



4420 Green Mountain Drive

Final Drainage Report

PCD File No: CDR2612

All Terrain Engineering Project No: 26011

September 2026

Prepared for:

Matt Dunston

4420 Green Mountain Drive

Contact: (719) 559-2229

mattdunston@hotmail.com

Prepared by:

All Terrain Engineering LLC

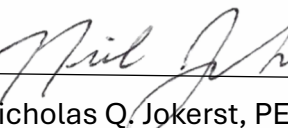
Contact: Nicholas Q. Jokerst

njokerst@allterraineng.com

(530) 391-7635

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 County for drainage reports and said report is in conformity with the applicable 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.

  09/29/2026

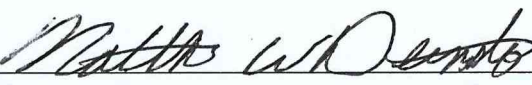
Nicholas Q. Jokerst, PE Date

State of Colorado No. 59273

For and on behalf of All Terrain Engineering LLC

DEVELOPER'S STATEMENT

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

 9/21/2026

Matt Dunston Date

EL PASO COUNTY ONLY

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.

Joshua J. Palmer, P.E. Date
County Engineer/ECM Administrator

Conditions:



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I. General Purpose, Location & Description

a. Purpose & Project Description

The purpose of the Final Drainage Report (FDR) for 4420 Green Mountain Drive is to describe the site's existing drainage patterns and proposed conditions associated with the proposed grading activities. The site received a Stop Work Order (SWO) from El Paso County for unpermitted grading operations. This FDR addresses the impacts of the proposed disturbances to support an ESQCP application.

b. Location

4420 Green Mountain Drive, referred to as 'the site' herein, is an unplatted parcel located in the Southeast Quarter of Section 32, Township 11 South, Range 67 West of the 6th P.M. The site is bound by unplatted land to the north, south and west as well as Smith Subdivision and Green Mountain Ranch to the east. A vicinity map is presented in Appendix A.

c. Description of Property

The site is an approximately 70.01 acre parcel Colorado Springs, CO. The project will disturb approximately 3 acres. However, no impervious surfaces will be added to the site. The current property includes a single residence, associated structures and a pond.

In general, the site slopes north and east towards Hay Creek. Onsite elevations range from 7140' – 7450' with slopes ranging approximately 1 – 60%. Per an NRCS soil survey, the site is made up of Type B Jarre-Tecolote complex and Peyton-Pring complex. Per a site survey, existing utilities include water, sewer and electric.

The ultimate receiving waters for the site are Hay Creek.

d. Floodplain Statement

Based on FEMA Firm map 08041C0266G dated December 7, 2018, the site is Zone X and Zone A. Zone X are areas determined to be outside the 0.2% annual chance flood. Zone A (no base flood elevations determined) areas are determined to be within the 1% annual chance of flooding zone. There is no development or disturbance proposed in Zone A portions of the site.

II. Drainage Basins

a. Major Basin Description

The site is located within the Hay Creek Valley which is within the Beaver Creek Major Drainage Basin. There is no current DBPS for the site. Hay Creek discharges to Beaver Creek approximately two miles downstream of the site.

b. Existing Subbasin Description

Basin EXA is 1.52 acres of undeveloped area. Basin EXA stormwater ($Q_5 = 0.8$ cfs $Q_{100} = 4.2$ cfs) flows overland across the site to DP1 ($Q_5 = 0.8$ cfs $Q_{100} = 4.2$ cfs). DP1 continues overland to the existing pond located at DP3 ($Q_5 = 1.8$ cfs $Q_{100} = 10.3$ cfs) and combines with Basin EXB flow.

Basin EXB is 2.33 acres of undeveloped area. Basin EXA stormwater ($Q_5 = 1.0$ cfs $Q_{100} = 6.2$ cfs) flows overland across the site to DP2 ($Q_5 = 0.8$ cfs $Q_{100} = 4.2$ cfs) and is captured by the Moonshine Ditch. Moonshine Ditch discharges to the existing pond located at DP3 ($Q_5 = 1.8$ cfs $Q_{100} = 10.3$ cfs) and combines with Basin EXA flow.

c. Proposed Subbasin Description

Basin A is 1.36 acres of disturbed area to remain undeveloped. Basin A stormwater ($Q_5 = 0.6$ cfs $Q_{100} = 3.1$ cfs) flows overland and is captured by a proposed swale that conveys the flow to DP1 ($Q_5 = 0.6$ cfs $Q_{100} = 3.1$ cfs). DP1 continues to the temporary sediment basin at DP2 ($Q_5 = 1.3$ cfs $Q_{100} = 7.3$ cfs).

Basin B is 1.89 acres of disturbed area to remain undeveloped. Basin B stormwater ($Q_5 = 1.0$ cfs $Q_{100} = 5.7$ cfs) flows overland and is captured by a proposed swale that conveys the flow to the temporary sediment basin at DP2 ($Q_5 = 1.3$ cfs $Q_{100} = 7.3$ cfs). The temporary sediment basin discharges to the basin's historic outfall of Moonshine Ditch. Moonshine Ditch continues to DP3 ($Q_5 = 1.5$ cfs $Q_{100} = 8.3$ cfs).

Basin C is 0.44 acres of disturbed area to remain undeveloped. Basin C stormwater ($Q_5 = 0.2$ cfs $Q_{100} = 1.0$ cfs) follows historic drainage patterns to Moonshine Ditch at DP3 ($Q_5 = 1.5$ cfs $Q_{100} = 8.3$ cfs). DP3 discharges to the existing pond at DP4 ($Q_5 = 1.5$ cfs $Q_{100} = 8.6$ cfs).

Basin D is 0.16 acres of disturbed area to remain undeveloped. Basin D stormwater ($Q_5 = 0.1$ cfs $Q_{100} = 0.5$ cfs) follows historic drainage patterns to the existing pond at DP4 ($Q_5 = 1.5$ cfs $Q_{100} = 8.6$ cfs).

The site's existing and proposed composite impervious is 5%. See below for a comparison of the site's stormwater discharge in the existing and proposed conditions.

EXISTING V. PROPOSED FLOW COMPARISON				
LOCATION	Ex Q_{5-YR}	Ex Q_{100-YR}	Pr Q_{5-YR}	Pr Q_{100-YR}
Ex. DP3/Pr DP4	1.8	10.3	1.5	8.6

The decrease in flow at the site's ultimate outfall (Ex. DP3/Pr. DP4) is a result of the increased time of concentration for the proposed condition Basin A. In the existing condition, Basin A sheet flows across the basin directly to the existing pond. In the proposed condition, a swale intercepts the flow prior to the existing pond and is routed to a temporary sediment basin. Due to this increase in time of concentration, the peak flow from Basin A decreases.

Drainage Design Criteria

a. Development Criteria Reference

The drainage analysis follows the criteria from the “Drainage Criteria Manual County of El Paso, Colorado” Volumes 1 and 2,” as amended.

b. Hydrologic Criteria

Onsite drainage analysis included the 5-year storm (minor event) and 100-year storm (major event). Runoff is calculated per EPCDCM Chapter 5 – Storm Runoff Method of Analysis.

c.
d. Hydraulic Criteria

Hydraulic criteria for channel analysis are obtained from EPCDCM Chapter 10 - Open Channels and Structures.

III. Drainage Facility Design

a. General Concept

The site received a Stop Work Order (SWO) from El Paso County for unpermitted grading operations. This FDR addresses the impacts of the proposed disturbances to support an ESQCP application. The proposed disturbance area for the site is approximately 3 acres. If disturbances exceed this value during construction, the associated GEC plan shall be amended to address the additional area. No additional impervious will be added to the site and existing drainage patterns to the existing pond shall be maintained.

b. Water Quality & Detention

Water quality and detention for the site is not required. Refer to the PCM Applicability form in Appendix D.

c. Inspections & Maintenance

An Inspection and Maintenance Manual is not applicable as no permanent facilities are proposed.

d. Grading & Erosion Control Plan

A Grading & Erosion Control Plan has been submitted in conjunction with this FDR.

e. Four Step Method

Step 1 – Employ Runoff Reduction Practices: Existing roof drains discharge to landscaped areas. Implementation of landscaping and open space throughout the site slows runoff and increase infiltration.

Step 2 – Stabilize Drainageways: All new and re-development projects are required to construct or participate in the funding of channel stabilization measures. Drainage basin fees paid, at the time of platting, go towards channel stabilization with the drainage basin. Refer to Section F below.

Step 3 – Provide WQCV: Water quality treatment is not required for the site.

Step 4 – Consider the need for source controls: No industrial uses are proposed within this development and therefore no source controls are proposed.

f. **Drainage Basin & Bridge Fees**

The site is within the Beaver Creek Drainage Basin. The site is not being platted and therefore basin and bridge fees are not applicable.

g. **Engineer's Opinion of Probable Cost**

An El Paso County 2026 Financial Assurance estimate is included in Appendix E.

IV. Summary

4420 Green Mountain Drive remains consistent with pre-development drainage conditions. The proposed development will not adversely affect downstream stormwater infrastructure or surrounding developments. This report is in accordance with the latest El Paso County Drainage criteria.

V. References

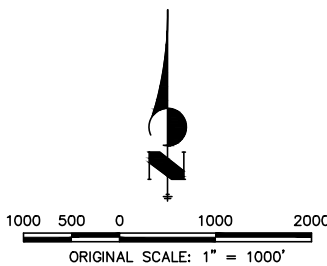
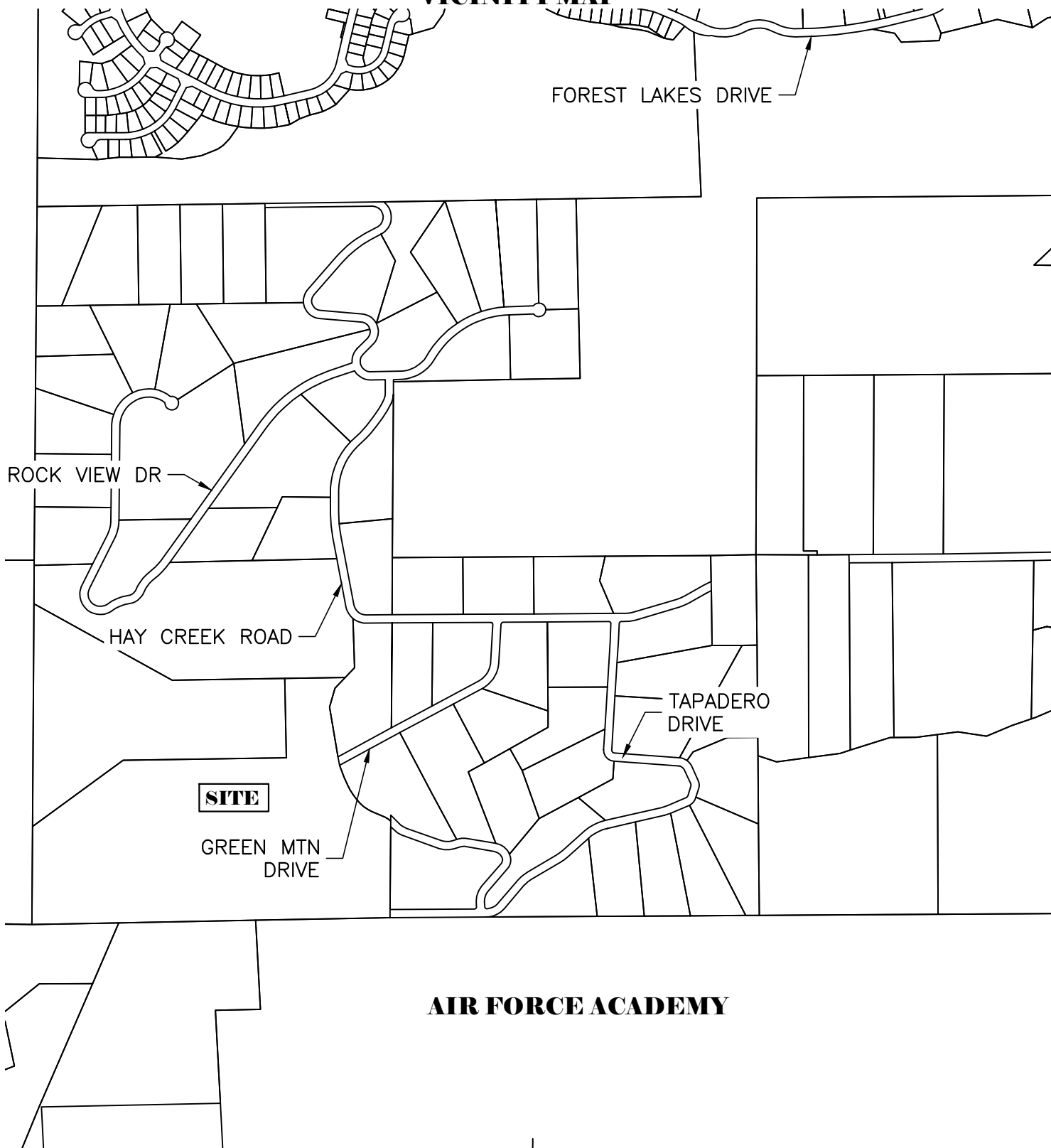
1. El Paso County – Drainage Criteria Manual, 2018 as amended.
2. Urban Storm Drainage Criteria Manual, Mile High Flood District, March 2024.
3. Federal Emergency Management Agency, Flood Map Service Center - <https://msc.fema.gov/portal/home>, September 2024.
4. Web Soil Survey, Natural Resources Conservation Service - <https://websoilsurvey.nrcs.usda.gov/app/>, September 2024.



APPENDIX A – VICINITY MAP, FEMA MAP, NRCS WEB SOIL SURVEY

4420 GREEN MTN DRIVE

VICINITY MAP



VICINITY MAP

4420 GREEN MTN DRIVE

JOB NO. 26011

LOCATION: EPC

09/11/2026

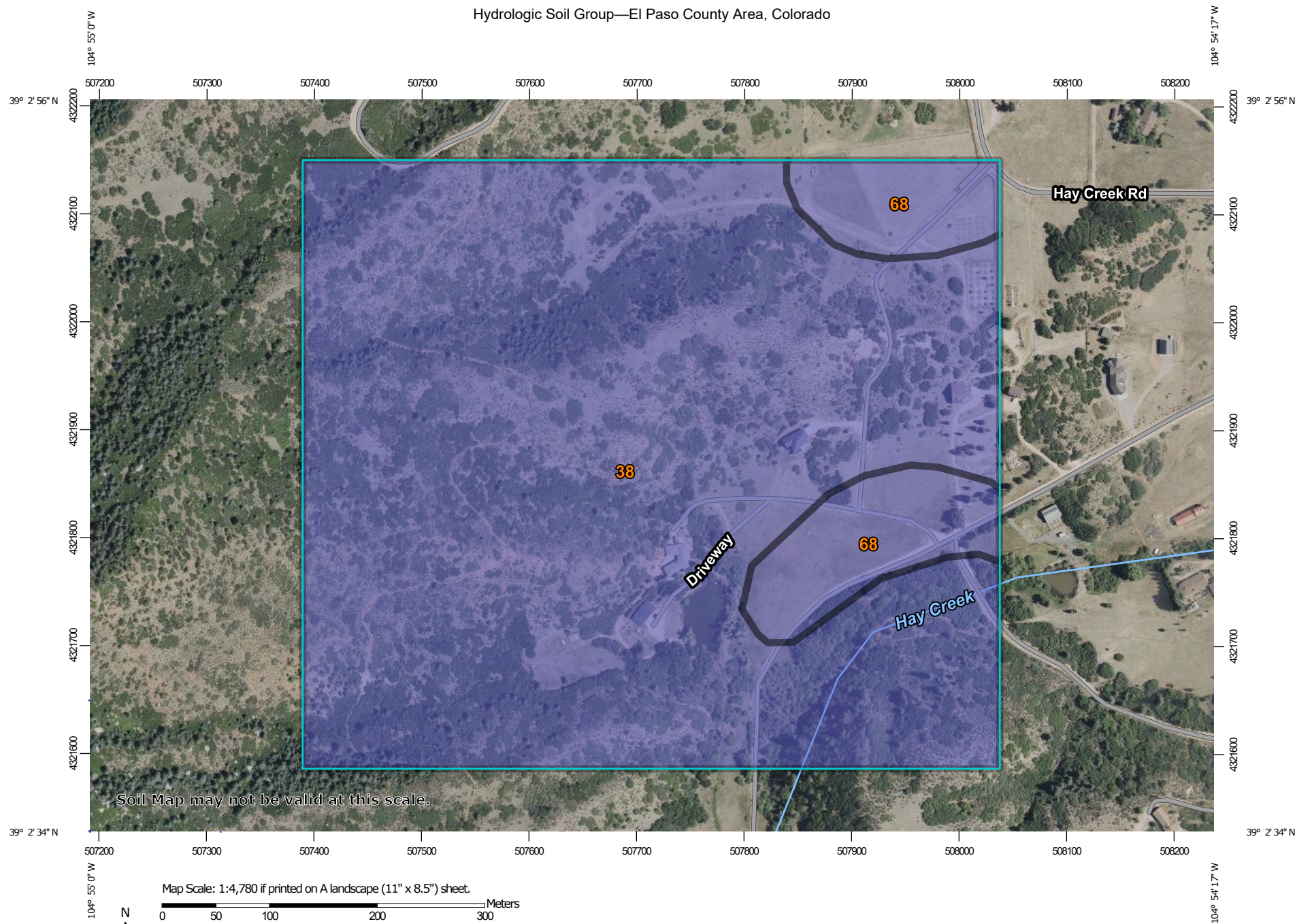
SHEET

1



ENGINEERING
1004 WEST VAN BUREN STREET
COLORADO SPRINGS, CO 80907

Hydrologic Soil Group—El Paso County Area, Colorado



Soil Map may not be valid at this scale.

Map Scale: 1:4,780 if printed on A landscape (11" x 8.5") sheet.

0 50 100 200 300 Meters

0 200 400 800 1200 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84



**Natural Resources
Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

9/11/2026
Page 1 of 4

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 23, Aug 29, 2025

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

Date(s) aerial images were photographed: Jul 23, 2024—Aug 4, 2024

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
38	Jarre-Tecolote complex, 8 to 65 percent slopes	B	81.5	89.8%
68	Peyton-Pring complex, 3 to 8 percent slopes	B	9.3	10.2%
Totals for Area of Interest			90.7	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.

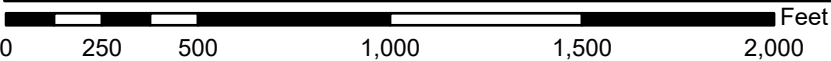
Rating Options

Aggregation Method: Dominant Condition

National Flood Hazard Layer FIRMMette



104°54'58"W 39°2'55"N



1:6,000

104°54'21"W 39°2'27"N

Basemap Imagery Source: USGS National Map 2023

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 Water Surface Elevation
		17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
MAP PANELS		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 9/11/2026 at 8:27 PM 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.



APPENDIX B – HYDROLOGIC ANALYSIS

Subdivision: 4420 Green Mountain
Location: El Paso County
Project Name: 4420 Green Mountain
Project Number: 26011
Calculated By: NQJ
Checked By: REB
Date: 9/29/2026

BASIN SUMMARY TABLE							
Basin	Area (ac)	Impervious	C ₅	C ₁₀₀	t _c (min)	Q _{5-YR} (cfs)	Q _{100-YR} (cfs)
EX-A	1.52	6%	0.12	0.38	8.5	0.8	4.2
EX-B	2.33	4%	0.11	0.37	9.1	1.0	6.2

DESIGN POINT SUMMARY TABLE		
DP#	Q _{5-YR}	Q _{100-YR}
1	0.8	4.2
2	1.0	6.2
3	1.8	10.3

COMPOSITE % IMPERVIOUS CALCULATIONS - EXISTING CONDITIONS

Subdivision: 4420 Green Mountain
Location: El Paso County

Project Name: 4420 Green Mountain
Project No.: 26011.00
Calculated By: NQJ
Checked By: REB
Date: 9/29/26

		Gravel				Paved				Roofs				Undeveloped				Weighted C ₅ & C ₁₀₀		Basins Total Weighted % Imp.
Basin ID	Total Area (ac)	C ₅	C ₁₀₀	Area (ac)	% Imp.	C ₅	C ₁₀₀	Area (ac)	% Imp.	C ₅	C ₁₀₀	Area (ac)	% Imp.	C ₅	C ₁₀₀	Area (ac)	% Imp.			
																		C ₅	C ₁₀₀	
EX-A	1.52	0.59	0.70	0.08	80.0%	0.90	0.96	0.00	100.0%	0.73	0.81	0.00	90.0%	0.09	0.36	1.44	2.0%	0.12	0.38	6.1%
EX-B	2.33	0.59	0.70	0.07	80.0%	0.90	0.96	0.00	100.0%	0.73	0.81	0.00	90.0%	0.09	0.36	2.26	2.0%	0.11	0.37	4.3%
Total	3.85																			5.0%

STANDARD FORM SF-2 - EXISTING CONDITIONS

TIME OF CONCENTRATION

Subdivision: 4420 Green Mountain
Location: El Paso County

Project Name: 4420 Green Mountain
Project No.: 26011.00
Calculated By: NQJ
Checked By: REB
Date: 9/29/26

SUB-BASIN						INITIAL/OVERLAND			TRAVEL TIME					t _c CHECK			FINAL
DATA						(T _i)			(T _t)					(URBANIZED BASINS)			
BASIN ID	D.A. (ac)	Hydrologic Soils Group	Weighted C ₅	Weighted C ₁₀₀	Impervious (%)	L (ft)	S _o (%)	t _i (min)	L _t (ft)	S _t (%)	K	VEL. (ft/s)	t _t (min)	COMP. t _c (min)	TOTAL LENGTH (ft)	Urbanized t _c (min)	
EX-A	1.52	B	0.12	0.38	6.1%	115	14.8%	7.8	211	25.0%	10.0	5.0	0.7	8.5	326.0	25.7	8.5
EX-B	2.33	B	0.11	0.37	4.3%	91	33.0%	5.4	730	11.0%	10.0	3.3	3.7	9.1	821.0	29.1	9.1

NOTES:

$$t_c = t_i + t_t$$

$$Eq \quad t_i = \frac{0.395(1.1 - C_5)\sqrt{L_i}}{S_o^{0.33}}$$

Where:

t_c = computed time of concentration (minutes)

t_i = overland (initial) flow time (minutes)

t_t = channelized flow time (minutes).

Where:

t_i = overland (initial) flow time (minutes)

C₅ = runoff coefficient for 5-year frequency (from Table 6-4)

L_i = length of overland flow (ft)

S_o = average slope along the overland flow path (ft/ft).

$$t_t = \frac{L_t}{60K\sqrt{S_o}} = \frac{L_t}{60V_t}$$

$$Equation \ 6-4 \ 26 - 17i) + \frac{L_t}{60(14i + 9)\sqrt{S_t}}$$

Where:

t_t = channelized flow time (travel time, min)

L_t = waterway length (ft)

S_o = waterway slope (ft/ft)

V_t = travel time velocity (ft/sec) = K√S_o

K = NRCS conveyance factor (see Table 6-2).

z:

t_c = minimum time of concentration for first design point when less than t_c from Equation 6-1.

L_t = length of channelized flow path (ft)

i = imperviousness (expressed as a decimal)

S_t = slope of the channelized flow path (ft/ft).

Table 6-2. NRCS Conveyance factors, K

Type of Land Surface	Conveyance Factor, K
Heavy meadow	2.5
Tillage/field	5
Short pasture and lawns	7
Nearly bare ground	10
Grassed waterway	15
Paved areas and shallow paved swales	20

Equation 6-5

Use a minimum t_c value of 5 minutes for urbanized areas and a minimum t_c value of 10 minutes for areas that are not considered urban. Use minimum values even when calculations result in a lesser time of concentration.

STANDARD FORM SF-3 - EXISTING CONDITIONS

STORM DRAINAGE SYSTEM DESIGN

(RATIONAL METHOD PROCEDURE)

Subdivision: 4420 Green Mountain
Location: El Paso County
Design Storm: 5-Year

Project Name: 4420 Green Mountain
Project No.: 26011.00
Calculated By: NOJ
Checked By: REB
Date: 9/29/26

DESCRIPTION	Design Point	DIRECT RUNOFF							TOTAL RUNOFF				OVERLAND			PIPE				TRAVEL TIME			REMARKS
		Basin ID	Area (Ac)	Runoff Coeff.	t_c (min)	C*A (Ac)	I (in/hr)	Q (cfs)	t_c (min)	C*A (ac)	I (in/hr)	Q (cfs)	$Q_{overland}$ (cfs)	C*A (ac)	Slope (%)	Q_{pipe} (cfs)	C*A (ac)	Slope (%)	Pipe Size (inches)	Length (ft)	Velocity (fps)	t_t (min)	
	1	EX-A	1.52	0.12	8.5	0.18	4.37	0.8															BASIN A EXISTING CONDITIONS @ DP1
	2	EX-B	2.33	0.11	9.1	0.24	4.27	1.0															BASIN B EXISTING CONDITIONS @ DP2
	3								9.1	0.42	4.27	1.8											COMBINED DP1 & DP2 @ DP3, TOTAL FLOW ENTERING EX POND

Notes:
Street and Pipe C*A values are determined by Q/i using the catchment's intensity value.

STANDARD FORM SF-3 - EXISTING CONDITIONS
STORM DRAINAGE SYSTEM DESIGN
(RATIONAL METHOD PROCEDURE)

Subdivision: 4420 Green Mountain
Location: El Paso County
Design Storm: 100-Year

Project Name: 4420 Green Mountain
Project No.: 26011.00
Calculated By: NQJ
Checked By: REB
Date: 9/29/26

STREET	Design Point	DIRECT RUNOFF							TOTAL RUNOFF				OVERLAND			PIPE				TRAVEL TIME			REMARKS
		Basin ID	Area (ac)	Runoff Coeff.	t_c (min)	C*A (ac)	I (in/hr)	Q (cfs)	t_c (min)	C*A (ac)	I (in/hr)	Q (cfs)	$Q_{OVERLAND}$ (cfs)	C*A (ac)	Slope (%)	Q_{PIPE} (cfs)	C*A (ac)	Slope (%)	Pipe Size (inches)	Length (ft)	Velocity (fps)	t_t (min)	
	1	EX-A	1.52	0.38	8.5	0.57	7.33	4.2															BASIN A EXISTING CONDITIONS @ DP1
	2	EX-B	2.33	0.37	9.1	0.86	7.18	6.2															BASIN B EXISTING CONDITIONS @ DP2
	3								9.1	1.44	7.18	10.3											COMBINED DP1 & DP2 @ DP3, TOTAL FLOW ENTERING EX POND

Notes:
Street and Pipe C*A values are determined by Q/I using the catchment's intensity value.

Subdivision: 4420 Green Mountain
Location: El Paso County
Project Name: 4420 Green Mountain
Project Number: 26011
Calculated By: NQJ
Checked By: REB
Date: 9/29/2026

PROPOSED CONDITIONS - BASIN SUMMARY TABLE							
Basin	Area (ac)	Impervious	C ₅	C ₁₀₀	t _c (min)	Q _{5-YR} (cfs)	Q _{100-YR} (cfs)
A	1.36	7%	0.12	0.38	14.5	0.6	3.1
B	1.89	5%	0.11	0.37	6.4	1.0	5.7
C	0.44	2%	0.09	0.36	11.6	0.2	1.0
D	0.16	2%	0.09	0.36	5.0	0.1	0.5

PROPOSED CONDITIONS - DESIGN POINT SUMMARY TABLE		
DP#	Q _{5-YR}	Q _{100-YR}
1	0.6	3.1
2	1.3	7.3
3	1.5	8.3
4	1.5	8.6

COMPOSITE % IMPERVIOUS CALCULATIONS - PROPOSED CONDITIONS

Subdivision: 4420 Green Mountain
Location: El Paso County

Project Name: 4420 Green Mountain
Project No.: 26011.00
Calculated By: NQJ
Checked By: REB
Date: 9/29/26

		Gravel				Paved				Roofs				Undeveloped				Weighted C ₅ & C ₁₀₀		Basins Total Weighted % Imp.
Basin ID	Total Area (ac)	C ₅	C ₁₀₀	Area (ac)	% Imp.	C ₅	C ₁₀₀	Area (ac)	% Imp.	C ₅	C ₁₀₀	Area (ac)	% Imp.	C ₅	C ₁₀₀	Area (ac)	% Imp.			
																		C ₅	C ₁₀₀	
A	1.36	0.59	0.70	0.08	80.0%	0.90	0.96	0.00	100.0%	0.73	0.81	0.00	90.0%	0.09	0.36	1.28	2.0%	0.12	0.38	6.6%
B	1.89	0.59	0.70	0.07	80.0%	0.90	0.96	0.00	100.0%	0.73	0.81	0.00	90.0%	0.09	0.36	1.82	2.0%	0.11	0.37	4.9%
C	0.44	0.59	0.70	0.00	80.0%	0.90	0.96	0.00	100.0%	0.73	0.81	0.00	90.0%	0.09	0.36	0.44	2.0%	0.09	0.36	2.0%
D	0.16	0.59	0.70	0.00	80.0%	0.90	0.96	0.00	100.0%	0.73	0.81	0.00	90.0%	0.09	0.36	0.16	2.0%	0.09	0.36	2.0%
Total	3.85																			5.0%

STANDARD FORM SF-2 - PROPOSED CONDITIONS
TIME OF CONCENTRATION

Subdivision: 4420 Green Mountain
Location: El Paso County

Project Name: 4420 Green Mountain
Project No.: 26011.00
Calculated By: NQJ
Checked By: REB
Date: 9/29/26

SUB-BASIN						INITIAL/OVERLAND			TRAVEL TIME					tc CHECK			FINAL
DATA						(T _i)			(T _t)					(URBANIZED BASINS)			
BASIN ID	D.A. (ac)	Hydrologic Soils Group	Weighted C _s	Weighted C ₁₀₀	Impervious (%)	L (ft)	S _o (%)	t _i (min)	L _t (ft)	S _t (%)	K	VEL. (ft/s)	t _t (min)	COMP. t _c (min)	TOTAL LENGTH (ft)	Urbanized t _c (min)	
A	1.36	B	0.12	0.38	6.6%	240	25.0%	9.5	250	0.7%	10.0	0.8	5.0	14.5	490.0	29.9	14.5
B	1.89	B	0.11	0.37	4.9%	89	35.0%	5.2	305	20.0%	10.0	4.5	1.1	6.4	394.0	26.3	6.4
C	0.44	B	0.09	0.36	2.0%	76	25.0%	5.5	260	0.5%	10.0	0.7	6.1	11.6	336.0	32.3	11.6
D	0.16	B	0.09	0.36	2.0%	25	50.0%	2.5	25	50.0%	10.0	7.1	0.1	2.6	50.0	25.7	5.0

NOTES:

$$t_c = t_i + t_t$$

Where:

tc = computed time of concentration (minutes)
ti = overland (initial) flow time (minutes)
tt = channelized flow time (minutes).

$$t_t = \frac{L_t}{60K\sqrt{S_o}} = \frac{L_t}{60V_t}$$

Where:

tt = channelized flow time (travel time, min)
Lt = waterway length (ft)
So = waterway slope (ft/ft)
Vt = travel time velocity (ft/sec) = K√So
K = NRCS conveyance factor (see Table 6-2).

Eq
$$t_i = \frac{0.395(1.1 - C_s)\sqrt{L_i}}{S_o^{0.33}}$$

Where:

ti = overland (initial) flow time (minutes)
Cs = runoff coefficient for 5-year frequency (from Table 6-4)
Li = length of overland flow (ft)
So = average slope along the overland flow path (ft/ft).

Equation 6-4
$$t_c = 26 - 17i + \frac{L_t}{60(14i + 9)\sqrt{S_t}}$$

or:

tc = minimum time of concentration for first design point when less than tt from Equation 6-1.
Lt = length of channelized flow path (ft)
i = imperviousness (expressed as a decimal)
St = slope of the channelized flow path (ft/ft).

Table 6-2. NRCS Conveyance factors, K

Type of Land Surface	Conveyance Factor, K
Heavy meadow	2.5
Tillage/field	5
Short pasture and lawns	7
Nearly bare ground	10
Grassed waterway	15
Paved areas and shallow paved swales	20

Equation 6-5

Use a minimum tc value of 5 minutes for urbanized areas and a minimum tc value of 10 minutes for areas that are not considered urban. Use minimum values even when calculations result in a lesser time of concentration.

STANDARD FORM SF-3 - PROPOSED CONDITIONS
STORM DRAINAGE SYSTEM DESIGN
(RATIONAL METHOD PROCEDURE)

Subdivision: 4420 Green Mountain
Location: El Paso County
Design Storm: 5-Year

Project Name: 4420 Green Mountain
Project No.: 26011.00
Calculated By: NOJ
Checked By: REB
Date: 9/29/26

DESCRIPTION	Design Point	DIRECT RUNOFF							TOTAL RUNOFF				OVERLAND			PIPE				TRAVEL TIME			REMARKS
		Basin ID	Area (Ac)	Runoff Coeff.	t_c (min)	C*A (Ac)	I (in/hr)	Q (cfs)	t_c (min)	C*A (ac)	I (in/hr)	Q (cfs)	$Q_{overland}$ (cfs)	C*A (ac)	Slope (%)	Q_{pipe} (cfs)	C*A (ac)	Slope (%)	Pipe Size (inches)	Length (ft)	Velocity (fps)	t_t (min)	
	1	A	1.36	0.12	14.5	0.16	3.58	0.6															BASIN A @ DP1, SWALE TO DP2
		B	1.89	0.11	6.4	0.21	4.81	1.0															BASIN B @ DP2
	2								14.5	0.37	3.58	1.3											COMBINED DP1 & DPB @ DP2
		C	0.44	0.09	11.6	0.04	3.90	0.2															BASIN C @ DP3
	3								14.5	0.41	3.58	1.5											COMBINED DP2 & BASIN C @ DP3
		D	0.16	0.09	5.0	0.01	5.17	0.1															BASIN D @ DP4
	4								14.5	0.42	3.58	1.5											COMBINED DP3 & BASIN D @ DP4

Notes:
Street and Pipe C*A values are determined by Q/I using the catchment's intensity value.

STANDARD FORM SF-3 - PROPOSED CONDITIONS
STORM DRAINAGE SYSTEM DESIGN
(RATIONAL METHOD PROCEDURE)

Subdivision: 4420 Green Mountain Location: El Paso County Design Storm: 100-Year	Project Name: 4420 Green Mountain Project No.: 26011.00 Calculated By: NQJ Checked By: REB Date: 9/29/26
---	---

STREET	Design Point	DIRECT RUNOFF							TOTAL RUNOFF				OVERLAND			PIPE				TRAVEL TIME			REMARKS
		Basin ID	Area (ac)	Runoff Coeff.	t_c (min)	C*A (ac)	f (in/hr)	Q (cfs)	t_c (min)	C*A (ac)	f (in/hr)	Q (cfs)	$Q_{OVERLAND}$ (cfs)	C*A (ac)	Slope (%)	Q_{PIPE} (cfs)	C*A (ac)	Slope (%)	Pipe Size (inches)	Length (ft)	Velocity (fps)	t_t (min)	
	1	A	1.36	0.38	14.5	0.52	6.00	3.1															BASIN A @ DP1, SWALE TO DP2
		B	1.89	0.37	6.4	0.70	8.07	5.7															BASIN B @ DP2
	2								14.5	1.22	6.00	7.3											COMBINED DP1 & DPB @ DP2
		C	0.44	0.36	11.6	0.16	6.55	1.0															BASIN C @ DP3
	3								14.5	1.38	6.00	8.3											COMBINED DP2 & BASIN C @ DP3
		D	0.16	0.36	5.0	0.06	8.68	0.5															BASIN D @ DP4
	4								14.5	1.44	6.00	8.6											COMBINED DP3 & BASIN D @ DP4

Notes:
Street and Pipe C*A values are determined by Q/i using the catchment's intensity value.



APPENDIX C – HYDRAULIC ANALYSIS

Channel Report

Pr Swale Q100 = DP2 = 7.3 cfs

Triangular

Side Slopes (z:1) = 50.00, 3.00
Total Depth (ft) = 0.50

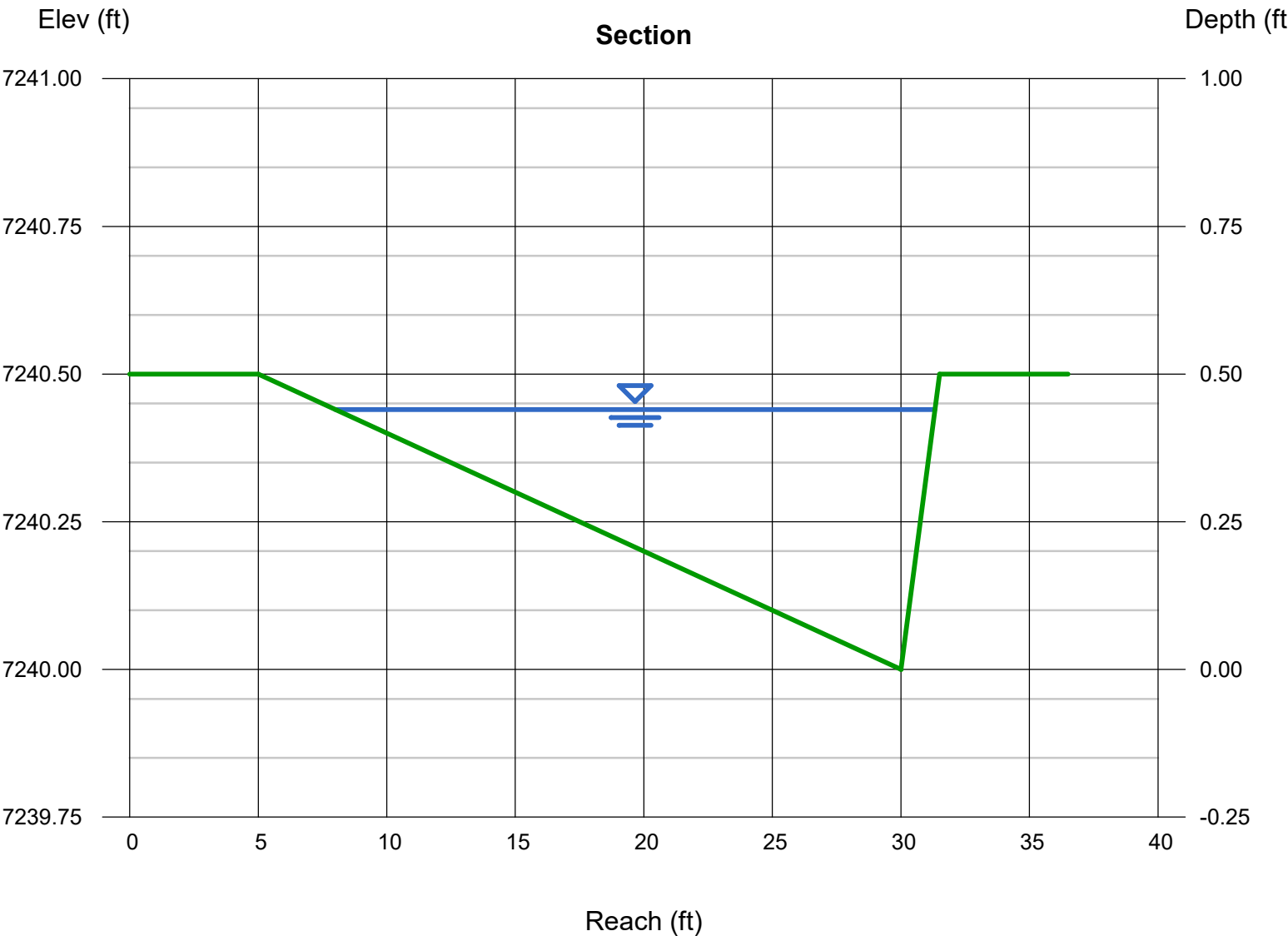
Invert Elev (ft) = 7240.00
Slope (%) = 0.70
N-Value = 0.030

Calculations

Compute by: Known Q
Known Q (cfs) = 7.30

Highlighted

Depth (ft) = 0.44
Q (cfs) = 7.300
Area (sqft) = 5.13
Velocity (ft/s) = 1.42
Wetted Perim (ft) = 23.40
Crit Depth, Yc (ft) = 0.35
Top Width (ft) = 23.32
EGL (ft) = 0.47





APPENDIX D - WATER QUALITY & DETENTION



2880 International Circle, Suite 110
Colorado Springs, CO 80910
Phone: 719-520-6300
Email: Stormwater@elpasoco.com
publicworks.elpasoco.com/stormwater/

EL PASO COUNTY PCM APPLICABILITY FORM

EPC Project Number: CDR2612

This form is to be used by the Engineer of Record to determine if the proposed construction activities are eligible for an exclusion to stormwater quality permanent control measure (PCM) requirements. All “applicable construction activity” within El Paso County (EPC) must comply with the post-construction stormwater management criteria. Reference ECM Appendix I for information about PCMs.

Note that this form only addresses stormwater quality for the site. Even if the site is fully excluded from needing a stormwater quality PCM, the site may still need to address stormwater detention (per DCMv1 Chap 1.5 and ECM Chap 3.2.8.B). However, if the site requires stormwater detention, then it must also address stormwater quality (per DCMv2 Chap 4.1 and ECM Appendix I.7.3). Refer to the Reference Information pages below for more guidance.

Part I. Project Summary			
Project Name:	4420 Green Mountain Drive		
Is Stormwater Detention Required?	☐ Yes ☒ No	Is Water Quality Treatment Required? (i.e.: non-excluded disturbance >1ac)	☐ Yes ☒ No
Is an ESQCP Required? If “No,” Check Applicable Reason	☒ Yes ☐ No	☐ Not an Applicable Construction Activity ☐ Oil & Gas ☐ R-Factor	
Engineer of Record Email Address:	NJOKERST@ALLTERRAINENG.COM		

Part II. PCM Exclusions				
Note: Questions A through K directly correlate to Part I.E.4.a.i (A) to (K) on page 27 of the 2016 CDPS Statewide Standard MS4 General Permit COR090000 (i.e.: the MS4 Permit), as amended. Document exclusions that apply to the whole project or parts of it.				
Questions	Excluded Acreage	Yes	No	Notes
A. Is this project a “Pavement Management Site?”			☒	This exclusion applies to the maintenance, rehabilitation, and reconstruction of pavement on existing roads, bridges, bike lanes, and parking along roads. Areas used primarily for parking (i.e.: separate lots not along roadway) or access to parking are not included. No increase in impervious area is allowable.
B. Review two options below to see if project is an “Excluded Roadway Development.”				Does <u>not</u> include sidewalks. Does include curb & gutter.
• Does the project include improvements to an existing roadway that adds < 1 acre of paved or gravel area per mile of roadway?			☒	If selected, list the proposed additional acreage per mile in Part IV Notes below.
• Does the project include improvements to an existing roadway that adds ≤ 8.25 ft of paved width at any location?			☒	If selected, list the proposed additional width in Part IV Notes below.



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EL PASO COUNTY PCM APPLICABILITY FORM

EPC Project Number: CDR2612

Part II. PCM Exclusions (continued)				
Questions	Excluded Acreage	Yes	No	Notes
C. Does the project include "Excluded Existing Roadway Areas?"			X	For redevelopment of <u>existing</u> roadways. This exclusion only excludes the original roadway area, it does NOT apply to the entire project. This exclusion applies only when the proposed project will expand the existing roadway width by <2x on average. If selected, list the proposed expanded width in Part IV Notes below.
D. Is the project considered an Aboveground or Underground Utilities activity?			X	Activity can <u>not</u> permanently alter the terrain, ground cover, or drainage patterns from existing conditions.
E. Is the project considered a "Large Lot Single-Family Site"? <i>This exclusion only pertains to the lots and does not include roadways.</i>			X	Must be a single-family residential lot or agricultural zoned land with ≥ 2.5 acres per dwelling and total lot impervious area < 10%. If "Yes," notate the percent impervious below in Part IV: Notes.
F. Do Non-Residential or Non-Commercial Infiltration Conditions exist? <i>Post-development surface conditions do not result in concentrated stormwater flow or surface water discharge during an 80th percentile stormwater runoff event, and the 80th percentile event must be infiltrated.</i>			X	Exclusion does not apply to residential or commercial sites for buildings. A site-specific study is required and must show rainfall and soil conditions, allowable slopes, surface conditions, and ratios of imperviousness area to pervious area.
G. Is the project land disturbance to Undeveloped Land where undeveloped land remains undeveloped following the activity?	3	X		Project must be on land with no human made structures such as buildings or pavement. The proposed development must return the disturbed area to its historical condition. See CDPHE's "Standard MS4 Permit FAQ" for more detail on how this exclusion applies.
H. Is the project a Stream Stabilization Site?			X	
I. Is the project a Bike or Pedestrian Trail?			X	Bike lanes for roadways are not included in this exclusion but may qualify if attached to a larger roadway activity that is excluded in A, B or C above. Pedestrian trails (e.g. sidewalks) that are attached to a roadway do not apply.
J. Is the project Oil and Gas Exploration?			X	Activities and facilities associated with oil and gas exploration are excluded.
K. Is the project in a County Growth Area?				El Paso County does not apply this exclusion.
If any exclusions above apply (via a "Yes" for any row), runoff from those areas is excluded from stormwater quality treatment requirements. All runoff from remaining non-excluded disturbed areas will need to be treated by a stormwater quality PCM, unless remaining area is <1ac. If remaining area is >1ac, select at least one Design Standard on the next page.				



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EL PASO COUNTY PCM APPLICABILITY FORM

EPC Project Number: CDR2612

Part III: PCM Information		
Questions	Yes	No
1. Which of the following Design Standard(s) will the project utilize? <i>(If a PCM is required, you must select at least one. See Control Measure Requirements identified in MS4 Permit Part I.E.4.a.iv on page 29.)</i>		
A. Water Quality Capture Volume (WQCV) Standard		
B. Pollutant Removal Standard - 80% Total Suspended Solids Removal (TSS) <i>(must treat runoff to <30mg/L of TSS)</i>		
C. Runoff Reduction Standard		
D. Applicable Development Site Draining to a Regional WQCV Control Measure <i>(no conveyance via "Waters of the State")</i>		
E. Applicable Development Site Draining to a Regional WQCV Facility <i>(conveyance allowable via "Waters of the State," if the 8 conditions in the MS4 permit are met and documented in the drainage report)</i>		
F. Constrained Redevelopment Sites Standard <i>(must be pre-approved by ECM Administrator)</i>		
G. Previous Permit Term Standard		
2. Will any of the PCMs be located within any other jurisdiction besides EPC?		

Part IV: Notes
Provide info regarding all applicable PCM(s) and PCM Exclusion(s) including location, PCM name(s)/number(s), and additional relevant filings or reports or maintenance agreements, etc. Attach an additional sheet if you need more space. Attaching a detailed summary table would replace the need for any notes here.
Total site disturbance is approximately 3 acres. There will be no added impervious to the site. All disturbed areas will be returned to a stabilized, vegetated condition.



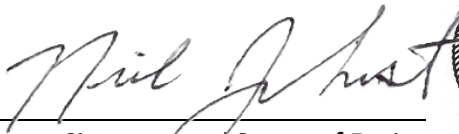
2880 International Circle, Suite 110
Colorado Springs, CO 80910
Phone: 719-520-6300
Email: Stormwater@elpasoco.com
publicworks.elpasoco.com/stormwater/

EL PASO COUNTY PCM APPLICABILITY FORM

EPC Project Number: CDR2612

Part V: Signatures

Applicant: This PCM Applicability Form was prepared under my direction and supervision and is correct to the best of my knowledge and belief. It was prepared along with the project design, construction plans, drainage report, specifications, and maintenance and access agreements as required. And it has been reviewed for compliance with the Post Construction Stormwater Management criteria and MS4 Permit requirements.



Signature and Stamp of Engineer or Recorder

(If the project is not an Applicable Construction Activity, this line can be signed by the Applicant or their rep, they do not have to be an engineer)

09/16/2026

Date

El Paso County: This PCM Applicability Form has been reviewed and the project design, construction plans, drainage report, specifications, and maintenance and access agreements as required, have been reviewed for compliance with the Post Construction Stormwater Management process and MS4 Permit requirements.

Signature of El Paso County Project Engineer

Date



APPENDIX E – REFENCE MATERIAL

Douglas County

Elbert County

Elbert County

Lincoln County

Pueblo County

Teller County
Fremont County

Drainage Basins

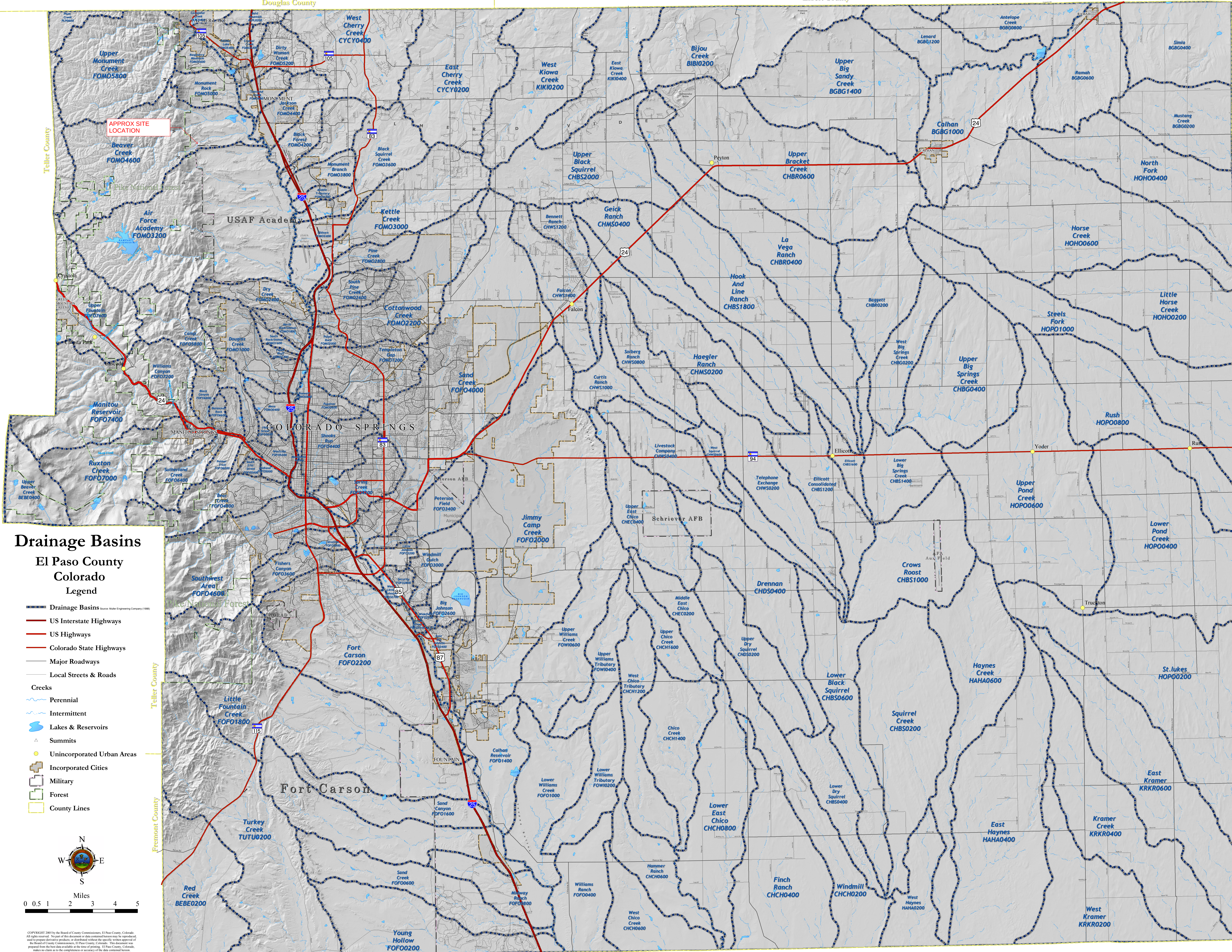
El Paso County Colorado Legend

- Drainage Basins (Source: Muter Engineering Company 1988)
- US Interstate Highways
- US Highways
- Colorado State Highways
- Major Roadways
- Local Streets & Roads
- Creeks
 - Perennial
 - Intermittent
- Lakes & Reservoirs
- Summits
- Unincorporated Urban Areas
- Incorporated Cities
- Military
- Forest
- County Lines



0 0.5 1 2 3 4 5
Miles

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APPENDIX F – DRAINAGE MAPS

4420 GREEN MOUNTAIN

EXISTING DRAINAGE MAP

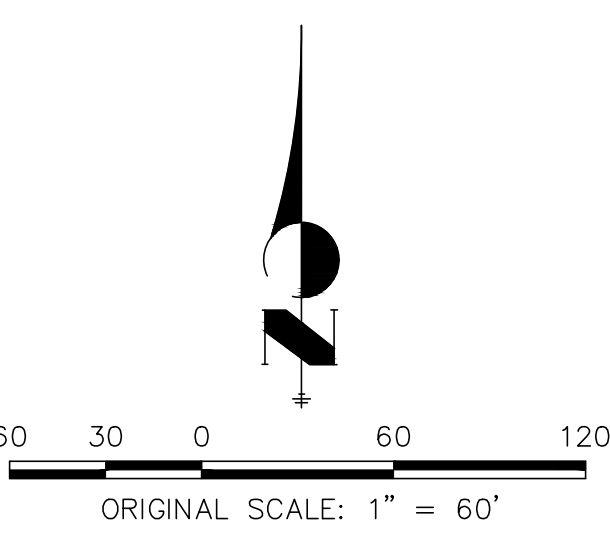


LEGEND

	EXISTING	PROPOSED
BOUNDARY LINE		
PROPERTY LINE		
EASEMENT LINE		
RIGHT OF WAY		
STORM SEWER		
SWALE/WATERWAY FLOWLINE		
INDEX CONTOUR		
INTERMEDIATE CONTOUR		
FLOW DIRECTION		
BASIN ID		
DESIGN POINT DESIGNATION		
DRAINAGE BASIN		
TC PATH		
LIMIT OF DISTURBANCE		

BASIN SUMMARY TABLE							
Basin	Area (ac)	Impervious	C _s	C ₁₀₀	t _c (min)	Q _{5-YR} (cfs)	Q _{100-YR} (cfs)
EX-A	1.52	6%	0.12	0.38	8.5	0.8	4.2
EX-B	2.33	4%	0.11	0.37	9.1	1.0	6.2

DESIGN POINT SUMMARY TABLE		
DP#	Q _{5-YR}	Q _{100-YR}
1	0.8	4.2
2	1.0	6.2
3	1.8	10.3



EXISTING DRAINAGE MAP	
4420 GREEN MOUNTAIN	
JOB NO. 26011	SHEET 1
LOCATION: CS	
09/29/2026	

4420 GREEN MOUNTAIN PROPOSED DRAINAGE MAP



LEGEND

The diagram illustrates the plan view of a proposed drainage basin, comparing existing and proposed conditions. The components shown are:

- BOUNDARY LINE:** Represented by a solid line.
- PROPERTY LINE:** Represented by a dashed line.
- EASEMENT LINE:** Represented by a dash-dot line.
- RIGHT OF WAY:** Represented by a solid line with inward-pointing ticks.
- STORM SEWER:** Represented by a thick, solid black line.
- SWALE/WATERWAY FLOWLINE:** Represented by a dashed line with arrows indicating flow direction.
- INDEX CONTOUR:** Represented by a solid line labeled 6100.
- INTERMEDIATE CONTOUR:** Represented by a dashed line.
- FLOW DIRECTION:** Indicated by a large arrow pointing right.
- DESIGN POINT DESIGNATION:** A triangle containing the number 1.
- DRAINAGE BASIN:** Represented by a thick, dashed green line.
- TC PATH:** Represented by a thick, dashed red line.

PROPOSED CONDITIONS - BASIN SUMMARY TABLE

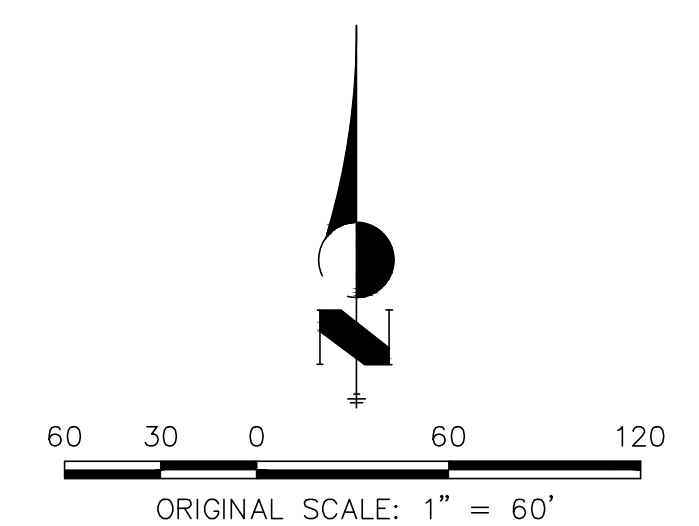
Basin	Area (ac)	Impervious	C _s	C ₁₀₀	t _c (min)	Q _{0-YR} (cfs)	Q _{100-YR} (cfs)
A	1.36	7%	0.12	0.38	14.5	0.6	3.1
B	1.89	5%	0.11	0.37	6.4	1.0	5.7
C	0.44	2%	0.09	0.36	11.6	0.2	1.0
D	0.16	2%	0.09	0.36	5.0	0.1	0.5

**PROPOSED CONDITIONS -
DESIGN POINT SUMMARY TABLE**

DP#	Q _{5-YR}	Q _{100-YR}
1	0.6	3.1
2	1.3	7.3
3	1.5	8.3
4	1.5	8.6

HUMMINGBIRD TRUST
WARDEN & PATRICIA WILLIAMS, TRUSTEES
4310 GREEN MOUNTAIN DRIVE
COLORADO SPRINGS, CO 80921-2312

AIR FORCE ACADEMY
ATTN: REAL ESTATE OFFICE
8120 EDGERTON DRIVE STE 40
USAF ACADEMY, CO 80840-2499



PROPOSED DRAINAGE MAP

4420 GREEN MOUNTAIN

LOG NO. 26044

JOB NO. 26011
LOCATION: CS

SHEET

[illegible]