

**DRAINAGE LETTER
FOR
19580 FOUR WINDS WAY**

FEBRUARY 2022

Prepared for:

THE MAYNARD COMPANY
1364 OLD CEDAR GROVE
MONUMENT, CO 80132

Prepared By:


**CATAMOUNT
ENGINEERING**
321 W. Henrietta Ave, Suite A
Woodland Park, CO 80863
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PCD FILE NO's:
CDR225

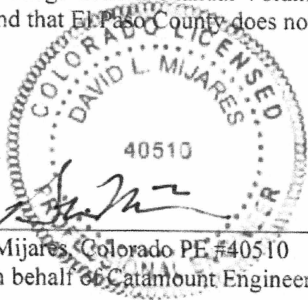
DRAINAGE LETTER FOR 19580 FOUR WINDS WAY

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 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.

Certification Statement:

This report and plan for the preliminary and final drainage design for the 19584 FOUR WINDS WAY was prepared by me (or under my direct supervision) in accordance with the provisions of City of Colorado Springs/El Paso County Drainage Criteria Manual Volumes 1 and 2 Drainage Design and Technical Criteria for the owners thereof. I understand that El Paso County does not and will not assume liability for drainage facilities designed by others.



David L. Mijares, Colorado PE #40510
For and on behalf of Catamount Engineering

Date 4.28.22

Developer's Statement:

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

THE MAYNARD COMPANY hereby certifies that the drainage facilities for 19580 FOUR WINDS WAY shall be constructed according to the design presented in this report. I understand that El Paso County does not and will not assume liability for the drainage facilities designed and or certified by my engineer and that the El Paso County reviews drainage plans pursuant to Colorado Revised Statutes, Title 30, Article 28; but cannot, on behalf of 19580 FOUR WINDS WAY, guarantee that final drainage design review will absolve THE MAYNARD GROUP and/or their successors and/or assigns of future liability for improper design. I further understand that approval of the final plat does not imply approval of my engineer's drainage design.

THE MAYNARD GROUP
Business Name _____
By: [Signature] _____
Title: PRESIDENT _____
Address: 1364 OLD CEDAR GROVE, _____
MONUMENT, CO 80132

El Paso County:

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

Jennifer Irvine, PE
County Engineer/ECM Administrator

Date _____

Conditions:

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- Existing Drainage Map
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DRAINAGE LETTER FOR 19580 FOUR WINDS WAY

PURPOSE

The purpose of this drainage report is to identify existing drainage patterns, quantify developed storm water runoff, and establish outfall scenarios from the proposed development of the single-family platted lot. Development of the lot required earthwork in excess of 500 CY and a drainage letter is required to accompany the grading plan.

GENERAL LOCATION AND DESCRIPTION

The subject 31,722 square feet consists of a platted residential lot zoned R-4 identified as Lot 168 Top O the Moor II subdivision. The lot is located within Section 1, Township 11 South, Range 67 West of the 6th principal meridian in El Paso County. The parcel is bounded on all sides by platted residential lots within the Top O the Moor II subdivision. Access to the parcel is from existing 20' access easement bordering this parcel and the easterly Lot 167 to Four Winds Way (Public ROW). The parcel has been previously graded to allow for homesite development.

The parcel is located within the Dirty Woman Creek drainage. The parcel sheet flows south onto adjacent residential lots at slopes between 7% and 33%.

Existing soils on the site consist of Kettle gravelly loam, hydrologic soil group B (100.0%) as determined by the Natural Resources Conservation Service Web Soil Survey. The site is sparsely vegetated with native grasses. Moderate shrub and tree cover are evident. A soils and foundation investigation and Geologic Hazards Evaluation was performed by CTL Thompson, project number CS19360-120 and is dated March 16, 2021.

No portion of the site lies within an F.E.M.A. designated floodplain per FIRM 08041C0277 G, effective December 07, 2018. A firmette exhibiting the parcel has been included in the appendix of this report.

EXISTING DRAINAGE CONDITIONS

This contradicts the previous sentence. Revise.

An original subdivision drainage report 'Top O' The Moor – Woodmoor Corporation' (PCD File# SP67005) was completed by R. Keith, Hook & Associates and dated April 27, 1967. No existing studies on the site or overall subdivision or basin have been identified. The parcel was developed as a flag lot with stem access to Four Winds Way is sits higher than existing residences to the South. A ridge is evident on the north line of the parcel and no significant offsite runoff enters the parcel.

Basin OS-1 (0.02 Acres, $Q_5=0.0$ cfs, $Q_{100}=0.1$ cfs) consists of that portion of the access easement north of the parcel that sheet flow south and into Basin EX1.

Existing conditions should only discuss the pre-development conditions. We have to pretend that most of the grading for the house has not already occurred. Otherwise Existing conditions will equal Proposed conditions.

Need to add a discussion for Basin OS-3

Basin OS-2 (0.12 Acres, $Q_5=0.1$ cfs, $Q_{100}=0.4$ cfs) consists of that portion of the access easement north and center of the parcel that flow southeast to south into Basin EX2 (toward lot 173). Basin OS-2 has been previously graded and contains a gravel roadway access to the subject parcel.

Basin EX1 (0.17 Acres, $Q_5=0.1$ cfs, $Q_{100}=0.5$ cfs) consists of that portion of Lot 1 that sheet flows southwest to adjacent lot 174. Portions of the lot have been previously graded in anticipation of home construction. Design Point E1 represents the confluence of EX-1 and OS-1 for a total existing site contribution of $Q_5=0.1$ cfs, $Q_{100}=0.5$ cfs.

Basin EX2 (0.54 Acres, $Q_5=0.2$ cfs, $Q_{100}=1.6$ cfs) consists of that portion of Lot 1 that sheet flows south to adjacent lot 173. Design Point E2 represents the confluence of EX-2 and OS-2 for a total existing site contribution of $Q_5=0.4$ cfs, $Q_{100}=2.05$ cfs. Portions of the lot have been previously graded in anticipation of home construction.

DEVELOPED DRAINAGE BASINS

Address fact that fill will now concentrate any flows coming from the north (upstream) around the site, that previously sheet-flowed across the site.

The lot has been previously graded to accommodate house construction. The developed drainage basin design reflects increases in impervious area based on house location and paved driveway construction. Offsite Basins OS1 and OS2 have been revised to reflect increase in impervious area for construction of paved driveway rather than existing gravel drive; however, grading is not proposed to change.

Based on the current topo within the limits of the building footprint, it seems that some additional grading is needed to flatten out the home pad. See comments on drainage map

Basin OS-1 (0.02 Acres, $Q_5=0.0$ cfs, $Q_{100}=0.1$ cfs) consists of that portion of the access easement north of the parcel that sheet flow south and into Basin A1. The basin was modeled as containing an additional 0.002 acres of paved driveway. No increase in runoff from historic analysis is proposed in Basin OS-1.

Basin OS-2 (0.12 Acres, $Q_5=0.1$ cfs, $Q_{100}=0.5$ cfs) consists of that portion of the access easement north and center of the parcel that flow southeast to south into Basin A2 (toward lot 173). Basin OS-2 was modeled as containing 0.02 acres of paved driveway replacing the existing gravel driveway. Basin OS-2 exhibits a very small increase in flows of 0.1 cfs in the major storm event with impervious area increase due to paving.

Basin A1 (0.17 Acres, $Q_5=0.1$ cfs, $Q_{100}=0.5$ cfs) consists of that portion of Lot 1 that sheet flows southwest to adjacent lot 174. The area is proposed to keep native cover or be planted with erosion control cover. No increase in impervious area is proposed in Basin A1. No increase in runoff from historic analysis is proposed in Basin A1. Design Point 1 represents the confluence of A-1 and OS-1 for a total existing site contribution of $Q_5=0.1$ cfs, $Q_{100}=0.5$ cfs. No increase in runoff from historic analysis is proposed from existing Design Point E1 and proposed Design Point 1.

Unless fill was added in this basin. If so, address.

Basin A2 (0.54 Acres, $Q_5=0.5$ cfs, $Q_{100}=2.1$ cfs) consists of that portion of the access easement north and center of the parcel that flow southeast to south into Basin A2 (toward lot 173). Portions of the lot have been previously graded in anticipation of home construction.

Need to add a discussion for Basin OS-3

revise this paragraph, once County topo is utilized for existing (pre-development condition. Because the significant change in some of the slopes will impact proposed flowrates.

The basin was modeled with inclusion of 0.02 acres of proposed paved driveway and 0.06 acres of proposed building footprint. Basin A2 exhibits an increase in flow of 0.3 cfs in the minor storm event and 0.5 cfs in the major storm event. Design Point 2 represents the confluence of A-2 and OS-2 for a total existing site contribution of $Q_5=0.4$ cfs, $Q_{100}=2.0$ cfs. Proposed Design Point 2 represents an increase in flow of 0.3 cfs in the minor storm event and 0.6 cfs in the major storm event, from existing Design Point E1.

While the flow increases may not be that significant, the flows are now re-routed and concentrated. Which needs to be discussed.

The rational methodology was utilized in analyzing on-site basins for development of on-site improvements. The minor increase in impervious area due to driveway and homesite development within the 31,772 square foot lot would not substantially impact historic drainage patterns. Detention is not typically pursued in small single family existing lot home construction.

As no existing analysis or preconstruction topography was available analysis and comparison of existing to developed flows is solely based on anticipated changes in impervious surface materials.

See Appendix for Calculations.

I don't understand how having large impervious areas is helpful for low impact development. Impervious surfaces have the highest impacts. Maybe just the way this sentence is worded makes it confusing? Please revise sentence to clarify.

WATER QUALITY/4-STEP PROCESS

The development addresses Low Impact Development strategies primarily through the utilization of large impervious areas and utilization of landscape swales receiving runoff generated within impervious roadways.

roadways are not the only impervious surface type on this site.

Step 1-Employ Runoff Reduction Practices

Impervious areas generated within the development will flow across pervious disconnected areas prior to offsite discharge.

Step2-Stabilize Drainageway

The unnamed tributaries of Dirty Woman Creek receiving parcel runoff are not directly adjacent to the parcel and reduced runoff due to substantial conveyance across both onsite and offsite pervious area will mitigate minor increases in impervious area with single homesite development and not affect the drainageways.

Step3-Provide Water Quality Capture Volume

Permanent water quality facility is not proposed for development of single existing platted homesite. The impervious area of proposed paved driveways and residence are identified as disconnected impervious areas draining to and conveyed across receiving impervious areas.

Step4-Consider Need for Industrial and Commercial BMP's

A Grading, Erosion Control, and Stormwater Quality Plan and narrative have been submitted concurrently for the development and will be subject to county approval prior to any soil disturbance. The erosion control plan included specific source control BMP's as well as defined overall site management practices for the construction period. No industrial or Commercial density development is proposed.

COST ESTIMATE

No drainage improvements are proposed with development of 5-acre residential lots.

DRAINAGE FEE CALCULATION

No platting is proposed with development of single-family residence on an existing platted lot.

DRAINAGE METHODOLOGY

This drainage report was prepared in accordance to the criteria established in the El Paso County Drainage Criteria Manual Volumes 1 and 2, as revised May 2014.

The rational method for drainage basin study areas of less than 100 acres was utilized in the on-site analysis. For the Rational Method, flows were calculated for the 2, 5, 10, 25, 50, and 100-year recurrence intervals. The average runoff coefficients, 'C' values, are taken from Table 6-6 and the Intensity-Duration-Frequency curves are taken from Figure 6-5 of the City Drainage Criteria Manual. Time of concentration for overland flow and storm drain or gutter flow are calculated per Section 3.2 of the City Drainage Criteria Manual. Calculations for the Rational Method are shown in the Appendix of this report.

SUMMARY

Development of a homesite on the existing platted lot (168, Top O the Moor II) consists of a single residence and driveway improvements with minor increases in impervious areas consistent with surrounding development. The development will not adversely affect downstream properties or facilities.

REFERENCES:

County of El Paso Drainage Criteria Manual Volumes 1 and 2, revised May 2014

Flood Insurance rate map 08041C00277 G, December 07. 2018

Natural Resources Conservation Service Web Soil Survey

APPENDIX

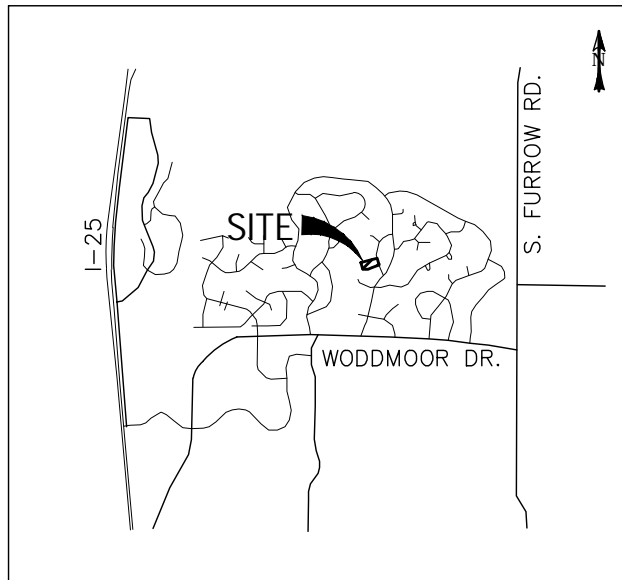
EXISTING HYDROLOGY

PROPOSED HYDROLOGY

HYDRAULIC CALCULATIONS

DRAINAGE MAPS

APPENDIX



VICINITY MAP
SCALE: N.T.S.



PO BOX 692 DIVIDE, CO 80814 (719) 426-2124

19580 FOUR WINDS WAY

VICINITY MAP

SCALE: N/A

JOB NO.: **21-337**

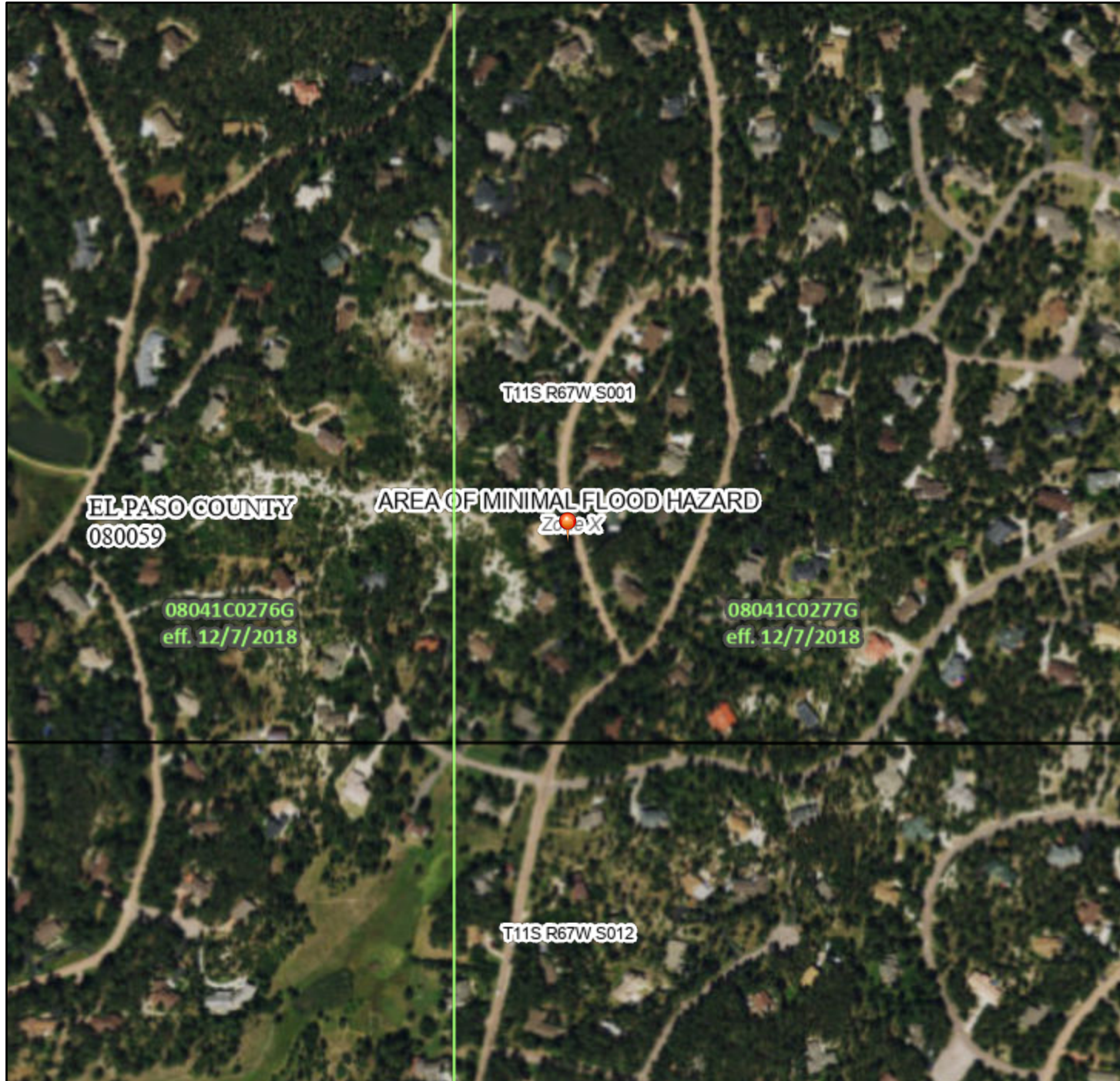
DATE: 11/03/20

SHEET: 1 OF 1

National Flood Hazard Layer FIRMette



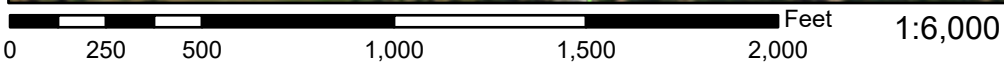
104°50'52"W 39°7'12"N



Legend

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

- | | | |
|-----------------------------|--|--|
| SPECIAL FLOOD HAZARD AREAS | | Without Base Flood Elevation (BFE)
<i>Zone A, V, A99</i> |
| | | With BFE or Depth <i>Zone AE, AO, AH, VE, AR</i> |
| | | 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 <i>Zone X</i> |
| | | Future Conditions 1% Annual Chance Flood Hazard <i>Zone X</i> |
| | | Area with Reduced Flood Risk due to Levee. See Notes. <i>Zone X</i> |
| | | Area with Flood Risk due to Levee <i>Zone D</i> |
| OTHER AREAS | | NO SCREEN Area of Minimal Flood Hazard <i>Zone X</i> |
| | | Effective LOMRs |
| | | Area of Undetermined Flood Hazard <i>Zone D</i> |
| GENERAL STRUCTURES | | Channel, Culvert, or Storm Sewer |
| | | Levee, Dike, or Floodwall |
| OTHER FEATURES | | Cross Sections with 1% Annual Chance Water Surface Elevation |
| | | Coastal Transect |
| | | Base Flood Elevation Line (BFE) |
| | | Limit of Study |
| | | Jurisdiction Boundary |
| | | Coastal Transect Baseline |
| 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. |



104°50'15"W 39°6'44"N

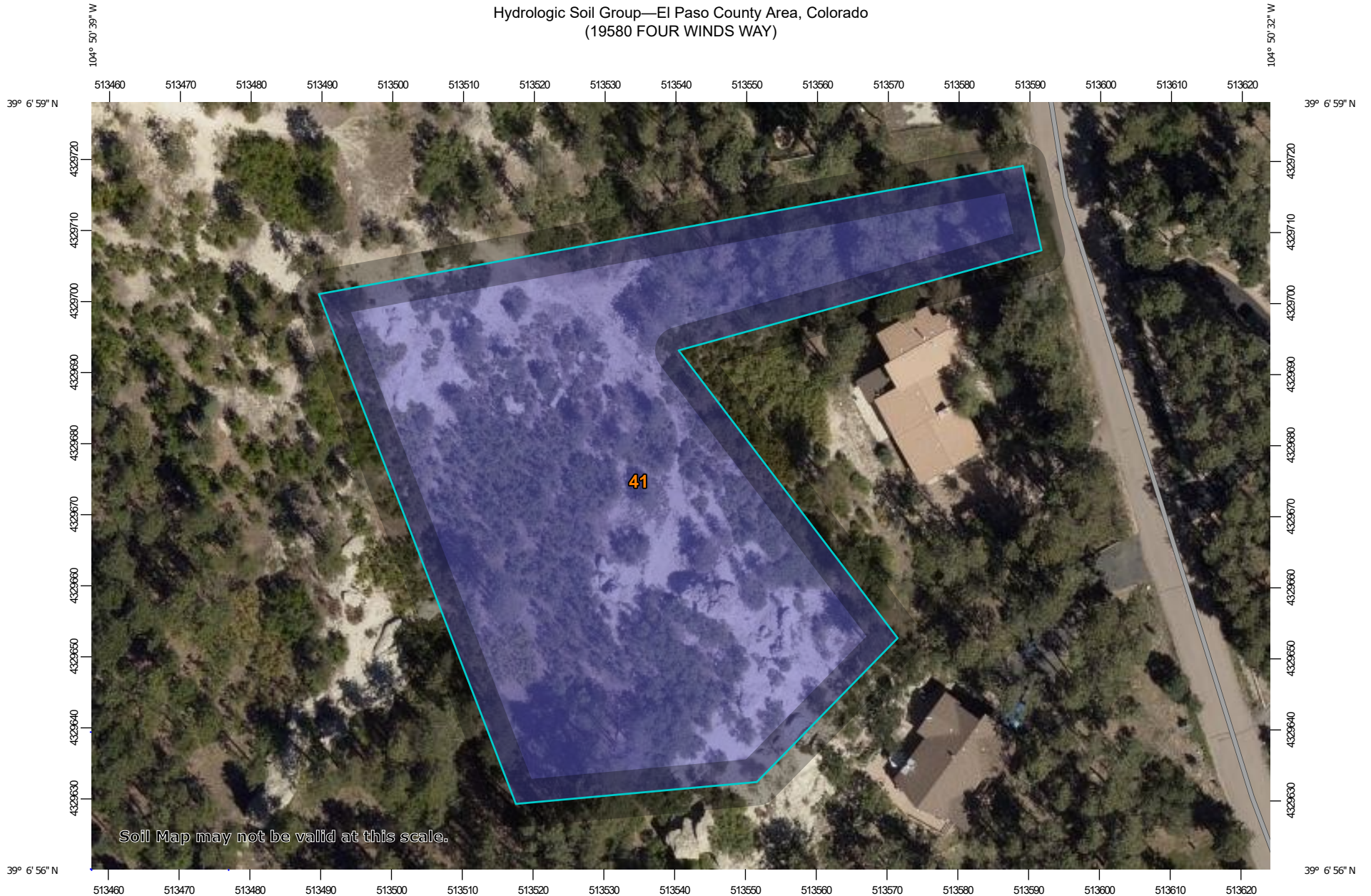
Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

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

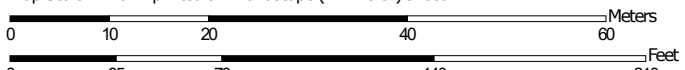
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **2/28/2022 at 11:45 AM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded 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.

Hydrologic Soil Group—El Paso County Area, Colorado
(19580 FOUR WINDS WAY)




Map Scale: 1:761 if printed on A landscape (11" x 8.5") sheet.



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

MAP LEGEND

Area of Interest (AOI)









 Area of Interest (AOI)

Soils

Soil Rating Polygons





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

Soil Rating Lines


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

Soil Rating Points


 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available


Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

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

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 19, Aug 31, 2021

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

Date(s) aerial images were photographed: 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
41	Kettle gravelly loamy sand, 8 to 40 percent slopes	B	1.2	100.0%
Totals for Area of Interest			1.2	100.0%

Description

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

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

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

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

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

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

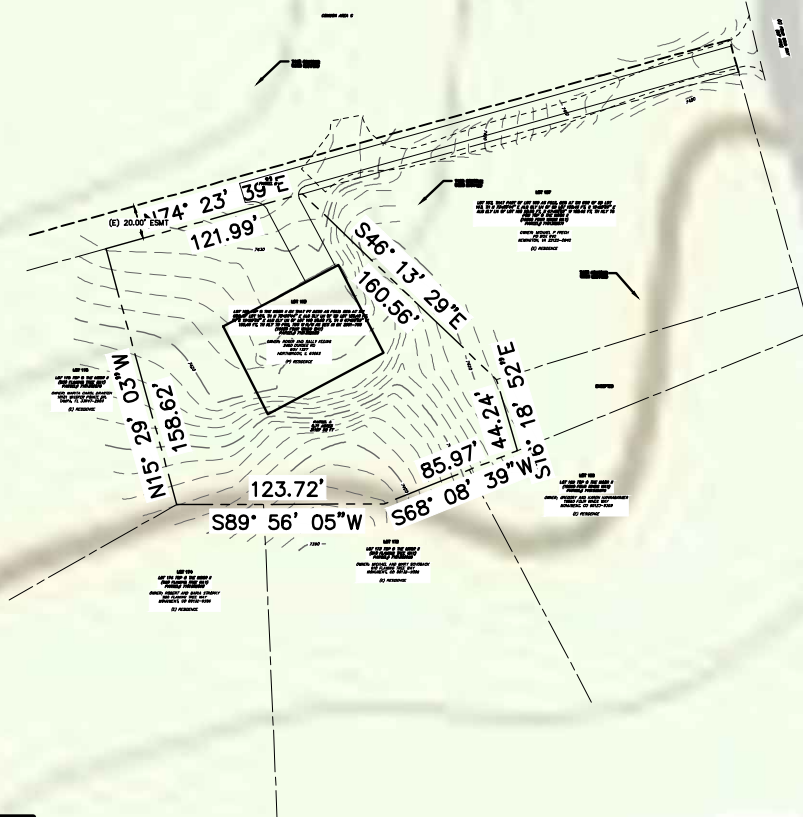
If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

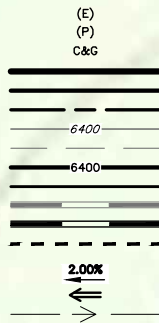
Component Percent Cutoff: None Specified

Tie-break Rule: Higher



LEGEND

- EXISTING
- PROPOSED
- CURB AND GUTTER
- PROPERTY BOUNDARY
- RIGHT-OF-WAY
- LOT LINE
- (E) CONTOUR, INDEX
- (E) CONTOUR
- (P) CONTOUR, INDEX
- (P) CONTOUR
- (E) STORM SEWER
- (P) STORM SEWER
- LIMITS OF CONSTRUCTION/
LIMITS OF DISTURBANCE
- DIRECTION OF FLOW
- OVERLAND FLOW ARROW
- (E) DRAINAGE SWALE



MAP: PRODUCED BY THE UNITED STATES GEOLOGICAL SURVEY

NORTH AMERICAN DATUM OF 1983 (NAD83)
 WORLD GEODETIC SYSTEM OF 1984 (WGS84)
 1000-METER GRID: UNIVERSAL TRANSVERSE MERCATOR, ZONE 13S
 IMAGERY.....NAIP, AUGUST 2017- JANUARY 2018
 ROADS.....U.S. CENSUS BUREAU, 2016
 NAMES.....GNS, 1994-2021
 HYDROLOGY.....NATIONAL HYDROGRAPHY DATASET, 2003
 CONTOURS.....NATIONAL ELEVATION DATASET, 2003

19584 FOUR WINDS WAY
 MONUMENT, CO 80132

TOPOGRAPHY/ USGS EXHIBIT

SCALE: 1"=50'
 DATE: 04/21/22

JOB NO.: 21-334
 SHEET: 1 OF 1



EXISTING HYDROLOGY

EXISTING BASIN RATIONAL CALCULATIONS

BASIN	AREA TOTAL (Acres)	C ₂	C ₅	C ₁₀	C ₂₅	C ₅₀	C ₁₀₀	Length	Height	TI	CONVEYANCE TC					TT	INTENSITY					TOTAL FLOWS								
											Length	Height	C _v	Slope	Velocity		TC	TOTAL	I ₂	I ₅	I ₁₀	I ₂₅	I ₅₀	I ₁₀₀	Q ₂	Q ₅	Q ₁₀	Q ₂₅	Q ₅₀	Q ₁₀₀
								(ft)	(ft)	(min)	(ft)	(ft)	(%)	(fps)	(min)	(min)	(in/hr)	(in/hr)	(in/hr)	(in/hr)	(in/hr)	(in/hr)	(c.f.s.)	(c.f.s.)	(c.f.s.)	(c.f.s.)	(c.f.s.)	(c.f.s.)		
OS-1 <i>undeveloped</i>	0.02 0.02		0.09 0.09				0.36 0.36	77	11	7.2 <i>DP-E1</i>	125	20	10	16.0%	4.0	0.5	7.8		4.5				7.6		0.0				0.1	
OS-2 <i>undeveloped gravel</i>	0.12 0.09 0.03		0.22 0.09 0.59				0.45 0.36 0.70	59	14	5.4 <i>DP-E2</i>	202	32	10	15.8%	4.0	0.8	6.2		4.8				8.1		0.1				0.4	
OS-3 <i>undeveloped gravel</i>	0.10 0.04 0.06		0.39 0.09 0.59				0.56 0.36 0.70	35	6	4.6	160	22	10	13.8%	3.7	0.7	5.3		5.1				8.5		0.2				0.5	
EX1 <i>undeveloped</i>	0.17 0.17		0.09 0.09				0.36 0.36	75	14	6.5	108	18	7	16.7%	2.9	0.6	7.2		4.6				7.8		0.1				0.5	
EX-2 <i>undeveloped</i>	0.54 0.54		0.09 0.09				0.36 0.36	59	14	5.4	183	28	7	15.3%	2.7	1.1	6.5		4.8				8.0		0.2				1.6	

Calculated by: DLM
 Date: 2/28/2022

DESIGN POINT	AREA TOTAL (Acres)	WEIGHTED						TT	INTENSITY						TOTAL FLOWS						
		C ₂	C ₅	C ₁₀	C ₂₅	C ₅₀	C ₁₀₀	TOTAL	I ₂	I ₅	I ₁₀	I ₂₅	I ₅₀	I ₁₀₀	Q ₂	Q ₅	Q ₁₀	Q ₂₅	Q ₅₀	Q ₁₀₀	
								(min)	(in/hr)	(in/hr)	(in/hr)	(in/hr)	(in/hr)	(in/hr)	(c.f.s.)	(c.f.s.)	(c.f.s.)	(c.f.s.)	(c.f.s.)	(c.f.s.)	
E1	0.19		0.09				0.36	7.8		4.5				7.6		0.1					0.5
BASIN EX-1	0.17		0.09				0.36	7.2													
BASIN OS-1	0.02		0.09				0.36	7.8													
E2	0.66		0.11				0.38	6.5		4.8			8.0		0.4						2.0
BASIN EX-2	0.54		0.09				0.36	6.5													
BASIN OS-2	0.12		0.22				0.45	6.2													

Calculated by: DLM
Date: 4/2/2018

PROPOSED HYDROLOGY

EXISTING BASIN RATIONAL CALCULATIONS

BASIN	AREA TOTAL (Acres)	C						CONVEYANCE TC						TT	INTENSITY						TOTAL FLOWS										
		C ₂	C ₅	C ₁₀	C ₂₅	C ₅₀	C ₁₀₀	Length (ft)	Height (ft)	TI (min)	Length (ft)	Height (ft)	C _v	Slope (%)	Velocity (fps)	TC (min)	TOTAL (min)	I ₂ (in/hr)	I ₅ (in/hr)	I ₁₀ (in/hr)	I ₂₅ (in/hr)	I ₅₀ (in/hr)	I ₁₀₀ (in/hr)	Q ₂ (c.f.s.)	Q ₅ (c.f.s.)	Q ₁₀ (c.f.s.)	Q ₂₅ (c.f.s.)	Q ₅₀ (c.f.s.)	Q ₁₀₀ (c.f.s.)		
OS-1 <i>undeveloped paved</i>	0.02 0.018 0.002		0.17 0.09 0.90				0.42 0.36 0.96	77	11	7.2	125	20	10	16.0%	4.0	0.5	7.8		4.5				7.6		0.0					0.1	
OS-2 <i>undeveloped paved</i>	0.12 0.10 0.02		0.23 0.09 0.90				0.46 0.36 0.96	59	14	5.4	202	32	20	15.8%	8.0	0.4	5.8		4.9				8.3		0.1					0.5	
OS-3 <i>undeveloped paved</i>	0.10 0.04 0.06		0.58 0.09 0.90				0.72 0.36 0.96	35	6	4.6	160	22	20	13.8%	7.4	0.4	5.0		5.2				8.7		0.3					0.6	
A1 <i>landscape</i>	0.17 0.17		0.08 0.08				0.35 0.35	75	14	6.5	108	18	7	16.7%	2.9	0.6	7.2		4.6				7.8		0.1					0.5	
A2 <i>landscape paved roof</i>	0.54 0.54 0.02 0.06		0.20 0.08 0.90 0.73				0.48 0.35 0.96 0.81	41	7	5.0	215	35	10	16.3%	4.0	0.9	5.9		4.9				8.3		0.5					2.1	

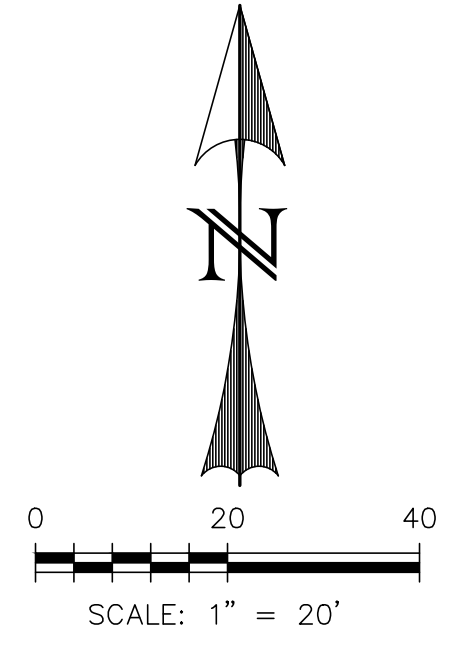
why did the length change from 183ft on the existing conditions on pg 23 above?

The slope is 15.3% for the existing condition. It was increased more than 1% in the areas along the slope of the fill.

DESIGN POINT	AREA TOTAL (Acres)	WEIGHTED						TT	INTENSITY						TOTAL FLOWS						
		C ₂	C ₅	C ₁₀	C ₂₅	C ₅₀	C ₁₀₀	TOTAL	I ₂	I ₅	I ₁₀	I ₂₅	I ₅₀	I ₁₀₀	Q ₂	Q ₅	Q ₁₀	Q ₂₅	Q ₅₀	Q ₁₀₀	
								(min)	(in/hr)	(in/hr)	(in/hr)	(in/hr)	(in/hr)	(in/hr)	(c.f.s.)	(c.f.s.)	(c.f.s.)	(c.f.s.)	(c.f.s.)	(c.f.s.)	
1	0.19		0.09				0.36	7.8		4.5				7.6		0.1					0.5
BASIN A1	0.17		0.08				0.35	7.2													
BASIN OS-1	0.02		0.17				0.42	7.8													
2	0.66		0.20				0.47	5.8		4.9				8.3		0.7					2.6
BASIN A2	0.54		0.20				0.48	5.9													
BASIN OS-2	0.12		0.23				0.46	5.8													

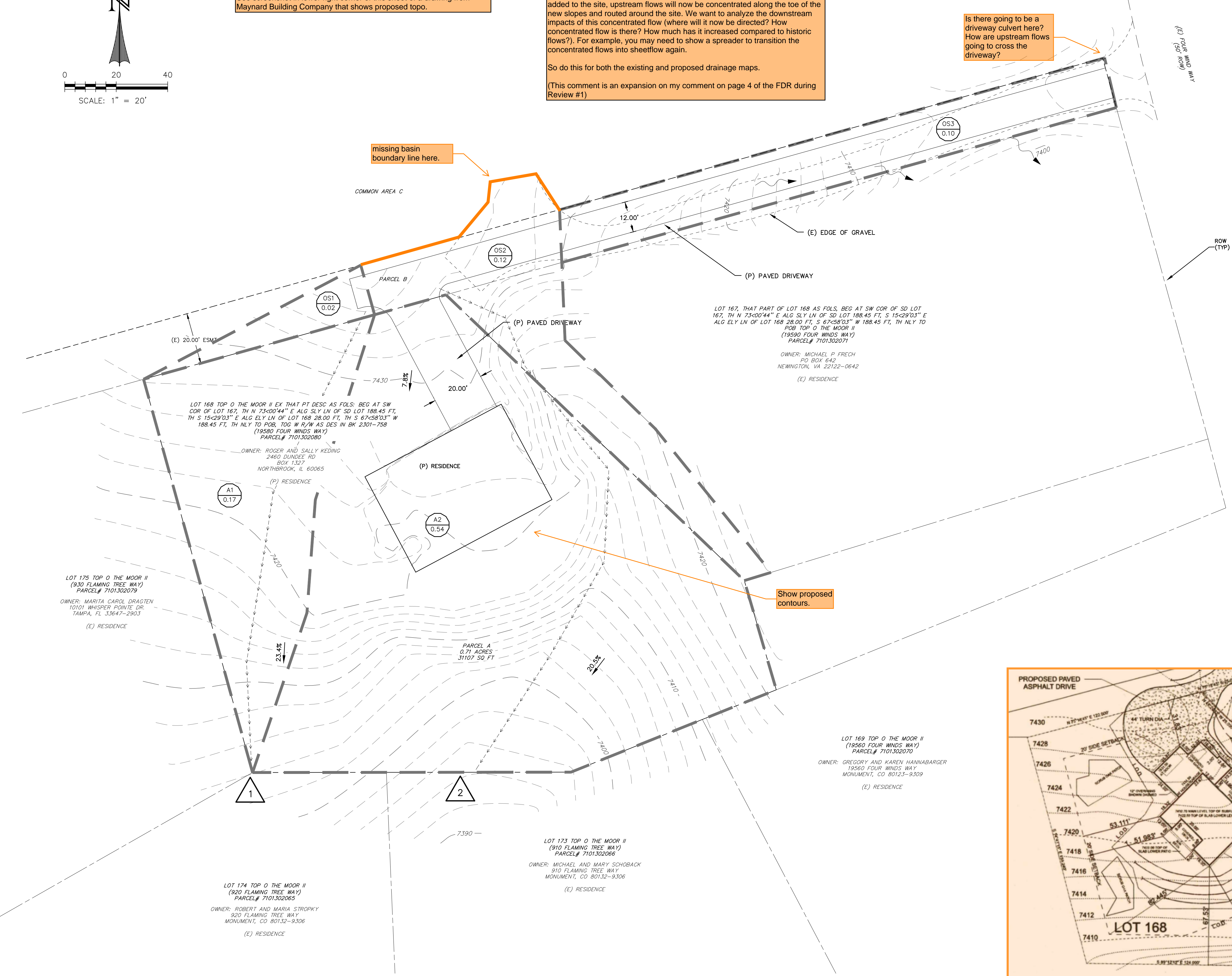
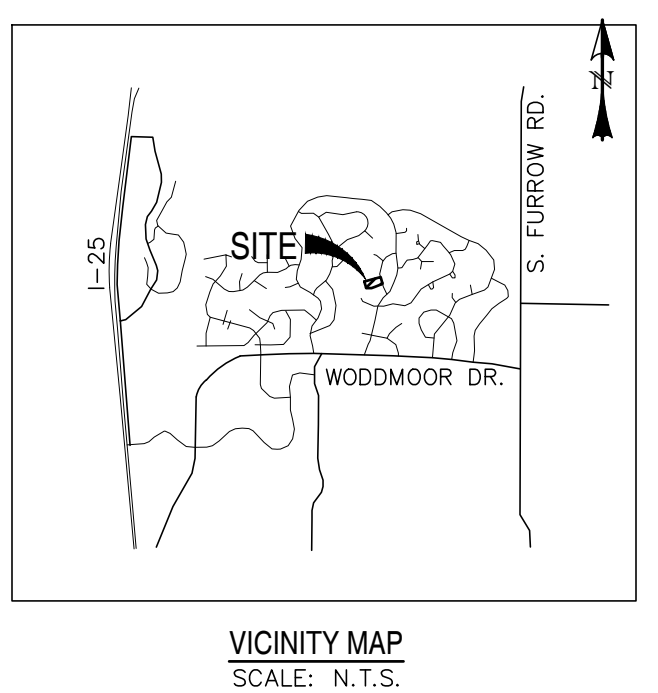
Calculated by: DLM
Date: 4/2/2018

DRAINAGE MAPS



Unresolved comments from Review #1:
 Notate date and source of topo survey.
 This map should show proposed topo, which should include a flat pad around the house, for example. This does not appear to show final topo. See screenshot in lower right corner of this sheet of a drawing from Maynard Building Company that shows proposed topo.

We require all developments to show areas of upstream basins that are tributary to the site. Use publicly available topo to generate approximate areas for the upstream basins, so flows can be estimated. Since so much fill was added to the site, upstream flows will now be concentrated along the toe of the new slopes and routed around the site. We want to analyze the downstream impacts of this concentrated flow (where will it now be directed? How concentrated flow is there? How much has it increased compared to historic flows?). For example, you may need to show a spreader to transition the concentrated flows into sheetflow again.
 So do this for both the existing and proposed drainage maps.
 (This comment is an expansion on my comment on page 4 of the FDR during Review #1)



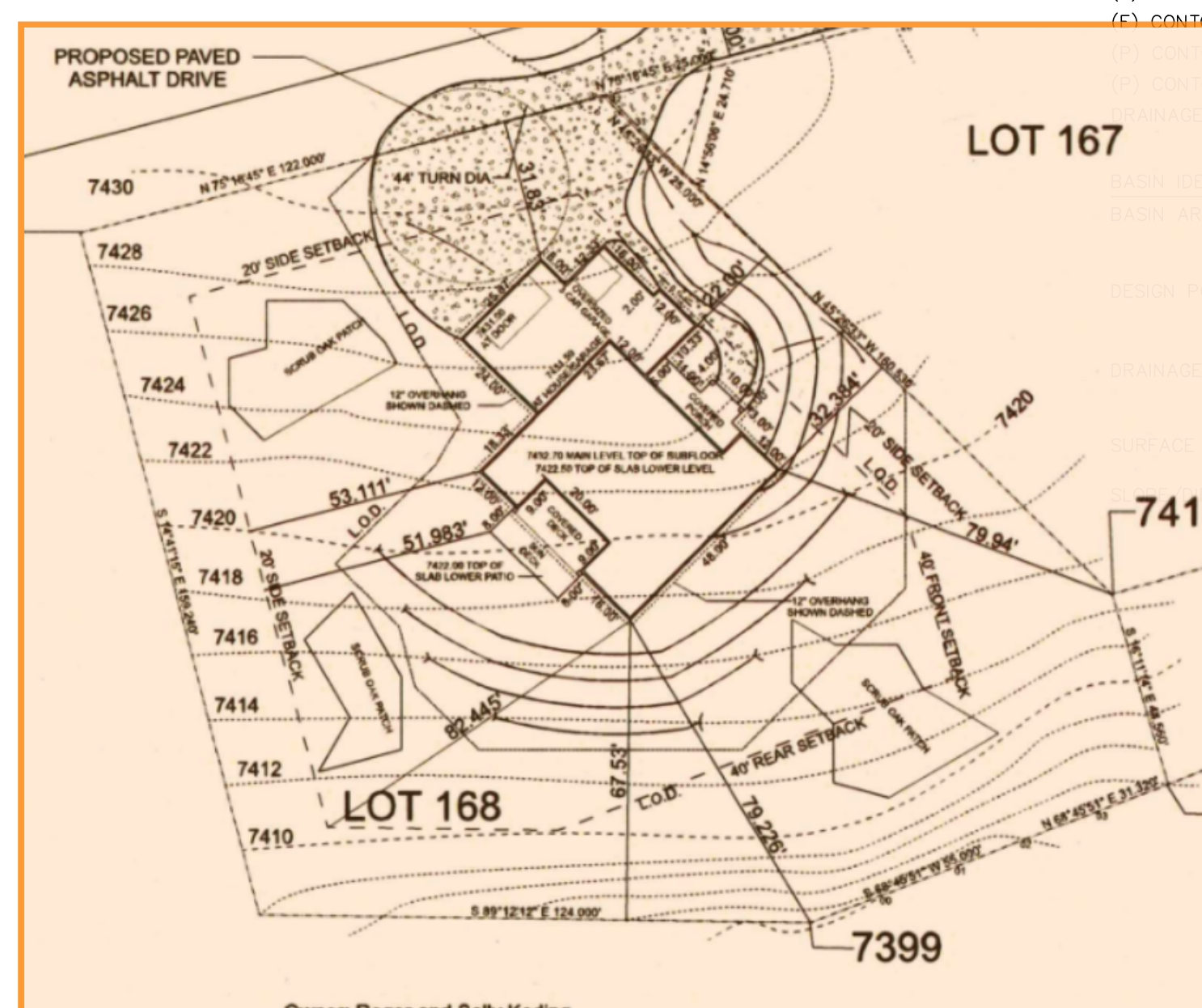
Is there going to be a driveway culvert here? How are upstream flows going to cross the driveway?

PROPOSED DRAINAGE BASINS				
BASIN	AREA (ACRES)	Q5 (CFS)	Q100 (CFS)	
OS-1	0.02	0.0	0.1	
OS-2	0.12	0.1	0.5	
OS-3	0.10	0.3	0.6	
A1	0.17	0.1	0.5	
A2	0.54	0.5	2.1	

PROPOSED DESIGN POINTS						
DESIGN POINT	Q2 (CFS)	Q5 (CFS)	Q10 (CFS)	Q25 (CFS)	Q50 (CFS)	Q100 (CFS)
1		0.1				0.5
2		0.7				2.6

LEGEND

EXISTING	(E)
PROPOSED	(P)
BOUNDARY	---
RIGHT-OF-WAY	---
LOT LINE	---
EASEMENT	---
(E) CONTOUR, INDEX	---
(E) CONTOUR	---
(P) CONTOUR, INDEX	---
(P) CONTOUR	---
PATH	---
IDENTIFIER	A
AREA [AC]	0.36
IDENTIFIERS	3
BASIN BOUNDARY	---
SHEET FLOW DIRECTION	---
SECTION	---



REV.	DESCRIPTION	DATE



PREPARED FOR:
THE MAYNARD COMPANY
 1364 OLD CEDAR GROVE
 MONUMENT, CO 80132



19584 FOUR WINDS WAY
 MONUMENT, CO 80132
PROPOSED DRAINAGE PLAN

DESIGNED BY: DLM	DRAWN BY: SLP
SCALE: 1"=20'	DATE: 04/28/22
JOB NUMBER: 21-337	SHEET: 2 OF 2

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C:\Users\mccoy\OneDrive\Documents\2022\19584 Four Winds Way\19584 Four Winds Way.dwg - Project - Friday, April 29, 2022 11:45:24 AM - 3/21/22