

# Stormwater Management Plan (SWMP)

for construction activities at:

PCD File# PPR-21-008

Super Star Car Wash – Falcon Marketplace – Lot  
10

NW corner of Woodman Road & Meridian Wood  
Falcon, CO



PCD Filing No.  
PPR-21-008

SWMP Preparation Date: [2/9/2021](#)

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**Objectives:**

The SWMP identifies possible pollutant sources that may contribute to stormwater pollution, and identifies control measures to reduce or eliminate potential water quality impacts during construction activities. The SWMP must be completed and implemented prior to project breaking ground, and revised by the contractor’s Qualified Stormwater Manager as construction proceeds, to accurately reflect the conditions and practices at the site until final stabilization is reached. The SWMP meets the minimum requirements to comply with the State of Colorado CDPS General Permit for Stormwater Discharges Associated with Construction Activity, and the local regulations.

**Note:**

The contractor will be responsible for any re-excavation of sediment and debris that collects in Pond #2 as required to ensure that the pond meets the design grades following construction. The storm lines shall also be cleaned and free of sediment once the site becomes stabilized.

**Basic Acronyms:**

**ESC Plan:** Erosion and Sediment Control Plan (Site Map)

**CM:** Control Measures or **BMP:** Best Management Practices

**MS4:** Municipal Separate Storm Sewer System

Engineer of Record:

The Stormwater Management Plan was prepared under my direction and supervision and is correct to the best of my knowledge and belief. Said Plan has been prepared according to the criteria established by the County and State for Stormwater Management Plans.

\_\_\_\_\_  
Engineer of Record Signature

\_\_\_\_\_  
Date

Review Engineer:

The Stormwater Management Plan was reviewed and found to meet the checklist requirements except where otherwise noted or allowed by an approved deviation request.

\_\_\_\_\_  
Review Engineer

\_\_\_\_\_  
Date

SECTION 1: SITE EVALUATION, ASSESSMENT, AND PLANNING

## 1.1 Project/Site Information

Project/Site Name: Super Star Car Wash – Falcon Marketplace – Lot 10

Project Location: NW corner of intersection of Woodman Road and Meridian Road

Town: Falcon

State: CO ZIP Code: 80831

Subdivision/Project: Falcon Marketplace

State of Colorado - CDPS Stormwater Discharge Permit associated with Construction Activities

Permit Number: COR-XXXXXX

## 1.2 Contact Information/Responsible Parties

**Owner:**

Super Star Car Wash

Tim Varley

1830 N 95<sup>th</sup> Ave, Suite 106, Phoenix, AZ 85037

Office #: (623) 536-5956

Cell #: (801) 651-1748

Email: tvarley@sscwaz.com

**Operator:**

Insert Operator(s) Company or Organization Name

Insert Operator(s) Name

Insert Operator(s) Address, City, State and Zip

Office #: (xxx)-xxx-xxxx

Cell #: (xxx)-xxx-xxxx

Email: xxx@xxx.com

**Site Superintendent:**

Insert Site Superintendent(s) Company or Organization Name

Insert Site Superintendent(s) Name

Insert Site Superintendent(s) Address, City, State, Zip Code

Office #: (xxx)-xxx-xxxx

Cell #: (xxx)-xxx-xxxx

Email: xxx@xxx.com

**Qualified Stormwater Manager:** Individual responsible for implementing, maintaining, and revising the SWMP, knowledgeable in the principles and practices of ESC and pollution prevention, with the skills to:

- Assess conditions at construction sites that could impact stormwater quality, and
- Assess the effectiveness of stormwater controls.
- Perform inspections

Insert ESC Qualified Stormwater Manager(s) Company or Organization Name

Insert ESC Qualified Stormwater Manager(s) Name

Insert ESC Qualified Stormwater Manager(s) Title

Insert ESC Qualified Stormwater Manager(s) Address, City, State, Zip Code

Office #: (xxx)-xxx-xxxx

Cell #: (xxx)-xxx-xxxx

Email: xxx@xxx.com

\*To add additional Qualified Stormwater Managers please click on the blue plus sign.

**SWMP prepared by:**

Bowman Consulting Group

Thomas Pannell, PE

1526 Cole Blvd, Suite 100, Lakewood, CO 80401

Office #: (303) 801-2900

Cell #: N/A

Email:

tpannell@bowman.com

### 1.3 Nature and Sequence of Construction Activity

Project scope of work: Proposed tunnel carwash, surrounding parking lot, landscaping and storm drainage inlets and pipes tying into the development system. Site is already cleared and grubbed. Construction will include the installation of BMPS, utility/storm installation, final grading, and removal of temporary control measures. All BMPs for existing facilities will be installed prior to the start of construction. Once installation of proposed storm facilities is installed inlet protection will be added until final stabilization is achieved. Once final stabilization is achieved with seeding and mulching all temporary BMPs will be removed. Based on the Geotech report soil erosion potential is deemed to be low.

Type of construction activity:

Residential

Commercial

Industrial

Road Construction

Linear Utility

Other (please specify):

Estimated Project Start Date: Spring, 2022

Estimated Project Completion Date: Summer, 2022

Estimated Project Final Stabilization: Summer, 2022

Major phases of Construction:

Initial CM

Demolition

Grading

Utility Installation

Interim CM

Road Construction

Vertical Construction

Final Grade

Final Stabilization CM

Other: INSERT TEXT HERE

Earth Work Summary:

Cut: 96 CY

Fill: 2020 CY

### 1.4 Construction Site Estimates

Total site area:

1.62 acres

Construction site area to be disturbed:

1.07 acres

Are there any control measures (CMs) located outside of the permitted area, that are utilized by the Permittee's construction site for compliance with this permit, but not under the direct control of the Permittee?:  Yes /  No

If Yes, attach user agreement if applicable, with the off-site owner/operator under **Appendix 8** and describe CMs location, specifications, etc.

## 1.5 Soils, Drainage Patterns, and Vegetation

Soil type:

Hydrologic Soil Group A

Soil's erosion potential: The soils erosion potential is low as all on site slopes are 3:1 or less, there will be no impact on discharge.

NRCS rates the soils in the area as 99.9% Blakeland-Fluvaquenic Haplaquolls and 0.1% Blakeland loamy sand, 1 to 9 percent slopes.

Drainage pattern - Describe existing drainage patterns, slopes and changes due to the proposed grading:

Existing: The entire site currently sheet flows to the south at slopes of 1% to 10% into the water quality pond along the south portion of the site.

Proposed: The proposed drainage will create low points through the middle of the site and enter a new storm system that will take the flows to the tie into the existing storm system at the SE portion of the site.

Vegetation - Describe pre-disturbance vegetation:

Native grasses – the site has recently been graded as part of the overall development, there is no vegetation currently.

Vegetation - Estimate the percentage of pre-existing vegetation cover of the entire site (%):  
0%

Vegetation - Describe method for determining the percentage:

Visual estimation based on pictures of the site and knowledge of recent construction activity.

## 1.6 Anticipated Sources of Authorized Non-stormwater Discharge

Description and location of any anticipated allowable sources of non-stormwater discharge at the site. Check if applicable:

Natural springs, only if:

- Uncontaminated, and
- Spring flows are not exposed to land disturbance

Landscape irrigation return flow

Emergency fire fighting

Concrete washout (CWA), only if:

- Liquids from washing concrete tools and concrete mixer chutes are properly contained, and
- No concrete washout water leaves the site as surface runoff or reaches receiving waters

Liner under CWA is required if:

- The groundwater table level is high.
  - CWA is within 400 feet of any natural drainage pathway or waterbody, or
  - CWA is within 1,000 feet of any wells or drinking water sources.
- Check if the CWA liner is needed for this site.

Description of any other anticipated allowable sources of non-stormwater discharge at the site:  
N/A

## 1.7 Receiving Waters

Name and description of watershed:

Arkansas Basin

Name and description of ultimately receiving water(s), including stream segment designation:

[Unnamed tributary to Black Squirrel Creek](#)

Distance from the project to the closest receiving water:

2000 feet

Is the stream segment impaired?  Yes /  No

Description of all stream crossings located within the construction site boundary:

N/A

Other:

N/A

## 1.8 Protected Site Features and Sensitive Areas

Describe unique site feature or sensitive area to be preserved during construction:

N/A

Describe measures to preserve unique site feature or sensitive area during construction:

N/A

Describe any known soil or groundwater contamination:

N/A

Describe management plan for contaminated soils and/or groundwater:

N/A

Attach applicable Permits (check if applicable):

404 Permit

401 Permit

Dewatering Permit

Remediation Permit

Other: [INSERT TEXT HERE](#)

## 1.9 Potential Sources of Pollution

Potential Pollution Source	Potential on this site?	Control Measures (CM)	CM Implementation (as needed)
<b>Disturbed &amp; Stored Soils</b> - grading - spoils - stockpiles	YES	ESC CMs (IP, SF, SSA, TRM, RECP, TOP, SCL, SBB, RS, SB, ST) Preservation of existing vegetation (PV, VB, CF, CP) Materials management Solid waste management (SP, GH) Stockpile management (SP) Vehicle tracking control (VTC)	1. Delineate protected areas prior to construction. 2. Install CMs prior to construction. 3. Manage materials effectively once they arrive on site. 4. Place trash receptacles prior to construction. 5. Implement spill response. 6. Implement stockpile mgnt controls. 7. Delineate vehicle travel areas prior to construction, adjust as needed.
<b>Vehicle Tracking</b> - all permitted vehicle traffic	YES	ESC CMs (IP, SF, SSA, TRM, RECP, TOP, SCL, SBB, RS, SB, ST) Vehicle traffic controls Vehicle tracking controls (VTC) Street sweeping (SS)	1. Install CMs prior construction. 2. Delineate vehicle travel areas prior to construction, adjust as needed. 3. Install VTC prior to construction. 4. Implement SS as needed, in conjunction with start of construction.
<b>Contaminated Soils</b>	NO	Hazardous materials management (GH, CT) Spill response & notification (GH) Stockpile management (SP)	1. Implement hazardous materials management. 2. Implement spill response procedures. 3. Implement stockpile mgnt controls.
<b>Loading &amp; Unloading</b> - construction materials	YES	Material management (GH) Vehicle traffic controls (VTC)	1. Manage materials effectively once they arrive on site. 2. Delineate vehicle travel areas prior to construction, adjust as needed.
<b>Vehicle/equipment maint. &amp; fueling</b> - gas, oil, - diesel - lubricants - hydraulic fluids	NO	Spill prevention controls (GH) Designated fuel storage area (GH) Spill response & notification (GH)	1. Designate fuel storage area. 2. Implement spill prevention controls. 3. Implement spill response and notification procedures.
<b>Outdoor storage</b> - building materials - fertilizers - chemicals	YES	Material storage procedures (GH)	1. Designate material storage areas prior to delivery. 2. Materials left outdoors must be covered if they can pollute stormwater. 3. Secondary containment must be used for hazardous materials.
<b>Dust</b> - wind transport - saw cutting	YES	Dust control (DC)	1. Delineate protected areas prior to construction.

		Temporary soil stabilization (SF, SD, GB, SSA, TRM, RECP, TOP) Street sweeping (SS) Preservation of existing vegetation (PV, VB, CF)	2. Implement dust control in conjunction with soil disturbing activities. 3. Implement temporary soil stabilization measures as soon as practical. 4. Implement street sweeping at the start of major construction and maintain as needed.
Routine Maintenance Activities - fertilizers - pesticides - detergents - solvents - fuels, oils, etc.	NO	Material storage (GH) Hazardous waste management (GH, CT) ESC CMs (IP, SF, SSA, TRM, RECP, TOP, SCL, SBB, RS, SB, ST)	1. Designate materials storage areas prior to site arrival. 2. Practice hazardous waste management procedures during the storage of such materials. 3. Install ESC measures prior to landscape work.
Non-industrial Waste - worker trash - portable toilets	YES	Sanitary waste (GH) Solid waste management (GH)	1. Place temporary sanitary facilities on site and prevent off-site discharges. 2. Place trash receptacles on site.
On-site Industrial Waste - construction debris, etc	YES	Waste management (GH) Liquid waste management (GH) Hazardous waste management (GH, CT)	1. Place trash receptacles on site. 2. Place designated watertight receptacles or washout area(s) prior to activities that produce liquid waste. 3. Implement hazardous waste management procedures.
Concrete Truck Chute/Tool Washing	YES	Concrete washout area (CWA)	Install designated concrete washout(s) prior to concrete work.
Drywall Mud and Paint	YES	Liquid waste management (GH)	Place designated watertight receptacles or washout area(s) prior to activities that produce liquid waste.
Fly Ash - concrete - flow fill	YES	Concrete washout area (CWA) Hazardous waste management (GH)	1. Install designated CWA prior to concrete activities. 2. Implement hazardous waste management procedures.
Dedicated: - asphalt plants - concrete batch plants - masonry mixing stations	NO	Secondary containment Concrete washout area (CWA) Solid waste management (GH) Materials management (GH)	1. Install secondary containment CMs prior to using dedicated batch plants. 2. Establish dedicated washout area before construction begins. 3. Place trash receptacles on site. 4. Manage materials effectively once they arrive on site.
Waste from: - geo-tech test - potholing - saw cutting - utility borings for locates	YES	Dust control (DC) Material storage (GH) Solid waste management (GH)	1. Implement dust control in conjunction with soil disturbing activities. 2. Designate materials storage areas prior to their arrival on site. 3. Place trash receptacles on site.
Demolition of infrastructure: - concrete curb - asphalt road - steel/rebar	NO	Dust control (DC) Solid waste management (GH)	1. Implement dust control in conjunction with soil disturbing activities. 2. Place trash receptacles.

Electric Generator - pump	NO	Secondary containment Spill response & notification (GH) Hazardous waste management (GH, CT)	1. Install secondary containment CMs prior to using generators. 2. Implement hazardous waste management procedures.
Areas where <u>potential spills</u> can occur	Yes	Hazardous waste management (GH) Spill response & notification (GH)	1. Implement hazardous waste management. 2. Implement spill response and notification procedures.
Pollutant Source	Yes/No	Indicate Control Measures	Describe Implementation

\* Refer to Section 2, for acronyms used to identify CM details.

### **Potential hazardous material & chemical pollutants to stormwater:**

Potentially on Site?	Material/ Chemical	Physical Description	Stormwater Pollutants	Location
YES	Fertilizer	Liquid or solid grains	Nitrogen, phosphorous	Newly seeded areas
YES	Cleaning solvents	Colorless, blue, or yellow-green liquid	Perchloroethylene, methylene chloride, trichloroethylene, petroleum distillates	Staging areas
YES	Asphalt	Black solid	Oil, petroleum distillates	Streets
YES	Concrete and Grout	White solid/grey liquid	Limestone, sand, pH, chromium	Curb and gutter, sidewalk, building construction
YES	Curing compounds	Creamy white liquid	Naphtha	Curb and gutter, sidewalk, driveways, concrete slabs
NO	Hydraulic oil/ fluids	Brown, oily petroleum hydrocarbon	Mineral oil	Leaks or broken hoses from equipment
NO	Gasoline	Colorless, pale brown or pink petroleum hydrocarbon	Benzene, ethyl benzene, toluene, xylene, MTBE	Secondary containment/staging area
NO	Antifreeze/ coolant	Clear green/yellow liquid	Ethylene glycol, propylene glycol, heavy metals (copper, lead, zinc)	Leaks or broken hoses from equipment or vehicles
YES	Sanitary toilets	Various colored liquid	Bacteria, parasites, and viruses	Staging areas
Yes/No	Other	Physical Description	Stormwater Pollutants	Location

\* Portable toilets will be located a minimum of 10' from stormwater inlets and 50' from state waters. They will be secured at all four corners to prevent overturning and cleaned on a weekly basis. They will be inspected daily for spills.



## SECTION 2: EROSION & SEDIMENT CONTROL MEASURES

### 2.1 Sediment Control Measures

<b>Silt Fence (SF)</b>		Used: <b>YES</b>	Phase(s): <b>1</b>
<input type="checkbox"/> <b>Permanent</b>		<input checked="" type="checkbox"/> <b>Temporary</b>	
<b>What: Description</b>	SF is a woven geotextile fabric attached to wooden posts and trenched into the ground. It is use to intercept sheet flow runoff from disturbed areas.		
<b>When: Installation</b>	SF shall be installed prior to land disturbing activities. SF shall be removed when the upstream area is stabilized.		
<b>Where: Location</b>	SF shall be installed at the locations identified on the SWMP. SF is typically installed along the contour of slopes, which is down slope of a disturbed area to accept sheet flow, and placed along the perimeter of a construction site. <b>SF is not designed to receive concentrated flow, or to be used a filter fabric.</b>		
<b>How: Maintenance &amp; Inspection</b>	SF shall be installed per detail (Appendix 4). Inspect regularly and maintain SF throughout construction. Any section of SF that has a tear, hole, slumping, undercutting or has been bypassed shall be replaced. Accumulated sediment shall be removed before it reaches a depth of ½ the height of the of the silt fence usually 6 inches.		

<b>Sediment Control Log (SCL)</b>		Used: <b>NO</b>	Phase(s): <b>N/A</b>
<input type="checkbox"/> <b>Permanent</b>		<input type="checkbox"/> <b>Temporary</b>	
<b>What: Description</b>	SCL, aka "Straw Wattle", is a linear roll made of natural materials (straw, coconut fiber or other fibrous material), trenched into the ground and held with wooden stakes, used to intercept sheet flows from disturbed areas.		
<b>When: Installation</b>	SCL shall be installed during land disturbing activities and it may also be installed after formation of a stockpile. Once the upstream area is stabilized, remove and properly dispose of the SCL. If disturbed areas exist after removal, the area shall be covered with top soil, seeded and mulched.		
<b>Where: Location</b>	SCL shall be installed at the locations identified on the ECSP. SCL are typically used for stockpile control, IP, and CD in small drainage ditches, on disturbed slopes to shorten flow lengths and/or as part of multi-layered perimeter control along receiving water such as a stream, pond or wetland. SCL work well in combination with other layers of erosion and sediment controls. Stockpiles stored on impervious surfaces shall not be placed in a flowline and SCL shall be weighted. Stockpiles stored on pervious surfaces may be protected by pervious SCL, SF or adequate vegetative cover.		
<b>How: Maintenance &amp; Inspection</b>	SCL shall be installed per detail (Appendix 4), along (parallel) the slope contour to avoid concentrating flows. Inspect regularly and maintain SCL throughout construction as they will eventually degrade. Accumulated sediment shall be removed before the depth is ½ the height of the SCL.		

<b>Sediment Basin (SB)</b>		Used: <b>NO</b>	Phase(s): <b>N/A</b>
<input type="checkbox"/> <b>Permanent</b> <input type="checkbox"/> <b>Temporary</b>			
<b>What: Description</b>	SB is a temporary structure designed to capture sediment transported in runoff and slowly release flows to allow time for settling of the sediment prior to discharge from the site		
<b>When: Installation</b>	Install SB prior to land disturbing activities. SBs are typically converted to permanent detention basins. For conversion, remove accumulated sediment and re-configure the basin and outlet to meet the requirements of the final design. For SB that are temporary, remove when is no longer needed by filling in the excavated area with soil and stabilizing accordingly.		
<b>Where: Location</b>	SB shall be installed at the locations identified on the SWMP. Where feasible, the SB shall be installed in the same location where a permanent post-construction detention basin will be located.		
<b>How: Maintenance &amp; Inspection</b>	The SB shall be installed per detail (Appendix 4). Inspect regularly and maintain SB to be effective. Accumulated sediment shall be dredged from the basin when it reaches no more than 1/3 of the design storage volume.		

<b>Sediment Trap (ST)</b>		Used: <b>NO</b>	Phase(s): <b>N/A</b>
<input type="checkbox"/> <b>Permanent</b> <input type="checkbox"/> <b>Temporary</b>			
<b>What: Description</b>	ST is an excavated or bermed area designed to capture drainage, allowing settling of sediment from upstream disturbed area smaller than 1 acre.		
<b>When: Installation</b>	Install ST prior to land disturbing activities. The ST shall not be removed until the upstream area is sufficiently stabilized.		
<b>Where: Location</b>	Install ST in the locations identified on the SWMP. It shall be installed across a low area or drainage swale.		
<b>How: Maintenance &amp; Inspection</b>	ST shall be installed per detail (Appendix 4). Inspect regularly and maintain the ST throughout construction. Inspect the embankments for stability and seepage, and the outlet for sediment, debris and damage. Repair damage to the outlet, and remove all obstructions. Accumulated sediment shall be removed when it reaches 1/2 the height of the outflow embankment.		

<b>Inlet Protection (IP)</b>		Used: <b>YES</b>	Phase(s): <b>1</b>
<input type="checkbox"/> <b>Permanent</b> <input type="checkbox"/> <b>Temporary</b>			
<b>What: Description</b>	IP is a permeable barrier that is installed around an inlet drain to filter runoff and remove sediment before entering the storm system. IP can be constructed of: RS, SCL, SF, blocks and RS, or other materials.		
<b>When: Installation</b>	Install IP for existing catch basins prior to land disturbing activities upslope from the inlet. IP for proposed catch basins shall be installed immediately after the		

	drain is constructed. IP and associated sediment must be removed and properly disposed of when the drainage area upstream is stabilized.
<b>Where: Location</b>	Install IP at the locations identified on the EC Plan. IP is not a stand-alone measure. It shall be used in conjunction with other up gradient measures.
<b>How: Maintenance &amp; Inspection</b>	Install IP per detail (Appendix 4). IP shall enable the drain to function without completely blocking the flow. Inspect regularly and maintain IP throughout construction as it is the final measure before runoff enters the storm drain. Accumulated sediment shall be removed when it has reached ½ of the height of the IP or loses functionality, whichever comes first. IP is not standalone measure and shall be part of redundant system.

**Rock Sock (RS)** Used: **NO** Phase(s): **N/A**

**Permanent**  **Temporary**

<b>What: Description</b>	RS is an elongated cylindrical filter constructed of gravel wrapped by wire mesh or woven geotextile (aka “curb socks” if placed at angles at curb line).
<b>When: Installation</b>	Install RS prior to land disturbing activities; once upstream stabilization is complete. Accumulated sediment shall be removed and properly disposed of.
<b>Where: Location</b>	RS shall be installed at the locations identified on the EC Plan. They are use for perimeter control of a disturbed area, or as part of IP.
<b>How: Maintenance &amp; Inspection</b>	Install RS per detail (Appendix 4). Inspect regularly and maintain RS as they are susceptible to displacement and breakage due to vehicle traffic. Accumulated sediment shall be removed to maintain functionality.

## 2.2 Erosion Control Measures

**Surface Roughening (SR)** Used: **NO** Phase(s): **N/A**

**Permanent**  **Temporary**

<b>What: Description</b>	SR is tracking, scarifying, imprinting or tilling a disturbed area to provide temporary stabilization. Variations in the soil are created to help minimize wind and water erosion.
<b>When: Installation</b>	SR shall be performed either after final grading or to temporarily stabilize an area during active construction.
<b>Where: Location</b>	SR shall be used in the locations identified on the SWMP. It can be used on mild and steep slopes.
<b>How: Maintenance &amp; Inspection</b>	SR shall be installed per detail (Appendix 4). SR shall always be perpendicular to the slope. Continuously inspect and maintain all surfaces that are roughened throughout construction. SR shall be inspected for erosion as it is only a temporary control. Vehicles and equipment shall not be driven over areas that have been surface roughening. Refresh SR as needed.

**Temporary and Permanent Seeding (TS/PS)**      Used: YES      Phase(s): 2

**Permanent**                       **Temporary**

<b>What: Description</b>	Seed is applied to disturbed areas in an effort to establish vegetation. TS is used to stabilize disturbed areas that will be inactive for an extended period. PM is used to stabilize areas at final grade that will not be otherwise stabilized. Effective seeding includes preparation of a seedbed, selection of an appropriate seed mixture, proper planting techniques, and protection of the seeded area with mulch, geotextile, or other appropriate measures. Mulching helps to protect the bare soil and must be secured by crimping, tackifiers, netting or other measures.
<b>When: Installation</b>	TS/PS shall be performed on temporary inactive surfaces and following the completion of final grading.
<b>Where: Location</b>	TS/PS shall be completed in the locations identified on the SWMP to stabilize areas at final grade that will not otherwise be stabilized.
<b>How: Maintenance &amp; Inspection</b>	TS/PS and secured mulching shall be installed per seed mix specifications and detail (Appendix 4). Continuously inspect and maintain TS/PS and secured mulch throughout construction. Prepare the seedbed, select an appropriate seed mixture, use proper planting techniques and protect the seeded area with secured mulch.

**Soil Binders (SB)**    Used: NO                      Phase(s): N/A

**Permanent**                                       **Temporary**

<b>What: Description</b>	SB involves a broad range of treatments that can be applied to exposed soils for temporary stabilization to reduce wind and water erosion.
<b>When: Installation</b>	Use SB for short term temporary stabilization. Soil binders can break down fast due to natural weathering.
<b>Where: Location</b>	SB can be used on mild and steep slopes including stockpiles. They are often used in areas where work has temporarily stopped, but is expected to resume before revegetation can be established.
<b>How: Maintenance &amp; Inspection</b>	SB shall be used per detail (Appendix 4). Continuously inspect and maintain all areas where SB have been applied throughout construction. SB can fail after heavy rainfall events and may require re-application. In particular, SB will generally experience spot failures during heavy rainfall events.

**Mulching (MU)**    Used: YES                      Phase(s): 2

**Permanent**                                       **Temporary**

<b>What: Description</b>	MU consists of evenly applying straw, hay, shredded wood mulch, bark or compost to disturbed soils and securing the mulch by crimping, tackifiers or netting.
------------------------------	---

<b>When: Installation</b>	MU is used in conjunction with TS/PS to help protect the seed bed and stabilize the soil. Mulch can also be used as a temporary cover on low to mild slopes to help temporarily stabilize disturbed area where there are growing season constraints. After MU application, there shall not be bare ground surface exposed. Reapply mulch, as needed, to cover bare areas.
<b>Where: Location</b>	Temporary and/or permanent MU shall be completed in the locations identified on the SWMP.
<b>How: Maintenance &amp; Inspection</b>	MU shall be installed per detail (Appendix 4). After MU, the bare ground surface shall not be more than 10% exposed. Re-apply mulch, as needed, to cover bare areas.

<b>Rolled Erosion Control Product (RECP)</b>	Used: NO	Phase(s): N/A
<input type="checkbox"/> <b>Permanent</b>	<input type="checkbox"/> <b>Temporary</b>	

<b>What: Description</b>	RECP consist of a variety of temporary or permanently installed manufactured products designed to control erosion and enhance vegetation establishment and survivability, especially on slopes and in channels. Categories of RECP: mulch control netting, open weave textile, erosion control blanket, and turf reinforcement mat.
<b>When: Installation</b>	RECP shall be installed upon completion of slope grading and when revegetation measures are completed. RECP are biodegradable typically and do not need to be removed after construction.
<b>Where: Location</b>	RECP shall be installed at the locations identified on the SWMP. Install RECP according to manufacturer's specifications.
<b>How: Maintenance &amp; Inspection</b>	RECP shall be installed per (Appendix 4). Continuously inspect and maintain all RECP throughout construction. Check for signs of erosion, including voids under the mat. Also check for damaged or loose stakes and secure loose sections of the blanket.

<b>Temporary Slope Drains (TSD)</b>	Used: NO	Phase(s): N/A
<input type="checkbox"/> <b>Permanent</b>	<input type="checkbox"/> <b>Temporary</b>	

<b>What: Description</b>	TSD is a pipe or culvert use to convey water down a slope where there is high potential for erosion. A collection system at the top of the slope directs runoff to the conveyance. The pipe outlet must be equipped with outlet protection.
<b>When: Installation</b>	Install TSD prior to up-gradient land disturbing activities and maintain in place until no longer needed, but remove prior to the end of construction.
<b>Where: Location</b>	TSD shall be installed at the locations identified on the SWMP. They are for long, steep slopes where there is a high potential for flow concentration.

<b>How: Maintenance &amp; Inspection</b>	TSD shall be installed and maintained per detail (Appendix 4). Inspect and maintain all TSD throughout construction. Inspect the entrance for sediment accumulation. Inspect the downstream outlet for signs of erosion and stabilize, as needed. Remove accumulated sediment at the entrance and outfall, and inspect pipe anchors to ensure they are secure.
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<b>Temporary Outlet Protection (TOP)</b>	Used: <b>NO</b>	Phase(s): <b>N/A</b>
<input type="checkbox"/> <b>Permanent</b>	<input checked="" type="checkbox"/> <b>Temporary</b>	

<b>What: Description</b>	TOP consist of riprap rock placed at the outlet to help reduce erosion immediately downstream of a pipe, culvert, slope drain rundown or other conveyance with concentrated flow. TOP is intended to be used for less than two years.
<b>When: Installation</b>	TOP shall be installed immediately upon the completion of grading and removed once the pipe is no longer draining upstream area or once the downstream area has been sufficiently stabilized.
<b>Where: Location</b>	TOP shall be installed at the locations identified on the SWMP. It shall be installed where a conveyance discharges onto a disturbed area where there is a potential for accelerated erosion due to concentrated flow.
<b>How: Maintenance &amp; Inspection</b>	TOP shall be installed and maintain per (Appendix 4). The Inspect regularly and maintain TOP as the rocks may be displaced. Accumulated sediment shall be removed before the TOP becomes buried and ineffective.

<b>Earth Dikes/Drainage Swales (ED/DS)</b>	Used: <b>NO</b>	Phase(s): <b>N/A</b>
<input type="checkbox"/> <b>Permanent</b>	<input type="checkbox"/> <b>Temporary</b>	

<b>What: Description</b>	ED/DS are temporary storm conveyance channels used to divert runoff around slopes or to convey runoff to additional sediment control CMs prior to discharge from the site.
<b>When: Installation</b>	Install ED/DS immediately upon completion of channel grading and maintain in place until the end of construction.
<b>Where: Location</b>	ED/DS shall be installed at the locations identified on the SWMP. Typically installed around steep slopes or as temporary conveyance feature leading to a sediment basin or trap.
<b>How: Maintenance &amp; Inspection</b>	ED/DS shall be installed per detail (Appendix 4). Continuously inspect and maintain all ED/DS for stability, compaction and signs of erosion and repair. Inspect side slopes for erosion and damage to erosion control fabric. Stabilize slopes and repair fabric as necessary. Accumulated sediment shall be removed when the sediment has accumulated to ½ of the depth of the ED/DS.

<b>Terracing (TER)</b>	Used: <b>NO</b>	Phase(s): <b>N/A</b>
<input type="checkbox"/> <b>Permanent</b>	<input type="checkbox"/> <b>Temporary</b>	

<b>What: Description</b>	TER consists of grading steep slopes into a series of relatively flat sections separated at intervals by steep slope segments. They shorten the uninterrupted flow lengths on steep slopes, reducing the development of rills and gullies.
<b>When: Installation</b>	TER shall be completed during grading activities; when slope is at final grade, and vegetation shall be established as soon as possible.
<b>Where: Location</b>	TER shall be installed at the locations identified on the SWMP. It is usually used to control erosion on slopes that are steeper than 4:1.
<b>How: Maintenance &amp; Inspection</b>	TER shall be installed per detail (Appendix 4). TER shall be used in combination with other stabilization measures that provide cover for exposed soils. Inspect regularly and maintain all TER throughout construction. Remove accumulated sediment and repair rill erosion as necessary.

<b>Check Dams (CD)</b>	Used: <b>NO</b>	Phase(s): <b>N/A</b>
<input type="checkbox"/> <b>Permanent</b>	<input type="checkbox"/> <b>Temporary</b>	

<b>What: Description</b>	CDs are temporary or permanent grade control structures use in drainage channels to reduce the velocity of runoff and concentrated flows. They can be constructed from rock, gravel bags, sand bags or proprietary devices.
<b>When: Installation</b>	CD shall be installed prior to earth disturbing activities or immediately upon completion of channel grading. Temporary CDs shall be removed and area shall be stabilized. Permanent CDs shall be cleaned and remain in place.
<b>Where: Location</b>	CD shall be installed at the locations identified on the SWMP. Typically they are placed in drainage channels, swales or on mild to moderately steep slopes.
<b>How: Maintenance &amp; Inspection</b>	CDs shall be installed per detail (Appendix 4). They shall be placed at regularly spaced intervals along the drainage swale or ditch. The height of the CD shall allow for pooling of the runoff. Inspect regularly and maintain CD as rocks can be displaced and gravel bags or sandbags can be torn. Accumulated sediment shall be removed before it reaches ½ the height of the CD.

<b>Streambank Stabilization (SS)</b>	Used: <b>NO</b>	Phase(s): <b>N/A</b>
<input type="checkbox"/> <b>Permanent</b>	<input type="checkbox"/> <b>Temporary</b>	

<b>What: Description</b>	SS is a combination of erosion and sediment control measures to protect streams, banks, and in-stream habitat from accelerated erosion. Some of the measures include PV, CD, TS/PS and RECP.
<b>When: Installation</b>	SS shall be installed prior to earth disturbing activities to protect existing vegetation, preserve exposed streambank, or mitigate erosion rates from disturbed area. SS measures that will not remain in place as a part of final stabilization, such as silt fence, shall be removed when all land disturbing activities have ceased and the area has been permanently stabilized.

<b>Where: Location</b>	SS shall be installed at the locations identified on the SWMP. They shall be installed along the banks of streams or waterways.
<b>How: Maintenance &amp; Inspection</b>	SS shall be installed per detail (Appendix 4). Inspect regularly and maintain SS throughout construction.
<b>Wind Erosion/Dust Control (DC)</b> Used: <b>NO</b> Phase(s): <b>N/A</b>	
<input type="checkbox"/> <b>Permanent</b> <input type="checkbox"/> <b>Temporary</b>	
<b>What: Description</b>	DC helps keep sediments (from soils and stockpiles) from entering the air as a result of land disturbing construction activities. A variety of practices that focus on grading disturbed areas may be used.
<b>When: Installation</b>	Implement DC during conditions which result in the formation of dust from either construction activities or from naturally occurring winds. Do not overwater.
<b>Where: Location</b>	Dust abatement shall be completed throughout the project area where any material exists that has the potential to become airborne.
<b>How: Maintenance &amp; Inspection</b>	DC measures shall be performed per detail (Appendix 4). Apply water or magnesium chloride, seed and mulch or use spray-on soil binders on disturbed areas. Water and magnesium chloride shall be applied such that concentrated flows do not form.

## 2.3 Materials Management Control Measures

<b>Concrete Washout Areas (CWA)</b> Used: <b>YES</b> Phase(s): <b>1</b>	
<input type="checkbox"/> <b>Permanent</b> <input checked="" type="checkbox"/> <b>Temporary</b>	
<b>What: Description</b>	A CWA is a specific area of the construction site designated and managed for concrete washing activities. Options available: excavation of a pit in the ground, use of an above ground storage area or use of prefabricated haul-away concrete washout containers.
<b>When: Installation</b>	CWA shall be installed prior to any concrete delivery to the construction site; and remove upon termination of use of the washout. Accumulated solid waste, including concrete waste and any contamination soils, must be removed from the site to a designated disposal location.
<b>Where: Location</b>	CWA shall be installed at the locations identified on the SWMP. If the groundwater table is high; or if the CWA will be placed within 400 ft of a natural drainage pathway/waterbody; or within 1,000 ft of a wells or drinking water source it must be lined.
<b>How: Maintenance &amp; Inspection</b>	CWA shall be installed per detail (Appendix 4). Inspect regularly and maintain CWA throughout construction. Ensure adequate signage is in place identifying

	the location of the CWA. Remove concrete waste when filled to about ⅔ of CWA capacity to maintain functionality.
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**Stockpile Management (SP)** Used: **YES** Phase(s): 1

*Permanent*  *Temporary*

<b>What: Description</b>	SP includes measures to minimize erosion and sediment transport from stockpiles. SP shall be used when soils or other erodible materials are stored at a construction site.
<b>When: Installation</b>	SP locations shall be determined during construction. If temporary removal of a CM is necessary to access the SP, ensure CMs area re-installed per detail drawing. When SP is no longer needed, properly dispose of excess materials and re-vegetate or stabilize the ground surface where the SP was located.
<b>Where: Location</b>	SP locations shall be placed away from areas where concentrated stormwater flow is anticipated, major drainage ways, gutters, and storm sewer inlets. SP locations shall be noted on the SWMP.
<b>How: Maintenance &amp; Inspection</b>	SP shall be installed per detail (Appendix 4). Inspect regularly and maintain SP throughout construction. It is recommended to place SP on a pervious surface and protected from sediment transport with measures such as SCL, VB and/or SF. SP are only allowed on impervious surfaces if no other practical alternative exists. Provide weighted sediment control measures around the perimeter of the SP, such as RS or sand bags.

**Street Sweeping (SS)** Used: **YES** Phase(s): 1,2

*Permanent*  *Temporary*

<b>What: Description</b>	SS is used where vehicles track sediment onto paved roadways to reduce the transport of it into storm drain systems or surface waterways.
<b>When: Installation</b>	Manual SS or mechanical vacuuming SS shall be conducted when there is noticeable sediment accumulation on roadways adjacent to the construction site. SS shall be completed prior to any precipitation events, at the end of the workday as needed, and at the end of construction.
<b>Where: Location</b>	SS shall be utilized throughout the site and also on adjacent areas to construction.
<b>How: Maintenance &amp; Inspection</b>	SS shall be performed per detail (Appendix 4). Use standard SS equipment to adequately remove sediment from roadways adjacent to the construction site.

## 2.4 Site Management Control Measures

**Limits of Construction (LOC)** Used: **YES** Phase(s): 1,2

*Permanent*  *Temporary*

<b>What: Description</b>	LOC is use to designate the area of land that will be disturbed by construction activities.
<b>When: Installation</b>	The permitted LOC shall be designated prior to land disturbing activities. If land is disturbed <u>outside</u> of the limits, then the State and Local stormwater construction discharge permits and SWMP/EC Plan must be amended.
<b>Where: Location</b>	The permitted LOC shall be identified on the EC Plan.
<b>How: Maintenance &amp; Inspection</b>	LOC are typically delineated by silt fence or construction fence. Inspect LOC continuously and maintain the permitted LOC in an effort to not disturb land outside of the boundaries.

<b>Construction Fence (CF)</b>	Used: NO	Phase(s): N/A
<input type="checkbox"/> <b>Permanent</b>	<input type="checkbox"/> <b>Temporary</b>	

<b>What: Description</b>	CF restricts site access to designated entrances and exits, delineates construction site boundaries, and keeps construction out of sensitive locations such as natural areas to be preserved as open space, wetlands and riparian areas.
<b>When: Installation</b>	CF shall be installed prior to earth disturbing activities; and removed once construction is complete.
<b>Where: Location</b>	Install CF along the site perimeter or any area within the site where access shall be restricted.
<b>How: Maintenance &amp; Inspection</b>	CF shall be installed, maintained and removed per detail (Appendix 4). Inspect CF for damages and slumping. The CF shall be tight and any areas with slumping or fallen posts shall be reinstalled or replaced.

<b>Vehicle Tracking Control (VTC)</b>	Used: <b>YES</b>	Phase(s): <b>1,2</b>
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**Permanent**                       **Temporary**

<b>What: Description</b>	VTC is a stabilized site access point that helps remove sediment from vehicle tires and reduces tracking of sediment onto paved surfaces.
<b>When: Installation</b>	Install VTC prior to any land disturbing activities; and removed when there is no longer the potential for vehicle tracking to occur.
<b>Where: Location</b>	VTC shall be installed at the location identified on the SWMP. Locate VTC where frequent vehicle traffic will exit the construction site onto a paved roadway.
<b>How: Maintenance &amp; Inspection</b>	VTC shall be installed per detail (Appendix 4). All VTC must have non-woven geotextile fabric between the soil and rock pad. <u>Recycled concrete aggregate is not allowed because concrete dust elevates pH in stormwater.</u> Inspect regularly and maintain VTCs throughout construction. If the area becomes clogged with sediment, remove and dispose of excess sediment or replace material with a fresh layer of rock. Any sediment that is tracked onto adjacent roadways shall be cleaned with brooms, shovels (no water washing), or mechanically cleaned with a street vacuum sweeper.

<b>Stabilized Construction Roadway (SCR)</b>	Used: <b>NO</b>	Phase(s): <b>N/A</b>
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**Permanent**                       **Temporary**

<b>What: Description</b>	SCR is a temporary method to control sediment runoff, vehicle tracking, and dust from roads during construction activities consisting of aggregate base course of 3-inch diameter granular material ( <u>recycled concrete aggregate is not allowed because concrete dust elevates pH in stormwater</u> ).
<b>When: Installation</b>	SCR is installed on high traffic construction roads to minimize dust and erosion, and use in place of rough cut street controls on roadways with frequent construction and vehicle traffic. Gravel shall be removed once the road is ready to be paved. Prior to paving, the road should be inspected for grade changes and damage. Re-grade and repair as necessary.
<b>Where: Location</b>	SCR shall be installed at the locations identified on the SWMP. Apply gravel to disturbed areas that are used as a route for vehicles.
<b>How: Maintenance &amp; Inspection</b>	SCR shall be installed per detail (Appendix 4). Inspect regularly and maintain SCR throughout construction. A stable surface cover of rigid gravel shall be maintained as well as repairing any perimeter controls. Inspect drainage ditches along the roadway for erosion and stabilize as needed.

<b>Stabilized Staging Area (SSA)</b>	Used: <b>YES</b>	Phase(s): <b>1</b>
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**Permanent**                       **Temporary**

<b>What: Description</b>	SSA is a clearly designated area where construction equipment and vehicles, stockpiles, waste bins and other construction-related materials are stored. If the construction site is big, more than one SSA may be necessary.
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<b>Paving and Grinding Operations (PGO)</b>		Used: <b>YES</b>	Phase(s): <b>1,2</b>
<input type="checkbox"/> <b>Permanent</b>		<input checked="" type="checkbox"/> <b>Temporary</b>	
<b>What: Description</b>	Runoff management practices shall be used during all PGO. A variety of management practices can be used such as: IP, perimeter controls, store materials away from the storm sewer system, drainages and waterways, and keep a spill kit onsite.		
<b>When: Installation</b>	PGO shall be scheduled during dry weather. Recycle asphalt and pavement material when feasible. Material that cannot be recycled must be disposed of properly.		
<b>Where: Location</b>	Use runoff management practices during all paving and grinding operations such as surfacing, resurfacing, and saw cuts.		
<b>How: Maintenance &amp; Inspection</b>	PGO shall be installed per detail (Appendix 4). Inspect regularly and maintain PGO throughout construction.		

## SECTION 3: CONSTRUCTION SITE PHASING & ESC PLAN

### 3.1 Construction Site Phasing Summary

Initial Phase: Construction fences should be installed around the site. Silt fences should be installed on the downhill side of the site. VTC should be installed at all site entrances. The CWA should be installed near the VTC as well prior to any concrete construction. Stockpile management should be created as grading occurs. Sediment control logs should be installed along the downstream side of the stockpile. They should also be installed along the downhill side of new concrete curbs. Erosion control blankets should be added along the slopes greater than 4:1, especially along landscaped areas that are not stabilized yet.

Final Phase: The open areas not covered by any new construction should be seeded and mulched to stabilize the soil. The temporary CM's from the previous phases should be removed as the soil is stabilized.

### 3.2 General Notes

#### El Paso County General Erosion and Sediment Control Notes:

1. Stormwater discharges from construction sites shall not cause or threaten to cause pollution, contamination, or degradation of State Waters. All work and earth disturbance shall be done in a manner that minimizes pollution of any on-site or offsite waters, including wetlands.
2. Notwithstanding anything depicted in these plans in words or graphic representation, all design and construction related to roads, storm drainage and erosion control shall conform to the standards and requirements of the most recent version of the relevant adopted El Paso County standards, including the Land Development Code, the Engineering Criteria Manual, the Drainage Criteria Manual, and the Drainage Criteria Manual Volume 2. Any deviations to regulations and

standards must be requested, and approved, in writing.

3. A separate Stormwater Management Plan (SMWP) for this project shall be completed and an Erosion and Stormwater Quality Control Permit (ESQCP) issued prior to commencing construction. During construction the SWMP is the responsibility of the designated Qualified Stormwater Manager or Certified Erosion Control Inspector and shall be located on site at all times during construction and shall be kept up to date with work progress and changes in the field.

4. Once the ESQCP is approved and a "Notice to Proceed" has been issued, the contractor may install the initial stage erosion and sediment control measures as indicated on the approved GEC. A Preconstruction Meeting between the contractor, engineer, and El Paso County will be held prior to any construction. It is the responsibility of the applicant to coordinate the meeting time and place with County staff.

5. Control measures must be installed prior to commencement of activities that may contribute pollutants to stormwater. Temporary sediment and erosion control measures for all slopes, channels, ditches, or any disturbed land area shall be completed immediately upon completion of the disturbance.

6. All temporary sediment and erosion control measures shall be maintained and remain in effective operating condition until permanent soil erosion control measures are implemented and final stabilization is established. All persons engaged in land disturbance activities shall assess the adequacy of control measures at the site and identify if changes to those control measures is needed to ensure the continued effective performance of the control measures. All changes to temporary sediment and erosion control measures must be incorporated into the Stormwater Management Plan prior to implementation.

7. Temporary stabilization shall be implemented on disturbed areas and stockpiles where ground disturbing construction activity has permanently ceased or temporarily ceased for longer than 14 days. An area that is going to remain in an interim state for more than 60 days shall also be stabilized.

8. Final stabilization must be implemented at all applicable construction sites. Final stabilization is achieved when all ground disturbing activities are complete and all disturbed areas either have a uniform vegetative cover with individual plant density of 70 percent of pre-disturbance levels established or equivalent permanent alternative stabilization method is implemented. All temporary sediment and erosion control measures shall be removed upon final stabilization and before permit closure.

9. All permanent stormwater management facilities shall be installed as defined in the approved plans. Any proposed changes that effect the hydrology or hydraulics of a permanent stormwater management structures must be approved by the ECM Administrator prior to implementation.

10. Any earth disturbance shall be conducted in such a manner so as to effectively minimize accelerated soil erosion and resulting sedimentation. All disturbances shall be designed, constructed, and completed so that the exposed area of any disturbed land shall be limited to the shortest practical period of time. Pre-existing vegetation shall be protected and maintained within 50 horizontal feet of a waters of the state, unless infeasible.

11. Compaction of soil must be prevented in areas designated for infiltration control

measures or where final stabilization will be achieved by vegetative cover. Areas designated for infiltration control shall also be protected from sedimentation during construction until final stabilization is achieved.

12. Any temporary or permanent facility designed and constructed for the conveyance of stormwater around, through, or from the earth disturbance area shall be a stabilized conveyance designed to minimize erosion and the discharge of sediment off site.

13. Concrete wash water shall be contained and disposed of in accordance with the SWMP. No wash water shall be discharged to or allowed to runoff to State Waters, including any surface or subsurface storm drainage system or facilities. Concrete washout shall not be located in an area where shallow groundwater may be present, or within 50 feet of a surface water body.

14. Dewatering operations: uncontaminated ground water may be discharged on site, but may not leave the site in the form of surface runoff.

15. Erosion control blanketing is to be used on slopes steeper than 3:1.

16. Building, construction, excavation, or other waste materials shall not be temporarily placed or stored in the street, alley, or other public way, unless in accordance with an approved Traffic Control Plan. BMP's may be required by El Paso County Engineering if deemed necessary, based on specific conditions and circumstances.

17. Vehicle tracking of soils and construction debris off-site shall be minimized. Materials tracked offsite shall be cleaned up and properly disposed of immediately.

18. Contractor shall be responsible for the removal of all wastes from the construction site for disposal in accordance with local and State regulatory requirements. No construction debris, tree slash, building material wastes or unused building materials shall be buried, dumped, or discharged at the site.

19. The owner, site developer, contractor, and/or their authorized agents shall be responsible for the removal of all construction debris, dirt, trash, rock, sediment, and sand that may accumulate in the storm sewer or other drainage conveyance system and stormwater appurtenances as a result of site development.

20. The quantity of materials stored on the project site shall be limited, as much as practical, to that quantity required to perform the work in an orderly sequence. All materials stored on-site shall be stored in a neat, orderly manner, in their original containers, with original manufacturer's labels.

21. No chemicals are to be used by the contractor, which have the potential to be released in stormwater unless permission for the use of a specific chemical is granted in writing by the ECM Administrator. In granting the use of such chemicals, special conditions and monitoring may be required.

22. Bulk storage of petroleum products or other liquid chemicals in excess of 55 gallons shall have adequate secondary containment protection to contain all spills and prevent any spilled material from entering State Waters, including any surface or subsurface storm drainage system or facilities.

23. No person shall cause the impediment of stormwater flow in the flow line of the curb and gutter or in the ditch flow line.

24. Individuals shall comply with the "Colorado Water Quality Control Act" (Title 25, Article 8, CRS), and the "Clean Water Act" (33 USC 1344), in addition to the requirements included in the DCM Volume II and the ECM Appendix I. All appropriate permits must be obtained by the contractor prior to construction

(NPDES, Floodplain, 404, fugitive dust, etc.). In the event of conflicts between these requirements and laws, rules, or regulations of other Federal, State, or County agencies, the more restrictive laws, rules, or regulations shall apply.

25. All construction traffic must enter/exit the site at approved construction access points.

26. Prior to actual construction the permittee shall verify the location of existing utilities.

27. A water source shall be available on site during earthwork operations and utilized as required to minimize dust from earthwork equipment and wind.

28. The soils report for this site has been prepared by \_\_\_\_\_ and shall be considered a part of these plans.

29. At least ten (10) days prior to the anticipated start of construction, for projects that will disturb 1 acre or more, the owner or operator of construction activity shall submit a permit application for stormwater discharge to the Colorado Department of Public Health and Environment, Water Quality Division. The application contains certification of completion of a stormwater management plan (SWMP), of which this grading and erosion control plan may be a part. For information or application materials contact:

Colorado Department of Public Health and Environment  
Water Quality Control Division  
WQCD – Permits  
4300 Cherry Creek Drive South  
Denver, CO 80246-1530  
Attn: Permits Unit

This list is not intended to be all-inclusive, but is intended to identify the general note identified by the County to be included as part of the SWMP for compliance with the County’s stormwater management requirements for construction activities.

## SECTION 4: WASTE MANAGEMENT PLAN

### 4.1 Covering Outdoor Storage and Handling Areas

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<b><i>Covering Outdoor Storage and Handling Areas</i></b>	Used: Yes	Phase(s): 1, 2
<input type="checkbox"/> <b><i>Permanent</i></b>	<input checked="" type="checkbox"/> <b><i>Temporary</i></b>	
<b>Description:</b> When raw materials, byproducts, finished products, storage tanks, and other materials are stored or handled outdoors, stormwater runoff that comes in contact with the materials can become contaminated. Proactively covering storage and handling areas can be an effective source control for such areas. Coverings can be permanent or temporary and consist of tarp, plastic sheeting, roofing, enclosed structures, or other approaches that reduce exposure of materials to precipitation and wind.		
<b>Uses:</b> Covering is appropriate for areas where solids (e.g., gravel, compost, building materials) or liquids (e.g., oil, gas, tar) are stored, prepared, or transferred. Cover the following areas that are applicable to this construction site:		

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- **Loading and Unloading:** Loading and unloading operations usually take place at outside storage or staging area on the construction site. Materials may be spilled during transfer between storage facilities and trucks during pumping of liquids, pneumatic transfer of dry chemicals, and mechanical transfer of bags, boxes, drums, or other containers by material handling equipment.
  - **Aboveground Tanks/Liquid Storage:** Accidental releases of chemicals from above-ground liquid storage can contaminate stormwater with a variety of pollutants. Several common causes of accidental releases from above-ground storage include: external corrosion and structural failure, problems due to improper installation, spills and overfills due to operator error, failure of piping systems, and leaks or spills during pumping of liquids or gases between trucks to a storage facility.
  - **Outside Manufacturing:** Common outside manufacturing activities may include parts assembly, rock grinding or crushing, metals painting or coating, grinding or sanding, degreasing, concrete manufacturing, parts cleaning or operations that use hazardous materials. These activities can result in dry deposition of dust, metal and wood shavings and liquid discharges of dripping or leaking fluids from equipment or process and other residuals being washed away in storm runoff. In addition, outside storage of materials and waste products may occur in conjunction with outside manufacturing.
  - **Waste Management:** Wastes spilled, leached, or lost from outdoor waste management areas or outside manufacturing activities may accumulate in soils or on other surfaces and be carried away by storm runoff. There is also the potential for liquid wastes from surface impoundments to overflow to surface waters or soak the soil where they can be picked up by runoff. Possible stormwater contaminants include toxic compounds, oil and grease, oxygen-demanding organics, paints and solvents, heavy metals and high levels of suspended solids. Lack of coverage of waste receptacles can result in precipitation seeping through the material and collecting contaminants or the material being blown around the site and into the storm sewer system. Containment sources include waste piles, wastewater and solid waste treatment and disposal, land application sites, dumpsters, or unlabeled drums.
  - **Outside Storage of Materials:** Raw materials, intermediate products, byproducts, process residuals, finished products, containers, and materials storage areas can be sources of pollutants such as metals, oils and grease, sediment and other contaminants. Pollutant transport can occur when solid materials wash off or dissolve into water, or when spills or leaks occur.

**Practice Procedures:**

- Where practical, conduct operations indoors. If outdoors, then select a temporary or permanent covering to reduce exposure of materials to precipitation and runoff.
- The type of covering selected depends on a variety of factors such as the type and size of activity being conducted and materials involved. Types of cover range from relatively inexpensive tarps and plastic sheeting to overhead structures or fully enclosed buildings equipped with ventilation, lighting, etc.
- Covering practices should be combined with Good Housekeeping to be most effective.
- Tarps and plastic sheets require more frequent inspection and maintenance.

Place site-specific information here:

N/A

## 4.2 Spill Prevention and Response Plan

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<b>Spill Prevention &amp; Response Plan</b>	Used: Yes	Phase(s): 1, 2
<input type="checkbox"/> <b>Permanent</b>	<input checked="" type="checkbox"/> <b>Temporary</b>	

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Spills and leaks of solid and liquid materials processed, handled or stored outdoors can be a source of stormwater pollution. Spilled substances can reach receiving waters when runoff washes these materials from impervious surfaces or when spills directly enter the storm system during dry weather conditions. Effective controls depend on spill prevention and response measures, proper training, and may include structural spill containment or control devices. Spill containment measures include temporary or permanent curbs or berms that surround a potential spill site. Berms may be constructed of concrete, earthen material, metal, synthetic liners, or other material. Spill control devices include valves, slide gates, or other devices that can control and contain spilled material.

### Spill Prevention Measures

- Train key employees in plan and provide clear, common-sense spill prevention practices and clean-up procedures to be strictly followed.
- Identify equipment that is exposed to precipitation, pollutants that may be generated and possible sources of leaks or discharges.
- Perform inspections and preventative maintenance of equipment for proper operation and to check for leaks or evidence of discharge (stains). Ensure repairs are completed or provide temporary leak containment until such repairs can be made.
- Drain used motor oil and other automotive fluids in a designated area away from storm inlets. Collect spent fluids and recycle or dispose of properly. Never dispose into storm or sanitary sewer.
- In fueling areas, clean up spills with dry methods (absorbents) and use damp cloths on gas pumps and damp mops on paved surfaces.
- Never hose down a spill or absorbent materials into the storm drain, or down into an interior floor drain which leads to the sanitary sewer system.
- Reduce stormwater contact with equipment and materials by implementing covered storage, reduce stormwater run-on and follow good housekeeping practices.
- Post signs at critical locations with Spill Prevention and Response Plan information.

**Identification of Spill Areas:** Spill prevention and response measures shall be implemented at construction sites in areas where materials may be spilled in quantities that can adversely impact receiving waters or the storm system. Identify potential spill areas, potential spill volumes, material types, frequency of material used, and drainage paths from spill areas with relation to storm sewer inlets, adjacent water bodies, structural CMs, and containment structures. Use this

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information to determine the types of spill prevention and control measures needed specific to the site conditions. Show the potential spill areas on the EC Plan:

- Loading and unloading areas
- Outdoor storage areas
- Outdoor manufacturing or processing activities
- Waste disposal
- Areas that generate significant dust or particulates that may later deposit on the ground
- Areas prone to spills based on past experience at the site
- Locations where other routine maintenance activities occur
- Areas where smaller leaks may occur (parking lots)

**Material Handling Procedures:** From a water quality perspective, the primary principle behind effective material handling practices is to minimize exposure to precipitation. Store the material indoors, otherwise implement the following outdoor materials handling procedures:

- Divert stormwater around materials storage areas.
- Keep bulk solid materials (raw materials, sand, gravel, topsoil, compost, concrete, packing materials, metal products, etc) covered and protected from stormwater.
- When practical, store materials on impermeable surfaces.
- Store hazardous materials according to federal, state, and local requirements.
- Adopt procedures to reduce spills or leaks during filling or transfer of materials.
- Substitute less toxic or nontoxic materials for toxic materials.
- Store containers that are easily punctured or damaged away from high traffic areas.
- Add waste-capture containers such as collection pans for lubricating fluids.
- Store drums and containers with liquids on impermeable surfaces and provide secondary containment. Place drums stored outdoors on pallets to minimize contact with runoff.

**Spill Response Procedures:** Tailor spill response procedures to site-specific conditions and industry-specific regulatory requirements. Follow procedures:

- Contain and cleanup spills promptly after the spill is discovered.
- Sweep up small quantities of pollutants to reduce exposure to runoff.
- Place absorbents at fueling areas or areas susceptible to spills.
- Wipe up small spills with a rag, store rags in appropriate containers, dispose of rags properly or use a professional industrial cleaning service.
- Contain medium-sized spills with absorbents and use berms or absorbent "snakes" as temporary booms for the spill. Store and dispose of absorbents properly. Wet/dry vacuums may be used, but not for volatile fluids.
- Install drip pans below minor equipment leaks until a repair can be made.

- For large spills, first contain the spill and plug storm inlet where the liquid may migrate off-site, then clean up the spill.
- Excavation of spill areas to removed contaminated material may be required where large liquid spills occur on unpaved surfaces.
- Maintain an inventory of cleanup materials onsite and strategically locate them based on the types and quantities of chemicals present.
- Records of spills, leaks, or overflows that result in the discharge of pollutants must be documented and maintained.

Two approaches are used when implementing spill containment measures: 1) Design system to contain the entire spill; or 2) Use curbing to route spilled material to a collection basin. Both containment berming and curbing should be sized to safely contain or convey to a collection basin a spill from the largest storage tank, tanker truck, or other containment device in the possible spill area. The spill containment area must have an impermeable surface (impermeable liner, asphalt or concrete) to prevent groundwater contamination. Design containment system to enable collection and removal of spilled material through a pump or vacuum trucks, sorbent or gelling material, etc. Material removed must be disposed of or recycled according to local, state, and federal standards. If the capacity of the spill containment is exceeded, supplemental measures should be available such as a portable containment device, sorbent materials, or gelling agents to solidify the material. Water that collects within containment areas due to rainfall or snowmelt must be appropriately treated before release from the spill area.

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**Emergency 24-Hour Site Contact (with spill response and clean-up authority):**

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TBD

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TBD

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Office #: (xxx)-xxx-xxxx

Cell #: (xxx)-xxx-xxxx

Email: xxx@xxx.com

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**Notification Procedures:** Some spills may need to be reported to the State of Colorado, Water Quality Control Division and Adams County Stormwater Division immediately upon discovery. Releases of chemical, oil, petroleum product, sewage, etc., which may enter State Waters must be reported to: State of Colorado, 24-hour Emergency Spill Reporting Line: 1-877-518-5608. <https://www.colorado.gov/pacific/cdphe/wq-environmental-spills>.

## 4.3 Good Housekeeping

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**Good Housekeeping Practices**

Used: Yes

Phase(s): 1, 2

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*Permanent*

*Temporary*

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**Description:** Good housekeeping practices are designed to maintain a clean and orderly work environment. The most effective first steps towards preventing stormwater pollution at construction sites simply involve using common sense to improve the site's basic housekeeping methods. Poor housekeeping practices result in increased waste and potential for stormwater contamination. A clean and orderly work site reduces the possibility of accidental spills caused

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by mishandling of chemicals and equipment and should reduce safety hazards to personnel. A well-maintained material and chemical storage area will reduce the possibility of stormwater mixing with pollutants. Some simple procedures a site can use to promote good housekeeping include improved operation and maintenance of machinery and processes, material storage practices, material inventory controls, routine and regular clean-up schedules, maintaining well organized work areas, signage, and educational program for employees and the general public.

**Practice Procedures for Operation and Maintenance:**

- Maintain dry and clean floors and ground surfaces by using brooms, shovels, vacuums or cleaning machines, rather than wet clean-up methods.
- Regularly collect and dispose of garbage and waste material.
- Routinely inspect equipment to ensure that it is functioning properly without leaking and conduct preventative maintenance and needed repairs.
- Train employees on proper clean up and spill response procedures.
- Designate separate areas for auto parking, vehicle refueling and routine maintenance.
- Promptly clean up leaks, drips and other spills.
- Cover and maintain dumpsters and waste receptacles. Add additional dumpsters or increase frequency of waste collection if overflowing conditions reoccur.
- For outdoor painting and sanding: Conduct activities in designated areas that provide adequate protection to prevent overspray and uncontrolled emissions. All operations should be conducted on paved surfaces to facilitate cleanup. Use portable containment as necessary for outside operations. Clean up and properly dispose of excess paint, paint chips, protective coatings, grit waste, etc.
- Maintain vegetation on facility grounds in a manner that minimizes erosion. Follow the Landscape Maintenance and Pesticide, Herbicide and Fertilizer Usage CMs to ensure that minimum amounts of chemicals needed for healthy vegetation are applied to minimize transport of these materials in runoff.

**Practice Procedures for Material Storage Practices:**

- Provide adequate aisle space to facilitate material transfer and access for inspection.
- Store containers, drums, and bags away from direct traffic routes to reduce container damage resulting in accidental spills.
- Stack containers according to manufacturer's instructions to avoid damaging the containers from improper weight distribution. Also store materials in accordance with directions in Safety Data Sheets (SDSs).
- Store containers on pallets or similar devices to prevent corrosion of containers that results from containers coming in contact with moisture on the ground.
- Store toxic or hazardous liquids within curbed areas or secondary containers.

**Practice Procedures for Material Inventory Practices:** An up-to-date materials inventory can keep material costs down by preventing overstocking, track how materials are stored and handled onsite, and identify which materials and activities pose the most risk to the environment. Assign responsibility of hazardous material inventory to individuals trained to handle such materials. A material inventory should include these steps:

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- Identify all chemical substances present at work site. Perform a walk-through of the site, review purchase orders, list all chemical substances used and obtain Safety Data Sheets (SDS) for all chemicals.
- Label all containers with name and type of substance, stock number, expiration date, health hazards, handling suggestions, and first aid information. Find info on the SDS.
- Clearly identify special handling, storage, use and disposal considerations for hazardous materials on the material inventory.
- Institute a shelf-life program to improve material tracking and inventory to reduce the amount of materials overstocked and ensure proper disposal of expired materials. Careful tracking of materials ordered can result in more efficient materials use. Decisions on the amounts of hazardous materials that are stored on site should include an evaluation-of any emergency control systems that are in place. All storage areas for hazardous materials should be designed to contain spills.

**Practice Procedures for Training and Participation:** Provide frequent and proper training in good housekeeping techniques to reduce mishandling of chemicals or equipment. Educate by:

- Discussing good housekeeping practices in training programs and meetings.
- Publicizing pollution prevention concepts through posters or signs.
- Posting bulletin boards with updated good housekeeping procedures and tips.

Place site-specific information here:

N/A

## 4.4 Vehicle Maintenance, Fueling and Storage

**Vehicle Maintenance, Fueling and Storage**

Used: YES

Phase(s): 1, 2

**Permanent**

**Temporary**

**Description:** Areas where vehicles are fueled, maintained, and stored/parked can be pollutant "hot spots" that can result in hydrocarbons, trace metals, and other pollutants being transported in precipitation runoff. Proper fueling operations, storage of automotive fluids and effective spill cleanup procedures can help reduce contamination of stormwater runoff from vehicle maintenance and fueling facilities. Fuel-related spills can occur due to lack of attention during fueling or "topping off" fuel tanks. Common activities at construction sites include vehicle fluid replacement and equipment replacement and repair. Some of the wastes generated maintaining automobiles include solvents (degreasers, paint thinners, etc.), antifreeze, brake fluid, brake pad dust, battery acid, motor oil, fuel, and lubricating grease.

**Uses:** procedures are applicable to vehicle maintenance and fueling. Vehicle wash water is considered process wastewater that will not be discharged to the storm sewer system.

**Practice Procedures for Vehicle Maintenance:** The most effective way to minimize wastes generated by automotive maintenance activities is to prevent their production in the first place. The following practices will be implemented:

- 
- Perform maintenance activities inside or under cover. When repairs cannot be performed indoors, use drip pans or absorbents.
  - Keep equipment clean and free of excessive oil and grease buildup.
  - Promptly cleanup spills using dry methods and properly dispose of waste. When water is required, use as little as possible to clean spills, leaks, and drips.
  - Use a solvent collection service to collect spent solvent used for parts cleaning.
  - When using liquids for cleaning, use a centralized station to ensure that solvents and residues stay in one area. Locate drip pans and draining boards to direct solvents back into a solvent sink or holding tank for reuse.
  - Store used oil for recycling in labeled tanks. Locate used oil tanks and drums away from storm sewer, flowing streams, and preferably indoors.
  - Use non-hazardous or less hazardous alternatives when practical. For example, replace chlorinated organic solvents with non-chlorinated ones like kerosene or mineral spirits.
  - Properly recycle or dispose of grease, oil, antifreeze, brake fluid, cleaning solutions, hydraulic fluid, batteries, transmission fluid, worn parts, filters, and rags.
  - Drain and crush oil filters before recycling or disposal.
  - Drain all fluids and remove batteries from salvage vehicles and equipment.
  - Closely monitor parked vehicles for leaks and place pans under leaks to collect the fluids for proper disposal or recycling.
  - Install berms or other measures to contain spills and prevent work surface runoff from entering storm sewer system.
  - Develop a spill prevention plan with measures such as spill kits, and information about location of storm drains and how to protect them if a large spill occurs.
  - Conduct periodic employee training to reinforce proper disposal practices.
  - Promptly transfer used fluids to recycling drums or hazardous waste containers.
  - Store cracked batteries in leak-proof secondary containers.
  - Inspect outdoor storage areas regularly for drips, spills and improperly stored materials (for example: unlabeled containers, auto parts that might contain grease or fluids, etc). This is particularly important for parking areas for vehicles awaiting repair.
  - Structural CMs, such as traps, installed in vehicle hotspot areas require routine cleanout of oil and grease. During heavy rainfall, cleanout is required more often to ensure that pollutants are not washed through the trap. Sediment removal is also required on a regular basis to keep the CM working efficiently.

**Practice Procedures for Vehicle Fueling:**

- Fueling areas should be designed to prevent stormwater runoff and spills. Fuel-dispensing areas should be paved with concrete or equivalent impervious surface, with an adequate slope to prevent ponding, and separated from the rest of the site by a grade break or berm to prevent run-on of precipitation.
-

- For sites using a mobile fuel truck, establish a designated fueling area. Place temporary "caps" over nearby catch basins or manhole covers so that if a spill occurs, it is prevented from entering the storm sewer. Secondary containment should be used when transferring fuel from the tank truck to the fuel tank. Cover storm drains in the vicinity. Install vapor recovery nozzles to help control drips, and reduce air pollution.
- Keep spill response information and spill cleanup materials onsite and readily available.
- Employ dry cleanup methods cleaning up fuel spills. Such methods include sweeping to remove litter and debris, and using rags and absorbents for leaks and spills.
- Water should not be used to wash fuel spill areas. During routine cleaning, use a damp cloth on the pumps and a damp mop on the pavement. Fuel dispensing nozzles should be fitted with automatic shutoff except where prohibited by fire department. Post signs at the fuel dispenser warning operators against "topping off" vehicle fuel tanks.
- Provide written procedures describing CMs to employees who will be fueling.

Place site-specific information here:

N/A

## 4.5 Street Sweeping and Cleaning

<b>Street Sweeping (SS)</b>	Used: YES	Phase(s): 1, 2
<input type="checkbox"/> <b>Permanent</b>	<input checked="" type="checkbox"/> <b>Temporary</b>	

**Description:** SS uses either manual or mechanical pavement cleaning practices to collect or vacuum sediment, litter and other debris from the streets before being washed into storm sewers by runoff. This practice can reduce pollutant loading to receiving waters, reduce clogging of storm sewer pipes, prolong the life of infiltration CMs and reduce clogging of outlet structures in detention ponds. Mechanical designs include: broom and conveyor belt sweeper, wet or dry vacuum-assisted sweepers, and regenerative-air sweepers. The effectiveness depends upon particle loadings being swept, street texture, moisture conditions, parked cars, equipment conditions and frequency of cleaning.

**Uses:** SS is a technique in urban areas where sediment and litter accumulated on streets is of concern for aesthetic, sanitary, water and air quality reasons. SS is required at construction sites per SWMP to reduce off-site tracking.

**Procedures:**

1. SS may be performed manually (broom and shovel) or with a vacuum sweeper (no kick-broom). Choose the most effective approach for site conditions.
2. SS shall be completed when there is sediment tracking from the construction site exits into the public road or right-of-way.
3. SS frequency depends on presence of sediment tracking. If tracking is occurring, either a VTC shall be installed, the VTC needs maintenance, or the VTC is inadequate; all require SWMP updates.

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4. Off-site sediment tracking from the construction site shall be swept immediately.
  5. Conduct SS prior to precipitation events.
  6. Operate sweepers at manufacturer recommended optimal speed levels.
  7. Regularly inspect vehicles and equipment for leaks and repair promptly.
  8. Keep accurate logs of number of curb-miles swept and amount of waste collected.
  9. Dispose of SS debris and dirt at a landfill.
  10. Do not store swept material along the side of the street or near a storm drain inlet.
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Place site-specific information here:

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N/A

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## 4.6 Storm Sewer Cleaning

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**Storm Sewer System Cleaning**

Used: NO

Phase(s): N/A

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**Permanent**

**Temporary**

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**Description:** Periodic storm sewer cleaning can help remove accumulated sediment, trash, and other pollutants from the storm system including inlets, pipes and also construction CMs. Routine cleaning reduces the amount of pollutants in the storm system and in receiving waters. Clogged drains can cause overflow, leading to increase erosion. Cleaning increases dissolved oxygen, reduces levels of bacteria, and supports in-stream habitat. Areas with flat grades or low flows should be given special attention because they rarely achieve high enough flows to flush themselves. Water used in storm drain cleaning must be collected and properly disposed of, typically at a sanitary wastewater treatment facility. Simpler methods in localized areas can also include manual trash collection and shoveling sediment and debris from inlets and outlets. Frequency and prioritization of storm sewer cleaning is affected by the activity and intensity of construction and the proper installation and maintenance for construction CMs.

**Uses:** Inspection of the existing storm system is recommended prior construction to document condition. The storm sewer shall be cleaned at minimum at completion of construction.

**Practice Guidelines:** Inspect the storm system as part of the required stormwater inspection.

- **Technology available:** manual cleaning (shovel), vacuum cleaning and vacuum combination jet cleaning. Choose the most effective approach for site conditions.
  - **Staff training:** train about maintenance, waste collection and disposal methods.
  - **Waste disposal:** Most catch basin waste is acceptable for landfills. If hazardous material is suspected, it should be tested and disposed of accordingly.
- 

Place site specific information here:

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N/A

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## SECTION 5: FINAL STABILIZATION

### 5.1 Final Stabilization Requirement

Final Stabilization is reached when all ground disturbing activities are complete, and all disturbed areas have either been built on, paved over or a uniform vegetative cover has been established per SWMP. Prior to closing the State Stormwater Permit, all the items listed below must be completed in order for the construction site to be considered to have final stabilization.

1. The site has a uniform vegetative cover with a density of at least 70% compared to the original undisturbed site. Such cover must be capable of adequately controlling soil erosion.
2. If applicable, proper installation and maintenance of all approved, permanent, post-construction stormwater quality treatment drainage facilities.
3. Removal of all stockpiles of soil, construction material/debris, construction equipment, etc. from the construction site.
4. Streets, parking lots and other surrounding paved surfaces are clean and free of any sediment or debris.
5. Removal of sediment, debris or other pollutants within the private and adjacent public storm drainage system.
6. Restoration of any damaged public infrastructure caused by the construction activities.

### 5.2 Final Stabilization Measures

<b>Permanent Seeding (PS)</b>		Used: YES	Phase(s): 2
<input checked="" type="checkbox"/> <b>Permanent</b>		<input type="checkbox"/> <b>Temporary</b>	
<b>Seed Mix Selection According to Soil Type</b>	Recommended by El Paso County		
<b>Seed Application Method</b>	Refer to sod/seed schedule for seeding rates		
<b>Soil Preparation</b>	N/A		
<b>Soil Amendment</b>	N/A		
<b>Crimped Straw</b>		Used: N/A	Phase(s):
<input type="checkbox"/> <b>Permanent</b>		<input checked="" type="checkbox"/> <b>Temporary</b>	
N/A			
<b>Hydromulch</b>		Used: N/A	Phase(s):

<input type="checkbox"/> <i>Permanent</i>	<input checked="" type="checkbox"/> <i>Temporary</i>	
N/A		
<b>Rolled Erosion Control Products (RECP)</b>	Used: N/A	Phase(s):
<input type="checkbox"/> <i>Permanent</i>	<input checked="" type="checkbox"/> <i>Temporary</i>	
N/A		

### 5.3 Removal of Temporary CMs

Once the site has met the final stabilization conditions, the remaining temporary CMs such as perimeter controls, inlet protection, silt fence, etc. shall be removed and disposed of properly.

### 5.4 Stormwater Permits Close-out

Submit the CDPS Stormwater Discharge Permit Inactivation Form to CDPHE.

### 5.5 Long Term Stormwater Management

Describe the planned practices to control pollutants in stormwater discharges that will occur after construction operations are completed, including permanent water quality treatment facilities:

Pollutants in stormwater discharges after construction operations will be caught within the water quality pond, Pond #2 – approved with the overall development of Falcon Marketplace with PCD filing number SF 19-001. Prior to the water discharging to the drainageway, pollutants will be settled within the pond so as not to enter the drainageway. Water that reaches the pond that does not charge to the drainageway will infiltrate to the ground and the pollutants will remain in the pond. This project does not rely on control measures owned and operated by another entity.

## SECTION 6: STORMWATER INSPECTIONS

### 6.1 Inspections

**1. Qualified Stormwater Management Inspection Personnel:**

Identify the inspection person(s) who will be responsible for conducting stormwater inspections and describe their qualifications: TBD, the QSM will be sufficiently qualified for the required duties per the ECM Appendix I.5.2.A

**2. Inspection Frequency:**

Inspections shall start within 7 calendar days of commencement of construction activities.

**Minimum Stormwater Inspection Schedule:** A thorough inspection of the site inspection shall be performed in accordance with one of the following minimum frequencies:

- At least one inspection every 7 calendar days, or

- At least one inspection every 14 calendar days, if post-storm event inspections are conducted within 24 hours after the end of any precipitation or snowmelt event that causes surface erosion. Post-storm inspections may be used to fulfill the 14-day routine inspection requirement.

**Post-Storm Inspections at Temporarily Idle Sites** - For permittees choosing to combine 14-day inspections and post-storm-event inspections, if no construction activities will occur following a storm event, post-storm event inspections must be conducted prior to re-commencing construction activities, but no later than 72 hours following the storm event. The delay of any post-storm event inspection must be documented in the inspection record. Routine inspections must still be conducted at least every 14 calendar days.

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

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

The minimum inspection frequency required does not affect the permittee's responsibility to implement and maintain effective control measures as prescribed in the SWMP. Proper maintenance may require more frequent inspections.

### **3. Inspection Procedures:**

- At minimum, inspect the construction site perimeter, all disturbed area, designated haul routes, material and/or waste storage areas that are exposed to precipitation, discharge location(s), and locations where vehicles exit the site shall be inspected for evidence of, or the potential for, pollutants leaving the Permitted boundaries, entering the storm sewer system, or discharging to the MS4.
- Refer to **Section 5.2 Inspection Sequence**.
- Visually verify whether all implemented CMs are in effective operational condition and are working as designed in their specifications to minimize pollutant discharges.
- Determine if there are new potential sources of pollutants.
- Assess the adequacy of CMs at the site to identify areas requiring new or modified CMs to minimize pollutant discharges.
- Identify all areas of non-compliance and implement corrective action.

### **4. Correcting Problems:**

Take steps to minimize the discharge of pollutants until a CM is implemented and operational, or an inadequate CM is replaced or corrected, and returned to effective operating condition. If it is infeasible to install or repair the CM immediately after discovering the deficiency, the following must be documented:

- (a) Describe why it is infeasible to initiate the installation or repair immediately; and
- (b) Provide a schedule for installing or repairing the CM and returning it to an effective operating condition asap.

Remove and properly dispose of any unauthorized release or discharge. Clean up any contaminated surfaces to minimize discharges of the material in subsequent storm events.

Responsible staff or company for making corrections: **TBD**

### **5. Inspection Form:**

Use the form<sup>1</sup> in **Appendix 6** for all Capital Improvement Projects. Place completed inspections or refer to where the inspections are kept electronically in **Appendix 7**. At a minimum the form should document:

- Inspection date;
- name, title & signature of inspector;
- weather conditions;
- phase of construction;
- estimated acreage of disturbance at the time of inspection;
- location(s) of discharges of sediment or other pollutants from the site; location(s) of CMs needing maintenance;
- location(s) and identification of inadequate CMs;
- location(s) and identification of additional CMs needed that were not in place at the time of inspection;
- description of the minimum inspection frequency;
- deviations from the minimum inspection schedule; certification statement for corrective action(s) or inspection (if no actions).

## **6.2 Inspection Sequence**

### **1. Plan your stormwater inspection**

- Use the inspection form (or equivalent) under **Appendix 6**.
- Obtain a copy of the EC Plan (Site Map) with CMs locations marked.
- Plan to walk the entire site, including discharge points from the site and any off-site support activities.
- Follow a consistent pattern each time to ensure you inspect all areas.

### **2. Determine Inspection frequency**

- Site inspections must be conducted at least once every 7; or 14 calendar days.
- If 14-day inspections, then post-storm inspections must be conducted within 24 hours after the end of any precipitation or snowmelt event that causes surface erosion.
- 30-day inspections are conducted once construction is complete, temporary stabilizations has been installed and the site is waiting to reach final stabilization.

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<sup>1</sup> An equivalent form may be used for all projects except Capital Improvement Projects.

### **3. Inspect discharge points and downstream, off-site areas**

- Inspect discharge locations to determine whether erosion and sediment control measures are effective.
- Inspect nearby downstream locations.
- Walk down the street to inspect off-site areas for signs of discharges.
- Inspect down slope existing catch basins to ensure they are free of sediment and other pollutants and to ensure that they are adequately protected.

### **4. Inspect perimeter controls and slopes**

- Inspect perimeter controls to determine if sediment should be removed.
- Check the structural integrity of the CM. Determine if CM replacement is needed.
- Inspect slopes and temporary stockpiles to determine if erosion controls are effective.

### **5. Compare CMs in the EC Plan with the construction site conditions.**

- Determine whether CMs are in place as required by the EC plan.
- Evaluate whether CMs have been adequately installed and maintained.
- Look for areas where CMs are needed but are missing on the field, or are not documented on the SWMP.

### **6. Inspect construction site entrances**

- Inspect the construction exits to determine if there is tracking of sediment from the site onto the street.
- Refresh or replace the rock in designated entrances and concrete washout areas.
- Look for evidence of additional construction exits being used that are not in the SWMP or are not stabilized.
- Sweep the street if there is evidence of sediment accumulation.

### **7. Inspect sediment controls**

- Inspect any sediment basins for sediment accumulation.
- Remove sediment when it reduces the capacity of the basin by  $\frac{1}{3}$  of the design storage volume.

### **8. Inspect pollution prevention and good housekeeping practices**

- Inspect trash areas to ensure that waste is properly contained.
- Inspect material storage and staging areas to verify that potential pollutant sources are not exposed to stormwater runoff.
- Verify that concrete, paint, and stucco washouts are being used properly and are correctly sized for the volume of wash water.
- Inspect vehicle/equipment fueling and maintenance areas for signs of stormwater pollutant exposure.

### **9. Inspect for final stabilization**

- Inspect all temporary and permanent CMs for correct application and installation with the CM details.
- Remove sediment from the private storm sewer system - do not jet pollutants down into the public storm sewer system.

## SECTION 7: RECORDKEEPING

### 7.1 Recordkeeping

The following records shall be available at the construction site, or be on-site when construction activities are occurring:

- ✓ An updated SWMP, reflecting current conditions and CMs.
- ✓ Keep record of SWMP/EC Plan changes made including the date and identification of the changes (\*).
- ✓ Completed inspection reports, can be placed or electronically stored and the location referenced in **Appendix 7**
- ✓ Any document or plan incorporated by reference to the SWMP.

(\*) The SWMP must be amended when the following occurs:

- 1) A change in design, construction, operation, or maintenance of the site requiring implementation of new or revised control measures;
- 2) The SWMP proves ineffective in controlling pollutants in stormwater runoff in compliance with the permit conditions;
- 3) Control measures identified in the SWMP are no longer necessary and are removed; and
- 4) Corrective actions are taken onsite that result in a change to the SWMP.

The SWMP should be viewed as a “living document” that is continually being reviewed and modified as part of the overall process of evaluating and managing stormwater quality issues at the site.

A notation must be included in the SWMP to identify the date of the site change, the control measure removed, or modified, the location(s) of those control measures, and any changes to the control measure(s). The permittee must ensure the site changes are reflected in the SWMP. The permittee is non-compliant with the permit until the SWMP revisions have been made

SWMP documentation required under this permit are considered reports that must be available to the public under Section 308(b) of the CWA and Section 61.5(4) of the CDPS regulations. The permittee must make plans available to members of the public upon request. However, the permittee may claim any portion of a SWMP as confidential in accordance with 40 CFR Part 2.

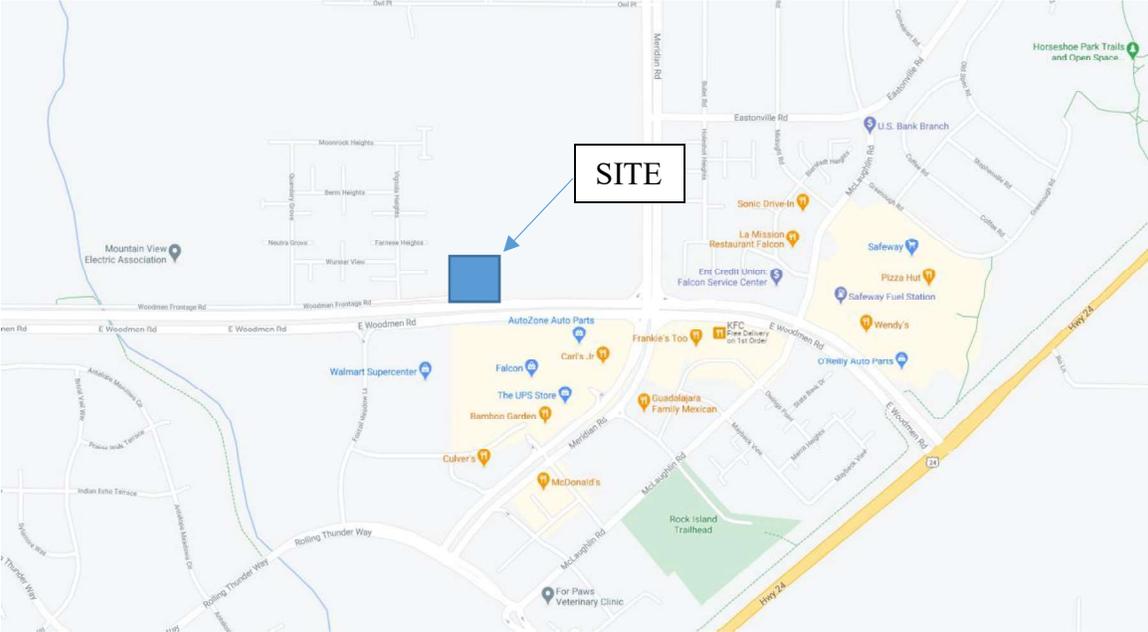
Records will be retained for a minimum period of at least 3 years after the CDPHE permit is terminated.

# SWMP APPENDICES

Attach the following documentation:

<i>Appendix 1 - Project Vicinity Map</i>	<i>(Section 1.1)</i>
<i>Appendix 2 - State CDPS Stormwater Construction Permit and Additional Permits (if applicable)</i>	<i>(Section 1.2)</i>
<i>Appendix 3 - Pre-disturbance Photos</i>	<i>(Section 1.4)</i>
<i>Appendix 4 - Erosion and Sediment BMPs/CMs Details</i>	<i>(Section 1.10)</i>
<i>Appendix 5 - Erosion and Sediment Control Plan (ESC Plan) - Site Map</i>	<i>(Section 2.10)</i>
<i>Appendix 6 - Stormwater Inspection Form</i>	<i>(Section 5.1)</i>
<i>Appendix 7 - Completed Stormwater Inspection Logs</i>	<i>(Sections 5.3 &amp; 5.5)</i>
<i>Appendix 8 - Agreement for off-site Control Measures (if applicable)</i>	<i>(Section 1.5)</i>

# APPENDIX 1: Project Vicinity Map



**NOT TO SCALE**

## **APPENDIX 2: CDPHE Stormwater Construction Permit and Additional Permits (if applicable)**

**APPENDIX 3: Pre-Disturbance Photos**



**APPENDIX 4: Erosion & Sediment CMs/BMPs Details**

### STRAW BALE INLET PROTECTION

**INSTALLATION REQUIREMENTS**

- INSTALLATION SHOULD BE COMPLETED IMMEDIATELY AFTER THE CONSTRUCTION OF THE CURB AND GUTTER.
- STRAW BALE PROTECTION SHALL BE INSTALLED IMMEDIATELY AFTER THE CONSTRUCTION OF THE CURB AND GUTTER.
- STRAW BALE PROTECTION SHALL BE INSTALLED IMMEDIATELY AFTER THE CONSTRUCTION OF THE CURB AND GUTTER.
- STRAW BALE PROTECTION SHALL BE INSTALLED IMMEDIATELY AFTER THE CONSTRUCTION OF THE CURB AND GUTTER.

City of Colorado Springs  
Stormwater Quality

### BLOCK AND GRAVEL BAG CURB INLET PROTECTION

**INSTALLATION REQUIREMENTS**

- CONCRETE BLOCKS ARE TO BE Laid AROUND THE CURB AND GUTTER.
- GRAVEL BAGS ARE TO BE Laid AROUND THE CURB AND GUTTER.
- GRAVEL BAGS ARE TO BE Laid AROUND THE CURB AND GUTTER.
- GRAVEL BAGS ARE TO BE Laid AROUND THE CURB AND GUTTER.

City of Colorado Springs  
Stormwater Quality

### EROSION CONTROL DETAILS

**Table 101: Erosion Control Details**

Case 1	Case 2	Case 3
Area of Disturbance	Area of Disturbance	Area of Disturbance
Continuous Grade	OK (1)	OK (1)
Concentrated Flow	OK	NO (2)

City of Colorado Springs  
Stormwater Quality

### SILT FENCE

**INSTALLATION REQUIREMENTS**

- INSTALLATION SHOULD BE COMPLETED IMMEDIATELY AFTER THE CONSTRUCTION OF THE CURB AND GUTTER.
- STRAW BALE PROTECTION SHALL BE INSTALLED IMMEDIATELY AFTER THE CONSTRUCTION OF THE CURB AND GUTTER.
- STRAW BALE PROTECTION SHALL BE INSTALLED IMMEDIATELY AFTER THE CONSTRUCTION OF THE CURB AND GUTTER.

City of Colorado Springs  
Stormwater Quality

### Silt Fence Joint Typing

**INSTALLATION REQUIREMENTS**

- CONCRETE BLOCKS ARE TO BE Laid AROUND THE CURB AND GUTTER.
- GRAVEL BAGS ARE TO BE Laid AROUND THE CURB AND GUTTER.
- GRAVEL BAGS ARE TO BE Laid AROUND THE CURB AND GUTTER.

City of Colorado Springs  
Stormwater Quality

**REVISIONS**

NO.	DATE	DESCRIPTION

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NO.	DATE	DESCRIPTION

City of Colorado Springs  
Stormwater Quality

**EL PASO COUNTY**

**SUPER STAR CAR WASH - FALCON MARKETPLACE LOT 10**

**SITE DEVELOPMENT PLAN**

**EROSION CONTROL DETAILS**

**NOT FOR CONSTRUCTION**

City of Colorado Springs  
Stormwater Quality

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Bowman  
CONSULTING

JOB No. 020441-01-001  
DATE : 02/08/2021  
SHEET  
C2.2





## **APPENDIX 5: Erosion & Sediment Control Plan (ESC Plan) – Site Map**

ESC Plan includes, at a minimum, the following:

1. Construction site boundaries;
2. Flow arrows that depict stormwater flow directions on-site and runoff direction;
3. Areas of ground disturbance including areas of borrow and fill;
4. Areas used for storage of soil;
5. Locations of all waste accumulation areas, including areas for liquid, concrete, masonry, and asphalt;
6. Locations of dedicated asphalt, concrete batch plants and masonry mixing stations;
7. Locations of all structural control measures;
8. Locations of all non-structural control measures;
9. Locations of springs, streams, wetlands and other state waters, including areas that require pre-existing vegetation be maintained within 50 ft of a receiving water; and
10. Locations of all stream crossings located within the construction site boundary.





## **APPENDIX 6: Stormwater Inspection Form (Template)**

### **Instructions:**

The inspection report template can be found on the following page.

# STORMWATER MANAGEMENT PLAN FIELD INSPECTION REPORT

**Project Name:** SSCW – Falcon Marketplace – lot 10  
**Date:** \_\_\_\_\_  
**Time:** \_\_\_\_\_

**Permit No.** \_\_\_\_\_  
**Inspector:** \_\_\_\_\_  
**Title:** \_\_\_\_\_

**TYPE OF INSPECTION (circle those that apply):**

Mandatory 7 day  <i>(Active Site)</i>	Monthly  <i>(Complete site, awaiting final stabilization)</i>	Post-Storm Active Site  <i>(Within 24 hrs. of rain/snow event causing surface erosion)</i>	Post-Storm (Temporarily Idle Site)  <i>(If no construction occurs during 48 hrs. following storm event, conduct inspection prior to construction, but no later than 72 hrs. following storm event.)</i>	Winter Conditions Exclusion  <i>(Inspection not required if snow cover exists and melting conditions do not exist.)</i>
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**NOTE: If Winter Conditions Exclusion is utilized, complete the following:**

Date snow \_\_\_\_\_ Date Construction \_\_\_\_\_ Date melting \_\_\_\_\_  
 Cover occurred \_\_\_\_\_ Ceased \_\_\_\_\_ Conditions occurred \_\_\_\_\_

**BEST MANAGEMENT PRACTICES (BMPs) REVIEW:**

Best Management Practices	Practice Used		Maintenance Required		Required Actions/Comments <i>(Note locations of BMP's that failed or are inadequate, locations requiring additional BMPs, and locations where BMPs need to be maintained.)</i>
	Yes	No	Yes	No	
Check Dam					
Concrete Washout					
Contouring/ Perimeter Control					
Debris / Housekeeping					
Erosion Control Mats, Blankets, Nets					
Inlet Protection					
Materials Storage Handling / Stockpile					
Mulching <i>(temporary)</i>					
Outlet Protection					
Sanitary Facility Maintenance/Placement					
Sediment Basin/Trap					
Seeding <i>(temporary or permanent)</i>					
Silt Fence/ Berm					
Sod/Permanent Landscaping					
Soil Binders					
Surface Roughening					
Sweeping					
Temporary/ Trench Diversion/Diversion Dike					
Trash Bins/Waste Management					
Vegetative Buffer					
Vehicle Tracking Control Pads					
Waterway Crossing Protection					
Wattles/Gator Guard					

**Inspector**

Printed Name & Signature \_\_\_\_\_

\_\_\_\_\_ **Date**

Location(s) of discharges of sediment or other pollutants from site (if any): \_\_\_\_\_

**INSPECTION SCOPE:**

Inspect construction site perimeter, all disturbed areas, material and/or waste storage areas exposed to precipitation, discharge locations, and locations where vehicles access the site for evidence of, or the potential for pollutants entering the stormwater drainage system. Evaluate all erosion and sediment control practices identified in SWMP to ensure that they are operating correctly. Note all required maintenance/repairs follow-up actions items below.

**MAINTENANCE/REPAIRS FOLLOW-UP ACTION ITEMS:**

*(List all necessary maintenance or repair activities for BMPs with date of completion)*

BMP Identified	Location of BMP	Description of Maintenance/Repairs	Completion Date	Initial

**NOTES:**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

I certify that this site is considered to be in compliance with the intent of the stormwater management plan to the best of my knowledge and belief. Items requiring responsive actions are noted above. Signature is required after corrective actions have been completed or if no corrective action is required.

**Inspector**

Printed Name & Signature \_\_\_\_\_

\_\_\_\_\_ **Date**

**Contractor**

Printed Name & Signature \_\_\_\_\_

\_\_\_\_\_ **Date**

# APPENDIX 7: Completed Stormwater Inspection Logs

(File completed inspection forms or reference electronic location of inspections here)

## **APPENDIX 8: Agreement for off-site Control Measures**

*(if applicable)*

Attach use agreement between the Permittee and the owner/operator of any control measures located outside of the permitted area, that are utilized by the Permittee's construction site for compliance with this permit, but not under the direct control of the Permittee.

The Permittee is responsible for ensuring that all control measures located outside of their permitted area, that are being utilized by the Permittee's construction site, are properly maintained and in compliance with all terms and conditions of the permit.

Include all information to any such off-site control measures located outside the permitted area, including location, installation specifications, design specifications and maintenance requirements