -18	NP-1 -3
WaB—Wink fine sandy loam, 0 to 5 percent slopes														
Wink	85	A	0-6	Fine sandy loam	SC, SC-SM	A-2-4, A-4	0- 0- 0	0- 3- 5	90-95-100	85-93-100	80-90-100	25-35-45	18-24 -30	4-8 -12
			6-60	Fine sandy loam, loam, sandy loam	SC-SM, SC	A-2-4, A-4	0- 0- 0	0- 3- 5	90-95-100	85-93-100	80-90-100	25-35-45	18-24 -30	4-8 -12

Fragments on the Soil Surface (AECOM - Sagebrush Substation Site Development)

This table provides information about fragments on the soil surface. Surface fragments are unattached, cemented pieces of bedrock, bedrock-like material, durinodes, concretions, nodules, or pedogenic horizons (e.g., petrocalcic fragments) 2 mm or larger in diameter and woody material 20 mm or larger in diameter that are exposed at the surface of the soil. Surface fragments can be rock fragments, pararock fragments, or wood fragments. Vegetal material other than wood fragments, whether live or dead, is not included.

Pct. of map unit is the percent of the map unit comprised by the component.

Surface fragment cover percent is the percent of the soil surface covered by fragments 2 mm or larger in diameter (20 mm or larger in diameter for wood fragments).

Distance between fragments is the average distance between surface fragments, measured between edges.

Fragment size is the size based on the multiaxial dimensions of the surface fragment.

Flat fragment class	*Length of fragment (mm)*
Channers	2 - 150
Flagstones	150 - 380
Stones	380 - 600
Boulders	>= 600

Nonflat fragment class	*Diameter (mm)*
Gravel	2 - 75
Cobbles	75 - 250
Stones	250 - 600
Boulders	>= 600

Fragment kind is the lithology or composition of the surface fragments 2 mm or larger (20 mm or larger for wood fragments).

Fragment shape is a description of the overall shape of the surface fragment.

Fragment roundness is an expression of the sharpness of edges and corners of surface fragments.

Fragment hardness is the hardness of the fragment. It is equivalent to the rupture resistance cemented of a surface fragment that has been air-dried and then submerged in water.

Reference:
United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. (https://www.nrcs.usda.gov/wps/portal/nrcs/site/soils/home/)

Three values are provided to identify the expected Low (L), Representative Value (RV), and High (H).

Fragments on the Soil Surface–Bernalillo County and Parts of Sandoval and Valencia Counties, New Mexico								
Map symbol and soil name	**Pct. of map unit**	**Surface fragment cover percent**	**Distance between fragments**	**Fragment size**	**Fragment kind**	**Fragment shape**	**Fragment roundness**	**Fragment hardness**
		L-RV-H	*Meters (L-RV-H)*	*Millimeters (L-RV-H)*				
BCC—Bluepoint loamy fine sand, 1 to 9 percent slopes								
Bluepoint	85	0- 0- 1	—	2- 39- 75	Mixed rock	Nonflat	Subrounded	Indurated
Cu—Cut and fill land								
Cut and fill land	100	—	—	—	—	—	—	—
WaB—Wink fine sandy loam, 0 to 5 percent slopes								
Wink	85	—	—	—	—	—	—	—

Particle Size and Coarse Fragments (AECOM - Sagebrush Substation Site Development)

This table shows estimates of particle size distribution and coarse fragment content of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In this table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In this table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, saturated hydraulic conductivity (Ksat), plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Total fragments is the content of fragments of rock and other materials larger than 2 millimeters in diameter on volumetric basis of the whole soil.

Fragments 2-74 mm refers to the content of coarse fragments in the 2 to 74 millimeter size fraction.

Fragments 75-249 mm refers to the content of coarse fragments in teh 75 to 249 millimeter size fraction.

Fragments 250-599 mm refers to the content of coarse fragments in the 250 to 599 millimeter size fraction.

Fragments >=600 mm refers to the content of coarse fragments in the greater than or equal to 600 millimeter size fraction.

Reference:
United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. (http://soils.usda.gov)

Particle Size and Coarse Fragments–Bernalillo County and Parts of Sandoval and Valencia Counties, New Mexico										
Map symbol and soil name	**Horizon**	**Depth**	**Sand**	**Silt**	**Clay**	**Total fragments**	**Fragments 2-74 mm**	**Fragments 75-249 mm**	**Fragments 250-599 mm**	**Fragments >=600 mm**
		In	*L-RV-H Pct*	*L-RV-H Pct*	*L-RV-H Pct*	*RV Pct*	*RV Pct*	*RV Pct*	*RV Pct*	*RV Pct*
BCC—Bluepoint loamy fine sand, 1 to 9 percent slopes										
Bluepoint	C1	0-5	75-80- 85	9-16- 23	2- 4- 6	5	5	—	—	—
	C2	5-28	75-80- 90	7-16- 23	2- 4- 6	5	5	—	—	—
	C3	28-53	75-80- 90	7-16- 23	2- 4- 6	5	5	—	—	—
	C4	53-60	75-80- 90	7-16- 23	2- 4- 6	5	5	—	—	—
Cu—Cut and fill land										
Cut and fill land	—	—	—	—	—	—	—	—	—	—
WaB—Wink fine sandy loam, 0 to 5 percent slopes										
Wink	H1	0-6	-71-	-17-	8-13- 18	10	8	2	—	—
	H2	6-60	-67-	-20-	8-13- 18	10	8	2	—	—

Physical Soil Properties (AECOM - Sagebrush Substation Site Development)

This table shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In this table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In this table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, saturated hydraulic conductivity (Ksat), plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3- or 1/10-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute linear extensibility, shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates in the table are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity

(Ksat) is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at 1/3- or 1/10-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. The amount and type of clay minerals in the soil influence volume change.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In this table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter. The content of organic matter in a soil can be maintained by returning crop residue to the soil.

Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in the table as the K factor (Kw and Kf) and the T factor. 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 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 indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind and/or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up 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. The groups are described in the "National Soil Survey Handbook."

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Reference:
United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. (http://soils.usda.gov)

Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Physical Soil Properties–Bernalillo County and Parts of Sandoval and Valencia Counties, New Mexico														
Map symbol and soil name	**Depth**	**Sand**	**Silt**	**Clay**	**Moist bulk density**	**Saturated hydraulic conductivity**	**Available water capacity**	**Linear extensibility**	**Organic matter**	**Erosion factors**			**Wind erodibility group**	**Wind erodibility index**
										Kw	**Kf**	**T**		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
BCC—Bluepoint loamy fine sand, 1 to 9 percent slopes														
Bluepoint	0-5	75-80- 85	9-16- 23	2- 4- 6	1.45-1.50-1.55	42.34-91.74-141.40	0.08-0.10-0.12	0.1- 0.3- 0.5	0.5- 0.7-1.0	.20	.20	5	2	134
	5-28	75-80- 90	7-16- 23	2- 4- 6	1.49-1.54-1.59	42.34-91.74-141.40	0.08-0.10-0.12	0.1- 0.3- 0.5	0.1- 0.3-0.5	.32	.32			
	28-53	75-80- 90	7-16- 23	2- 4- 6	1.49-1.54-1.59	42.34-91.74-141.40	0.08-0.10-0.12	0.1- 0.3- 0.5	0.1- 0.3-0.5	.32	.32			
	53-60	75-80- 90	7-16- 23	2- 4- 6	1.59-1.61-1.63	42.34-91.74-141.40	0.05-0.06-0.07	0.1- 0.3- 0.5	0.1- 0.3-0.5	.24	.24			
Cu—Cut and fill land														
Cut and fill land	—	—	—	—	—	—	—	—	—					
WaB—Wink fine sandy loam, 0 to 5 percent slopes														
Wink	0-6	-71-	-17-	8-13- 18	1.35-1.45-1.55	14.11-28.23-42.34	0.10-0.12-0.14	0.0- 1.5- 2.9	0.0- 0.3-0.5	.28	.28	5	3	86
	6-60	-67-	-20-	8-13- 18	1.35-1.40-1.45	14.11-28.23-42.34	0.10-0.13-0.15	0.0- 1.5- 2.9	0.0- 0.3-0.5	.24	.24			

Soil Qualities and Features

This folder contains tabular reports that present various soil qualities and features. The reports (tables) include all selected map units and components for each map unit. 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.

Soil Features (AECOM - Sagebrush Substation Site Development)

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

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Subsidence is the settlement of organic soils or of saturated mineral soils of very low density. Subsidence generally results from either desiccation and shrinkage, or oxidation of organic material, or both, following drainage. Subsidence takes place gradually, usually over a period of several years. The table shows the expected initial subsidence, which usually is a result of drainage, and total subsidence, which results from a combination of factors.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, saturated hydraulic conductivity (Ksat), content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to

corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low*, *moderate*, or *high.* It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Soil Features–Bernalillo County and Parts of Sandoval and Valencia Counties, New Mexico									
Map symbol and soil name	**Restrictive Layer**				**Subsidence**		**Potential for frost action**	**Risk of corrosion**	
	Kind	**Depth to top**	**Thickness**	**Hardness**	**Initial**	**Total**		**Uncoated steel**	**Concrete**
		Low-RV-High	*Range*		*Low-High*	*Low-High*			
		In	*In*		*In*	*In*			
BCC—Bluepoint loamy fine sand, 1 to 9 percent slopes									
Bluepoint		—	—		0	0	None	Moderate	Moderate
Cu—Cut and fill land									
Cut and fill land		—	—		—	—			
WaB—Wink fine sandy loam, 0 to 5 percent slopes									
Wink		—	—		—	—		Moderate	Low

Vegetative Productivity

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

Forestland Productivity (AECOM - Sagebrush Substation Site Development)

This table can help forestland owners or managers plan the use of soils for wood crops. It shows the potential productivity of the soils for wood crops.

Potential productivity of merchantable or *common trees* on a soil is expressed as a site index and as a volume number. The *site index* is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that forestland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability. More detailed information regarding site index is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

The *volume of wood fiber*, a number, is the yield likely to be produced by the most important tree species. This number, expressed as cubic feet per acre per year and calculated at the age of culmination of the mean annual increment (CMAI), indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

Trees to manage are those that are preferred for planting, seeding, or natural regeneration and those that remain in the stand after thinning or partial harvest.

Reference:
United States Department of Agriculture, Natural Resources Conservation Service, National Forestry Manual.

Report—Forestland Productivity (AECOM - Sagebrush Substation Site Development)

Forestland Productivity–Bernalillo County and Parts of Sandoval and Valencia Counties, New Mexico				
Map unit symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site Index	Volume of wood fiber	
			Cu ft/ac/yr	
BCC—Bluepoint loamy fine sand, 1 to 9 percent slopes				
Bluepoint	—	—	—	—
Cu—Cut and fill land				
Cut and fill land	—	—	—	—
WaB—Wink fine sandy loam, 0 to 5 percent slopes				
Wink	—	—	—	—

Rangeland and Forest Vegetation Classification, Productivity, and Plant Composition (AECOM - Sagebrush Substation Site Development)

In areas that have similar climate and topography, differences in the kind and amount of rangeland or forest understory vegetation are closely related to the kind of soil. Effective management is based on the relationship between the soils and vegetation and water.

This table shows, for each soil that supports vegetation, the ecological site, plant association, or habitat type; the total annual production of vegetation in favorable, normal, and unfavorable years; the characteristic vegetation; and the average percentage of each species. An explanation of the column headings in the table follows.

An *ecological site, plant association, or habitat type* is the product of all the environmental factors responsible for its development. It has characteristic soils that have developed over time throughout the soil development process; a characteristic hydrology, particularly infiltration and runoff that has developed over time; and a characteristic plant community (kind and amount of vegetation). The hydrology of the site is influenced by development of the soil and plant community. The vegetation, soils, and hydrology are all interrelated. Each is influenced by the others and influences the development of the others. The plant community on an ecological site, plant association, or habitat type is typified by an association of species that differs from that of other ecological sites, plant associations, or habitat types in the kind and/or proportion of species or in total production. Descriptions of ecological sites are provided in the Field Office Technical Guide, which is available in local offices of the Natural Resources Conservation Service (NRCS). Descriptions of plant associations or habitat types are available from local U.S. Forest Service offices.

Total dry-weight production is the amount of vegetation that can be expected to grow annually in a well managed area that is supporting the potential natural plant community. It includes all vegetation, whether or not it is palatable to grazing animals. It includes the current year's growth of leaves, twigs, and fruits of woody plants. It does not include the increase in stem diameter of trees and shrubs. It is

expressed in pounds per acre of air-dry vegetation for favorable, normal, and unfavorable years. In a favorable year, the amount and distribution of precipitation and the temperatures make growing conditions substantially better than average. In a normal year, growing conditions are about average. In an unfavorable year, growing conditions are well below average, generally because of low available soil moisture. Yields are adjusted to a common percent of air-dry moisture content.

Characteristic vegetation (the grasses, forbs, shrubs, and understory trees that make up most of the potential natural plant community on each soil) is listed by common name. Under *rangeland composition and forest understory*, the expected percentage of the total annual production is given for each species making up the characteristic vegetation. The percentages are by dry weight for rangeland. Percentages for forest understory are by either dry weight or canopy cover. The amount that can be used as forage depends on the kinds of grazing animals and on the grazing season.

Range management requires knowledge of the kinds of soil and of the potential natural plant community. It also requires an evaluation of the present range similarity index and rangeland trend. Range similarity index is determined by comparing the present plant community with the potential natural plant community on a particular rangeland ecological site. The more closely the existing community resembles the potential community, the higher the range similarity index. Rangeland trend is defined as the direction of change in an existing plant community relative to the potential natural plant community. Further information about the range similarity index and rangeland trend is available in the "National Range and Pasture Handbook," which is available in local offices of NRCS or on the Internet.

The objective in range management is to control grazing so that the plants growing on a site are about the same in kind and amount as the potential natural plant community for that site. Such management generally results in the optimum production of vegetation, control of undesirable brush species, conservation of water, and control of erosion. Sometimes, however, an area with a range similarity index somewhat below the potential meets grazing needs, provides wildlife habitat, and protects soil and water resources.

Reference:
United States Department of Agriculture, Natural Resources Conservation Service, National range and pasture handbook.

Rangeland and Forest Vegetation Classification, Productivity, and Plant Composition–Bernalillo County and Parts of Sandoval and Valencia Counties, New Mexico								
Map unit symbol and soil name	**Ecological Site, Plant Association, or Habitat Type**	**Total dry-weight production**			**Characteristic rangeland or forest understory vegetation**	**Composition**		
		Favorable year	**Normal year**	**Unfavorable year**			**Rangeland**	**Forest understory**
		Lb/ac	*Lb/ac*	*Lb/ac*		*Pct dry wt*	*Pct dry wt*	
BCC—Bluepoint loamy fine sand, 1 to 9 percent slopes								
Bluepoint	Deep Sand (R042XA054NM)	900	500	175	broom dalea			
					broom snakeweed			
					honey mesquite			
					mesa dropseed			
					sand sagebrush			
Cu—Cut and fill land								
Cut and fill land	—	—	—	—	—			
WaB—Wink fine sandy loam, 0 to 5 percent slopes								
Wink	Loamy (R042XA052NM)	650	550	450	black grama	25		
					bush muhly	20		
					other shrubs	10		
					other perennial forbs	10		
					other perennial grasses	10		
					Arizona cottontop	5		
					mesa dropseed	5		
					rabo de ardilla	5		
					sand dropseed	5		
					spike dropseed	5		

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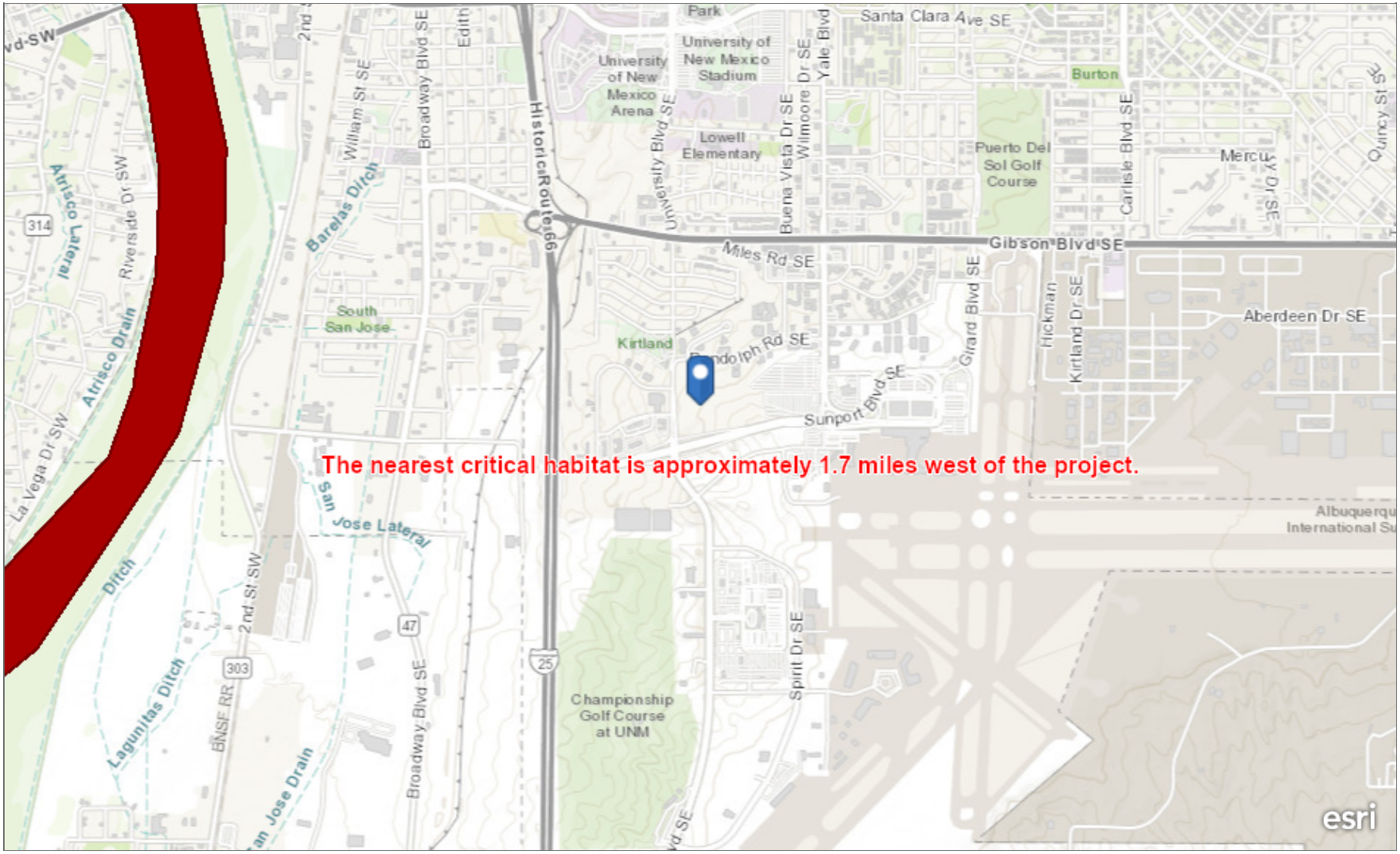
Endangered Species

Critical Habitat for Threatened & Endangered Species [USFWS]



A specific geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New Mexico Ecological Services Field Office
2105 Osuna Road Ne
Albuquerque, NM 87113-1001
Phone: (505) 346-2525 Fax: (505) 346-2542
http://www.fws.gov/southwest/es/NewMexico/
http://www.fws.gov/southwest/es/ES_Lists_Main2.html

In Reply Refer To: May 17, 2022
Project Code: 2022-0043676
Project Name: Sagebrush Substation Site Development

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

Thank you for your recent request for information on federally listed species and important wildlife habitats that may occur in your project area. The U.S. Fish and Wildlife Service (Service) has responsibility for certain species of New Mexico wildlife under the Endangered Species Act (ESA) of 1973 as amended (16 USC 1531 et seq.), the Migratory Bird Treaty Act as amended (16 USC 701-715), and the Bald and Golden Eagle Protection Act as amended (16 USC 668-668(c)). We are providing the following guidance to assist you in determining which federally imperiled species may or may not occur within your project area, and to recommend some conservation measures that can be included in your project design.

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the ESA of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the ESA, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the ESA is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the ESA and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (NEPA; 42 USC 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF.

Candidate Species and Other Sensitive Species

A list of candidate and other sensitive species in your area is also attached. Candidate species and other sensitive species are species that have no legal protection under the ESA, although we recommend that candidate and other sensitive species be included in your surveys and considered for planning purposes. The Service monitors the status of these species. If significant declines occur, these species could potentially be listed. Therefore, actions that may contribute to their decline should be avoided.

Lists of sensitive species including State-listed endangered and threatened species are compiled by New Mexico State agencies. These lists, along with species information, can be found at the following websites.

Biota Information System of New Mexico (BISON-M): www.bison-m.org

New Mexico State Forestry. The New Mexico Endangered Plant Program: https://www.emnrd.nm.gov/sfd/rare-plants/

New Mexico Rare Plant Technical Council, New Mexico Rare Plants: nmrareplants.unm.edu

Natural Heritage New Mexico, online species database: nhnm.unm.edu

WETLANDS AND FLOODPLAINS

Under Executive Orders 11988 and 11990, Federal agencies are required to minimize the destruction, loss, or degradation of wetlands and floodplains, and preserve and enhance their natural and beneficial values. These habitats should be conserved through avoidance, or mitigated to ensure that there would be no net loss of wetlands function and value.

We encourage you to use the National Wetland Inventory (NWI) maps in conjunction with ground-truthing to identify wetlands occurring in your project area. The Service's NWI program website, www.fws.gov/wetlands/Data/Mapper.html, integrates digital map data with other resource information. We also recommend you contact the U.S. Army Corps of Engineers for permitting requirements under section 404 of the Clean Water Act if your proposed action could impact floodplains or wetlands.

MIGRATORY BIRDS

In addition to responsibilities to protect threatened and endangered species under the ESA, there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the Service (50 CFR 10.12 and 16 USC 668(a)). For more information regarding these Acts see https://www.fenws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a Federal nexus) or a Bird/Eagle Conservation Plan (when there is no Federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php. We also recommend review of the Birds of Conservation Concern list (https://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php) to fully evaluate the effects to the birds at your site. This list identifies migratory and non-migratory bird species (beyond those already designated as federally threatened or endangered) that represent top conservation priorities for the Service, and are potentially threatened by disturbance, habitat impacts, or other project development activities.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 thereby provides additional protection

for both migratory birds and migratory bird habitat. Please visit https://www.fws.gov/migratorybirds/pdf/management/executiveordertoprotectmigratorybirds.pdf for information regarding the implementation of Executive Order 13186.

We suggest you contact the New Mexico Department of Game and Fish, and the New Mexico Energy, Minerals, and Natural Resources Department, Forestry Division for information regarding State protected and at-risk species fish, wildlife, and plants.

For further consultation with the Service we recommend submitting inquiries or assessments electronically to our incoming email box at nmesfo@fws.gov, where it will be more promptly routed to the appropriate biologist for review.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- Migratory Birds

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New Mexico Ecological Services Field Office
2105 Osuna Road Ne
Albuquerque, NM 87113-1001
(505) 346-2525

Project Summary

Project Code: 2022-0043676
Event Code: None
Project Name: Sagebrush Substation Site Development
Project Type: Clearing Land
Project Description: The project is located in Albuquerque, NM and is 12.5 acres. The work consists of excavating landfill materials and grading the site to prepare it for future construction. The civil work is expected to last five months.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@35.0508161,-106.62926078227166,14z

Counties: Bernalillo County, New Mexico

Endangered Species Act Species

There is a total of 6 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
New Mexico Meadow Jumping Mouse *Zapus hudsonius luteus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/7965	Endangered

Birds

NAME	STATUS
Mexican Spotted Owl *Strix occidentalis lucida* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/8196	Threatened
Southwestern Willow Flycatcher *Empidonax traillii extimus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/6749	Endangered
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Fishes

NAME	STATUS
Rio Grande Silvery Minnow *Hybognathus amarus*	Endangered

Population: Wherever found, except where listed as an experimental population
There is **final** critical habitat for this species. The location of the critical habitat is not available.
Species profile: https://ecos.fws.gov/ecp/species/1391

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus*	Candidate

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9743

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31
Cassin's Finch *Carpodacus cassinii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9462	Breeds May 15 to Jul 15

NAME	BREEDING SEASON
Evening Grosbeak *Coccothraustes vespertinus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 15 to Aug 10
Grace's Warbler *Dendroica graciae* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 20 to Jul 20
Lewis's Woodpecker *Melanerpes lewis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9408	Breeds Apr 20 to Sep 30
Long-eared Owl *asio otus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3631	Breeds Mar 1 to Jul 15
Olive-sided Flycatcher *Contopus cooperi* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Pinyon Jay *Gymnorhinus cyanocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9420	Breeds Feb 15 to Jul 15
Virginia's Warbler *Vermivora virginiae* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9441	Breeds May 1 to Jul 31

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

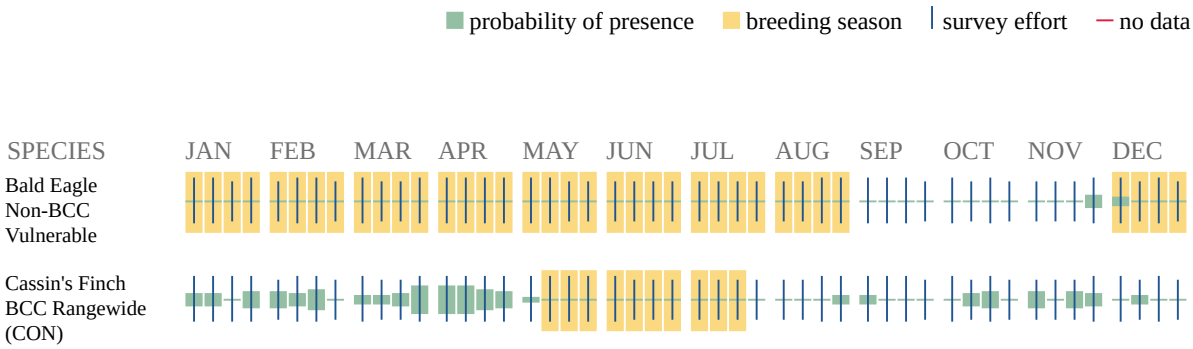
1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

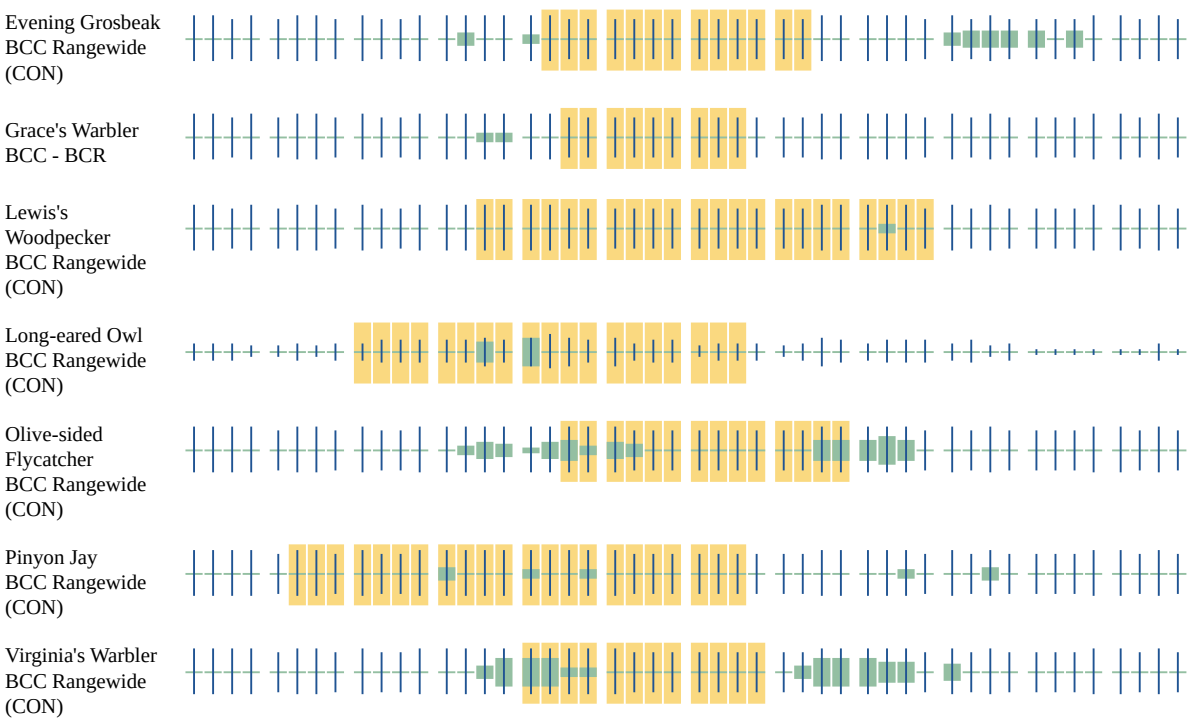
Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?
The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?
To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?
Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles)

potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

IPaC User Contact Information

Agency: E2RC, LLC
Name: E2RC LLC
Address: 439 SOUTH HILL RD
City: BERNALILLO
State: NM
Zip: 87004
Email swppp@e2rc.com
Phone: 5058674040

Southeast Region

Threatened and Endangered Species and Critical Habitats Under NOAA Fisheries Jurisdiction

Species	Listing Status	Recovery Plan	Critical Habitat
Green sea turtle	Threatened - North and South Atlantic Distinct Population Segment (81 FR 20057; April 6, 2016)	October 1991	63 FR 46693; September 2, 1998
Kemp's ridley sea turtle	Endangered (35 FR 18319; December 2, 1970)	September 2011	None
Leatherback sea turtle	Endangered (35 FR 8491; June 2, 1970)	April 1992	44 FR 17710; March 23, 1979
Loggerhead sea turtle	Threatened - Northwest Atlantic Ocean Distinct Population Segment (76 FR 58868; September 22, 2011)	December 2008	79 FR 39856; July 10, 2014
Hawksbill sea turtle	Endangered (35 FR 8491; June 2, 1970)	December 1993	63 FR 46693; September 2, 1998
Smalltooth sawfish	U.S. Distinct Population Segment Endangered (68 FR 15674; April 1, 2003)	January 2009	72 FR 45353; October 2, 2009

Species	Listing Status	Recovery Plan	Critical Habitat
Shortnose sturgeon	Endangered (32 FR 4001; March 11, 1967)	December 1998	None
Atlantic sturgeon	Endangered - South Atlantic and Carolina Distinct Population Segment (77 FR 5914; February 6, 2012)	2018 Recovery Outline	82 FR 39160; August 10, 2017
Gulf sturgeon	Threatened (56 FR 49653; September 30, 1991)	September 1995	68 FR 13370; March 19, 2003
Nassau grouper	Threatened (81 FR 42268; June 29, 2016)	2018 Recovery Outline	None
Oceanic whitetip shark	Threatened (83 FR 4153; January 30, 2018)	2018 Recovery Outline	None
Giant manta ray	Threatened (83 FR 2916; January 22, 2018)	2019 Recovery Outline	None
Scalloped hammerhead shark	Central and Southwest Atlantic Distinct Population Segment - Threatened (79 FR 38213; July 3, 2014)	None	None
Elkhorn coral	Threatened (71 FR 26852; May 9, 2006)	March 2015	73 FR 72210; November 26, 2008
Staghorn coral	Threatened (71 FR 26852; May 9, 2006)	March 2015	73 FR 72210; November 26, 2008
Boulder star coral	Threatened (79 FR 53851; September 10, 2014)	None	None
Mountainous star coral	Threatened (79 FR 53851; September 10, 2014)	None	None
Lobed star coral	Threatened (79 FR 53851; September 10, 2014)	None	None
Rough cactus coral	Threatened (79 FR 53851; September 10, 2014)	None	None

Species	Listing Status	Recovery Plan	Critical Habitat
Pillar coral	Threatened (79 FR 53851; September 10, 2014)	None	None
Johnson's seagrass	Threatened (58 FR 483226; September 14, 1998)	September 2002	65 FR 17786; May 5, 2000
Fin whale	Endangered (35 FR 18319/ December 2, 1970)	August 2010	None
Sperm whale	Endangered (35 FR 18319; December 2, 1970)	December 2010	None
Sei whale	Endangered (35 FR 12222/ December 2, 1970)	December 2011	None
Blue whale	Endangered (35 FR 18319/ December 2, 1970)	July 1998	None
North Atlantic right whale	Endangered (35 FR 18319; December 2, 1970)	June 2005	81 FR 4837; January 27, 2016
Rice's whale	Endangered (84 FR 15446, April 15, 2019); Name Change (86 FR 47022; August 23, 2021)	September 2020 Recovery Outline	None

Last updated by Southeast Regional Office on November 03, 2021

Cultural and Historic Properties


Sagebrush Substation
Google Earth
N
700 ft

City of Albuquerque
P.O. Box 1293 Albuquerque, NM 87103
Planning Department
Alan Varela, Interim Director

Tim Keller, Mayor
Sarita Nair, CAO

DATE: November 1, 2021

SUBJECT: Albuquerque Archaeological Ordinance - Compliance Documentation

Case Number(s):	PR-2020-004447
Agent:	No agent
Applicant:	Russell Brito, PNM
Legal Description:	21-acre portion of Tract A-1 Sunport Municipal Addition (NE corner of University/Sunport)
Zoning:	NR-SU
Acreage:	21
Zone Atlas Page(s):	M-15-Z

CERTIFICATE OF NO EFFECT: ☑ Yes ☐ No

CERTIFICATE OF APPROVAL: ☐ Yes ☑ No

SUPPORTING DOCUMENTATION:

Historic Google Earth images, NMCRIS records

SITE VISIT: n/a

RECOMMENDATIONS:

The parcel has been an in-use landfill and has been mechanically reworked. An archaeological survey conducted in 1999 (NMCRIS 66898) crossed a small portion of the property with no significant finds.

Therefore: CERTIFICATE OF NO EFFECT ISSUED-under 6-5(A) (3)(a) criterion 2 "The property has been disturbed through previous land use"

SUBMITTED BY:

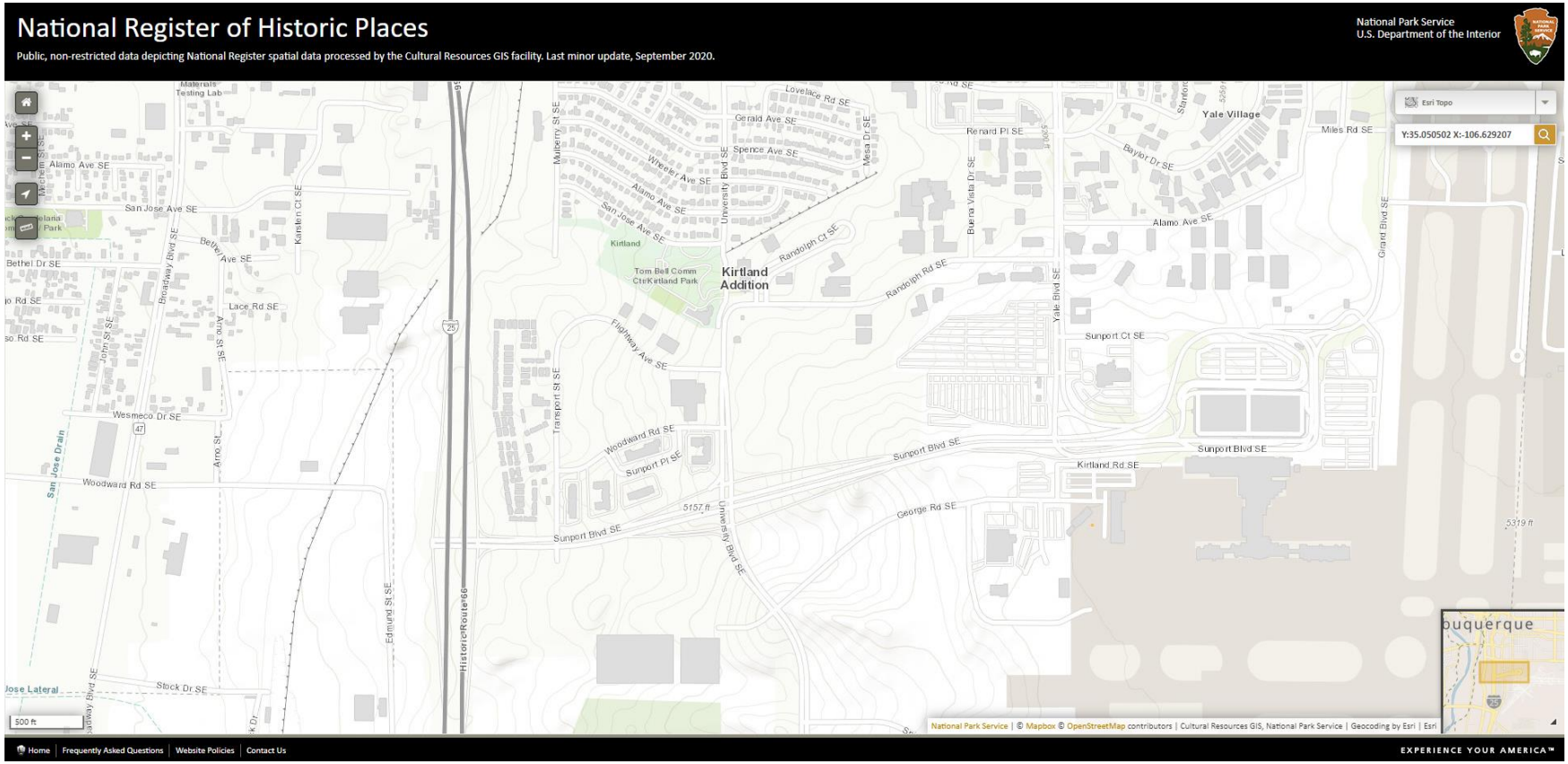
11-1-2021
Douglas H. M. Boggess, MA, RPA Date
Senior Principal Investigator
Acting City Archaeologist
Lone Mountain Archaeological Services, Inc.

SUBMITTED TO:

Planning, Development Services

NATIONAL REGISTER OF HISTORIC PLACES

Project: Sagebrush Substation Site Development



Ref#	Property Name	Status	Listed Date	NHL Designated Date	State	County	City	Street & Number	Level of Significance - Local	Level of Significance - State	Level of Significance - National	External Link
80002528	Tafoya, Domingo, House	Listed	11/17/1980		NEW MEXICO	Bernalillo	Alameda	10021 Edith Blvd., NE	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77845852
87001121	Monte Vista Fire Station	Listed	3/19/1987		NEW MEXICO	Bernalillo	Albuqerque	3201 Centra Ave. NE	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77847156
89000348	Albuquerque Municipal Airport Building, Old	Listed	5/5/1989		NEW MEXICO	Bernalillo	Albuquerque	2920 Yale Blvd. SE.	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77847174
83001614	Albuquerque Veterans Administration Medical Cente	Listed	8/19/1983		NEW MEXICO	Bernalillo	Albuquerque	2100 Ridgecrest, SE	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77847144
2001164	Aldo Leopold Neighborhood Historic District	Listed	10/16/2002		NEW MEXICO	Bernalillo	Albuquerque	105-135 Fourteenth St., SW	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77845859
84002840	Anaya, Gavino, House	Listed	2/9/1984		NEW MEXICO	Bernalillo	Albuquerque	2939 Duranes Rd., NW	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845844
82003309	Armijo, Juan Cristobal, Homestead	Listed	9/30/1982		NEW MEXICO	Bernalillo	Albuquerque	207 Griegos Rd., NE	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77845883
76001191	Armijo, Salvador, House	Listed	10/8/1976		NEW MEXICO	Bernalillo	Albuquerque	618 Rio Grande Blvd., NW	FALSE	FALSE	TRUE	https://catalog.archives.gov/id/77847050
88001540	Art Annex	Listed	9/22/1988		NEW MEXICO	Bernalillo	Albuquerque	NE corner of Central Ave. and	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845875
13000971	AT & SF Freight Office	Listed	12/24/2013		NEW MEXICO	Bernalillo	Albuquerque	314 1st St.	TRUE	FALSE	FALSE	
14000859	Atchison, Topeka and Santa Fe Railway Locomotive S	Listed	10/15/2014		NEW MEXICO	Bernalillo	Albuquerque	Roughly bounded by BNSF RF	TRUE	TRUE	FALSE	
7000388	ATSF Locomotive No. 2926	Listed	10/1/2007		NEW MEXICO	Bernalillo	Albuquerque	1600 Twelfth St. NW	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77847166
93001217	Aztec Auto Court	Listed	11/22/1993		NEW MEXICO	Bernalillo	Albuquerque	3821 Central Ave. NE.	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845901
84002843	Barela, Adrian, House	Listed	2/9/1984		NEW MEXICO	Bernalillo	Albuquerque	7618 Guadalupe Trail, NW	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845822
79001534	Barela-Bledsoe House	Listed	3/12/1979		NEW MEXICO	Bernalillo	Albuquerque	7017 Edith Blvd., NE	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845796
97000774	Barelas--South Fourth Street Historic District	Listed	7/24/1997		NEW MEXICO	Bernalillo	Albuquerque	4th St. from Stover Ave. to Br	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77845929
83001615	Bottger, Charles A., House	Listed	3/7/1983		NEW MEXICO	Bernalillo	Albuquerque	110 San Felipe, NW	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77847065
85000375	Building at 701 Roma NW	Listed	2/28/1985		NEW MEXICO	Bernalillo	Albuquerque	701 Roma, NW	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77847095
88001541	Carlisle Gymnasium	Listed	9/22/1988		NEW MEXICO	Bernalillo	Albuquerque	UNM campus W of Yale Blvd.	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845826
80002529	Carnes, Chester, House	Listed	12/1/1980		NEW MEXICO	Bernalillo	Albuquerque	701 13th St., NW	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845816
86000219	Castle Apartments	Listed	2/13/1986		NEW MEXICO	Bernalillo	Albuquerque	1410 Central SW	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77847081
84002847	Chavez, Juan de Dios, House	Listed	2/9/1984		NEW MEXICO	Bernalillo	Albuquerque	205 Griegos Rd., NW	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845840
84002849	Chavez, Juan, House	Listed	2/9/1984		NEW MEXICO	Bernalillo	Albuquerque	7809 4th St., NW	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845848
80002530	Chavez, Rumaldo, House	Listed	11/24/1980		NEW MEXICO	Bernalillo	Albuquerque	10023 Edith Blvd., NE	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77845834
100003674	Congregation B'nai Israel	Listed	5/2/2019		NEW MEXICO	Bernalillo	Albuquerque	4401 Indian School Rd.	TRUE	FALSE	FALSE	
96001383	Coronado School	Listed	11/22/1996		NEW MEXICO	Bernalillo	Albuquerque	601 4th St., SW	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77845951
93001218	Cottage Bakery	Listed	11/22/1993		NEW MEXICO	Bernalillo	Albuquerque	2000 Central Ave. SE.	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845921
80002531	Davis House	Listed	11/17/1980		NEW MEXICO	Bernalillo	Albuquerque	704 Parkland Circle, SE	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77847061
4000375	De Anza Motor Lodge	Listed	4/30/2004		NEW MEXICO	Bernalillo	Albuquerque	4301 Central Ave. NE	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77845925
79001535	De Garcia, Tomasa Griego, House	Listed	6/19/1979		NEW MEXICO	Bernalillo	Albuquerque	6939 Edith Blvd., NE	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77845798
84002852	Dietz, Robert, Farmhouse	Listed	2/9/1984		NEW MEXICO	Bernalillo	Albuquerque	4117 Rio Grande Blvd., NW	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845850
80002532	Eighth Street-Forrester District	Listed	12/1/1980		NEW MEXICO	Bernalillo	Albuquerque	Roughly bounded by Mounta	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845861
93001465	El Campo Tourist Courts	Listed	1/13/1994		NEW MEXICO	Bernalillo	Albuquerque	5800 Central Ave. SW	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845905
93001214	El Vado Auto Court	Listed	11/22/1993		NEW MEXICO	Bernalillo	Albuquerque	2500 Central Ave. SW.	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845913
84002855	Eller Apartments	Listed	1/12/1984		NEW MEXICO	Bernalillo	Albuquerque	113-127 8th St., SW	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77847079
82003310	Employees' New Dormitory and Club	Listed	7/26/1982		NEW MEXICO	Bernalillo	Albuquerque	Albuquerque Indian School C	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77847136
97001595	Enchanted Mesa Trading Post	Listed	1/9/1998		NEW MEXICO	Bernalillo	Albuquerque	9612 Central Ave. SE.	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845917
88001542	Estufa	Listed	9/22/1988		NEW MEXICO	Bernalillo	Albuquerque	SE corner of University Blvd. a	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845830
80002533	Federal Building	Listed	11/22/1980		NEW MEXICO	Bernalillo	Albuquerque	421 Gold Ave., SW	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77847146
76001192	First Methodist Episcopal Church	Listed	11/7/1976		NEW MEXICO	Bernalillo	Albuquerque	3rd St. and Lead Ave.	FALSE	FALSE	TRUE	https://catalog.archives.gov/id/77847073
79003127	First National Bank Building	Listed	2/2/1979		NEW MEXICO	Bernalillo	Albuquerque	217-233 Central Ave., NW	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77847102
84002858	Foraker, C. M., Farmhouse	Listed	2/9/1984		NEW MEXICO	Bernalillo	Albuquerque	905 Menaul Blvd., NW	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845879
80002534	Fourth Ward District	Listed	12/1/1980		NEW MEXICO	Bernalillo	Albuquerque	Roughly bounded by Central	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845865
82003311	Garcia, Juan Antonio, House	Listed	9/28/1982		NEW MEXICO	Bernalillo	Albuquerque	7442 Edith Blvd., NE	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77845838
80002535	Gladding, James N., House	Listed	11/17/1980		NEW MEXICO	Bernalillo	Albuquerque	643 Cedar St., NE	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77847118
84002864	Gomez, Refugio, House	Listed	2/9/1984		NEW MEXICO	Bernalillo	Albuquerque	7604 Guadalupe Trail, NW	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845842
84002866	Grande, Charles, House	Listed	2/9/1984		NEW MEXICO	Bernalillo	Albuquerque	4317 Grande St., NW	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845806
80002536	Gurule, Delfinia, House	Listed	12/1/1980		NEW MEXICO	Bernalillo	Albuquerque	306 16th St., NW	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845818
80002537	Harwood School	Listed	12/1/1980		NEW MEXICO	Bernalillo	Albuquerque	1114 7th St., NW	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845873
80002538	Hayden, A. W., House	Listed	12/1/1980		NEW MEXICO	Bernalillo	Albuquerque	609 Marble St., NW	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845804
99001678	Hendren Building	Listed	1/27/2000		NEW MEXICO	Bernalillo	Albuquerque	3001 Monte Vista Blvd. NE	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77845927
97001597	Hilltop Lodge	Listed	1/9/1998		NEW MEXICO	Bernalillo	Albuquerque	5410 Central Ave. SW.	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845909
100004492	Hoffmantown Baptist Church	Listed	10/25/2019		NEW MEXICO	Bernalillo	Albuquerque	2335 Wyoming Blvd. NE	TRUE	FALSE	FALSE	
80002539	Hope Building	Listed	8/29/1980		NEW MEXICO	Bernalillo	Albuquerque	220 Gold St., SW	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77847093
15000491	Hubbell, James Lawrence and Juliana Gutierrez y Cha	Listed	8/3/2015		NEW MEXICO	Bernalillo	Albuquerque	6029 Isleta Blvd. SW.	FALSE	TRUE	FALSE	
82003313	Hudson House	Listed	2/24/1982		NEW MEXICO	Bernalillo	Albuquerque	817 Gold Ave., SW	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77847089
6000633	Huning Highlands Conoco Service Station	Listed	7/19/2006		NEW MEXICO	Bernalillo	Albuquerque	601 Coal Ave. SE	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77845923
78001804	Huning Highlands Historic District	Listed	11/17/1978		NEW MEXICO	Bernalillo	Albuquerque	Bounded by Grand Ave., I-25,	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77847116
11000032	Immanuel Presbyterian Church	Listed	2/22/2011		NEW MEXICO	Bernalillo	Albuquerque	114 Carlisle Boulevard SE	FALSE	FALSE	FALSE	https://catalog.archives.gov/id/77845933
93001219	Jones Motor Company	Listed	11/22/1993		NEW MEXICO	Bernalillo	Albuquerque	3226 Central Ave. SE.	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845897
2000050	Jonson Gallery and House	Listed	2/22/2002		NEW MEXICO	Bernalillo	Albuquerque	1909 Las Lomas Rd. NE	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77847158
77000920	Kimo Theater	Listed	5/2/1977		NEW MEXICO	Bernalillo	Albuquerque	421 Central Ave.	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77847083
84002871	Kress, S. H., Building	Listed	4/19/1984		NEW MEXICO	Bernalillo	Albuquerque	414--416 Central Ave., SW	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77847110
82001048	Kromer House	Listed	10/4/1982		NEW MEXICO	Bernalillo	Albuquerque	1024 El Pueblo Rd., NW	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77845881
83001616	La Glorieta House	Listed	8/19/1983		NEW MEXICO	Bernalillo	Albuquerque	1801 Central Ave., NW	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845947
93001220	La Mesa Motel	Listed	11/22/1993		NEW MEXICO	Bernalillo	Albuquerque	7407 Central Ave. NE.	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845915
97001596	La Puerta Lodge	Listed	1/9/1998		NEW MEXICO	Bernalillo	Albuquerque	9710 Central Ave. SE.	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845907
86003142	Las Imagines Archeological District--Albuquerque We	Listed	11/19/1986		NEW MEXICO	Bernalillo	Albuquerque	Address Restricted	FALSE	FALSE	TRUE	

80002540	LeFeber, Charles, House	Listed	12/1/1980		NEW MEXICO	Bernalillo	Albuquerque	313 5th St.	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845846
80002541	Lembke House	Listed	11/25/1980		NEW MEXICO	Bernalillo	Albuquerque	312 Laguna St., SW	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77847067
86000221	Leverett, William J., House	Listed	2/13/1986		NEW MEXICO	Bernalillo	Albuquerque	301 Dartmouth NE	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77847120
79001533	Lewis, Charles W. Building	Listed	7/3/1979		NEW MEXICO	Bernalillo	Albuquerque	1405--1407 2nd St., SW	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77847075
80002542	Lopez, Hilario, House	Listed	12/1/1980		NEW MEXICO	Bernalillo	Albuquerque	208 16th St., NW	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845820
84002844	Los Candelarias Chapel-San Antonio Chapel	Listed	2/9/1984		NEW MEXICO	Bernalillo	Albuquerque	1934 Candelaria Rd., NW	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845887
84002854	Los Duranes Chapel	Listed	2/9/1984		NEW MEXICO	Bernalillo	Albuquerque	2601 Indian School Rd., NW	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845854
84002874	Los Griegos Historic District	Listed	2/9/1984		NEW MEXICO	Bernalillo	Albuquerque	Griegos Rd. and Rio Grande B	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845877
84002876	Los Tomases Chapel	Listed	2/9/1984		NEW MEXICO	Bernalillo	Albuquerque	3101 Los Tomases, NW	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845943
84002880	Lucero y Montoya, Francisco, House	Listed	2/9/1984		NEW MEXICO	Bernalillo	Albuquerque	9742 4th St., NW	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845810
98000600	Luna Lodge	Listed	6/11/1998		NEW MEXICO	Bernalillo	Albuquerque	9019 Central Ave. NE	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845911
100003217	Main Library	Listed	6/13/2019		NEW MEXICO	Bernalillo	Albuquerque	501 Copper Ave. NW	FALSE	TRUE	FALSE	
93001215	Maisel's Indian Trading Post	Listed	11/22/1993		NEW MEXICO	Bernalillo	Albuquerque	510 Central Ave. SW.	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845893
80002543	Mann, Henry, House	Listed	12/1/1980		NEW MEXICO	Bernalillo	Albuquerque	723 14th St., NW	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845828
3001234	Manzano Court Addition Historic District	Listed	10/14/2004		NEW MEXICO	Bernalillo	Albuquerque	1000-1025 Manzano Court N	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77845867
82003314	McCanna-Hubbell Building	Listed	5/13/1982		NEW MEXICO	Bernalillo	Albuquerque	418--424 Central, SW	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77847108
83001617	Menaul School Historic District	Listed	2/14/1983		NEW MEXICO	Bernalillo	Albuquerque	Roughly bounded by Broadw	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845937
86000223	Milne, John, House	Listed	2/13/1986		NEW MEXICO	Bernalillo	Albuquerque	804 Park Ave. SW	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77847160
93001221	Modern Auto Court	Listed	11/22/1993		NEW MEXICO	Bernalillo	Albuquerque	3712 Central Ave. SE.	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845903
1000770	Monte Vista and College View Historic District	Listed	8/3/2001		NEW MEXICO	Bernalillo	Albuquerque	Roughly bounded by Girard a	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77845863
81000399	Monte Vista School	Listed	8/12/1981		NEW MEXICO	Bernalillo	Albuquerque	3211 Monte Vista Blvd., NE	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77847130
86003120	National Humane Alliance Animal Fountain	Listed	9/30/1986		NEW MEXICO	Bernalillo	Albuquerque	615 Virginia Ave. SE	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77847172
6000151	New Mexico Madonna of the Trail	Listed	3/21/2006		NEW MEXICO	Bernalillo	Albuquerque	Jct. of Marble Ave. and 4th St	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845939
81000400	New Mexico-Arizona Wool Warehouse	Listed	7/23/1981		NEW MEXICO	Bernalillo	Albuquerque	520 1st St., NW	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77847106
99001677	Newlander Apartments	Listed	1/27/2000		NEW MEXICO	Bernalillo	Albuquerque	616 Coal Ave.	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77845889
84004143	Nob Hill Business Center	Listed	3/18/1994		NEW MEXICO	Bernalillo	Albuquerque	3500 Central Ave. SE	FALSE	FALSE	FALSE	https://catalog.archives.gov/id/77847087
84002883	Nordhaus, Robert, House	Listed	2/9/1984		NEW MEXICO	Bernalillo	Albuquerque	6900 Rio Grande Blvd., NW	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845836
78001805	Occidental Life Building	Listed	1/30/1978		NEW MEXICO	Bernalillo	Albuquerque	119 3rd Ave., SW	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77847100
82003315	Old Armijo School	Listed	9/16/1982		NEW MEXICO	Bernalillo	Albuquerque	1021 Isleta Blvd., SE	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77847134
84002868	Old Hilton Hotel	Listed	3/2/1984		NEW MEXICO	Bernalillo	Albuquerque	125 2nd St., NW	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77847152
80002544	Old Post Office	Listed	11/17/1980		NEW MEXICO	Bernalillo	Albuquerque	123 4th St.	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77847148
79003442	O'Rielly, J. H., House	Listed	1/29/1979		NEW MEXICO	Bernalillo	Albuquerque	220 9th St., NW	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77847069
84002884	Our Lady of Mt. Carmel Church	Listed	2/9/1984		NEW MEXICO	Bernalillo	Albuquerque	7813 Edith Blvd., NE	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845941
84000426	Our Lady of the Angels School	Listed	11/29/1984		NEW MEXICO	Bernalillo	Albuquerque	320 Romero St., NW	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77847128
80002545	Pacific Desk Building	Listed	9/30/1980		NEW MEXICO	Bernalillo	Albuquerque	213-215 Gold Ave., SW	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77847077
100004034	Parkland Hills Historic District	Listed	6/7/2019		NEW MEXICO	Bernalillo	Albuquerque	Roughly bounded by Zuni Rd.	TRUE	FALSE	FALSE	
80002546	Pearce, John, House	Listed	11/22/1980		NEW MEXICO	Bernalillo	Albuquerque	718 Central Ave., SW	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77847059
1000279	Petroglyph National Monument	Listed	6/27/1990		NEW MEXICO	Bernalillo	Albuquerque	6001 Unser Blvd. NW	FALSE	FALSE	FALSE	
90000160	Piedras Marcadas Pueblo (LA 290)	Listed	3/2/1990		NEW MEXICO	Bernalillo	Albuquerque	Address Restricted	FALSE	TRUE	FALSE	
93001222	Pig 'n Calf Lunch	Listed	2/15/1994		NEW MEXICO	Bernalillo	Albuquerque	2106 Central Ave. SE.	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845899
88001543	President's House	Listed	9/22/1988		NEW MEXICO	Bernalillo	Albuquerque	NE corner of Roma Ave. and '	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845832
97001103	Pyle, Ernie, House	Listed	9/22/1997	9/20/2006	NEW MEXICO	Bernalillo	Albuquerque	900 Girard Blvd., SE	FALSE	FALSE	TRUE	https://catalog.archives.gov/id/77846976
77000921	Rancho de Carnue Site	Listed	5/4/1977		NEW MEXICO	Bernalillo	Albuquerque	Address Restricted	FALSE	FALSE	TRUE	
88001544	Raynolds, Sara, Hall	Listed	9/22/1988		NEW MEXICO	Bernalillo	Albuquerque	UNM campus on Terrace St. r	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845814
97000735	Rio Puerco Bridge	Listed	7/15/1997		NEW MEXICO	Bernalillo	Albuquerque	I-40 over the Rio Puerco	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845957
84002885	Romero, Felipe, House	Listed	2/9/1984		NEW MEXICO	Bernalillo	Albuquerque	7522 Edith Blvd., NE	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845800
96001384	Roosevelt Park	Listed	11/22/1996		NEW MEXICO	Bernalillo	Albuquerque	Jct. of Coal and Spruce Aves.,	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77845953
78001806	Rosenwald Building	Listed	6/29/1978		NEW MEXICO	Bernalillo	Albuquerque	320 Central Ave., SW	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77847091
97001396	Route 66, State maintained from Albuquerque to Rio	Listed	11/19/1997		NEW MEXICO	Bernalillo	Albuquerque	Rte. 66. West Central exit at I	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845955
82003316	Saint Joseph 1930 Hospital	Listed	5/27/1982		NEW MEXICO	Bernalillo	Albuquerque	715 Grand, NE	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77847154
69000140	San Felipe de Neri Church	Listed	10/1/1969		NEW MEXICO	Bernalillo	Albuquerque	Old Town Plaza, NW	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77847170
79001536	San Ignacio Church	Listed	8/21/1979		NEW MEXICO	Bernalillo	Albuquerque	1300 Walter St., NE	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77847126
89001590	Santa Barbara School	Listed	9/28/1989		NEW MEXICO	Bernalillo	Albuquerque	1420 Edith Blvd., NE.	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77847162
88001545	Scholes Hall	Listed	9/22/1988		NEW MEXICO	Bernalillo	Albuquerque	UNM campus S of Roma Ave.	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845824
84000563	Second United Presbyterian Church	Listed	12/6/1984		NEW MEXICO	Bernalillo	Albuquerque	812 Edith Blvd., NE	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77847150
84002888	Shalit, Samuel, House	Listed	2/9/1984		NEW MEXICO	Bernalillo	Albuquerque	5209 4th St., NW	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845808
83001618	Shoup Boardinghouse	Listed	2/17/1983		NEW MEXICO	Bernalillo	Albuquerque	707 1st St., SW	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77847097
86002414	Silver Hill Historic District	Listed	9/18/1986		NEW MEXICO	Bernalillo	Albuquerque	Roughly bounded by Central .	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77847142
97001653	Simms Building	Listed	2/2/1998		NEW MEXICO	Bernalillo	Albuquerque	400 Gold Ave. SW	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77847063
80004485	Skinner Building	Listed	11/22/1980		NEW MEXICO	Bernalillo	Albuquerque	722--724 Central Ave. and 10	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77847085
89001589	Solar Building	Listed	10/10/1989		NEW MEXICO	Bernalillo	Albuquerque	213 Truman St., NE.	FALSE	FALSE	TRUE	https://catalog.archives.gov/id/77847164
4000252	Southern Union Gas Company Building	Listed	3/31/2004		NEW MEXICO	Bernalillo	Albuquerque	723 Silver Ave. SW	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77845812
78001807	Southwestern Brewery and Ice Company	Listed	3/30/1978		NEW MEXICO	Bernalillo	Albuquerque	601 Commercial St., NE	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77847112
77000922	Spitz, Berthold, House	Listed	12/22/1977		NEW MEXICO	Bernalillo	Albuquerque	323 N. 10th St.	FALSE	FALSE	TRUE	https://catalog.archives.gov/id/77845857
80002547	Springer Building	Listed	11/18/1980		NEW MEXICO	Bernalillo	Albuquerque	121 Tijeras Ave., NE	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77847104
82003317	Spruce Park Historic District	Listed	7/6/1982		NEW MEXICO	Bernalillo	Albuquerque	Roughly bounded by Universi	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77847122
100003029	St. John's Cathedral	Listed	10/19/2018		NEW MEXICO	Bernalillo	Albuquerque	318 Silver Ave.	TRUE	FALSE	FALSE	
78001808	Superintendent's House, Atlantic & Pacific Railroad	Listed	1/20/1978		NEW MEXICO	Bernalillo	Albuquerque	1023 S. 2nd St.	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77847140
98000599	Tewa Lodge	Listed	6/11/1998		NEW MEXICO	Bernalillo	Albuquerque	5715 Central Ave. NE	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845919
93001216	Tower Courts	Listed	11/22/1993		NEW MEXICO	Bernalillo	Albuquerque	2210 Central Ave. SW.	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845895
78001809	Vigil, Antonio, House	Listed	5/5/1978		NEW MEXICO	Bernalillo	Albuquerque	413 Romero St.	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77847114

82003319	Washington Apartments	Listed	2/19/1982	NEW MEXICO	Bernalillo	Albuquerque	1002--1008 Central Ave., SW	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77847071
82003320	Werner-Gilchrist House	Listed	8/2/1982	NEW MEXICO	Bernalillo	Albuquerque	202 Cornell, SE	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77847138
96001385	West San Jose School	Listed	11/22/1996	NEW MEXICO	Bernalillo	Albuquerque	1701 4th St., SW	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77845949
5000942	Willis, J.R., House and La Miradora Apartments	Listed	9/1/2005	NEW MEXICO	Bernalillo	Albuquerque	310 Rio Grande Blvd., SE	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77845935
84002889	Zeiger, Charles, House	Listed	4/27/1984	NEW MEXICO	Bernalillo	Albuquerque	3200 Edith Blvd., NE	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77845802
16000549	Zimmerman Library	Listed	8/22/2016	NEW MEXICO	Bernalillo	Albuquerque	1900 Roma Ave., NE.	FALSE	TRUE	FALSE	
78001803	Hodgin Hall	Listed	1/30/1978	NEW MEXICO	Bernalillo	Albuquerque Mount	University of New Mexico ca	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77847132
75001162	Isleta Pueblo	Listed	9/5/1975	NEW MEXICO	Bernalillo	Isleta	U.S. 85	FALSE	FALSE	TRUE	https://catalog.archives.gov/id/77847053
82003321	Los Poblanos Historic District	Listed	5/27/1982	NEW MEXICO	Bernalillo	Los Ranchos	NM 194	FALSE	FALSE	TRUE	https://catalog.archives.gov/id/77845794
96001607	San Antonito Church and Cemetery	Listed	1/16/1997	NEW MEXICO	Bernalillo	San Antonito	Jct. of NM 14 and NM 536, N	TRUE	FALSE	FALSE	https://catalog.archives.gov/id/77845945
78001810	Holy Child Church	Listed	3/8/1978	NEW MEXICO	Bernalillo	Tijeras	Off I-40	FALSE	TRUE	FALSE	https://catalog.archives.gov/id/77847124
5001294	Tijeras Pueblo Archeological Site	Listed	11/17/2005	NEW MEXICO	Bernalillo	Tijeras	Address Restricted	FALSE	FALSE	TRUE	
100004498	Whitcomb Springs	Listed	10/7/2019	NEW MEXICO	Bernalillo	Tijeras	82 Carlito Springs Rd.	TRUE	FALSE	FALSE	

STORWMATER POLLUTION PREVENTION QUALIFICATION LIST

Project: Sagebrush Substation Site Development

Project Location: University Blvd. SE & Flightway Ave., Albuquerque, NM 87106

Inspector Contact Information: (505) 867-4040, info@e2rc.com

List of certified Inspectors for the project.

NAME	CERTIFICATION	EXPIRATION DATE
Kelley V. Fetter, P.E. **President**	CPSWQ #0682 NM P.E. #13450 CPMSM #356 CISEC #0721 NMDOT Seeding Certification No.: 0400	March 2, 2021 December 31, 2022 January 1, 2021 June 30, 2021 December 31, 2024
Sydney Fetter **VP of Compliance**	CISEC #1763	June 30, 2022
Ryan Higdon **Sr. NPDES Inspector**	CISEC #2531	October 31, 2022
Pedro Calabaza **Foreman**	ACNM – TTCP No.: 228959 NMDOT Seeding Certification No.: 0269	October 18, 2022 December 31, 2024
Ray Welton, Jr. **NPDES Inspector**	StormwaterONE No.: a2aa31a9	March 20, 2024
Jessie Gilliam, Jr. **NPDES Inspector**	ANCM – TTCP No.: 234019	June 25, 2025
Carlos Flores **Construction Manager**	CISEC #2529	October 31, 2022

State of New Mexico

The New Mexico Board of Licensure for

Professional Engineers & Professional Surveyors

Santa Fe, New Mexico

This is certify that

Kelley Vincent Fetter License No.: 13450

Having given evidence of the necessary qualification, as required by Sections 61-23-1 through 61-23-33 NMSA (1978), has been duly licensed and is hereby authorized to practice in the State of New Mexico as a

Professional Engineer

Issue Date: **02/12/1997** *Expiration Date:* **12/31/2022**

THIS CERTIFICATE IS FOR DISPLAY PURPOSES ONLY.

The CPSWQ® Application Review Committee
certifies that

Kelley Vincent Fetter

Subscribes to the Code of Conduct and Ethics and has met the requirements established by the CPSWQ Council as a

Certified Professional in Storm Water Quality™

An EnviroCert International, Inc. Program

Certification Number: 0682

Certification Date: March 2, 2011

Chair, CPSWQ Council

Executive Director, EnviroCert International, Inc.

The CPSWQ Program was established in 1995.

EnviroCert International, Inc.®

certifies that

Kelley Vincent Fetter

Subscribes to the Code of Ethics and Professional Conduct and has met the requirements established for the CPMSM™ Program as a

Certified Professional in Municipal Stormwater Management™

CPMSM™ Number: 356

Certificate Date: January 8, 2016

Alan Black, Director, Technical Committee Chair

Robert Anderson, EnviroCert Board President

The CPMSM™ Certification was established in 2010
(Previously CMS4S™)

ENVIROCERT International, Inc.

Kelley Fetter

CPSWQ

Certified Professional in
StormWater Quality

682	2021-03-02
CERTIFICATION NO.	EXPIRES

ENVIROCERT International, Inc.

Kelley Fetter

CPMSM

Certified Professional in Municipal
Stormwater Management

356	2021-01-08
CERTIFICATION NO.	EXPIRES

CISEC, Inc.

Board of Directors

certifies that

Kelley V. Fetter

has demonstrated satisfactory evidence of sediment and erosion control inspection skills and successfully passed the certification examination and therefore, as required by CISEC, Inc., is authorized to use the title of

Certified Inspector of Sediment and Erosion Control

Given this 10th day of June 2011

CISEC, Inc. President

CISEC, Inc. Board of Director

0721

Certification Number

CISEC, Inc.
P.O. Box 188
Parker, CO 80134
Ph: (720) 235-2783
Fax: 303-841-6383
E-mail: contactus@cisecinc.org

CISEC, Inc. Wallet Card

Order Date: Kelley Fetter

Below is your wallet card.

Please print this card and keep it in your wallet or your files.

CISEC, Inc.
Board of Directors certifies that

Kelley Fetter

has demonstrated satisfactory evidence of sediment and erosion control inspection skills and successfully passed the certification examination and therefore, as required by CISEC, Inc., is authorized to use the title of

Certified Inspector of Sediment and Erosion Control

0721	Brandan Cusick	*June 30, 2021*
CISEC #	***CISEC, Inc. President***	***Expiration Date***

As a CISEC Registrant, I agree to the following:

- At all times, strictly abide by the CISEC, Inc. Code of Ethics,
- Perform all services in a professional manner and uphold professional standards in relating to the public, to other CISEC, Inc. registrants and to other professionals within the industry,
- Earn at least 12 CDH's each year after becoming a CISEC registrant and
- Pay CISEC, Inc. annual renewal fees.

Signature (required)

CISEC, Inc.
P.O. Box 188
Parker, CO 80134
720-235-2783
www.cisecinc.org

U.S. Department of Transportation
Federal Highway Administration

New Mexico DEPARTMENT OF TRANSPORTATION

TECHNICIAN TRAINING AND CERTIFICATION PROGRAM

Certification For

Seeding Inspection

This is to signify that

Kelley V. Fetter

has received detailed training and demonstrated proficiency in the areas of
NMDOT Specifications for ***Section 632 – Revegetation***

Effective Date: **March 8, 2021** **PDH: 4**
Expiration Date: **December 31, 2024**

Evaluator Evaluator Evaluator Evaluator

Approved by:

State Materials Engineer **State Landscape Architect**

TTCP No.: 231973
Certification No.: 0400

CISEC, Inc.

Board of Directors

certifies that

Sydney Fetter

has demonstrated satisfactory evidence of sediment and erosion control inspection skills and successfully passed the certification examination and therefore, as required by CISEC, Inc., is authorized to use the title of

Certified Inspector of Sediment and Erosion Control

Given this 19th day of November, 2015

Tina L. Willis

CISEC, Inc. President

CISEC, Inc. Board of Director

1763

Certification Number

CISEC, Inc.

Board of Directors

certifies that

Ryan Higdon

has demonstrated satisfactory evidence of sediment and erosion control inspection skills and successfully passed the certification examination and therefore, as required by CISEC, Inc., is authorized to use the title of

Certified Inspector of Sediment and Erosion Control

Given this 4th day of October, 2018

Yolanda Teel

CISEC, Inc. President

CISEC, Inc. Vice President

CISEC 2531

Certification Number

Associated Contractor of New Mexico

This Certificate of Completion acknowledges that

Pedro C. Calabaz

Has satisfactorily completed training in

STORM WATER QUALIFIED PERSON

Including US EPA 2017 Construction General Permit

ACNM Instructor

ACNM Director of Training and Safety

ACNM Executive Director

Effective Date: October 18, 2018
Expiration Date: October 18, 2022
Hours Instruction (PDH): 8
ACNM No.: 228959
Certificate No.: 0377

Associated Contractors of New Mexico – 6135 Edith Blvd. NE Albuquerque, NM 87107 – 505-344-2072 – aconm.org
An Equal Employment Opportunity Program

Associated Contractors of New Mexico
This card certifies the bearer has completed training on NPDES for
Storm Water Qualified Person
PEDRO C. CALABAZA
ACNM No.: 228959
Effective Date: 10/18/2018
Expiration Date: 10/18/2022
Authorized Instructor
Jonathon Wesson-221053
ACNM - 6135 Edith Blvd. NE - Albuquerque, NM 87107 - 505-344-2072 - aconm.org
2018

U.S. Department of Transportation
Federal Highway Administration

New Mexico DEPARTMENT OF TRANSPORTATION

TECHNICIAN TRAINING AND CERTIFICATION PROGRAM

Certification For

Seeding Inspection

This is to signify that

Pedro Calabaza

has received detailed training and demonstrated proficiency in the areas of
NMDOT Specifications for ***Section 632 – Revegetation***

Effective Date: **December 17, 2021**
Expiration Date: **December 31, 2024**

PDH: 4

Evaluator | Evaluator | Evaluator | Evaluator

Approved by:

State Materials Engineer | **State Landscape Architect**

TTCP No.: 228959
Certification No. 0463

CISEC, Inc.

Board of Directors

certifies that

Carlos Flores

has demonstrated satisfactory evidence of sediment and erosion control inspection skills and successfully passed the certification examination and therefore, as required by CISEC, Inc., is authorized to use the title of

Certified Inspector of Sediment and Erosion Control

Given this 4th day of October, 2018

Yolanda Leal

CISEC, Inc.- President

CISEC, Inc. Vice President

CISEC 2529

Certification Number

StormwaterONE

Certifies that

Raymond Welton, Jr.

has successfully completed the required courses of study and is recognized as a

Qualified Compliance Inspector of Stormwater (QCIS) Recert (2022)

Completion Date	03/21/2022
Expiration Date	03/20/2024
Certification Number	a2aa31a9

PDHs: 6

Andrew Demers

Andrew Demers, President

Associated Contractors of New Mexico

This Certificate of Completion acknowledges that

Jessie Gilliam

Has satisfactorily completed training in

STORM WATER

Including US EPA 2017 Construction General Permit

ACNM Instructor

ACNM Director of Training and Safety

ACNM Executive Director

Effective Date: June 25, 2021
Expiration Date: June 25, 2025
Hours Instruction (PDH): 8
ACNM No.: 234019

Associated Contractors of New Mexico – 6135 Edith Blvd. NE Albuquerque, NM 87107 – 505-344-2072 – aconm.org

U.S. Department of Transportation

Federal Highway Administration

New Mexico DEPARTMENT OF TRANSPORTATION

TECHNICIAN TRAINING AND CERTIFICATION PROGRAM

Certification For

Seeding Inspection

This is to signify that

Durwin Nelson

has received detailed training and demonstrated proficiency in the areas of NMDOT Specifications for ***Section 632 – Revegetation***

Effective Date: **December 17, 2021**

Expiration Date: **December 31, 2024**

PDH: 4

Evaluator | Evaluator | Evaluator | Evaluator

Approved by:

State Materials Engineer

State Landscape Architect

TTCP No.: 234286

Certification No. 0462

2022 CONSTRUCTION GENERAL PERMIT

In accordance with Part 7.2.11.c, a copy of the 2022 CGP is available electronically on the USB device that was delivered with this hardcopy SWPPP. The document is excluded from the hardcopy due to its length.

The 2022 CGP and appendices are also available on the EPA's website at:

https://www.epa.gov/npdes/2022-construction-general-permit-cgp#2022cgp