

**GRADING, EROSION AND SEDIMENT CONTROL PLAN  
FOR  
LYRIC AT RIDGEGATE**

**Prepared For:**

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This *Grading, Erosion and Sediment Control Plan* has been placed in the Lone Tree file for this project and appears to fulfill the applicable Douglas County *Grading, Erosion and Sediment Control*, as amended. I understand that additional grading, erosion and sediment control measures may be required of the Permittees, due to unforeseen erosion problems or if the submitted plan does not function as intended. The requirements of this plan shall run with the land and be the obligation of the Permittees until such time as the plan is properly completed, modified or voided.

**PROJECT OWNER/DEVELOPER SIGNATURE BLOCK**

I have reviewed the information contained within this Grading, Erosion and Sediment Control Plan and accept responsibility for the requirements set forth.

---

Project Owner/Developer

Date

**PLAN PREPARE SIGNATURE BLOCK**

I hereby certify that this Grading, Erosion and Sediment Control Plan for Lyric at Ridgegate was prepared by me (or under my direct supervision) in accordance with the provisions of the *Douglas County Grading, Erosion and Sediment Control Manual* for the owners thereof.

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Aaron Clutter, P.E.

Date

State of Colorado No. 36742

For and on Behalf of JR Engineering, LLC

## Introduction

This report represents the Grading, Erosion and Sediment Control Plan for Lyric at Ridgeway. It was prepared to meet the regulatory requirements of the Douglas County *Grading, Erosion and Sediment Control Manual* as well as the Colorado Department of Health, Water Quality Control Division in compliance with the provisions of the Colorado Water Quality Control Act, and the Federal Water Pollution Control Act.

This plan serves as a consolidated document for information on water quality protection for the subject site and areas immediately adjacent. It should also be noted that **this plan is a living document that will need to be updated and maintained throughout the construction process**. The intent of this plan is to provide the contractor a tool to consolidate records, logs, permits, applications, etc. as well as guidance on water quality protection. The plan incorporates elements that can be found in the contract plans and specifications as well as the following:

- Douglas County Grading, Erosion and Sediment Control Manual
- Drainage Report for the Ridgeway Southwest Village

Lyric at Ridgeway is located in, the Northeast quarter of Section 23 and the Southwest quarter of Section 24, Township 6 South, Range 67 West of the Sixth Principal Meridian, Douglas County, Colorado. The site is bound on the west by Lyric Street, on the east by parcel owned by the City of Lone Tree (Rec. No.: 2021076830), on the north by Ridgeway Parkway, and on the south by Octave Avenue. The site is approximately located at Latitude 39°31'9"N, Longitude 104°50'58" W. The site is shown on the Figure 1, Vicinity Map located within the Appendices. The total disturbance area created by the project is approximately 14.8 acres.

## **Part 1– Site Description**

### **1-A. – Description of the Construction Activity**

The Lyric at Ridgeway project includes construction of 19 condos, 18 townhomes, and Soprano Circles road which will connect into existing Octave Avenue. The scope of working includes installation of water, sanitary sewer, storm sewer infrastructure, paving/parking, detached concrete sidewalk and landscape/irrigation areas. The site will be in both cut and fill.

### **1-B. – Proposed Sequence of Major Activities**

The project will follow standard construction sequences for construction, i.e., clearing and grubbing, over excavation, overlot grading, utility installation, curb and gutter, street paving, and building construction. The contractor will be responsible for implementing and maintaining the erosion and sediment control measures described in this document and the accompanying design drawings. The Contractor may designate these tasks to certain subcontracts as they see fit, but the ultimate responsibility for implementing these controls and their proposer function at each phase of the project remains with the Contractor. The order of major activities will be as follows:

1. Install VTC, silt fence and other perimeter and initial soil erosion control measures.
2. Demolition, clearing and grubbing.
3. Complete over lot grading and over excavation.
4. Install temporary seeding and mulching and final stabilization.
5. Clean up.

### **1-C. – Estimated Total and Disturbance Areas of the Site**

	<b>CUT (C.Y)</b>	<b>FILL (C.Y)</b>	<b>NET (C.Y)</b>		<b>ACRES</b>
LYRIC AT RIDGEGATE	51,405	24,009	27,396	CUT	14.8
TOTAL	51,405	24,009	27,396	CUT	14.8

The platted area of the Lyric at Ridgeway is approximately 15.4 acres. The total disturbance area of the proposed construction activities associated with this report is 14.8 acres. The values shown in the table above are estimates of usable fill and cut materials to be moved within the site. These values were calculated by comparing the existing grade versus the proposed overlot grade using

AutoCAD Civil3D surface analysis tools. In addition, these earthwork values make assumptions for roadway cut and compaction values.

#### **1-D – Estimated Runoff Coefficient and Soil Classification**

The estimated 5-year and 100-year developed runoff coefficients are 0.58/0.65 and 0.65/0.79, respectively. The existing ground is currently undeveloped with a natural vegetative cover with slopes varying from 0-25%, with some areas up to 33%. According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Community Panels No. 08035C0063H dated September 4, 2020, the majority of the site lies within Zone X which is the flood insurance rate zone that corresponds to areas outside the one percent annual chance floodplain. The site soils are mostly described as Englewood clay loam, Fondis-Kutch association, Newlin-Satanta complex, and Renohill-Buick complex by the NRCS soil survey. The majority of soil in the proposed development is classified by the Natural Resource Conservation Service (NRCS) as Hydrologic Group C and D with small portions of the site consisting of Hydrologic Group B. Hydrologic Group B soils are described as “soils that have a moderate infiltration rate when thoroughly wetted and consists primarily of moderately deep to deep, moderately well to well drained soils with moderately fine to moderately coarse textures.” Hydrologic Group C soils are described as “soils that have low infiltration rates when thoroughly wetted and consist chiefly of soils with a layer that impedes downward movement of water and soils with moderately fine to fine structure.” Hydrologic Group D soils are described as “soils that have very low infiltration rates when thoroughly wetted and consist chiefly of clay soils with high swelling potential, soils with a permanent high water table, soils with a claypan or clay layer at or near the surface and shallow soils over nearly impervious material.”

#### **1-E. – Existing Vegetation**

Currently, the site is undeveloped and unoccupied and is vegetated with native grasses and shrubs.

#### **1-F – Other Potential Pollution**

While vehicle fueling is expected on-site, there is no designated area for fueling at this time. It will be the responsibility of the contractor to designate a fueling area and take the appropriate

actions to insure that no pollution of the storm water occurs. Fueling areas shall be located a minimum of 100 feet from all drainage courses whenever possible. A 12-inch high compacted earthen ridge capable of retaining potential spills shall enclose fueling areas. If the fueling area is located on porous soil, the area shall be covered with a non-porous lining to prevent soil contamination. The following is a list of other possible potential pollution sources and prevention measures that may occur during construction.

- Portable Toilets – should be kept a minimum of 50 feet from a storm drain inlet and secured to the ground
- Landscaping Materials – may be stored in the street until work is completed on each lot (which is usually less than 48 hours). If topsoil, mulch, or similar material is to be kept in the street or gutter over-night, containment measures should be taken to minimize any pollution discharge potential.
- Stockpiles – silt fence or similar barrier should be installed as needed around long-term stockpiles (30 days+), as well as Vehicle Tracking Control should be installed at the access point to minimize sediment from leaving the area.

#### **1-G. – Non-stormwater Discharge**

Non-stormwater discharges such as construction dewatering are not allowed under the general State permit. If groundwater is encountered during construction, a construction dewatering permit will need to be obtained through CDPHE.

#### **1-H. – Receiving Waters**

In the existing condition, storm runoff drains in two different directions from the undeveloped site. Runoff from the large south section of the site drains west via sheet flow and existing natural drainage channels and out falls into Happy Canyon Creek. The small north sections of the site drains north into the existing Ridgeway Parkway right of way. Storm runoff is then collected in Curb and Gutter, and drains west into existing inlets. Once collected, storm runoff continues west via storm pipe into an existing water quality pond before outflowing into Happy Canyon Creek. Happy Canyon Creek is left bank tributary of Cherry Creek.

In the proposed condition, the majority of the runoff will be captured using proposed storm sewer infrastructure. The southwest half of the site will sheet flow into the proposed parking/drive lanes where it will collect in the proposed inlets. Collected flows from the inlets will travel south into the existing Octave Avenue storm pipes, flow from this system will be treated by the existing EURV pond located at the southwest corner of Ridgegate Parkway and Lyric Street intersection before out falling into Happy Canyon Creek. The north half of the site will either sheet flow into Ridgegate Parkway and get collected in the existing Ridgegate Parkway inlets or sheet flow into the proposed parking/drive lanes which will collect and drain into the proposed inlets. Once collected by the proposed inlets, drainage will travel north to connect with the existing Ridgegate Parkway storm pipes. Drainage will then follow the existing condition drainage path west into the existing water quality pond before outflowing into Happy Canyon Creek.

## **Part 2. – Site Map**

Refer to the erosion control drawing located within the map pockets for locations of best management practices (BMP).

## **Part 3. – Stormwater Management Controls**

### **3-A. – Stormwater Management Plan (SWMP) Administrator**

The SWMP administrator shall also be known as the erosion and sediment control manager (ESC manager). The ESC manager shall henceforth be the contractor to be named upon completion of the bidding process. The ESC manager shall be the individual(s), position, or title who is responsible for developing, implementing, maintaining, and revising the erosion and sediment control plans. The activities and responsibilities of the administrator shall address all aspects of the facility's SWMP.

### **3-B. – Identification of Potential Pollutant Sources**

Potential pollution sources include debris, emissions from construction vehicles, possible refueling incidents and accidental materials or chemical spills. Specific pollution components and their solutions are listed below:

- All exposed and stored soils – all exposed soils will be seeded and mulched upon



completion of construction within the vicinity. Silt fence will be utilized to contain sediment deposited by runoff until seeding can take. Silt fence or similar barrier should be installed as needed around long-term stockpiles (30 days+), as well as Vehicle Tracking Control should be installed at access points to minimize sediment from leaving the area.

- Vehicle tracking of sediments – if sediment is tracked onto the street, a reasonable attempt will be made to clean up any large deposits as soon as possible and if necessary, a street sweeper shall be used.
- Management of contaminated soils – appropriate measures will be taken to cleanup the cause of the contaminated soil. All contaminated soils must be disposed of in an appropriate manner off-site.
- Loading and unloading operations – should a spill occur during a loading or unloading operation it shall be cleaned up immediately and the on-site personnel should be contacted.
- Outdoor storage activities – materials with potential for contamination of stormwater runoff will be stored so as to prevent/minimize the presence of toxic materials, and designated accordingly. The areas on the construction site used for material storage that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system.
- Vehicle and equipment maintenance and fueling – all designated fueling and maintenance areas shall be located a minimum of 100 feet from all drainage courses whenever possible. If the fueling area is located on porous soil, the area shall be covered with a non-porous lining to prevent soil contamination and any spillage shall be cleaned up immediately.
- Significant dust or particulate generating processes – dust-reducing measures will be taken during construction until appropriate seeding and mulching can be placed.
- Routine maintenance activities involving fertilizers, pesticides, detergents, fuels, solvents, oils, etc. – oil, grease, coolants, etc. that leak onto the soil or impervious surface should be cleaned up as soon as possible and on-site personnel should be contacted as well.
- On-site waste management practices (waste piles, liquid wastes, dumpsters, etc.) –

dumpsters will be utilized as needed to remove trash from the site. Any waste material found on-site or generated by construction will be disposed of in a manner as to not cause pollutants in storm water discharges. In the event that waste is to be stored on-site, it shall be in an area located a minimum of 100 feet from all drainage courses whenever possible. Whenever waste is not stored in a non-porous container, it shall be in an area enclosed by a 12-inch high compacted earthen ridge. If the enclosed waste area is located on porous soil, the area shall be covered with a non-porous lining to prevent soil contamination. Whenever precipitation is predicted or the receptacle is not in use, the waste shall be covered with a non-porous cover, anchored on all sides to prevent its removal by wind, in order to prevent precipitation from leaching out potential pollutants from the waste.

- Non-industrial waste sources such as worker trash and portable toilets – all portable toilets should be kept a minimum of 50 feet from a storm drain inlet and secured to the ground.
- Other areas or procedures where potential spills can occur – no other areas have been identified at this time.
- General litter/construction debris – dumpsters will be utilized as needed to remove trash from the site. Any waste material found on-site or generated by construction will be disposed of in a manner as to not cause pollutants in storm water discharges. In the event that waste is to be stored on-site, it shall be in an area located a minimum of 100 feet from all drainage courses whenever possible. Whenever waste is not stored in a non-porous container, it shall be in an area enclosed by a 12-inch high compacted earthen ridge. If the enclosed waste area is located on porous soil, the area shall be covered with a non-porous lining to prevent soil contamination. Whenever precipitation is predicted, the waste shall be covered with a non-porous cover, anchored on all sides to prevent its removal by wind, in order to prevent precipitation from leaching out potential pollutants from the waste.

### **3-C. – Structural Practices**

#### **Silt Fence**

Purpose:

- To act as a barrier to interrupt runoff to allow sediment to settle out

Typical Applications:

- Perimeter control on lots or tracts
- Around dirt stockpiles

### Vehicle Tracking Control

Purpose:

- To reduce the amount of sediment leaving an area via vehicle's tires

Typical Applications:

- Long-term stockpiles (30 days or more)
- Construction access points
- On-site trailer parking/access
- A barrier between destabilized and stabilized areas

### Sediment Logs, Reinforced Rock Bag

Purpose:

- To act as a barrier to interrupt runoff and allow sediment to settle out

Typical Applications:

- In channels and swales
- Perimeter control on lots, tracts, and medians
- Slope protection
- As part of inlet protection

### Temporary Sediment Basin

Purpose:

- To pond water and collect the sediment that falls out before being discharged into the storm system

Typical Applications:

- During overlot grading before onsite storm system is in place

- Located typically by outfall for the site

#### Check Dam, Reinforced Check Dam

Purpose:

- To act as a barrier to interrupt runoff, slow runoff, and allow sediment to settle out

Typical Applications:

- In channels and swales

#### Temporary Slope Drain

Purpose:

- To convey runoff over steep slopes with minimal erosion potential

Typical Applications:

- Steep slopes prone to erosion

#### Drainage Ditch

Purpose:

- To convey surface water to sediment basins

Typical Applications:

- Transport surface water
- Intercept surface water

#### Stabilized Staging Area

Purpose:

- To provide a stabilized area for construction vehicles and equipment to minimize erosion and disturbance areas

Typical Applications:

- Storage and stock pile location
- Vehicle parking and storage

- Staging area
- Construction trailer location

### Construction Fence

Purpose:

- To control vehicle and foot traffic by creating physical barriers

Typical Applications:

- Site boundary
- Sensitive area protection

### Surface Roughening

Purpose:

- To slow and limit erosion on destabilized areas

Typical Applications:

- Large destabilized areas that need temporary stabilization
- Sloped areas without established vegetation

## 3-C.2. – Non-Structural Practices

### Temporary/Permanent Seeding

Purpose:

- To provide stabilization of disturbed soil

Typical Applications:

- Any disturbed areas
- Stockpiles
- Slopes
- 

### Mulch

Purpose:

- To reduce erosion from rain & wind

- To reduce raindrop impact (soil displacement)
- To protect seed from drying and vermin

Typical Applications:

- Any disturbed areas
- Stockpiles
- Slopes

### *Erosion Control Blanket*

Purpose:

- To prevent erosion of the soil surface
- To promote seed germination & vegetation establishment
- To minimize rain drop impact

Typical Applications:

- Slopes greater than 4:1
- In swales (on lots)
- Fine grade stabilization

### **3-C.3. – Phased BMP Implementation**

The site will be graded in three (3) phases. Plans for each phase have been created to stage the BMPs in order to aid the contractor in the implementation of BMPs as construction progresses.

### **3-C.4. – Materials Handling and Spill Prevention**

There will be a designated individual on-site who will receive training on what to do when a hazardous spill occurs.

There will be a small spill kit on-site containing clean-up supplies, emergency contact information, and report(s) to document occurrences.

Spills must be cleaned up as soon as possible and contaminated soil/materials must be properly disposed of off-site.

### **3-C.5. – Dedicated Concrete or Asphalt Batch Plant**

A dedicated asphalt or concrete batch plant will not be utilized. If at such time a batch plant is used it will be the responsibility of the contractor to update the GESC report and plans in addition to receiving/obtaining all necessary permits.

### **3-C.6. – Vehicle Tracking Control**

The contractor will be responsible for placement of vehicle tracking control measures at the locations of major site entrances. Vehicle tracking control measures include, but are not limited to: minimizing site access; street sweeping or scraping; tracking pads; graveled parking areas; wash racks; and contractor education. As well, if sediment is tracked onto the street, a reasonable attempt will be made to clean up any large deposits as soon as possible and if necessary, a street sweeper may be used.

### **3-C.7. – Waste Management and Disposal**

The contractor will be responsible for placement of concrete washout areas. They will be placed such that concrete washout activities do not result in the discharge of materials, or contribute pollutants to stormwater runoff.

### **3-C.8. – BMP Specifications**

The contractor shall reference the Douglas County *Grading, Erosion and Sediment Control Manual* for information regarding the installation and implementation for each BMP identified in the erosion and sediment control plans.

## **Part 4. – Final Stabilization & Long-term Stormwater Management**

Final Stabilization will be reached when construction activities have ceased and the site has reached 70% vegetative cover in comparison to pre-disturbance levels, or equivalent permanent erosion control measures have been used (pavement, concrete, etc.).

## **Part 5. – Inspection & Maintenance**

Inspections of erosion & sediment control measures will occur every 7 days and within 24 hours of any wet weather event or snowmelt ‘event’ that incurs erosion. The operator shall keep a record of inspections. Uncontrolled releases of mud or muddy water or measurable quantities of sediment found off the site shall be recorded with a brief explanation as to the measures taken to prevent future releases as well as any measure taken to clean up the sediment that has left the site. Any items in need of correction will occur within 7 days of the inspection.

Based on the results of the inspection, the description of potential pollutant sources and the pollution prevention and control measures shall be revised and modified as appropriate as soon as practicable after such inspection. The GESC plan shall also be updated to reflect current conditions, installed BMP’s, disturbed areas, and design changes.

All temporary and permanent erosion and sediment control facilities shall be maintained, repaired, and inspected as detailed in the Douglas County Grading, Erosion, and Sediment Control Manual. Silt fences will require periodic replacement. Sediment traps and sediment basins shall be cleaned when accumulated sediments equal approximately one-half of trap storage capacity. Vehicle tracking pads will need to be maintained with fresh or cleaned aggregate on an as-need basis. Accumulated sediment at inlet protection, silt fence, rock socks, and check dams shall be removed on an as needed basis. The result of each inspection will be recorded & be made available upon request.

### **5-A. – Inspection Reports**

The General Contractor shall be responsible for the reporting of all BMP inspections. A report summarizing the scope of each inspection, the qualification of personnel performing the inspection, the date(s) of the inspection, major observation relating to the implementation of the GESC and action taken shall be made and retained at the site or be readily available at a designated alternate location until the Inactivation Notice has been submitted. All inspection reports shall be submitted to the owner when the Inactivation Notice is filed. A recommended inspection form has been included in the Appendices. A separate report shall be made to identify any incident of non-compliance.



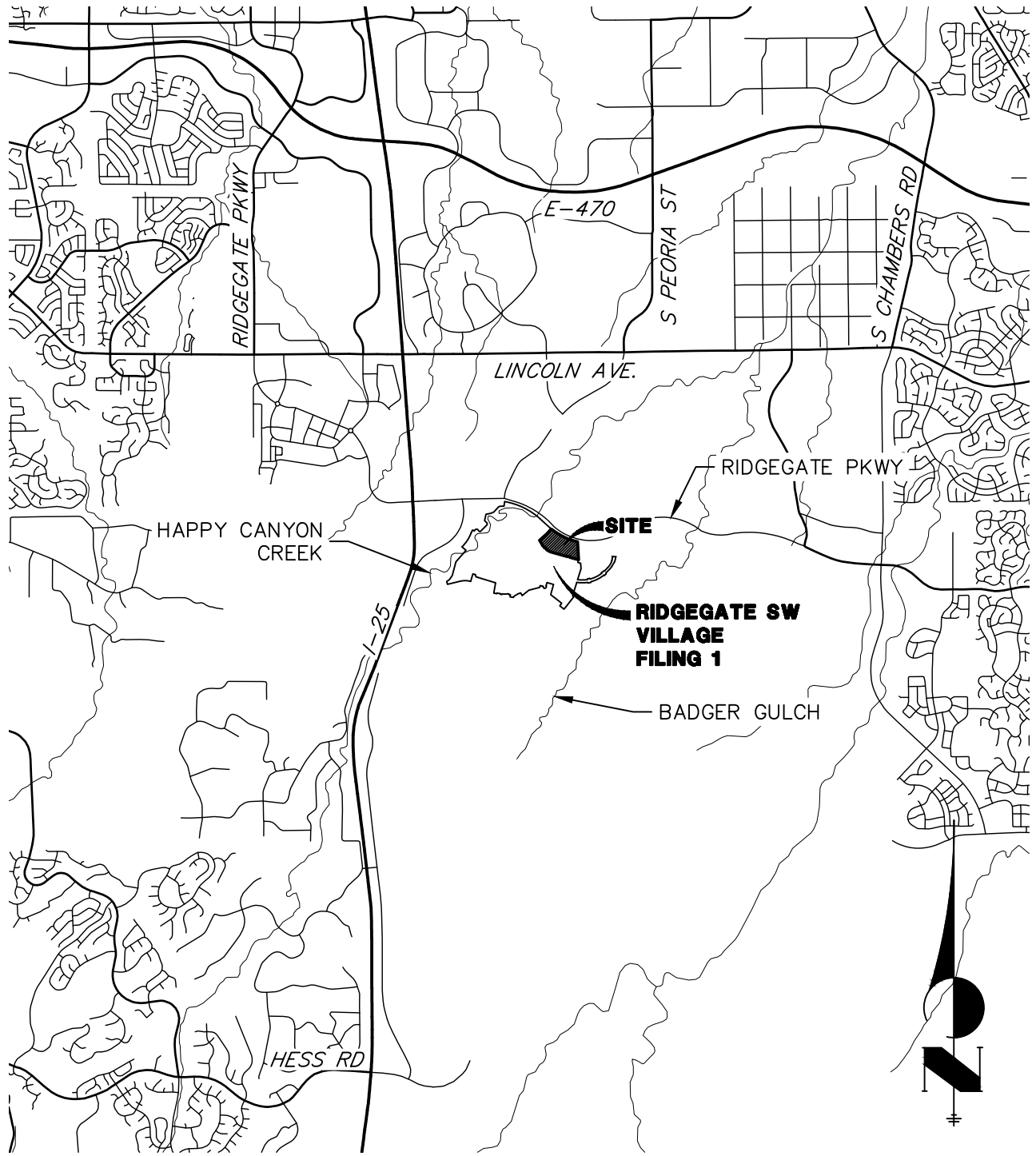
The General Contractor shall also be responsible for ensuring the required Douglas County Inspections and pre-construction meetings are scheduled and requirements are fulfilled.

The operator shall keep a record of inspections onsite or a designated alternative location. Uncontrolled releases of mud or muddy water or measurable quantities of sediment found off the site shall be recorded with a brief explanation as to the measures taken to prevent future releases as well as any measure taken to clean up the sediment that has left the site. This record shall also include the following information:

- ❑ Dates
- ❑ Names of inspectors
- ❑ Purpose of inspection i.e. – routine, spill event, post wet weather, etc.
- ❑ An assessment of the entire property as related to erosion and sediment control issues
- ❑ An evaluation of onsite BMPs
- ❑ Action items needed to assure the site continually complies with the GESC guidelines
- ❑ Documentation of any suggested changes to the plan due to field conditions
- ❑ Training events
- ❑ All record related to this plan including inspection logs shall be maintained by the administrator for a minimum of 3 years from the date that the site is finally stabilized

## **Appendices & Figures**

**Figure 1 – Vicinity Map**



**VICINITY MAP**  
SCALE 1"=5000'

15950.02  
01/10/2022  
SHEET 1 OF 1



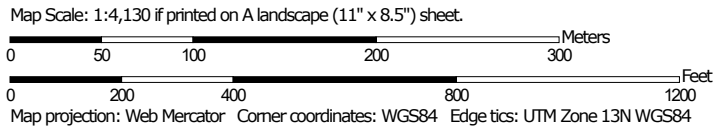
Centennial 303-740-9393 • Colorado Springs 719-593-2593  
Fort Collins 970-491-9888 • [www.jrengineering.com](http://www.jrengineering.com)

**Figure 2 – Soils Map**

Hydrologic Soil Group—Castle Rock Area, Colorado



Soil Map may not be valid at this scale.



## 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 1:20,000.

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

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

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

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

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

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

Soil Survey Area: Castle Rock Area, Colorado  
 Survey Area Data: Version 14, 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: Jun 9, 2021—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
En	Englewood clay loam	C	13.5	44.7%
Fu	Fondis-Kutch association	C	2.8	9.3%
NsE	Newlin-Satanta complex, 5 to 20 percent slopes	B	1.1	3.6%
RmE	Renohill-Buick complex, 5 to 25 percent slopes	D	12.8	42.5%
<b>Totals for Area of Interest</b>			<b>30.2</b>	<b>100.0%</b>

### 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.



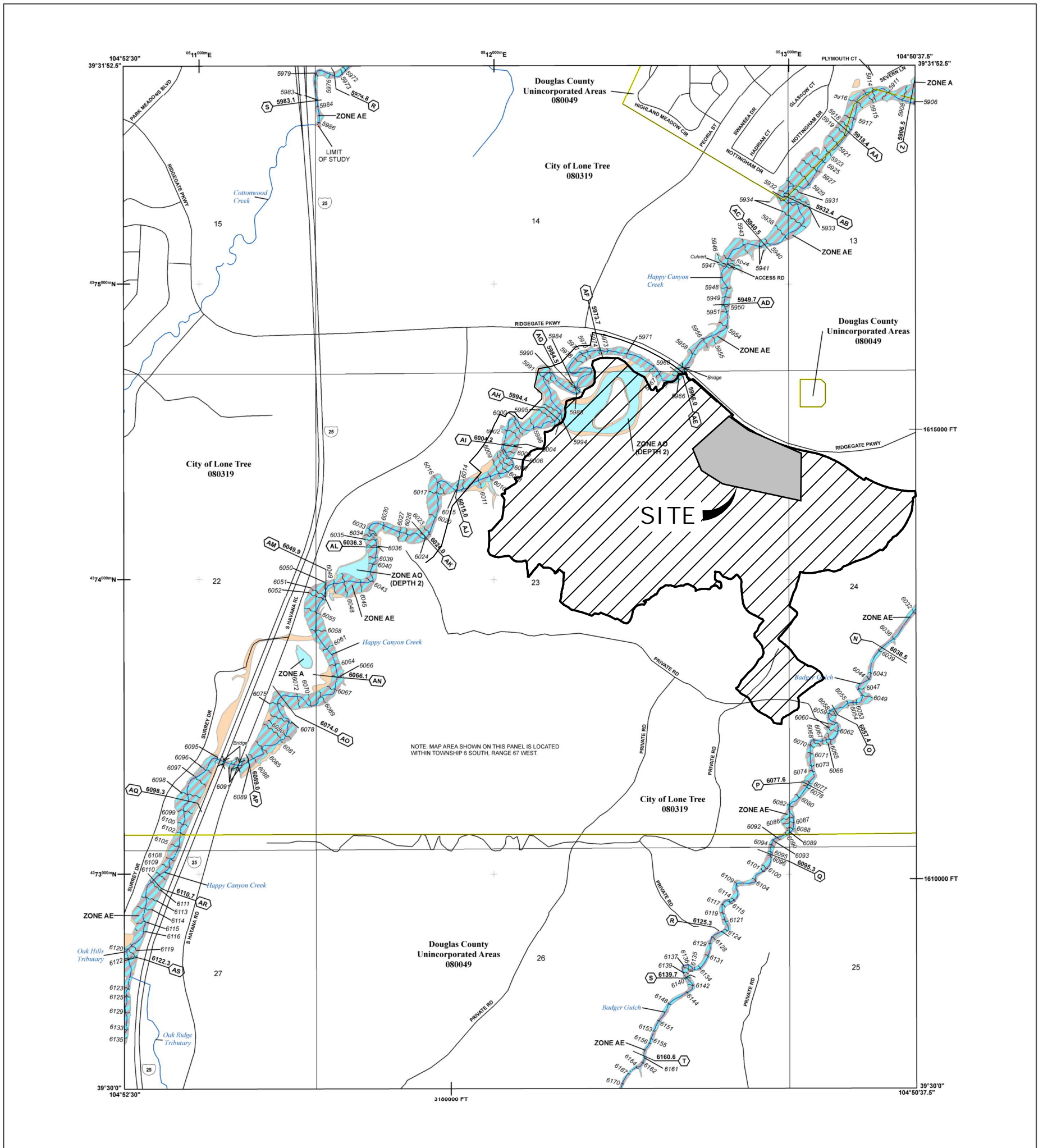
## Rating Options

*Aggregation Method:* Dominant Condition

*Component Percent Cutoff:* None Specified

*Tie-break Rule:* Higher

**Figure 3 – FIRM Map**



**FLOOD HAZARD INFORMATION**

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT. THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT [HTTPS://MSC.FEMA.GOV](https://MSC.FEMA.GOV)

	Without Base Flood Elevation (BFE) Zone A, AS, AV
	With BFE or Depth Zone AE, AO, AH, VE, AR
	Regulatory Floodway
	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
	Future Conditions 1% Annual Chance Flood Hazard Zone X
	Area with Reduced Flood Risk due to Levee See Notes, Zone X
	NO SCREEN Areas of Minimal Flood Hazard Zone X
	Area of Undetermined Flood Hazard Zone D
	Channel, Culvert, or Storm Sewer Accredited or Provisionally Accredited Levee, Dike, or Floodwall
	Non-accredited Levee, Dike, or Floodwall
	Cross Sections with 1% Annual Chance Water Surface Elevation (BFE)
	Coastal Transect
	Coastal Transect Baseline
	Profile Baseline
	Hydrographic Feature
	Base Flood Elevation Line (BFE)
	Limit of Study
	Jurisdiction Boundary

**NOTES TO USERS**

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP), in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-358-2627) or visit the FEMA Flood Map Service Center website at <https://msc.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

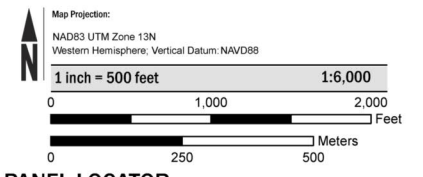
Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study report for this jurisdiction.

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

Base map information shown on this FIRM was provided by the Douglas County GIS Department and the Town of Castle Rock GIS Department. Additional input was provided by the City of Lone Tree and Town of Parker. These data are current as of 2010.

**SCALE**



**PANEL LOCATOR**



**FEMA**  
 National Flood Insurance Program

**NATIONAL FLOOD INSURANCE PROGRAM**  
 FLOOD INSURANCE RATE MAP

**DOUGLAS COUNTY, COLORADO**  
 And Incorporated Areas  
 PANEL 63 OF 495

Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
DOUGLAS COUNTY	080049	0063	H
LONE TREE, CITY OF	080319	0063	H

VERSION NUMBER  
 2.3.3.2

MAP NUMBER  
 08035C0063H

MAP REVISED  
 SEPTEMBER 4, 2020

## **GESC Plans, Cost Estimate & Calculations**



# CITY OF LONE TREE

## GESC Permit Opinion of Probable Cost

<b>Project:</b> Lyric at Ridgeway	<b>Date:</b> September 16, 2022
-----------------------------------	---------------------------------

BMP No.	BMP	ID	Unit	Installation Unit Cost	Quantity	Cost
1	Check Dam	CD	LF	\$ 24.00		\$ -
2	Compost Blanket	CB	SF	\$0.36		\$ -
3	Compost Filter Berm	CFB	LF	\$ 2.00		\$ -
4	Concrete Washout Area	CWA	EA	\$ 100.00	1	\$ 100.00
5	Construction Fence	CF	LF	\$ 2.00		\$ -
6	Construction Markers	CM	LF	\$ 0.20		\$ -
7	Curb Sock	CS	LF	\$ 8.00		\$ -
8	Dewatering	DW	EA	\$ 600.00		\$ -
9	Diversion Ditch	DD	LF	\$ 1.60	1,076	\$ 1,721.60
10	Erosion Control Blanket	ECB	SY	\$ 5.00	3,813	\$ 19,065.00
11	Inlet Protection	IP	LF	\$ 20.00	39	\$ 780.00
12	Reinforced Check Dam	RCD	LF	\$ 36.00		\$ -
13	Reinforced Rock Berm	RRB	LF	\$ 9.00		\$ -
14	RRB for Culvert Protection	RRC	LF	\$ 9.00		\$ -
15	Sediment Basin	SB	AC (1)	(2)	15	\$ 4,000.00
16	Sediment Control Log	SCL	LF	\$ 2.00	8,358	\$ 16,716.00
17	Sediment Trap	ST	EA	\$ 600.00		\$ -
18A	Seeding and Mulching - Mobilization	SM	EA	\$ 1,000.00	1	\$ 1,000.00
18B	Seeding and Mulching - Installation	SM	AC	\$ 750.00	3	\$ 2,250.00
19	Silt Fence	SF	LF	\$ 2.00	3,627	\$ 7,254.00
20	Stabilized Staging Area	SSA	SY	\$ 2.00	1,656	\$ 3,312.00
21	Surface Roughening	SR	AC	\$ 600.00	3	\$ 1,800.00
22	Temporary Slope Drain	TSD	LF	\$ 30.00	39	\$ 1,170.00
23	Temporary Stream Crossing	TSC	EA	\$ 1,000.00		\$ -
24	Terracing	TER	AC	\$ 600.00		\$ -
25	Vehicle Tracking Control	VTC	EA	\$ 1,000.00	2	\$ 2,000.00
26	VTC with Wheel Wash	WW	EA	\$ 1,500.00		\$ -
27	Temporary Batch Plant Restoration		AC	\$ 5,000.00		\$ -
(1) Upstream Tributary Acre				<b>SUB-TOTAL</b>		\$ 61,168.60
(2) SB Cost = \$1000 +\$200(Upstream Tributary Acres)				<b>15% CONTINGENCY</b>		\$ 9,175.29
<b>GESC SURETY TOTAL (1)</b>						<b>\$ 70,343.89</b>

NOTE: (1) **MINIMUM SURETY shall be \$2,500.00** (Per Section 16-31-110 of City Zoning Code) (Rev. 1-18-12)

## **CDPS Permit Application**



# COLORADO

Department of Public Health & Environment

Dedicated to protecting and improving the health and environment of the people of Colorado

ASSIGNED PERMIT NUMBER

Date Received \_\_\_\_/\_\_\_\_/\_\_\_\_  
MM DD YYYY  
Revised: 3-2016

## STORMWATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES APPLICATION COLORADO DISCHARGE PERMIT SYSTEM (CDPS)

**PHOTO COPIES, FAXED COPIES, PDF COPIES OR EMAILS WILL NOT BE ACCEPTED.**

**For Applications submitted on paper - Please print or type. Original signatures are required.**

All items must be completed accurately and in their entirety for the application to be deemed complete. Incomplete applications will not be processed until all information is received which will ultimately delay the issuance of a permit. If more space is required to answer any question, please attach additional sheets to the application form. Applications or signature pages for the application may be submitted by mail or hand delivered to:

Colorado Department of Public Health and Environment, 4300 Cherry Creek Drive South, WQCD-P-B2, Denver, CO 80246-1530

**For Applications submitted electronically**

Please note that you can ONLY complete the feedback form by downloading it to a PC or Mac/Apple computer and opening the Application with Adobe Reader or a similar PDF reader. The form will NOT work with web browsers, Google preview, Mac preview software or on mobile devices using iOS or Android operating systems.

If application is submitted electronically, processing of the application will begin at that time and not be delayed for receipt of the signed document.

Any additional information that you would like the Division to consider in developing the permit should be provided with the application. Examples include effluent data and/or modeling and planned pollutant removal strategies.

**Beginning July 1, 2016, invoices will be based on acres disturbed.**

**DO NOT PAY THE FEES NOW - Invoices will be sent after the receipt of the application.**

Disturbed Acreage for this application (see page 4)

- Less than 1 acre (\$83 initial fee, \$165 annual fee)
- 1-30 acres (\$175 initial fee, \$350 annual fee)
- Greater than 30 acres (\$270 initial fee, \$540 annual fee)

### PERMIT INFORMATION

Reason for Application:  NEW CERT  RENEW CERT EXISTING CERT# \_\_\_\_\_

Applicant is:  Property Owner  Contractor/Operator

### A. CONTACT INFORMATION - \*indicates required

\* PERMITTED ORGANIZATION FORMAL NAME: \_\_\_\_\_

1) \* PERMIT OPERATOR - the party that has operational control over day to day activities - may be the same as owner.

Responsible Person (Title): \_\_\_\_\_

Currently Held By (Person): FirstName: \_\_\_\_\_ LastName: \_\_\_\_\_

Telephone: \_\_\_\_\_ Email Address: \_\_\_\_\_

Organization: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

**Per Regulation 61** : All reports required by permits, and other information requested by the Division shall be signed by the permittee or by a duly authorized representative of that person. A person is a duly authorized representative only if:

- (i) The authorization is made in writing by the permittee
- (ii) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and
- (iii) The written authorization is submitted to the Division

2) **OWNER - party has ownership or long term lease of property - may be the same as the operator.**

Same as 1) Permit Operator

Responsible Person (Title): \_\_\_\_\_

Currently Held By (Person): FirstName: \_\_\_\_\_ LastName: \_\_\_\_\_

Telephone: \_\_\_\_\_ Email Address: \_\_\_\_\_

Organization: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

**Per Regulation 61** : All reports required by permits, and other information requested by the Division shall be signed by the permittee or by a duly authorized representative of that person. A person is a duly authorized representative only if:

- i. The authorization is made in writing by the permittee.
- ii. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a **named individual** or any individual occupying a **named position**); and
- iii. The written authorization is submitted to the Division.

3) **\*SITE CONTACT** local contact for questions relating to the facility & discharge authorized by this permit for the facility

Same as 1) Permit Operator

Responsible Person (Title): \_\_\_\_\_

Currently Held By (Person): FirstName: \_\_\_\_\_ LastName: \_\_\_\_\_

Telephone: \_\_\_\_\_ Email Address: \_\_\_\_\_

Organization: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

4) **\*BILLING CONTACT** if different than the permittee.

Same as 1) Permit Operator

Responsible Person (Title): \_\_\_\_\_

Currently Held By (Person): FirstName: \_\_\_\_\_ LastName: \_\_\_\_\_

Telephone: \_\_\_\_\_ Email Address: \_\_\_\_\_

Organization: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

5) **OTHER CONTACT TYPES (check below) Add pages if necessary:**

Responsible Person (Title): \_\_\_\_\_

Currently Held By (Person): FirstName: \_\_\_\_\_ LastName: \_\_\_\_\_

Telephone: \_\_\_\_\_ Email Address: \_\_\_\_\_

Organization: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Environmental Contact

Consultant

Stormwater MS4 Responsible Person

Inspection Facility Contact

Compliance Contact

Stormwater Authorized Representative



**B) PERMITTED PROJECT/FACILITY INFORMATION**

Project/Facility Name \_\_\_\_\_

Street Address or Cross Streets \_\_\_\_\_

(e.g., Park St and 5 Ave; CR 21 and Hwy 10; 44 Ave and Clear Creek) ; A street name without an address, intersection, mile marker, or other identifying information describing the location of the project is not adequate. For **linear projects**, the route of the project should be described as best as possible using the starting point for the address and latitude and longitude - more clearly defined in the required map )

City: \_\_\_\_\_ County: \_\_\_\_\_ Zip Code: \_\_\_\_\_

**Facility Latitude/Longitude** - List the latitude and longitude of the excavation(s) resulting in the discharge(s). If the exact soil disturbing location(s) are not known, list the latitude and longitude of the center point of the construction project. If using the center point, be sure to specify that it is the center point of construction activity. The preferred method is GPS and Decimal Degrees.

Latitude \_\_\_\_\_ . \_\_\_\_\_ Longitude \_\_\_\_\_ . \_\_\_\_\_ (e.g., 39.70312°, 104.93348°)  
Decimal Degrees (to 5 decimal places)                      Decimal Degrees (to 5 decimal places)

This information may be obtained from a variety of sources, including:

- **Surveyors or engineers** for the project should have, or be able to calculate, this information.
- **U.S. Geological Survey topographical map(s)**, available at area map stores.
- Using a **Global Positioning System (GPS) unit** to obtain a direct reading.
- **Google** - enter address in search engine, select the map, right click on location, and select "what's here".

*Note: the latitude/longitude required above is not the directional degrees, minutes, and seconds provided on a site legal description to define property boundaries.*

**C) MAP (Attachment) If no map is submitted, the application cannot be submitted.**

**Map:** Attach a map that indicates the site location and that CLEARLY shows the boundaries of the area that will be disturbed. A vicinity map is not adequate for this purpose.

**D) LEGAL DESCRIPTION - only for Subdivisions**

**Legal description:** If subdivided, provide the legal description below, or indicate that it is not applicable (**do not** supply Township/Range/Section or metes and bounds description of site)

Subdivision(s): \_\_\_\_\_ Lot(s): \_\_\_\_\_ Block(s) \_\_\_\_\_

OR  Not applicable (site has not been subdivided)

**E) AREA OF CONSTRUCTION SITE - SEE PAGE 1 - WILL DETERMINE FEE**

Provide both the total area of the construction site, and the area that will undergo disturbance, in acres.

Total area of project disturbance site (acres): \_\_\_\_\_

**Note:** aside from clearing, grading and excavation activities, disturbed areas also include areas receiving overburden (e.g., stockpiles), demolition areas, and areas with heavy equipment/vehicle traffic and storage that disturb existing vegetative cover.

Part of Larger Common Plan of Development or Sale, (i.e., total, including all phases, filings, lots, and infrastructure not covered by this application)

**F) NATURE OF CONSTRUCTION ACTIVITY**

Check the appropriate box(es) or provide a brief description that indicates the general nature of the construction activities. (The full description of activities must be included in the Stormwater Management Plan.)

Commercial Development

Residential Development

Highway and Transportation Development

Pipeline and Utilities (including natural gas, electricity, water, and communications)

Oil and Gas Exploration and Well Pad Development

Non-structural and other development (i.e. parks, trails, stream realignment, bank stabilization, demolition, etc.)

**G) ANTICIPATED CONSTRUCTION SCHEDULE**

Construction Start Date: \_\_\_\_\_ Final Stabilization Date: \_\_\_\_\_

- *Construction Start Date* - This is the day you expect to begin ground disturbing activities, including grubbing, stockpiling, excavating, demolition, and grading activities.
- *Final Stabilization Date* - in terms of permit coverage, this is when the site is finally stabilized. This means that all ground surface disturbing activities at the site have been completed, and all disturbed areas have been either built on, paved, or a uniform vegetative cover has been established with an individual plant density of at least 70 percent of pre-disturbance levels. **Permit coverage must be maintained until the site is finally stabilized. Even if you are only doing one part of the project, the estimated final stabilization date must be for the overall project.** If permit coverage is still required once your part is completed, the permit certification may be transferred or reassigned to a new responsible entity(s).

**H) RECEIVING WATERS (If discharge is to a ditch or storm sewer, include the name of the ultimate receiving waters)**

Immediate Receiving Water(s): \_\_\_\_\_

Ultimate Receiving Water(s): \_\_\_\_\_

Identify the receiving water of the stormwater from your site. Receiving waters are any waters of the State of Colorado. This includes all water courses, even if they are usually dry. If stormwater from the construction site enters a ditch or storm sewer system, identify that system and indicate the ultimate receiving water for the ditch or storm sewer. **Note:** a stormwater discharge permit does not allow a discharge into a ditch or storm sewer system without the approval of the owner/operator of that system.

**I) SIGNATURE PAGE**

1. You may print and sign this document and mail the hard copy to the State along with required documents (address on page one).

**2. Electronic Submission Signature**

You may choose to submit your application electronically, along with required attachments. To do so, click the SUBMIT button below which will direct you, via e-mail, to sign the document electronically using the DocuSign Electronic Signature process. Once complete, you will receive via e-mail, an electronically stamped Adobe pdf of this application. Print the signature page from the electronically stamped pdf, sign it and mail it to the WQCD Permits Section to complete the application process (address is on page one of the application).

- The Division encourages use of the electronic submission of the application and electronic signature. This method meets signature requirements as required by the State of Colorado.
- The ink signed copy of the electronically stamped pdf signature page is also required to meet Federal EPA Requirements.
- Processing of the application will begin with the receipt of the valid electronic signature.

**STORMWATER MANAGEMENT PLAN CERTIFICATION**

By checking this box "I certify under penalty of law that a complete Stormwater Management Plan, as described in the stormwater management plan guidance, has been pre-pared for my activity. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the Stormwater Management Plan is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for falsely certifying the completion of said SWMP, including the possibility of fine and imprisonment for knowing violations."

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

"I understand that submittal of this application is for coverage under the State of Colorado General Permit for Stormwater Discharges Associated with Construction Activity for the entirety of the construction site/project described and applied for, until such time as the application is amended or the certification is transferred, inactivated, or expired." [Reg 61.4(1)(h)]

For DocuSign

Electronic Signature \_\_\_\_\_ Ink Signature \_\_\_\_\_ Date: \_\_\_\_\_

Signature of Legally Responsible Person or Authorized Agent (submission must include original signature)

Name (printed)

Title

**Signature:** The applicant must be either the owner and operator of the construction site. Refer to Part B of the instructions for additional information.

The application must be signed by the applicant to be considered complete. In all cases, it shall be signed as follows:

(Regulation 61.4 (1e))

- In the case of corporations, by the responsible corporate officer is responsible for the overall operation of the facility from which the discharge described in the form originates
- In the case of a partnership, by a general partner.
- In the case of a sole proprietorship, by the proprietor.
- In the case of a municipal, state, or other public facility, by either a principal executive officer, ranking elected official, (a principal executive officer has responsibility for the overall operation of the facility from which the discharge originates).

**3rd Party Preparer:** If this form was prepared by an authorized agent on behalf of the Permittee, please complete the field below.

Preparer Name (printed)

Email Address

**DO NOT INCLUDE A COPY OF THE STORMWATER MANAGEMENT PLAN  
DO NOT INCLUDE PAYMENT—AN INVOICE WILL BE SENT AFTER THE CERTIFICATION IS ISSUED.**

<input type="text"/>	<b>Attach Map</b>
<input type="text"/>	<b>Attach File</b>
<input type="text"/>	<b>Attach File</b>
<input type="text"/>	<b>Attach File</b>
<input type="text"/>	<b>Attach File</b>

## **Inspection Form**

# COLORADO DEPARTMENT OF TRANSPORTATION STORMWATER FIELD INSPECTION REPORT - ACTIVE CONSTRUCTION

(1) Project Name: Lyric at Ridgeway	(2) Project Contractor:	(3) Erosion Control Supervisor/SWMP Administrator:	
(4) CDOT Project Engineer/Representative: N/A	(5) Inspector(s) (Name and Title):	(6) CDOT Project Number: N/A	
(7) Project Code (Sub Account #): ###	(8) CDPS-SCP Certification#:	(9) CDOT Region:	(10) Date of Project Inspection:
(11) Weather at Time of Inspection:			

## (12) REASON FOR INSPECTION / EXCLUSION

Routine Inspection: (minimum every 7 Calendar Days)

Runoff Event: (Post-storm event inspections must be conducted within 24 hours after the end of any precipitation or snowmelt event that causes surface erosion. If no construction activities will occur following a storm event, post-storm event inspections shall be conducted prior to re-commencing construction activities, but no later than 72 hours following the storm event. The occurrence of any such delayed inspection must be documented in the inspection record.) Routine inspections still must be conducted every 7 calendar days.  
 Storm Start Date: \_\_\_\_\_ Approximate End Time of Storm (hrs): \_\_\_\_\_

Third Party Request:

Winter Conditions Inspections Exclusion: Inspections are not required at sites where construction activities are temporarily halted, snow cover exists over the **entire site** for an extended period, and **melting conditions posing a risk of surface erosion do not exist**. This exception is applicable **only** during the period where **melting conditions do not exist**, and applies to the routine 7-day inspections, as well as the post-storm-event inspections. If **visual inspection** of the site verifies that all of these conditions are satisfied, document the conditions in section 18 (General Notes) and proceed to section 19 (Inspection Certification). Documentation must include: dates when snow cover occurred, date when construction activities ceased, and date when melting conditions began.

Other:

## (13) SWMP MANAGEMENT

## (14) CURRENT CONSTRUCTION ACTIVITIES:

	Yes	No	NA	
(a) Is the SWMP notebook located on site?				Estimate of disturbed area at the time of the inspection: _____ Acres
(b) Are changes to the SWMP documents noted and approved?				
(c) Are the inspection reports retained in the SWMP notebook?				
(d) Are corrective actions from the last inspection completed?				
(e) Is a Spill Prevention Control and Countermeasure Plan retained at the project site?				
(f) Is a list of potential pollutants retained at the site?				

## (15) BMPs ON SITE AT TIME OF INSPECTION

\*See Inspection Report Instructions for more detail.

	In SWMP	Used	Not Needed at this time		In SWMP	Used	Not Needed at this time
<b>(a) EROSION CONTROL BMPs ON SITE</b>				<b>(b) SEDIMENT CONTROL BMPs ON SITE</b>			
Seeding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Stabilized Const. Entrance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mulching/Mulch Tackifier	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sediment Trap	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soil Binder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Inlet Protection*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soil Retention Blankets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sediment Basin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Embankment Protector*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Perimeter Control*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Grading Techniques*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Berm/Diversion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<b>(d) MATERIALS HANDLING, SPILL PREVENTION, WASTE MANAGEMENT AND GENERAL POLLUTION PREVENTION</b>			
Check Dams*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Stockpile Management*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Outlet Protection*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Materials Management*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Concrete Waste Management*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>(c) BMPs FOR SPECIAL CONDITIONS</b>				Saw Water Management*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dewatering Structure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Solid Waste/Trash Management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Temp. Stream Crossing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Street Sweeping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clear Water Diversion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sanitary Facility*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sensitive Area Fencing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Vehicle and Equip. Management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**(16) CONSTRUCTION SITE ASSESSMENT & CORRECTIVE ACTIONS** \*\*Off site Pollutant Discharges are a Violation of the Permit and Reason for Immediate Project Suspension\*\*

The construction site perimeter, all disturbed areas, material and/or waste storage areas that are exposed to precipitation, discharge locations, and locations where vehicles access the site shall be inspected for evidence of, or the **potential** for, pollutants leaving the construction site boundaries, entering the stormwater drainage system, or discharging to state waters. If there is evidence of sediment or other pollutants discharging from the site, see section 17 (Construction Site Assessment).

All erosion and sediment control practices identified in the SWMP shall be evaluated to ensure that they are maintained and operating correctly. Identify the condition of the BMP, using more than one letter if necessary: **(I)** Incorrect Installation; **(M)** Maintenance is needed; **(F)** BMP failed to operate; **(A)** Additional BMP is needed; **(R)** Remove BMP. Keep copies of this blank page for additional room if needed.

Continuous maintenance is required on all BMPs. **BMPs that are not operating effectively, have proven to be inadequate, or have failed must be addressed as soon as possible, immediately in most cases.**

Location	BMP	Condition	Comments:		Date Completed & Initials
			Description of Corrective Action and Preventative Measure Taken		

**(17) CONSTRUCTION SITE ASSESSMENT:\*\*OFF SITE POLLUTANT DISCHARGES ARE A VIOLATION OF THE PERMIT AND REASON FOR IMMEDIATE PROJECT SUSPENSION\*\***

- (a) Is there evidence of discharge of sediment or other pollutants from the site?     Yes     No
- \*If yes, explain the discharge and the corrective actions in section 16 (Construction Site Assessment & Corrective Actions) or section 18 (General Notes).
- (b) Has sediment or other pollutants discharging from the site reached state waters?     Yes     No
- \*If yes, see subsection 208.03(c) and Part II A.2 and 3 of the permit for reporting requirements.

**(18) GENERAL NOTES**


**(19) INSPECTION CERTIFICATION**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Contractor's Erosion Control Supervisor/SWMP Administrator (Signature Required)	Date:
CDOT Project Engineer/CDOT Designee (Signature Required)	Date:

**(20) COMPLIANCE CERTIFICATION**

Corrective action(s) has been taken, or where a report does not identify any incidents requiring corrective action, the report shall contain a signed statement indicating the site is in compliance with the permit to the best of the signer's knowledge and belief.

Contractor's Erosion Control Supervisor/SWMP Administrator (Signature Required)	Date:
CDOT Project Engineer/CDOT Designee (Signature Required)	Date:

## Stormwater Management Field Inspection Report Instructions

**State waters** are defined to be any and all surface and subsurface waters which are contained in or flow through the state, including, streams, rivers, lakes, drainage ditches, storm drains, ground water, and wetlands, but not including waters in sewage systems, waters in treatment works or disposal systems, waters in potable water distribution systems, and all water withdrawn for use until use and treatment have been completed. (Per subsection 107.25 and 25-8-103 (19) CRS)

**(3) Erosion Control Supervisor/SWMP Administrator:** Indicate the name of the individual responsible for implementing, maintaining and revising the SWMP.

**(4) CDOT Project Engineer/Representative:** Indicate the name of the CDOT representative performing the inspection with the ECS/SWMP Administrator. This person should be the Project Engineer or an authorized representative.

**(9) CDPS-SCP Certification #:** Indicate the Colorado Discharge Permit System (CDPS) Stormwater Construction Permit (SCP) (for Stormwater Discharges Associated with Construction Activities) certification number, issued by CDPHE, for the project which the report is being completed. Certification number can be found on the first page of the SCP.

**(12) Reason(s) for Inspection / Exclusion:** Indicate the purpose for the inspection or exclusion. These inspections are required to comply with the CDOT Specifications and the CDPS-SCP.

Routine Inspections. These inspections are required at least every 7 calendar days during active construction. Suspended projects require the 7 calendar day inspection unless snow cover exists over the entire site for an extended period of time, and melting conditions do not exist (see, Winter Conditions Inspections Exclusions).

Runoff Event Inspection for Active Sites. See page 1 for definition.

Third Party Request. Indicate the name of the third party requesting the inspection and, if known, the reason the request was made.

Winter Conditions Inspections Exclusions. See page 1 for definition. An inspection does not need to be completed, but use this form to document the conditions that meet the Exclusion.

Other. Specify any other reason(s) that resulted in the inspection.

**(13) SWMP Management:** Review the SWMP records and documents and use a ✓ to answer the question. To comply with CDOT Standard Specifications and the CDPS-SCP, all of the items identified must be adhered to. If No is checked, document the reason and indicate the necessary corrective action in section 16 (Construction Site Assessment & Corrective Actions). If NA is checked, indicate why in the space provided or indicate in section 18 (General Notes).

**(a)** Is the SWMP notebook located on site? A copy of the SWMP notebook must be retained on site, unless another location, specified by the permit, is approved by the Division.

**(b)** Are changes to the SWMP documents noted and approved? Indicate all changes that have been made to any portion of the SWMP notebook documents during construction. Changes shall be dated and signed at the time of occurrence. Amendments may include items listed in subsection 208.03(c).

**(c)** Are the inspection reports retained in the SWMP notebook? The ECS/Engineer shall keep a record of inspections. Inspection reports must identify any incidents of non-compliance with the terms and conditions of the CDOT specifications or the CDPS-SCP. Inspection records must be retained for three years from expiration or inactivation of permit coverage.

**(d)** Are corrective actions from the last inspection completed? Have corrective actions from the last inspection been addressed? Is a description of the corrective action(s), the date(s) of the corrective action(s), and the measure(s) taken to prevent future violations (including changes to the SWMP, as necessary) documented?

**(e)** Is a Spill Prevention Control and Countermeasure (SPCC) Plan retained in the SWMP notebook? Subsection 208.06(c) requires that a SPCC plan be developed and implemented to establish operating procedures and that the necessary employee training be provided to minimize accidental releases of pollutants that can contaminate stormwater runoff. Records of spills, leaks or overflows that result in the discharge of pollutants must be documented and maintained. Information that should be recorded for all occurrences include the time and date, weather conditions, reasons for spill, etc. Some spills may need to be reported to the Water Quality Control Division immediately.

**(f)** Is a list of potential pollutants retained at the site? Subsection 107.25(b)6 requires the Erosion Control Supervisor to identify and describe all potential pollutant sources, including materials and activities, and evaluate them for the potential to contribute pollutants to stormwater discharge.

**(14) Current Construction Activities:** Provide a short description of the current construction activities/phase at the project site; include summary of grading activities, installation of utilities, paving, excavation, landscaping, etc.

- Estimate the acres of disturbed area at the time of the inspection. Include clearing, grading, excavation activities, areas receiving overburden (e.g. stockpiles), demolition areas and areas with heavy equipment/vehicle traffic, installation of new or improved haul roads and access roads, staging areas, borrow areas and storage that will disturb existing vegetative cover.

**(15) BMPs On Site at Time of Inspection:** Indicate the BMPs that are installed on-site at the time of inspection. All BMP details (e.g., Standard Plan M-208-1) shall be included with the SWMP documents.



## Stormwater Management Field Inspection Report Instructions (continued)

BMPs In SWMP/Used/Not Needed at this Time. This section can be used as follows:

- If the BMP is required by the SWMP and implemented, indicate by placing a ✓ in both the “In SWMP” and “Used” columns.
- If the BMP is required by the SWMP, but not implemented, indicate by placing a ✓ in the “In SWMP” and “Not Needed at this Time” columns.

### (a) Erosion Control BMPs On Site

- Embankment Protector (e.g., temporary slope drains, open-chute drains, etc.)
- Grading Techniques (e.g., vertical tracking, scarifying, or disking the surface on the contour, etc.)
- Check Dams (e.g., rock check, erosion logs, erosion bales, silt berms, etc.)
- Outlet Protection (e.g., riprap, erosion log around top of headwall, etc.)

### (b) Sediment Control BMPs On Site

- Inlet Protection (e.g., erosion logs, erosion bales, sand bags, gravel bags, etc.)
- Perimeter Control (e.g., silt fence, erosion logs, berms, etc.)

### (d) Materials Handling, Spill Prevention, Waste Management and General Pollution Prevention

- Stockpile Management. Stockpiles shall be located away from sensitive areas. All erodible stockpiles (including topsoil) shall be contained by silt fence, berms or other sediment control devices throughout construction (also see subsection 208.07).
- Materials Management. Material that could contribute pollutants to stormwater shall have secondary containment or other equivalent protection (also see subsection 208.06(a)).
- Concrete Waste Management. All concrete residue shall be contained in a signed structure as designed per subsection 208.02(j) and subsection 208.05(n). It shall be located a minimum of 50 feet from state waters.
- Saw Water Containment (e.g., pick-up broom or vacuum). Street washing is *not* allowed.
- Sanitary Facility. Temporary sanitary facilities shall be located 50 feet away from drainage ways, inlets, receiving waters, and located away from areas of high traffic, and areas susceptible to flooding or damage by construction equipment.

**(16) Construction Site Assessment & Corrective Actions:** Inspect the construction site and indicate where BMP feature(s) identified in section 15 (BMPs On Site at Time of Inspection), require corrective action. Erosion and sediment control practices identified in the SWMP shall be evaluated to ensure that they are operating correctly.

- Location. Site location (e.g., project station number, mile marker, intersection quadrant, etc.).
- BMP. Indicate the type of BMP at this location that requires corrective action (e.g., silt fence, erosion logs, soil retention blankets, etc.).
- Condition. Identify the condition of the BMP, using more than one letter (identified in section 16) if necessary.
- Description of Corrective Action and Preventative Measure Taken. Provide the proposed corrective action needed to bring the area or BMP into compliance. Once corrective actions are completed, state the measures taken to prevent future violations and ensure that the BMPs are operating correctly, including the required changes made to the SWMP.
- Date Completed & Initials. Date and initial when the corrective action was completed and the preventative measure statement finished.

**(17) Construction Site Assessment:** Was there any off site discharge of sediment at this site since the last inspection?

**(a)** Is there evidence of discharge of sediment or other pollutants from the site? **Off site pollutant discharges are a violation of the permit.** The construction site perimeter, all disturbed areas, material and/or waste storage areas that are exposed to precipitation, discharge locations, and locations where vehicles access the site shall be inspected for evidence of, or the **potential** for, pollutants leaving the construction site boundaries, entering the stormwater drainage system, or discharging to state water.

**(b)** Has sediment or other pollutants discharging from the site reached state waters? **Off site pollutant discharges are a violation of the permit.** If off site discharge has occurred, explain the discharge and the corrective actions in section 16 (Construction Site Assessment & Corrective Actions) or section 18 (General Notes).

**(18) General Notes:** Indicate any additional notes that add detail to the inspection; this may include positive practices noted on the project.

**(19) Inspection Certification:** In accordance with Part I, F.1.c of the CDPS-SCP, all reports for submittal shall be signed and certified for accuracy.

**(20) Compliance Certification:** In accordance with Part I, D.6.b.2.viii of the CDPS-SCP, compliance shall be certified through signature.

## **Inactivation Form**



Dedicated to protecting and improving the health  
 and environment of the people of Colorado

Effective date \_\_\_\_\_

**COLORADO WATER QUALITY CONTROL DIVISION TERMINATION APPLICATION**

Print or type all information. Mail original form with ink signature to the following address. Emailed and Faxed forms will not be accepted. All items must be filled out completely and correctly. If the form is not complete, you will be asked to resubmit it.

Colorado Dept of Public Health and Environment  
 Water Quality Control Division WQCD-P-B2  
 4300 Cherry Creek Drive South  
 Denver CO 80246-1530

**PART A. IDENTIFICATION OF PERMIT OR AUTHORIZATION** - Please limit submission to one permit, certification, or authorization per form. All permit termination dates are effective on the date approved by the division. Processing times vary by type of discharge. Some discharge types require onsite inspections to verify information in this application.

**PERMIT, CERTIFICATION, OR AUTHORIZATION NUMBER (DOES NOT END IN 0000)** \_\_\_\_\_

**PART B. PERMITTEE INFORMATION**

Company Name \_\_\_\_\_

Legal Contact First Name \_\_\_\_\_ Last Name \_\_\_\_\_

Title Permits\_SWConstruction

Mailing Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

Phone \_\_\_\_\_ Email address \_\_\_\_\_

**PART C. FACILITY OR PROJECT INFORMATION**

Facility/Project name \_\_\_\_\_

Location/Address \_\_\_\_\_

City \_\_\_\_\_ County \_\_\_\_\_

Local contact name \_\_\_\_\_ Title \_\_\_\_\_

Phone \_\_\_\_\_ Email address \_\_\_\_\_

**PART D. TERMINATION INFORMATION QUESTIONS** Provide information for Part D that applies to your facility and termination request. Not all questions need to be answered- only the part that applies to your facility.

Part D1 covers facilities no longer in operation.

Part D2 covers mining facilities no longer in operation

Part D3 covers facilities in operation but no longer discharging or needing permit coverage.

Part D4 covers Stormwater Construction facilities where construction is complete and the site is stabilized.

\*\*Please answer questions as completely as possible to assist in timely approval of this termination request.\*\*

**D1. FACILITY IS NO LONGER IN OPERATION AT THIS LOCATION**

All activities and discharges at the identified site have ceased; all potential pollutant sources have been removed; all industrial wastes have been disposed of properly; all DMR's, Annual Reports, and other reports have been submitted; and all elements of a Stormwater Management Plan have been completed (if this applies).

\*\*[FOR LAGOONS: please reference "information regarding Domestic Treatment Works Closure at Wastewater Treatment Facilities"](#)\*\*

**D2. MINING FACILITY IS NO LONGER IN OPERATION AT THIS LOCATION.**

Sand and Gravel, Coal or Hard Rock Mining

A. Mining operation is no longer discharging process/treated water. Bond has not been released by DRMS. A stormwater only permit is requested at this time. Attach application for Stormwater Only permit.

B. Reclamation of mining site is completed. Bond has been released by DRMS.  
 YES Attach a copy of the Bond release letter.  NO Explain below:

C. Reclamation of mining site is complete. Is there any continued mine drainage? Eg. Adits or unreclaimed waste piles?  YES , Please explain, attach additional pages as necessary.

**D3. FACILITY IS STILL IN OPERATION BUT IS NO LONGER DISCHARGING OR NO LONGER NEEDS A PERMIT**

A. Facility continues to operate, however the activity producing the discharge has ceased (including changes in SIC Code resulting in change in duty to apply).

B. Termination is based on alternate disposal of discharges (discharge is being disposed of in another way)  
a. Solid waste disposal unit (e.g. evaporative ponds)  
b. No Exposure Exclusion (for industrial stormwater facilities only.) NOX Number \_\_\_\_\_  
c. Combined with another authorized discharge. Permit Number \_\_\_\_\_  
d. Permit is not required (includes coverage by low risk policy, etc.) - please explain, attach additional pages if necessary

C. PERMITTEE IS NO LONGER THE OWNER/OPERATOR OF THE SITE and all efforts have been made to transfer the permit to appropriate parties. Please attach copies of registered mail receipts, letters, etc.

**D4. STORMWATER CONSTRUCTION FACILITIES WHERE CONSTRUCTION IS COMPLETE (Select A, B, or C)**

A. SITE IS FINALLY STABILIZED OR CONSTRUCTION WAS NOT STARTED  
a. The permitted activities meet the requirements for FINAL stabilization in accordance with the permit, the Stormwater Management Plan, and as described in item b. (explanation can be construction activities were not started).  
b. Describe the methods used to meet final stabilization. (Required)

\*Final Stabilization defined on page 3

**D4. STORMWATER CONSTRUCTION FACILITIES WHERE CONSTRUCTION IS COMPLETE (Continued)**

- B. ALTERNATIVE PERMIT COVERAGE OR FULL REASSIGNMENT
  - a. All ongoing construction activities including all disturbed areas, covered under the permit certification listed in Part B have coverage under a separate CDPS Stormwater Construction permit. The Division's Reassignment form was used by the permittee to reassign all areas and activities.
  - b. Permit certification number covering the ongoing activities (Required) \_\_\_\_\_
  
- C. PERMITTEE IS NO LONGER THE OWNER OR OPERATOR OF THE FACILITY
  - All efforts have been made to transfer the permit to appropriate parties.
  - Please attach copies of registered mail receipt, letters, etc.

**\*Final stabilization is reached when:** all ground surface disturbing activities at the site have been completed including removal of all temporary erosion and sediment control measure, and uniform vegetative cover has been established with an individual plant density of at least 70 percent of predisturbance levels, or equivalent permanent, physical erosion reduction methods have been employed.

**PART E. CERTIFICATION SIGNATURE REQUIRED FOR ALL TERMINATION REQUESTS**

I certify under penalty of law that this document and all attachments were prepared under my direction and/or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those individuals immediately responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. " (See 18 USC 1001 and 33 USC 1319)

I certify that I am the legal representative of the above named company (PART B page 1).

- Applies to Stormwater Construction terminations:**  
I understand that by submitting this notice of termination, I am no longer authorized to discharge stormwater associated with construction activity by the general permit. I understand that discharging pollutants in stormwater associated with construction activities to the waters of the State of Colorado, where such discharges are not authorized by a CDPS permit, is unlawful under the Colorado Water Quality Control Act and the Clean Water Act.

---

Signature of Legally Responsible Party

Date Signed

---

Name (printed)

Title

Signatory requirements: This termination request shall be signed, dated, and certified for accuracy by the permittee in accord with the following criteria:

1. In the case of a corporation, by a principal executive officer of at least the level of vice-president, or his or her duly authorized representative, if such representative is responsible for the overall operation of the operation from which the discharge described herein originates;
2. In the case of a partnership, by a general partner;
3. In the case of a sole proprietorship, by the proprietor;
4. In the case of a municipal, state, or other public operation, by either a principal executive officer, ranking elected official, or other duly authorized employee.

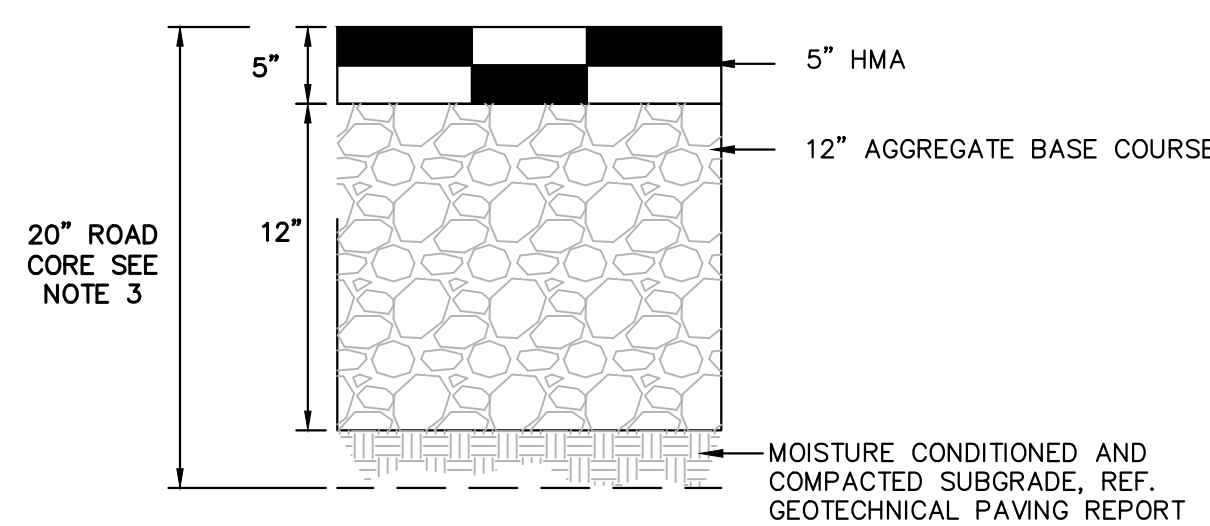
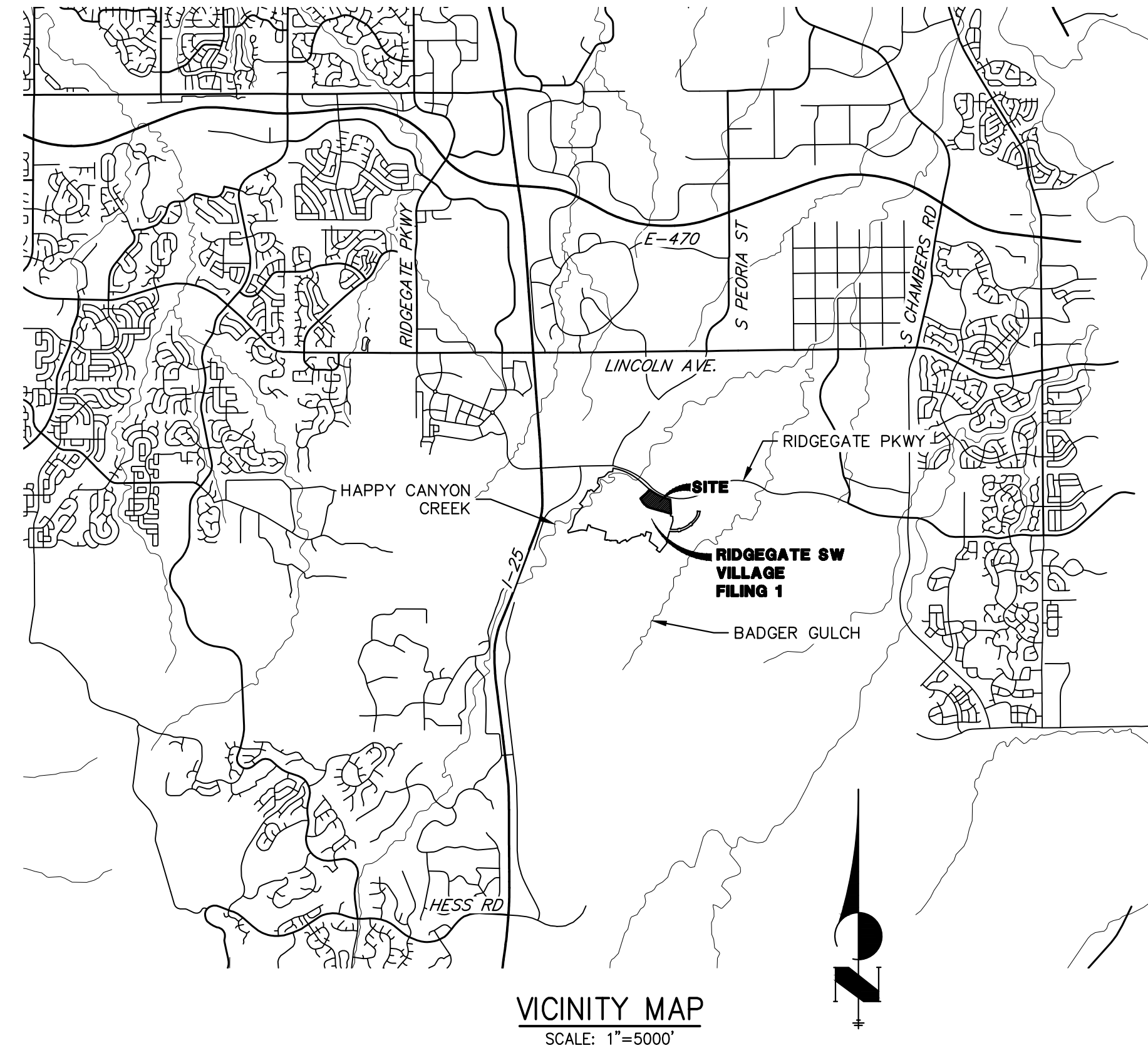
# LYRIC AT RIDGEGATE

A PORTION OF THE RIDGEGATE PLANNED DEVELOPMENT DISTRICT, EAST SIDE PROPERTY  
 LOCATED IN THE NORTHEAST QUARTER OF SECTION 23, TOWNSHIP 6 SOUTH, RANGE 67 WEST  
 OF THE 6TH P.M., CITY OF LONE TREE, COUNTY OF DOUGLAS, STATE OF COLORADO

## GRADING, EROSION, AND SEDIMENT CONTROL PLANS

### ABBREVIATIONS

AC ACRE	FDP FINAL DEVELOPMENT PLAN	PL PROPERTY LINE
AD ALGEBRAIC DIFFERENCE	FDR FINAL DRAINAGE REPORT	PR PROPOSED
AH AHEAD	FES FLARED END SECTION	PRC POINT OF REVERSE CURVATURE
ARCH ARCHITECT	FG FINISHED GRADE	PT POINT OF TANGENCY
ASCE AMERICAN SOCIETY OF CIVIL ENGINEERS	FH FIRE HYDRANT	PV PLUG VALVE
ASSY ASSEMBLY	FL FLOWLINE	PVC POLYVINYL CHLORIDE
AVE AVENUE	FIL FILING	R RADIUS
BB BOX BASE	FO FIBER OPTIC CABLE	RCP REINFORCED CONCRETE PIPE
BK BACK	GB GRADE BREAK	RD ROAD
BNDY BOUNDARY	GE GAS EASEMENT	ROW RIGHT OF WAY
BOP BOTTOM OF PIPE	GIS GEOGRAPHIC INFORMATION SYSTEM	S SOUTH
BOV BLOW OFF VALVE	GL GAS LINE	STE STEEL
BFV BUTTERFLY VALVE	GPS GLOBAL POSITIONING SYSTEM	SAN SANITARY SEWER
BLVD BOULEVARD	GV GATE VALVE	SF SQUARE FEET
BW BOTTOM OF WALL	HC HANDICAP	ST STREET
C&G CURB & GUTTER	HDC HIGH DEFLECTION COUPLING	STA STATION
CATV CABLE TELEVISION	HDPE HIGH DENSITY POLYETHYLENE	STM STORM SEWER
CB CATCH BASIN	HGL HYDRAULIC GRADE LINE	SY SQUARE YARD
CBX CONCRETE BOX CULVERT	HOA HOME OWNERS ASSOCIATION	SY-IN SQUARE YARD INCH
CDOT COLORADO DEPARTMENT OF TRANSPORTATION	HP HIGH POINT	TB THRUST BLOCK
CDS CUL-DE-SAC	IE IRRIGATION EASEMENT	TBC TOP BACK OF CURB
CFS CUBIC FEET PER SECOND	INT INTERSECTION	TBW TOP BACK OF WALK
CL CENTER LINE	INV INVERT	TEL TELEPHONE
CLOMR CONDITIONAL LETTER OF MAP REVISION	IRR IRRIGATION	TOA TOP OF ASPHALT
CLR CLEAR	KB KICK (THRUST) BLOCK	TOB TOP OF BOX
OMP CORRUGATED METAL PIPE	LE LANDSCAPE EASEMENT	TOC TOP OF CURB OR CONCRETE
CO CLEAN OUT	LF LINEAR FEET	TOE TOE OF SLOPE
CONC CONCRETE	LN LANE	TOP TOP OF FOUNDATION
CR CIRCLE	LOMR LETTER OF MAP REVISION	TOP TOP OF PIPE
CSP CORRUGATED STEEL PIPE	LP LOW POINT	TS TOP OF SLOPE
CT COURT	LS LUMP SUM	TW TOP OF WALL
CTRB CONCRETE THRUST REDUCER BLOCK	LT LEFT	TYP TYPICAL
CY CUBIC YARD	MAX MAXIMUM	UDFCD URBAN DRAINAGE AND FLOOD CONTROL DISTRICT
DBPS DRAINAGE BASIN PLANNING STUDY	MDDP MASTER DEVELOPMENT DRAINAGE PLAN	UE UTILITY EASEMENT
DE DRAINAGE EASEMENT	MH MANHOLE	U&DE UTILITY & DRAINAGE EASEMENT
DIA DIAMETER	MIN MINIMUM	UGE UNDERGROUND ELECTRIC
DIP DUCTILE IRON PIPE	N NORTH	VCP VITRIFIED CLAY PIPE
DR DRIVE	NRCP NON-REINFORCED CONCRETE PIPE	VPC VERTICAL POINT OF CURVATURE
DRC DESIGN REVIEW COMMITTEE	ODP OFFICIAL DEVELOPMENT PLAN	VPI VERTICAL POINT OF INTERSECTION
DU DWELLING UNITS	OHE OVERHEAD ELECTRIC	VPT VERTICAL POINT OF TANGENCY
E EAST	OHU OVERHEAD UTILITY	VTC VEHICLE TRACKING CONTROL
EA EACH	PC POINT OF CURVATURE	W WEST
EGL ENERGY GRADE LINE	PCC POINT OF COMPOUND CURVATURE	WL WATER LINE
EL ELEVATION	PCR POINT OF CURB RETURN	WM WATER MAIN
ELEC ELECTRIC	PDP PRELIMINARY DEVELOPMENT PLAN	WRD WATER RESOURCES DEPARTMENT
EOA EDGE OF ASPHALT	PE PROFESSIONAL ENGINEER	WS WATER SURFACE
ESMT EASEMENT	PI POINT OF INTERSECTION	WSE WATER SURFACE ELEVATION
EST ESTIMATE	PKWY PARKWAY	WTR WATER
EX EXISTING		YR YEAR



### SHEET INDEX

- 1: COVER SHEET
- 2: GENERAL NOTES
- 3: LEGEND
- 4: INITIAL GESC
- 5: INTERIM GESC
- 6: FINAL GESC
- 7-10: GESC NOTES AND DETAILS

TOTAL: 10

### SOIL PREPARATION NOTE:

SOIL PREPARATION SHALL BE PER RECOMMENDATIONS FROM THE GEOTECHNICAL REPORT PREPARED FOR THIS SITE:

GEOTECHNICAL ENGINEER: CTL THOMPSON  
 PROJECT NUMBER: DNS1,551-115-R1

THE CONTRACTOR IS TO REVIEW THIS REPORT IN FULL PRIOR TO BID. INFORMATION IN THE GEOTECHNICAL REPORT SUPERCEDES ANY CONFLICTING INFORMATION CONTAINED IN THE CONSTRUCTION PLANS AND SPECIFICATIONS.

### NOTES:

1. MINIMUM PAVEMENT SECTIONS FOR BUDGETING PURPOSES ARE PRESENTED HEREON. SUBGRADE INVESTIGATION AND PAVEMENT DESIGNS ARE TO BE COMPLETED BY THE GEOTECHNICAL ENGINEER AFTER OVERLOT GRADING.
2. ASPHALT, BASE COURSE DEPTH, AND SUBGRADE PREPARATION IS TO BE IN ACCORDANCE WITH GEOTECHNICAL PAVING RECOMMENDATIONS.
3. CONTOURS SHOWN WITHIN THIS PLAN SET ARE TO TOP OF PAVING. ROAD CORE IS TO EXTEND 3" BELOW BOTTOM OF PAVING AND ROAD BASE SECTION.

### OWNER

RIDGEGATE INVESTMENTS, INC.  
 9878 SCHWAB WAY, SUITE 415  
 LONE TREE, CO 80124

### DEVELOPER

LOKAL HOMES  
 8310 S. VALLEY HWY, SUITE 115  
 ENGLEWOOD, CO 80112  
 TOMMY PUCCIANO  
 P~720.234.4728

### ARCHITECT

LOKAL STUDIOS  
 8310 S. VALLEY HWY, SUITE 115  
 ENGLEWOOD, CO 80112

### CIVIL ENGINEER

JR ENGINEERING  
 7200 SOUTH ALTON WAY, SUITE C400  
 CENTENNIAL, CO  
 P~303.740.9393

### LANDSCAPE ARCHITECT

PCS GROUP, INC.  
 P.O. BOX 18287  
 DENVER, CO 80218  
 PAUL SHOUKAS  
 P~303.531.4905

### GEOTECHNICAL ENGINEER

CTL THOMPSON  
 1971 WEST 12TH AVENUE  
 DENVER, CO 80204

### CAUTION - NOTICE TO CONTRACTOR

THE LOCATIONS OF EXISTING ABOVE GROUND AND UNDERGROUND UTILITIES ARE BASED ON THE RECORDS OF THE VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF THE UTILITIES. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL ABOVE GROUND AND UNDERGROUND UTILITIES.

H-SCALE	1"=5000'
V-SCALE	N/A
DATE	3/2/23
DESIGNED BY	QNL
DRAWN BY	QNL
CHECKED BY	

CITY OF LONE TREE

DATE

THESE CONSTRUCTION PLANS HAVE BEEN REVIEWED BY CITY OF LONE TREE FOR GRADING AND EROSION CONTROL IMPROVEMENTS ONLY.

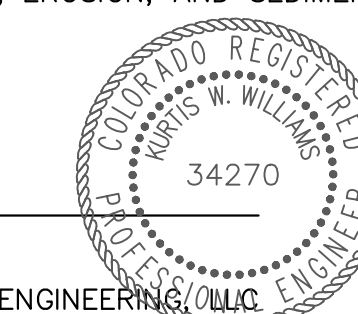
ENGINEERING DIVISION ACCEPTANCE BLOCK



Know what's below.  
 Call before you dig.

### ENGINEER'S STATEMENT

THE GRADING, EROSION, AND SEDIMENT CONTROL PLAN INCLUDED HEREIN HAS BEEN PREPARED UNDER MY DIRECT SUPERVISION IN ACCORDANCE WITH THE REQUIREMENTS OF CITY OF LONE TREE GRADING, EROSION, AND SEDIMENT CONTROL (GESC) CRITERIA



KURTIS WILLIAMS, P.E.  
 COLORADO P.E. 34270  
 FOR AND ON BEHALF OF JR ENGINEERING

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, OR ENGINEERING APPROVES THEIR USE, THESE DRAWINGS ARE DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR  
 LOKAL HOMES  
 8310 S. VALLEY HWY  
 SUITE 115  
 ENGLEWOOD, CO 80112  
 (720) 234-4728

JR ENGINEERING  
 A Westman Company  
 Centennial 303-740-9393 • Colorado Springs 719-583-2583  
 Fort Collins 970-491-9888 • www.jrengineering.com

BY	DATE	No.	REVISION

LYRIC AT RIDGEGATE  
 COVER SHEET  
 SHEET 1 OF 10  
 JOB NO. 15950.10

**GENERAL NOTES:**

1. THE SITE SHALL BE STRIPPED OF ALL VEGETATIVE AND ORGANIC MATERIAL A MINIMUM OF 6" IN ALL AREAS. ALL STRIPPING MATERIALS SHALL BE STOCKPILED ON SITE TO BE USED IN LANDSCAPING.
2. THE CONTRACTOR SHALL PROTECT ALL ADJACENT PROPERTY TO THE PROJECT WORK SITE (SEE THE GESC PLAN APPROVED BY CITY OF LONE TREE).
3. ALL SILT FENCE SHALL BE INSTALLED ALONG THE CONTOUR.
4. THE MAXIMUM HEIGHT OF ALL STOCKPILES SHALL BE 20' FROM FINISHED GROUND.
5. ALL MATERIALS, WORKMANSHIP, AND CONSTRUCTION OF IMPROVEMENTS SHALL MEET OR EXCEED THE GOVERNING CITY, COUNTY, AND/OR STATE AND APPLICABLE UTILITY DISTRICT STANDARDS AND SPECIFICATIONS, AND APPLICABLE STATE AND FEDERAL REGULATIONS. WHERE THERE IS A CONFLICT BETWEEN THESE PLANS AND ANY APPLICABLE STANDARDS, THE HIGHER QUALITY STANDARD SHALL APPLY. ALL WORK SHALL BE INSPECTED AND APPROVED BY THE CITY AND APPLICABLE UTILITY DISTRICT(S).
6. THE SITE CONSTRUCTION PLANS LISTED WITHIN THIS PLAN SET ARE NOT FOR CONSTRUCTION UNLESS APPROVED BY THE APPROPRIATE GOVERNING JURISDICTION. THE CONTRACTOR SHALL CONFIRM SAID APPROVAL PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL KEEP ONE (1) SIGNED COPY OF THE APPROVED SET OF PLANS, APPROPRIATE SPECIFICATIONS AND STANDARDS, AND APPROVED PERMITS ONSITE AT ALL TIMES.
7. ALL REFERENCES TO ANY PUBLISHED STANDARDS SHALL REFER TO THE LATEST REVISION OF SAID STANDARDS, UNLESS SPECIFICALLY STATED OTHERWISE.
8. THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND LICENSES FOR WORK INCLUDING, BUT NOT LIMITED TO DEMOLITION, STREET CUTS, UTILITY INTERFERENCES, TRAFFIC CONTROL, GRADING, AND UTILITY FROM ALL APPLICABLE AGENCIES; AND FOR COMPLYING WITH ALL PROVISIONS INCLUDED THEREIN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING ALL OTHER APPLICABLE PERMITS NOT SPECIFICALLY REQUIRED BY THE AUTHORITY HAVING JURISDICTION.
9. ANY DISRUPTION OF UTILITY SERVICE THAT IS REQUIRED TO ADJUST, EXTEND, RELOCATE OR OTHERWISE REARRANGE ANY UTILITY WITHIN THE PROJECT AREA SHALL BE COORDINATED IN ADVANCE WITH THE AFFECTED UTILITY ENTITY.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ASPECTS OF PROJECT SAFETY INCLUDING, BUT NOT LIMITED TO, EXCAVATION, TRENCHING, SHORING, TRAFFIC CONTROL, AND SECURITY.
11. THE CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL PLAN, IN ACCORDANCE WITH THE M.U.T.C.D. TO THE APPROPRIATE RIGHT-OF-WAY AUTHORITY (CITY, COUNTY, OR STATE) FOR APPROVAL. PRIOR TO ANY CONSTRUCTION ACTIVITIES WITHIN OR AFFECTING THE RIGHT-OF-WAY, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ANY AND ALL TRAFFIC CONTROL DEVICES AS MAY BE REQUIRED BY THE CONSTRUCTION ACTIVITIES. ALL WORK WITHIN THE RIGHT OF WAY SHALL BE DONE IN ACCORDANCE WITH THE GOVERNING AUTHORITY'S STANDARDS AND SPECIFICATIONS.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CLEANING AND RESTORATION OF ANY EXISTING IMPROVEMENTS INCLUDING, BUT NOT LIMITED TO STREET PAVEMENT, FENCES, SOD, LANDSCAPING, SPRINKLER SYSTEMS, AND UTILITIES DISTURBED DURING CONSTRUCTION TO THEIR ORIGINAL LOCATION AND CONDITION.
13. ALL DEMOLITION, REMOVAL, DISPOSAL, AND ABANDONMENT OF UTILITIES, STRUCTURES, SITE IMPROVEMENTS, AND SITE FURNISHINGS SHALL BE DONE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL STANDARDS AND SPECIFICATIONS, AND PERMIT REQUIREMENTS.
14. ALL DISTURBED SOIL, ON- OR OFF-SITE AND RELATED TO WORK AT THIS PROJECT SITE, IS REQUIRED TO BE PROTECTED FROM WIND AND STORM WATER EROSION. TO MITIGATE EROSION, THE CONTRACTOR SHALL USE STANDARD EROSION CONTROL TECHNIQUES DESCRIBED IN THESE PLANS.
15. ALL STRUCTURAL EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY GROUND-DISTURBING ACTIVITY. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED IN GOOD REPAIR BY THE CONTRACTOR UNTIL SUCH TIME AS THE ENTIRE DISTURBED AREA IS STABILIZED WITH HARD SURFACE OR PERMANENT LANDSCAPING. THE CONTRACTOR IS RESPONSIBLE FOR REFERRING TO ANY EROSION AND SEDIMENT CONTROL, STORMWATER MANAGEMENT, STORMWATER POLLUTION PREVENTION, OR SIMILAR PLAN AND/OR NARRATIVE AND ASSOCIATED PERMITS INCLUDING, BUT NOT LIMITED TO GRADING PERMITS, AND COMPLYING WITH THE REQUIREMENTS THEREIN.
16. IF, DURING THE CONSTRUCTION PROCESS, CONDITIONS ARE ENCOUNTERED BY THE CONTRACTOR, HIS SUBCONTRACTORS, OR OTHER AFFECTED PARTIES, WHICH COULD INDICATE A SITUATION THAT IS NOT IDENTIFIED IN THE PLANS OR SPECIFICATIONS, THE CONTRACTOR SHALL CONTACT THE OWNER/DEVELOPER AND THE ENGINEER IMMEDIATELY.
17. **BENCHMARK VERIFICATION:** THE CONTRACTOR SHALL VERIFY THE EXISTING CONDITIONS AND THE PROPOSED ELEVATIONS IN THIS CONSTRUCTION PLAN SET AGAINST THE PROJECT BENCHMARK, IDENTIFIED HEREIN, PRIOR TO COMMENCING WORK.
18. IF DEWATERING IS REQUIRED, A STATE CONSTRUCTION DEWATERING DISCHARGE PERMIT IS REQUIRED FOR DISCHARGES TO A STORM SEWER, CHANNEL, IRRIGATION DITCH, ANY STREET THAT IS TRIBUTARY TO THE FOREMENTIONED FACILITIES OR ANY WATER OF THE UNITED STATES.
19. A STATE AIR QUALITY PERMIT IS REQUIRED FOR LAND DISTURBANCE ACTIVITIES THAT ARE MORE THAN 25 CONTIGUOUS ACRES OR MORE THAN 6 MONTHS IN DURATION. THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL BE RESPONSIBLE FOR OBTAINING THE REQUIRED AIR QUALITY PERMIT AND FOR COMPLYING WITH ALL PROVISIONS INCLUDED THEREIN.
20. ALL ROADWAY OVER EXCAVATION TO BE DONE IN ACCORDANCE WITH GEOTECHNICAL RECOMMENDATIONS. FINAL PAVEMENT DESIGN TO BE PROVIDED BY GEOTECHNICAL ENGINEER AFTER OVERLOT GRADING IS COMPLETE. CONTRACTOR TO CONFIRM ROADWAY OVER EXCAVATION REQUIREMENTS WITH OWNER AND GEOTECHNICAL ENGINEER.

**COMPACTION REQUIREMENTS**

SOIL COMPACTION SHALL BE PER RECOMMENDATIONS FROM THE GEOTECHNICAL REPORT PREPARED FOR THIS SITE:

- PRIOR TO FILL PLACEMENT, THE GROUND SURFACE IN AREAS TO BE FILLED SHOULD BE STRIPPED OF DEBRIS, VEGETATION/ORGANICS AND OTHER DELETERIOUS MATERIAS, SCARIFIED AND MOISTURE CONDITIONED TO BETWEEN 1 AND 4 PERCENT ABOVE OPTIMUM MOISTURE CONTENT FOR CLAY OR WITHIN 2 PERCENT OF OPTIMUM FOR SAND AND GRAVEL, AND COMPACTED TO AT LEAST 95 PERCENT OF STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D 698)
- UTILITY TRENCH BACKFILL SHOULD BE MOISTENED BETWEEN OPTIMUM AND 4 PERCENT WETTER AND COMPACTED TO AT LEAST 95 PERCENT OF STANDARD PROCTOR MAXIMUM DRY DENSITY FOR CLAY AND MOISTENED WITHIN 2 PERCENT OF OPTIMUM AND COMPACTED TO 100 PERCENT OF STANDARD PROCTOR FOR SAND.
- SUB-EXCAVATION FILL SHOULD BE MOISTURE-CONDITIONED BETWEEN OPTIMUM AND 4 PERCENT ABOVE OPTIMUM MOISTURE CONTENT FOR CLAY OR WITHIN 2 PERCENT OF OPTIMUM FOR SAND. FILL SHOULD BE COMPACTED AT LEAST 95 PERCENT OF STANDARD PROCTOR MAXIMUM DRY DENSITY.

**EXCAVATION SCOPE OF WORK:**

THE SCOPE OF WORK

- A. SITE PREPARATION**
  1. PRIOR TO COMMENCEMENT OF EXCAVATION, THE SITE SHALL BE STRIPPED IN CONFORMANCE WITH THE REQUIREMENTS OF THE SOILS ENGINEER AND APPROVED PLANS. REMOVAL OF STRIPPINGS SHALL EXTEND 5 FEET AT ALL TIMES BEYOND THE BOUNDARIES OF THE AREAS RECEIVING FILL. THE DEPTH OF THE STRIPPING SHALL BE AT THE SOLE DISCRETION OF AND DIRECTED BY THE SOILS ENGINEER. ALL STRIPPINGS SHALL BE STORED ON SITE AND PLACED AT THE DIRECTION OF THE BUILDER.
  2. WITHIN THE GRADING LIMITS, ALL EXISTING STRUCTURES SUCH AS FENCES, DRAINAGE DEVICES, ASPHALT, ETC., SHALL BE REMOVED, EXCEPT AS OTHERWISE DIRECTED BY THE BUILDER OR CONSTRUCTION PLANS. NO PROCESSING OF THIS MATERIAL WILL BE ALLOWED, UNLESS APPROVED BY SOILS ENGINEER OR BY BUILDER. NO ONSITE BURNING WILL BE PERMITTED.
  3. ONCE THE VEGETATION HAS BEEN REMOVED TO THE SATISFACTION OF THE SOILS ENGINEER, THE AREA OF THE SITE TO RECEIVE THE FILL SHALL BE SCARIFIED AND RE-COMPACTED TO A DEPTH OF AT LEAST 12 INCHES OR AS DIRECTED BY THE SOILS ENGINEER. THE CONTRACTOR SHALL NOT PLACE FILL UNTIL THE SOILS ENGINEER HAS RELEASED THE AREA FOR FILL PLACEMENT WITH VERBAL APPROVAL.
  4. DURING ALL CLEARING, GRUBBING, STRIPPING, SITE PREPARATION, EXCAVATION AND GRADING, DUST CONTROL SHALL BE MAINTAINED BY THE CONTRACTOR TO THE SPECIFICATIONS OF THE BUILDER, SOILS ENGINEER, LOCAL GOVERNING JURISDICTION, TRI-COUNTY HEALTH AND CDPHE. DUST CONTROL SHALL BE REQUIRED UNTIL THE BUILDER HAS ACCEPTED THE SITE.
  5. ALL VEGETATION, WITH THE EXCEPTION OF TOPSOIL, AND DEBRIS RESULTING FROM CLEARING AND GRUBBING SHALL BE REMOVED FROM THE SITE AND HAULED TO AN APPROPRIATE WASTE DISPOSAL FACILITY, UNLESS OTHERWISE DIRECTED BY BUILDER.
- B. EXCAVATION AND GRADING**
  1. THE WORK SHALL CONSIST OF ALL LABOR, FUEL, EQUIPMENT AND MATERIALS, NECESSARY TO COMPLETE THE EXCAVATION AND EMBANKMENT (MASS GRADING) IN CONFORMANCE WITH THE APPROVED GRADING PLANS, TO A TOLERANCE OF TWO TENTHS OF ONE FOOT.
  2. THE CONTRACTOR SHALL HAVE SUITABLE AND SUFFICIENT EQUIPMENT ON THE JOB SITE TO PROCESS AND COMPACT THE AMOUNT OF FILL BEING PLACED, IN CONFORMANCE WITH THE SPECIFICATIONS DEFINED BY THE PROJECT SOILS REPORT AND THE SITE SOILS ENGINEER.
  3. COMPACTION OF EACH LAYER SHALL BE CONTINUOUS OVER ITS ENTIRE AREA AND THE COMPACTION EQUIPMENT SHALL MAKE SUFFICIENT TRIPS TO ENSURE THAT THE REQUIRED DENSITY HAS BEEN OBTAINED, PER SOILS ENGINEERS TESTING AND APPROVALS.
  4. COMPACTION, MOISTURE-DENSITY TESTING SHALL BE PROVIDED BY THE BUILDER IN THE LOCATIONS AND FREQUENCY DIRECTED BY THE SOILS ENGINEER. THIS TESTING SHALL BE CONDUCTED BY THE SOILS ENGINEER TO ENSURE THAT THE FILL CONFORMS TO THE REQUIREMENTS OF THE PROJECT SOILS REPORT. THE CONTRACTOR AND HIS EMPLOYEES SHALL PROVIDE ASSISTANCE TO THE SOILS ENGINEER AS REQUESTED. TO FACILITATE FIELD COMPACTION AND MOISTURE-DENSITY TESTING, THE CONTRACTOR SHALL EXCAVATE TEST PITS IN LOCATIONS AND AT DEPTHS REQUESTED BY THE SOILS ENGINEER. IN THE EVENT OF A FAILED COMPACTION TEST, AS DETERMINED BY THE SOILS ENGINEER, THE CONTRACTOR SHALL REWORK THE MATERIAL UNTIL IT CONFORMS TO THE SPECIFICATIONS OF THE PROJECT SOILS REPORT TO THE SATISFACTION OF THE SOILS ENGINEER. THE COST OF ANY REWORKING SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND NO ADDITIONAL COMPENSATION SHALL BE CONSIDERED. ALL REWORK SHALL BE AT THE SOLE EXPENSE OF THE CONTRACTOR.
  5. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND TRANSPORTING ALL CONSTRUCTION WATER NECESSARY TO COMPLETE THE WORK AT THEIR SOLE EXPENSE.
  6. ALL STOCKPILING AND WASTING OF MATERIAL WILL BE CONSIDERED INCIDENTAL TO THE CONTRACTOR'S PRICING, AND NO COMPENSATION WILL BE MADE FOR STOCKPILING OR RETURNING THE STOCKPILED MATERIAL TO THE PROJECT AS COMPACTED FILL OR OTHERWISE. STOCKPILE LOCATIONS SHALL BE APPROVED BY THE BUILDER.
  7. ROCK ENCOUNTERED, BOTH RIPPLE AND NON-RIPPLE, SHALL BE REMOVED FROM THE SITE AT THE DISCRETION OF THE SOILS ENGINEER AND BUILDER AND SHALL BE INCLUDED AS A CONTRACTOR'S UNIT BID PRICE.
- C. COMPACTED FILLS**
  1. DELETERIOUS MATERIAL NOT DISPOSED OF DURING CLEARING OR DEMOLITION SHALL BE REMOVED FROM THE FILL AS DIRECTED BY THE SOILS ENGINEER.
  2. MATERIAL THAT IS CONSIDERED UNSUITABLE BY THE SOILS ENGINEER SHALL NOT BE USED IN THE COMPACTED FILL.
  3. WHERE THE SLOPE RECEIVING FILL EXCEEDS A RATIO OF FIVE-HORIZONTAL TO ONE VERTICAL, THE FILL SHALL BE KEYS WITH A MINIMUM KEY WIDTH OF 6 FEET AND BENCHED THROUGH ALL UNSUITABLE TOPSOIL, COLLUVIUM, ALLUVIUM OR CREEP MATERIAL INTO SOUND BEDROCK OR FIRM MATERIAL OR AS DIRECTED BY THE SOILS ENGINEER. ALL NECESSARY EXCAVATION PROCESSES MUST CONFORM TO ALL OSHA REGULATIONS AND GUIDELINES.
  4. NO FILL MATERIAL SHALL BE PLACED UPON FROZEN SUB-GRADE, SPREAD OR ROLLED WHILE IT IS FROZEN OR THAWING OR DURING UNFAVORABLE WEATHER CONDITIONS.
- D. CERTIFICATION**
  1. CERTIFICATION OF THE GRADING SHALL BE DONE IN A TIMELY MANNER. CONTRACTOR SHALL PROVIDE NOTICE TO BUILDER WHEN AN AREA IS READY TO BE CERTIFIED. CONTRACTOR SHALL HAVE 2 DAYS FROM THE TIME THE GRADE CERTIFICATION STAKING IS COMPLETE TO REGRADE ALL AREAS GREATER THAN 0.20' VARIANCE FROM THE APPROVED PLAN GRADES. UNTIL THE SITE IS ACCEPTED BY BUILDER, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DRAIN AND/OR PUMP ALL AREAS WHERE WATER HAS COLLECTED AND PROTECT THE WORK SITE FROM DAMAGE AS A RESULT OF RAIN, SNOW, SLEET, HAIL OR ANY OTHER FORM OF PRECIPITATION, AT CONTRACTOR'S SOLE EXPENSE.

ADDITIONAL PROVISIONS

- A. UPON COMPLETION OF THE WORK, THE SITE SHALL BE RIPPED OR SURFACE RUFFENED PERPENDICULAR TO SLOPE AS DIRECTED BY BUILDER, AND ALL TRASH REMOVED, TO THE SATISFACTION OF THE BUILDER.
- B. ALL HAUL ROADS OR OTHER AREAS OUTSIDE OF THE PROJECT THAT HAVE BEEN DISTURBED BY THE GRADING OPERATION SHALL BE RETURNED TO THEIR ORIGINAL GRADE, BLADED SMOOTH AND/OR RIPPED TO THE SATISFACTION OF THE BUILDER.
- C. THE CONTRACTOR, AT HIS EXPENSE, SHALL REMOVE SPILLAGE AND/OR TRACKING RESULTING FROM HAULING OR CONSTRUCTION OPERATIONS ALONG OR ACROSS ANY PUBLICLY TRAVELED ROADWAYS, IMMEDIATELY.
- D. CONTRACTOR SHALL COMPLY WITH THE APPROVED EROSION CONTROL PLAN. CONTRACTOR SHALL REPAIR/REPLACE ANY DAMAGE CAUSED BY THE CONTRACTOR DURING THE PERFORMANCE OF THEIR WORK. THE COST OF REPAIR OR REPLACEMENT SHALL BE BORNE BY THE CONTRACTOR AND INCLUDED IN THEIR SCOPE OF WORK.
- E. CONTROL OF NUISANCE WATER OR CONSTRUCTION WATER SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND INCLUDED IN THE SCOPE OF WORK. CONTRACTOR SHALL CONTROL SURFACE RUNOFF WATER TO AVOID DAMAGE TO ADJOINING PROPERTIES OR TO FINISHED WORK ON THE SITE. THE CONTRACTOR SHALL EMPLOY APPROPRIATE MEASURES TO PREVENT EROSION OF GRADED AREAS UNTIL SUCH TIME AS PERMANENT DRAINAGE AND EROSION CONTROL MEASURES HAVE BEEN INSTALLED OR UNTIL ROUGH GRADE ACCEPTANCE. ALL MEASURES SHALL BE IN CONFORMANCE WITH GESC AND SWMP PLANS FOR THE SITE.
- F. ALL ON-SITE MATERIALS, HAZARDOUS MATERIALS, SHALL BE MAINTAINED, CONTROLLED, STORED AND CONTAINED IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL RULES AND REGULATIONS. ALL COSTS ASSOCIATED SHALL BE THE CONTRACTORS RESPONSIBILITY.
- G. EXCAVATION OF SUBSURFACE MATERIAL WHICH CANNOT BE REMOVED BY RIPPING WITH DB DOZER SHALL BE APPROVED BY THE BUILDER IN ADVANCE AND SHALL BE PAID AT STANDARD EQUIPMENT RATES. NO PAYMENT SHALL BE MADE FOR LOSS TIME AND CONTRACTOR SHALL SUBMIT EXTRA WORK TIME SHEET EACH DAY FOR SIGNATURE BY THE BUILDER. PAYMENT SHALL BE LIMITED TO RIPPING EQUIPMENT ONLY.

H-SCALE	N/A
V-SCALE	N/A
DATE	3/2/23
DESIGNED BY	QNL
DRAWN BY	QNL
CHECKED BY	

CITY OF LONE TREE

DATE

THESE CONSTRUCTION PLANS HAVE BEEN REVIEWED BY CITY OF LONE TREE FOR GRADING AND EROSION CONTROL IMPROVEMENTS ONLY.

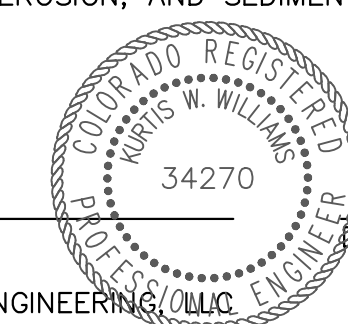
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**ENGINEER'S STATEMENT**

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KURTIS WILLIAMS, P.E.  
 COLORADO P.E. 34270  
 FOR AND ON BEHALF OF JR ENGINEERING, INC. DATE

PREPARED FOR	UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, OR ENGINEERING APPROVES THEIR USE. THESE DRAWINGS ARE DESIGNATED BY WRITTEN AUTHORIZATION.								
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BY	DATE								
No.	REVISION								
H-SCALE	N/A	V-SCALE	N/A	DATE	3/2/23	DESIGNED BY	QNL	DRAWN BY	QNL
LYRIC AT RIDGEGATE		GENERAL NOTES							
SHEET	2	OF	10						
JOB NO.	15950.10								



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LAYER LINETYPE LEGEND

Table with columns for EXISTING and PROPOSED linetypes for various layers like PHASE LINE, MATCH LINE, SECTION LINE, BOUNDARY LINE, PROPERTY LINE, EASEMENT LINE, RIGHT OF WAY, R.O.W. A LINE, CENTERLINE, CITY LIMITS, WIRE FENCE, CHAIN LINK FENCE, WOOD FENCE, MASONRY FENCE, GUARDRAIL, CONC. BARRIER, CABLE TV, ELECTRIC, FIBER OPTIC, GAS MAIN, IRRIGATION MAIN, OIL/PETRO. MAIN, OVERHEAD UTILITY, SANITARY SEWER, STORM DRAIN, TELEPHONE, WATER MAIN, RAW WATER LINE, SWALE/WATERWAY FLOWLINE, DIVERSION DITCH, DIVERSION CHANNEL, MAJOR DRAINAGE BASIN, MINOR DRAINAGE BASIN, TOP OF SLOPE, TOE OF SLOPE, EDGE OF WATER, INDEX CONTOUR, INTERMEDIATE CONTOUR, DEPRESSION CONT. (INDEX), DEPRESSION CONT. (INTER), TOP OF CUTS, TOE OF FILLS, CUT AND FILL LINE, SILT FENCE, 100 YEAR FLOODPLAIN, 500 YEAR FLOODPLAIN, FLOODWAY, BASE FLOOD ELEVATION, EDGE OF WETLANDS, STONE WALL, PROPOSED FLOW ARROW, EXISTING FLOW ARROW.

UTILITIES LEGEND

Table for UTILITIES LEGEND with columns for EXISTING and PROPOSED symbols for STORM SEWER, SANITARY SEWER, WATER LINE, GAS LINE, and MISC. UTILITIES.

MONUMENTATION LEGEND

Table for MONUMENTATION LEGEND listing symbols for various found and set monuments like ALUMINUM CAP, BRASS CAP, BENCHMARK, CROSS, MONUMENT - SET, etc.

TRAFFIC LEGEND

Table for TRAFFIC LEGEND with columns for EXISTING and PROPOSED symbols for PARKING METER, TRAFFIC SIGNAL BOX, TRAFFIC SIGNAL POLE, TRAFFIC SIGNAL, BARRICADE, GUARD RAIL POST, IMPACT ATTENUATOR, BRIDGE STYLE HIGHWAY SIGN POST, CANTILEVER STYLE HIGHWAY SIGN POST SIGN, RAILROAD MARKER/SIGN, STREET LIGHT, STREET LIGHT - SINGLE, STREET LIGHT - DOUBLE, LUMINAIRE, ALTERNATE LUMINAIRE, SIGNAL MAST ARM W/ LUMINAIRE, PEDESTAL POLE FOUNDATION, TRAFFIC SIGNAL POLE, ROUND PULL BOX, MEDIUM PULL BOX, LARGE PULL BOX (20X33X15), SIGNAL HEAD WITHOUT BACK PLATE, SIGNAL HEAD WITH BACK PLATE, PEDESTRIAN SIGNAL HEAD, VIDEO IMAGE DETECTOR, OPTICOM DETECTOR, VEHICLE DETECTION ZONE.

STORM WATER MANAGEMENT

Table for STORM WATER MANAGEMENT with columns for KEY and SYMBOL for items like CHECK DAM, CONSTRUCTION MARKER, CONSTRUCTION ROAD STABILIZATION, CURB SOCK INLET PROTECTION, CONCRETE WASHOUT AREA, DIVERSION DITCH AND DIKE, TEMPORARY, DIVERSION CHANNEL, TEMPORARY, DEWATERING, EROSION CONTROL BLANKET, INLET FILTER, INLET PROTECTION, SUMP INLET PROTECTION, MULCHING, OUTLET PROTECTION, PAVED FLUME, PERMANENT SEEDING, REINFORCED CONCRETE DAM, ROUGH CUT STREET CONTROL, RRB, SEDIMENT BASIN, SEDIMENT CONTROL LOG, SILT FENCE, SURFACE ROUGHENING, STABILIZED STAGING AREA, SEDIMENT TRAP, STRAW BALE BARRIER, TERRACING, SEEDING & MULCHING, TEMPORARY STREAM CROSSING CULVERT/BRIDGE, TEMPORARY STREAM CROSSING FORD TYPE, TEMPORARY SLOPE DRAIN, VEHICLE TRACKING CONTROL, VEHICLE TRACKING CONTROL WITH WASH RACK.

LANDSCAPE LEGEND

Table for LANDSCAPE LEGEND with columns for EXISTING and PROPOSED symbols for TREE - CONIFEROUS, TREE - DECIDUOUS, SHRUB/BUSH, SHRUBS AND BUSHES, IRRIGATION BOX, IRRIGATION SPRINKLER, IRRIGATION VALVE, BOLLARD, FLAGPOLE.

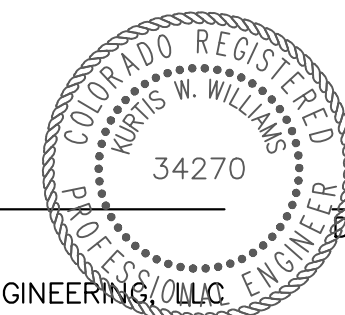


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City of Lone Tree acceptance block form with fields for H-SCALE, V-SCALE, DATE, DESIGNED BY, DRAWN BY, CHECKED BY, and a signature area.

ENGINEER'S STATEMENT

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KURTIS WILLIAMS, P.E. COLORADO P.E. 34270 FOR AND ON BEHALF OF JR ENGINEERING, INC.

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, JR ENGINEERING APPROVES THEIR USE AS DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR LOKAL HOMES 8310 S. VALLEY HWY SUITE 115 ENGLEWOOD, CO 80112 (720) 234-4728

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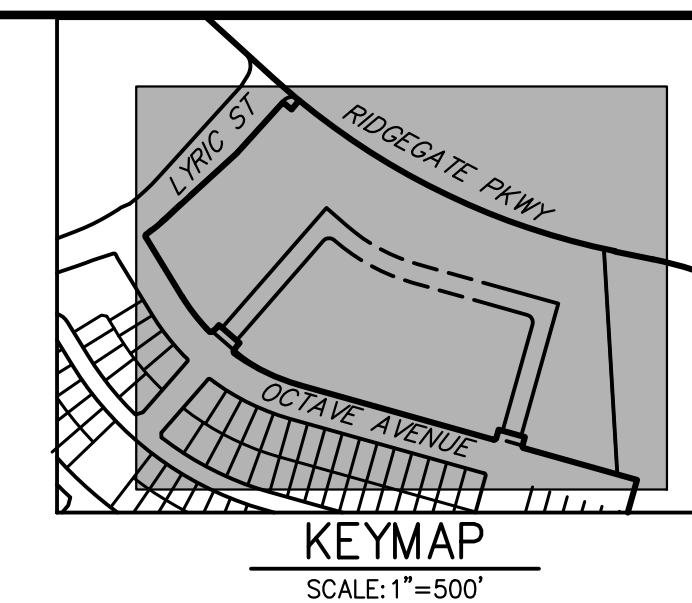
Table with columns for No., REVISION, BY, DATE.

Table with columns for H-SCALE, V-SCALE, DATE, DESIGNED BY, DRAWN BY, CHECKED BY.

LYRIC AT RIDGEGATE

LEGEND

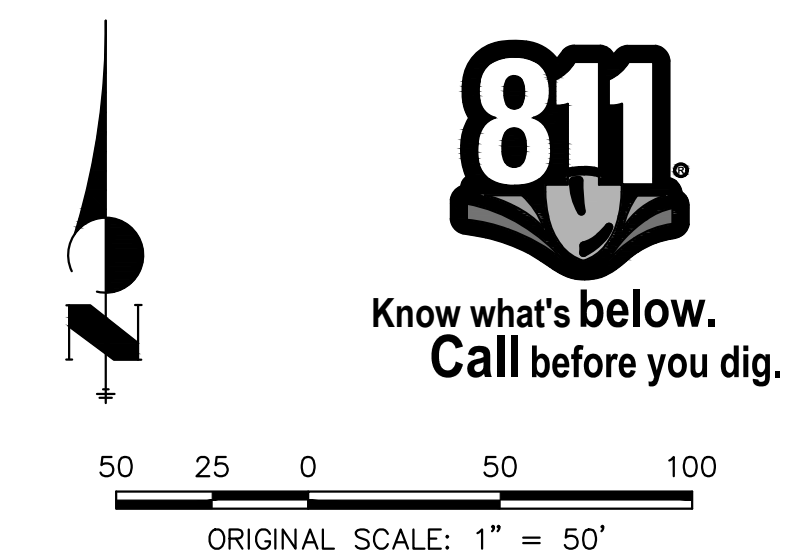




- NOTES:**
- SEE SHEET 1 FOR BENCHMARK AND SHEET 3 FOR LEGEND.
  - SEE SHEET 2 FOR STANDARD GESC NOTES.
  - SEE SHEETS 7 - 9 FOR STANDARD GESC DETAILS.
  - NO GRADING OPERATIONS SHALL OCCUR WITHIN 20' OF OVERHEAD TRANSMISSION TOWERS.
  - CONSTRUCTION MARKERS TO BE PLACED 100' APART CONTRACTOR SHALL HAVE ADEQUATE DUST SUPPRESSION CONTROL MEASURES ONSITE AT ALL TIMES. EXCESS DUST GENERATED FROM OPERATIONS AS DETERMINED BY THE CITY IS GROUNDS FOR STOPPING ALL WORK UNTIL DUST CAN BE CONTROLLED.
  - ADJACENT ROADWAYS SHALL BE KEPT CLEAR OF DIRT AND DEBRIS AND SHALL BE CLEANED IMMEDIATELY UTILIZING DRY METHODS ONLY.
  - PORTABLE TOILETS SHALL BE PLACED ON PERVIOUS SURFACES ONLY AND SHALL BE STAKED DOWN ON ALL FOUR SIDES.

**STORM WATER MANAGEMENT**

KEY	SYMBOL
SILT FENCE	(SF) ———
LIMITS OF CONSTRUCTION	(LOC) ———
TEMPORARY SLOPE DRAIN	(TSD) ———
DIVERSION DITCH AND DIKE, TEMPORARY	(DD) ———
SEDIMENT BASIN	(SB) ———
STABILIZED STAGING AREA	(SSA) [Pattern]
VEHICLE TRACKING CONTROL	(VTC) [Pattern]
CONCRETE WASHOUT AREA	(CWA) [Pattern]
INLET PROTECTION	(IP) [Symbol]
SEEDING AND MULCHING	(SM) [Pattern]
SEDIMENT CONTROL LOG	(SCL) [Pattern]
EROSION CONTROL BLANKET	(ECB) [Pattern]
SURFACE ROUGHENING	(SR) [Symbol]



CITY OF LONE TREE

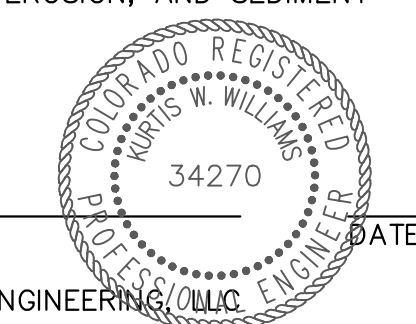
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ENGINEERING DIVISION ACCEPTANCE BLOCK

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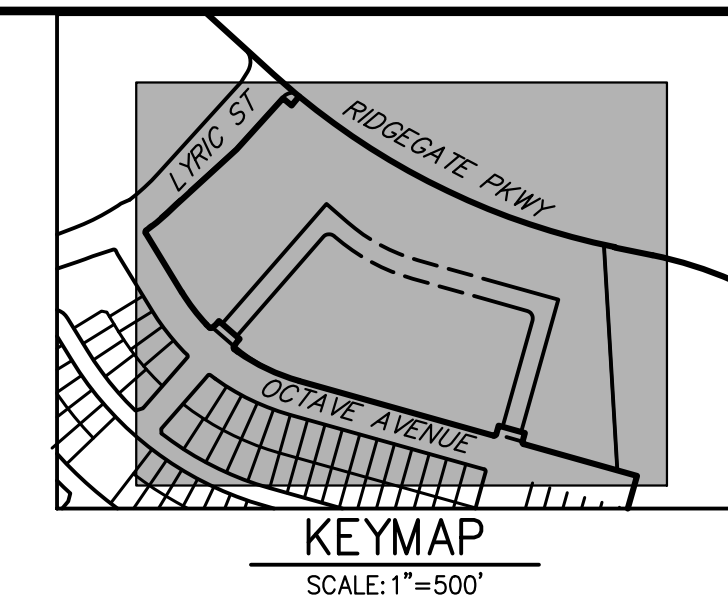
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LYRIC AT RIDEGATE

INITIAL GESC



- NOTES:**
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- INTERIM GESC PLAN NOTES:**
- SEDIMENT CONTROL LOG (SCL) TOTAL LENGTH: 2,786 YARDS

**STORM WATER MANAGEMENT**

KEY	SYMBOL
SILT FENCE	(SF) ——— SF ———
LIMITS OF CONSTRUCTION	(LOC) ——— LOC ———
TEMPORARY SLOPE DRAIN	(TSD) ——— TSD ———
DIVERSION DITCH AND DIKE, TEMPORARY	(DD) ——— DD ———
SEDIMENT BASIN	(SB) ——— SB ———
STABILIZED STAGING AREA	(SSA) ——— SSA ———
VEHICLE TRACKING CONTROL	(VTC) ——— VTC ———
CONCRETE WASHOUT AREA	(CWA) ——— CWA ———
INLET PROTECTION	(IP) ——— IP ———
SEEDING AND MULCHING	(SM) ——— SM ———
SEDIMENT CONTROL LOG	(SCL) ——— SCL ———
EROSION CONTROL BLANKET	(ECB) ——— ECB ———
SURFACE ROUGHENING	(SR) ——— SR ———

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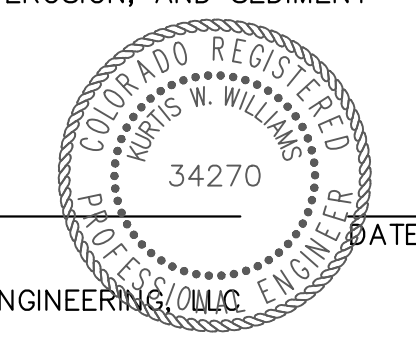
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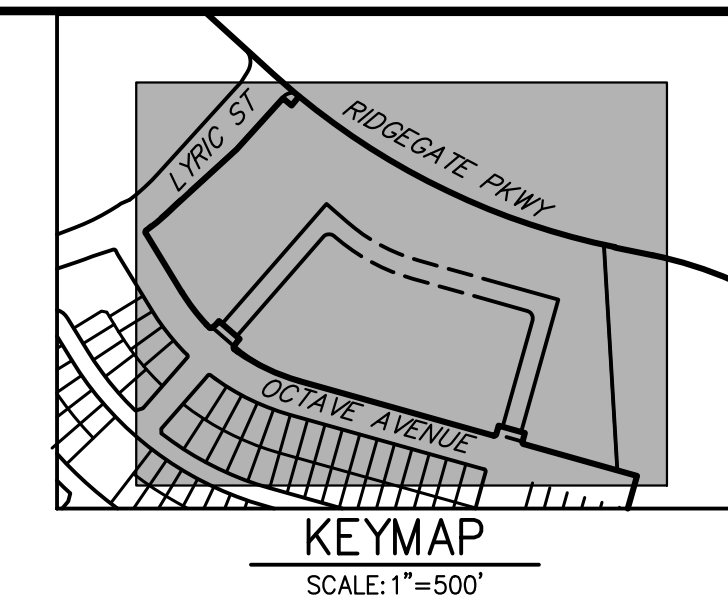
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LYRIC AT RIDGEGATE

INTERIM GESC

SHEET 5 OF 10

JOB NO. 15950.10



- NOTES:**
- SEE SHEET 1 FOR BENCHMARK AND SHEET 3 FOR LEGEND.
  - SEE SHEET 2 FOR STANDARD GESC NOTES.
  - SEE SHEETS 7 - 9 FOR STANDARD GESC DETAILS.
  - NO GRADING OPERATIONS SHALL OCCUR WITHIN 20' OF OVERHEAD TRANSMISSION TOWERS.
  - CONSTRUCTION MARKERS TO BE PLACED 100' APART. CONTRACTOR SHALL HAVE ADEQUATE DUST SUPPRESSION CONTROL MEASURES ON-SITE AT ALL TIMES. EXCESS DUST GENERATED FROM OPERATIONS AS DETERMINED BY THE CITY IS GROUNDS FOR STOPPING ALL WORK UNTIL DUST CAN BE CONTROLLED.
  - ADJACENT ROADWAYS SHALL BE KEPT CLEAR OF DIRT AND DEBRIS AND SHALL BE CLEANED IMMEDIATELY UTILIZING DRY METHODS ONLY.
  - PORTABLE TOILETS SHALL BE PLACED ON PAVEMENT SURFACES ONLY AND SHALL BE STAKED DOWN ON ALL FOUR SIDES.

- FINAL GESC PLAN NOTES:**
- REFERENCE LANDSCAPE PLANS FOR MORE DETAIL ON SEEDING AND MULCHING LOCATION AND TYPE.

**STORM WATER MANAGEMENT**

	KEY	SYMBOL
SILT FENCE	(SF)	— SF —
LIMITS OF CONSTRUCTION	(LOC)	— LOC —
TEMPORARY SLOPE DRAIN	(TSD)	— TSD —
DIVERSION DITCH AND DIKE, TEMPORARY	(DD)	— DD —
SEDIMENT BASIN	(SB)	— SB —
STABILIZED STAGING AREA	(SSA)	— SSA —
VEHICLE TRACKING CONTROL	(VTC)	— VTC —
CONCRETE WASHOUT AREA	(CWA)	— CWA —
INLET PROTECTION	(IP)	— IP —
SEEDING AND MULCHING	(SM)	— SM —
SEDIMENT CONTROL LOG	(SCL)	— SCL —
EROSION CONTROL BLANKET	(ECB)	— ECB —
SURFACE ROUGHENING	(SR)	— SR —



CITY OF LONE TREE

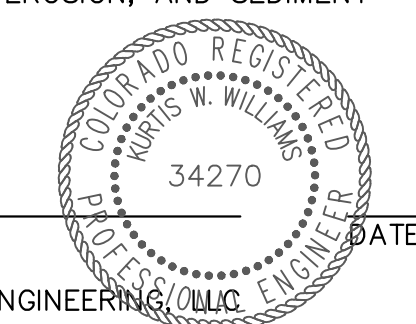
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THESE CONSTRUCTION PLANS HAVE BEEN REVIEWED BY CITY OF LONE TREE FOR GRADING AND EROSION CONTROL IMPROVEMENTS ONLY.

ENGINEERING DIVISION ACCEPTANCE BLOCK

**ENGINEER'S STATEMENT**

THE GRADING, EROSION, AND SEDIMENT CONTROL PLAN INCLUDED HEREIN HAS BEEN PREPARED UNDER MY DIRECT SUPERVISION IN ACCORDANCE WITH THE REQUIREMENTS OF CITY OF LONE TREE GRADING, EROSION, AND SEDIMENT CONTROL (GESC) CRITERIA



KURTIS WILLIAMS, P.E.  
 COLORADO P.E. 34270  
 FOR AND ON BEHALF OF JR ENGINEERING

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, OR ENGINEERING APPROVES THEIR USE, THESE DRAWINGS ARE DESIGNATED BY WRITTEN AUTHORIZATION.

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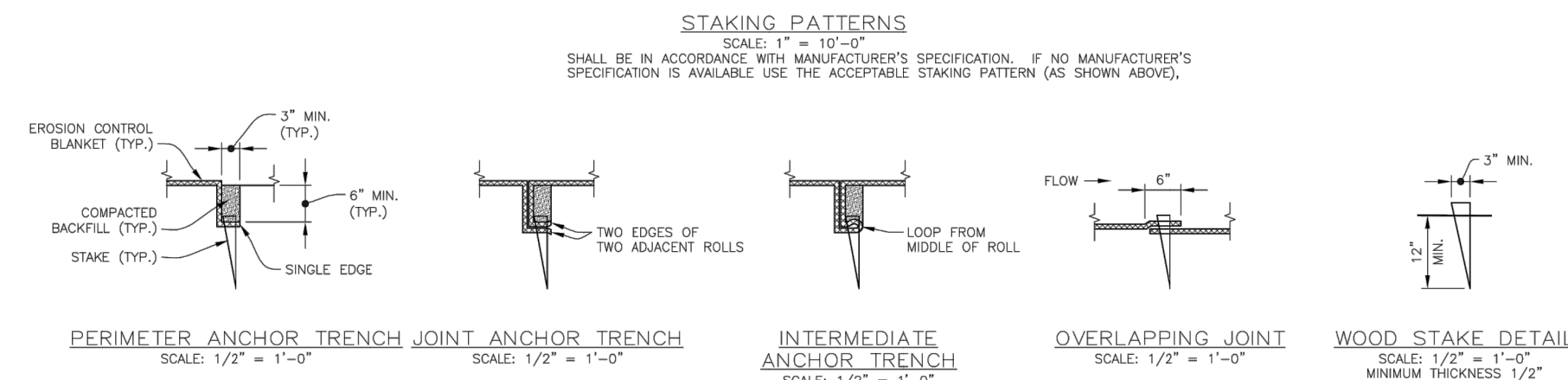
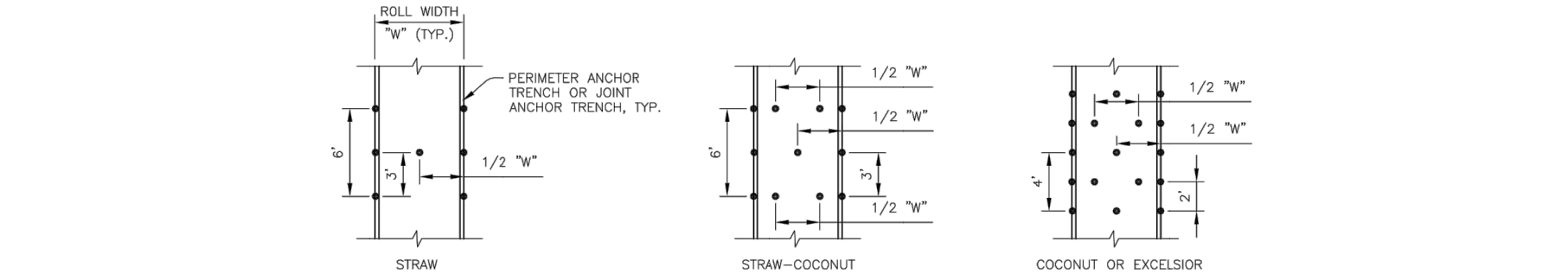
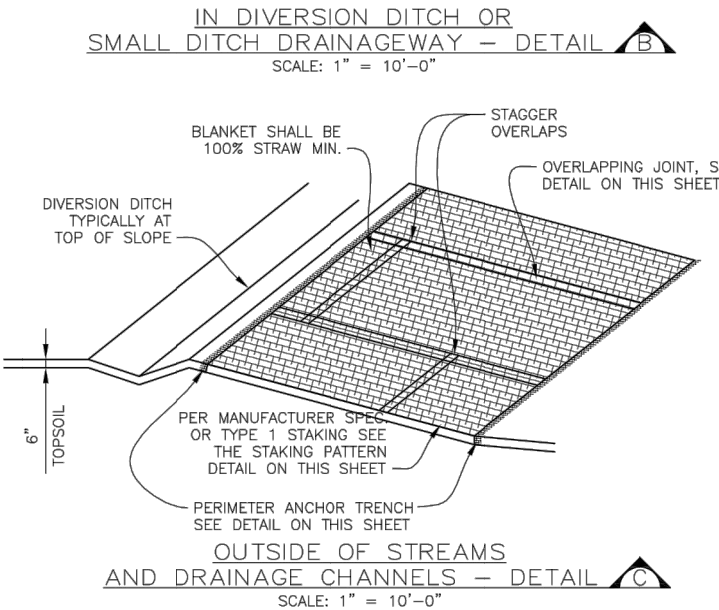
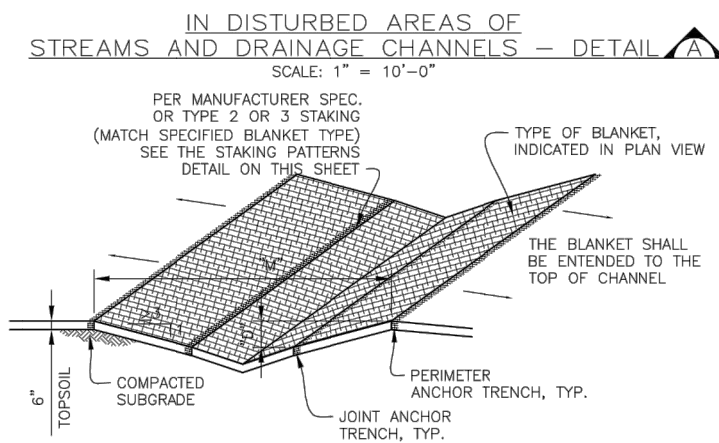
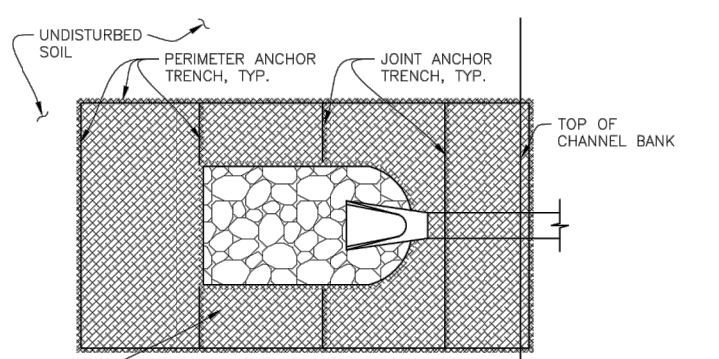
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FINAL GESC

SHEET 6 OF 10

JOB NO. 15950.10





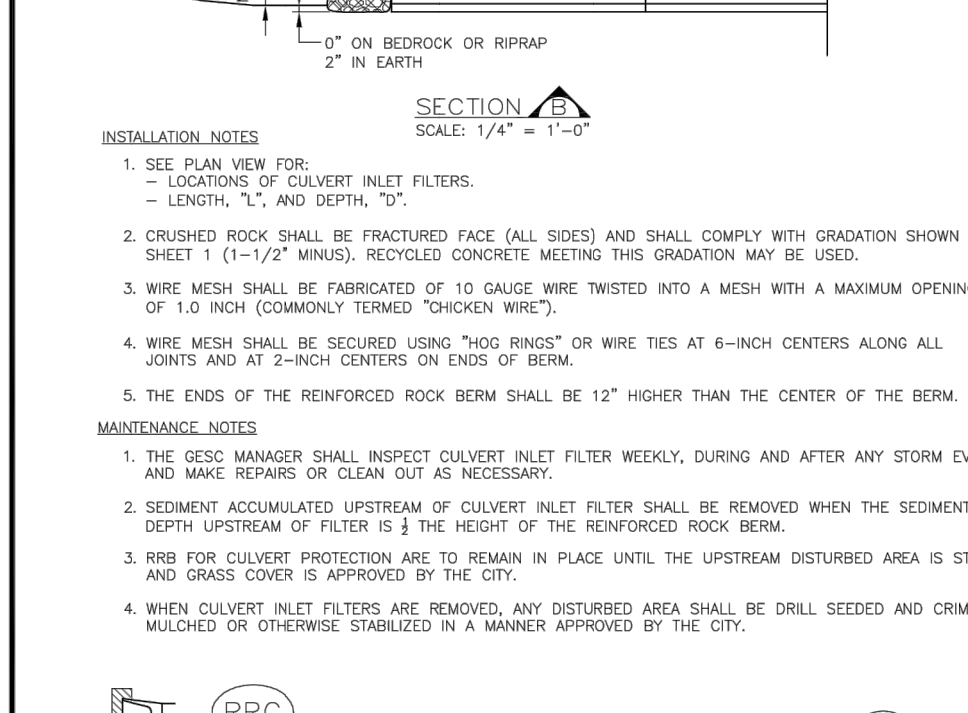
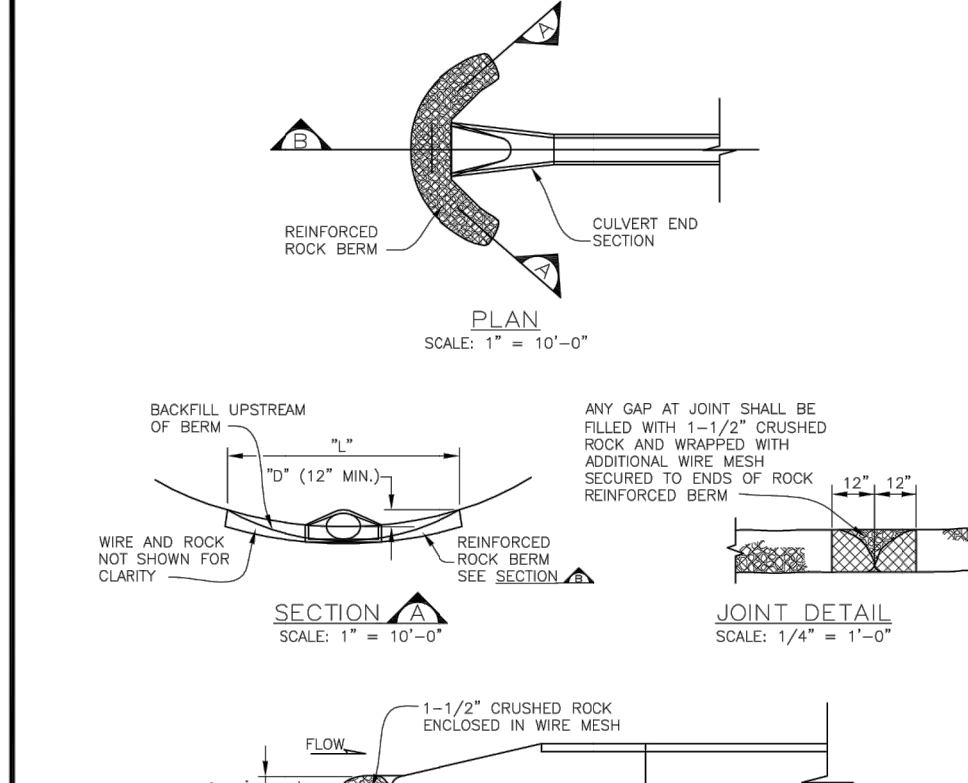
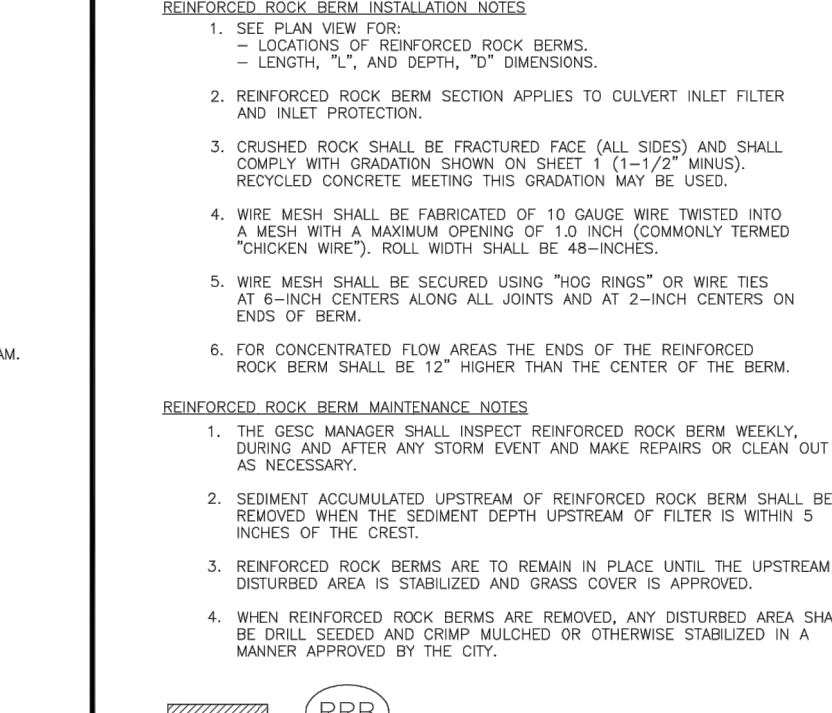
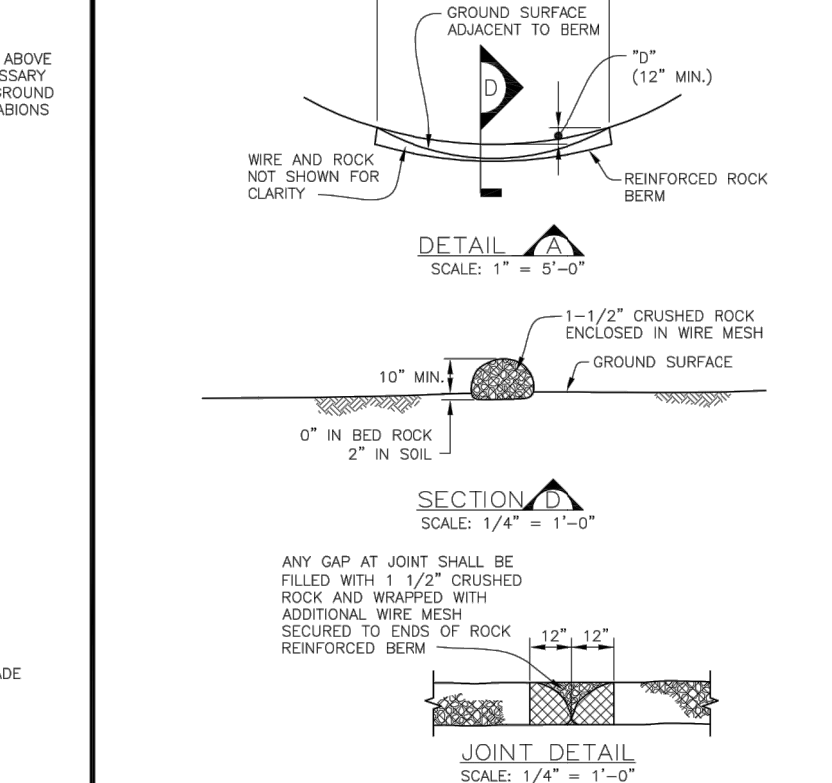
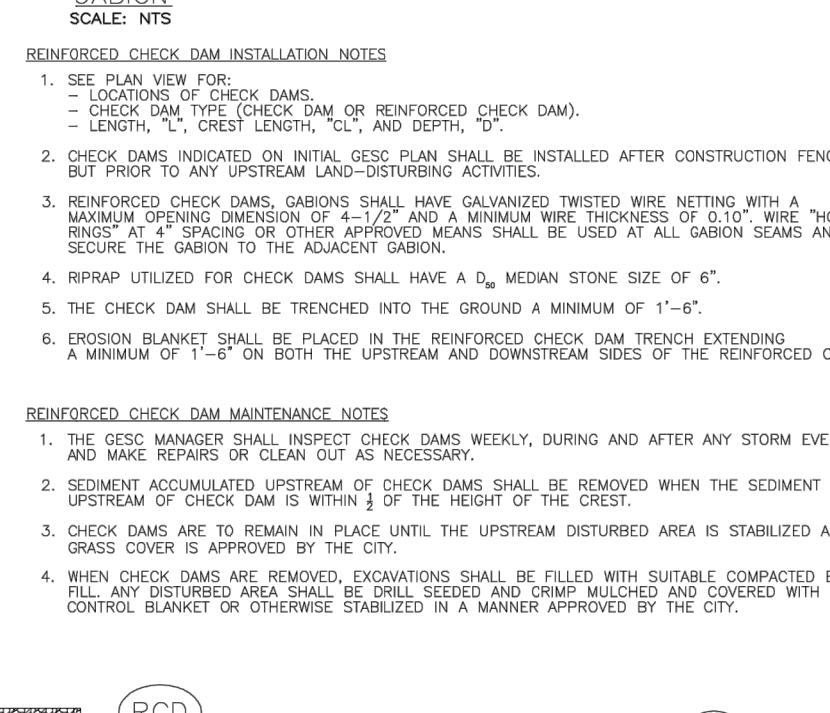
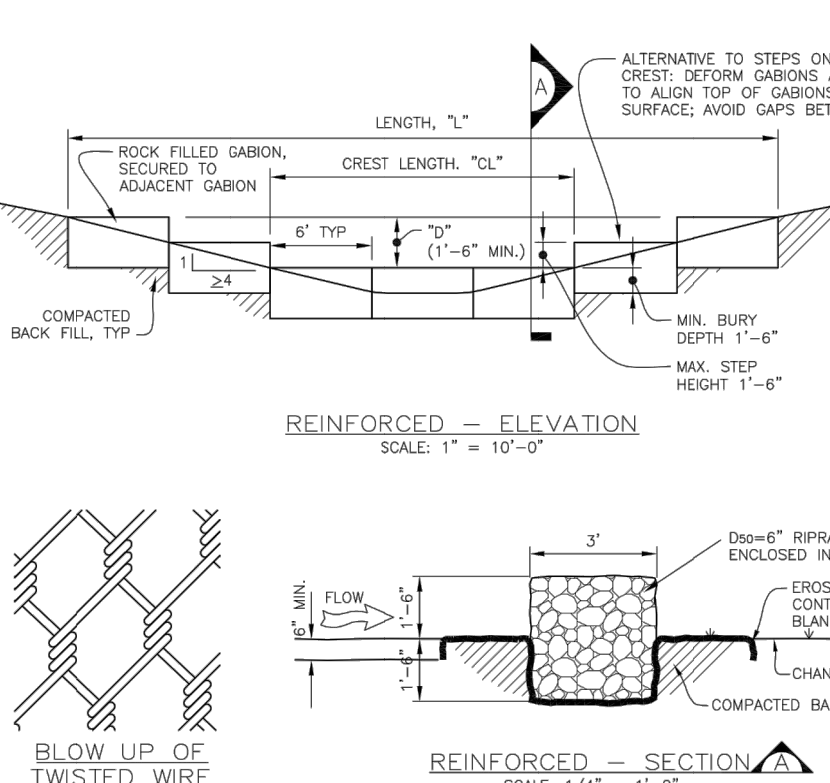
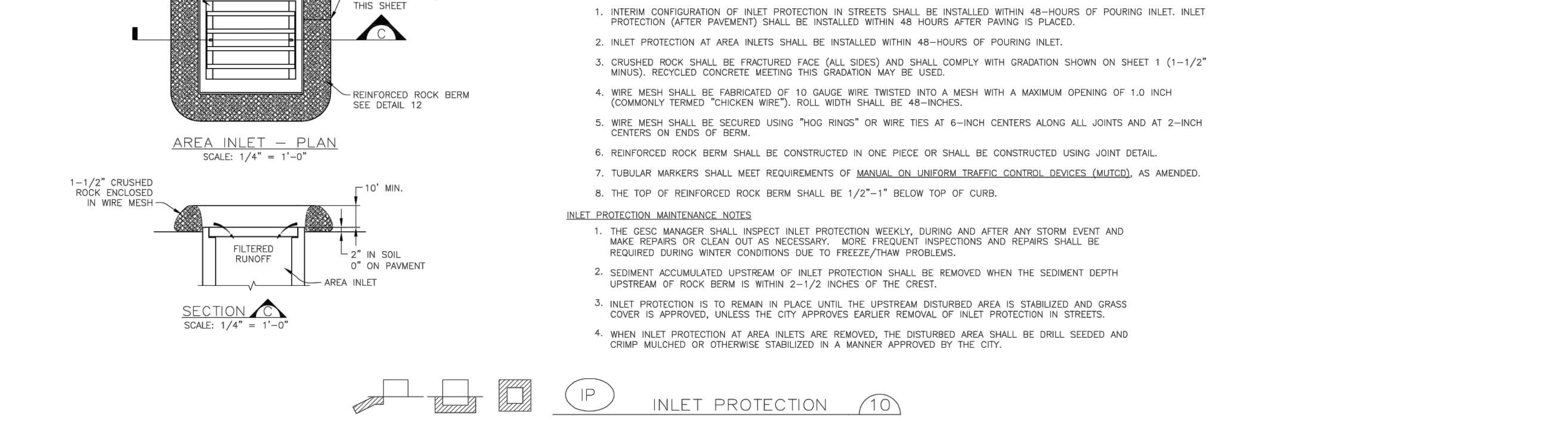
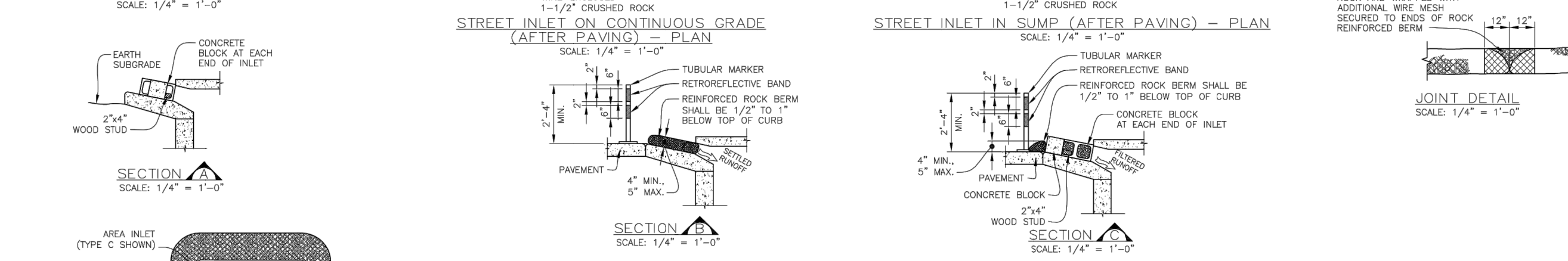
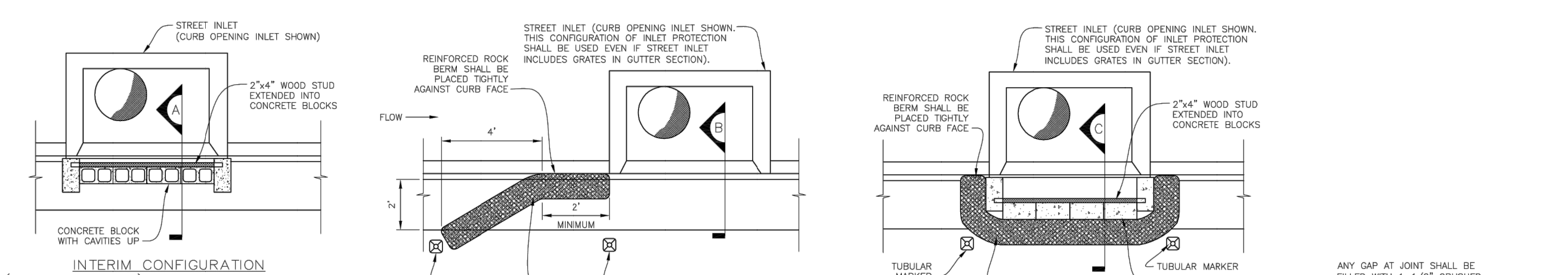
**EROSION CONTROL BLANKET INSTALLATION NOTES**

- SEE PLAN VIEW FOR:
  - LOCATION OF PERIMETER OF EROSION CONTROL BLANKET.
  - TYPE OF BLANKET (STRAW, STRAW-COCOONUT, COCOONUT, OR EXCELSIOR).
  - AREA 4" IN SQUARE PAGES OF EACH TYPE OF BLANKET.
- ALL EROSION CONTROL BLANKETS AND NETTING SHALL BE MADE OF 100% NATURAL AND BIODEGRADABLE MATERIAL, NO PLASTIC OR OTHER SYNTHETIC MATERIAL, EVEN IF PHOTO DEGRADABLE, SHALL BE ALLOWED.
- IN AREAS WHERE EROSION CONTROL BLANKET IS SHOWN ON THE PLANS, THE PERMITTEE SHALL PLACE TYPICAL AND PERFORM FINAL GRADING, SURFACE PREPARATION, AND SEEDING BELOW THE BLANKET IN ACCORDANCE WITH THE REQUIREMENTS OF DETAIL 17, SEEDING AND MULCHING. SUBGRADE SHALL BE SMOOTH AND MOST PRIOR TO BLANKET INSTALLATION AND THE BLANKET SHALL BE IN FULL CONTACT WITH SUBGRADE, NO GAPS OR VOIDS SHALL EXIST UNDER THE BLANKET.
- PERIMETER ANCHOR TRENCH SHALL BE USED AT OUTSIDE PERIMETER OF ALL BLANKET AREAS.
- JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF BLANKETS TOGETHER (CONDITIONALLY AND TRANSVERSELY) FOR ALL BLANKETS EXCEPT STRAW, WHICH MAY USE AN OVERLAPPING JOINT.
- INTERMEDIATE ANCHOR TRENCH SHALL BE USED AT SPACING OF ONE-HALF THE ROLL LENGTH FOR COCOONUT AND EXCELSIOR BLANKETS.
- THE OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROLLS OF BLANKETS TOGETHER FOR STRAW.
- MATERIAL SPECIFICATIONS OF EROSION CONTROL BLANKET SHALL CONFORM TO TABLE 7.1.

TYPE	COCOONUT CONTENT	EXCELSIOR CONTENT	NETTING MIN.
STRAW*	100%	0%	DOUBLE/NATURAL
STRAW-COCOONUT	50% MIN.	50% MAX.	DOUBLE/NATURAL
COCOONUT	100%	0%	DOUBLE/NATURAL
EXCELSIOR	0%	100%	DOUBLE/NATURAL

**EROSION CONTROL BLANKET MAINTENANCE NOTES**

- THE GESC MANAGER SHALL INSPECT EROSION CONTROL BLANKETS WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS AS NECESSARY.
- EROSION CONTROL BLANKET IS TO BE LEFT IN PLACE UNLESS REQUESTED TO BE REMOVED BY THE CITY.
- ANY EROSION CONTROL BLANKET PULLED OUT, TORN, OR OTHERWISE DAMAGED SHALL BE RE-INSTALLED. ANY BLANKET AREAS BELOW THE BLANKET 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 RE-INSTALLED.



**Sheet Revisions**

DATE	DESCRIPTION	BY
6/30/05	ADOPTED FROM DOUGLAS COUNTY GESC PLANS	MLP
5/ /08	EDIT UPDATES	GAW
11/ /08	ADD CURB SOCK DETAIL (REF UFPCD, V3 FIGURE C5-23), MISC. NOTE EDITS	CAW

NOTE: SCALES SHOWN ARE FOR 24"x36" SHEETS; ADJUST ACCORDINGLY FOR 11"x17" SHEETS.

**CITY OF LONE TREE**  
DEPARTMENT OF PUBLIC WORKS  
Engineering Division

**GESC GRADING, EROSION, AND SEDIMENT CONTROL**

**GESC PLAN STANDARD NOTES AND DETAILS**

**SHEET 2 OF 3**

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, OR ENGINEERING APPROVES THEIR USE, THESE DRAWINGS ARE DESIGNATED BY WRITTEN AUTHORIZATION.

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GESC NOTES AND DETAILS									
SHEET	8	OF	10						
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**Sediment Basin (SB)** SC-7

**Description**

A sediment basin is a temporary pond built on a construction site to capture eroded or disturbed soil transported in storm runoff prior to discharge from the site. Sediment basins are designed to capture site runoff and slowly release it to allow time for settling of sediment prior to discharge. Sediment basins are often constructed in locations that will later be modified to serve as post-construction stormwater basins.



Photograph SB-1. Sediment basin at the toe of a slope. Photo courtesy of WVE.

**Appropriate Uses**

Most large construction sites (typically greater than 2 acres) will require one or more sediment basins for effective management of construction site runoff. On linear construction projects, sediment basins may be impractical; instead, sediment traps or other combinations of BMPs may be more appropriate.

Sediment basins should not be used as stand-alone sediment controls. Erosion and other sediment controls should also be implemented upstream.

When feasible, the sediment basin should be installed in the same location where a permanent post-construction detention pond will be located.

**Design and Installation**

The design procedure for a sediment basin includes these steps:

- Basin Storage Volume:** Provide a storage volume of at least 3,600 cubic feet per acre of drainage area. To the extent practical, undisturbed and/or off-site areas should be diverted around sediment basins to prevent "clean" runoff from mixing with runoff from disturbed areas. For undisturbed areas (both on-site and off-site) that cannot be diverted around the sediment basin, provide a minimum of 500 ft<sup>3</sup>/acre of storage for undeveloped (but stable) off-site areas in addition to the 3,600 ft<sup>3</sup>/acre for disturbed areas. For stable, developed areas that cannot be diverted around the sediment basin, storage volume requirements are summarized in Table SB-1.
- Basin Geometry:** Design basin with a minimum length-to-width ratio of 2:1 (L:W). If this cannot be achieved because of site space constraints, baffling may be required to extend the effective distance between the inflow point(s) and the outlet to minimize short-circuiting.
- Dam Embankment:** It is recommended that embankment slopes be 4:1 (H:V) or flatter and no steeper than 3:1 (H:V) in any location.

Sediment Basins	
Functions	
Erosion Control	No
Sediment Control	Yes
Site/Material Management	No

**SC-7 Sediment Basin (SB)**

- Inflow Structure:** For concentrated flow entering the basin, provide energy dissipation at the point of inflow.

**Table SB-1. Additional Volume Requirements for Undisturbed and Developed Tributary Areas Draining through Sediment Basins**

Imperviousness (%)	Additional Storage Volume (ft <sup>3</sup> ) Per Acre of Tributary Area
Undeveloped	500
10	800
20	1230
30	1600
40	2030
50	2470
60	2980
70	3560
80	4360
90	5300
100	6460

- Outlet Works:** The outlet pipe shall extend through the embankment at a minimum slope of 0.5 percent. Outlet works can be designed using one of the following approaches:
  - Riser Pipe (Simplified Detail):** Detail SB-1 provides a simplified design for basins treating no more than 15 acres.
  - Orifice Plate or Riser Pipe:** Follow the design criteria for Full Spectrum Detention outlets in the EDB Fact Sheet provided in Chapter 4 of this manual for sizing of outlet perforations with an emptying time of approximately 72 hours. In lieu of the trash rack, pack uniformly sized 1½ - to 2-inch gravel in front of the plate or surrounding the riser pipe. This gravel will need to be cleaned out frequently during the construction period as sediment accumulates within it. The gravel pack will need to be removed and disposed of following construction to reclaim the basin for use as a permanent detention facility. If the basin will be used as a permanent extended detention basin for the site, a trash rack will need to be installed once contributing drainage areas have been stabilized and the gravel pack and accumulated sediment have been removed.
  - Floating Skimmer:** If a floating skimmer is used, install it using manufacturer's recommendations. Illustration SB-1 provides an illustration of a Faircloth Skimmer Floating Outlet™, one of the more commonly used floating skimmer outlets. A skimmer should be designed to release the design volume in no less than 48 hours. The use of a floating skimmer outlet can increase the sediment capture efficiency of a basin significantly. A floating outlet continually decants cleanest water off the surface of the pond and releases cleaner water than would discharge from a perforated riser pipe or plate.

**Sediment Basin (SB) SC-7**

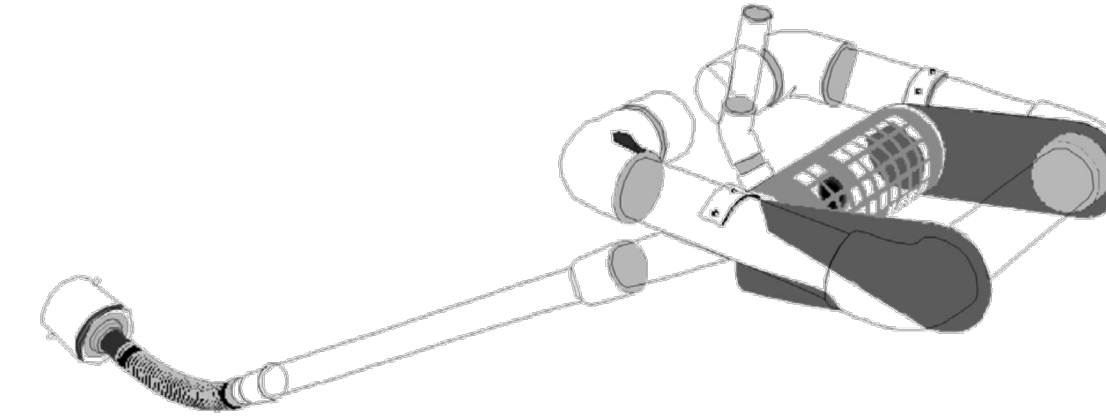


Illustration SB-1. Outlet structure for a temporary sediment basin - Faircloth Skimmer Floating Outlet. Illustration courtesy of J. W. Faircloth & Sons, Inc., FairclothSkimmer.com.

- Outlet Protection and Spillway:** Consider all flow paths for runoff leaving the basin, including protection at the typical point of discharge as well as overtopping.
  - Outlet Protection:** Outlet protection should be provided where the velocity of flow will exceed the maximum permissible velocity of the material of the waterway into which discharge occurs. This may require the use of a riprap apron at the outlet location and/or other measures to keep the waterway from eroding.
  - Emergency Spillway:** Provide a stabilized emergency overflow spillway for rainstorms that exceed the capacity of the sediment basin volume and its outlet. Protect basin embankments from erosion and overtopping. If the sediment basin will be converted to a permanent detention basin, design and construct the emergency spillway(s) as required for the permanent facility. If the sediment basin will not become a permanent detention basin, it may be possible to substitute a heavy polyvinyl membrane or properly bedded rock cover to line the spillway and downstream embankment, depending on the height, slope, and width of the embankments.

**SC-7 Sediment Basin (SB)**

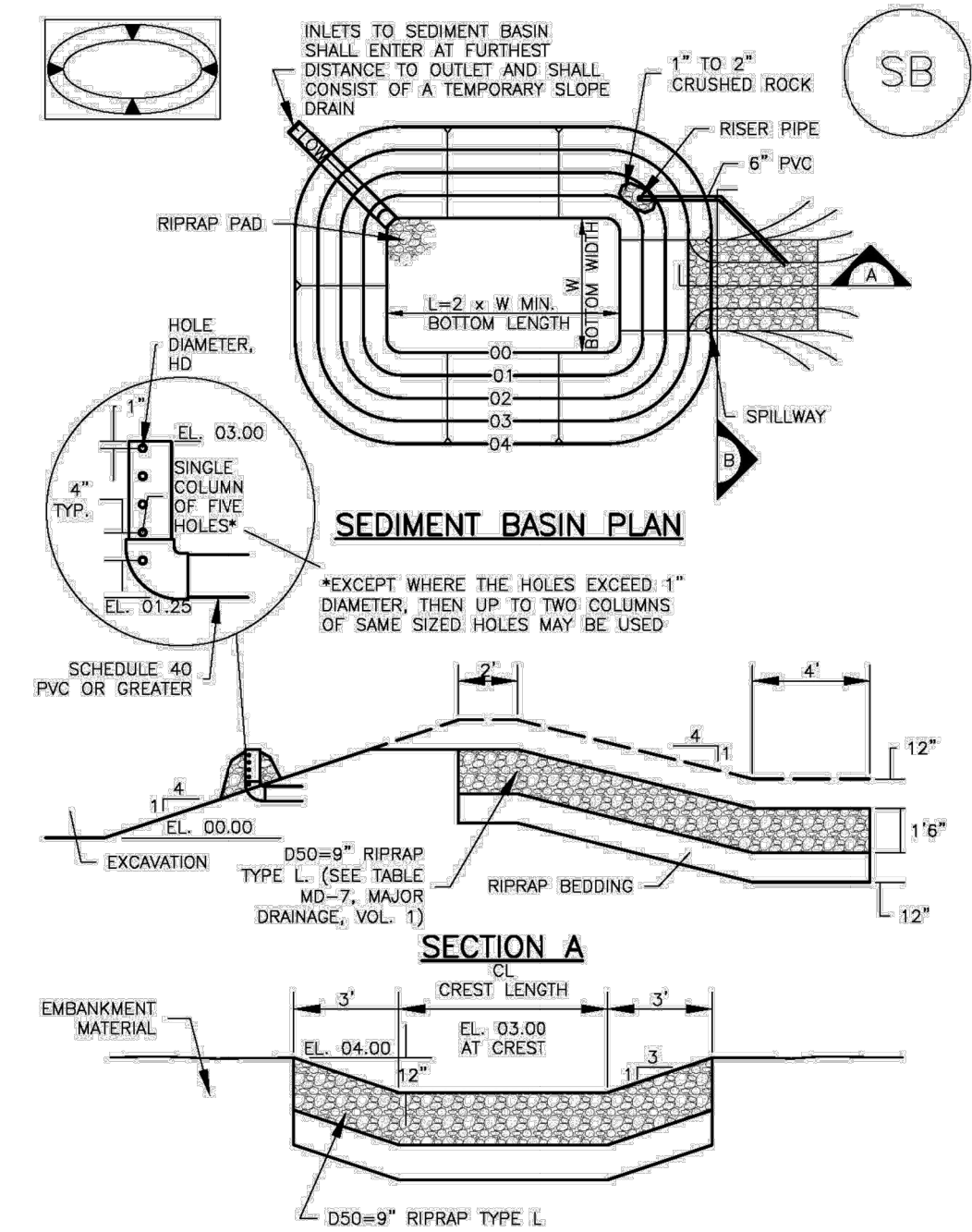
**Maintenance and Removal**

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.

Final disposition of the sediment basin depends on whether the basin will be converted to a permanent post-construction stormwater basin or whether the basin area will be returned to grade. For basins being converted to permanent detention basins, remove accumulated sediment and reconfigure the basin and outlet to meet the requirements of the final design for the detention facility. If the sediment basin is not to be used as a permanent detention facility, fill the excavated area with soil and stabilize with vegetation.

**Sediment Basin (SB) SC-7**



**SC-7 Sediment Basin (SB)**

**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	12 ½	2	¾
2	21	3	¾
3	28	5	¾
4	33 ½	6	¾
5	38 ½	8	¾
6	43	9	¾
7	47 ½	11	¾
8	51	12	¾
9	55	13	¾
10	59 ½	15	¾
11	64	16	¾
12	67 ½	18	¾
13	71	19	¾
14	74 ½	21	¾
15	77 ½	22	¾

- SEDIMENT BASIN INSTALLATION NOTES**
- SEE PLAN VIEW FOR:
    - LOCATION OF SEDIMENT BASIN.
    - TYPE OF BASIN (STANDARD BASIN OR NONSTANDARD BASIN).
    - FOR STANDARD BASIN, BOTTOM WIDTH W, CREST LENGTH CL, AND HOLE DIAMETER, HD.
    - FOR NONSTANDARD BASIN, SEE CONSTRUCTION DRAWINGS FOR DESIGN OF BASIN INCLUDING RISER HEIGHT H, NUMBER OF COLUMNS N, HOLE DIAMETER HD AND PIPE DIAMETER D.
  - FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.
  - SEDIMENT BASINS SHALL BE INSTALLED PRIOR TO ANY OTHER LAND-DISTURBING ACTIVITY THAT RELIES ON ON BASINS AS AS A STORMWATER CONTROL.
  - 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.
  - EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D698.
  - PIPE SCH 40 OR GREATER SHALL BE USED.
  - 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.

**Sediment Basin (SB) SC-7**

- SEDIMENT BASIN MAINTENANCE NOTES**
- 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.
  - FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
  - WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
  - SEDIMENT ACCUMULATED IN BASIN SHALL BE REMOVED AS NEEDED TO MAINTAIN BMP EFFECTIVENESS, TYPICALLY WHEN SEDIMENT DEPTH REACHES ONE FOOT (I.E., TWO FEET BELOW THE SPILLWAY CREST).
  - SEDIMENT BASINS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS ACCEPTED BY THE LOCAL JURISDICTION.
  - WHEN SEDIMENT BASINS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDS AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.
- (DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO)
- 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.

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