

**GRADING, EROSION AND STORMWATER  
QUALITY CONTROL PLAN**

for

**FALCON MARKETPLACE**

11680 E. Woodmen Road  
Falcon, Colorado

December 19, 2019

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## GRADING, EROSION AND STORMWATER QUALITY CONTROL PLAN FALCON MARKETPLACE

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## 1.0 STORMWATER QUALITY STATEMENT & OBJECTIVES

Stormwater quality best management practices shall be implemented to minimize soil erosion, sedimentation, increased pollutant loads and changed water flow characteristics resulting from land disturbing activity, to the maximum extent practicable, so as to minimize pollution of receiving waters.

Per Appendix A of the Colorado Department of Health, Water Quality Control Division's (the Division) "General Permit Application for Stormwater Discharge Associated with Construction Activities", the goal of the Stormwater Management Plan (SWMP) is:

"To identify possible pollutant sources that may contribute pollutants to stormwater, and identify Best Management Practices (BMPs) that, when implemented, will reduce or eliminate any possible water quality impacts. The SWMP must be completed and implemented at the time the project breaks ground, and revised if necessary as construction proceeds to accurately reflect the conditions and practices at the site."

This document is not intended to address training, site specific operational procedures, logistics, or other "means and methods" required to construct this project.

This document must be kept at the construction site at all times. Inspections are to be made at least every 14 days and after any precipitation event. El Paso County requires that the inspector be contacted 48 hours prior to initial and final inspections. An inspection log entry shall be completed with each inspection performed. The inspection log shall be kept with the SWMP. The conditions of the SWMP and General Permit for Stormwater Discharges associated with the construction activity will remain in effect until final stabilization is achieved, and a notice of inactivation is sent to CDPHE Stormwater Quality Division. All pertinent records must be kept for at least 3 years from the date the site is stabilized.

Drexel, Barrell & Co. has been retained to provide civil engineering services for the design of this project. Drexel, Barrell & Co. is not responsible for implementation and maintenance of the Stormwater Management Plan.

## **2.0 SITE DESCRIPTION**

### **2.1 DESCRIPTION OF CONSTRUCTION ACTIVITIES**

The project involves the development of Falcon Marketplace Filing No. 1 in Falcon, CO.

The proposed development consists of approximately 40.2 acres of commercial development with associated roadways and parking areas.

The site work will include overlot grading, utility and drainage infrastructure, and roadway construction (asphalt and concrete paving).

### **2.2 EXISTING SITE CONDITIONS**

The majority of the site is currently undeveloped, with one existing home on the site, and several small outbuildings. The site is 90% covered with native grass and vegetation, and gently slopes from north to south. Offsite flows concentrate into the Unnamed Tributary to Black Squirrel Creek (UTBSC) through the center of the site, and on to a double set of triple 48" diameter culverts under E. Woodmen Road, towards regional detention facility MN.

### **2.3 ADJACENT AREAS**

The site is bounded on the north by Falcon Ranchettes single family residential, the west by Courtyards at Woodmen Hills West single family residential, the east by Meridian Road, and on the south by E. Woodmen Road. All of the construction activities are to take place on the site. The surrounding areas should not be affected by the land disturbing and stabilization activities.

### **2.4 SOILS**

From the Natural Resources Conservation Service (NRCS), the soils on the site as mapped by the Soil Conservation Service (SCS) are of the Blakeland loamy sand (Soil No. 8), and the Blakeland-Fluvaquentic Haplaquolis (Soil No. 9), and the Columbine gravelly sandy loam (Soil No. 19). All soils are hydrologic group A, with moderate erosion potential. Hydrologic Soil Group A soils have a high infiltration rate when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission. Potential effects of soil

erosion include compaction, loss of soil structure, nutrient degradation, soil salinity and increased sediment load downstream.

## 2.5 AREAS AND VOLUME STATEMENT

The project site consists of approximately 36.4 acres. Unadjusted overlot earthwork volumes within the construction site are approximately 78,000 CY of cut and 78,000 CY of fill, with the intention of a balanced site.

## 2.6 CONTROLS AND MEASURES DURING CONSTRUCTION

Stabilization activities are anticipated to begin in the fall of 2018. A construction schedule will be prepared by the contractor prior to land disturbing activities. The general sequence of major construction activities is as follows:

1. Temporary Erosion Control Measures – Temporary erosion control measures, such as silt fence and construction of vehicle tracking pads and staging area will be completed prior to any other large scale activity. The vehicle tracking pad will ensure a reduction of tracking of soil on and off the construction site. The staging area will house the materials, petroleum product storage (if any), trash dumpster, sanitary facilities and hazardous spill clean-up areas. These are all potential pollutants that are not sediment related.
2. Trash and Debris Removal – Existing trash and debris shall be removed from the site and hauled to designated receiving facility.
3. Site Clearing – The area to be disturbed for construction will be cleared and grubbed, as necessary to the perimeter of erosion control. The sequence of the areas to be cleared and grubbed are subject to the contractor's means and methods of construction of the site; however, the general plan is to work from the north to south and east where the vehicle tracking pads are located in order to eliminate backtracking over areas that have already been completed.
4. Overlot Grading – Overlot grading will occur to bring the site to the proposed sub-grade elevations in paved areas, and to finished grade elevations in the

landscape and detention areas. Spoils from the site will be removed from the site and hauled to a designated receiving facility or location.

5. Utility Installation – Utility installation will consist of water, sanitary sewer, electric, and telephone and natural gas service lines. Storm drain lines will also be installed. Utility locations will be obtained prior to commencement of construction activities.
6. Final Grading – The site will be brought to final elevations with the installation of the proposed paving and final blending to existing grades on the perimeter of the improvement area.
7. Permanent Re-vegetation – Erosion control blanket will be installed at all areas graded to a 3:1 slope and greater. Areas not paved will be re-vegetated and/or landscaped by the contractor or owner on an as-needed basis. Vegetation and stabilization of soil will aid in the trapping of sediment and reducing soil erosion.
8. Removal of Temporary BMP's – Temporary erosion control measures may be removed once the site has achieved final 70 percent of pre disturbance levels and vegetation cover is capable of reducing soil erosion. All permanent BMPs shall be cleaned and functioning before any temporary BMPs are removed.
9. Housekeeping – The best BMP for a job site is good housekeeping around the site. Routine site trash pickup and routine BMP inspection and maintenance are paramount for keeping a job site clean and tidy. All petroleum storage areas in the staging area should be checked daily for leaks. Any leaks shall be reported to the site foreman for clean up. All personnel on site for both the contractor and subcontractors should be briefed on spill cleanup and containment procedures. Employees shall also be briefed as to where the spill cleanup materials can be found if a spill should occur. The spill plan shall be produced by the general contractor for the project and remain onsite for the duration of the project. Contractor shall coordinate with the County to obtain the necessary contacts in the case that a spill occurs.

## 2.7 POTENTIAL POLLUTION SOURCES

Any substances with the potential to contaminate either the ground or ground surface water shall be cleaned up immediately following discovery, or contained until appropriate cleanup methods can be employed. Manufacturer's recommended methods for cleanup shall be followed, along with proper disposal methods. All waste and debris created by construction at the site or removed from the site shall be disposed of in accordance with all laws, regulations and ordinances of the Federal, State and local agencies. The following is a summary of potential pollution sources and their associated measures intended to minimize the risk of pollution for this project.

- 1) Disturbed and stored soils: Straw wattles/fiber rolls, straw bale check dams and gravel bag check dams.
- 2) Vehicle tracking and sediments: VTC and Street Sweeping
- 3) Vehicle and equipment maintenance and fueling: Spill prevention procedures.
- 4) Dust or particulate generation from earthmoving activities and vehicle movement: water trucks for site watering.
- 5) On site waste management of solid wastes (construction debris): Waste container placement, covering and disposal.
- 6) Worker trash and portable toilets: Container placement, covering and disposal.
- 7) Equipment repair or maintenance beyond normal fueling operations: Spill prevention procedures.

The following items are not anticipated to be potential pollution sources for this project:

- 1) Management of contaminated soils.
- 2) Outdoor storage of fertilizers, chemicals or potentially polluting construction material.

- 3) Dedicated asphalt or concrete batch plants.

## 2.8 NON-STORMWATER DISCHARGES

Non-stormwater discharges possibly encountered during construction may include: watering down of the site, construction staging area, and excess dirt storage during high winds to minimize wind erosion and water utilized in soil compaction efforts.

## 2.9 RECEIVING WATER

Runoff generated by the proposed project will be passed to the onsite storm sewer system and detention pond prior to discharging into the two existing sets of triple 48" RCP culverts that pass under E. Woodmen Road and on to Pond MN to the south, ultimately to Black Squirrel Creek.

## 3.0 SITE MAP

Attached as part of this plan is a Site Map (See Appendix C). The drawing identifies the following:

- 1) Project area boundary
- 2) Area used for staging area
- 3) Location of erosion control facilities or structures (BMP's)
- 4) Boundaries of 100-year floodplains (if applicable)

The following items may not be indicated on the attached drawings, but will be determined by the individual contractors prior to and during construction activities:

- 1) Areas used for storage of construction materials, soils, or wastes
- 2) Location of portable toilets and waste receptacles
- 3) Location of additional BMP's that may become necessary as work progresses

These items shall be added to the Site Map by the Contractor.

#### **4.0 BMP's FOR STORMWATER POLLUTION PREVENTION**

Best management practices (BMPs) used throughout the site shall include: surface roughening, silt fence, inlet protection, vehicle tracking control, temporary sediment basins, mulching and reseeding and concrete washout.

##### **4.1 EROSION CONTROL – STRUCTURAL PRACTICES**

A list of the Structural CMP's for erosion and sediment control implemented on the site to minimize erosion and sediment are as follows. Refer to the SWMP Drawings for installation and maintenance requirements and location for each structural BMP.

- a) Concrete Washout Area (CWA): A shallow excavation with a small perimeter berm to isolate concrete truck washout operations.
- b) Construction Fence (CF): Installed to delineate the perimeter of the site.
- c) Drainage Swale/Earth Dike (DS): A small earth, riprap or erosion blanket lined channel used to diver and convey runoff
- d) Erosion Control Blanket (ECB): Slopes steeper than or equal to 3 (horizontal) to 1 (vertical) shall be protected with an erosion control blanket.
- e) Inlet Protection (IP): Installed to filter stormwater before entering any watercourses.
- f) Reinforced Sock (RS): Consists of a linear mass of gravel enclosed in wire mesh to form a porous filter, able to withstand overtopping.
- g) Sediment Basin (SB): An impoundment that captures sediment laden runoff and releases it slowly, providing prolonged settling times to capture coarse and fine grained soil particles.

- h) Sediment Control Log (SCL): Consists of a cylindrical bundle of wood, coconut, compost, excelsior, or straw fiber designed to form a semi-porous filter able to withstand overtopping.
- i) Seeding and Mulching (SM): Temporary seeding and mulching can be used to stabilize disturbed areas that will be inactive for an extended period of time. Permanent seeding should be used to stabilize areas at final grade that will not otherwise be stabilized.
- j) Silt Fence (SF): A temporary sediment barrier constructed of woven fabric stretched across supporting posts.
- k) Stabilized Staging Area (SSA): Consists of stripping the topsoil and spreading a layer of granular material in the area to be used for a trailer, parking, storage, unloading and loading.
- l) Temporary Stockpile Areas (TS): Temporary stockpiles of excess excavated material and stockpiles for imported materials. Slopes shall not be steeper than 3 to 1.
- m) Vehicle Tracking Control (VTC): Consists of a rock pad that is intended to help strip mud from tires prior to vehicles leaving the construction site. Installed at all entrance/exit points to the site. The number of access points shall be minimized.

Minimal clearing and grubbing may be necessary prior to installing the initial erosion control features.

No clearing, grading, excavation, filling or other land disturbing activities shall be permitted until signoff and acceptance of the Grading and Erosion Control Plan is received from the County.

Once signoff and acceptance is received the approved erosion and sediment control measures must be installed before land-disturbing activities are initiated so that no adverse effect of site alteration will impact surrounding property.



## 4.2 EROSION CONTROL – NON-STRUCTURAL PRACTICES

Non-structural practices for erosion and sediment control to be used to minimize erosion and sediment transport are:

- a) Seeding and mulching and landscape installation in areas that will not be hard surfaced, while minimizing the amount of vegetation to be removed during construction, leaving native vegetation in place when possible.
- b) Street sweeping around the construction site will be utilized when tracking of mud occurs on paved streets. The sweeping will be required after any significant tracking has occurred; significant meaning any visible amount that cannot be completely cleaned by hand. The adjacent paved drive surfaces will be cleaned at the end of each day of construction activities. Sweeping efforts will continue as necessary until construction operations are completed.

## 4.3 MATERIALS HANDLING & SPILL PREVENTION

The SWMP administrator will inspect daily to ensure proper use and disposal of materials on site including building materials, paints, solvents, fertilizers, chemicals, waste materials and equipment maintenance or fueling procedures. All materials stored onsite will be stored in a neat and orderly manner in the original containers with the original manufacturer's label, and if possible under a roof or other enclosure to prevent contact with stormwater. Chemicals should be stored within berms or other secondary containment devices to prevent leaks and spills from contacting stormwater runoff. Before disposing of the container, all of a product will be used up whenever possible and manufacturer's recommendations for proper disposal will be followed according to state and local regulations.

Material and equipment necessary for spill cleanup will be kept in the material storage area on site. Manufacturer's recommendations for spill cleanup will be posted and site personnel will be made aware of the procedures along with the location of the information and cleanup supplies.

The contractor shall have spill prevention and response procedures that include the following:

- n) Notification procedures to be used in the event of an accident. At the very least, the SWMP administrator should be notified. Depending on the nature of the spill and the material involved, the Colorado Department of Public Health and Environment (24-hour spill reporting line (877) 518-5608), downstream water users or other agencies may also need to be informed.
- o) Instructions for clean up procedures and identification of spill kit location(s).
- p) Provisions for absorbents to be made available for use in fuel areas and for containers to be available for used absorbents.
- q) Procedures for properly washing out concrete truck chutes and other equipment in a manner and location so that the materials and wash water cannot discharge from the site and never into a storm drain system or stream.

#### 4.4 DEDICATED CONCRETE OR ASPHALT BATCH PLANTS

No dedicated concrete or asphalt batch plants will be used.

#### 4.5 GROUNDWATER & STORMWATER DEWATERING

In the event that groundwater is encountered or stormwater enters an excavation and dewatering is necessary, a separate CDPHE construction discharge (dewatering) permit will be required for groundwater dewatering and shall be obtained by the SWMP administrator. During groundwater or stormwater dewatering, locations and practices to be implemented to control stormwater pollution from excavations, etc., must be noted on the SWMP. Construction dewatering cannot be discharged to surface water or to storm sewer systems without separate permit coverage. The discharge of Construction Dewatering water to the ground, under specific conditions, may be allowed by the Stormwater Construction Permit when appropriate BMP's are implemented. Refer to USDCM Volume III (UDFCD) for County acceptable means of dewatering.

## **5.0 TIMING SCHEDULE**

The project is anticipated to begin construction in the fall of 2019 and be completed by fall of 2020. The contractor shall be responsible for producing a schedule that will show at a minimum: start and completion times including site grading operations, utility construction and the removal of the temporary erosion and sediment control measures.

## **6.0 FINAL STABILIZATION AND LONG-TERM STORMWATER MANAGEMENT**

Final stabilization shall not be considered complete until 70% of new vegetated cover is established on areas not to be hard-surfaced. Temporary sediment and erosion control measures installed prior to the construction phase will remain in place until this time. Any sediment that collects within the site's drainage system is considered unstabilized soil and must be removed prior to the site being considered finally stabilized.

## **7.0 INSPECTION AND MAINTENANCE**

A site inspection of all erosion control facilities will be conducted every 14 days and within 24 hours after every precipitation event. The entrance to the construction site shall be inspected daily and existing street cleaned, as necessary, of all materials tracked out of the site.

The construction site perimeter, disturbed areas, and areas used for material storage that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the SWMP shall be observed to ensure that they are operating correctly.

Based on the results of the inspection, the description of potential pollutant sources and the pollution prevention and control measures that are identified in this plan shall be revised and modified as appropriate as soon as practicable after such inspection. Modification to control measures shall be implemented in a timely manner, but in no case more than seven (7) calendar days after the inspection.

The operator shall be responsible for documenting inspections and maintaining records. Uncontrolled releases of mud or muddy water or measurable quantities of sediment found off the site shall be recorded with a brief explanation as to the measures taken to prevent future releases as well as any measure taken to clean up the sediment that has

left the site. All signed inspection record/logs should be kept on site and made available to the El Paso County or CDPHE personnel upon request.

All temporary and permanent erosion and sediment control facilities shall be maintained and repaired per manufacturer's specifications to assure continued performance of their intended function. Repairs should be completed within 24 to 48 hours. Silt fences may require periodic replacement.

## **8.0 REFERENCES**

- [1] General Permit Application and Stormwater Management Plan Preparation Guidance for Stormwater Discharges Associated with Construction Activities. Prepared by the Colorado Department of Health, Water Quality Control Division. Revised 7/2009.
- [2] City of Colorado Springs– Drainage Criteria Manual, Volume 2 "Stormwater Quality Procedures and Best Management Practices (BMPs). November 1, 2002, amended August 10, 2010.
- [3] NRCS Web Soil Survey, [www.websoilsurvey.nrcs.usda.gov](http://www.websoilsurvey.nrcs.usda.gov)

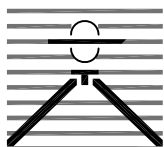
## **APPENDIX A**

### **Vicinity Map**



# Vicinity Map

NTS



## FALCON MARKETPLACE VICINITY MAP

**Drexel, Barrell & Co.**  
Engineers • Surveyors

DATE:  
8/18/16

JOB NO:  
20988-00

DWG. NO.

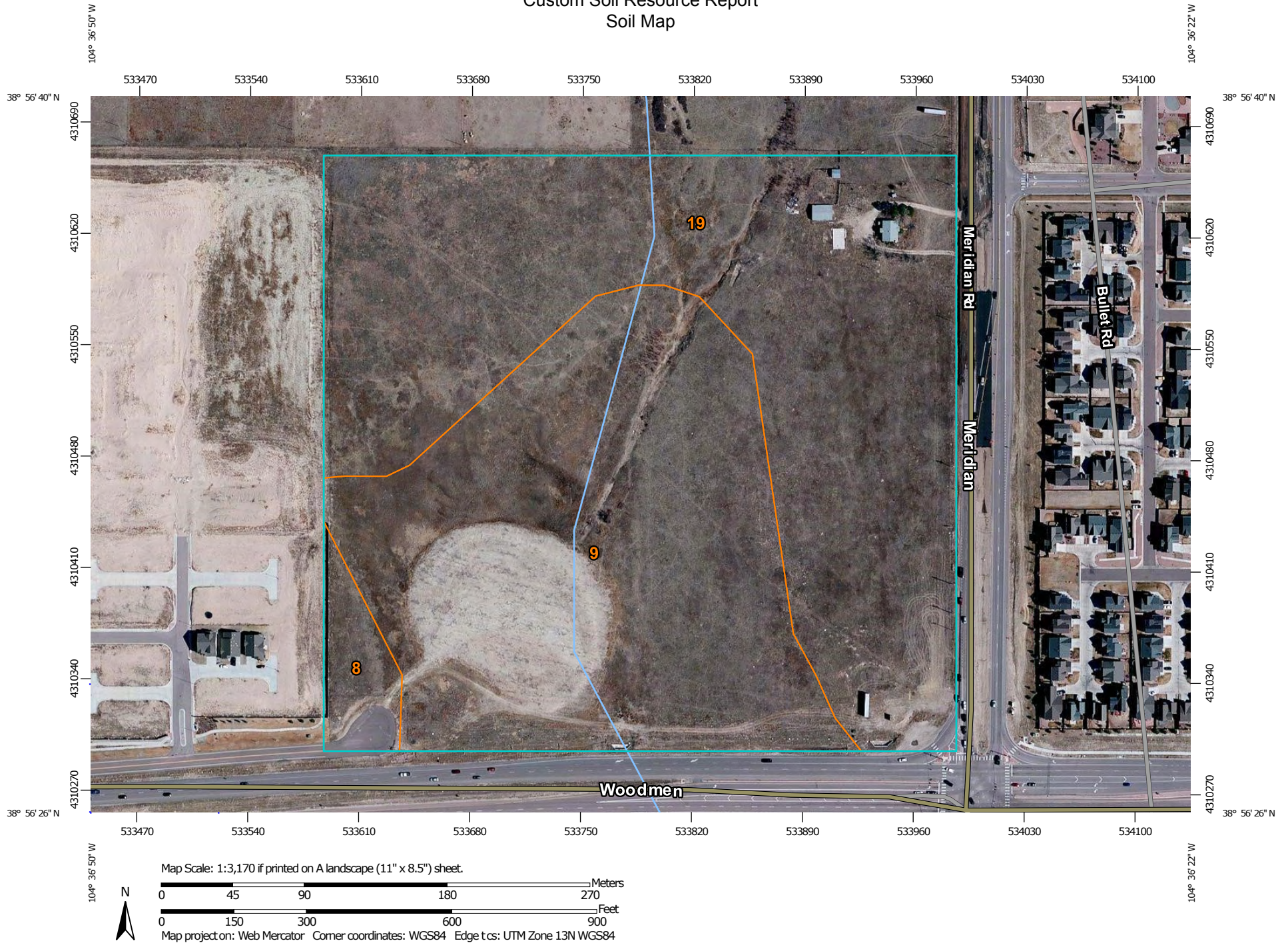
**VMAP**

SHEET 1 OF 1

**APPENDIX B**  
**SOILS INFORMATION**



# Custom Soil Resource Report Soil Map






# Custom Soil Resource Report


## 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: <http://websoilsurvey.nrcs.usda.gov>  
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 13, Sep 22, 2015

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

Date(s) aerial images were photographed: Apr 15, 2011—Sep 22, 2011

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

El Paso County Area, Colorado (CO625)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
8	Blakeland loamy sand, 1 to 9 percent slopes	1.2	3.2%
9	Blakeland-Fluvaquentic Haplaquolls	16.3	43.9%
19	Columbine gravelly sandy loam, 0 to 3 percent slopes	19.6	52.9%
<b>Totals for Area of Interest</b>		<b>37.1</b>	<b>100.0%</b>

## Map Unit Descriptions

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

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

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

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments

on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

## El Paso County Area, Colorado

### 8—Blakeland loamy sand, 1 to 9 percent slopes

#### Map Unit Setting

*National map unit symbol:* 369v  
*Elevation:* 4,600 to 5,800 feet  
*Mean annual precipitation:* 14 to 16 inches  
*Mean annual air temperature:* 46 to 48 degrees F  
*Frost-free period:* 125 to 145 days  
*Farmland classification:* Not prime farmland

#### Map Unit Composition

*Blakeland and similar soils:* 85 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Blakeland

##### Setting

*Landform:* Flats, hills  
*Landform position (three-dimensional):* Side slope, tal  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Alluvium derived from sedimentary rock and/or eolian deposits  
derived from sedimentary rock

##### Typical profile

*A - 0 to 11 inches:* loamy sand  
*AC - 11 to 27 inches:* loamy sand  
*C - 27 to 60 inches:* sand

##### Properties and qualities

*Slope:* 1 to 9 percent  
*Depth to restrictive feature:* More than 80 inches  
*Natural drainage class:* Somewhat excessively drained  
*Runoff class:* Low  
*Capacity of the most limiting layer to transmit water (Ksat):* High to very high (5.95 to 19.98 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum in profile:* 5 percent  
*Available water storage in profile:* Low (about 4.5 inches)

##### Interpretive groups

*Land capability classification (irrigated):* 3e  
*Land capability classification (nonirrigated):* 6e  
*Hydrologic Soil Group:* A  
*Ecological site:* Sandy Foothill (R049BY210CO)

#### Minor Components

##### Other soils

*Percent of map unit:*

**Pleasant**

*Percent of map unit:*

*Landform:* Depressions

**9—Blakeland-Fluvaquentic Haplaquolls**

**Map Unit Setting**

*National map unit symbol:* 36b6

*Elevation:* 3,500 to 5,800 feet

*Mean annual precipitation:* 13 to 17 inches

*Mean annual air temperature:* 46 to 55 degrees F

*Frost-free period:* 110 to 165 days

*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Blakeland and similar soils:* 60 percent

*Fluvaquentic haplaquolls and similar soils:* 30 percent

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

**Description of Blakeland**

**Setting**

*Landform:* Flats, hills

*Landform position (three-dimensional):* Side slope, tal

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Sandy alluvium derived from arkose and/or eolian deposits derived from arkose

**Typical profile**

*A - 0 to 11 inches:* loamy sand

*AC - 11 to 27 inches:* loamy sand

*C - 27 to 60 inches:* sand

**Properties and qualities**

*Slope:* 1 to 9 percent

*Depth to restrictive feature:* More than 80 inches

*Natural drainage class:* Somewhat excessively drained

*Runoff class:* Low

*Capacity of the most limiting layer to transmit water (Ksat):* High to very high (5.95 to 19.98 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum in profile:* 5 percent

*Available water storage in profile:* Low (about 4.5 inches)

**Interpretive groups**

*Land capability classification (irrigated):* 3e

*Land capability classification (nonirrigated):* 6e

## Custom Soil Resource Report

*Hydrologic Soil Group: A*

*Ecological site: Sandy Foothill (R049BY210CO)*

### Description of Fluvaquentic Haplaquolls

#### Setting

*Landform: Swales*

*Down-slope shape: Linear*

*Across-slope shape: Linear*

*Parent material: Alluvium*

#### Typical profile

*H1 - 0 to 12 inches: variable*

#### Properties and qualities

*Slope: 1 to 2 percent*

*Depth to restrictive feature: More than 80 inches*

*Natural drainage class: Poorly drained*

*Runoff class: Very high*

*Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high  
(0.20 to 6.00 in/hr)*

*Depth to water table: About 0 to 24 inches*

*Frequency of flooding: Occasional*

*Frequency of ponding: None*

*Salinity, maximum in profile: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)*

#### Interpretive groups

*Land capability classification (irrigated): 6w*

*Land capability classification (nonirrigated): 6w*

*Hydrologic Soil Group: D*

### Minor Components

#### Other soils

*Percent of map unit:*

#### Pleasant

*Percent of map unit:*

*Landform: Depressions*

## 19—Columbine gravelly sandy loam, 0 to 3 percent slopes

### Map Unit Setting

*National map unit symbol: 367p*

*Elevation: 6,500 to 7,300 feet*

*Mean annual precipitation: 14 to 16 inches*

*Mean annual air temperature: 46 to 50 degrees F*

*Frost-free period: 125 to 145 days*

*Farmland classification: Not prime farmland*

### Map Unit Composition

*Columbine and similar soils: 85 percent*

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

### Description of Columbine

#### Setting

*Landform: Fans, flood plains, fan terraces*

*Down-slope shape: Linear*

*Across-slope shape: Linear*

*Parent material: Alluvium*

#### Typical profile

*A - 0 to 14 inches: gravelly sandy loam*

*C - 14 to 60 inches: very gravelly loamy sand*

#### Properties and qualities

*Slope: 0 to 3 percent*

*Depth to restrictive feature: More than 80 inches*

*Natural drainage class: Well drained*

*Runoff class: Very low*

*Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)*

*Depth to water table: More than 80 inches*

*Frequency of flooding: None*

*Frequency of ponding: None*

*Available water storage in profile: Very low (about 2.5 inches)*

#### Interpretive groups

*Land capability classification (irrigated): 4e*

*Land capability classification (nonirrigated): 6e*

*Hydrologic Soil Group: A*

*Ecological site: Gravelly Foothill (R049BY214CO)*

### Minor Components

#### Fluvaquentic haplaquolls

*Percent of map unit:*

*Landform: Swales*

#### Other soils

*Percent of map unit:*

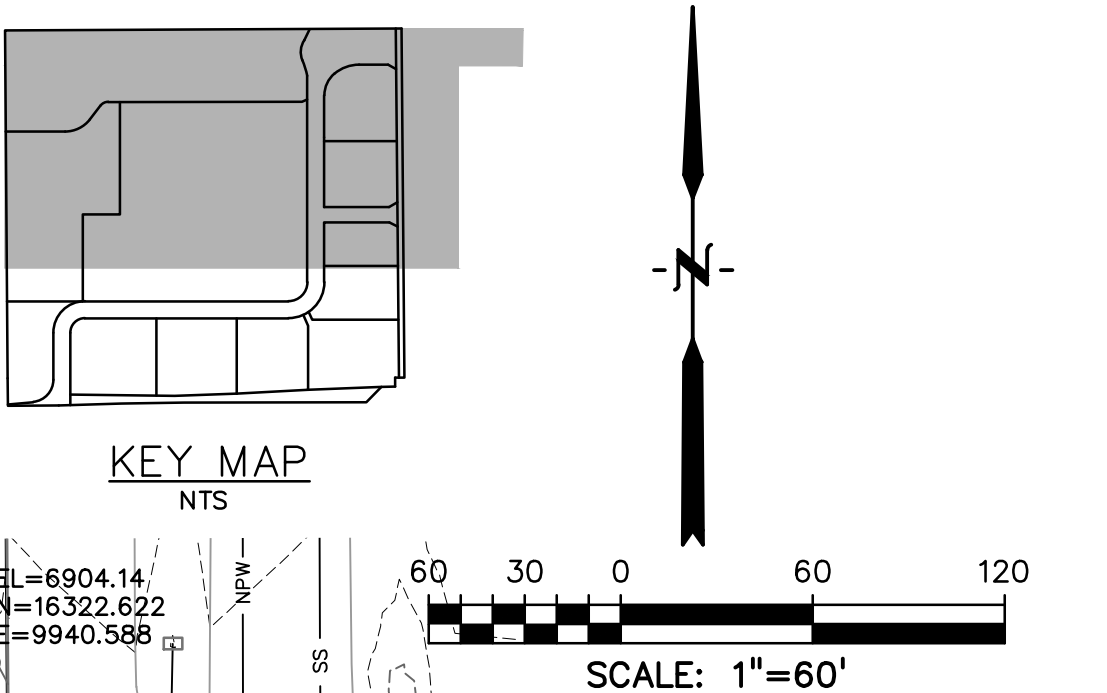
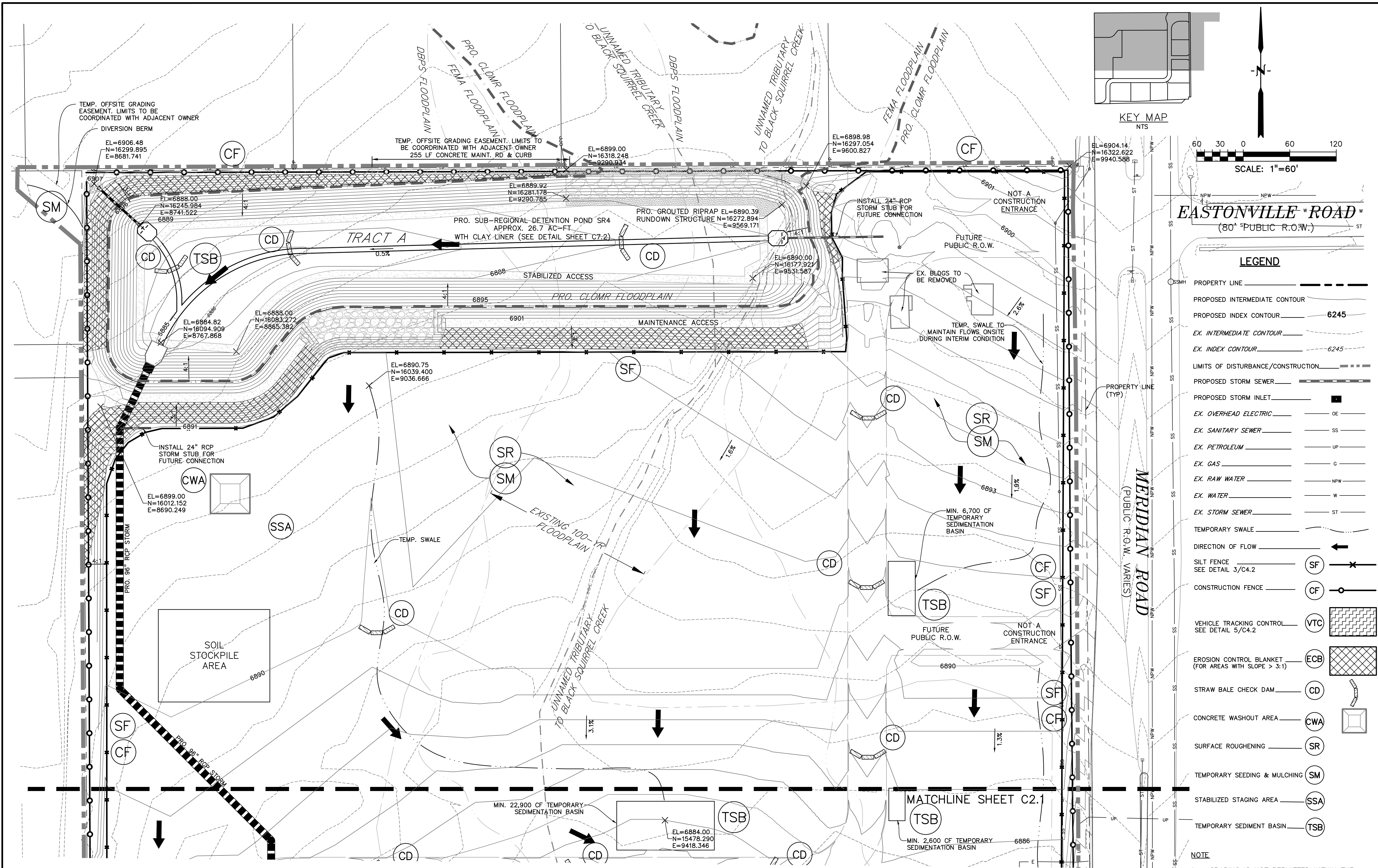
#### Pleasant

*Percent of map unit:*

*Landform: Depressions*

**APPENDIX C**  
**SITE MAP**





**EASTONVILLE ROAD**  
(80' PUBLIC R.O.W.)

LEGEND	
PROPERTY LINE	---
PROPOSED INTERMEDIATE CONTOUR	---
PROPOSED INDEX CONTOUR	6245
EX. INTERMEDIATE CONTOUR	---
EX. INDEX CONTOUR	6245
LIMITS OF DISTURBANCE/CONSTRUCTION	---
PROPOSED STORM SEWER	---
PROPOSED STORM INLET	■
EX. OVERHEAD ELECTRIC	OE
EX. SANITARY SEWER	SS
EX. PETROLEUM	UP
EX. GAS	G
EX. RAW WATER	NPW
EX. WATER	W
EX. STORM SEWER	ST
TEMPORARY SWALE	---
DIRECTION OF FLOW	←
SILT FENCE SEE DETAIL 3/C4.2	SF
CONSTRUCTION FENCE	CF
VEHICLE TRACKING CONTROL SEE DETAIL 5/C4.2	VTC
EROSION CONTROL BLANKET (FOR AREAS WITH SLOPE > 3:1)	ECB
STRAW BALE CHECK DAM	CD
CONCRETE WASHOUT AREA	CWA
SURFACE ROUGHENING	SR
TEMPORARY SEEDING & MULCHING	SM
STABILIZED STAGING AREA	SSA
TEMPORARY SEDIMENT BASIN	TSB

- NOTE**
- GRADING IS NOT PERMITTED WITHIN THE COUNTY RIGHT-OF-WAY DURING THE INTERIM CONDITION, EXCEPT FOR THE OPEN CHANNEL ALONG E. WOODMEN RD.
  - EXISTING SITE IS 90% VEGETATED WITH NATURAL NATIVE GRASSES.
  - NO RETAINING WALLS ARE PROPOSED AT THE INTERIM CONDITION.

PREPARED BY:

DREXEL, BARRELL & CO.  
Engineers • Surveyors  
3 SOUTH 7TH STREET  
COLORADO SPRINGS, COLORADO 80905  
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(719) 260-0887  
BOULDER • COLORADO SPRINGS

CLIENT:

**HUMMEL INVESTMENTS, LLC**  
8117 PRESTON ROAD, SUITE 120  
DALLAS, TEXAS 75225  
(214) 416-9820

OVERLOT GRADING, POND SR4 & UTILITY  
CONSTRUCTION DRAWINGS FOR

**FALCON  
MARKETPLACE**  
FALCON, COLORADO

ISSUE	DATE
1ST SUBMITTAL	6-20-17
RESUBMITTAL	9-6-18

DESIGNED BY:	TDM
DRAWN BY:	KGW
CHECKED BY:	TDM
FILE NAME:	

PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF DREXEL, BARRELL & CO.

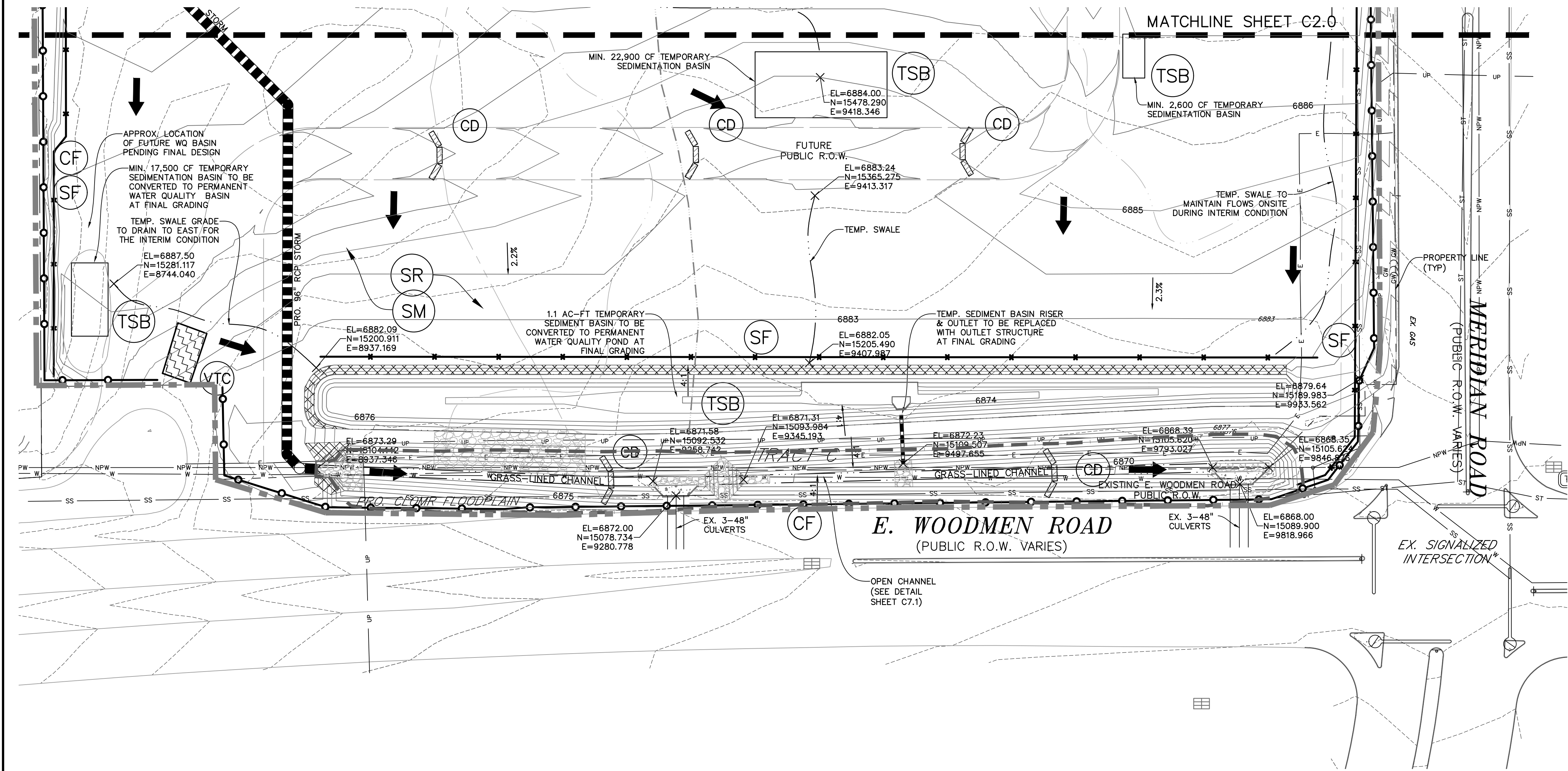
DRAWING SCALE:  
HORIZONTAL: 1"=60'  
VERTICAL: N/A

**INTERIM GRADING  
& EROSION  
CONTROL PLAN**

PROJECT NO. 20988-00CSV  
DRAWING NO.

**C2.0**

SHEET: 3 OF 27



PREPARED BY:

  
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DRAWING SCALE:  
HORIZONTAL: 1"=60'  
VERTICAL: N/A

**INTERIM GRADING  
& EROSION  
CONTROL PLAN**

PROJECT NO. 20988-00CSCV  
DRAWING NO.

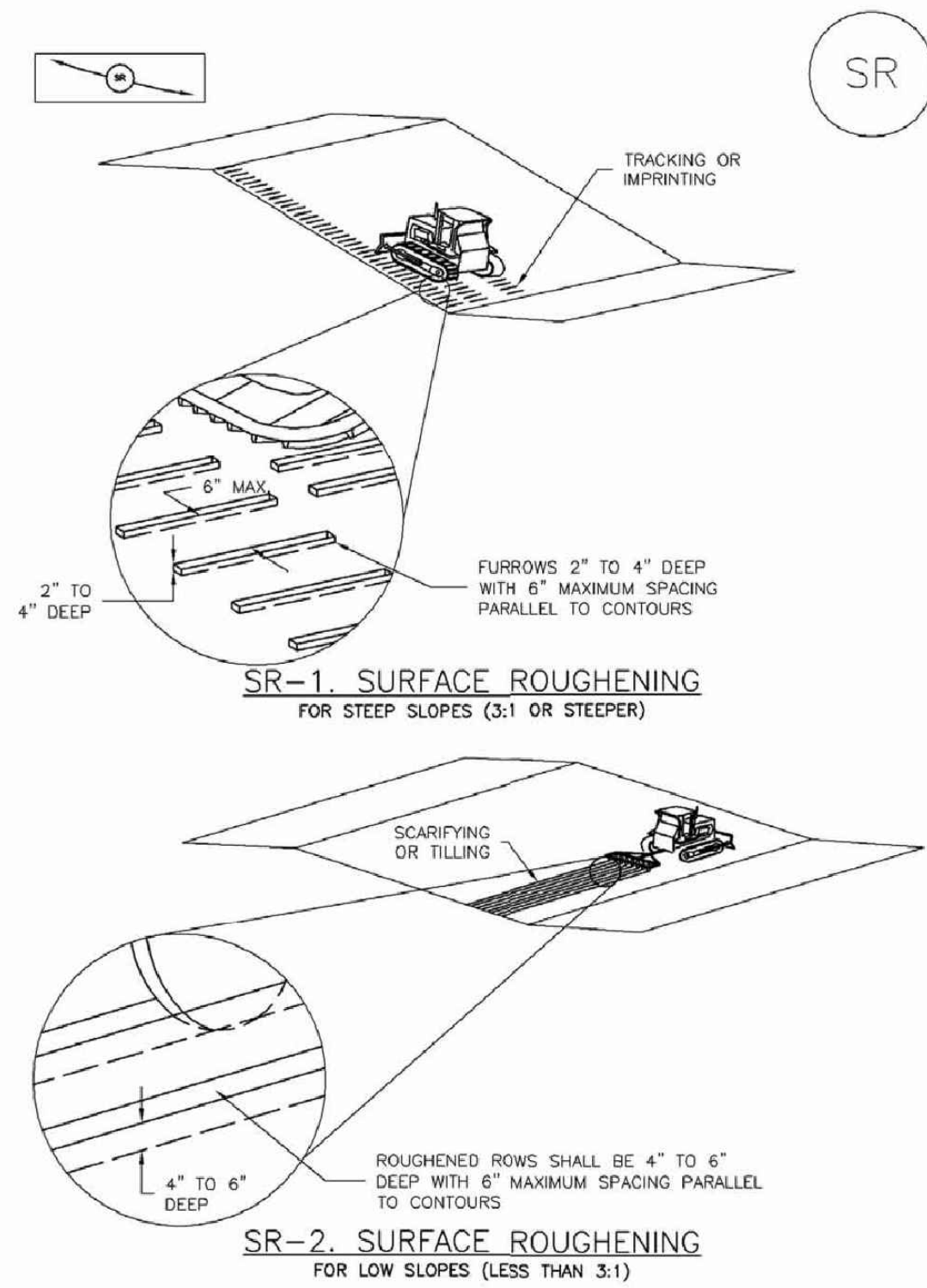
**C2.1**

SHEET: 4 OF 27



## Surface Roughening (SR)

EC-1



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Urban Storm Drainage Criteria Manual Volume 3

SR-3

## EC-2 Temporary and Permanent Seeding (TS/PS)

Table TS/PS-3. Seeding Dates for Annual and Perennial Grasses

Seeding Dates	Annual Grasses (Numbers in table reference species in Table TS/PS-1)		Perennial Grasses	
	Warm	Cool	Warm	Cool
January 1–March 15			✓	✓
March 16–April 30	4	1,2,3	✓	✓
May 1–May 15	4		✓	
May 16–June 30	4,5,6,7			
July 1–July 15	5,6,7			
July 16–August 31				
September 1–September 30		8,9,10,11		
October 1–December 31			✓	✓

### Mulch

Cover seeded areas with mulch or an appropriate rolled erosion control product to promote establishment of vegetation. Anchor mulch by crimping, netting or use of a non-toxic tackifier. See the Mulching BMP Fact Sheet for additional guidance.

### Maintenance and Removal

Monitor and observe seeded areas to identify areas of poor growth or areas that fail to germinate. Reseed and mulch these areas, as needed.

An area that has been permanently seeded should have a good stand of vegetation within one growing season if irrigated and within three growing seasons without irrigation in Colorado. Reseed portions of the site that fail to germinate or remain bare after the first growing season.

Seeded areas may require irrigation, particularly during extended dry periods. Targeted weed control may also be necessary.

Protect seeded areas from construction equipment and vehicle access.

TS/PS-6 Urban Drainage and Flood Control District  
Urban Storm Drainage Criteria Manual Volume 3

November 2010

## Temporary and Permanent Seeding (TS/PS)

EC-2

Seeding dates for the highest success probability of perennial species along the Front Range are generally in the spring from April through early May and in the fall after the first of September until the ground freezes. If the area is irrigated, seeding may occur in summer months, as well. See Table TS/PS-3 for appropriate seeding dates.

Table TS/PS-1. Minimum Drill Seeding Rates for Various Temporary Annual Grasses

Species* (Common name)	Growth Season*	Pounds of Pure Live Seed (PLS)/acre*	Planting Depth (inches)
1. Oats	Cool	35 - 50	1 - 2
2. Spring wheat	Cool	25 - 35	1 - 2
3. Spring barley	Cool	25 - 35	1 - 2
4. Annual ryegrass	Cool	10 - 15	½
5. Millet	Warm	3 - 15	½ - ¾
6. Sudangrass	Warm	5 - 10	½ - ¾
7. Sorghum	Warm	5 - 10	½ - ¾
8. Winter wheat	Cool	20 - 35	1 - 2
9. Winter barley	Cool	20 - 35	1 - 2
10. Winter rye	Cool	20 - 35	1 - 2
11. Triticale	Cool	25 - 40	1 - 2

\* Successful seeding of annual grass resulting in adequate plant growth will usually produce enough dead-plant residue to provide protection from wind and water erosion for an additional year. This assumes that the cover is not disturbed or mowed closer than 8 inches.

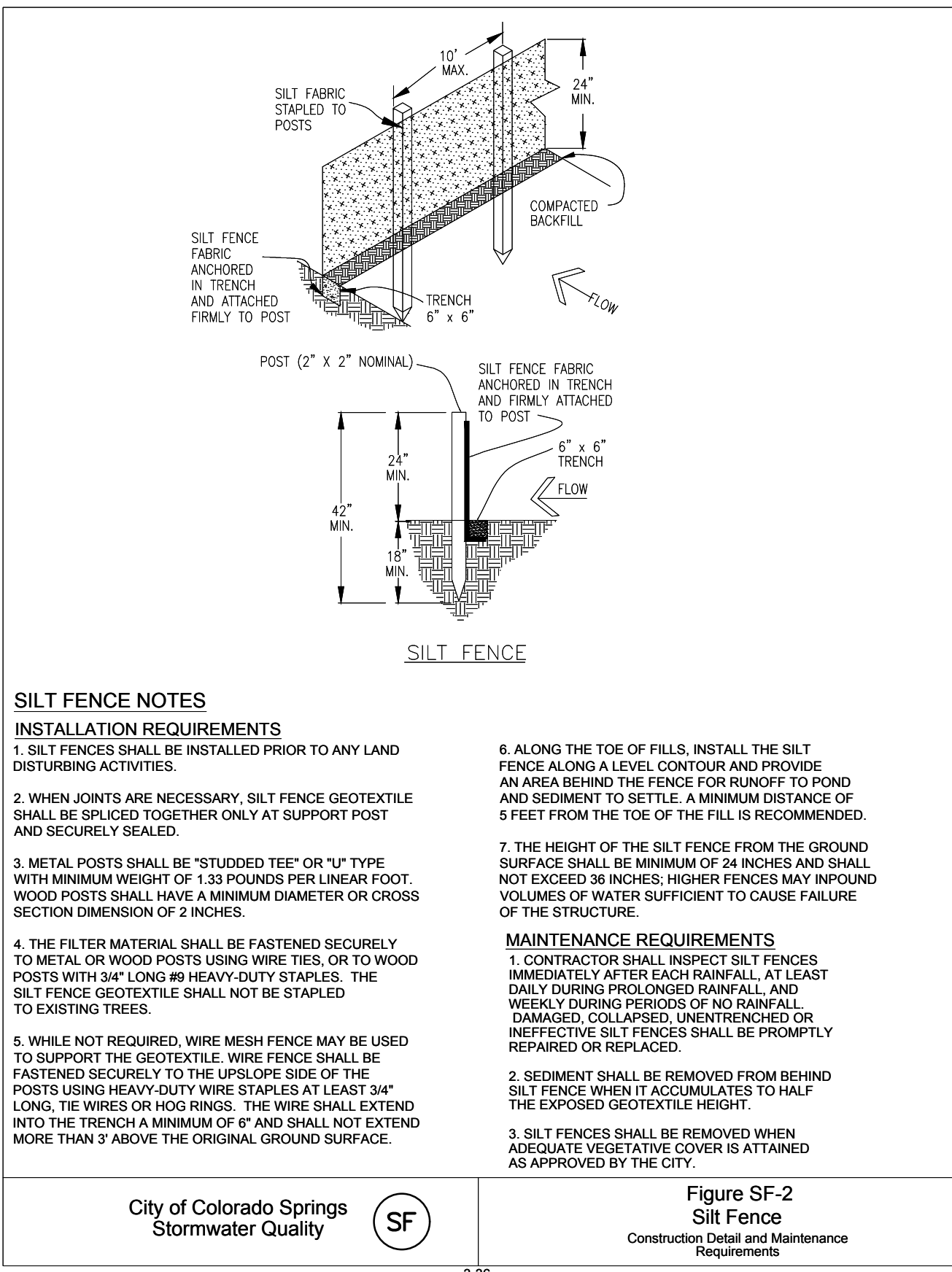
Hydraulic seeding may be substituted for drilling only where slopes are steeper than 3:1 or where access limitations exist. When hydraulic seeding is used, hydraulic mulching should be applied as a separate operation, when practical, to prevent the seeds from being encapsulated in the mulch.

\* See Table TS/PS-3 for seeding dates. Irrigation, if consistently applied, may extend the use of cool season species during the summer months.

\* Seeding rates should be doubled if seed is broadcast, or increased by 50 percent if done using a Brillion Drill or by hydraulic seeding.

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TS/PS-3



### SILT FENCE NOTES

#### INSTALLATION REQUIREMENTS

1. SILT FENCES SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

2. WHEN JOINTS ARE NECESSARY, SILT FENCE GEOTEXTILE SHALL BE SPICED TOGETHER ONLY AT SUPPORT POST AND SECURELY SEALED.

3. METAL POSTS SHALL BE "STUDDIED TEE" OR "U" TYPE WITH MINIMUM WEIGHT OF 1.33 POUNDS PER LINEAR FOOT. WOOD POSTS SHALL HAVE A MINIMUM DIAMETER OR CROSS SECTION DIMENSION OF 2 INCHES.

4. THE FILTER MATERIAL SHALL BE FASTENED SECURELY TO METAL OR WOOD POSTS USING WIRE TIES, OR TO WOOD POSTS WITH 3/4" LONG #9 HEAVY-DUTY STAPLES. THE SILT FENCE GEOTEXTILE SHALL NOT BE STAPLED TO EXISTING TREES.

5. WHILE NOT REQUIRED, WIRE MESH FENCE MAY BE USED TO SUPPORT THE GEOTEXTILE. WIRE FENCE SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY-DUTY WIRE STAPLES AT LEAST 3/4" LONG. THE WIRES OR HOG RINGS. THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF 6" AND SHALL NOT EXTEND MORE THAN 3" ABOVE THE ORIGINAL GROUND SURFACE.

6. ALONG THE TOE OF FILLS, INSTALL THE SILT FENCE ALONG A LEVEL, CONTOUR AND PROVIDE AN AREA BEHIND THE FENCE FOR RUNOFF TO POND AND SEDIMENT TO SETTLE. A MINIMUM DISTANCE OF 5 FEET FROM THE TOE OF THE FILL IS RECOMMENDED.

7. THE HEIGHT OF THE SILT FENCE FROM THE GROUND SURFACE SHALL BE MINIMUM OF 24 INCHES AND SHALL NOT EXCEED 36 INCHES; HIGHER FENCES MAY INPOUND VOLUMES OF WATER SUFFICIENT TO CAUSE FAILURE OF THE STRUCTURE.

8. SALT FENCES SHALL BE REMOVED WHEN ADEQUATE VEGETATIVE COVER IS ATTAINED AS APPROVED BY THE CITY.

MAINTENANCE REQUIREMENTS  
1. CONTRACTOR SHALL INSPECT SILT FENCES IMMEDIATELY AFTER EACH RAINFALL. AT LEAST DAILY DURING PROLONGED RAINFALL, AND WEEKLY DURING PERIODS OF NO RAINFALL. DAMAGED, COLLAPSED, UNREINFORCED OR INEFFECTIVE SILT FENCES SHALL BE PROMPTLY REPAIRED OR REPLACED.

2. SEDIMENT SHALL BE REMOVED FROM BEHIND SILT FENCE WHEN IT ACCUMULATES TO HALF THE EXPOSED GEOTEXTILE HEIGHT.

3. SALT FENCES SHALL BE REMOVED WHEN ADEQUATE VEGETATIVE COVER IS ATTAINED AS APPROVED BY THE CITY.

City of Colorado Springs  
Stormwater Quality

SF

Figure SF-2  
Silt Fence  
Construction Detail and Maintenance  
Requirements

3-36

### MULCHING NOTES

#### INSTALLATION REQUIREMENTS

1. ALL DISTURBED AREAS MUST BE MULCHED WITHIN 21 DAYS AFTER FINAL GRADE AND SEEDING AREAS ARE TO BE MULCHED WITHIN 24 HOURS AFTER SEEDING.

2. MATERIAL USED FOR MULCH CAN BE CERTIFIED CLEAN WEED- AND SEED-FREE LONG STEMMED FIELD OR MARSH HAY, OR STRAW OF OATS, BARLEY, WHEAT, RYE, OR TRITICALE CERTIFIED BY THE COLORADO DEPARTMENT OF AGRICULTURE WEED-FREE FORAGE CERTIFICATION PROGRAM.

3. HYDRAULIC MULCHING MATERIAL SHALL CONSIST OF VIRGIN WOOD FIBER MANUFACTURED FROM CLEAN WHOLE WOOD CHIPS. WOOD CHIPS CANNOT CONTAIN ANY GROWTH OR GERMINATION INHIBITORS OR BE PRODUCED FROM RECYCLED MATERIAL. GRAVEL CAN ALSO BE USED.

4. MULCH IS TO BE APPLIED EVENLY AT A RATE OF 2 TONS PER ACRE.

5. MULCH IS TO BE ANCHORED EITHER BY CRIMPING (TUCKING MULCH FIBERS 4 INCHES INTO THE SOIL), USING NETTING (USED ON SMALL AREAS WITH STEEP SLOPES), OR WITH A TACKIFIER.

6. HYDRAULIC MULCHING AND TACKIFIERS ARE NOT TO BE USED IN THE PRESENCE OF FREE SURFACE WATER.

#### MAINTENANCE REQUIREMENTS

1. REGULAR INSPECTIONS ARE TO BE MADE OF ALL MULCHED AREAS.

2. MULCH IS TO BE REPLACED IMMEDIATELY IN THOSE AREAS IT HAS BEEN REMOVED, AND IF NECESSARY THE AREA SHOULD BE RESEEDING.

City of Colorado Springs  
Stormwater Quality

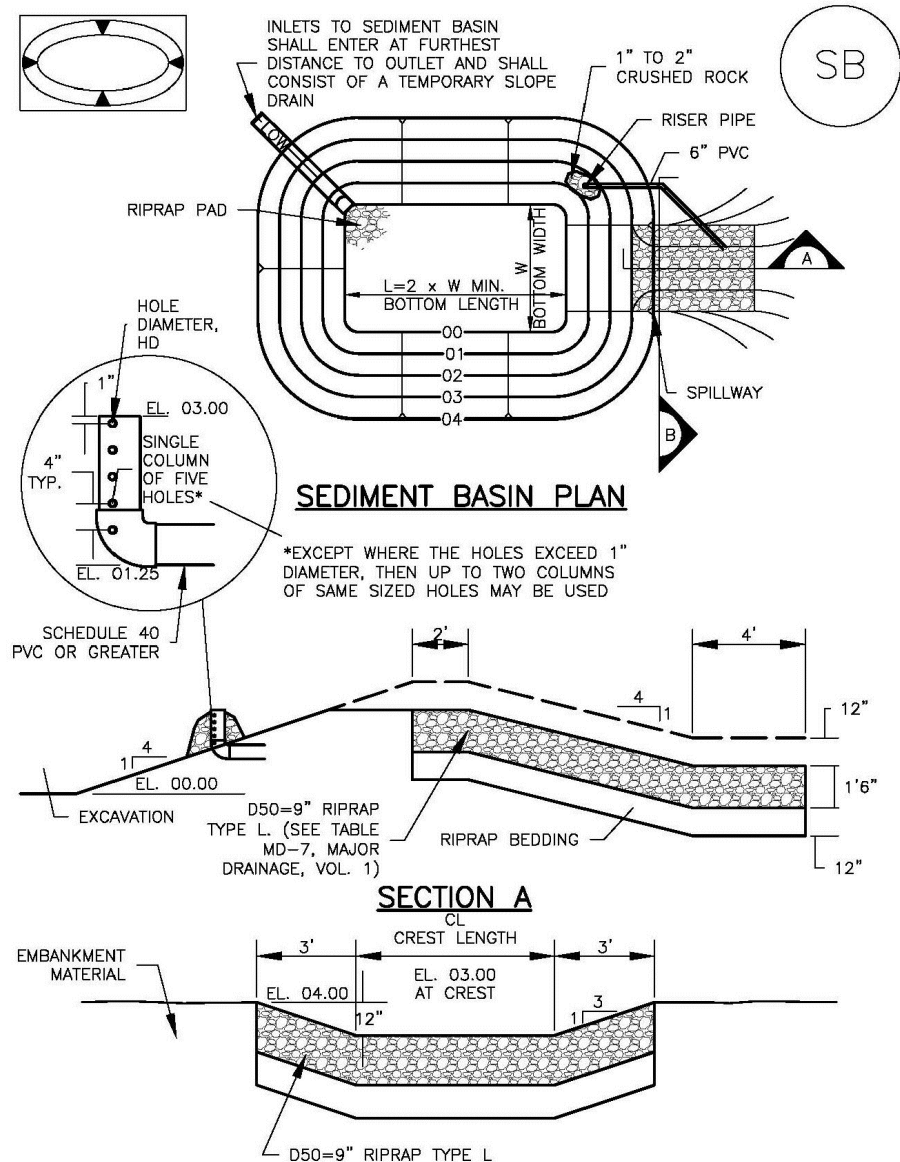
SM

Figure MU-1  
Mulching  
Construction Detail and Maintenance  
Requirements

3-30

## Sediment Basin (SB)

SC-7



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Urban Storm Drainage Criteria Manual Volume 3

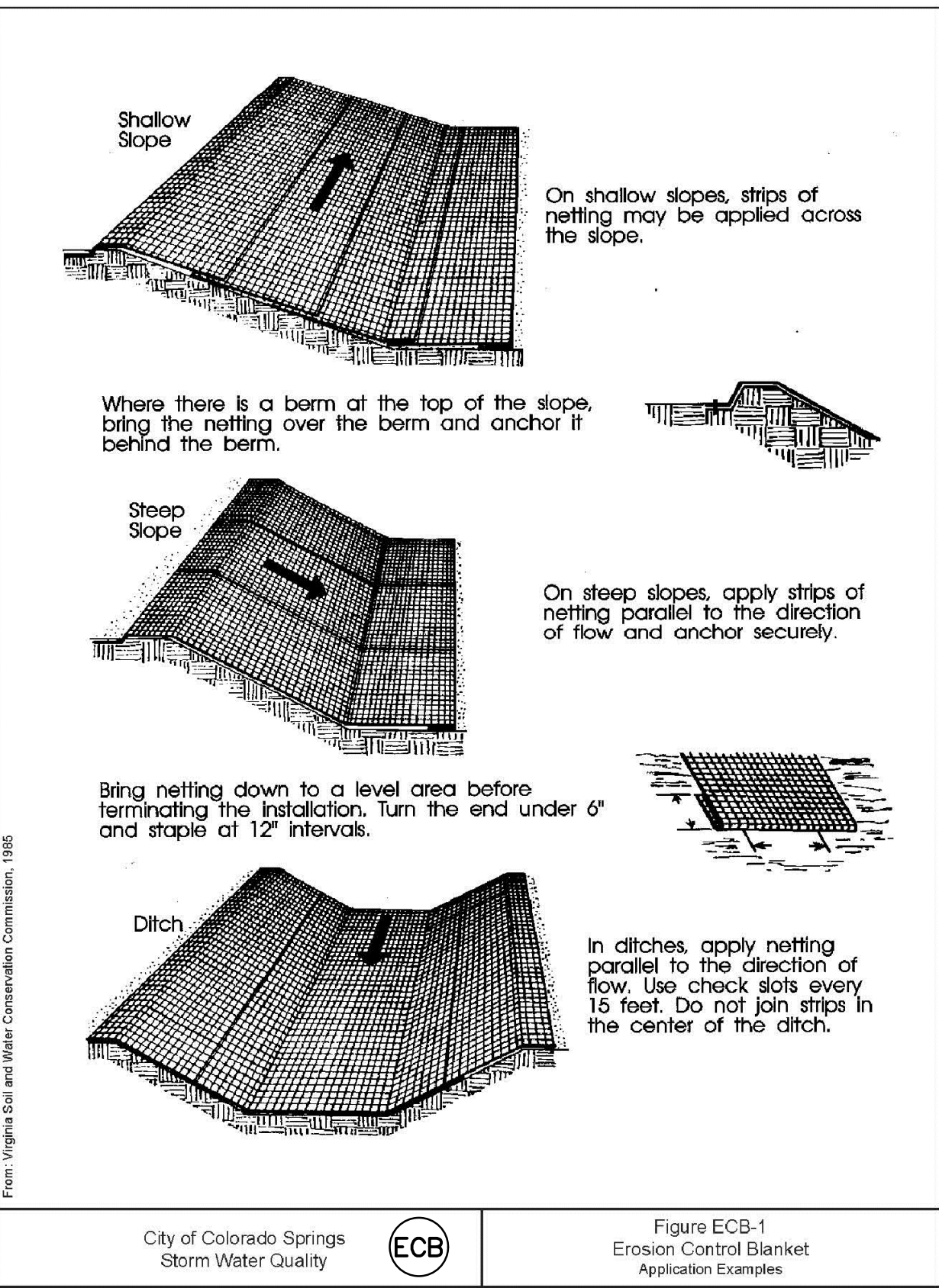
SB-5

### RECOMMENDED PERMANENT SEEDING MIX:

APPLY AT 25 POUNDS OF PURE LIVE SEED (PLS) PER ACRE AND A PLANTING DEPTH OF 1 TO 2 INCHES.

SHARP'S 2011 DRYLAND PASTURE MIX

SPECIES - VARIETY	LOT #	% OF MIX	PURITY %	GERM %	ORIGIN
PUBESCENT WHEATGRASS, LUNA	BG3266-9	25.00%	94.81%	91.00%	WY
INTERMEDIATE WHEATGRASS, RUSH	BG3237-8	20.00%	98.97%	95.00%	WY
SMOOTH BROME, LINCOLN	YYY-3058	20.00%	94.72%	85.00%	KS
TETRAPLOID PER RYE, FULL THROTTLE	L145-8-P23	15.00%	96.77%	90.00%	OR
ORCHARDGRASS, PROFILE	B1-9-54	15.00%	94.42%	96.00%	OR
BLUEBUNCH WHEATGRASS, SECAR	BG3248-9	5.00%	98.79%	91.00%	WY
		100.00%			

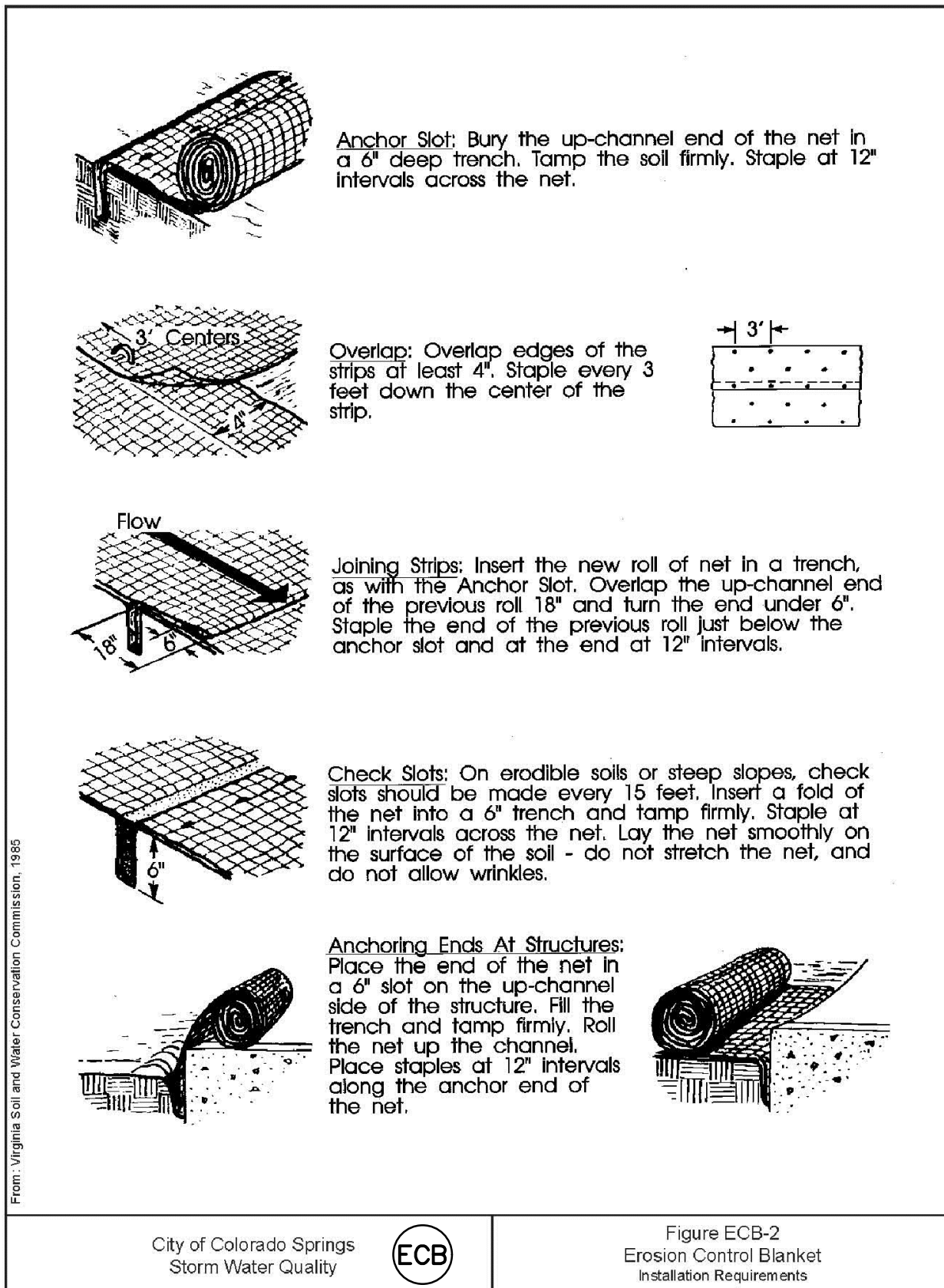


City of Colorado Springs  
Storm Water Quality

ECB

Figure ECB-1  
Erosion Control Blanket  
Application Examples

DOB1M153722 CS CDR/GECS 10/09



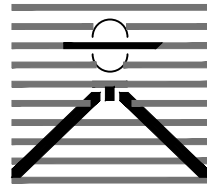
City of Colorado Springs  
Storm Water Quality

ECB

Figure ECB-2  
Erosion Control Blanket  
Installation Requirements

DOB1M153722 CS CDR/GECS 10/09

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OVERLOT GRADING, POND, SR4 & UTILITY  
CONSTRUCTION DRAWINGS FOR

FALCON  
MARKETPLACE  
FALCON, COLORADO

ISSUE

DATE

1ST SUBMITTAL 6-20-17  
RESUBMITTAL 9-6-18

DESIGNED BY: TDM

DRAWN BY: KGV

CHECKED BY: TDM

FILE NAME:



PREPARED UNDER MY DIRECT  
SUPERVISION FOR AND ON BEHALF  
OF DREXEL, BARRELL & CO.

DRAWING SCALE:

HORIZONTAL: N/A

VERTICAL: N/A

EROSION  
CONTROL  
DETAILS

PROJECT NO. 20988-00CSCV

DRAWING NO.

C2.2

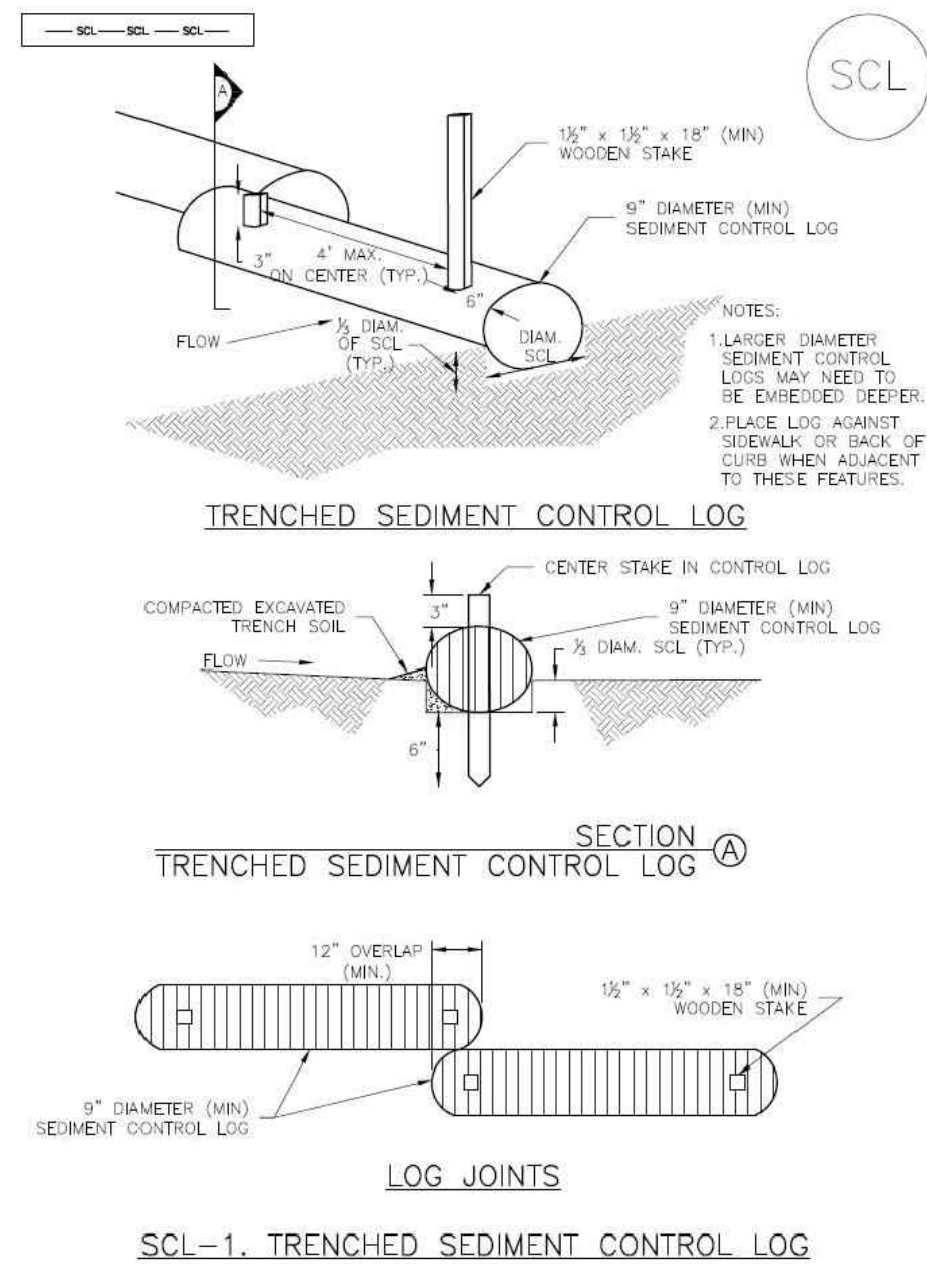
SHEET: 5 OF 27

EL PASO COUNTY FILE NO: SP-17-001  
CDR-16-007



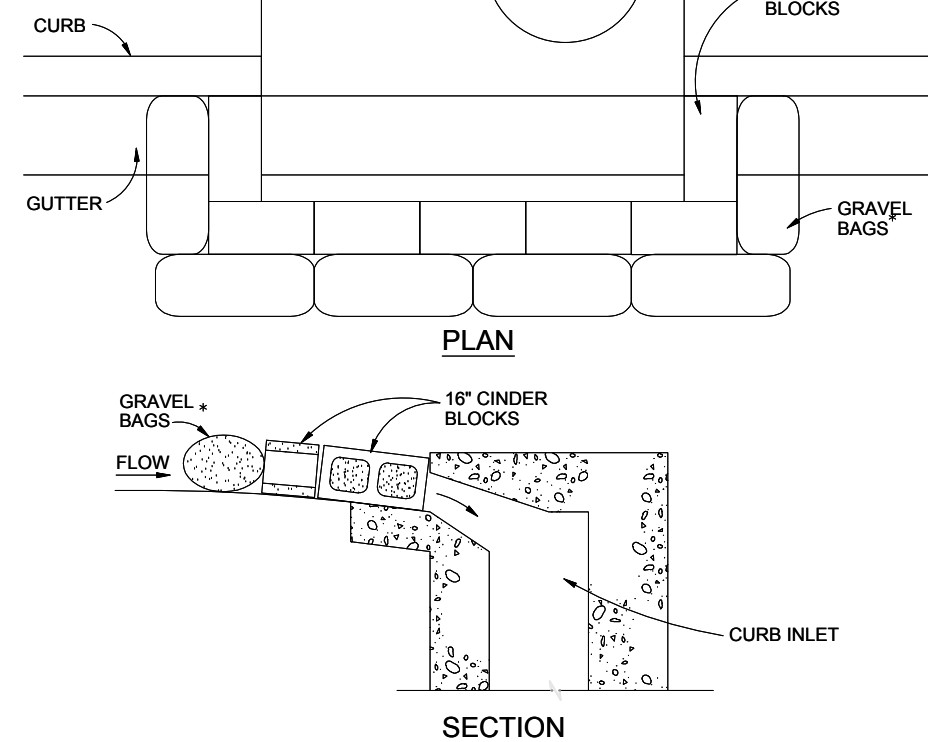
## Sediment Control Log (SCL)

SC-2



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SCL-3



## BLOCK AND GRAVEL BAG CURB INLET PROTECTION

## 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\"/>

## MAINTENANCE REQUIREMENTS

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

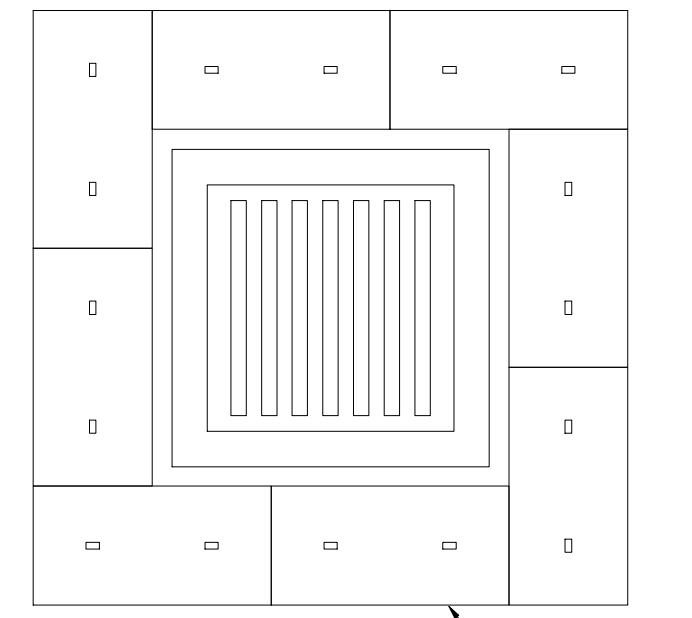
\* AN ALTERNATE 3/4\"/>

City of Colorado Springs  
Stormwater Quality



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

3-27



## STRAW BALE INLET PROTECTION

NTS

## STRAW BALE INLET PROTECTION NOTES

## INSTALLATION REQUIREMENTS

1. INLET PROTECTION SHALL BE INSTALLED IMMEDIATELY AFTER CONSTRUCTION OF INLET.
2. BALES ARE TO BE PLACED IN A SINGLE ROW AROUND THE INLET WITH THE END OF THE BALES TIGHTLY ABUTTING ONE ANOTHER.
3. SEE STRAW BALE BARRIER FIGURE SBB-2 FOR INSTALLATION REQUIREMENTS.

## MAINTENANCE REQUIREMENTS

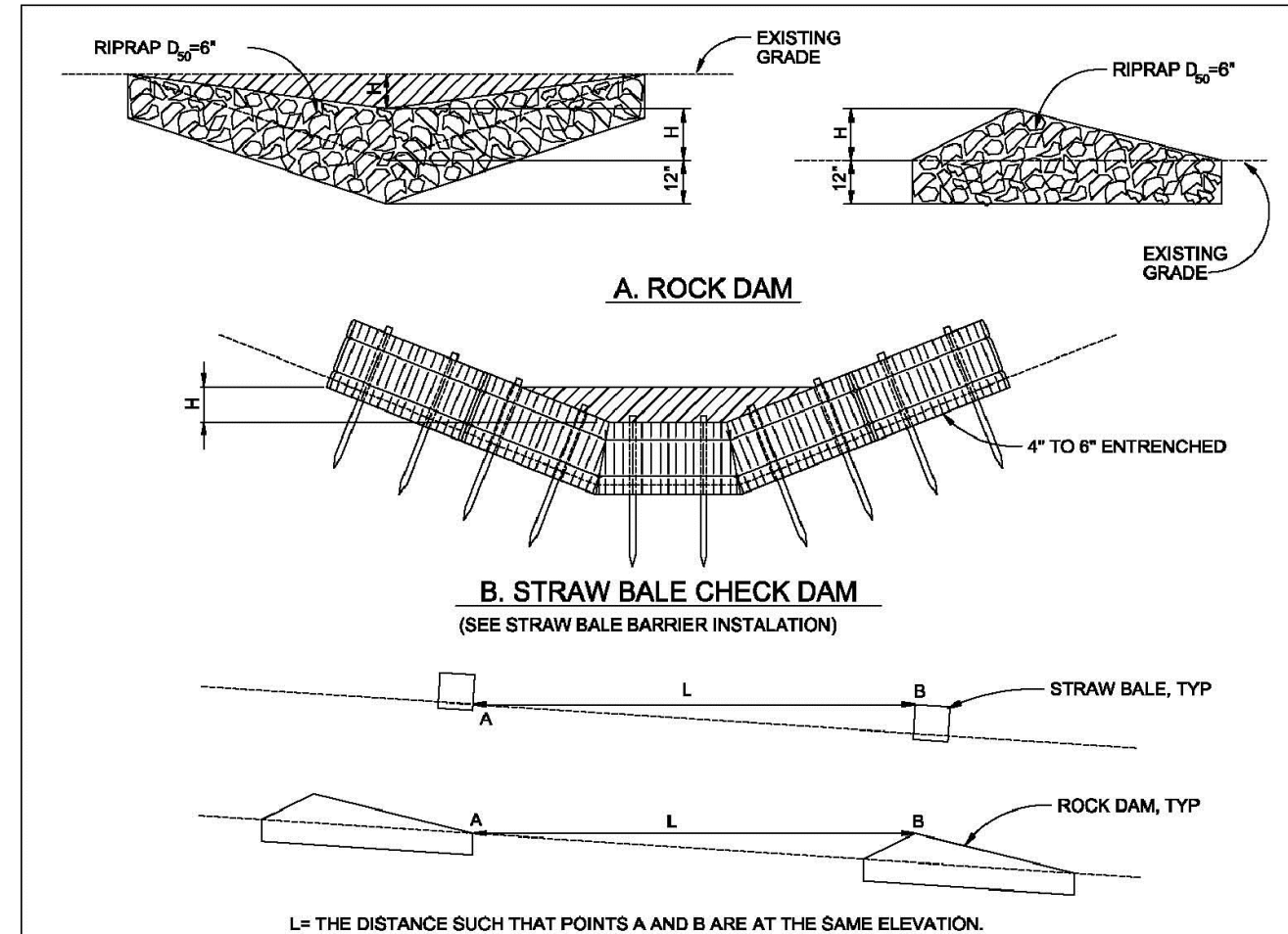
1. CONTRACTOR SHALL INSPECT STRAW BALE INLET PROTECTION IMMEDIATELY AFTER EACH RAINFALL, AT LEAST DAILY DURING PROLONGED RAINFALL, AND WEEKLY DURING PERIODS NO RAINFALL.
2. DAMAGED OR INEFFECTIVE INLET PROTECTION SHALL PROMPTLY BE REPAIRED, REPLACING BALES IF NECESSARY, AND UNREINFORCED BALES NEED TO BE REPAIRED WITH COMPACTED BACKFILL MATERIAL.
3. SEDIMENT SHALL BE REMOVED FROM BEHIND STRAW BALES WHEN IT ACCUMULATES TO APPROXIMATELY 1/3 THE HEIGHT OF THE BARRIER.
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-2  
Straw Bale Inlet Protection  
Construction Detail and Maintenance Requirements

3-26



## CHECK DAM

NTS

## CHECK DAM NOTES

## INSTALLATION REQUIREMENTS

1. STRAW BALES USED AS CHECK DAMS ARE TO MEET THE REQUIREMENTS STATED IN FIGURE SBB-2.
2. THE 1\"/>

## MAINTENANCE REQUIREMENTS

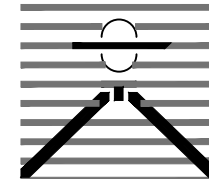
1. REGULAR INSPECTIONS ARE TO BE MADE OF ALL CHECK DAMS, ESPECIALLY AFTER STORM EVENTS.
2. REPLACE STONE AS NECESSARY TO MAINTAIN THE CORRECT HEIGHT OF THE DAM.
3. ACCUMULATED SEDIMENT AND DEBRIS IS TO BE REMOVED FROM BEHIND THE DAMS AFTER EACH STORM OR WHEN 1/2 OF THE ORIGINAL HEIGHT OF THE DAM IS REACHED.
4. CHECK DAMS ARE TO REMAIN IN PLACE AND OPERATIONAL UNTIL THE DRAINAGE AREA AND CHANNEL ARE PERMANENTLY STABILIZED.
5. WHEN CHECK DAMS ARE REMOVED THE CHANNEL LINING OR VEGETATION IS TO BE RESTORED.

City of Colorado Springs  
Stormwater Quality

Figure CD-1  
Check Dam  
Construction Detail and Maintenance Requirements

3-20

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COLORADO SPGS, COLORADO 80905  
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OVERLOT GRADING, POND SR4 & UTILITY  
CONSTRUCTION DRAWINGS FOR

FALCON  
MARKETPLACE  
FALCON, COLORADO

ISSUE

DATE

1ST SUBMITTAL 6-20-17  
RESUBMITTAL 9-6-18

DESIGNED BY:

TDM

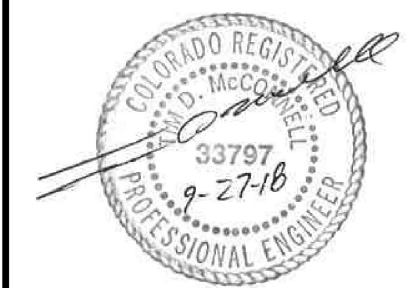
DRAWN BY:

KGV

CHECKED BY:

TDM

FILE NAME:



PREPARED UNDER MY DIRECT  
SUPERVISION FOR AND ON BEHALF  
OF DREXEL, BARRELL & CO.

DRAWING SCALE:

HORIZONTAL: N/A

VERTICAL: N/A

EROSION  
CONTROL  
DETAILS

PROJECT NO. 20988-00CSCV

DRAWING NO.

C2.3

SHEET: 6 OF 27

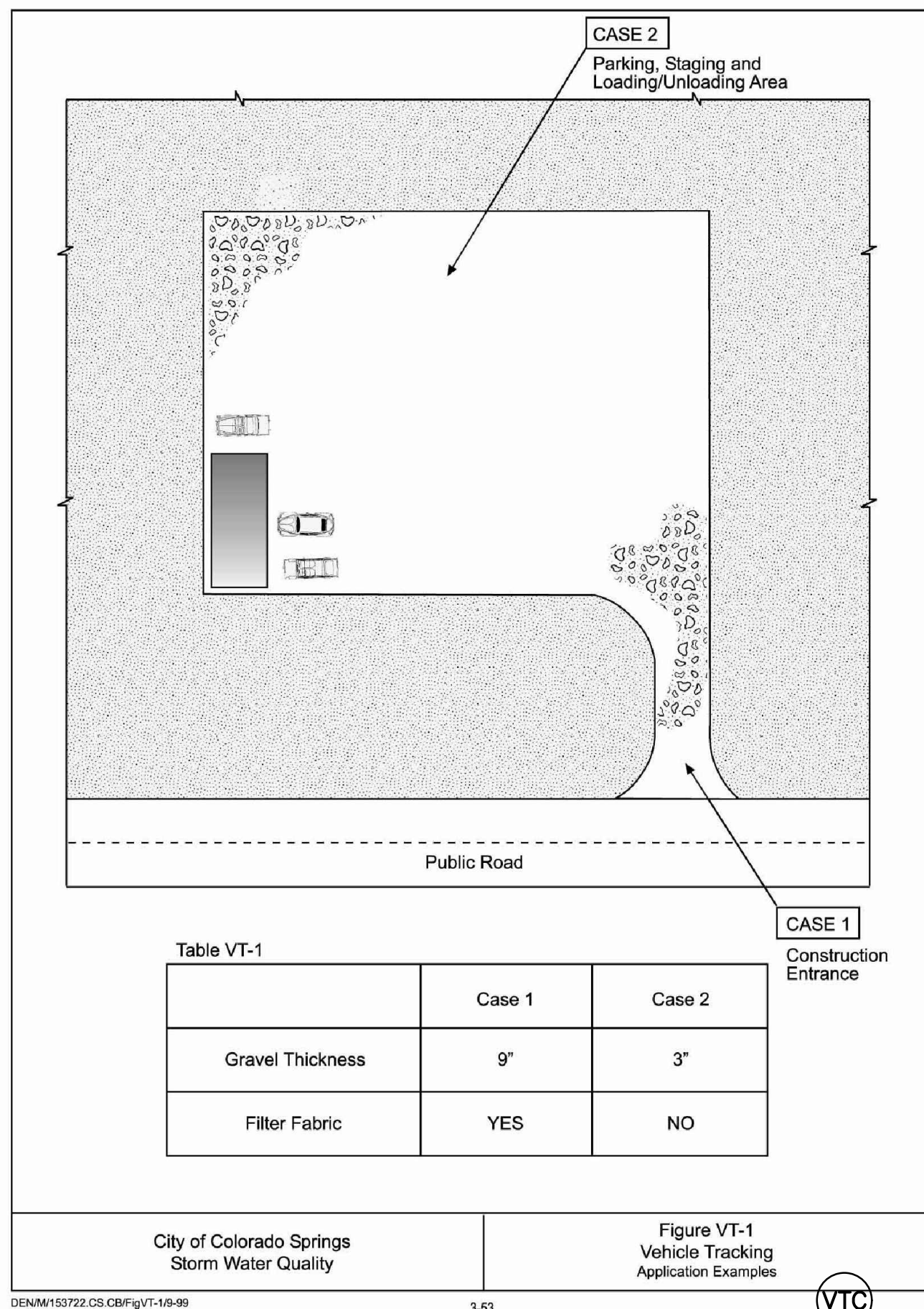


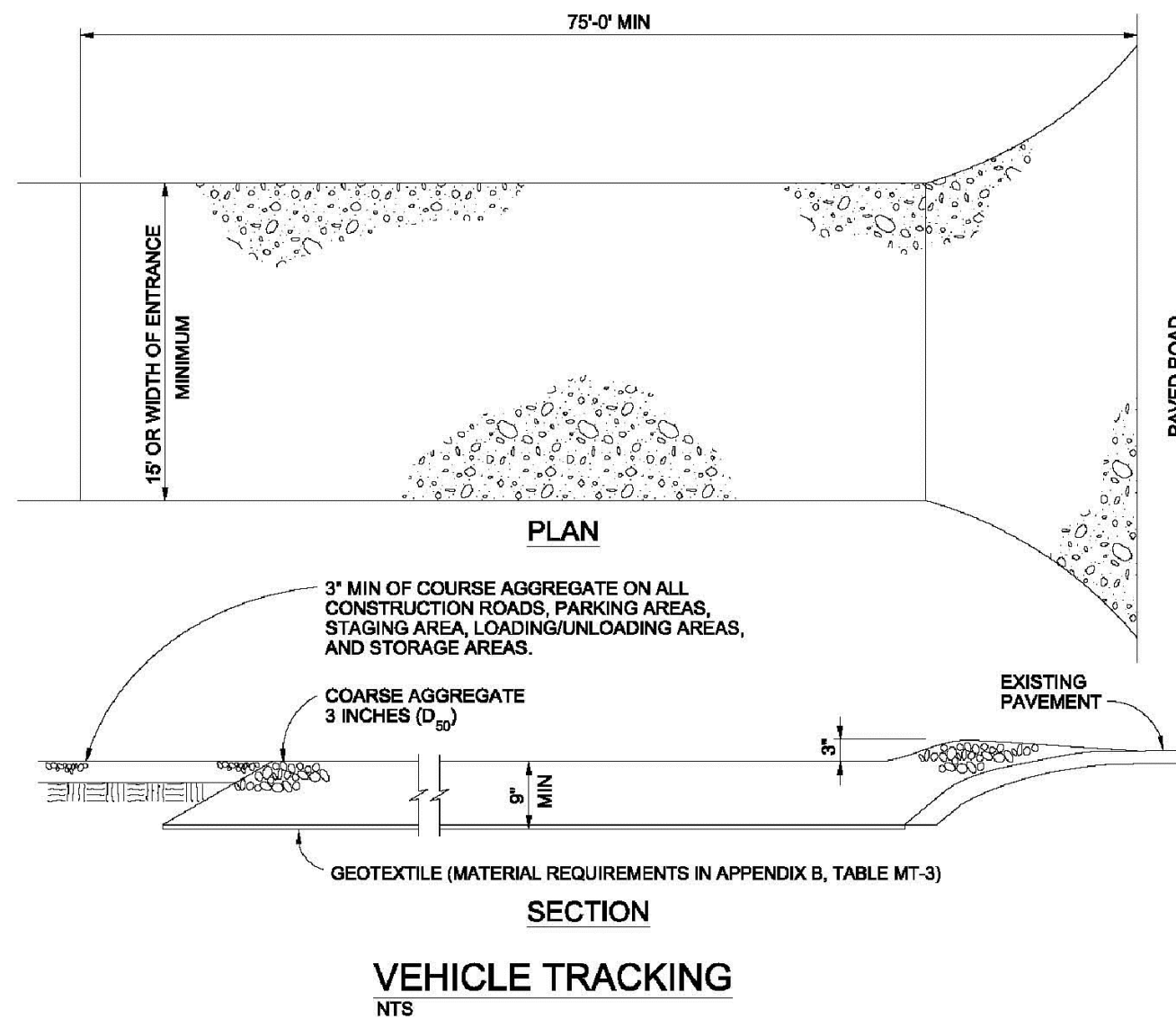
Table VT-1

	Case 1	Case 2
Gravel Thickness	9"	3"
Filter Fabric	YES	NO

City of Colorado Springs  
Storm Water Quality

Figure VT-1  
Vehicle Tracking  
Application Examples

3-53



## VEHICLE TRACKING

NTS

## VEHICLE TRACKING NOTES

## INSTALLATION REQUIREMENTS

1. ALL ENTRANCES TO THE CONSTRUCTION SITE ARE TO BE STABILIZED PRIOR TO CONSTRUCTION BEGINNING.
2. CONSTRUCTION ENTRANCES ARE TO BE BUILT WITH AN APRON TO ALLOW FOR TURNING TRAFFIC, BUT SHOULD NOT BE BUILT OVER EXISTING PAVEMENT EXCEPT FOR A SLIGHT OVERLAP.
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4. CONSTRUCTION ROADS, PARKING AREAS, LOADING/UNLOADING ZONES, STORAGE AREAS, AND STAGING AREAS ARE TO BE STABILIZED.
5. CONSTRUCTION ROADS ARE TO BE BUILT TO CONFORM TO SITE GRADES, BUT SHOULD NOT HAVE SIDE SLOPES OR ROAD GRADES THAT ARE EXCESSIVELY STEEP.

## MAINTENANCE REQUIREMENTS

1. REGULAR INSPECTIONS ARE TO BE MADE OF ALL STABILIZED AREAS, ESPECIALLY AFTER STORM EVENTS.
2. STONES ARE TO BE REPLACED PERIODICALLY AND WHEN REPAIR IS NECESSARY.
3. SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED DAILY BY SHOVELING OR SWEEPING. SEDIMENT IS NOT TO BE WASHED DOWN STORM SEWER DRAINS.
4. STORM SEWER INLET PROTECTION IS TO BE IN PLACE, INSPECTED, AND CLEANED IF NECESSARY.
5. OTHER ASSOCIATED SEDIMENT CONTROL MEASURES ARE TO BE INSPECTED TO ENSURE GOOD WORKING CONDITION.

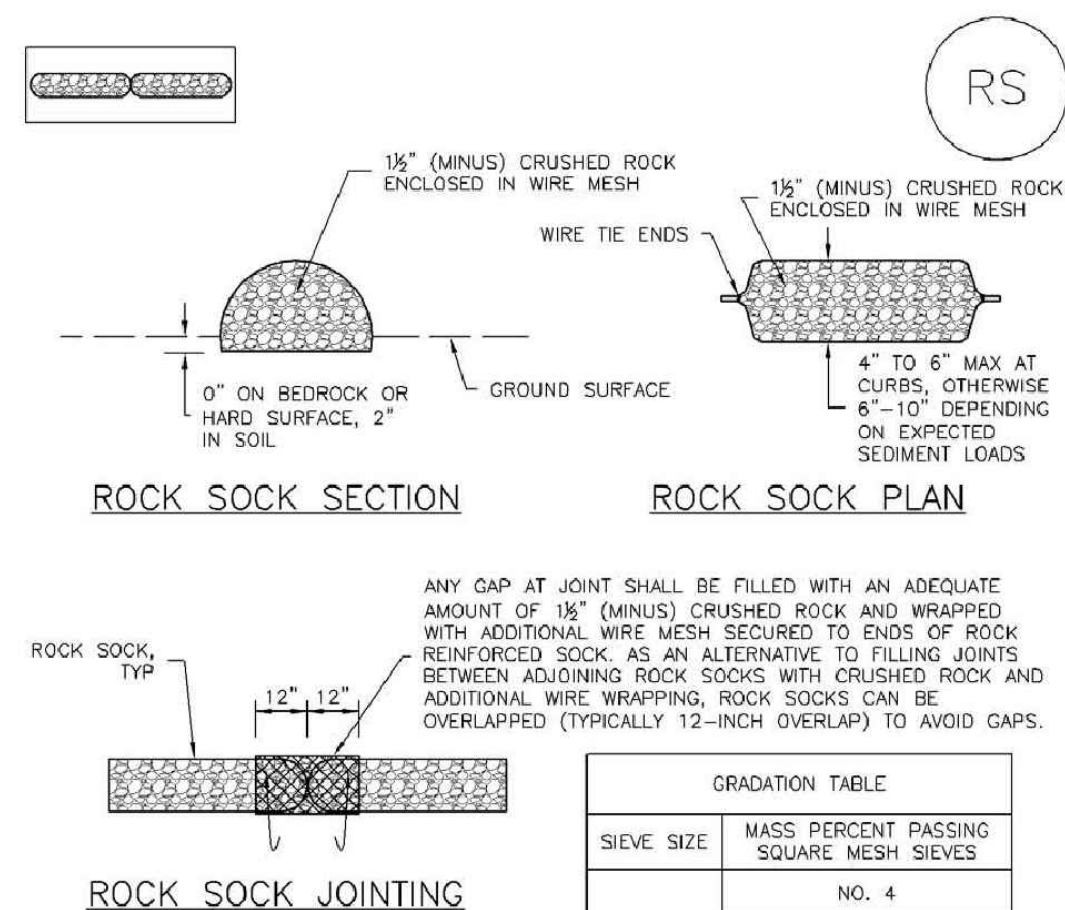
City of Colorado Springs  
Stormwater Quality

Figure VT-2  
Vehicle Tracking  
Application Examples



SC-5

Rock Sock (RS)



## ROCK SOCK SECTION

## ROCK SOCK PLAN

## ROCK SOCK JOINTING

## ROCK SOCK INSTALLATION NOTES

1. SEE PLAN VIEW FOR:  
-LOCATION(S) OF ROCK SOCKS.
2. CRUSHED ROCK SHALL BE 1/2\"/>
3. WIRE MESH SHALL BE FABRICATED OF 1/2\"/>
4. WIRE MESH SHALL BE SECURED USING \"HOG RINGS\" OR WIRE TIES AT 6\" CENTERS ALONG ALL JOINTS AND AT 2\" CENTERS ON ENDS OF SOCKS.
5. SOME MUNICIPALITIES MAY ALLOW THE USE OF FILTER FABRIC AS AN ALTERNATIVE TO WIRE MESH FOR THE ROCK ENCLOSURE.

## RS-1. ROCK SOCK PERIMETER CONTROL

RS-2

Urban Drainage and Flood Control District  
Urban Storm Drainage Criteria Manual Volume 3

November 2010

Rock Sock (RS)

SC-5

## ROCK SOCK 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.
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3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. ROCK SOCKS SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED, OR DAMAGED BEYOND REPAIR.
5. SEDIMENT ACCUMULATED UPSTREAM OF ROCK SOCKS SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP. TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 1/2 OF THE HEIGHT OF THE ROCK SOCK.
6. ROCK SOCKS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
7. WHEN ROCK SOCKS ARE 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, 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.

NOTE: THE DETAILS INCLUDED WITH THIS FACT SHEET SHOW COMMONLY USED, CONVENTIONAL METHODS OF ROCK SOCK INSTALLATION IN THE DENVER METROPOLITAN AREA. THERE ARE MANY OTHER SIMILAR PROPRIETARY PRODUCTS ON THE MARKET. UDFCD NEITHER ENDORSES NOR DISCOURAGES USE OF PROPRIETARY PROTECTION PRODUCTS; HOWEVER, IN THE EVENT PROPRIETARY METHODS ARE USED, THE APPROPRIATE DETAIL FROM THE MANUFACTURER MUST BE INCLUDED IN THE SWMP AND THE BMP MUST BE INSTALLED AND MAINTAINED AS SHOWN IN THE MANUFACTURER'S DETAILS.

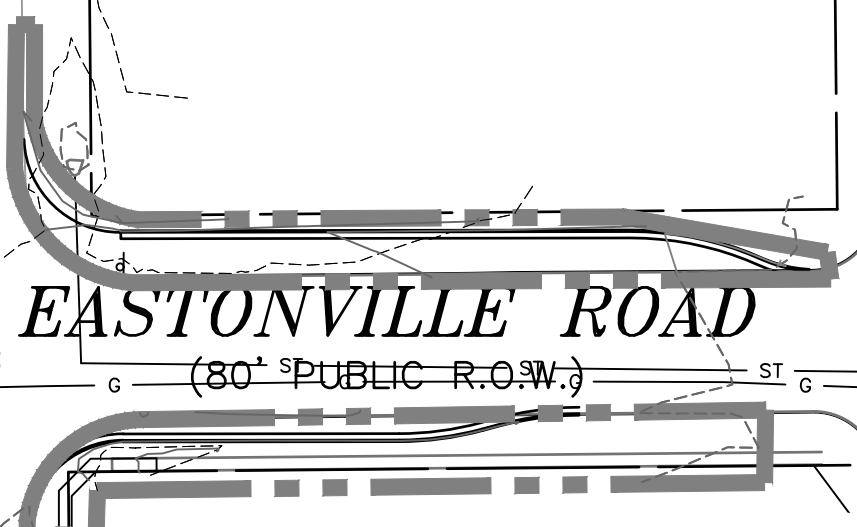
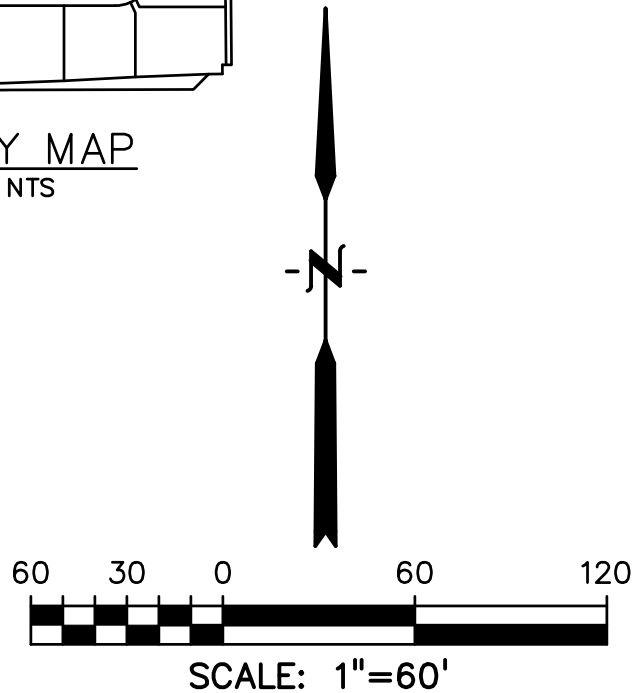
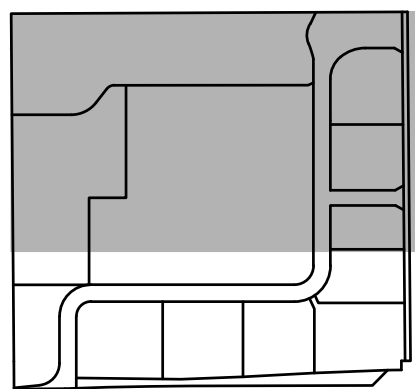
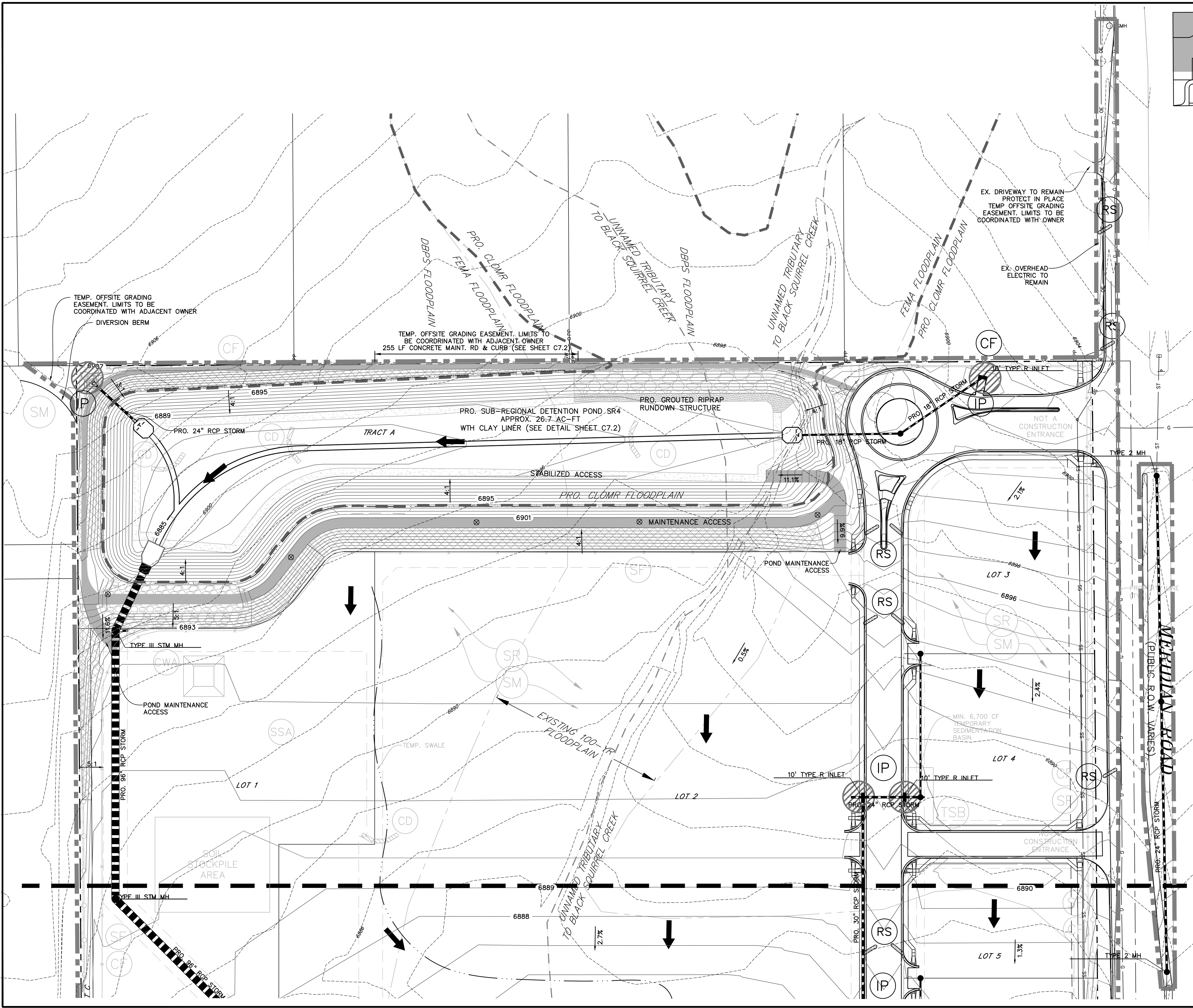
November 2010

Urban Drainage and Flood Control District  
Urban Storm Drainage Criteria Manual Volume 3

RS-3


EL PASO COUNTY FILE NO: SP-17-001  
CDR-16-007





LEGEND	
PROPERTY LINE.....	---
PROPOSED INTERMEDIATE CONTOUR.....	---
PROPOSED INDEX CONTOUR.....	6245
EX. INTERMEDIATE CONTOUR.....	---
EX. INDEX CONTOUR.....	6245
LIMITS OF DISTURBANCE.....	---
PROPOSED STORM SEWER.....	---
PROPOSED STORM INLET.....	IP
EX. OVERHEAD ELECTRIC.....	OE
EX. SANITARY SEWER.....	SS
EX. PETROLEUM.....	UP
EX. GAS.....	G
EX. RAW WATER.....	RW
EX. WATER.....	W
EX. STORM SEWER.....	ST
EMBANKMENT MONITOR.....	⊗
DIRECTION OF FLOW.....	→
SILT FENCE SEE DETAIL 3/C4.2	SF
CONSTRUCTION FENCE.....	CF
VEHICLE TRACKING CONTROL SEE DETAIL 5/C4.2	VTC
EROSION CONTROL BLANKET (FOR AREAS WITH SLOPE > 3:1)	ECB
STRAW BALE CHECK DAM.....	CD
CONCRETE WASHOUT AREA.....	CWA
SURFACE ROUGHENING.....	SR
TEMPORARY SEEDING & MULCHING.....	SM
STABILIZED STAGING AREA.....	SSA
TEMPORARY SEDIMENT BASIN.....	TSB
ROCK SOCKS.....	RS

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CONSTRUCTION DRAWINGS FOR

FALCON  
MARKETPLACE  
FALCON, COLORADO

ISSUE	DATE
90% SUBMITTAL	5-6-19
REVISED	9-12-19
DESIGNED BY:	TDM
DRAWN BY:	KGV
CHECKED BY:	TDM
FILE NAME:	

PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF DREXEL, BARRELL & CO.

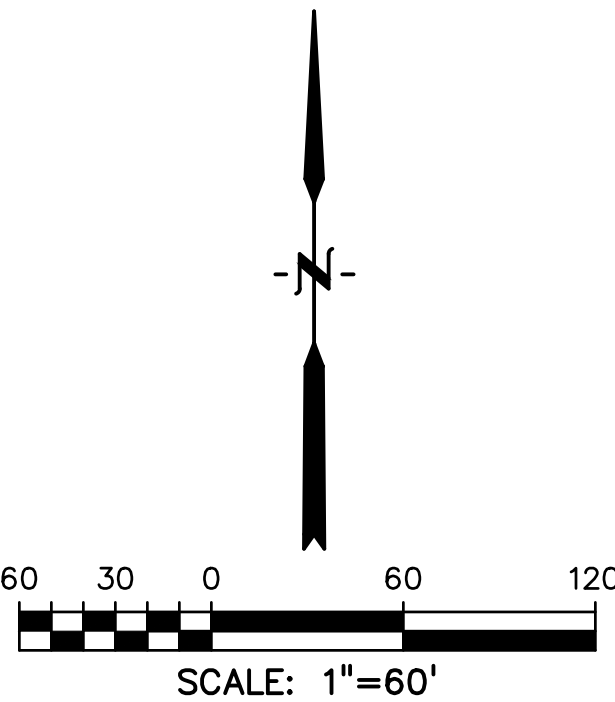
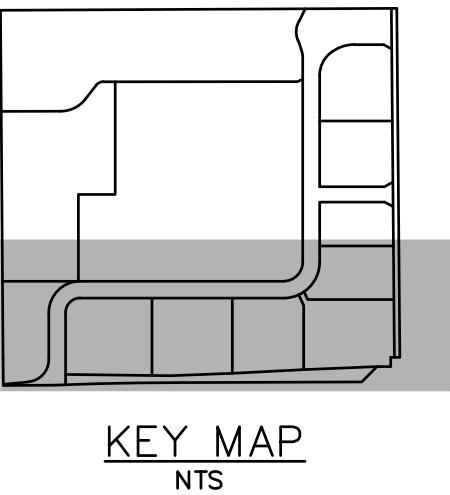
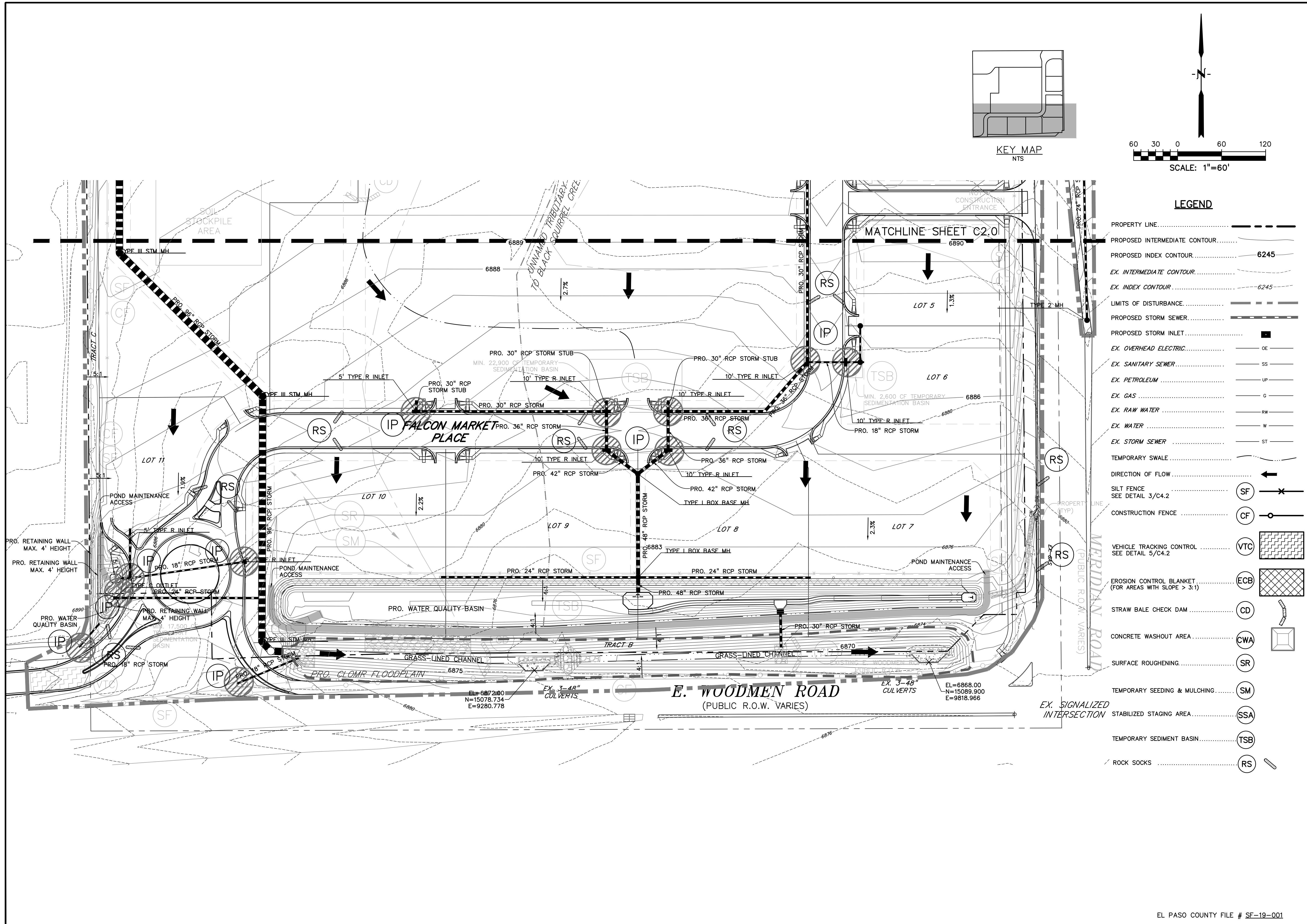
DRAWING SCALE:  
HORIZONTAL: 1"=60'  
VERTICAL: N/A

FINAL GRADING  
& EROSION  
CONTROL PLAN

PROJECT NO. 20988-00CSCV  
DRAWING NO.

C2.10

SHEET: 8 OF 40



LEGEND

- PROPERTY LINE.....
- PROPOSED INTERMEDIATE CONTOUR.....
- PROPOSED INDEX CONTOUR..... 6245
- EX. INTERMEDIATE CONTOUR.....
- EX. INDEX CONTOUR..... 6245
- LIMITS OF DISTURBANCE.....
- PROPOSED STORM SEWER.....
- PROPOSED STORM INLET.....
- EX. OVERHEAD ELECTRIC..... OE
- EX. SANITARY SEWER..... SS
- EX. PETROLEUM..... UP
- EX. GAS..... G
- EX. RAW WATER..... RW
- EX. WATER..... W
- EX. STORM SEWER..... ST
- TEMPORARY SWALE.....
- DIRECTION OF FLOW.....
- SILT FENCE SEE DETAIL 3/C4.2..... SF
- CONSTRUCTION FENCE..... CF
- VEHICLE TRACKING CONTROL SEE DETAIL 5/C4.2..... VTC
- EROSION CONTROL BLANKET (FOR AREAS WITH SLOPE > 3:1)..... ECB
- STRAW BALE CHECK DAM..... CD
- CONCRETE WASHOUT AREA..... CWA
- SURFACE ROUGHENING..... SR
- TEMPORARY SEEDING & MULCHING..... SM
- STABILIZED STAGING AREA..... SSA
- TEMPORARY SEDIMENT BASIN..... TSB
- ROCK SOCKS..... RS

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CONSTRUCTION DRAWINGS FOR

**FALCON MARKETPLACE**  
FALCON, COLORADO

ISSUE	DATE
90% SUBMITTAL	5-6-19
REVISED	9-12-19
DESIGNED BY:	TDM
DRAWN BY:	KGV
CHECKED BY:	TDM
FILE NAME:	

PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF DREXEL, BARRELL & CO.

DRAWING SCALE:  
HORIZONTAL: 1"=60'  
VERTICAL: N/A

**FINAL GRADING & EROSION CONTROL PLAN**

PROJECT NO. 20988-00CSCV  
DRAWING NO.

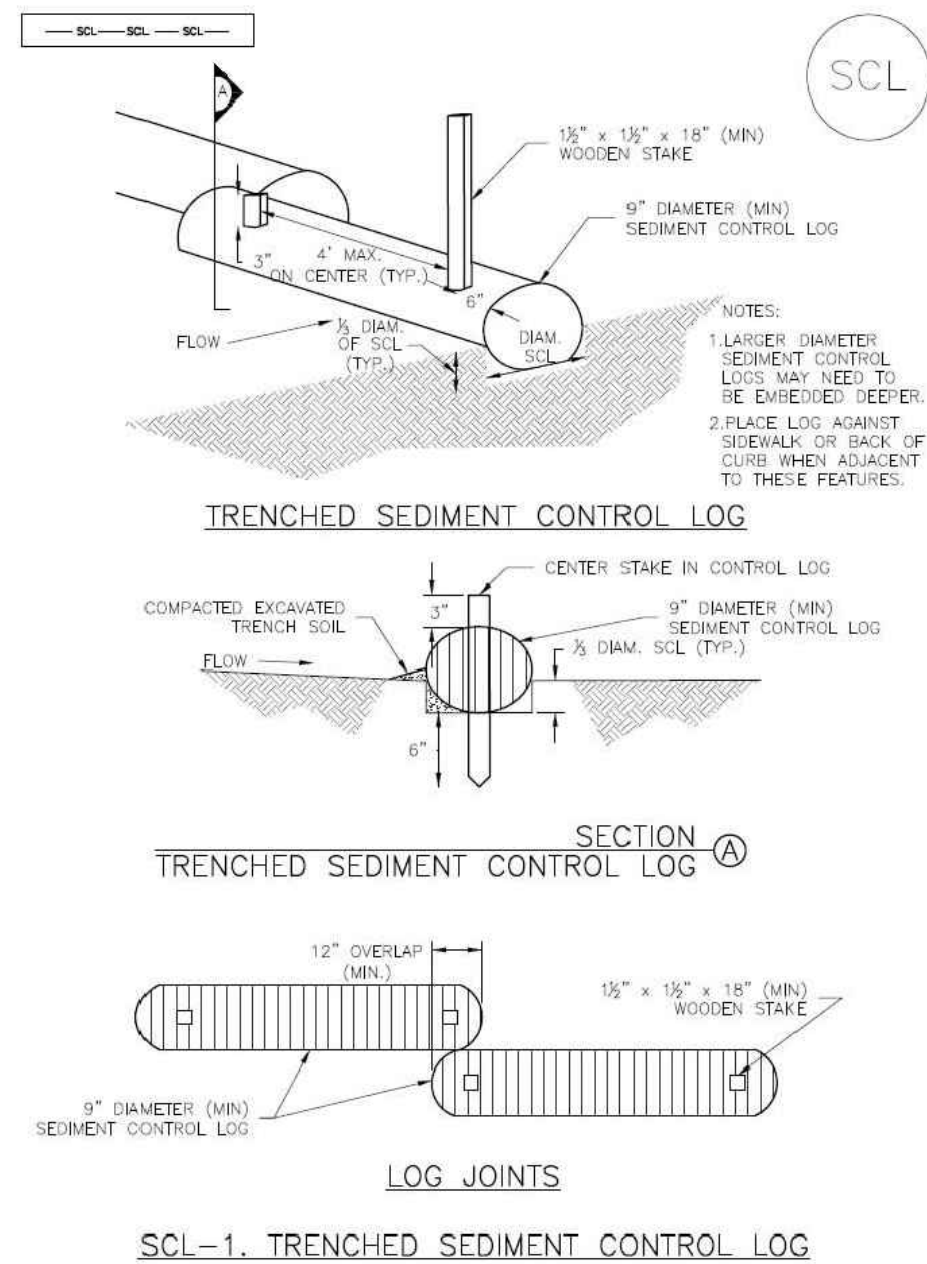
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SHEET: 9 OF 40



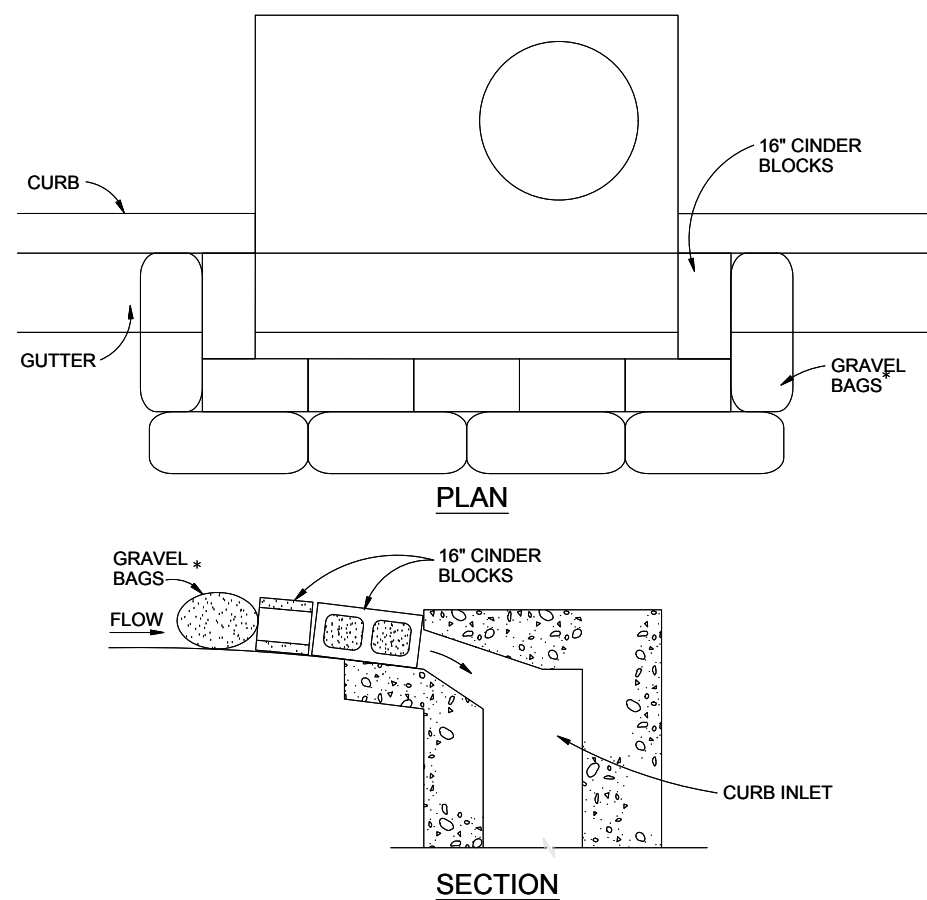
## Sediment Control Log (SCL)

SC-2



November 2015 Urban Drainage and Flood Control District  
Urban Storm Drainage Criteria Manual Volume 3

SCL-3



## BLOCK AND GRAVEL BAG CURB INLET PROTECTION

## 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.

## 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.

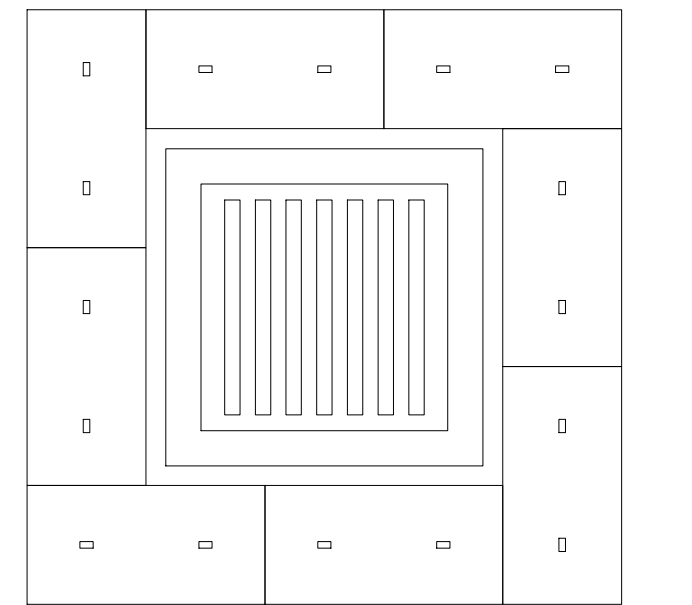
\* AN ALTERNATE 3/4" TO 1" GRAVEL FILTER OVER A WIRE SCREEN MAY BE USED IN PLACE OF GRAVEL BAGS. THE WIRE MESH SHALL EXTEND ABOVE THE TOP OF THE CONCRETE BLOCKS AND THE GRAVEL PLACED OVER THE WIRE SCREEN TO THE TOP OF THE CONCRETE BLOCKS.

City of Colorado Springs  
Stormwater Quality



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

3-27



## STRAW BALE INLET PROTECTION

NTS

## STRAW BALE INLET PROTECTION NOTES

## INSTALLATION REQUIREMENTS

1. INLET PROTECTION SHALL BE INSTALLED IMMEDIATELY AFTER CONSTRUCTION OF INLET.
2. BALES ARE TO BE PLACED IN A SINGLE ROW AROUND THE INLET WITH THE END OF THE BALES TIGHTLY ABUTTING ONE ANOTHER.
3. SEE STRAW BALE BARRIER FIGURE SBB-2 FOR INSTALLATION REQUIREMENTS.

## MAINTENANCE REQUIREMENTS

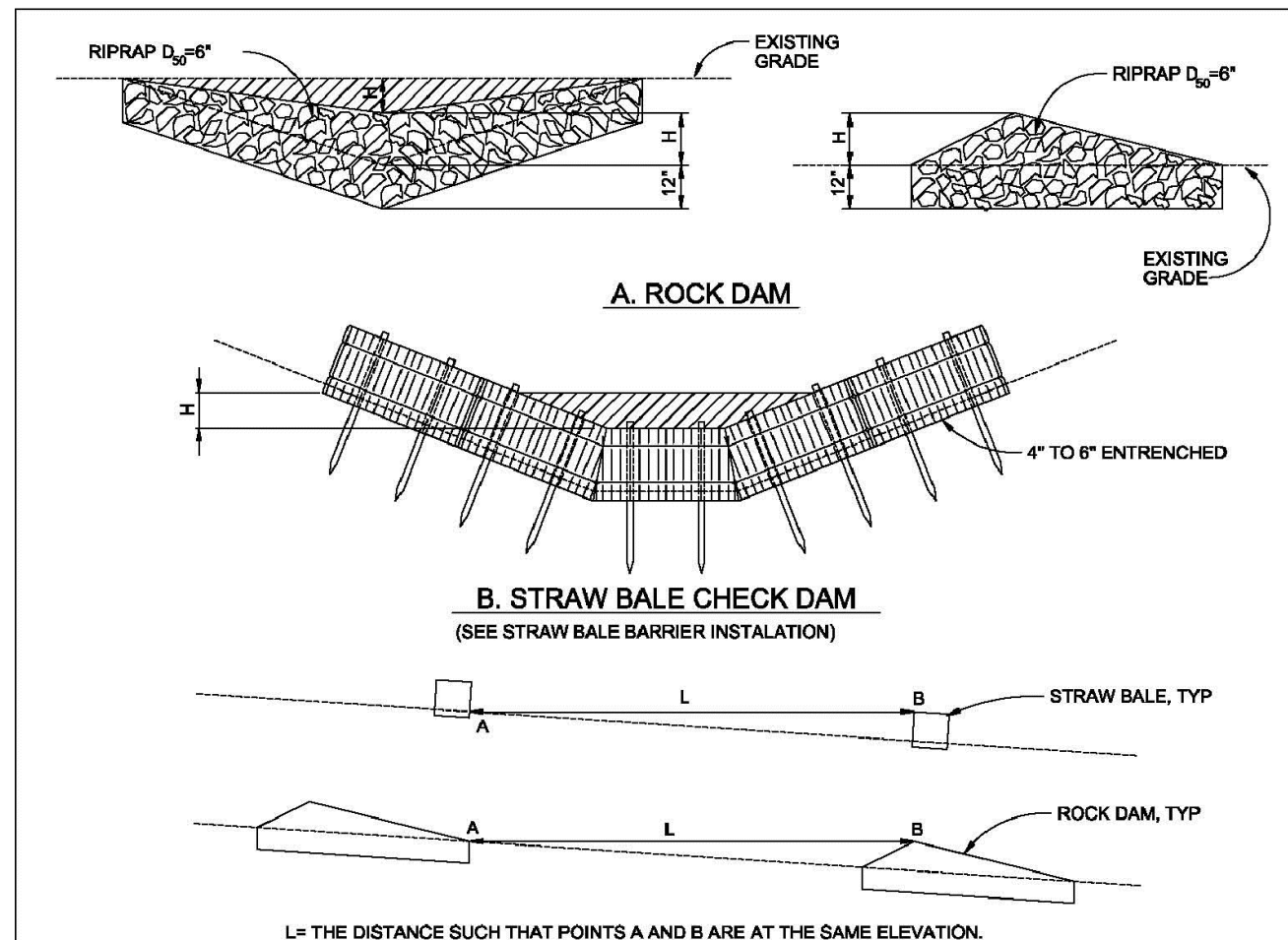
1. CONTRACTOR SHALL INSPECT STRAW BALE INLET PROTECTION IMMEDIATELY AFTER EACH RAINFALL, AT LEAST DAILY DURING PROLONGED RAINFALL, AND WEEKLY DURING PERIODS NO RAINFALL.
2. DAMAGED OR INEFFECTIVE INLET PROTECTION SHALL PROMPTLY BE REPAIRED, REPLACING BALES IF NECESSARY, AND UNENTRENCHED BALES NEED TO BE REPAIRED WITH COMPACTED BACKFILL MATERIAL.
3. SEDIMENT SHALL BE REMOVED FROM BEHIND STRAW BALES WHEN IT ACCUMULATES TO APPROXIMATELY 1/3 THE HEIGHT OF THE BARRIER.
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-2  
Straw Bale Inlet Protection  
Construction Detail and Maintenance  
Requirements

3-26



## CHECK DAM

NTS

## CHECK DAM NOTES

## INSTALLATION REQUIREMENTS

1. STRAW BALES USED AS CHECK DAMS ARE TO MEET THE REQUIREMENTS STATED IN FIGURE SBB-2.
2. THE 14" DIMENSION SHALL BE SELECTED TO PROVIDE WEIR FLOW CONVEYANCE FOR 2-YEAR FLOW OR GREATER.

## MAINTENANCE REQUIREMENTS

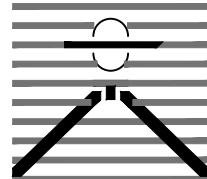
1. REGULAR INSPECTIONS ARE TO BE MADE OF ALL CHECK DAMS, ESPECIALLY AFTER STORM EVENTS.
2. REPLACE STONE AS NECESSARY TO MAINTAIN THE CORRECT HEIGHT OF THE DAM.
3. ACCUMULATED SEDIMENT AND DEBRIS IS TO BE REMOVED FROM BEHIND THE DAMS AFTER EACH STORM OR WHEN 1/2 OF THE ORIGINAL HEIGHT OF THE DAM IS REACHED.
4. WHEN CHECK DAMS ARE REMOVED THE CHANNEL LINING OR VEGETATION IS TO BE RESTORED.

City of Colorado Springs  
Stormwater Quality

Figure CD-1  
Check Dam  
Construction Detail and Maintenance  
Requirements

3-20

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CONSTRUCTION DRAWINGS FOR

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DRAWING SCALE:

HORIZONTAL: N/A

VERTICAL: N/A

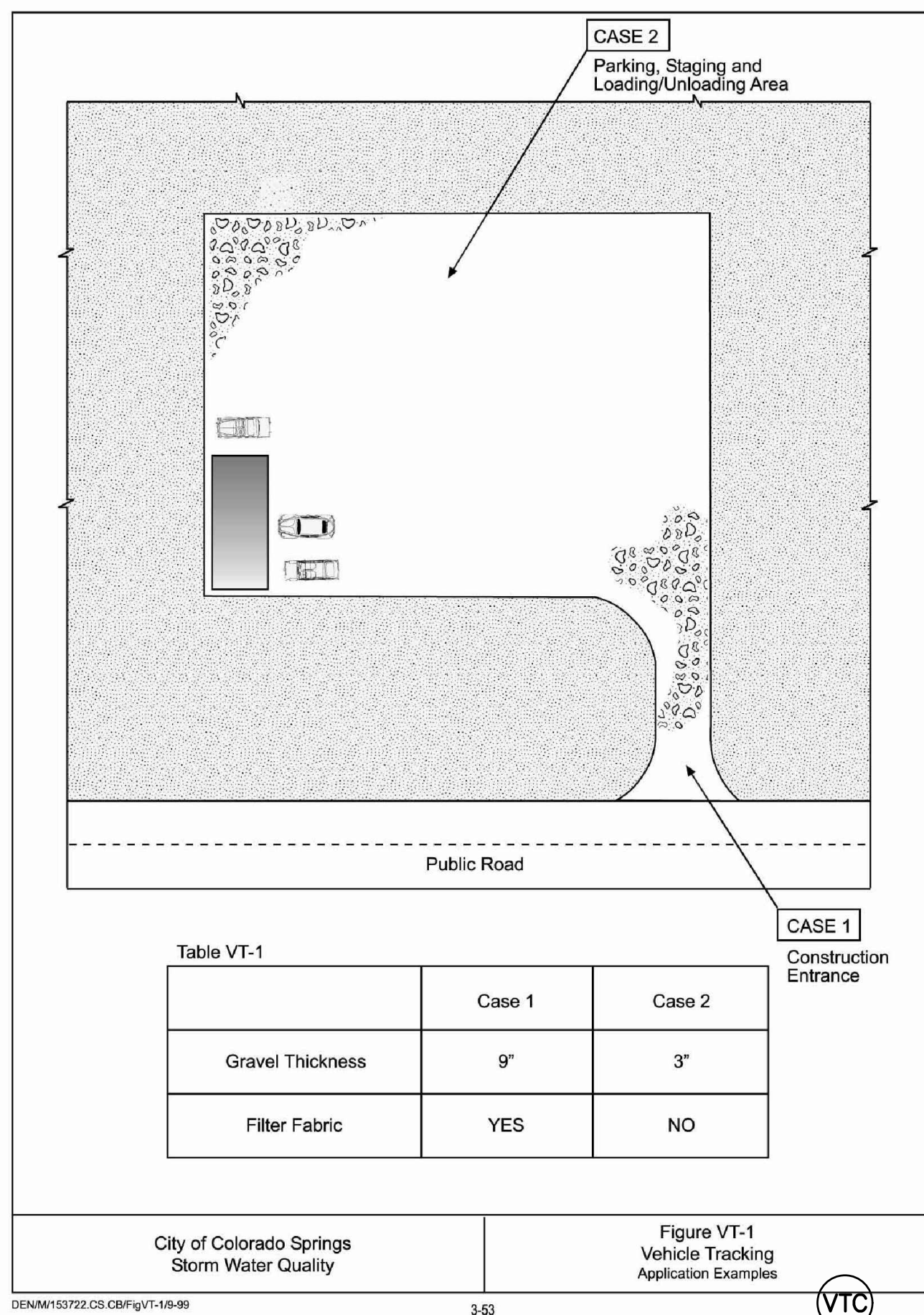
EROSION  
CONTROL  
DETAILS

PROJECT NO. 20988--00SCV

DRAWING NO.

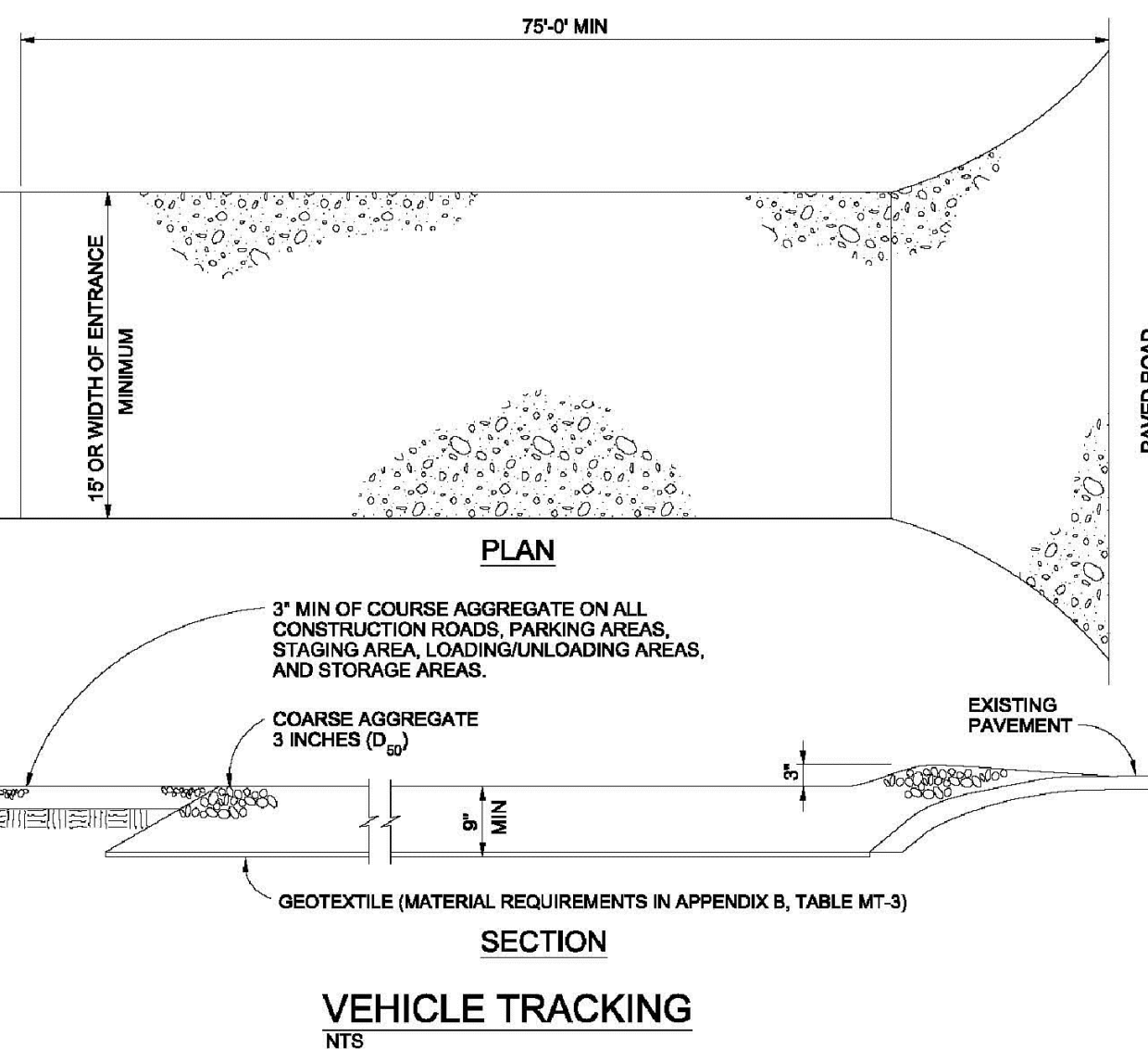
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SHEET: 10 OF 40



DENM151722.CS.CBFG(VT-1)-99

3-53



## VEHICLE TRACKING

NTS

## VEHICLE TRACKING NOTES

## INSTALLATION REQUIREMENTS

1. ALL ENTRANCES TO THE CONSTRUCTION SITE ARE TO BE STABILIZED PRIOR TO CONSTRUCTION BEGINNING.
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3. AREAS TO BE STABILIZED ARE TO BE PROPERLY GRADED AND COMPACTED PRIOR TO LAYING DOWN GEOTEXTILE AND STONE.
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City of Colorado Springs  
Stormwater Quality

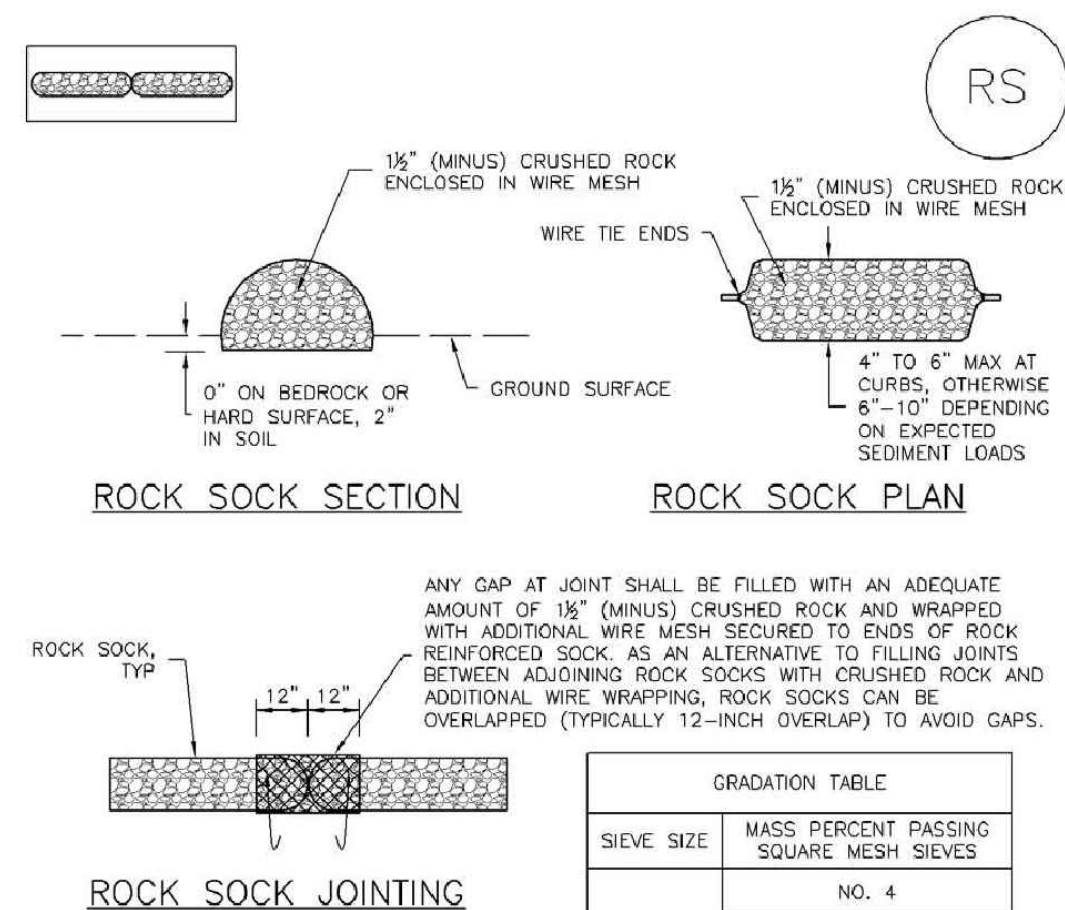


Figure VT-2  
Vehicle Tracking  
Application Examples



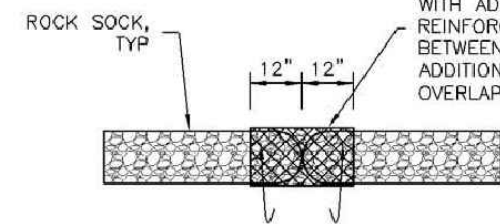
SC-5

Rock Sock (RS)



## ROCK SOCK SECTION

## ROCK SOCK PLAN



## ROCK SOCK JOINTING

## ROCK SOCK INSTALLATION NOTES

1. SEE PLAN VIEW FOR LOCATION(S) OF ROCK SOCKS.
2. CRUSHED ROCK SHALL BE 1 1/2" (MINUS) IN SIZE WITH A FRACTURED FACE (ALL SIDES) AND SHALL COMPLY WITH GRADATION SHOWN ON THIS SHEET (1 1/2" MINUS).
3. WIRE MESH SHALL BE FABRICATED OF 10 GAGE POULTRY MESH, OR EQUIVALENT, WITH A MAXIMUM OPENING OF 1/2"; RECOMMENDED MINIMUM ROLL WIDTH OF 48".
4. WIRE MESH SHALL BE SECURED USING "HOG RINGS" OR WIRE TIES AT 6" CENTERS ALONG ALL JOINTS AND AT 2" CENTERS ON ENDS OF SOCKS.
5. SOME MUNICIPALITIES MAY ALLOW THE USE OF FILTER FABRIC AS AN ALTERNATIVE TO WIRE MESH FOR THE ROCK ENCLOSURE.

## RS-1. ROCK SOCK PERIMETER CONTROL

RS-2

Urban Drainage and Flood Control District  
Urban Storm Drainage Criteria Manual Volume 3

November 2010

Rock Sock (RS)

SC-5

## ROCK SOCK MAINTENANCE NOTES

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2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
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4. ROCK SOCKS SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED, OR DAMAGED BEYOND REPAIR.
5. SEDIMENT ACCUMULATED UPSTREAM OF ROCK SOCKS SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP. TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 1/3 OF THE HEIGHT OF THE ROCK SOCK.
6. ROCK SOCKS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
7. WHEN ROCK SOCKS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEED, AND MULCH, OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAIL ADAPTED FROM TOWN OF PARKER, 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.

NOTE: THE DETAILS INCLUDED WITH THIS FACT SHEET SHOW COMMONLY USED, CONVENTIONAL METHODS OF ROCK SOCK INSTALLATION IN THE DENVER METROPOLITAN AREA. THERE ARE MANY OTHER SIMILAR PROPRIETARY PRODUCTS ON THE MARKET. UDFCD NEITHER ENDORSES NOR DISCOURAGES USE OF PROPRIETARY PROTECTION PRODUCTS. HOWEVER, IN THE EVENT PROPRIETARY METHODS ARE USED, THE APPROPRIATE DETAIL FROM THE MANUFACTURER MUST BE INCLUDED IN THE SWMP AND THE BMP MUST BE INSTALLED AND MAINTAINED AS SHOWN IN THE MANUFACTURER'S DETAILS.

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