



STORMWATER MANAGEMENT PLAN

STRUTHERS ROAD IMPROVEMENTS

FILE #: CDR _____

STORMWATER PERMIT # COR_____

CERTIFICATION # _____

Owner/Developer:

GK Development, LLC
8605 Explorer Drive, Suite 260
Colorado Springs, CO 80920

SWMP Preparer:

Galloway & Company, Inc.
1155 Kelly Johnson Blvd., Suite 305
Colorado Springs, CO 80918

Contractor:

To be Determined

Qualified Stormwater Manager:

To be Determined

Date:

February 27, 2020

Revised:

May 12, 2020

June 30, 2020

SWMP Location:

On-Site (Copy) and GK Development,
LLC (Original)



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SWMP REPORT REVISION LOG

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I. PROJECT DESCRIPTION

LOCATION

The site is located in Section 36, Township 11 S, Range 67 W, of the Sixth Principal Meridian, County of El Paso, State of Colorado. The proposed improvements are located on the west side of Struthers Road, south of the intersection of Reagan Heights.

DESCRIPTION OF PROPERTY

The project site contains approximately 0.3 acres and includes a portion of Struthers Road, a 4-lane median-divided road that extends north from North Gate Boulevard to the intersection of Baptist Road and Jackson Creek Parkway. It is classified as a four-lane Urban Minor Arterial, with a varying R.O.W. width. An existing roadside ditch runs parallel to northbound Struthers Road from the outlet of the existing pond. Currently, (1) existing 60" RCP storm pipes run under Struthers Road south of Reagan Heights.

CONSTRUCTION ACTIVITY

Southbound Struthers Road is to add a 550' acceleration lane from the Reagan Heights intersection. The acceleration lane will consist of 400' of acceleration lane length and a 150' taper length. The southbound configuration of Struthers Road will now include (2) through lanes and (1) acceleration lane.

Temporary stabilization measures (silt fence) will be installed prior to beginning construction. During construction temporary stabilization measures including inlet protection will be utilized to control stormwater runoff. Once final stabilization is achieved, temporary erosion control measures will be removed.

II. PHASING AND PROPOSE CONSTRUCTION SEQUENCE

PHASING

No phasing plan is proposed for the Struthers Road project. All construction improvements will be completed at once.

CONSTRUCTION DOCUMENTATION

Grading and Erosion Control plans are provided with this and are intended to be a “living” document used by the SWMP Manager to document construction activities. See section IX “Inspection and Record Keeping” for additional information.

PROPOSED SEQUENCE FOR MAJOR CONSTRUCTION ACTIVITIES

Construction for the development of this project is currently projected to begin in July of 2020. It is estimated that construction activities will be completed by August of 2020. Final stabilization is expected in the September of 2020. The anticipated sequence of construction is as follows:

Meridian Road & Bent Grass Meadows Drive:

1. Installation of perimeter erosion control measures as shown on the construction drawings.
– July 2020
2. Site Clearing/Grubbing & Demolition – July 2020
3. Construct curb/gutter and pavement. -July 2020
4. Final stabilize ROW. – August 2020
5. Final erosion control measures as areas are completed – August 2020
6. Remove construction BMP's – September 2020

See Section VI “Areas and Volumes” for information on anticipated disturbed area and grading volumes.

III. FINAL STABILIZATION

Final site stabilization will be achieved when all final landscaping and paving is complete and when vegetation density is greater than 70 percent of pre-disturbance density over its entire area. All final stabilization on the site will be of a permanent nature. All temporary BMPs will be removed upon completion of construction. All temporary BMPs used in the proposed project are not owned nor operated by any other entity. It is the responsibility of the contractor to remove all dirt and garbage from the site.

IV. PRE-DEVELOPMENT CONDITIONS & SOILS

FLOODPLAIN

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map number 08041C0286G, effective December 7, 2018, the project site is located within Zone X. Zone X is described as areas of minimal flood hazard, which are the areas outside the SFHA and higher than the elevation of the 0.2-percent-annual-chance-flood (See Appendix for the FEMA

FIRM Exhibit).

EXISTING VEGETATION

The site is currently a 4-lane paved, median divided road. Vegetation consists of native grasses/weeds along the outer edges of the roadway. There is no brush or trees within the area to be graded. Ground cover is estimated at 0% density within the disturbed area of the project limits.

EXISTING DRAINAGE PATTERNS

In the existing conditions, runoff from the west half of Struthers Road drains to an existing CDOT Type R sump inlet. This inlet connects to an existing 60" RCP under Struthers Road, and releases into Jackson Creek.

EXISTING SLOPES

Existing slopes are around 1.5% flowing south.

EXISTING SOIL TYPES

Soil data for Struthers Road was obtained from the United States Department of Agriculture Natural Resources Conservation Service (NRCS) Web Soil Survey.

The following table summarizes the characteristics of the soil type:

Soil	Hydro Group	Shrink/Swell Potential	Permeability	Surface Runoff Potential	Erosion Hazard
68—Peyton-Pring complex, 3 to 8 percent slopes	B	Low	Moderate	Medium	Moderate
93-Tomah-Crowfoot complex, 8 to 15 percent slopes	B	Low	Moderately Rapid	Medium	Moderate

The existing soil types have a slight potential for erosion which can be mitigated by employing appropriate downstream construction BMP's before/during/after construction to limit potential impacts to stormwater discharges. The potential impacts are sediment discharge into the existing wet weather conveyance and proposed drainage system. Sediment should not be allowed to enter these existing and proposed facilities and can be mitigated by constructing small temporary

sediment basins at low points prior to discharge into the systems. Based upon the location of the different soil types and type of construction, the contractor shall employ the most appropriate method of erosion control measures based on the El Paso County/City of Colorado Springs Drainage Criteria Manual, Vol. 2 or as directed by the Qualified Stormwater Manager or his representative.

More detailed soils information can be found in the SCS soils survey for El Paso County.

V. DESCRIPTION OF POTENTIAL POLLUTANTS

Potential sources of sediment to stormwater runoff include earth moving and concrete activities associated with grading and landscaping.

Potential pollutants and sources, other than sediment, to stormwater runoff include Trash, debris, line transfer, Dewatering, fueling and equipment failure.

A dewatering permit is not required

Construction activities produce many different kinds of pollutants which may cause storm water contamination problems. Grading activities remove rocks, vegetation and other erosion controlling surfaces, resulting in the exposure of underlying soil to the elements. Because the soil surface is unprotected, soil and sand particles are easily picked up by wind and/or washed away by rain or other water sources.

The following sections highlight the potential sources of pollution at the Project Site and list the “Best Management” strategies that will be used to prevent migration of pollution offsite. Chemical materials stored indoors or that have no reasonable chance of impacting storm water quality will not be discussed in this plan.

Materials of significance stored on the project site include:

- Sediment
- Concrete Washout
- Cement
- Trash & Debris
- Sanitary Wastes

- Fuels & Oils

WIND EROSION & DUST CONTROL

Pollutant: Sediment Best Management Strategies:

- Daily inspections will occur for areas experiencing excessive winds, vehicle traffic, or precipitation events.
- Water trucks will spray down dust on the project Site as needed to not impact adjacent properties.
- Attention will be given to prevent the over use of water in dust control operations to minimize any muddying of the surface and possible sediment transportation.

VEHICULAR TRANSPORT

Pollutant: Sediment Tracking Best Management Strategies:

- Fencing will be erected if problems with access control are evident.
- Maintain track out pads by fluffing up the rock material or by adding additional rock as needed.
- Inspect, sweep and clean adjacent streets where track out is evident.

STOCKPILES

Pollutant: Sediment Best Management Strategies:

- Locate stockpiles clear of any water flow paths.
- Locate stockpiles within the property boundary.
- Stockpiles will have erosion control devices as needed installed around the base to prevent the migration of soil.
- Topsoil stock piles and disturbed portions of the site where construction activity temporarily ceases for at least 14 days will be stabilized with temporary seed and mulch no later than 14 days from the last construction activity in the area.

GRADING, TRENCHING, EXPORT/IMPORT

Pollutant: Sediment Best management Strategies:

- Earth moving will be minimized by the engineering balancing of the site.

- Disturbed portions of the site where construction activity temporarily ceases for at least 14 days will be stabilized with temporary seed and mulch no later than 14 days from the last construction activity in the area.
- Seed bed preparation is not required if soil is in loose condition.
- Prior to seeding, fertilizer shall be applied to each acre to be stabilized in accordance with the manufacturer's specifications.
- If required seeding areas shall be mulched with straw to a uniformed cover. The straw mulch is to be tacked into place by a disk with blades set nearly straight.
- A site specific erosion control drawing has been developed showing the location of Best Management practices to be used during site construction.
- Where indicated on the erosion control plan, Best Management Practices will be installed.
- Material shall be in accordance with the plans and specifications and all construction shall be provided in accordance with the manufacturer's specifications.
- All BMP's will be inspected bi-weekly and cleaned/maintained as required.

WASTE, RESIDUAL CONCRETE

Pollutant: Concrete, paint, and Phosphoric Acid Best Management Strategies:

- A cleanup and washout area will be designated and posted.
- Subcontractors will be instructed on the locations and importance of the washout and cleanup areas. No on-site disposal is allowed.
- Instruct subcontractors to remove waste for which proper onsite disposal facilities are not provided back to their own facilities for ultimate transport, storage & disposal.
- Subcontractors and subcontractor employees are held responsible for improper washout.

SANITARY FACILITIES, TRASH CONTAINERS & LITTERING

Pollutant: Bacteria, Ammonia, Trash Best Management Strategies:

- Portable facilities will be regularly serviced to prevent excessive waste containment and overflow.
- All waste materials will be collected and stored in a container which will meet all local and any state solid waste management regulations.
- Trash dumpsters will be emptied prior to becoming 90% full or when debris control becomes an issue.

- Employees will be instructed on the importance of recycling and waste management, and will be held responsible for improper waste management.

FUELING, HAZARDOUS MATERIALS, EQUIPMENT LEAKAGE, FERTILIZER

Pollutant: Petroleum Hydrocarbons, Ethylene Glycol, Sediment Best Management Strategies:

- MSDS sheets will be maintained in the project trailer for all onsite materials
- All dry materials such as cement will be covered and protected from rain.
- Secondary containment will be provided for stored fuel, oil, paint and any material classified as hazardous.
- Subcontractors are responsible for hazardous waste removal back to their own facilities for ultimate transportation, storage and disposal.
- Supplies will be kept onsite as necessary to control any potential spill.
- Employees will be held responsible for any illegal dumping.
- Seals will be checked by a qualified professional on all equipment and containers containing significant materials that could contribute potential pollutants and will be replaced as necessary.
- Equipment will be inspected by a qualified professional.
- Drip pans will be available for minor leaks and during fueling operations.
- Fueling nozzles, gauges, hoses, seals, and emergency shutoff valves will be inspected for leaks prior to use.
- Under no circumstances during fueling will the fueling hose/nozzle be left unattended.
- Fertilizers used will be applied only in the minimum amounts recommended by soil tests.
- Once applied, fertilizers will be worked into the soil to limit exposure to storm water.
- Stored fertilizer will be protected from exposure to precipitation and storm water runoff.

DEWATERING – not needed.

This shown for information only Pollutant: Sediment, Oil and/or Grease and Phosphoric Acid Best Management Strategies:

All dewatering will be filtered through rock and/or woven geo mesh fabric.

All dewatering will be tested for Pollutants per state guidelines weekly.

CONCRETE AND ASPHALT BATCH PLANT – not needed.

This shown for information only There are no existing batch plants located on this project site and there are no proposed batch plants in the future.

DRILLING SLURRY FOR DRILLING PIERS. – not needed.

This is shown for information only. No drilling slurry is allowed to be deposited onto the job site. All drilling slurry shall be collected and pumped into an on-site frac tank and shall be disposed of off-site.

There are no major potential pollutants anticipated to be used on the site.

ADDITIONAL (NON-STRUCTURAL) BEST MANAGEMENT PRACTICES FOR SEDIMENT:

1. Earth moving will be minimized by the engineering balancing of the site.
2. Disturbed portions of the site where construction activity temporarily ceases for at least 14 days will be stabilized with temporary seed and mulch no later than 14 days from the last construction activity in the area.
3. Seed bed preparation is not required if soil is in loose condition.
4. Prior to seeding, fertilizer shall be applied to each acre to be stabilized in accordance with the manufacturer's specifications.
5. If required seeding areas shall be mulched with straw to a uniformed cover. The straw mulch is to be tacked into place by a disk with blades set nearly straight.
6. A site-specific erosion control drawing has been developed showing the location of Best Management practices to be used during site construction.
7. Where indicated on the erosion control plan, Best Management Practices will be installed.
8. Material shall be in accordance with the plans and specifications and all construction shall be provided in accordance with the manufacturer's specifications.
9. All BMP's will be inspected bi-weekly and cleaned/maintained as required.

VI. AREAS AND VOLUMES

The site consists of 0.3 acres. 0.3 acres are expected to be disturbed.

The unadjusted cut and fill quantities as of the writing of this report are listed below:

Cut Volume = 98.22 Cubic Yards

Fill Volume = 61.25 Cubic Yards

Net Volume = 36.96 Cubic Yards (Cut)

Note: The Total disturbed area shall be updated on the SWMP as changes occur.

VII. APPROPRIATE CONTROLS AND MEASURES

Also refer to attached Erosion and Sediment Control notes and plans included in the site plans

MINIMIZE DISTURBED AREA AND PROTECT NATURAL FEATURES AND SOIL

All work will occur inside the limits of construction per the erosion Control Site Plan.

PHASE CONSTRUCTION ACTIVITY The sequence for the installation and removal of erosion and sediment control measures is as follows: Perimeter control measures (silt barriers and fencing) installed at designated areas as noted on the site plans (Exhibit 1), cleaning of street surfaces during construction if applicable, site grading, paving final and grading, installation of sod or other vegetation, removal of temporary practices and perimeter controls, and site cleanup.

CONTROL STORMWATER FLOWING ONTO AND THROUGH THE PROJECT

Offsite stormwater flows adjacent to this project site are from the Monument Ridge development detention pond. Improvements to this facility was performed under a separate permit. On-site stormwater will be directed to an existing inlet within Struthers Road. Inlet protection will provided at this location to help limit sediment entering the downstream receiving waters into Jackson Creek.

STABILIZE SOILS

No disturbed area which is not actively being worked shall remain denuded for more than 14 calendar days unless otherwise authorized by the director. Temporary cover by seeding or mulching should be provided on areas which will be exposed for a period greater than 14 days before permanent stabilization can be achieved. Permanent cover should be provided on all areas as soon as possible, by means of seeding and mulching, straw or hay mulch is required. All soil stock piles and borrow areas must protected with silt fence within 14 days after grading. All slopes within the project limits that are found to be eroding excessively within two years of permanent stabilization shall be provided additional slope stabilization methods such as seeding and mulching. Water is to be used for dust control. The Contractor will prevent the escape of this water and any sediment it may carry from the construction site.

PROTECT STORM DRAIN INLETS

Inlet protection will be installed at existing inlets adjacent to the project area before land disturbance activities begin. At the Contractor's discretion, additional temporary erosion control practices to include rock bags and sand bag barriers may be installed to prevent sediment movement. Inlet protection will include rock bags erosion logs curb inlet sediment filters where an overflow capacity is necessary to prevent excessive ponding in front of the curb inlet. Concrete block and wire screen inlet protection if used detail will be included Appendix prior to installation, will be used where heavy flows are expected and where an overflow capacity is necessary to prevent excessive ponding around the inlet. Inlet protection devices will be inspected and accumulated sediment will be removed as needed.

ESTABLISH PERIMETER CONTROLS AND SEDIMENT BARRIERS

Temporary stabilization will include the installation of silt fences on the downslope perimeter of project area. The silt fence will be trenched in on the uphill side 6 inches deep and 6 inches wide as detailed in the silt fence exhibit. Sediment will be removed when it reaches 1/3 the height of the fence. Silt fence will be inspected and replaced or repaired as needed.

RETAIN SEDIMENT ON-SITE

Temporary sediment traps shall be installed to detain sediment laden runoff from small watersheds for a period long enough to allow sediment to settle before discharge into receiving waters. For small drainage locations smaller sediment traps should be used. At a minimum, silt fences, vegetative buffer strips or equivalent sediment controls are required for all down-slope boundaries (and for those side slope boundaries deemed appropriate as dictated by individual site conditions) of the construction. The use of a combination of sediment and erosion control measures in order to achieve maximum pollutant removal will be utilized. Sediment traps will be checked regularly for sediment cleanout. Sediments shall be removed and the trap restored to its original dimensions when the sediment has accumulated to one half the design volume of the wet storage. Sediment shall be disposed in suitable areas and in such a manner that will not erode or cause sedimentation problems. The gravel outlets will be checked regularly for sediment buildup which will prevent damage. If the gravel is clogged by sediment, it shall be removed and cleaned or replaced.

An alternate to sediment traps are temporary sediment basins.

ADDITIONAL BMP'S BMP SCHEDULE:

All Sediment and Erosion control BMP's (detailed below and only on BMP site map and details if utilized onsite) will be installed prior to any excavation or demolition and will be coordinated with the construction schedule. As construction changes and new temporary BMP's are needed to control sediment and erosion temporary BMP's will be installed within 24 hours of inspection report.

RECOMMENDED BMP'S: ALL RECOMMENDED BMP'S WILL BE INSTALLED PRIOR TO EXCAVATION NEAR ANY SENSITIVE AREAS.

CULVERT INLET PROTECTION will be used to protect existing and new culvert inlets. Inlet Protection Detail will be included in Appendix before using onsite. Removal of this BMP will occur only after vegetation is established to a minimum of 70% pre construction coverage and after removal of BMP all sediment builds up will be removed and the area exposed shall be seeded.

SILT FENCE is to be installed in sensitive areas to protect stream channels, pond, and overland runoff. On this site it will be used to protect runoff from the slip pits. See Silt Fence Detail. Removal of this BMP will occur only after vegetation is established to a minimum of 70% pre construction coverage and after removal of BMP all sediment builds up will be removed and the area exposed shall be seeded.

PORTABLE TOILETS: Portable toilets are brought in from a service contractor and will be maintained in accordance with standard waste disposal practices using vacuum trucks and place on stable ground to minimize risk of spillage. All portable toilets will be kept a minimum of 500' from any waterway.

WASTE DISPOSAL: If needed Roll offs will be utilized for standard construction waste. A qualified contractor will remove waste weekly and take to an appropriate dump site off this project.

PERMANENT BMP'S:

REVEGETATION: During construction any disturbed area not being currently worked left dormant longer than 14 days will be re-vegetated per specification with native seed and mulched and crimped with weed free straw.

All BMPs shall be installed and maintained in accordance with the most recent Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual.

VIII. MATERIALS HANDLING AND SPILL PREVENTION

MATERIAL HANDLING AND WASTE MANAGEMENT

The site will use a private refuse collector that will remove litter twice weekly. No less than one litter receptacle will be present at the construction site. In the event that unusual items such as tanks, cylinders, unidentified containers, etc. which could contain potentially hazardous materials are discovered or disturbed, the Fire and Rescue services will be notified. Litter and debris will be picked up and disposed of properly daily. Temporary toilet facilities will be located 500 feet away from any storm drain inlets and all waters of the state.

ESTABLISH PROPER BUILDING MATERIAL STAGING AREAS

A designated staging area will be used, location to be determined based on available space in the field and plans will be redlined. The staging area will be contained per SWMP guidelines. All Equipment and Materials will be brought into the site as needed.

DESIGNATE WASHOUT AREAS

A concrete washout will be installed to detail as shown on the Construction Drawings and will be placed more than 500 feet away from any waters of the state.

ESTABLISH PROPER EQUIPMENT/VEHICLE FUELING AND MAINTENANCE PRACTICES

During construction the site will be exposed to operation and maintenance of construction equipment. The contractor shall be responsible for all activities such as fueling, oil changing, lubrication and repair which require use of petroleum products. Such products shall be transported to and from the site in special trucks equipped for that purpose. No waste petroleum products, rags, residue, or equipment parts shall be left on site. In the event of a spill or leak, causing soil to be contaminated, that soil shall be excavated placed in sealed barrels and removed from the site for transport to an approved location for disposal.

CONTROL EQUIPMENT/VEHICLE WASHING

This activity will not be allowed onsite.

ANY ADDITIONAL BMPs

Additional BMP's will be added to this SWMP as needed.

ALLOWABLE NON-STORMWATER DISCHARGE MANAGEMENT

There are no visible natural springs or irrigation, or other non-stormwater discharges anticipated to be encountered.

SELECTING POST CONSTRUCTION BMP'S

Post Construction BMPs. Re-vegetation including seeding, mulching and erosion control blanket will be final BMP's. Permanent stabilization will be achieved with 70% pre construction vegetative establishment.

SPILL PREVENTION AND CONTROL PLAN

The SITE SUPERINTENDENT will act as the point of contact for any spill that occurs at this jobsite. The project manager will be responsible for implementation of prevention practices, spill containment / cleanup, worker training, reporting and complete documentation in the event of a spill. The ECO shall immediately notify the Owner, /Construction Manager, STATE and the Local Fire Department in addition to the legally required Federal, State, and Local reporting channels (including the National Response Center, 800.424.8802) if a reportable quantity is released to the environment.

SPILL PREVENTION AND BEST MANAGEMENT PRACTICES

This section describes spill prevention methods Best Management Practices (BMP) that will be practiced to eliminate spills before they happen.

- **Equipment Staging and Maintenance:** Store and maintain equipment in a designated area Reduce the amount of hazardous materials and waste by substituting non-hazardous or less hazardous materials. Use secondary containment (drain pan) to catch spills when removing or changing fluids. Use proper equipment (pumps, funnels) to transfer fluids Keep spill kits readily accessible Check incoming vehicles for leaking oil and fluids. Transfer used fluids and oil filters to waste or recycling drums immediately following generation. Inspect equipment routinely for leaks and spills Repair equipment immediately, if necessary, implement a preventative maintenance schedule for equipment and vehicles.

- Fueling Area: Perform fueling in designated fueling area minimum 50' away from federal waters Use secondary containment (drain pan) to catch spills Use proper equipment (pumps, funnels) to transfer fluids Keep spill kits readily accessible Inspect fueling areas routinely for leaks and spills Hazardous Material Storage Areas Reduce the amount of hazardous materials by substituting non-hazardous or Less hazardous materials.
- Hazardous Material Storage Areas: Minimize the quantity of hazardous materials brought onsite Store hazardous materials in a designated area away from drainage points.
- Unexpected Contaminated Soil and Water: Perform all excavation activities carefully and only after the Owner/Construction Manager directed any activities.

SPILL CONTAINMENT METHODS

The following discussion identifies the types of secondary containment that will be used in the event of a spill. The Table below summarizes the containment methods for each potential source.

- Equipment Staging and Maintenance Area: An equipment leak from a fuel tank, equipment seal, or hydraulic line will be contained within a spill containment cell placed beneath all stationary potential leak sources. An undetected leak from parked equipment will be cleaned up using hand shovels and containerized in a 55-gallon steel drum for offsite disposal.
- Fueling Area: A small spill during fueling operations will be contained using fuel absorbent pads at the nozzle. The transfer of fuel into portable equipment will be performed using a funnel and/or hand pump and a spill pad used to absorb any incidental spills/drips. Any leaking tanks or drums will have fluids removed and transferred to another tank, drum, or container for the fluids. A spill response kit will be located near the fueling area or on the fuel truck for easy access. The spill response kit will include plastic sheeting, tarps, over pack drums, absorbent litter, and shovels.
- Hazardous Material Storage Area: A spill from containers or cans in a hazardous material storage area will be contained within the storage cabinet these materials are kept in.

- **Unexpected Contaminated Soil:** If contaminated soil is encountered during the project, the Owner/Construction Manager will be notified immediately. Small quantities of suspected contaminated soil will be placed on a 6-mil plastic liner and covered with 6-mil plastic. A soil berm or silt fence will be used to contain the stockpile and prevent migration of contaminated liquids in the soil.

SPILL PREVENTION AND CONTAINMENT METHODS

Potential Spill Source	Response Method
Equipment Staging and Maintenance Area	Spill containment pad, spill kit, pumps, funnels
Fueling Area (site equipment only)	Spill containment pad, spill kit, pumps, funnels
Hazardous Material Staging Area	Spill containment pad, spill kit, pumps, funnels
Unexpected Contaminated Soil	Plastic liner, plastic cover, soil berm, hay bales, lined super sacks

SPILL COUNTERMEASURES

Every preventative measure shall be taken to keep contaminated or hazardous materials contained. If a release occurs, the following actions shall be taken:

1. **Stop the Spill:** The severity of a spill at the site is anticipated to be minimal as large containers/quantities of Hazardous Materials (HM) are not anticipated. The type of spill would occur while dispensing material at the HM storage facility and would likely be contained in secondary containment. Thus, the use spill kits or other available absorbent materials should stop the spill.
2. **Warn Others:** Notify co-workers and supervisory personnel of the release. Notify emergency responders if appropriate. For site personnel, an alarm system will consist of three one second blasts on an air horn sounded by the person discovering a spill or fire. In the event of any spill, the Superintendent and Project Manager shall be notified if the spill is 5 gallons or more the STATE will be contacted along with the Fire Department.
3. **Isolate the Area:** Prevent public access to the area and continue to minimize the spread of the material. Minimize personal exposure throughout emergency response actions.
4. **Containment:** A spill shall only be contained by trained personnel and if it is safe to do so. **DO NOT PLACE YOURSELF IN DANGER.** Attempt to extinguish a fire only if it is in

the incipient stage; trash can size or smaller. For larger spills, wait for the arrival of emergency response personnel and provide directions to the location of the emergency.

5. Complete a Spill and Incident Report: For each spill of a Hazardous Material a spill and incident report shall be completed and submitted to the Owner/Construction Manager and if applicable to the Engineer and the State of Colorado Department of Public Health and Environment

X. RECEIVING WATERS

The project site is located within the Jackson Creek Drainage Basin, which is tributary to Monument Creek.

Stream Crossing – No stream crossing is required for this development. A wet weather conveyance crossing is required. See “Floodway” in “Pre-Development Conditions & Soils” for additional information on stream crossing.

IX. INSPECTION AND RECORD KEEPING

The project is subject to inspections by the Colorado Division of Public Health and Environment (CDPHE), the Environmental Protection Agency (EPA), and El Paso County at any time.

Inspection of the stormwater management system shall be performed, by the Qualified Stormwater Manager, at least every 14 calendar days and after the occurrence of precipitation or snow melt event that may cause noticeable erosion or run-off. Time span greater than 14 calendar days is a violation of the CDPS permit.

QUALIFIED STORMWATER MANAGER

The individual(s), position, or title responsible for developing, implementing, maintaining, and revising the SWMP is to be determined upon award of the project. The individual listed as the Erosion Control Supervisor shall fill out the information below and place in the on-site copy before beginning installation of the BMPs for this site and notify the County of the appropriate contact information.

Qualified Stormwater Manager Name:

Cell Phone:

Office Phone:

Email:

INSPECTION SCHEDULES

Inspections of the stormwater management system are required at least every 14 calendar days and within 24 hours after any precipitation or snowmelt event that causes surface runoff. A more frequent inspection schedule may be necessary to ensure that BMPs continue to operate as designed.

Differences or modifications in the field from the approved SWMP are required to be made within 72 hours site changes are observed. The SWMP shall be onsite at all times when onsite construction activity is occurring.

INSPECTION SCOPE

The construction site perimeter, all disturbed areas, material and/or waste storage areas that are exposed to precipitation, discharge locations, and locations where vehicles access the site shall be inspected for evidence of, or the potential for pollutants leaving the construction site boundaries or discharging to State Waters. All erosion and sediment control practices identified in the SWMP shall be evaluated to ensure that they are maintained and operating correctly.

INSPECTION REPORT

A thorough record of inspection shall be maintained and identify any incidents of non-compliance with the SWMP. Inspection records shall be retained for three years from expiration or inactivation of permit coverage. Federal, State, local authority reserves the right to request that a copy of the inspection reports be submitted. At a minimum, the inspection report shall include the following:

1. Inspection date
2. Name(s) and title(s) and signature(s) of personnel making the inspection
3. Location(s) of discharges of sediment or other pollutants from the site
4. Location(s) of BMPs that need to be maintained
5. Location(s) of BMPs that failed to operate as designed or proved inadequate for a particular location
6. Location(s) where additional BMPs are needed or were not in place at the time of inspection
7. Deviations from the minimum inspection schedule

8. Description of corrective action for items c, d, e and f above, dates corrective action(s) taken, and measures taken to prevent future violations, including requisite changes to the SWMP, as necessary
9. After adequate corrective action(s) have been taken, or where a report does not identify any incidents requiring corrective action, the report shall contain a signed statement indicating the site is in compliance with the permit to the best of the signer's knowledge and belief
10. The date and amount of storm or snowmelt events that cause erosion.

BMP MAINTENANCE/REPLACEMENT AND FAILED BMPs

Adequate site assessment shall be performed as part of comprehensive Inspection and Maintenance procedures to assess the adequacy of BMPs at the site and to evaluate the necessity of changes to those BMPs to ensure continued effective performance. Where site assessment results in the determination that new or replacement BMPs are necessary, the BMPs shall be installed to ensure ongoing implementation. Failed BMPs must be addressed as soon as possible, in most cases immediately, to ensure continued performance and minimize the likelihood of pollutant discharge. The SWMP shall be updated once new BMPs are installed or failed BMPs replaced. A specific timeline for implementing maintenance procedures is not included in the State Permit because BMP maintenance is expected to be proactive, not responsive. Observations resulting in BMP maintenance activities can be made during a site inspection, or during general observations of site conditions. BMPs shall be maintained per DCM2 criteria and ECM criteria. Please refer to the Appendix for specific maintenance required for each BMP.

PLAN REVIEW AND REVISIONS

1. The plan must be signed in accordance with the general permit.
2. The plan must be made available, upon request, to CDPHE, United States Environmental Protection Agency, or operator of the local municipal storm sewer system, if applicable.
3. The plan must be amended whenever there is a change in design, construction, operation or maintenance that could have a significant effect on the potential for the discharge of pollutants to State Waters. It also must be amended if it is found to be ineffective in controlling pollutants present in stormwater.

RECORD KEEPING AND DOCUMENTING OF INSPECTIONS

The permittee shall retain a copy of the SWMP required by this permit (including a copy of the permit language) at the construction site (or other local location accessible to the Director; a State or local agency approving sediment and erosion plans, grading plans, or stormwater management plans; local government officials; or the operator of a municipal separate storm sewer receiving discharges from the site) from the date of project initiation to the date of final stabilization. Permittees with day-to-day operational control over SWMP implementation shall have a copy of the SWMP available at a central location on-site for the use of all operators and those identified as having responsibilities under the SWMP whenever they are on the construction site. If minor modifications to the SWMP are required, they shall be recorded on the owner's copy of the SWMP and be available during inspections. Whenever a significant change is made to the SWMP (including changes to design, construction, operation or maintenance), an amended SWMP shall be submitted for review and approval. The following documents must be kept in a field office, trailer, shed or vehicle that is onsite during normal working hours:

1. A completed and signed copy of the Notice of Intent
2. The permit coverage letter from the Colorado Department of Public Health and Environment (CDPHE)
3. The Stormwater Management Plan
4. Site Inspection Records
5. A copy of the Colorado General Permit for Stormwater Discharges from Construction Activities

If a reasonable onsite location is not available, then the documents may be retained at a readily available alternative location, preferably with the SWMP plan contact. If the site is inactive, then the documents may be stored at a local office.

All records and information must be kept for at least three years or longer if requested by the Colorado Department of Public Health and Environment or United States Environmental Protection Agency.

RECORD KEEPING

The SWMP is a "living document" that is continuously reviewed and modified. The Qualified Stormwater Manager shall make changes to the SWMP, including but not limited to: additions,

deletions, changing locations of BMP's shall be marked in the plans, dated and initialed at time of occurrence.

All inspection and maintenance activities or other repairs will be documented by the Qualified Stormwater Manager and the records kept on the project site.

Records of spill, leaks or overflows that result in the discharge of pollutants will be documented and maintained. The following Information will be recorded for all occurrences:

1. Time and date
2. Weather conditions
3. Reasons for spill
4. A release of any chemical, oil, petroleum product, sewage, etc., which may enter state waters must be reported.

At 14-day inspections incidents of noncompliance, such as uncontrolled releases of pollutants including mud, muddy water or measurable quantities of sediment found off-site shall be noted, along with a brief explanation as to measures taken to prevent future violations and measures taken to clean up sediment that has left the site.

After measures have been taken to correct any problems and recorded, or where a report does not identify incidents of noncompliance, the report shall contain a signed certification indicating the site is in compliance.

Signature Page:

Engineer's Statement:

The Erosion and Stormwater Quality Control/Grading Plan was prepared under my direction and supervision and is correct to the best of my knowledge and belief. If such work is performed in accordance with the grading and erosion control plan, the work will not become a hazard to life and limb, endanger property, or adversely affect the safety, use, or stability of public way, drainage channel, or other property.

Charlene Durham

Date

Registered Professional Engineer
State of Colorado No. 36727

Developer's Statement:

The owner will comply with the requirements of the Erosion and Stormwater Quality Control Plan including temporary BMP inspection requirements and final stabilization requirements. I acknowledge the responsibility to determine whether the construction activities on these plans require Colorado Discharge Permit System (CDPS) permitting for Stormwater discharges associated with Construction Activity.

Developer/ Owner Signature: _____

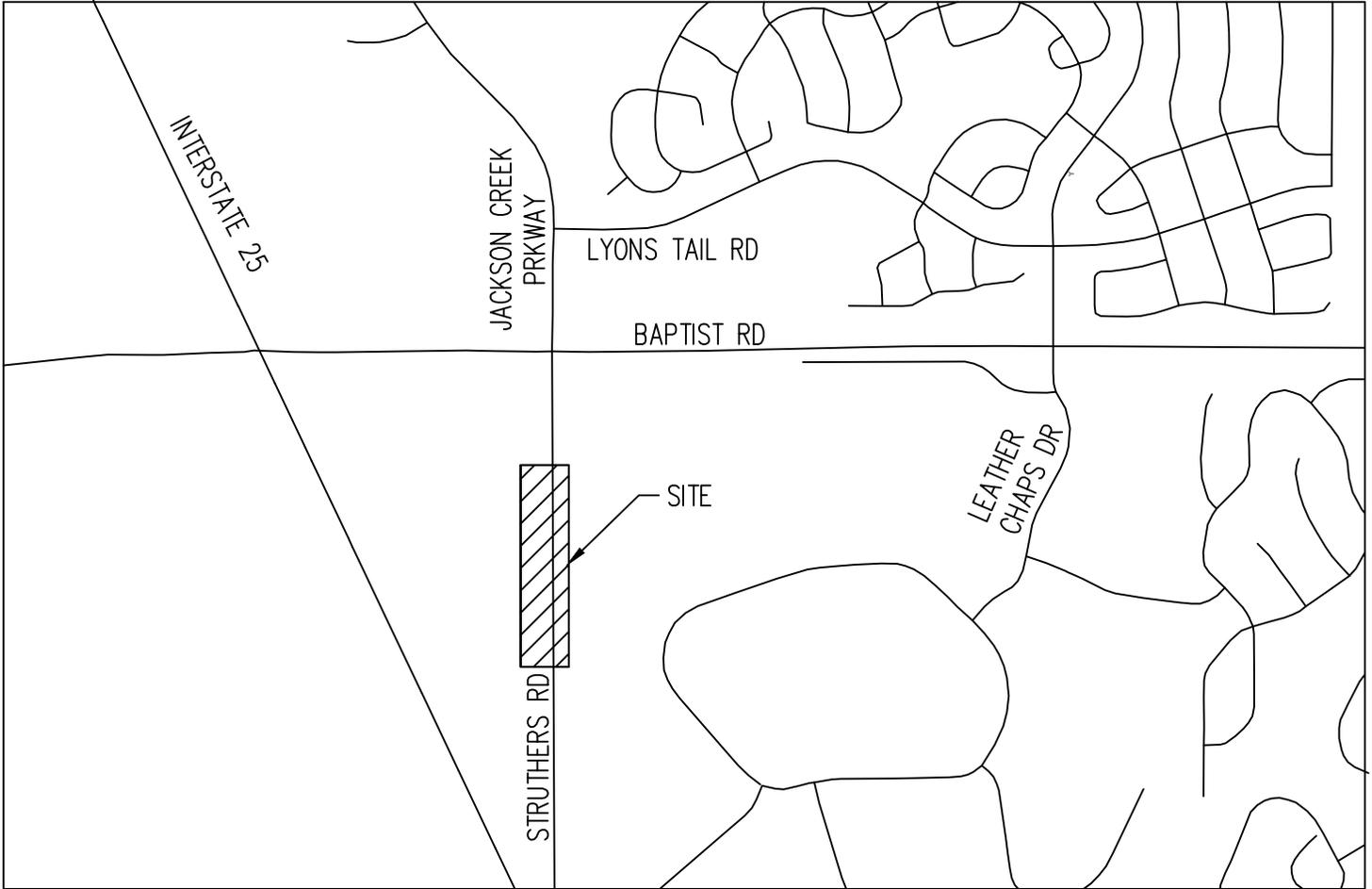
Name of Developer/ Owner: _____

DBA: _____ Phone: _____

Title: _____ Email: _____

Address: _____ Fax: _____

APPENDIX A



STRUTHERS ROAD IMPROVEMENTS

STRUTHERS ROAD
SCALE: N.T.S
VICINITY MAP

Project No: GNK000020.20

Drawn By: CMD

Checked By: RGD

Date: 03/02/2020



1755 Telstar Drive, Suite 107
Colorado Springs, CO 80920
719.900.7220 • GallowayUS.com

APPENDIX B

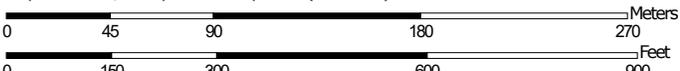
Custom Soil Resource Report Soil Map



Soil Map may not be valid at this scale.



Map Scale: 1:3,270 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features

Water Features

 Streams and Canals

Transportation

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

Background

 Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: El Paso County Area, Colorado
 Survey Area Data: Version 17, Sep 13, 2019

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

Date(s) aerial images were photographed: Aug 19, 2018—Sep 23, 2018

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
68	Peyton-Pring complex, 3 to 8 percent slopes	3.0	29.2%
93	Tomah-Crowfoot complex, 8 to 15 percent slopes	7.3	70.8%
Totals for Area of Interest		10.3	100.0%

Map Unit Descriptions

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

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

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

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

Custom Soil Resource Report

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

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

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

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

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

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

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

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

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

El Paso County Area, Colorado

68—Peyton-Pring complex, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 369f

Elevation: 6,800 to 7,600 feet

Farmland classification: Not prime farmland

Map Unit Composition

Peyton and similar soils: 40 percent

Pring and similar soils: 30 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Peyton

Setting

Landform: Hills

Landform position (three-dimensional): Side slope

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Arkosic alluvium derived from sedimentary rock and/or arkosic residuum weathered from sedimentary rock

Typical profile

A - 0 to 12 inches: sandy loam

Bt - 12 to 25 inches: sandy clay loam

BC - 25 to 35 inches: sandy loam

C - 35 to 60 inches: sandy loam

Properties and qualities

Slope: 3 to 5 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Moderate (about 7.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4c

Hydrologic Soil Group: B

Ecological site: Sandy Divide (R049BY216CO)

Hydric soil rating: No

Description of Pring

Setting

Landform: Hills

Landform position (three-dimensional): Side slope

Down-slope shape: Linear

Across-slope shape: Linear

Custom Soil Resource Report

Parent material: Arkosic alluvium derived from sedimentary rock

Typical profile

A - 0 to 14 inches: coarse sandy loam

C - 14 to 60 inches: gravelly sandy loam

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Low (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: B

Ecological site: Loamy Park (R048AY222CO)

Hydric soil rating: No

Minor Components

Other soils

Percent of map unit:

Hydric soil rating: No

Pleasant

Percent of map unit:

Landform: Depressions

Hydric soil rating: Yes

93—Tomah-Crowfoot complex, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 36bb

Elevation: 7,300 to 7,600 feet

Farmland classification: Not prime farmland

Map Unit Composition

Tomah and similar soils: 50 percent

Crowfoot and similar soils: 30 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tomah

Setting

Landform: Alluvial fans, hills

Landform position (three-dimensional): Side slope, crest

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from arkose and/or residuum weathered from arkose

Typical profile

A - 0 to 10 inches: loamy sand

E - 10 to 22 inches: coarse sand

C - 48 to 60 inches: coarse sand

Properties and qualities

Slope: 8 to 15 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Very low (about 2.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6e

Hydrologic Soil Group: B

Ecological site: Sandy Divide (R049BY216CO)

Hydric soil rating: No

Description of Crowfoot

Setting

Landform: Alluvial fans, hills

Landform position (three-dimensional): Side slope, crest

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium

Typical profile

A - 0 to 12 inches: loamy sand

E - 12 to 23 inches: sand

Bt - 23 to 36 inches: sandy clay loam

C - 36 to 60 inches: coarse sand

Properties and qualities

Slope: 8 to 15 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)

Depth to water table: More than 80 inches

Custom Soil Resource Report

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6e

Hydrologic Soil Group: B

Ecological site: Sandy Divide (R049BY216CO)

Hydric soil rating: No

Minor Components

Other soils

Percent of map unit:

Hydric soil rating: No

Pleasant

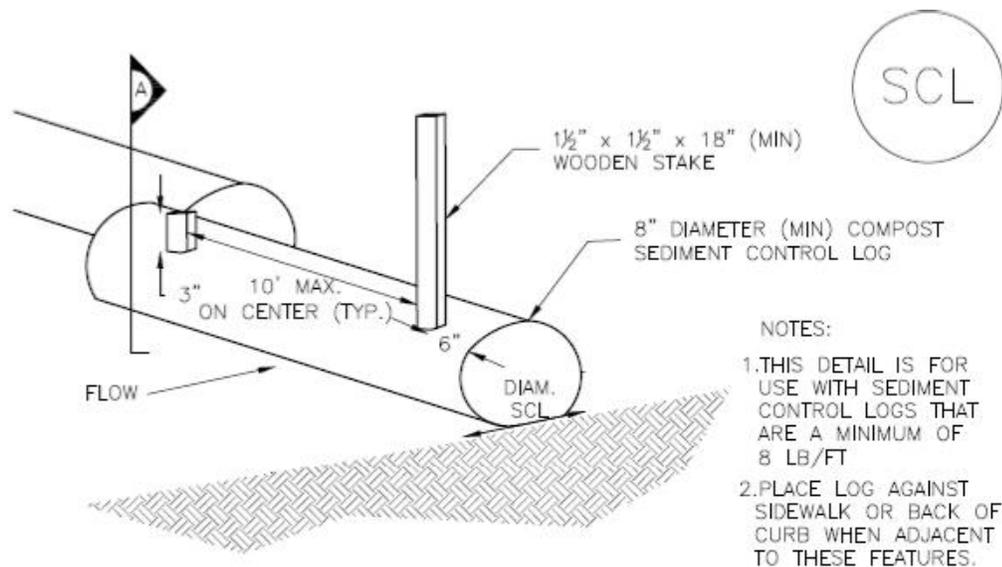
Percent of map unit:

Landform: Depressions

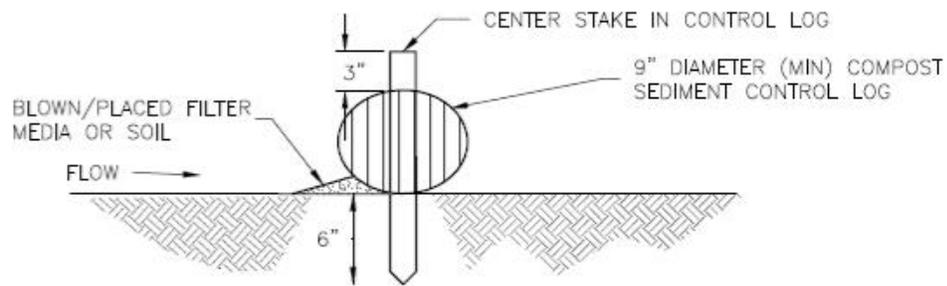
Hydric soil rating: Yes

APPENDIX C

APPENDIX D

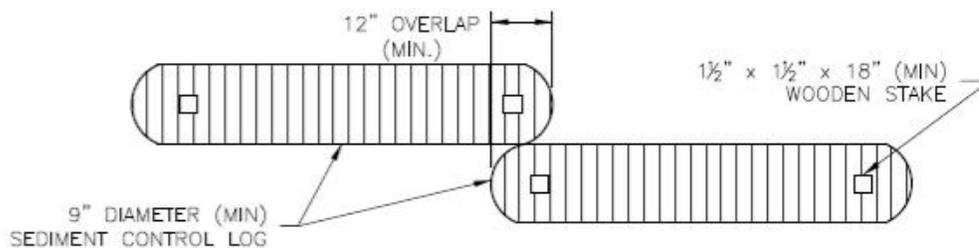


COMPOST SEDIMENT CONTROL LOG (WEIGHTED)



SECTION A

COMPOST SEDIMENT CONTROL LOG (A)



LOG JOINTS

SCL-2. COMPOST SEDIMENT CONTROL LOG (WEIGHTED)

SEDIMENT CONTROL LOG INSTALLATION NOTES

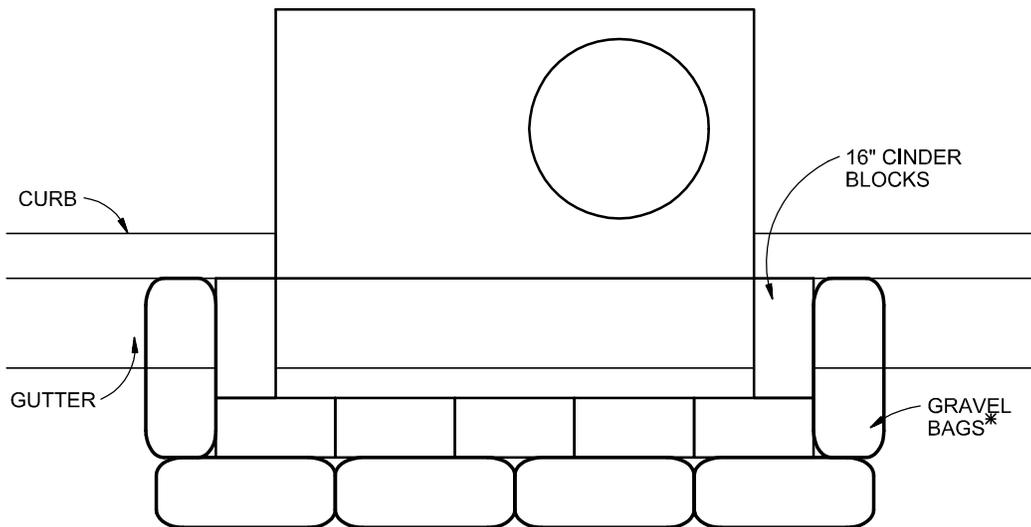
1. SEE PLAN VIEW FOR LOCATION AND LENGTH OF SEDIMENT CONTROL LOGS.
2. SEDIMENT CONTROL LOGS THAT ACT AS A PERIMETER CONTROL SHALL BE INSTALLED PRIOR TO ANY UPGRADIENT LAND-DISTURBING ACTIVITIES.
3. SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELSIOR OR COCONUT FIBER, AND SHALL BE FREE OF ANY NOXIOUS WEED SEEDS OR DEFECTS INCLUDING RIPS, HOLES AND OBVIOUS WEAR.
4. SEDIMENT CONTROL LOGS MAY BE USED AS SMALL CHECK DAMS IN DITCHES AND SWALES. HOWEVER, THEY SHOULD NOT BE USED IN PERENNIAL STREAMS.
5. IT IS RECOMMENDED THAT SEDIMENT CONTROL LOGS BE TRENCHED INTO THE GROUND TO A DEPTH OF APPROXIMATELY $\frac{1}{3}$ OF THE DIAMETER OF THE LOG. IF TRENCHING TO THIS DEPTH IS NOT FEASIBLE AND/OR DESIRABLE (SHORT TERM INSTALLATION WITH DESIRE NOT TO DAMAGE LANDSCAPE) A LESSER TRENCHING DEPTH MAY BE ACCEPTABLE WITH MORE ROBUST STAKING. COMPOST LOGS THAT ARE 8 LB/FT DO NOT NEED TO BE TRENCHED.
6. THE UPHILL SIDE OF THE SEDIMENT CONTROL LOG SHALL BE BACKFILLED WITH SOIL OR FILTER MATERIAL THAT IS FREE OF ROCKS AND DEBRIS. THE SOIL SHALL BE TIGHTLY COMPACTED INTO THE SHAPE OF A RIGHT TRIANGLE USING A SHOVEL OR WEIGHTED LAWN ROLLER OR BLOWN IN PLACE.
7. FOLLOW MANUFACTURERS' GUIDANCE FOR STAKING. IF MANUFACTURERS' INSTRUCTIONS DO NOT SPECIFY SPACING, STAKES SHALL BE PLACED ON 4' CENTERS AND EMBEDDED A MINIMUM OF 6" INTO THE GROUND. 3" OF THE STAKE SHALL PROTRUDE FROM THE TOP OF THE LOG. STAKES THAT ARE BROKEN PRIOR TO INSTALLATION SHALL BE REPLACED. COMPOST LOGS SHOULD BE STAKED 10' ON CENTER.

SEDIMENT CONTROL LOG MAINTENANCE NOTES

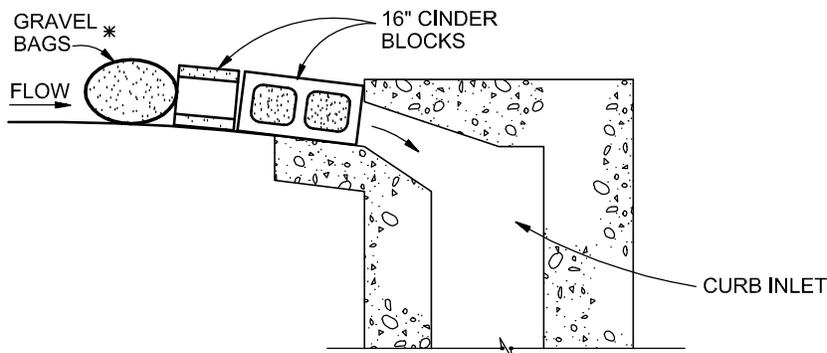
1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. SEDIMENT ACCUMULATED UPSTREAM OF SEDIMENT CONTROL LOG SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY $\frac{1}{2}$ OF THE HEIGHT OF THE SEDIMENT CONTROL LOG.
5. SEDIMENT CONTROL LOG SHALL BE REMOVED AT THE END OF CONSTRUCTION. COMPOST FROM COMPOST LOGS MAY BE LEFT IN PLACE AS LONG AS BAGS ARE REMOVED AND THE AREA SEEDED. IF DISTURBED AREAS EXIST AFTER REMOVAL, THEY SHALL BE COVERED WITH TOP SOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAILS ADAPTED FROM TOWN OF PARKER, COLORADO, JEFFERSON COUNTY, COLORADO, DOUGLAS COUNTY, COLORADO, AND CITY OF AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.



PLAN



SECTION

BLOCK AND GRAVEL BAG*CURB INLET PROTECTION

NTS

BLOCK AND GRAVEL BAG*CURB INLET PROTECTION NOTES

INSTALLATION REQUIREMENTS

1. INLET PROTECTION SHALL BE INSTALLED IMMEDIATELY AFTER CONSTRUCTION OF INLET.
2. CONCRETE BLOCKS ARE TO BE LAID AROUND THE INLET IN A SINGLE ROW ON THEIR SIDES, ABUTTING ONE ANOTHER WITH THE OPEN ENDS OF THE BLOCK FACING OUTWARD.
3. GRAVEL BAGS ARE TO BE PLACED AROUND THE CONCRETE BLOCKS CLOSELY ABUTTING ONE ANOTHER SO THERE ARE NO GAPS.
4. GRAVEL BAGS ARE TO CONTAIN WASHED SAND OR GRAVEL APPROXIMATELY 3/4 INCH IN DIAMETER.
5. BAGS ARE TO BE MADE OF 1/4" INCH WIRE MESH (USED WITH GRAVEL ONLY) OR GEOTEXTILE.

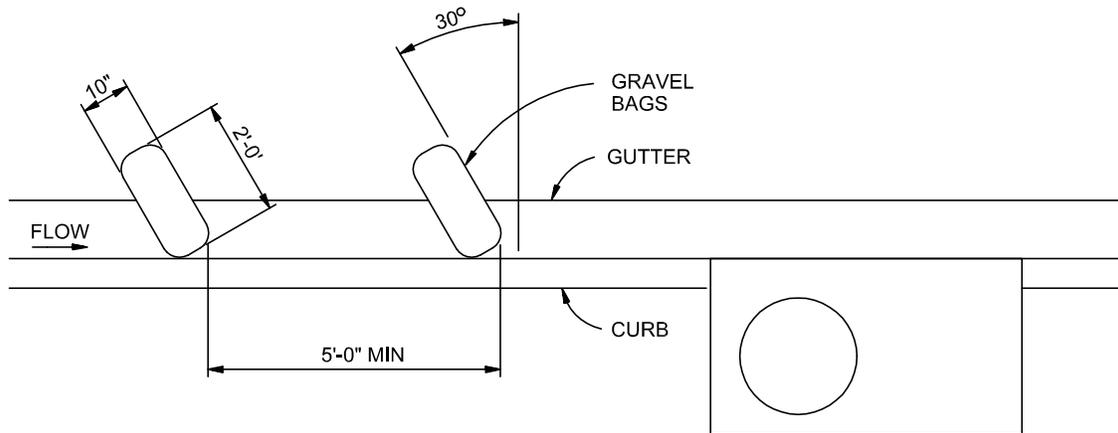
* AN ALTERNATE 3/4" TO 1" GRAVEL FILTER OVER A WIRE SCREEN MAY BE USED IN PLACE OF GRAVEL BAGS. THE WIRE MESH SHALL EXTEND ABOVE THE TOP OF THE CONCRETE BLOCKS AND THE GRAVEL PLACED OVER THE WIRE SCREEN TO THE TOP OF THE CONCRETE BLOCKS.

MAINTENANCE REQUIREMENTS

1. CONTRACTOR SHALL INSPECT INLET PROTECTION IMMEDIATELY AFTER EACH RAINFALL, AT LEAST DAILY DURING PROLONGED RAINFALL, AND WEEKLY DURING PERIODS NO RAINFALL.
2. DAMAGED OR INEFFECTIVE INLET PROTECTION SHALL PROMPTLY BE REPAIRED OR REPLACED.
3. SEDIMENT SHALL BE REMOVED WHEN SEDIMENT HAS ACCUMULATED TO APPROXIMATELY 1/2 THE DESIGN DEPTH OF THE TRAP.
4. INLET PROTECTION SHALL BE REMOVED WHEN ADEQUATE VEGETATIVE COVER IS ATTAINED WITHIN THE DRAINAGE AREA AS APPROVED BY THE CITY.

City of Colorado Springs
Stormwater Quality

Figure IP-3
Block & Gravel Bag Curb Inlet Protection
Construction Detail and Maintenance
Requirements



CURB SOCK INLET PROTECTION

NTS

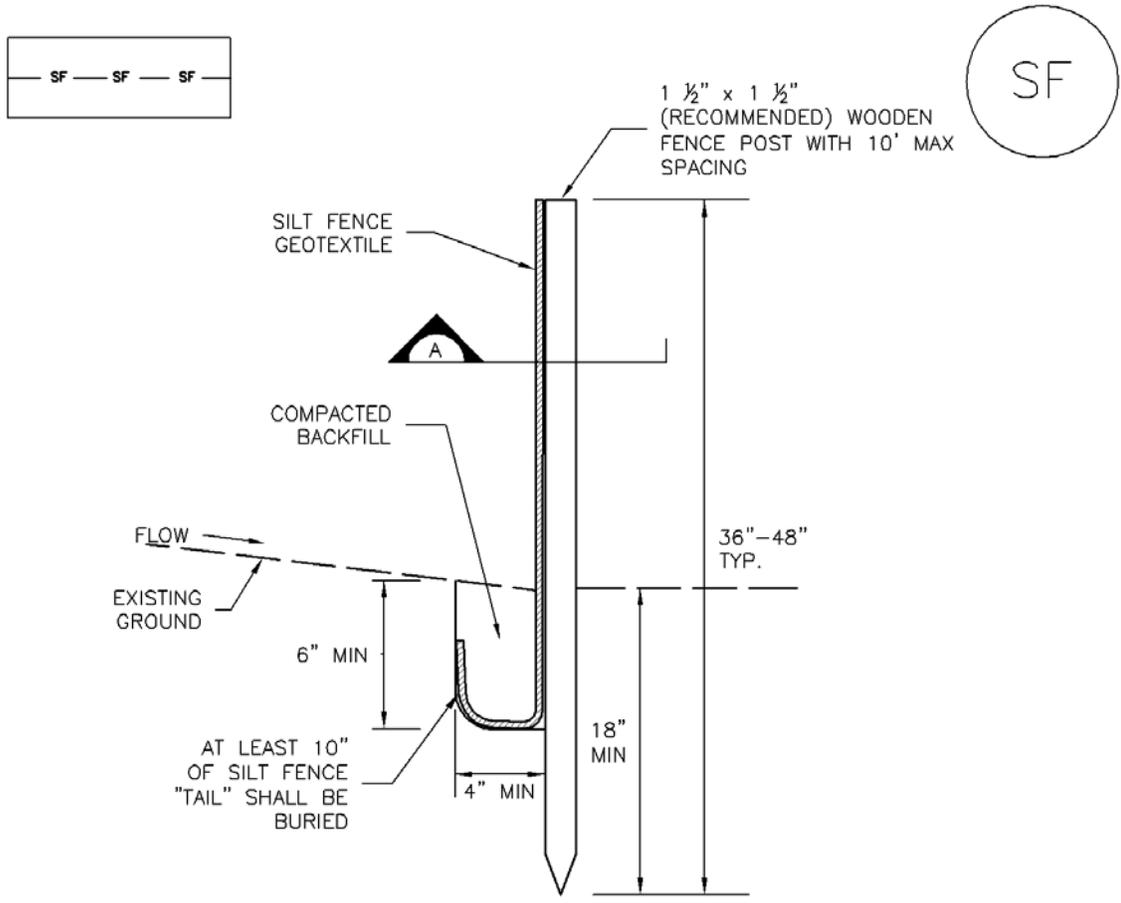
CURB SOCK INLET PROTECTION NOTES

INSTALLATION REQUIREMENTS

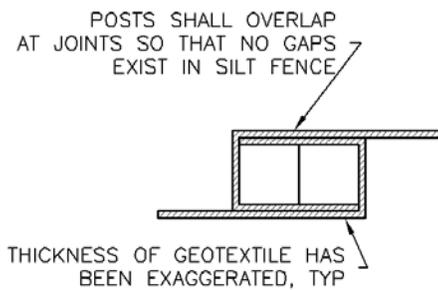
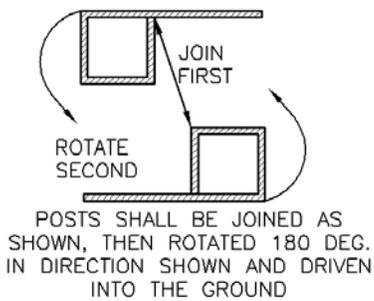
1. INLET PROTECTION SHALL BE INSTALLED IMMEDIATELY AFTER CONSTRUCTION OF INLET.
2. SOCK IS TO BE MADE OF 1/4 INCH WIRE MESH (USED WITH GRAVEL ONLY) OR GEOTEXTILE.
3. WASHED SAND OR GRAVEL 3/4 INCH TO 4 INCHES IN DIAMETER IS PLACED INSIDE THE SOCK.
4. PLACEMENT OF THE SOCK IS TO BE 30 DEGREES FROM PERPENDICULAR IN THE OPPOSITE DIRECTION OF FLOW.
5. SOCKS ARE TO BE FLUSH WITH THE CURB AND SPACED AT A MINIMUM 5 FEET APART.
6. AT LEAST 2 CURB SOCKS IN SERIES IS REQUIRED.

MAINTENANCE REQUIREMENTS

1. CONTRACTOR SHALL INSPECT INLET PROTECTION IMMEDIATELY AFTER EACH RAINFALL, AT LEAST DAILY DURING PROLONGED RAINFALL AND WEEKLY DURING PERIODS NO RAINFALL.
2. DAMAGED OR INEFFECTIVE INLET PROTECTION SHALL PROMPTLY BE REPAIRED OR REPLACED.
3. SEDIMENT SHALL BE REMOVED FROM BEHIND THE SOCK WHEN GUTTER WIDTH IS FILLED.
4. INLET PROTECTION SHALL BE REMOVED WHEN ADEQUATE VEGETATIVE COVER IS ATTAINED WITHIN THE DRAINAGE AREA AS APPROVED BY THE CITY.



SILT FENCE



SECTION A

SF-1. SILT FENCE

SILT FENCE INSTALLATION NOTES

1. SILT FENCE MUST BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER PONDING. SILT FENCE AT THE TOE OF A SLOPE SHOULD BE INSTALLED IN A FLAT LOCATION AT LEAST SEVERAL FEET (2-5 FT) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PONDING AND DEPOSITION.
2. A UNIFORM 6" X 4" ANCHOR TRENCH SHALL BE EXCAVATED USING TRENCHER OR SILT FENCE INSTALLATION DEVICE. NO ROAD GRADERS, BACKHOES, OR SIMILAR EQUIPMENT SHALL BE USED.
3. COMPACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.
4. SILT FENCE SHALL BE PULLED TIGHT AS IT IS ANCHORED TO THE STAKES. THERE SHOULD BE NO NOTICEABLE SAG BETWEEN STAKES AFTER IT HAS BEEN ANCHORED TO THE STAKES.
5. SILT FENCE FABRIC SHALL BE ANCHORED TO THE STAKES USING 1" HEAVY DUTY STAPLES OR NAILS WITH 1" HEADS. STAPLES AND NAILS SHOULD BE PLACED 3" ALONG THE FABRIC DOWN THE STAKE.
6. AT THE END OF A RUN OF SILT FENCE ALONG A CONTOUR, THE SILT FENCE SHOULD BE TURNED PERPENDICULAR TO THE CONTOUR TO CREATE A "J-HOOK." THE "J-HOOK" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNOFF FROM FLOWING AROUND THE END OF THE SILT FENCE (TYPICALLY 10' - 20').
7. SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

SILT FENCE MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. SEDIMENT ACCUMULATED UPSTREAM OF THE SILT FENCE SHALL BE REMOVED AS NEEDED TO MAINTAIN THE FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 6".
5. REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.
6. SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERIMETER SEDIMENT CONTROL BMP.
7. WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.