

DRAINAGE LETTER

for
7315 COLE VIEW

7315 Cole View
El Paso County, Colorado

October 2023

PCD File No:

PPR2344



Prepared for:

Black Diamond Cable
7315 Cole View
Colorado Springs, CO 80915
Contact: Ryan Foster
(719) 306-4478

Prepared by:

Drexel, Barrell & Co.
101 S. Sahwatch St. #100
Colorado Springs, CO 80903
Contact: Tim McConnell, P.E.
(719) 260-0887

TABLE OF CONTENTS

1.0#	CERTIFICATION STATEMENTS	1#
2.0#	PURPOSE	1#
3.0#	GENERAL SITE DESCRIPTION	1#
4.0#	DRAINAGE CRITERIA.....	1#
5.0#	EXISTING CONDITION.....	2#
6.0#	DEVELOPED CONDITION	2#
7.0#	FOUR STEP PROCESS	2#
8.0#	DRAINAGE & BRIDGE FEES	3#
9.0#	SUMMARY.....	3#
10.0#	REFERENCES	3#

APPENDICES

VICINITY MAP
SOILS MAP
FLOODPLAIN MAP
HYDROLOGY CALCULATIONS
GEC PLAN

1.0 CERTIFICATION STATEMENTS

Engineer's Statement

The attached drainage plan and report were prepared under my direction and supervision and are correct to the best of my knowledge and belief. Said drainage report has been prepared according to the criteria established by the city/county for drainage reports and said report is in conformity with the master plan of the drainage basin. I accept responsibility for any liability caused by any negligent acts, errors or omissions on my part in preparing this report.

SIGNATURE (Affix Seal): _____
For and on behalf of Drexel, Barrell & Co. Date
Tim D. McConnell, P.E. #33797

Developer's Statement

I, the owner/developer have read and will comply with all of the requirements specified in this drainage report and plan.

Authorized Signature Date
Black Diamond Cable
7315 Cole View
Colorado Springs, CO 80915

El Paso County

Filed in accordance with the requirements of the Drainage Criteria Manual, Volumes 1 and 2, El Paso County Engineering Criteria Manual and Land Development Code as amended.

Jennifer Irvine, P.E. Date
County Engineer / ECM Administrator

Conditions:

Revise to Joshua
Palmer, PE

2.0 PURPOSE

This report is prepared by Drexel, Barrell & Co in support of 7315 Cole View. The purpose of this letter is to identify onsite and offsite drainage patterns, storm sewer, inlet locations, and areas tributary to the site, and to safely route developed storm water runoff to adequate outfall facilities.

3.0 GENERAL SITE DESCRIPTION

Location

7315 Cole View is located in Colorado Springs, El Paso County, Colorado, within the northeast quarter of Section 8, Township 14 South, Range 65 West of the 6th P.M. The property is bounded by Sand Creek to the west, a commercial lot to the north, a vacant commercial lot to the east and a residential neighborhood to the south.

Proposed Development

The proposed development will continue to be used as a Commercial property. The existing modular building is to be replaced with a new permanent 10,000 sf building and parking lot. The property is 1.83 acres, the area to be disturbed is 0.68 acres

Soils

According to the Soil Survey of El Paso County Area, Colorado, prepared by the U.S. Department of Agriculture Soil Conservation Service, the site is underlain by Ellicott loamy coarse sand (Soil No. 28), a hydrologic type A soil. See appendix for Soils map.

Climate

This area of El Paso County can be described as the foothills, with total precipitation amounts typical of a semi-arid region. Winters are generally cold and dry, and summers relatively warm and dry. Precipitation ranges from 12 to 14 inches per year, with the majority of this moisture occurring in the spring and summer in the form of rainfall. Thunderstorms are common during the summer months.

Floodplain Statement

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Panel 08041CO752G (December 7, 2018), the site does not lie within a designated 100-year floodplain. The site is in Zone X, an area of minimal flood hazard. See Grading & Erosion Control Plan for the approximate location of the 100-yr floodplain to the west of the site. See Appendix for FIRMette map.

4.0 DRAINAGE CRITERIA

The drainage analysis has been prepared in accordance with the current El Paso County

Drainage Criteria Manual. Calculations were performed to determine the proposed percent imperviousness of the site in order to compare with the previous drainage report using the Rational Method as required for basins containing less than 100 acres.

5.0 EXISTING CONDITION

The existing site contains a modular building and utilities. The rest of the site is undeveloped and is used as a storage yard. The site generally follows a 1%-35% grade from northeast to southwest. The flows leave the site to the west and into Sand Creek. In the report, "Final Drainage Report for Claremont Business Park Filing No. 2", by Matrix Design Group, Inc., November 2006, Rational Method calculations were completed using runoff coefficients found in the DCM for "Commercial Areas", which is $c=0.8$ for the 5-yr and $c=0.9$ for the 100-yr. The percent imperviousness for Commercial Areas is 95%.

6.0 DEVELOPED CONDITION

The current conditions are not historic conditions. There was development in 2018 and I could not find a Site Development Plan that accounted for the development. The existing conditions should reflect the conditions prior to development to account for the increase in imperviousness.

The proposed development consists of a 10,000 sf building and associated parking and landscaping. The proposed grading will route flows to the southwest where they will enter Sand Creek. Rational Method calculations were done for the site using the specific areas of Gravel, Asphalt/Sidewalk, and Roof. The runoff coefficients calculated were $c=0.67$ for the 5-yr and $c=0.77$ for the 100-yr. The calculated percent imperviousness for the site is 85.3%. This is a decrease from the original design of the business park in the previous report, therefore the flows leaving the site into Sand Creek will be less than originally designed and there will be no adverse impacts downstream.

7.0 FOUR STEP PROCESS

This project conforms to the El Paso County Four Step Process. The process for this site focuses on reducing runoff volumes, treating the water quality capture volume (WQCV), stabilizing drainage ways, and implementing long-term source controls.

1. **Employ Runoff Reduction Practices:** Proposed impervious areas on this site (roofs, asphalt/sidewalk) will sheet flow across landscaped area and natural grasses in an effort to slow runoff and increase time of concentration prior to entering Sand Creek. The flows will not be concentrated at any one point, but will be spread out along the entire west property boundary. This will minimize directly connected impervious areas within the project site.
2. **Implement BMP's that provide a Water Quality Capture Volume with slow release:** Runoff from this project will be spread across landscaped areas and native grasses prior to entering Sand Creek.
3. **Stabilize Drainage Ways:** Sand Creek will not require any stabilization to occur due to the runoff from this site. The creek is in acceptable condition and is able to convey the developed flow without impact to downstream facilities.

Per Resolution No. 16-426 all lots within Claremont Business Park require a permanent stormwater BMP. See further information on the appendix title sheet.

4. **Implement Site Specific and Other Source Control BMP's:** Standard commercial source control will be utilized in order to minimize potential pollutants entering the creek. Example source control measures consist of: indoor storage of household chemicals; and trash receptacles in common areas.

8.0 DRAINAGE & BRIDGE FEES

Drainage and bridge fees are not required as the site has been previously platted.

9.0 SUMMARY

Development of 7315 Cole View will not adversely affect surrounding or downstream developments. The runoff coefficients, percent imperviousness, and therefore the flow rates have decreased from the original design in "Final Drainage Report for Claremont Business Park Filing No. 2", by Matrix Design Group, Inc., November 2006" to this proposed development.

Per ECM 3.2.4 provide an analysis of the outfall. Discuss the outfall location and determine if any mitigation is required for the increase in flows that will occur with development compared to historic conditions.

10.0 REFERENCES

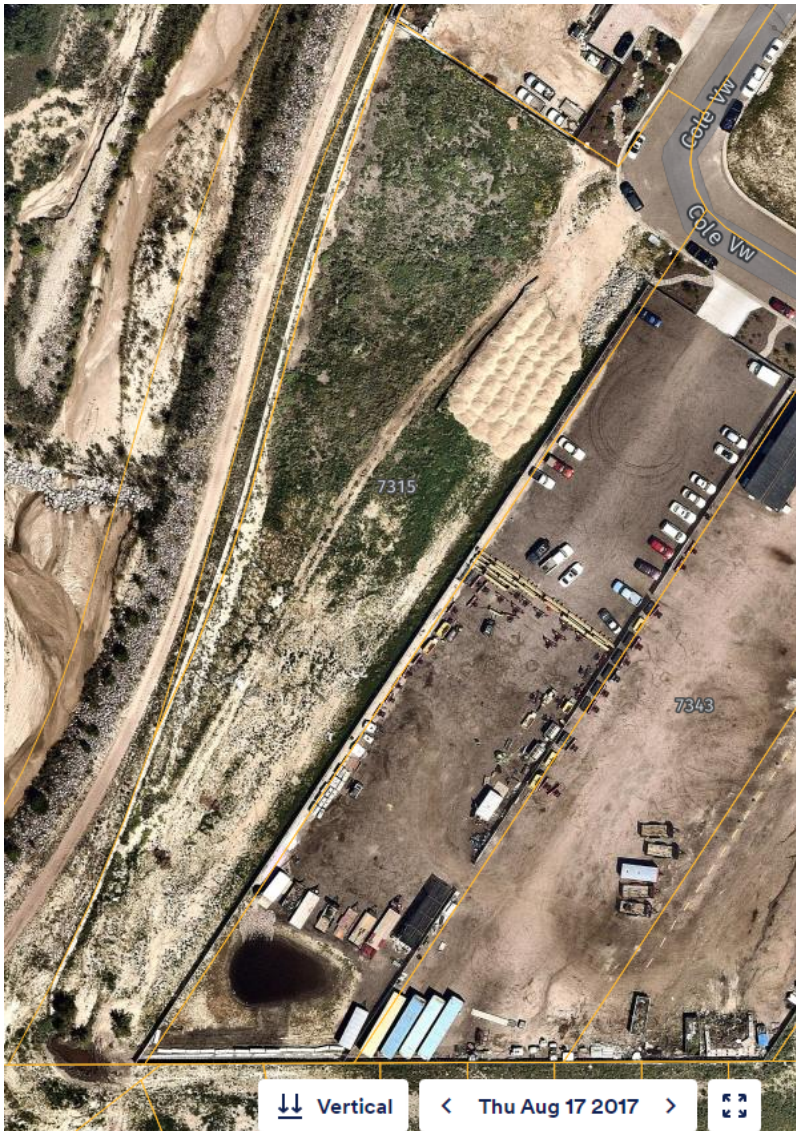
The sources of information used in the development of this study are listed below:

1. El Paso County Drainage Criteria Manual, 10-31-2018.
2. "Final Drainage Report for Claremont Business Park Filing No. 2", by Matrix Design Group, Inc., November 2006.
3. Natural Resources Conservation Service (NRCS) Web Soil Survey
4. Federal Emergency Management Agency, Flood Insurance Rate Map, El Paso County, Colorado and Unincorporated Areas, Map Number 08041C0752G, Effective Date December 7, 2018

The required PBMP for the site per the resolution won't just need to account for the newly proposed building, but the PBMP must also account for the development in 2018. Based on aerial photos the site was undeveloped and vegetated in 2017, but in 2018 there is added gravel parking lot which was not previously accounted for. I could not find a Site Development Plan associated with that work in 2018 and as such all that disturbance and development on the entire lot needs to be accounted for with a permanent BMP and discussed in the text.

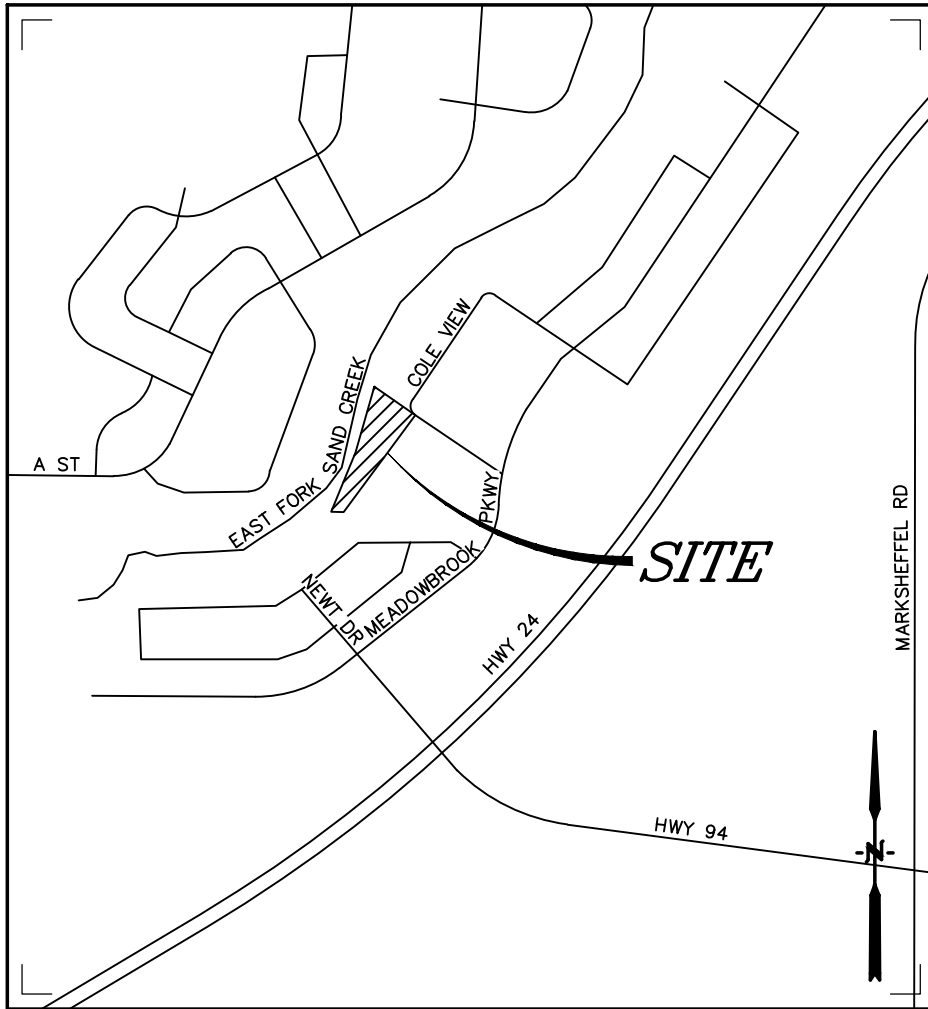
APPENDIX

2017 Aerial the entire site is undeveloped

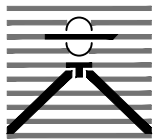


2018 Aerial the entire site is disturbed/developed





Vicinity Map
Not to scale



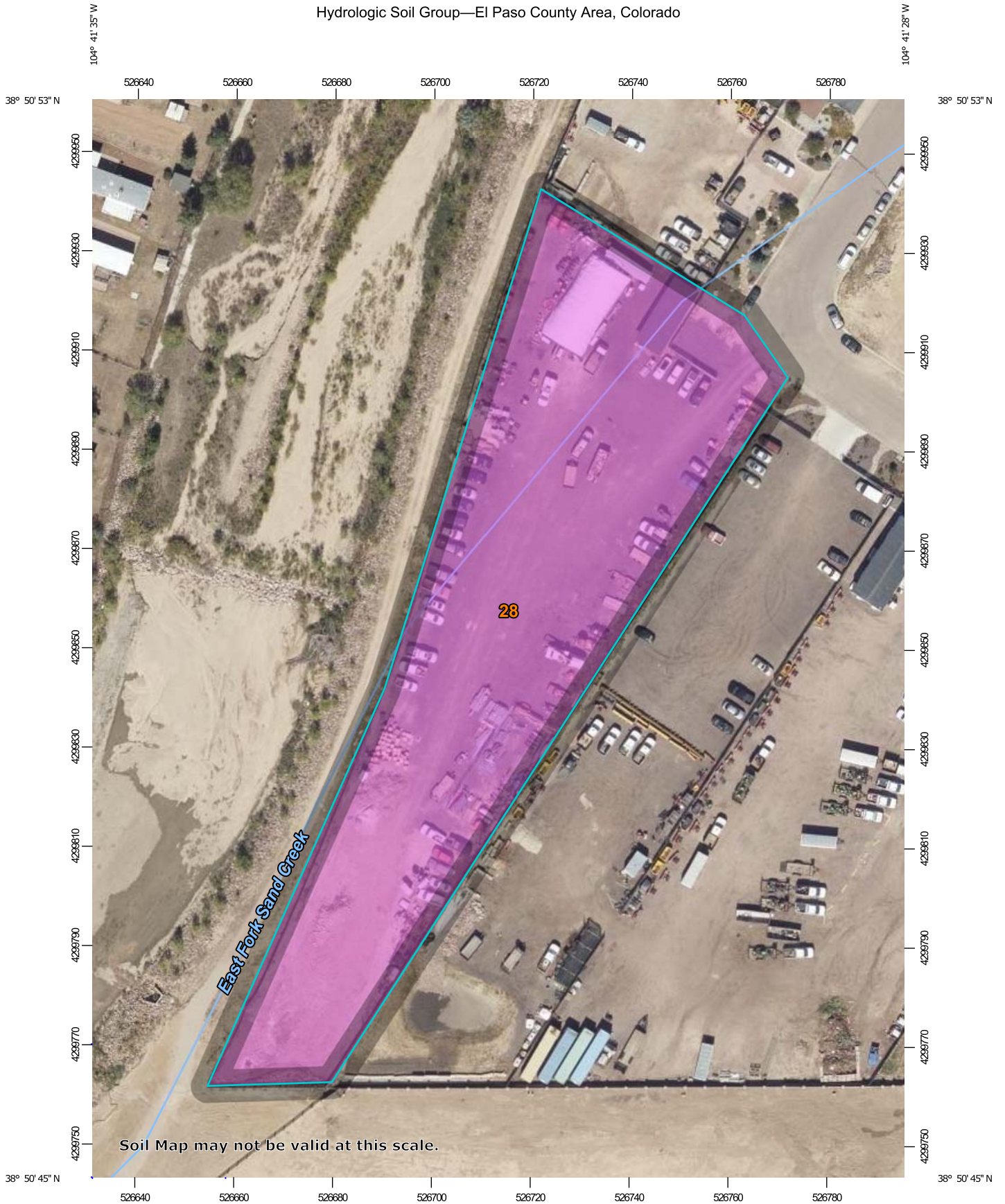
**7315 COLE VIEW
COLORADO SPRINGS, CO
VICINITY MAP**

Drexel, Barrell & Co.
Engineers • Surveyors

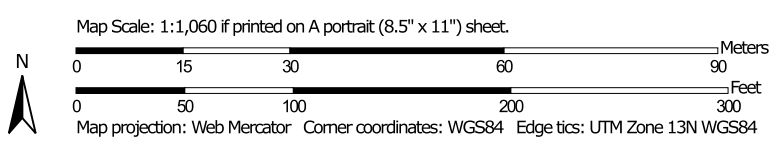
DATE:
JOB NO:
21813-00CSCV

DWG. NO.
VMAP
SHEET 1 OF 1

Hydrologic Soil Group—El Paso County Area, Colorado




Soil Map may not be valid at this scale.



MAP LEGEND

Area of Interest (AOI)









 Area of Interest (AOI)

Soils

Soil Rating Polygons





-  A
-  A/D
-  B
-  B/D
-  C
-  C/D
-  D
-  Not rated or not available

Soil Rating Lines

-  A
-  A/D
-  B
-  B/D
-  C
-  C/D
-  D
-  Not rated or not available

Soil Rating Points

-  A
-  A/D
-  B
-  B/D

-  C
-  C/D
-  D
-  Not rated or not available


Water Features

 Streams and Canals

Transportation

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

Background

 Aerial Photography

MAP INFORMATION

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

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 21, Aug 24, 2023

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

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

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
28	Ellicott loamy coarse sand, 0 to 5 percent slopes	A	1.8	100.0%
Totals for Area of Interest			1.8	100.0%

Description

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

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

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

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

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

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

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

Rating Options

Aggregation Method: Dominant Condition

National Flood Hazard Layer FIRMMette



104°41'50"W 38°51'6"N



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D

OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
		Area of Undetermined Flood Hazard Zone D

GENERAL STRUCTURES		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall

OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance
		17.5 Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature

MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped

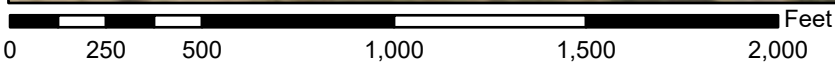


The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 10/9/2023 at 11:12 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



1:6,000

104°41'12"W 38°50'38"N

Basemap Imagery Source: USGS National Map 2023

PROJECT INFORMATION								
PROJECT:	7315 Cole View							
PROJECT NO:	21813-00							
DESIGN BY:	SBN							
REV. BY:	TDM							
AGENCY:	EPC							
REPORT TYPE:	Final							
DATE:	10/9/2023							
Soil Type:	A							
				C2*	C5*	C10*	C100*	% IMPERV
Gravel					0.59		0.70	80
Asphalt/Sidewalk					0.90		0.96	100
Roof					0.73		0.81	90
*C-Values and Basin Imperviousness based on Table 6-6, City of Colorado Springs and El Paso County "Drainage Criteria Manual"								
PROPOSED								
SUB-BASIN	SURFACE DESIGNATION	AREA	COMPOSITE RUNOFF COEFFICIENTS				% IMPERV	
		ACRE	C2	C5	C10	C100		
1	Gravel	1.23		0.59		0.70	80	
	Asphalt/Sidewalk	0.37		0.90		0.96	100	
	Roof	0.23		0.73		0.81	90	
	WEIGHTED AVERAGE			0.67		0.77	85%	
TOTAL 1		1.83						
TOTAL SITE		1.83		0.67		0.77	85.3%	

Update report to provide existing and proposed conditions and runoff amounts.

H:\21813-00GSCV\Plans\Sheets\GEC\21813-00GEC.dwg, 10/9/2023 3:00:34 PM

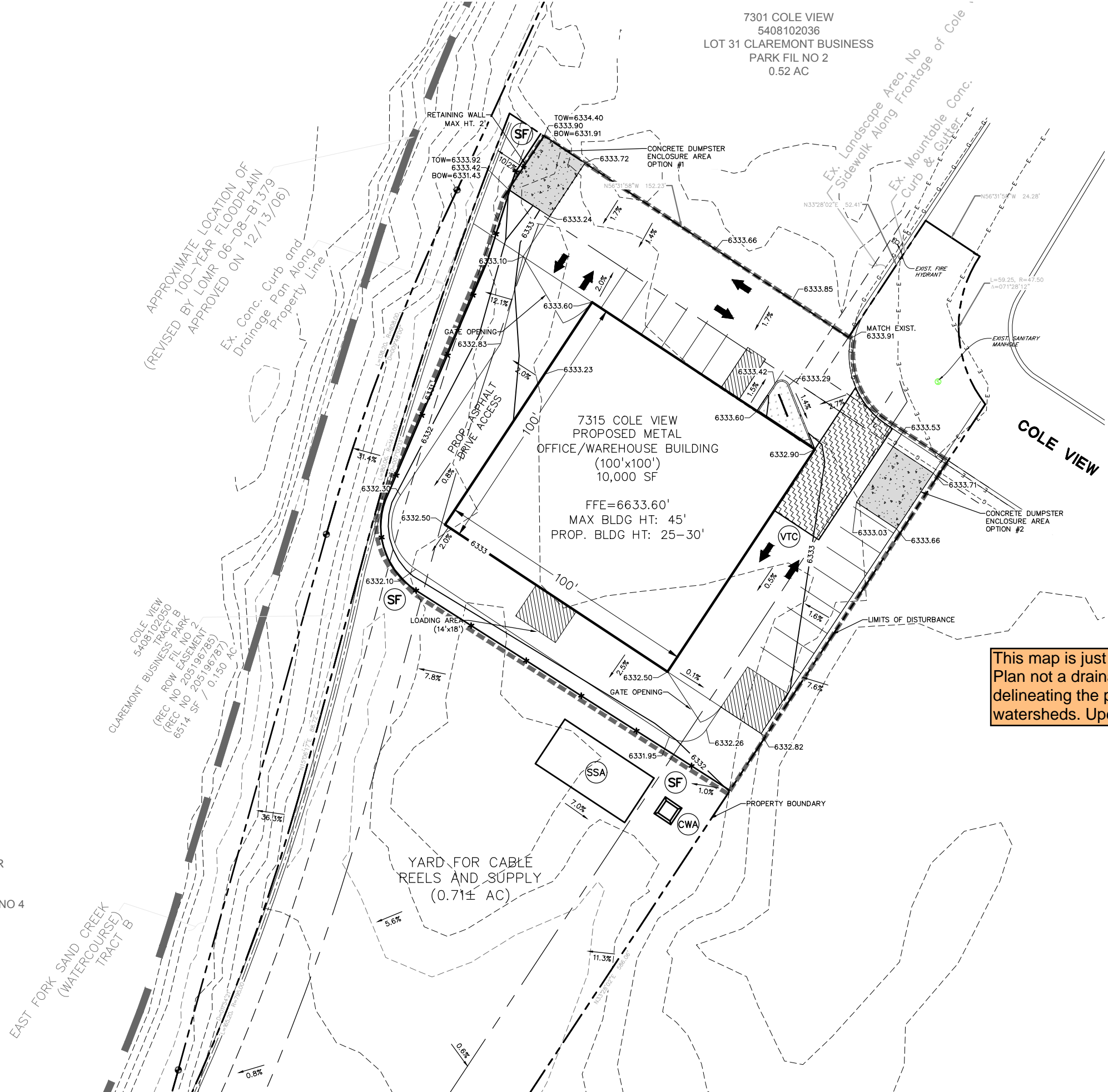
1095 WESTERN DR
5408003013
ALL BLKS 1, 2
CIMARRON HILLS FIL NO 4
107.8 AC

EAST FORK SAND CREEK
(WATERCOURSE)
TRACT B

COLE VIEW
5408102050
TRACT B
FIL NO 2
(REC NO 205196785)
8514 SF / 0.150 AC

APPROXIMATE LOCATION OF
100-YEAR FLOODPLAIN
(REVISED BY LOMR 06-08-B1379
APPROVED ON 12/13/06)
Ex. Conc. Curb and
Drainage Pan Along
Property Line

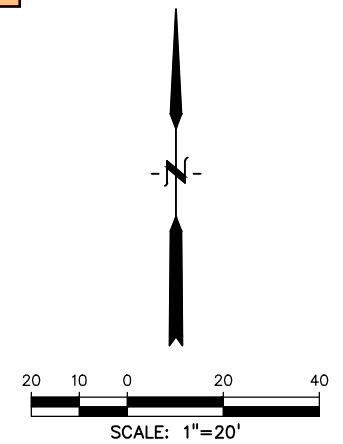
7301 COLE VIEW
5408102036
LOT 31 CLAREMONT BUSINESS
PARK FIL NO 2
0.52 AC



- LEGEND**
- EX. MINOR CONTOUR
 - - - - - EX. MAJOR CONTOUR
 - CURB FLOWLINE
 - - - - - PROPERTY BOUNDARY
 - EXISTING GAS LINE
 - EXISTING ELECTRIC LINE
 - 7.7% DIRECTION OF FLOW
 - LIMITS OF DISTURBANCE
 - SF SILT FENCE
 - VTC VEHICLE TRACKING CONTROL
 - CWA CONCRETE WASHOUT AREA
 - SSA STABILIZED STAGING AREA

Provide an existing conditions drainage map before this page. Make sure to show offsite basins and update narratives to discuss each basin shown on the drainage map.

This map is just the GEC Plan not a drainage map delineating the proposed watersheds. Update



PREPARED BY:



CLIENT:

BLACK DIAMOND CABLE
7315 COLE VIEW
COLORADO SPRINGS, CO 80915
CONTACT: RYAN FOSTER
(719) 306-4478

DEVELOPMENT PLAN FOR:
7315 COLE VIEW
EL PASO COUNTY, COLORADO

ISSUE	DATE
INITIAL ISSUE	10/9/23
DESIGNED BY:	SBN
DRAWN BY:	SBN
CHECKED BY:	TDM
FILE NAME:	21813-00GEC

PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF DREXEL, BARRELL & CO.
DRAWING SCALE:
HORIZONTAL: 1"=20'
VERTICAL: N/A

GRADING & EROSION CONTROL PLAN

PROJECT NO. 21813-00GSCV
DRAWING NO.

GEC

SHEET: 2 OF 3

