



INNOVATIVE DESIGN. CLASSIC RESULTS.

**DRAINAGE LETTER
FOR
TRACT J, STERLING RANCH EAST FILING NO. 1
(D-20 MIDDLE SCHOOL SITE)**

Prepared for:
CLASSIC SRJ LAND, LLC
2138 FLYING HORSE CLUB DRIVE
COLORADO SPRINGS CO 80921
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Prepared by:
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Job No. 1183.30

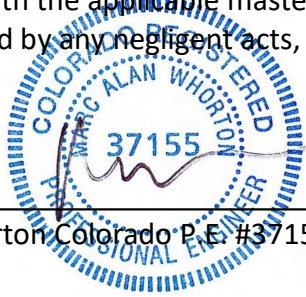
PCD Project No. CDR267



**DRAINAGE LETTER FOR
TRACT J, STERLING RANCH EAST FILING NO. 1
(D-20 MIDDLE SCHOOL SITE)**

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.



Marc A. Whorton, Colorado P.E. #37155

9/14/2026

Date

OWNER'S/DEVELOPER'S STATEMENT:

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

Business Name: CLASSIC SRJ LAND, LLC

By: 

Title: VICE PRESIDENT

Address: 2138 Flying Horse Club Drive

Colorado Springs, CO 80921

EL PASO COUNTY:

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

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

Date

Conditions:



**DRAINAGE LETTER FOR
TRACT J, STERLING RANCH EAST FILING NO. 1
(D-20 MIDDLE SCHOOL SITE)**

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DRAINAGE MAPS



DRAINAGE LETTER FOR TRACT J, STERLING RANCH EAST FILING NO. 1 (D-20 MIDDLE SCHOOL SITE)

PURPOSE

The purpose of this Drainage Letter is to address on-site drainage patterns for the D-20 Middle School site that has been disturbed but not formally planned or developed yet. This Drainage Letter will be submitted in conjunction with a site-specific GEC plan.

GENERAL DESCRIPTION

This site was platted as Tract J, Sterling Ranch East Filing No. 1. It is a 38.5-acre site located in portions sections 33 and 34, township 12 south, range 65 west of the sixth principal meridian. Future D-20 Middle School Site is planned. El Paso County currently owns the property until the school district develops.

The site is bounded on the north by Briargate Pkwy., to the south and west by existing Sterling Ranch East Filing No. 1 residential development and to the east by existing public ROW (Sterling Ranch Road). The site is in the upper portion of the Sand Creek Drainage Basin. A D-20 Middle School site is proposed that is consistent with the latest approved Sterling Ranch Sketch Plan Amendment and the Sterling Ranch East Phase 1 Preliminary Plan. (SP224) This entire property is tributary to and treated by the existing Pond FSD-14A, constructed with Sterling Ranch East Filing No. 1. (SF2235)

The average soil condition reflects Hydrologic Group "A" (Blakeland loamy sand) and (Columbine gravelly sandy loam) as determined by the "Web Soil Survey of El Paso County Area," prepared by the Natural Resources Conservation Service (see map in Appendix). However, a mix a both Type A and Type B soils are utilized for developed site conditions.

EXISTING/PROPOSED DRAINAGE CONDITIONS

Nearly the entire site has been disturbed with the adjacent roadway and residential subdivision construction with very little native vegetation remaining. The surrounding development



continues to utilize this area for fencing install access and earthwork material storage/stockpiling. This site is also anticipated to be utilized during the Sand Creek Channel Improvements installation, mainly for access to and from the channel with earth moving equipment and material storage/stockpiling.

This site has been previously studied in the “Sterling Ranch MDDP Amendment No. 2 & Preliminary Drainage Report for Sterling Ranch East Preliminary Plan 1”, prepared by Classic Consulting, dated January 2023 and most recently in the “Sterling Ranch East Filing No. 1 Final Drainage Report”, prepared by Classic Consulting, approved July 2024. The latter report analyzed the site assuming fully developed conditions of the Middle School and this entire site being ultimately treated by the existing Pond FSD-14A. However, no school development is proposed at this time. School District 20 will decide when formal development will take place and at that time a site-specific Final Drainage Report will be required to confirm the developed condition assumptions.

The entire site currently drains as sheet flow in a southerly direction within the previously studied basins P2-S1 and a small portion of B1. The following describe the D-20 Middle School site drainage within these basins:

Basin B1 ($Q_5 = 8.3$ cfs, $Q_{100} = 18.6$ cfs) is made up mainly of residential lots along the east side of the Pocatello Trail cul-de-sac, with a small portion of the school site at the very north end being approximately 0.46 ac. of the 4.72 ac. basin. Sheet flows travel in a southerly direction through lots 248 and 249 into Pocatello Trail and then as curb and gutter flows towards Design Point 30A. At this location, an existing 10' Type R at-grade inlet intercepts the majority of the total runoff ($Q_5 = 6.4$ cfs, $Q_{100} = 9.6$ cfs). The flow-by of ($Q_5 = 1.9$ cfs, $Q_{100} = 9.0$ cfs) continues towards the existing 10' Type R sump inlet at Design Point 30B. The total developed flows are completely intercepted at this location. Existing public storm facilities within the Sterling Ranch East Filing No. 1 subdivision then route these collected flows directly into Pond FSD-14A.



Basin P2-S1 ($Q_5 = 51.9$ cfs, $Q_{100} = 126.6$ cfs) represents the ultimate developed flows from the D-20 Middle School site that will be captured and conveyed by an existing 48" RCP storm stub at the southeast corner of the school site. These ultimate developed flows are then routed further downstream via a public storm system along the north side of Sterling Ranch Road directly into Pond FSD-14A. This existing facility provides the required stormwater quality treatment for the entire D-20 Middle School site.

However, in the interim, prior to formal school development, three existing CDOT Type D area inlets have been installed to collect the undeveloped sheet flow runoff from the school site at **Design Points 50B ($Q_5 = 2.4$ cfs, $Q_{100} = 17.5$ cfs), 50C ($Q_5 = 2.4$ cfs, $Q_{100} = 17.5$ cfs) and 50D ($Q_5 = 2.4$ cfs, $Q_{100} = 17.5$ cfs)** along the south side of the school site. The undeveloped flows are completely collected by an existing CDOT Type D Inlet at DP 50B and then routed via a private 30" RCP storm sewer towards DP 50C. Emergency overflow route is to the southeast over the highpoint towards DP 50C. The undeveloped flows at DP 50C are also completely collected by another CDOT Type D Inlet and then routed via a private 30" RCP storm sewer, along with the upstream flows towards DP 50D. Emergency overflow route is to the southeast over the highpoint towards DP 50D. The undeveloped flows are again completely collected at DP 50D by another existing CDOT Type D Inlet and then routed via a private 42" RCP storm sewer, along with the upstream collected flows, towards the existing public 48" RCP storm sewer along Sterling Ranch Road. Emergency overflow route is again to the southeast over the highpoint towards Sterling Ranch Road. (See Appendix for inlet capacity calcs.) The total flows collected from these area drains are then routed via the existing 48" RCP storm sewer described above and ultimately directly to Pond FSD-14A for formal treatment.

DRAINAGE CRITERIA

Hydrologic calculations were performed using the City of Colorado Springs/El Paso County Drainage Criteria Manual, as revised in November 1991 and October 1994 with County adopted Chapter 6 and Section 3.2.1 of Chapter 13 of the City of Colorado Springs/El Paso County Drainage Criteria Manual as revised in May 2014. Individual on-site developed basin design used for detention/SWQ basin sizing was calculated using the Rational Method. Runoff Coefficients are based on the imperviousness of the particular land use and the hydrologic soil type in accordance with Table 6-6. The average rainfall intensity, by recurrence interval found in the Intensity-Duration-Frequency (IDF) curves in Figure 6-5. (See Appendix)

The City of Colorado Springs/El Paso County DCM requires the Four Step Process for receiving water protection that focuses on reducing runoff volumes, treating the water quality capture volume (WQCV), stabilizing drainage ways, and implementing long-term source controls. The Four Step Process pertains to management of smaller, frequently occurring storm events, as opposed to larger storms for which drainage and flood control infrastructure are sized. Implementation of these four steps helps to achieve storm water permit requirements.

This site adheres to this **Four Step Process** as follows:

1. **Employ Runoff Reduction Practices:** All proposed lot impervious area and school site impervious area (roof tops, patios, driveways, sidewalks, parking lots, etc.) will sheet flow across landscaped portions of front and rear yards and through open space areas, play fields to slow runoff and increase time of concentration prior to being conveyed to the proposed public streets. This will minimize directly connected impervious areas within the project site.
2. **Stabilize Drainageways:** After developed flows utilize the runoff reduction practices through the yards and open spaces, developed flows will travel via curb and gutter within the public streets and parking lots and eventually public/private storm systems. These

collected flows are then routed directly to the existing extended detention basin (Pond FSD-14A, full-spectrum facility).

3. **Provide Water Quality Capture Volume (WQCV):** Runoff from this development will be treated through capture and slow release of the WQCV and excess urban runoff volume (EURV) in the existing Full-Spectrum permanent Extended Detention Basin (Pond FSD-14A) designed per current El Paso County drainage criteria.
4. **Consider need for Industrial and Commercial BMPs:** No industrial or commercial uses are proposed within this development. However, a site-specific storm water quality and erosion control plan and narrative along with the grading and erosion control plan has been submitted with this Drainage Letter submittal. Details such as site-specific sediment and erosion control construction BMP's as well as temporary and permanent BMP's will be detailed in this plan and narrative to protect receiving waters. BMP's will be constructed and maintained as the development has been graded and erosion control methods employed.

FLOODPLAIN STATEMENT

No portion of the D-20 Middle School Site is located within a floodplain as determined by the Flood Insurance Rate Maps (F.I.R.M.) Map Number 08041C0533G and 08041C535G with effective date of December 7, 2018 (See Appendix).

DRAINAGE AND BRIDGE FEES

This subdivision lies entirely within the Sand Creek Drainage Basin boundaries. The entire D-20 Middle School Site, Tract J, Sterling Ranch East Filing No. 1, has been deeded to El Paso County until the school district moves forward with formal development. At that time, a re-plat of Tract J into a lot will be required and associated drainage and bridge fees will be due.



SUMMARY

The proposed D-20 Middle School Site, currently platted as Tract J, Sterling Ranch East Filing No. 1, lies completely within the Sand Creek Drainage Basin. Recommendations were made within the previously approved Sterling Ranch East Filing No. 1 Final Drainage Report (SF2235) concerning necessary improvements required as a result of development of this property. All proposed public and private storm sewer improvements conveying both the interim undeveloped flows and anticipated ultimate developed flows from the D-20 Middle School Site have been installed. The current undeveloped site does not significantly impact any downstream facility or property to an extent greater than that which currently exists in the pre-development conditions. All drainage facilities within this report and previous approved reports were sized according to the Drainage Criteria Manuals and the full-spectrum storm water quality requirements.

PREPARED BY:

Classic Consulting Engineers & Surveyors, LLC



Marc A. Whorton, P.E.
Project Manager

maw/118330 FDL D-20 Middle School.doc

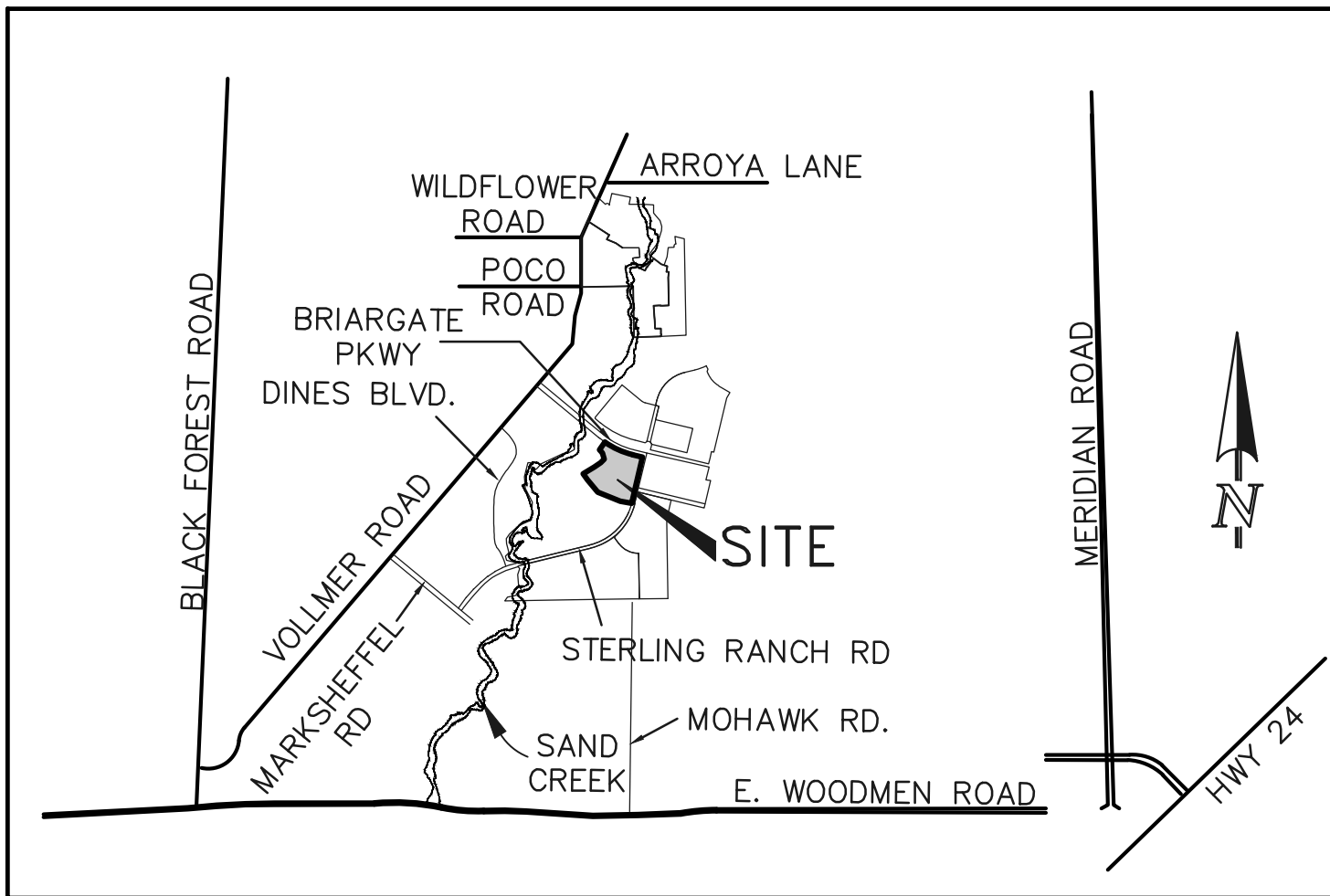


REFERENCES

1. City of Colorado Springs/County of El Paso Drainage Criteria Manual as revised in November 1991 and October 1994 with County adopted Chapter 6 and Section 3.2.1 of Chapter 13 of the City of Colorado Springs/El Paso County Drainage Criteria Manual as revised in May 2014.
2. "Urban Storm Drainage Criteria Manual Volume 1, 2 & 3" Urban Drainage and Flood Control District, dated January 2016.
3. "Final Drainage Report for Forest Gate Subdivision" Law & Mariotti Consultants, Inc. dated October 2004.
4. "Sand Creek Drainage Basin Planning Study," Kiowa Engineering Corporation, dated March 1996.
5. "2018 Sterling Ranch MDDP", M&S Civil Consultants, Inc., June 2018
6. "Final Drainage Report for Retreat at TimberRidge Filing No. 1", Classic Consulting, approved November, 2020.
7. "Final Drainage Report for Retreat at TimberRidge Filing No. 2", Classic Consulting, approved September, 2022.
8. "Sterling Ranch MDDP Amendment No. 2 & Preliminary Drainage Report for Sterling Ranch East Preliminary Plan No. 1", Classic Consulting, approved January, 2023.
9. "Final Drainage Report for Sterling Ranch East Filing No. 2 and Foursquare at Sterling Ranch East Filing No. 1", Classic Consulting, dated August, 2024
10. "Final Drainage Report for Sterling Ranch East Filing No. 1", Classic Consulting, dated July 2024

APPENDIX

VICINITY MAP

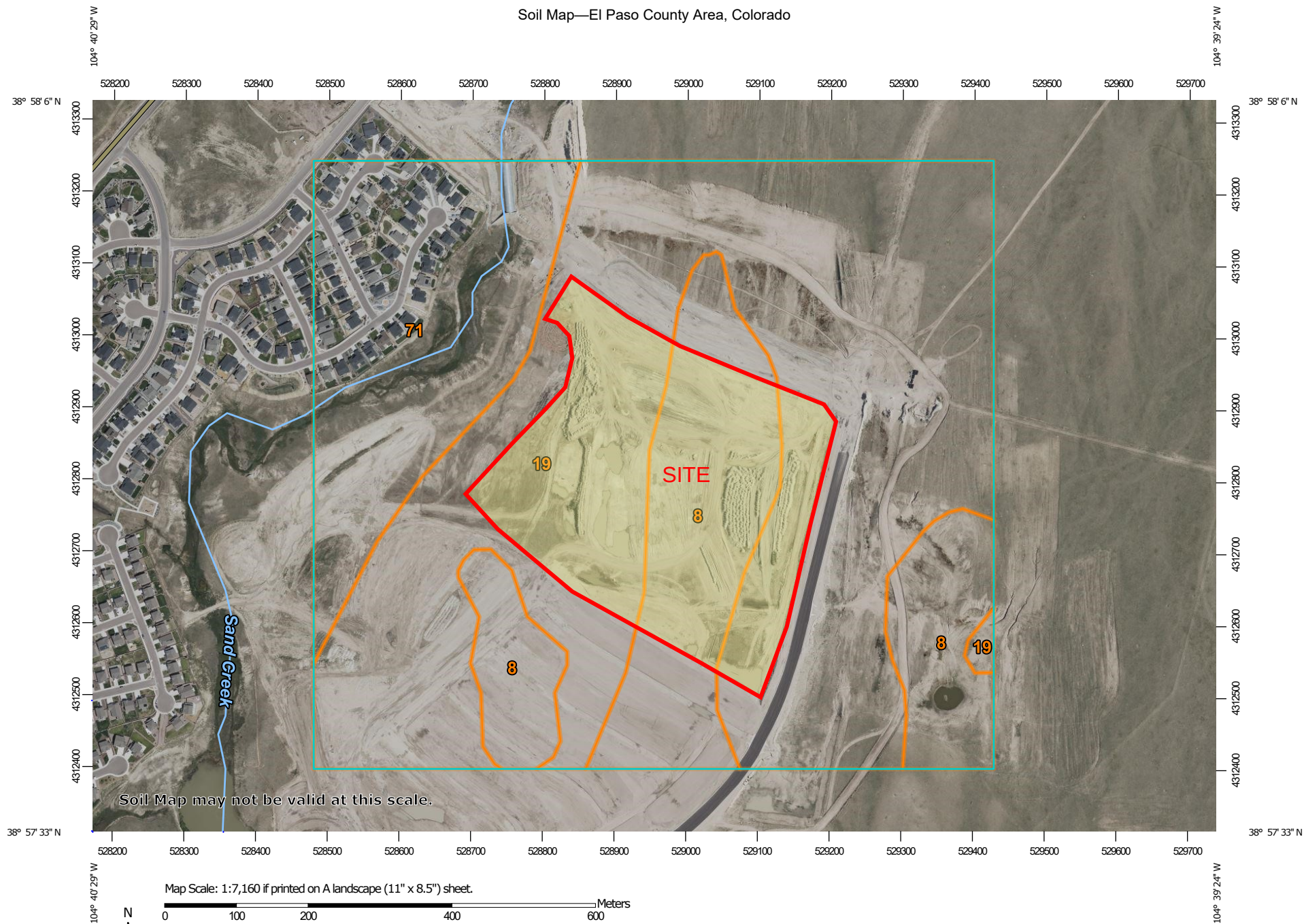


VICINITY MAP

N.T.S.

SOILS MAP (S.C.S SURVEY)

Soil Map—El Paso County Area, Colorado



**Natural Resources
Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

6/25/2026
Page 1 of 3

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 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.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
8	Blakeland loamy sand, 1 to 9 percent slopes	43.1	21.7%
19	Columbine gravelly sandy loam, 0 to 3 percent slopes	119.1	59.9%
71	Pring coarse sandy loam, 3 to 8 percent slopes	36.7	18.5%
Totals for Area of Interest		198.9	100.0%

El Paso County Area, Colorado

8—Blakeland loamy sand, 1 to 9 percent slopes

Map Unit Setting

National map unit symbol: 369v

Landscape: Uplands

Elevation: 4,600 to 5,800 feet

Mean annual precipitation: 14 to 16 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 125 to 145 days

Farmland classification: Not prime farmland

Map Unit Composition

Blakeland and similar soils: 98 percent

Minor components: 2 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Blakeland

Setting

Landscape: Uplands

Landform: Flats, Hills

Landform position (three-dimensional): Side slope, talf

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from sedimentary rock and/or
eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 11 inches: loamy sand

AC - 11 to 27 inches: loamy sand

C - 27 to 60 inches: sand

Properties and qualities

Slope: 1 to 9 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Somewhat excessively drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): High to
very high (5.95 to 19.98 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 5 percent

Available water supply, 0 to 60 inches: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): 3e

Land capability classification (nonirrigated): 6e

Hydrologic Soil Group: A

Ecological site: R049XB210CO - Sandy Foothill

Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 1 percent

Hydric soil rating: No

Pleasant

Percent of map unit: 1 percent

Landform: Depressions

Hydric soil rating: Yes

Data Source Information

Soil Survey Area: El Paso County Area, Colorado

Survey Area Data: Version 23, Aug 29, 2025

El Paso County Area, Colorado

19—Columbine gravelly sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 367p

Elevation: 6,500 to 7,300 feet

Mean annual precipitation: 14 to 16 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 125 to 145 days

Farmland classification: Not prime farmland

Map Unit Composition

Columbine and similar soils: 97 percent

Minor components: 3 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Columbine

Setting

Landform: Fans, Fan terraces, Flood plains

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium

Typical profile

A - 0 to 14 inches: gravelly sandy loam

C - 14 to 60 inches: very gravelly loamy sand

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 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 2.5 inches)

Interpretive groups

Land capability classification (irrigated): 4e

Land capability classification (nonirrigated): 6e

Hydrologic Soil Group: A

Ecological site: R049XY214CO - Gravelly Foothill

Hydric soil rating: No

Minor Components

Fluvaquentic haplaquolls

Percent of map unit: 1 percent

Landform: Swales
Hydric soil rating: Yes

Other soils

Percent of map unit: 1 percent
Hydric soil rating: No

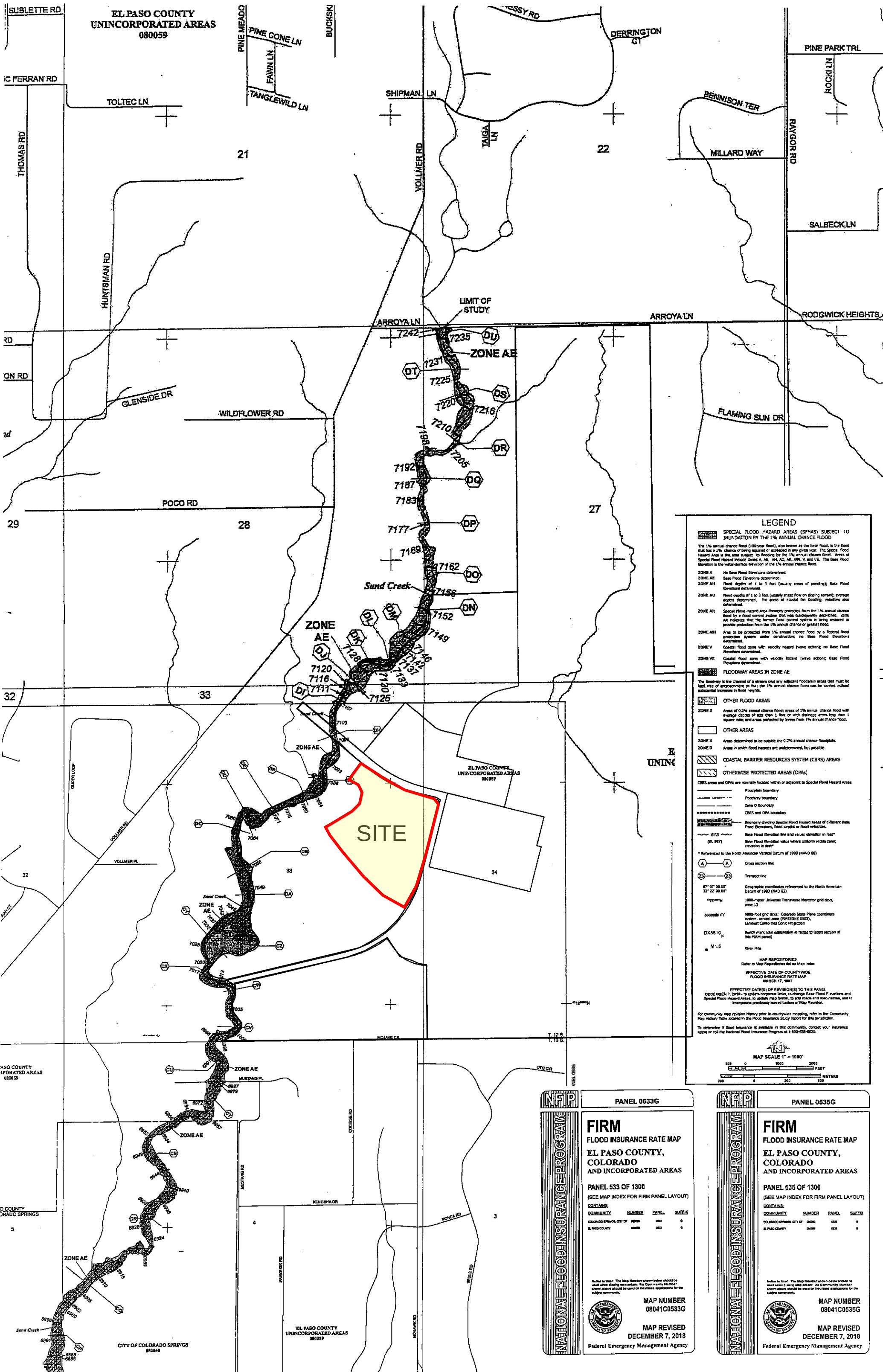
Pleasant

Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 23, Aug 29, 2025

F.E.M.A. MAP



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAS) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, AV, and VE. The Base Flood Elevation is the water surface elevation of the 1% annual chance flood.

ZONE A No Base Flood Elevations determined.

ZONE AE Base Flood Elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevation determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of potential tree flooding, velocities also determined.

ZONE AR Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently destroyed. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

ZONE ARB Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.

ZONE V Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE VE Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with discharge areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be subject to the 0.2% annual chance floodplain.

ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

Floodplain boundary

Floodway boundary

Zone D boundary

CBRS and OPA boundary

Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.

Base Flood Elevation line and values: elevation in feet (ft. 100)

Base Flood Elevation values where uniform within zone; elevation in feet

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

Cross section line

Traverse line

Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)

1000-meter Universal Transverse Mercator grid lines, zone 13

1000-foot grid lines: Colorado State Plane coordinate system, central zone (PROJZONE 5205), Lambert Conformal Conic Projection

Bench mark (see explanation in Notes to Users section of this FIRM panel)

1:5 River Mile

MAP REPOSITORIES

Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP

MARCH 17, 1997

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

DECEMBER 7, 2019 - to update corporate limits, to change Base Flood Elevations and Special Flood Hazard Areas, to update map format, to add roads and main names, and to incorporate previously issued Letters of Map Revision.

For community map revision history prior to countywide mapping, refer to the Community Map History Table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6633.

MAP SCALE 1" = 1000'

0 1000 2000 FEET

0 300 600 METERS

NFIP

PANEL 0533G

FIRM

FLOOD INSURANCE RATE MAP

EL PASO COUNTY, COLORADO AND INCORPORATED AREAS

PANEL 533 OF 1300

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:	NUMBER	PANEL	SUFFIX
COMMUNITY	0000	000	0
COLORADO SPRINGS, CITY OF	0000	000	0
EL PASO COUNTY	0000	000	0

Notice to User: The Map Number shown below should be used when filing new policies. The Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER

08041C0533G

MAP REVISED

DECEMBER 7, 2018

Federal Emergency Management Agency

NFIP

PANEL 0535G

FIRM

FLOOD INSURANCE RATE MAP

EL PASO COUNTY, COLORADO AND INCORPORATED AREAS

PANEL 535 OF 1300

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:	NUMBER	PANEL	SUFFIX
COMMUNITY	0000	000	0
COLORADO SPRINGS, CITY OF	0000	000	0
EL PASO COUNTY	0000	000	0

Notice to User: The Map Number shown below should be used when filing new policies. The Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER

08041C0535G

MAP REVISED

DECEMBER 7, 2018

Federal Emergency Management Agency

HYDROLOGIC CALCULATIONS



INNOVATIVE DESIGN. CLASSIC RESULTS.

**FINAL DRAINAGE REPORT
FOR
STERLING RANCH EAST FILING NO. 1**

November 2022

Prepared for:
CLASSIC SRJ LAND, LLC
2138 Flying Horse Club Dr.
COLORADO SPRINGS CO 80921
(719) 592-9333

Prepared by:
CLASSIC CONSULTING ENGINEERS & SURVEYORS
619 N. CASCADE AVENUE, SUITE 200
COLORADO SPRINGS CO 80903
(719) 785-0790

Job no. 2183.30
PCD File # SF2235



FINAL DRAINAGE REPORT FOR STERLING RANCH EAST FILING NO. 1

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 El Paso 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.



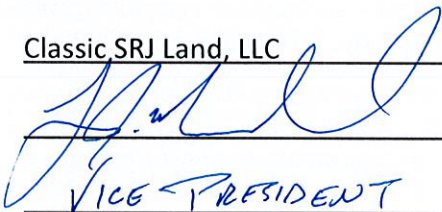
Kyle R Campbell, Colorado #29794

02/28/24
Date

DEVELOPER'S STATEMENT:

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

Business Name: Classic SRJ Land, LLC

By: _____

Title: VICE PRESIDENT

Address: 2138 Flying Horse Club Dr.

Colorado Springs, CO 80921

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.

For County Engineer / ECM Administrator
Conditions:

07/02/2024
Date



DESIGN POINT 29A ($Q_5 = 5.9$ cfs and $Q_{100} = 14.0$ cfs) is the developed runoff from Basin A1, 3.78 acres of proposed Filing No. 1 home lots and residential roadway, Pocatello Trail at the north end of the Filing No. 1 home lots. A proposed 10' CDOT Type R At-Grade inlet intercepts the majority of this runoff ($Q_5 = 5.2$ cfs, $Q_{100} = 8.4$ cfs) while the remaining runoff ($Q_5 = 0.7$ cfs, $Q_{100} = 5.6$ cfs) continues southwest along Pocatello Trail to the sump inlet at Design Point 29B. Pipe 45 (Proposed Public 18" RCP, $Q_5 = 5.2$ cfs and $Q_{100} = 8.4$ cfs) conveys this intercepted runoff to the southwest within Pocatello Trail to a junction manhole with Pipe 46 from DP-30A.

DESIGN POINT 29B ($Q_5 = 2.1$ cfs and $Q_{100} = 8.7$ cfs) is the developed runoff from Basin A2, 0.72 acres of proposed Filing No. 1 home lots and residential roadway Pocatello Trail and the flow-by runoff from the at-grade inlet at DP-29A. A proposed 5' CDOT Type R sump inlet intercepts the entirety of this runoff. Pipe 48 (Proposed Public 18" RCP) conveys the runoff to the south to an adjacent junction manhole combining with Pipes 47 and 49. The emergency overflow path for this sump inlet is to overtop the high point to the southeast within Pocatello Trail and continue southeast along the roadway to downstream facilities.

DESIGN POINT 30A ($Q_5 = 8.3$ cfs and $Q_{100} = 18.6$ cfs) is the developed runoff from Basin B1, 4.72 acres of proposed Filing No. 1 home lots and residential roadway, Pocatello Trail at the north end of the Filing No. 1 home lots. A proposed 10' CDOT Type R At-Grade inlet intercepts the majority of this runoff ($Q_5 = 6.4$ cfs, $Q_{100} = 9.6$ cfs) while the remaining runoff ($Q_5 = 1.9$ cfs, $Q_{100} = 9.0$ cfs) continues southwest along Pocatello Trail to the sump inlet at Design Point 30B. Pipe 46 (Proposed Public 18" RCP, $Q_5 = 6.4$ cfs and $Q_{100} = 9.6$ cfs) conveys this intercepted runoff to the north within Pocatello Trail to a junction manhole with Pipe 45 from DP-29A. Pipe 47 (Proposed Public 24" RCP, $Q_5 = 11.6$ cfs and $Q_{100} = 18.0$ cfs) conveys the combined runoff from this manhole to the southwest within Pocatello Trail to another junction manhole between the sump inlets at Design Points 29 & 30B.

DESIGN POINT 30B ($Q_5 = 2.4$ cfs and $Q_{100} = 9.9$ cfs) is the developed runoff from Basin B2 ($Q_5 = 0.7$ cfs, $Q_{100} = 1.2$ cfs), 0.18 acres of proposed Filing No. 1 home lots and residential roadway Pocatello Trail, and the flow-by from the at-grade inlet at Design Point 30A ($Q_5 = 1.9$ cfs, $Q_{100} = 9.0$ cfs). A proposed 10' CDOT

Type R sump inlet intercepts the entirety of this runoff. Pipe 49 (Proposed Public 18" RCP) conveys the runoff to the north to an adjacent junction manhole combining with Pipes 47 & 48. Pipe 50 (Proposed Public 30" RCP, $Q_5 = 16.1$ cfs and $Q_{100} = 36.5$ cfs) conveys the combined runoff from this manhole to the southwest within Pocatello Trail toward the next sump inlets at Design Points 37 & 38. The emergency overflow path for this sump inlet is to overtop the high point to the southeast within Pocatello Trail and continue southeast along the roadway to downstream facilities.

DESIGN POINT 31 ($Q_5 = 5.1$ cfs and $Q_{100} = 10.6$ cfs) is the developed runoff from Basin L, 2.40 acres of proposed Filing No. 1 home lots and residential roadway Newport Beach Drive. A proposed 10' CDOT Type R sump inlet intercepts the entirety of this runoff. Pipe 68 (Proposed Public 18" RCP) conveys the runoff to the south to an adjacent junction manhole combining with Pipe 69. The emergency overflow path for this sump inlet is to overtop the roadway crown and then high point at the southwest curb return of the Newport Beach Drive/Santa Clara Place intersection and continue southwest along Santa Clara Place to downstream facilities.

DESIGN POINT 32 ($Q_5 = 3.5$ cfs and $Q_{100} = 7.2$ cfs) is the developed runoff from Basin M, 1.40 acres of proposed Filing No. 1 home lots and residential roadway Newport Beach Drive. A proposed 5' CDOT Type R sump inlet intercepts the entirety of this runoff. Pipe 69 (Proposed Public 18" RCP) conveys the runoff to the north to an adjacent junction manhole combining with Pipe 68. Pipe 70 (Proposed Public 24" RCP, $Q_5 = 8.1$ cfs and $Q_{100} = 16.8$ cfs) conveys the combined runoff from this manhole to the southeast within Newport Beach Drive and then south down Santa Clara Place. The emergency overflow path for this sump inlet is to overtop the high point at the southwest curb return of the Newport Beach Drive/Santa Clara Place intersection and continue southwest along Santa Clara Place to downstream facilities.

DESIGN POINT 33 ($Q_5 = 5.3$ cfs and $Q_{100} = 11.0$ cfs) is the developed runoff from Basin N, 2.46 acres of proposed Filing No. 1 home lots and residential roadway Long Beach Terrace. A proposed 10' CDOT Type R sump inlet intercepts the entirety of this runoff. Pipe 71 (Proposed Public 18" RCP) conveys the runoff to the southwest to an adjacent junction manhole combining with Pipe 72. The emergency overflow path for this sump inlet is to overtop the roadway crown and then high point at the southwest curb

DESIGN POINT 50 ($Q_5 = 51.9$ cfs and $Q_{100} = 126.6$ cfs) is the developed runoff from Basin P2-S1, 36.59 acres of a future D20 Middle School site located directly adjacent to the proposed Filing 1 home lots with future access off both Sterling Ranch Road and Briargate Parkway. A site layout has not been completed at this time and therefore an estimated 42.2% composite imperviousness value for Basin P2-S1 (Developed) has been assumed based off similar sized middle school sites completed in the past. Corresponding 'C' value runoff coefficients were applied to estimate this developed flow rate and therefore properly size the 48" Private RCP stub (Pipe 14) and downstream storm system. Pipe 14 connects to the proposed storm main running along the outside of the Sterling Ranch Road pavement section (Pipe 13, Public 48" RCP). Pipe 15 (Proposed Public 60" RCP, $Q_5 = 108.1$ cfs and $Q_{100} = 236.5$ cfs) conveys the combined runoff from the future school development and that from Pipe 13, to the south within a public storm easement and continuing outside of the Sterling Ranch Road pavement section to the inlets at Design Points 15 & 16.

The school site is not required to contain its own onsite water quality and detention facility and therefore the estimated developed flow rate and imperviousness was also utilized in sizing the proposed Full Spectrum Detention and Storm Water Quality Pond 14A. A separate Final Drainage Report for the school site will be completed at the time of Development Plan and will extend the private storm system throughout the school campus as needed and also confirm the estimated runoff rates and imperviousness value. If drastically different than this Final Drainage Report, modifications may be required to the downstream facilities or onsite detention/water quality may need to be implemented. Appropriate drainage fees will be assessed at the time of school site development and new final plat for the parcel.

The following Design Points 50B & 50C were completed to collect the Undeveloped runoff from Basin P2-S1 prior to the development of the Middle School.

DESIGN POINT 50B ($Q_5 = 3.6$ cfs and $Q_{100} = 26.6$ cfs) is the undeveloped runoff from half of Basin P2-S1, 36.59 acres of the future school site parcel. A proposed CDOT Type D grated inlet (in-series, depressed) intercepts the entirety of this runoff. Pipe 14B (Proposed Private 30" RCP) conveys the runoff to the east

into the inlet at DP-50C and ultimately connects to the 48" storm lateral (Pipe 14) for the school site runoff.

DESIGN POINT 50C ($Q_5 = 3.6$ cfs and $Q_{100} = 26.6$ cfs) is the undeveloped runoff from half of Basin P2-S1, 36.59 acres of the future school site parcel. A proposed CDOT Type D grated inlet (in-series, depressed) intercepts the entirety of this runoff. Pipe 14C (Proposed Private 36" RCP, $Q_5 = 7.2$ cfs and $Q_{100} = 53.2$ cfs) conveys the combined runoff from the undeveloped school parcel to the east into the 48" storm lateral (Pipe 14, 48" RCP for the developed school site runoff). The inlets and storm system within this parcel are Private and will be owned and maintained by the school once the property is dedicated as such.

DESIGN POINT 51 ($Q_5 = 7.9$ cfs and $Q_{100} = 16.1$ cfs) is the developed runoff from Basin JJ, 2.63 acres of a future neighborhood park, future parking lot, and future small recreation center, located south of the proposed Filing 1 home lots and north of existing Sterling Ranch Road. A preliminary site layout is shown and was used in estimated this developed condition runoff rate. A future Final Drainage Report will be completed with this parking lot and building development. This future report will detail the private storm sewer collection and connection to the proposed Pipe 100 (Private 24" RCP stub). This Pipe 100 connects to the proposed storm main (Pipe 36A) coming from Palo Alto Trail and Design Points 20-22. Pipe 36B (Proposed Public 48" RCP, $Q_5 = 54.7$ cfs and $Q_{100} = 112.7$ cfs) conveys the combined runoff from the future recreation center/parking and that from Pipe 36A, to the southwest within a public storm easement and continuing through Tract B where it connects with the main outside of the Sterling Ranch Road pavement section (Pipe 39A). Pipe 39B (Proposed Public 72" RCP, $Q_5 = 162.0$ cfs and $Q_{100} = 351.4$ cfs) conveys the combined runoff from this junction manhole (Pipes 39A & 36B) to the west directly toward the proposed Full Spectrum Pond 14A.

The recreation center/park/parking site is not required to contain its own onsite water quality and detention facility and therefore the estimated developed flow rate and imperviousness was also utilized in sizing the proposed Full Spectrum Detention and Storm Water Quality Pond 14A. A separate Final Drainage Report for the recreation center development will be completed at the time of Development Plan and will extend the private storm system as needed and also confirm the estimated runoff rates

JOB NAME: Sterling Ranch East Filing No. 1
 JOB NUMBER: 1183.30
 DATE: 08/04/22
 CALCULATED BY: MAL

FINAL DRAINAGE REPORT ~ BASIN RUNOFF COEFFICIENT SUMMARY (DEVELOPED CONDITIONS)

BASIN	TOTAL AREA (AC)	IMPERVIOUS AREA / STREETS			LOTS/LANDSCAPE/UNDEV. AREAS (NOT PAVEMENT)				WEIGHTED		WEIGHTED CA	
		AREA (AC)	C(5)	C(100)	AREA (AC)	LAND USE	C(5)	C(100)	C(5)	C(100)	CA(5)	CA(100)
A1	3.78	0.46	0.90	0.96	2.24	S/F	0.45	0.59	0.40	0.57	1.51	2.14
					1.08	OPEN	0.08	0.35				
A2	0.72	0.12	0.90	0.96	0.60	S/F	0.45	0.59	0.53	0.65	0.38	0.47
B1	4.72	0.71	0.90	0.96	0.78	OPEN	0.08	0.35	0.46	0.61	2.15	2.86
					3.23	S/F	0.45	0.59				
B2	0.18	0.10	0.90	0.96	0.08	S/F	0.45	0.59	0.70	0.80	0.13	0.14
C	2.31	0.33	0.90	0.96	1.98	S/F	0.45	0.59	0.51	0.64	1.19	1.49
D	1.50	0.44	0.90	0.96	1.06	S/F	0.45	0.59	0.58	0.70	0.87	1.05
E	1.07	0.29	0.90	0.96	0.78	S/F	0.45	0.59	0.57	0.69	0.61	0.74
F	0.46	0.20	0.90	0.96	0.26	S/F	0.45	0.59	0.65	0.75	0.30	0.35
G	1.89	0.24	0.90	0.96	1.65	S/F	0.45	0.59	0.51	0.64	0.96	1.20
H	1.08	0.20	0.90	0.96	0.88	S/F	0.45	0.59	0.53	0.66	0.58	0.71
J	0.93	0.16	0.90	0.96	0.77	S/F	0.45	0.59	0.53	0.65	0.49	0.61
K	0.44	0.16	0.90	0.96	0.28	S/F	0.45	0.59	0.61	0.72	0.27	0.32
L	2.40	0.43	0.90	0.96	1.97	S/F	0.45	0.59	0.53	0.66	1.27	1.58
M	1.40	0.29	0.90	0.96	1.11	S/F	0.45	0.59	0.54	0.67	0.76	0.93
N	2.46	0.52	0.90	0.96	1.94	S/F	0.45	0.59	0.55	0.67	1.34	1.64
P	1.59	0.37	0.90	0.96	1.22	S/F	0.45	0.59	0.55	0.68	0.88	1.08
Q	2.28	0.65	0.90	0.96	1.63	S/F	0.45	0.59	0.58	0.70	1.32	1.59
R	1.18	0.33	0.90	0.96	0.85	S/F	0.45	0.59	0.58	0.69	0.68	0.82
S	1.02	0.18	0.90	0.96	0.84	S/F	0.45	0.59	0.53	0.66	0.54	0.67
T	2.10	0.67	0.90	0.96	1.43	S/F	0.45	0.59	0.59	0.71	1.25	1.49

JOB NAME: Sterling Ranch East Filing No. 1
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 DATE: 08/04/22
 CALCULATED BY: MAL

FINAL DRAINAGE REPORT ~ BASIN RUNOFF COEFFICIENT SUMMARY (DEVELOPED CONDITIONS)

BASIN	TOTAL AREA (AC)	IMPERVIOUS AREA / STREETS			LOTS/LANDSCAPE/UNDEV. AREAS (NOT PAVEMENT)				WEIGHTED		WEIGHTED CA	
		AREA (AC)	C(5)	C(100)	AREA (AC)	LAND USE	C(5)	C(100)	C(5)	C(100)	CA(5)	CA(100)
TT	1.63	0.08	0.90	0.96	1.55	OPEN	0.08	0.35	0.12	0.38	0.20	0.62
CH-1	27.11	0.00	0.90	0.96	27.11	OPEN	0.08	0.35	0.08	0.35	2.17	9.49
CH-2	10.62	0.00	0.90	0.96	10.62	OPEN	0.08	0.35	0.08	0.35	0.85	3.72
P1-A1	4.45	3.12	0.90	0.96	1.33	OPEN	0.08	0.35	0.65	0.78	2.91	3.46
P1-A2	6.59	4.20	0.90	0.96	2.01	OPEN	0.08	0.35	0.62	0.75	4.11	4.96
					0.38	S/F	0.45	0.59				
P1-A3	1.83	1.37	0.90	0.96	0.46	OPEN	0.08	0.35	0.69	0.81	1.27	1.48
P1-A4	1.64	1.22	0.90	0.96	0.42	OPEN	0.08	0.35	0.69	0.80	1.13	1.32
P1-A5	1.86	1.01	0.90	0.96	0.85	OPEN	0.08	0.35	0.53	0.68	0.98	1.27
					0.00	S/F	0.45	0.59				
P1-A6	3.55	1.97	0.90	0.96	1.58	OPEN	0.08	0.35	0.54	0.69	1.90	2.44
P1-A7	3.11	1.06	0.90	0.96	1.11	OPEN	0.08	0.35	0.47	0.63	1.47	1.96
					0.94	S/F	0.45	0.59				
P2-B1	1.82	1.19	0.90	0.96	0.63	OPEN	0.08	0.35	0.62	0.75	1.12	1.36
P2-B2	1.87	1.17	0.90	0.96	0.70	OPEN	0.08	0.35	0.59	0.73	1.11	1.37
P2-B3	1.55	0.98	0.90	0.96	0.57	OPEN	0.08	0.35	0.60	0.74	0.93	1.14
P2-B4	1.64	1.00	0.90	0.96	0.64	OPEN	0.08	0.35	0.58	0.72	0.95	1.18
P2-B5	0.97	0.66	0.90	0.96	0.31	OPEN	0.08	0.35	0.64	0.77	0.62	0.74
P2-B6	1.07	0.67	0.90	0.96	0.40	OPEN	0.08	0.35	0.59	0.73	0.64	0.78
P2-B7	1.62	0.80	0.90	0.96	0.82	OPEN	0.08	0.35	0.48	0.65	0.79	1.06
P2-B8	1.21	0.80	0.90	0.96	0.41	OPEN	0.08	0.35	0.62	0.75	0.75	0.91
P2-B9	2.08	1.60	0.90	0.96	0.48	OPEN	0.08	0.35	0.71	0.82	1.48	1.70
P2-B10	2.31	1.64	0.90	0.96	0.67	OPEN	0.08	0.35	0.66	0.78	1.53	1.81
P2-C2	1.73	1.26	0.90	0.96	0.47	OPEN	0.08	0.35	0.68	0.79	1.17	1.37
P2-S1	36.59	0.00	0.90	0.96	36.59	SCHOOL	0.42	0.61	0.42	0.61	15.37	22.32
P2-S1 (UNDEV)	36.59	0.00	0.90	0.96	36.59	OPEN	0.08	0.35	0.08	0.35	2.93	12.81

JOB NAME: **Sterling Ranch East Filing No. 1**
 JOB NUMBER: **1183.30**
 DATE: **8/4/2022**
 CALC'D BY: **MAL**

FINAL DRAINAGE REPORT ~ BASIN RUNOFF SUMMARY (DEVELOPED CONDITIONS)

BASIN	WEIGHTED		OVERLAND				STREET / CHANNEL FLOW				Tc	INTENSITY		TOTAL FLOWS	
	CA(5)	CA(100)	C(5)	Length (ft)	Height (ft)	Tc (min)	Length (ft)	Slope (%)	Velocity (fps)	Tc (min)	TOTAL (min)	I(5) (in/hr)	I(100) (in/hr)	Q(5) (cfs)	Q(100) (cfs)
A1	1.51	2.14	0.45	100	2	9.3	670	1.8%	4.7	2.4	11.7	3.89	6.53	5.9	14.0
A2	0.38	0.47	0.45	100	2	9.3	140	1.5%	4.3	0.5	9.9	4.15	6.96	1.6	3.3
B1	2.15	2.86	0.45	100	2	9.3	720	1.8%	4.7	2.6	11.9	3.87	6.50	8.3	18.6
B2	0.13	0.14	0.45	20	6	1.7	100	1.5%	4.3	0.4	5.0	5.17	8.68	0.7	1.2
C	1.19	1.49	0.45	100	2	9.3	420	1.5%	4.3	1.6	11.0	3.99	6.70	4.7	9.9
D	0.87	1.05	0.45	100	2	9.3	460	1.5%	4.3	1.8	11.1	3.97	6.66	3.5	7.0
E	0.61	0.74	0.45	20	1	3.1	210	1.5%	4.3	0.8	5.0	5.17	8.68	3.2	6.4
F	0.30	0.35	0.45	20	1	3.1	210	1.5%	4.3	0.8	5.0	5.17	8.68	1.5	3.0
G	0.96	1.20	0.45	100	2	9.3	250	1.5%	4.3	1.0	10.3	4.08	6.86	3.9	8.3
H	0.58	0.71	0.45	100	2	9.3	200	1.5%	4.3	0.8	10.1	4.11	6.90	2.4	4.9
J	0.49	0.61	0.45	100	2	9.3	180	1.5%	4.3	0.7	10.0	4.12	6.92	2.0	4.2
K	0.27	0.32	0.45	40	0.8	5.9	180	1.5%	4.3	0.7	6.6	4.75	7.98	1.3	2.5

JOB NAME: **Sterling Ranch East Filing No. 1**
 JOB NUMBER: **1183.30**
 DATE: **8/4/2022**
 CALC'D BY: **MAL**

FINAL DRAINAGE REPORT ~ BASIN RUNOFF SUMMARY (DEVELOPED CONDITIONS)

BASIN	WEIGHTED		OVERLAND				STREET / CHANNEL FLOW				Tc	INTENSITY		TOTAL FLOWS	
	CA(5)	CA(100)	C(5)	Length (ft)	Height (ft)	Tc (min)	Length (ft)	Slope (%)	Velocity (fps)	Tc (min)	TOTAL (min)	I(5) (in/hr)	I(100) (in/hr)	Q(5) (cfs)	Q(100) (cfs)
P2-B3	0.93	1.14	0.08	10	0.5	3.4	980	1.6%	4.4	3.7	7.1	4.64	7.79	4.3	8.9
P2-B4	0.95	1.18	0.08	10	0.5	3.4	980	1.6%	4.4	3.7	7.1	4.64	7.79	4.4	9.2
P2-B5	0.62	0.74	0.08	10	0.5	3.4	615	1.6%	4.4	2.3	5.7	4.96	8.33	3.1	6.2
P2-B6	0.64	0.78	0.08	10	0.5	3.4	615	1.6%	4.4	2.3	5.7	4.96	8.33	3.2	6.5
P2-B7	0.79	1.06	0.08	10	0.5	3.4	760	1.6%	4.4	2.9	6.3	4.83	8.10	3.8	8.5
P2-B8	0.75	0.91	0.08	10	0.5	3.4	760	1.6%	4.4	2.9	6.3	4.83	8.10	3.6	7.4
P2-B9	1.48	1.70	0.08	10	0.5	3.4	770	2.3%	5.3	2.4	5.8	4.94	8.29	7.3	14.1
P2-B10	1.53	1.81	0.08	10	0.5	3.4	770	2.3%	5.3	2.4	5.8	4.94	8.29	7.5	15.0
P2-C2	1.17	1.37	0.08	10	0.5	3.4	610	3.4%	6.5	1.6	5.0	5.17	8.68	6.1	11.9
P2-S1	15.37	22.32									16.5	3.38	5.67	51.9	126.6
P2-S1 (UNDEV)	2.93	12.81	0.08	300	8	23.1	1760	1.4%	4.1	7.1	30.2	2.47	4.15	7.2	53.2

JOB NAME: Sterling Ranch East Filing No. 1
 JOB NUMBER: 1183.30
 DATE: 08/04/22
 CALCULATED BY: MAL

FINAL DRAINAGE REPORT ~ SURFACE ROUTING SUMMARY (DEVELOPED CONDITIONS)

Design Point(s)	Contributing Basins	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		Inlet Size
					I(5)	I(100)	Q(5)	Q(100)	
23	BASIN P2-B6 + Flow-By DP-15	0.63	1.03	5.7	4.96	8.33	3.1	8.6	EX. 15' AT-GRADE
24	BASIN P2-B5 + Flow-By DP-16	0.63	1.10	5.7	4.96	8.33	3.1	9.1	EX. 15' AT-GRADE
25	BASIN P2-B8 + Flow-By DP-23	0.76	0.95	6.3	4.83	8.10	3.7	7.7	EX. 15' AT-GRADE
26	BASIN P2-B7 + Flow-By DP-24	0.79	1.12	6.3	4.83	8.10	3.8	9.1	EX. 15' AT-GRADE
27	BASIN P2-B10 + Flow-By DP-25	1.52	1.82	5.8	4.94	8.29	7.5	15.1	EX. 15' SUMP
28	BASIN P2-B9 + Flow-By DP-26	1.48	1.76	5.8	4.94	8.29	7.3	14.6	EX. 15' SUMP
29A	BASIN A1	1.51	2.14	11.7	3.89	6.53	5.9	14.0	10' AT-GRADE
29B	BASIN A2 + Flow-By DP-29A	0.55	1.32	11.7	3.89	6.53	2.1	8.7	5' SUMP
30A	BASIN B1	2.15	2.86	11.9	3.87	6.50	8.3	18.6	10' AT-GRADE
30B	BASIN B2 + Flow-By DP-30A	0.63	1.53	11.9	3.87	6.50	2.4	9.9	10' SUMP
31	BASIN L	1.27	1.58	10.9	4.00	6.72	5.1	10.6	10' SUMP
32	BASIN M	0.76	0.93	7.2	4.62	7.75	3.5	7.2	5' SUMP
33	BASIN N	1.34	1.64	11.1	3.97	6.67	5.3	11.0	10' SUMP
34	BASIN P	0.88	1.08	7.7	4.53	7.61	4.0	8.2	10' SUMP

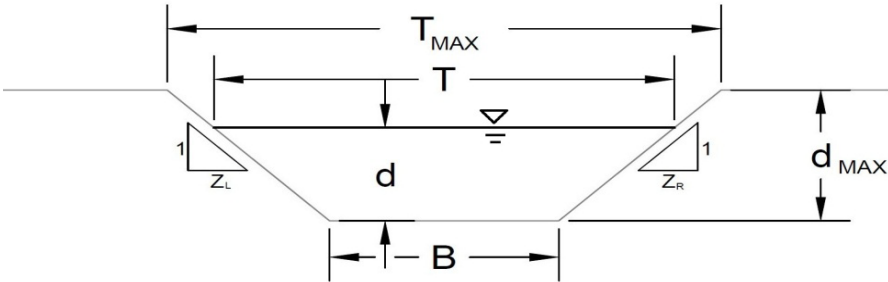
JOB NAME: Sterling Ranch East Filing No. 1
 JOB NUMBER: 1183.30
 DATE: 08/04/22
 CALCULATED BY: MAL

FINAL DRAINAGE REPORT ~ SURFACE ROUTING SUMMARY (DEVELOPED CONDITIONS)

Design Point(s)	Contributing Basins	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		Inlet Size
					I(5)	I(100)	Q(5)	Q(100)	
47B	BASIN T + Flow-By DP-47A	1.37	2.01	11.9	3.86	6.49	5.3	13.0	10' SUMP
48	BASIN W	0.23	0.26	6.5	4.78	8.02	1.1	2.1	5' SUMP
50	BASIN P2-S1	15.37	22.32	16.5	3.38	5.67	51.9	126.6	FUT. STORM
50B	1/3 BASIN P2-S1 (UNDEV)	0.97	4.23	30.2	2.47	4.15	2.4	17.5	TYPE D INLET
50C	1/3 BASIN P2-S1 (UNDEV)	0.97	4.23	30.2	2.47	4.15	2.4	17.5	TYPE D INLET
50D	1/3 BASIN P2-S1 (UNDEV)	0.97	4.23	30.2	2.47	4.15	2.4	17.5	TYPE D INLET
51	BASIN JJ	1.65	1.99	6.4	4.81	8.07	7.9	16.1	FUT. STORM
52	BASIN MM	0.34	0.54	5.0	5.17	8.68	1.8	4.7	TYPE C INLET
53	BASIN NN	0.21	0.36	5.0	5.17	8.68	1.1	3.1	TYPE C INLET
54	BASIN SS	0.27	0.43	5.0	5.17	8.68	1.4	3.7	TYPE C INLET
55A	BASIN LL1	0.20	0.37	5.0	5.17	8.68	1.1	3.2	TYPE C INLET
55B	BASIN LL2	0.43	0.81	5.0	5.17	8.68	2.2	7.0	TYPE C INLET
56	BASIN TT	0.20	0.62	10.0	4.14	6.94	0.8	4.3	FUT. STORM
57	BASIN PP	0.53	1.61	10.4	4.07	6.83	2.1	11.0	FUT. STORM
58	BASIN QQ	0.58	0.64	5.0	5.17	8.68	3.0	5.6	FUT. STORM
59	BASIN KK	0.35	1.28	9.2	4.25	7.13	1.5	9.2	FUT. STORM
60	BASIN RR + PIPE 42 + PIPE 95	74.26	99.25	19.5	3.12	5.24	232.0	520.5	POND 14A

AREA INLET IN A SWALE

Type D 50B-50D



This worksheet uses the NRCS vegetal retardance method to determine Manning's n.
For more information see Section 7.2.3 of the USDCM.

Analysis of Trapezoidal Grass-Lined Channel Using SCS Method		
NRCS Vegetal Retardance (A, B, C, D, or E)		
Manning's n (Leave cell D16 blank to manually enter an n value)		
Channel Invert Slope		
Bottom Width		
Left Side Slope		
Right Side Slope		
Check one of the following soil types:		
Soil Type:	Max. Velocity (V _{MAX})	Max Froude No. (F _{MAX})
Non-Cohesive	5.0 fps	0.60
Cohesive	7.0 fps	0.80
Paved	N/A	N/A
Maximum Allowable Top Width of Channel for Minor & Major Storm		
Maximum Allowable Water Depth in Channel for Minor & Major Storm		
A, B, C, D, or E =		
n = 0.040		
S ₀ = 0.0200 ft/ft		
B = 3.00 ft		
Z ₁ = 10.00 ft/ft		
Z ₂ = 10.00 ft/ft		
Choose One:		
☐ Non-Cohesive		
☐ Cohesive		
☐ Paved		
Minor Storm		
Major Storm		
T _{MAX} = 40.00 40.00 ft		
d _{MAX} = 1.00 1.00 ft		
Minor Storm		
Major Storm		
Q _{allow} = 46.7 46.7 cfs		
d _{allow} = 1.00 1.00 ft		
Minor Storm		
Major Storm		
Q _o = 2.4 17.5 cfs		
d = 0.26 0.66 ft		
Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'		
Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'		

AREA INLET IN A SWALE

Type D 50B-50D

Inlet Design Information (Input)

Type of Inlet

CDOT Type D (In Series & Depressed)

Inlet Type =

CDOT Type D (In Series & Depressed)

Angle of Inclined Grate (must be <= 30 degrees)

Width of Grate

Length of Grate

Open Area Ratio

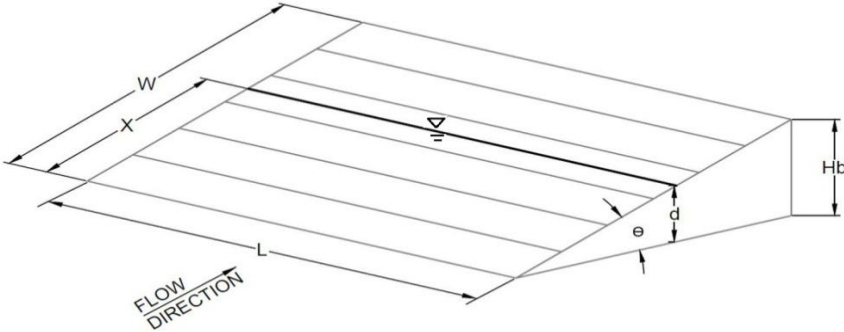
Height of Inclined Grate

Clogging Factor

Grate Discharge Coefficient

Orifice Coefficient

Weir Coefficient



θ =	0.00	degrees
W =	3.00	ft
L =	6.00	ft
A_{RATIO} =	0.70	
H_B =	0.00	ft
C_f =	0.38	
C_d =	0.72	
C_o =	0.48	
C_w =	1.53	

Water Depth at Inlet (for depressed inlets, 1 foot is added for depression)

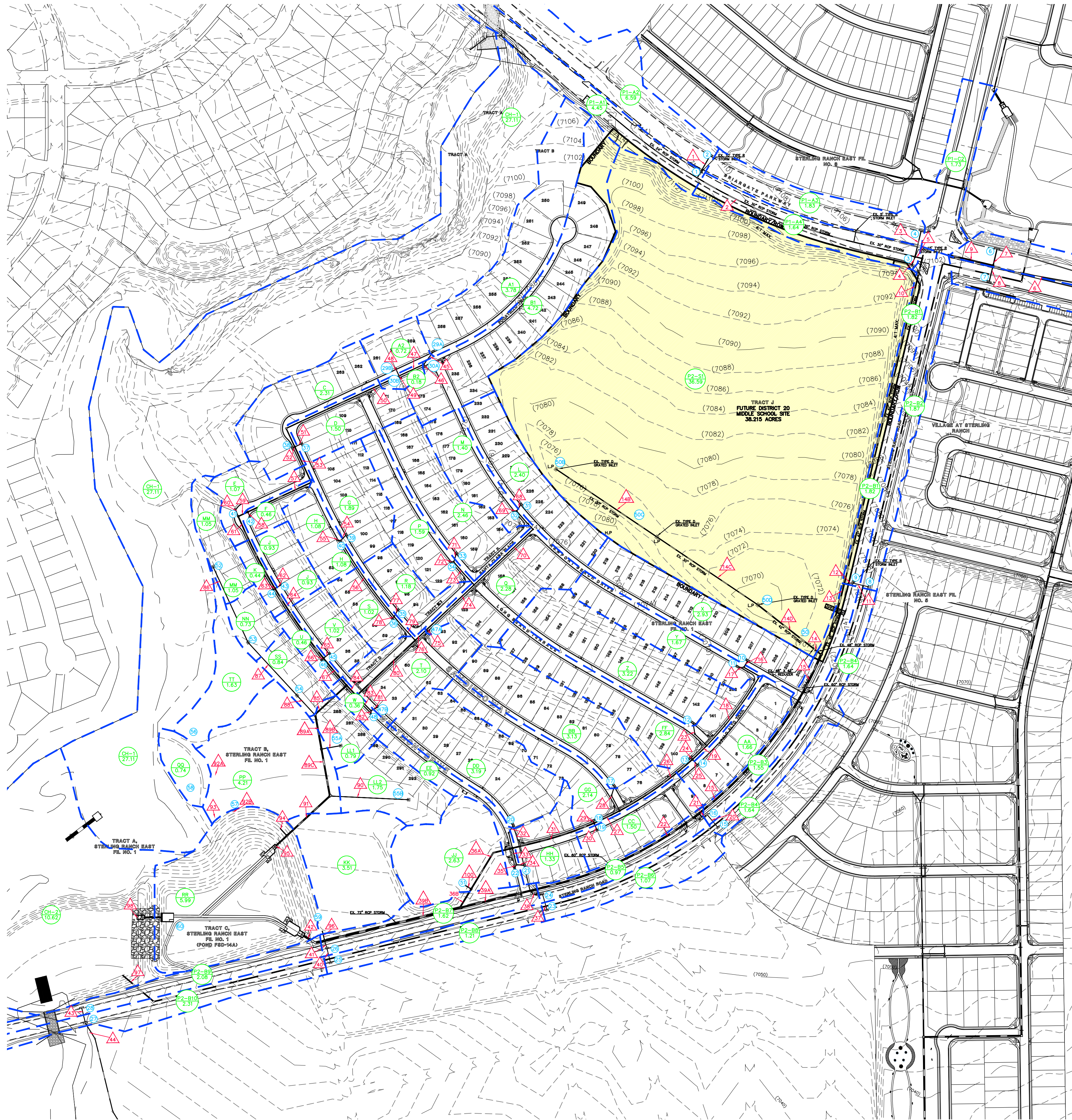
Total Inlet Interception Capacity (assumes clogged condition)

Bypassed Flow

Capture Percentage = Q_a/Q_o

	MINOR	MAJOR	
d =	1.26	1.66	
Q_a =	33.8	38.8	cfs
Q_b =	0.0	0.0	cfs
$C\%$ =	100	100	%

DRAINAGE MAPS



LEGEND

EXISTING GROUND CONTOUR
PROPOSED BASIN BOUNDARY
EXISTING STORM SEWER
EXISTING STORM INLET

(7000)
— — — — —
— — — — —
— — — — —
— — — — —

BASIN IDENTIFIER
AREA IN ACRES
DESIGN POINT
PIPE RUN
EXISTING RIPRAP

N

200 100 0 200 400

SCALE: 1" = 200'

48 HOURS BEFORE YOU DIG,
CALL UTILITY LOCATORS
811
UTILITY NOTIFICATION CENTER OF COLORADO
IT'S THE LAW.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NO.	REVISION	DATE

REVIEW:
PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF
CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC

MARC A. WHORTON, COLORADO P.E. #37155 DATE

CLASSIC CONSULTING

619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903

(719) 785-0790
(719) 785-0799 (fax)

PCD No. CDR267

TRACT J, STERLING RANCH EAST
FILING NO. 1 (D20 MIDDLE SCHOOL SITE)
DRAINAGE MAP

DESIGNED BY	KES	SCALE	DATE	6/26/2026
DRAWN BY	KES	(H) 1"= 200'	SHEET	1 OF 1
CHECKED BY		(V) 1"= N/A	JOB NO.	1183.30

N:\118330\DRAWINGS\CONSTRUCTION\DWG_0-20 Middle School Site\01-118330MS-FDM.dwg, 9/14/2026 9:57:00 AM, 1/1