Is this SWMP just for Segment 2? Because a separate SWMP for Segment 1 was not submitted to EDARP. If both segments are going to use this same SWMP, update this title accordingly.

Eastonville Road – Londonderry Dr. to Rex Rd.
Segment 2 Improvements
Stationing 47+00.00 – 79+31.62
Stormwater Management Plan (SWMP)
For El Paso County Improvements

January 2024

HR Green Project No: 201662.08

Prepared For:

D.R Horton

Contact: Riley Hillen, P.E

9555 S. Kingston Ct.

Englewood, CO 80112

SWMP Preparer:

HR Green Development, LLC

Contact: Colleen Monahan, PE, LEED AP

1975 Research Parkway, Suite 230, Colorado Springs, CO 80924

cmonahan@hrgreen.com

(719)-394-2433

SWMP Administrator / Qualified Stormwater Manager/Contractor:

Jordan Montoya

Jordan.montoya@ogcos.com

719-493-2318

Table of Contents

Appendices

▷ PREPARING ENGINEER:

Name: Colleen Monahan, P.E., LEED AP

Company: HR Green Development, LLC

Title: Senior Project Manager

Phone Number: (719) 394-2433

Address: 1975 Research Pkwy, Suite 230 Colorado Springs 80920

▷ PERMITEE:

Name: Riley Hillen, P.E

Company: D.R Horton

Address: 9555 S. Kingston Ct Englewood, CO 80112

▷ DESIGNATOR STORMWATER MANAGER / CONTRACTOR

Contact: Jordan Montoya

Email: Jordan.montoya@ogcos.com

Phone: 719-493-2318

Applicant Certification

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

_____ Date: _____

Engineer of Record and/or Qualified Stormwater Manager

Review Engineer Certification

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

_____ Date: _____

Review Engineer

I. Site Location & Description

Location

Eastonville Road from Londonderry Dr. to Rex Road, referred to as 'the site' herein, is an existing 26' wide temporary pavement road in El Paso County, Colorado. The site lies in the existing 60' wide El Paso County Right-of-Way within Sections 21 and 28, Township 12 South, Range 64 West of the 6th Principal Meridian, in El Paso County, State of Colorado.

Description of Property

The site is approximately 0.69 miles (2.17 acres) of existing temporary pavement roadway north of Londonderry Dr. and south of Rex Road. The existing temporary pavement width for the length of the project is 26' wide. There are 4' wide gravel shoulders and native landscaped swales are located on both sides of the roadway. Offsite stormwater is bypassed under the road through a series of existing culverts. See Appendix A for an existing conditions photo.

The existing roadway has slopes ranging from 0.3% up to about 4%. The general topography of the surrounding area is typical of high desert, short prairie grass with gently rolling hillside with slopes ranging from 2% to 4%. The project site drains generally from the west to the east and is tributary to Black Squirrel Creek.

Per a NRCS soil survey, the site is made up of Type A Columbine gravelly sandy loam, Type A Blakeland loamy sand and Type B Stapleton sandy loam. The NRCS soil survey is presented in Appendix A.

Gieck Ranch Tributary #1 (Channel A) is the only drainageway that traverses the site in the west to east direction through an existing culvert under Eastonville Road. The channel is a mapped wetland and a wetland permit will be required for a part of this Eastonville Road improvement project. Channel A is not within a FEMA floodplain.

Gieck Ranch Tributary #2 is located on the north end of the project site and will not be impacted by this project. There are no known irrigation facilities in the area.

Existing utilities include an underground gas line that runs along the east and western sides of Eastonville, an existing raw water line that follows the west side of Eastonville north of Falcon Regional Park, and an existing aboveground electrical line along the western side of Eastonville Road. An existing drainage map with these facilities is presented in Appendix F.

Neighboring Areas

The site is bound by undeveloped land to the east and west that has historically been used as ranching lands. Falcon Regional Park, which contains ballparks and parking, and Falcon High School also border the site to the west. All lands to the east and west of the site are unplatted. A vicinity map is presented in Appendix A.

Construction Activity

This SWMP Report includes the full scope of the development from the initial early grading phase to the interim/final developed conditions of the fully developed roadway. Approximately 11.22 acres are expected to be disturbed in total. Construction activities include the initial roadway corridor earthwork and overlot grading

with drainage swales and temporary sediment basins to be done during the Early Grading phase. Construction will begin with setting up perimeter controls, followed by grading activities. Construction will be completed with final stabilization including seeding.

Initial control measures will be all control measures installed prior to the start of construction. This will include temporary stabilization measures such as silt fence and vehicular tracking control. Interim control measures will be installed in the middle of construction. This will include temporary stabilization measures such as check dams and erosion control blankets to be utilized to control stormwater runoff. The interim phase of construction includes utility trenching and installation including public and private storm infrastructure, roadway and hardscape paving, construction of the permanent detention ponds, and overlot grading of the lots as shown within the limits of disturbance/construction in the GEC plans. Construction control measures utilized during this phase include a concrete washout, and erosion control blanket for the permanent seeding of the permanent ponds. Final control measures will be installed at the end of construction. This will include control measures such as permanent facilities and permanent seeding and mulching.

Any required offsite construction easements will be obtained prior to disturbance of these areas.

II. Construction Phasing

Phasing and Sequence Schedule

The proposed sequence of major construction activities and Construction Control Measures for the project as are follows:

1. Install VTC, SSA (Summer 2024)
2. Clear, grub and grade site for improvements. Install the initial phase control measures for perimeter control and temporary conditions stormwater diversion including silt fence, diversion ditches, check dams, and the required temporary sediment basins per GEC and Drainage plans. (Summer 2024)
3. Utility and Storm Sewer Installations, Permanent Detention Pond Construction, Roadway Paving. Install and maintain perimeter controls and interim/final phase CCM's. (Summer 2024)
4. Landscaping, restoration and final stabilization. Ensure final stabilization achieved prior to site closure (Fall 2024)

Construction Documentation

Construction drawings are provided with this document showing the Grading and Erosion Control plan for this project and are intended to be a "living" document used by the SWMP Manager to document construction activities.

III. Pre-Development Conditions and Soils

Floodway

Based on FEMA Firm map 08041C0552G December 7, 2018, the site is not located in any FEMA designated floodplain. See FEMA Firm Map in Appendix A. There is a Zone A floodplain north of the site and a Zone AE south of the site, both of which will not be altered with the associated Eastonville Road improvements.

Existing Vegetation

Existing vegetation and soils were determined from in-person field site visits and existing aerial inspection from Google Earth and the United States Department of Agriculture Natural Resources Conservation Service (NRCS) Web Soil Survey. The site currently contains vegetation consists primarily of native grasses and weeds. Existing vegetation is estimated at 70% density by visual inspection during the in-person field site visit.

Existing Drainage Patterns

The site is located in the Gieck Ranch Drainage Basin which is a 22.05 square mile watershed located in El Paso County, Colorado. Gieck Ranch Drainage Basin is tributary to Black Squirrel Creek which drains to the Arkansas River. Stormwater from the site flows generally to the east towards a Gieck Ranch tributary through existing culverts and swales that run along the west side of Eastonville Road. There are no stream crossings located within the construction boundary.

Existing Slopes

The existing roadway has slopes ranging from 0.3% up to about 4%. The general topography of the surrounding area is typical of high desert, short prairie grass with gently rolling hillside with slopes ranging from 2% to 4%. The project site drains generally from the west to the east and is tributary to Black Squirrel Creek.

Soils

Per a NRCS soil survey, the site is made up of Type A Columbine gravelly sandy loam, Type A Blakeland loamy sand and Type B Stapleton sandy loam. The NRCS soil survey is presented in Appendix A.

The existing soil types have a slight potential for erosion which can be mitigated by employing appropriate downstream construction BMPs before/during/after construction to limit potential impacts to stormwater discharges. The potential impacts are sediment discharge into the existing stormwater conveyance system.

IV. Description of Potential Pollutants

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

Potential pollutants and sources other than sediment to stormwater runoff include trash, debris, fueling and equipment failure. Materials of significance stored on the project site include: sediment, trash & debris, fuels and oils.

Construction activities can produce a variety of pollutants that can potentially cause stormwater contamination. Grading activities remove rocks, vegetation and other erosion controlling surfaces and can result in the exposure of underlying soil to the elements, which can then be displaced into water sources.

Wind and erosion and vehicular transport can produce sediment debris.

Allowable Non-Stormwater Discharge Management

Non-stormwater discharges (NSWDs) are flows that do not consist entirely of stormwater. Some allowable discharges that are not considered pollutants include irrigation, fire hydrant flushing, landscape watering, emergency firefighting, and natural springs. There are no visible natural springs or irrigation sources anticipated to be encountered. Other discharges, such as those pollutants discussed below, are unauthorized and will need to be detected and addressed through a combination of efforts discussed in the following sections.

Potential Sources of Pollution and Best Management Strategies

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. This Project Site does not rely on control measures owned or operated by another entity. 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
- 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:

- Construct a stabilized construction entrance to provide ingress and egress of the site.
- Restrict access to the stabilized construction entrance.
- 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/Import/Export

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.
- Portable facilities will be located a minimum of 50 feet from state waters. They shall be adequately staked and cleaned on a weekly basis. They will be inspected daily for spills.
- 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 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.

V. Areas and Volumes

The site consists of 11.22 acres. These numbers are adjusted using a fill factor of 1.1.

The Cut Quantity: 15,272 c.y.

The Fill Quantity: 37,223 c.y.

Net: 21,951 c.y. fill. <unadjusted for pavement depth>

Net: 17,087 c.y. fill. <adjusted for 6" of pavement>

Note: The total disturbed area shall be updated on the SWMP and GEC Plan as changes occur.

VI. Inspection and Maintenance

Inspection and maintenance procedures were taken from the Urban Storm Drainage Criteria Manual, Volume 3. All measures are detailed in the SWMP plans with additional inspection and maintenance notes.

Minimize Disturbed Area and Protect Natural Features and Soil

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

Concrete Washout Area:

A key consideration for concrete washout areas is to ensure that adequate signage is in place identifying the location of the washout area. Part of inspecting and maintaining washout areas is ensuring that adequate signage is provided and in good repair and that the washout area is being used, as opposed to washout in non-designated areas of the site. Remove concrete waste in the washout area, as needed to maintain BMP function (typically when filled to about two-thirds of its capacity). Collect concrete waste and deliver offsite to a designated disposal location. Upon termination of use of the washout site, accumulated solid waste, including concrete waste and any contaminated soils, must be removed from the site to prevent on-site disposal of solid waste. If the wash water is allowed to evaporate and the concrete hardens, it may be recycled.

Construction Fence:

- Inspect fences for damage; repair or replace as necessary.
- Fencing should be tight and any areas with slumping or fallen posts should be reinstalled.
- Fencing should be removed once construction is complete.

Inlet Protection:

Inspect inlet protection frequently. Inspection and maintenance guidance includes:

- Inspect for tears that can result in sediment directly entering the inlet, as well as result in the contents of the BMP (e.g., gravel) washing into the inlet.
- Check for improper installation resulting in untreated flows bypassing the BMP and directly entering the inlet or bypassing to an unprotected downstream inlet. For example, silt fence that has not been properly trenched around the inlet can result in flows under the silt fence and directly into the inlet.
- Look for displaced BMPs that are no longer protecting the inlet. Displacement may occur following larger storm events that wash away or reposition the inlet protection. Traffic or equipment may also crush or displace the BMP.
- Monitor sediment accumulation up gradient of the inlet protection.
- Remove sediment accumulation from the area upstream of the inlet protection, as needed to maintain BMP effectiveness, typically when it reaches no more than half the storage capacity of the inlet protection. For silt fence, remove sediment when it accumulates to a depth of no more than 6 inches. Remove sediment accumulation from the area upstream of the inlet protection as needed to maintain the functionality of the BMP.

- Propriety inlet protection devices should be inspected and maintained in accordance with manufacturer specifications. If proprietary inlet insert devices are used, sediment should be removed in a timely manner to prevent devices from breaking and spilling sediment into the storm drain.

Inlet protection must be removed and properly disposed of when the drainage area for the inlet has reached final stabilization.

Temporary Seeding and Mulching:

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

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.

Silt Fence:

Inspection of silt fence includes observing the material for tears or holes and checking for slumping fence and undercut areas bypassing flows. Repair of silt fence typically involves replacing the damaged section with a new section. Sediment accumulated behind silt fence should be removed, as needed to maintain BMP effectiveness, typically before it reaches a depth of 6 inches.

Silt fence may be removed when the upstream area has reached final stabilization.

Stabilized Staging Area:

Maintenance of stabilized staging areas includes maintaining a stable surface cover of gravel, repairing perimeter controls, and following good housekeeping practices.

When construction is complete, debris, unused stockpiles and materials should be recycled or properly disposed. In some cases, this will require disposal of contaminated soil from equipment leaks in an appropriate landfill. Staging areas should then be permanently stabilized with vegetation or other surface cover planned for the development.

Vehicle Tracking Control:

Inspect the area for degradation and replace aggregate or material used for a stabilized entrance/exit as needed. If the area becomes clogged and ponds water, remove and dispose of excess sediment or replace material with a fresh layer of aggregate as necessary.

With aggregate vehicle tracking controls, ensure rock and debris from this area do not enter the public right-of-way.

Remove sediment that is tracked onto the public right of way daily or more frequently as needed. Excess sediment in the roadway indicates that the stabilized construction entrance needs maintenance.

Ensure that drainage ditches at the entrance/exit area remain clear.

A stabilized entrance should be removed only when there is no longer the potential for vehicle tracking to occur. This is typically after the site has been stabilized.

When wheel wash equipment is used, be sure that the wash water is discharged to a sediment trap prior to discharge. Also inspect channels conveying the water from the wash area to the sediment trap and stabilize areas that may be eroding.

When a construction entrance/exit is removed, excess sediment from the aggregate should be removed and disposed of appropriately. The entrance should be promptly stabilized with a permanent surface following removal, typically by paving.

Check Dams:

Straw bales used as check dams are to meet the requirements stated in Figure SBB-2 in the Appendix.

Regular inspections are to be made of all check dams, especially after storm events. Replace stone as necessary to maintain the correct height of the dam. Accumulated sediment and debris is to be removed from behind the dams after each storm or when ½ of the original height of the dams is reached. Check dams are to remain in place and operational until the drainage area and channel are permanently stabilized. When check dams are removed the channel lining or vegetation is to be restored.

Erosion Control Blanket

Erosion Control Blankets are woven blankets made of natural and biodegradable materials placed on disturbed areas and secured to the ground with staples or stakes. The Erosion Control Blanket is used to control erosion, retain sediment resulting from sheet flow, and protect newly seeded areas.

The blankets are installed over uniform surfaces, with no large rocks, vegetation, or rills. Turf reinforcement mats may be used in place of erosion control blankets when specified by the engineer.

The Erosion Control Blanket is installed in disturbed areas after final grading and seeding has completed. The blankets are left in place to biodegrade, or are removed if required by the GEC Inspector.

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

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.

Temporary sediment basin

Maintenance activities include the following:

- Dredge sediment from the basin, as needed to maintain BMP effectiveness, typically when the design storage volume is no more than one-third filled with sediment.
- Inspect the sediment basin embankments for stability and seepage.

- Inspect the inlet and outlet of the basin, repair damage, and remove debris. Remove, clean and replace the gravel around the outlet on a regular basis to remove the accumulated sediment within it and keep the outlet functioning.
- Be aware that removal of a sediment basin may require dewatering and associated permit requirements.
- Do not remove a sediment basin until the upstream area has been stabilized with vegetation.
- Once the upstream area has been stabilized, remove accumulated sediment and reconfigure the basin and outlet to meet the requirements of the final design for the detention facility.

PERMANENT BMP'S:

Pond C provides water quality and full spectrum detention for the northern portion of the site. A total of 0.63 acres at 54% composite imperviousness will be detained. The pond has been sized to provide water quality and detention.

Re-vegetation

During construction any disturbed area not being currently worked left dormant longer than 14 days will be re-vegetated to 70% pre-disturbance density 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.

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

VII. Materials Handling

1. General Materials Handling Practices:
    a. Potential pollutants shall be stored and used in a manner consistent with the manufacturer's instructions in a secure location. To the extent practical, material storage areas should be located away from storm drain inlets and should be equipped with covers, roofs or secondary containment as required to prevent stormwater from contacting stored materials. Chemicals that are not compatible shall be stored in segregated areas so that spill materials cannot combine and react.
    b. Disposal of materials shall be in accordance with the manufacturer's instructions and applicable local, state, and federal regulations.
    c. Materials no longer required for construction shall be removed from the site as soon as possible.
    d. Adequate garbage, construction waste, and sanitary waste handling and disposal facilities shall be provided as necessary to keep the site clear of obstruction and Control Measures clear and functional.
2. Specific Materials Handling Practices:
    a. All pollutants, including waste materials and demolition debris, that occur onsite during construction shall be handled in a way that does not contaminate stormwater.

b. All chemicals including liquid products, petroleum products, water treatment chemicals, and wastes stored onsite shall be covered and protected from vandalism.
c. Maintenance, fueling, and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, degreasing operation, fuel tank drain down and removal, and other activities which may result in the accidental release of contaminants, shall be conducted under cover during wet weather and on an impervious surface to prevent release of contaminants onto the ground. Materials spilled during maintenance operations shall be cleaned up immediately and properly disposed of.
d. Wheel wash water shall be settled and discharged onsite by infiltration.
e. Application of agricultural chemicals, including fertilizers and pesticides, shall be conducted in a manner and at application rates that will not result in loss of chemical to stormwater runoff. Follow manufacturer's recommendations for application rates and procedures.
f. pH-modifying sources shall be managed to prevent contamination of runoff and stormwater collected onsite. The most common sources of pH-modifying materials are bulk cement, cement kiln dust (CKD), fly ash, new concrete washing and curing waters, waste streams generated from concrete grinding and sawing, exposed aggregate processes, and concrete pumping and mixer washout waters.

VIII. Spill Prevention & Response Plan

1. The primary objective in responding to a spill is to quickly contain the material and prevent or minimize their mitigation into stormwater runoff and conveyance systems. If the release has impacted onsite stormwater, it is critical to contain the released materials onsite and prevent their release into receiving waters.
2. Spill Response Procedures:
    a. Notify site superintendent immediately when a spill, or the threat of a spill, is observed. The superintendent shall assess the situation and determine the appropriate response.
    b. If spills represent an imminent threat of escaping onsite facilities and entering the receiving waters, site personnel shall respond immediately to contain the release and notify the superintendent once the situation has stabilized.
    c. The site superintendent shall be responsible for completing a spill reporting form and for reporting the spill to the appropriate agency.
    d. Spill response equipment shall be inspected and maintained as necessary to replace any materials used in spill response activities.
3. Spill kits shall be on-hand at all fueling sites. Spill kit locations shall be reported to the GEC administrator.
4. Absorbent materials shall be on-hand at all fueling areas for use in containing advertent spills. Containers shall be on-hand at all fueling sites for disposal of used absorbents.
5. Recommended components of spill kits include the following:
    a. Oil absorbent pads
    b. Oil absorbent booms
    c. 55-gallon drums
    d. 9-mil plastic bags
    e. Personal protective equipment including gloves and goggles

6. Concrete wash water: unless confined in a pre-defined, bermed containment area, the cleaning of concrete truck delivery chutes is prohibited at the job site.
7. Notification procedures:
    a. In the event of an accident or spill, the GEC administrator shall be notified.
    b. Depending on the nature of the spill and material involved, the Colorado Department of Public Health and Environment, downstream water users, or other agencies may also need to be notified.
    c. Any spill of oil which 1) violates water quality standards, 2) produces a “sheen” on a surface water, or 3) causes a sludge or emulsion, or any hazardous substance release, or hazardous waste release which exceeds the reportable quantity, must be reported immediately by telephone to the National Response Center Hotline at (800) 424-8802.

IX. Implementation of Control Measures

Stormwater control measures must be installed according to Mile High Flood District and City of Colorado Springs design specifications, presented in Appendix C, and the approved Grading and Erosion Control plan this report supports. Within the context of this SWMP’s construction activities the following control measures, at a minimum, are required:

- Perimeter Silt Fence
- Vehicle Tracking Control
- Stabilized Staging Area
- Rock Check Dams
- Erosion Control Blanket
- Seeding & Mulching
- Stockpile Protection
- Construction Fencing
- Inlet Protection
- Culvert Inlet Protection

Additional control measures may be required at the discretion of the County Stormwater Inspector.

X. Final Stabilization & Long-Term Stormwater Management Plan

1. Temporary seeding and mulching will be installed to provide interim stabilization prior to final landscaping installation (Refer to approved Landscape Plan). Final stabilization will be achieved at time of final landscaping. See approved landscaping plans for final stabilization details. Final stabilization is met when 70% of pre disturbance levels, not including noxious weeds, are stabilized. Final stabilization must be achieved prior to removal of temporary stormwater control measures. Anticipated date of final stabilization is Spring 2024; however this is subject to change. Long term stormwater management will be provided in the onsite, private full spectrum detention ponds. See below for seeding and mulching details:
    a. Prior to seeding, fill any eroded rills and gullies with topsoil.
    b. Ensure all areas are seeded and mulched per the City Stormwater Construction Manual.
    c. Continue monthly self-inspections of final stabilization methods and the stormwater management system to ensure proper function. If repairs are needed, reseed and re-mulch as needed.

d. Control noxious weeds in a manner acceptable to the GEC inspector.
e. Seed Mix: See Appendix C for approved seed mixes.
f. Seeding Requirements:
    i. Drill seed whenever possible, seed depth must be 1/3 to ½ inch when drill-seeding. Cross drilling should be used whenever possible with the seed divided between the two operations. The second drilling should be perpendicular to the first.
    ii. When drill seeding is not possible or on slopes greater than 3:1, hydro-seeding with tackifier may be substituted at the discretion of the GEC inspector. Hydro-seeding must be lightly raked into soil. Seeding rates are presented in Appendix D.
    iii. All seeded areas must be mulched.
g. Mulching Requirements:
    i. Mulching shall be completed as soon as practical after seeding but no more than fourteen (14) days after planting. Erosion control blanket can be used in place of the below mulching methods.
    ii. Hay or straw mulch:
        1. Only certified weed-free and certified-seed free mulch may be used. Must be applied at 2 tons/acre and adequately secured.
        2. Crimping shall not be used no slopes greater than 3:1, tackifier must be used in place.
    iii. Hydraulic mulching:
        1. Allowable on steep slopes or areas with limited access
        2. If hydro-seeding is used, mulching must be applied secondly.
        3. Wood cellulose fibers mixed with water must be applied at a rate of 2,000-2,500 lbs/acre, and tackifier applied at a rate of 100 lbs/acre.

XI. Inspection and Record Keeping

The SWMP is a "living document" that is continuously reviewed and modified and is to be kept on-site. The GEC Administrator 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.

Self-inspections of the Construction Control Measures must be completed by the certified SWMP Administrator who is sufficiently qualified for the required duties per the El Paso County ECM Appendix 1.5. The below provides the minimum to satisfy the self-inspection requirements. A more frequent self-inspection schedule may be required to ensure Control Measures are operating in compliance with the approved GEC plan.

1. Inspection Schedules:
    a. The GEC Administrator shall make a thorough inspection of the Control Measures:
        i. At least once every fourteen (14) calendar days.
        ii. Within 24 hours following any precipitation event (i.e. rain, snow, hail etc.) that causes surface erosion.
            - Alternatively, the GEC Administrator can perform a thorough inspection of the Control Measures once every seven (7) days and forego post-precipitation inspections.

b. For sites where construction activities have completed and final stabilization measures installed but final stabilization has not yet been achieved, the GEC Administrator shall make a thorough inspection of the Control Measures:
    i. At least once every month
    ii. Within 72 hours following any precipitation event that causes surface erosion

2. Inspection Procedures:
    a. Site Inspection & Observation Items:
        i. Limits of disturbance perimeter and stormwater discharge points
        ii. All disturbed areas to ensure necessary Construction Control Measures are in place to control potential stormwater runoff.
        iii. Areas used for material/waste storage.
        iv. Any areas having a signification potential for storm water pollution (i.e site entrances, concrete washout areas etc.)
        v. All Construction Control Measures identified on the GEC plans.
    b. Inspection Requirements:
        i. Determine any locations, or potential locations, where pollutants and stormwater may be exiting the site/entering the receiving waters.
        ii. Evaluate Construction Control measures and determine if they are constructed in accordance with the latest revision of the approved GEC plan and operating effectively.
        iii. Provide recommendations for the need of additional Construction Control measures and the maintenance of existing measures in disrepair to ensure complication with the City of Colorado Springs Stormwater Construction Manual.
    c. Construction Control Measure Maintenance/Replacement:
        i. The GEC administrator shall ensure sediment has been removed from perimeter controls and relocated to an area without the potential for sediment to discharge from the site
        ii. The GEC administrator shall ensure diversion ditches and temporary sediment ponds have not accumulated excess sediment that impedes their functionality.
        iii. The GEC administrator shall ensure that failed Control Measures are repaired/reinstalled within three (3) calendar days, according to the City of Colorado Springs Stormwater Control Measure details, to ensure pollutants and/or sediment do not discharge from the site. GEC details are provided in Appendix B.
    d. Documentation:
        i. Update the GEC plan to document the installation/revision of Control Measures
        ii. Identify Control Measure deficiencies and that noncompliance is resolved within three (3) calendar days.
        iii. Identify Self-Inspection schedule in most recent inspection form. Inspection form to be provided by contractor/QSM and/or the CO State Inspection Form can be used as a go-by for Self-Monitoring Inspections or used directly. Form will be added to SWMP at a later date.
        iv. Complete and submit Self-Inspection forms to the City of Colorado Springs within five (5) business days of the completed inspection
        v. Ensure Self-Inspections are available, either physically or electronically, throughout the duration of the project
        vi. Self-Inspection Repost shall contain at least the following:

- Inspection Date
- Name, title, and signature of the GEC Administrator performing inspection
- Location(s) of illicit discharges of stormwater, sediment or pollutants from the site
- Location(s) of Construction Control Measures in need of maintenance/repair
- Location(s) of Construction Control Measures that failed to operate as designed or proved inadequate
- Location(s) of additional Construction Control Measures not shown on the latest, approved revision of the GEC plan
- Any deviations from the minimum inspection schedule

SWMP Administrator Name: Jordan Montoya

Jordan.montoya@ogcos.com

719-493-2318

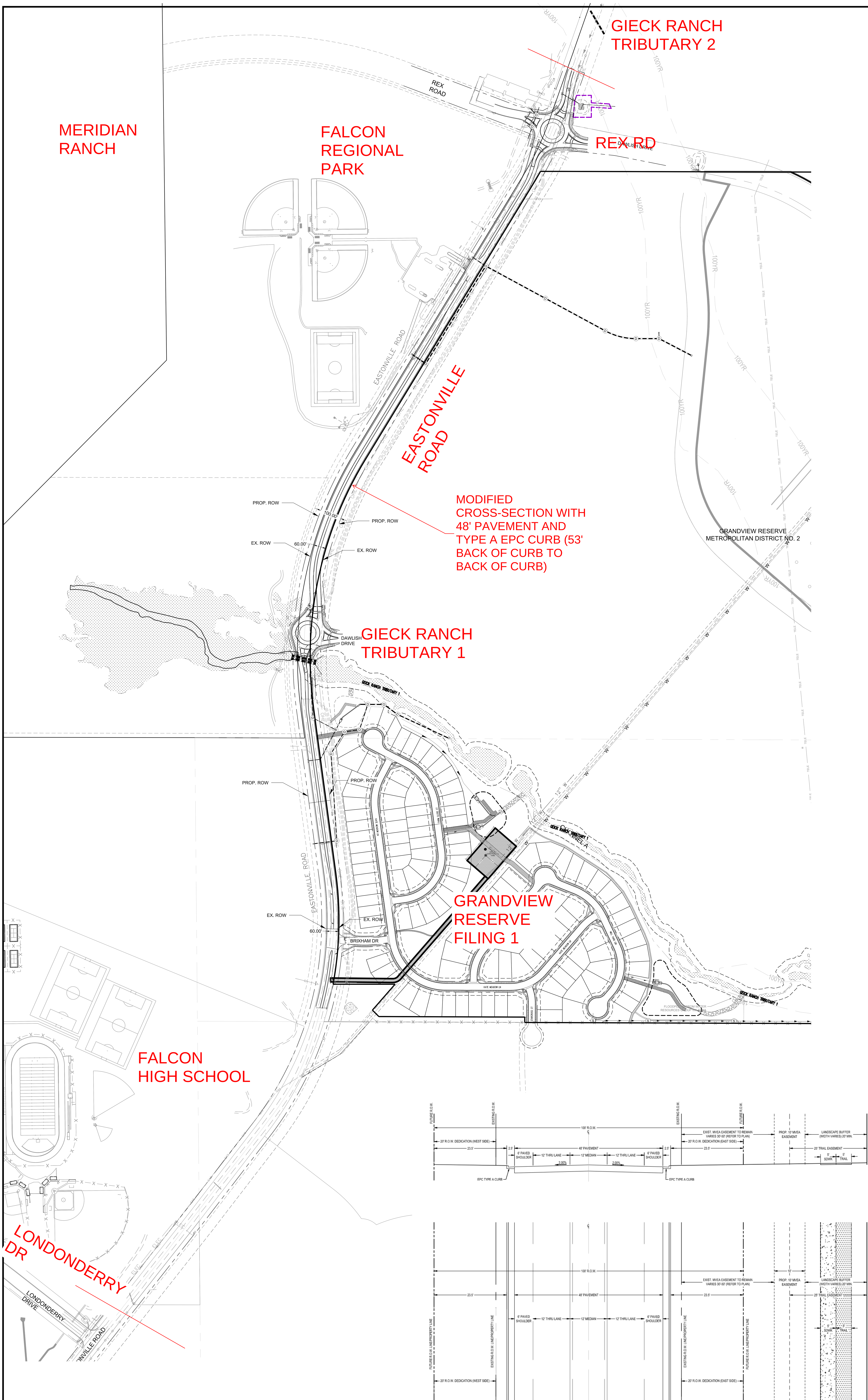
XII. References

Engineering Criteria Manual (ECM), County of EL PASO, COLORADO

The City of Colorado Springs/El Paso County Drainage Criteria Manual

City of Colorado Springs – Stormwater Construction Manual, December 2020

APPENDIX A – VICINITY MAP & NRCS SOIL SURVEY



EASTONVILLE RD ULTIMATE CROSS SECTION
(MINOR ARTERIAL)
SCALE: N.T.S.
*TRAIL AND SIDEWALK TO MEANDER WITHIN TRAIL EASEMENT

NORTH
0 75 150

VICINITY MAP
N.T.S.

DRAWN BY: CPM	JOB DATE: 8/29/2023	BAR IS ONE INCH ON OFFICIAL DRAWINGS. 0 1" IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.	
APPROVED:	JOB NUMBER: 201662.08		
CAD DATE: 8/29/2023			
CAD FILE: J:\2020\201662.08\CAD\Dwgs\Exhibits\-Overall-Exhibit			

NO.	DATE	BY	REVISION DESCRIPTION

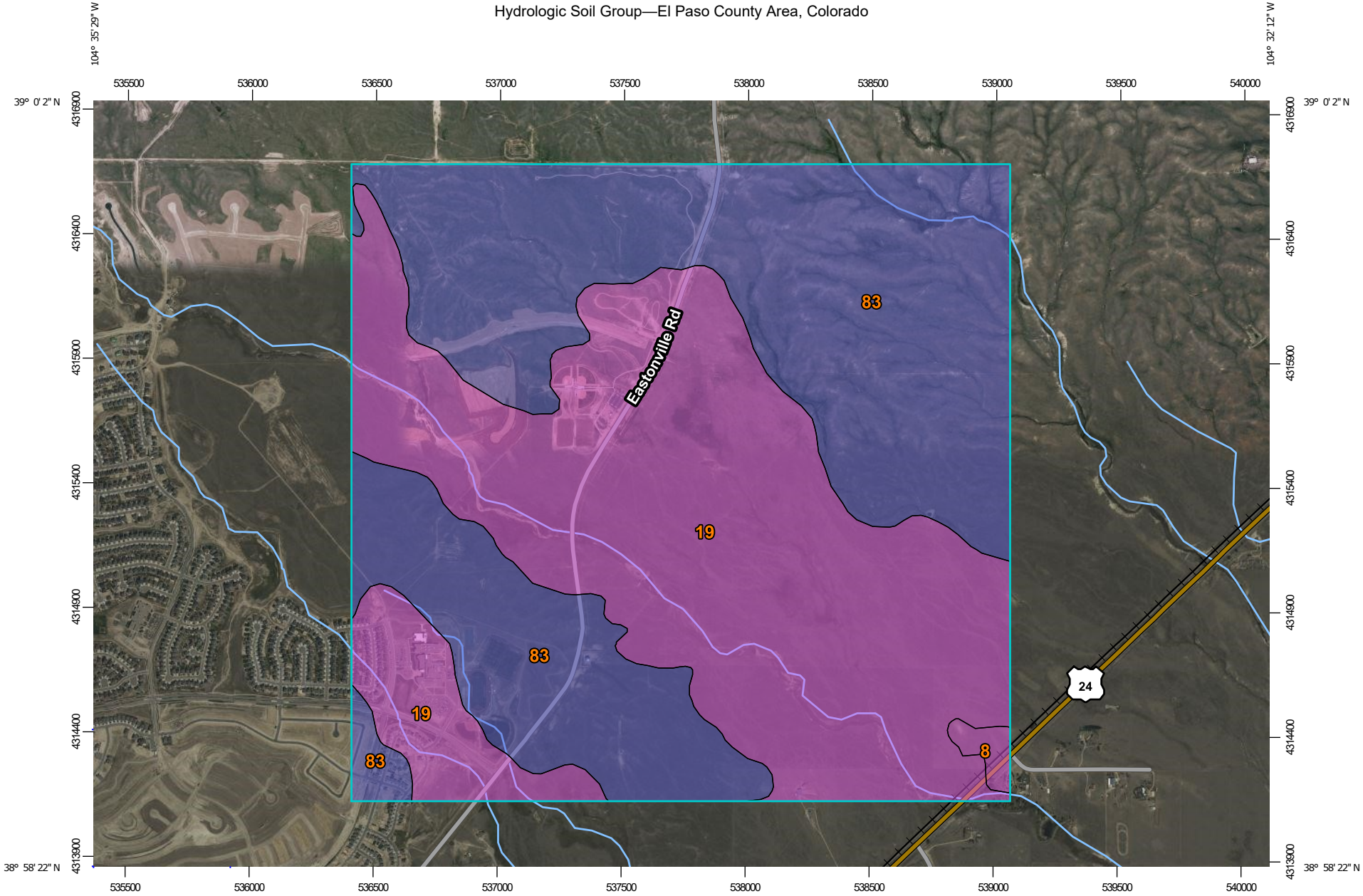
HRGreen
HR GREEN - COLORADO SPRINGS
7222 COMMERCE CENTER DR. SUITE 220
COLORADO SPRINGS CO 80919
PHONE: 719.622.6222
FAX: 844.273.1057

EASTONVILLE ROAD
DR HORTON
EL PASO COUNTY, CO

OVERALL EASTONVILLE PLAN

SHEET
1
1

Photo - at Londonderry and Eastonville looking north


104° 35' 29" W
104° 32' 12" W
39° 0' 2" N
38° 58' 22" N
535500
536000
536500
537000
537500
538000
538500
539000
539500
540000
4316900
4316400
4315900
4315400
4314900
4314400
4313900
Eastonville Rd
83
19
83
19
83
8
24
Map Scale: 1:21,700 if printed on A landscape (11" x 8.5") sheet.
N
0 300 600 1200 1800 Meters
0 1000 2000 4000 6000 Feet
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

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

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 19, Aug 31, 2021

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

Date(s) aerial images were photographed: Sep 11, 2018—Jun 12, 2021

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.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
8	Blakeland loamy sand, 1 to 9 percent slopes	A	10.4	0.6%
19	Columbine gravelly sandy loam, 0 to 3 percent slopes	A	839.5	49.8%
83	Stapleton sandy loam, 3 to 8 percent slopes	B	835.7	49.6%
Totals for Area of Interest			**1,685.6**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 13. The **horizontal datum** was NAD83, GRS80 spheroid. Differences in datum, spheroid, projection or UTM zones zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the **North American Vertical Datum of 1988 (NAVD88)**. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, MD 20910-3282

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242 or visit its website at http://www.ngs.noaa.gov/.

Base Map information shown on this FIRM was provided in digital format by El Paso County, Colorado Springs Utilities, City of Fountain, Bureau of Land Management, National Oceanic and Atmospheric Administration, United States Geological Survey, and Anderson Consulting Engineers, Inc. These data are current as of 2006.

This map reflects more detailed and up-to-date **stream channel configurations and floodplain delineations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map. The profile baselines depicted on this map represent the hydraulic modeling baselines that match the flood profiles and Floodway Data Tables if applicable, in the FIS report. As a result, the profile baselines may deviate significantly from the new base map channel representation and may appear outside of the floodplain.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact **FEMA Map Service Center** (MSC) via the FEMA Map Information eXchange (FMIX) 1-877-336-2627 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. The MSC may also be reached by Fax at 1-800-358-9620 and its website at http://www.msc.fema.gov/.

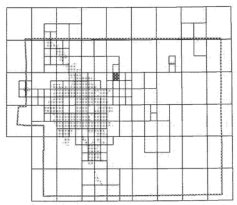
If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip.

El Paso County Vertical Datum Offset Table

Flooding Source	Vertical Datum Offset (ft)

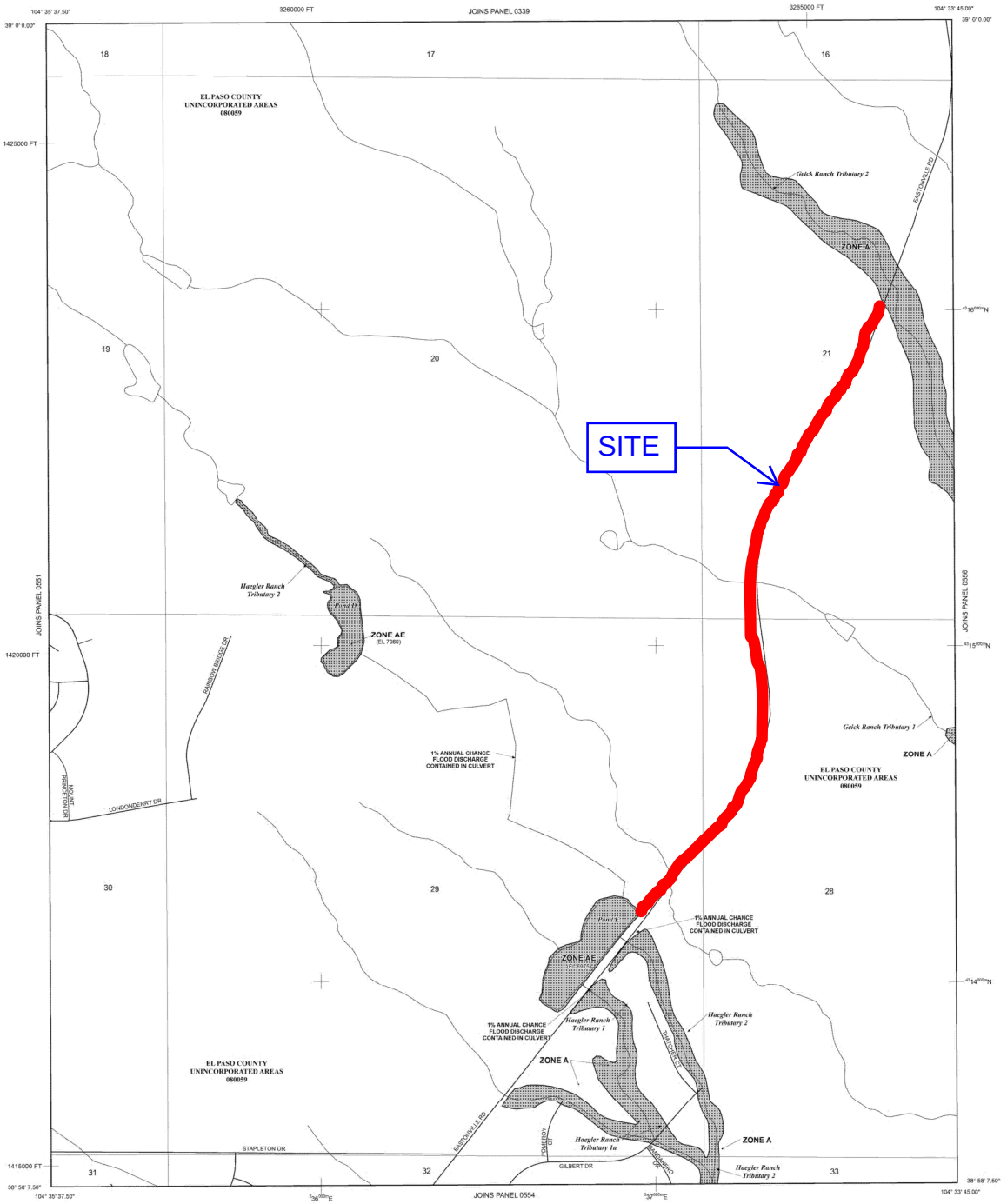
REFER TO SECTION 3.3 OF THE EL PASO COUNTY FLOOD INSURANCE STUDY FOR STREAM BY STREAM VERTICAL DATUM CONVERSION INFORMATION

Panel Location Map



This Digital Flood Insurance Rate Map (DFIRM) was produced through a Cooperating Technical Partner (CTP) agreement between the State of Colorado Water Conservation Board (CWCB) and the Federal Emergency Management Agency (FEMA).

Additional Flood Hazard information and resources are available from local communities and the Colorado Water Conservation Board.



NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 12 SOUTH, RANGE 64 WEST.

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAS) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A No Base Flood Elevations determined.
ZONE AE Base Flood Elevations determined.
ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR Special Flood Hazard Area Formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99 Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

Floodplain boundary
Floodway boundary
Zone D Boundary
CBRS and OPA boundary
Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
513 Base Flood Elevation line and value; elevation in feet*
(EL 987) Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

A — A Cross section line
23 — 23 Transect line
97° 07' 30.00" / 32° 22' 30.00" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
4175000mN 1000-meter Universal Transverse Mercator grid ticks, zone 13
6000000 FT 5000-foot grid ticks: Colorado State Plane coordinate system, central zone (FIPSZONE 0502), Lambert Conformal Conic Projection
DX5510 Bench mark (see explanation in Notes to Users section of this FIRM panel)
M1.5 River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
MARCH 17, 1997

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
DECEMBER 7, 2018 - to update corporate limits, to change Base Flood Elevations and Special Flood Hazard Areas, to update map format, to add roads and road names, and to incorporate previously issued Letters of Map Revision.

For community map revision history prior to countywide mapping, refer to the Community Map History Table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000 FEET
150 0 150 300 METERS

NFIP

PANEL 0552G

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

EL PASO COUNTY, COLORADO AND INCORPORATED AREAS

PANEL 552 OF 1300

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
EL PASO COUNTY	080059	0552	G

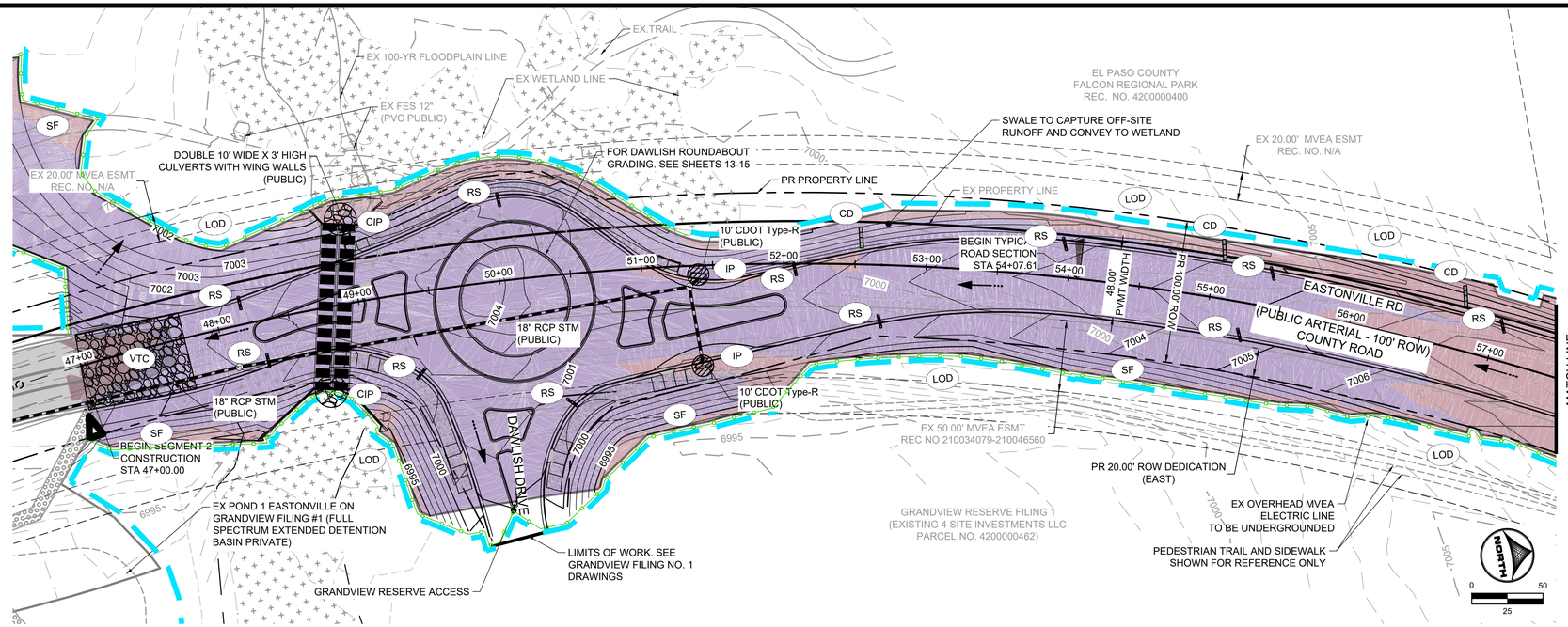
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

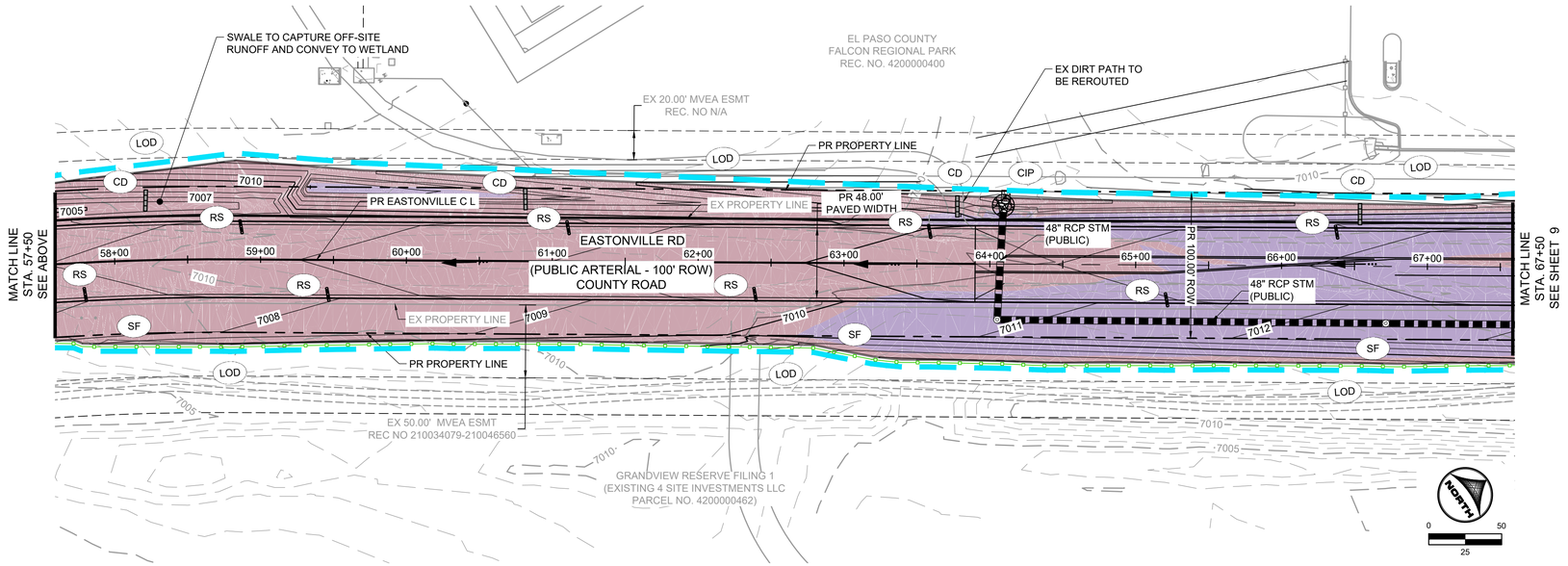
MAP NUMBER
08041C0552G

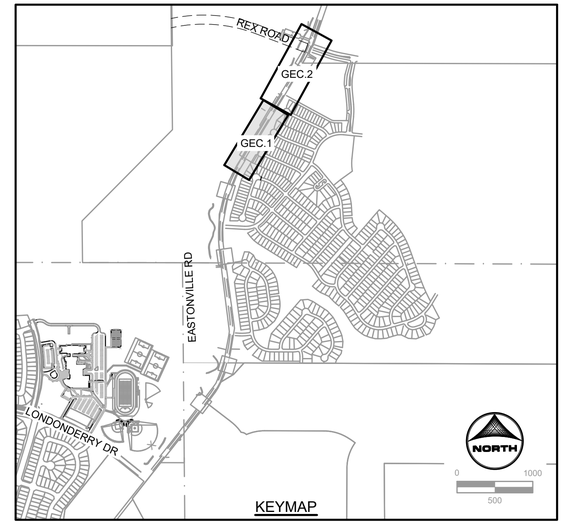
MAP REVISED
DECEMBER 7, 2018

Federal Emergency Management Agency

APPENDIX B –GEC AND DRAINAGE PLANS







GEC LEGEND:

		PHASE
CWA	CONCRETE WASHOUT AREA	INTERIM
IP	INLET PROTECTION	INTERIM
CIP	CULVERT INLET PROTECTION	INTERIM
SF	SILT FENCE	INITIAL/INTERIM
SSA	STABILIZED STAGING AREA	INTERIM
VTC	VEHICLE TRACKING CONTROL	INITIAL
EDB	EXTENDED DETENTION BASIN	FINAL
TSB	TEMPORARY SEDIMENT BASIN	INTERIM
CD	CHECK DAM	INTERIM
RS	ROCK SOCK	INTERIM
LOD	LIMITS OF CONSTRUCTION/ DISTURBANCE	
	PROP FLOW DIRECTION	
	EX FLOW DIRECTION	
	EX PROPERTY LINE	
	EX RIGHT OF WAY	
	CUT CONDITION	
	FILL CONDITION	

NOTE: ALL DISTURBED AREAS OUTSIDE OF THE PROPOSED ROADWAY SECTION SHALL BE RESEEDED AND MULCHED WITH NATIVE GRASSES PER EL PASO COUNTY SEED MIX — FINAL

TABLE 1.1 - CHECK DAM SPACING

SLOPE @ CHANNEL FLOWLINE (%)	MAX SPACING (FEET)
0.5 - 0.75	200
0.75 - 1	150
1 - 1.25	120
1.25 - 1.5	100
1.5 - 1.75	85
1.75 - 2	75
2-2.5	60

811 Know what's below. Call before you dig.

DRAWN BY: AXB JOB DATE: 2/2/2024
APPROVED: CPM JOB NUMBER: 201662.08
CAD DATE: 2/2/2024
CAD FILE: J:\2020\201662\CAD\Dwgs\C\Eastonville_Road_662.08\Segment_2\CD\GEC\GEC

BAR IS ONE INCH ON OFFICIAL DRAWINGS. 0 1". IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.

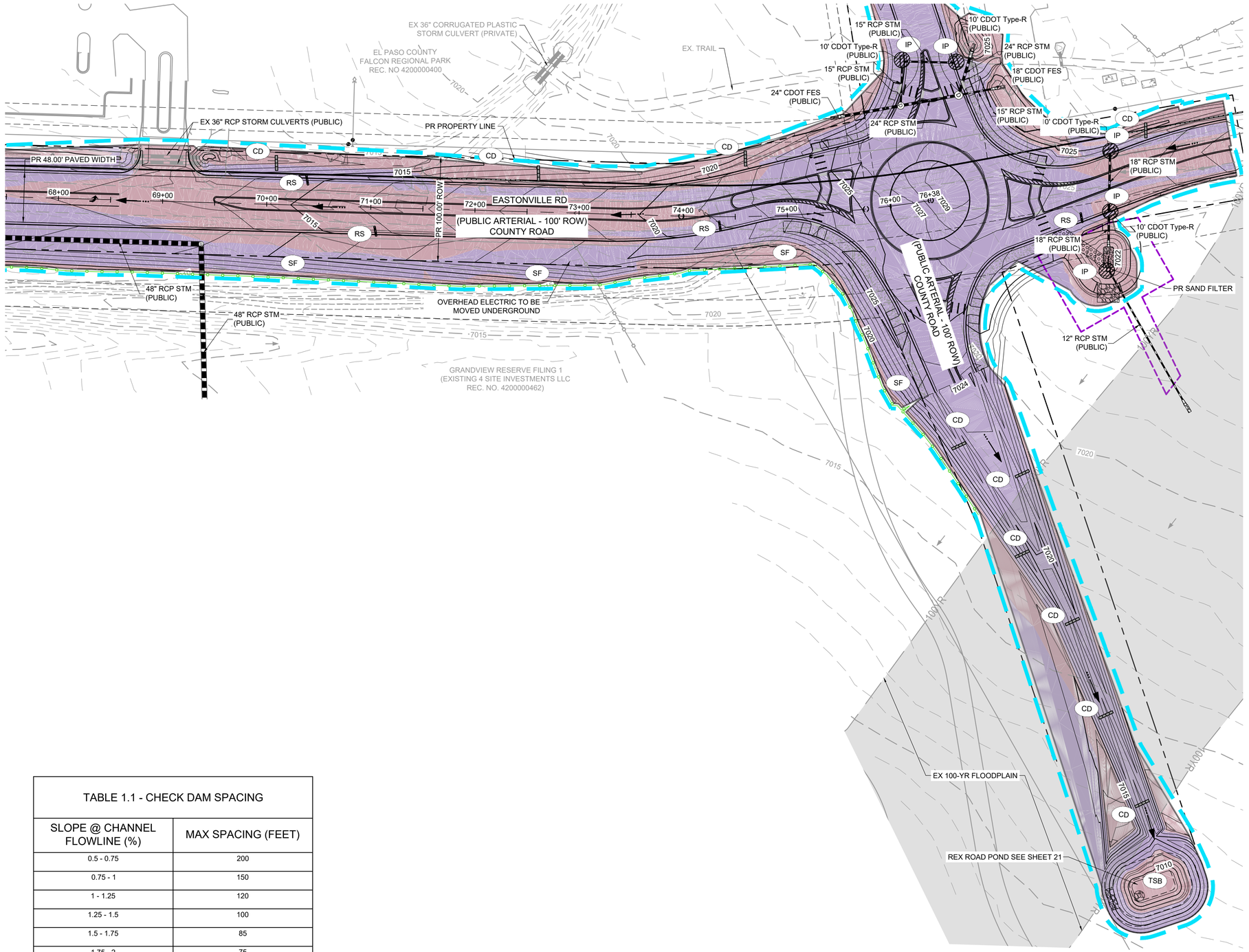
NO.	DATE	BY	REVISION DESCRIPTION

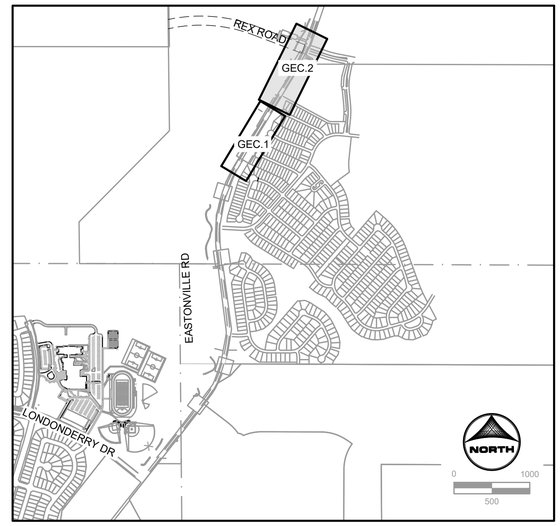
HR GREEN - COLORADO SPRINGS
1975 RESEARCH PARKWAY SUITE 230
COLORADO SPRINGS CO 80920
PHONE: 719.300.4140
FAX: 713.965.0044

EASTONVILLE ROAD IMPROVEMENTS
DR. HORTON
EL PASO COUNTY, COLORADO

FROM GRANDVIEW FILING 1 TO REX RD (SEGMENT 2)
GRADING & EROSION CONTROL PLAN

SHEET GEC.1 11





KEYMAP

GEC LEGEND:

		PHASE
CWA	CONCRETE WASHOUT AREA	INTERIM
IP	INLET PROTECTION	INTERIM
CIP	CULVERT INLET PROTECTION	INTERIM
SF	SILT FENCE	INITIAL/INTERIM
SSA	STABILIZED STAGING AREA	INTERIM
VTC	VEHICLE TRACKING CONTROL	INITIAL
EDB	EXTENDED DETENTION BASIN	FINAL
TSB	TEMPORARY SEDIMENT BASIN	INTERIM
CD	CHECK DAM	INTERIM
RS	ROCK SOCK	INTERIM
LOD	LIMITS OF CONSTRUCTION/ DISTURBANCE	
	PROP FLOW DIRECTION	
	EX FLOW DIRECTION	
	EX PROPERTY LINE	
	EX RIGHT OF WAY	
	CUT CONDITION	
	FILL CONDITION	
	NOTE: ALL DISTURBED AREAS OUTSIDE OF THE PROPOSED ROADWAY SECTION SHALL BE RESEEDED AND MULCHED WITH NATIVE GRASSES PER EL PASO COUNTY SEED MIX	FINAL

TABLE 1.1 - CHECK DAM SPACING

SLOPE @ CHANNEL FLOWLINE (%)	MAX SPACING (FEET)
0.5 - 0.75	200
0.75 - 1	150
1 - 1.25	120
1.25 - 1.5	100
1.5 - 1.75	85
1.75 - 2	75
2-2.5	60

Know what's **below.** **Call** before you dig.

DRAWN BY: AXB JOB DATE: 2/2/2024
APPROVED: CPM JOB NUMBER: 201662.08
CAD DATE: 2/2/2024
CAD FILE: J:\2020\201662\CAD\Dwgs\C\Eastonville_Road_662.08\Segment_2\CD\GEC\GEC

BAR IS ONE INCH ON OFFICIAL DRAWINGS. 0 1"
IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.

NO.	DATE	BY	REVISION DESCRIPTION

HR GREEN - COLORADO SPRINGS
1975 RESEARCH PARKWAY SUITE 230
COLORADO SPRINGS CO 80920
PHONE: 719.300.4140
FAX: 713.965.0044

EASTONVILLE ROAD IMPROVEMENTS
DR. HORTON
EL PASO COUNTY, COLORADO

FROM GRANDVIEW FILING 1 TO REX RD (SEGMENT 2)
GRADING & EROSION CONTROL PLAN

SHEET GEC.2

12

SEE SHEET 2

SEE EXISTING CONDITIONS DRAINAGE MAP

DP12 SWALE

EX MVEA ABOVE GROUND ELECTRICAL BOX TO REMAIN

EX WELL STATION

GRANDVIEW RESERVE FILING 1 (EXISTING 4 SITE INVESTMENTS LLC PARCEL NO. 4200000462)

EX 50.00' MVEA ESMT REC NO 210034079-210046560

EA8 2.08

EA9 2.99

DP16 SWALE

G12

DESIGN POINT G12 (MERIDIAN RANCH MDDP) Q5 = 21 CFS Q100 = 450 CFS DRAINS TO DP16

EL PASO COUNTY FALCON REGIONAL PARK PARCEL NO.4200000400

OS6 60.83

DP16 Q100 HW SURF. ELEV. = 7001.50

18" RCP (PUBLIC)

FUTURE GRANDVIEW RESERVE

18" RCP (PUBLIC)

EX STORM PIPE TO BE REMOVED

GRANDVIEW RESERVE TO DETAIN REMAINING ROUNDABOUT AREA

G06

EA11 0.15

GRANDVIEW RESERVE FILING 2 (EXISTING 4 SITE INVESTMENTS LLC PARCEL NO. 4200000462)

CHANNEL A (GIECK RANCH TRIBUTARY 1)

DESIGN POINT G06 = DP4 (THE SANCTUARY FILING 1 FDR) AREA=832.7 AC. Q5 = 22.4 CFS Q100 = 491 CFS DRAINS TO DP4

EX CULVERTS TO REMAIN

DUAL 10' X 3.5' RCBC (PUBLIC)

18" RCP (PUBLIC)

EA10 0.16

GIECK RANCH TRIBUTARY 1

18" RCP (PUBLIC)

REFER TO EASTONVILLE ROAD SEGMENT 1 FDR

LEGEND:

PROPOSED MAJOR CONTOUR	5250
PROPOSED MINOR CONTOUR	
EXISTING MAJOR CONTOUR	5250
EXISTING MINOR CONTOUR	
PROPOSED STORM SEWER	
PROPOSED DRAINAGE SWALE	
PROPERTY LINE	
PROPOSED FLOW DIRECTION	
EXISTING FLOW DIRECTION	
PROPOSED DRAINAGE BASIN	
DESIGN POINT	
PROPOSED BASIN LABEL	NAME / AREA

SUMMARY RUNOFF TABLE

BASIN	AREA (ac)	% IMPERVIOUS	Q5 (cfs)	Q100 (cfs)
EA1	0.22	73	0.8	1.5
EA2	0.25	72	0.9	1.7
EA3	0.20	70	0.7	1.3
EA4	0.17	65	0.5	1.1
EA5	0.16	0	0.1	0.4
EA6	0.70	100	3.2	5.3
EA7	0.65	89	2.6	4.3
EA8	2.08	99	5.2	8.8
EA9	2.99	63	5.0	10.4
EA10	0.16	75	0.6	1.1
EA11	0.15	67	0.5	1.0
OS1	85.16	2	#NUM!	#NUM!
OS2	15.03	7	6.0	30.8
OS3	1.00	2	0.3	2.2
OS4	9.60	9	4.8	21.6
OS5	40.26	8	17.7	85.2
OS6	60.83	2	16.3	109.3
OS7	11.42	2	3.6	24.4

DESIGN POINT SUMMARY TABLE

DESIGN POINT	CONTRIBUTING BASINS	SQ5 (cfs)	SQ100 (cfs)
1	OS1	0.0	0.0
2	EA1	0.8	1.5
3	EA2, DP2	1.6	3.2
4	EA5, DP3	1.7	3.4
5	EA3	0.7	1.3
6	EA4	1.2	2.4
6.1	DP6, DP8.1	7.0	34.0
7	OS2	6.0	30.8
8	OS3	0.3	2.2
8.1	DP7, DP8	6.3	32.6
9	DP6.1	7.0	33.8
10	EA6, EA7	5.6	9.5
11	OS4, DP9	10.5	49.8
12	OS5	23.1	110.5
13	OS7	3.6	24.4
13.1	DP12, DP13	24.6	122.4
14	EA8	5.2	8.8
15	EA9	5.0	10.4
15.1	DP14, DP15	10.2	19.1
16.1	EA10	0.6	1.1
17.1	EA11	0.5	1.0
8.1	OS6	6.3	32.6

NORTH

0 100

50

DRAWN BY: SPC JOB DATE: 1/30/2024

APPROVED: CM JOB NUMBER: 201662.08

CAD DATE: 1/31/2024

CAD FILE: J:\2020\201662\CAD\Dwgs\C\Eastonville_Road_662.08\Drainage\201662.08_FDR_map_Seg2

BAR IS ONE INCH ON OFFICIAL DRAWINGS. 0 1"

IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.

NO.	DATE	BY	REVISION DESCRIPTION

HRGreen

HR GREEN - COLORADO SPRINGS
1975 RESEARCH PKWY SUITE 230
COLORADO SPRINGS CO 80920
PHONE: 719.300.4140
FAX: 713.965.0044

EASTONVILLE ROAD
D.R. HORTON
EL PASO COUNTY, CO

D·R·HORTON America's Builder

PROPOSED CONDITIONS - DRAINAGE MAP

SHEET DRN

1

SEE EXISTING CONDITIONS DRAINAGE MAP

SEE EXISTING CONDITIONS DRAINAGE MAP

FG35
18.69

OS2
15.03

OS1
85.16

G18

1

DESIGN POINT G18 = DP1
(THE SANCTUARY FILING 1 FDR)
AREA=321.5 AC.
Q5 = 28.3 CFS
Q100 = 365.2 CFS
DRAINS TO DP1

EX DRAINAGE SWALE
(REDIRECTS FG38 TO CHANNEL B)

G15

DESIGN POINT G15
(THE SANCTUARY FILING 1 FDR)
AREA=64 AC.
Q5 = 3 CFS
Q100 = 54.9 CFS
DRAINS TO DP3

REX ROAD

OS3
1.00

EA2
0.25

CHANNEL B - GIECK RANCH TRIB. 2
(NOT A PART OF THIS PROJECT,
SHOWN FOR REFERENCE)

EA1
0.22

DP7 Q100 HW
SURF. ELEV. = 7026.50

DP8 Q100 HW
SURF. ELEV. =
7025.50

EX STORM PIPE
TO BE REMOVED

18" RCP (PUBLIC)

POND C
(WQ SAND FILTER)

EA3
0.20

EX 20.00' MVEA ESMT
REC NO. N/A

EA4
0.17

12" RCP (PUBLIC)

PR. TEMPORARY SEDIMENT BASIN #1

EA5
0.16

PR 10' X 4' RCBC
(FUTURE)

15" RCP (PUBLIC)

DP10 SWALE

24" RCP (PUBLIC)

EL PASO COUNTY
FALCON REGIONAL PARK
PARCEL NO.4200000400

OS4
9.60

DP9.1 SWALE

FUTURE
REX
ROAD

EA7
0.65

EA6
0.70

TYPE L RIPRAP
W/ 12" PVC RISER PIPE

TYPE L RIPRAP
SPILLWAY

EX CULVERTS
TO REMAIN

EX 100-YR FLOODPLAIN

EX 20.00' MVEA ESMT
REC NO. N/A

TYPE 2 C&G

CHANNEL B - GIECK RANCH TRIB. 2
(NOT A PART OF THIS PROJECT,
SHOWN FOR REFERENCE)

DP11 SWALE

EX 50.00' MVEA ESMT
REC NO 210034079-210046560

DP11 Q100 HW
SURF. ELEV. = 7014.20

OS7
11.42

EX CULVERTS
(TO BE FLOW FILLED)

EX PARKING AREA TO REMAIN

OS5
40.26

EA9
2.99

GRANDVIEW RESERVE FILING 1
(EXISTING 4 SITE INVESTMENTS LLC)

EA8
2.08

48" RCP (PUBLIC)

48" RCP (PUBLIC)

DP12 SWALE

EX POND TO REMAIN

EL PASO COUNTY
FALCON REGIONAL PARK
PARCEL NO.4200000400

EASTONVILLE ROAD

EX 20.00' MVEA ESMT
REC. NO N/A

DP12 Q100 HW
SURF. ELEV. = 7008.50

EX STORM PIPE
TO BE REMOVED

48" RCP (PUBLIC)

48" RCP (PUBLIC)

SEE SHEET 1

NORTH

0 100

50

LEGEND:

PROPOSED MAJOR CONTOUR	5250
PROPOSED MINOR CONTOUR	
EXISTING MAJOR CONTOUR	5250
EXISTING MINOR CONTOUR	
PROPOSED STORM SEWER	
PROPOSED DRAINAGE SWALE	
PROPERTY LINE	
PROPOSED FLOW DIRECTION	
EXISTING FLOW DIRECTION	
PROPOSED DRAINAGE BASIN	
DESIGN POINT	1
PROPOSED BASIN LABEL	NAME / AREA

SUMMARY RUNOFF TABLE

BASIN	AREA (ac)	% IMPERVIOUS	Q5 (cfs)	Q100 (cfs)
EA1	0.22	73	0.8	1.5
EA2	0.25	72	0.9	1.7
EA3	0.20	70	0.7	1.3
EA4	0.17	65	0.5	1.1
EA5	0.16	0	0.1	0.4
EA6	0.70	100	3.2	5.3
EA7	0.65	89	2.6	4.3
EA8	2.08	99	5.2	8.8
EA9	2.99	63	5.0	10.4
EA10	0.16	75	0.6	1.1
EA11	0.15	67	0.5	1.0
OS1	85.16	2	#NUM!	#NUM!
OS2	15.03	7	6.0	30.8
OS3	1.00	2	0.3	2.2
OS4	9.60	9	4.8	21.6
OS5	40.26	8	17.7	85.2
OS6	60.83	2	16.3	109.3
OS7	11.42	2	3.6	24.4

DESIGN POINT SUMMARY TABLE

DESIGN POINT	CONTRIBUTING BASINS	SQ5 (cfs)	SQ100 (cfs)
1	OS1	0.0	0.0
2	EA1	0.8	1.5
3	EA2, DP2	1.6	3.2
4	EA5, DP3	1.7	3.4
5	EA3	0.7	1.3
6	EA4	1.2	2.4
6.1	DP6, DP8.1	7.0	34.0
7	OS2	6.0	30.8
8	OS3	0.3	2.2
8.1	DP7, DP8	6.3	32.6
9	DP6.1	7.0	33.8
10	EA6, EA7	5.6	9.5
11	OS4, DP9	10.5	49.8
12	OS5	23.1	110.5
13	OS7	3.6	24.4
13.1	DP12, DP13	24.6	122.4
14	EA8	5.2	8.8
15	EA9	5.0	10.4
15.1	DP14, DP15	10.2	19.1
16.1	EA10	0.6	1.1
17.1	EA11	0.5	1.0
8.1	OS6	6.3	32.6

DRAWN BY: SPC JOB DATE: 1/30/2024
APPROVED: CM JOB NUMBER: 201662.08
CAD DATE: 1/31/2024
CAD FILE: J:\2020\201662\CAD\Dwgs\C\Eastonville_Road_662.08\Drainage\201662.08_FDR_map_Seg2

BAR IS ONE INCH ON OFFICIAL DRAWINGS. 0 1"
IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.

NO.	DATE	BY	REVISION DESCRIPTION

HRGreen
HR GREEN - COLORADO SPRINGS
1975 RESEARCH PKWY SUITE 230
COLORADO SPRINGS CO 80920
PHONE: 719.300.4140
FAX: 713.965.0044

EASTONVILLE ROAD
D.R. HORTON
EL PASO COUNTY, CO

D·R·HORTON America's Builder

PROPOSED CONDITIONS - DRAINAGE MAP

SHEET DRN

2

APPENDIX C – BMP DETAILS & SPECIFICATIONS

CONCRETE WASHOUT AREA

CWA

1.0 DESCRIPTION

- Concrete washout areas consist of either an excavated pit or a prefabricated haul-away container designed to contain concrete and concrete waste water.

2.0 PURPOSE

- Used to contain concrete and concrete waste water when the chutes of concrete mixers and hoppers of concrete pumps are rinsed out after delivery.
- Concrete washout areas consolidate solids for easier disposal and prevent runoff of concrete waste water, which is alkaline and contains high levels of chromium.

3.0 IMPLEMENTATION

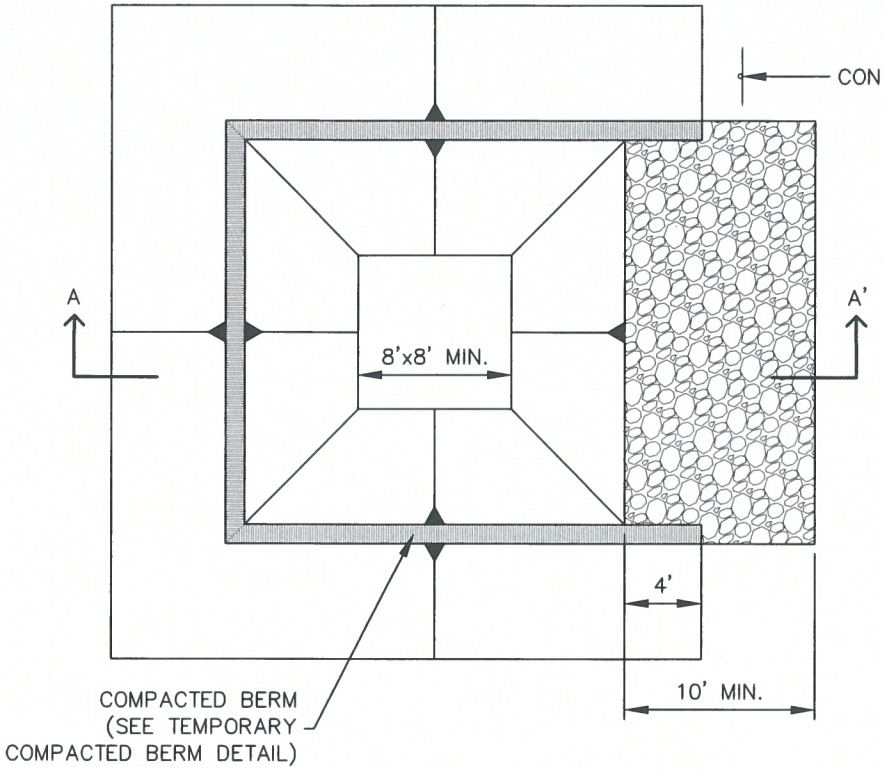
- Locate at least 50 feet away from State Waters, measured horizontally. Unlined concrete washout areas must be located at least 400 feet away from State Waters, and at least 1000 feet away from wells or drinking water sources.
- Do not locate in areas where shallow groundwater may be present, such as near natural drainages, springs, or wetlands.
- Do not place in areas subject to run-on.
- Label areas with appropriate signage.
- The addition of solvents, flocculents, or acid to wash water is prohibited.

4.0 TIMING

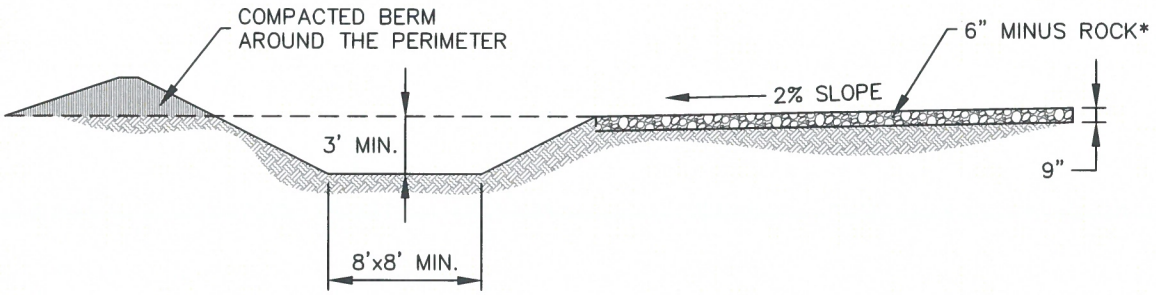
- Install prior to concrete activities.
- Remove after concrete activities have concluded.

5.0 MAINTENANCE

- Clean out facilities once they are 2/3 full, or construct new facilities for additional capacity.
- Concrete waste must be permanently disposed of off-site in an appropriate manner.



CONCRETE WASHOUT AREA PLAN



SECTION A-A'

*ROCK REQUIRED BASED ON SITE CONDITIONS AT THE DISCRETION OF THE GEC INSPECTOR

CWA

STORMWATER ENTERPRISE

CONCRETE WASHOUT AREA

APPROVED:

SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-CWA-1

INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –LOCATION OF CONCRETE WASHOUT AREA
2. LOCATE AT LEAST 50' AWAY FROM STATE WATERS MEASURED HORIZONTALLY.
3. AN IMPERMEABLE LINER (16 MIL. MINIMUM THICKNESS) IS REQUIRED IF CONCRETE WASH AREA IS LOCATED WITHIN 400' OF STATE WATERS OR 1000' OF WELLS OR DRINKING WATER SOURCES.
4. DO NOT LOCATE IN AREAS WHERE SHALLOW GROUNDWATER MAY BE PRESENT.
5. THE CONCRETE WASH AREA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.
6. CONCRETE WASH AREA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST 8' BY 8'.
7. BERM SURROUNDING SIDES AND BACK OF CONCRETE WASH AREA SHALL HAVE A MINIMUM HEIGHT OF 2 FEET.
8. CONCRETE WASH AREA ENTRANCE SHALL BE SLOPED 2% TOWARDS THE CONCRETE WASH AREA.
9. SIGNS SHALL BE PLACED AT THE CONCRETE WASH AREA.
10. USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. THE CONCRETE WASH AREA SHALL BE REPAIRED, CLEANED, OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE. CONCRETE MATERIALS ACCUMULATED IN THE PIT SHALL BE REMOVED ONCE THE MATERIALS HAVE REACHED A DEPTH OF ⅔ THE HEIGHT OF THE CONCRETE WASH AREA.
3. CONCRETE WASHOUT WATER, WASTED PIECES OF CONCRETE, AND ALL OTHER DEBRIS IN THE SUBSURFACE PIT SHALL BE TRANSPORTED FROM THE JOB SITE IN A WATER–TIGHT CONTAINER AND DISPOSED OF PROPERLY.
4. THE CONCRETE WASH AREA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.
5. PERMANENTLY STABILIZE AREA AFTER CONCRETE WASH AREA IS REMOVED.

CWA

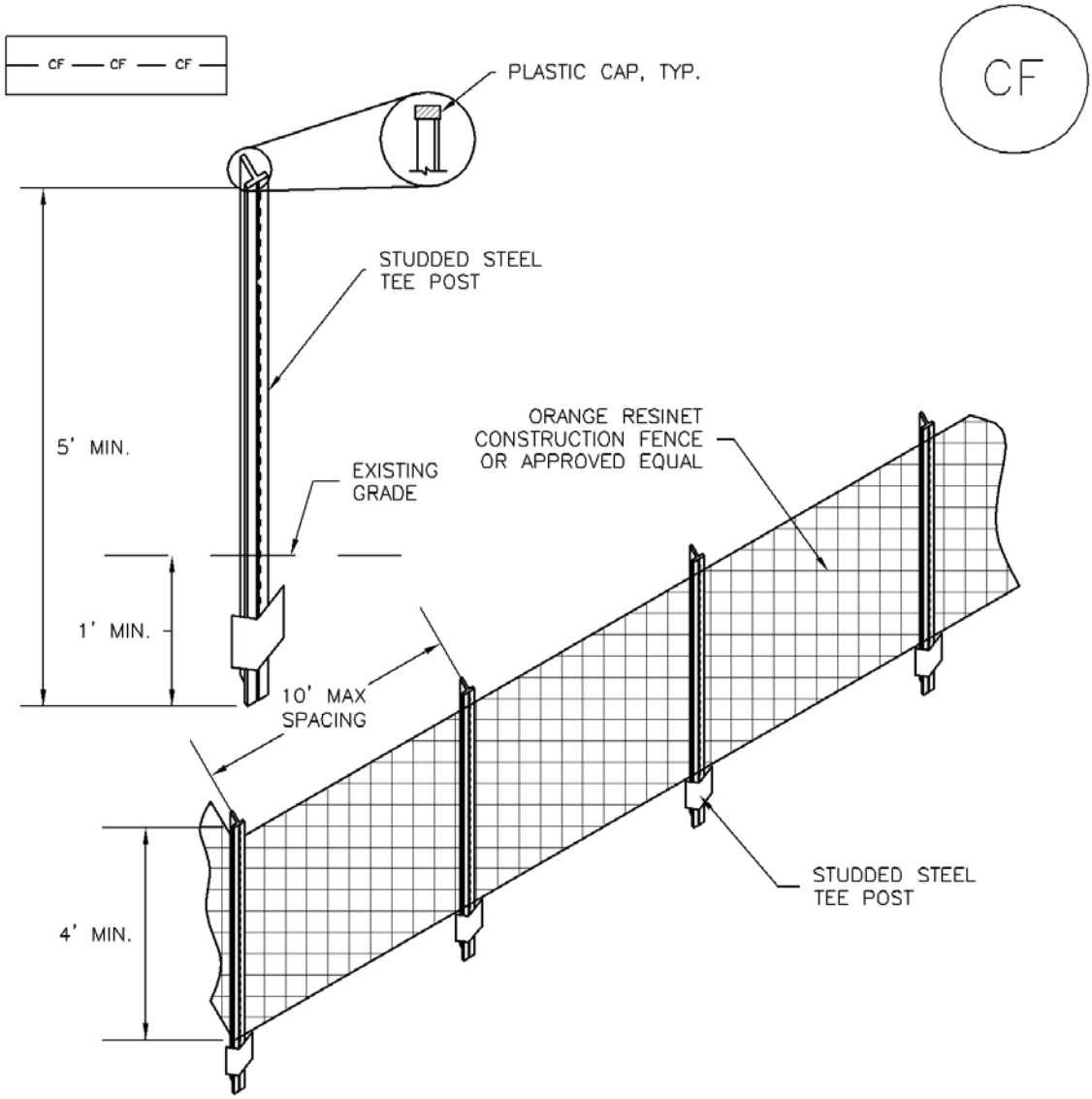
STORMWATER ENTERPRISE

CONCRETE WASHOUT AREA

APPROVED:

SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900–CWA–2



CF–1. PLASTIC MESH CONSTRUCTION FENCE

CONSTRUCTION FENCE INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –LOCATION OF CONSTRUCTION FENCE.

2. CONSTRUCTION FENCE SHOWN SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

3. CONSTRUCTION FENCE SHALL BE COMPOSED OF ORANGE, CONTRACTOR–GRADE MATERIAL THAT IS AT LEAST 4' HIGH. METAL POSTS SHOULD HAVE A PLASTIC CAP FOR SAFETY.

4. STUDDED STEEL TEE POSTS SHALL BE UTILIZED TO SUPPORT THE CONSTRUCTION FENCE. MAXIMUM SPACING FOR STEEL TEE POSTS SHALL BE 10'.

5. CONSTRUCTION FENCE SHALL BE SECURELY FASTENED TO THE TOP, MIDDLE, AND BOTTOM OF EACH POST.

CULVERT INLET PROTECTION

CIP

1.0 DESCRIPTION

- Culvert inlet protection consists of a permeable sediment barrier installed upstream of a flared end section entrance to a culvert or storm sewer.

2.0 PURPOSE

- Used to prevent sediment and debris from entering a culvert or storm drainage system prior to permanent stabilization of the contributing disturbed area.
- Culvert inlet protection slows down runoff velocity to filter runoff and to promote sedimentation prior to entry into a culvert or storm drainage system.

3.0 IMPLEMENTATION

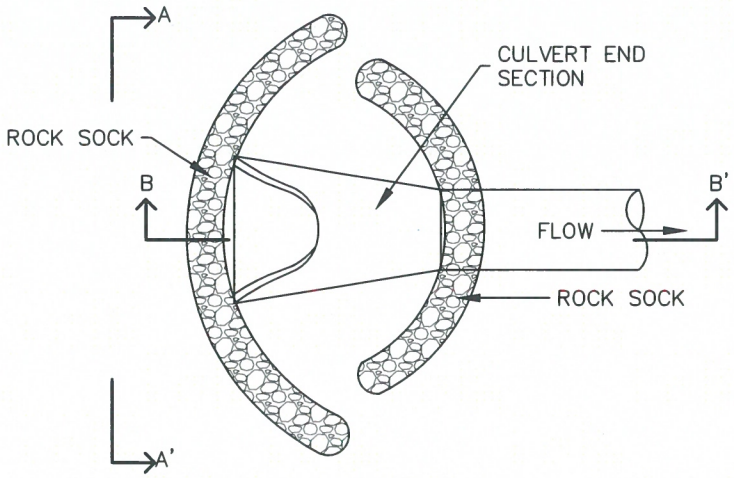
- Install culvert inlet protection at flared end section inlets to culverts and storm sewers that are operable and receiving runoff from disturbed areas during construction.
- Culvert inlet protection is not a stand-alone control measure and should be used in conjunction with other upgradient control measures. Culvert inlet protection with a contributing drainage area including of one acre or more of disturbed area must be part of a treatment train.

4.0 TIMING

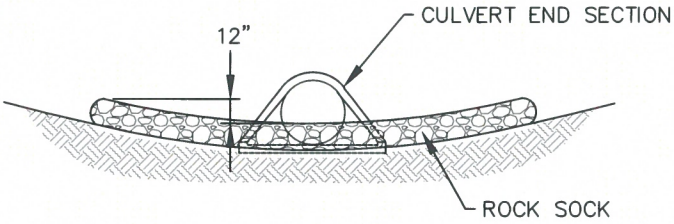
- Install prior to land disturbing activities, or immediately after pipe installation.
- Remove and properly dispose of culvert inlet protection after the contributing drainage area has been permanently stabilized.

5.0 MAINTENANCE

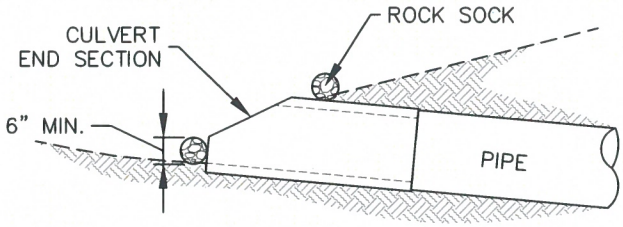
- Remove and properly dispose of sediment when it has accumulated to 1/2 of the height of the rock sock.
- Inspect for displaced rock socks that are no longer protecting the inlet.



CULVERT INLET PROTECTION PLAN



SECTION A-A'



SECTION B-B'

INSTALLATION NOTES

1. SEE ROCK SOCK DETAIL.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT UPSTREAM OF THE CULVERT SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS ½ HEIGHT OF THE ROCK SOCK.
3. CULVERT INLET PROTECTION SHALL REMAIN UNTIL THE UPSTREAM AREA IS PERMANENTLY STABILIZED.

CIP

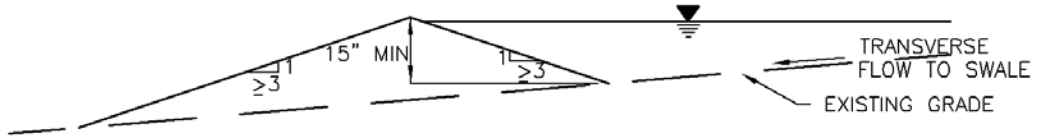
STORMWATER ENTERPRISE

CULVERT INLET PROTECTION

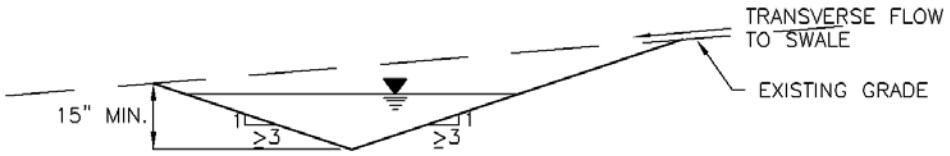
APPROVED:

SWENT MANAGER

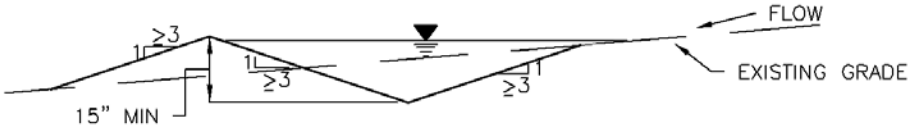
ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-CIP



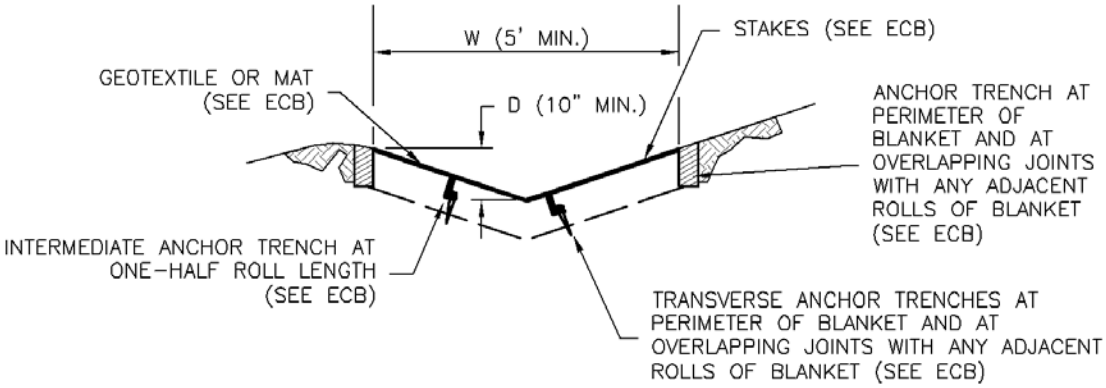
ED–1. COMPACTED UNLINED EARTH DIKE FORMED BY BERM



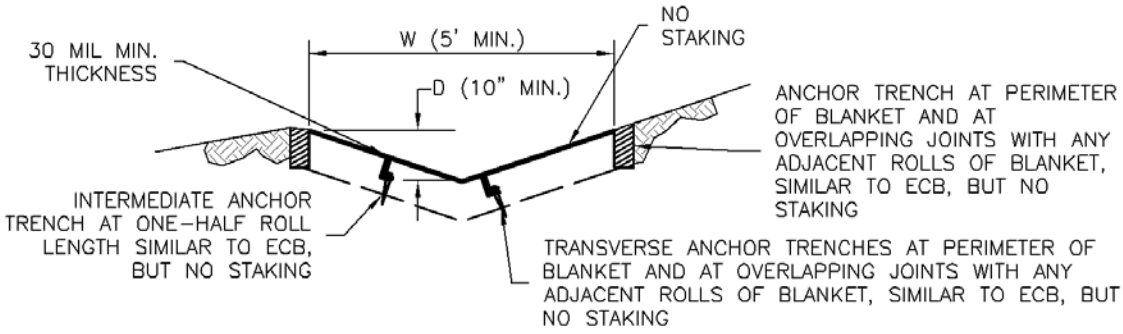
DS–1. COMPACTED UNLINED EXCAVATED SWALE



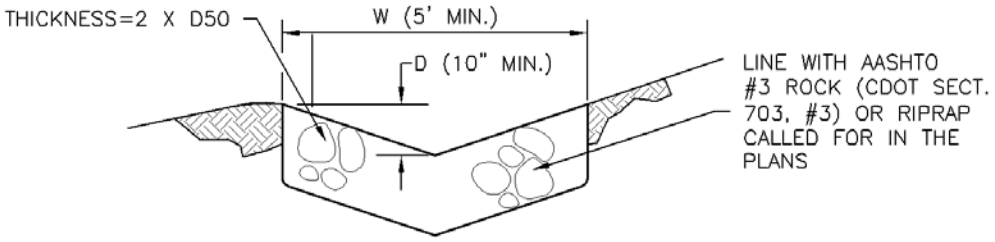
DS–2. COMPACTED UNLINED SWALE FORMED BY CUT AND FILL



DS–3. ECB LINED SWALE (CUT AND FILL OR BERM)



DS-4. SYNTHETIC LINED SWALE



DS-5. RIPRAP LINED SWALE

EARTH DIKE AND DRAINAGE SWALE INSTALLATION NOTES

1. SEE SITE PLAN FOR:
   - LOCATION OF DIVERSION SWALE
   - TYPE OF SWALE (UNLINED, COMPACTED AND/OR LINED).
   - LENGTH OF EACH SWALE.
   - DEPTH, D, AND WIDTH, W DIMENSIONS.
   - FOR ECB/TRM LINED DITCH, SEE ECB DETAIL.
   - FOR RIPRAP LINED DITCH, SIZE OF RIPRAP, D50.

2. SEE DRAINAGE PLANS FOR DETAILS OF PERMANENT CONVEYANCE FACILITIES AND/OR DIVERSION SWALES EXCEEDING 2-YEAR FLOW RATE OR 10 CFS.

3. EARTH DIKES AND SWALES INDICATED ON SWMP PLAN SHALL BE INSTALLED PRIOR TO LAND-DISTURBING ACTIVITIES IN PROXIMITY.

4. EMBANKMENT IS TO BE COMPACTED TO 90% OF MAXIMUM DENSITY AND WITHIN 2% OF OPTIMUM MOISTURE CONTENT ACCORDING TO ASTM D698.

5. SWALES ARE TO DRAIN TO A SEDIMENT CONTROL BMP.

6. FOR LINED DITCHES, INSTALLATION OF ECB/TRM SHALL CONFORM TO THE REQUIREMENTS OF THE ECB DETAIL.

7. WHEN CONSTRUCTION TRAFFIC MUST CROSS A DIVERSION SWALE, INSTALL A TEMPORARY CULVERT WITH A MINIMUM DIAMETER OF 12 INCHES.

EROSION CONTROL BLANKET

ECB

City of Colorado Springs
Stormwater Enterprise

ECB-i

Construction Control Measures
December 2020

1.0 DESCRIPTION

- Woven blankets made of natural and biodegradable materials placed on disturbed areas and secured to the ground with staples or stakes.

2.0 PURPOSE

- Used to control erosion, retain sediment resulting from sheet flow, and protect newly seeded areas.

3.0 IMPLEMENTATION

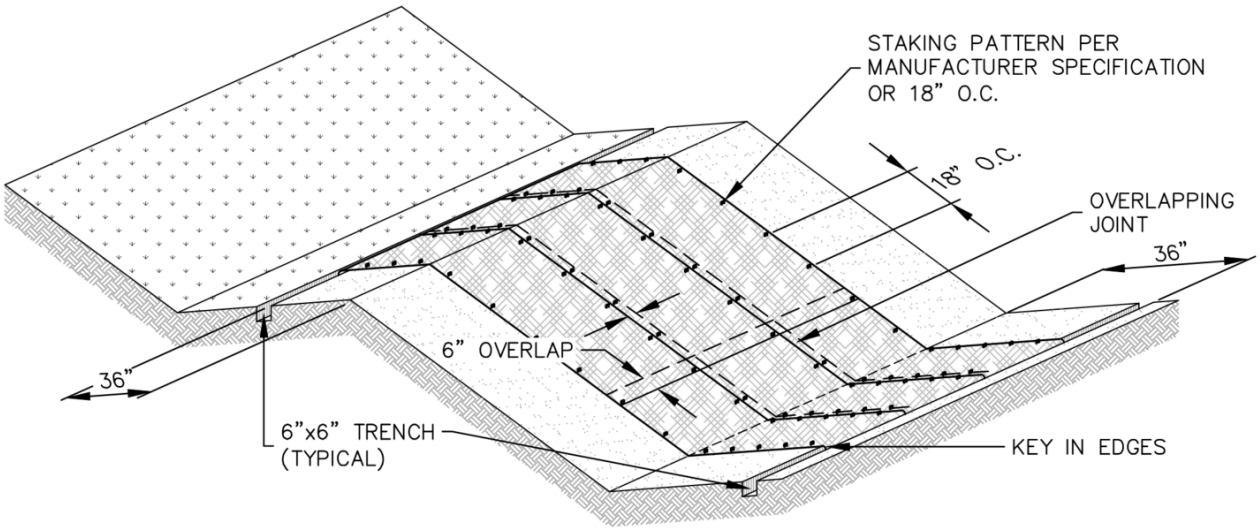
- Install erosion control blankets over uniform surfaces, with no large rocks, vegetation, or rills.
- Properly prepare topsoil and apply seed prior to blanket installation.
- Erosion control blankets must be made from 100% natural and biodegradable materials.
- Turf reinforcement mats may be used in place of erosion control blankets when specified by engineer.

4.0 TIMING

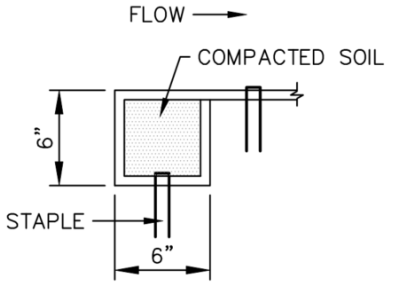
- Install in disturbed areas after final grading and seeding has been completed.
- Leave erosion control blankets in place to biodegrade, or remove if required by the GEC Inspector.

5.0 MAINTENANCE

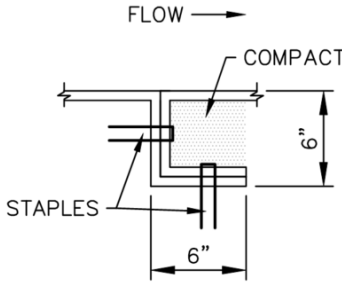
- Any erosion control blanket pulled out, torn, or otherwise damaged shall be repaired or reinstalled.
- Any subgrade areas below the geotextile that have eroded to create a void under the blanket, or that remain devoid of grass shall be repaired, reseeded and mulched and the erosion control blanket reinstalled.
- Broken or damaged staking must be repaired immediately when identified.



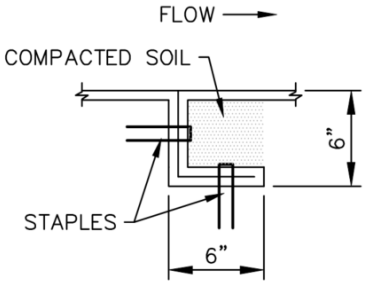
EROSION CONTROL BLANKET



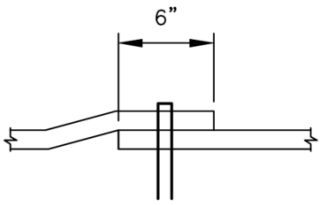
PERIMETER
ANCHOR TRENCH



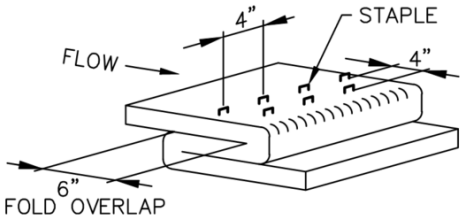
JOINT
ANCHOR TRENCH



INTERMEDIATE
CHECK SLOT



OVERLAPPING
JOINT



STAPLE CHECK

TO BE USED ON SLOPE EVERY 15 FEET

ECB

STORMWATER ENTERPRISE

EROSION CONTROL BLANKET		
APPROVED: SWENT MANAGER		
ISSUED: 10/7/19	REVISED: 8/19/2020	DRAWING NO. 900-ECB-1

INSTALLATION NOTES

1. 100% NATURAL AND BIODEGRADABLE MATERIALS ARE REQUIRED FOR EROSION CONTROL BLANKETS. TRM PRODUCTS MAY ME USED WHERE APPROPRIATE AS DESIGNATED BY THE ENGINEER.
2. IN AREAS WHERE EROSION CONTROL BLANKETS ARE SHOWN ON THE PLANS, THE PERMITTEE SHALL PLACE TOPSOIL AND PERFORM FINAL GRADING, SURFACE PREPARATION, AND SEEDING AND MULCHING. SUBGRADE SHALL BE SMOOTH AND MOIST PRIOR TO EROSION CONTROL BLANKET INSTALLATION, AND THE EROSION CONTROL BLANKET SHALL BE IN FULL CONTACT WITH THE SUBGRADE. NO GAPS OR VOIDS SHALL EXIST UNDER THE BLANKET.
3. PERIMETER ANCHOR TRENCH SHALL BE USED ALONG THE OUTSIDE PERIMETER OF ALL BLANKET AREAS.
4. JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF EROSION CONTROL BLANKETS TOGETHER (LONGITUDINALLY AND TRANSVERSELY) FOR ALL EROSION CONTROL BLANKETS.
5. INTERMEDIATE CHECK SLOT OR STAPLE CHECK SHALL BE INSTALLED EVERY 15' DOWN SLOPES. IN DRAINAGEWAYS, INSTALL CHECK SLOTS EVERY 25' PERPENDICULAR TO FLOW DIRECTION.
6. OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROLLS OF EROSION CONTROL BLANKETS TOGETHER FOR EROSION CONTROL BLANKETS ON SLOPES.
7. MATERIAL SPECIFICATIONS OF EROSION CONTROL BLANKETS SHALL CONFORM TO TABLE ECB–1.
8. ANY AREAS OF SEEDING AND MULCHING DISTURBED IN THE PROCESS OF INSTALLING EROSION CONTROL BLANKETS SHALL BE RESEEDED AND MULCHED.
9. STRAW EROSION CONTROL BLANKETS SHALL NOT BE USED WITHIN STREAMS AND DRAINAGE CHANNELS.
10. COMPACT ALL TRENCHES.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. EROSION CONTROL BLANKETS SHALL BE LEFT IN PLACE TO EVENTUALLY BIODEGRADE. TRM MUST BE REMOVED AT THE DISCRETION OF THE GEC INSPECTOR.
3. ANY EROSION CONTROL BLANKET PULLED OUT, TORN, OR OTHERWISE DAMAGED SHALL BE REPAIRED OR REINSTALLED. ANY SUBGRADE AREAS BELOW GEOTEXTILE THAT HAVE ERODED TO CREATE A VOID UNDER THE BLANKET, OR THAT REMAIN DEVOID OF GRASS SHALL BE REPAIRED, RESEEDED AND MULCHED AND THE EROSION CONTROL BLANKET REINSTALLED.

TABLE ECB–1, EROSION CONTROL BLANKET MATERIAL SPECIFICATIONS

TYPE	COCONUT CONTENT	STRAW CONTENT	EXCELSIOR CONTENT	RECOMMENDED NETTING
STRAW	–	100%	–	DOUBLE/ NATURAL
STRAW–COCONUT	30% MIN.	70% MAX.	–	DOUBLE/ NATURAL
COCONUT	100%	–	–	DOUBLE/ NATURAL
EXCELSIOR	–	–	100%	DOUBLE/ NATURAL

ECB

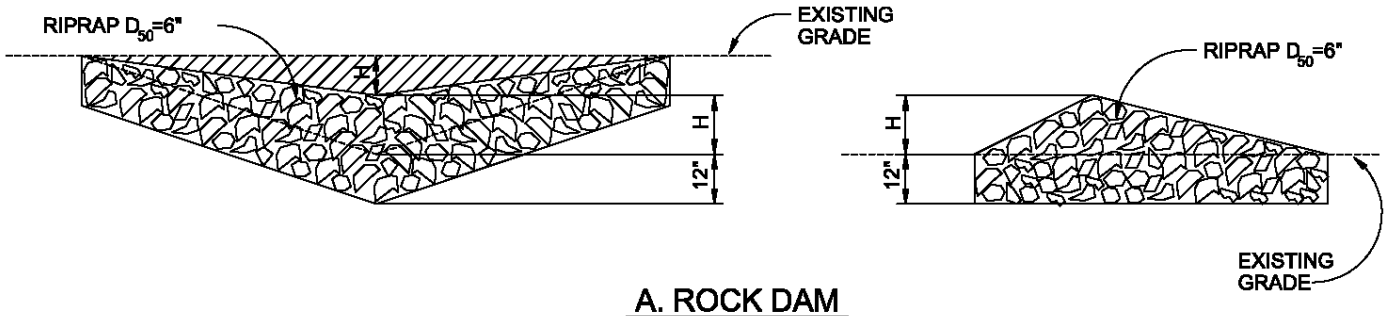
STORMWATER ENTERPRISE

EROSION CONTROL BLANKET

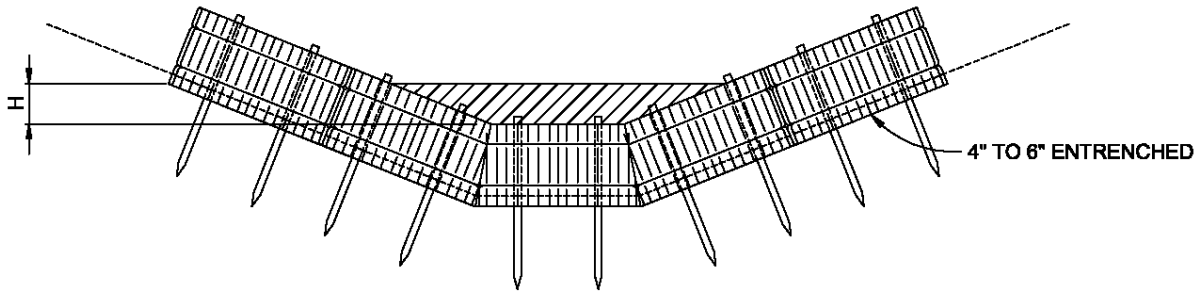
APPROVED:

SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900–ECB–2

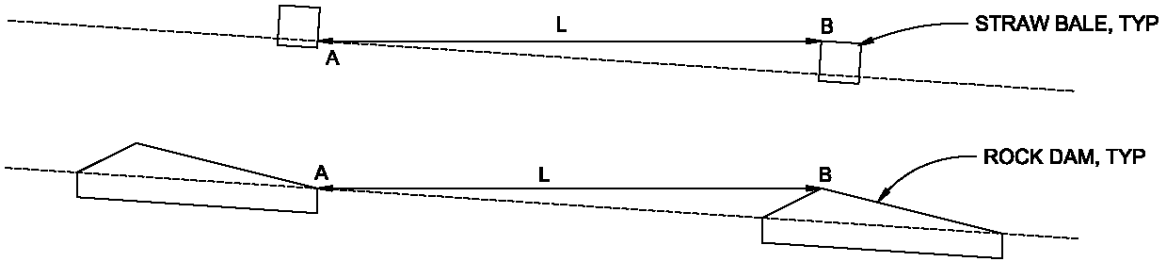


A. ROCK DAM



B. STRAW BALE CHECK DAM

(SEE STRAW BALE BARRIER INSTALATION)



L= THE DISTANCE SUCH THAT POINTS A AND B ARE AT THE SAME ELEVATION.

C. SPACING CHECK DAMS

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 "H" 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.

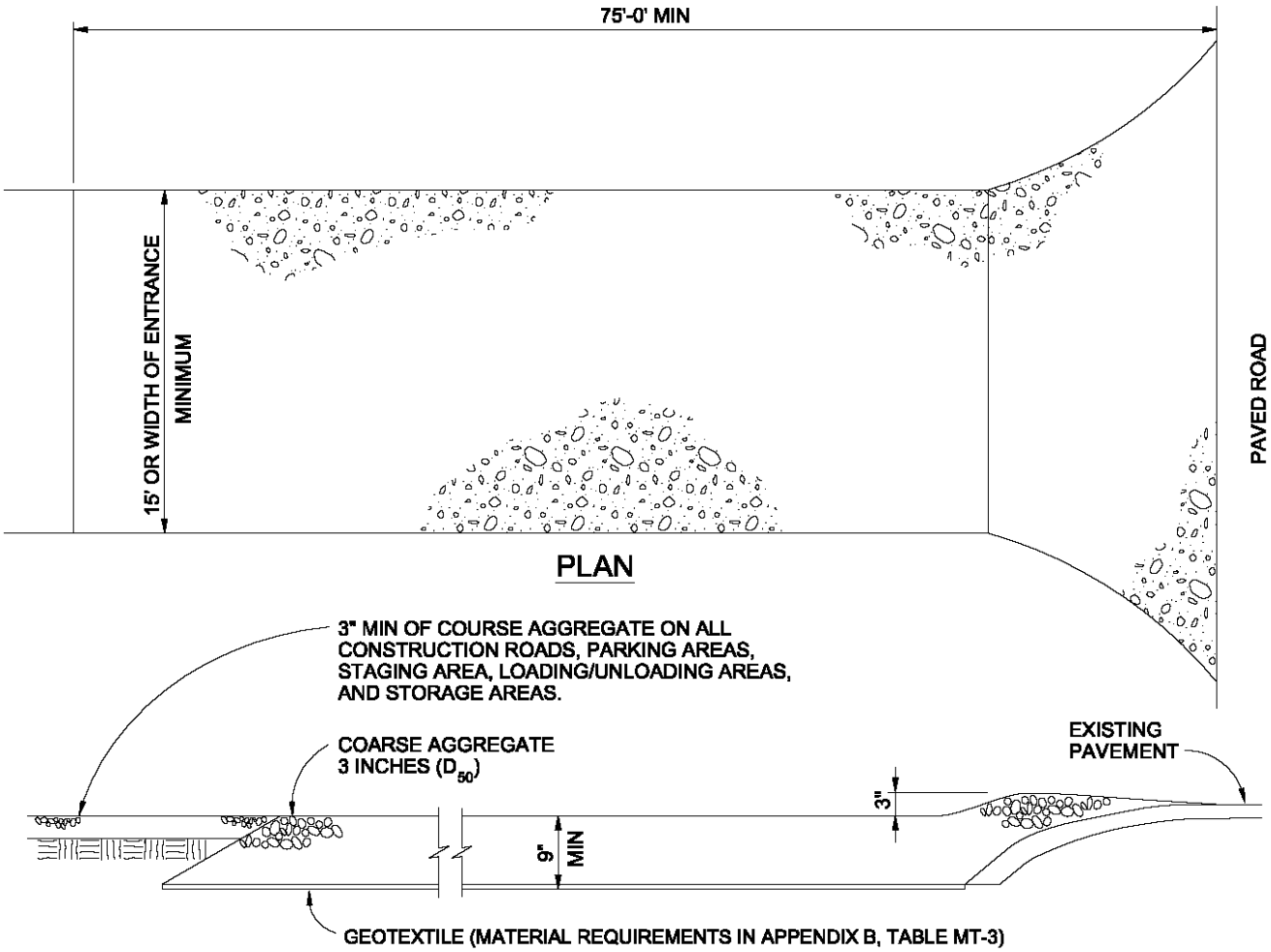
2. REPLACE STONE AS NECESSARY TO MAINTAIN THE CORRECT HEIGHT OF THE DAM.

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.

3. CHECK DAMS ARE TO REMAIN IN PLACE AND OPERATIONAL UNTIL THE DRAINAGE AREA AND CHANNEL ARE PERMANENTLY STABILIZED.

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



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.

3. AREAS TO BE STABILIZED ARE TO BE PROPERLY GRADED AND COMPACTED PRIOR TO LAYING DOWN GEOTEXTILE AND STONE.

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 REAPPLIED 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

INLET PROTECTION

IP

1.0 DESCRIPTION

- Inlet protection consists of a permeable sediment barrier installed around a storm inlet.

2.0 PURPOSE

- Used to minimize the amount of sediment and debris entering a storm drainage system prior to permanent stabilization of the contributing disturbed area.
- Inlet protection slows down runoff velocity to filter runoff and to promote sedimentation prior to entry into a storm drainage system.

3.0 IMPLEMENTATION

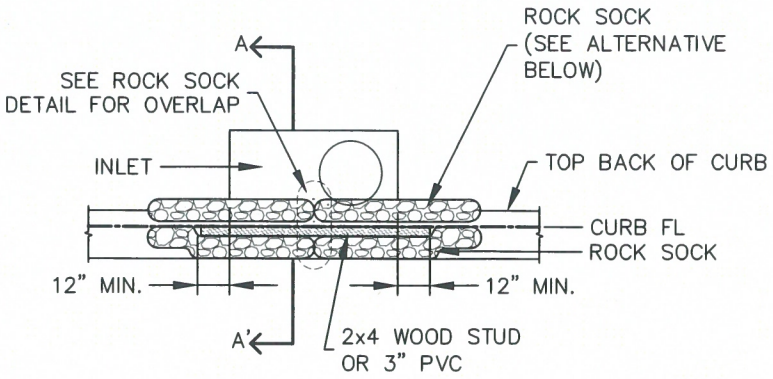
- Install inlet protection at storm sewer inlets that are operable and receiving runoff from disturbed areas during construction.
- Place inlet protection to allow the inlet to function without completely blocking flows into the inlet in a manner than causes localized flooding.
- Inlet protection is not a stand-alone control measure and should be used in conjunction with other upgradient control measures. Inlet protection in areas with a contributing drainage area of one acre or larger must be part of a treatment train.
- When selecting the type of inlet protection, consider factors such as type of inlet, traffic, anticipated flows, ability to secure the inlet protection, safety, and other site-specific conditions.

4.0 TIMING

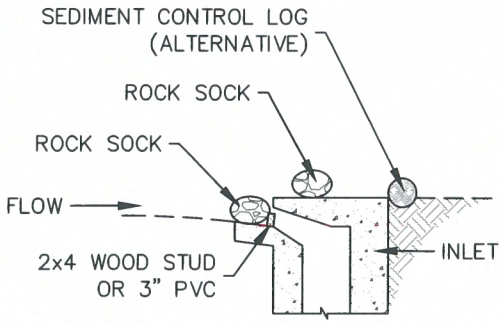
- Install prior to land disturbing activities, or immediately after inlet installation.
- Remove and properly dispose of inlet protection after the contributing drainage area has been permanently stabilized.

5.0 MAINTENANCE

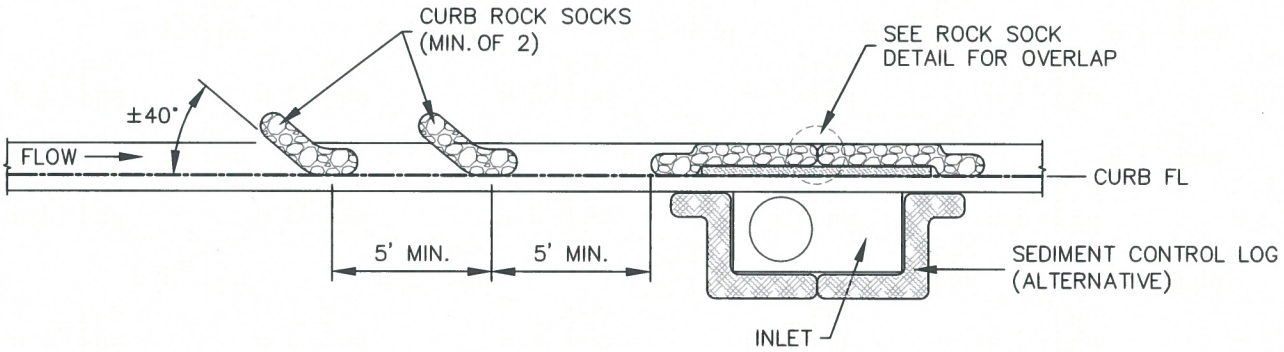
- Remove and properly dispose of sediment when it has accumulated to 1/2 of the design depth of the inlet barrier.
- Inspect for holes or tears that can result in sediment directly entering the inlet.
- Inspect for displaced inlet protection that is no longer protecting the inlet.



CURB INLET PROTECTION PLAN



SECTION A-A'



CURB ROCK SOCKS UPSTREAM OF INLET PROTECTION

INSTALLATION NOTES

1. SEE ROCK SOCK DETAIL FOR INSTALLATION REQUIREMENTS.
2. PLACEMENT OF THE ROCK SOCK SHALL BE APPROXIMATELY 40 DEGREES FROM THE CURB.
3. ROCK SOCKS ARE TO BE FLUSH WITH THE CURB AND SPACED A MINIMUM OF 5' APART.
4. AT LEAST TWO CURB ROCK SOCKS IN SERIES ARE REQUIRED UPSTREAM OF ON-GRADIENT INLETS.
5. ADDITIONAL ROCK SOCKS MAY BE REQUIRED AT GEC INSPECTOR'S DISCRETION.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES ½ OF THE DESIGN DEPTH OF THE INLET BARRIER.
3. ROCK SOCKS MUST REMAIN UNTIL THE UPSTREAM DISTURBANCE AREA IS STABILIZED.
4. PERMANENTLY STABILIZE AREA BEHIND INLET AFTER ROCK SOCKS ARE REMOVED WHEN REMOVAL IS APPROPRIATE.

IP-1

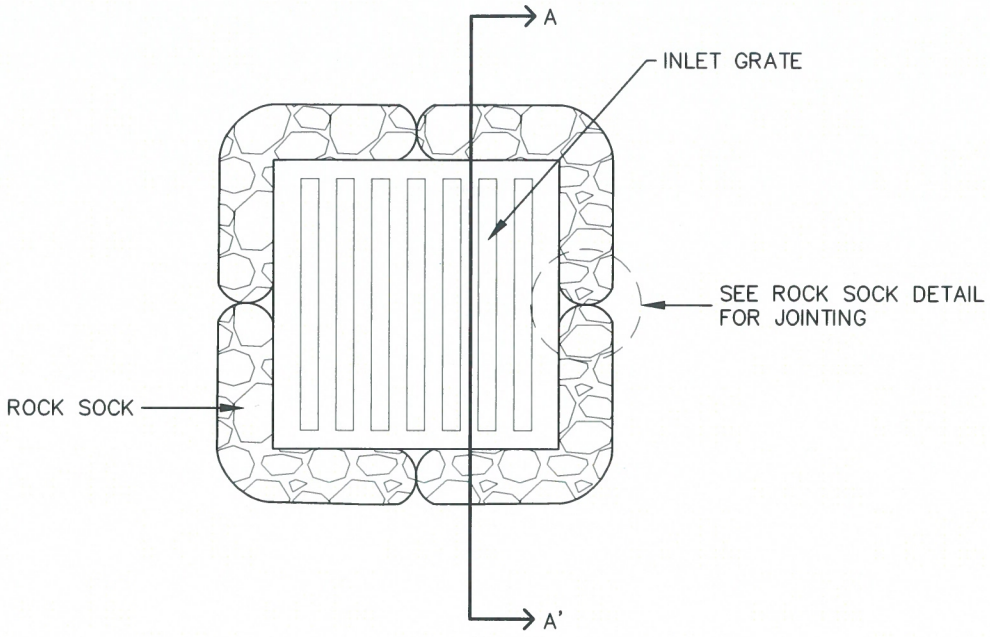
STORMWATER ENTERPRISE

ON-GRADE INLET PROTECTION

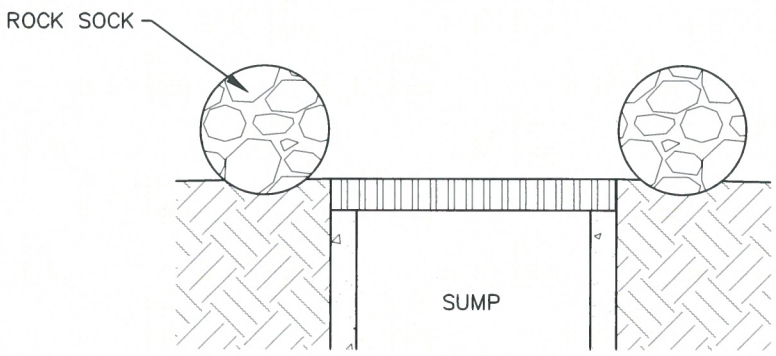
APPROVED:

SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-IP-1



ROCK SOCK SUMP INLET PROTECTION PLAN



SECTION A-A'

INSTALLATION NOTES

1. SEE ROCK SOCK DETAIL FOR INSTALLATION REQUIREMENTS.
2. SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF ROCK SOCKS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL
3. CONTROL MEASURES MUST BE WRAPPED AROUND INLET AS TIGHTLY AS POSSIBLE.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES ½ OF THE DESIGN DEPTH OF THE INLET BARRIER.
3. ROCK SOCKS MUST REMAIN UNTIL THE UPSTREAM DISTURBANCE AREA IS STABILIZED.
4. PERMANENTLY STABILIZE AREA AROUND INLET AFTER ROCK SOCKS ARE REMOVED WHEN REMOVAL IS APPROPRIATE.

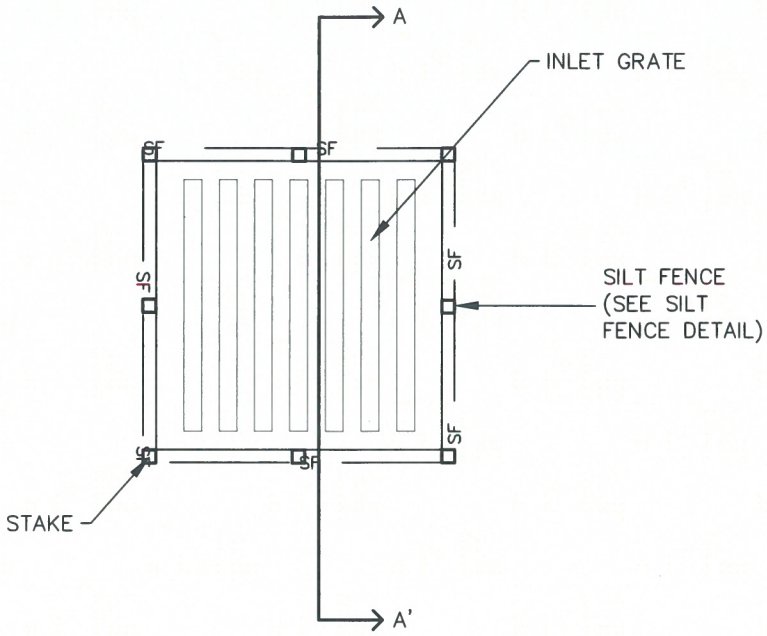
IP-2

STORMWATER ENTERPRISE

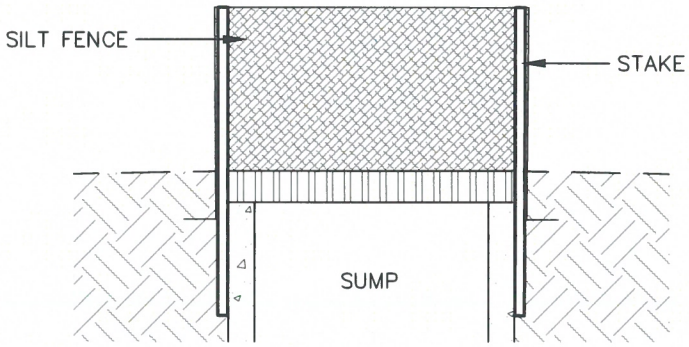
SUMP INLET PROTECTION

APPROVED: SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-IP-2



SILT FENCE SUMP INLET PROTECTION PLAN



SECTION A-A'

INSTALLATION NOTES

1. SEE SILT FENCE DETAIL FOR INSTALLATION REQUIREMENTS.
2. POSTS SHALL BE PLACED AT EACH CORNER OF THE INLET AND AROUND THE EDGES AT A MAXIMUM SPACING OF THREE FEET.
3. SILT FENCE FABRIC SHOULD HAVE A FLOW RATE IN EXCESS OF 30 GALLONS PER MINUTE PER SQUARE YARD SO AS TO ALLOW SOME WATER FLOW AND NOT DAM THE WATER. STANDARD, LOW-FLOW SILT FENCE FABRIC WILL NOT BE ALLOWED.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES ½ OF THE DESIGN DEPTH OF THE INLET BARRIER.
3. SILT FENCE MUST REMAIN UNTIL THE UPSTREAM DISTURBANCE AREA IS STABILIZED.
4. PERMANENTLY STABILIZE AREA AROUND INLET AFTER SILT FENCE IS REMOVED WHEN REMOVAL IS APPROPRIATE.

IP-3

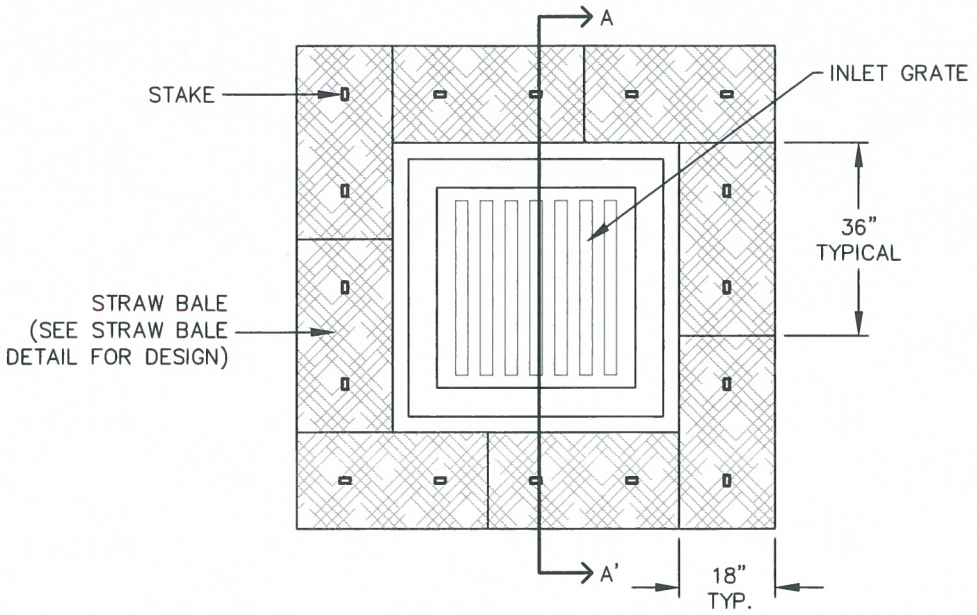
STORMWATER ENTERPRISE

SUMP INLET PROTECTION

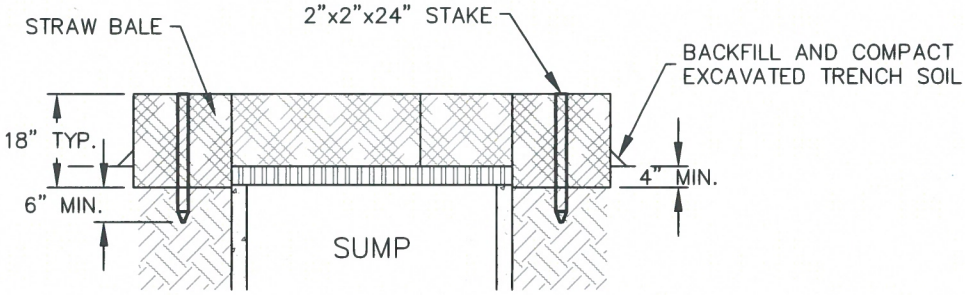
APPROVED:

SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-IP-3



STRAW BALE SUMP INLET PROTECTION PLAN



SECTION A-A'

INSTALLATION NOTES

1. BALES SHALL BE PLACED IN A SINGLE ROW AROUND THE INLET WITH THE ENDS OF THE BALES TIGHTLY ABUTTING ONE ANOTHER.
2. STRAW BALES SHALL CONSIST OF CERTIFIED WEED FREE STRAW OR HAY. LOCAL JURISDICTIONS MAY REQUIRE PROOF THAT BALES ARE WEED FREE.
3. STRAW BALES SHALL CONSIST OF APPROXIMATELY 5 CUBIC FEET OF STRAW OR HAY AND WEIGH NOT LESS THAN 35 POUNDS.
4. STRAW BALE DIMENSIONS SHALL BE APPROXIMATELY 36"x18"x18".
5. A UNIFORM ANCHOR TRENCH SHALL BE EXCAVATED TO A DEPTH OF 4". STRAW BALES SHALL BE PACED SO THAT THE BINDING TWINE IS ENCOMPASSING THE VERTICAL SIDES OF THE BALE(S).
6. TWO (2) WOODEN STAKES SHALL BE USED TO HOLD EACH BALE IN PLACE. WOODEN STAKED SHALL BE 2"x2"x24 (MIN.)". WOODEN STAKES SHALL BE DRIVEN A MINIMUM OF 6" INTO THE GROUND.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES ½ OF THE DESIGN DEPTH OF THE INLET BARRIER.
3. STRAW BALES MUST REMAIN UNTIL THE UPSTREAM DISTURBANCE AREA IS STABILIZED.
4. PERMANENTLY STABILIZE AREA AROUND INLET AFTER STRAW BALES ARE REMOVED WHEN REMOVAL IS APPROPRIATE.
5. STRAW BALES SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED, ROTTEN OR DAMAGED BEYOND REPAIR.

IP-4

STORMWATER ENTERPRISE

SUMP INLET PROTECTION

APPROVED:

SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-IP-4

PORTABLE TOILET

PT

1.0 DESCRIPTION

- The portable toilet detail provides requirements for portable toilet use on construction sites.

2.0 PURPOSE

- Used to minimize the risk of pollutant migration to State Waters.

3.0 IMPLEMENTATION

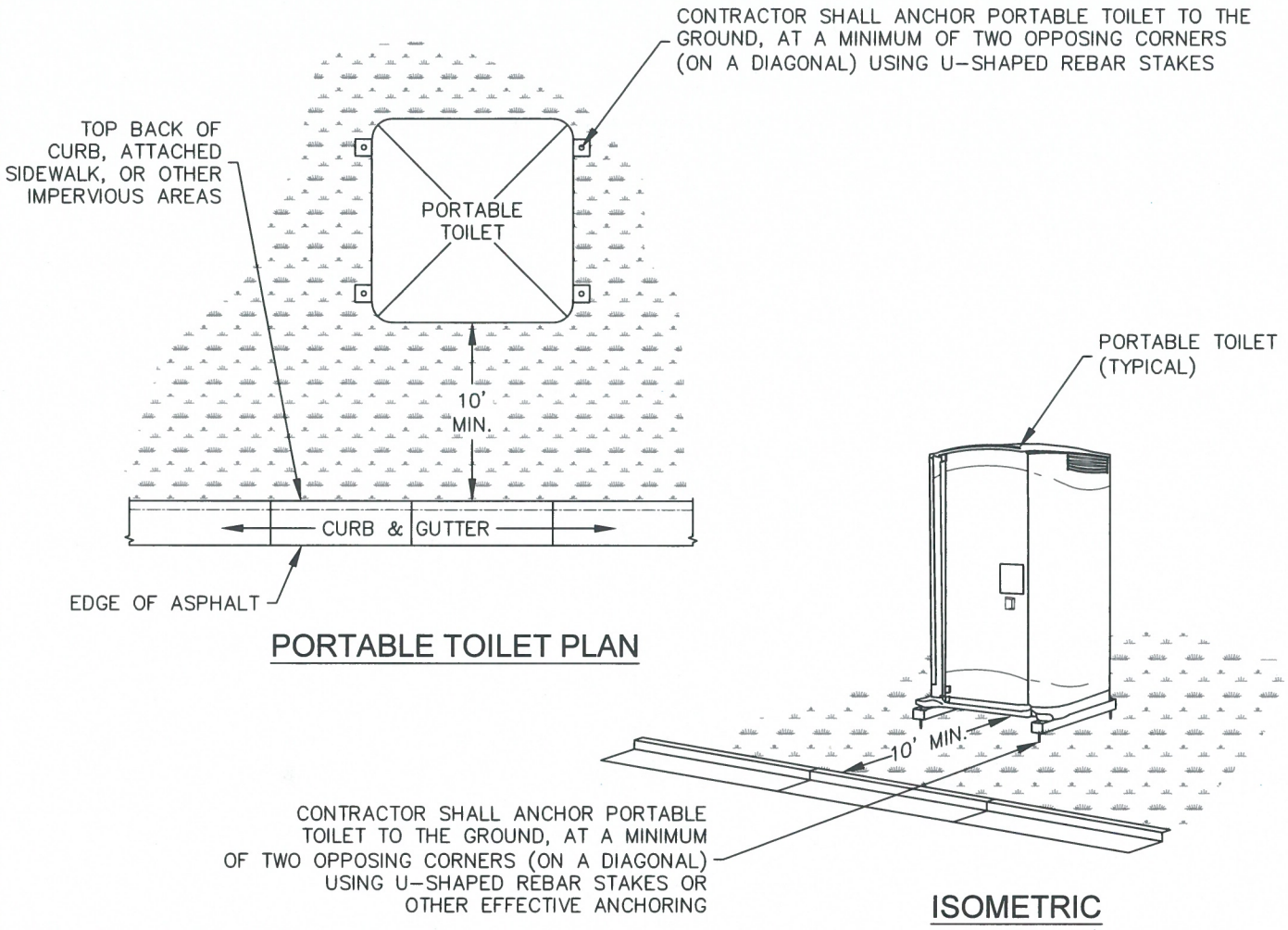
- Place portable toilet a minimum of 10 feet from the back of curb or on a trailer for road projects or sites that are mostly paved.
- Anchor portable toilet to the ground, at a minimum of two opposing corners (on a diagonal) using U-shaped rebar stakes.

4.0 TIMING

- Install as needed.
- Remove prior to the end of construction. Permanently stabilize any disturbed areas associated with the installation, maintenance, and/or removal of the toilets.

5.0 MAINTENANCE

- Portable toilets shall be serviced at the necessary intervals to eliminate the possibility of overflow.



PORTABLE TOILET PLAN

ISOMETRIC

INSTALLATION NOTES

1. PORTABLE TOILETS SHALL BE PLACED A MINIMUM OF 10 FEET BEHIND ALL CURBS, SIDEWALKS, AND OTHER IMPERVIOUS AREAS; 50 FEET FROM STORM INLETS, AND 100 FEET FROM WATERWAYS.
2. PORTABLE TOILETS IN THE RIGHT-OF-WAY ARE REQUIRED TO BE PLACED ON MOBILE TRAILERS AND MUST BE ANCHORED OR WEIGHTED DOWN. PORTABLE TOILETS MAY BE INSTALLED IN ACCORDANCE WITH NOTE #1 IN STAGING AREAS/YARDS.
3. PORTABLE TOILETS SHALL BE SECURELY ANCHORED TO THE GROUND USING U-SHAPED REBAR STAKES, OR OTHER EFFECTIVE ANCHORING.
4. ANCHORING SHALL BE POSITIONED ON AT LEAST TWO OPPOSING (DIAGONAL) CORNERS.
5. TOILET CONTAINMENT PANS MAY BE USED IN PLACE OF A TRAILER AT THE GEC INSPECTOR'S DISCRETION. TOILET CONTAINMENT PANS MUST BE ANCHORED IN PLACE AND MUST NOT BE USED WITHIN THE CITY R.O.W.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. PORTABLE TOILETS SHALL BE SERVICED AT THE NECESSARY INTERVALS TO ELIMINATE THE POSSIBILITY OF OVERFLOW.
3. WHEN THE PORTABLE TOILETS ARE REMOVED, ANY DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION, MAINTENANCE, AND/OR REMOVAL OF THE TOILETS MUST BE PERMANENTLY STABILIZED.

PT

PORTABLE TOILET

APPROVED:

SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
2/19/19	8/19/2020	900-PTM

ROCK SOCK

RS

1.0 DESCRIPTION

- A rock sock consists of gravel that has been wrapped by wire mesh or a geotextile to form an elongated cylindrical filter.

2.0 PURPOSE

- Used to slow down the velocity of runoff to filter runoff and to promote sedimentation.
- Rock socks are typically used as either perimeter control or as a part of inlet protection.

3.0 IMPLEMENTATION

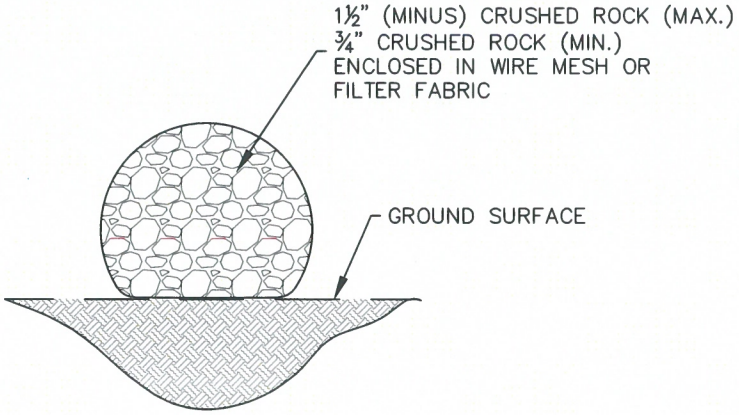
- Rock socks do not require trenching or staking, and are able to be placed on hard surfaces where trenching or staking would be impossible.
- The maximum tributary drainage area per 100 liner feet of rock socks is 1/4 acre.
- When placed in a gutter adjacent to a curb, rock socks should protrude no more than two feet from the curb in order for traffic to pass safely.
- Proprietary rock socks can be used in place of wire mesh rock socks.

4.0 TIMING

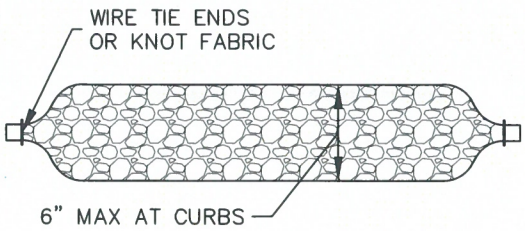
- Install prior to land disturbing activities, or immediately after inlet installation.
- Remove and properly dispose of inlet protection after the contributing drainage area has been permanently stabilized.

5.0 MAINTENANCE

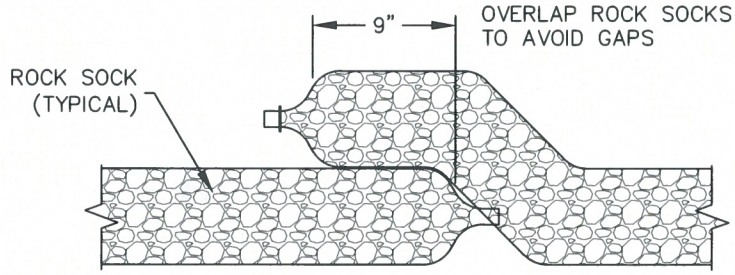
- Remove and properly dispose of sediment when it has accumulated to 1/2 of the height of the rock sock.
- Inspect for and replace damaged or displaced rock socks.



ROCK SOCK SECTION



ROCK SOCK PLAN



ROCK SOCK OVERLAP

GRADATION TABLE	
	MASS PERCENT PASSING SQUARE MESH SIEVES
	No. 4
2"	100
1½"	90–100
1"	20–55
¾"	0–15
⅜"	0–5
MATCHES SPECIFICATIONS FOR No. 4 COARSE AGGREGATE FOR CONCRETE PER AASHTO M–43. ALL ROCK SHALL BE FRACTURED FACE, ALL SIDES	

INSTALLATION NOTES

1. CRUSHED ROCK SHALL BE BETWEEN MAX. 1½" (MINUS) IN SIZE WITH A FRACTURED FACE (ALL SIDES) AND SHALL COMPLY WITH GRADATION SHOWN ON THIS SHEET AND MIN. ¾" CRUSHED ROCK.
2. WIRE MESH SHALL HAVE OPENINGS SMALLER THAN THE SMALLEST SIZE ROCK.
3. 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.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ROCK SOCKS SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED OR DAMAGED BEYOND REPAIR.
3. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN THE DEPTH REACHES ½ OF THE HEIGHT OF THE ROCK SOCK.
4. ROCK SOCKS ARE TO REMAIN IN PLACE UNTIL DISTURBED AREA IS STABILIZED.
5. PERMANENTLY STABILIZE AREA AFTER ROCK SOCKS HAVE BEEN REMOVED.

RS

STORMWATER ENTERPRISE

ROCK SOCK

APPROVED:

SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900–RS

SEDIMENT CONTROL LOG

SCL

1.0 DESCRIPTION

- A sediment control log is a temporary sediment barrier consisting of a linear roll of natural materials such as straw, compost, excelsior or coconut fiber.

2.0 PURPOSE

- Used to intercept sheet flow prior to leaving a construction site.
- May be used around the perimeter of a construction site.
- Placed on long slopes to slow down flows.

3.0 IMPLEMENTATION

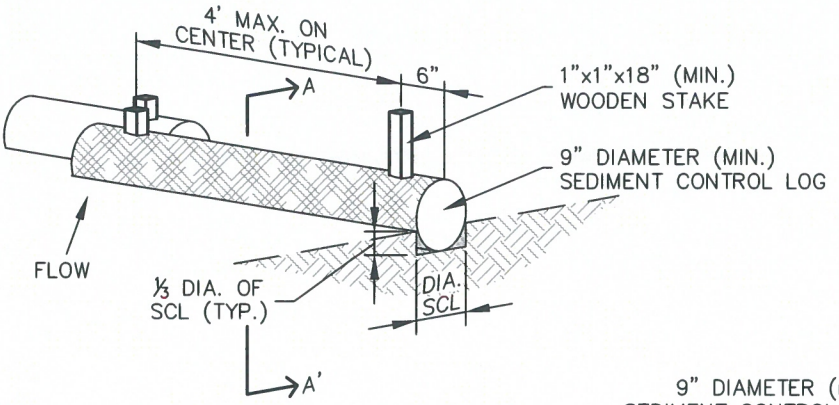
- Install sediment control logs to intercept sheet flow runoff from disturbed areas.
- Install sediment control logs along the contour of slopes or in a manner to avoid creating concentrated flow.
- Place sediment control logs against sidewalk or back of curb when adjacent to these features.
- The maximum tributary drainage area per 100 liner feet of sediment control logs is 1/4 acre.
- Sediment control logs shall consist of straw, compost, excelsior or coconut fiber, and shall be free from any noxious weed seeds or defects.

4.0 TIMING

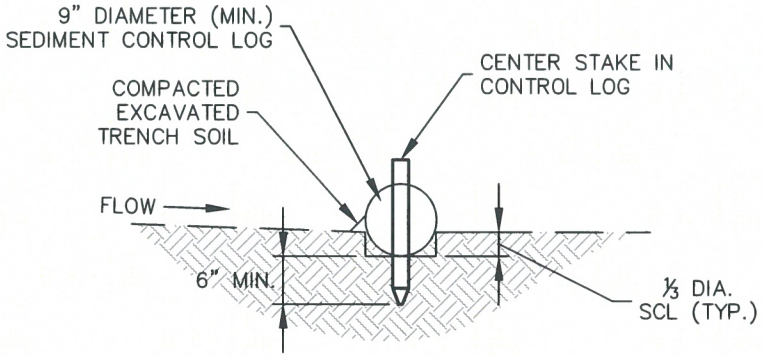
- Install prior to land disturbing activities.
- Remove sediment control logs after the upstream area has been permanently stabilized.

5.0 MAINTENANCE

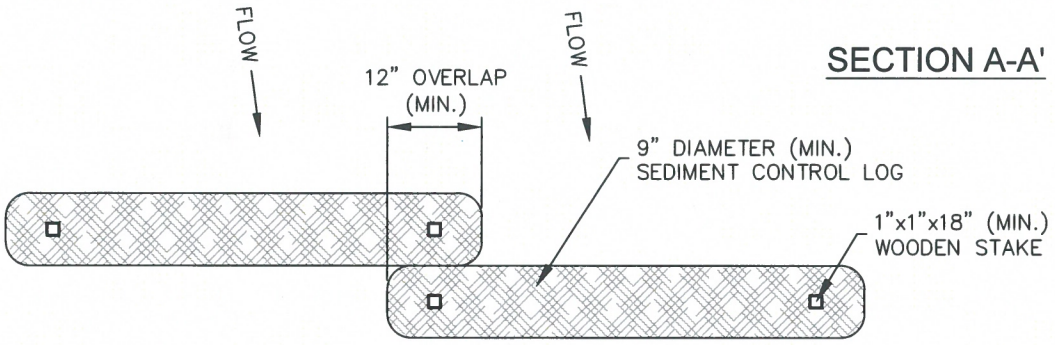
- Remove and properly dispose of sediment when it has accumulated to 1/2 of the height of the exposed sediment control log.
- Inspect for and repair or replace damaged sediment control logs.



SEDIMENT CONTROL LOG



SECTION A-A'



SEDIMENT CONTROL LOG JOINTS

INSTALLATION NOTES

1. ALL SEDIMENT CONTROL LOGS MUST BE EMBEDDED TO ⅓ OF THE HEIGHT OF THE LOG
2. LARGER DIAMETER SEDIMENT CONTROL LOGS NEED TO BE EMBEDDED DEEPER.
3. PLACE SEDIMENT CONTROL LOG AGAINST SIDEWALK OR BACK OF CURB WHEN ADJACENT TO THESE FEATURES.
4. SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELSIOR OR COCONUT FIBER, AND SHALL BR FREE FROM ANY NOXIOUS WEED SEEDS OF DEFECTS INCLUDING RIPS, HOLES AND OBVIOUS WEAR.
5. IF USING AS SLOPE PROTECTION, INSTALL SEDIMENT CONTROL LOGS ALONG THE CONTOUR.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES ½ OF THE HEIGHT OF THE SEDIMENT CONTROL LOG.
3. PERMANENTLY STABILIZE AREA AFTER SEDIMENT CONTROL LOGS HAVE BEEN REMOVED.

SCL

STORMWATER ENTERPRISE

SEDIMENT CONTROL LOGS

APPROVED:

SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-SCL

SEEDING AND MULCHING

SM

1.0 DESCRIPTION

- The preparation of soil, application of much, and application of seed to disturbed areas.

2.0 PURPOSE

- Used to control runoff and erosion on disturbed areas by establishing vegetative cover.
- Reduces erosion and sediment loss.
- Provides permanent stabilization in disturbed areas.

3.0 IMPLEMENTATION

- All soil testing, soil amendment and fertilizer documentation, and seed load and bag tickets must be added to the CSWMP.
- Properly prepare soil prior to seeding and mulching.
- Apply seed mixes as specified in the City of Colorado Springs Stormwater Construction Manual. Alternative seed mixes are acceptable if included in an approved Landscaping Plan.
- Mulch seeded areas using hay or straw mulch, hydraulic mulching, or install erosion control blanket.

4.0 TIMING

- Seed and mulch disturbed areas after final grading.
- Seeding and mulching may also be used as a temporary erosion control measure during construction.

5.0 MAINTENANCE

- Repair and reseed bare areas as necessary.
- Restrict vehicle access to seeded areas.

SEEDING & MULCHING

ALL SOIL TESTING, SOILS AMENDMENT AND FERTILIZER DOCUMENTATION, AND SEED LOAD AND BAG TICKETS MUST BE ADDED TO THE CSWMP.

SOIL PREPARATION

1. IN AREAS TO BE SEEDED, THE UPPER 6 INCHES OF THE SOIL MUST NOT BE HEAVILY COMPACTED, AND SHOULD BE IN FRIABLE CONDITION. LESS THAN 85% STANDARD PROCTOR DENSITY IS ACCEPTABLE. AREAS OF COMPACTION OR GENERAL CONSTRUCTION ACTIVITY MUST BE SCARIFIED TO A DEPTH OF 6 TO 12 INCHES PRIOR TO SPREADING TOPSOIL TO BREAK UP COMPACTED LAYERS AND PROVIDE A BLENDING ZONE BETWEEN DIFFERENT SOIL LAYERS.
2. AREAS TO BE PLANTED SHALL HAVE AT LEAST 4 INCHES OF TOPSOIL SUITABLE TO SUPPORT PLANT GROWTH.
3. THE CITY RECOMMENDS THAT EXISTING AND/OR IMPORTED TOPSOIL BE TESTED TO IDENTIFY SOIL DEFICIENCIES AND ANY SOIL AMENDMENTS NECESSARY TO ADDRESS THESE DEFICIENCIES. SOIL AMENDMENTS AND/OR FERTILIZERS SHOULD BE ADDED TO CORRECT TOPSOIL DEFICIENCIES BASED ON SOIL TESTING RESULTS.
4. TOPSOIL SHALL BE PROTECTED DURING THE CONSTRUCTION PERIOD TO RETAIN ITS STRUCTURE AVOID COMPACTION, AND TO PREVENT EROSION AND CONTAMINATION. STRIPPED TOPSOIL MUST BE STORED IN AN AREA AWAY FROM MACHINERY AND CONSTRUCTION OPERATIONS, AND CARE MUST BE TAKEN TO PROTECT THE TOPSOIL AS A VALUABLE COMMODITY. TOPSOIL MUST NOT BE STRIPPED DURING UNDESIRABLE WORKING CONDITIONS (E.G. DURING WET WEATHER OR WHEN SOILS ARE SATURATED). TOPSOIL SHALL NOT BE STORED IN SWALES OR IN AREAS WITH POOR DRAINAGE.

SEEDING

1. ALLOWABLE SEED MIXES ARE INCLUDED IN THE CITY OF COLORADO SPRINGS STORMWATER CONSTRUCTION MANUAL. ALTERNATIVE SEED MIXES ARE ACCEPTABLE IF INCLUDED IN AN APPROVED LANDSCAPING PLAN.
2. SEED SHOULD BE DRILL–SEEDED WHENEVER POSSIBLE
   - SEED DEPTH MUST BE ⅓ TO ½ INCHES WHEN DRILL–SEEDING IS USED
3. BROADCAST SEEDING OR HYDRO–SEEDING WITH TACKIFIER MAY BE SUBSTITUTED ON SLOPES STEEPER THAN 3:1 OR ON OTHER AREAS NOT PRACTICAL TO DRILL SEED.
   - SEEDING RATES MUST BE DOUBLED FOR BROADCAST SEEDING OR INCREASED BY 50% IF USING A BRILLION DRILL OR HYDRO–SEEDING
   - BROADCAST SEEDING MUST BE LIGHTLY HAND–RAKED INTO THE SOIL

MULCHING

1. MULCHING SHOULD BE COMPLETED AS SOON AS PRACTICABLE AFTER SEEDING, HOWEVER PLANTED AREAS MUST BE MULCHED NO LATER THAN 14 DAYS AFTER PLANTING.
2. MULCHING REQUIREMENTS INCLUDE:
   - HAY OR STRAW MULCH
     - ONLY CERTIFIED WEED–FREE AND CERTIFIED SEED–FREE MULCH MAY BE USED. MULCH MUST BE APPLIED AT 2 TONS/ACRE AND ADEQUATELY SECURED BY CRIMPING AND/OR TACKIFIER.
     - CRIMPING MUST NOT BE USED ON SLOPES GREATER THAN 3:1 AND MULCH FIBERS MUST BE TUCKED INTO THE SOIL TO A DEPTH OF 3 TO 4 INCHES.
     - TACKIFIER MUST BE USED IN PLACE OF CRIMPING ON SLOPES STEEPER THAN 3:1.
   - HYDRAULIC MULCHING
     - HYDRAULIC MULCHING IS AN OPTION ON STEEP SLOPES OR WHERE ACCESS IS LIMITED.
     - IF HYDRO–SEEDING IS USED, MULCHING MUST BE APPLIED AS A SEPARATE, SECOND OPERATION.
     - WOOD CELLULOSE FIBERS MIXED WITH WATER MUST BE APPLIED AT A RATE OF 2,000 TO 2,500 POUNDS/ACRE, AND TACKIFIER MUST BE APPLIED AT A RATE OF 100 POUNDS/ACRE.
   - EROSION CONTROL BLANKET
     - EROSION CONTROL BLANKET MAY BE USED IN PLACE OF TRADITIONAL MULCHING METHODS.

SM

STORMWATER ENTERPRISE

SEEDING & MULCHING

APPROVED:

SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900–SM

SILT FENCE

SF

1.0 DESCRIPTION

- Silt fence is a temporary sediment barrier consisting of woven geotextile fabric attached to supporting posts and trenched into the soil.

2.0 PURPOSE

- Used to intercept sheet flow prior to leaving a construction site.
- May be used around the perimeter of a construction site.

3.0 IMPLEMENTATION

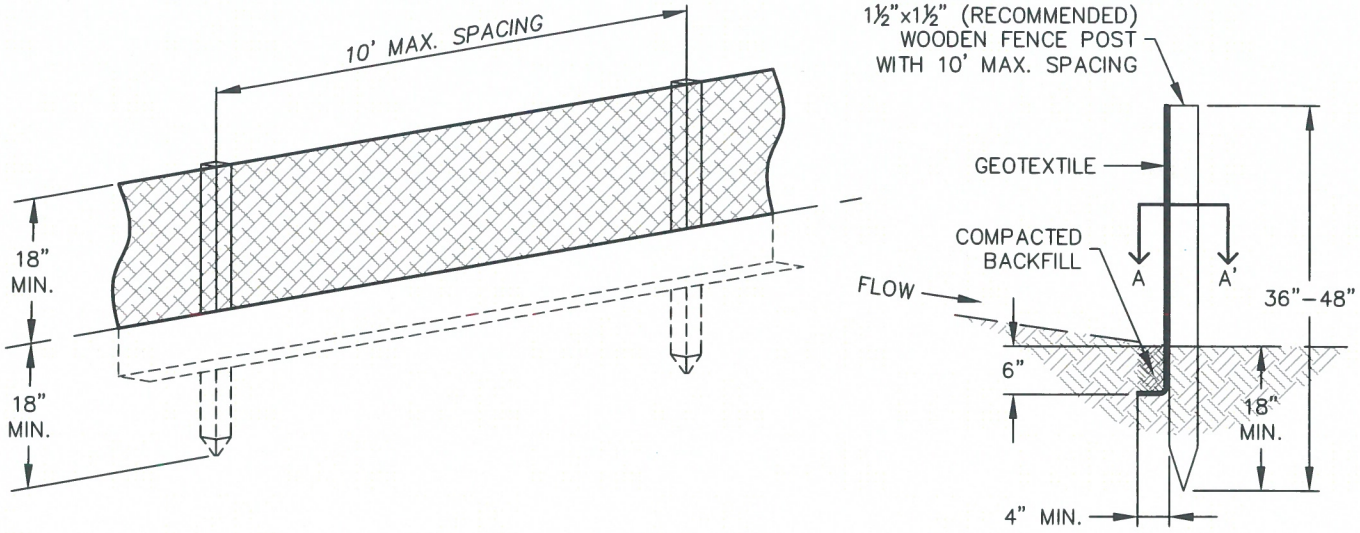
- Install silt fence to intercept sheet flow runoff from disturbed areas.
- Silt fence is not designed to be used as a filter fabric.
- Do not install silt fence across streams, channels, swales, ditches, or other drainageways.
- Install silt fence along the contour of slopes or in a manner to avoid creating concentrated flow (i.e. "J-hook" installation).
- The maximum tributary drainage area per 100 liner feet of silt fence is 1/4 acre.
- Properly installed silt fence should not be easily pulled out by hand and there should be no gaps between the ground and fabric.

4.0 TIMING

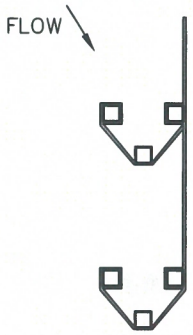
- Install prior to land disturbing activities.
- Remove silt fence after the upstream area has been permanently stabilized.

5.0 MAINTENANCE

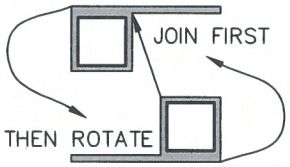
- Remove and properly dispose of sediment when it has accumulated to 1/2 of the height of the exposed silt fence.
- Inspect for and repair or replace damaged silt fence.

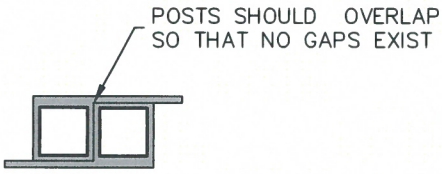


SILT FENCE



J-HOOK INSTALLATION





SECTION A-A'

INSTALLATION NOTES

1. SILT FENCE MUST BE PLACED ON A FLAT SURFACE 2'–5' AWAY FROM TOE OF THE SLOPE TO ALLOW FOR PONDING AND DEPOSITION.
2. COMPACT THE TRENCH USING A JUMPING JACK OR WHEEL ROLLING TO THE POINT THAT THE FENCE RESISTS BEING PULLED OUT OF THE GROUND BY HAND.
3. SILT FENCE SHALL BE TAUT WITH NO SAGS AFTER IT HAS BEEN ANCHORED.
4. FABRIC SHALL BE ATTACHED TO POSTS WITH 1" HEAVY DUTY STAPLES OR 1" NAILS. THESE SHOULD BE PLACED VERTICALLY DOWN THE POST, 3" APART.
5. THE PREFERRED INSTALLATION METHOD USES A TRENCHER OR SILT FENCE INSTALLATION DEVICE.
6. INSTALL SILT FENCE ALONG THE CONTOUR OF THE SLOPES OR IN A MANNER TO AVOID CREATING CONCENTRATED FLOW (SUCH AS A "J–HOOK" INSTALLATION).

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES ½ OF THE DESIGN HEIGHT OF THE SILT FENCE.
3. SILT FENCE MUST REMAIN UNTIL THE UPSTREAM DISTURBANCE AREA IS STABILIZED.
4. PERMANENTLY STABILIZE AREA AFTER SILT FENCE IS REMOVED.

SF

STORMWATER ENTERPRISE

SILT FENCE

APPROVED:
SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900–SF

SLOPE TRACKING

ST

1.0 DESCRIPTION

- Slope tracking is a practice where construction equipment is used to create grooves and depressions that run parallel to the contour of the land on slopes.

2.0 PURPOSE

- Used to create variations in the soil surface that slow down the velocity of runoff, increase infiltration, reduce erosion, and trap soil.

3.0 IMPLEMENTATION

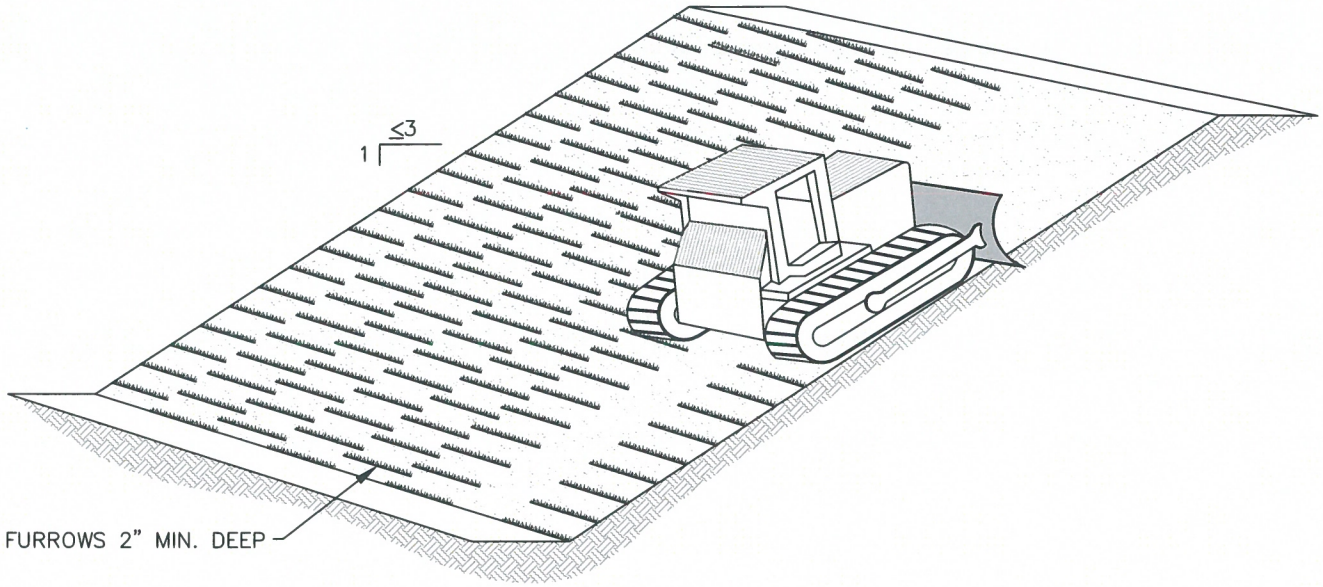
- Use slope tracking on slopes 3:1 or steeper.
- Grooves must be installed along contours to avoid concentrating flow.
- Do not use in areas with extremely sandy or rocky soils.

4.0 TIMING

- Install after land disturbing activities when area is in an interim condition or at final grade.
- Remove prior to permanent stabilization during soil preparation.

5.0 MAINTENANCE

- Inspect areas with tracking for signs of erosion. Repeat slope tracking as needed.
- Do not allow vehicles to drive over tracked areas.



SLOPE TRACKING

INSTALLATION NOTES

1. SLOPE TRACKING MAY BE USED ON SLOPES 3:1 OR STEEPER.
2. TRACKING GROOVES SHALL BE PERPENDICULAR TO THE SLOPE.
3. SLOPE TRACKING SHALL NOT BE USED ON EXTREMELY SANDY OR ROCKY SOILS.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. VEHICLES AND EQUIPMENT SHALL NOT BE DRIVEN OVER AREAS THAT HAVE BEEN SLOPE TRACKED.

ST

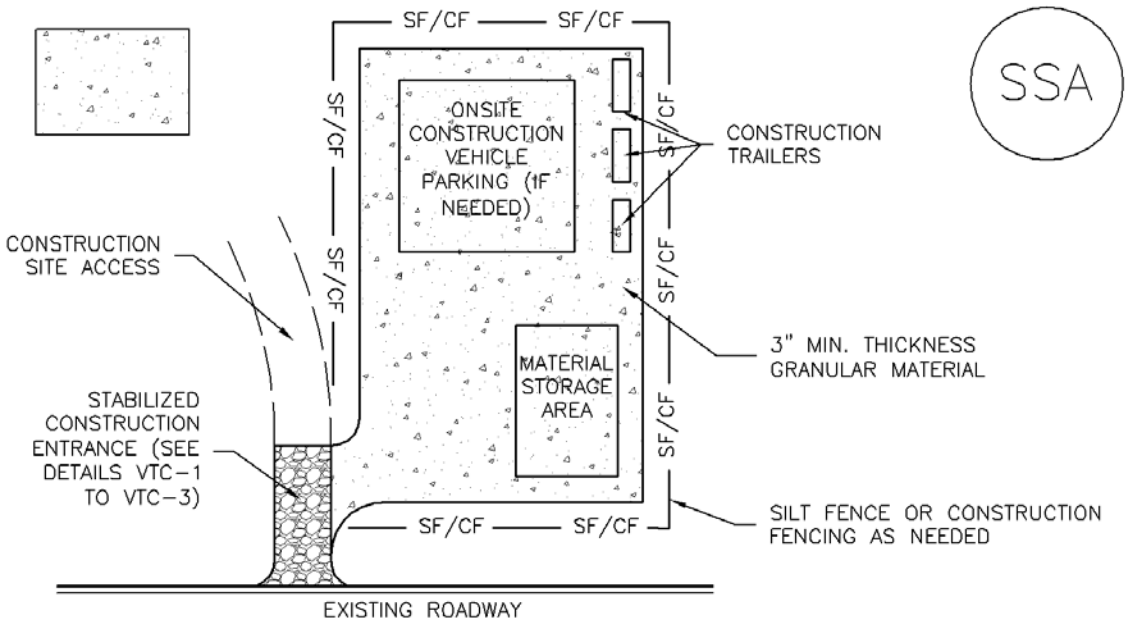
STORMWATER ENTERPRISE

SLOPE TRACKING

APPROVED:

SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-ST



SSA–1. STABILIZED STAGING AREA

STABILIZED STAGING AREA INSTALLATION NOTES

1. SEE PLAN VIEW FOR
   –LOCATION OF STAGING AREA(S).
   –CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.

2. STABILIZED STAGING AREA SHOULD BE APPROPRIATE FOR THE NEEDS OF THE SITE. OVERSIZING RESULTS IN A LARGER AREA TO STABILIZE FOLLOWING CONSTRUCTION.

3. STAGING AREA SHALL BE STABILIZED PRIOR TO OTHER OPERATIONS ON THE SITE.

4. THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM 3" THICK GRANULAR MATERIAL.

5. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.

6. ADDITIONAL PERIMETER BMPs MAY BE REQUIRED INCLUDING BUT NOT LIMITED TO SILT FENCE AND CONSTRUCTION FENCING.

STABILIZED STAGING AREA 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. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY IF RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.

STABILIZED STAGING AREA MAINTENANCE NOTES

5. STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING/LOADING OPERATIONS.

6. THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE LOCAL JURISDICTION, USED ON SITE, AND THE AREA COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.

NOTE: MANY MUNICIPALITIES PROHIBIT THE USE OF RECYCLED CONCRETE AS GRANULAR MATERIAL FOR STABILIZED STAGING AREAS DUE TO DIFFICULTIES WITH RE-ESTABLISHMENT OF VEGETATION IN AREAS WHERE RECYCLED CONCRETE WAS PLACED.

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.

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO, NOT AVAILABLE IN AUTOCAD)

STOCKPILE PROTECTION

SP

1.0 DESCRIPTION

- Perimeter control placed around stockpiles of soil and other erodible materials.

2.0 PURPOSE

- Used to avoid the migration of sediment and other materials from stockpiles.

3.0 IMPLEMENTATION

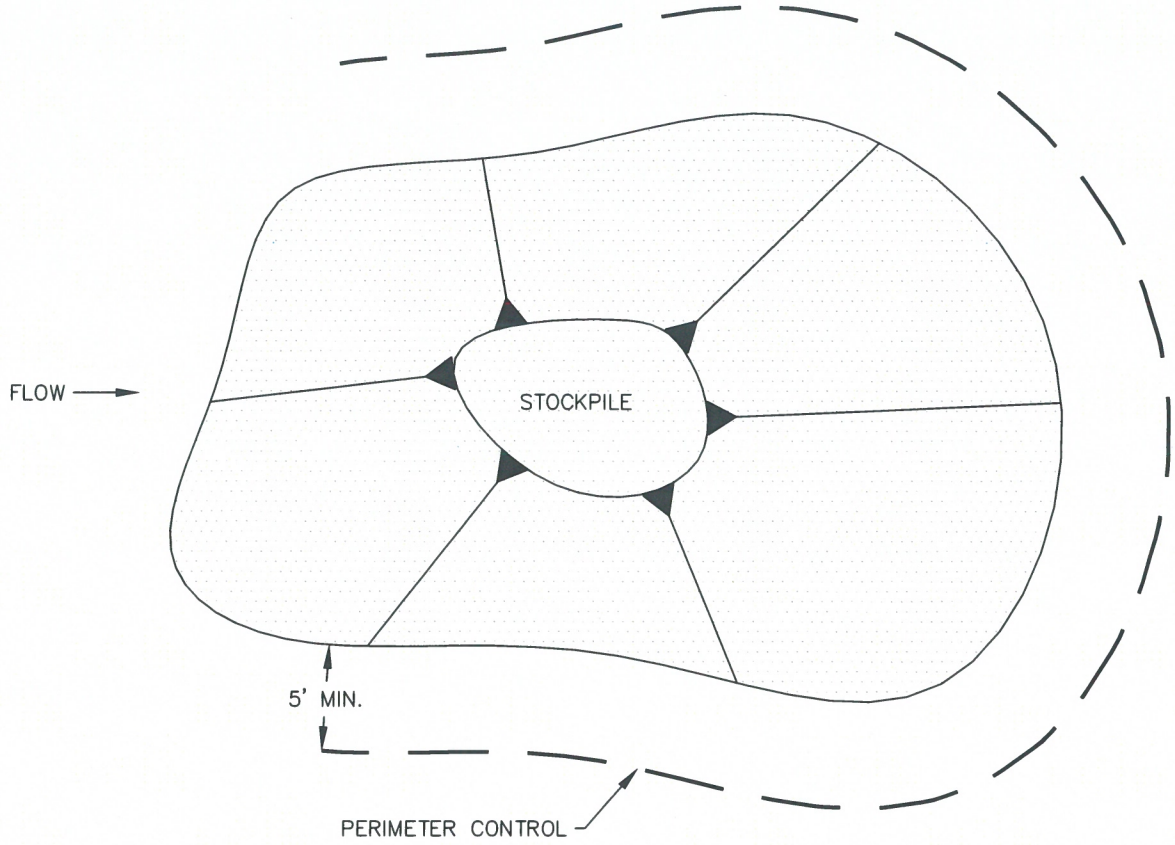
- Install perimeter control around stockpile on downgradient side.
- Stockpile perimeter controls may not be required for stockpiles on the interior portion of a construction site where other downgradient controls including perimeter control are in place.

4.0 TIMING

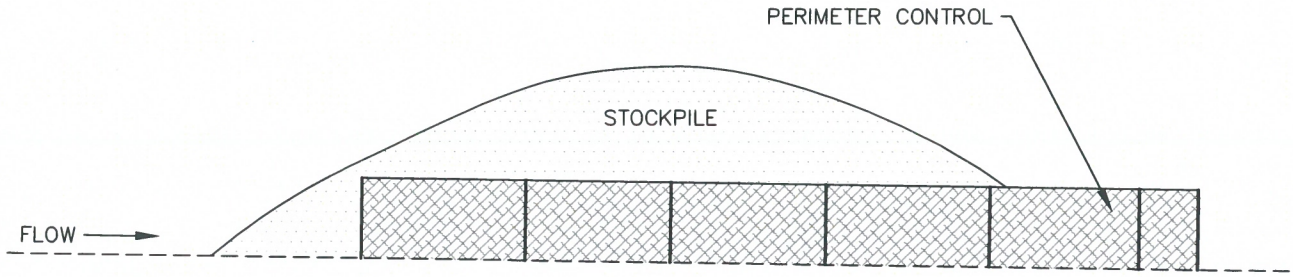
- Install immediately after stockpile has formed or limits are known, whichever occurs first.
- Remove stockpile protection after the stockpile has been removed.

5.0 MAINTENANCE

- Remove and properly dispose of sediment according to the perimeter control detail.
- If perimeter controls must be moved to access stockpile, replace perimeter controls by the end of the work day.
- Inspect for and repair and/or replace perimeter controls as needed to maintain functionality.



STOCKPILE PROTECTION PLAN



STOCKPILE PROTECTION ELEVATION

INSTALLATION NOTES

1. INSTALL PERIMETER CONTROL AROUND STOCKPILE ON DOWNGRADIENT SIDE. PERIMETER CONTROL MUST BE SUITABLE TO SITE CONDITIONS AND INSTALLED ACCORDING TO THE RELEVANT DETAIL.
2. FOR STOCKPILES ON THE INTERIOR PORTION OF A CONSTRUCTION SITE, WHERE OTHER DOWNGRADIENT CONTROLS INCLUDING PERIMETER CONTROL ARE IN PLACE, STOCKPILE PERIMETER CONTROLS MAY NOT BE REQUIRED.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. IF PERIMETER CONTROLS MUST BE MOVED TO ACCESS STOCKPILE, REPLACE PERIMETER CONTROLS BY THE END OF THE WORK DAY.
3. ACCUMULATED SEDIMENT MUST BE REMOVED ACCORDING TO PERIMETER CONTROL DETAIL.

SP

STORMWATER ENTERPRISE

STOCKPILE PROTECTION

APPROVED:

SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-SP

TEMPORARY SEDIMENT BASIN

TSB

1.0 DESCRIPTION

- Temporary sediment basins are small impoundments of water with a small outlet structure built on a construction site.

2.0 PURPOSE

- Used to capture and slowly release runoff prior to discharge from a construction site to allow sediment to settle out.

3.0 IMPLEMENTATION

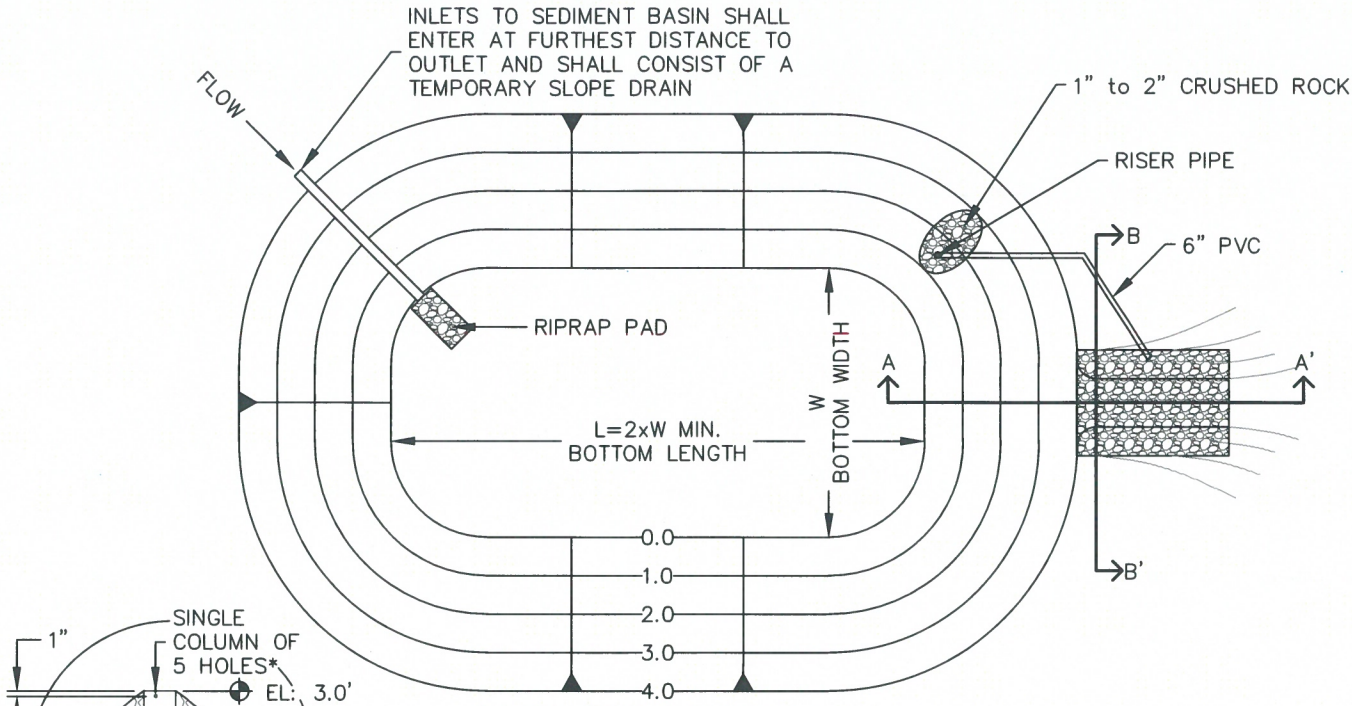
- Temporary sediment basins for drainage areas larger than 15 acres must be individually designed by engineer.
- Erosion and other sediment controls should be implemented upstream of temporary sediment basins.

4.0 TIMING

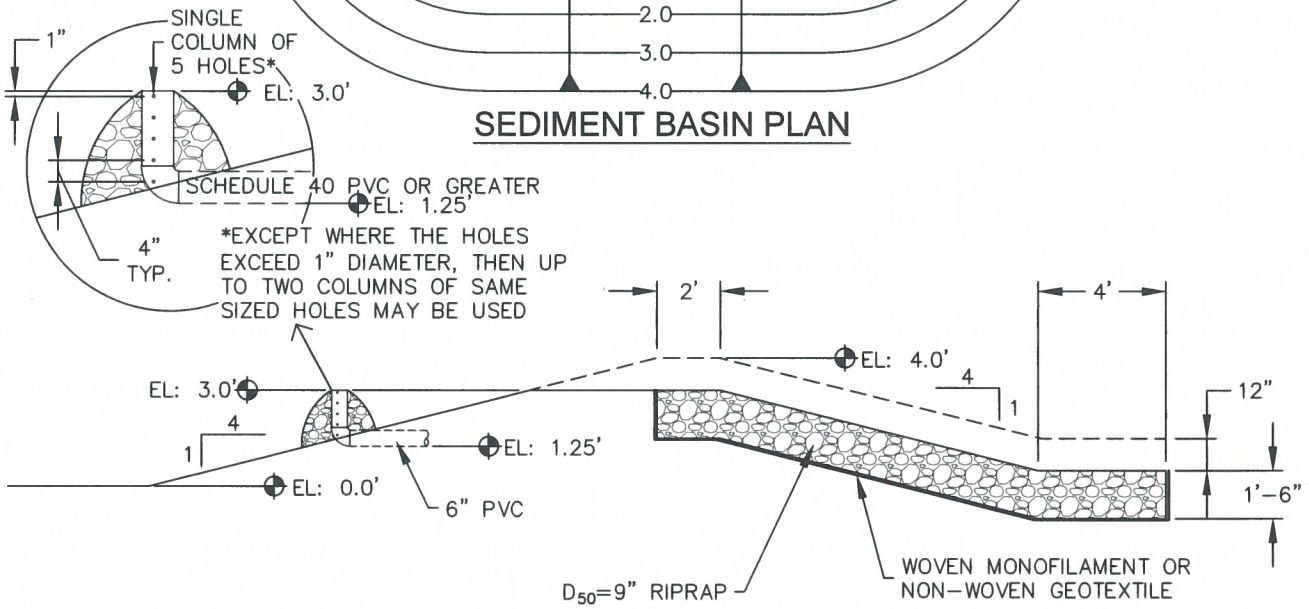
- Install prior to upstream land disturbance.
- Remove temporary sediment basin after upstream area has been stabilized. Permanently stabilize area after basin has been removed.

5.0 MAINTENANCE

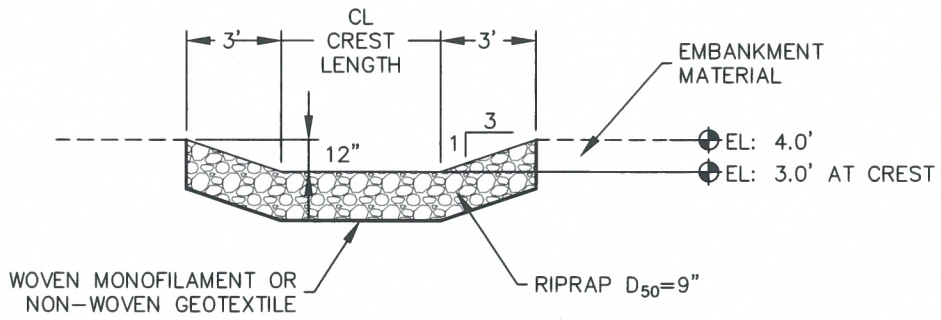
- Remove sediment from basin as needed to maintain the effectiveness of the temporary sediment basin. This is typically when sediment depth reaches one foot.
- Inspect sediment basin embankments for stability and seepage.
- Inspect the inlet and outlet of the basin, repair damage, and remove debris.



SEDIMENT BASIN PLAN



SECTION A-A'



SECTION B-B'

TSB

STORMWATER ENTERPRISE

TEMPORARY SEDIMENT BASIN

APPROVED:

SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-TSB-1

TABLE SB–1, SIZING INFORMATION FOR STANDARD SEDIMENT BASIN

UPSTREAM DRAINAGE AREA (ROUNDED TO NEAREST ACRE), (AC)	BASIN BOTTOM WIDTH (W), (FT)	SPILLWAY CREST LENGTH (CL), (FT)	HOLE DIAMETER (HD), (IN)
1	12½"	2	9/32
2	21	3	13/16
3	28	5	½
4	33½	6	9/16
5	38½	8	21/32
6	43	9	21/32
7	47¼	11	25/32
8	51	12	27/32
9	55	13	⅞
10	58¼	15	15/16
11	61	16	31/32
12	64	18	1
13	67½	19	1 1/16
14	70½	21	1⅛
15	73¼	22	1 3/16

INSTALLATION NOTES

1. FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.
2. EMBANKMENT MATERIAL SHALL CONSIST OF SOIL FREE OF DEBRIS, ORGANIC MATERIAL, AND ROCKS OR CONCRETE GREATER THAN 3 INCHES, AND SHALL HAVE A MINIMUM OF 15 PERCENT BY WEIGHT PASSING THE No. 200 SIEVE
3. EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D–698.
4. PIPE SCHEDULE 40 OR GREATER SHALL BE USED.
5. THE DETAILS SHOWN ON THESE SHEETS PERTAIN TO STANDARD SEDIMENT BASIN(S) FOR DRAINAGE AREAS LESS THAN 15 ACRES. SEE CONSTRUCTION DRAWINGS FOR EMBANKMENT, STORAGE VOLUME, SPILLWAY, OUTLET, AND OUTLET PROTECTION DETAILS FOR ANY SEDIMENT BASIN(S) THAT HAVE BEEN INDIVIDUALLY DESIGNED FOR DRAINAGE AREAS LARGER THAN 15 ACRES. DESIGN CALCULATIONS MUST BE APPROVED PRIOR TO IMPLEMENTATION.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. SEDIMENT ACCUMULATED IN BASIN SHALL BE REMOVED AS NEEDED TO MAINTAIN CONTROL MEASURE EFFECTIVENESS, TYPICALLY WHEN SEDIMENT DEPTH REACHES ONE FOOT (I.E. TWO FEET BELOW SPILLWAY CREST).
3. SEDIMENT BASINS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED.
4. PERMANENTLY STABILIZE AREA AFTER SEDIMENT BASIN REMOVAL.

TSB

STORMWATER ENTERPRISE

TEMPORARY SEDIMENT BASIN

APPROVED:

SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900–TSB–2

APPENDIX D – Erosion and Stormwater Quality Control Permit (ESQCP)

EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP)
EL PASO COUNTY
APPLICATION AND PERMIT

PERMIT NUMBER _____

APPLICANT INFORMATION

Applicant Contact Information	
Owner	D.R Horton
Name (person of responsibility)	Colleen Monahan
Company/Agency	HR Green
Position of Applicant	Civil Engineer
Address (physical address, not PO Box)	1975 Research Parkway Suite 230
City	Colorado Springs
State	Colorado
Zip Code	80920
Mailing address, if different from above	
Telephone	719-394-2433
FAX number	713-965-0044
Email Address	cmonahan@hrgreen.com
Cellular Phone number	917-566-8837

CONTRACTOR INFORMATION

Contractor	
Name (person of responsibility)	
Company	
Address (physical address, not PO Box)	
City	
State	
Zip Code	
Mailing address, if different from above	
Telephone	
FAX number	
Email Address	
Cellular Phone number	
Erosion Control Supervisor (ECS)*	
ECS Phone number*	
ECS Cellular Phone number*	

*Required for all applicants. May be provided at later date pending securing a contract when applicable.

PROJECT INFORMATION

Project Specifications	
Project Name	Eastonville Road Segment 1
Legal Description	
Address (or nearest major cross streets)	Eastonville Road from Londonderry Drive to Grandview Filing 2
Acreage (total and disturbed)	Total: 7.46 acres Disturbed 7.46 acres
Schedule	Start of Construction: Spring 2024 Completion of Construction: Spring 2024 Final Stabilization: Summer 2024
Project Purpose	The purpose of this project is to improve Eastonville Road by resurfacing the existing temporary pavement in the souther portion of the site and replacing the road with a Modified Urban Minor Arterial Roadway Cross-Section in the northern portion of the site as part of the future Grandview Reserve development
Description of Project	The proposed improvements from the southern property line of Grandview Reserve Filing 2 to the southern property line of the proposed Grandview Reserve Filing 1 include resurfacing of the 26' wide temporary pavement and replacing the road with a Modified Urban Minor Arterial Roadway Cross-Section consisting of 48' pavement and Type A EPC curb (53' back of curb to back of curb).
Tax Schedule Number	

FOR OFFICE USE ONLY

The following signature from the ECM Administrator signifies the approval of this ESQCP. All work shall be performed in accordance with the permit, the El Paso County Engineering Criteria Manual (ECM) Standards, City of Colorado Springs Drainage Criteria Manual, Volume 2 (DCM2) as adopted by El Paso County Addendum, approved plans, and any attached conditions. The approved plans are an enforceable part of the ESQCP. Construction activity, except for the installation of initial construction BMPs is not permitted until issuance of a Construction permit and Notice to Proceed.

Signature of ECM Administrator: _____ Date _____

1.1 REQUIRED SUBMISSIONS

In addition to this completed and signed application, the following items must be submitted to obtain an ESQCP:

- Permit fees
- Stormwater Management Plan (SWMP) meeting the requirements of DCM2 and ECM either as part of the plan set or as a separate document;
- Cost estimates of construction and maintenance of construction and permanent stormwater control measures (Cost estimates shall be provided on a unit cost basis for all stormwater BMPs);
- Financial surety in an amount agreeable to the ECM Administrator based on the cost estimates of the stormwater quality protection measures provided. The financial surety shall be provided in the form of a Letter of Credit, Surety with a Bonding Company, or other forms acceptable to El Paso County;
- Operation and Maintenance Plan for any proposed permanent BMPs; and
- Signed Private Detention Basin/Stormwater Quality Best Management Practice Maintenance Agreement and Easement, if any permanent Best Management Practices are to be located on site.

1.2 RESPONSIBILITY FOR DAMAGE

The County and its officers and employees, including but not limited to the ECM Administrator, shall not be answerable or accountable in any manner, for injury to or death of any person, including but not limited to a permit holder, persons employed by the permit holder, persons acting in behalf of the permit holder, or for damage to property resulting from any activities undertaken by a permit holder or under the direction of a permit holder. The permit holder shall be responsible for any liability imposed by law and for injuries to or death of any person, including but not limited to the permit holder, persons employed by the permit holder, persons acting in behalf of the permit holder, or damage to property arising out of work or other activity permitted and done by the permit holder under a permit, or arising out of the failure on the permit holder's part to perform the obligations under any permit in respect to maintenance or any other obligations, or resulting from defects or obstructions, or from any cause whatsoever during the progress of the work, or other activity, or at any subsequent time work or other activity is being performed under the obligations provided by and contemplated by the permit.

To the extent allowed by law, the permit holder shall indemnify, save, and hold harmless the County and its officers and employees, including but not limited to the BOCC and ECM Administrator, from all claims, suits or actions of every name, kind and description brought for or on account of injuries to or death of any person, including but not limited to the permit holder, persons employed by the permit holder, persons acting in behalf of the permit holder and the public, or damage to property resulting from the performance of work or other activity under the permit, or arising out of the failure on the permit holder's part to perform his obligations under any permit in respect to maintenance or any other obligations, or resulting from defects or obstructions, or from any cause whatsoever during the progress of the work, or other activity or at any subsequent time work or other activity is being performed under the obligations provided by and contemplated by the permit, except as otherwise provided by state law. The permit holder waives any and all rights to any type of expressed or implied indemnity against the County, its officers or employees.

1.3 APPLICATION CERTIFICATION

I, as the Applicant or the representative of the Applicant, hereby certify that this application is correct and complete as per the requirements presented in this application and the El Paso County Engineering Criteria Manual and Drainage Criteria Manual, Volume 2 and El Paso County Addendum.

I, as the Applicant or the representative of the Applicant, have read and will comply with all of the requirements of the specified Stormwater Management Plan and any other documents specifying stormwater best management practices to be used on the site including permit conditions that may be required by the ECM Administrator. I understand that the Best Management Practices are to be maintained on the site and revised as necessary to protect stormwater quality as the project progresses. I further understand that a Construction Permit must be obtained and all necessary stormwater quality control BMPs are to be installed in accordance with the SWMP and the El Paso County Engineering Criteria Manual and Drainage Criteria Manual, Volume 2 and El Paso County Addendum before land disturbance begins and that failure to comply will result in a Stop Work Order and may result in other penalties as allowed by law. I further understand and agree to indemnify, save, and hold harmless the County and its officers and employees, including but not limited to the BOCC and ECM Administrator, from all claims, suits or actions of every name, kind and description as outlined in Section 1.2 Responsibility for Damage.

_____ Date:_____

Signature of Applicant or Representative

_____

Print Name of Applicant or Representative

Permit Fee $_____

Surcharge $_____

Financial Surety $_____ Type of Surety _____

Total $_____

APPENDIX E – Financial Assurance Estimate (FAE)

2023 Financial Assurance Estimate Form
(with pre-plat construction)

Updated: 12/8/2022

PROJECT INFORMATION		
Eastonville Road Segment 2	**2/2/2024**	
Project Name	**Date**	**PCD File No.**

Description	Quantity	Units	Unit Cost		Total	(with Pre-Plat Construction) % Complete	Remaining	
SECTION 1 - GRADING AND EROSION CONTROL (Construction and Permanent BMPs)								
Earthwork								*
less than 1,000; $5,300 min		CY	$ 8.00	=	$ -		$ -	*
1,000-5,000; $8,000 min		CY	$ 6.00	=	$ -		$ -	*
5,001-20,000; $30,000 min		CY	$ 5.00	=	$ -		$ -	*
20,001-50,000; $100,000 min		CY	$ 3.50	=	$ -		$ -	*
50,001-200,000; $175,000 min	52,476	CY	$ 2.50	=	$ 175,000.00		$ 175,000.00	*
greater than 200,000; $500,000 min		CY	$ 2.00	=	$ -		$ -	*
Permanent Erosion Control Blanket		SY	$ 8.00	=	$ -		$ -	*
Permanent Seeding (inc. noxious weed mgmnt.) & Mulching	3.0	AC	$ 1,875.00	=	$ 5,625.00		$ 5,625.00	*
Permanent Pond/BMP (provide engineer's estimate)		EA		=	$ -		$ -	*
Concrete Washout Basin		EA	$ 1,089.00	=	$ -		$ -	
Inlet Protection	10	EA	$ 202.00	=	$ 2,020.00		$ 2,020.00	
Rock Check Dam	15	EA	$ 605.00	=	$ 9,075.00		$ 9,075.00	
Safety Fence		LF	$ 3.00	=	$ -		$ -	
Sediment Basin	1	EA	$ 2,132.00	=	$ 2,132.00		$ 2,132.00	
Sediment Trap		EA	$ 500.00	=	$ -		$ -	
Silt Fence	4,148	LF	$ 3.00	=	$ 12,444.00		$ 12,444.00	
Slope Drain		LF	$ 40.00		$ -		$ -	
Straw Bale		EA	$ 31.00	=	$ -		$ -	
Straw Wattle/Rock Sock	88	LF	$ 7.00	=	$ 616.00		$ 616.00	
Surface Roughening		AC	$ 250.00		$ -		$ -	
Temporary Erosion Control Blanket		SY	$ 3.00	=	$ -		$ -	
Temporary Seeding and Mulching		AC	$ 1,666.00	=	$ -		$ -	
Vehicle Tracking Control		EA	$ 2,867.00	=	$ -		$ -	
Cut (Quantity for Reference Only)	15,272	CY	$ -	=	$ -		$ -	
Fill (Quantity for Reference Only)	37,224	CY	$ -		$ -		$ -	
Landscape Roundabout	4,536	SF	$ 3.00		$ 13,609.38		$ 13,609.38	
[insert items not listed but part of construction plans]				=	$ -		$ -	
MAINTENANCE (35% of Construction BMPs)				=	$ 13,963.73		$ 13,963.73	
* - Subject to defect warranty financial assurance. A minimum of 20% shall be retained until final acceptance (MAXIMUM OF 80% COMPLETE ALLOWED)		**Section 1 Subtotal**		**=**	**$ 234,485.11**		**$ 234,485.11**	
SECTION 2 - PUBLIC IMPROVEMENTS *								
ROADWAY IMPROVEMENTS								*
Construction Traffic Control	1.0	LS	$ 5,500.00	=	$ 5,500.00		$ 5,500.00	*
Aggregate Base Course (135 lbs/cf)		Tons	$ 34.00	=	$ -		$ -	*
Aggregate Base Course (135 lbs/cf)	3,160.0	CY	$ 61.00		$ 192,760.00		$ 192,760.00	*
Asphalt Pavement (3" thick)		SY	$ 17.00		$ -		$ -	*
Asphalt Pavement (4" thick)		SY	$ 23.00		$ -		$ -	*
Asphalt Pavement (6" thick)	18,961.0	SY	$ 35.00		$ 663,635.00		$ 663,635.00	*
Asphalt Pavement (147 lbs/cf) __" thick		Tons	$ 106.00	=	$ -		$ -	*
Raised Median, Paved	21,087.0	SF	$ 10.00	=	$ 210,870.00		$ 210,870.00	*
Regulatory Sign/Advisory Sign	45.0	EA	$ 364.00	=	$ 16,380.00		$ 16,380.00	*
Guide/Street Name Sign	7.0	EA	$ 125.00	=	$ 875.00		$ 875.00	*
Epoxy Pavement Marking	4,668.0	SF	$ 16.00	=	$ 74,688.00		$ 74,688.00	*
Thermoplastic Pavement Marking	436.0	SF	$ 28.00	=	$ 12,208.00		$ 12,208.00	*
Barricade - Type 3	3.0	EA	$ 241.00	=	$ 723.00		$ 723.00	*
Delineator - Type I		EA	$ 29.00	=	$ -		$ -	*
Curb and Gutter, Type A (6" Vertical)	7,146.0	LF	$ 35.00	=	$ 250,110.00		$ 250,110.00	*
Curb and Gutter, Type B (Median)	1,893.0	LF	$ 35.00	=	$ 66,255.00		$ 66,255.00	*
Curb and Gutter, Type C (Ramp)		LF	$ 35.00	=	$ -		$ -	*
4" Sidewalk (common areas only)		SY	$ 58.00	=	$ -		$ -	*
5" Sidewalk		SY	$ 72.00	=	$ -		$ -	*
6" Sidewalk	790.0	SY	$ 87.00	=	$ 68,730.00		$ 68,730.00	*
8" Sidewalk		SY	$ 116.00		$ -		$ -	*
Pedestrian Ramp	14.0	EA	$ 1,390.00	=	$ 19,460.00		$ 19,460.00	*
Cross Pan, local (8" thick, 6' wide to include return)	86.0	LF	$ 73.00	=	$ 6,278.00		$ 6,278.00	*
Cross Pan, collector (9" thick, 8' wide to include return)		LF	$ 111.00		$ -		$ -	*
Curb Opening with Drainage Chase		EA	$ 1,790.00	=	$ -		$ -	*
Guardrail Type 3 (W-Beam)		LF	$ 60.00	=	$ -		$ -	*
Guardrail Type 7 (Concrete)		LF	$ 87.00	=	$ -		$ -	*
Guardrail End Anchorage		EA	$ 2,538.00	=	$ -		$ -	*
Guardrail Impact Attenuator		EA	$ 4,556.00	=	$ -		$ -	*
Sound Barrier Fence (CMU block, 6' high)		LF	$ 95.00		$ -		$ -	*
Sound Barrier Fence (panels, 6' high)		LF	$ 97.00	=	$ -		$ -	*
Electrical Conduit, Size =		LF	$ 20.00	=	$ -		$ -	*
Traffic Signal, (provide engineer's estimate)		EA		=	$ -		$ -	*

PROJECT INFORMATION		
Eastonville Road Segment 2	2/2/2024	
Project Name	Date	PCD File No.

Description	Quantity	Units	Unit Cost		Total	(with Pre-Plat Construction) % Complete	Remaining	
Demo (Road)	10,680	SY	$ 1.00	=	$ 10,680.00		$ 10,680.00	
Demo (Fence)	3,551	LF	$ 0.50	=	$ 1,775.50		$ 1,775.50	
Demo (Culvert)	3	EA	$ 250.00	=	$ 750.00		$ 750.00	
Apron Curb	716	LF	$ 32.00	=	$ 22,912.00		$ 22,912.00	
Detectable Warning Surface	14	EA	$ 75.00	=	$ 1,050.00		$ 1,050.00	
[insert items not listed but part of construction plans]				=	$ -		$ -	*
STORM DRAIN IMPROVEMENTS								*
Concrete Box Culvert (M Standard), Size (12W x 3H)	117	LF	$ 750.00	=	$ 87,750.00		$ 87,750.00	*
12" Reinforced Concrete Pipe	150	LF	$ 61.00		$ 9,150.00		$ 9,150.00	
15" Reinforced Concrete Pipe	129	LF	$ 69.00		$ 8,901.00		$ 8,901.00	
18" Reinforced Concrete Pipe	781	LF	$ 76.00	=	$ 59,356.00		$ 59,356.00	*
24" Reinforced Concrete Pipe	162	LF	$ 91.00	=	$ 14,742.00		$ 14,742.00	*
30" Reinforced Concrete Pipe		LF	$ 114.00	=	$ -		$ -	*
36" Reinforced Concrete Pipe		LF	$ 140.00	=	$ -		$ -	*
42" Reinforced Concrete Pipe		LF	$ 187.00	=	$ -		$ -	*
48" Reinforced Concrete Pipe	1,680	LF	$ 228.00	=	$ 383,040.00		$ 383,040.00	*
54" Reinforced Concrete Pipe		LF	$ 297.00	=	$ -		$ -	*
60" Reinforced Concrete Pipe		LF	$ 348.00	=	$ -		$ -	*
66" Reinforced Concrete Pipe		LF	$ 402.00	=	$ -		$ -	*
72" Reinforced Concrete Pipe		LF	$ 460.00	=	$ -		$ -	*
18" Corrugated Steel Pipe		LF	$ 98.00	=	$ -		$ -	*
24" Corrugated Steel Pipe		LF	$ 112.00	=	$ -		$ -	*
30" Corrugated Steel Pipe		LF	$ 143.00	=	$ -		$ -	*
36" Corrugated Steel Pipe		LF	$ 171.00	=	$ -		$ -	*
42" Corrugated Steel Pipe		LF	$ 197.00	=	$ -		$ -	*
48" Corrugated Steel Pipe		LF	$ 207.00	=	$ -		$ -	*
54" Corrugated Steel Pipe		LF	$ 304.00	=	$ -		$ -	*
60" Corrugated Steel Pipe		LF	$ 328.00	=	$ -		$ -	*
66" Corrugated Steel Pipe		LF	$ 397.00	=	$ -		$ -	*
72" Corrugated Steel Pipe		LF	$ 467.00	=	$ -		$ -	*
78" Corrugated Steel Pipe		LF	$ 537.00	=	$ -		$ -	*
84" Corrugated Steel Pipe		LF	$ 642.00	=	$ -		$ -	*
Flared End Section (FES) RCP Size = 18" (unit cost = 6x pipe unit cost)	3	EA	$ 456.00	=	$ 1,368.00		$ 1,368.00	*
Flared End Section (FES) CSP Size = 24 (unit cost = 6x pipe unit cost)	2	EA	$ 972.00	=	$ 1,944.00		$ 1,944.00	*
Flared End Section (FES) CSP Size = 48 (unit cost = 6x pipe unit cost)	2	EA	$ 1,368.00		$ 2,736.00		$ 2,736.00	
End Treatment- Headwall		EA		=	$ -		$ -	*
End Treatment- Wingwall	2	EA		=	$ -		$ -	*
End Treatment - Cutoff Wall		EA		=	$ -		$ -	*
Curb Inlet (Type R) L=5', Depth < 5'		EA	$ 6,703.00	=	$ -		$ -	*
Curb Inlet (Type R) L=5', 5'≤ Depth < 10'		EA	$ 8,715.00	=	$ -		$ -	*
Curb Inlet (Type R) L =5', 10'≤ Depth < 15'		EA	$ 10,092.00	=	$ -		$ -	*
Curb Inlet (Type R) L =10', Depth < 5'	6	EA	$ 9,224.00	=	$ 55,344.00		$ 55,344.00	*
Curb Inlet (Type R) L =10', 5'≤ Depth < 10'		EA	$ 9,507.00	=	$ -		$ -	*
Curb Inlet (Type R) L =10', 10'≤ Depth < 15'		EA	$ 11,901.00	=	$ -		$ -	*
Curb Inlet (Type R) L =15', Depth < 5'		EA	$ 11,995.00	=	$ -		$ -	*
Curb Inlet (Type R) L =15', 5'≤ Depth < 10'		EA	$ 12,858.00	=	$ -		$ -	*
Curb Inlet (Type R) L =15', 10'≤ Depth < 15'		EA	$ 14,061.00	=	$ -		$ -	*
Curb Inlet (Type R) L =20', Depth < 5'		EA	$ 12,783.00	=	$ -		$ -	*
Curb Inlet (Type R) L =20', 5'≤ Depth < 10'		EA	$ 14,109.00	=	$ -		$ -	*
Grated Inlet (Type C), Depth < 5'		EA	$ 5,611.00	=	$ -		$ -	*
Grated Inlet (Type D), Depth < 5'		EA	$ 6,931.00	=	$ -		$ -	*
Storm Sewer Manhole, Box Base	10	EA	$ 14,061.00	=	$ 140,610.00		$ 140,610.00	*
Storm Sewer Manhole, Slab Base		EA	$ 7,734.00	=	$ -		$ -	*
Geotextile (Erosion Control)		SY	$ 8.00	=	$ -		$ -	*
Rip Rap, d50 size from 6" to 24"	577.0	Tons	$ 97.00	=	$ 55,969.00		$ 55,969.00	*
Rip Rap, Grouted		Tons	$ 115.00	=	$ -		$ -	*
Drainage Channel Construction, Size (W x H)		LF	$ -	=	$ -		$ -	*
Drainage Channel Lining, Concrete		CY	$ 689.00	=	$ -		$ -	*
Drainage Channel Lining, Rip Rap		CY	$ 135.00	=	$ -		$ -	*
Drainage Channel Lining, Grass		AC	$ 1,776.00	=	$ -		$ -	
Drainage Channel Lining, Other Stabilization				=	$ -		$ -	*
Grass Lined Swale	2,976	LF	$ 9.00	=	$ 26,784.00		$ 26,784.00	
[insert items not listed but part of construction plans]				=	$ -		$ -	
* - Subject to defect warranty financial assurance. A minimum of 20% shall be retained until final acceptance (MAXIMUM OF 80% COMPLETE ALLOWED)		**Section 2 Subtotal**		**=**	**$ 2,473,333.50**		**$ 2,473,333.50**	

PROJECT INFORMATION		
Eastonville Road Segment 2	2/2/2024	
Project Name	Date	PCD File No.

Description	Quantity	Units	Unit Cost		Total	(with Pre-Plat Construction) % Complete	Remaining
SECTION 3 - COMMON DEVELOPMENT IMPROVEMENTS (Private or District and NOT Maintained by EPC)**							
ROADWAY IMPROVEMENTS							
				=	$ -		$ -
				=	$ -		$ -
				=	$ -		$ -
				=	$ -		$ -
				=	$ -		$ -
				=	$ -		$ -
STORM DRAIN IMPROVEMENTS (Exception: Permanent Pond/BMP shall be itemized under Section 1)							
				=	$ -		$ -
				=	$ -		$ -
				=	$ -		$ -
				=	$ -		$ -
				=	$ -		$ -
				=	$ -		$ -
WATER SYSTEM IMPROVEMENTS							
Water Main Pipe (PVC), Size 8"		LF	$ 78.00	=	$ -		$ -
Water Main Pipe (Ductile Iron), Size 8"		LF	$ 91.00	=	$ -		$ -
Gate Valves, 8"		EA	$ 2,247.00	=	$ -		$ -
Fire Hydrant Assembly, w/ all valves		EA	$ 7,978.00	=	$ -		$ -
Water Service Line Installation, inc. tap and valves		EA	$ 1,601.00	=	$ -		$ -
Fire Cistern Installation, complete		EA		=	$ -		$ -
				=	$ -		$ -
[insert items not listed but part of construction plans]				=	$ -		$ -
SANITARY SEWER IMPROVEMENTS							
Sewer Main Pipe (PVC), Size 8"		LF	$ 78.00	=	$ -		$ -
Sanitary Sewer Manhole, Depth < 15 feet		EA	$ 5,305.00	=	$ -		$ -
Sanitary Service Line Installation, complete		EA	$ 1,696.00	=	$ -		$ -
Sanitary Sewer Lift Station, complete		EA		=	$ -		$ -
				=	$ -		$ -
[insert items not listed but part of construction plans]				=	$ -		$ -
LANDSCAPING IMPROVEMENTS (For subdivision specific condition of approval, or PUD)							
		EA		=	$ -		$ -
		EA		=	$ -		$ -
		EA		=	$ -		$ -
		EA		=	$ -		$ -
		EA		=	$ -		$ -
** - Section 3 is not subject to defect warranty requirements			**Section 3 Subtotal**	**=**	**$ -**		**$ -**

PROJECT INFORMATION		
Eastonville Road Segment 2	2/2/2024	
Project Name	Date	PCD File No.

Description	Quantity	Units	Unit Cost		Total	(with Pre-Plat Construction) % Complete	Remaining
AS-BUILT PLANS (Public Improvements inc. Permanent WQCV BMPs)		LS		=	$ -		$ -
POND/BMP CERTIFICATION (inc. elevations and volume calculations)		LS		=	$ -		$ -

Total Construction Financial Assurance **$ 2,707,818.61**

(Sum of all section subtotals plus as-builts and pond/BMP certification)

Total Remaining Construction Financial Assurance (with Pre-Plat Construction) **$ 2,707,818.61**

(Sum of all section totals less credit for items complete plus as-builts and pond/BMP certification)

Total Defect Warranty Financial Assurance **$ 530,791.70**

(20% of all items identified as (*). To be collateralized at time of preliminary acceptance)

Approvals

I hereby certify that this is an accurate and complete estimate of costs for the work as shown on the Grading and Erosion Control Plan and Construction Drawings associated with the Project.

Engineer (P.E. Seal Required)

Approved by Owner / Applicant — Date

Approved by El Paso County Engineer / ECM Administrator — Date