EPC STORMWATER REVIEW COMMENTS
IN ORANGE BOXES WITH BLACK TEXT

FINAL DRAINAGE REPORT FOR
DRIFTWOOD ESTATES FILING NO. 1
3275 CENTER ICE VIEW
COLORADO SPRINGS, COLORADO 80918

October, 2023

Prepared For:

Andrew C. Alm
2383 Collegiate Drive
Colorado Springs, Colorado 80918

Prepared By:

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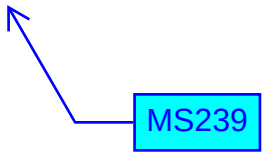
(719) 635-6422

Job No. 2358.00
PCD Filing No.: XXXXX



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APPENDICIES

DRAINAGE REPORT STATEMENT

Design Engineer's Statement

This 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 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.

_____

L DUCETT, P.E. 32339 Seal

OWNER/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

_____

Printed Name, Title

_____

Business Name

_____

Address

El Paso County Approval:

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

_____ _____

Joshua Palmer, P.E. Date

County Engineer / ECM Administrator

Conditions:

Purpose

The purpose of this Final Drainage Report is to identify and analyze the existing and proposed drainage patterns, determine proposed runoff quantities, size drainage structures to safely convey the developed runoff, and present solutions to drainage impacts on-site and off-site resulting from this development.

General Description

This Final Drainage Report is an analysis of the development of "DRIFTWOOD ESTATES FILING NO. 1" (AKA "3275 Center Ice View") owned by Andrew C. Alm. The site is located at 3275 Center Ice View, Colorado Springs, CO 80918 in Section 33, Township 11S, Range 67 West of the 6th Principal Meridian in El Paso County. The site is bounded on all sides, except the east, by unplatted lots zoned RR-5. The unplatted lot to the east is zoned A-35. The site is provided with an existing 30' access easement through two lots west of the site owned by the Forest Lakes Metropolitan District out to the intersection of Plateau Drive and Haystack Road which both have 60' public ROW's. The site is currently unplatted. The site is currently zoned RR-5 and does not currently have any significant structures.

Proposed is the subdivision of this unplatted lot into two rural residential lots and the installation of a single family residence. A gravel access drive will be constructed will be constructed within the 30' access easement extending from the intersection of Plateau Drive and Hay Creek Road to provide access to both lots in the subdivision. The access is extended through Lot 1 to provide access specifically to Lot 2.

The site lies within the upstream end of the Beaver Creek Drainage Basin, which is tributary to the Monument Creek.

Soils Condition

The soil for this project is composed of about 75% Jarre-Tecolote complex (Type 38) and about 25% Perrypark gravelly sandy loam (Type 65) per the "Soils Survey of El Paso County Area, which are both in Hydrologic Soil Group B with moderately rapid permeability, slow to medium surface runoff characteristics, moderate hazard of erosion, and 3 to 65 percent slopes.

Drainage Criteria

Hydrologic and Hydraulic calculations were performed using the El Paso County Storm Drainage Design Criteria Manual Volumes 1 & 2, latest editions. The Rational Method and the Soil Conservation Service Hydrograph Method were used to estimate storm water runoff.

Existing (Historic) Drainage Conditions

This specific site has not been previously studied in an approved drainage report. A drainage map for the existing conditions is included in the Appendix of this report. The site lies within the Beaver Creek Drainage Basin. The existing topography varies from gently rolling to steeply

sloped with average grades ranging from 3 to 65 percent. The site is currently undeveloped and has vegetative cover of approximately 70%.

The existing drainage basins lying in and around the proposed development are depicted in the Appendix. The site is impacted by off-site drainage basins to the west and southwest which generally drain in an easterly direction towards and across the site. Five existing sub-basins have been delineated within the site.

Basin EOS-1 contributes to DP X6 and has an area of 5.66 acres consisting of gently sloped undeveloped land directly west of the site. Runoff calculations for this basin were performed using the Rational Method. The basin was calculated to generate runoff amounts of Q5= 0.87 cfs and Q100= 5.82 cfs.

Basin EOS-2 contributes to DP X7 and has a small area of 0.32 acres consisting of undeveloped land directly west of the site. Runoff calculations for this basin were performed using the Rational Method. The basin was calculated to generate runoff amounts of Q5= 0.09 cfs and Q100= 0.57 cfs.

Basin EOS-3 contributes to DP X8 and has an area of 11.18 acres consisting of undeveloped land draining onto the central portion of the site. Runoff calculations for this basin were performed using the Rational Method. The basin was calculated to generate runoff amounts of Q5= 1.75 cfs and Q100= 11.71 cfs.

Basin EOS-4 contributes to DP X9 and has a large area of 103.28 acres consisting of undeveloped land draining onto the southwest portion of the site. Runoff calculations for this basin were performed using the Soil Conservation Service Hydrograph Method due to the size of the basin. The basin was calculated to generate runoff amounts of Q5= 5.71 cfs and Q100= 39.22 cfs.

Basin EX-A contributes to DP X1 and has an area of 2.13 acres consisting of undeveloped land steeply draining to the north of the parcel. Runoff calculations for this basin were performed using the Rational Method. The basin was calculated to generate runoff amounts of Q5= 0.89 cfs and Q100= 5.95 cfs.

Basin EX-B contributes to DP X2 and encompasses the majority of the flat portions of the site. It has an area of 3.61 acres consisting of undeveloped land. This basin becomes channelized and steepens at the outfall of the basin east of the site. Runoff calculations for this basin were performed using the Rational Method. The basin was calculated to generate runoff amounts of Q5= 0.88 cfs and Q100= 5.93 cfs.

Basin EX-C contributes to DP X3 has an area of 1.08 acres consisting of mostly undeveloped land very similar to Basin EX-B. This basin also channelizes and steepens near its outfall which is slightly south of DP X2. Runoff calculations for this basin were performed using the Rational Method. The basin was calculated to generate runoff amounts of Q5= 0.30 cfs and Q100= 2.03 cfs.

Basin EX-D contributes to DP X4 has an area of 4.80 acres consisting of mostly undeveloped land very similar to Basin EX-B. This basin also channelizes and steepens near its outfall which is slightly south of DP X2. Runoff calculations for this basin were performed using the Rational Method. The basin was calculated to generate runoff amounts of Q5= 1.46 cfs and Q100= 9.79 cfs.

Basin EX-E contributes to DP X5 has an area of 1.10 acres consisting of a steep undeveloped area that mostly sheet flows to the southeast portion of the parcel. Runoff calculations for this basin were performed using the Rational Method. The basin was calculated to generate runoff amounts of Q5= 0.37 cfs and Q100= 2.46 cfs.

Off-site flows from Basin EOS-1 combine with on-site drainage from Basin EX-B for combined flows calculated to be 1.75 cfs for the 5-year storm event and 11.75 cfs for the 100-year storm event at DP X2. Off-site flows from Basin EOS-2 combine with on-site drainage from Basin EX-C for combined flows calculated to be 0.39 cfs for the 5-year storm event and 2.60 cfs for the 100-year storm event at DP X3. Off-site flows from Basins EOS-3 and EOS-4 combine with on-site drainage from Basin EX-D for combined flows calculated to be 8.92 cfs for the 5-year storm event and 60.72 cfs for the 100-year storm event at DP X4.

Developed Drainage Conditions

A drainage map for the proposed condition is included in the appendix of this report. The offsite basins remain the same.

In the developed conditions, Basin A, formerly Basin EX-A, has become very slightly smaller but still outfalls to the north of the site at DP 1. This basin will remain undeveloped and flows are projected to be Q5=0.88 cfs and Q100=5.91 cfs.

Basin B, formerly Basin EX-B, has become very slightly larger but still outfalls to the east of the site at DP 2. This basin will also add a single family residence and gravel drive which will increase the runoff coefficients used to calculate drainage. The proposed grading is approximated on the proposed drainage map. The flows are now projected to be Q5=1.47 cfs and Q100=6.79 cfs.

Basin C, Basin D, and Basin E will remain the same.

The combined flow at Design Points 3 and 4 will not change. The combined flow at Design Point 2 is now calculated to be Q5=2.34 cfs and Q100=12.61 cfs.

Comparison of Developed to Historic Discharges

Based on the hydrologic calculations in the appendix, the total developed flow from the site will not change significantly from the existing conditions. Design Points 3 through 9 will not change at all. At Design Point 1, where drainage exits onto open space to the north, flows will decrease from 0.89 cfs to 0.88 cfs in the 5-year storm and from 5.95 cfs to 5.91 cfs in the 100-year storm. At Design Point 2, where drainage exits onto unplatted land east of the site, flows will increase from 1.75 cfs to 2.34 cfs in the 5-year storm and from 11.75 cfs to 12.61 cfs in the 100-year storm. This is only an increase of 7.3% in the 100-year flow in the developed conditions. The proposed development will have a negligible downstream drainage impact.

The proposed imperviousness will remain well under 10% and the area of disturbance will be under 1 acre so an ESQCP, SWMP and GEC plan will not be required.

The 10% imperviousness needs to include the driveway imperviousness as well - please clarify this.

Floodplain Statement

According to FEMA's FIRM No. 08041CO267G (eff. 12/7/2018), the proposed development is within an area designated as Zone X, having minimal flood hazard.

Drainage And Bridge Fees

This currently unplatted site is in the Beaver Creek Drainage Basin. The site is 12.72 acres. Appendix L of the Drainage Criteria Manual 1 Addendum states that for single-family 5-acre lots, an impervious percentage of 7% can be used. The combined Drainage Fees (2023) are due prior to final plat recordation.

Fee Type	% Imp.	Parcel Area (acre)	Imp. Area (acre)	Fee per Imp Acre	Mod %	Fee Cost
Drainage	7	12.72	0.89	$13,797	75*	$9,335.18
Bridge	7	12.72	0.89	$0	100	$0
				Total		$9,335.18

*25% reduction for low density lots per ECM Appendix L Section 3.10.2a

Summary

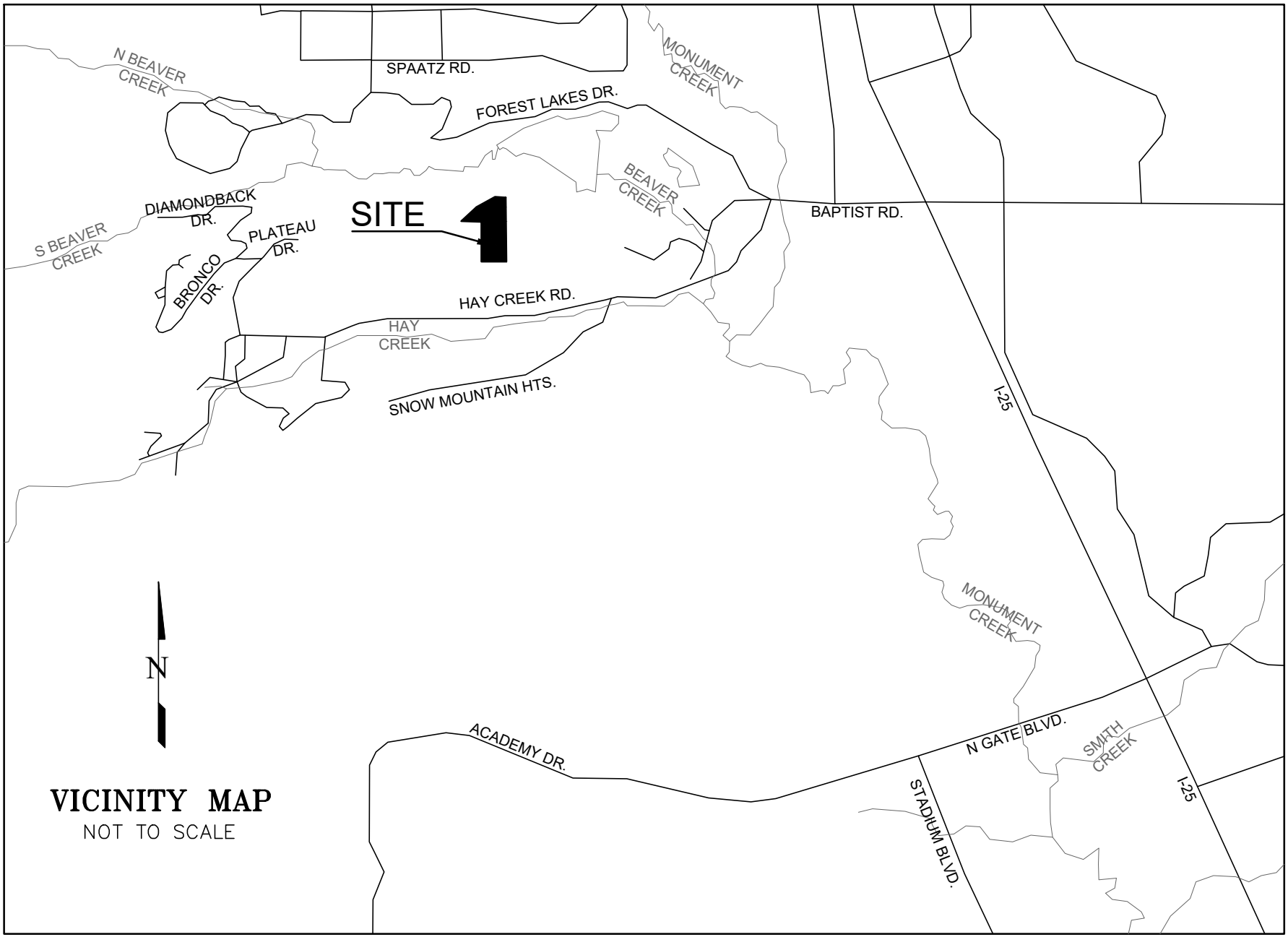
This Final Drainage Report analyzed the development of Driftwood Estates Filing No. 1 owned by Andrew C. Alm, located at 3275 Center Ice View, Colorado Springs, CO 80918. Runoff from the development will not adversely affect the surrounding or downstream developments. Proposed flows, as detailed in this report, will follow existing drainage patterns and will not significantly increase. No public storm drainage modifications or design changes are necessary as a result of the development.

References

1) *City of Colorado Springs/County of El Paso Drainage Criteria Manual, dated May 2014.*
2) *Soil survey of El Paso County Area, Colorado, Prepared by United States Department of Agriculture Soil Conservation Service*, dated June 1981.
3) *Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map Number 08041CO267G.*
4) *Mile High Flood District DCM*

APPENDICES

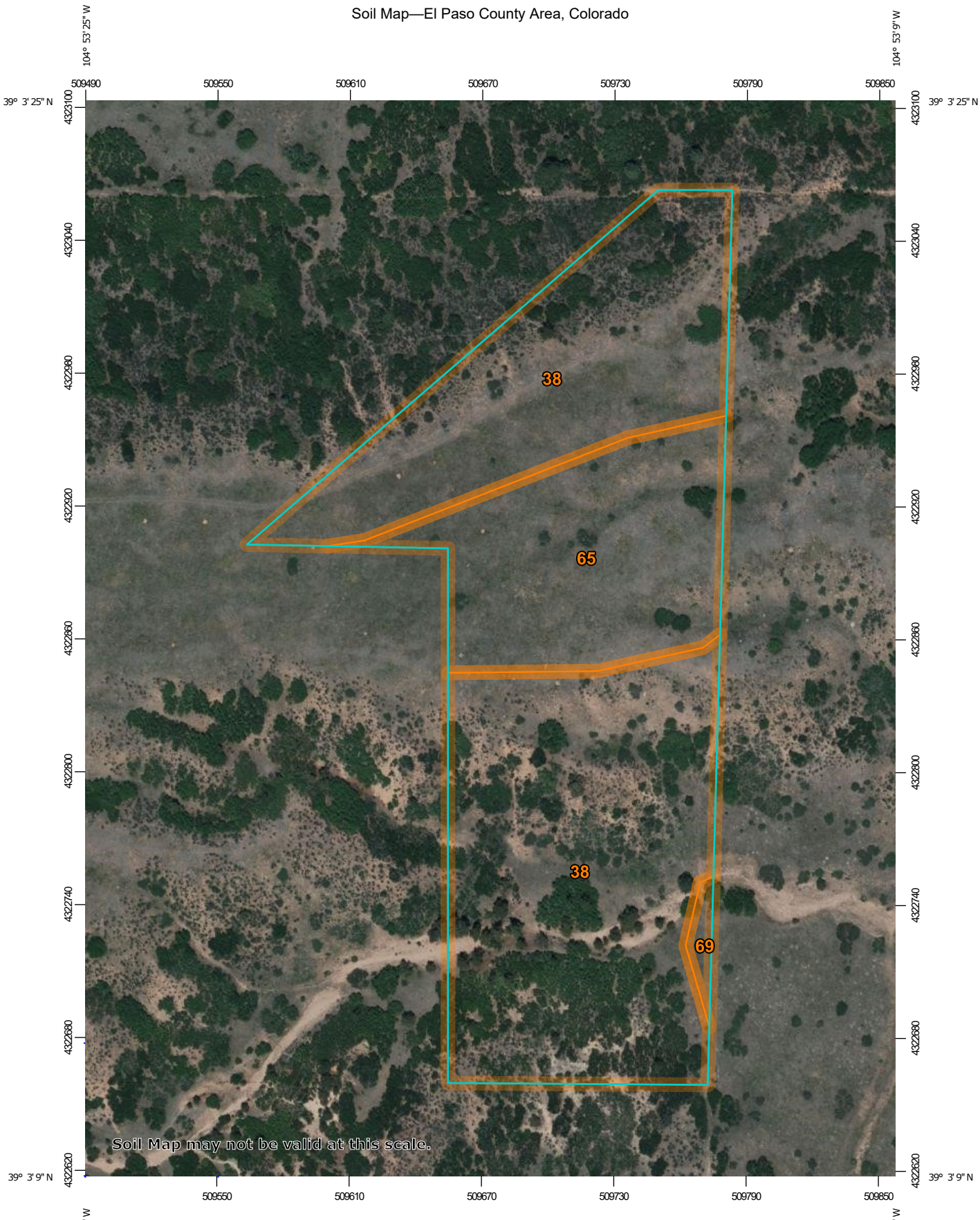
VICINITY MAP



VICINITY MAP

NOT TO SCALE

SOILS MAP



Map Scale: 1:2,370 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 35 70 140 210

Feet: 0 100 200 400 600

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 Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

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: Jun 9, 2021—Jun 12, 2021

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
38	Jarre-Tecolote complex, 8 to 65 percent slopes	9.2	74.6%
65	Perrypark gravelly sandy loam, 3 to 9 percent slopes	3.0	24.5%
69	Peyton-Pring complex, 8 to 15 percent slopes	0.1	1.0%
Totals for Area of Interest		**12.3**	**100.0%**

El Paso County Area, Colorado

38—Jarre-Tecolote complex, 8 to 65 percent slopes

Map Unit Setting

National map unit symbol: 368c
Elevation: 6,700 to 7,500 feet
Frost-free period: 90 to 125 days
Farmland classification: Not prime farmland

Map Unit Composition

Jarre and similar soils: 40 percent
Tecolote and similar soils: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Jarre

Setting

Landform: Alluvial fans
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

A - 0 to 5 inches: gravelly sandy loam
Bt - 5 to 22 inches: gravelly sandy clay loam
2C - 22 to 60 inches: very gravelly sandy loam

Properties and qualities

Slope: 8 to 30 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R048AY222CO - Loamy Park
Hydric soil rating: No

Description of Tecolote

Setting

Landform: Alluvial fans
Down-slope shape: Linear

Across-slope shape: Linear
Parent material: Alluvium

Typical profile

A - 0 to 3 inches: very stony loam
E - 3 to 12 inches: very gravelly loamy sand
Bt - 12 to 45 inches: extremely gravelly sandy clay loam
C - 45 to 60 inches: extremely gravelly loamy sand

Properties and qualities

Slope: 8 to 65 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: R048AY255CO - Pine Grasslands
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit:
Hydric soil rating: No

Data Source Information

Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 21, Aug 24, 2023

El Paso County Area, Colorado

65—Perrypark gravelly sandy loam, 3 to 9 percent slopes

Map Unit Setting

National map unit symbol: 369b
Elevation: 7,000 to 7,500 feet
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Perrypark

Setting

Landform: Hills, alluvial fans
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Arkosic alluvium derived from sedimentary rock and/or arkosic alluvium derived from granite

Typical profile

A - 0 to 4 inches: gravelly sandy loam
Bt - 4 to 48 inches: sandy clay loam
C - 48 to 60 inches: gravelly sandy loam

Properties and qualities

Slope: 3 to 9 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: R048AY222CO - Loamy Park
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit:

Hydric soil rating: No

Data Source Information

Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 21, Aug 24, 2023

El Paso County Area, Colorado

69—Peyton-Pring complex, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 369g
Elevation: 6,800 to 7,600 feet
Farmland classification: Not prime farmland

Map Unit Composition

Peyton and similar soils: 40 percent
Pring and similar soils: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Peyton

Setting

Landform: Hills
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Arkosic alluvium derived from sedimentary rock and/or arkosic residuum weathered from sedimentary rock

Typical profile

A - 0 to 12 inches: sandy loam
Bt - 12 to 25 inches: sandy clay loam
BC - 25 to 35 inches: sandy clay loam
C - 35 to 60 inches: sandy loam

Properties and qualities

Slope: 8 to 9 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: R049XY216CO - Sandy Divide
Hydric soil rating: No

Description of Pring

Setting

Landform: Hills
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Arkosic alluvium derived from sedimentary rock

Typical profile

A - 0 to 14 inches: coarse sandy loam
C - 14 to 60 inches: gravelly sandy loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R048AY222CO - Loamy Park
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit:
Hydric soil rating: No

Pleasant

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

Data Source Information

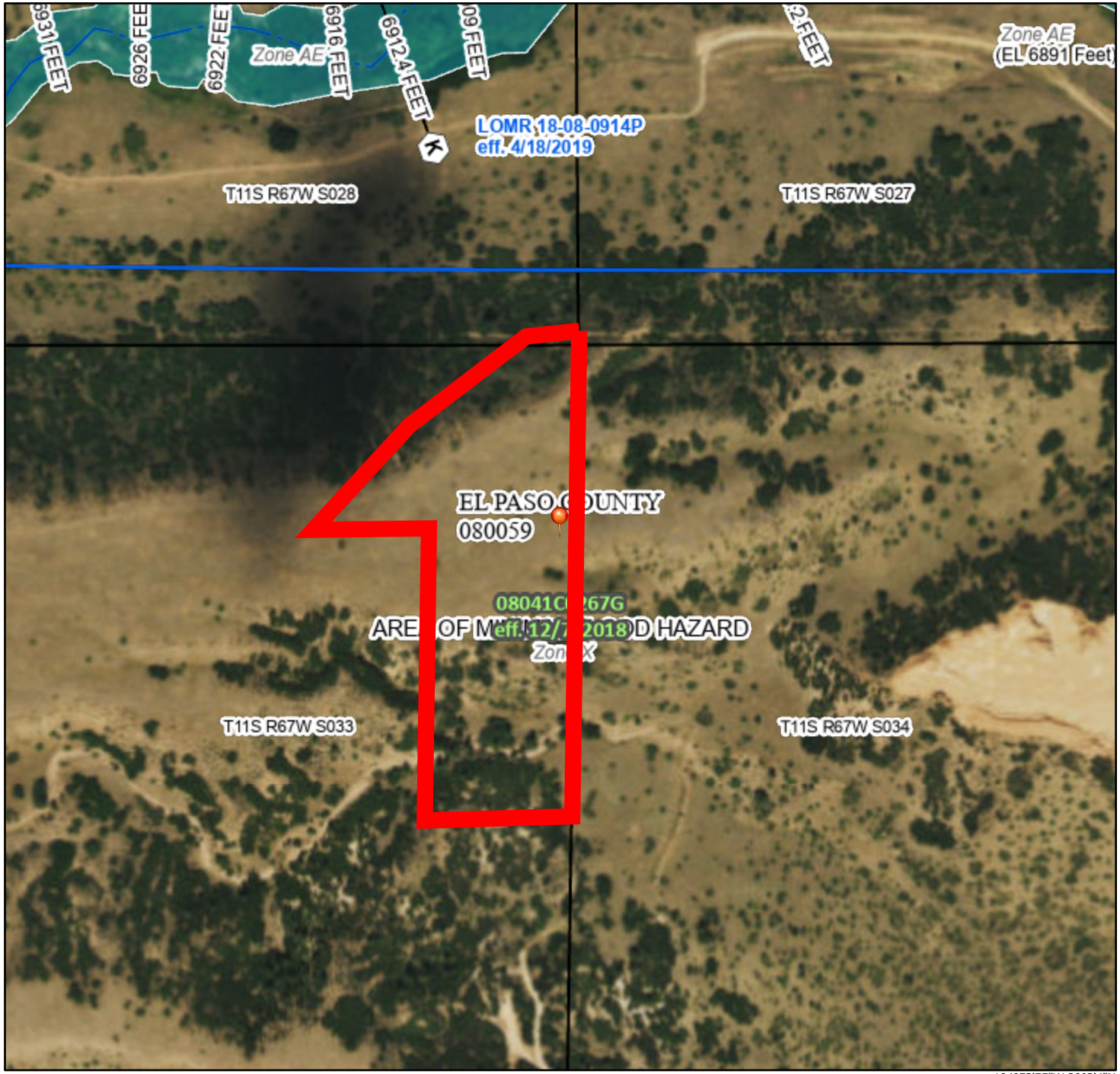
Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 21, Aug 24, 2023

FEMA FLOODPLAIN MAP

National Flood Hazard Layer FIRMette

FEMA

104°53'33"W 39°3'32"N



104°52'55"W 39°3'4"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

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
- 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

N

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 10/13/2023 at 10:24 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 CALCULATIONS

Driftwood Estates Filing No. 1
Area Runoff Coefficient (C) Summary

HSG - B

EXISTING

		GREENBELT			*ROOF*			*GRAVEL*			*WEIGHTED **		*WEIGHTED CA*	
BASIN	**TOTAL AREA**	**AREA**	**C5**	**C100**	**AREA**	**C5**	**C100**	**AREA**	**C5**	**C100**	**C5**	**C100**	**CA5**	**CA100**
	(Acres)	*(Acres)*			*(Acres)*			*(Acres)*						
EX-A	2.13	2.13	0.09	0.36	0.00	0.73	0.81	0.00	0.59	0.70	0.09	0.36	0.19	0.77
EX-B	3.61	3.61	0.09	0.36	0.00	0.73	0.81	0.00	0.59	0.70	0.09	0.36	0.32	1.30
EX-C	1.08	1.08	0.09	0.36	0.00	0.73	0.81	0.00	0.59	0.70	0.09	0.36	0.10	0.39
EX-D	4.80	4.80	0.09	0.36	0.00	0.73	0.81	0.00	0.59	0.70	0.09	0.36	0.43	1.73
EX-E	1.10	1.10	0.09	0.36	0.00	0.73	0.81	0.00	0.59	0.70	0.09	0.36	0.10	0.40
EOS-1	5.66	5.66	0.09	0.36	0.00	0.73	0.81	0.00	0.59	0.70	0.09	0.36	0.51	2.04
EOS-2	0.32	0.32	0.09	0.36	0.00	0.73	0.81	0.00	0.59	0.70	0.09	0.36	0.03	0.12
EOS-3	11.18	11.18	0.09	0.36	0.00	0.73	0.81	0.00	0.59	0.70	0.09	0.36	1.01	4.02
EOS-4	103.28	103.28	0.09	0.36	0.00	0.73	0.81	0.00	0.59	0.70	0.09	0.36	9.30	37.18
	133.2													

DEVELOPED

		GREENBELT			*ROOF*			*GRAVEL*			*WEIGHTED**		*WEIGHTED CA*	
BASIN	**TOTAL AREA**	**AREA**	**C5**	**C100**	**AREA**	**C5**	**C100**	**AREA**	**C5**	**C100**	**C5**	**C100**	**CA5**	**CA100**
	(Acres)	*(Acres)*			*(Acres)*			*(Acres)*						
EX-A	2.08	2.08	0.09	0.36	0.00	0.73	0.81	0.00	0.59	0.70	0.09	0.36	0.19	0.75
EX-B	3.66	3.29	0.09	0.36	0.09	0.73	0.81	0.28	0.59	0.70	0.14	0.40	0.53	1.45
EX-C	1.08	1.08	0.09	0.36	0.00	0.73	0.81	0.00	0.59	0.70	0.09	0.36	0.10	0.39
EX-D	4.80	4.80	0.09	0.36	0.00	0.73	0.81	0.00	0.59	0.70	0.09	0.36	0.43	1.73
EX-E	1.10	1.10	0.09	0.36	0.00	0.73	0.81	0.00	0.59	0.70	0.09	0.36	0.10	0.40
EOS-1	5.66	5.66	0.09	0.36	0.00	0.73	0.81	0.00	0.59	0.70	0.09	0.36	0.51	2.04
EOS-2	0.32	0.32	0.09	0.36	0.00	0.73	0.81	0.00	0.59	0.70	0.09	0.36	0.03	0.12
EOS-3	11.18	11.18	0.09	0.36	0.00	0.73	0.81	0.00	0.59	0.70	0.09	0.36	1.01	4.02
EOS-4	103.28	103.28	0.09	0.36	0.00	0.73	0.81	0.00	0.59	0.70	0.09	0.36	9.30	37.18
	133.2													

Date: _____ Checked by: _____

Driftwood Estates Filing No. 1
Runoff Summary
EXISTING

		WEIGHTED		*OVERLAND*				*SHALLOW CONCENTRATED FLOW*				T_C	*INTENSITY*		*TOTAL FLOWS*	
BASIN	**AREA TOTAL** *(Acres)*	C_5	C_{100}	C_5	**Length** *(ft)*	**Slope** *(ft/ft)*	T_t *(min)*	**Length** *(ft)*	**Slope** *(%)*	**Velocity** *(fps)*	T_t *(min)*	**TOTAL** *(min)*	I_5 *(in/hr)*	I_{100} *(in/hr)*	Q_5 *(c.f.s.)*	Q_{100} *(c.f.s.)*
		** For Calcs See Runoff Summary*														
EX-A	2.13	0.09	0.36	0.09	150	0.347	6.9	55	45.5%	3.4	0.3	7.2	4.6	7.8	0.89	5.95
EX-B	3.61	0.09	0.36	0.09	300	0.040	20.0	410	5.9%	1.2	5.6	25.6	2.7	4.6	0.88	5.93
EX-C	1.08	0.09	0.36	0.09	300	0.050	18.6	115	12.2%	1.7	1.1	19.7	3.1	5.2	0.30	2.03
EX-D	4.80	0.09	0.36	0.09	300	0.210	11.6	415	7.7%	1.4	5.0	16.6	3.4	5.7	1.46	9.79
EX-E	1.10	0.09	0.36	0.09	300	0.160	12.7	80	15.0%	1.9	0.7	13.3	3.7	6.2	0.37	2.46
EOS-1	5.66	0.09	0.36	0.09	300	0.033	21.3	1515	3.0%	0.9	29.2	50.5	1.7	2.9	0.87	5.82
EOS-2	0.32	0.09	0.36	0.09	300	0.033	21.3	25	4.0%	1.0	0.4	21.7	3.0	5.0	0.09	0.57
EOS-3	11.18	0.09	0.36	0.09	300	0.037	20.5	1935	5.0%	1.1	28.8	49.4	1.7	2.9	1.75	11.71
EOS-4	103.28	0.09	0.36	0.09	300	0.060	17.5	5000	3.7%	1.0	86.6	104.1	0.6	1.0	5.71	38.22

DEVELOPED

		WEIGHTED		*OVERLAND*				*SHALLOW CONCENTRATED FLOW*				T_C	*INTENSITY*		*TOTAL FLOWS*	
BASIN	**AREA TOTAL** *(Acres)*	C_5	C_{100}	C_5	**Length** *(ft)*	**Slope** *(ft/ft)*	T_t *(min)*	**Length** *(ft)*	**Slope** *(%)*	**Velocity** *(fps)*	T_t *(min)*	**TOTAL** *(min)*	I_5 *(in/hr)*	I_{100} *(in/hr)*	Q_5 *(c.f.s.)*	Q_{100} *(c.f.s.)*
		** For Calcs See Runoff Summary*														
EX-A	2.08	0.09	0.36	0.09	135	0.347	6.6	55	45.5%	3.4	0.3	6.8	4.7	7.9	0.88	5.91
EX-B	3.66	0.14	0.40	0.14	300	0.040	18.9	410	5.9%	1.2	5.6	24.5	2.8	4.7	1.47	6.79
EX-C	1.08	0.09	0.36	0.09	300	0.050	18.6	115	12.2%	1.7	1.1	19.7	3.1	5.2	0.30	2.03
EX-D	4.80	0.09	0.36	0.09	300	0.210	11.6	415	7.7%	1.4	5.0	16.6	3.4	5.7	1.46	9.79
EX-E	1.10	0.09	0.36	0.09	300	0.160	12.7	80	15.0%	1.9	0.7	13.3	3.7	6.2	0.37	2.46
EOS-1	5.66	0.09	0.36	0.09	300	0.033	21.3	1515	3.0%	0.9	29.2	50.5	1.7	2.9	0.87	5.82
EOS-2	0.32	0.09	0.36	0.09	300	0.033	21.3	25	4.0%	1.0	0.4	21.7	3.0	5.0	0.09	0.57
EOS-3	11.18	0.09	0.36	0.09	300	0.037	20.5	1935	5.0%	1.1	28.8	49.4	1.7	2.9	1.75	11.71
EOS-4	103.28	0.09	0.36	0.09	300	0.060	17.5	5000	3.7%	1.0	86.6	104.1	0.6	1.0	5.71	39.22

Note: Due to its size, flow from Basin EOS-4 was determined using the SCS method. See next page.

Surface Routing

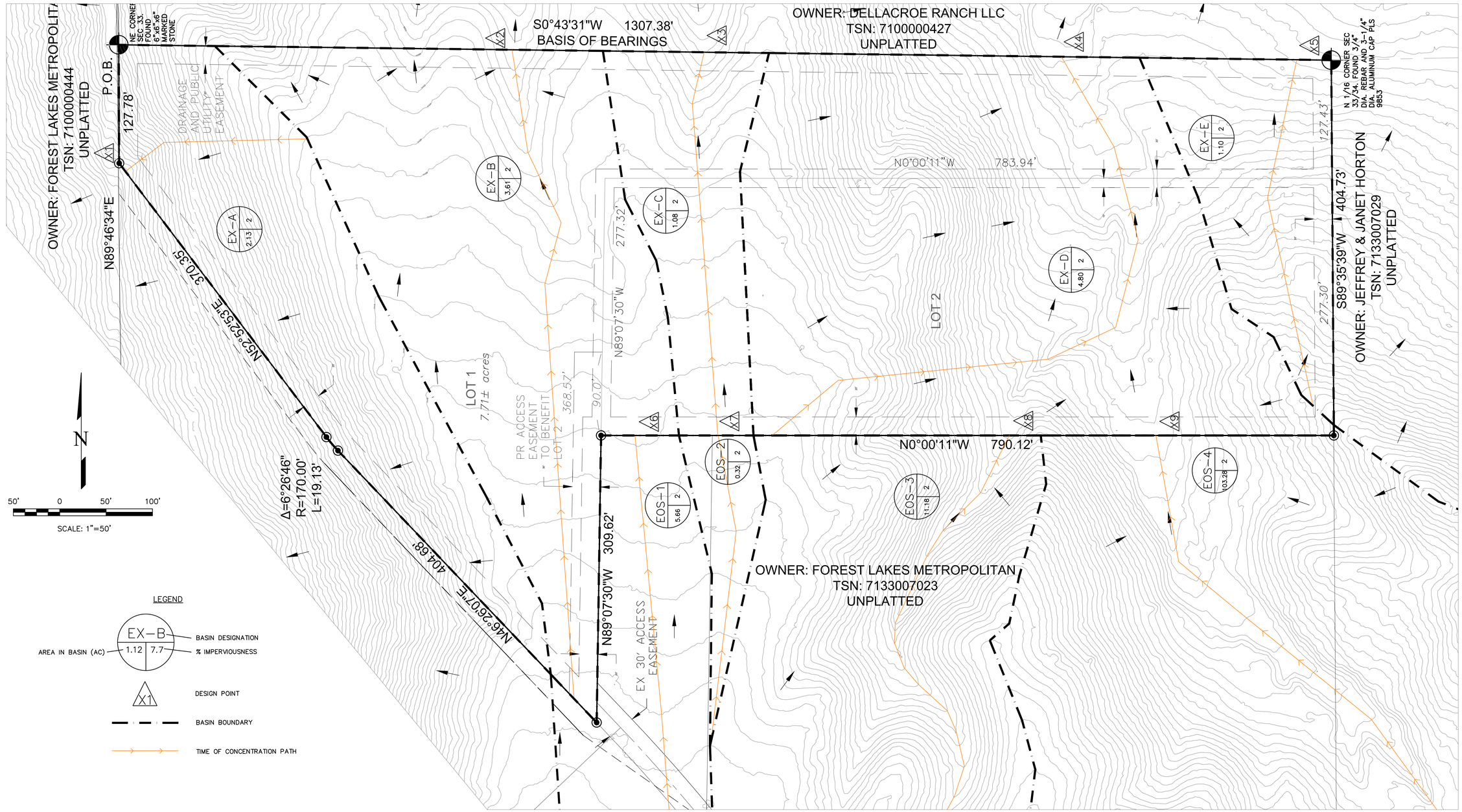
EXISTING CONDITIONS				
Design Point(s)	***Contributing Basins***	***Area (Acres)***	***Flow***	
			Q_5	Q_{100}
X1	EX-A	2.13	0.89	5.95
X2	EX-B, EOS-1	9.27	1.75	11.75
X3	EX-C, EOS-2	1.40	0.39	2.60
X4	EX-D, EOS-3, EOS-4	119.26	8.92	60.72
X5	EX-E	1.10	0.37	2.46
X6	EOS-1	5.66	0.87	5.82
X7	EOS-2	0.32	0.09	0.57
X8	EOS-3	11.18	1.75	11.71
X9	EOS-4	103.28	5.71	39.22

PROPOSED CONDITIONS				
Design Point(s)	***Contributing Basins***	***Area (Acres)***	***Flow***	
			Q_5	Q_{100}
1	A	2.08	0.88	5.91
2	B, OS-1	9.32	2.34	12.61
3	C, OS-2	1.40	0.39	2.60
4	D, OS-3, OS-4	119.26	8.92	60.72
5	E	1.10	0.37	2.46
6	OS-1	5.66	0.87	5.82
7	OS-2	0.32	0.09	0.57
8	OS-3	11.18	1.75	11.71
9	OS-4	103.28	5.71	39.22

EXISTING AND DEVELOPED CONDITIONS

Site:	Driftwood Estates Filing No. 1
Basin:	EOS-4
Basin Area:	103.28 ac
Method:	Soil Conservation Service Hydrograph
HSG:	B, good condition
CN=	48
Tc=	104.1 min
100-year Rainfall=	6.76"
Qp100=	39.22 cfs

DRAINAGE MAPS



LEGEND

EX-B — BASIN DESIGNATION
AREA IN BASIN (AC) 1.12 | 7.7 % IMPERVIOUSNESS
X1 — DESIGN POINT
BASIN BOUNDARY
TIME OF CONCENTRATION PATH

LEGEND

EXISTING FLOW
ADJACENT PROPERTY LINE
EXISTING EASEMENT
6134 EXISTING CONTOURS – MINOR
6130 EXISTING CONTOUR – MAJOR
EXISTING PROPERTY LINE

show contour elevations on the maps

DRAINAGE SUMMARY

BASIN NAME	AREA (ACRES)	FLOW 5 YR (cfs)	FLOW 100 YR (cfs)
EX-A	2.13	0.89	5.95
EX-B	3.61	0.88	5.93
EX-C	1.08	0.30	2.03
EX-D	4.80	1.46	9.79
EX-E	1.10	0.37	2.46
EOS-1	5.66	0.87	5.82
EOS-2	0.32	0.09	0.57
EOS-3	11.18	1.75	11.71
EOS-4	103.28	5.71	39.22

DESIGN POINT SUMMARY

DP	CONTRIBUTING BASINS	AREA AC.	Q5 CFS	Q100 CFS
X1	EX-A	2.13	0.89	5.95
X2	EX-B, EOS-1	9.27	1.75	11.75
X3	EX-C, EOS-2	1.40	0.39	2.60
X4	EX-D, EOS-3, EOS-4	119.26	8.92	60.72
X5	EX-E	1.10	0.37	2.46
X6	EOS-1	5.66	0.87	5.82
X7	EOS-2	0.32	0.09	0.57
X8	EOS-3	11.18	1.75	11.71
X9	EOS-4	103.28	5.71	39.22

REVISIONS

NO.	DESCRIPTION	DATE

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, TERRA NOVA ENGINEERING, INC. APPROVES THEIR USE FOR CONSTRUCTION PURPOSES DESIGNATED BY WRITTEN AUTHORIZATION.

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FAX: 719-635-6426
www.tnesinc.com

DRIFTWOOD ESTATES FILING NO. 1

EXISTING DRAINAGE PLAN

DESIGNED BY JF
DRAWN BY JF
CHECKED BY LD

H-SCALE AS SHOWN
V-SCALE N/A

JOB NO. 2358.00
DATE ISSUED 10/11/23
SHEET NO. 1 OF 3

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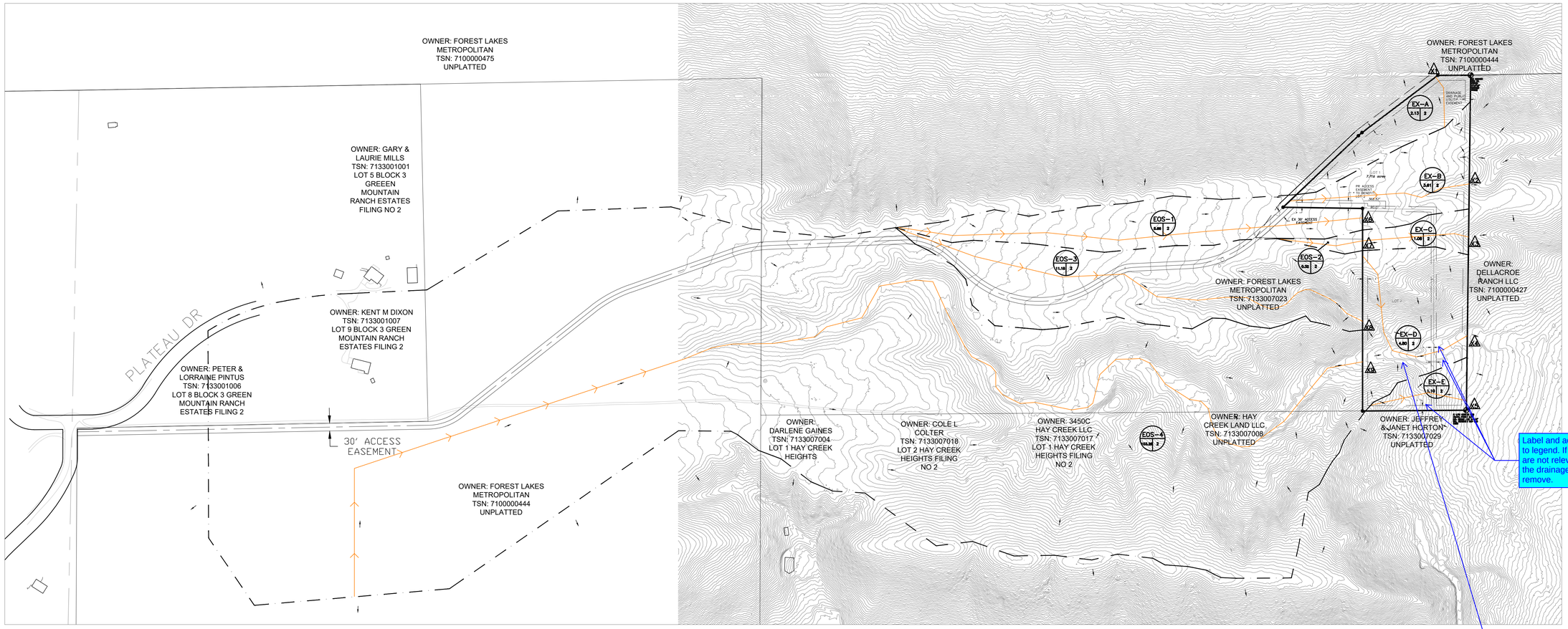

DRAINAGE SUMMARY

BASIN NAME	AREA (ACRES)	FLOW 5 YR (cfs)	FLOW 100 YR (cfs)
EX-A	2.13	0.89	5.95
EX-B	3.61	0.88	5.93
EX-C	1.08	0.30	2.03
EX-D	4.80	1.46	9.79
EX-E	1.10	0.37	2.46
EOS-1	5.66	0.87	5.82
EOS-2	0.32	0.09	0.57
EOS-3	11.18	1.75	11.71
EOS-4	103.28	5.71	39.22

DESIGN POINT SUMMARY

DP	CONTRIBUTING BASINS	AREA AC.	Q5 CFS	Q100 CFS
X1	EX-A	2.13	0.89	5.95
X2	EX-B, EOS-1	9.27	1.75	11.75
X3	EX-C, EOS-2	1.40	0.39	2.60
X4	EX-D, EOS-3, EOS-4	119.26	8.92	60.72
X5	EX-E	1.10	0.37	2.46
X6	EOS-1	5.66	0.87	5.82
X7	EOS-2	0.32	0.09	0.57
X8	EOS-3	11.18	1.75	11.71
X9	EOS-4	103.28	5.71	39.22

REVISIONS

NO.	DESCRIPTION	DATE

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Creative Civil Engineering Solutions
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OFFICE: 719-635-6422
FAX: 719-635-6426
www.tnesinc.com

DRIFTWOOD ESTATES FILING NO. 1

EXISTING DRAINAGE PLAN
OFFSITE BASINS

DESIGNED BY JF
DRAWN BY JF
CHECKED BY LD
H-SCALE AS SHOWN
V-SCALE N/A
JOB NO. 2358.00
DATE ISSUED 10/11/23
SHEET NO. 2 OF 3

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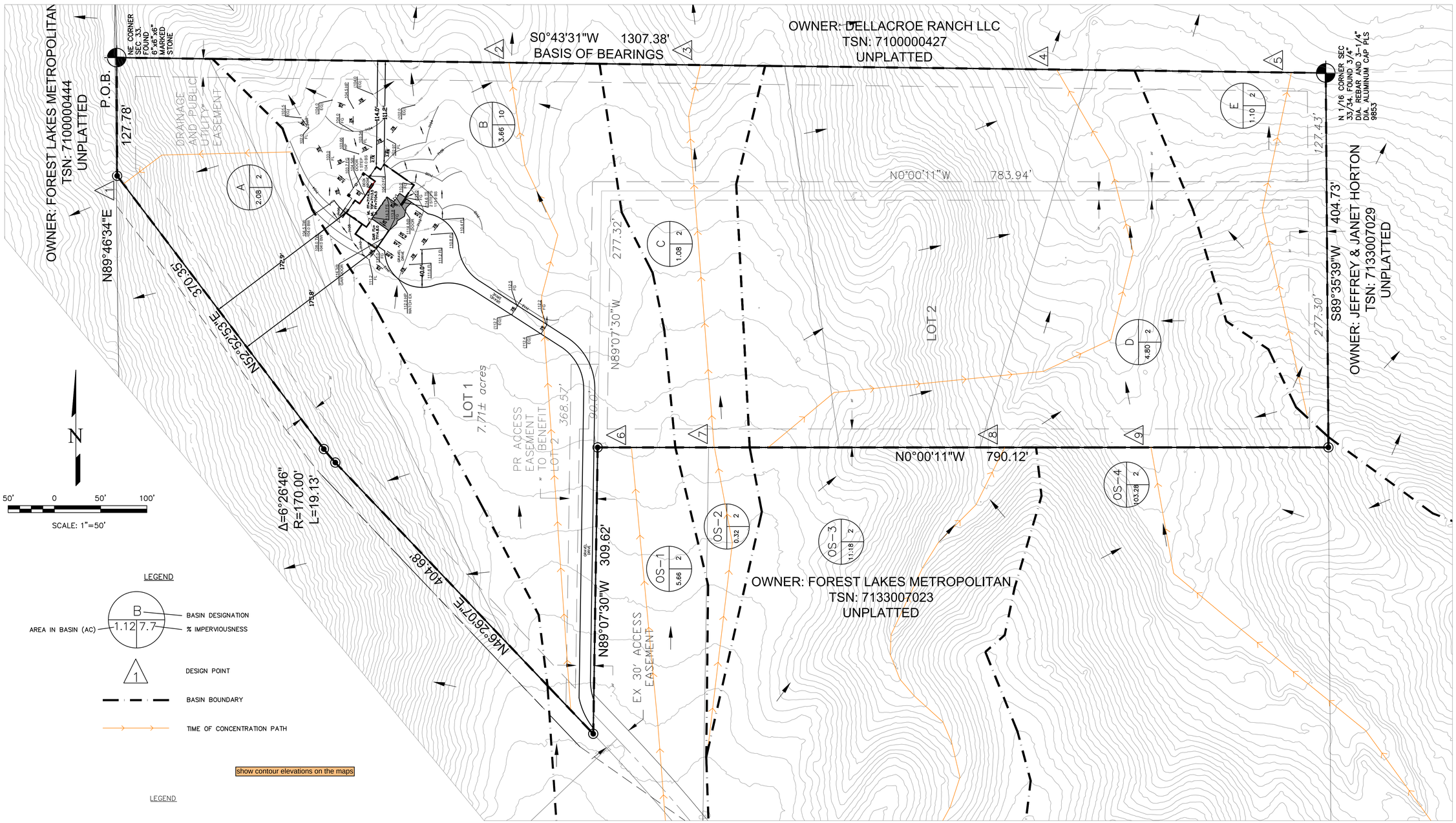

LEGEND

- B — BASIN DESIGNATION
- AREA IN BASIN (AC) 1.12 — % IMPERVIOUSNESS 7.7
- 1 — DESIGN POINT
- BASIN BOUNDARY
- TIME OF CONCENTRATION PATH

show contour elevations on the maps

LEGEND

- EXISTING EASEMENT
- PROPOSED GRAVEL
- 6134 — EXISTING CONTOURS – MINOR
- 6130 — EXISTING CONTOUR – MAJOR
- EXISTING PROPERTY LINE
- ADJACENT PROPERTY LINE
- PROPOSED FLOW
- (EG) EXISTING GRADE
- FG FINISHED GRADE
- HP HIGH POINT
- FL FLOW LINE
- 34 PROPOSED CONTOURS

In a narrative explain why the increase in flow is almost 1 cfs for basin B, which contains most of the development. How is a 17% increase considered negligible?

DRAINAGE SUMMARY

BASIN NAME	AREA (ACRES)	FLOW 5 YR (cfs)	FLOW 100 YR (cfs)
A	2.08	0.88	5.91
B	3.66	1.47	6.79
C	1.08	0.30	2.03
D	4.80	1.46	9.79
E	1.10	0.37	2.46
OS-1	5.66	0.87	5.82
OS-2	0.32	0.09	0.57
OS-3	11.18	1.75	11.71
OS-4	103.28	5.71	39.22

DESIGN POINT SUMMARY

DP	CONTRIBUTING BASINS	AREA AC.	Q5 CFS	Q100 CFS
1	A	2.08	0.88	5.91
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REVISIONS

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DRAWN BY JF
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V-SCALE N/A

JOB NO. 2358.00
DATE ISSUED 10/11/23
SHEET NO. 3 OF 3

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