Storm Water Pollution Prevention Plan

For:

LOE Investments LLC

1800 Randolph Road SE
Albuquerque, NM 84106
Google Earth Coordinates: 35.052404, -106.626367
Project Telephone Number: 951-712-1394

SWPPP Prepared For:

Eastley Inc.
Matt Wagoner
Project Manager
23811 Washington Avenue C-110132
Murrieta, CA 92562
951-712-1394
matt@eastleyinc.com

SWPPP Prepared By:

Inspections Plus
504 El Paraiso Road NE, Suite B
Albuquerque, New Mexico 87113
505-344-9410
bookkeeping@inspectionsplus.com

SWPPP Preparation Date:

07/19/2023

Estimated Project Dates:

Start Date: 09/01/2023

End Date: 08/31/2024

TABLE OF CONTENTS

SECTION 1: CONTACT INFORMATION/RESPONSIBLE PARTIES

1.1 Operator(s)/Subcontractor(s)

All operators are required to put together a storm water team and list their individual responsibilities.

Operator(s):

Eastley Inc.

Matt Wagoner

Project Manager

23811 Washington Avenue C-110132

Murrieta, CA 92562

951-712-1394

matt@eastleyinc.com

Emergency 24-Hour Contact:

Eastley Inc.

Matt Wagoner

951-712-1394

1.2 Storm Water Team

All operators are required to put together a storm water team and list their individual responsibilities.

Owner:

LOE Investments LLC

Matt Wagoner

Owner Representive

951-712-1394

matt@eastleyinc.com

Responsibility: Oversees project development.

Operator:

Eastley Inc.

Matt Wagoner

Project Manager

951-712-1394

matt@eastleyinc.com

Responsibility: Oversees the completion and management of: Construction, BMP installation and maintenance, site stabilization measures, spill response, inspections, and action items getting completed and marked off.

Eastley Inc.

Matt Wagoner

Project Manager

951-712-1394

matt@eastleyinc.com

Responsibility: Installs & maintains stormwater & allowable non-stormwater BMPs

SWPPP Inspector

A qualified inspector from Inspections Plus, LLC

Inspections Plus

505-344-9410

Responsibility: Conducts stormwater inspections

SWPPP Preparation:

Compliance Specialists from Inspections Plus, LLC

505-797-4245

Responsibility: Prepares SWPPP documents

SECTION 2: SITE EVALUATION, ASSESSMENT, AND PLANNING

2.1 Construction Site Estimates

The following are size estimates of the LOE Randolph LLC site:

Total project area	1.35 Acres
Construction site area to be disturbed	1.35 Acres
Maximum site area* to be disturbed at any one time	1.35 Acres

2.2 Nature and Sequence of Construction Activity

Nature of Construction: Eastley Inc. is constructing a commercial building in Albuquerque, NM. Storm water will flow to a retention basin and to the Albuquerque storm water system via the concrete lined drainage ditch that runs along the west side of the site.

Development for a commercial project: Grading, excavation, installation of utilities, curbs & gutters, sidewalks, retention ponds and asphalt paving to be done by Eastley Inc..

Vertical construction for a commercial project: Grading, excavation for foundation, connecting utilities, vertical construction of a commercial building, construction of parking lot, and landscaping for final stabilization to be done by Eastley Inc.

A NOI permit is required for the site because more than an acre will be disturbed, or the site is part of a common plan of development.

BMPs for all the above activities will be applied to the site when necessary and monitored by the on-site inspector. Additional BMPs will be added if needed.

Off-Site Construction Support Activities

Are there any off-site construction support activities for this project: ☐ Yes ☒ No

On-Site Construction Support Activities

Are there any on-site construction support activities for this project (i.e., equipment storage areas): ☐ Yes ☒ No

Typical site business days and times

☒ Monday	Time: 7:00am-5:00pm	☒ Friday	Time: 7:00am-5:00pm
☒ Tuesday	Time: 7:00am-5:00pm	☐ Saturday	Time:
☒ Wednesday	Time: 7:00am-5:00pm	☐ Sunday	Time:
☒ Thursday	Time: 7:00am-5:00pm		

Is the project located in Indian country lands, or on a property of religious or cultural significance to an Indian Tribe? ☐ Yes ☒ No

If yes, provide the name of the Indian Tribe associated with the area of Indian country, or if not in Indian country, provide the name of the Indian Tribe associated with the property:

Not Applicable

Is this project considered a federal facility? ☐ Yes ☒ No

Is the project in response to a public emergency? ☐ Yes ☒ No

If yes, provide the cause of the public emergency, information substantiating its occurrence, and a description of the construction necessary to reestablish affected public services:

Not Applicable

2.3 Phase/Sequence of Construction Activity

General Schedule of Construction Activities

Please refer to the inspections and the maps for details of current construction activities.

LOE Randolph LLC

Stage I - Site Preparations: Perimeter Boundary Sediment Controls Installed

- BMPs associated with this stage: Perimeter control(s): Silt fence and cutback curb/sidewalk (See SWPPP map in Appendix A for BMP locations)
- Stabilization methods for this stage: Any areas of exposed soil on site that are suspended from earth-disturbing activities, and will be undisturbed for more than fourteen days, to be temporarily stabilized within fourteen days with mulch or temporary seeding (alternative methods include, but are not limited to geotextiles, hydromulch, erosion control blankets, surface covers). Please refer to Section 5.1.12 for temporary stabilization.
- Estimated Start and End Dates for Stage I: 09/2023

Stage II - Clearing, Grading, and Excavation to Prepare for Construction Activities.

- BMPs associated with this stage: Perimeter controls, pond, dust controls, track out controls, stockpiles, topsoil controls, soil compaction, and waste controls. (See SWPPP map in Appendix A for BMP locations)
- Stabilization methods for this stage: Any areas of exposed soil on site that are suspended from earth-disturbing activities, will be undisturbed for more than fourteen days, to be temporarily stabilized within fourteen days with mulch or temporary seeding (alternative methods include, but are not limited to geotextiles, hydromulch, erosion control blankets, surface covers). Please refer to Section 5.1.12 for temporary stabilization.
- Estimated Start and End Dates for Stage II: 09/2023 - 12/2023

Stage III - Development – Installation of Utilities, Curbs, Gutters, Sidewalks, and Parking Lots

- BMPs associated with this stage: All previous controls will remain in place. Concrete washout and material storage controls will be used as necessary. (See SWPPP map in Appendix A for BMP locations)
- Stabilization methods for this stage: Any areas of exposed soil on site that are suspended from earth-disturbing activities, will be undisturbed for more than fourteen days, to be temporarily stabilized within fourteen days with mulch or temporary seeding (alternative methods include, but are not limited to geotextiles, hydromulch, erosion control blankets, surface covers). Please refer to Section 5.1.12 for temporary stabilization.
- Estimated Start and End Dates for Stage III: 12/2023 - 05/2024

Stage IV - Vertical Construction of a commercial building

- BMPs associated with this stage: All previous controls will remain in place. Paint/stucco washout will be used as necessary. (See SWPPP map in Appendix A for BMP locations)
- Stabilization methods for this stage: Any areas of exposed soil on site that are suspended from earth-disturbing activities, will be undisturbed for more than fourteen days, to be temporarily stabilized within fourteen days with mulch or temporary seeding (alternative methods include, but are not limited to geotextiles, hydromulch, erosion control blankets, surface covers). Please refer to Section 5.1.12 for temporary stabilization.
- Estimated Start and End Dates for Stage IV: 01/2024 - 08/2024

Stage V - Cessation of Construction Activities

- BMPs associated with this Stage: Controls will be removed during this stage. Construction activities will cease, and vehicles and equipment will be removed. The site will be stabilized. Cut back curbs will remain in place until landscaping commences.
- Controls will be removed, and construction stopped. Cessation of activities for the entire site is estimated for: 08/2024
- Final stabilization methods: Landscaping and vegetation.

2.4 Site Features and Sensitive Areas to be Protected

Describe areas of sensitivity and unique site features including streams, stream buffers, wetlands, specimen trees, natural vegetation, steep slopes, or highly erodible soils that are to be preserved:

There is nothing on site that is sensitive or that requires special attention.

2.5 Maps

General Location Maps

In accordance with Part 3.5.1 e) – A general location map (e.g., portion of a city or county map or similar scale) is attached in Appendix A:

SWPPP BMP Maps

The SWPPP map is attached in Appendix A of this SWPPP.

For SWPPPs that are being managed on compliance|**GO** the site maps will be located in the documents section and site maps section of compliance|**GO**. On the map the inspectors record any changes to the BMPs. For BMP tracking purposes, they note and date when the BMP is installed or when a BMP is changed or removed. These notes and notes history stay with the individual icons on the site map and can be viewed on the map history report.

Please notify the contact person for the operator found on the NOI in order to access this information if needed.

SECTION 3: WATER QUALITY

3.1 Discharge Information

Description of storm sewer systems:

Does this site discharge Stormwater into a Municipal Separate Storm Sewer System (MS4)? ☒ **Yes** ☐ **No**

MS4 Operator that receives the discharge from the construction project: Bernalillo County.

Does this site's stormwater system connect to a detention or retention basin owned by others? ☐ **Yes** ☒ **No**

Wetlands:

Are there wetlands on site: ☐ **Yes** ☒ **No**

There are no wetlands on site according to site observations and the U.S. Fish and Wildlife website.

Resource: http://www.fws.gov/nwi/

3.2 Receiving Waters

Description of receiving waters (1):

The receiving water (1) is San Jose Drain.

Please specify which tier your state or tribe has designated the receiving waters:

☐ Category 1 ☐ Category 2 ☒ Category 3 ☐ Not Designated

Distance to receiving water (1):

The site is 6,300 feet from San Jose Drain.

Description of receiving waters (2):

The receiving water (2) is ABO Riverside Ditch.

Please specify which tier your state or tribe has designated the receiving waters:

☐ Category 1 ☐ Category 2 ☒ Category 3 ☐ Not Designated

Distance to receiving water (2):

The site is 8.700 feet from ABO Riverside Ditch.

Any Surface Water Crossings?

☐ **Yes** ☒ **No**

List all waters of the state located within one mile downstream of the discharge point of the site:

San Jose Drain, ABO Riverside Ditch, Rio Grande

3.3 Impaired Waters

Description of impaired waters or waters subject to TMDLs including waters within one mile of the site:

Is San Jose Drain impaired?	☐ Yes	☒ No
Is ABO Riverside Ditch impaired?	☐ Yes	☒ No
Is Rio Grande impaired?	☒ Yes	☐ No

If yes, complete the following:

Pollutants causing the impairment: Dissolved Oxygen, E.coli, Mercury, Temperature. (If impairment is sediment and/or nutrients, then there are additional stabilization and site inspection requirements)

Has a TMDL been completed? ☒ Yes ☐ No

Pollutants for which there is a TMDL: E.coli

Resources:
https://www.epa.gov/waterdata/surf-your-watershed

Description of additional precautions taken to minimize pollution effects if discharging to sediment or nutrient impaired waters:
For sites that discharge to sediment or nutrient impaired waters then stabilization must be completed within 7 days of temporary or permanent cessation of earth disturbing activities. The site will also need to be inspected every 7 days and within 24 hours of a rainfall event of 0.5 inches or greater, or snowmelt runoff that is sufficient to cause a discharge.

3.4 High Water Quality

Is San Jose Drain designated as High Water Quality?	☐ Yes	☒ No
Is ABO Riverside Ditch designated as High Water Quality?	☐ Yes	☒ No
Is Rio Grande designated as High Water Quality?	☐ Yes	☒ No

Resources:

https://ofmpub.epa.gov/waters10/attains_index.home

Description of additional precautions taken to minimize pollution effects if discharging to high-quality waters:

For sites that discharge to a high-quality water, stabilization must be completed within 7 days of temporary or permanent cessation of earth disturbing activities. The site will also need to be inspected every 7 days and within 24 hours of a rainfall event of 0.5 inches or greater, or snowmelt runoff that is sufficient to cause a discharge.

SECTION 4: Pollution Prevention Standards

4.1 Potential Sources of Pollution

The following chart listing identifies any and all potential sources of sediment and pollutants that may reasonably be expected to affect the quality of storm water discharges from this construction site. Potential Pollutant, pollutant source, whether or not it is present on site, and the location of any and all pollutants are indicated on the chart below. The SWPPP map identifies pollutant sources of sediment, erosion, material storage, trash bins, concrete washout bin and waters, other washout waters, and vertical construction areas whereby building materials utilized by trades below will be present. It is understood that construction vehicles that carry pollutants such as street vehicles, forklifts, skid loaders, large trucks, and tractors will be on many parts of the working site. Best Management Practices to manage and control these pollutants are found and described with details in this SWPPP.

Activities	Check with an X the activities that apply	Sediment	Nutrients	Heavy Metals	pH (acids and bases)	Pesticides & Herbicides	Oil & Grease	Bacteria & Viruses	Trash, Debris, Solids	Other Pollutants
Clearing, grading, excavating, and un-stabilized areas	☒	√							√	
Asphalt paving operations	☒	√					√		√	
Concrete washout, stucco, and cement waste	☒			√	√				√	
Structure construction, painting, cleaning	☒			√	√				√	√
Demolition and debris disposal	☐	√							√	
Dewatering operations	☐	√							√	
Waterline flushing	☒	√	√		√				√	√
Material Delivery and storage	☒	√	√	√	√		√		√	√
Material use during building process	☒		√	√	√		√		√	√
Solid waste disposal	☒								√	√
Hazardous Waste, contaminated spills	☐			√	√	√	√			√
Sanitary waste	☒		√		√			√		
Vehicle/equipment fueling, maintenance, use and storage	☒						√		√	√
Landscaping operations	☒	√	√			√			√	√
Describe others	☐									

4.2 Allowable Non-Stormwater Discharge Management

All discharges authorized by the permit and covered by this SWPPP are composed entirely of storm water associated with construction activities or are an authorized Non-Storm Water Discharge. Allowable non-stormwater discharges and the measures used to eliminate or reduce them and to prevent them from becoming contaminated are as follows:

Type of Allowable Non-Stormwater Discharge	Likely to be Present at Your Site?
Discharges from emergency fire-fighting activities	☐ YES ☒ NO
Fire hydrant flushings	☐ YES ☒ NO
Landscape irrigation	☒ YES ☐ NO
Waters used to wash vehicles and equipment	☐ YES ☒ NO
Water used to control dust	☒ YES ☐ NO
Potable water including uncontaminated water line flushings	☒ YES ☐ NO
Routine external building wash down	☐ YES ☒ NO
Pavement wash waters	☐ YES ☒ NO
Uncontaminated air conditioning or compressor condensate	☐ YES ☒ NO
Uncontaminated, non-turbid discharges of ground water or spring water	☐ YES ☒ NO
Foundation or footing drains	☐ YES ☒ NO

For all yes answers above describe:

4.2.1 Pollutant Control Name: Chlorinated Water Flushing
Phase of Construction/Timing of Installation: Installation of utilities
Location: Where utilities are installed as needed.
Describe: Water lines will be flushed with chlorinated water in order to clean the water lines. The water from the water flushing will be contained on site and not allowed to enter the storm drain system. A hole will be dug on site to contain the water flushing. The hole will then act as a retention basin allowing water to either soak into the ground or evaporate into the air.
How to Maintain: Stop water flushing prior to filling up the hole.

4.2.2 Dust Control – Please refer to Section 5.

4.2.3 For landscape irrigation no other BMPs are needed other than perimeter controls. Please refer to Section 5.

4.3 Dewatering Practices

De-watering

For dewatering off site or into a storm drain, a Dewatering Permit must be obtained. Also, the MS4 must be notified.

Will dewatering occur at the construction site? ☐ Yes ☒ No

4.4 Natural Buffers or Equivalent Sediment Controls

Natural Buffers (Within 50 feet of the project's earth disturbance)

Are there surface waters within 50 feet of earth disturbance? ☐ Yes ☒ No

SECTION 5: EROSION AND SEDIMENT CONTROLS

The following categories of BMP activity are BMPs that will be implemented to control pollutants in storm water discharges as details are provided in each area. The SWPPP map will include the BMPs that are located on site. The maps will be updated according to what is on site at the current time along with the notes about the specific BMPs.

For SWPPPs that are being managed on compliance|**GO** the site maps will be updated with the appropriate BMPs. The site maps are located in the site maps section in compliance|**GO**.

Please notify the contact person for the operator found on the NOI in order to access this information if needed.

5.1 Minimize Area of Disturbance

CGP Requirement	Example BMPs	BMPs Selected (Name and Reference Number if applicable)
Preserve vegetation where possible and direct storm water to vegetated areas when feasible (CGP 2.2.2.)	Phasing to minimize disturbance, signs/fences to protect areas not being disturbed.	5.1.1.a Minimize Area of Disturbance, 5.1.1.b Minimize Exposed Soils Through Phasing, 5.1.1.c Preservation of Natural Vegetation
Install sediment controls along perimeter areas that receive pollutant discharges (CGP 2.2.3).	Silt fence, fiber rolls, earth berms	5.1.2.a Cutback Curbs, 5.1.2.b Silt Fence
Minimize sediment track-out (CGP 2.2.4).	Restrict access, stabilize exits, track-out pads, tire washing station, clean-up sediments	5.1.3.a Stabilized Construction Exit, 5.1.3.b Street Sweeping
Manage stockpiles with perimeter controls and locate away from storm water conveyances (CGP 2.2.5.)	Sediment barriers downgradient, proper location, covered stockpiles, diverting storm water from stockpiles	5.1.4.a Stockpile Containment
Minimize dust (CGP 2.2.6.)	Water application, mulching, chemical dust suppression techniques	5.1.5.a Wetting with Water
Minimize steep slope disturbance (CGP 2.2.7.)	Erosion control blankets, tackifiers, protect slopes from disturbance	NA
Preserve topsoil (CGP 2.2.8.)	Stockpile topsoil	5.1.7.a Topsoil Stockpiling
Minimize soil compaction where final cover is vegetation (CGP 2.2.9.)	Restrict vehicle access, recondition soils before seeding	5.1.8.a Remediation of Soils Prior to Landscaping
Protect storm drain inlets (CGP 2.2.10.)	Inserts, rock-filled bags, covers	NA
Slow down runoff with erosion controls and velocity dissipation devices (CGP 2.2.11.)	Check dams, riprap	NA
Appropriately design any sediment basins or impoundments (CGP 2.2.12.)	Design to 2-year 24-hour storm or 3,600 cubic feet per acre drained, include design specifications	5.1.11.a Retention Basin

Follow requirements for any treatment chemicals (polymers, flocculants, coagulants, etc.) (CGP 2.2.13)	Store in leak proof containers and cover, proper training, minimize use	NA
Stabilize exposed portions of site with 14 days of inactivity (CGP 2.2.14).	Seeding, erosion control blankets, gravel, hydromulch	NA

Minimize Area of Disturbance

5.1.1.a Minimize Area of Disturbance
Phase of Construction/Timing of Installation: Throughout construction
Describe: The majority of the site will need to be disturbed for construction purposes. The SWPPP map(s) in Appendix A will show where the limit of disturbance is, and any areas of the site that will be preserved and protected. Removal of vegetation will only progress in areas that will be disturbed as needed. The other areas outside of these limits will be left undisturbed.
How to Maintain: Put up perimeter controls and/or other barriers to prevent construction exceeding its limits.
Design Specifications and Drawings: Please refer to Appendix H.

5.1.1.b Minimize Exposed Soils Through Phasing
Phase of Construction/Timing of Installation: Throughout construction
Describe: Disturbance of any part of the site will only occur as needed. All other areas of the site will be left undisturbed. Construction will progress in this manner minimizing the exposed soils until disturbance is absolutely needed.
How to Maintain: Leave vegetation in place wherever possible.
Design Specifications and Drawings: Please refer to Appendix H.

5.1.1.c Preservation of Natural Vegetation
Phase of Construction/Timing of Installation: Throughout construction
Describe: The majority of natural vegetation will be removed for construction purposes. The areas of vegetation will be preserved where possible around the perimeters of the site.
How to Maintain: Leave vegetation in place wherever possible.
Design Specifications and Drawings: Please refer to Appendix H.

Perimeter Controls

5.1.2.a Cutback Curbs
Phase of Construction/Timing of Installation: Once curbs are installed.
Describe: Cutback curbs are installed to capture sediment from storm water prior to the water running into the street.
How to Maintain: Cutback curbs need to be maintained when the cutback is filled to less than two inches.
Design Specifications and Drawings: Please refer to Appendix H.

5.1.2.b Silt Fence
Phase of Construction/Timing of Installation: Prior to construction.
Describe: Silt fence is installed to inhibit sediment-laden water, thus promoting sedimentation and filtration.
How to Maintain: Silt fence requires maintenance when not properly attached to the stakes, when not properly entrenched, when capacity is over 50%, or when it is ripped.
Design Specifications and Drawings: Please refer to Appendix H.

Minimize Sediment Track-Out

5.1.3.a Stabilized Construction Exit
Phase of Construction/Timing of Installation: Prior to construction and throughout all phases.
Describe: A stabilized construction exit is used to prevent vehicles from tracking out sediment when leaving the site.
How to Maintain: The stabilized construction exit requires maintenance when the rock begins to fill in with mud or sediment.
Design Specifications and Drawings: Please refer to Appendix H.

5.1.3.b Street Sweeping
Phase of Construction/Timing of Installation: Throughout all phases of construction.
Describe: Street sweeping is needed as construction vehicles track dirt onto the road.
How to Maintain: The streets will need to be swept as sediment is observed.
Design Specifications and Drawings: Please refer to Appendix H.

Manage Stockpiles

5.1.4.a Stockpile Containment
Phase of Construction/Timing of Installation: During excavation and grading
Describe: Stockpiles must be placed outside of natural buffers and away from any concentrated storm water flow such as storm water conveyances, storm drain inlets, and areas where storm water flows are concentrated. There must be a perimeter control placed along down-gradient areas from the stockpile. If stockpiles are not expected to be disturbed for more than 14 days, they will be covered or seeded.
How to Maintain: Provide cover or appropriate temporary stabilization for stockpiles that will be unused for 14 or more days and are stored in areas being inspected at a reduced frequency due to temporary stabilization or frozen conditions. Maintain the perimeter controls. Hosing down or sweeping soil or sediment from impervious surfaces into any storm water conveyance, storm drain inlet, or water of the state is prohibited. Contain and securely protect stockpiles from wind. Water the stockpiles to form a crust in order to prevent dust.
Design Specifications and Drawings: Please refer to Appendix H.

Minimize Dust

5.1.5.a Wetting with Water
Phase of Construction/Timing of Installation: As needed, throughout the length of the project.
Describe: Either a water truck or water hose will be brought on site as needed and used to help minimize dust on site.
How to Maintain: If using a water truck, make sure water tank has adequate amounts of water. If using a water hose, make sure that the hose is firmly secured and does not have any leaks or holes.
Design Specifications and Drawings: Please refer to Appendix H.

Minimize Steep Slope Disturbance

Slope protection is required in areas of the site that have steep slopes:
Does this site have steep slopes?
☒ No ☐ >3% ☐ >15%

Preserve Topsoil

5.1.7.a Topsoil Stockpiling
Phase of Construction/Timing of Installation: During excavation and grading
Describe: Topsoil will be stockpiled and saved. Please see above for stockpiling controls. Topsoil will be replaced in areas to be landscaped. If additional topsoil is needed then it will be hauled in.
How to Maintain: Water the stockpiles to form a crust in order to prevent dust. Maintain the perimeter controls.
Design Specifications and Drawings: Please refer to Appendix H.

Minimize Soil Compaction

5.1.8.a Remediation of Soils Prior to Landscaping
Phase of Construction/Timing of Installation: Prior to landscaping
Describe: The soils will have remediation prior to landscaping to allow for infiltration of water following construction. Remediation will include rototilling the soil to break up the soil compaction and allow for better water infiltration. Also, topsoil will be added to the landscape areas to increase the infiltration rate.
How to Maintain: Rototill the soil during the landscaping phase in areas where the soil has been compacted.
Design Specifications and Drawings: Please refer to Appendix H.

Protect Storm Drain Inlets

NA

Slow Down Runoff with Erosion Controls and Velocity Dissipation Devices

NA

Sediment Basins or Impoundments

5.1.11.a Retention Basin
Phase of Construction/Timing of Installation: Installed during grading
Describe: A basin designed to detain stormwater runoff indefinitely to allow particles and associated pollutants to settle at the bottom of the basin.
How to Maintain: Note erosion of basin banks or bottom. Inspect for damage to the embankment. Monitor for sediment accumulation in the facility and forebay. Seed or sod to restore dead or damaged ground. Remove sediment when pond volume has been reduced by 25%.
Design Specifications and Drawings: Please refer to Appendix H.

Treatment Chemicals

NA

Inactivity Stabilization

The extent necessary to prevent erosion in arid and semi-arid areas means for visually flat areas, temporary non-vegetative stabilization is not required (roughly from 0 percent up to 5 percent) unless an erosion concern exists. Areas with slopes roughly 5 percent to 20 percent must have, at minimum, controls to reduce storm water velocities to a point that erosion is controlled. Over a 20 percent slope requires soil surface stabilization. The amount of stabilization provided must increase commensurately with increasingly steeper slopes.

Is temporary non-vegetative stabilization required for this site (to qualify for no stabilization, slopes must be below 5% with no erosion concerns)?
☐ Yes ☒ No

5.2 Linear Site Perimeter Control Exemption

Linear Activities

Is this project a linear project? ☐ Yes ☒ No

5.3 Final Stabilization

Stabilization requirements

The description of procedures for final stabilization is listed below for areas not covered by permanent structures). If final cover is vegetation, a uniform perennial vegetation that provides 70% or more of the vegetative cover that existed prior to earth-disturbing activities will be provided. Initiate the installation of stabilization measures on any areas of exposed soil on site that are permanently suspended from earth-disturbing activities, and will be undisturbed for more than fourteen days, prior to the end of the 14th day of inactivity. Complete the installation of stabilization measures as soon as practicable, but no later than 14 calendar days after the start of initial installation. Exception: Arid, semi-arid, and drought-stricken areas are required to be seeded/planted so that the before mentioned vegetative requirement is expected to be met within 3 years. Establishment of vegetation is not required; however, additional erosion controls may be needed. Both vegetative and non-vegetative stabilization techniques must be described.

Sensitive or High-Quality Waters:
For sites that discharge to high-quality waters or to sediment or nutrient impaired waters: Stabilization must be completed within 7 days after stabilization has been initiated.

Does this site discharge to sediment or nutrient impaired waters? ☐ Yes ☒ No

For sites in arid, semi-arid, or drought-stricken areas:

Beginning date of the seasonally dry period: June
End date of the seasonally dry period: October
Schedule for initiating and completing vegetative stabilization: Stabilization will be completed within the time frame designated by the operator.

Describe the detailed plan for site stabilization:

Type of Stabilization: Vegetation/Landscaping
Implementation Schedule: Following construction activities within the time frame set by the MS4.
Location: Throughout pervious surfaces on site.

Type of Stabilization: Pavement
Implementation Schedule: Following construction activities within the time frame set by the MS4.
Location: Throughout designated areas on site.

SECTION 6: POLLUTION PREVENTION

6.1 Spill Prevention and Response

Spill Response Prevention and Control Plan

- Describe the spill prevention and control plan to include ways to reduce the chance of spills, stop the source of spills, contain and clean-up spills, dispose of materials contaminated by spills, and train personnel responsible for spill prevention and control. (For more information, see *SWPPP Guide*, Chapter 5, P2 Principle 6.)
- Some projects/site may be required to develop a Spill Prevention Control and Countermeasure (SPCC) plan under a separate regulatory program (40 CFR 112). If you are required to develop an SPCC plan, or you already have one, you should include references to the relevant requirements from your plan.
- Also, see EPA's *Spill Prevention and Control Plan BMP Fact sheet* at https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#constr
- Spill controls must contain spills and be mobilized at the moment of need. The plan must include the materials and method of containment and for flowing liquid, cleanup, disposal and follow the minimum spill controls below.

  Any discharges in 24 hours equal to or in excess of the reportable quantities listed in 40 CFR 117, 40 CFR 110, and 40 CFR 302, will be reported to the National Response Center and the Division of Water Quality (DWQ) as soon as practical after knowledge of the spill is known to the permittees. The permittee shall submit within 7 calendar days of knowledge of the release a written description of: the release (including the type and estimate of the amount of material released), the date that such release occurred, the circumstances leading to the release, and measures taken and/or planned to be taken. The Storm Water Pollution Prevention Plan must be modified within 14 calendar days of knowledge of the release to provide a description of the release, the circumstances leading to the release, and the date of the release. In addition, the plan must be reviewed to identify measures to prevent the reoccurrence of such releases and to respond to such releases, and the plan must be modified where appropriate.

Other than the below procedures and specifications for management of hazardous spill, absorbent/oil dry, sealable containers, plastic bags, and shovels/brooms are suggested minimum spill response items that should be at this location.

Designated Person on Site for Spill Clean-up and Response:

Matt Wagoner
Project Manager
Eastley Inc.
951-712-1394
matt@eastleyinc.com

EMERGENCY NUMBERS

Reportable Quantity	
EPA National Response Center	800-424-8802
Bernalillo County Storm Water Contact/Public Works	505-848-1500
Bernalillo County Fire Department	505-468-1310
Bernalillo County Police Department	505-468-7140
Emergency	911

A list of hazardous material spill response companies is listed on the following pages.

Hazardous Material	Location of Spill	Reportable Quantity
Oils, fuel, hydraulic, brake fluid	Land/Water	25 gallons/ Visible Sheen
Refrigerant	Air	1 lb.
Antifreeze	Land/Water	13 gallons
Battery Acid	Land/Water	100 lbs.
Engine Degreaser Products	Land/Water	100 lbs.
Gasoline/Diesel Fuels	Land/Water	100 lbs.

SPILL RESPONSE PLAN

Spills require action. Ensure your people are safe, then on-site equipment and property, then the environment.

1st Priority: Protect all People
2nd Priority: Protect Equipment and Property
3rd Priority: Protect the Environment

1. Make sure the spill area is safe to enter and that it does not pose an immediate threat to health or safety of any person.

2. Stop the spill source. Refer to MSDS sheets so that the spilled material can be handled properly.

3. Check for hazards (flammable material, noxious fumes, cause of spill) - If flammable liquid, turn off engines and nearby electrical equipment. If serious hazards are present leave area and call 911. LARGE SPILLS ARE LIKELY TO PRESENT A HAZARD.

4. Call co-workers and supervisor for assistance and to make them aware of the spill and potential dangers.

5. If possible, stop spill from entering storm drain (use absorbent or other material as necessary, close valve to drain, cover or plug drain)

6. Stop spill from spreading (use absorbent or containment materials)

7. If spilled material has entered a storm drain, then check oil/water interceptor or catch basins then notify the local city. Clean out the storm drain if possible. Do not spray spilled materials down the storm drain.

8. Clean up spilled material/absorbent (do not flush area with water) - If outside clean-up service is required, phone numbers of qualified clean-up companies is available on following pages.

9. Properly dispose of cleaned material/absorbent into secure container for disposal as hazardous waste

10. Make sure cleaned area is not slippery (if slippery, put down no-slip material or mark area with a “slippery when wet” sign)

Spill Kit Information:

Is there a spill kit on site? ☒ Yes ☐ No

Describe the spill kit: The spill kit will consist of absorbent pads, granular absorbents, socks, gloves, disposal bags, scoop or shovel, and a broom.

The information below is to assist in obtaining the correct materials and equipment for spill response and spill clean-up.

Absorbents – pads, pillows, booms, socks, dikes, rolls, and loose or particulate sorbents

1. Universal – absorbs – oils, water-based fluids, water, coolants, solvents, and most non-hazardous liquids.
2. Oil Only – Absorbs oils and repels water
3. Hazmat – Absorbs most fluids including corrosive liquids

Containment:

1. Spill Berm – A mobile containment boom – designed to contain a spill or protect an inlet
2. Drain Seals – Designed to seal an inlet to prevent any liquid from entering the inlet to allow for clean-up of the spill
3. Drain absorbents – designed to absorb oils while allowing water to pass through

Tools (Non-sparking, chemical and corrosion resistant):

1. Shovel – A shovel that does not produce sparks
2. Scoops – to clean up absorbents
3. Broom – sweep up absorbents
4. Squeegee
5. Plastic bags
6. Container – to hold the spill cleaned-up debris

Personal Protective Equipment:

1. Heavy Duty Gloves made of nitrile or neoprene
2. Safety Glasses or goggles that are chemical resistant
3. Disposable lab coat or apron
4. Boot covers

Other Supplies (May be needed):

1. Warning Tape or signs
2. Labels – to mark the cleaned-up equipment for disposal
3. Markers
4. MSDS

Hazardous Material Spill Reporting

An online form can be found at the following link:
https://www.nmstatelands.org/incident-report-form/

New Mexico Environment Department
1190 St. Francis Drive, Suite N4050
Santa Fe, New Mexico 87505
Emergency Line: 505-827-9329

6.2 Pollution Prevention Controls

CGP Requirements	Example BMPs	BMPs Selected (Name and Reference Number if applicable)
Equipment and vehicle fueling (CGP 2.3.1)	Spill kits, SPCCP, drip pans, locate activities away from conveyances, use secondary containment	6.2.1.a Mobile Fueling
Equipment and vehicle washing (CGP 2.3.2.)	Locating away from surface waters and storm water conveyances, directing wash waters to a sediment basin or sediment trap, using filtration devices	NA
Storage, handling, and disposal of building products and waste (CGP 2.3.3.)	Cover (plastic sheeting / temporary roofs), secondary containment, leakproof containers, proper dumpsters, secured portable toilets, locate away from storm water conveyances	6.2.2.a Leakproof Dumpsters, 6.2.2.b Covered Cans or Bagging of Trash, 6.2.2.c Portable Toilets, 6.2.2.d Construction Materials Storage, 6.2.2.e Landscape Materials Storage
Washing of stucco, paint, concrete, form release oils, curing compounds, etc. (CGP 2.3.4.)	Leak proof containers, lined pits, locate away from storm water conveyances	6.2.3.a Portable Concrete Washout Bin, 6.2.3.b Paint, Stucco, and Other Materials Washout, 6.2.3.c Containment of Material Mixing, 6.2.3.d Containment and Cleanup of Concrete and/or Asphalt Slurry and Dust
Properly apply fertilizer (CGP 2.3.5)	Follow manufacture specifications, document deviations in applications, avoid applications to frozen ground, before heavy rains, or to storm water conveyances	NA

Equipment and Vehicle Fueling

6.2.1.a Mobile Fueling
Phase of Construction/Timing of Installation: Throughout construction as needed
Describe: Vehicles may be fueled on site using a mobile fueler. Wheels will be chocked during fueling activities, a drip pan provided, and fueling activities will be manned at all times. Vehicles will not be topped off.
How to Maintain: Properly dispose of fuel drippings. Clean up spills immediately.

Design Specifications and Drawings: Please refer to Appendix H.

Equipment and Vehicle Washing

NA

Storage, Handling, and Disposal of Building Products and Waste

6.2.2.a Leakproof Dumpsters
Phase of Construction/Timing of Installation: Beginning of construction
Describe: Dumpsters will be put into place for construction waste on site.
How to Maintain: Dumpster must be emptied prior to trash and debris going above the rim of the dumpster.
Design Specifications and Drawings: Please refer to Appendix H.

6.2.2.b Covered Cans or Bagging of Trash
Phase of Construction/Timing of Installation: Beginning of construction
Describe: All blowable trash or pollutant producing waste must be bagged for containment. Liquid or leachable waste must be bagged to prevent leaks from the container.
How to Maintain: Blowable trash must be contained and picked up when found on the ground in the construction site. Liquid or leachable waste must be contained, and if leak-proof dumpster used, repairs made if needed.
Design Specifications and Drawings: Please refer to Appendix H.

6.2.2.c Portable Toilets
Phase of Construction/Timing of Installation: Beginning of construction
Describe: Portable toilets will be placed in designated areas mimimum of 10 feet from the street.
How to Maintain: Must be staked and 10 feet from the street to prevent spillage that could run into the storm drains.
Design Specifications and Drawings: Please refer to Appendix H.

6.2.2.d Construction Materials Storage
Phase of Construction/Timing of Installation: Prior to bringing construction materials on site.
Describe: A materials storage area will be designated on site and will be placed away from storm water conveyances. Liquid materials will be sealed properly and placed in secondary containment.
How to Maintain: All materials will be returned to designated area at the end of each day if not being used. Clean up any spills (please refer to Section 6.1) if necessary.

Design Specifications and Drawings: Please refer to Appendix H.

6.2.2.e Landscape Materials Storage
Phase of Construction/Timing of Installation: Prior to bringing landscape materials on site.
Describe: Place landscaping materials away from impervious surfaces. If placing on impervious surfaces is unavoidable then a weighted fiber roll needs to be placed around them.
How to Maintain: Sweep streets if landscape materials get on the road.
Design Specifications and Drawings: Please refer to Appendix H.

Washing of Stucco, Paint, Concrete, Form Release Oils, Curing Compounds, Etc.

6.2.3.a Portable Concrete Washout Bin
Phase of Construction/Timing of Installation: Prior to pouring concrete.
Describe: Prefabricated bin to contain concrete washout waters.
How to Maintain: Must be water tight and emptied when it is 75% full to prevent spillage.
Design Specifications and Drawings: Please refer to Appendix H.

6.2.3.b Paint, Stucco, and Other Materials Washout
Phase of Construction/Timing of Installation: Prior to painting, stucco work, etc.
Describe: Paint and other materials will be washed out in the concrete washout as long as they are not oil-based. If oil-based materials are used on site then they will be washed out in a separate container and the SWPPP updated.
How to Maintain: Must be leak-proof and emptied when it is 75% full to prevent spillage. Liquid wastes must not be dumped into storm sewers or waters of the state and must be disposed using one of three methods: 1) evaporate the waste and dispose of the residual solids with other solid waste, 2) have a liquid waste hauler for wash water haul it off and dispose of it, 3) settle it and pretreat it if necessary with arrangements to discharge the liquid waste to a treatment plant that has the ability to treat it and dispose of it.
Design Specifications and Drawings: Please refer to Appendix H.

6.2.3.c Containment of Material Mixing
Phase of Construction/Timing of Installation: During material mixing operations such as concrete, paint, stucco, grout, etc.
Describe: Material mixing will be done in secondary containment.
How to Maintain: Clean up any spills immediately.
Design Specifications and Drawings: Please refer to Appendix H.

6.2.3.d Containment and Cleanup of Concrete and/or Asphalt Slurry and Dust
Phase of Construction/Timing of Installation: During concrete and/or asphalt cutting operations.
Describe: Dust will be contained with water. Dirt will be piled up on the inside of gutter check bags to catch any slurry. The gutter check bags will then catch the dirt. Slurry will then be disposed of in the concrete washout.
How to Maintain: Contain coolant waste on each project and remove dry cuttings and coolant waste at the end of each day, or prior to wet or windy conditions whichever comes first. The concrete cutting dust will be kept down with water. Contain slurry and dust from cutting with gutter check bags. Sweep up any remaining slurry and dust. All slurry and dust will be disposed of in the concrete washout bin.
Design Specifications and Drawings: Please refer to Appendix H.

Properly Apply Fertilizer

NA

SECTION 7: SPECIAL CONDITIONS

7.1 Emergency Related Projects

Is this an emergency related project? ☐ Yes ☒ No

7.2 UIC Class 5 Injection Wells

☒ No underground injection controls are to be installed on site.

7.3 Chemical Treatment

Will treatment chemicals be used at this construction site? ☐ Yes ☒ No

SECTION 8: INSPECTIONS & CORRECTIVE ACTIONS

8.1 Inspections

Inspection Schedule and Procedures

Standard Frequency:

☐ *At least once every 7 calendar days*

☒ *At least once every 14 calendar days and within 24 hours* of the initial 0.25 inches of rain and at the end of the storm event, or discharge caused by snowmelt from a storm event that produces 3.25" or more of snow within a 24-hour period.*

Increased Frequency (if applicable):

☐ *At least once every 7 calendar days and within 24 hours* of the initial 0.25 inches of rain and within 24 hours after the end of the storm event, or discharge caused by snowmelt from a storm event that produces 3.25" or more of snow within a 24-hour period. Increased frequency due to site discharging to a high-quality water or impaired receiving water.*

Decreased Frequency (if applicable):

☐ *At least once every 14 calendar days for the first month, then once a month. Decreased frequency due to the site having met temporary stabilization requirements (see part 2.2.14.a. of the Construction General Permit (CGP)). List beginning and ending dates of the period. Once construction activity resumes at a later date, the inspection frequency increases to the applicable requirements in Parts 4.2 and 4.3 of the CGP.*

☐ *At least once a month and within 24 hours* of the initial 0.25 inches of rain and at the end of the storm event. Decreased frequency due to the site being in an arid area.*

☐ *At least once a month and within 24 hours* of the initial 0.25 inches of rain and at the end of the storm event during the dry season: List months for dry season (Along the Wasatch Front: June, July, & August). Decreased frequency due to the site being in a semi-arid area.*

☐ *No inspections due to frozen conditions with land disturbance suspended (and where possible, having met stabilization requirements applicable to Part 2.2.14.a. of the CGP). Must have 3 months of continuous expected frozen conditions based on historical averages: List months of suspended inspections. If thawing conditions start to occur (as defined in Part 10 of the CGP), or if weather conditions make discharges likely, the regular inspection frequency applicable for the site (as described in Parts 4.2 and 4.3 of the CGP) must be resumed.*

☐ *Once per month due to frozen conditions with continued activities (and except for areas of the site where there are active construction activities, disturbed areas have met stabilization requirements applicable to Part 2.2.14.a.). Must have 3 months of continuous*

expected frozen conditions based on historical averages: List months of frozen conditions. If thawing conditions start to occur (as defined in Part 10 of the CGP), or if weather conditions make discharges likely, the regular inspection frequency applicable for the site (as described in Parts 4.2 and 4.3 of the CGP) must be resumed.

Other:

☐ Other (i.e., different city/county requirements): _____

For SWPPPs that are being managed on compliance|**GO** all inspections will be located in the inspection history section of compliance|**GO**.

Please notify the contact person for the operator found on the NOI in order to access this information if needed.

Inspections will be conducted on this project in accordance with applicable governing regulations, and individual municipal regulations. Inspections will be conducted by qualified inspectors from **Inspections Plus**. Where sites have been finally or temporarily stabilized, runoff is unlikely due to winter conditions (e.g., site covered with snow, ice, or frozen ground) inspections may be conducted monthly.

*Inspections are only required during the project's normal working hours; however, a rainfall event can happen after business hours. If a regular inspection is scheduled to occur on a holiday, the inspection will occur within two days of the holiday. If a rain event occurs after hours on Friday, it does not need to be inspected until Monday.

** "Within 24 hours of the occurrence of a storm event" means that you are required to conduct an inspection within 24 hours once a storm event has produced 0.5 inches, even if the storm event is still continuing. Thus, if you have elected to inspect bi-weekly in accordance with Part 4.1.2.b. and there is a storm event at your site that continues for multiple days, and each day of the storm produces 0.5 inches or more of rain, you are required to conduct an inspection within 24 hours of the first day of the storm and within 24 hours of after the end of the storm. Again, inspections are only required during the project's normal working hours.

For inspections that occur during rain that is causing a discharge from the site, a visual sample will be taken. Following the visual sample being taken at the discharge point, a Visual Monitoring Form will be filled out and kept with the inspection history. The Visual Monitoring Form will be used to drive action items if the water does not appear cleaned.

3. Weather Program Information

For inspection being conducted on complianceGO:
WEATHER PROGRAM INFORMATION: The complianceGO weather program is a cutting-edge approach to meeting stormwater permit requirements for rain event inspections due to

precipitation and forecasts. We are utilizing the National Oceanic and Atmospheric Administration (NOAA) database.

Our RemoteSense weather technology uses NOAA's weather technology to pinpoint precipitation values down to 1 meter. We have automated NOAA data to notify users when forecast and precipitation thresholds have been reached to ensure ultimate stormwater compliance.

Whenever you perform an inspection in complianceGO, complianceGO goes to NOAA and grabs the current precipitation, showing the amount of precipitation for the past 24 hours. The historical precipitation shown on the inspection form is a 24-hour precipitation accumulation for the site for that date.

For inspections not being conducted on complianceGO a rain gauge will be located on site or tracking data will be utilized and reported in the inspection.

8.2 Corrective Actions

Corrective Actions must take place to address observed noncompliance conditions, such as: repair or replacement needed for stormwater controls (beyond normal maintenance requirements), installation of a stormwater control that was never installed, or was installed incorrectly, discharges from the site that exceed water quality standards, or the occurrence of a prohibited discharge (*CGP, Part 5*).

Responsive (Corrective) action item conditions will be identified in the inspection report and action log. Once identified and reported, responsible parties in section 1 will correct problems according to the Construction General Permit.

- The corrective action log should describe the repair, replacement, and maintenance of BMPs undertaken as a result of the inspections and maintenance procedures described above. Actions related to the findings of inspections should reference the specific inspection report.
- This log should also describe actions taken, date completed, and note the person that completed the work.

For SWPPPs that are being managed on compliance|**GO** the corrective action logs will be located in the inspection history section of compliance|**GO**.

Please notify the contact person for the operator found on the NOI in order to access this information if needed.

8.3 Delegation of Authority

I, Customer SWPPP Contact, 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 Project Name construction site. The designee is authorized perform and sign Site Inspections and After Rain Event Inspections.

INSPECTIONS PLUS Site Inspector
INSPECTIONS PLUS
504 El Paraiso Rd NE Ste B
Albuquerque, NM 87113
505-344-9410

By signing this authorization, I confirm that I meet the requirements to make such a designation as set forth in Appendix I 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 I.

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.

Customer SWPPP Contact: _____

SWPPP Customer: _____

Title: _____

Signature: _____

SWPPP Date: _____

SECTION 9: RECORDKEEPING

9.1 Recordkeeping

The following is a list of records that need to be kept with the SWPPP document for your project site available for inspectors to review during and for at least 3 years after completion of the project:

- Dates of grading, construction activity (covered in Section 2)
- Dates when major grading activities occur
- A copy of the Construction General Permit (weblink attached in Appendix I)
- The signed and certified NOI form or permit application form (attached in Appendix B)
- Inspection reports
- Records relating to endangered species and historic preservation
- Delineation of Responsibilities
- Delegation Letter
- Responsive (Corrective) Action Logs
- SWPPP Certification
- Updated site SWPPP map
- Dates when construction activities temporarily or permanently cease on a portion of the site
- Dates when an area is either temporarily or permanently stabilized.

For SWPPPs that are being managed on compliance|**GO** all records will be located in the documents/permits tab, or inspection history section of compliance|**GO**. The method for documenting will be done by updating the SWPPP Map located in the Site Maps section of complianceGO. On the map the inspectors record any changes to the BMPs. They note and date when the BMP is installed or when a BMP is changed or removed. These notes and notes history stay with the individual icons on the site map and can be viewed on the map history report.

Please notify the contact person for the operator found on the NOI in order to access this information if needed.

9.2 Log of Changes to the SWPPP

The amendment log will record changes and updates to the SWPPP. These changes and updates will include additions of new BMPs, replacement of failed BMPs, significant changes in the activities or their timing on the project, changes in personnel, changes in inspection and maintenance procedures, updates to site maps, and so on.

For SWPPPs that are being managed on compliance|**GO** the SWPPP Amendment Log will be located in the documents section in compliance|**GO**.

Please notify the contact person for the operator found on the NOI in order to access this information if needed.

SWPPP Amendment Log

The SWPPP Map updates and amendments are noted and dated on the SWPPP Map. All other amendments to the SWPPP document will be noted on this log.

Project Name: _____

Project Location: _____

Date	Description of the Amendment	SWPPP Section	Amendment Requested By	Amendment Prepared By

SECTION 10: CERTIFICATION

For SWPPPs that are being managed on compliance|**GO** the Certification Pages, Agreements, Delegation of Authority, or other signed SWPPP pages will be located in the documents section in compliance|**GO**.

Please notify the contact person for the operator found on the NOI in order to access this information if needed.

SECTION 11: SWPPP PREPARER CERTIFICATION

For SWPPPs that are being managed on compliance|**GO**, the signed SWPPP Preparer Certification will be located in the documents section in compliance|**GO**

Please notify the contact person for the operator found on the NOI in order to access this information if needed.

SWPPP Preparer certifications may be viewed here: https://goo.gl/7SLEbW

SWPPP APPENDICES

For SWPPPs that are being managed on compliance|**GO** any additional SWPPP documentation that is needed or required will be in the documents and permits sections of compliance|**GO**.

Please notify the contact person for the operator found on the NOI in order to access this information if needed.

Appendix A – Site Maps

Preconstruction Existing Vegetation Map


LOE Randolph
Google Earth
Image © 2023 Maxar Technologies
N
300 ft

LOE Randolph LLC
Inspections Plus, LLC
Pre Construction Vegetation Map-Final

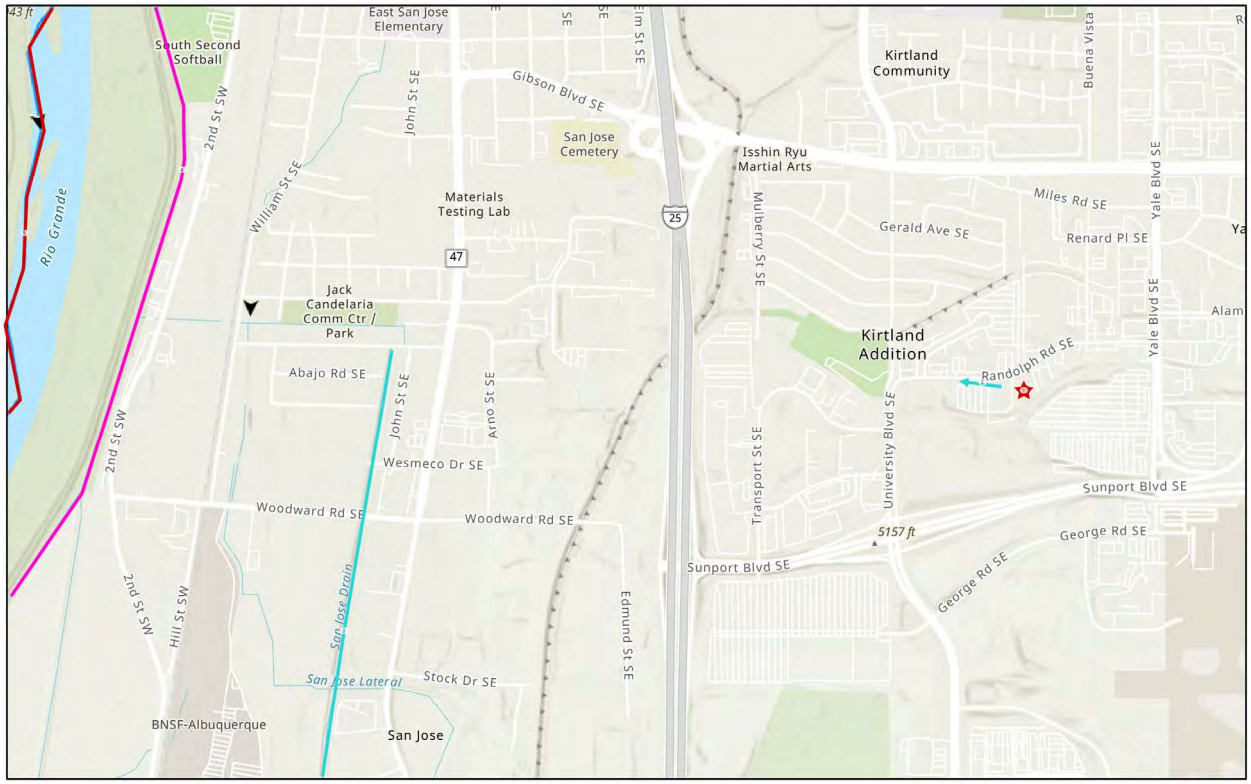
L E G E N D

Existing Weeds and Grasses (1)

Latitude: 35.052404
Longitude: -106.626367

Waters Within One Mile Downstream of the Site Map

WATERS GeoViewer Print Map



7/19/2023, 1:31:31 PM

Streams

Flow Direction

1:18,056

0 0.13 0.25 0.5 mi

0 0.2 0.4 0.8 km

Esri Community Maps Contributors, New Mexico State University, City of Albuquerque, Bernalillo County, NM, Texas Parks & Wildlife, Esri, HERE,

US Environment Protection Agency

LOE Randolph LLC
Inspections Plus, LLC
Waters Within 1 Mile Map-Final

LEGEND

- Rio Grande (1)
- Receiving Water 2 - ABO Riverside Ditch (1)
- Receiving Water 1 - San Jose Drain (1)
- Water Flow (1)
- Site (1)

Latitude: 35.052404
Longitude: -106.626367

SWPPP BMP Maps

*Note: Original civil files were used as a reference only. Modifications made by Inspections Plus based on information provided by the operator and site conditions. This SWPPP Map is a living document subject to change based on site needs. BMPs that are no longer necessary will be de-activated and shown in gray on the maps. Please refer to the Site Maps section in complianceGO for the most up-to-date maps. For residential sites, individual lots will be updated with track out, waste collection, and materials storage BMPs as construction begins on each lot.

For SWPPPs that are being managed on compliance|**GO** the site maps will be located in the documents section and the site maps section of compliance|**GO**.

Please notify the contact person for the operator found on the NOI in order to access this information if needed.

Map Notes:

BMPs will be installed according to the phase of construction, and the BMP specifications found in Appendix H of the SWPPP. BMPs will be monitored and may change throughout construction. Any changes to the BMPs need to be shown on the site maps. Any additional BMPs that are needed will be determined during regular inspections and installed according to specifications.

The locations of the NOI permit, portable toilets, trash bins, concrete washout, and other BMPs may change throughout the duration of construction. Their location will be updated on the SWPPP map when necessary.

Upon project completion and confirmed termination of the permit, temporary measures will be removed, and the site properly cleaned prior to release of the site to the owner.

BMPs Utilized, But Not Shown

Chlorinated Water Flushing
Preserve Topsoil
Minimize Soil Compaction
Bagging of Lightweight Trash
Cleanup of Concrete and/or Asphalt Slurry and Dust
Landscaping for Final Stabilization

1 SITE GRADING AND DRAINAGE PLAN

Scale: 1" = 20'

Hydrology Calculations
DPM - Volume 2,
Section 22.2 Hydrology

Precipitation Zone	2			
100 Year Storm Depth, P (360)	2.35			
Treatment Area	A	B	C	D
Excess Precipitation Factors	*0.53*	*0.78*	*1.13*	*2.12*
Peak Discharge Factors	*1.56*	*2.28*	*3.14*	*4.70*
Land Treatment Area	Acres	Existing	Allowable	Proposed
Type "A" (Native Grass, weeds and shrubs)		*1.215*		*0.000*
Type "B" (Native Grass,>20% Slope)		*0.135*		*0.135*
Type "C" (Desert Landscaping,rock/plastic)		*0.000*		*0.169*
Type "D" (Impervious, Roof, Pavement)		*0.000*		*1.046*
Total (Acres)		1.3499		1.3499
Excess Precipitation(in)		0.56		1.86
Volume (100), cf		2720		9124
Volume (10),cf		1822		6113
Q (100), cfs		2.20		5.75
Q (10), cfs		1.48		3.86
P (360) Ponding Volume ,cf = V(10)proposed-V(10)Allowable =		**4291**		4291

DRAINAGE NARRATIVE

THIS SITE IS LOCATED AT 1800 RANDOLPH RD SE, IN ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO. THIS SITE IS LOCATED ON THE NATIONAL FLOOD INSURANCE RATE MAP NO. 35001C0342G EFFECTIVE ON 09/26/2008, AND LIES WITHIN ZONE X, WITH NO PORTION OF THE SITE LOCATED WITHIN A 100 YEAR FLOOD PLAIN.

THE EXISTING SITE CONSISTED OF A VACANT LOT. THE EXISTING SITE SURFACE TREATMENT HAS HISTORICALLY BEEN COVERAGE TYPE "A" (NATIVE GRASS, WEEDS AND SHRUBS). THE EXISTING RUNOFF SHEET FLOWS ACROSS THE SITE FROM THE SOUTHEAST TO THE NORTHWEST. THE SITE CURRENTLY DIRECTS OFFSITE DRAINAGE FROM THE SOUTH PROPERTY LINE NORTHWARD AND ULTIMATELY INTO RANDOLPH RD SE AND ASSOCIATED STORM DRAINS. THE EXISTING CONCRETE DRAINAGE STRUCTURE ALONG THE WEST PROPERTY LINE THAT DIRECTS OFF-SITE FLOW ALSO ACCEPTS SHEET FLOW FROM THE SITE.

THIS PROPOSED DEVELOPMENT INVOLVES THE ADDITION OF A NEW BUILDING AND PAVED PARKING AREA. THIS PROJECT DISTURBS APPROXIMATELY 1.215 ACRES OF A 1.3499 ACRE SITE. THE PROPOSED GRADING HONORS EXISTING OFFSITE DRAINAGE PATTERNS AND DIRECTS ALL OFFSITE RUNOFF AWAY THRU THE PROPERTY. THE EXISTING OFF-SITE FLOW HAS NOT BEEN DETERMINED AND THE OFF-STE TRIBUTARY AREA FOR THE EXISTING DRAINAGE STRUCTURE IS UNKNOWN. A NEW SHALLOW POND LOCATED NEAR AND ADJACENT TO RANDOLPH RD SE SIDEWALK. THE PONDING AREA WILL OVERFLOW TO THE EXISTING DRAINAGE STRUCTURE CURB FLOW LINE AND ULTIMATELY INTO RANDOLPH RD SE. THE SITE WILL HAVE THE STORM WATER QUALITY RUNOFF DRAIN DIRECTLY INTO THE PONDS. THE TOP OF WATER SURFACE IS SHOWN IN PLAN. THE TOP OF THE POND SURFACE IS BORDERED AND CONTAINED BY A BERM WITH A TOP ELEVATION THAT IS HIGHER THAN THE ELEVATION OF THE ADJACENT SIDEWALK AND TOP OF POND. (SEE PLAN SHEET C1.1 AND CALCULATIONS BELOW) FINISHED FLOOR ELEVATION OF THE PROPOSED BUILDING IS THE HIGH POINT OF THE SURROUNDING PARKING AREA AND HAS POSITIVE DRAINAGE AWAY FORM THE PERIMETER OF THE BUILDING. DEVELOPED ONSITE RUNOFF SHEET FLOWS ACROSS THE EXISTING ASPHALT PARKING AREA AND IS DIRECTED BY CURBS INTO TO THE STORM WATER QUALITY POND.

ONSITE STORM WATER QUALITY PONDING VOLUME

STORM WATER QUALITY STORAGE REQUIRED BY COA HYDROLOGY:
PROVIDE STORAGE FOR STORM WATER QUALITY PER SECTION 6 - 12 OF DPM USE 0.26 IN

STORM WATER QUALITY (IN) APPLIED OVER IMPERVIOUS AREAS (ACRES)
VOLUME DRAINING DIRECTLY INTO PONDING AREAS THEREFORE (0.26 / 12) X 1.181 X 43560 = 1115CF

CURB CUT PIPE CAPACITIES

SEE KEYED NOTE 2 AND PLAN FOR LOCATIONS OF TWO 4" PVC PIPES AT EXISTING DRAINAGE STRUCTRURE BACK OF CURB FLOW LINE Q = (1.486AR^2/3xS^0.5)/N = ((1.486 X 0.0873 X 0.0833)^2/3 X 0.02^0.5)/0.0090 = 0.7668 cfs / 4" PIPE

CURB DRAIN IS 2~4"Ø PIPES -> Q=1.54CFS = 92.4CFM = 5544CFH

TIME TO DRAIN EQUIVALENT WATER QUALITY VOLUME = 5544CFH/1115CF = 5 HOURS

KEYED NOTES

X

1. CONSTRUCT PONDING AREA. SEE STORM WATER QUALITY CALCULATIONS THIS SHEET.
2. CONSTRUCT 2 - 4" PVC PIPE CURB DRAIN FOR OVERFLOW DRAINAGE. SEE CALCULATIONS & COA STD. DETAIL #2235
3. TOP OF WATER SURFACE OF THE STORM WATER QUALITY POND IS LOWER THAN THE TOP OF THE ADJACENT BERM LOCATED BETWEEN THE SIDEWALK AND THE POND.

LEGEND

- -6510- EXISTING INDEX CONTOUR
- 6209 EXISTING INTERIM CONTOUR
- 10 NEW INDEX CONTOUR
- 09 NEW INTERIM CONTOUR
- NEW WATER SURFACE
- + 22.8 NEW SPOT ELEVATION
- NEW CONCRETE SIDEWALK
- EXISTING CONCRETE SIDEWALK
- EXISTING SANITARY SEWER MANHOLE
- NEW SANITARY SEWER MANHOLE
- NEW SANITARY SEWER CLEANOUTS
- DIRECTION OF FLOW
- EXISTING FIRE HYDRANT
- EXISTING GATE VALVE
- EXISTING BUILDING
- NEW BUILDING
- FF FINISH FLOOR ELEVATION

ABQ Engineering
Civil •Structural •Mechanical •Plumbing •Electrical
8102 Menaul Blvd. NE, Suite D, Albuquerque, NM 87110
tele: 505.255.7802 Proj. No.: 22-036 www.abqeng.com

J. KORY BAKER ARCHITECT
P.O. BOX 254 ESTANCIA NM 87016
505 450 7517 | kory.baker@gmail.com

WAGONER BUILDING
ALBUQUERQUE - NEW MEXICO

SITE GRADING AND DRAINAGE PLAN

DRAWN BY: JCH
DATE: 08-22-21

C1.1

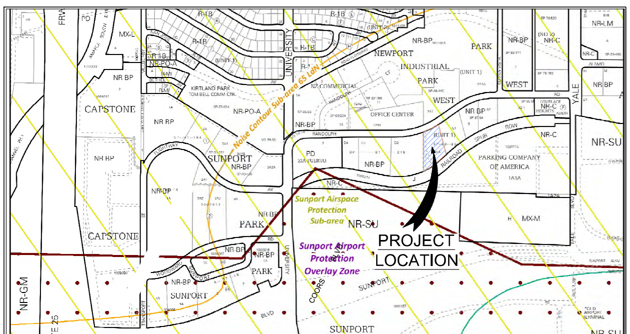
LOE Randolph LLC
Inspections Plus, LLC
Commercial SWPPP Map-Final

LEGEND

- Retention Basin (2)
- Cutback Curb / Sidewalk (10)
- Post Construction Water Flow (8)
- Pre Construction Water Flow (6)
- Silt Fence (3)
- Extended Limit of Disturbance (1)
- Property Boundary / Limit of Disturbance (1)
- Stabilized Construction Exit (1)
- SWPPP Sign (1)
- Blockade (1)
- Street Sweeping (1)
- Water Truck (1)
- Portable Concrete Washout Box (1)
- Dumpster (1)
- Portable Toilet (1)
- Materials Storage (1)
- Stockpiles (1)
- Spill Kit (1)

Latitude: 35.052404
Longitude: -106.626367

Site Plan(s) and Details



LOCATION MAP
SCALE: NONE
COA ZONE ATLAS: E-12-Z

FIRM MAP
SCALE: NONE

INDEX OF CIVIL PLANS

C0.1	CIVIL COVER SHEET
C0.2	SITE PLAN
C1.1	GRADING & DRAINAGE PLAN
C1.2	SITE UTILITY PLAN
C1.3	SITE POWER AND LIGHTING PLAN
C1.4	SITE LIGHTING PHOTOMETRIC PLAN
C5.1	TYPICAL CIVIL DETAILS

J. KORY BAKER ARCHITECT
P.O. BOX 254 • ESTANCIA NM • 87016
505-450-7517 • jkory.baker@gmail.com

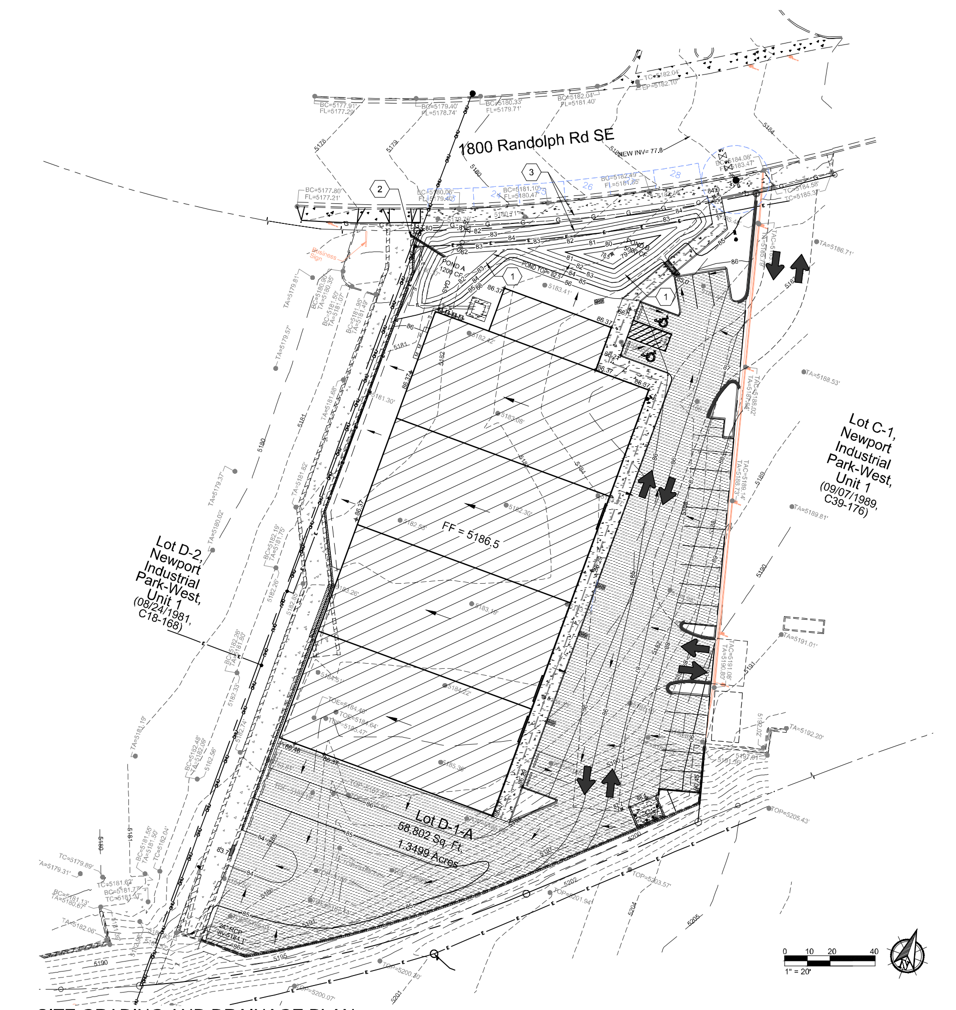
WAGONER BUILDING
ALBUQUERQUE • NEW MEXICO
CIVIL GENERAL NOTES

ABQ Engineering
Civil • Structural • Mechanical • Plumbing • Electrical
8102 Menaul Blvd. NE, Suite D, Albuquerque, NM 87110
tele: 505.255.7802 Proj. No.: 22-036 www.abqeng.com

DRAWN BY: JCH
DATE: 06-22-21

C0.1

Grading and Drainage Plan(s) and Details



1 SITE GRADING AND DRAINAGE PLAN

Scale: 1" = 20'

Hydrology Calculations
DPM - Volume 2,
Section 22.2.Hydrology

Precipitation Zone	2			
100 Year Storm Depth, P (360)	2.35			
Treatment Area	A	B	C	D
Excess Precipitation Factors	0.53	0.78	1.13	2.12
Peak Discharge Factors	1.56	2.28	3.14	4.70
Land Treatment Area	Acres	Existing	Allowable	Proposed
Type "A" (Native Grass, weeds and shrubs)		1.215		0.000
Type "B" (Native Grass >20% Slope)		0.135		0.135
Type "C" (Desert Landscaping,rock/plastic)		0.000		0.169
Type "D" (Impervious, Roof, Pavement)		0.000		1.046
Total (Acres)		1.3499		1.3499
Excess Precipitation(in)		0.56		1.86
Volume (100), cf		2720		9124
Volume (10),cf		1822		6113
Q (100), cfs		2.20		5.75
Q (10), cfs		1.48		3.86
P (360) Ponding Volume ,cf = V(10)proposed-V(10)Allowable = 4291				4291

DRAINAGE NARRATIVE

THIS SITE IS LOCATED AT 1800 RANDOLPH RD SE, IN ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO. THIS SITE IS LOCATED ON THE NATIONAL FLOOD INSURANCE RATE MAP NO. 35001C0342G EFFECTIVE ON 09/26/2008, AND LIES WITHIN ZONE X, WITH NO PORTION OF THE SITE LOCATED WITHIN A 100 YEAR FLOOD PLAIN.

THE EXISTING SITE CONSISTED OF A VACANT LOT. THE EXISTING SITE SURFACE TREATMENT HAS HISTORICALLY BEEN COVERAGE TYPE "A" (NATIVE GRASS, WEEDS AND SHRUBS). THE EXISTING RUNOFF SHEET FLOWS ACROSS THE SITE FROM THE SOUTHEAST TO THE NORTHWEST. THE SITE CURRENTLY DIRECTS OFFSITE DRAINAGE FROM THE SOUTH PROPERTY LINE NORTHWARD AND ULTIMATELY INTO RANDOLPH RD SE AND ASSOCIATED STORM DRAINS. THE EXISTING CONCRETE DRAINAGE STRUCTURE ALONG THE WEST PROPERTY LINE THAT DIRECTS OFF-SITE FLOW ALSO ACCEPTS SHEET FLOW FROM THE SITE.

THIS PROPOSED DEVELOPMENT INVOLVES THE ADDITION OF A NEW BUILDING AND PAVED PARKING AREA. THIS PROJECT DISTURBS APPROXIMATELY 1.215 ACRES OF A 1.3499 ACRE SITE. THE PROPOSED GRADING HONORS EXISTING OFFSITE DRAINAGE PATTERNS AND DIRECTS ALL OFFSITE RUNOFF AWAY THRU THE PROPERTY. THE EXISTING OFF-SITE FLOW HAS NOT BEEN DETERMINED AND THE OFF-STE TRIBUTARY AREA FOR THE EXISTING DRAINAGE STRUCTURE IS UNKNOWN. A NEW SHALLOW POND LOCATED NEAR AND ADJACENT TO RANDOLPH RD SE SIDEWALK. THE PONDING AREA WILL OVERFLOW TO THE EXISTING DRAINAGE STRUCTURE CURB FLOW LINE AND ULTIMATELY INTO RANDOLPH RD SE. THE SITE WILL HAVE THE STORM WATER QUALITY RUNOFF DRAIN DIRECTLY INTO THE PONDS, THE TOP OF WATER SURFACE IS SHOWN IN PLAN. THE TOP OF THE POND SURFACE IS BORDERED AND CONTAINED BY A BERM WITH A TOP ELEVATION THAT IS HIGHER THAN THE ELEVATION OF THE ADJACENT SIDEWALK AND TOP OF POND. (SEE PLAN SHEET C1.1 AND CALCULATIONS BELOW) FINISHED FLOOR ELEVATION OF THE PROPOSED BUILDING IS THE HIGH POINT OF THE SURROUNDING PARKING AREA AND HAS POSITIVE DRAINAGE AWAY FORM THE PERIMETER OF THE BUILDING. DEVELOPED ONSITE RUNOFF SHEET FLOWS ACROSS THE EXISTING ASPHALT PARKING AREA AND IS DIRECTED BY CURBS INTO TO THE STORM WATER QUALITY POND.

ONSITE STORM WATER QUALITY PONDING VOLUME

STORM WATER QUALITY STORAGE REQUIRED BY COA HYDROLOGY:
PROVIDE STORAGE FOR STORM WATER QUALITY PER SECTION 6 - 12 OF DPM USE 0.26 IN

STORM WATER QUALITY (IN) APPLIED OVER IMPERVIOUS AREAS (ACRES)
VOLUME DRAINING DIRECTLY INTO PONDING AREAS THEREFORE (0.26 / 12) X 1.181 X 43560 = 1115CF

CURB CUT PIPE CAPACITIES

SEE KEYED NOTE 2 AND PLAN FOR LOCATIONS OF TWO 4" PVC PIPES AT EXISTING DRAINAGE STRUCTRURE BACK OF CURB FLOW LINE Q = (1.486AR^2/3xS^0.5)/N = ((1.486 X 0.0873 X 0.0833)^2/3 X 0.02^0.5)/0.0090 = 0.7668 cfs / 4" PIPE

CURB DRAIN IS 2~4"Ø PIPES -> Q=1.54CFS = 92.4CFM = 5544CFH

TIME TO DRAIN EQUIVALENT WATER QUALITY VOLUME = 5544CFH/1115CF = 5 HOURS

KEYED NOTES

X

1. CONSTRUCT PONDING AREA. SEE STORM WATER QUALITY CALCULATIONS THIS SHEET.
2. CONSTRUCT 2 - 4" PVC PIPE CURB DRAIN FOR OVERFLOW DRAINAGE. SEE CALCULATIONS & COA STD. DETAIL #2235
3. TOP OF WATER SURFACE OF THE STORM WATER QUALITY POND IS LOWER THAN THE TOP OF THE ADJACENT BERM LOCATED BETWEEN THE SIDEWALK AND THE POND.

LEGEND

Symbol	Description	Symbol	Description
-6510-	EXISTING INDEX CONTOUR		DIRECTION OF FLOW
-6509-	EXISTING INTERIM CONTOUR		EXISTING FIRE HYDRANT
10	NEW INDEX CONTOUR	WV	EXISTING GATE VALVE
09	NEW INTERIM CONTOUR		EXISTING BUILDING
	NEW WATER SURFACE		NEW BUILDING
22.8	NEW SPOT ELEVATION	FF	FINISH FLOOR ELEVATION
	NEW CONCRETE SIDEWALK		
	EXISTING CONCRETE SIDEWALK		
S	EXISTING SANITARY SEWER MANHOLE		
S	NEW SANITARY SEWER MANHOLE		
	NEW SANITARY SEWER CLEANOUTS		

ABQ Engineering
Civil ▪Structural ▪Mechanical ▪Plumbing ▪Electrical
8102 Menaul Blvd. NE, Suite D, Albuquerque, NM 87110
tele: 505.255.7802 Proj. No.: 22-036 www.abqeng.com

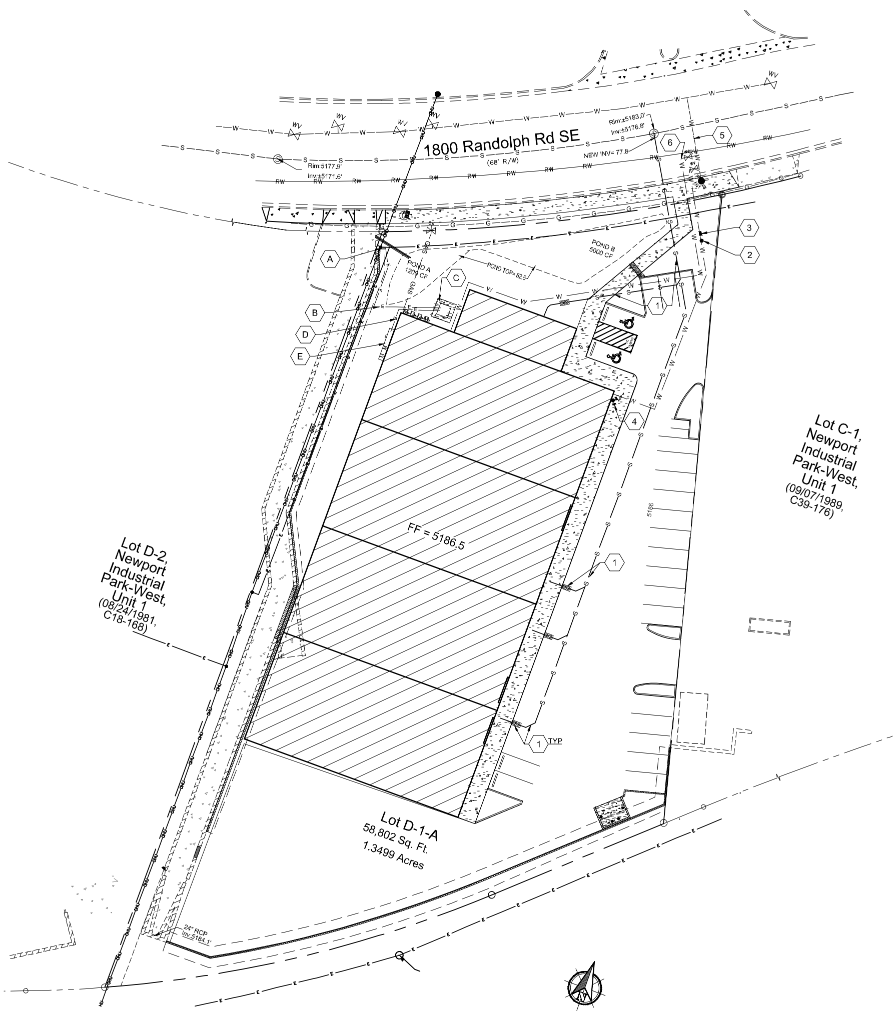
J. KORY BAKER ARCHITECT
P.O. BOX 254 · ESTANCIA NM · 87016

WAGONER BUILDING
ALBUQUERQUE • NEW MEXICO
SITE GRADING AND DRAINAGE PLAN

DRAWN BY: JCH
DATE: 08-22-21

C1.1

Utility Plan(s) and Details



1 SITE UTILITY PLAN

Scale: 1" = 20'

0 10 20 40
1" = 20'

WATER AND SAS KEYED NOTES (X)

1. CONSTRUCT NEW 4"Ø PVC SEWER LATERAL @ 2.0% MIN. AND DOUBLE CLEANOUT. SEE PLUMBING PLANS FOR CONTINUATION.
2. INSTALL 4"Ø PIV ON FIRE WATER LINE.
3. INSTALL 4"Ø RPBA ON FIRE WATER LINE.
4. INSTALL REMOTE FIRE DEPARTMENT CONNECTION ON 4"Ø PVC WATERLINE. COORDINATE SIZE AND TYPE WITH FIRE PROTECTION ENGINEER.
5. EXISTING 6"Ø FIRE WATER LINE TO FIRE HYDRANT.
6. INSTALL NEW VALVE AND 2"Ø PVC DOMESTIC WATER LINE.
7. INSTALL NEW GAS METERS - MAIN SUPPLY LINE BY NM GAS COMPANY. SEE PLUMBING DRAWINGS FOR SERVICE LINE SIZES.

ELECTRICAL KEYED NOTES (X)

A. NEW PNM ELECTRICAL DROP FROM EXISTING OVERHEAD PRIMARY.
B. NEW PNM FEEDER FROM POLE DROP TO PRIMARY SIDE OF TRANSFORMER. SEE ONE-LINE ON SHEET E-6.1
C. NEW PNM PAD MOUNTED TRANSFORMER SEE SHEET E1.1
D. NEW FEEDER FROM TRANSFORMER SECONDARY TO METER METER.SEE ONE-LINE ON SHEET E-6.1
E. NEW GANGABLE METER ASSEMBLY. SEE SHEET E1.1 & E-6.1

LEGEND

NEW ASPHALT PAVEMENT
EXISTING CONCRETE SIDEWALK
NEW CONCRETE SIDEWALK
EXISTING BUILDING
NEW BUILDING
FF FINISH FLOOR ELEVATION
EXISTING SANITARY SEWER MANHOLE
EXISTING SANITARY SEWER LINE
NEW SANITARY SEWER MANHOLE
NEW SANITARY SEWER LINE
NEW SANITARY SEWER CLEANOUTS
NEW NATURAL GAS LINE
NEW NATURAL GAS VALVE
DIRECTION OF FLOW
EXISTING WATERLINE
EXISTING FIRE HYDRANT
EXISTING GATE VALVE
NEW FIRE HYDRANT
NEW GATE VALVE
NEW WATER METER
NEW WATERLINE
EXISTING GAS LINE
EXISTING OVERHEAD ELECTRIC LINE
FIRE/DELIVERY LANE TRAFFIC CIRCULATION PATH (NO PAVMENT STRIPING)

J. KORY BAKER ARCHITECT
P.O. BOX 254 • ESTANCIA NM • 87016
505-450-7517 • j.kory.baker@gmail.com

WAGONER BUILDING
ALBUQUERQUE • NEW MEXICO

SITE UTILITY PLAN

ABQ Engineering
Civil • Structural • Mechanical • Plumbing • Electrical
8102 Menaul Blvd. NE, Suite D, Albuquerque, NM 87110
tele: 505.255.7802 Proj. No.: 22-036 www.abqeng.com

DRAWN BY: JCH
DATE: 08-22-21

C1.3

Appendix B – NOI Permit

NOI and NOT Permit

For SWPPPs that are being managed on compliance|**GO** the Notice of Intent (NOI) permit will be in the permits section in compliance|**GO**. Please notify the contact person for the operator found on the NOI in order to access this information if needed.

The NOI permit must be filed with the EPA by accessing the following website:

https://npdes-ereporting.epa.gov/net-cgp/action/login

For SWPPPs that are being managed on compliance|**GO** the Notice of Termination (NOT) will be located in the permits section in compliance|**GO**. Please notify the contact person for the operator found on the NOI in order to access this information if needed.

The NOT can be filed by completing the form electronically on the NeT Storm Water Database https://npdes-ereporting.epa.gov/net-cgp/action/login.

For SWPPPs that are being managed on compliance|**GO** all permits will be in the permits or documents section of compliance|**GO**. Please notify the contact person for the operator found on the NOI in order to access this information if needed.

Appendix C – Inspection Report

Inspection Reports

For SWPPPs that are being managed on compliance|**GO** all inspections will be in the inspection history section of compliance|**GO**.

Please notify the contact person for the operator found on the NOI in order to access this information if needed.

A copy of the Inspection and Visual Monitoring form can be accessed via the following link:

https://drive.google.com/file/d/0Bx_Y1vgmRG3UVEF2Q09nTDF3LUE/view?usp=sharing

Appendix D – Corrective Action Report

Maintenance of Controls

Responsive (Corrective) action items will be identified in the inspection report and action log. Once identified and reported, responsible parties in Section 1 will correct problems according to the Construction General Permit.

For SWPPPs that are being managed on compliance|**GO** the corrective action logs will be located in the inspection history section of compliance|**GO**.

Please notify the contact person for the operator found on the NOI in order to access this information if needed.

Appendix E – Subcontractor Certifications, Agreements, and Delegation of Authority

For SWPPPs that are being managed on compliance|**GO** the subcontractor certification pages, agreements, delegation of authority, or other signed SWPPP pages will be located in the documents section in compliance|**GO**.

Please notify the contact person for the operator found on the NOI in order to access this information if needed.

SUBCONTRACTOR CERTIFICATION
STORMWATER POLLUTION PREVENTION PLAN

Project Number: _____

Project Title: _____

Operator(s): _____

As a subcontractor, you are required to comply with the Stormwater Pollution Prevention Plan (SWPPP) for any work that you perform on-site. Any person or group who violates any condition of the SWPPP may be subject to substantial penalties or loss of contract. You are encouraged to advise each of your employees working on this project of the requirements of the SWPPP. A copy of the SWPPP is available for your review at the office trailer.

Each subcontractor engaged in activities at the construction site that could impact stormwater must be identified and sign the following certification statement:

I certify under the penalty of law that I have read and understand the terms and conditions of the SWPPP for the above designated project and agree to follow the BMPs and practices described in the SWPPP.

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

Company: _____

Address: _____

Telephone Number: _____

Type of construction service to be provided: _____

_____

_____

Signature: _____

Title: _____

Date: _____

Appendix F – Training Logs and Certifications

STAFF TRAINING REQUIREMENTS.

Prior to the commencement of earth-disturbing activities or pollutant-generating activities, whichever occurs first, the individual responsible for training must ensure and document that the Stormwater Team listed in Section 1.1 of the SWPPP, and onsite personnel understand the requirements of the permit and their specific responsibilities with respect to the following:

- The permit deadlines associated with installation, maintenance, and removal of storm water controls and with stabilization.
- The location of all storm water controls on the site required by the Construction General Permit and how they are to be maintained.
- The proper procedures to follow with respect to the Construction General Permit's pollution prevention requirements; and
- When and how to conduct inspections, record applicable findings, and take corrective actions.

For SWPPPs that are being managed on compliance|**GO** the training log will be located in the documents section of compliance|**GO**.

Please notify the contact person for the operator found on the NOI in order to access this information if needed.

Training Log

Project Name: _____

Project Location: _____

Date	Name of Attendee	Company	Training Topic	Instructor

Inspector Qualifications

The 2022 CGP requires that an inspector has one of the following qualifications or the equivalent as determined by the State: RSI, CPESC, CPSWQ, CESSWI, CISEC, NICET, or UDOT ECS.

Inspections will be conducted by an expert inspector at Inspections Plus, LLC.

Appendix G – Additional Information

Appendix G includes:

- Additional Permits
- Endangered Species Certification
- Historic Preservation
- Permit Regulations-Applicable Federal, Tribal, State, or Local Programs
- MS4 Stormwater Ordinance
- Fugitive Dust Plan
- Soil Report
- Correspondence
- Out of Date SWPPP documents

Additional Permits

For SWPPPs that are being managed on compliance|**GO** any additional permits will be located in the documents and/or permits sections in compliance|**GO**.

Please notify the contact person for the operator found on the NOI in order to access this information if needed.

a.	Will the site have a Stream Alteration Permit?	☐ Yes	☒ No
b.	Will the site have a 404(d) wetland permits?	☐ Yes	☒ No
c.	Does the site have an SPCC?	☐ Yes	☒ No
d.	Will the Site have a Dewatering Permit?	☐ Yes	☒ No
e.	Does the site have a Land Disturbance Permit or another city stormwater permit?	☐ Yes	☒ No

Endangered Species Certification

The US Fish and Wildlife Service has available a list of endangered species by state. The list for NM was found at the below website and is also listed on the following page.

http://criticalhabitat.fws.gov/

http://ecos.fws.gov/ecos/indexPublic.do

The protection of endangered species for this site falls under the following criterion as outlined in the Construction General Permit:

☒ **Criterion A:** No ESA-listed species and/or designated critical habitat present in this site's action area.

Supporting Documentation:

☒ Publicly available species list. Documentation can be found on the following page.

☒ Other source: http://criticalhabitat.fws.gov/

☐ **Criterion B:** Eligibility requirements met by another operator under the 2022 CGP.

☐ Supporting documentation as required by Appendix D of the CGP can be found on the following page.

☐ **Criterion C:** Discharges not likely to result in any short- or long-term adverse effects to ESA-listed species and/or designated critical habitat.

☐ Supporting documentation as required by Appendix D of the CGP can be found on the following page.

☐ **Criterion D:** Coordination with USFWS an/or NMFS has successfully concluded.

☐ Supporting documentation as required by Appendix D of the CGP can be found on the following page.

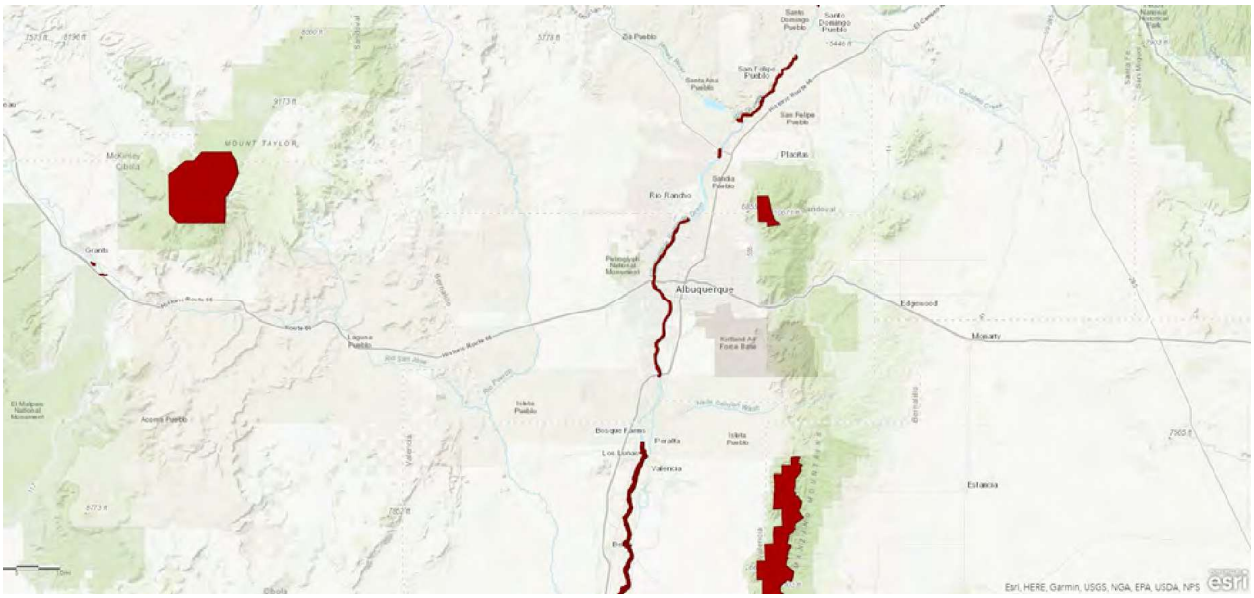
☐ **Criterion E:** ESA Section 7 consultation has successfully concluded.

☐ Supporting documentation as required by Appendix D of the CGP can be found on the following page.

☐ **Criterion F:** Issuance of Section 10 permit.

☐ Supporting documentation as required by Appendix D of the CGP can be found on the following page.

Contacts:
U.S. Fish and Wildlife Service: 1-800-344-9453
New Mexico Department of Game and Fish: 505-476-8000
US Fish and Wildlife Service: 801-975-3330 Ext.126


MOUNT TAYLOR
Albuquerque
Rio Rancho
Placitas
Estancia
Moriarty
Edgewood
Esri, HERE, Garmin, USGS, NGA, EPA, USDA, NPS

Endangered and Threatened Species in Bernalillo County as listed by the US Fish and Wildlife Service.

The following list is of endangered and threatened species in Bernalillo County. The list also includes species of concern, and species receiving special management to keep them off of the federal threatened and endangered species list.

Bernalillo County

Group	Name	Status
Insects	Monarch butterfly (Danaus plexippus)	Candidate
Mammals	New Mexico meadow jumping mouse (Zapus hudsonius luteus)	Endangered
Fishes	Rio Grande Silvery Minnow (Hybognathus amarus)	Endangered
Birds	Yellow-billed Cuckoo (Coccyzus americanus)	Threatened
Birds	Southwestern willow flycatcher (Empidonax traillii extimus)	Endangered
Birds	Sprague's pipit (Anthus spragueii)	Resolved Taxon
Birds	Mexican spotted owl (Strix occidentalis lucida)	Threatened

Historic Preservation

Are there any historic sites on or near the construction site?

☐ Yes ☒ No

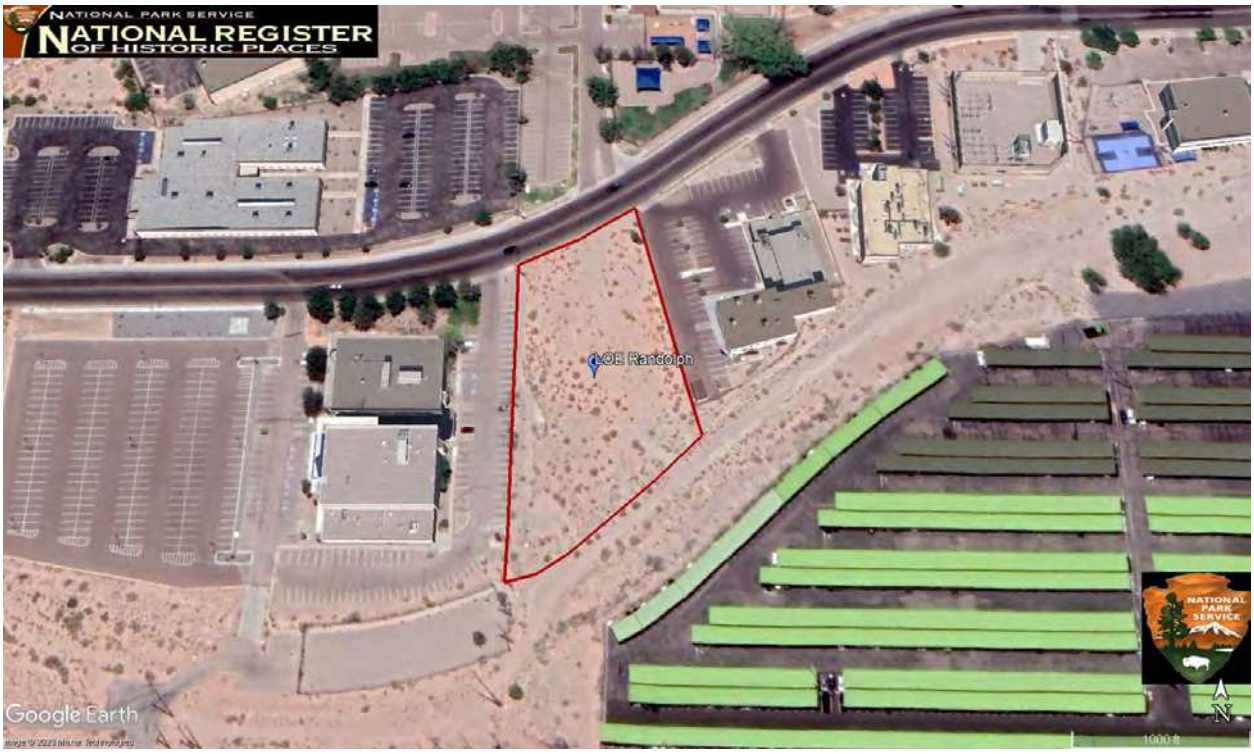
Describe how this determination was made:

- If any registered historic properties are present on or near the facility, they will be marked with a purple circle on the map below.
- There are no historic properties on or near the site.

This project will not have a negative environmental impact on a federally listed historic site as certified in the Historic Preservation Report. A list of State and Nationally Registered Historic Sites is included as part of this section. See the following websites:

http://nrhp.focus.nps.gov/natreg/docs/Download.html

http://www.nationalregisterofhistoricplaces.com/state.html



Permit Regulations-Applicable Federal, Tribal, State, or Local Programs

Specific requirements that are different or unique from the State of NM are outlined below.

Bernalillo County Requirements:

https://www.bernco.gov/public-works/public-works-services/water-wastewater-stormwater/report-water-waste/

Bernalillo County Storm Water Ordinance

For SWPPPs that are being managed on compliance|**GO** the local MS4 Regulations will be in the documents section of compliance|**GO**.

Please notify the contact person for the operator found on the NOI in order to access this information if needed.

Go to the following link to access the MS4 stormwater ordinance:

https://www.bernco.gov/public-works/public-works-services/water-wastewater-stormwater/stormwater/epa-regulation-of-stormwater-in-bernalillo-county/

Fugitive Dust Plan

For SWPPPs that are being managed on compliance|**GO** the Fugitive Dust Plan (if required) will be located in the documents section in compliance|**GO**.

Please notify the contact person for the operator found on the NOI in order to access this information if needed.

Soil Report

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

July 19, 2023

Preface

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

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

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

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

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

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

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

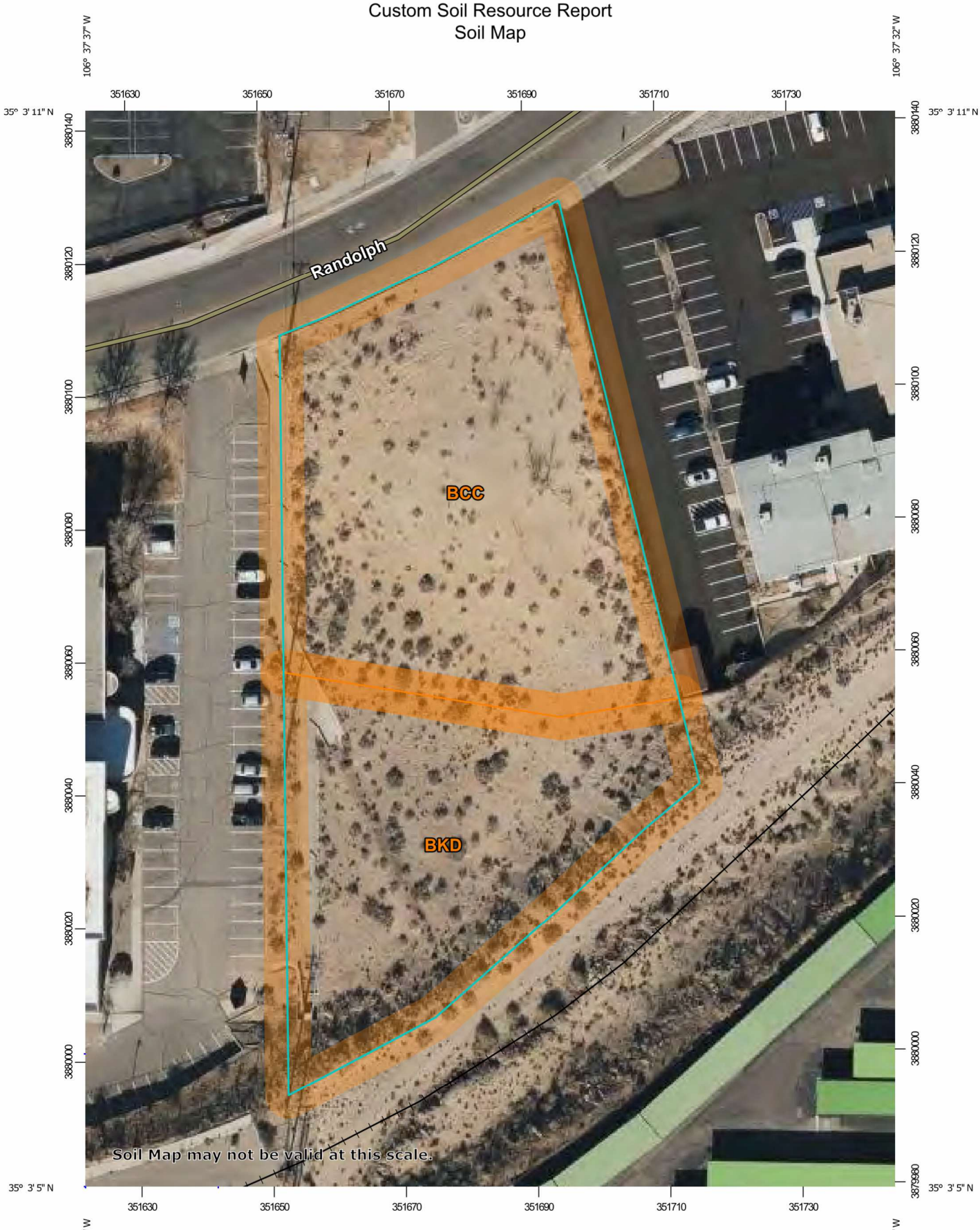
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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

Soil Map

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

Custom Soil Resource Report
Soil Map



Map Scale: 1:789 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 10 20 40 60

Feet: 0 35 70 140 210

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.

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 17, Sep 8, 2022

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

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BCC	Bluepoint loamy fine sand, 1 to 9 percent slopes	0.8	58.4%
BKD	Bluepoint-Kokan association, hilly	0.6	41.6%
Totals for Area of Interest		**1.4**	**100.0%**

Map Unit Descriptions

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

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

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

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

onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

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

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

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

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: R042BE054NM - Deep Sand, Cool Desert Grassland

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

BKD—Bluepoint-Kokan association, hilly

Map Unit Setting
National map unit symbol: 1vwd
Elevation: 1,400 to 6,000 feet
Mean annual precipitation: 4 to 10 inches
Mean annual air temperature: 58 to 60 degrees F
Frost-free period: 170 to 290 days
Farmland classification: Not prime farmland

Map Unit Composition
Bluepoint and similar soils: 50 percent
Kokan and similar soils: 40 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bluepoint

Setting
Landform: Alluvial flats, flood plains
Landform position (three-dimensional): Rise, talf
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Sandy alluvium and/or eolian sands

Typical profile

H1 - 0 to 8 inches: loamy fine sand
H2 - 8 to 60 inches: stratified fine sand to gravelly loamy fine sand

Properties and qualities

Slope: 5 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 3 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 4.3 inches)

Interpretive groups

Land capability classification (irrigated): 4s
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Ecological site: R042BE054NM - Deep Sand, Cool Desert Grassland
Hydric soil rating: No

Description of Kokan

Setting

Landform: Hillslopes, fan piedmonts
Landform position (two-dimensional): Shoulder, backslope, footslope
Landform position (three-dimensional): Side slope, rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous and sedimentary rock

Typical profile

H1 - 0 to 4 inches: gravelly sand
H2 - 4 to 60 inches: stratified very gravelly sand to extremely gravelly loamy coarse sand

Properties and qualities

Slope: 15 to 40 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very high (20.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
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: Very low (about 2.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: R042BE053NM - Gravelly Sand, Cool Desert Grassland
Hydric soil rating: No

Minor Components

Unnamed

Percent of map unit: 10 percent
Ecological site: R042BE054NM - Deep Sand, Cool Desert Grassland
Hydric soil rating: No

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

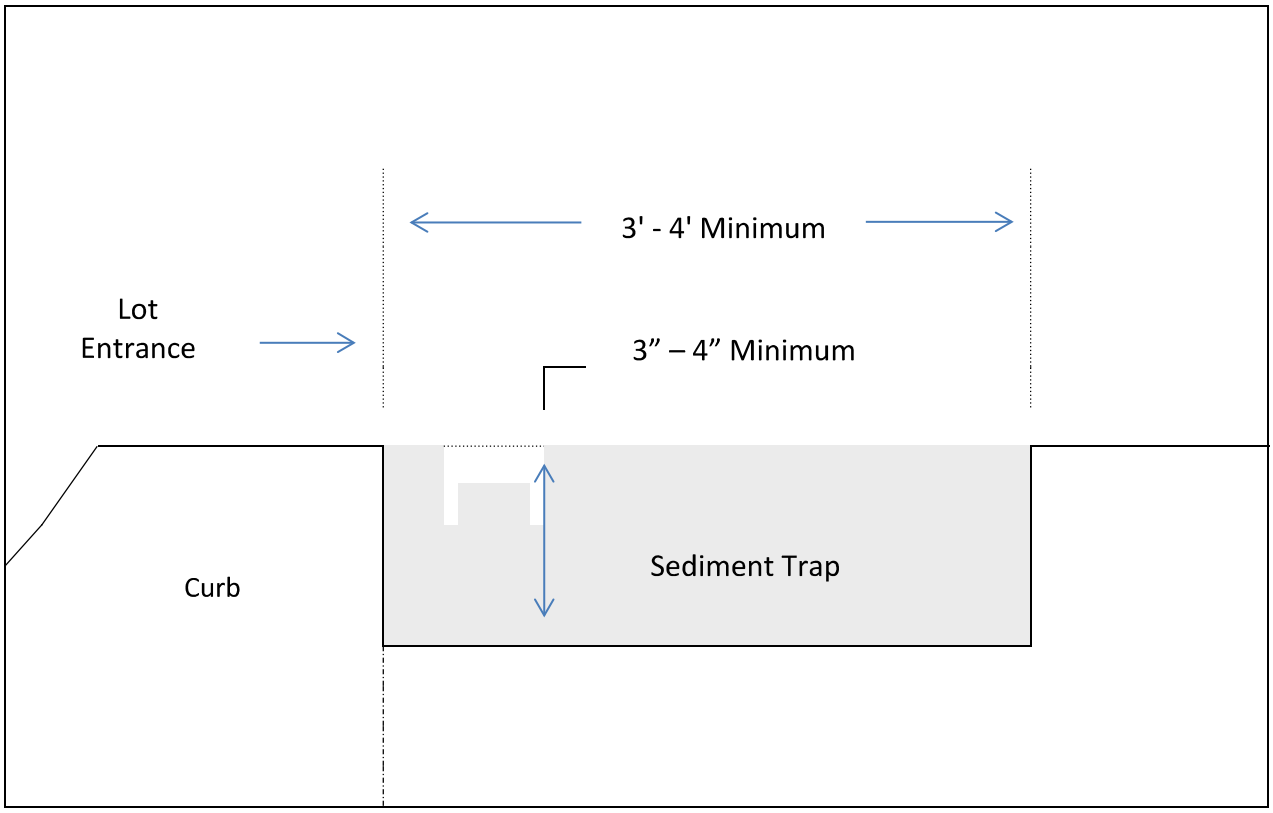
Correspondence

Out of Date Documentation (Site Maps, Expired Permits, Other)

Appendix H – BMP Instruction and Detail Specifications

BMP Specifications that will be used on the site are inserted in this section.

Cut-Back Curb



Cut-back curbs are temporary, structural, BMPs that create a place for water to pond at the perimeter of a site, allowing sediment to settle out of suspension, while still allowing full access to the site.

Greater Bay Area Environmental
Neil Trenerry CESSWI Lic#2956 Mobil: 925-752-4843

Objective
Sediment Control.

Targeted Pollutants
Sediment.

Applications
- Along the curb of lots.
- At site perimeters.

Limitations
- When installed improperly, cut-back curbs can undermine and cause the collapse of adjacent roadways.
- Not designed to handle large volumes of water.

Implementation Considerations
- Many variations of the standard cut-back curb exist. Consult regulations and site needs to determine which type is proper for your use.
- Soil should be cut back from behind the curb 3-4" to form a sediment trap, but the depth can be increased if more storage space is required.
- Installing sidewalks forms a two-stage sediment trap that will add to the effectiveness of the curb cut-back.

Inspection
- Inspect according to regulatory timetables.
- Proper depth of cut-back.
- Erosion of soil under roadways adjacent to cut-back.
- Accumulated sediment behind cut-back.
- Soil escaping the cut back ponding area.
- Accumulated trash and debris.

Maintenance
- Maintain proper depth of cut-back.
- Remove accumulated sediment when it reaches 1/3 – 1/2 the depth of the cut-back.
- Keep cut-back area free of trash and debris.

Dry Retention/Detention Ponds

Minimum Measure: Post-Construction Stormwater Management in New Development and Redevelopment

Subcategory: Retention/Detention

Description

Photo of a dry detention pond designed to temporarily detain runoff during storm events.

Dry detention ponds (a.k.a. dry ponds, extended detention basins, detention ponds, extended detention ponds) are basins whose outlets have been designed to detain stormwater runoff for some minimum time (e.g., 24 hours) to allow particles and associated pollutants to settle. Unlike wet ponds, these facilities do not have a large permanent pool of water. However, they are often designed with small pools at the inlet and outlet of the basin. They can also be used to provide flood control by including additional flood detention storage.

Applicability

Dry detention ponds have traditionally been one of the most widely used stormwater best management practices. In some instances, these ponds may be the most appropriate best management practice. However, they should not be used as a one size fits all solution. If pollutant removal efficiency is an important consideration then dry detention ponds may not be the most appropriate choice. Dry detention ponds require a large amount of space to build them. In many instances, smaller-sized best management practices are more appropriate alternatives (see Grassed Swales, Infiltration Basin, Infiltration Trench, Porous Pavement, and Bioretention (Rain Gardens), Alternative Pavers, or Green Roofs.

Regional Applicability

Dry detention ponds can be applied in all regions of the United States. Some minor design modifications might be needed, however, in cold or arid climates or in regions with karst (i.e. limestone) topography.

Ultra-Urban Areas

Ultra-urban areas are densely developed urban areas in which little pervious surface is present. It is difficult to use dry detention ponds in the ultra-urban environment because of the land area each pond consumes.

Stormwater Hot Spots

Stormwater hot spots are areas where land use or activities generate highly contaminated runoff, with concentrations of pollutants in excess of those typically found in stormwater. Dry detention ponds can accept runoff from stormwater hot spots, but they need significant separation from ground water if they will be used for this purpose.

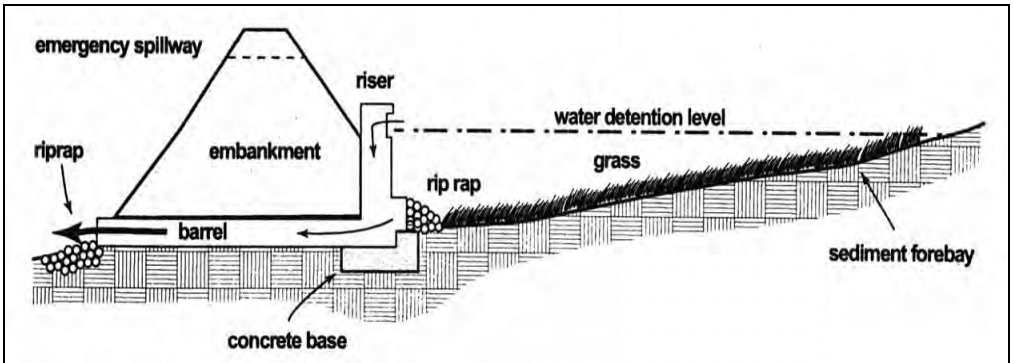
Stormwater Retrofit

A stormwater retrofit is a stormwater management practice (usually structural) put into place after development has occurred to improve water quality, protect downstream channels, reduce flooding, or meet other specific objectives. Dry detention ponds are useful stormwater retrofits, and they have two primary applications as a retrofit design. In many communities in the past, detention basins have been designed for flood control. It is possible to modify these facilities to incorporate features that encourage water quality control and/or channel protection. It is also possible to construct new dry ponds in open areas of a watershed to capture existing drainage.

Cold Water (Trout) Streams

A study in Prince George's County, Maryland, found that stormwater management practices can increase stream temperatures (Galli, 1990). Overall, dry detention ponds increased temperature by about 5°F. In cold water streams, dry ponds should be designed to detain stormwater for a relatively short time (i.e., less than 12 hours) to minimize the amount of warming that occurs in the practice. If the temperature of the water is a factor, then alternative best management practices may be more appropriate.

Siting and Design Considerations



Example profile view of a dry pond design.

Siting Considerations

Designers need to ensure that the dry detention pond is feasible at the site in question. This section provides basic guidelines for siting dry detention ponds.

Drainage Area

In general, dry detention ponds should be used on sites with a minimum area of 10 acres. On smaller sites, it can be challenging to provide channel or water quality control because the orifice diameter at the outlet needed to control relatively small storms becomes very small and thus prone to clogging. Low impact development techniques and on-lot treatment controls are recommended for smaller sites.

Slope

Dry detention ponds can be used on sites with slopes up to about 15 percent. The local slope needs to be

relatively flat, however, to maintain reasonably flat side slopes in the practice. There is no minimum slope requirement, but there does need to be enough elevation drop from the pond inlet to the pond outlet to ensure that flow can move through the system.

Soils / Topography

Dry detention ponds can be used with almost all soils and geology, with minor design adjustments for regions of karst topography or in rapidly percolating soils such as sand. In these areas, extended detention ponds should be designed with an impermeable liner to prevent ground water contamination or sinkhole formation.

Ground Water

Except for the case of hot spot runoff, the only consideration regarding ground water is that the base of the extended detention facility should not intersect the ground water table. A permanently wet bottom may become a mosquito breeding ground. Research in Southwest Florida (Santana et al., 1994) demonstrated that intermittently flooded systems, such as dry extended detention ponds, produced more mosquitoes than other pond systems, particularly when the facilities remained wet for more than 3 days following heavy rainfall.

Design Considerations

Specific designs may vary considerably, depending on site constraints or preferences of the designer or community. Some features, however, should be incorporated into most dry extended detention pond designs. These design features can be divided into five basic categories: pretreatment, treatment, conveyance, maintenance reduction, and landscaping.

Pretreatment

Pretreatment incorporates design features that help to settle out coarse sediment particles. By removing these particles from runoff before they reach the large permanent pool, the maintenance burden of the pond is reduced. In ponds, pretreatment is achieved with a sediment forebay, which is a small pool (typically about 10 percent of the volume of water to be treated for pollutant removal).

Treatment

Treatment design features help enhance the ability of a stormwater management practice to remove pollutants. Designing dry ponds with a high length-to-width ratio (i.e., at least 1.5:1) and incorporating other design features to maximize the flow path effectively increases the detention time in the system by eliminating the potential of flow to short-circuit the pond. Designing ponds with relatively flat side slopes can also help to lengthen the effective flow path. Finally, the pond should be sized to detain the volume of runoff to be treated for between 12 and 48 hours.

Conveyance

Conveyance of stormwater runoff into and through the dry pond is a critical component. Stormwater should be conveyed to and from dry ponds safely in a manner that minimizes erosion potential. The outfall of pond systems should always be stabilized to prevent scour. To convey low flows through the system, designers should provide a pilot channel. A pilot channel is a surface channel that should be

used to convey low flows through the pond. In addition, an emergency spillway should be provided to safely convey large flood events. To help mitigate the warming of water at the outlet channel, designers should provide shade around the channel at the pond outlet.

Maintenance Reduction

Regular maintenance activities are needed to maintain the function of stormwater practices. In addition, some design features can be incorporated to ease the maintenance burden of each practice. In dry detention ponds, a "micropool" at the outlet can prevent resuspension of sediment and outlet clogging. A good design includes maintenance access to the forebay and micropool.

Another design feature that can reduce maintenance needs is a non-clogging outlet. Typical examples include a reverse-slope pipe or a weir outlet with a trash rack. A reverse slope pipe draws from below the permanent pool extending in a reverse angle up to the riser and determines the water elevation of the micropool. Because these outlets draw water from below the level of the permanent pool, they are less likely to be clogged by floating debris.

Landscaping

Designers should maintain a vegetated buffer around the pond and should select plants within the extended detention zone (i.e., the portion of the pond up to the elevation where stormwater is detained) that can withstand both wet and dry periods. The side slopes of dry ponds should be relatively flat to reduce safety risks.

Design Variations

Tank Storage

Another variation of the dry detention pond design is the use of tank storage. In these designs, stormwater runoff is conveyed to large storage tanks or vaults underground. This practice is most often used in the ultra-urban environment on small sites where no other opportunity is available to provide flood control. Tank storage is provided on small areas because underground storage for a large drainage area would generally be costly. Because the drainage area contributing to tank storage is typically small, the outlet diameter needed to reduce the flow from very small storms would very small. A very small outlet diameter, along with the underground location of the tanks, creates the potential for debris being caught in the outlet and resulting maintenance problems. Since it is necessary to control small runoff events (such as the runoff from a 1-inch storm) to improve water quality, it is generally infeasible to use tank storage for water quality and generally impractical to use it to protect stream channels.

Regional Variations

Arid or Semi-Arid Climates

In arid and semi-arid regions, some modifications might be needed to conserve scarce water resources. Any landscaping plans should prescribe drought-tolerant vegetation wherever possible. In addition, the wet forebay can be replaced with an alternative dry pretreatment, such as a detention cell. In regions with a distinct wet and dry season, as in many arid regions, regional detention ponds can possibly be used as a recreation area such as a ball field during the dry season.

Cold Climates

In cold climates, some additional design features can help to treat the spring snowmelt. One such modification is to increase the volume available for detention to help treat this relatively large runoff event. In some cases, dry facilities may be an option as a snow storage facility to promote some treatment of plowed snow. If a pond is used to treat road runoff or is used for snow storage, landscaping should incorporate salt-tolerant species. Finally, sediment might need to be removed from the forebay more frequently than in warmer climates (see Maintenance Considerations for guidelines) to account for sediment deposited as a result of road sanding.

Limitations

Although dry detention ponds are widely applicable, they have some limitations that might make other stormwater management options preferable:

Dry detention ponds have only moderate pollutant removal when compared to other structural stormwater practices, and they are ineffective at removing soluble pollutants (See Effectiveness)
Dry extended detention ponds may become a nuisance due to mosquito breeding if improperly maintained or if shallow pools of water form for more than 7 days
Although wet ponds can increase property values, dry ponds can actually detract from the value of a home (see Cost Considerations)

Dry detention ponds on their own only provide peak flow reduction and do little to control overall runoff volume, which could result in adverse downstream impacts.

Maintenance Considerations

In addition to incorporating features into the pond design to minimize maintenance, some regular maintenance and inspection practices are needed. Table 1 outlines some of these practices.

Table 1. Typical maintenance activities for dry ponds (Source: Modified from WMI, 1997)

Activity	Schedule
Note erosion of pond banks or bottom	Semiannual inspection
Inspect for damage to the embankment Monitor for sediment accumulation in the facility and forebay Examine to ensure that inlet and outlet devices are free of debris and operational	Annual inspection
Repair undercut or eroded areas Mow side slopes Manage pesticide and nutrients Remove litter and debris	Standard maintenance
Seed or sod to restore dead or damaged ground	Annual

cover	maintenance (as needed)
Remove sediment from the forebay	5- to 7-year maintenance
Monitor sediment accumulations, and remove sediment when the pond volume has been reduced by 25 percent	25- to 50-year maintenance

Effectiveness

Structural management practices can be used to achieve four broad resource protection goals: flood control, channel protection, ground water recharge, and pollutant removal. Dry detention basins can provide flood control and channel protection, as well as some pollutant removal.

Flood Control

One objective of stormwater management practices can be to reduce the flood hazard associated with large storm events by reducing the peak flow associated with these storms. Dry extended detention basins can easily be designed for flood control, and this is actually the primary purpose of most detention ponds.

Channel Protection

One result of urbanization is the geomorphic changes that occur in response to modified hydrology. Traditionally, dry detention basins have provided control of the 2-year storm (i.e., the storm that occurs, on average, once every 2 years) for channel protection. It appears that this control has been relatively ineffective, and research suggests that control of a smaller storm might be more appropriate (MacRae, 1996). Slightly modifying the design of dry detention basins to reduce the flow of smaller storm events might make them effective tools in reducing downstream erosion.

Pollutant Removal

Dry detention basins provide moderate pollutant removal, provided that the design features described in the Siting and Design Considerations section are incorporated. Although they can be effective at removing some pollutants through settling, they are less effective at removing soluble pollutants because of the absence of a permanent pool. A few studies are available on the effectiveness of dry detention ponds. Typical removal rates, as reported by Schueler (1997), are as follows:

Total suspended solids: 61%

Total phosphorus: 19%

Total nitrogen: 31%

Nitrate nitrogen: 9%

Metals: 26%-54%

There is considerable variability in the effectiveness of ponds, and it is believed that properly designing and maintaining ponds may help to improve their performance. The siting and design criteria presented in this sheet reflect the best current information and experience to improve the performance of wet ponds. A joint project of the American Society of Civil Engineers (ASCE) and the USEPA Office of Water might help to isolate specific design features that can improve performance. The National Stormwater Best Management Practice (BMP) database is a compilation of stormwater practices that includes both design information and performance data for various practices. As the database expands, inferences about the extent to which specific design criteria influence pollutant removal may be made. For more information on this database, access the BMP database EXIT Disclaimer.

Cost Considerations

The construction costs associated with dry detention ponds range considerably. One recent study evaluated the cost of all pond systems (Brown and Schueler, 1997). Adjusting for inflation, the cost of dry extended detention ponds can be estimated with the equation

$C = 12.4V^{0.760}$

where:

C = Construction, design, and permitting cost, and

V = Volume needed to control the 10-year storm (ft^3).

Using this equation, typical construction costs are

$ 41,600 for a 1 acre-foot pond

$ 239,000 for a 10 acre-foot pond

$ 1,380,000 for a 100 acre-foot pond

Interestingly, these costs are generally slightly higher than the cost of wet ponds on a cost per total volume basis. Dry detention ponds are generally less expensive on a given site, because they are usually smaller than a wet pond design.

Ponds do not consume a large area compared to the total area treated (typically 2 to 3 percent of the contributing drainage area). It is important to note, however, that each pond is generally large. Other practices, such as filters or swales, may be "squeezed in" on relatively unusable land, but ponds need a relatively large continuous area.

For ponds, the annual cost of routine maintenance is typically estimated at about 3 to 5 percent of the construction cost. Alternatively, a community can estimate the cost of the maintenance activities outlined in the maintenance section. Finally, ponds are long-lived facilities (typically longer than 20 years). Thus, the initial investment into pond systems can be spread over a relatively long time period.

Another economic concern associated with dry ponds is that they might detract slightly from the value of

adjacent properties. One study found that dry ponds can actually detract from the perceived value of homes adjacent to a dry pond by between 3 and 10 percent (Emmerling-Dinovo, 1995).

References

Design References:

Denver Urban Drainage and Flood Control District. 1992. *Urban Storm Drainage Criteria Manual-Volume 3: Best Management Practices*. Denver, CO.

Watershed Management Institute (WMI). 1997. *Operation, Maintenance, and Management of Stormwater Management Systems*. Prepared for U.S. Environmental Protection Agency, Office of Water. Washington, DC.

Other References:

Brown, W., and T. Schueler. 1997. *The Economics of Stormwater BMPs in the Mid-Atlantic Region*. Prepared for Chesapeake Research Consortium. Edgewater, MD. Center for Watershed Protection. Ellicott City, MD.

Emmerling-Dinovo, C. 1995. Stormwater Detention Basins and Residential Locational Decisions. *Water Resources Bulletin* 31(3): 515-521

Galli, J. 1990. *Thermal Impacts Associated with Urbanization and Stormwater Management Best Management Practices*. Metropolitan Washington Council of Governments. Prepared for Maryland Department of the Environment, Baltimore, MD.

MacRae, C. 1996. Experience from Morphological Research on Canadian Streams: Is Control of the Two-Year Frequency Runoff Event the Best Basis for Stream Channel Protection? In *Effects of Watershed Development and Management on Aquatic Ecosystems*. American Society of Civil Engineers. Edited by L. Roesner. Snowbird, UT. pp. 144-162.

Santana, F., J. Wood, R. Parsons, and S. Chamberlain. 1994. *Control of Mosquito Breeding in Permitted Stormwater Systems*. Prepared for Southwest Florida Water Management District, Brooksville, FL.

Schueler, T. 1997. Influence of Ground Water on Performance of Stormwater Ponds in Florida. *Watershed Protection Techniques* 2(4):525-528.

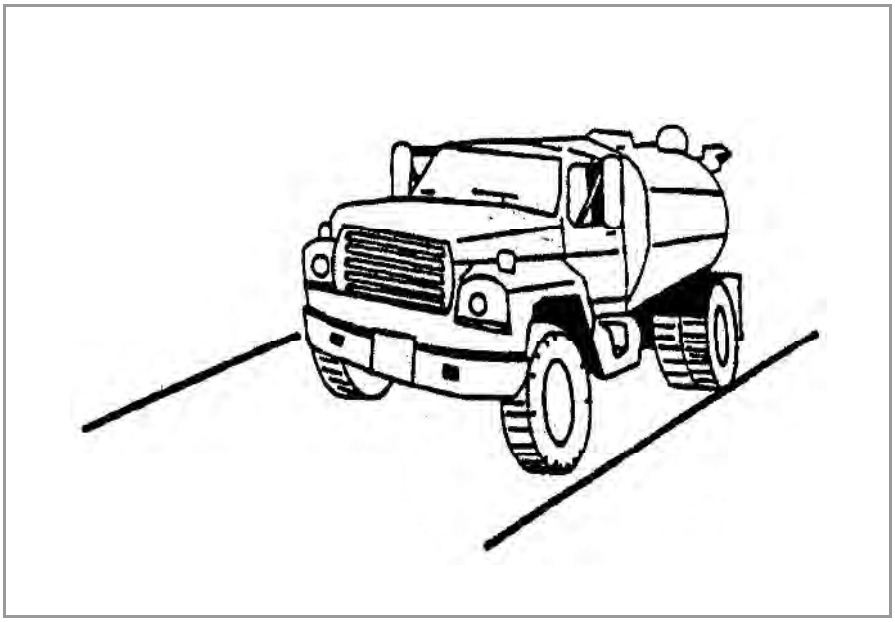
Information Resources

Center for Watershed Protection (CWP), Environmental Quality Resources, and Loiederman Associates. 1997. *Maryland Stormwater Design Manual*. Draft. Prepared for Maryland Department of the Environment, Baltimore, MD.

Center for Watershed Protection (CWP). 1997. *Stormwater BMP Design Supplement for Cold Climates*. Prepared for U.S. Environmental Protection Agency, Office of Wetlands, Oceans and Watersheds. Washington, DC.

U.S. Environmental Protection Agency (USEPA). 1993. *Guidance Specifying Management Measures for*

Sources of Nonpoint Pollution in Coastal Waters. EPA-840-B-92-002. U.S. Environmental Protection Agency, Office of Water, Washington, DC.



DESCRIPTION:
Dust control measures are used to stabilize soil from wind erosion, and reduce dust by construction activities.

APPLICATION:
Dust control is useful in any process area, loading and unloading area, material handling areas, and transfer areas where dust is generated. Street sweeping is limited to areas that are paved.

INSTALLATION/APPLICATION CRITERIA:
- Mechanical dust collection systems are designed according to the size of dust particles and the amount of air to be processed. Manufacturers' recommendations should be followed for installation (as well as the design of the equipment).
- Two kinds of street weepers are common: brush and vacuum. Vacuum sweepers are more efficient and work best when the area is dry.
- Mechanical equipment should be operated according to the manufacturers' recommendations and should be inspected regularly.

LIMITATIONS:
- Generally more expensive than manual systems.
- May be impossible to maintain by plant personnel (the more elaborate equipment).
- Labor and equipment intensive and may not be effective for all pollutants (street sweepers).

MAINTENANCE:
If water sprayers are used, dust-contaminated waters should be collected and taken for treatment. Areas will probably need to be resprayed to keep dust from spreading.

Keeping Your Construction Projects Compliant

Outpak® Washout

- Concrete, Paint, Dry Wall Mud, Stucco, Mortar
- Easy to Transport, Setup and Dispose of
- Eco-Friendly and BMP Compliant

Corrugated Washouts

Heavy-duty, water-treated Kraft fiberboard

Folds flat for easy transport and storage

30”x30”x14”

Capacity: 0.25 cu. yards/50 gallons

Part No: 945-123030

4’x4’x14”

Capacity: 0.68 cu. yards/140 gallons

Part No: 945-123404

6’x6’x11”

Capacity: 1.33 cu. yards/260 gallons

Part No: 945-123406

All-Weather Washouts

Woven poly propylene for the worst of climates

4’x4’x14” with Top

Capacity:
0.68 cu. yards/140 gallons

Includes 5 to 1 safe working load lifting straps

Part No: 950-12304AW

6’x6’x12” Bottom

Capacity: 1.33 cu. yards/260 gallons

1 to 1 safe safe working load lifting straps

Part No: 950-12306AW-Bot

6’x6’ Rainfly

For All-Weather and Corrugated Washouts

Part No: 950-12306AW-Top

outpak.com

208-376-6967 sales@outpak.com

OUTPAK CORRUGATED WASHOUT

PART 1: GENERAL

1.01 Description

A. Work shall consist of furnishing and installing an OUPAK CORRUGATED CONCRETE WASHOUT in accordance with these specifications and in conformity with the plans.

B. Work includes preparing foundation soil, furnishing and installing leveling pad, washout and removal of washout.

C. The washout may be used for concrete, sediment, paint, drywall, stucco, or mortar.

1.02 Submittals/Certification

A. Contractor shall submit a Manufacturer's certification, prior to start of work, that the washout meets the requirements of this specification.

B. The washout location should be shown on the Project specific Storm Water Pollution Plan (SWPPP) drawings or Erosion and Sediment Control Plan (ESCP) drawings.

1.03 Delivery, Storage and Handling

A. Contractor shall check all materials upon delivery to assure that the size, type, and quantities have been received.

B. Contractor shall protect all materials from damage due to jobsite conditions and in accordance with manufacturer's recommendations. Damaged materials shall not be incorporated into the work.

PART 2: PRODUCTS

2.01 Washout

A. The Washout consists of a corrugated box and a 6-mm poly liner.

B. The Outpak Corrugated Box is constructed of water resistant 350#VC# water-treated Kraft fiberboard.

2.02 Base

A. Material shall consist of native or imported soil. May also be level asphalt or concrete surface.

PART 3: EXECUTION

3.01 Prepare Level Surface

A. Locate level area to deploy. The washout should be located away from storm drains, gutters, or other stormwater conveyances as much as practical.

B. Clear area where washout is to be deployed of debris, rocks, other materials that may puncture the corrugated board and 6-mm plastic liner. If rocks or other debris cannot be removed, cover protrusions with imported sand.

3.02 Set Up Washout

A. Locate a level area to deploy the Washout and clear it of any debris that may cause damage.

B. Unfold the corrugated box.

C. Cover the corrugated box with the enclosed 6-mm polyethylene liner.

D. Secure Liner into pinch points at top washout box perimeter.

E. Insert tie-down stakes if required (note tie-down stakes are not provided with corrugated washout).

F. If a storm is imminent cover the Outpak washout with a tarp to prevent overflow of the washout.

3.03 Dispose Outpak Washout

A. After the Washout has been filled with washout residue material, allow the wastewater to evaporate leaving only solid concrete residue. Wastewater can be pumped form the washout and disposed of a facility permitted to receive liquid waste. Alternatively, use OutPak's Slurry Solution to solidify wastewater.

B. After residue has dried, load the hardened unit onto a flat-bed truck or dump truck with construction equipment such as a forklift or loader. Full, hardened units can be stacked for easy transportation.

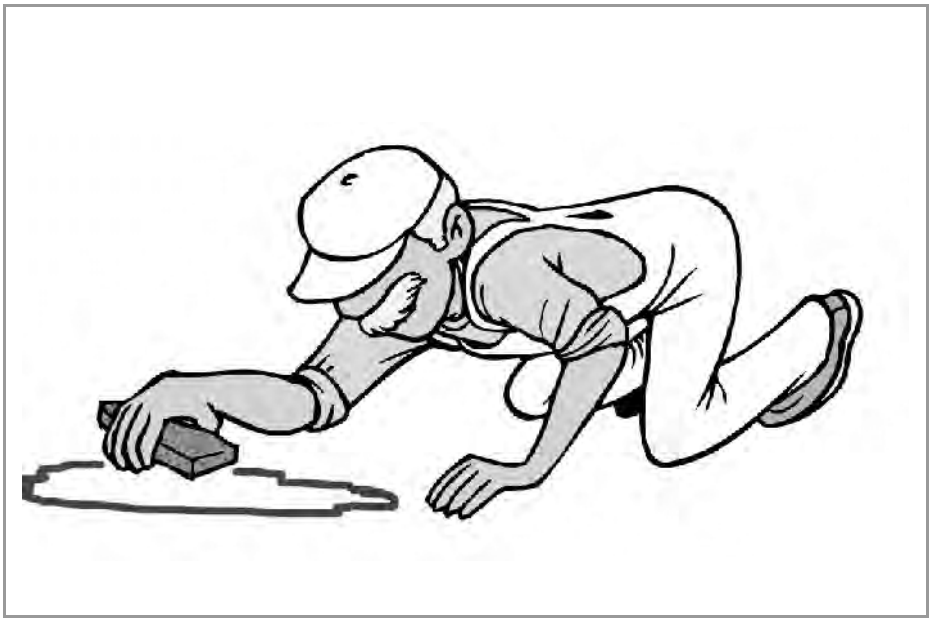
3.04 Field Quality Control

A. Check washout unit for leaks. Ensure wash water is not leaking out of washout.

B. Washouts may be used for multiple washout events and concrete placement events. Make sure that the washout has sufficient free space to hold the next planned washout event.

C. Cover the Washout if precipitation is likely. Prevent stormwater from over-filling the washout and causing a discharge of wash water.

C. If the washout is moved, note the new location in the project stormwater pollution prevention documents.



DESCRIPTION:
Practices to clean-up leakage/spillage of on-site materials that may be harmful to receiving waters.

APPLICATION:
All sites

GENERAL:
- Store controlled materials within a storage area.
- Educate personnel on prevention and clean-up techniques.
- Designate an Emergency Coordinator responsible for employing preventative practices and for providing spill response.
- Maintain a supply of clean-up equipment on-site and post a list of local response agencies with phone numbers.

METHODS:
- Clean-up spills/leaks immediately and remediate cause.
- Use as little water as possible. NEVER HOSE DOWN OR BURY SPILL CONTAMINATED MATERIAL.
- Use rags or absorbent material for clean-up. Excavate contaminated soils. Dispose of clean-up material and soil as hazardous waste.
- Document all spills with date, location, substance, volume, actions taken and other pertinent data.
- Contact the Salt Lake County Health Department (313-6700) for any spill of reportable quantity.

Waste Management

WM–5 Stockpile Management

Definition

Stockpile Management procedures and practices are designed to reduce or eliminate air and stormwater pollution from stockpiles of soil, paving materials such as Portland Cement Concrete (PCC) rubble, Asphalt Concrete (AC), asphalt concrete rubble, aggregate base, aggregate sub base or pre-mixed aggregate, asphalt minder (so called "cold mix" asphalt), and pressure treated wood.

Purpose

To prevent air and stormwater pollution from stockpiles of various construction materials.

Conditions Where the Practice Applies

Implement in all Projects that stockpile soil and other materials.

Specifications: Design and Installation

Protection of stockpiles is a year-round requirement. To properly manage stockpiles:

- Locate stockpiles a minimum of 50 feet away from concentrated flows of stormwater, stormdrain inlets, and the site perimeter.
- Protect all stockpiles from stormwater runon using a temporary perimeter sediment barrier such as gravel bags, fiber rolls, or cutback curb.
- Protect all stockpiles from stormwater and wind erosion by completely covering with some type of tarp or covering. Secure the tarp with stakes or gravel bags to ensure the tarp does not blow off or expose any portion of the stockpile. Stockpiles must be covered at all times.
- Implement wind erosion control practices as appropriate on all stockpiled material. For specific information, see WEC – 1 Dust Control.
- Manage stockpiles of contaminated soil in accordance with WM – 8 Contaminated Soil Management.
- Place bagged materials in the material storage area, in secondary containment, and under cover.

<u>Protection of Non-Active Stockpiles</u>

Non-active stockpiles of the identified materials should be protected further as follows:

Soil Stockpiles

- Soil stockpiles should be covered or protected with soil stabilization measures and a temporary perimeter sediment barrier at all times.

Stockpiles of Portland Cement Concrete Rubble, Asphalt Concrete, Asphalt Concrete Rubble, Aggregate Base, or Aggregate Sub Base

- The stockpiles should be covered or protected with soil stabilization measures and a temporary perimeter sediment barrier at all times.

Stockpiles of "Cold Mix"

- Soil stockpiles should be placed on and covered with plastic or comparable

Waste Management

WM–5 Stockpile Management

material at all times.

Stockpiles/Storage of Pressure Treated Wood with Copper, Chromium, and Arsenic or Ammonical, Copper, Zinc, and Arsenate

- Treated wood should be covered with plastic or comparable material at all times.

Protection of Active Stockpiles

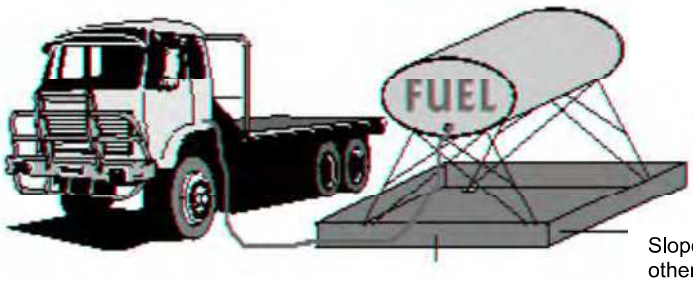
- All stockpiles should be covered and protected with a temporary linear sediment barrier prior to the onset of precipitation.
- Stockpiles of "cold mix" should be placed on and covered with plastic or comparable material prior to the onset of precipitation.

Maintenance & Inspection

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities.
- Inspect BMPs prior to forecast rain, daily during extended rain events, after rain events, and weekly throughout the life of the Project.
- Repair and/or replace perimeter controls and covers as needed to keep them functioning properly. Ensure stockpiles are covered at all times and that the covers are properly secured or weighted down.

BMP: Vehicle And Equipment Fueling

VEF
Construction



Must be capable of holding 100% of tank capacity

Sloped or otherwise designed for easy removal of leaked fuel

DESCRIPTION:
Prevent fuel spills and leaks, and reduce their impacts to storm water by using off-site facilities, fueling in designated areas only, enclosing or covering stored fuel, implementing spill controls, and training employees and subcontractors.

INSTALLATION/APPLICATION:
- Use off-site fueling stations as much as possible. Fueling vehicles and equipment outdoors or in areas where fuel may spill/leak onto paved surfaces or into drainage pathways can pollute storm water. If you fuel a large number of vehicles or pieces of equipment, consider using an off-site fueling station. These areas are better equipped to handle fuel and spills properly. Performing this work off-site can also be economical by eliminating the need for a separate fueling area at your site.
- If fueling must occur on-site, use designated areas, located away from drainage courses, to prevent the runon of storm water and the runoff of spills. Discourage topping-off of fuel tanks.
- Always use secondary containment, such as a drain pan or drop cloth, when fueling to catch spills/leaks. Place a stockpile of spill cleanup materials where it will be readily accessible. Use adsorbent materials on small spills rather than hosing down or burying the spill. Remove the adsorbent materials promptly and dispose of properly.
- Carry out all Federal and State requirements regarding stationary above ground storage tanks. (40 CF Sub. J) Avoid mobile fueling of mobile construction equipment around the site; rather, transport the equipment to designated fueling areas. With the exception of tracked equipment such as bulldozers and perhaps forklifts, most vehicles should be able to travel to a designated area with little lost time. Train employees and subcontractors in proper fueling and cleanup procedures.

LIMITATIONS:
Sending vehicles/equipment off-site should be done in conjunction with Stabilized Construction Entrance.

MAINTENANCE:
- Keep ample supplies of spill cleanup materials on-site.
- Inspect fueling areas and storage tanks on a regular schedule.

Waste Management

Definition	Provide designated waste collection areas and containers, arranging for regular disposal, and training employees and subcontractors.
Purpose	Prevent or reduce the discharge of pollutants to stormwater from solid, leachable, or construction waste.

Conditions Where the Practice Applies

This BMP is suitable for construction sites where the following wastes are generated or stored:

- Solid waste generated from trees and shrubs removed during land clearing, demolition of existing structures (rubble), and building construction.
- Packaging materials including wood, paper, and plastic.
- Scrap or surplus building materials including scrap metals, rubber, plastic, glass pieces, and masonry products.
- Domestic wastes including food containers such as beverage cans, coffee cups, paper bags, plastic wrappers, and cigarettes.
- Construction wastes including brick, mortar, timber, steel and metal scraps, pipe and electrical cuttings, non-hazardous equipment parts, Styrofoam and other materials used to transport and package construction materials.
- Planting wastes, including vegetative material, plant containers, and packaging materials.

Specifications: Design and Installation

The following steps will help keep a clean site and reduce stormwater pollution:

- Select designated waste collection areas onsite.
- Provide an adequate number of containers to prevent loss of wastes when it is windy.
- Plan for additional containers and more frequent pickup during the demolition phase of construction.
- Arrange for regular waste collection. Do not allow containers to overflow.
- Make sure that toxic liquid wastes (used oils, solvents, and paints) and chemicals (acids, pesticides, additives, curing compounds) are not disposed of in dumpsters designated for construction debris.
- Trash receptacles should be provided in the Contractor's yard, field trailer areas, and at locations where workers congregate for lunch and break periods.
- Dumpsters of sufficient size and number should be provided to contain the solid waste generated by the Project.

Sources include EPA, SWRCB, Caltrans, CASQA,
University of California, Santa Barbara

- Stormwater run-on should be prevented from contacting stored solid waste through the use of berms, dikes, or other temporary diversion structures or through the use of measures to elevate waste from site surfaces.
- Solid waste storage areas should be, where possible, located at least 50 feet from drainage facilities and watercourses and should not be located in areas prone to flooding or ponding.

Education

- Have the Contractor's superintendent or representative oversee and enforce proper solid waste management procedures and practices.
- Instruct employees and subcontractors on identification of solid waste and hazardous waste. Hazardous waste must not be disposed of in dumpsters.
- Educate employees and subcontractors on solid waste storage and disposal procedures. Include bagging of blowable trash.
- Hold regular meetings to discuss and reinforce disposal procedures.
- Require that employees and subcontractors follow solid waste handling and storage procedures.
- Prohibit littering by employees, subcontractors, and visitors.
- Minimize production of solid waste materials whenever possible.

Collection, Storage, and Disposal

- Littering on the Project site is prohibited.
- To prevent clogging of the stormwater drainage system, litter and debris removal from drain gates, trash racks, and ditch lines should be a priority.
- Trash receptacles from work areas within the construction limits of the Project site should be collected, regardless of whether the litter was generated by the Contractor, the public, or others. Collected litter and debris shall not be placed in or next to storm drain inlets, stormwater drainage systems, watercourses, or near the site perimeter.
- Full dumpsters should be removed from the Project site and the contents should be disposed of properly by trash hauling contractor.
- Construction material visible to the public should be stored or stacked in an orderly manner.
- Dispose of planting waste in dumpsters.
- Segregate potentially hazardous waste from non-hazardous construction site waste.
- Make sure that toxic liquid wastes (used oils, solvents, and paints) and chemicals (acids, pesticides, additives, curing compounds) are NOT disposed of in dumpsters designated for construction debris.
- Make sure that demolition materials containing hazardous wastes are NOT disposed of in dumpsters designated for construction debris.
- For disposal of hazardous waste, have hazardous waste hauled to an appropriate disposal and/or recycling facility.
- Salvage or recycle useful vegetation debris, packaging and surplus building materials when

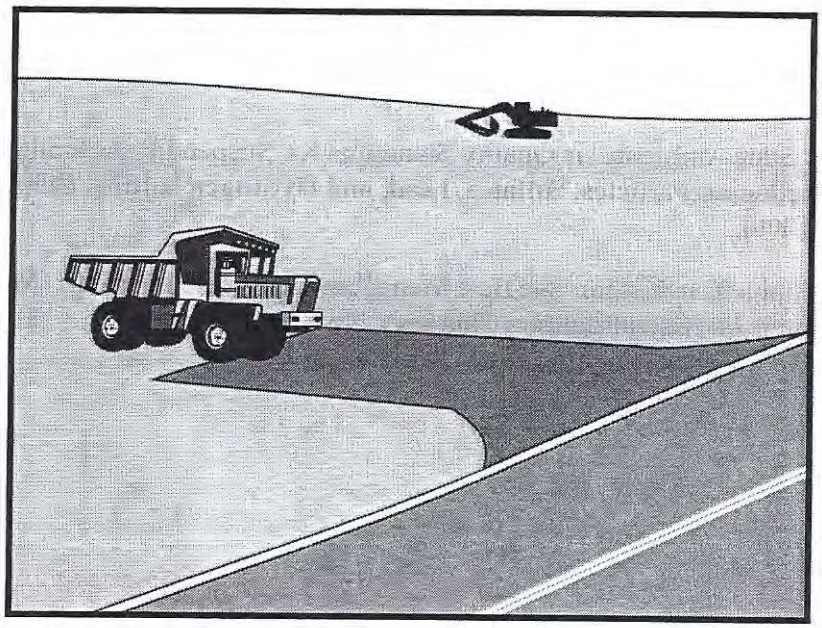
practical. For example, trees and shrubs from land clearing can be used as a brush barrier or converted into wood chips, then used as mulch on graded areas. Wood pallets, cardboard boxes, and construction scraps can also be recycled.

- Collect site trash daily and dispose in the dumpster, throughout the life of the Project, especially during the rainy and windy conditions.
- Make sure that construction waste is collected, removed, and disposed of only at authorized disposal areas.
- Remove solid waste promptly since erosion and sediment control devices tend to collect litter.
- Bag any waste that can leak out of the dumpster.
- Bag all blowable trash so that it is contained within the dumpster.
- Arrange for regular waste collection.

Maintenance & Inspection

- Inspect and verify that activity based BMPs are in place prior to the commencement of associated activities.
- Inspect BMPs daily during extended rain events, after rain events, and weekly throughout the life of the Project.
- Inspect construction waste area regularly.
- Monitor employees, subcontractors, and visitors and ensure no littering.
- Check erosion and sediment controls for the accumulation of trash or debris.
- Inspect dumpsters to be sure that blowable trash is bagged.
- Inspect the dumpsters for leaks or signs of liquid waste in the dumpsters.
- Do not hose out dumpsters on the construction site. Leave dumpster cleaning to the trash hauling Contractor.
- Clean up immediately if a container does spill.

Stabilized Construction Entrance/Exit TC-1



Objectives

EC	Erosion Control	!K!
SE	Sediment Control	!K!
TC	Tracking Control	O
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

O Primary Objective

!K! Secondary Objective

Targeted Constituents

- Sediment
- Nutrients
- Trash
- Metals
- Bacteria
- Oil and Grease
- Organics

Potential Alternatives

None

Description and Purpose

A stabilized construction access is defined by a point of entrance/exit to a construction site that is stabilized to reduce the tracking of mud and dilt onto public roads by construction vehicles.

Suitable Applications

Use at construction sites:

- Where dirt or mud can be tracked onto public roads.
- Adjacent to water bodies.
- Where poor soils are encountered.
- Where dust is a problem during dry weather conditions.

Limitations

- Entrances and exits require periodic top dressing with additional stones.
- This BMP should be used in conjunction with street sweeping on adjacent public right of way.
- Entrances and exits should be constructed on level ground only.
- Stabilized construction entrances are rather expensive to construct and when a wash rack is included, a sediment trap of some kind must also be provided to collect wash water runoff.

Stabilized Construction Entrance/ Exit TC-1

Implementation

General

A stabilized construction entrance is a pad of aggregate underlain with filter cloth located at any point where traffic will be entering or leaving a construction site to or from a public right of way, street, alley, sidewalk, or parking area. The purpose of a stabilized construction entrance is to reduce or eliminate the tracking of sediment onto public rights of way or streets. Reducing tracking of sediments and other pollutants onto paved roads helps prevent deposition of sediments into local storm drains and production of airborne dust.

Where traffic will be entering or leaving the construction site, a stabilized construction entrance should be used. NPDES permits require that appropriate measures be implemented to prevent tracking of sediments onto paved roadways, where a significant source of sediments is derived from mud and dirt carried out from unpaved roads and construction sites.

Stabilized construction entrances are moderately effective in removing sediment from equipment leaving a construction site. The entrance should be built on level ground. Advantages of the Stabilized Construction Entrance/Exit is that it does remove some sediment from equipment and serves to channel construction traffic in and out of the site at specified locations. Efficiency is greatly increased when a washing rack is included as part of a stabilized construction entrance/exit.

Design and Layout

- Construct on level ground where possible.
- Select 3 to 6 in. diameter stones.
- Use minimum depth of stones of 12 in. or as recommended by soils engineer.
- Construct length of 50 ft minimum, and 30 ft minimum width.
- Rumble racks constructed of steel panels with ridges and installed in the stabilized entrance/exit will help remove additional sediment and to keep adjacent streets clean.
- Provide ample turning radii as pait of the entrance.
- Limit the points of entrance/exit to the construction site.
- Limit speed of vehicles to control dust.
- Properly grade each construction entrance/exit to prevent runoff from leaving the construction site.
- Route runoff from stabilized entrances/exits through a sediment trapping device before discharge.
- Design stabilized entrance/exit to support heaviest vehicles and equipment that will use it.
- Select construction access stabilization (aggregate, asphaltic concrete, concrete) based on longevity, required performance, and site conditions. Do not use asphalt concrete (AC) grindings for stabilized construction access/roadway.

- If aggregate is selected, place crushed aggregate over geotextile fabric to at least 12 in. depth, or place aggregate to a depth recommended by a geotechnical engineer. A crushed aggregate greater than 3 in. but smaller than 6 in. should be used.
- Designate combination or single purpose entrances and exits to the construction site.
- Require that all employees, subcontractors, and suppliers utilize the stabilized construction access.
- Implement SE-7, Street Sweeping and Vacuuming, as needed.
- All exit locations intended to be used for more than a two-week period should have stabilized construction entrance/exit BMPs.

Inspection and Maintenance

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMPs are under way, inspect weekly during the rainy season and of two-week intervals in the non-rainy season to verify continued BMP implementation.
- Inspect local roads adjacent to the site daily. Sweep or vacuum to remove visible accumulated sediment.
- Remove aggregate, separate and dispose of sediment if construction entrance/exit is clogged with sediment.
- Keep all temporary roadway ditches clear.
- Check for damage and repair as needed.
- Replace gravel material when surface voids are visible.
- Remove all sediment deposited on paved roadways within 24 hours.
- Remove gravel and filter fabric at completion of construction

Costs

Average annual cost for installation and maintenance may vary from $1,200 to $4,800 each, averaging $2,400 per entrance. Costs will increase with addition of washing rack, and sediment trap. With wash rack, costs range from $1,200 - $6,000 each, averaging $3,600 per entrance.

References

Manual of Standards of Erosion and Sediment Control Measures, Association of Bay Area Governments, May 1995.

National Management Measures to Control Nonpoint Source Pollution from Urban Areas, USEPA Agency, 2002.

Proposed Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters, Work Group Working Paper, USEPA, April 1992.

Stormwater Quality Handbooks Construction Site Best Management Practices (BMPs) Manual, State of California Depa ltment of Transportation (Caltrans), November 2000.

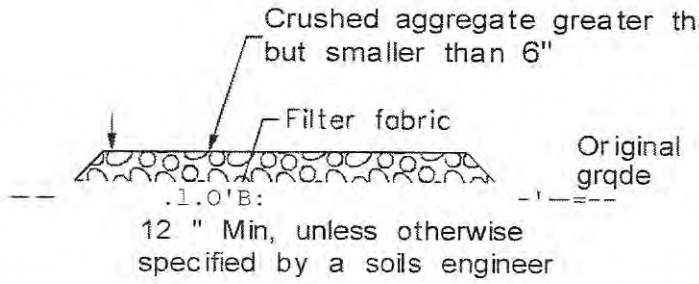
Stormwater Management of the Puget Sound Basin, Technical Manual, Publication #91-75, Washington State Department of Ecology, February 1992.

Virginia Erosion and Sedimentation Control Handbook, Virginia Department of Conservation and Recreation, Division of Soil and Water Conservation, 199i.

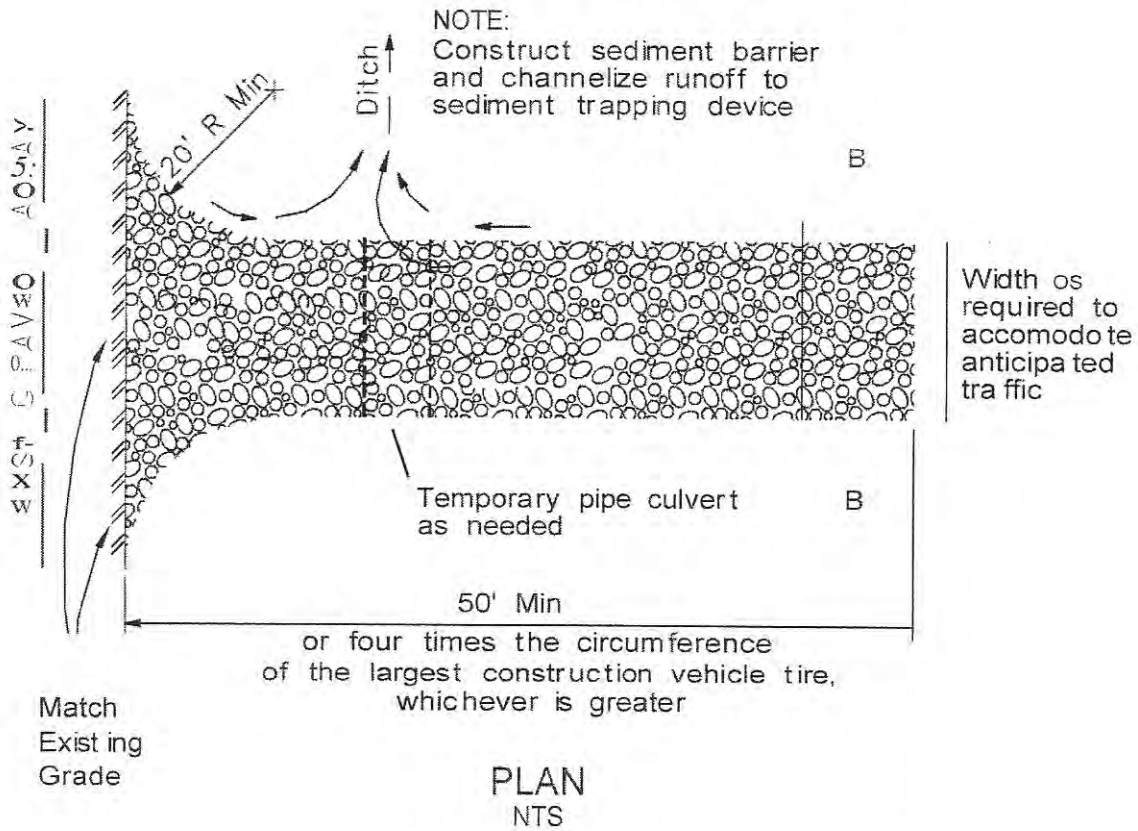
Guidance Specifying Management Measures for Nonpoint Pollution in Coastal Waters, EPA 840-B-9-002, USEPA, Office of Water, Washington, DC, 1993.

Water Quality Management Plan for the Lake Tahoe Region, Volume II, Handbook of Management Practices, Tahoe Regional Planning Agency, November 1988.

Stabilized Construction Entrance/ Exit TC-1

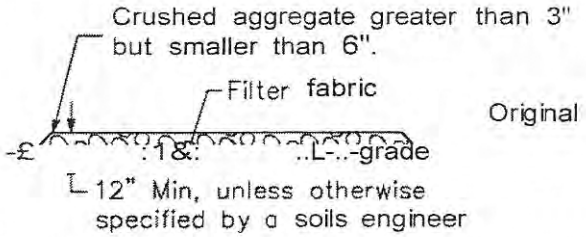


SECTION B-B
NTS

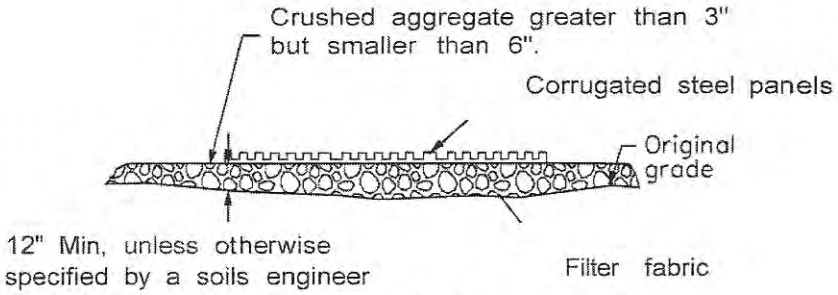


PLAN
NTS

Stabilized Construction Entrance/ Exit TC-1

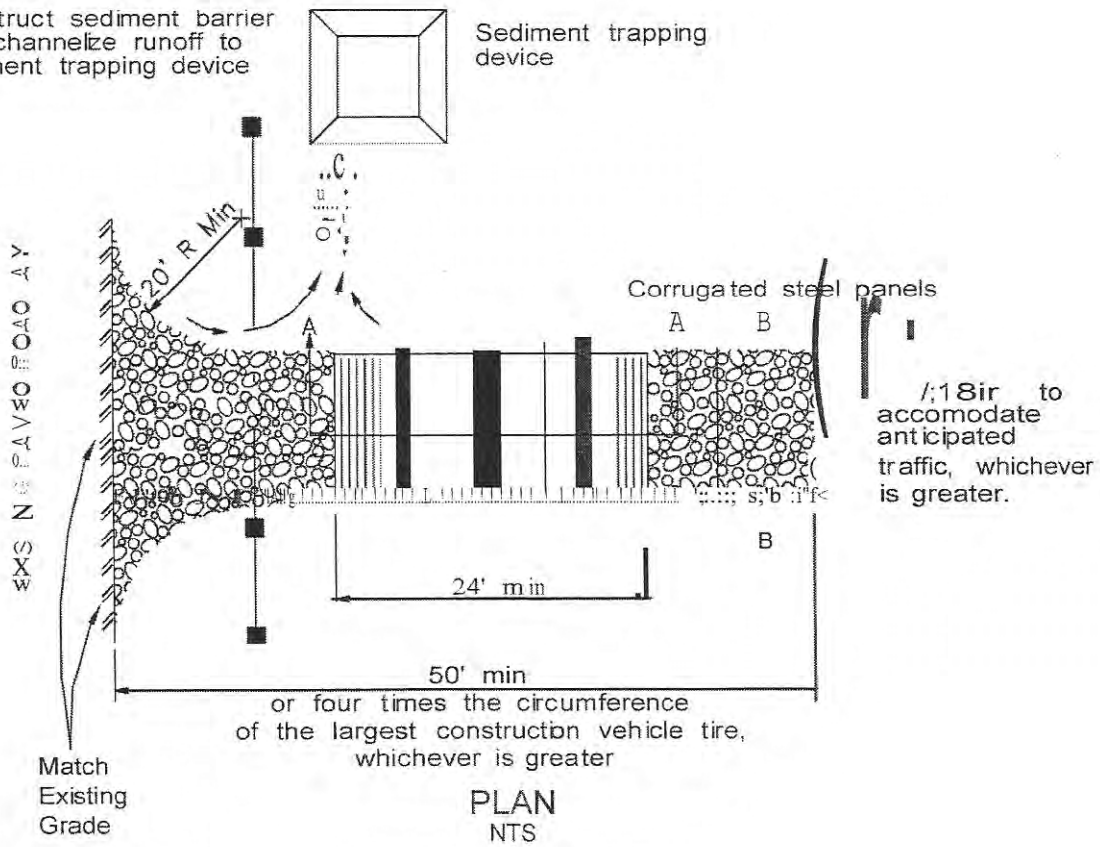


SECTION B-B
NTS

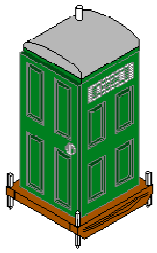


SECTION A-A
NOT TO SCALE

NOTE:
Construct sediment barrier and channelize runoff to sediment trapping device



PLAN
NTS



Waste Management

WM–4 Sanitary Waste Management

Definition

Practices and procedures such as providing convenient, well-maintained facilities, and arranging for regular service and disposal prevents the discharge of pollutants to stormwater from sanitary and septic waste.

Purpose

Proper sanitary and septic waste management prevent the discharge of pollutants to stormwater from sanitary and septic waste.

Conditions Where the Practice Applies

Sanitary septic waste management practices are suitable for use at all construction sites that use temporary or portable sanitary and septic waste systems.

Specifications: Design and Installation

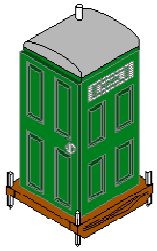
Sanitary or septic wastes should be treated or disposed of in accordance with state and local requirements. In many cases, one contract with a local facility supplier will be all that it takes to make sure sanitary wastes are properly disposed.

Storage and Disposal Procedures

- Temporary sanitary facilities should be located away from drainage facilities, watercourses, the Project perimeter, and from traffic circulation. When there is a risk of high winds, temporary sanitary facilities should be secured (staked down or tied to a sturdy structure) to prevent overturning.
- Temporary sanitary facilities should be located on a permeable surface at all times. If a temporary sanitary facility needs to be placed on an impermeable surface than it must be placed in an overflow pan or bin.
- Wastewater should not be discharged or buried within the Project site.
- Only reputable, licensed sanitary and septic waste haulers should be used.
- Sanitary facilities should be located in a convenient location.
- Untreated raw wastewater should never be discharged or buried.
- Temporary septic systems should treat wastes to appropriate levels before discharging.
- Sanitary and septic facilities should be maintained in good working order by a licensed service.
- Regular waste collection by a licensed hauler should be arranged before facilities are full. Sanitary and septic facilities should never overflow.

Education

- Educate employees, subcontractors, and suppliers on sanitary and septic waste storage and disposal procedures.
- Educate employees, subcontractors, and suppliers of potential dangers to humans and the environment from sanitary and septic wastes.
- Instruct employees, subcontractors, and suppliers in identification of sanitary and



Waste Management

WM–4 Sanitary Waste Management

septic waste.

- Hold regular meetings to discuss and reinforce disposal procedures (incorporate into regular safety meetings).
- Establish a continuing education program to indoctrinate new employees.

Maintenance & Inspection

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities.
- Inspect BMPs prior to forecast rain, daily during extended rain events, after rain events, and weekly throughout the life of the Project.
- Arrange for regular waste collection.
- If high winds are expected, portable sanitary facilities must be secured with spikes to prevent over turning.

Secondary Containment

Minimum Measure: Prevent accidental releases or spills

Subcategory: Fuels and Oils / Hazardous Materials

Secondary Containment

Secondary containment is a safeguard measure used to prevent accidental releases or spills of toxic or hazardous substances to the environment (water, soil & air). Secondary containment can be a structure that is chemically compatible to hold a release and remain liquid tight until clean up occurs. Secondary containment can also be an engineered means to redirect a spill away from water or other sensitive receptor to a temporary diversion system.

I. What is required?

Fuel tanks stored on site must have secondary containment and all other spill sources that may be a threat to human health or the environment must have secondary containment. The phrase "may be a threat" is subjective, and without prescriptive regulatory guidance, PEs and Ecology inspectors use professional judgment to determine the necessary and reasonable secondary containment requirements that fit each individual circumstance.

Permit or specification language does not have exemption language that allows projects to deviate from the requirements when secondary containment is impractical. However, PEs has the authority to modify Standard

Specification requirements as reasonably necessary, whether to allow for deviations or to increase protection measures in high risk situations.

II. What needs secondary containment?

Requirements

Secondary containment requirements are not straightforward and regulatory guidance is not black and white. This is a good thing, because secondary containment should be adjusted to match site specific conditions without unnecessarily increasing project costs.

The NPDES Permit **requires** secondary containment for:

1. On-site fueling tanks (except double walled tanks)
   NOTE: Even though "Doubled-walled tanks do not require additional secondary containment," extra preventative measures may still be necessary with high risk construction activities in environmentally sensitive areas.
2. Chemicals, liquid products, petroleum products, and other materials that ***have the potential*** to pose a threat to human health or the environment. (*This is a **subjective and left to interpretation** based on Other Factors described below)*.

Single Walled Fuel Tanks

The 401 or HPA Permits ***may*** **require more stringent** secondary containment for in water or over water work activities.

Material Storage

Regulatory inspectors in the Northwest Region typically expect the following materials and work activities to always have secondary containment:

- Fuel tanks (single walled)
- Fuel transfer activities, for both mobile and stationary areas
- Volumes of stored or used liquid located adjacent/up gradient to water, where there is a reasonable potential of a worst case scenario spill could reach water. Examples such as:
  - Large volumes stored in drums and tanks
  - Large volumes used in large generators and pumps, hydraulic power packs
  - Moderate volumes located directly near water (within 5-10 ft) or unprotected drainage system that directly discharges to water
- Storage of material that may potentially pose a threat to

Fuel Transfers

human health or the environment that is not in constant or regular daily use (i.e., general good housekeeping practices following Ecology's BMPs)

Other Factors

Multiple other factors must be considered when deciding what needs secondary containment. To assess spill risks, evaluate the project and the surrounding environment and consider worst case scenarios. Consider how things could fail and how to prevent or protect in event of a failure.
Consider the location, type and quantity of stored materials or any risky construction activities (e.g., fueling) and take into account the topography (slope and gradient) and the proximity to water or other environmentally sensitive areas. Could a worst case scenario spill reach water?

Apply practicality and use common sense when enforcing secondary containment requirements. Use "worst case" to assess risk, but apply the knowledge listed below to establish reasonable means to manage the risk. Recognize that there is only so much energy, time, and money to expend to achieve full compliance on a project. Make a good faith effort to control pollution sources and require what is reasonable based on the project specific circumstances and environmental conditions.

Consider the following factors when making a judgment call pertaining to secondary containment:

1. Surrounding environment
2. Timeframe in use
3. Condition of equipment
4. Security and vandalism
5. Weather
6. Available manpower
7. Equipment and materials

Surrounding Environment

1. Is the work located over water, or below the Ordinary High Water Line?
2. Is the work or storage area located near environmentally sensitive areas, such as
   a) stormwater systems and ditches that discharge directly to water or wetlands?
   b) shallow groundwater or protected drinking water aquifers?
3. What is the distance of the nearest waterway or drainage system?
4. Will rain/stormwater come in contact with chemicals, fuels, or other hazardous materials used or stored on the project

Spill + Water = BIG/MULTIPLE FINE$

If the project is near water or other sensitive receptor, you may need to apply increased protections. It is not *only* about secondary containment, because other measures like using pristine equipment, increased maintenance and inspection, enhanced security, and increased man power should also be considered in lieu of or together with varied levels of secondary containment needs.

Timeframe in Use

1. Will the spill source be on the project for a long period of time?
2. Would the containment structure become susceptible to wear and tear?

Long Term Project = Increased Risk

Depending on the project location, increased security of the project, storage and staging areas (i.e., fencing & lightening) may be needed. Don't forget the IFC requirements for fittings, devices and padlocks that prevent malicious tampering or siphoning.

Consider increasing the robustness of containment to increase the durability and resistance of wear and tear and exposure to weather elements over time. Or, ensure regular inspection, maintenance and replacement of containment throughout the entire project.

Condition of Equipment

1. Is equipment relatively new and/or in good condition?
2. Based on experience, is there a reasonable potential for equipment failure?
3. Does the equipment have unprotected high pressure hoses and valves?
4. Could high vibrations or friction cause increase wear and tear on containment structure?

Portable Pump

Equipment Must Be Maintained

Secondary containment is not an option for leaking equipment. Equipment should always be inspected and maintained; otherwise it should be removed from the job site. Leaking equipment usually results in violations.

Many spills are a result of sprays from hydraulic hoses due to damage, chaffing, sharp bend points, broken fittings or maintenance /testing. Hoses should be protected from damage. Some hydraulic power packs have built in secondary containment.

Inspections, tests, maintenance and repair are the first lines of defense against spills. If these are not performed appropriately, or the nature of the work is in environmentally sensitive areas, add or increase secondary containment protection measures. Otherwise, if the first lines of defense are faithfully carried out, secondary containment of equipment may not be necessary.

Security and Vandalism

1. Is the project located in an area easily accessible by pedestrians?
2. Is there a high rate of crime in the project area?
3. Does the project and designated areas have adequate fencing and lighting?
4. Does equipment and storage tanks have protection measures, such as
   a) devices, such as Power Cord and Plug Locks, oil pump starters
   b) padlocks on pumps or hoses to secure to hanger
   c) anti-siphoning device
   d) self closing nozzles
   e) automatic shut off valves
   f) locks on drain or other valves

Fencing

Electrical Locks

AST Fill Port Lock

Alarm Systems

Cap Lock

Emergency Shut-Off Valve

Locking Container

Weather

1. Is construction work occurring during the raining season?
2. Could extreme hot or cold temperatures cause plastic or structures to become brittle or fracture

Weathered Plastic

Plastic Cover

Cover with Containment Pallet

How's the Weather?

Increase protection measures to prevent storm water from coming in contact with hazardous substances stored or used on the project. Otherwise, storm water polluted with chemicals must be diverted with drainage controls, contained, and sampled to determine proper disposal (See Ecology BMP C153, page 4-46).

Ecology BMP C153, page 4-46 directs that during the wet weather season (Oct 1 – April 30), each secondary containment facility shall be covered during non-working days, prior to and during rain events.

Areas with increased rainfalls (e.g., Quillayute & Quinault) must consider whether the 110% containment capacity can adequately hold a spill plus precipitation. A cover system may be a more effective means of protection.

Extreme cold or hot temperatures may cause some plastics to crack or melt. If unexpected extreme weather conditions occur, increase the frequency of inspections, maintenance, repair and replacement of plastic secondary containment systems. If extreme conditions are typical for the project area (i.e., summer months in Yakima or winter months in Spokane), then contact product manufactures for recommendations on materials that are capable of withstanding those conditions. Learn the minimum and maximum temperatures the material can tolerate.

Available Manpower

1. Is there a commitment of man power to conduct regular frequent inspections?
2. Is there staff on hand who are trained and experienced in spill response?

Trained staff on hand?

Increase protective measures if there is a lack of staff or expertise to conduct inspections, maintenance, documentation, and spill response actions. Consider stronger durability, increased capacity, fail safe diversions, cover, added spill kits, and increased security.

Equipment and Materials

1. Is there an adequate supply of equipment and materials to quickly control and remove any quantity of spills?
2. Is the equipment and materials located where they are immediately available?

Enough materials on hand?

Equipment available?

Secondary containment methods must be added or enhanced to compensate for the lack of equipment or materials that are used to immediately control, contain, and/or remove spilled product and associated contaminated media.

Secondary containment should be appropriately constructed based on the surrounding environment and specific project circumstances. Sometimes, other preventative measures can be used in lieu of secondary containment, as approved by the PE. Following the same rational described in the IFC Section 3404.2.10, secondary containment can be altered or even waived based on site specific circumstances. For example, secondary containment can be avoided all together if materials are not stored on the project and only brought on site for immediate use on an as needed basis (e.g., mobile fuel trucks instead of temporary above ground tanks). On the other hand, although not required, secondary containment may be reasonable for double-walled fuel tanks, such as a tank located in a high construction traffic zone, with little or no security and placed immediately up gradient and adjacent to a water body.

PEs and inspectors must rely on their professional judgment and use their discretion to determine what is reasonable. HazMat Specialists are available to assess spill risks and provide recommendations. If the PE determines that secondary containment is not practical or necessary, the PE should be prepared to present a rational argument that demonstrates the PE is aware of the circumstance and has considered the predicted flow direction, rate of flow, and total quantity and whether the worst case scenario spill could reasonably be expected to reach a water body; And/or describe alternative measures that provide equivalent environmental protection.

III. How should secondary containment be built and maintained?

It isn't always easy to assess whether secondary containment is adequate. The proper method of secondary containment is a matter of good engineering practice, thus there is no approved specific method. A few pointers are provided to help evaluate a containment system's ability to effectively hold a spill for at least 72 hours. Types of secondary containment are driven by the following primary variables:

1. Chemical Type
2. 72 Hour Spill Holding Timeframe
3. Quantity
4. Surface Topography
5. Vibration Damage
6. Frequency of Inspection and Maintenance

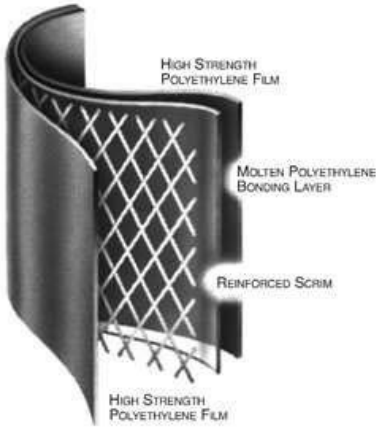
Chemical Type

The type of chemical dictates what material is chemically compatible to hold a spill without disintegrating or breaking through, thus being considered "impervious." Vendors of spill response and containment equipment can help determine products that will properly contain various chemical substances.

Petroleum products (gasoline, diesel, hydraulic oil, etc.) are the primary chemicals stored or used on most projects. Typical products used to contain petroleum spills include temporary structures such as pop-up pools or materials like plastic sheeting used as a liner in containment systems.

Chemically Compatible?

Extra Heavy Duty Liner



Plastic sheeting is made in various thicknesses. A thickness of 20-25 mil is recommended for temporary containment liners that is expected to last one to two years. A 6 mil thickness punctures or tears easily, but it may be effective for short term durations, with little wear and tear and not exposed to extreme hot or cold environments.

Polyvinyl Chloride (PVC) plastic sheeting liners can be made to resist oils, alcohols, hydrocarbons, waste products and other corrosive liquids. PVC liners are lightweight, flexible and best used where soil conditions are stable with minimal amount of sharp rocks. PVC's flexibly allows for stretching to help prevent stress cracking, which may occur with High Density Polyethylene (HPDE). PVC has a wide range of thicknesses available, from 6 to 45 mils or more.

High Density Polyethylene (HDPE) essentially does the same as PVC, but is slightly stiffer which may provide increased durability and resistance properties.

72-Hour Spill Holding Timeframe

Ecology's BMP C153 requires that containment must hold a spill for at least **72 hours** in order to be considered "sufficiently impervious." The 72 hour standard first came from EPA's attempt to define "sufficiently impervious" in 40 CFR Part 112 (Oil Pollution Prevention regulation). The rationale was that a containment system that is impervious to oil for 72 hours would allow time for discovery and removal of an oil discharge in most cases. In the 2002 rule revisions the proposed EPA 72 hour standard was withdrawn; however Ecology continues to maintain the 72 hour standard per BMP C153. Ecology expects spill cleanup work to start immediately once a spill is discovered and in most cases be completely cleaned up within 72 hours.

BMP C153

"Secondary containment facilities shall be impervious to the materials stored therein for a minimum contact time of 72 hours"

For storage of large quantities of chemicals other than petroleum, consider asking the product supplier to specify in writing that the containment system meets Ecology's 72 hour impermeability standard. If there is a justifiable reason that clean up cannot feasibly occur within 72 hours of a spill (highly uncommon), provide additional protection measures (i.e., increased inspections, limit quantities stored, etc.) and then consider more robust products that exceed the 72 hour standard.

Quantity

The NPDES permit and amended Specification 1-07.15(1) requires the capacity to equal 110% of the volume contained in the largest tank (or container) within the containment structure. The extra 10% is intended to accommodate precipitation and a safeguard against miscalculations.

Ecology's Spill Prevention, Preparedness and Response Program began creating a new Excel tool to help calculate containment volumes. For more information or a copy of this calculation tool, contact the Ecology Spills Program at 360-407-6458. For area calculations, see EPA example at: http://www.epa.gov/region6/6sf/sfsites/oil/samppln.htm

EPA Example Calculation

Formula: **(volume of single largest tank + 10%) x 0.1337 cubic feet/gallon**

Question: **What is the area of the minimum containment volume for a 25,000 gallon fuel tank?**

Calculation:
25,000 gal + 10% = 27,500

27,500 x 0.1337 = 3676.75

Surface Topography

Secondary containment should be as level as possible. If using plastic sheeting, the surface should be clear of rocks and debris that could puncture the material. If a containment structure must be placed on a slope, the downhill slide of the structure wall must be taller. Ecology's Excel tool (mentioned above) also helps calculate dimensions of secondary containment walls on slopes.

Sloped Surfaces

Vibration Damage

Increase protection if operating equipment is subject to vibration. Use thicker material, vibration dampening, and require more frequent inspections.

Hydraulic Hoses Subject to Vibration Damage

Maintenance Schedule Log

Frequent Inspections

Frequency of Inspection and Maintenance

The frequency of inspection and maintenance depends on several variables as described above. Inspection and maintenance should be regular, routine and documented as necessary.

IV. What encourages compliance?

Good communication is the best means to encourage compliance. When a regulatory inspector is assigned to a project, increase your chances of a positive outcome by clarifying gray areas in advance with respect to how the inspector might interpret the permit conditions. Ask for clarifications. Inspections are designed to help and the Contractor maintain legal compliance. Do not be afraid to ask for technical assistance, whether it be from Ecology or your HazMat Specialist. Working together is important and discussions to improve the situation are encouraged.

To prevent the most common spill violations, projects should

i) follow their Spill Prevention, Control and Countermeasures (SPCC) Plan,

ii) give more attention to secondary containment needs, and

iii) encourage better housekeeping practices.

Unfortunately sometimes, there is a lack of resources or commitment to comply with the requirements. Some projects lack the manpower, equipment and material to expeditiously follow the SPCC plan or permit requirements. When a contractor fails to comply with a PE's repeated attempts to correct a problem, here are a few suggestions.

i) Remind staff and Contractors about the significant costs and fines associated with spills. In addition to construction delays and clean up costs, there are significant fines. Under water quality regulations, a spill to water is $10,000 to $100,000 per day **per violation.** Damage to habitat may also result in a Natural Resource Damage Assessment fine. For habitat protected under the Endangered Species Act, damage or "taking" of habitat may result in civil penalties up to $25,000 per violation. There can by many violations in a single spill incident.

ii) Call the HazMat Specialist to conduct an internal assessment, where the specialist works directly with the PE and then the PE uses the report to communicate and encourage compliance

iii) Call local fire marshal, who enforces the International Fire Code

iv) Call Ecology's spill prevention program to request an informal assessment

v) Utilize some of the following Standard Specification "hammers" to contractually force compliance:

vi) **1-05.1 Authority of the Engineer** – The Engineer and Project Engineer can suspend all or part of the Contract Work. can also use other resources to complete the Work.

vii) **1-05.2 Authority of Assistants and Inspectors** –Inspectors are not authorized to accept or approve any Work not meeting the intent of the Contract. Inspectors have the authority to reject defective material and suspend Work that is being done improperly, subject to the final decision of the PE.

- Compliance with environmental laws and regulations is part of the Contract.

viii) **1-05.6 Inspection of Work and Materials** – The Engineer can order the Contractor to remove and replace materials used without inspection. The Contractor shall correct any substandard Work or materials. The Engineer will reject unsuitable Work or materials or materials even though previously inspected or paid for.

- This condition allows to reject secondary containment structures, systems or BMPs that are not installed properly.

ix) **1-05.7 Removal of Defective and Unauthorized Work** – will not pay for unauthorized or defective Work. This is anything that doesn't conform to the Contract, Work done beyond the lines and grades set by the Plans or Engineer, or extra Work and materials furnished without the Engineer's approval.

- This applies to improper secondary containment structures, systems or BMPs.

x) **1-05.13 Superintendents, Labor, and Equipment of Contractor** – The Engineer can, with written statement, remove a superintendent from the project for failing repeatedly to follow the Engineers written or oral orders, directions, instructions, or determinations. This also applies to other employees of the Contractor.

- Poor environmental performance caused by the Contractor, whether chronic or acute, does not have to be tolerated.

xi) **1-08.1 Subcontracting** – Approval to subcontract shall not relieve the Contractor's responsibility to carry out the Contract or to relieve the Contractor of any obligation or liability under the Contract. In addition, the Engineer can request the Subcontractor to be removed from the project.

xii) **1-08.6 Suspension of Work** – The Engineer may suspend all or any part of the Work if unsuitable weather prevents satisfactory and timely performance of the Work, if the Contractor does not comply with the Contract, or it is in the public interest.

Suspending work is usually a last resort effort, but it does catch the Contractor's attention because they are responsible for any lost working days.

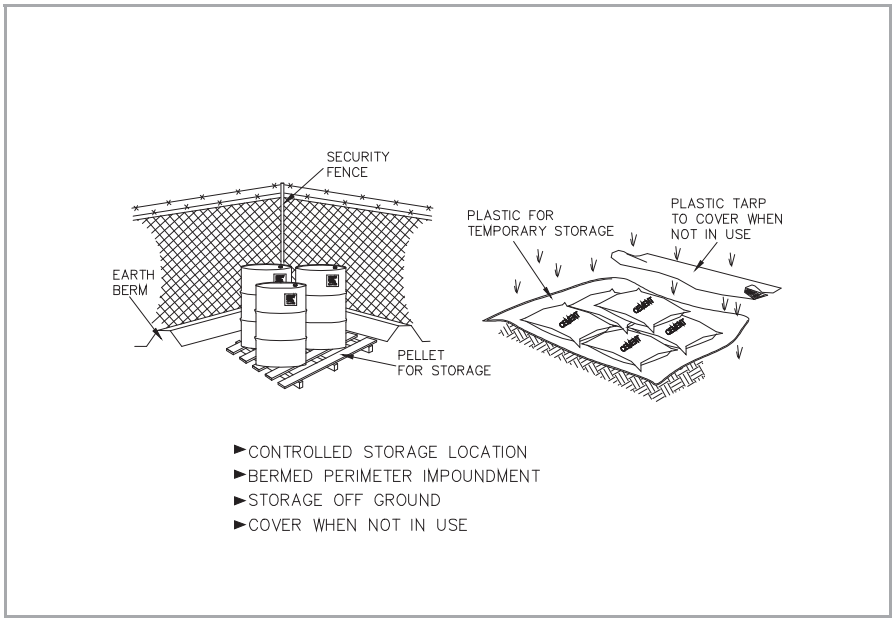
*Information obtained from Washington State Department of Transportation

DESCRIPTION:
Reduce the discharges of pollutants to stormwater from street surfaces by conducting street cleaning on a regular basis.

APPROACH:
- Prioritize cleaning to use the most sophisticated sweepers, at the highest frequency, and in areas with the highest pollutant loading.
- Restrict street parking prior to and during sweeping.
- Increase sweeping frequency just before the rainy season.
- Proper maintenance and operation of sweepers greatly increase their efficiency.
- Keep accurate operation logs to track programs.
- Sweepers effective at removing smaller particles (less than 10 microns) may generate dust that would lead to concerns over worker and public safety.
- Equipment selection can be key for this particular BMP. There are two types used, the mechanical broom sweepers (more effective at picking up large debris and cleaning wet streets), and the vacuum sweepers (more effective at removing fine particles and associated heavy metals). Many communities find it useful to have a compliment of both types in their fleet.

LIMITATIONS:
- Conventional sweepers are not able to remove oil and grease.
- Mechanical sweepers are not effective at removing finer sediments.
- Effectiveness may also be limited by street conditions, traffic congestion, presence of construction projects, climatic conditions and condition of curbs.

MAINTENANCE:
- Replace worn parts as necessary.
- Install main and gutter brooms of the appropriate weight.



DESCRIPTION:
Controlled storage of on-site materials.

APPLICATION:
- Storage of hazardous, toxic, and all chemical substances.
- Any construction site with outside storage of materials.

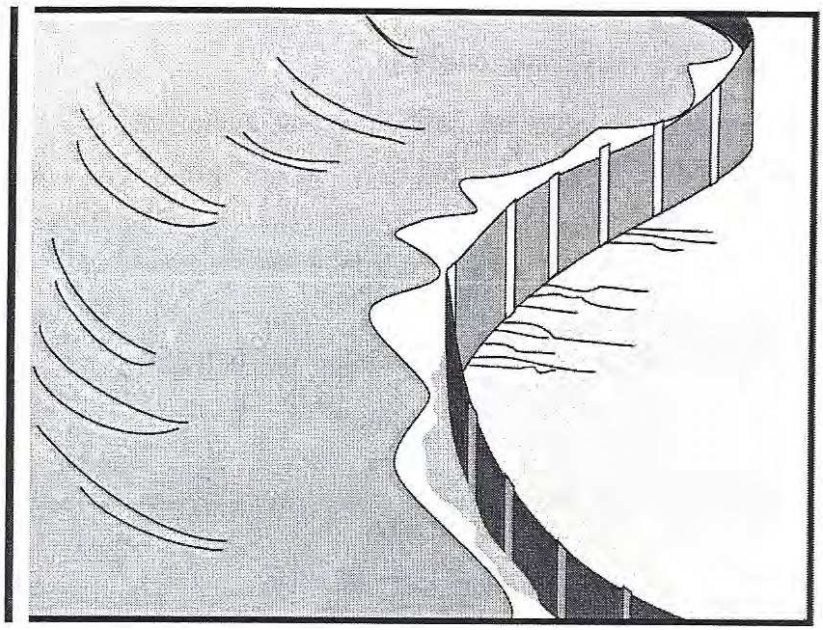
INSTALLATION/APPLICATION CRITERIA:
- Designate a secured area with limited access as the storage location. Ensure no waterways or drainage paths are nearby.
- Construct compacted earthen berm (See Earth Berm Barrier Information Sheet), or similar perimeter containment around storage location for impoundment in the case of spills.
- Ensure all on-site personnel utilize designated storage area. Do not store excessive amounts of material that will not be utilized on site.
- For active use of materials away from the storage area ensure materials are not set directly on the ground and are covered when not in use. Protect storm drainage during use.

LIMITATIONS:
- Does not prevent contamination due to mishandling of products.
- Spill Prevention and Response Plan still required.
- Only effective if materials are actively stored in controlled location.

MAINTENANCE:
- Inspect daily and repair any damage to perimeter impoundment or security fencing.
- Check materials are being correctly stored (i.e. standing upright, in labeled containers, tightly capped) and that no materials are being stored away from the designated location.

SE-Silt Fence

Silt FenceSE-1



Objectives

EC	Erosion Control
SE	Sediment Control
TR	Tracking Control
WE	Wind ErosionControl
NS	Non-Stormwater Management Control
WM	Waste Managementand Material; Polluiton Control

Le gend :

0 P r im a ry O b je c tiv e

IKI Secondary Objective

Description and Purpose

A silt fence is made of a filter fabric that has been entrenched, attached to supporting poles, and sometimes backed by a plastic or wire mesh for support. The silt fence detains sediment-laden water, promoting sedimentation behind the fence.

Suitable Applications

Silt fences are suitable for perimeter control, placed below areas where sheet flows discharge from the site. They should also be used as interior controls below disturbed areas where runoff may occur in the form of sheet and rill erosion. Silt fences are generally ineffective in locations where the flow is concentrated and are only applicable for sheet or overland flows. Silt fences are most effective when used in combination with erosion controls. Suitable applications include:

- Along the perimeter of a project.
- Below the toe or down slope of exposed and erodible
- Along streams and channels.
- Around temporary spoil areas and stockpiles.
- Below other small cleared areas.

Limitations

- Do not use in streams, channels, drain inlets, or anywhere flow is concentrated.

Targeted Constituents

Sediment
Nutrients
Trash
Metals
Bacteria
Oil and Grease
Organics

Potential Alternatives

SE-5 Fiber Rolls
SE-6 Gravel Bag Berm
SE-8 Sandbag Barrier
SE-9 Straw Bale Barrier

- Do not use in locations where ponded water may cause flooding.
- Do not place fence on a slope, or across any contour line. Lf not installed at the same elevation throughout, silt fences will create erosion.
- Filter fences will create a temporary sedimentation pond on the upstream side of the fence and may cause temporary flooding. Fences not constructed on a level contour will be ove1iopped by concentrated flow resulting in failure of the filter fence.
- Improperly installed fences are subject to failure from undercutting, overlapping, or collapsing.

  Not effective unless trenched and keyed in.

  Not intended for use as mid-slope protection on slopes greater than 4:1

  Do not allow water depth to exceed 1.5 ft. at any point.

Implementation

General

A silt fence is a temporary sediment barrier consisting of filter fabric stretched across and attached to supporting posts, entrenched, and, depending upon the strength of fabric used, supported with plastic or wire mesh fence. Silt fences trap sediment by intercepting and detaining small amounts of sediment-laden runoff from disturbed areas in order to promote sedimentation behind the fence.

V

Silt fences are preferable to straw bale barriers in many cases. Laboratory work at the Virginia Highway and Transportation Research Council has shown that silt fences can trap a much higher percentage of suspended sediments than can straw bales. While the failure rate of silt fences is lower than that of straw bale barriers, there are many instances where silt fences have been improperly installed. The following layout and installation guidance can improve performance and should be followed:

- Use principally in areas where sheet flow occurs.
- Don't use in streams, channels, or anywhere flow is concentrated. Don't use silt fences to divert flow.
- Don't use below slopes subject to creep, slumping, or landslides.
- Select filter fabric that retains 85% of soil by weight, based on sieve analysis, but that is not finer than an equivalent opening size of 70.
- Install along a level contour, so water does not pond more than 1sft at any point along the silt fence.
- The maximum length of slope draining to any point along the silt fence should be 200 ft or less.
- The maximum slope perpendicular to the fence line should be 1:1.

- Provide sufficient room for runoff to pond behind the fence and to allow sediment removal equipment to pass between the silt fence and toes of slopes or other obstructions. About 1200 ft2of ponding area should be provided for every acre draining to the fence.
- Turn the ends of the filter fence uphill to prevent stormwater from flowing around the fence.
- Leave an undisturbed or stabilized area immediately down slope from the fence where feasible.
- Silt fences should remain in place until the disturbed area is permanently stabilized.

Design and Layout

Selection of a filter fabric is based on soil conditions at the construction site (which affect the equivalent opening size (EOS) fabric specification) and characteristics of the supp0lt fence (which affect the choice of tensile strength). The designer should specify a filter fabric that retains the soil found on the construction site yet that it has openings large enough to permit drainage and prevent clogging. The following criteria is recommended for selection of the equivalent opening size:

1. If 50 percent or less of the soil, by weight, will pass the U.S. Standard Sieve No. 200, select the EOS to retain 85% of the soil. The EOS should not be finer than EOS 70.
2. For all other soil types, the EOS should be no larger than the openings in the U.S. Standard Sieve No. 70 except where direct discharge to a stream, lake, or wetland will occur, then the EOS should be no larger than Standard Sieve No. 100.

To reduce the chance of clogging, it is preferable to specify a fabric with openings as large as allowed by the criteria. No fabric should be specified with an EOS smaller than U.S. Standard·· Sieve No. 100. If 85% or more of a soil, by weight, passes through the openings in a No. 200 sieve, filter fabric should not be used. Most of the particles in such a soil would not be retained if the EOS was too large and they would clog the fabric quickly if the EOS were small enough to capture the soil.

The fence should be supported by a plastic or wire mesh if the fabric selected does not have sufficient strength and bursting strength characteristics for the planned application (as recommended by the fabric manufacturer). Filter fabric material should contain ultraviolet inhibitors and stabilizers to provide a minimum of six months of expected usable construction life at a temperature range of o °F to 120 °F.

- Layout in accordance with attached figures.
- For slopes steeper than 2:1 (H:V) and that contain a high number of rocks or large dirt clods that tend to dislodge, it may be necessary to install additional protection immediately adjacent to the bottom of the slope, prior to installing silt fence. Additional protection may be a chain link fence or a cable fence.
- For slopes adjacent to sensitive receiving waters or Environmentally Sensitive Areas (ESAs), silt fence should be used in conjunction with erosion control BMPs.

Materials

- Silt fence fabric should be woven polypropylene with a minimum width of 36in. and a minimum tensile strength of 100lb force. The fabric should conform to the requirements in ASTM designation D4632 and should have an integral reinforcement layer, The reinforcement layer should be a polypropylene, or equivalent, net provided by the manufacturer. The permittivity of the fabric should be between 0.1sec-1 and 0.15sec-1in conformance with the requirements in ASTM designation D449i.

- Wood stakes should be commercial quality lumber of the size and shape shown on the plans. Each stake should be free from decay, splits or cracks longer than the thickness of the stake or other defects that would weaken the stakes and cause the stakes to be structurally unsuitable.

- Staples used to fasten the fence fabric to the stakes should be not less than 1.75 in. long and should be fabricated from 15 gauge or heavier wire. The wire used to fasten the tops of the stakes together when joining two sections of fence should be 9 gauge or heavier wire. Galvanizing of the fastening wire will not be required.

- There are new products that may use prefabricated plastic holders for the silt fence and use bar reinforcement instead of wood stakes. If bar reinforcement is used in lieu of wood stakes, use number four or greater bar. Provide end-.protection for any exposed bar reinforcement.

Installation Guidelines

Silt fences are to be constructed on a level contour. Sufficient area should exist behind the fence for ponding to occur without flooding or overtopping the fence.

- A trench should be excavated approximately 6 in. wide and 6 in. deep along the line the proposed silt fence.

- Bottom of the silt fence should be keyed-in a minimum of 12 in.

- Posts should be spaced a maximum of 6 ft. apart and driven securely into the ground a minimum of 18 in. or 12 in. below the bottom of the trench.

- When standard strength filter fabric is used, a plastic or wire mesh support fence should be fastened securely to the upslope side of .posts using heavy-duty wire staples at least 1in. long. The mesh should extend into the trench. When extra-strength filter fabric and closer post spacing are used, the mesh support fence may be eliminated. Filter fabric should be purchased in a long roll, then cut to the length of the barrier. When joints are necessary, filter cloth should be spliced together only at a support post, with a minimum 6 in. overlap and both ends securely fastened to the post.

- The trench should be backfilled with compacted native material.

- Construct silt fences with a setback of at least 3 ft. from the toe of a slope. Where a silt fence is determined to be not practicable due to specific site conditions, the silt fence may be constructed at the toe of the slope, but should be constructed as far from the toe of the slope as practicable. Silt fences close to the toe of the slope will be less effective and difficult to maintain.

- Construct the length of each reach so that the change in base elevation along the reach does not exceed *V3* the height of the barrier; in no case should the reach exceed 500 ft.

Costs

- Average annual cost for installation and maintenance (assumes 6 month useful life): $7 per lineal foot ($850 per drainage acre). Range of cost is $3.50 - $9.10 per lineal foot.

Inspection and Maintenance

- Inspect-BMPs prior to forecast rain, daily during extended rain events, after rain events, weekly during the rainy season, and at two-week intervals during the non-rainy season.

- Repair undercut silt fences.

- Repair or replace split, torn, slumping, or weathered fabric. The lifespan of silt fence fabric is generally 5 to 8 months.

- Silt fences that are damaged and become unsuitable for the intended purpose should be removed from the site of work, disposed of, and replaced with new silt fence barriers.

- Sediment that accumulates in the BMP must be periodically removed in order to maintain BMP effectiveness. Sediment should be removed when the sediment accumulation reaches one-third of the barrier height. Sediment removed during maintenance may be incorporated into earthwork on the site or disposed at an appropriate location.

- Silt fences should be left in place until the upstream area is permanently stabilized. Until then, the silt fence must be inspected and maintained.

- Holes, depressions, or other ground disturbance caused by the removal of the silt fences should be backfilled and repaired.

References

Manual of Standards of Erosion and Sediment Control Measures, Association of Bay Area Governments, May 1995.

National Management Measures to Control Nonpoint Source Pollution from Urban Areas, United States Environmental Protection Agency, 2002.

Proposed Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters, Work Group-Working Paper, USEPA, April 1992.

Sedimentation and Erosion Control Practices, and Inventory of Current Practices (Draft), UESPA, 1990.

Southeastern Wisconsin Regional Planning Commission (SWRPC). Costs of Urban Nonpoint Source Water Pollution Control Measures. Technical Repo I No. 31. Southeastern Wisconsin Regional Planning Commission, Waukesha, WI. 1991

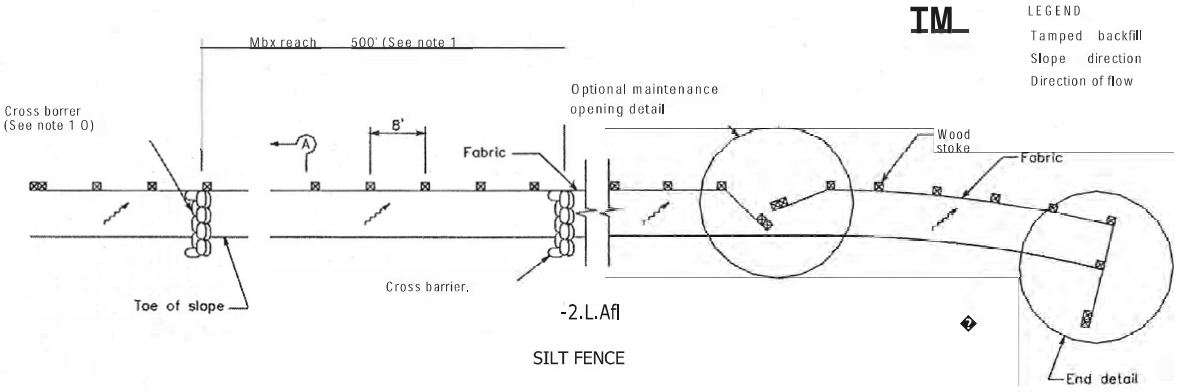
Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management Manual for The Puget Sound Basin, Washington State Department of Ecology, Public Review Draft, 1991.

U.S. Environmental Protection Agency (USEPA). Stormwater Management for Industrial Activities: Developing Pollution Prevention Plans and Best Management Practices. U.S. Environmental Protection Agency, Office of Water, Washington, DC, 1992.

Water Quality Management Plan for the Lake Tahoe Region, Volume II, Handbook of Management Practices, Tahoe Regional Planning Agency, November 1988.

SE-1 Silt Fence

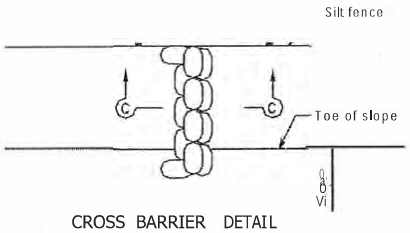


-2.L.Afl

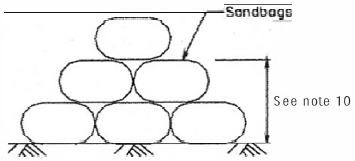
SILT FENCE

NOTES

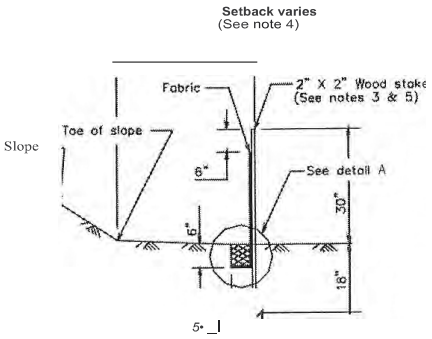
1. Construct the length of each reach so that the change in bose elevation along the reach does not exceed 1/3 the height of the linear barrier, in no case shall the reach length exceed 500'.
2. The lost 8'-O ' of fence shall be turned up slope.
3. Stake dimensions are normal.
4. Dimension may vary to fit field condition.
5. Stakes shall be spaced at 8'-0" maximum and shall be positioned on downstream side of fence.
6. Stakes to overlap and fence fabric to fold around each stake one full turn. Secure fabric to stake with 4 staples.
7. Stakes shall be driven tightly together to prevent potential flow-through of sediment at joint. The tops of the stakes shall be secured with wire.
8. For end stake, fence fabric shall be folded around two stakes one full turn and secured With 4 staples.
9. Minimum 4 staples per stake. Dimensions shown are typical.
10. Cross barriers shall be a minimum of 1/3 and o maximum of 1/2 the height of the linear barrier.
11. Maintenance openings shall be constructed in a manner to ensure sediment remains behind sill fence.
12. Joining sections shall not be placed at sump locations.
13. Sandbag rows and byers shall be offset to eliminate gaps.



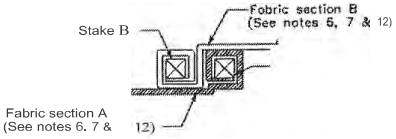
CROSS BARRIER DETAIL



SECTION C-C



SECTION A-A



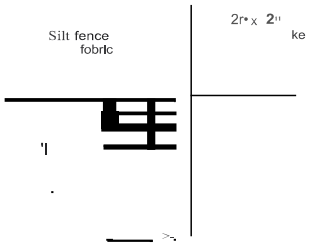
JOINING SECTION DETAIL (TOP VIEW)

LEGEND

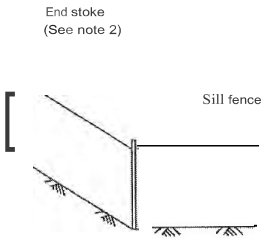
T amped backfill
Slope direction
Direction of flow

END STAKE DETAL (TOP VIEW)

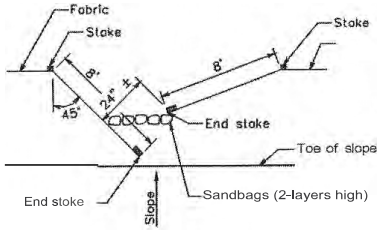
STAPLE DETAIL
(SEE NOTE 9)



DETAIL A



END DETAIL



OPIDNAL MAINTENANCE OPENING DETAL
(SEE NOTE 11)

Non-Stormwater Management

NSM–7 Paving and Grinding

Definition

Procedures and practices for conducting paving, saw cutting, and grinding operations to minimize the transport of pollutants to the stormdrain system and to the Project site perimeter.

Purpose

Prevent the discharge of pollutants from paving operations, using measures to prevent runon and runoff pollution, properly disposing of wastes, and training employees and subcontractors.

Conditions Where the Practice Applies

These procedures are implemented where paving, surfacing, resurfacing, grinding, or saw cutting, may pollute stormwater runoff or discharge to the stormdrain system or watercourses.

Specifications: Design and Installation

General

- Avoid paving during the wet season when feasible.
- Reschedule paving and grinding activities if rain is in the forecast.
- Train employees and subcontractors in pollution prevention and reduction.
- Store materials away from stormdrains and drainage courses to prevent stormwater runon, see WM – 1 Material Delivery and Storage.
- Protect drainage courses, particularly in areas with a grade, by employing BMPs to divert runoff or to trap and filter sediment.
- If paving involves an onsite mixing plant, follow the stormwater permitting requirements for industrial activities.
- Stockpile material removed from roadways away from drain inlets, drainage ditches, and watercourses. These materials should be stored consistent with WM – 5 Stockpile Management.
- Disposal of PCC and AC waste should be in conformance with WM – 3 Temporary Concrete Washout and Waste Management.
- Do not wash sweepings from exposed aggregate concrete into a stormdrain system. Collect and return to aggregate base stockpile or dispose of properly.

Saw Cutting, Grinding, and Pavement Removal

- Shovel or vacuum saw-cut slurry and remove from site. Cover or barricade stormdrains during saw cutting to contain slurry.
- When paving involves AC, the following steps should be implemented to prevent the discharge of grinding residue, uncompacted or loose AC, task coats, equipment cleaners, or unrelated paving materials:
  - Minimize sand and gravel from new asphalt from getting into stormdrains, streets, and creeks by sweeping.
  - Old or spilled asphalt must be recycled or disposed as approved by the University's Representative.

Sources include EPA, SWRCB, Caltrans, CASQA

Non-Stormwater Management

NSM–7 Paving and Grinding

- AC grindings, pieces, or chunks used in embankments or shoulder backing must not be allowed to enter any stormdrain or watercourses. Install an erosion control BMP until the structure is stabilized or permanent controls are in place.
- Collect and remove all broken asphalt and recycle when practical; otherwise, dispose of properly.
- Any AC chunks and pieces used in embankments must be placed above the water table and covered by at least 1 foot of material.

- Do not allow saw-cut slurry to enter stormdrains or watercourses. Residue from grinding operations should be picked up by means of a vacuum attachment to the grinding machine, should not be allowed to flow across the pavement, and should not be left on the surface of the pavement. See also WM – 3 Temporary Concrete Washout and Waste Management.
- Dig out activities should not be conducted in the rain.
- Collect pavement dig out material by mechanical or manual methods. This material may be recycled if approved by the University's Representative for use as shoulder backing or base material at locations approved by the University's Representative.
- When approved by the University's Representative, stockpile material removed from roadways away from stormdrain inlets, drainage ditches, and watercourses and stored consistent with WM – 5 Stockpile Management.
- Disposal or use of AC grindings shall be approved by the University's Representative. See also WM – 3 Temporary Concrete Washout and Waste Management.

<u>Asphalt Concrete Paving</u>

- If paving involves asphaltic cement concrete, follow these steps:
  - Do not allow sand or gravel placed over new asphalt to wash into stormdrains, streets, or watercourses. Vacuum or sweep loose sand and gravel and properly dispose of this waste by referring to WM – 2 Trash Containment.
  - Old asphalt must be disposed of properly. Collect and remove all broken asphalt from the site and recycle whenever possible.

<u>Portland Cement Concrete Paving</u>

- Do not wash sweepings from exposed aggregate concrete into a stormdrain system. Collect and return to aggregate base stockpile or dispose of properly.
- Allow aggregate rinse to settle. Then allow rinse water to dry in a temporary pit as described in WM – 3 Temporary Concrete Washout and Waste Management.
- Do not allow saw-cut Portland Concrete Cement (PCC) slurry to enter stormdrains or watercourses.

Non-Stormwater Management

NSM–7 Paving and Grinding

Sealing Operations

- During chip seal application and sweeping operations, petroleum or petroleum covered aggregate must not be allowed to enter any stormdrain or water courses. Apply temporary perimeter controls until structure is stabilized.
- Drainage inlet structures and manholes shall be covered with filter fabric during application of seal coat, tack coat, slurry seal, and/or fog seal. Once these coats are complete remove the filter fabric and install approved stormdrain inlet protection.
- Seal coat, tack coat, slurry seal, or fog seal shall not be applied if rainfall is predicted to occur during the application or curing period.

Paving Equipment

- Leaks and spills from paving equipment can contain toxic levels of heavy metals and oil and grease. Place drip pans or absorbent materials under paving equipment when not in use. Clean up spills with absorbent materials rather than burying. See NSM – Vehicle and Equipment Practices and WM – 6 Spill Prevention and Control.
- Substances used to coat asphalt transport trucks, asphalt trucks, and asphalt spreading equipment shall not contain soap and shall be non-foaming and non-toxic.
- Place plastic materials under asphaltic concrete (AC) paving equipment while not in use, to catch and/or contain drips and leaks.
- Paving equipment parked onsite shall be parked over plastic to prevent soil contamination.
- Clean asphalt-coated equipment offsite whenever possible. When cleaning dry, hardened asphalt from equipment, manage hardened asphalt debris as described in WM – 2 Trash Containment. Any cleaning onsite shall follow NSM – 3 Vehicle and Equipment Practices.

Thermoplastic Striping

- All thermoplastic striper and pre-heater equipment shutoff valves shall be inspected to ensure that they are working properly to prevent leaking thermoplastic from entering the stormdrain inlets, the stormwater drainage system, or watercourses.
- The pre-heater shall be filled carefully to prevent splashing or spilling of hot thermoplastic. Leave six inches of space at the top of the pre-heater container when filling thermoplastic to allow room for material to move when the vehicle is deadheaded.
- Contractor shall not pre-heat, transfer, or load thermoplastic near stormdrain inlets or watercourses.
- Clean truck beds daily of loose debris and melted thermoplastic. Thermoplastic

Non-Stormwater Management

NSM–7 Paving and Grinding

waste shall be disposed of properly.

Raised/Recessed Pavement Marker Application and Removal

- Do not transfer or load bituminous material near stormdrain inlets, the stormwater drainage system, or watercourses.
- Melting tanks shall be loaded with care and not filled to beyond six inches from the top to leave room for splashing when vehicle is deadheaded.
- When servicing or filling melting tanks, ensure all pressure is released before removing lids to avoid spills.
- On large scale Projects, use mechanical or manual methods to collect excess bituminous material from the roadway after removal of markers.
- Waste shall be disposed of properly.

Maintenance & Inspection

- Inspect BMPs prior to forecast rain, daily during extended rain events, after rain events, and weekly throughout the life of the Project.
- Inspect and maintain machinery regularly to minimize leaks and drips.
- Ensure that employees and subcontractors are implementing appropriate measures during paving operations.
- Keep ample supplies of drip pans or absorbent materials onsite.

DESCRIPTION:
Employee training, like equipment maintenance, is a method by which to implement BMPs. Employee training should be used in conjunction with all other BMPs as part of the facility's SWPPP.

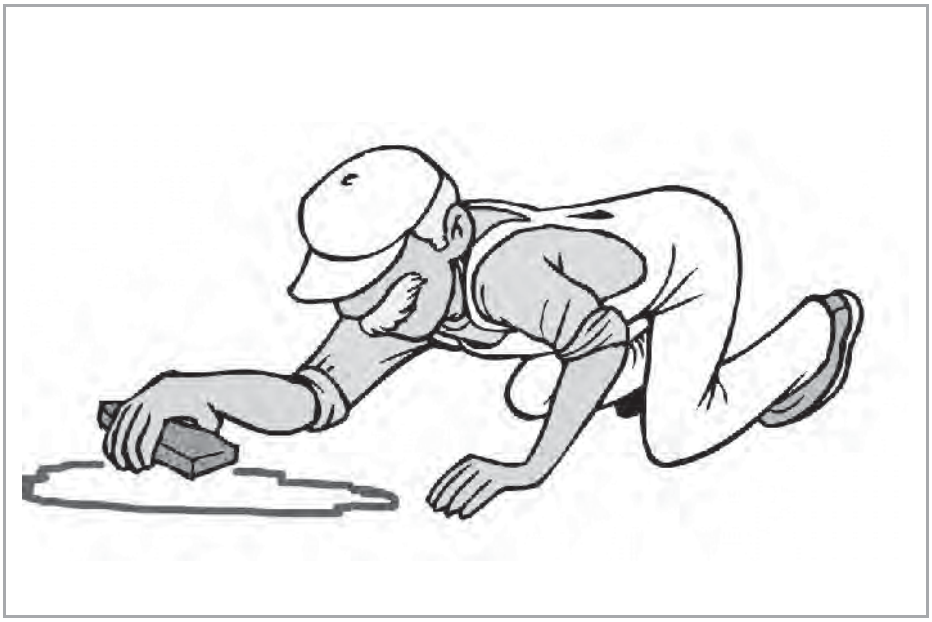
The specific employee training aspects of each of the source controls are highlighted in the individual information sheets. The focus of this information sheet is more general, and includes the overall objectives and approach for assuring employee training in stormwater pollution prevention. Accordingly, the organization of this information sheet differs somewhat from the other information sheets in this chapter.

OBJECTIVES:
Employee training should be based on four objectives:

- Promote a clear identification and understanding of the problem, including activities with the potential to pollute stormwater;
- Identify solutions (BMPs);
- Promote employee ownership of the problems and the solutions; and
- Integrate employee feedback into training and BMP implementation.

APPROACH:

- Integrate training regarding stormwater quality management with existing training programs that may be required for your business by other regulations.
- Businesses that are not regulated in Federal, State, or local regulations, may use the information in this handbook to develop a training program to reduce their potential to pollute stormwater.
- Employee training is a vital component of many of the individual source control BMPs included in this manual.



DESCRIPTION:
Practices to clean-up leakage/spillage of on-site materials that may be harmful to receiving waters.

APPLICATION:
All sites

GENERAL:
- Store controlled materials within a storage area.
- Educate personnel on prevention and clean-up techniques.
- Designate an Emergency Coordinator responsible for employing preventative practices and for providing spill response.
- Maintain a supply of clean-up equipment on-site and post a list of local response agencies with phone numbers.

METHODS:
- Clean-up spills/leaks immediately and remediate cause.
- Use as little water as possible. NEVER HOSE DOWN OR BURY SPILL CONTAMINATED MATERIAL.
- Use rags or absorbent material for clean-up. Excavate contaminated soils. Dispose of clean-up material and soil as hazardous waste.
- Document all spills with date, location, substance, volume, actions taken and other pertinent data.
- Contact the Salt Lake County Health Department (313-6700) for any spill of reportable quantity.

Appendix I – Construction General Permit

2022 Construction General Permit Regulations

The 2022 Construction General Permit can be viewed here:

https://www.epa.gov/npdes/2022-construction-general-permit-cgp