

**Stormwater Management Plan  
for  
Forest Heights Properties  
Didleau Subdivision**

**Owner**

Phillis Didleau  
8250 Forest Heights Circle  
Colorado Springs, Colorado 80908  
719.440.1949  
Email: [phylis@pcisys.net](mailto:phylis@pcisys.net)

**SWMP Preparer**

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**Qualified Stormwater Manager**  
(to be determined)

**Contractor**  
(to be determined)

**Preparation Date**  
May 17, 2022

Item 1. Add Qualified Stormwater Manager and Contractor Information to cover/title sheet. If unknown, add a placeholder to be updated prior to the pre-construction meeting:

**QUALIFIED STORMWATER MANAGER**

Name: \_\_\_\_\_  
Company: \_\_\_\_\_  
Address: \_\_\_\_\_

**CONTRACTOR**

Name: \_\_\_\_\_  
Company: \_\_\_\_\_  
Address: \_\_\_\_\_

Project Number  
2019.25

EPC Project No MS-206

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## Certifications

### Engineer of Record

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

Signature \_\_\_\_\_  
(Kenneth C. Harrison, P.E.) Date

Registered Professional Engineer State of Colorado No. 23635

Seal

### Review Engineer

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

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

### Owner's Statement

I, the Owner, Phyllis Didleau, have read and will comply with all of the requirements specified in this Stormwater Management Plan Report and Plan.

Signature \_\_\_\_\_  
(Phyllis Didleau) Date

Representing \_\_\_\_\_  
(Print Entity Name)

Title: Owner

Address: 8250 Forest Heights Circle  
Colorado Springs, Colorado 80908  
719.440.1949  
Email: phyllis@pcisys.net

**I. Site Description**

**Location**

**I. GENERAL DESCRIPTION**

**Location**

The site is a portion of the southwest quarter of Section 9, Township 12 South, Range 65 West of the 6<sup>th</sup> Principal Meridian, El Paso County, Colorado (*Exhibit 1, Appendix*).

The current tract consists of approximately 32.59 acres with 5.11 acres located north of Forest Heights Circle and 27.48 acres located south of Forest Heights Circle. It is proposed to subdivide the tract into 3 lots. The sizes of the lots are:

- Lot 1: 5.0 acres north of Forest Heights Circle
- Lot 2: 5.183 acres south of Forest Heights Circle
- Lot 3: 7.686 acres south of Forest Heights Circle
- Lot 4: 12.108 acres south of Forest Heights Circle
- Tract A: 0.598 acres of the existing 60-foot-wide roadway right of way beginning at the easterly right of way line of Herring Road extending easterly for approximately 434-feet.
- Tract B: 2.093 acres from approximately 950 feet east of Herring Road to the existing cul-de-sac at the easterly end of Forest Heights Road.
- The roadway is also designed with two (2) areas to accommodate fire trucks.

There is a 40-foot-wide easement where three (3) gas lines are located and run north and south. Two (2) carry natural gas are owned and managed by Kinder Morgan. The third line carries liquid petroleum and is owned by Magellan. Contact information is on “flags” located directly over the lines. It is recommended that the contractor notify the companies 72 hours in advance of construction.

**II. Qualified Stormwater Manager**

Identify QSM in the SWMP and provide documentation of their credentials and/or state: "The QSM will be sufficiently qualified for the required duties per the ECM Appendix I.5.2.A"

A qualified stormwater manager is to be an individual knowledgeable in the principles and practice of erosion and sediment control and pollution prevention, and has the skills to assess conditions at the construction site that could impact storm water quality and as well as the effectiveness of the stormwater controls that have been implemented. It has not been determined the firm/ individual that is to provide this service. This will be determined prior to construction.

**III. Proposed Construction Activities**

The proposed construction is limited to improvements to an existing private gravel road that extends approximately 2,400 feet east of the Herring Road intersection.

The existing roadway has the following characteristics:

- This road has functioned as a private road since the early 1970's.

- The majority of the travel way is located along the northerly half of a 60-foot-wide right of way/ access easement.
- The width of the roadway varies between 14 feet to 22 feet.
- There are no shoulders on either side of the gravel travel way.
- Runoff from the travel way sheet flows into borrow ditches of varying width and depth from 6 inches to 24 inches deep. A cul-de-sac is located at the easterly end of the roadway.
- The stormwater runoff crosses the road at three locations via 18-inch CMP culverts.
- There are seasonally wet areas upstream and downstream of two (2) of the three (3) culverts. Approximate locations and extent of the wet areas are shown on the Drainage Plan. The classification and locations of these wet areas are approximate. A Nationwide permit from Army Corps of Engineers has been obtained with a copy enclosed in the Appendix of this report. The boundaries of the wetlands, as shown on the construction plans, are only approximate. Based on conversations with the ACOE it is anticipated that boundaries of the seasonal wet areas will not be necessary. Photographs are included in the Appendix of this report.
- Storm water in the northerly borrow ditch from the Herring Road intersection to approximately 250 feet east is directed out of the borrow ditch and onto the existing gravel road. This is due to a number of pine trees that are located along the northerly side of the roadway. As a result, the road surface has become potholed and heavily eroded. It is proposed to correct this condition by raising this section from one foot to 2 feet so that the borrow ditches can be better defined. It is also recommended to move the trees to another location outside the right of way.

Construction plans and specifications for the proposed roadway improvements have been prepared and submitted to El Paso County for their review. Even though the road will remain privately owned and maintained, the roadway will be **design** in accordance with El Paso County criteria. A Grading and Erosion Control Plan has been prepared and submitted to El Paso County for review (*Appendix, Exhibit 9*):

- The roadway is to be improved to the standards established by El Paso County. The plans have been submitted to the Black Forest Fire And Rescue Division for their review and comment. See attached memo (*Appendix, Exhibit 5*).
- The roadway is to be improved to the typical section as shown in the Appendix of this report (*Appendix, Exhibit 5*). The typical section has been

revised from the EPC standard in order to keep the roadway and drainage improvements inside the right of way.

- Two pull-outs are to be constructed in order to facilitate multiple fire trucks. These locations are shown on an area map included in the Appendix of this report (*Appendix, Exhibit 9*).
- Borrow ditches are to be installed with a standard 24" deep.
- Three (3) 18-inch CMP culverts are to be replaced near the approximate locations as the existing 18" CMP culverts. The inverts of the culverts will be set at or near the existing elevations in order to avoid unnecessary grading at either the upstream or downstream culvert locations.
- A portion of the road is to be raised from just east of the Herring Drive intersection to approximately 250 east. Currently the water in this section is directed onto the existing roadway caused potholes and erosion. Raising the roadway in this section will help to keep the runoff in the borrow ditches. The elevation of the road is to be raised for one (1) to two (2) feet for approximately 250 feet east of the Herring Road intersection. This is to help direct the storm water to remain in the borrow ditches to a location where an 18-inch CMP culvert will direct it under the roadway.

more or less duplicate paragraph on previous page. Consider removing/combining them.

#### IV. Geotechnical Report

The Soil, Geology, Geologic Hazard Study, dated March 10, 2020, by Entech Engineering, Inc., (*Appendix, Exhibit 3*), addresses the general soil conditions and erosion potential of the site. The soils on the subject property are as follows:

- 26 Elbeth Sandy Loam
- 40 Kettle Gravelly Loam

These soils have typically moderate to rapid permeabilities. The soils are well suited for home sites. The report on page 7 states that:

"The soil types observed on the site are mildly to highly susceptible to wind erosion and moderately to highly susceptible to water erosion. A minor wind erosion and dust problem may be created for a short time during and immediately after construction. Should the problem be considered severe enough during the time of construction watering of the cut areas or the use of chemical palliatives may be required to control dust. However, once construction has been completed and vegetation re-established, the potential for wind and water erosion should be considerably reduced."

#### V. Phasing Plan

The BMPs however are phase. On the GEC Plan, you have initial and interim BMPs. So discuss that in this section.

There are no phasing plans proposed for the construction of roadway improvements. The roadway improvements are to be installed in a single phase.

The schedule for the construction of each residence will depend on the schedule of the buyers of the individual lots.

see SWMP Checklist Item 6 and revise this accordingly. Discuss order of graveling the road, ditching, culverts, stabilization, etc.

#### VI. Sequencing of Major Activities

All of the roadway improvements are to be installed at one time. There is to be no sequencing of roadway improvements.

#### VII. Total Area of Site Disturbance

The area that is to be disturbed is to include the entire length, 2,400 feet, of the existing gravel road along with the cul-de-sac located at the easterly end of the roadway.

The approximate disturbed areas are as follows:

- Roadway = 144,000 square feet

#### VIII. Soil Erosion Potential

The Soil Erosion Potential was reviewed in section IV of this report. Also, refer to the Soil, Geology, Geologic Hazard Study, dated march 10, 2020, by Entech Engineering, Inc., (*Exhibit 3, Appendix*) for additional geotechnical information.

#### IX. Existing Vegetation Description

The soils on the subject property are as follows:

- 26 Elbeth Sandy Loam
- 40 Kettle Gravelly Loam

Typical vegetation consists of dry upland type plants that consist of native grasses and scattered groups of Ponderosa trees. Some of the stands of trees have been burned in the fire of 2003. Based on site observations it appears that any bare areas affected by the fire have been revegetated naturally with onsite grasses and bushes. It also appears that the majority of the sedimentation that has occurred in the existing culvert consists of material that was burned by the fire. Very little erosion from the individual swales has occurred due to the heavy stabilizing effect that the wetland vegetation that has been established in each swale. There are several locations where wetland plants have been established. The approximate location of these areas is shown on the Stormwater Management/ Grading and Erosion Control Plan (*Appendix, Exhibit 7*). The location and identification of these wetland areas have yet to be established by a biologist representative from the Army Corps of Engineers. A copy of the Nationwide Permit Application is included in the *Appendix, Exhibit 5* of this report.

#### X. Pollution Sources

There are no major pollution sources within the subdivision. Minor pollution sources include products used to maintain landscaping and motor vehicles on lots adjacent to the proposed subdivision. The only potential erosion is expected to occur from the proposed borrow ditches adjacent to both sides of the roadway.

What about during construction?  
Discuss fluids from heavy equipment, vehicles, stockpiles, soil disturbance, etc. See SWMP Checklist Item 10.

Temporary straw wattles are proposed along each borrow ditch during the construction. The erosion and subsequent sedimentation is to be controlled with the use of straw check dams along the borrow ditches, staked hay bales at the upstream end of the three (3) culverts, seeding and erosion control blankets for areas within the right of way that have been disturbed by construction activities.

**XI. Materials Handling and Spill Prevention**

The only hazardous material that is to be handled during the construction phase of this project is the fuel for the construction equipment. The fuel will be stored in an area that can be mitigated in case of an accident spill. The location of the area will be coordinated with the contractor. Accidental spills will be contained to an area where earthen dams can be constructed into order to isolate the contaminated area. All spills will be cleaned-up with the removal and proper disposal of the contaminated material.

The following procedures will be used if a spill occurs:

- a. Personal safety is the primary importance
- b. Absorbent material will be used to contain spills and areas of residuals
- c. The absorbent materials are to be disposed of properly
- d. Spill kits will be stored at locations where potential spills have a probability of occurring.
- e. Reporting procedure will be conducted in order to properly report spills.

**XII. Spill Prevention and Pollution Controls**

See section XI.

SWMP Checklist Item 12. Note that this project does not anticipate utilizing onsite batch plants in the SWMP text.

**XIII. Response Plan**

In case of an accidental spill, the contractor will immediately notify the Owner or the Owners representative who, in turn, will notify the Stormwater Manager. The Contractor will repair the source of the spill. The Stormwater Manager will then inspect the site, prepare and inspection report (*Appendix, Exhibit 6*) which will be included in the Stormwater Management Plan file.

The following will be used for a significant non-hazardous material spill:

- a. Contact the Colorado Department of Public Health and Environment (CDPHE) 24-hour Environmental Emergency Spill Line (877-518-5608) within 24 hours of the significant spill event. A written notification to CDPHE is necessary within 5 days.
- b. Clean up spills immediately, Use absorbent material if the spill is on an impermeable surface. Construct a slightly compacted earth dike at the time of the spill, cover the spill with a tarp to prevent contaminating runoff.

The following for a significant hazardous material spill will be used:

- a. Personnel safety is of primary importance. Stay upwind and at a safe distance/ secure the area from anyone being harmed
- b. Contact the local emergency response team by dialing 911.



- c. Contact CDPHE 24-hour Environment Emergency Spill Reporting Line (877-518-5608) within 24 hours of the spill event. A written notification to CDPHE is necessary within 5 days.
- d. Report spills to the project engineer.
- e. A licensed contractor or a Hazmat team shall be used to properly clean up spills immediately.
- f. Construction personnel shall not try to clean up the spill.

**XIV. Other Pollutant Control Measures**

SWMP Checklist Item 13 - address construction waste and off-site soil tracking.

There are no other obvious sources of pollution located onsite or offsite of this project. All wastewater from the individual homes are to be handled by an onsite septic tank and drain field. These facilities are to be designed and installed by others.

**XV. Non-Stormwater Discharge**

Has this been accounted for in the sizing of the roadside swales?

Non-stormwater discharge consists of ground water that percolates to the surface at various locations along the natural swales. The locations of these swales are indicated on the Final Drainage Report Stormwater Management/ Grading and Erosion Control Plan and the Final Drainage Report included in the *Appendix, Exhibit 7* (map pocket of this report). The location of these “springs” are evident by the existence of wetland type vegetation. The wetland boundaries are to be determined by the biologist from the ACOE. The quantity of discharge varies throughout the year from dry to standing water that slowly flows to the existing culverts under Forest Heights Circle.

**XVI. Ultimate Receiving Waters**

The subdivision is located in the Kettle Creek Major Drainage Basin (*Appendix, Exhibit 8, map pocket*). The stormwater from the swales within the subdivision discharges into Burgess River which ultimately discharges into Kettle Creek.

**XVII. Stream Crossings**

There are no active stream crossings associated with this project. The existing roadway crosses swales at three (3) locations shown on the Drainage Plan (*Appendix, Exhibit 8, map pocket*).

**XVIII. Structural Control Measures to be used (*Appendix, Exhibit 4*).**

All of the structural erosion control facilities are to be installed at locations shown on the Storm water Management/ Grading and Erosion Control Plan included in the map pocket (*Appendix, Exhibit 7*). Details for each erosion control measure to be used are included in the *Appendix, Exhibit 4*. The following erosion control measures are to be installed:

- Erosion control blankets are recommended in all ditches and the proposed borrow area.

GEC Plan only shows ECB on outside half of ditches. Revise plans to remove this discrepancy.

- and add a bullet for SCLs, which are shown on GEC Plans.

- Staked Hay Bales are recommended at the upstream end of each of the three (3) culverts until the borrow ditches have been revegetated and stabilized.
- Temporary Erosion Control Check Dams are recommended to be installed in the borrow ditches until such time that the stone check dams can be installed.

**XIX. Non-Structural BMP's and Measures to be used**

Ditch check dams, seeding, mulching, erosion control fabric, hale bales at both upstream and downstream ends of the culverts are proposed on all areas disturbed by construction activities. The recommended location of the BMPs are shown on the Grading and Erosion Control Plan submitted under separate cover.

**XX. Maintenance of Structural Control Measures**

The maintenance of the erosion control structures that are to be used are described under the exhibit for each structure in *Appendix, Exhibit 4*.

**XXI. Final Stabilization and Long-Term Stormwater Quality**

Address SWMP  
Checklist Item 23

Final stabilization of the disturbed areas will include:

- a. Grass lined borrow ditches with natural vegetation.
- b. Once the existing vegetation has been established no additional stabilization will be required at the upstream and downstream ends of the three (3) culverts which are to be replaced. Grading upstream and downstream of the culverts will be minimized since the elevations of the upstream and downstream ends of the proposed culverts will be approximately the same as the existing. It is expected that the wetland plant species will be reestablished in a short period of time.

**XXII. Inspection Procedures**

Inspections are to be conducted at least every 14 days and within 24 hours after a significant precipitation event where erosion may have occurred. Maintenance or replacement of erosion control measures will be made as soon as possible and immediately in most cases, to minimize the discharge of pollutants. Examples of the Inspection Forms are included in *Appendix, Exhibit 6*.

**XXIII. Record Keeping Procedures**

The inspection form (*see Appendix, Exhibit 6*) contains a correction action log. This log will describe repair, replacement of failed BMP's, significant changes in the activities or their timing on the project, changes in personnel, and updates to the site maps and Stormwater Management / Grading and Erosion Control Plan (*Appendix, Exhibit 7*).

**XXIV. Owner of the Proposed Control Measures**

The Owner of the control measures is the applicant.

Phillis Didleau

8250 Forest Heights Circle  
Colorado Springs, Colorado 80908  
719.440.1949  
Email: phylis@pcisys.net

SWMP Checklist Item 21. Add text stating that the SWMP should be viewed as a “living document” that is continuously being reviewed and modified as a part of the overall process of evaluating and managing SW quality issues at the site. The QSM shall amend the SWMP when there is a change in design, construction, O&M of the site which would require the implementation of new or revised BMPs or if the SWMP proves to be ineffective in achieving the general objectives of controlling pollutants in SW discharges associated with construction activity or when BMPs are no longer necessary and are removed.

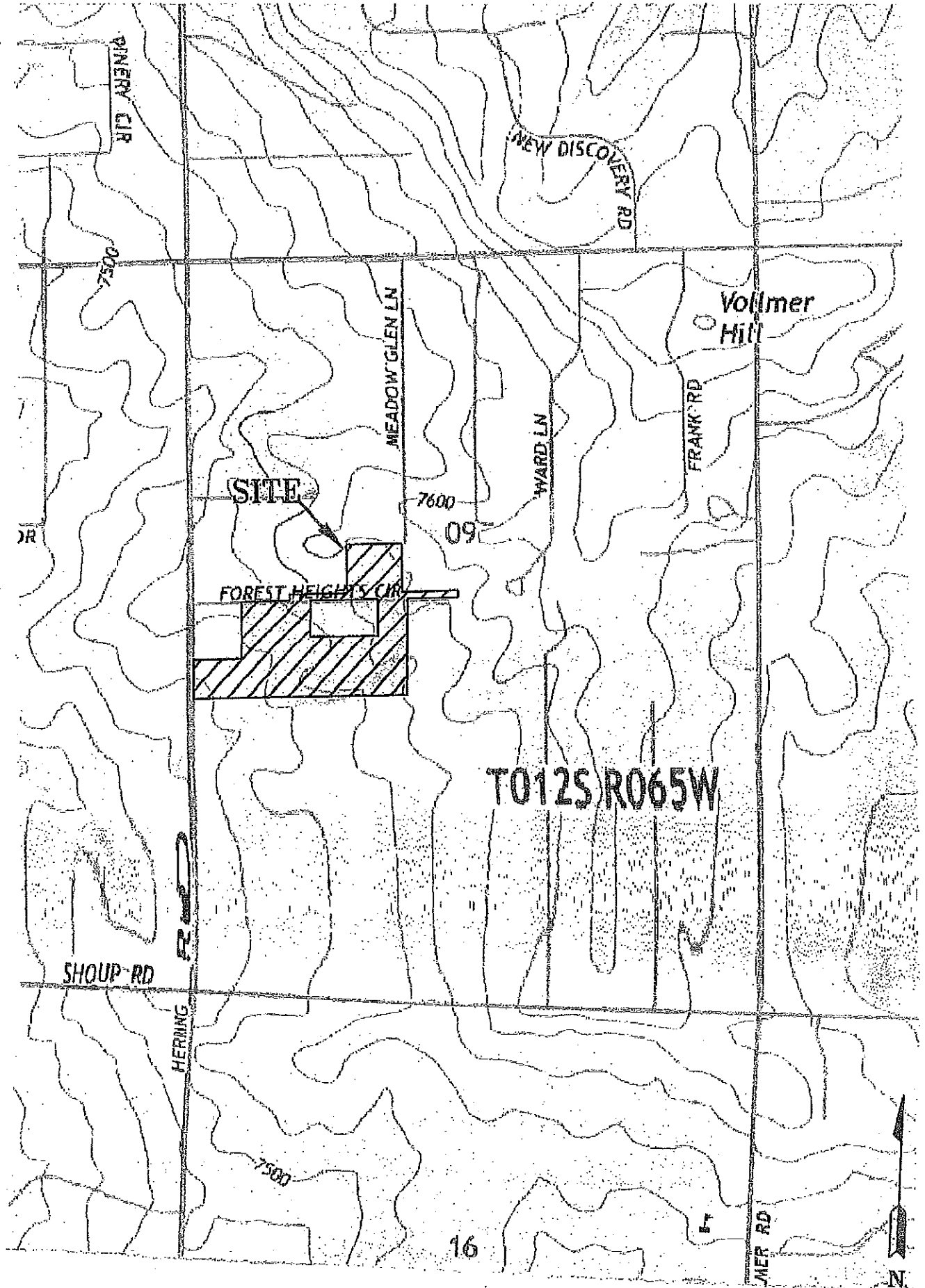
SWMP Checklist Item 25 - state that inspection logs will be signed by QSM.

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

# **Appendix**

# **Exhibit 1**

## **Vicinity Map**



PINERY CIR

NEW DISCOVERY RD

Vollmer Hill

0052

MEADOW GLEN LN

WARD LN

FRANK RD

SITE

7600

09

FOREST HEIGHTS CIR

T012S R065W

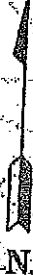
SHOUP RD

HERRING

7500

16

MER RD



## **Exhibit 2**

### **NRCS Soils Information**



United States  
Department of  
Agriculture

**NRCS**

Natural  
Resources  
Conservation  
Service

A product of the National  
Cooperative Soil Survey,  
a joint effort of the United  
States Department of  
Agriculture and other  
Federal agencies, State  
agencies including the  
Agricultural Experiment  
Stations, and local  
participants

# Custom Soil Resource Report for **El Paso County Area, Colorado**

## Didleau Subdivision, El Paso County



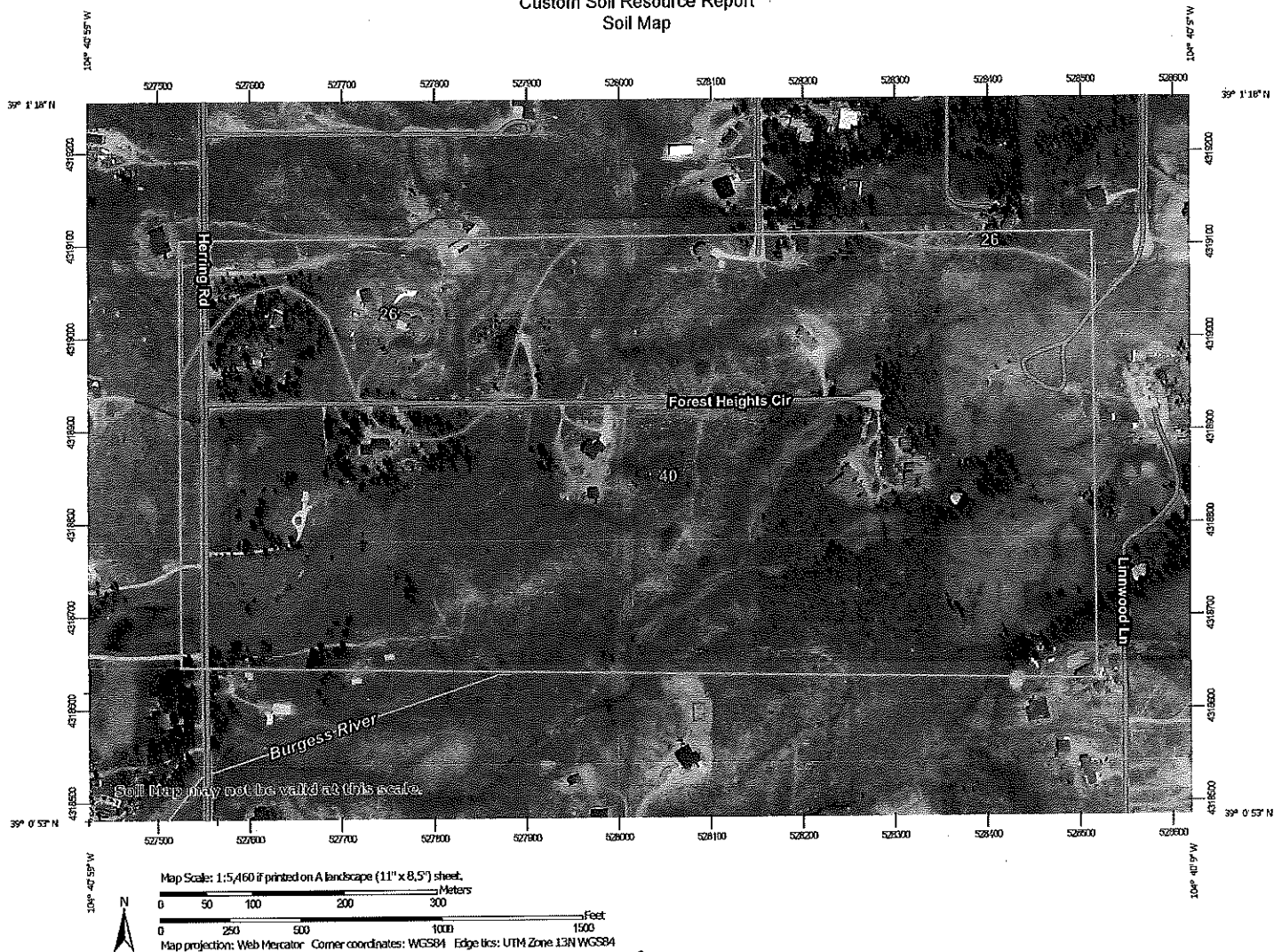


# Soil Map

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



































The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report  
Soil Map



Custom Soil Resource Report

**MAP LEGEND**

 Area of Interest (AOI)	 Spoil Area
 Area of Interest (AOI)	 Stony Spot
 Soil Map Unit Polygons	 Very Stony Spot
 Soil Map Unit Lines	 Wet Spot
 Soil Map Unit Points	 Other
<b>Special Point Features</b>	 Special Line Features
 Blowout	<b>Water Features</b>
 Borrow Pit	 Streams and Canals
 Clay Spot	<b>Transportation</b>
 Closed Depression	 Rails
 Gravel Pit	 Interstate Highways
 Gravelly Spot	 US Routes
 Landfill	 Major Roads
 Lava Flow	 Local Roads
 Marsh or swamp	<b>Background</b>
 Mine or Quarry	 Aerial Photography
 Miscellaneous Water	
 Perennial Water	
 Rock Outcrop	
 Saline Spot	
 Sandy Spot	
 Severely Eroded Spot	
 Sinkhole	
 Slide or Slip	
 Sodic Spot	

**MAP INFORMATION**

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

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

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

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

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

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

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

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

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

Date(s) aerial images were photographed: Sep 8, 2018—May 26, 2019

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

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
26	Elbeth sandy loam, 8 to 15 percent slopes	14.5	12.5%
40	Kettle gravelly loamy sand, 3 to 8 percent slopes	101.2	87.5%
<b>Totals for Area of Interest</b>		<b>115.7</b>	<b>100.0%</b>

## Map Unit Descriptions

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

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

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

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

## Custom Soil Resource Report

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

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

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

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

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

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

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

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

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

## El Paso County Area, Colorado

### 26—Elbeth sandy loam, 8 to 15 percent slopes

#### Map Unit Setting

*National map unit symbol:* 367y  
*Elevation:* 7,300 to 7,600 feet  
*Farmland classification:* Not prime farmland

#### Map Unit Composition

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

#### Description of Elbeth

##### Setting

*Landform:* Hills  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Alluvium derived from arkose

##### Typical profile

*A - 0 to 3 inches:* sandy loam  
*E - 3 to 23 inches:* loamy sand  
*Bt - 23 to 68 inches:* sandy clay loam  
*C - 68 to 74 inches:* sandy clay loam

##### Properties and qualities

*Slope:* 8 to 15 percent  
*Depth to restrictive feature:* More than 80 inches  
*Natural drainage class:* Well drained  
*Runoff class:* Medium  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.60 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water storage in profile:* Moderate (about 7.1 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 4e  
*Hydrologic Soil Group:* B  
*Hydric soil rating:* No

#### Minor Components

##### Other soils

*Percent of map unit:*  
*Hydric soil rating:* No

##### Pleasant

*Percent of map unit:*  
*Landform:* Depressions  
*Hydric soil rating:* Yes

## 40—Kettle gravelly loamy sand, 3 to 8 percent slopes

### Map Unit Setting

*National map unit symbol:* 368g  
*Elevation:* 7,000 to 7,700 feet  
*Farmland classification:* Not prime farmland

### Map Unit Composition

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

### Description of Kettle

#### Setting

*Landform:* Hills  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Sandy alluvium derived from arkose

#### Typical profile

*E - 0 to 16 inches:* gravelly loamy sand  
*Bt - 16 to 40 inches:* gravelly sandy loam  
*C - 40 to 60 inches:* extremely gravelly loamy sand

#### Properties and qualities

*Slope:* 3 to 8 percent  
*Depth to restrictive feature:* More than 80 inches  
*Natural drainage class:* Somewhat excessively drained  
*Runoff class:* Low  
*Capacity of the most limiting layer to transmit water (Ksat):* High (2.00 to 6.00 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water storage in profile:* Low (about 3.4 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 4e  
*Hydrologic Soil Group:* B  
*Hydric soil rating:* No

### Minor Components

#### Pleasant

*Percent of map unit:*  
*Landform:* Depressions  
*Hydric soil rating:* Yes

## Custom Soil Resource Report

### **Other soils**

*Percent of map unit:*

*Hydric soil rating:* No

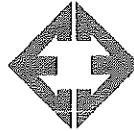


## **Exhibit 3**

### **Soil, Geology, Geologic Hazards Study**

March 10, 2020

Land Development Consultants, Inc.  
3898 Maizeland Road  
Colorado Springs, CO 80909



**ENTECH**  
ENGINEERING, INC.

505 ELKTON DRIVE  
COLORADO SPRINGS, CO 80907  
PHONE (719) 531-5599  
FAX (719) 531-5238

Attn: Daniel Kupferer

Re: Soil, Geology, and Geologic Hazard Study  
Didleau Subdivison  
Herring Road & Forest Heights Circle  
Parcel Nos. 52090-00-050 & 52090-00-120  
El Paso County, Colorado

Dear Mr. Kupferer:

### **GENERAL SITE CONDITIONS AND PROJECT DESCRIPTION**

The site is located in a portion of the SW $\frac{1}{4}$  of Section 9, Township 12 South, Range 65 West of the 6<sup>th</sup> Principal Meridian in El Paso County, Colorado. The site is located approximately 4 miles northeast of Colorado Springs city limits, northeast of Shoup Road and Herring Road in El Paso County, Colorado. The location of the site is as shown on the Vicinity Map, Figure 1.

The topography of the site is gradually sloping generally to the southwest with moderate slopes along the ridge that bisects the site. Burgess Creek is located in the eastern portion of the site and flows in a southwesterly direction. A minor drainage is located in the western portion of the property. Water was not observed in the drainages at the time of this investigation. The site boundaries are indicated on the USGS Map, Figure 2. Previous land uses have included undeveloped and a rural residential development. The site is located within the Black Forest burn scar. The site contains primarily field grasses and weeds with scattered areas of ponderosa pines in the western portion of the site and around the existing house located on Lot 2. Site photographs, taken January 30, 2020, are included in Appendix A.

Total acreage involved in the proposed subdivision is 32.25-acres. Four rural residential lots are proposed as part of the replat. The proposed lot sizes range from approximately 5-acres to 15-acres. The existing house located on Lot 2 will remain. The new lots will be serviced by individual wells and on-site wastewater treatment systems. The Site Plan with the proposed replat is presented in Figure 3.

### **LAND USE AND ENGINEERING GEOLOGY**

This site was found to be suitable for the proposed development. Areas were encountered where the geologic conditions will impose some constraints on development and land use. These include areas of potentially seasonal shallow and seasonal shallow groundwater. Based on the proposed development plan, it appears that these areas will have some minor impacts on the development. These conditions will be discussed in greater detail in the report.

In general, it is our opinion that the development can be achieved if the observed geologic conditions on site are either avoided or properly mitigated. All recommendations are subject to the limitations discussed in the report.

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Soils, Geology, and Geologic Hazard Study  
Didleau Subdivision  
Herring Road & Forest Heights Circle  
Parcel Nos. 52090-00-050 & 52090-00-120  
El Paso County, Colorado

## SCOPE OF THE REPORT

The scope of the report will include the following:

- A general geologic analysis utilizing published geologic data. Detailed site-specific mapping will be conducted to obtain general information in respect to major geographic and geologic features, geologic descriptions and their effects on the development of the property.

## FIELD INVESTIGATION

Our field investigation consisted of the preparation of a geologic map of any bedrock features and significant surficial deposits. The Natural Resource Conservation Service (NRCS), previously the Soil Conservation Service (SCS) survey was also reviewed to evaluate the site. The position of mappable units within the subject property are shown on the Geologic Map. Our mapping procedures involved both field reconnaissance and measurements, and aerial photo reconnaissance and interpretation. The same mapping procedures have also been utilized to produce the Geology/Engineering Geology Map which identified pertinent geologic conditions affecting development. The field mapping was performed by personnel of Entech Engineering, Inc. on January 3 and 30, 2020.

Two test borings and two test pits were excavated on the site to determine general suitability for the use of on-site wastewater treatment systems and general soil characteristics. The location of the test pit is indicated on the Site Plan/Test Pit Location Map, Figure 3. The Test Pit Log is presented in Appendix B. Results of this testing will be discussed later in this report.

Laboratory testing was also performed on some of the soils to classify and determine the soils engineering characteristics. Laboratory tests included grain-size analysis, ASTM D-422, and Atterberg Limits, ASTM D-4318. Results of the laboratory testing are included in Appendix C. A Summary of Laboratory Test Results is presented in Table 1.

## SOIL AND GEOLOGIC CONDITIONS

### Soil Survey

The Natural Resource Conservation Service (NRCS) (Reference 1, Figure 4), previously the Soil Conservation Service (Reference 2) has mapped two soil types on the site. Complete descriptions of the soil types are presented in Appendix D. In general, the soils consist of sandy loam to gravelly loamy sand. The soils are described as follows:

<u>Type</u>	<u>Description</u>
26	Elbeth Sandy Loam, 8 – 15% Slopes
40	Kettle Gravelly Loamy Sand, 3 – 8% Slopes

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The soils have been described to have moderate to rapid permeabilities. The soils are described as well suited for use as homesites. Possible hazards with soils erosion are present on the site. The erosion potential can be controlled with vegetation. The soils have been described to have moderate erosion hazards (Reference 2).

### Soils

The soils encountered in the test borings and test pits consisted of silty sand to very clayey sand overlying weathered to formational silty sandstone and very sandy claystone. Bedrock was encountered at depths ranging from 2 to 6 feet. The upper sands were encountered at loose to dense states and moderate moisture conditions, and the sandstone was encountered at very dense states and moderate moisture conditions. The claystone was encountered at hard consistencies and moderate moisture conditions. The samples of sand tested had approximately 12 to 38 percent of the soil size particles passing the No. 200 sieve. FHA Swell Testing on a sample of the very clayey sand resulted in an expansion pressure of 1640 psf, which indicates a moderate expansion potential. The samples of sandstone tested had 10 to 22 percent of the soil size particles passing the No. 200 sieve. The samples of claystone tested had 54 to 59 percent of the soil size particles passing the No. 200 sieve. FHA Swell Testing on a sample of the claystone resulted in an expansion pressure of 730 psf, which indicates a low to moderate expansion potential. Highly expansive claystone and siltstone lenses are commonly interbedded in the Dawson Formation.

### Groundwater

Groundwater or signs of seasonally occurring water were not encountered in the test borings or test pits, which were drilled to 20 feet and excavated to 6 to 7 feet. It is anticipated groundwater will not affect shallow foundations on the majority of the site. Areas of potentially seasonal shallow and seasonal shallow groundwater have been mapped in drainages on the site that are discussed in the following sections. Fluctuations in groundwater conditions may occur due to variations in rainfall or other factors not readily apparent at this time. Isolated sand layers within the soil profile can carry water in the subsurface. Contractors should be cognizant of the potential for the occurrence of subsurface water features during construction.

### Geology

Approximately 12 miles west of the site is a major structural feature known as the Rampart Range Fault. This fault marks the boundary between the Great Plains Physiographic Province and the Southern Rocky Mountain Province. The site exists within a large structural feature known as the Denver Basin. Bedrock in the area is typically gently dipping in a northerly direction (Reference 3). The bedrock underlying the site consists of the Dawson Formation of Cretaceous Age. The Dawson Formation typically consists of coarse-grained arkosic sandstone with interbedded layers claystone or siltstone.

The geology of the site was evaluated using the *Geologic Map of the Black Forest*, by Thorson in 2003, (Reference 4, Figure 5). The Geology Map for the site is presented in Figure 6. Four mappable units were identified on this site which is described as follows:

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- Qaf Artificial Fill of Holocene Age:** These consist of man-made fill deposits associated with a gas pipeline that bisects the site in portions of Lot 1 and Lot 2. Fill piles consisting of logs and branches are located across the site.
- Qal Recent Alluvium of Holocene Age:** These are recent deposits that have been deposited in the drainages that exist on-site. These materials consist of silty to clayey sands. Some of these alluviums can contain highly organic soils.
- Qau Alluvium, Undivided of Holocene and Pleistocene Age:** These are sheetwash and stream deposited alluvium that exists in the western portion of the site associated with alluvial-filled valley heads. These materials typically consist of silty to clayey sands and gravel.
- Qc/Tkd Colluvium of Quaternary Age overlying Dawson Formation of Tertiary to Cretaceous Age:** The materials consist of colluvial or residual soils overlying the bedrock materials on-site. The colluvial soils were deposited by the action of sheetwash and gravity. The residual soils were derived from the in-situ weathering of the bedrock on site. These materials typically consist of silty to clayey sand with potential areas of sandy clays. The bedrock consists of the Dawson Formation. The Dawson Formation typically consists of coarse-grained, arkosic sandstone with interbedded lenses of fine-grained sandstone, siltstone and claystone.

The soils listed above were mapped from site-specific mapping, the *Geologic Map of the Black Forest Quadrangle* distributed by the Colorado Geologic Survey in 2003 (Reference 4, Figure 5), the *Geologic Map of the Colorado Springs-Castle Rock Area*, distributed by the US Geological Survey in 1979 (Reference 5), and the *Geologic Map of the Pueblo 1° x 2° Quadrangle*, distributed by the US Geological Survey in 1978 (Reference 6). The test borings and test pits were used in evaluating the site and is included in Appendix B. The Geology Map prepared for the site is presented in Figure 6.

## ENGINEERING GEOLOGIC HAZARDS

Mapping has been performed on this site to identify areas where various geologic conditions exist of which developers should be cognizant during the planning, design and construction stages where new construction is proposed. The engineering geologic hazards identified on this site include potentially seasonal shallow and seasonally shallow groundwater areas. These hazards and recommended mitigation techniques are discussed as follows:

### Expansive Soils

Expansive soils were encountered in Test Boring No. 2 located on Lot 3. These occurrences are typically sporadic; therefore, none have been indicated on the maps. Highly expansive claystone and siltstone are commonly interbedded in the sandstone of the Dawson Formation. These clays, if encountered beneath foundations, can cause differential movement in the structure foundation.

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**Mitigation:** Should expansive soils be encountered beneath the foundation; mitigation will be necessary. Mitigation of expansive soils will require special foundation design. Overexcavation and replacement with non-expansive soils at a minimum of 95% of its maximum Modified Proctor Dry Density, ASTM D-1557 is a suitable mitigation, which is common in the area. Floor slabs on expansive soils should be expected to experience movement. Overexcavation and replacement has been successful in minimizing slab movements.

#### Potentially Seasonal Shallow and Seasonal Shallow Groundwater Area

The site is not mapped within any floodplains according to the FEMA Map No. 08041CO320G, dated December 7, 2018 (Figure 7, Reference 7). Areas of potentially seasonal shallow and seasonal shallow groundwater were observed on the site (Figure 6). In these areas, we would anticipate the potential for periodically high subsurface moisture conditions and frost heave potential. These areas lie within low-lying areas and along the drainages in the eastern and western portions of the site. The seasonal shallow groundwater area is located along Burgess Creek located along the eastern portion of the site on Lot 4. The potentially seasonal shallow groundwater area is located in the western portion of the site on Lot 2. Water was not observed in any of the drainages at the time of our site investigation. These areas can likely be avoided or properly mitigated by development. The potential exists for high groundwater levels during high moisture periods and should structures encroach on these areas the following precautions should be followed.

**Mitigation:** Foundations must have a minimum 30-inch depth for frost protection. In areas where high subsurface moisture conditions are anticipated periodically, subsurface perimeter drains are recommended to help prevent the intrusion of water into areas below grade. Typical drain details are presented in Figure 8. Any grading in these areas should be done to direct surface flow around construction to avoid areas of ponded water. All organic material would be completely removed prior to any fill placement. **Specific drainage studies are beyond the scope of this report.**

#### **RELEVANCE OF GEOLOGIC CONDITIONS TO LAND USE PLANNING**

The proposed development will be rural-residential utilizing individual on-site wastewater treatment systems and water wells. Total acreage involved in the proposed subdivision is 32.25-acres. Four rural residential lots are proposed as part of the replat. The proposed lot sizes range from approximately 5-acres to 15-acres. The existing house located on Lot 2 will remain. The house on Lot 2 has an existing water well and on-site wastewater treatment system. The new lots will be serviced by an individual wells and on-site wastewater treatment systems. The existing geologic and engineering geologic conditions will impose minor constraints on development and construction. The geologic conditions on the site include potentially seasonal shallow and shallow groundwater areas, which can be satisfactorily mitigated through avoidance or proper engineering design and construction practices.

The upper granular soils encountered in the test borings and test pits on the site were encountered at loose to dense states, the sandstone was encountered at very dense states, and the claystone at hard consistencies. Highly expansive claystone and siltstone are

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commonly interbedded in the sandstone of the Dawson Formation. Mitigation of expansive soils will require special foundation design. Overexcavation and replacement with non-expansive soils at a minimum of 95% of its maximum Modified Proctor Dry Density, ASTM D-1557 is a suitable mitigation, which is common in the area. Floor slabs on expansive soils should be expected to experience movement. Overexcavation and replacement has been successful in minimizing slab movements. These soils will not prohibit development.

Areas of potentially seasonal shallow and seasonal shallow groundwater were observed on the site (Figure 6). In these areas, we would anticipate the potential for periodically high subsurface moisture conditions and frost heave potential. These areas lie within low-lying areas and along the minor drainage in the western portion of the site, and Burgess Creek in the eastern portion of the site. These areas can likely be avoided or properly mitigated by development. The potential exists for high groundwater levels during high moisture periods and should structures encroach on these areas. Subsurface perimeter drains are recommended should structures encroach on this area. Typical drain details are presented in Figure 8. Septic systems are not recommended in these areas due to the potential for shallow groundwater. Any grading in these areas should be done to direct surface flow around construction to avoid areas of ponded water. All organic material should be completely removed prior to any fill placement. Specific drainage studies are beyond the scope of this report. The site is not mapped within any floodplains according to the FEMA Map No. 80841C0320G (Figure 7, Reference 7).

In summary, the granular soils will likely provide suitable support for shallow foundations. The geologic conditions encountered on site can be mitigated with avoidance or proper engineering and construction practices.

## **ECONOMIC MINERAL RESOURCES**

Some of the sandy materials on-site could be considered a low-grade sand resource. According to the *El Paso County Aggregate Resource Evaluation Map* (Reference 8), of the area of the site is not mapped with any potential aggregate resources. According to the *Atlas of Sand, Gravel and Quarry Aggregate Resources, Colorado Front Range Counties* distributed by the Colorado Geological Survey (Reference 9), the site is not mapped with any resources. According to the *Evaluation of Mineral and Mineral Fuel Potential* (Reference 10), the area of the site has been mapped as "little or no potential" for industrial minerals.

According to the *Evaluation of Mineral and Mineral Fuel Potential of El Paso County State Mineral Lands* (Reference 10), the site is mapped within the Denver Basin Coal Region. However, the area of the site has been mapped as "Poor" for coal resources. No active or inactive mines have been mapped in the area of the site. No metallic mineral resources have been mapped on the site (Reference 10).

The site has been mapped as "Fair" for oil and gas resources (Reference 10). No oil or gas fields have been discovered in the area of the site. The sedimentary rocks in the area may lack the geologic structure for trapping oil or gas; therefore, it may not be considered a significant resource. Hydraulic fracturing is a new method that is being used to extract oil and gas from

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rocks. It utilizes pressurized fluid to extract oil and gas from rocks that would not normally be productive. The area of the site has not been explored to determine if the rocks underlying the site would be commercially viable utilizing hydraulic fracturing. The practice of hydraulic fracturing has come under review due to concerns about environmental impacts, health and safety.

## **EROSION CONTROL**

The soil types observed on the site are mildly to highly susceptible to wind erosion, and moderately to highly susceptible to water erosion. A minor wind erosion and dust problem may be created for a short time during and immediately after construction. Should the problem be considered severe enough during this time, watering of the cut areas or the use of chemical palliative may be required to control dust. However, once construction has been completed and vegetation re-established, the potential for wind erosion should be considerably reduced.

With regard to water erosion, loosely compacted soils will be the most susceptible to water erosion, residually weathered soils and weathered bedrock materials become increasingly less susceptible to water erosion. For the typical soils observed on site, allowable velocities or unvegetated and unlined earth channels would be on the order of 3 to 4 feet/second, depending upon the sediment load carried by the water. Permissible velocities may be increased through the use of vegetation to something on the order of 4 to 7 feet/second, depending upon the type of vegetation established. Should the anticipated velocities exceed these values, some form of channel lining material may be required to reduce erosion potential. These might consist of some of the synthetic channel lining materials on the market or conventional riprap. In cases where ditch-lining materials are still insufficient to control erosion, small check dams or sediment traps may be required. The check dams will serve to reduce flow velocities, as well as provide small traps for containing sediment. The determination of the amount, location and placement of ditch linings, check dams and of the special erosion control features should be performed by or in conjunction with the drainage engineer who is more familiar with the flow quantities and velocities.

Cut and fill slope areas will be subjected primarily to sheetwash and rill erosion. Unchecked rill erosion can eventually lead to concentrated flows of water and gully erosion. The best means to combat this type of erosion is, where possible, the adequate re-vegetation of cut and fill slopes. Cut and fill slopes having gradients more than three (3) horizontal to one (1) vertical become increasingly more difficult to revegetate successfully. Therefore, recommendations pertaining to the vegetation of the cut and fill slopes may require input from a qualified landscape architect and/or the Soil Conservation Service.

## **CLOSURE**

It is our opinion that the existing geologic engineering and geologic conditions will impose some minor constraints on development and construction of the site. The majority of these conditions can be avoided by construction. Others can be mitigated through proper engineering design and construction practices. The proposed development and use are consistent with anticipated geologic and engineering geologic conditions.



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It should be pointed out that because of the nature of data obtained by random sampling of such variable and non-homogeneous materials as soil and rock, it is important that we be informed of any differences observed between surface and subsurface conditions encountered in construction and those assumed in the body of this report. Individual investigations for new building sites and septic systems will be required prior to construction. Construction and design personnel should be made familiar with the contents of this report. Reporting such discrepancies to Entech Engineering, Inc. soon after they are discovered would be greatly appreciated and could possibly help avoid construction and development problems.

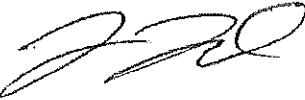
This report has been prepared for Land Development Consultants, Inc., for application to the proposed project in accordance with generally accepted geologic soil and engineering practices. No other warranty expressed or implied is made.

We trust that this report has provided you with all the information that you required. Should you require additional information, please do not hesitate to contact Entech Engineering, Inc.

Respectfully Submitted,

ENTECH ENGINEERING, INC.

Reviewed by:

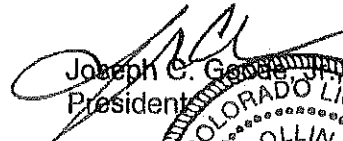


Logan L. Langford, P.G.  
Geologist

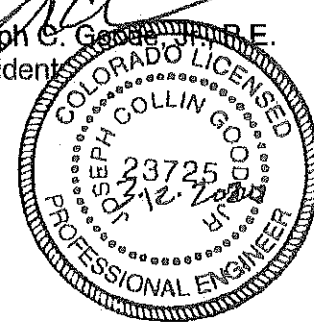
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AAprojects/2019/192115 sg&ghs



Joseph C. George, P.E.  
President



COLORADO LICENSED  
JOSEPH COLLIN GOOD  
23725  
03.12.2004  
PROFESSIONAL ENGINEER

Land Development Consultants, Inc.  
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Didleau Subdivision  
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Parcel Nos. 52090-00-050 & 52090-00-120  
El Paso County, Colorado

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## **TABLES**

**TABLE 1**  
**SUMMARY OF LABORATORY TEST RESULTS**

CLIENT LDC, INC.  
 PROJECT DIDLEAU SUBDIVISION  
 JOB NO. 192115

SOIL TYPE	TEST BORING NO.	DEPTH (FT)	WATER (%)	DRY DENSITY (PCF)	PASSING NO. 200 SIEVE (%)	LIQUID LIMIT (%)	PLASTIC INDEX (%)	SULFATE (WT %)	FHA SWELL (PSF)	SWELL/CONSOL (%)	UNIFIED CLASSIFICATION	SOIL DESCRIPTION
1	1	2-3			12.2						SM	SAND, SILTY
1	2	2-3			38.4				1640		SC	SAND, VERY CLAYEY
1	TP-2	2-3			14.9						SM	SAND, SILTY
2	TP-1	5-6			9.6						SM	SANDSTONE, SILTY
2	1	15			22.2						SM	SANDSTONE, SILTY
3	2	10			59.3				730		CL	CLAYSTONE, VERY SANDY
3	2	5			54.2						CL	CLAYSTONE, VERY SANDY

**Table 2: Summary Tactile Test Pit Results**

<b>Test Pit No.</b>	<b>USDA Soil Type</b>	<b>LTAR Value</b>	<b>Depth to Bedrock (ft.)</b>	<b>Depth to Seasonally Occurring Groundwater (ft.)</b>
1	3A*	0.30*	3*	N/A
2	3A*	0.30*	2*	N/A

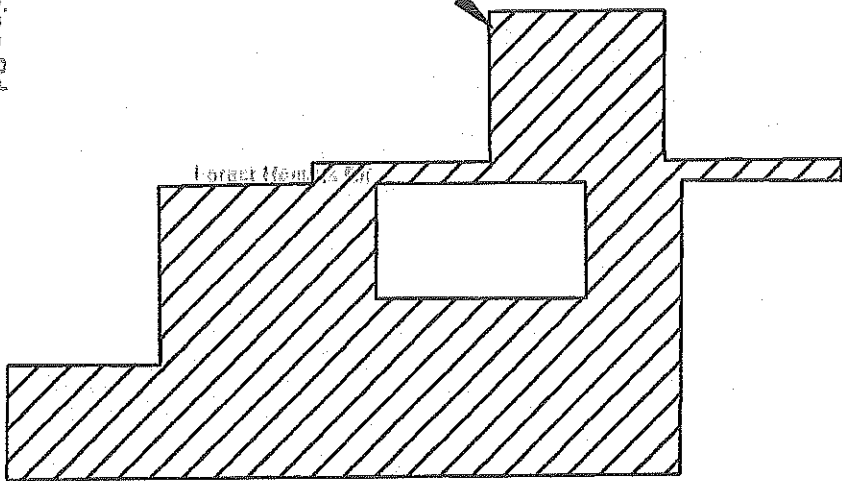
\*- Conditions that will require an engineered OWTS

## FIGURES

Location 0:

Herring Rd

SITE



elco Manufacturing



Herring Rd

Shoup Rd

Shoup Rd

Shoup Rd

Colorado

ish Dila



**ENTECH**  
**ENGINEERING, INC.**  
 505 ELKTON DRIVE  
 COLORADO SPRINGS, CO. 80907 (719) 631-6999

VICINITY MAP  
 DIDLEAU SUBDIVISION  
 HERRING ROAD & FOREST HEIGHTS CIRCLE  
 EL PASO COUNTY, CO.  
 FOR: LDC, INC.

DRAWN:  
 LLL

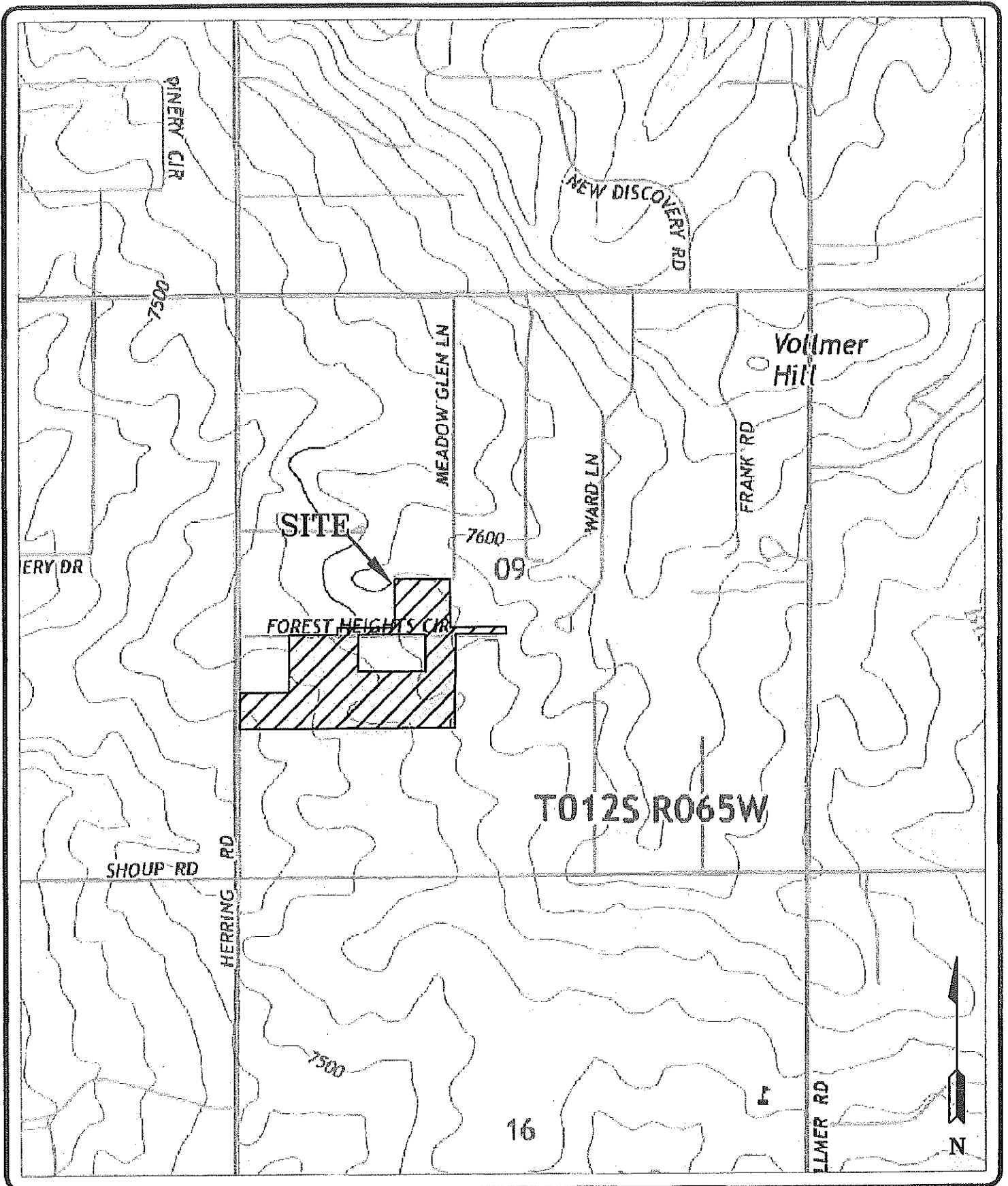
DATE:  
 2/28/20

CHECKED:

DATE:

JOB NO.:  
 192115

FIG NO.:  
 1



**ENTECH**  
**ENGINEERING, INC.**  
 563 ELKTON DRIVE  
 COLLETT SPRINGS, CO. 80507 (719) 531-5399

USGS MAP  
 DIDLEAU SUBDIVISION  
 HERRING ROAD & FOREST HEIGHTS CIRCLE  
 PASO COUNTY, CO.  
 FOR: LDC, INC.

DRAWN:  
 LLL

DATE:  
 2/28/20

CHECKED:

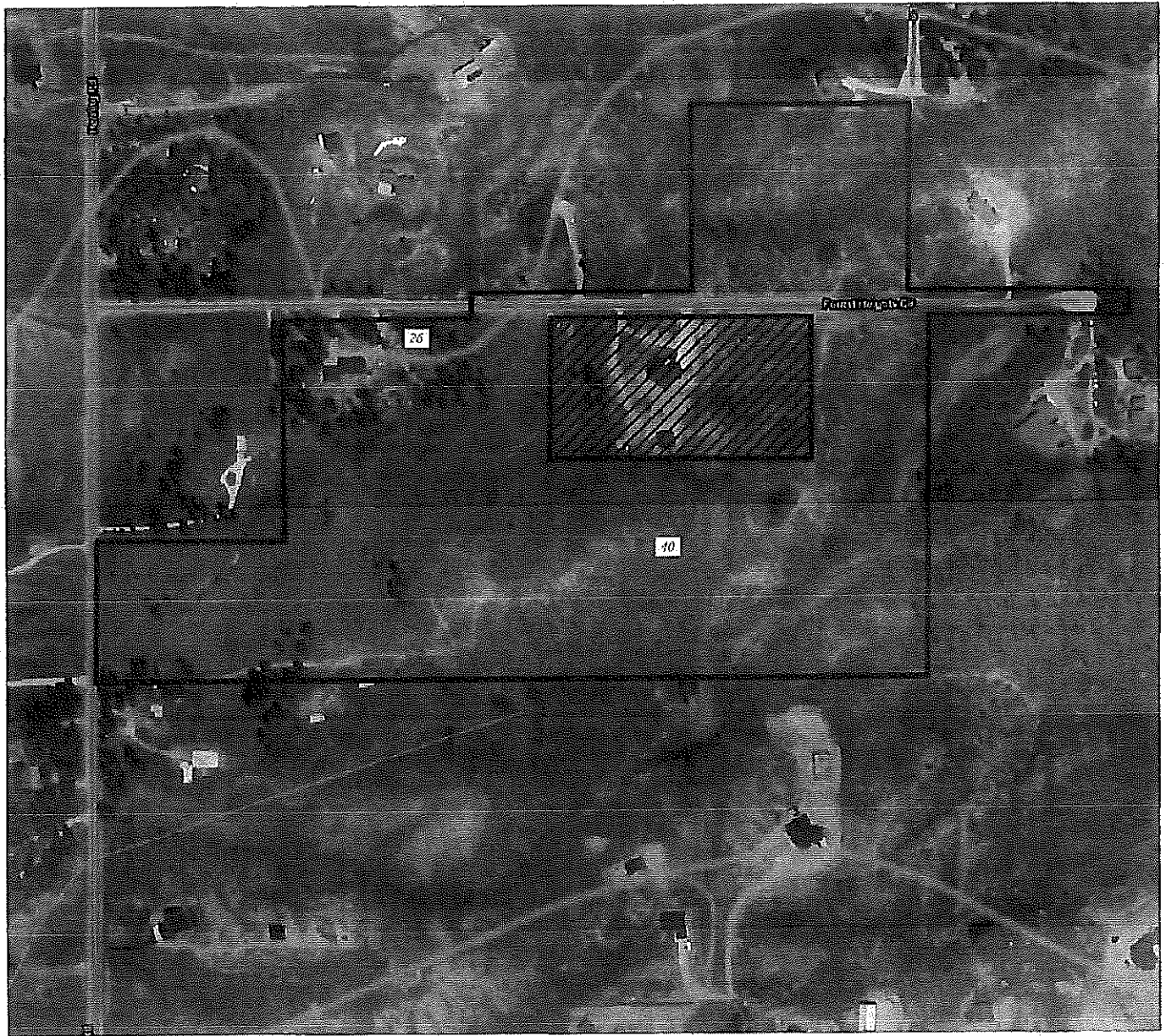
DATE:

JOB NO.:  
 192115

FIG NO.:  
 2







SEPERATE PARCEL NOT INCLUDED IN THE SUBDIVISION



N



**ENTECH**  
**ENGINEERING, INC.**  
 505 ELAKTEN DRIVE  
 COLORADO SPRINGS, CO. 80907 (719) 521-9399

SOIL SURVEY MAP  
 DIDLEAU SUBDIVISION  
 HERRING ROAD & FOREST HEIGHTS CIRCLE  
 EL PASO COUNTY, CO.  
 FOR: LDC, INC.

DRAWN:  
 LLL

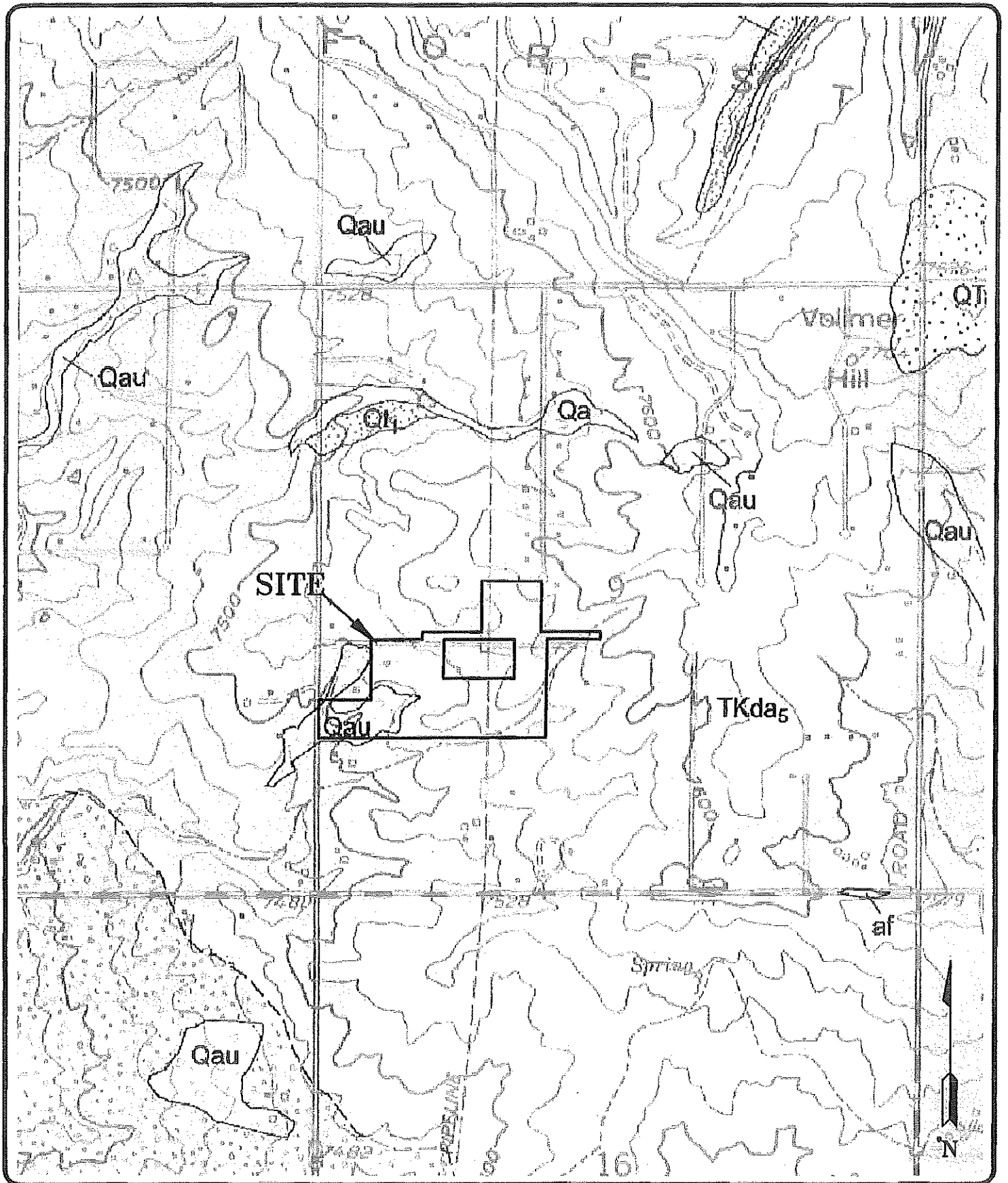
DATE:  
 2/28/20

CHECKED:

DATE:

JOB NO.:  
 192115

FIG NO.:  
 4



**ENTECH**  
**ENGINEERING, INC.**  
 505 ELKTON DRIVE  
 COLORADO SPRINGS, CO. 80907 (719) 531-5399

**BLACK FOREST QUADRANGLE GEOLOGIC MAP**  
**DIDLEAU SUBDIVISION**  
**HERRING ROAD & FOREST HEIGHTS CIRCLE**  
**EL PASO COUNTY, CO.**  
**FOR: LDC, INC.**

DRAWN:  
**LLL**

DATE:  
**2/28/20**

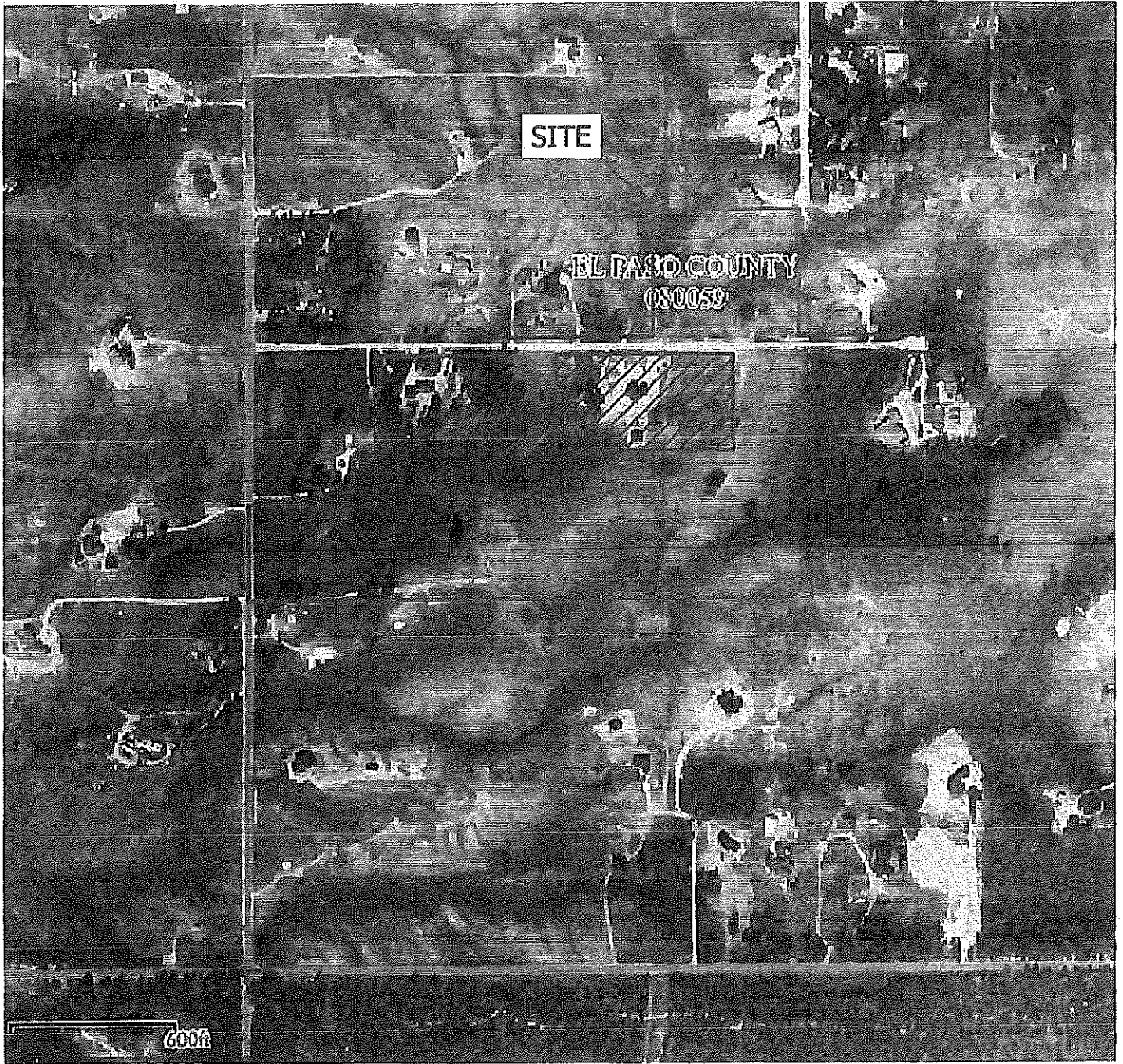
CHECKED:

DATE:

JOB NO:  
**192115**

FIG NO:  
**5**





SEPERATE PARCEL NOT INCLUDED IN THE SUBDIVISION



N



**ENTECH**  
ENGINEERING, INC.  
505 ELKTON DRIVE  
COLORADO SPRINGS, CO. 80907 (719) 631-5899

FEMA FLOODPLAIN MAP  
DIDLEAU SUBDIVISION  
HERRING ROAD & FOREST HEIGHTS CIRCLE  
EL PASO COUNTY, CO.  
FOR: LDC, INC.

DRAWN:  
LLL

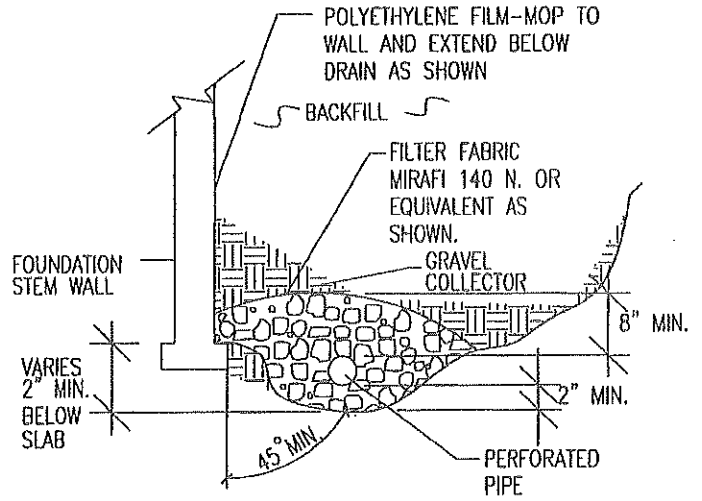
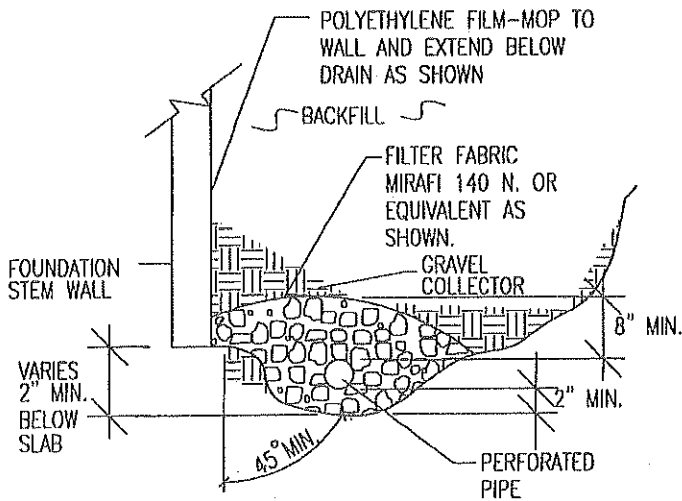
DATE:  
2/28/20

CHECKED:

DATE:

JOB NO.:  
192115

FIG NO.:  
7



NOTES:

-GRAVEL SIZE IS RELATED TO DIAMETER OF PIPE PERFORATIONS-85% GRAVEL GREATER THAN 2x PERFORATION DIAMETER.

-PIPE DIAMETER DEPENDS UPON EXPECTED SEEPAGE. 4-INCH DIAMETER IS MOST OFTEN USED.

-ALL PIPE SHALL BE PERFORATED PLASTIC. THE DISCHARGE PORTION OF THE PIPE SHOULD BE NON-PERFORATED PIPE.

-FLEXIBLE PIPE MAY BE USED UP TO 8 FEET IN DEPTH, IF SUCH PIPE IS DESIGNED TO WITHSTAND THE PRESSURES. RIGID PLASTIC PIPE WOULD OTHERWISE BE REQUIRED.

-MINIMUM GRADE FOR DRAIN PIPE TO BE 1% OR 3 INCHES OF FALL IN 25 FEET.

-DRAIN TO BE PROVIDED WITH A FREE GRAVITY OUTFALL, IF POSSIBLE. A SUMP AND PUMP MAY BE USED IF GRAVITY OUT FALL IS NOT AVAILABLE.



**ENTECH**  
ENGINEERING, INC.  
505 ELKTON DRIVE  
COLORADO SPRINGS, CO. 80907 (719) 531-5599

*PERIMETER DRAIN DETAIL*

DRAWN:

DATE:

DESIGNED:

CHECKED:

DS

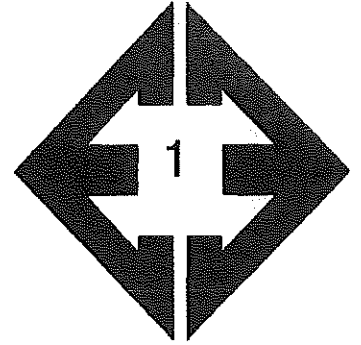
LLL

JOB NO:  
192115

FIG NO.:

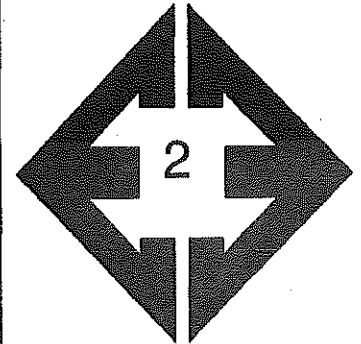
8

## **APPENDIX A: Photographs**



**Looking north towards  
Lot 1 in the eastern  
portion of the site.**

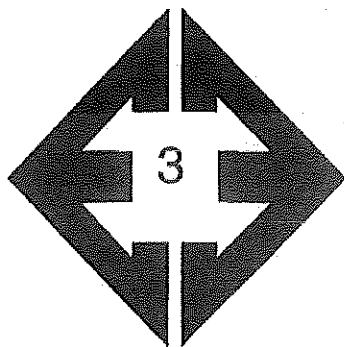
January 30, 2020



**Looking north from the  
central portion of Lot  
2.**

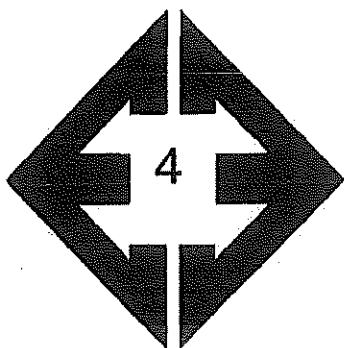
January 30, 2020





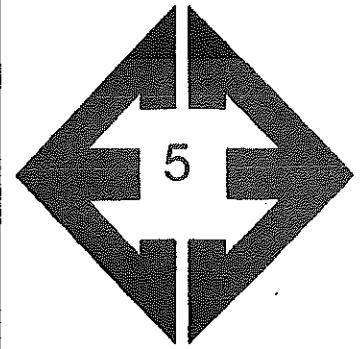
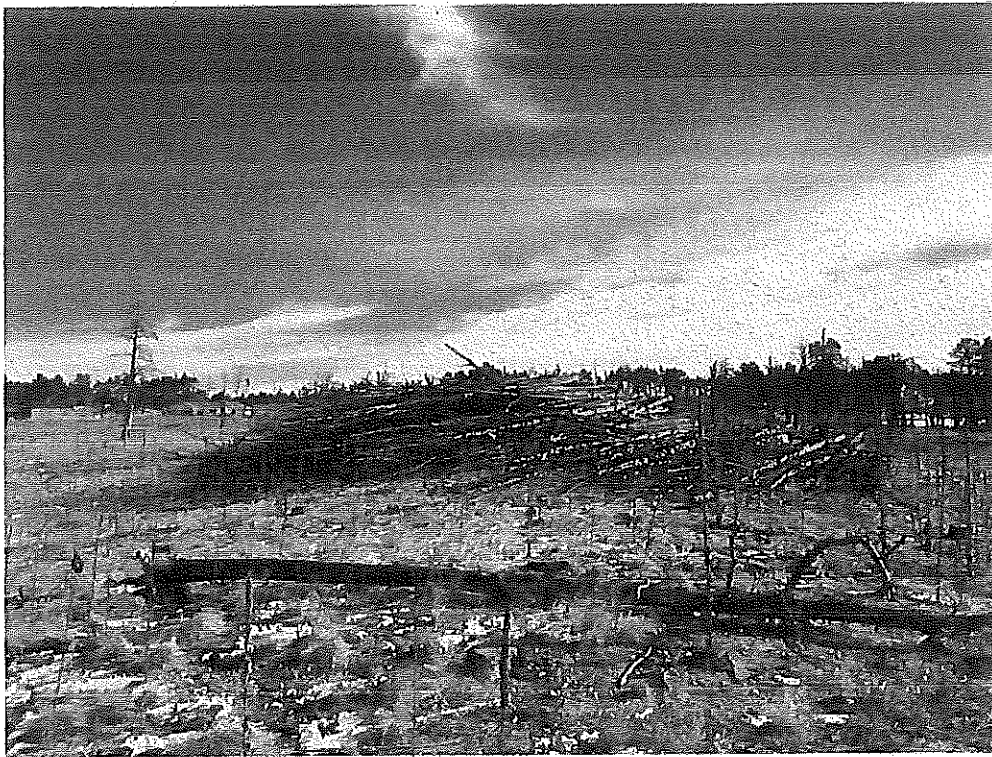
**Looking south from  
the northern portion of  
Lot 4.**

January 30, 2020



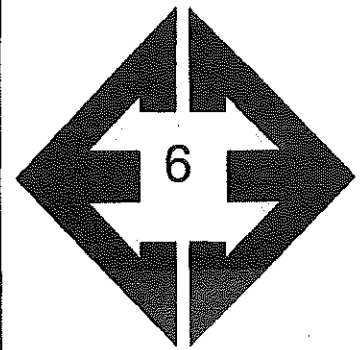
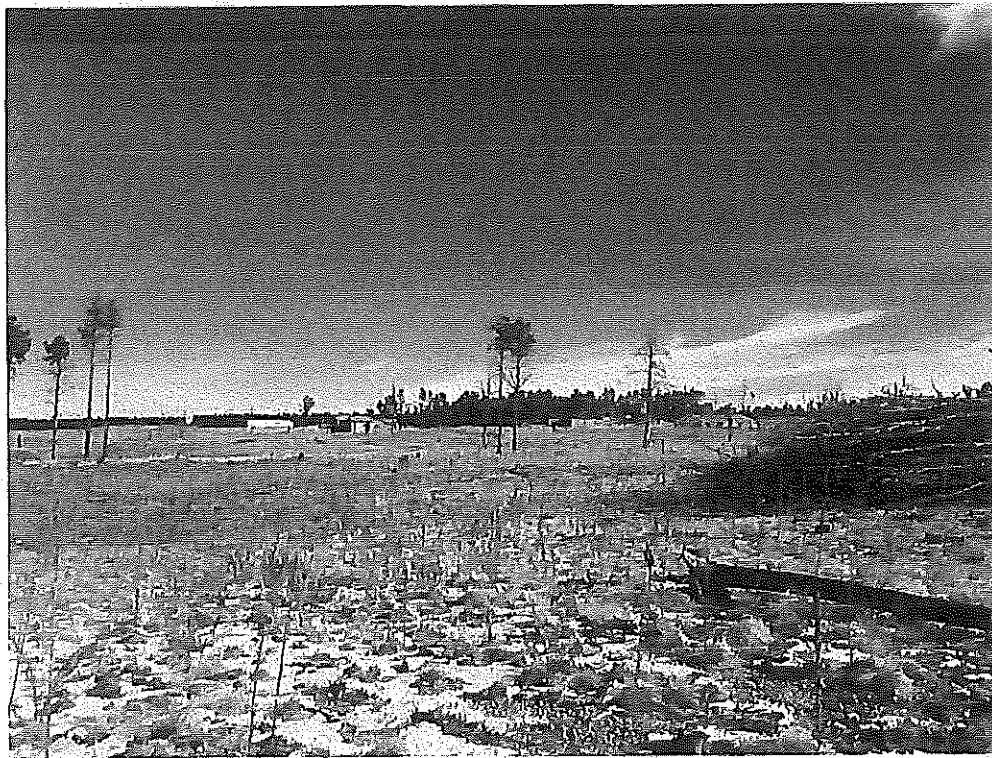
**Looking south towards  
one of the stockpiles  
of cut trees.**

January 30, 2020



**Looking northeast  
towards stockpile of  
trees on Lot 3.**

January 30, 2020



**Looking north from the  
eastern portion of Lot  
3.**

January 30, 2020

## **APPENDIX B: Test Boring and Test Pit Logs**

TEST BORING NO. 1  
 DATE DRILLED 1/3/2020  
 Job # 192115

TEST BORING NO. 2  
 DATE DRILLED 1/3/2020  
 CLIENT LDC, INC.  
 LOCATION DIDLEAU SUBDIVISION

REMARKS	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type	REMARKS	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
DRY TO 17.5', 1/6/20							DRY TO 18.5', 1/6/20						
SAND, SILTY, FINE TO COARSE GRAINED, BROWN, VERY DENSE TO DENSE, MOIST				50	5.6	1	SAND, VERY CLAYEY, FINE TO MEDIUM GRAINED, BROWN, LOOSE, MOIST				7	23.1	1
	5			42	10.8	1	CLAYSTONE, VERY SANDY, BROWN, HARD, MOIST	5		50	11"	12.7	1
SANDSTONE, SILTY, FINE TO COARSE GRAINED, BROWN, VERY DENSE, MOIST	10			50	12.5	2		10		50	6"	15.2	3
	15			50	11.7	2	SANDSTONE, SILTY, FINE TO COARSE GRAINED, BROWN, VERY DENSE, MOIST	15		50	5"	6.9	2
	20			50	11.5	2		20		50	6"	15.8	2



**ENTECH**  
 ENGINEERING, INC.

505 ELKTON DRIVE  
 COLORADO SPRINGS, COLORADO 80907

TEST BORING LOG

DRAWN:

DATE:

CHECKED: *[Signature]*

DATE: 1/17/20

JOB NO.: 192115

FIG NO.: B-1

TEST PIT NO. 1  
 DATE EXCAVATED 4/23/2019  
 Job # 192115

TEST PIT NO. 2  
 DATE EXCAVATED 4/23/2019  
 CLIENT LDC, INC.  
 LOCATION DIDLEAU SUBDIVISION

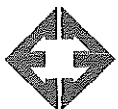
REMARKS						REMARKS					
Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	USDA Soil Type	Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	USDA Soil Type
1	[Symbol]					1	[Symbol]				
2	[Symbol]		gr	m	2	2	[Symbol]		gr	m	2
3	[Symbol]					3	[Symbol]		ma		3A
4	[Symbol]		ma		3A	4	[Symbol]				
5	[Symbol]					5	[Symbol]				
6	[Symbol]					6	[Symbol]				
7	[Symbol]					7	[Symbol]				
8	[Symbol]					8	[Symbol]				
9	[Symbol]					9	[Symbol]				
10	[Symbol]					10	[Symbol]				

Soil Structure Shape

- granular - gr
- platy - pl
- blocky - bl
- prismatic - pr
- single grain - sg
- massive - ma

Soil Structure Grade

- weak - w
- moderate - m
- strong - s
- loose - l



**ENTECH**  
 ENGINEERING, INC.

505 ELKTON DRIVE  
 COLORADO SPRINGS, COLORADO 80907

TEST PIT LOG

DRAWN:

DATE:

CHECKED:  
 LLL

DATE:  
 2/25/20

JOB NO.:

192115

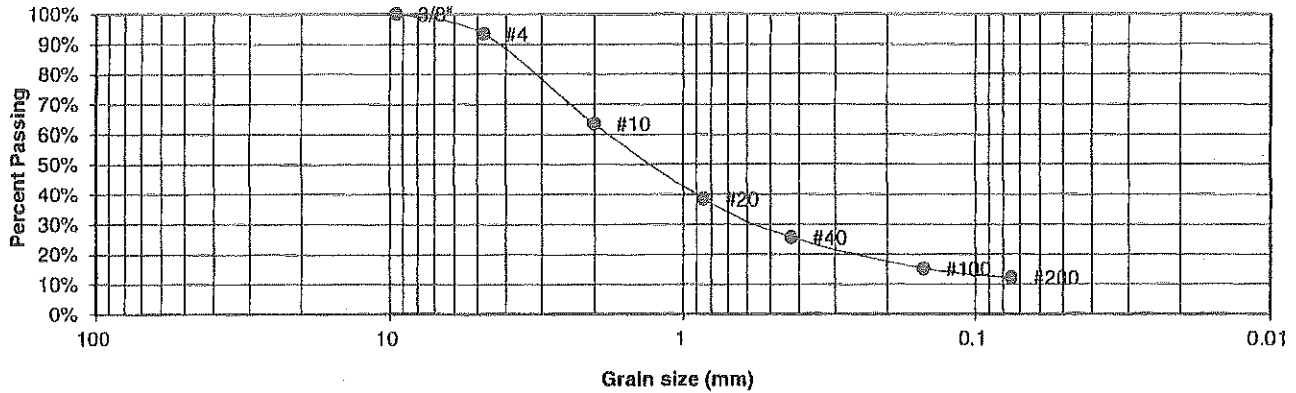
FIG NO.:

B-2

## **APPENDIX C: Laboratory Test Results**

<b>UNIFIED CLASSIFICATION</b>	SM	<b>CLIENT</b>	LDC, INC.
<b>SOIL TYPE #</b>	1	<b>PROJECT</b>	DIDLEAU SUBDIVISION
<b>TEST BORING #</b>	1	<b>JOB NO.</b>	192115
<b>DEPTH (FT)</b>	2-3	<b>TEST BY</b>	BL

**Sieve Analysis  
Grain Size Distribution**



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	93.4%
10	63.6%
20	38.4%
40	25.6%
100	15.1%
200	12.2%

**Atterberg Limits**  
 Plastic Limit  
 Liquid Limit  
 Plastic Index

**Swell**  
 Moisture at start  
 Moisture at finish  
 Moisture increase  
 Initial dry density (pcf)  
 Swell (psf)



**ENTECH  
ENGINEERING, INC.**  
 505 ELKTON DRIVE  
 COLORADO SPRINGS, COLORADO 80907

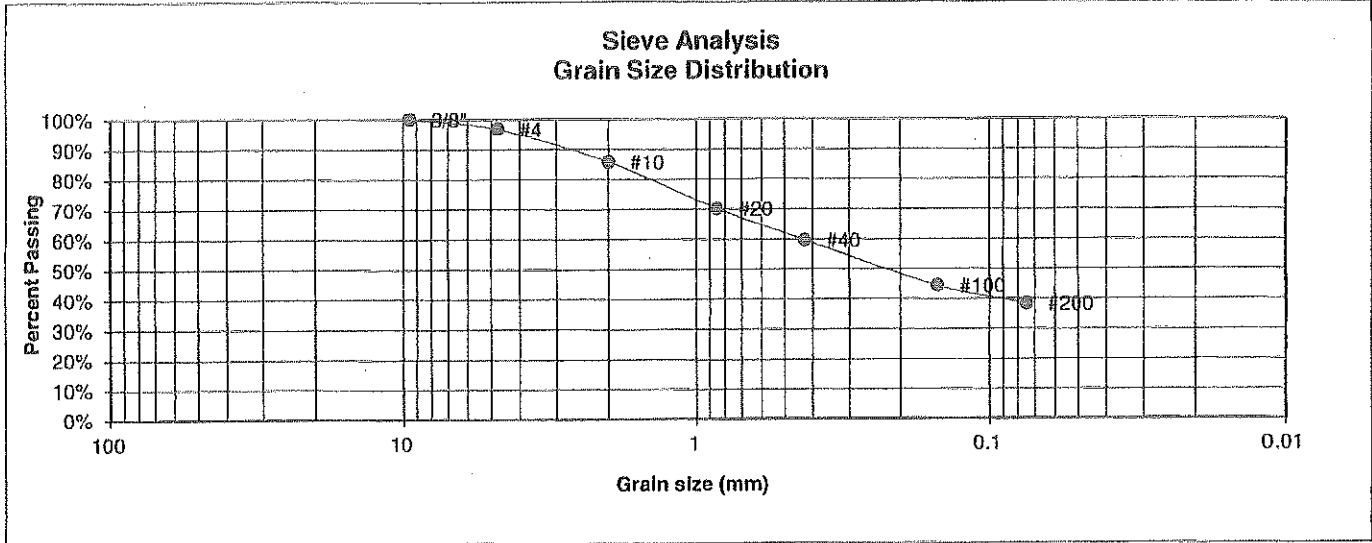
**LABORATORY TEST  
RESULTS**

DRAWN:	DATE:	CHECKED: <i>h</i>	DATE: 1/17/20
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JOB NO.:  
192115

FIG NO.:  
C-1

<b>UNIFIED CLASSIFICATION</b>	SC	<b>CLIENT</b>	LDC, INC.
<b>SOIL TYPE #</b>	1	<b>PROJECT</b>	DIDLEAU SUBDIVISION
<b>TEST BORING #</b>	2	<b>JOB NO.</b>	192115
<b>DEPTH (FT)</b>	2-3	<b>TEST BY</b>	BL



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	96.8%
10	85.8%
20	70.2%
40	59.7%
100	44.3%
200	38.4%

**Atterberg Limits**  
 Plastic Limit  
 Liquid Limit  
 Plastic Index

<b>Swell</b>	
Moisture at start	13.8%
Moisture at finish	25.6%
Moisture increase	11.8%
Initial dry density (pcf)	95
Swell (psf)	1640



**ENTECH  
ENGINEERING, INC.**  
 505 ELKTON DRIVE  
 COLORADO SPRINGS, COLORADO 80907

**LABORATORY TEST  
RESULTS**

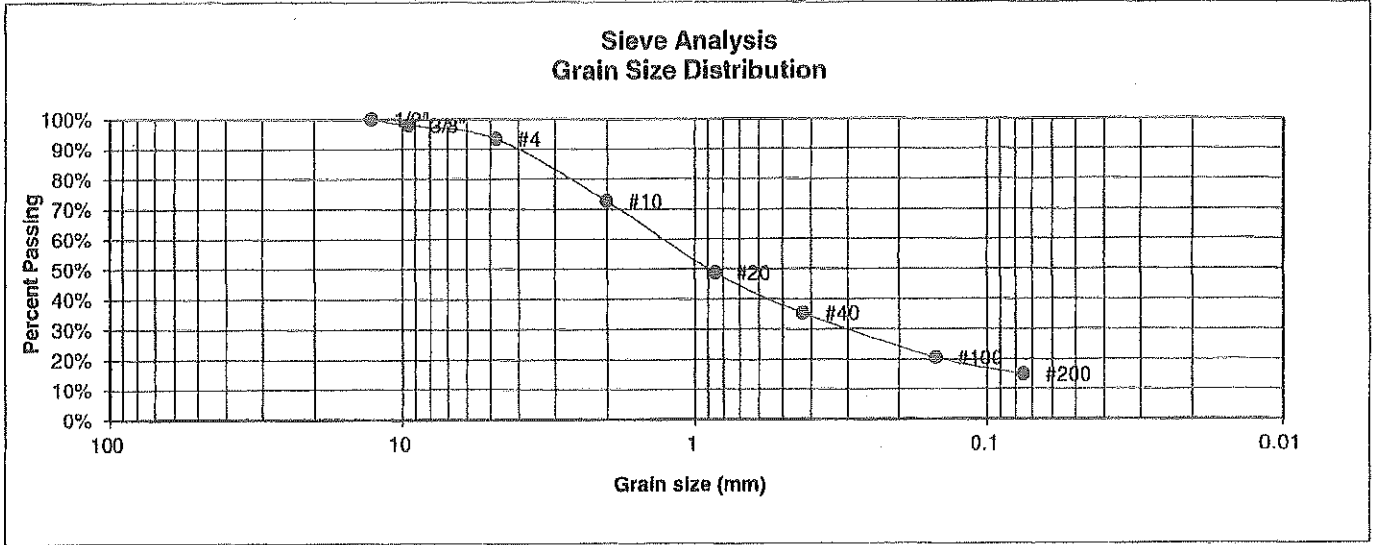
DRAWN:	DATE:	CHECKED:	DATE:
		<i>BL</i>	11/17/20

JOB NO.:  
192115

FIG NO.:  
L-2



<b>UNIFIED CLASSIFICATION</b>	SM	<b>CLIENT</b>	LDC, INC.
<b>SOIL TYPE #</b>	1	<b>PROJECT</b>	DIDLEAU SUBDIVISION
<b>TEST BORING #</b>	TP-2	<b>JOB NO.</b>	192115
<b>DEPTH (FT)</b>	2-3	<b>TEST BY</b>	BL



U.S. Sieve #	Percent Finer	Atterberg Limits
3"		Plastic Limit
1 1/2"		Liquid Limit
3/4"		Plastic Index
1/2"	100.0%	
3/8"	97.9%	
#4	93.3%	
#10	72.7%	
#20	48.7%	
#40	35.2%	
#100	20.5%	
#200	14.9%	

**Swell**  
 Moisture at start  
 Moisture at finish  
 Moisture increase  
 Initial dry density (pcf)  
 Swell (psf)



**ENTECH  
ENGINEERING, INC.**  
 505 ELKTON DRIVE  
 COLORADO SPRINGS, COLORADO 80907

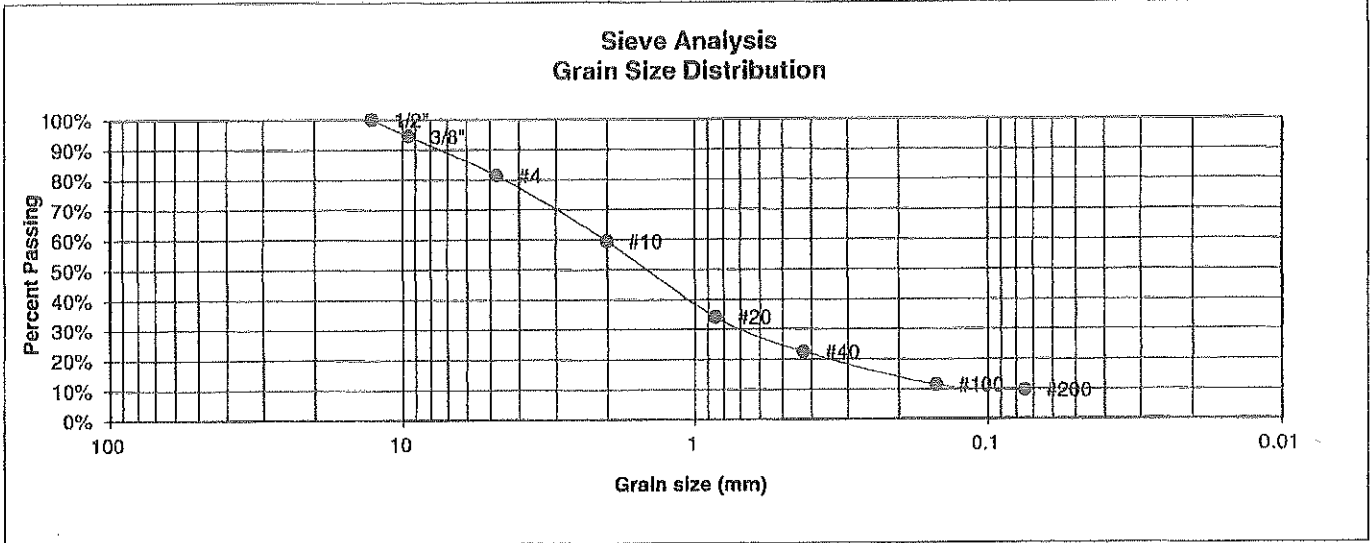
**LABORATORY TEST  
RESULTS**

DRAWN:	DATE:	CHECKED: LLL	DATE: 1/17/20
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JOB NO.:  
192115

FIG NO.:  
C3

<b>UNIFIED CLASSIFICATION</b>	SM	<b>CLIENT</b>	LDC, INC.
<b>SOIL TYPE #</b>	2	<b>PROJECT</b>	DIDLEAU SUBDIVISION
<b>TEST BORING #</b>	TP-1	<b>JOB NO.</b>	192115
<b>DEPTH (FT)</b>	5-6	<b>TEST BY</b>	BL



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	100.0%
3/8"	94.5%
4	81.3%
10	59.5%
20	34.1%
40	22.5%
100	11.4%
200	9.6%

**Atterberg Limits**  
 Plastic Limit  
 Liquid Limit  
 Plastic Index

**Swell**  
 Moisture at start  
 Moisture at finish  
 Moisture increase  
 Initial dry density (pcf)  
 Swell (psf)



**ENTECH  
ENGINEERING, INC.**  
 505 ELKTON DRIVE  
 COLORADO SPRINGS, COLORADO 80907

**LABORATORY TEST  
RESULTS**

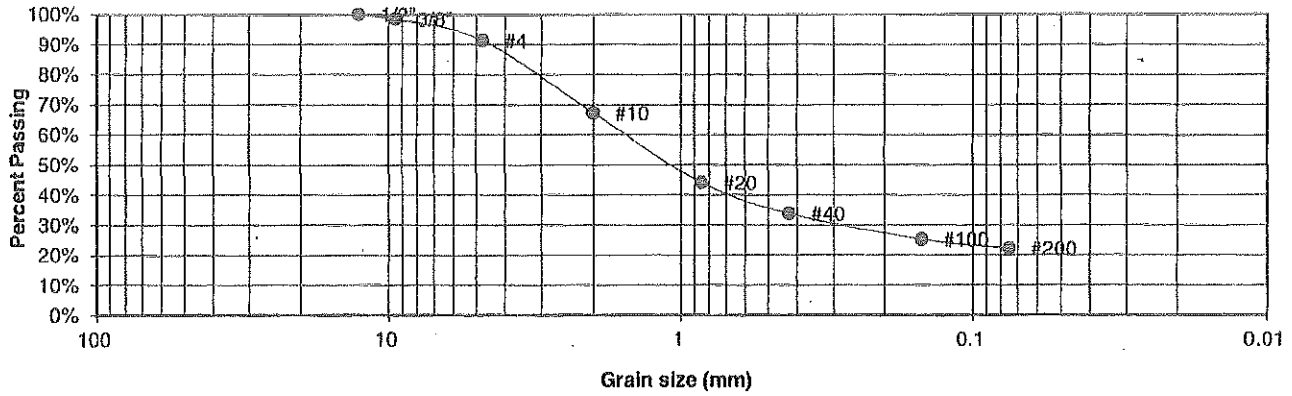
DRAWN:	DATE:	CHECKED: LLL	DATE: 1/17/20
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JOB NO.:  
192115

FIG NO.:  
C-4

<b>UNIFIED CLASSIFICATION</b>	SM	<b>CLIENT</b>	LDC, INC.
<b>SOIL TYPE #</b>	2	<b>PROJECT</b>	DIDLEAU SUBDIVISION
<b>TEST BORING #</b>	1	<b>JOB NO.</b>	192115
<b>DEPTH (FT)</b>	15	<b>TEST BY</b>	BL

**Sieve Analysis  
Grain Size Distribution**



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	100.0%
3/8"	98.4%
4	91.4%
10	67.2%
20	44.1%
40	33.8%
100	25.2%
200	22.2%

**Atterberg Limits**  
 Plastic Limit  
 Liquid Limit  
 Plastic Index

**Swell**  
 Moisture at start  
 Moisture at finish  
 Moisture increase  
 Initial dry density (pcf)  
 Swell (psf)



**ENTECH  
ENGINEERING, INC.**  
 505 ELKTON DRIVE  
 COLORADO SPRINGS, COLORADO 80907

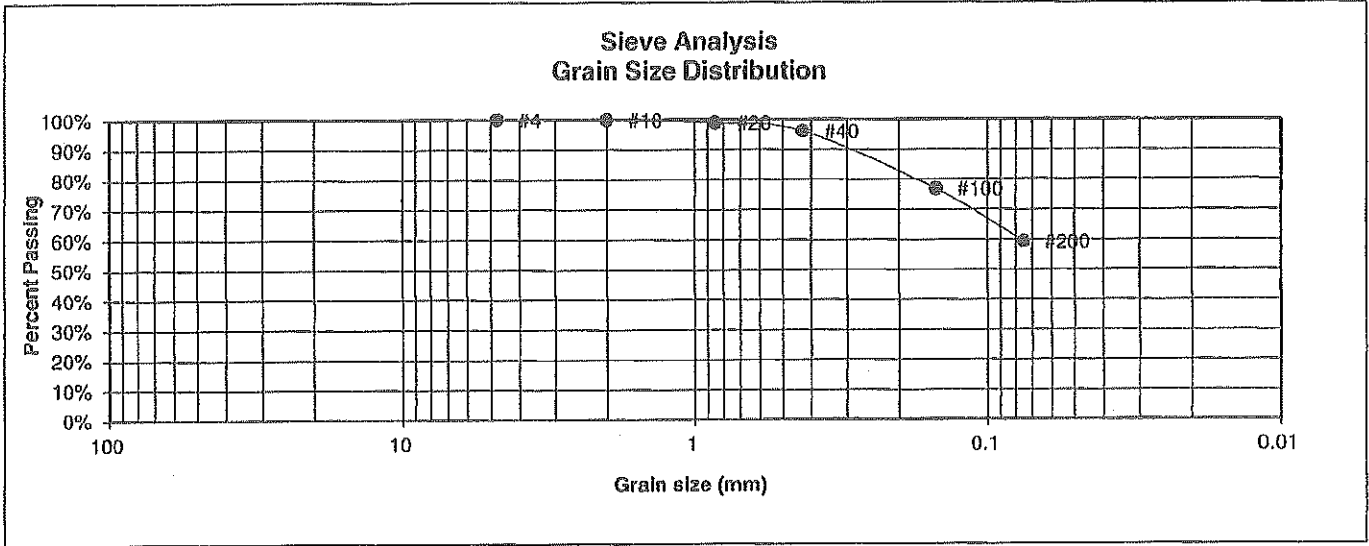
**LABORATORY TEST  
RESULTS**

DRAWN:	DATE:	CHECKED: <i>h</i>	DATE: 1/17/20
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JOB NO.:  
192115

FIG NO.:  
C-5

<b>UNIFIED CLASSIFICATION</b>	CL	<b>CLIENT</b>	LDC, INC.
<b>SOIL TYPE #</b>	3	<b>PROJECT</b>	DIDLEAU SUBDIVISION
<b>TEST BORING #</b>	2	<b>JOB NO.</b>	192115
<b>DEPTH (FT)</b>	10	<b>TEST BY</b>	BL



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	100.0%
10	99.8%
20	98.9%
40	96.1%
100	76.9%
200	59.3%

**Atterberg Limits**  
 Plastic Limit  
 Liquid Limit  
 Plastic Index

<b>Swell</b>	
Moisture at start	16.1%
Moisture at finish	20.4%
Moisture increase	4.3%
Initial dry density (pcf)	104
Swell (psf)	730



**ENTECH  
ENGINEERING, INC.**  
 505 ELKTON DRIVE  
 COLORADO SPRINGS, COLORADO 80907

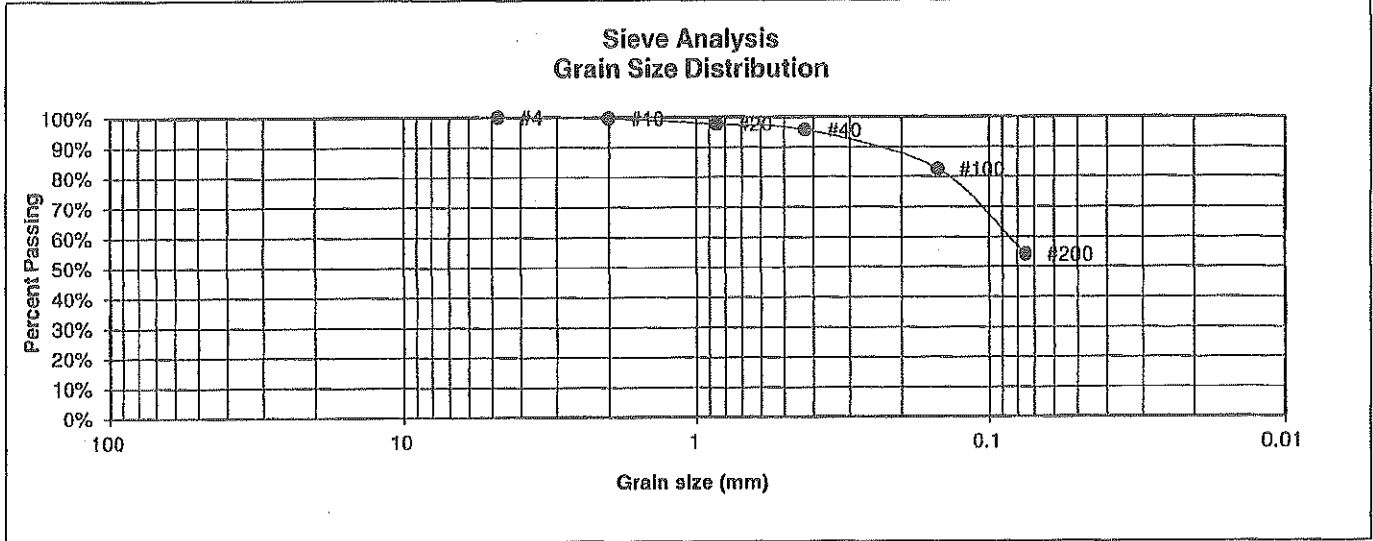
**LABORATORY TEST  
RESULTS**

DRAWN:	DATE:	CHECKED:	DATE: <i>1/17/20</i>
--------	-------	----------	----------------------

JOB NO.:  
192115

FIG NO.:  
*C-6*

<u>UNIFIED CLASSIFICATION</u>	CL	<u>CLIENT</u>	LDC, INC.
<u>SOIL TYPE #</u>	3	<u>PROJECT</u>	DIDLEAU SUBDIVISION
<u>TEST BORING #</u>	2	<u>JOB NO.</u>	192115
<u>DEPTH (FT)</u>	5	<u>TEST BY</u>	BL



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	100.0%
10	99.6%
20	97.7%
40	95.7%
100	82.6%
200	54.2%

Atterberg Limits  
 Plastic Limit  
 Liquid Limit  
 Plastic Index

Swell  
 Moisture at start  
 Moisture at finish  
 Moisture increase  
 Initial dry density (pcf)  
 Swell (psf)



**ENTECH**  
**ENGINEERING, INC.**  
 505 ELKTON DRIVE  
 COLORADO SPRINGS, COLORADO 80907

**LABORATORY TEST  
RESULTS**

DRAWN:	DATE:	CHECKED:	DATE:
		<i>A</i>	1/17/20

JOB NO.:  
192115

FIG NO.:  
C-7

## **APPENDIX D: Soil Survey Descriptions**

## El Paso County Area, Colorado

### 26—Elbeth sandy loam, 8 to 15 percent slopes

#### Map Unit Setting

*National map unit symbol:* 367y  
*Elevation:* 7,300 to 7,600 feet  
*Farmland classification:* Not prime farmland

#### Map Unit Composition

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

#### Description of Elbeth

##### Setting

*Landform:* Hills  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Alluvium derived from arkose

##### Typical profile

*A - 0 to 3 inches:* sandy loam  
*E - 3 to 23 inches:* loamy sand  
*Bt - 23 to 68 inches:* sandy clay loam  
*C - 68 to 74 inches:* sandy clay loam

##### Properties and qualities

*Slope:* 8 to 15 percent  
*Depth to restrictive feature:* More than 80 inches  
*Natural drainage class:* Well drained  
*Runoff class:* Medium  
*Capacity of the most limiting layer to transmit water (Ksat):*  
Moderately high (0.20 to 0.60 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water storage in profile:* Moderate (about 7.1 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 4e  
*Hydrologic Soil Group:* B  
*Hydric soil rating:* No

#### Minor Components

##### Other soils

*Percent of map unit:*  
*Hydric soil rating:* No

**Pleasant**

*Percent of map unit:*

*Landform:* Depressions

*Hydric soil rating:* Yes

**Data Source Information**

Soil Survey Area: El Paso County Area, Colorado

Survey Area Data: Version 17, Sep 13, 2019



## El Paso County Area, Colorado

### 40—Kettle gravelly loamy sand, 3 to 8 percent slopes

#### Map Unit Setting

*National map unit symbol:* 368g  
*Elevation:* 7,000 to 7,700 feet  
*Farmland classification:* Not prime farmland

#### Map Unit Composition

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

#### Description of Kettle

##### Setting

*Landform:* Hills  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Sandy alluvium derived from arkose

##### Typical profile

*E - 0 to 16 inches:* gravelly loamy sand  
*Bt - 16 to 40 inches:* gravelly sandy loam  
*C - 40 to 60 inches:* extremely gravelly loamy sand

##### Properties and qualities

*Slope:* 3 to 8 percent  
*Depth to restrictive feature:* More than 80 inches  
*Natural drainage class:* Somewhat excessively drained  
*Runoff class:* Low  
*Capacity of the most limiting layer to transmit water (Ksat):* High  
(2.00 to 6.00 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water storage in profile:* Low (about 3.4 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 4e  
*Hydrologic Soil Group:* B  
*Hydric soil rating:* No

#### Minor Components

##### Pleasant

*Percent of map unit:*  
*Landform:* Depressions  
*Hydric soil rating:* Yes

Map Unit Description: Kettle gravelly loamy sand, 3 to 8 percent slopes--El Paso County Area,  
Colorado

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**Other soils**

*Percent of map unit:*

*Hydric soil rating:* No

**Data Source Information**

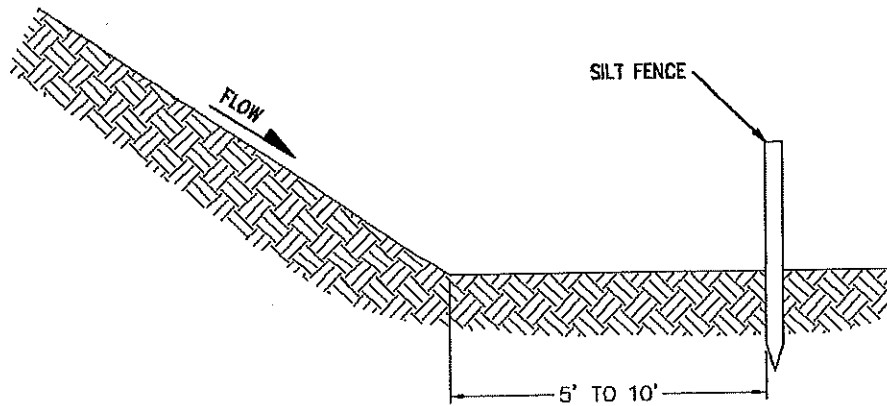
Soil Survey Area: El Paso County Area, Colorado

Survey Area Data: Version 17, Sep 13, 2019



# **Exhibit 4**

## **Structural Control Measures**

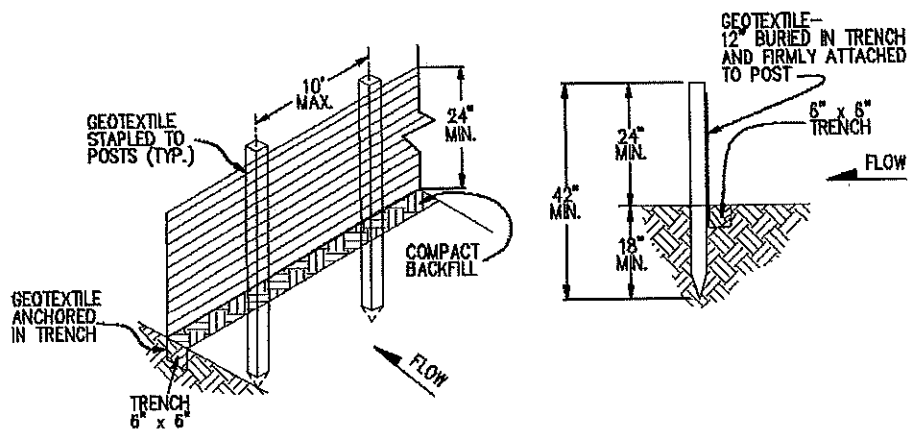


SECTION A-A

## TOE OF SLOPE PROTECTION

## NOTES

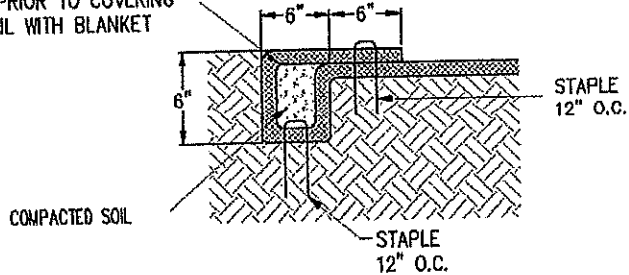
1. SILT FENCE SHALL HAVE A MAXIMUM DRAINAGE AREA OF ONE-QUARTER ACRE PER 100 FEET OF SILT FENCE LENGTH; MAXIMUM SLOPE LENGTH BEHIND BARRIER IS 100 FEET; MAXIMUM GRADIENT BEHIND THE BARRIER IS 2:1.
2. SILT FENCE USED AT TOE OF SLOPE SHALL BE PLACED 5 TO 10 FEET BEYOND TOE OF SLOPE TO PROVIDE STORAGE CAPACITY.
3. SILT FENCE SHALL BE PLACED ON THE CONTOUR, WITH ENDS FLARED UP SLOPE.



## SILT FENCE

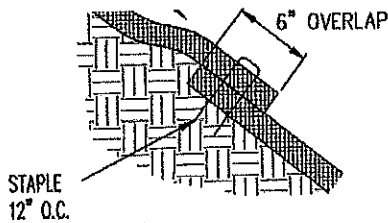
GEOTEXTILE SHALL BE ATTACHED TO WOOD POSTS WITH THREE OR MORE STAPLES PER POST.  
 STAPLES SHALL BE 1/2"  
 WOOD POST SHALL BE 1 1/2" x 1 1/2" NOMINAL

APPLY SEED AND ANY REQUIRED SOIL  
CONDITIONERS PRIOR TO COVERING  
COMPACTED SOIL WITH BLANKET



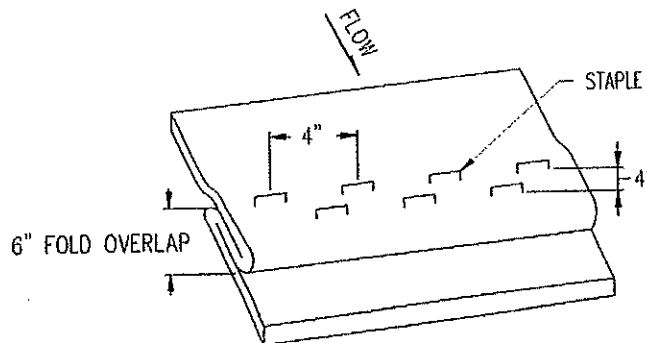
**ANCHOR TRENCH  
SECTION A**

TO BE USED AT THE BEGINNING AND END  
OF THE CHANNEL ACROSS IT'S ENTIRE WIDTH.



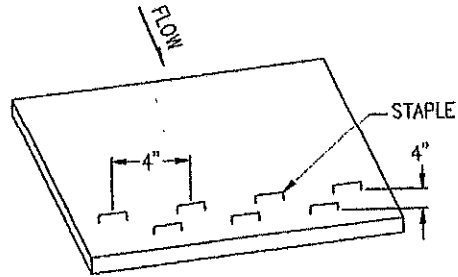
**CONSECUTIVE ROLL OVERLAP  
SECTION B**

TO BE USED WHEREVER ONE ROLL OF BLANKET ENDS  
AND ANOTHER BEGINS WITH THE UPHILL BLANKET  
PLACED ON TOP OF THE BLANKET ON THE DOWNHILL SIDE.



**STAPLE CHECK  
SECTION C**

TO BE USED ON SLOPE EVERY 35 FEET.



DOWNSLOPE END STAPLE CHECK  
TO BE USED WHEN SLOPE RUNS INTO A RECEIVING WATER  
AND CANNOT BE EXTENDED 3 FEET BEYOND SLOPE.

Slopes

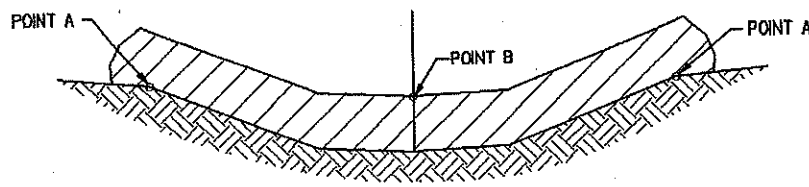
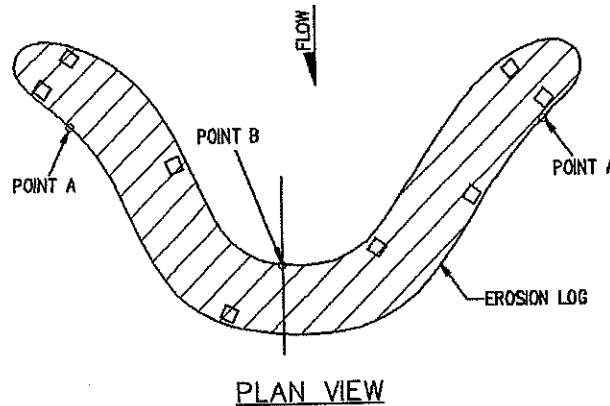
## Erosion Log Check Dam

### Tips

- Embed erosion log 2 inches into soil and ensure contact with the ground for its entire length.
- Erosion logs can be placed on top of soil retention blankets to help reduce water velocity.
- Proper staking is essential for erosion log function.
- Diameter of the erosion log is specified in the Stormwater Management Plan.

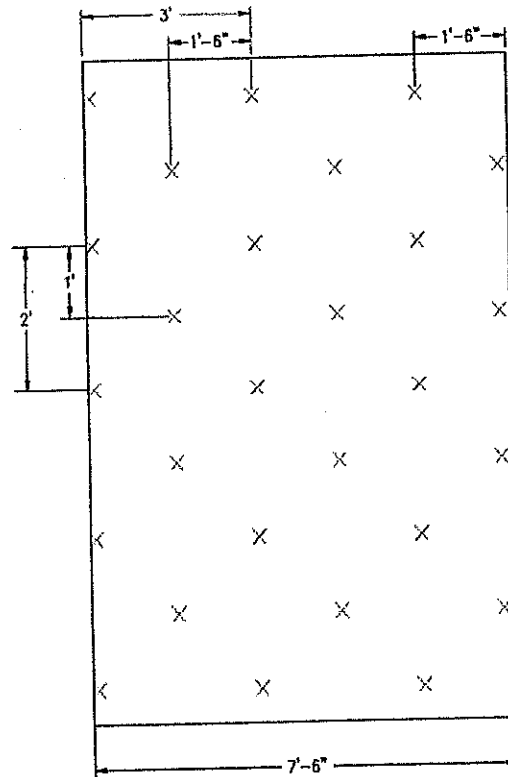
### NOTES

1. EROSION LOGS SHALL BE EMBEDDED 2 INCHES INTO THE SOIL.
2. STAKES SHALL BE EMBEDDED TO A MINIMUM DEPTH OF 12 INCHES.
3. EROSION LOGS SHALL BE TIGHTLY ABUTTED WITH NO GAPS.



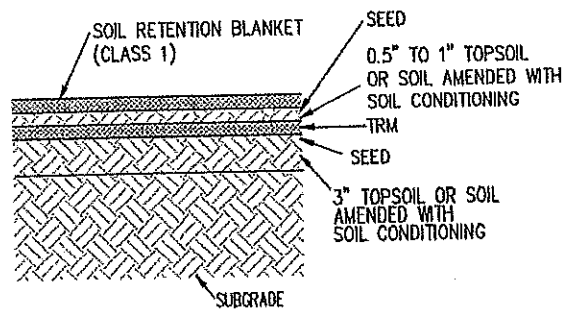
### ELEVATION

### EROSION LOG DITCH INSTALLATION



TYPICAL STAPLE PATTERN  
FOR CHANNEL APPLICATION

SEE SUBSECTION 216.05.

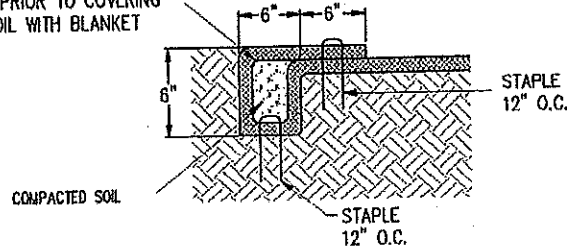


SOIL FILLED TRM APPLICATION

1. PLACE 3" TOPSOIL OR SOIL AMENDED WITH SOIL CONDITIONING.
2. APPLY SEED AND RAKE INTO SOIL.
3. INSTALL TRM.
4. PLACE 0.5" TO 1" TOPSOIL OR SOIL AMENDED WITH SOIL CONDITIONING.
5. APPLY SEED AND RAKE INTO SOIL.
6. INSTALL SOIL RETENTION BLANKET (CLASS 1).

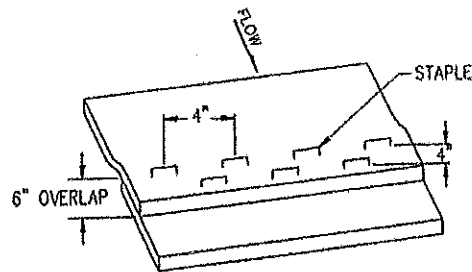


APPLY SEED AND ANY REQUIRED SOIL CONDITIONERS PRIOR TO COVERING COMPACTED SOIL WITH BLANKET



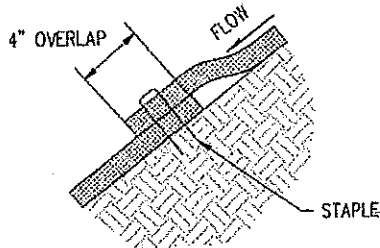
**ANCHOR TRENCH  
SECTION A**

TO BE USED AT THE BEGINNING AND END OF THE CHANNEL ACROSS IT'S ENTIRE WIDTH.



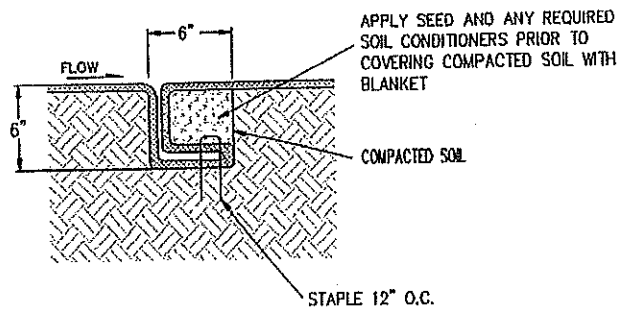
**CONSECUTIVE ROLL OVERLAP  
SECTION B**

TO BE USED WHEREVER ONE ROLL OF BLANKET ENDS AND ANOTHER BEGINS WITH UPSTREAM BLANKET PLACED ON TOP OF THE BLANKET ON THE DOWNSTREAM SIDE.



**SIDE SEAM OVERLAP  
SECTION C**

TO BE USED FOR OVERLAP WHEN 2 WIDTHS OF BLANKET ARE APPLIED SIDE BY SIDE WITH THE UPHILL BLANKET PLACED ON TOP OF THE BLANKET ON THE DOWNHILL SIDE.

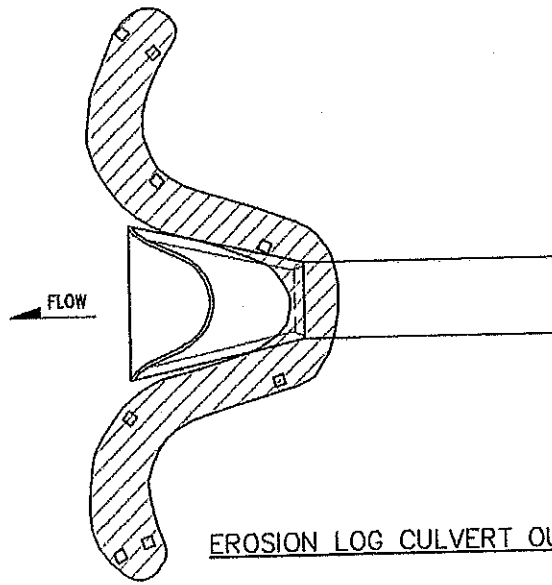


**CHANNEL CHECK SLOT  
SECTION D**

TO BE USED AT 30' INTERVALS IN CHANNEL FLOWLINE.

## Outlet Protection

Outlet protection prevents scour and erosion at the outlet of a channel or conduit by reducing the speed of stormwater. Outlet protection is comprised of geotextile fabric and riprap placed at the outlet.



EROSION LOG CULVERT OUTLET PROTECTION



*Good use of rock as outlet protection. The erosion log above the culvert helps prevent debris and dirt from falling into the outlet.*

## **Exhibit 5**

### **Miscellaneous Documentation and Typical Section**

**EL PASO**  **COUNTY**  
**COLORADO**

**COMMUNITY SERVICES DEPARTMENT**  
PARK OPERATIONS ~ PLANNING ~ CSU EXTENSION ~ COMMUNITY OUTREACH  
ENVIRONMENTAL SERVICES ~ VETERANS SERVICES ~ RECREATION/CULTURAL SERVICES

**Date:** May 8, 2020  
**To:** Ryan Howser, Planning and Community Development Department  
**From:** Nancy Prieve, Environmental Division, Community Services Department  
**Subject:** Prairie Ridge Reconsideration SF2010

---

The El Paso County Environmental Division has completed its review of the Prairie Ridge Reconsideration SF2010. Our review consisted of the following items: wetlands, federal and state listed threatened or endangered species, general wildlife resources and noxious weeds.

1. A completed U.S. Army Corps of Engineers (USCOE) permit shall be provided to the Planning and Community Development Department prior to project commencement if ground-disturbing activities will occur in wetland areas. Alternatively, a letter from a qualified wetland scientist indicating why such a permit is not required for this project will be acceptable. The applicant is hereby on notice that the USCOE has regulatory jurisdiction over wetlands. It is the applicant's responsibility, and not El Paso County's, to ensure compliance with all applicable laws and regulations, including, but not limited to, the Clean Water Act.
2. Documentation from the U.S. Fish and Wildlife Service (USFWS) shall be provided to the Planning and Community Development Department prior to project commencement where the project will result in ground disturbing activity in habitat occupied or potentially occupied by threatened or endangered species and/or where development will occur within 300 feet of the centerline of a stream or within 300 feet of the 100 year floodplain, whichever is greater. The applicant is hereby on notice that the USFWS has regulatory jurisdiction over threatened and endangered species and migratory birds, respectively. It is the applicant's responsibility, and not El Paso County's, to ensure compliance with all applicable laws and regulations, including but not limited to, the Endangered Species Act and the Migratory Bird Treaty Act.

3. The project may interfere with wildlife habitat. Information regarding wildlife protection measures shall be provided including fencing requirements, garbage containment, and riparian/wetland protection/buffer zones, as appropriate. Information can be obtained from Colorado Parks and Wildlife.
4. The project lies within or adjacent to an area with documented noxious weeds. A Noxious Weed Management Plan shall be provided to the Planning and Community Development Department. It is the applicant's responsibility, and not El Paso County's, to ensure compliance with all applicable laws and regulations, including but not limited to the Colorado Noxious Weed Act and the El Paso County Weed Management Plan.

It is strongly recommended that the applicant obtain the necessary approvals from all federal, state and county agencies as a part of their planning process.

We appreciate the opportunity to comment on this project. If you have any questions or concerns, please contact me at (719) 520-7845.



**Black Forest Fire Rescue Protection District**

11445 Teachout Road  
Colorado Springs, Colorado 80908  
Ph-719.495.4300  
Fax 719.495.7504  
Web- [www.bffire.org](http://www.bffire.org)

*"Always Ready, Always Forward, Always Learning."*

---

## *Office of the Fire Marshal*

Wednesday, May 20, 2020

Dear Ms. Didleau

Thank you for reaching out to me regarding your future road needs for the Forest Heights Estates sub-division. Per our current code Black Forest Fire Rescue is requiring the following Fire Access to your sub.

1. **403.3 Fire apparatus access road. (2006 WUI code)**When required, fire apparatus access roads shall be all-weather roads with a minimum width of 20 feet (6096 mm) and a clear height of 13 feet 6 inches (4115 mm); shall be designed to accommodate the loads (75,000lbs) and turning radii for fire apparatus; and have a gradient negotiable by the specific fire apparatus normally used at that location within the jurisdiction. Dead-end roads in excess of 150 feet (45 720 mm) in length shall be provided with turnarounds as approved by the code official. An all-weather road surface shall be any surface material acceptable to the code official that would normally allow the passage of emergency service vehicle.
2. Per 2015 IFC (amended), sec D103.4. Requirements for Dead-End Fire Apparatus Access Roads we are requiring a minimum of an 80-foot diameter cul-de-sac with curb and gutter or a 100-foot diameter cul-de-sac without curb and gutter.
3. As the road length is approximately 2200 ft to cul-de-sac, we will require a minimum of two turnouts along the main access roadway for emergency vehicle turnarounds. These turnouts should be spaced and located for maximum efficiency and shall be no less than 30 ft in length and 10 ft deep.

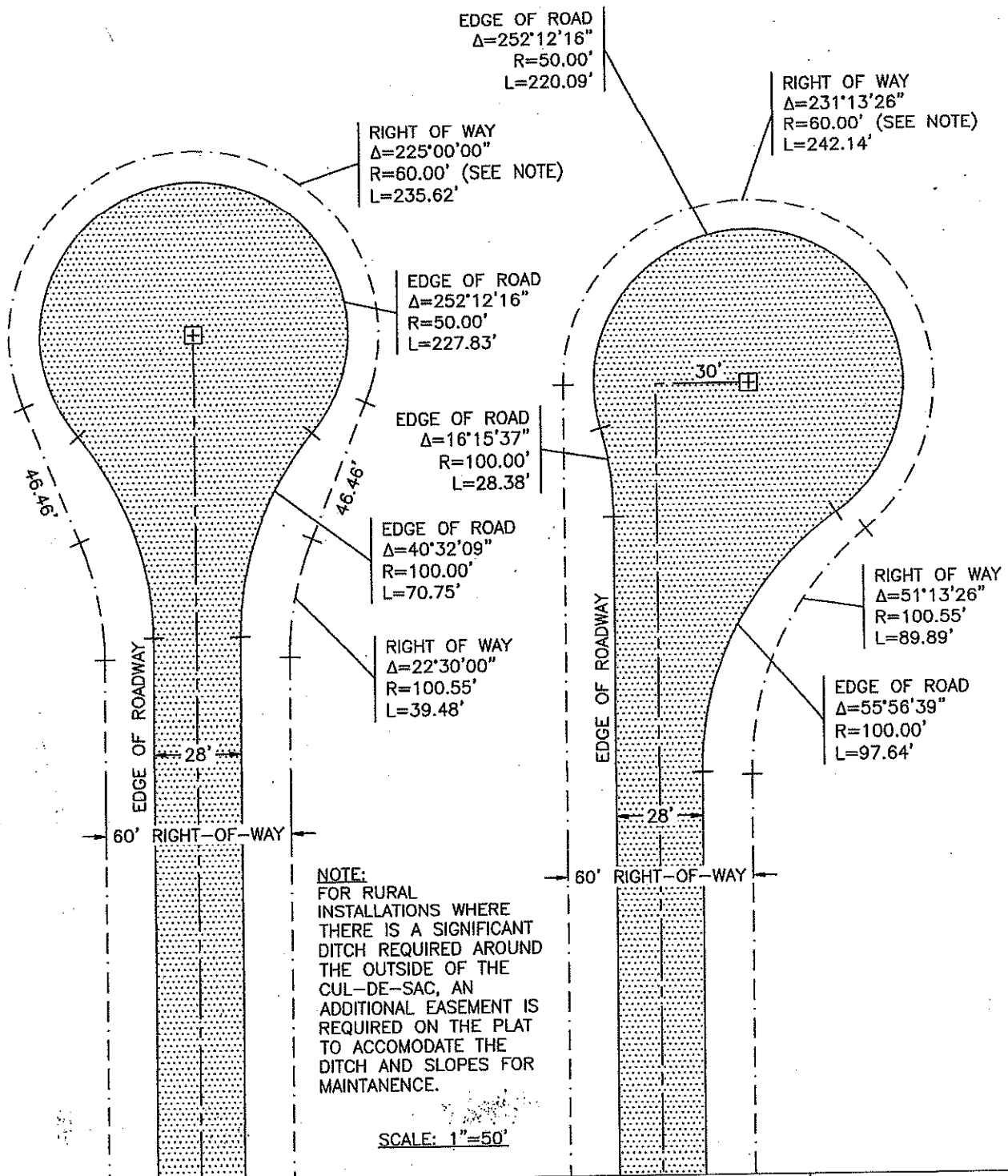
As you begin development of your project please be advised that your project, if 5 or more homes, will require a firefighting water supply source which is generally a water cistern located with the project and accessible to all fire apparatus or departments working in our district. This information is found in the NFPA sec 1142 (Standard on Water Supplies for suburban and Rural Fire Fighting) chapters 7 & 8. I will be happy to sit down and go over these requirements with you as you progress in your project.

Thank you,

A handwritten signature in black ink that reads "James Rebitski".

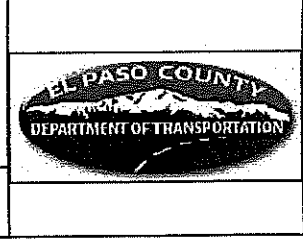
James Rebitski  
Deputy Fire Chief

*"Serving the citizens of Black Forest since 1945"*

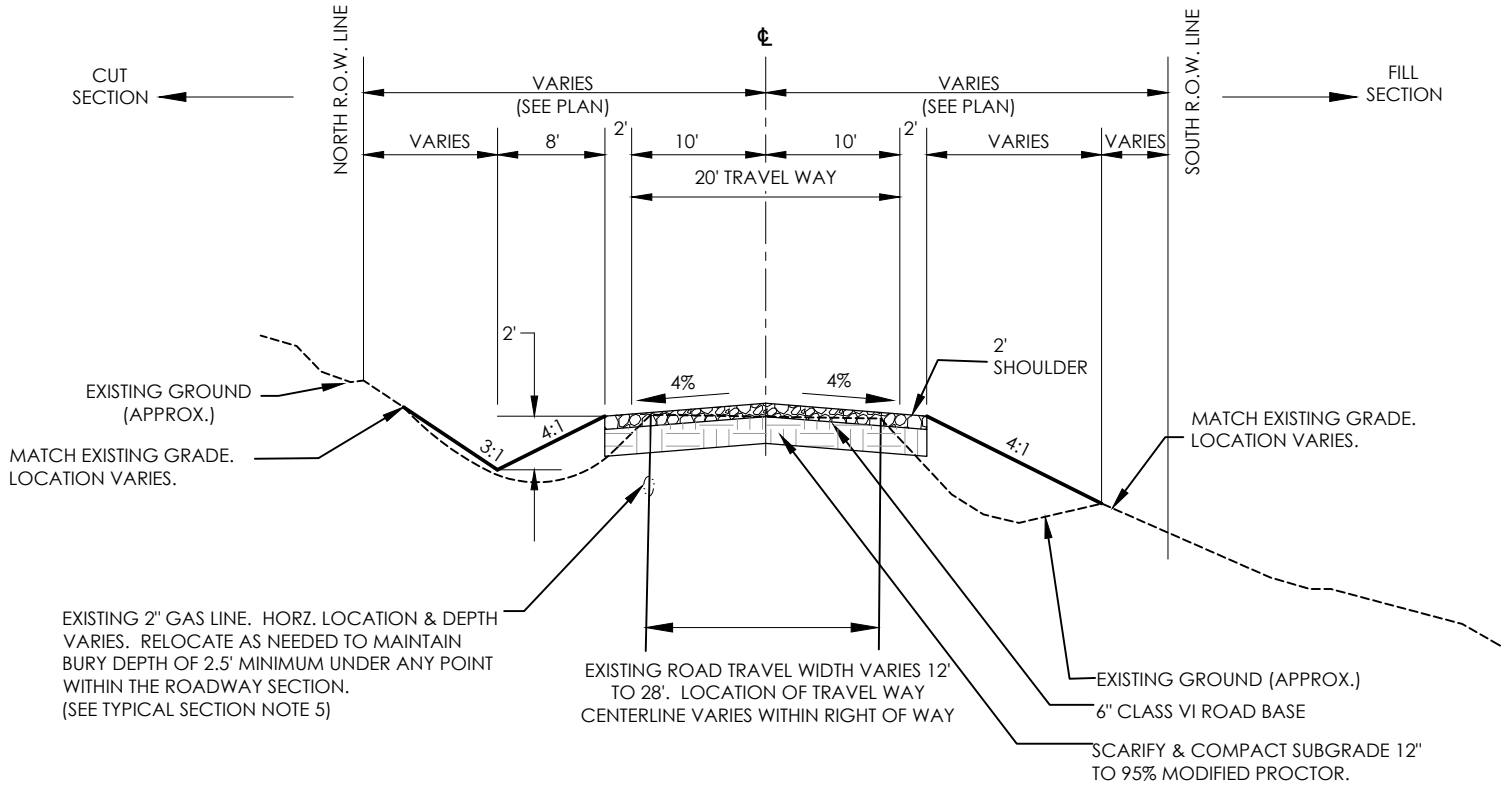


1/1/08  
 DATE APPROVED:  
 John A. McCarty  
 DEPARTMENT OF TRANSPORTATION

Rural Cul-De-Sac  
 Details  
 Standard Drawing  
 REVISION DATE: 12/8/15  
 FILE NAME: SD\_2-76



PROPOSED CENTERLINE GRADE PER PROFILE.  
USE EXCAVATED MATERIAL FOR ROAD  
SUBGRADE AS NEEDED.



## TYPICAL PRIVATE RURAL ROADWAY SECTION RURAL GRAVEL LOCAL ROADWAY WITH A DESIGN AND POSTED SPEED OF 20 MPH

SCALE:  
HORIZONTAL SCALE: 1" = 10'  
VERTICAL SCALE: 1" = 5'

### NOTES FOR TYPICAL SECTION

1. THE CENTERLINE OF THE PROPOSED ROADWAY VARIES WITHIN THE RIGHT-OF-WAY (R.O.W.). SEE PLANS FOR ROADWAY ALIGNMENT DATA.
2. THE CENTERLINE OF THE PROPOSED ROADWAY IS SHIFTED SOUTH IN THE R.O.W. ALONG PROPERTY OWNED BY FREDERICK YONCE TO PRESERVE EXISTING TREES AS MUCH AS PRACTICALLY POSSIBLE.
3. EXISTING TREES IN THE R.O.W. AFFECTED BY THE ROADWAY CONSTRUCTION SHALL BE RELOCATED OR REPLACED BY THE CONTRACTOR.
4. CONTRACTOR TO OBTAIN PERMISSION FROM EACH INDIVIDUAL PROPERTY OWNER WHEN CONSTRUCTION IS REQUIRED OUTSIDE THE ROADWAY TRACT/EASEMENT.
5. GAS LINE EXISTS ALONG THE ENTIRE LENGTH OF THE NORTH SIDE OF FOREST HEIGHTS CIRCLE. CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE HORIZONTAL & VERTICAL LOCATION OF THE PIPE. CONTRACTOR TO COORDINATE RELOCATION OF GAS LINE.
6. PRIOR TO CONSTRUCTION, A GRAVEL PAVEMENT REPORT BY A GEOTECHNICAL ENGINEER SHALL BE SUBMITTED TO EL PASO COUNTY PCD FOR REVIEW AND APPROVAL. THE REPORT WILL INDICATE THE REQUIRED GRAVEL ROADWAY SPECIFICATIONS WHICH MAY ALTER THE THICKNESS OF GRAVEL SHOWN ON THE TYPICAL SECTION AND SUBGRADE TREATMENT.





DEPARTMENT OF THE ARMY  
CORPS OF ENGINEERS, ALBUQUERQUE DISTRICT  
4101 JEFFERSON PLAZA NE  
ALBUQUERQUE, NM 87109

September 3, 2021

Regulatory Division

SUBJECT: Nationwide Permit (NWP) Verification by Default – Action No. SPA-2021-00178, Forest Heights Estates

Phyllis Didleau  
8250 Forest Heights Circle  
Colorado Springs, CO 80908

Dear Ms. Didleau:

This letter responds to your June 15, 2020 pre-construction notification (PCN) for the proposed Forest Heights Estates road improvement located at approximately latitude 39.02027 N, longitude -104.67258 W, in El Paso County, Colorado. The work as described in your submittal will consist of widening the road to a typical section of 24 feet wide with borrow ditches on both sides of the roadway and the replacement of three 18" CMP culverts with three 24" CMP culverts and flared end sections. We have assigned Action No. SPA-2021-00178 to this project. Please reference this number in all future correspondence concerning the project.

Based on the information provided, the project is authorized by Nationwide Permit 14 - Linear Transportation Projects. A summary of this permit and the Colorado Regional Conditions are available on our website at <http://www.spa.usace.army.mil/Missions/Regulatory-Program-and-Permits/NWP/>. Please refer to our website at <http://www.spa.usace.army.mil/Missions/Regulatory-Program-and-Permits/Water-Quality-Certification/> for specific information regarding compliance with state water quality certification (WQC) requirements. The permittee must ensure that the work complies with the terms and conditions of the permit, including Colorado Regional Conditions and WQC

Our review of this project also addressed its effects on threatened and endangered species and historic properties in accordance with general conditions 18 and 20. Based on the information provided, we have determined that this project will not affect any federally listed threatened or endangered species or any historic properties listed, or eligible for listing, in the National Register of Historic Places. However, please note that the permittee is responsible for meeting the requirements of general condition 18 on endangered species and general condition 20 on historic properties.

This verification by default is only valid for the project as described in your submittal. Appropriate erosion and sediment controls should be implemented to ensure that construction materials and/or activities do not enter any wetlands or other waterbodies beyond the scope of the authorization. If there are any changes in the project purpose, location, or design, you should contact our office for a reevaluation of Department of the Army permit requirements.

This letter does not constitute approval of the project design features, nor does it imply that the construction is adequate for its intended purpose. This permit does not authorize any injury to property or invasion of rights or any infringement of federal, state or local laws or regulations. The permittee and/or any contractors acting on behalf of the permittee must possess the authority and any other approvals required by law, including property rights, in order to undertake the proposed work.

This permit verification is valid until March 18, 2022 (33 CFR 330.6), unless the nationwide permit is modified, suspended, revoked or reissued prior to that date. Continued confirmation that an activity complies with the terms and conditions, and any changes to the nationwide permit, is the responsibility of the permittee. Activities that have commenced, or are under contract to commence, in reliance on a nationwide permit will remain authorized provided the activity is completed within 12 months of the date of the nationwide permits expiration, modification, or revocation.

Within 30 days of project completion, the permittee must fill out the enclosed Certification of Compliance form and return it to our office. The landowner must allow Corps representatives to inspect the authorized activity at any time deemed necessary to ensure that it is being, or has been, accomplished in accordance with the terms and conditions of the nationwide permit.

I am forwarding a copy of this letter to Kenneth Harrison (KCH Engineering Solutions, LLC). If you have any questions, please contact me at (505) 342-3678 or by e-mail at [Forrest.Luna@usace.army.mil](mailto:Forrest.Luna@usace.army.mil). At your convenience, please complete a Customer Service Survey on-line available at <https://regulatory.ops.usace.army.mil/customer-service-survey/>

Sincerely,

A handwritten signature in blue ink that reads "Forrest Luna".

Forrest Luna  
Regulatory Specialist

Enclosure(s)

**Certification of Compliance  
with Department of the Army Nationwide Permit**

Action Number: SPA-2021-00178

Name of Permittee: Phyllis Didleau,

Nationwide Permit: 14 - Linear Transportation Projects

Upon completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the following address:

Forrest Luna  
Albuquerque District, U.S. Army Corps of Engineers  
4101 Jefferson Plaza NE  
Albuquerque, NM 87109

Please note that your permitted activity is subject to a compliance inspection by an U.S. Army Corps of Engineers representative. If you fail to comply with this permit, you are subject to permit suspension, modification, or revocation.

Please enclose photographs showing the completed project (if available).

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and conditions of the said permit, and required mitigation was completed in accordance with the permit conditions.

Date Work Started \_\_\_\_\_

Date Work Completed \_\_\_\_\_

\_\_\_\_\_  
Signature of Permittee

\_\_\_\_\_  
Date

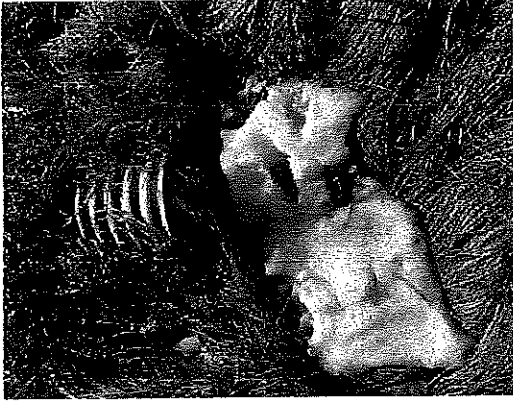


Figure 1: Upstream End of Culvert #1

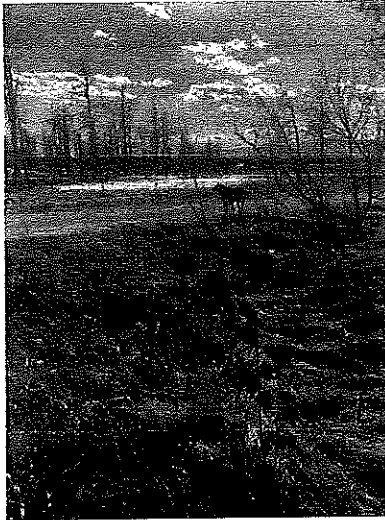


Figure 2: Facing Downstream of Culvert #1

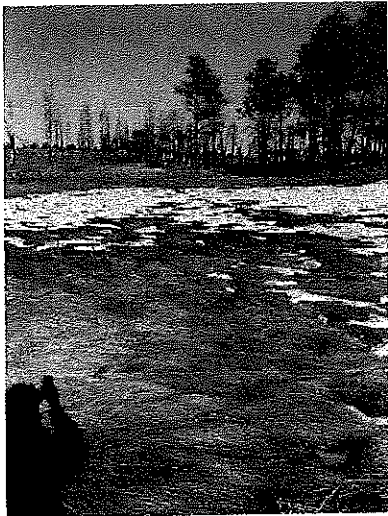


Figure 3: Wetlands upstream of Culvert 1



Figure 4: Facing NE from Wetland Area

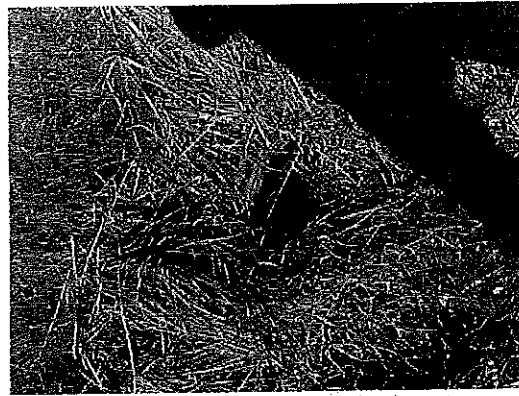


Figure 5: Downstream End of Culvert 1



Figure 6: Facing downstream of Culvert 1



Figure 7: 8250 Forest Heights Circle

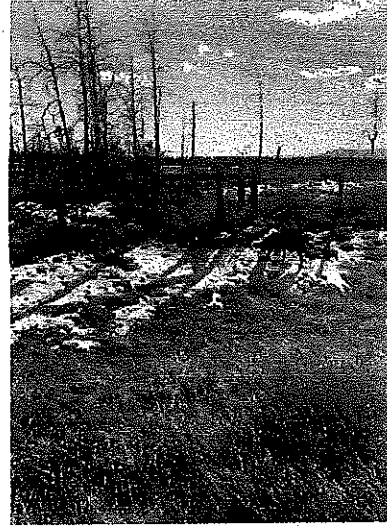


Figure 10: Facing south along property line

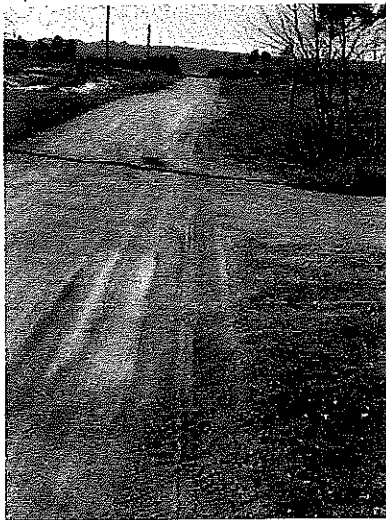


Figure 8: Facing west along northerly edge of road



Figure 11: First Residence off of cul-de-sac

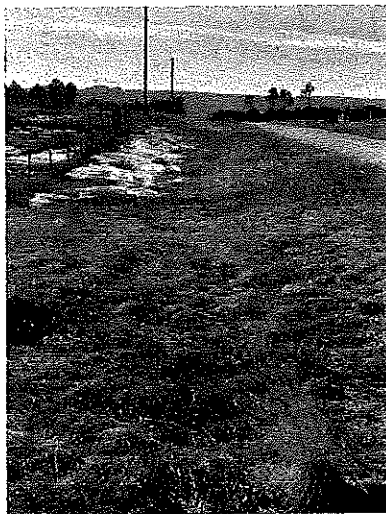


Figure 9: Facing west along southerly edge of road

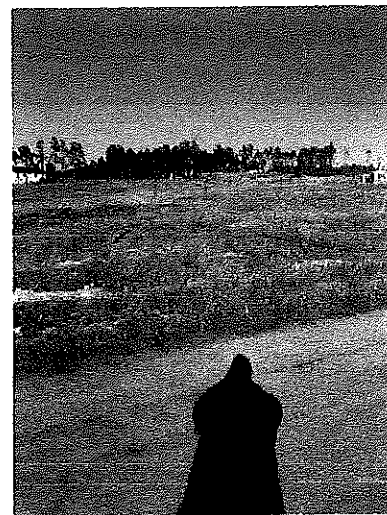


Figure 12: Facing NE to Swale 3

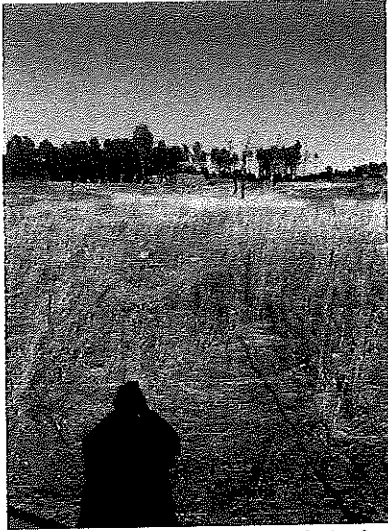


Figure 13: Wetland Area along east fork of Swale 3

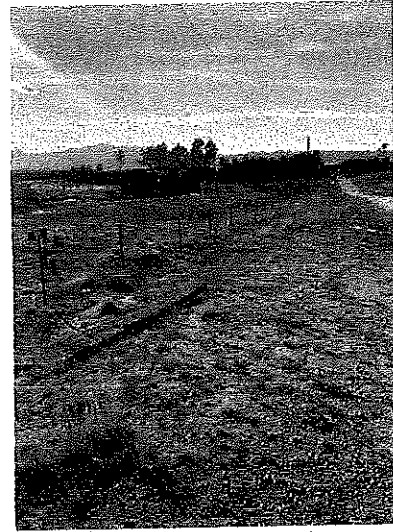


Figure 15: Facing SW of Prop Corner



Figure 14: Facing south along prop line

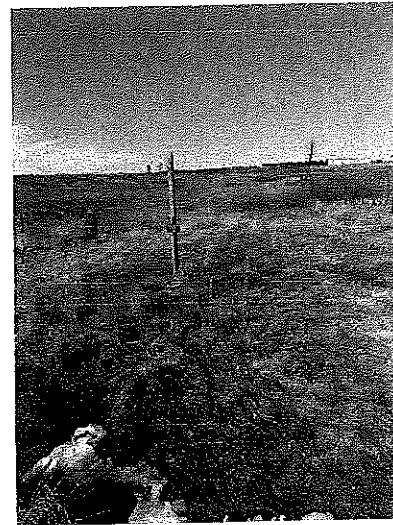


Figure 16: Facing north along gas line easement

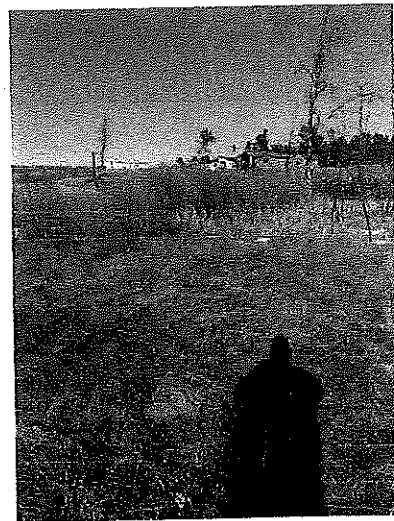


Figure 17: Wetland area in Swale 3

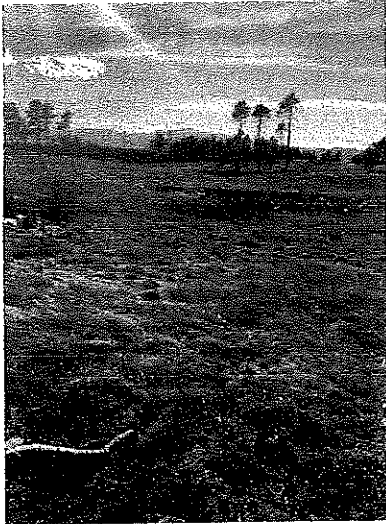


Figure 18: Facing SW at upper end of wetland area



Figure 21: Upstream end of Culvert 2

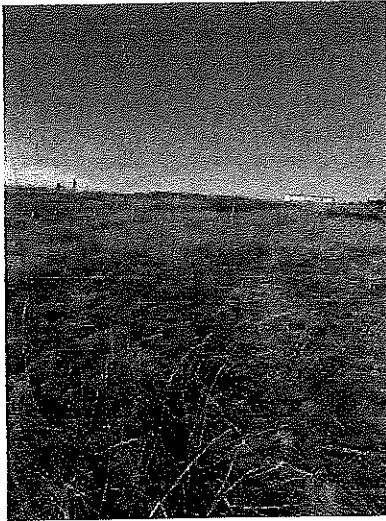


Figure 19: facing NE along w. branch of swale 3

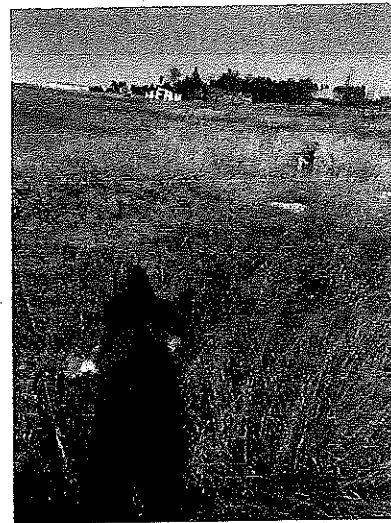


Figure 22: Facing NE of Culvert 2

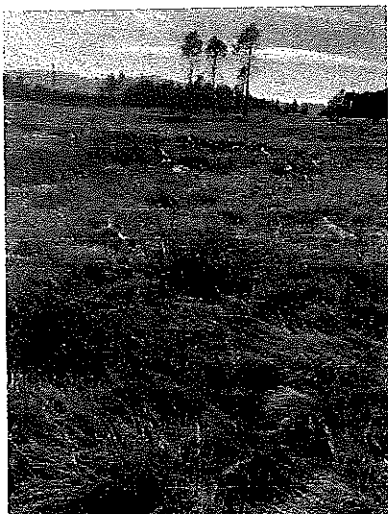


Figure 20: Facing SW along Swale 3

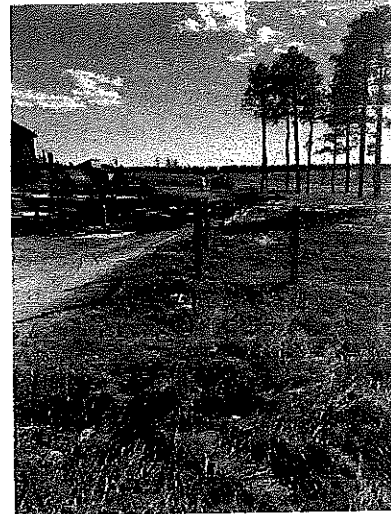


Figure 23: Facing SW along PL





Figure 24: Downstream end of Culvert 2

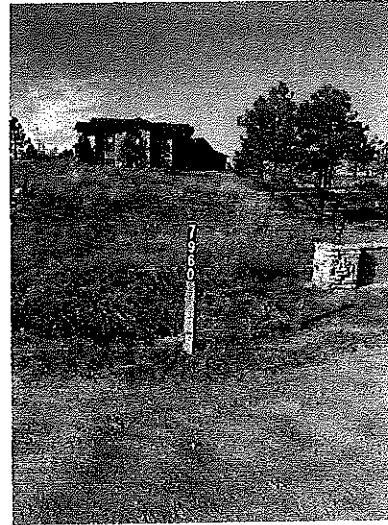


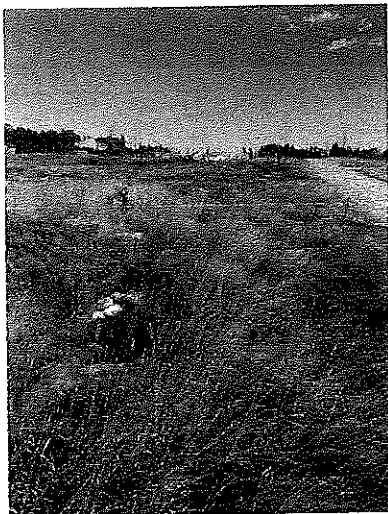
Figure 27: 7960 Forest Heights Circle



Figure 25: west along southerly edge



2  
Figure 28: Facing south along PL



2  
Figure 26: Facing east along northerly edge



Figure 29: Top of high pnt facing west



Figure 32: Water routed in northern borrow ditch



Figure 30: Facing NE along Swale 5



Figure 33: Facing west along north side

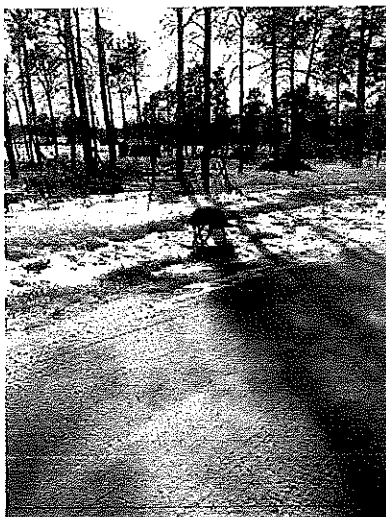


Figure 31: Facing SW along Swale 6

Figure 34: photo omitted



Figure 35: Facing west along S edge

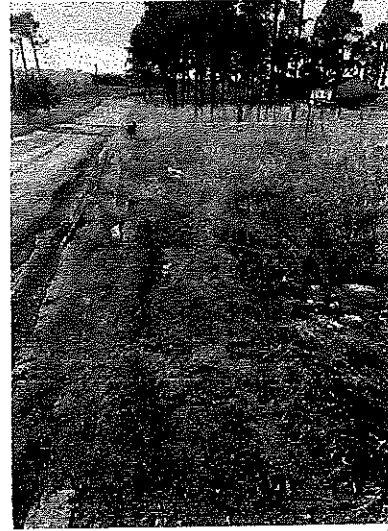


Figure 38: Facing west along northern edge

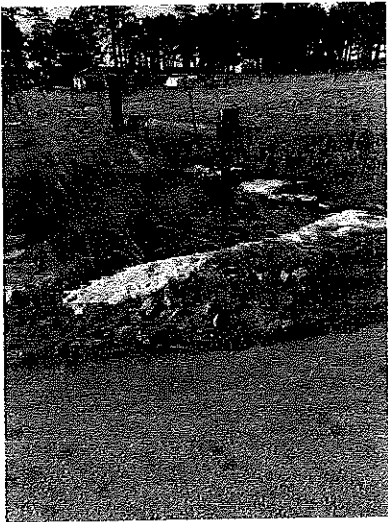


Figure 36: 7940 Forest Heights Circle

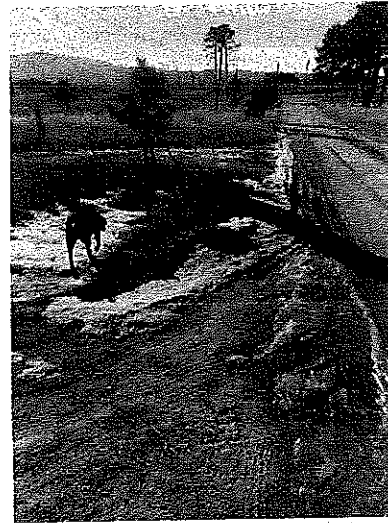


Figure 39: Facing west along southerly edge

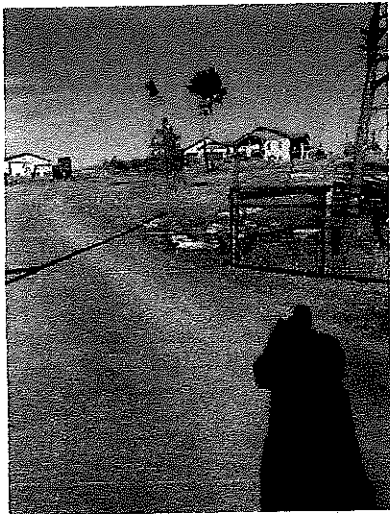


Figure 37: Asphalt drive 7940 FHC

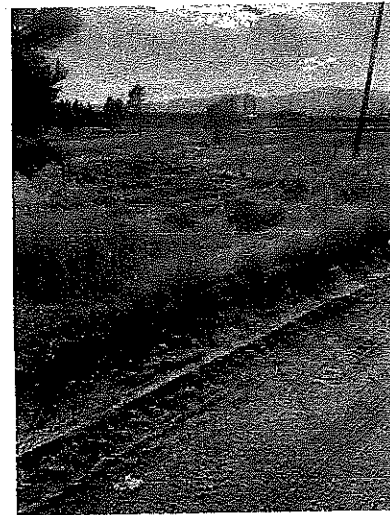


Figure 40: wetland area east of culvert 3



Figure 41: Upstream end Culvert 3



Figure 44: Facing downstream of Culvert 3



Figure 42: Facing north of Culvert 3

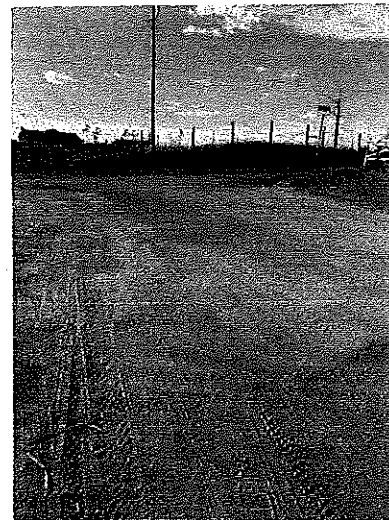


Figure 45: Herring Road Intersection



Figure 43: Downstream end of Culvert 3

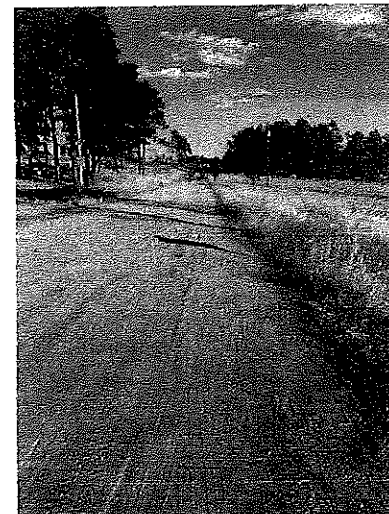


Figure 46: Facing east of intersection



Figure 47: Facing south to culvert under Herring

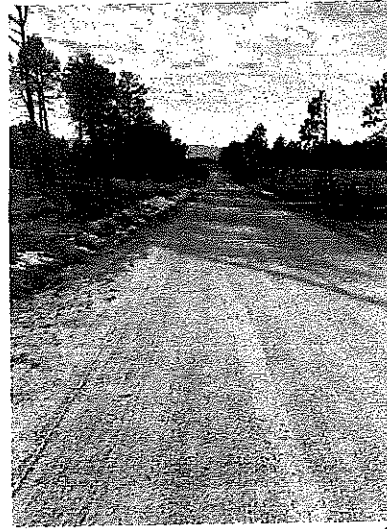


Figure 50: Facing west from High pnt 1 east of Herring

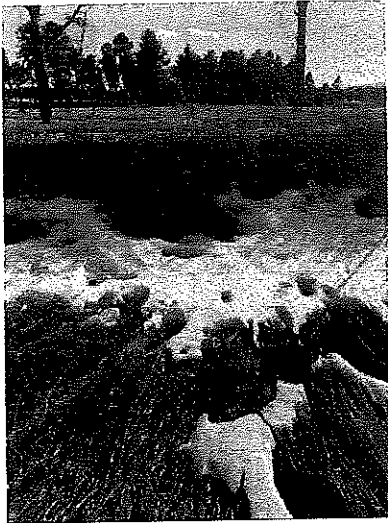


Figure 48: 18" CMP under Drive

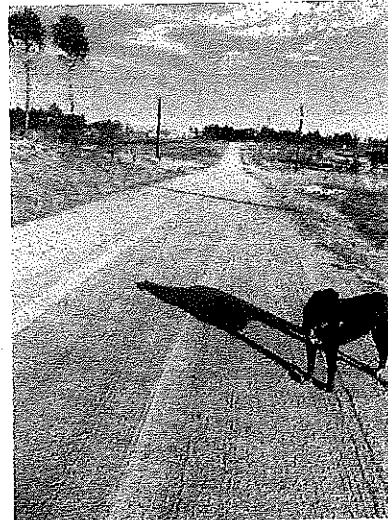


Figure 51: Facing east from first HP

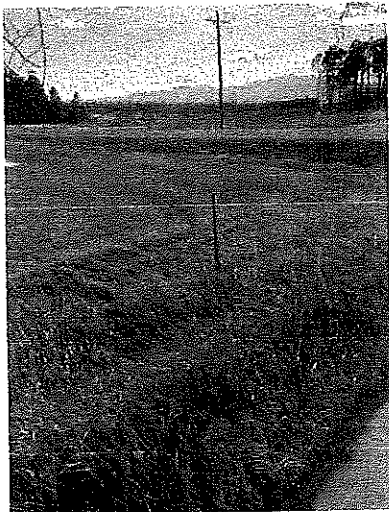


Figure 49: Facing SW at Herring Rd Crossing



Figure 52: Facing downstream of culvert 2



Figure 55: culvert under Herring

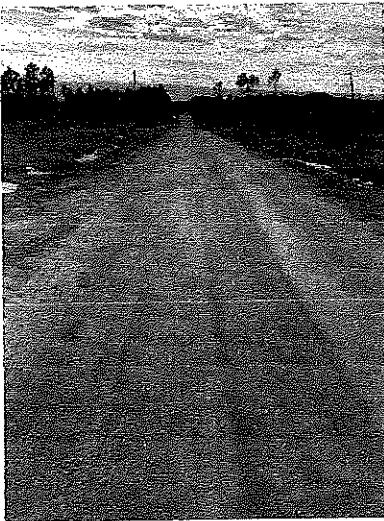


Figure 53: Facing west of 2nd HP



Figure 56: Culvert under Herring

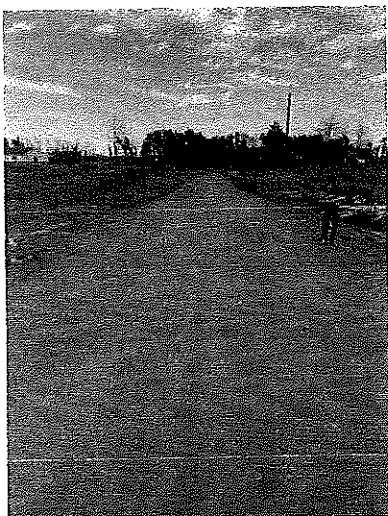


Figure 54: Facing west from 2nd HP

# **Exhibit 6**

## **Inspection Forms**

# Appendix D: Stormwater Inspection Report Template

Facility Name		Permittee					
Date of Inspection		Weather Conditions					
Permit Certification #		Disturbed Acreage					
Phase of Construction		Inspector Title					
Inspector Name							
Is the above inspector a qualified stormwater manager? (permittee is responsible for ensuring that the inspector is a qualified stormwater manager)			<table border="1"> <tr> <td>YES</td> <td>NO</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>	YES	NO	<input type="checkbox"/>	<input type="checkbox"/>
YES	NO						
<input type="checkbox"/>	<input type="checkbox"/>						

INSPECTION FREQUENCY					
Check the box that describes the minimum inspection frequency utilized when conducting each inspection					
At least one inspection every 7 calendar days	<input type="checkbox"/>				
At least one inspection every 14 calendar days, with post-storm event inspections conducted within 24 hours after the end of any precipitation or snowmelt event that causes surface erosions	<input type="checkbox"/>				
<ul style="list-style-type: none"> <li>This is this a post-storm event inspection. Event Date: _____</li> </ul>	<input type="checkbox"/>				
Reduced inspection frequency - Include site conditions that warrant reduced inspection frequency	<input type="checkbox"/>				
<ul style="list-style-type: none"> <li>Post-storm inspections at temporarily idle sites</li> <li>Inspections at completed sites/area</li> <li>Winter conditions exclusion</li> </ul>	<input type="checkbox"/>				
Have there been any deviations from the minimum inspection schedule? If yes, describe below.	<table border="1"> <tr> <td>YES</td> <td>NO</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>	YES	NO	<input type="checkbox"/>	<input type="checkbox"/>
YES	NO				
<input type="checkbox"/>	<input type="checkbox"/>				

INSPECTION REQUIREMENTS*
i. Visually verify all implemented control measures are in effective operational condition and are working as designed in the specifications
ii. Determine if there are new potential sources of pollutants
iii. Assess the adequacy of control measures at the site to identify areas requiring new or modified control measures to minimize pollutant discharges
iv. Identify all areas of non-compliance with the permit requirements, and if necessary, implement corrective action
*Use the attached <b>Control Measures Requiring Routine Maintenance</b> and <b>Inadequate Control Measures Requiring Corrective Action</b> forms to document results of this assessment that trigger either maintenance or corrective actions

AREAS TO BE INSPECTED			
Is there evidence of, or the potential for, pollutants leaving the construction site boundaries, entering the stormwater drainage system or discharging to state waters at the following locations?			
	NO	YES	If "YES" describe discharge or potential for discharge below. Document related maintenance, inadequate control measures and corrective actions Inadequate Control Measures Requiring Corrective Action form
Construction site perimeter	<input type="checkbox"/>	<input type="checkbox"/>	
All disturbed areas	<input type="checkbox"/>	<input type="checkbox"/>	
Designated haul routes	<input type="checkbox"/>	<input type="checkbox"/>	
Material and waste storage areas exposed to precipitation	<input type="checkbox"/>	<input type="checkbox"/>	
Locations where stormwater has the potential to discharge offsite	<input type="checkbox"/>	<input type="checkbox"/>	
Locations where vehicles exit the site	<input type="checkbox"/>	<input type="checkbox"/>	
Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	



**REPORTING REQUIREMENTS**

The permittee shall report the following circumstances orally within twenty-four (24) hours from the time the permittee becomes aware of the circumstances, and shall mail to the division a written report containing the information requested within five (5) working days after becoming aware of the following circumstances. The division may waive the written report required if the oral report has been received within 24 hours.

**All Noncompliance Requiring 24-Hour Notification per Part II.L.6 of the Permit**

**a. Endangerment to Health or the Environment**  
 Circumstances leading to any noncompliance which may endanger health or the environment regardless of the cause of the incident (See Part II.L.6.a of the Permit)  
*This category would primarily result from the discharge of pollutants in violation of the permit*

**b. Numeric Effluent Limit Violations**  
 o Circumstances leading to any unanticipated bypass which exceeds any effluent limitations (See Part II.L.6.b of the Permit)  
 o Circumstances leading to any upset which causes an exceedance of any effluent limitation (See Part II.L.6.c of the Permit)  
 o Daily maximum violations (See Part II.L.6.d of the Permit)  
*Numeric effluent limits are very uncommon in certifications under the COR400000 general permit. This category of noncompliance only applies if numeric effluent limits are included in a permit certification.*

<b>Has there been an incident of noncompliance requiring 24-hour notification?</b>	NO	YES	
	<input type="checkbox"/>	<input type="checkbox"/>	If "YES" document below

Date and Time of Incident	Location	Description of Noncompliance	Description of Corrective Action	Date and Time of 24 Hour Oral Notification	Date of 5 Day Written Notification *

\*Attach copy of 5 day written notification to report. Indicate if written notification was waived, including the name of the division personnel who granted waiver.





After adequate corrective action(s) and maintenance have been taken, or where a report does not identify any incidents requiring corrective action or maintenance, the individual(s) designated as the Qualified Stormwater Manager, shall sign and certify the below statement:

"I verify that, to the best of my knowledge and belief, all corrective action and maintenance items identified during the inspection are complete, and the site is currently in compliance with the permit."

\_\_\_\_\_  
Name of Qualified Stormwater Manager

\_\_\_\_\_  
Title of Qualified Stormwater Manager

\_\_\_\_\_  
Signature of Qualified Stormwater Manager

\_\_\_\_\_  
Date

Notes/Comments

# **Exhibit 7**

## **Map Pocket 1**

### **Stormwater Management/ Grading and Erosion Control Plan**

# FOREST HEIGHTS ESTATES GRADING & EROSION CONTROL PLANS

FOR FOREST HEIGHTS CIRCLE  
COUNTY OF EL PASO, STATE OF COLORADO

**PREPARED FOR**

PHYLLIS DIDLEAU  
8250 FOREST HEIGHTS DRIVE  
COLORADO SPRINGS CO 80909

**PREPARED BY**

KCH ENGINEERING SOLUTIONS, P.E.  
5228 CRACKER BARREL CIRCLE  
COLORADO SPRINGS, CO 80917

**OWNER:**

PHYLLIS DIDLEAU  
8250 FOREST HEIGHTS DRIVE  
COLORADO SPRINGS, CO 80908

**CIVIL ENGINEER:**

KCH ENGINEERING SOLUTIONS, ILLS  
5228 CRACKER BARREL CIRCLE  
COLORADO SPRINGS, CO 80917  
KENNETH HARRISON, P.E. 719-246-4471

**SURVEYOR:**

LAND DEVELOPMENT CONSULTANTS, INC.  
3898 MAIZELAND ROAD  
COLORADO SPRINGS, CO 80909  
DANIEL KUPFERER, PLS 719-528-6133

**COUNTY ENGINEERING:**

EL PASO COUNTY PLANNING & COMMUNITY DEV  
2880 INTERNATIONAL CIRCLE, SUITE 110  
COLORADO SPRINGS, CO 80910

**NATURAL GAS CO.:**

BLACKHILLS ENERGY  
37 WIDEFIELD BOULEVARD  
WIDEFIELD CO, 80911

**ELECTRIC CO.:**

MOUNTAINVIEW ELECTRIC  
P.O. BOX 1860  
LIMON CO, 80828

**FIRE DISTRICT:**

BLACK FOREST FIRE RESCUE PROTECTION DISTRICT  
11445 TEACHOUT ROAD  
COLORADO SPRINGS, CO 80908  
PH 719-495-4300

**APPROVALS**

**DESIGN ENGINEER'S STATEMENT:**

THIS GRADING AND EROSION CONTROL PLAN WAS PREPARED UNDER MY DIRECTION AND SUPERVISIONS AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. SAID PLAN HAS BEEN PREPARED ACCORDING TO THE CRITERIA ESTABLISHED BY THE COUNTY FOR GRADING AND EROSION CONTROL PLANS. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY ANY NEGLIGENCE, ACTS, ERRORS OR OMISSIONS ON MY PART IN PREPARING THIS PLAN.

KENNETH C. HARRISON,  
P.E. #23635

**OWNER/DEVELOPER'S STATEMENT:**

I, THE OWNER/DEVELOPER HAVE READ AND WILL COMPLY WITH ALL OF THE REQUIREMENTS OF THE GRADING AND EROSION CONTROL PLAN.

PHYLLIS DIDLEAU  
8250 FOREST HEIGHTS DRIVE  
COLORADO SPRINGS CO 80909

DATE

**EL PASO COUNTY:**

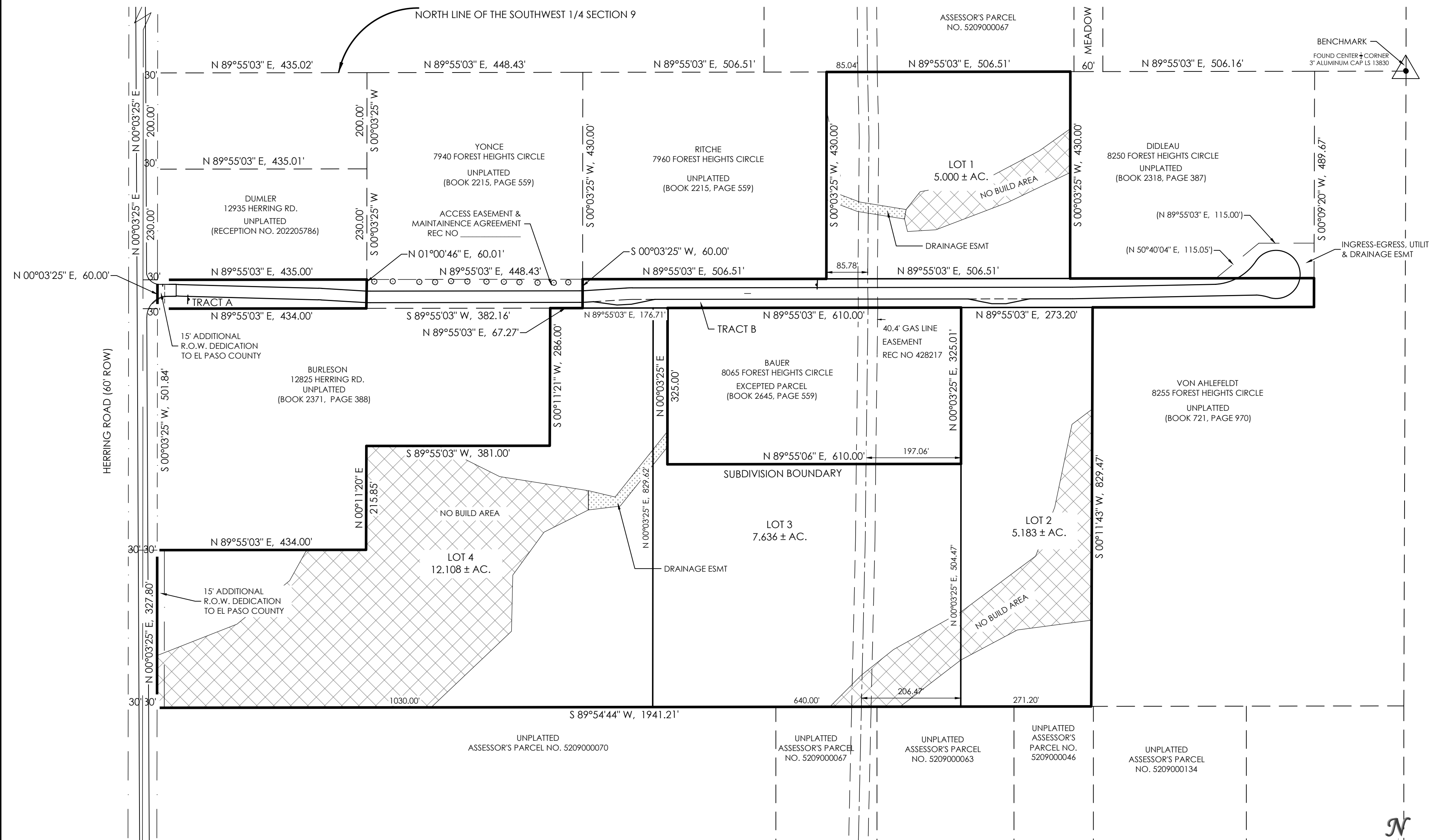
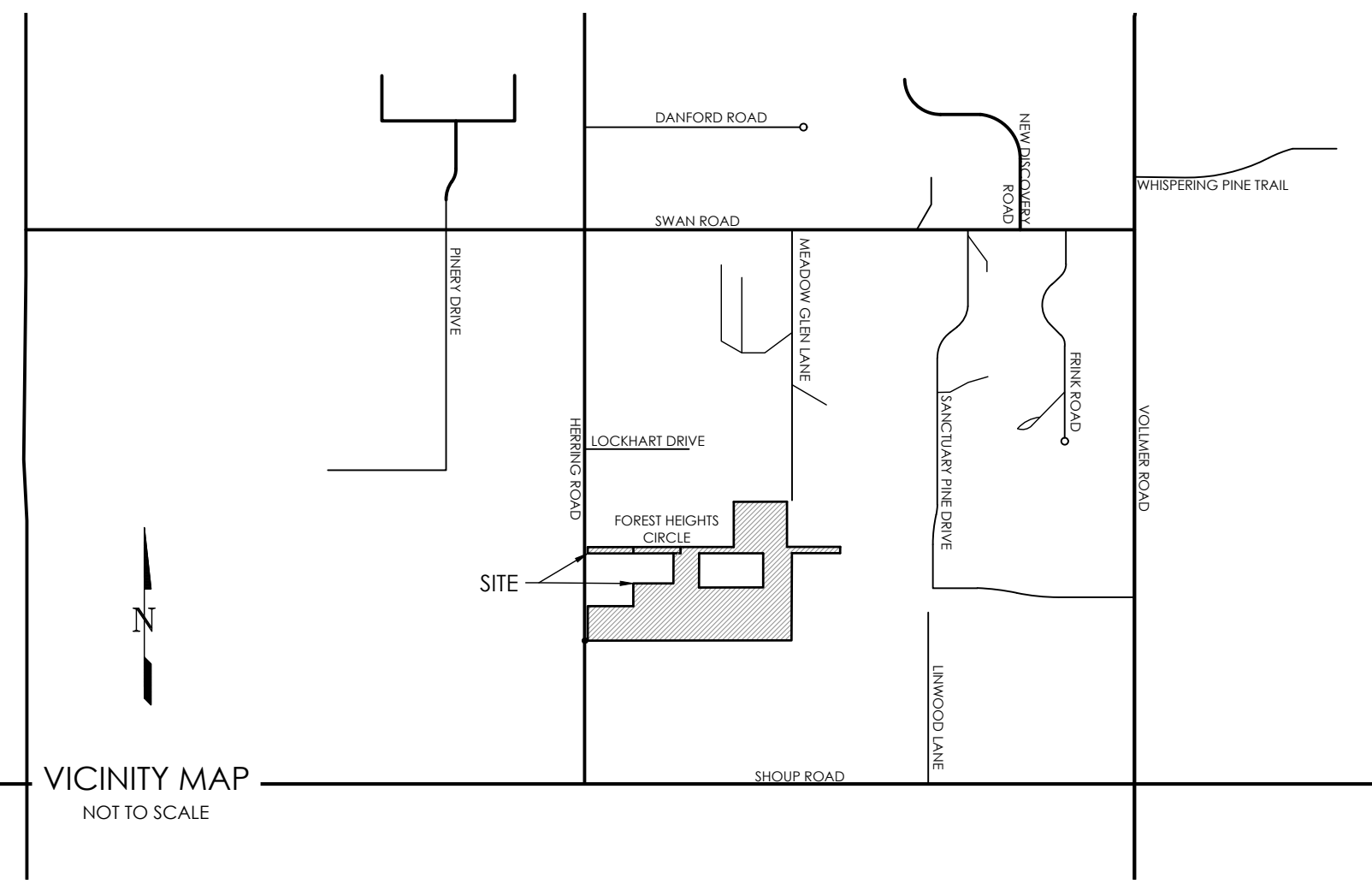
COUNTY PLAN REVIEW IS PROVIDED ONLY FOR GENERAL CONFORMANCE WITH COUNTY DESIGN CRITERIA. THE COUNTY IS NOT RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE DESIGN, DIMENSIONS, AND/OR ELEVATIONS WHICH SHALL BE CONFIRMED AT THE JOB SITE. THE COUNTY THROUGH THE APPROVAL OF THIS DOCUMENT ASSUMES NO RESPONSIBILITY FOR COMPLETENESS AND/OR ACCURACY OF THIS DOCUMENT.

FILED IN ACCORDANCE WITH THE REQUIREMENTS OF THE EL PASO COUNTY LAND DEVELOPMENT CODE, DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2, AND ENGINEERING CRITERIA MANUAL AS AMENDED.

IN ACCORDANCE WITH ECM SECTION 1.12, THESE CONSTRUCTION DOCUMENTS WILL BE VALID FOR CONSTRUCTION FOR A PERIOD OF 2 YEARS FROM THE DATE SIGNED BY THE EL PASO COUNTY ENGINEER. IF CONSTRUCTION HAS NOT STARTED WITHIN THOSE 2 YEARS, THE PLANS WILL NEED TO BE RESUBMITTED FOR APPROVAL, INCLUDING PAYMENT OF REVIEW FEES AT THE PLANNING AND COMMUNITY DEVELOPMENT DIRECTORS DISCRETION.

JOSHUA PALMER, P.E.  
COUNTY ENGINEER / ECM ADMINISTRATOR

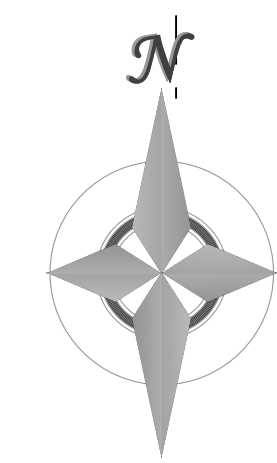
DATE



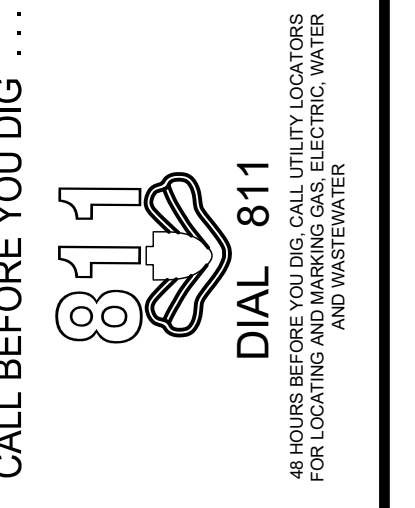
**SHEET INDEX**

- |              |   |
|--------------|---|
| SHEET 1 OF 4 | TITLE SHEET                             |
| SHEET 2 OF 4 | GENERAL NOTES & EROSION CONTROL DETAILS |
| SHEET 3 OF 4 | EROSION CONTROL DETAILS                 |
| SHEET 4 OF 4 | EROSION CONTROL PLAN                    |

SITE BENCHMARK:  
THE MONUMENT FOR THE CENTER 1/4 CORNER OF SECTION 9, THE MONUMENT IS A 3 INCH ALUMINUM CAP STAMPED LS 13830, ELEVATION-7527.04

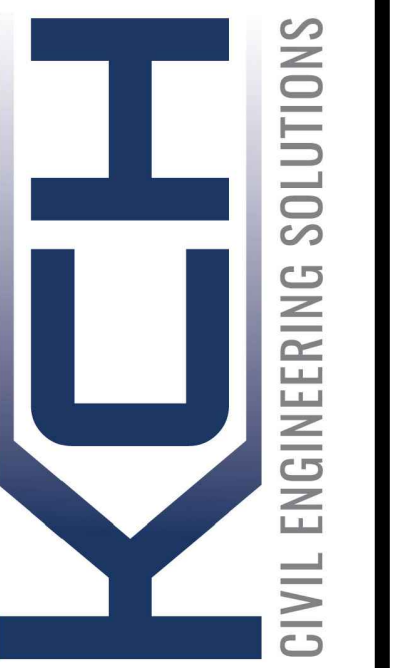


SCALE  
1" = 150' 1:1800



REVISIONS	Description	By	Date
No.			

H Scale:	VARIABLES	KCH
V Scale:	VARIABLES	KCH
Designed By:	MVE, INC.	KCH
Drawn By:		
Checked By:		
Date:	06/03/2023	



FOREST HEIGHTS CIRCLE  
GRADING & EROSION CONTROL PLAN  
TITLE SHEET

Project No.: 18070  
Sheet: 1 of 4

**STANDARD EL PASO COUNTY GRADING & EROSION CONTROL PLAN NOTES**

- STORMWATER DISCHARGES FROM CONSTRUCTION SITES SHALL NOT CAUSE OR THREATEN TO CAUSE POLLUTION, OR DEGRADATION, OR STATE MATTERS. ALL WORK AND EARTH DISTURBANCE SHALL BE DONE IN A MANNER THAT MINIMIZES POLLUTION OF ANY ON-SITE OR OFF-SITE WATERS, INCLUDING WETLANDS.
- NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL, AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING.
- A SEPARATE STORMWATER MANAGEMENT PLAN (SWMP) FOR THIS PROJECT SHALL BE COMPLETED AND AN EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP) ISSUED PRIOR TO COMMENCING CONSTRUCTION. MANAGEMENT OF THE SWMP DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE DESIGNATED QUALIFIED STORMWATER MANAGER OR CERTIFIED EROSION CONTROL INSPECTOR. THE SWMP SHALL BE LOCATED ON SITE AT ALL TIMES DURING CONSTRUCTION AND SHALL BE KEPT UP TO DATE WITH WORK PROGRESS AND CHANGES IN THE FIELD.
- ONCE THE ESQCP IS APPROVED AND A "NOTICE TO PROCEED" HAS BEEN ISSUED, THE CONTRACTOR MAY INSTALL THE INITIAL STAGE EROSION AND SEDIMENT CONTROL MEASURES AS INDICATED ON THE APPROVED GEC. A PRE-CONSTRUCTION MEETING BETWEEN THE CONTRACTOR, ENGINEER, AND EL PASO COUNTY WILL BE HELD PRIOR TO ANY CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE APPLICANT TO COORDINATE THE MEETING TIME AND PLACE WITH COUNTY STAFF.
- CONTROL MEASURES MUST BE INSTALLED PRIOR TO COMMENCEMENT OF ACTIVITIES THAT COULD CONTRIBUTE POLLUTANTS TO STORMWATER. CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, AND DISTURBED LAND AREAS SHALL BE INSTALLED IMMEDIATELY UPON COMPLETION OF THE DISTURBANCE.
- ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE MAINTAINED AND REMAIN IN EFFECTIVE OPERATING CONDITION UNTIL PERMANENT EROSION CONTROL MEASURES ARE IMPLEMENTED AND FINAL STABILIZATION IS ESTABLISHED. ALL PERSONS ENGAGED IN LAND DISTURBANCE ACTIVITIES SHALL ASSESS THE ADEQUACY OF CONTROL MEASURES AT THE SITE AND IDENTIFY IF CHANGES TO THOSE CONTROL MEASURES ARE NEEDED TO ENSURE THE CONTINUED EFFECTIVE PERFORMANCE OF THE CONTROL MEASURES. ALL CHANGES TO TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES MUST BE INCORPORATED INTO THE STORMWATER MANAGEMENT PLAN.
- TEMPORARY STABILIZATION SHALL BE IMPLEMENTED ON DISTURBED AREAS AND STOCKPILES WHERE GROUND DISTURBING CONSTRUCTION ACTIVITY HAS PERMANENTLY CEASED OR TEMPORARILY CEASED FOR LONGER THAN 14 DAYS.
- FINAL STABILIZATION MUST BE IMPLEMENTED AT ALL APPLICABLE CONSTRUCTION SITES. FINAL STABILIZATION IS ACHIEVED WHEN ALL GROUND DISTURBING ACTIVITIES ARE COMPLETE AND ALL DISTURBED AREAS EITHER HAVE A UNIFORM VEGETATIVE COVER WITH INDIVIDUAL PLANT DENSITY OF 10 PERCENT OR PRE-CONSTRUCTION LEVEL STABILIZATION OR EQUIVALENT PERMANENT ALTERNATIVE STABILIZATION METHOD IS IMPLEMENTED. ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE REMOVED UPON FINAL STABILIZATION AND BEFORE PERMIT CLOSURE.
- ALL PERMANENT STORMWATER MANAGEMENT FACILITIES SHALL BE INSTALLED AS DESIGNATED IN THE APPROVED PLANS. ANY PROPOSED CHANGES THAT EFFECT THE DESIGN OR FUNCTION OF PERMANENT STORMWATER MANAGEMENT STRUCTURES MUST BE APPROVED BY THE ECM ADMINISTRATOR PRIOR TO IMPLEMENTATION.
- EARTH DISTURBANCES SHALL BE CONDUCTED IN SUCH A MANNER SO AS TO EFFECTIVELY MINIMIZE ACCELERATED SOIL EROSION AND RESULTING SEDIMENTATION. ALL DISTURBANCES SHALL BE DESIGNED, CONSTRUCTED, AND COMPLETED SO THAT THE EXPOSED AREA OF ANY DISTURBED LAND SHALL BE LIMITED TO THE SHORTEST PRACTICAL PERIOD OF TIME. PRE-EXISTING VEGETATION SHALL BE PROTECTED AND MAINTAINED WITHIN 50 HORIZONTAL FEET OF A WATERS OF THE STATE UNLESS SHOWN TO BE INFEASIBLE AND SPECIFICALLY REQUESTED AND APPROVED.
- COMPACTION OF SOIL MUST BE PREVENTED IN AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES OR WHERE FINAL STABILIZATION WILL BE ACHIEVED BY VEGETATIVE COVER. AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES SHALL ALSO BE PROTECTED FROM SEDIMENTATION DURING CONSTRUCTION UNTIL FINAL STABILIZATION IS ACHIEVED. IF COMPACTION PREVENTION IS NOT FEASIBLE DUE TO SITE CONSTRAINTS, ALL AREAS DESIGNATED FOR INFILTRATION AND VEGETATION CONTROL MEASURES MUST BE LOOSENED PRIOR TO INSTALLATION OF THE CONTROL MEASURE(S).
- ANY TEMPORARY OR PERMANENT FACILITY DESIGNED AND CONSTRUCTED FOR THE CONVEYANCE OF STORMWATER AROUND, THROUGH, OR FROM THE EARTH DISTURBANCE AREA SHALL BE A STABILIZED CONVEYANCE DESIGNED TO MINIMIZE EROSION AND THE DISCHARGE OF SEDIMENT OFF-SITE.
- CONCRETE WASH WATER SHALL BE CONTAINED AND DISPOSED OF IN ACCORDANCE WITH THE SWMP. NO WASH WATER SHALL BE DISCHARGED TO OR ALLOWED TO ENTER STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITIES. CONCRETE WASHOUTS SHALL NOT BE LOCATED IN AN AREA WHERE SHALLOW GROUNDWATER MAY BE PRESENT, OR WITHIN 50 FEET OF A SURFACE WATER BODY, CREEK OR STREAM.
- DURING DEWATERING OPERATIONS OF UNCONTAMINATED GROUND WATER MAY BE DISCHARGED ON SITE, BUT SHALL NOT LEAVE THE SITE IN THE FORM OF SURFACE RUNOFF UNLESS AN APPROVED STATE DEWATERING PERMIT IS IN PLACE.
- EROSION CONTROL BLANKETING OR OTHER PROTECTIVE COVERING SHALL BE USED ON SLOPES STEEPER THAN 3:1.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL WASTES FROM THE CONSTRUCTION SITE FOR DISPOSAL IN ACCORDANCE WITH LOCAL AND STATE REGULATORY REQUIREMENTS. NO CONSTRUCTION DEBRIS, TREE SLASH, BUILDING MATERIAL WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURIED, DUMPED, OR DISCHARGED AT THE SITE.
- WASTE MATERIALS SHALL NOT BE TEMPORARILY PLACED OR STORED IN THE STREET, ALLEY, OR OTHER PUBLIC WAY, UNLESS IN ACCORDANCE WITH AN APPROVED TRAFFIC CONTROL PLAN. CONTROL MEASURES MAY BE REQUIRED BY EL PASO COUNTY ENGINEERING IF DEEMED NECESSARY, BASED ON SPECIFIC CONDITIONS AND CIRCUMSTANCES.
- TRACKING OF SOILS AND CONSTRUCTION DEBRIS OFF-SITE SHALL BE MINIMIZED. MATERIALS TRACKED OFF-SITE SHALL BE CLEANED UP AND PROPERLY DISPOSED OF IMMEDIATELY.
- THE OWNER/DEVELOPER SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL CONSTRUCTION DEBRIS, DIRT, TRASH, ROCK, SEDIMENT, SOIL, AND SAND THAT MAY ACCUMULATE IN ROADS, STORM DRAINS AND OTHER DRAINAGE CONVEYANCE SYSTEMS AND STORMWATER APPURTENANCES AS A RESULT OF SITE DEVELOPMENT.
- THE QUANTITY OF MATERIALS STORED ON THE PROJECT SITE SHALL BE LIMITED, AS MUCH AS PRACTICAL, TO THAT QUANTITY REQUIRED TO PERFORM THE WORK IN AN ORDERLY SEQUENCE. ALL MATERIALS STORED ON-SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER, IN THEIR ORIGINAL CONTAINERS, WITH ORIGINAL MANUFACTURER'S LABELS.
- NO CHEMICAL(S) HAVING THE POTENTIAL TO BE RELEASED IN STORMWATER ARE TO BE STORED OR USED ON-SITE UNLESS PERMISSION FOR THE USE OF SUCH CHEMICAL(S) IS GRANTED IN WRITING BY THE ECM ADMINISTRATOR, IN GRANTING APPROVAL FOR THE USE OF SUCH CHEMICAL(S), SPECIAL CONDITIONS AND MONITORING MAY BE REQUIRED.
- BULK STORAGE OF ALLOWED PETROLEUM PRODUCTS OR OTHER ALLOWED LIQUID CHEMICALS IN EXCESS OF 55 GALLONS SHALL REQUIRE ADEQUATE SECONDARY CONTAINMENT PROTECTION TO CONTAIN ALL SPILLS ON-SITE AND TO PREVENT ANY SPILLED MATERIALS FROM ENTERING STATE WATERS, ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR OTHER FACILITIES.
- NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE CURB AND GUTTER OR DITCH EXCEPT WITH APPROVED SEDIMENT CONTROL MEASURES.
- OWNER/DEVELOPER AND THEIR AGENTS SHALL COMPLY WITH THE "COLORADO WATER QUALITY CONTROL ACT" (TITLE 25, ARTICLE 6, CRS), AND THE "CLEAN WATER ACT" (33 USC 1344), IN ADDITION TO THE REQUIREMENTS OF THE LAND DEVELOPMENT CODE, DCM VOLUME II AND THE ECM APPENDIX I. ALL APPROPRIATE PERMITS MUST BE OBTAINED BY THE CONTRACTOR PRIOR TO CONSTRUCTION (1041, NPDES, FLOODPLAIN, 404, FUGITIVE DUST, ETC.), IN THE EVENT OF CONFLICTS BETWEEN THESE REQUIREMENTS AND OTHER LAWS, RULES, OR REGULATIONS OF OTHER FEDERAL, STATE, LOCAL, OR COUNTY AGENCIES, THE MOST RESTRICTIVE LAWS, RULES, OR REGULATIONS SHALL APPLY.
- ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE ONLY AT APPROVED CONSTRUCTION ACCESS POINTS.
- PRIOR TO CONSTRUCTION THE PERMITTEE SHALL VERIFY THE LOCATION OF EXISTING UTILITIES.
- A WATER SOURCE SHALL BE AVAILABLE ON SITE DURING EARTHWORK OPERATIONS AND SHALL BE UTILIZED AS REQUIRED TO MINIMIZE DUST FROM EARTHWORK EQUIPMENT AND WIND.
- THE SOILS REPORT FOR THIS SITE HAS BEEN PREPARED BY ENTECH ENGINEERING INC., DATE MARCH 17, 2022 AND SHALL BE CONSIDERED A PART OF THESE PLANS.
- AT LEAST TEN (10) DAYS PRIOR TO THE ANTICIPATED START OF CONSTRUCTION, FOR PROJECTS THAT WILL DISTURB ONE (1) ACRE OR MORE, THE OWNER OR OPERATOR OF CONSTRUCTION ACTIVITY SHALL SUBMIT A PERMIT APPLICATION FOR STORMWATER DISCHARGE TO THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, WATER QUALITY DIVISION. THE APPLICATION CONTAINS CERTIFICATION OF COMPLETION OF A STORMWATER MANAGEMENT PLAN (SWMP), OF WHICH THIS GRADING AND EROSION CONTROL PLAN MAY BE A PART, FOR INFORMATION OR APPLICATION MATERIALS CONTACT:

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT  
WATER QUALITY CONTROL DIVISION  
WCQCD - PERMITS  
4300 CHERRY CREEK DRIVE SOUTH  
DENVER, CO 80246-1530  
ATTN: PERMITS UN

**STANDARD EL PASO COUNTY CONSTRUCTION PLAN NOTES**

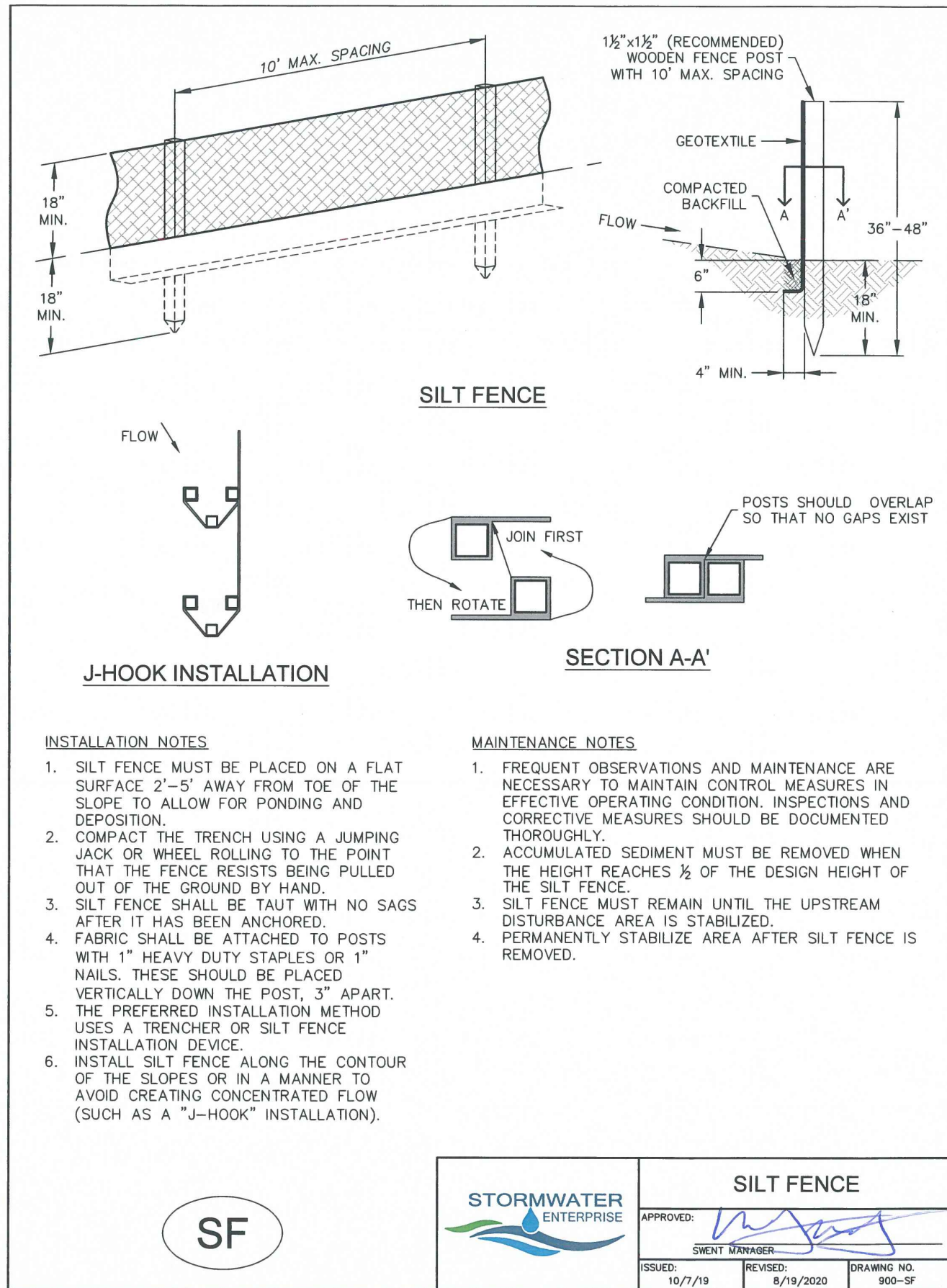
- ALL DRAINAGE AND ROADWAY CONSTRUCTION SHALL MEET THE STANDARDS AND SPECIFICATIONS OF THE CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2, AND THE EL PASO COUNTY ENGINEERING CRITERIA MANUAL.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE NOTIFICATION AND FIELD NOTIFICATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, BEFORE BEGINNING CONSTRUCTION. LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CALL 811 TO CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO (INCC).
- CONTRACTOR SHALL KEEP A COPY OF THESE APPROVED PLANS, THE GRADING AND EROSION CONTROL PLAN, THE STORMWATER MANAGEMENT PLAN (SWMP), THE SOILS AND GEOTECHNICAL REPORT, AND THE APPROPRIATE DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS AT THE JOB SITE AT ALL TIMES, INCLUDING THE FOLLOWING:  
a. EL PASO COUNTY ENGINEERING CRITERIA MANUAL (ECM)  
b. CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2  
c. COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION  
d. CDOT M & S STANDARDS
- NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL, AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING. ANY MODIFICATIONS NECESSARY TO MEET CRITERIA AFTER-THE-FACT WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.
- IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ACCURATELY SHOW EXISTING CONDITIONS, BOTH ONSITE AND OFFSITE, ON THE CONSTRUCTION PLANS. ANY MODIFICATIONS NECESSARY DUE TO CONFLICTS, OMISSIONS, OR CHANGED CONDITIONS WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.
- CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT (PCDD) - INSPECTIONS, PRIOR TO STARTING CONSTRUCTION.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO UNDERSTAND THE REQUIREMENTS OF ALL JURISDICTIONAL AGENCIES AND TO OBTAIN ALL REQUIRED PERMITS, INCLUDING BUT NOT LIMITED TO EL PASO COUNTY EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP), REGIONAL BUILDING FLOODPLAIN DEVELOPMENT PERMIT, U.S. ARMY CORPS OF ENGINEERS-ISSUED 401 AND/OR 404 PERMITS, AND COUNTY AND STATE FUGITIVE DUST PERMITS.
- CONTRACTOR SHALL NOT DEVIATE FROM THE PLANS WITHOUT FIRST OBTAINING WRITTEN APPROVAL FROM THE DESIGN ENGINEER AND PCDD. CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY UPON DISCOVERY OF ANY ERRORS OR INCONSISTENCIES.
- ALL STORM DRAIN PIPE SHALL BE CLASS III RCP UNLESS OTHERWISE NOTED AND APPROVED BY PCDD.
- CONTRACTOR SHALL COORDINATE GEOTECHNICAL TESTING PER ECM STANDARDS. PAVEMENT DESIGN SHALL BE APPROVED BY EL PASO COUNTY PCDD PRIOR TO PLACEMENT OF CURB AND GUTTER AND PAVEMENT.
- ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE AT APPROVED CONSTRUCTION ACCESS POINTS.
- SIGHT VISIBILITY TRIANGLES AS IDENTIFIED IN THE PLANS SHALL BE PROVIDED AT ALL INTERSECTIONS. OBSTRUCTIONS GREATER THAN 18 INCHES ABOVE FLOWLINE ARE NOT ALLOWED WITHIN SIGHT TRIANGLES.
- SIGNING AND STRIPING SHALL COMPLY WITH EL PASO COUNTY DOT AND MUTCD CRITERIA. [IF APPLICABLE, ADDITIONAL SIGNING AND STRIPING NOTES WILL BE PROVIDED.]
- CONTRACTOR SHALL OBTAIN ANY PERMITS REQUIRED BY EL PASO COUNTY DPW, INCLUDING WORK WITHIN THE RIGHT-OF-WAY AND SPECIAL TRANSPORT PERMITS.
- THE LIMITS OF CONSTRUCTION SHALL REMAIN WITHIN THE RIGHT OF WAY UNLESS OTHERWISE NOTED. THE OWNER/DEVELOPER SHALL OBTAIN WRITTEN PERMISSION AND EASEMENTS, WHERE REQUIRED, FROM ADJOINING PROPERTY OWNER(S) PRIOR TO ANY OFF-SITE DISTURBANCE, GRADING, OR CONSTRUCTION.

**GENERAL NOTES**

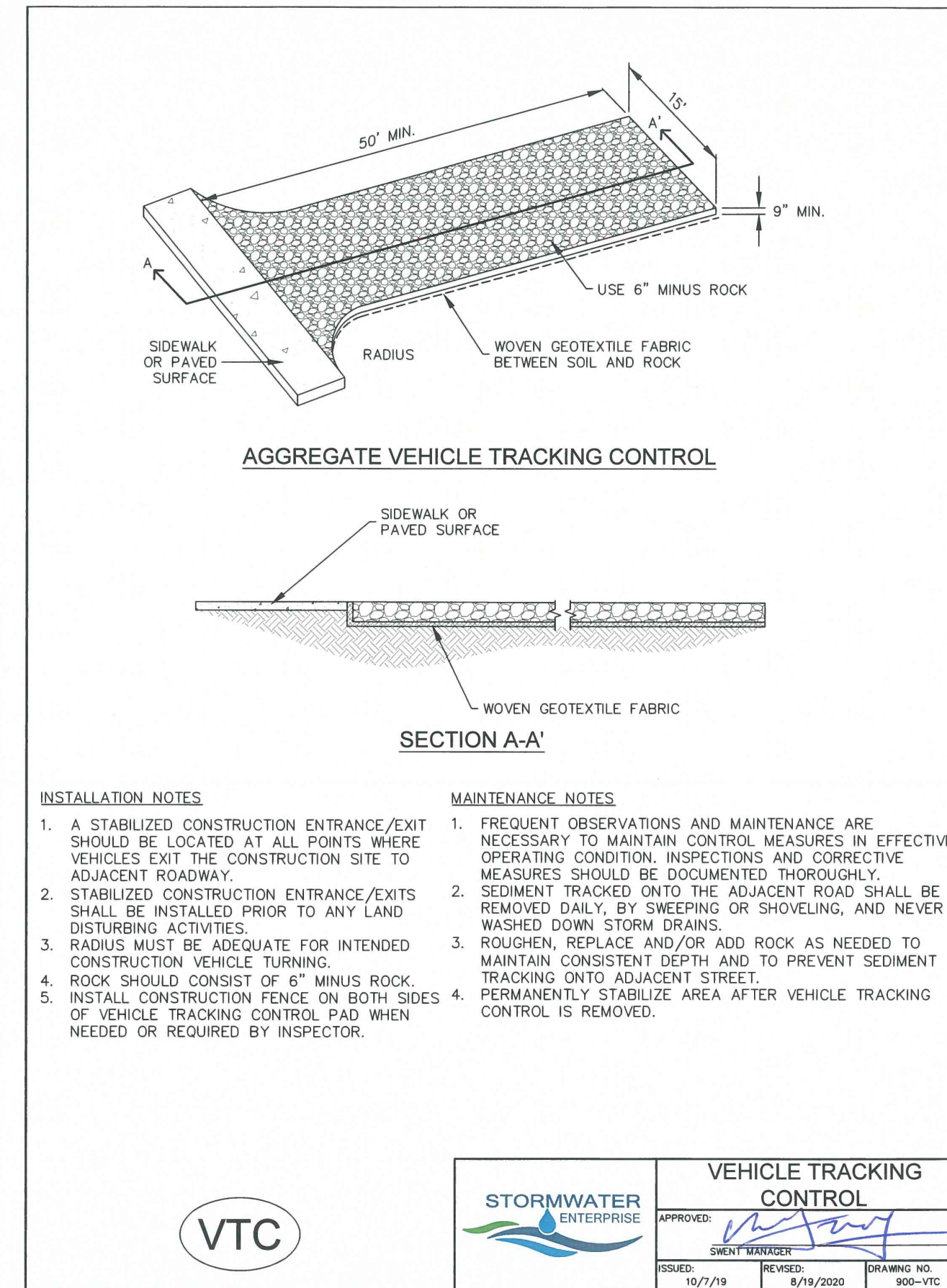
- ALL NEW CONSTRUCTION IS TO CONFORM TO THE SPECIFICATIONS OF EL PASO COUNTY.
- UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN DRAWN FROM AVAILABLE RECORDS AND/OR SURFACE EVIDENCE. THE LOCATION OF ALL UTILITIES MAY NOT BE SHOWN OR MAY NOT HAVE BEEN LOCATED. BELOW GROUND LOCATIONS HAVE NOT BEEN PERFORMED. THEREFORE, THE RELATIONSHIP BETWEEN PROPOSED WORK AND EXISTING FACILITIES, STRUCTURES AND UTILITIES MUST BE CONSIDERED APPROXIMATE. CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL SUBSURFACE UTILITY OWNERS PRIOR TO BEGINNING WORK TO DETERMINE LOCATION OF UTILITY FACILITIES. ALL UTILITIES SHALL BE LOCATED PRIOR TO ANY EARTH WORK OR DIGGING (1-800-922-1987). THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MAY BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UTILITIES.
- EXISTING CONDITIONS SHALL BE VERIFIED BY THE GENERAL CONTRACTOR. DISCREPANCIES ARE TO BE REPORTED TO THE ENGINEER PRIOR TO CONSTRUCTION.
- SOIL PREPARATION, SEEDING, AND MULCHING FOR AN ESTIMATED 3.3 ACRES WILL BE REQUIRED ON ALL DISTURBED AREAS NOT SURFACED. THE FOLLOWING TYPES AND RATES SHALL BE USED:

GRASS	VARIETY	AMOUNT IN PLS lbs. PER ACRE
SIDEOLATS GRAMA	EL RENO	3.0 lbs.
WESTERN WHEATGRASS	BARTON	2.5 lbs.
SLENDER WHEAT GRASS	NATIVE	2.0 lbs.
LITTLE BLUESTEM	PASTURA	2.0 lbs.
SAND DROPSPEED	NATIVE	0.5 lbs.
SWITCH GRASS	NEBRASKA 28	3.0 lbs.
WEEPING LOVE GRASS	MORPHA	1.0 lbs.
	TOTAL	14.0 lbs.

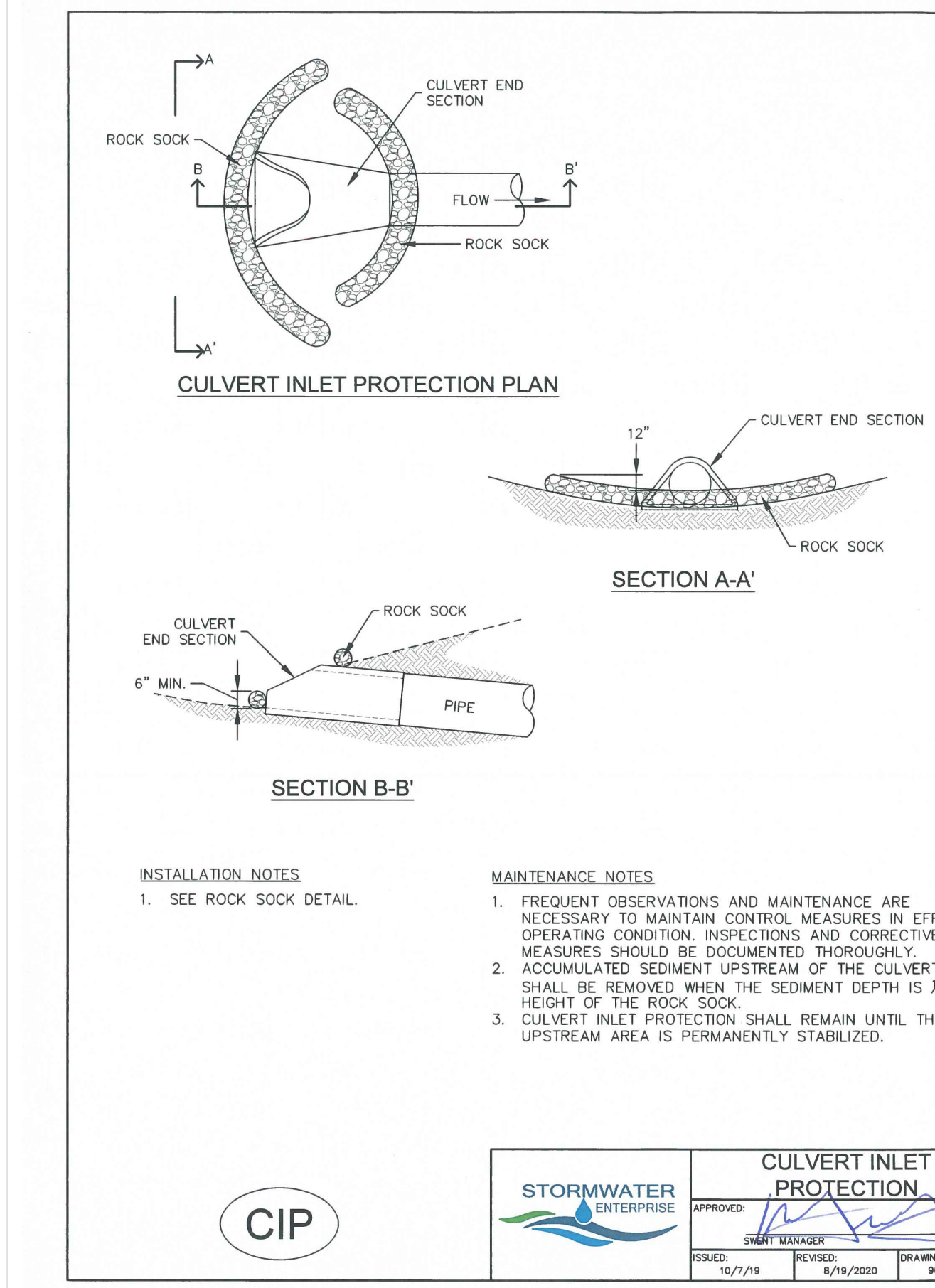
- NO BATCH PLANTS WILL BE UTILIZED ONSITE.
- CONTRACTOR WILL BE RESPONSIBLE FOR SCHEDULING A PRE-CONSTRUCTION MEETING HELD PRIOR TO CONSTRUCTION WITH EPC-PCDD, ENGINEER, AND CONTRACTOR IN ATTENDANCE.
- CONTRACTOR IS RESPONSIBLE FOR ALL OF HIS OPERATIONS ON THE SITE. CONTRACTOR SHALL OBSERVE ALL SAFETY AND OSHA REGULATIONS DURING CONSTRUCTION OPERATIONS. TRENCH WIDTHS AND SLOPE ANGLES SHALL BE DETERMINED BY THE CONTRACTOR IN THE FIELD AND ACCORDING TO SAFETY AND OSHA REGULATIONS.
- ALL NECESSARY PERMITS, SUCH AS SWMP, FUGITIVE DUST, ACCESS, C.O.E. 404, ESQCP PERMIT, ETC. SHALL BE OBTAINED PRIOR TO CONSTRUCTION.
- THERE IS NO NOTABLE VEGETATION ON-SITE. GROUND COVER IS FAR TO GOOD WITH NATIVE GRASSES/WEEDS.



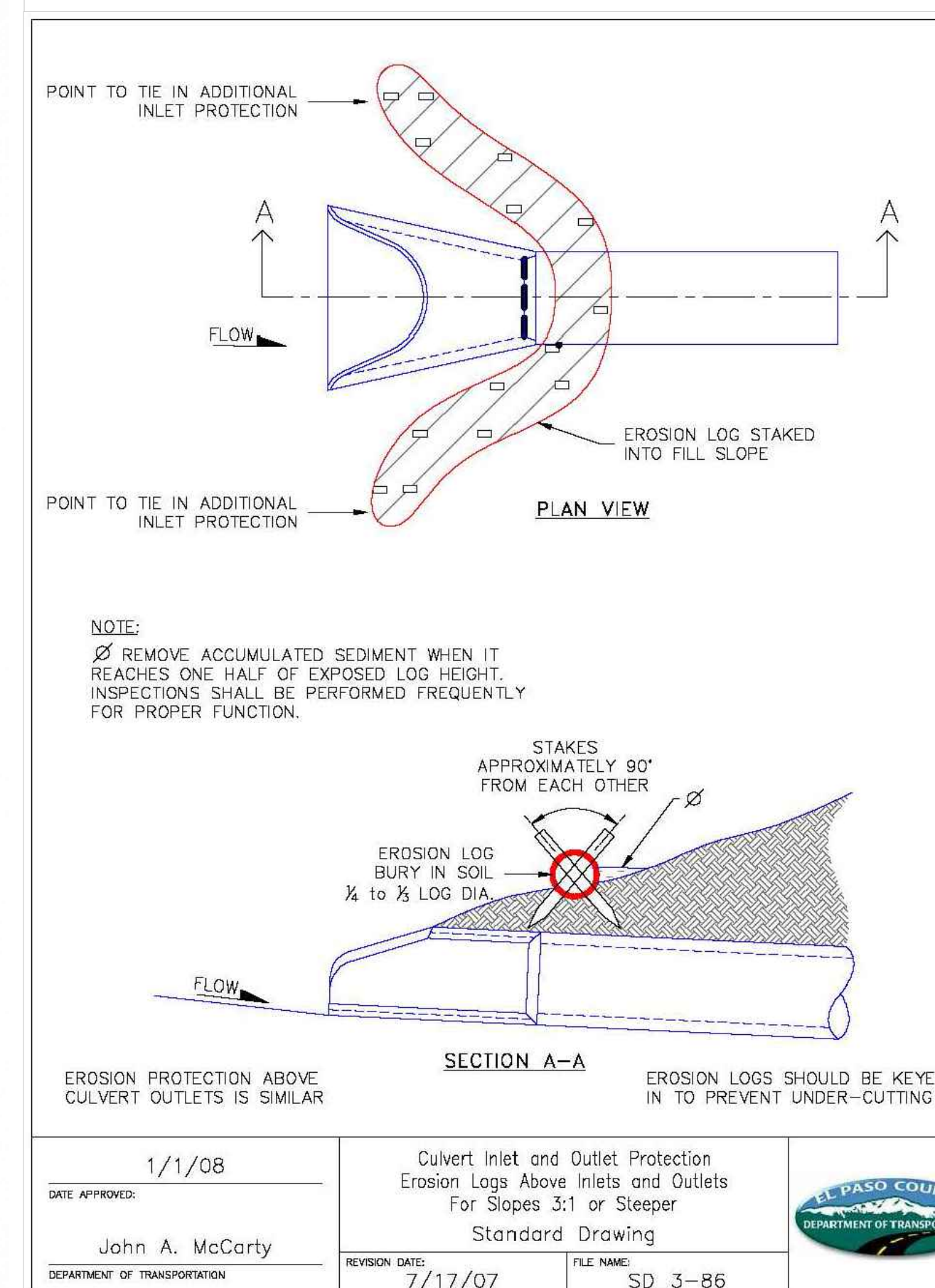
STORMWATER ENTERPRISE		SILT FENCE	
ISSUED: 10/7/19	REVISED: 8/19/2020	DRAWING NO: 900-SF	



STORMWATER ENTERPRISE		VEHICLE TRACKING CONTROL	
ISSUED: 10/7/19	REVISED: 8/19/2020	DRAWING NO: 900-VTC	



STORMWATER ENTERPRISE		CULVERT INLET PROTECTION	
ISSUED: 10/7/19	REVISED: 8/19/2020	DRAWING NO: 900-CIP	



STORMWATER ENTERPRISE		EROSION PROTECTION ABOVE CULVERT OUTLETS	
ISSUED: 10/7/19	REVISED: 8/19/2020	DRAWING NO: 900-EPC	

CALL BEFORE YOU DIG ...  
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DIAL 811  
48 HOURS BEFORE CALLING. CALL UTILITY LOCATORS FOR LOCATING AND MARKING GAS, ELECTRIC, WATER AND FIBER OPTIC.

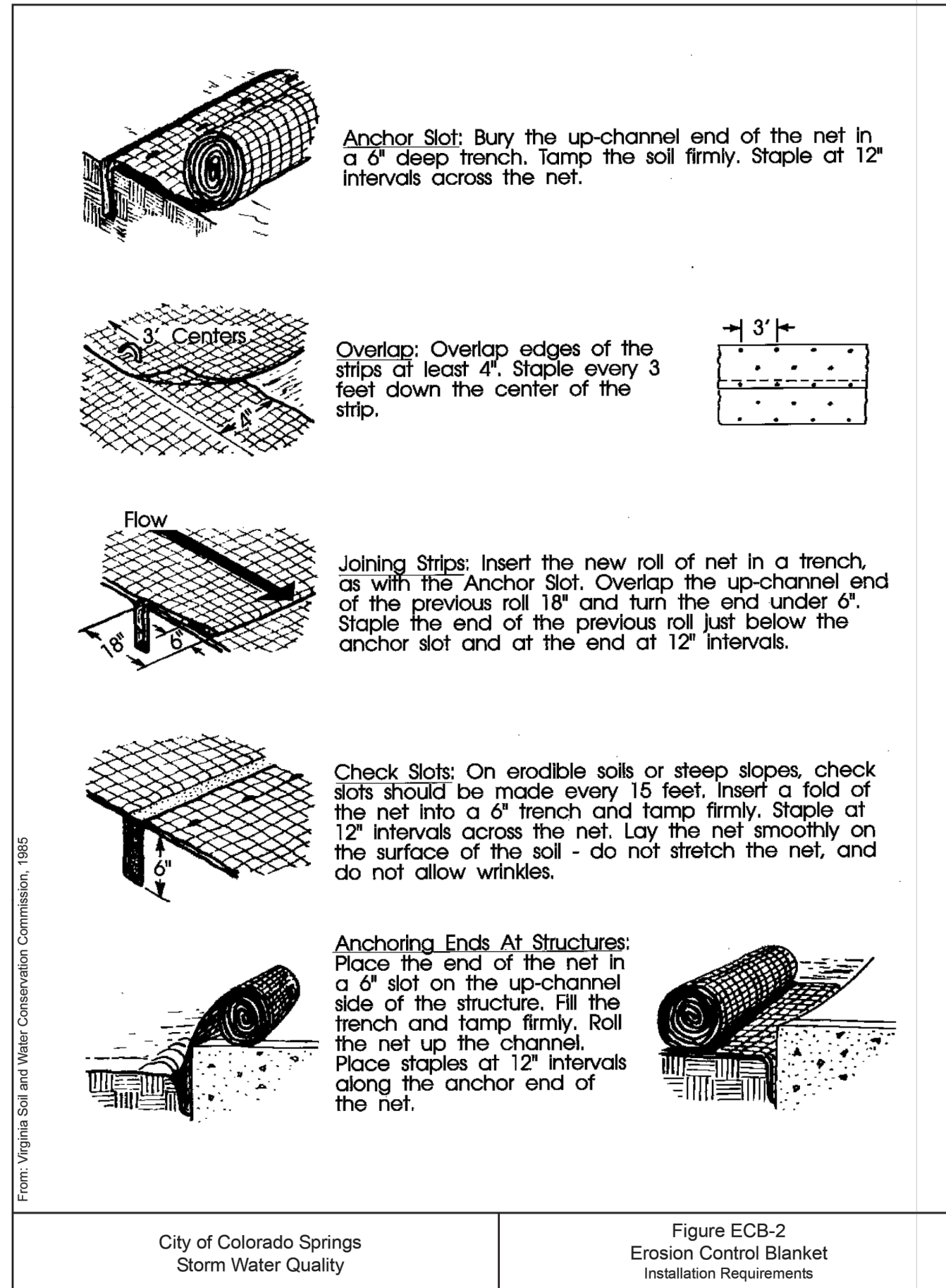
No.	Revisions	By	Date
	Description		

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V Scale: VARIES  
Designed By: KCH  
Drawn By: MVE, INC.  
Checked By: KCH  
Date: 06/03/2023



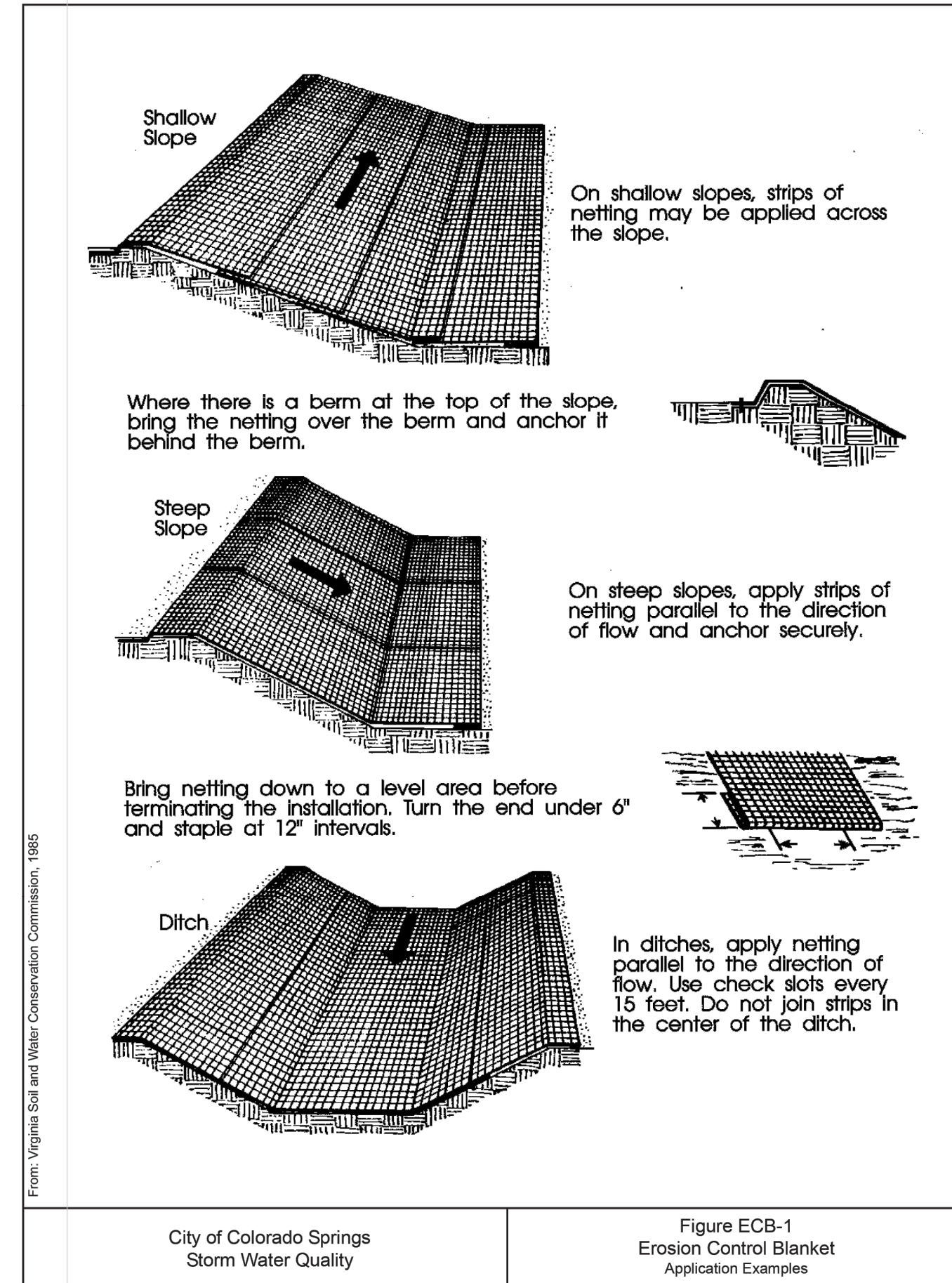
**FOREST HEIGHTS CIRCLE GRADING & EROSION CONTROL PLAN**  
GENERAL NOTES AND EROSION CONTROL DETAILS

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Sheet: 2 of 4



City of Colorado Springs Storm Water Quality  
Figure ECB-2 Erosion Control Blanket Installation Requirements

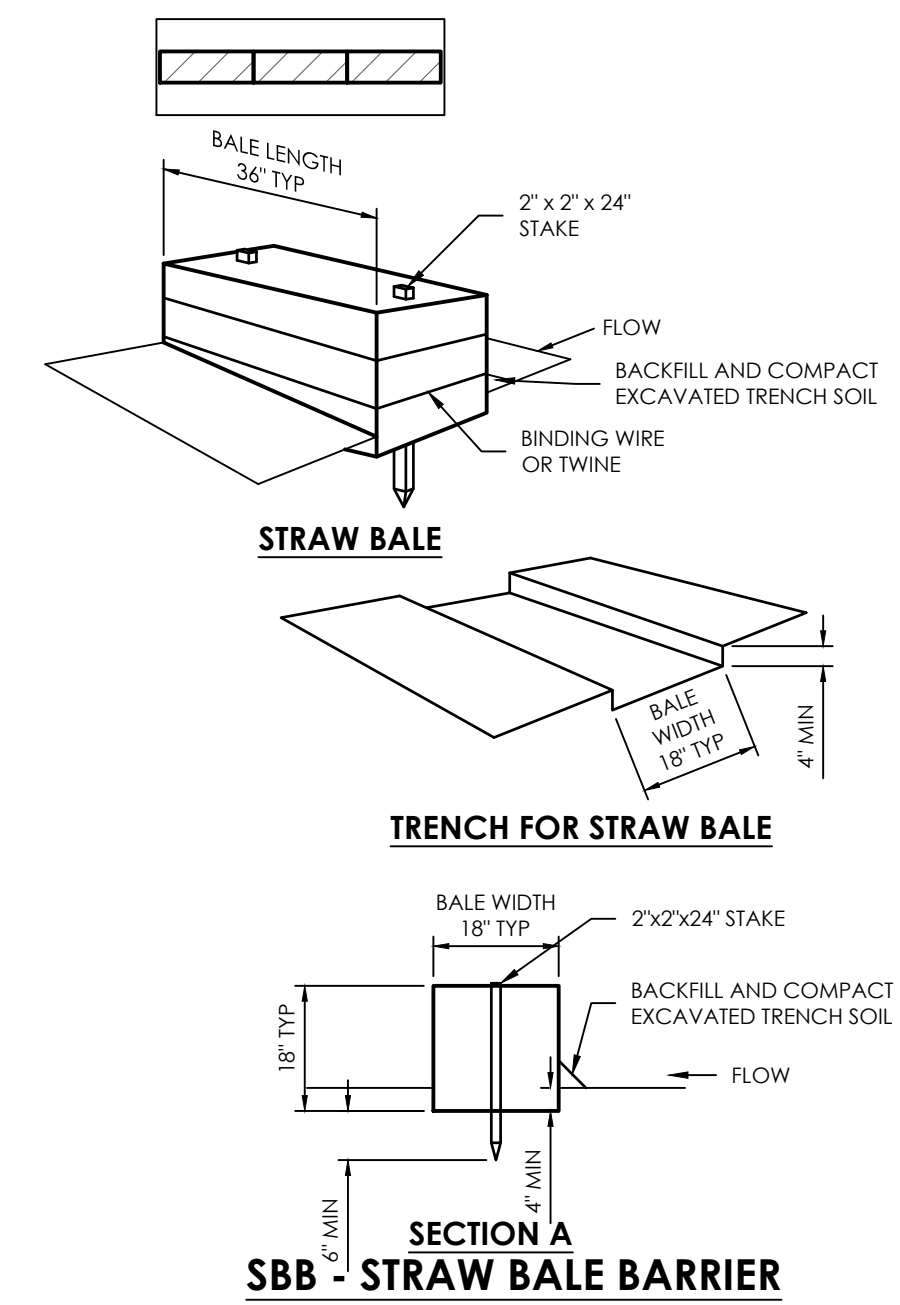
DEM/153722 CS CBF#ECB-2B-99 3-23



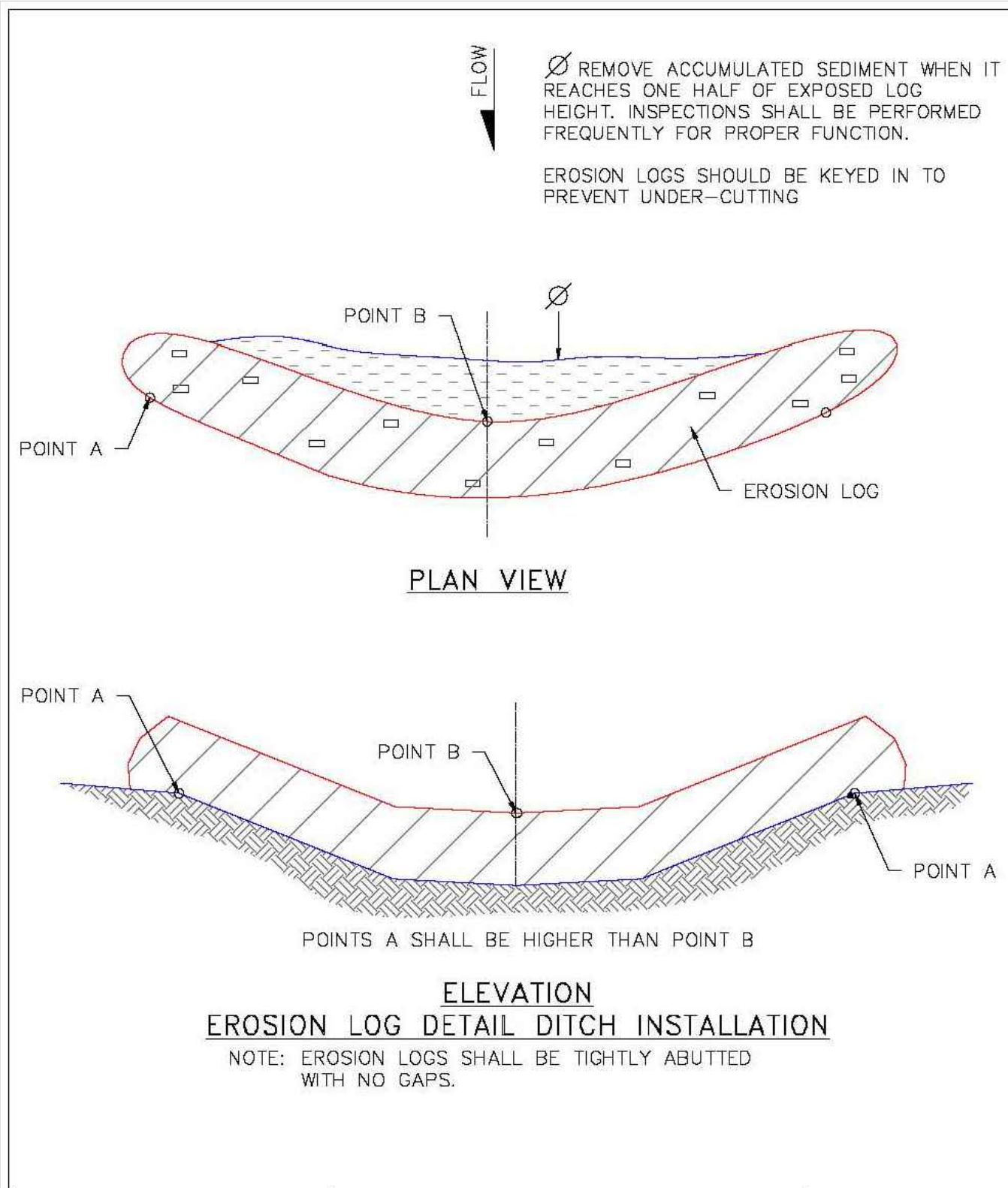
City of Colorado Springs Storm Water Quality  
Figure ECB-1 Erosion Control Blanket Application Examples

DEM/153722 CS CBF#ECB-1B-99 3-22

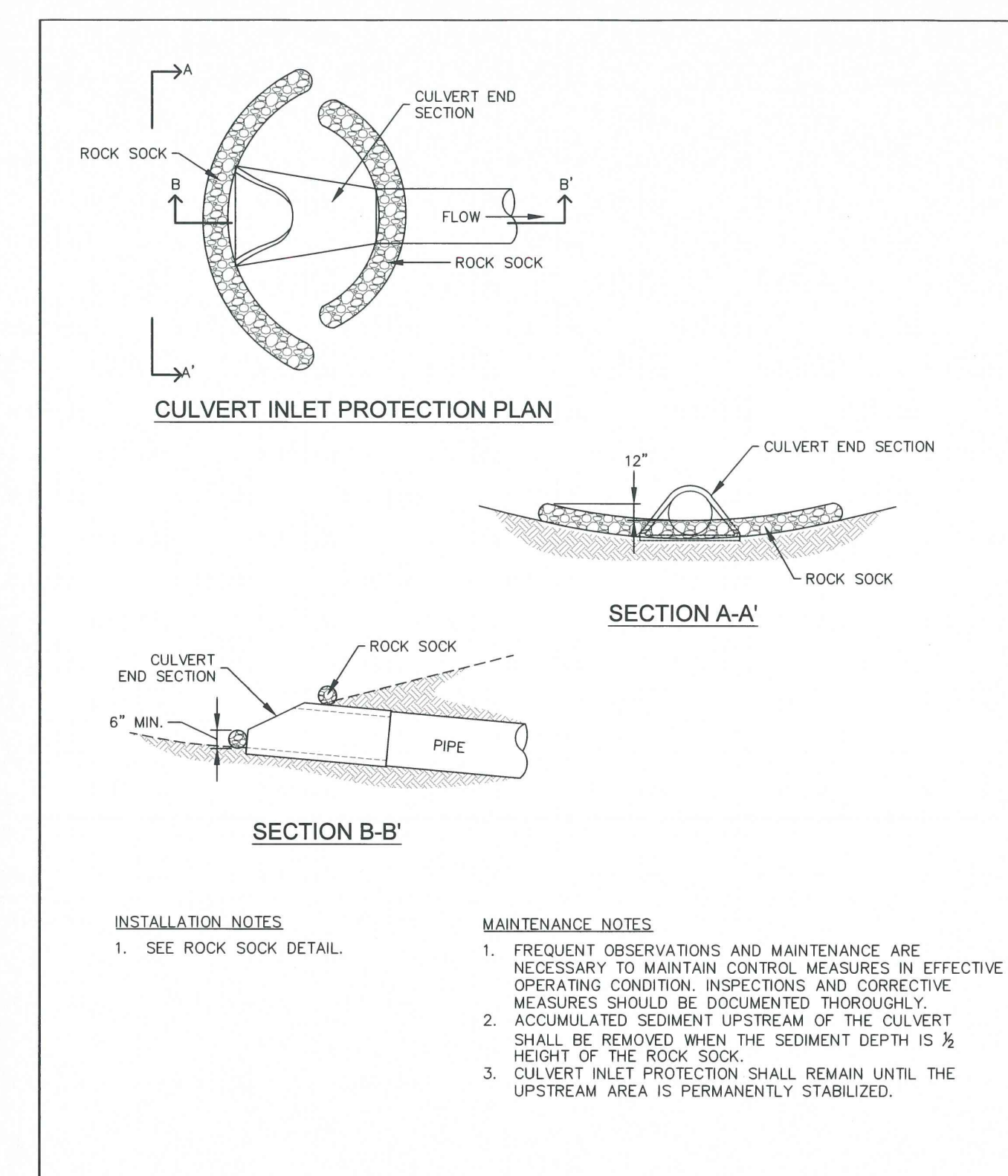
**ECB EROSION CONTROL BLANKET INSTALLATION**  
NOT TO SCALE



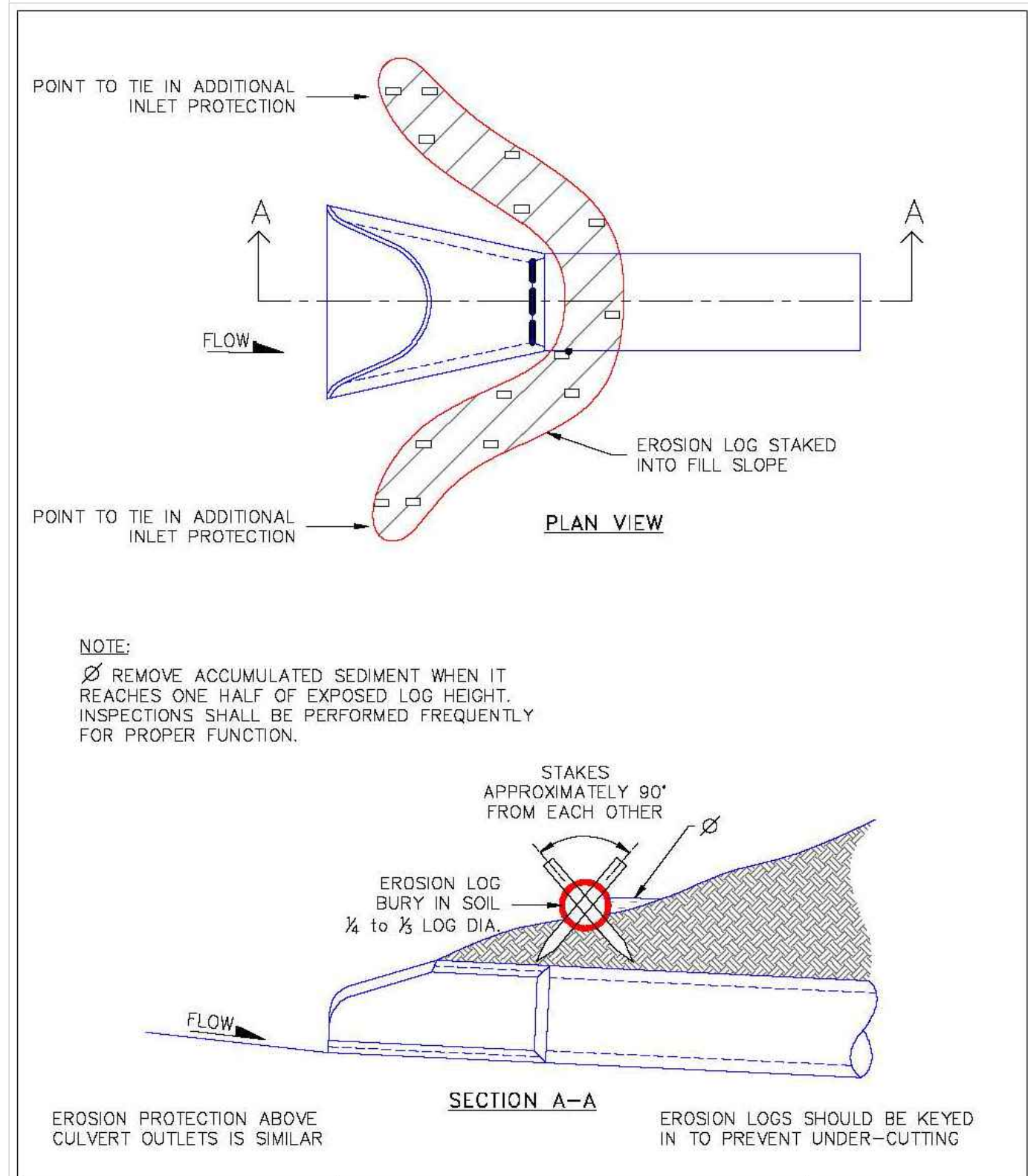
- STRAW BALE INSTALLATION NOTES:**
- SEE PLAN VIEW FOR:
    - LOCATIONS OF STRAW BALES.
  - STRAW BALES SHALL CONSIST OF CERTIFIED WEED FREE STRAW OR HAY. LOCAL JURISDICTIONS MAY REQUIRE PROOF THAT BALES ARE WEED FREE.
  - STRAW BALES SHALL CONSIST OF APPROXIMATELY 5 CUBIC FEET OF STRAW OR HAY AND WEIGH NOT LESS THAN 55 POUNDS.
  - WHEN STRAW BALES ARE USED IN SERIES AS A BARRIER, THE END OF EACH BALE SHALL BE TIGHTLY ABUTTING ONE ANOTHER.
  - STRAW BALE DIMENSIONS SHALL BE APPROXIMATELY 36"x18"x18".
  - A UNIFORM ANCHOR TRENCH SHALL BE EXCAVATED TO A DEPTH OF 4". STRAW BALES SHALL BE PLACED SO THAT BINDING TWINE IS ENCOMPASSING THE VERTICAL SIDES OF THE BALE(S). ALL EXCAVATED SOIL SHALL BE PLACED ON THE UPHILL SIDE OF THE STRAW BALE(S) AND COMPACTED.
  - TWO (2) WOODEN STAKES SHALL BE USED TO HOLD EACH BALE IN PLACE. WOODEN STAKES SHALL BE 2"x2"x24". WOODEN STAKES SHALL BE DRIVEN 6" INTO THE GROUND.
- STRAW BALE 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.
  - STRAW BALES SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED, ROTTEN, OR DAMAGED BEYOND REPAIR.
  - SEDIMENT ACCUMULATED UPSTREAM OF STRAW BALE BARRIER SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP. TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 1/2 OF THE HEIGHT OF THE STRAW BALE BARRIER.
  - STRAW BALES ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
  - WHEN STRAW BALES ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.



1/1/08  
DATE APPROVED: John A. McCarty  
DEPARTMENT OF TRANSPORTATION  
Erosion Log Check Dams  
Standard Drawing  
REVISION DATE: 7/17/07  
FILE NAME: SD\_3-85  
EL PASO COUNTY DEPARTMENT OF TRANSPORTATION



CIP  
STORMWATER ENTERPRISE  
CULVERT INLET PROTECTION  
APPROVED: [Signature]  
DESIGNED BY: [Signature]  
CHECKED BY: [Signature]  
DATE: 10/7/19  
REVISION: 8/13/2020  
DRAWING NO. 900-0P



1/1/08  
DATE APPROVED: John A. McCarty  
DEPARTMENT OF TRANSPORTATION  
Culvert Inlet and Outlet Protection  
Erosion Logs Above Inlets and Outlets  
For Slopes 3:1 or Steeper  
Standard Drawing  
REVISION DATE: 7/17/07  
FILE NAME: SD\_3-86  
EL PASO COUNTY DEPARTMENT OF TRANSPORTATION

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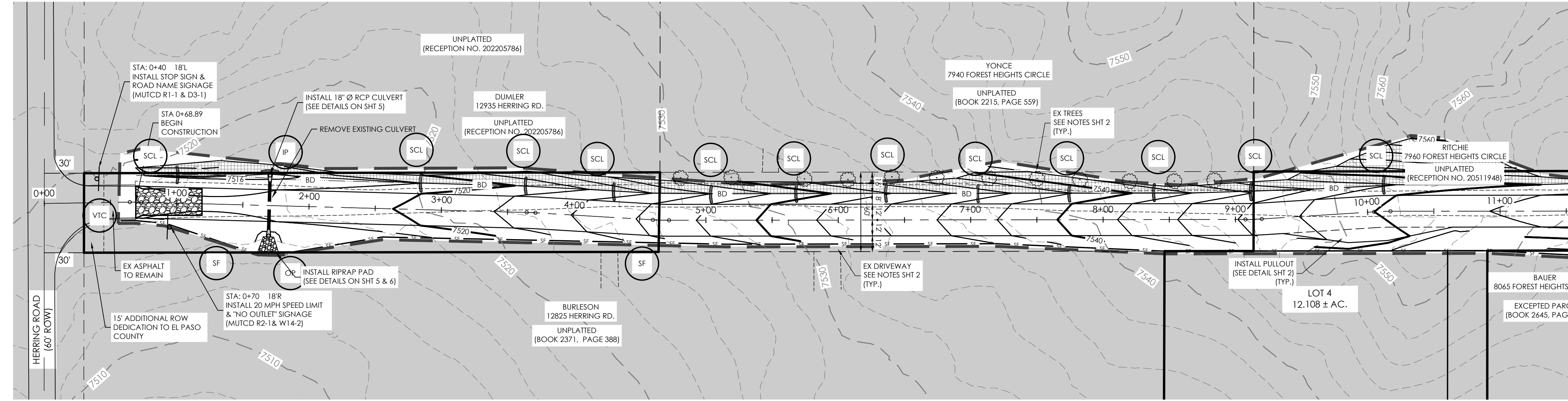
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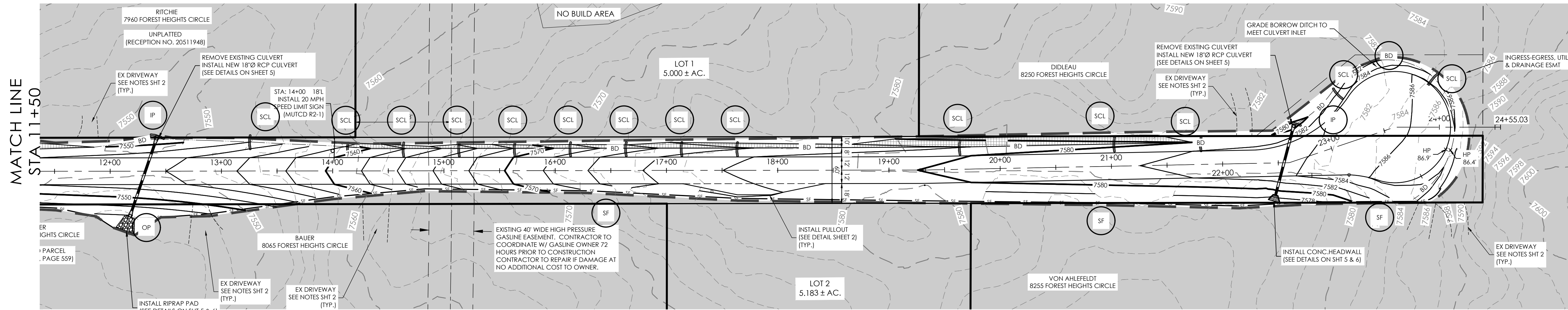
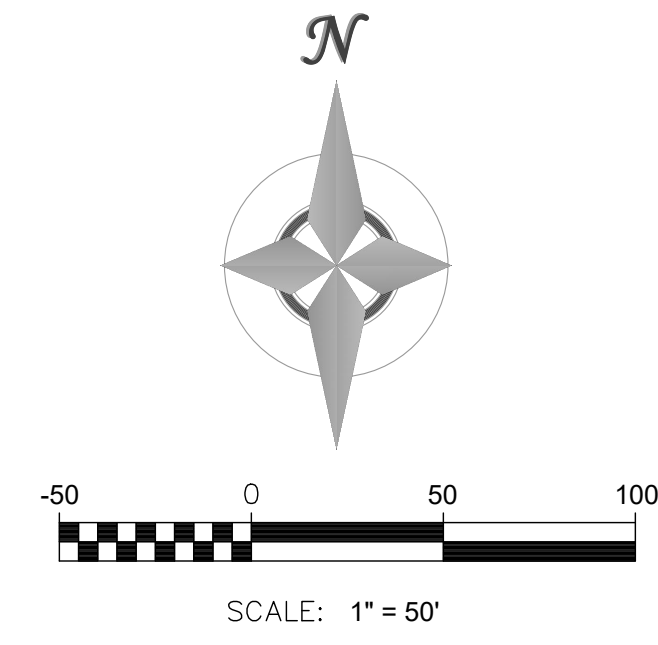
FOREST HEIGHTS CIRCLE  
GRADING & EROSION CONTROL PLAN  
EROSION CONTROL DETAILS

Project No.: 18070  
Sheet: 3 of 4





MATCH LINE  
STA 11+50



MATCH LINE  
STA 11+50

**LEGEND:**

- |                |    |    |   |
|----------------|----|----|---|
| <b>INITIAL</b> |    |    |   |
| SF             | SF | SF | - SILT FENCE - INSTALL AT BASE OF FILL IN THE DISTURBED AREAS. NOT TO BE INSTALLED ALONG BORROW DITCH                           |
| VTC            |    |    | - VEHICLE TRACKING CONTROL - INSTALL AT ENTRANCE/EXIT OF CONSTRUCTION AREA  |
| <b>INTERIM</b> |    |    |   |
| EB             |    |    | - EROSION CONTROL BLANKET - TO BE INSTALLED ON SLOPES GREATER THAN 4 TO 1. (APPROX. LOCATION ONLY)                              |
| CD             |    |    | - HAY BALE CHECK DAM - TO BE INSTALLED AFTER THE SEDIMENT CONTROL LOGS HAVE BEEN INSTALLED.                                     |
| SCL            |    |    | - SEDIMENT CONTROL LOGS - INSTALLED IN THE BORROW DITCHES ONLY. (APPROX. LOCATION ONLY)   |
| IP             |    |    | - CULVERT INTAKE PROTECTION   |
| OP             |    |    | - RIP RAP OUTFALL PROTECTION - LIMITS TO BE FINALIZED DURING CONSTRUCTION. CONTRACTOR TO MINIMIZE DISTURBANCE OF WETLAND AREAS. |
| BD             |    |    | - BORROW DITCH - TO BE VERIFIED IN THE FIELD (APPROX. LOCATION ONLY)  |
|                |    |    | - DIRECTION OF FLOW   |
|                |    |    | - WETLANDS AREA (APPROX. LOCATION ONLY)   |
|                |    |    | - 7550 - EXISTING CONTOURS  |
|                |    |    | - 7550 - PROPOSED CONTOURS  |
|                |    |    | UNDISTURBED AREA / LIMITS OF DISTURBANCE / DISTURBED AREA / LIMITS OF CONSTRUCTION / DISTURBANCE                                |

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REVISIONS	Description	By	Date
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**FOREST HEIGHTS CIRCLE  
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EROSION CONTROL

Project No.: 18070  
Sheet: 4 of 4