PLANNING COMMISSION REGULAR MEETING
MONDAY, APRIL 6, 2026
AGENDA

Monday, April 6, 2026 **6:00 PM** **Hearing Room**

Disclaimer - This packet is provided for informational purposes only and is subject to change. Some documents may have been unavailable at the time this agenda was prepared. For additional information, contact the responsible staff person.

Instructions to access the video or audio of the meeting are available here: www.douglas.co.us/board-county-commissioners/boards-commissions/planning-commission/.
To submit written public comment and/or exhibits for a Planning Commission meeting, please send them, in advance, to planningcommission@douglas.co.us.

1. Call to Order

a. Pledge of Allegiance

b. Roll Call

c. Attorney Certification of the Agenda

d. Planning Commission Disclosures

2. Approval of Minutes

Unofficial Minutes from March 16, 2026.

Attachments: Unofficial Minutes from March 16, 2026

3. Land Use Hearing Items

495 Dawson Trails Boulevard CORE Battery Storage - Location and Extent - Project File: LE2026-003.
Trevor Bedford, AICP, Senior Planner — *Department of Community Development*

Attachments: Cover Page
Staff Report - LE2026-003

Highlands Ranch Planned Development, 84th Amendment - Major Planned Development Amendment - Project File: ZR2026-002.
Matt Jakubowski, AICP, Chief Planner — *Department of Community Development*

Attachments: Cover Page
Staff Report - ZR2026-002

Zoning Resolution Waiver for 5970 N US Highway 85, 6th Amendment - Use by Special Review - Project File: US2025-001.
Brett Thomas, AICP, Chief Planner — *Department of Community Development*

Attachments: Cover Page
Staff Report - US2025-001

Bloom Preliminary Plan - Project File: SB2025-017.
Mike Pesicka, AICP, Principal Planner — *Department of Community Development*

Attachments: Cover Page
Staff Report - SB2025-017

4. Adjournment

The Next Regular Meeting Will be Held on Monday, April 20, 2026 @ 6:00 p.m.

MEETING DATE: April 6, 2026

DESCRIPTION: Unofficial Minutes from March 16, 2026.

ATTACHMENTS:

Unofficial Minutes from March 16 2026

PLANNING COMMISSION REGULAR MEETING
MONDAY, MARCH 16, 2026
MINUTES

Monday, March 16, 2026	6:00 PM	Hearing Room

1. Call to Order

Commissioner Downs presented hearing instructions.

a. Pledge of Allegiance

b. Roll Call

PRESENT
Commissioner Len Abruzzo
Commissioner Calvin Downs, Chair
Commissioner Mark Hampton
Commissioner Ed Kubly
Commissioner Michael McKesson
Commissioner Marc Reyher
Commissioner Jim Smallwood, Secretary
Alternate Mark Witkiewicz
EXCUSED
Commissioner Ed Rhodes

c. Attorney Certification of the Agenda

Arielle Denis, Assistant County Attorney, stated that all items on today's agenda have been reviewed by the County Attorney's Office, they have been properly noticed, and the Commission has jurisdiction to hear them.

d. Planning Commission Disclosures

None.

e. Election of Planning Commission Officer

Commissioner Jim Smallwood moved to nominate Commissioner Mark Hampton as Vice Chair of the Planning Commission for the remainder of the year.

RESULT:	APPROVED
MOVER:	Jim Smallwood
SECONDER:	Len Abruzzo
AYES:	Len Abruzzo, Calvin Downs, Mark Hampton, Ed Kubly, Mike McKesson, Marc Reyher, Jim Smallwood, Mark Witkiewicz

2. Approval of Minutes

a. Unofficial Minutes from March 2, 2026.

Commissioner Mike McKesson moved that the Commission approve the Minutes from March 2, 2026.

RESULT:	APPROVED
MOVER:	Mike McKesson
SECONDER:	Jim Smallwood
AYES:	Len Abruzzo, Calvin Downs, Mike McKesson, Jim Smallwood, Mark Witkiewicz
ABSTAIN:	Mark Hampton, Ed Kubly, Marc Reyer

3. Land Use Hearing Items

a. 5675 Delva Way – Douglas County Biochar Facility – Location and Extent – Project File: LE2026-001.

Brett Thomas, AICP, Chief Planner - Department of Community Development – presented the proposed application.

The applicant's representative, Dan Roberts, Douglas County Public Works Operations – provided additional information.

Commissioner Downs opened public comment.

There was no public comment.

Commissioner Downs closed public comment.

Commissioner Downs opened Planning Commission discussion.

Commissioner Mike McKesson moved to approve the 5675 Delva Way – Douglas County Biochar Facility – Location and Extent – Project File: LE2026-001.

RESULT:	APPROVED
MOVER:	Mike McKesson
SECONDER:	Mark Witkiewicz
AYES:	Len Abruzzo, Calvin Downs, Mark Hampton, Ed Kubly, Mike McKesson, Marc Reyher, Jim Smallwood, Mark Witkiewicz

b. High Line Canal Origin Trailhead – Location and Extent – Project File: LE2026-002.

Heather Scott, AICP, Principal Planner, Department of Community Development - presented the proposed application.

The applicant's representative, Nick Giauque, Douglas County Parks and Recreation – provided additional information.

Commissioner Downs opened public comment.

There was no public comment.

Commissioner Downs closed public comment.

Commissioner Downs opened Planning Commission discussion.

Commissioner Jim Smallwood moved to approve the High Line Canal Origin Trailhead – Location and Extent – Project File: LE2026-002.

RESULT:	APPROVED
MOVER:	Jim Smallwood
SECONDER:	Marc Reyher
AYES:	Len Abruzzo, Calvin Downs, Mark Hampton, Ed Kubly, Mike McKesson, Marc Reyher, Jim Smallwood, Mark Witkiewicz

4. Adjournment

The meeting was adjourned at 6:40 p.m.

_____

Jim Smallwood, Secretary

_____

Samantha Hutchison, Recording Secretary

MEETING DATE: April 6, 2026

STAFF PERSON RESPONSIBLE: Trevor Bedford, AICP, Senior Planner

DESCRIPTION: 495 Dawson Trails Boulevard CORE Battery Storage - Location and Extent - Project File: LE2026-003.

SUMMARY: CORE Electric Cooperative requests approval of a Location and Extent (L & E) for a battery energy storage system at CORE's existing Citadel substation located on the west side of Yucca Hills Road, at its southern terminus.

STAFF ASSESSMENT: Staff evaluated the application in accordance with Section 32 of the Douglas County Zoning Resolution. Should the Planning Commission approve the L & E request, the applicant will be required to receive approval of all necessary permits prior to commencement of the project.

ATTACHMENTS:

Cover Page
Staff Report - LE2026-003

MEETING DATE: April 6, 2026

STAFF PERSON RESPONSIBLE: Trevor Bedford, AICP, Senior Planner

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STAFF ASSESSMENT: Staff evaluated the application in accordance with Section 32 of the Douglas County Zoning Resolution. Should the Planning Commission approve the L & E request, the applicant will be required to receive approval of all necessary permits prior to commencement of the project.

ATTACHMENTS:

LE2026-003 495 Dawson Trails Boulevard PC Staff Report

DOUGLAS COUNTY
COLORADO

Location and Extent Staff Report

Date: March 25, 2026

To: Douglas County Planning Commission

From: Trevor Bedford, AICP, Senior Planner TB
Jeanette Bare, AICP, Current Planning Manager JB
Steven E. Koster, AICP, Deputy Director of Community Development SK

Subject: **495 Dawson Trails Boulevard CORE Battery Storage – Location and Extent**

Project File: **LE2026-003**

Planning Commission Hearing: **April 6, 2026 @ 6:00 p.m.**

I. EXECUTIVE SUMMARY

CORE Electric Cooperative requests approval of a Location and Extent (L&E) for a battery energy storage system (BESS) at CORE's existing Citadel substation located on the west side of Yucca Hills Road, at its southern terminus. The applicant states that the project is necessary to increase the reliability of service in the area.

The property is approximately 10 acres and is zoned Agricultural One (A-1). The property is located within the Castle Rock Municipal Planning Area as identified by the 2040 Comprehensive Master Plan.

II. APPLICATION INFORMATION

A. Applicant

Brooks Kaufman
CORE Electric Cooperative
5496 N US Highway 85
Sedalia, CO 80135

B. Applicant's Representative

Derek Holscher
Ulteig Operations, LLC
5575 DTC Parkway #200
Greenwood Village, CO 80111

C. Request

The applicant requests approval of an L&E for the construction of the Citadel Battery Energy Storage System (BESS) on the western portion of CORE's existing Citadel Substation property.

D. Location

The project is located on the west side of Yucca Hills Road, at its southern terminus. The attached vicinity map, zoning map, and aerial map highlight site location and existing conditions.

E. Project Description

CORE proposes to construct a BESS at the existing Citadel substation located on the west side of Yucca Hills Road. The property is planned to be bisected by Dawson Trails Boulevard north to south in the future. After the construction of roadway, the BESS will be located on the west side of Dawson Trails Boulevard, and the existing substation will be on the east side of Dawson Trails Boulevard. The BESS will cover approximately 0.6 acres of the site and contain eight battery enclosures similar in size to a Conex container. Although the subject property is zoned A-1, it conforms to Large Rural Residential (LRR) as it is 10 acres in size. Both A-1 and LRR allow Utility Service Facilities, including Neighborhood Substations, as a use by right.

The BESS will be surrounded by a seven-foot tall chain link security fence, matching the fencing around the existing substation. Two detention ponds are proposed on site to capture any storm runoff.

Access to the site will initially be provided via a temporary access road from Yucca Hills Road along the northern property line. A portion of the proposed road will be located on the property to the north. CORE has discussed the project and the necessary easement with the adjacent property owner. CORE will be required to obtain the easement prior to construction of the access road. The site will be accessed via a driveway to Dawson Trails Boulevard after the roadway is completed.

Construction is anticipated to begin in the summer of 2026 with completion in the summer of 2027. During construction, approximately 6-10 vehicle trips are generally expected per day, with variations due to deliveries and construction scheduling. The applicant has indicated that the expected noise levels during construction will comply with noise regulations. CORE will implement erosion control measures to limit fugitive dust during construction.

The project is located within the Castle Rock Municipal Planning Area as identified by the Douglas County Comprehensive Master Plan 2040 (CMP) Section 2. The project is consistent with several goals, objectives, and policies. Goal 2-9 is to ensure development occurs concurrently with essential services and infrastructure. The proposed substation will provide essential services and infrastructure to existing and planned development in the area. Policy 2-16A.2 is to maintain open communication, build relationships, and address areas of mutual concern between the County and municipalities. This project has been referred to the Town of Castle Rock and is intended to support the reliability of infrastructure for both the Town and the County. Objective 5-1A is to review existing and projected development to ensure that it does not overwhelm existing services. The proposed substation provides additional capacity

to reliably serve existing and future customers. Additionally, the applicant has provided a discussion of several CMP objectives and policies in the attached narrative and community impact report.

III. CONTEXT

A. Background

The subject property is approximately 10 acres in size. It is currently occupied by CORE's Citadel substation on the eastern portion of the site, which was approved as a Location and Extent application in 2011. CORE has indicated that the BESS will help to balance the system during peak load times and demand changes.

Dawson Trails Boulevard is planned to bisect the property in the future. The proposed BESS will be located on the west side of Dawson Trails Boulevard. The property will remain as a single lot, bisected by the roadway. No subdivision application will be required.

B. Adjacent Land Uses and Zoning

Adjacent lands include residential, agricultural, railroad and planned development.

Zoning and Land Use

	Zoning	Land Use
North	Agricultural One	Single-Family Residential
South	Town of Castle Rock – Westfield Trade Center Planned Development	Vacant
East	Agricultural One	Railroad and Interstate 25
West	Agricultural One	Agriculture and Single-Family Residential

IV. PHYSICAL SITE CHARACTERISTICS

A. Site Characteristics and Constraints

The property generally slopes upwards to the west and has an existing electric substation on the eastern portion of the property.

B. Access

The BESS will initially be accessed via a temporary access roadway that will be partially located on the property to the north. After Dawson Trails Boulevard is constructed, the BESS will be accessed via a driveway connection to Dawson Trails Boulevard.

C. Drainage and Erosion

The applicant provided a preliminary drainage report for review. At the writing of this staff report, Public Works Engineering had not yet responded to the referral request.

Approval of any necessary plans and permits will be required prior to commencement of construction.

D. Floodplain

There is 100-year floodplain on the eastern portion of the property. The proposed BESS is located outside of the floodplain. The temporary access road will cross a portion of floodplain. The applicant will be required to obtain any necessary permits for improvements in the floodplain prior to construction.

V. PROVISION OF SERVICES

A. Schools

This is a nonresidential project that will not impact school services.

B. Fire Protection

Castle Rock Fire and Rescue Department (CRFD) provides fire and emergency services to the site. At the writing of this staff report, CRFD had not yet responded to the referral request. The applicant will be required to obtain any approvals or permits necessary from CRFD prior to commencement of construction.

C. Sheriff Services

The Douglas County Sheriff's Office (DCSO) will provide police protection to the site. At the writing of this staff report, responses had not been received from DCSO, E911, or the Office of Emergency Management.

D. Water and Sanitation

The project does not have any water and sanitation demands.

E. Utilities

Area utility providers were provided a referral on this application. AT&T and Xcel Energy responded with no conflicts. At the writing of this staff report, no response was received from AT&T, CenturyLink or Comcast.

F. Other Required Processes and Permits

In addition to the L&E approval, the following permits and other approvals may be required prior to commencement of construction:

- Engineering: Construction Drawings approval, GESC report and plans approval, approval of any other necessary plans and permits.
- Building Division: Building permits.
- Castle Rock Fire and Rescue Department: Any necessary permits.
- Obtain access easement for temporary access road.

VI. PUBLIC NOTICE AND INPUT

Courtesy notices of an application in progress were sent to adjacent property owners. At the preparation of the staff report, no members of the public had responded to courtesy notices. Any comments received will be provided prior to the hearing. Referral response requests were sent to required referral agencies on March 12, 2026. Referral responses are due at the conclusion of the referral period on March 26, 2026, or prior to the Planning Commission Hearing.

Referral agency responses received to date are attached to the staff report for reference. Responses received through the end of the referral period will be provided to the Planning Commission prior to the hearing and added to the project record.

VII. STAFF ASSESSMENT

Staff evaluated the application in accordance with Section 32 of the DCZR. Should the Planning Commission approve the L & E request, the applicant will be required to receive approval of all necessary permits prior to commencement of the project.

ATTACHMENTS **PAGE**

Douglas County Land Use Application 6
Applicant's Narrative 8
Comprehensive Master Plan Map 112
Zoning Map 113
Aerial Map 114
Referral Agency Response Report 115
Referral Response Letters 117
Location and Extent Exhibit 120

LAND USE APPLICATION

Please complete, sign, and date this application. Return it with the required items listed on the Submittal Checklist to planningsubmittals@douglas.co.us. Submittals may also be mailed or submitted in person to Planning Services. *NOTE: The Planning Commission or the Board of County Commissioners should not be contacted regarding an open application*.

OFFICE USE ONLY
PROJECT TITLE:
PROJECT NUMBER: LE2026-003

PROJECT TYPE: Location & Extent

MARKETING NAME: CORE Electric Cooperative Citadel Substation Battery Energy Storage System

PRESUBMITTAL REVIEW PROJECT NUMBER: PS2025-183

PROJECT SITE:

Address: 890 Yucca Hills Road, Castle Rock, CO 80109

State Parcel Number(s): 2505-150-00-033

Subdivision/Block#/Lot# *(if platted)*: N/A

PROPERTY OWNER(S):

Name(s): CORE Electric Cooperative

Address: 5496 N. US Highway 85, Sedalia, CO 80135

Phone: 720-733-5493

Email: [redacted]

AUTHORIZED REPRESENTATIVE: *(Notarized Letter of Authorization is required from the property owner, unless the owner is acting as the representative)*

Name: Ulteig Operations, LLC - Derek Holscher

Address: 5575 DTC Parkway #200, Greenwood Village, CO 80111

Phone: 720-873-5876

Email: [redacted]

To the best of my knowledge, the information contained on this application is true and correct. I have received the County's information sheet regarding the *Preble's Meadow Jumping Mouse*.

Applicant Signature

2/17/2026
Date

PREBLE'S MEADOW JUMPING MOUSE

What is the Preble's Meadow Jumping Mouse?
The Preble's Meadow Jumping Mouse is a rare mouse designated by the United States Fish and Wildlife Service as a "threatened species" under the Endangered Species Act. The federal threatened species designation prohibits the unlawful "take" of the Preble's Meadow Jumping Mouse or its habitat.

Where does the mouse live?
The Preble's Meadow Jumping Mouse lives primarily in heavily vegetated riparian habitats. In Douglas County, the mouse has been located in or near many drainages, including tributaries and the mainstream reaches of East and West Plum Creek. However, any stream reach or potential habitat within Douglas County may be subject to the requirements of the Endangered Species Act. The mouse has also been found in Boulder, Elbert, El Paso, Jefferson, and Larimer counties and in parts of Wyoming.

What activities may be considered a violation of the Endangered Species Act?
In its listing decision, the United States Fish and Wildlife Service identified activities that may result in violation of the Endangered Species Act to include:

1. Unauthorized or unpermitted collection, handling, harassing, or taking of the species;

2. Activities that directly or indirectly result in the actual death or injury death of the mouse, or that modify the known habitat of the species, thereby significantly modifying essential behavioral patterns (e.g., plowing, mowing, or cutting; conversion of wet meadow or riparian habitats to residential, commercial, industrial, recreational areas, or cropland; overgrazing; road and trail construction; water development or impoundment; mineral extraction or processing; off-highway vehicle use; and, hazardous material cleanup or bioremediation); and;

3. The application or discharge of agrichemicals or other pollutants and pesticides onto plants, soil, ground water, or other surfaces in violation of label directions or any use following Service notification that such use, application or discharge is likely to harm the species; would be evidence of unauthorized use, application or discharge.

How to determine if a proposed activity would violate the Endangered Species Act.
Any questions regarding whether an activity will impact the Preble's Meadow Jumping Mouse or its habitat should be directed to:

Field Office Supervisor
USFWS Colorado ES Field Office (MS 65412)
Denver Federal Center
PO Box 25486
Denver, CO 80225-0486
303-236-4773
ColoradoES@fws.gov

Where to find more information on the Preble's Meadow Jumping Mouse.
More information can be found at the US Fish and Wildlife Service website at:
https://ecos.fws.gov/ecp/species/4090

Any approval given by Douglas County does not obviate the need to comply with applicable federal, state, or local laws and/or regulations.

CORE Electric Cooperative Citadel Substation Battery Storage System Location and Extent Application Douglas County Zoning Resolution Section 32

Written Narrative & Location and Extent Report Douglas County, Colorado

March 2026

Prepared for:

Prepared by:

We listen. We solve.®

3203.01.1 Land Use Application Form

See Appendix A

3203.01.2 Written Narrative

Name of Applicant

CORE Electric Cooperative (CORE)
Brooks Kaufman – Manager, Lands and Rights-of-Way
5496 N. US Highway 85
Sedalia, CO 80135
bkaufman@core.coop
720-733-5493

Description of the Request

CORE is proposing to construct and operate their new Citadel Substation Battery Energy Storage System (BESS) in Douglas County, Colorado (Project). The Project address is 890 Yucca Hills Road, Castle Rock, CO 80109, where CORE's existing Citadel Substation resides and has been in operation for over 1 year. The Project will be located at the western end of the Citadel Substation property, which is a 10-acre parcel (2505-150-00-033) owned by CORE, which is currently zoned Agricultural One (A1); there are no plans to rezone the parcel.

The Project will tie into CORE's existing Citadel Substation, which then connects to their existing Wolfensberger to Citadel 115kV overhead transmission line. The footprint of the BESS yard is 26,754 sf or approximately 0.6 acres, which will be encompassed by a 7-foot chain link security fence with a 1-foot outrigger of barbed wire on top, the same type of security fence as the existing Citadel Substation. The proposed Dawson Trails Blvd. will bisect CORE's property, leaving the BESS on the west side of the road and the existing Citadel Substation on the east side of the road. At the time of this application, the road right-of-way for Dawson Trails Blvd. has not been deeded; however, the proposed alignment is shown on the Location & Extent Exhibits for reference. During the presubmittal meeting and subsequent Review Findings for the project (PS2025-183), it was determined that even though the proposed right-of-way for Dawson Trails Blvd. will effectively split the parcel, it will not be necessary for CORE to complete any subdivision or subdivision exemption process in the future. Specifications for the security fence and the proposed Dawson Trails Blvd. are included in Location & Extent Plan Exhibits; Appendix B.

The BESS will consist of eight (8) battery enclosures, which are approximately the size of a Conex box. Associated equipment will include HVAC, fire suppression, junction boxes, and a SCADA system.

The Project site will utilize two (2) different stormwater detention ponds, each with their own dedicated access. As part of this Location & Extent process, CORE will grant a Secondary Storm Drainage Easement to Douglas County for each detention pond access road for the purposes of maintenance and repair in the event of an emergency. The main access for the site will come off Dawson Trails Blvd. after it has been completely constructed; however, in the meantime and for construction purposes, a temporary access road will be constructed along the northern boundary of the parcel. The alignment for a portion

of this temporary access road will be on the adjacent property to the north (Nichols). CORE has met with the Nichols to discuss the overall project, as well as the temporary access, and they are willing to grant a temporary easement, which CORE will compensate them for.

CORE met on site with adjacent landowners Nichols and Chase on Wednesday February 11th, 2026, to discuss the project. CORE explained the need for the project and discussed the construction process and schedule. As part of the construction process, CORE will be acquiring a Temporary Access Easement across a portion of the Nichols property. As part of this process and after construction, CORE will remove an existing field fence along the northern boundary of the Nichols property and install a new one on the property line. CORE also shared a copy of their survey with the Nichols. Both landowners appreciated the opportunity to meet and the transparency of CORE to share details about the project.

Construction of the Project will begin in the summer of 2026 and be completed by summer of 2027.

BESS Construction
The BESS will be comprised of a series of containers that house batteries, battery racks, wiring and climate control systems. The batteries will be connected in parallel and grouped into battery modules that will be loaded into racks. The battery racks will be placed inside standard 20' containers. The BESS will also employ inverter containers with pad mount transformers. The internal rack design are generally between 8-10 racks and between 8-10 modules per rack. These containers can hold between 4-5 MWh of energy. The modules can be removed for warranty claims, cell balancing, or other preventative maintenance items throughout the life of the Project.

Generally, multiple containers can fit behind one inverter and pad mount transformer that are used to convert between alternating and direct current and change the voltage to inverter operating levels. The container also has sensors, wiring, HVAC to cool the batteries and other miscellaneous equipment for effective and safe operation. The container is effectively, a shipping container/trailer that will serve to house the equipment. The container will be anchored to concrete slab foundations and removed at the end of the system life. The battery module and rack system in each container is designed to be simple to inspect, replace, and remove batteries during the BESS's life without destruction to property or equipment.

Purpose of the Improvements
The BESS will offset peak electric load time periods, keeping rates lower for CORE's customers by avoiding additional fees during peak loading. In this portion of CORE's service territory, there are a combination of long radial feeders, limited redundancy, increasing peak demand, and growing distributed generation. These conditions can result in voltage drop and power quality issues, high wholesale power costs during peak demand periods, reliability challenges during transmission outages or extreme weather, and expensive/time consuming infrastructure upgrades (new substations, reconductoring, or transmission expansion).

CORE's substations can often experience short duration peak loading that drives upstream demand charges and capacity obligations. The BESS can charge during off peak hours, discharge during peak loading windows, reduce substation peak demand, which results in a lower peak load profile and reduces wholesale procurement costs without the need to add new infrastructure.

Traditional solutions to overloads on distribution feeders include reconductoring, new voltage regulation equipment, or new substations—each with high capital costs. The BESS can provide targeted

capacity during peak conditions, relieve thermal and voltage constraints, and defer or eliminate the need for near term capital upgrades.

Long radial feeders can be susceptible to voltage drops during peak load and power quality complaints from CORE's members. Because BESS inverters respond in milliseconds, the system can inject or absorb real and reactive power, maintain voltage within acceptable limits, and improve overall feeder power quality.

CORE's members are often served by single source feeders with limited switching options. A BESS improves resiliency by supporting critical loads during outages, enables sectionalized service restoration, and assists with system recovery.

As CORE adds community solar or behind the meter generation, variability increases on distribution systems not originally designed for this type of power flow. The BESS allows CORE to capture excess local generation, deliver smooth intermittent output, and reduces back feed and voltage excursions.

Installing the BESS at the existing Citadel substation provides a cost effective, flexible solution to improve reliability, reduce peak power costs, defer infrastructure upgrades, and support future renewable integration—directly advancing CORE's mission to deliver reliable and affordable power to its members.

Summary of the Potential Impacts and Proposed Mitigation Measures

Grading, Erosion and Sediment Control

Ground disturbance during construction is expected to be minor. To avoid potential indirect impacts from construction related erosion and sediment movement, CORE will prepare a Grading, Erosion and Sediment Control (GESC) Report and Plan as outlined in Section 3 of the GESC Manual and adhere to the GESC permit issued by the Douglas County Engineering Division. CORE will also secure a Construction Stormwater Discharge Permit with the Colorado Department of Public Health & Environment (CDHPE) and adhere to the best management practices (BMPs) outlined in the Storm Water Management Plan (SWMP). These BMPs will include erosion control and revegetation measures.

Stormwater Management

In order to keep stormwater runoff from leaving the site, CORE is proposing to install two (2) different on site detention ponds, which will follow the Stormwater Quality recommendations as outlined in Chapter 14 of Douglas County's Storm Drainage Design and Technical Criteria Manual. Construction activities will be performed by methods that prevent entrance or accidental spillage of contaminants, debris, and other pollutants and wastes into underground water sources. Vegetation clearing for construction is anticipated to be minimal due to the dominant land cover of herbaceous growth. Measures will be implemented to minimize the spread of noxious weeds.

Noise

During construction, short term noise will occur from construction vehicles and equipment. Construction vehicles and equipment will be maintained in proper operating condition and equipped with the manufacturer's standard noise control devices (e.g., mufflers or engine enclosures) to limit this noise to the extent practicable. Post construction, any noise produced by the BESS shall not exceed the levels spelled out in Title 25, Article 12 (25-12-103) of the Colorado Revised Statutes, Maximum Permissible Noise Levels. The statute identifies that sound levels of noise radiating from a property line at a distance

of twenty five feet or more does not exceed the db(A) levels assigned for each zone between the hours of 7am to 7pm and 7pm to 7am.

Residential: 7am-7pm - 55 db(A), 7pm-7am – 50 db(A)
Commercial: 7am-7pm - 60 db(A), 7pm-7am – 55 db(A)
Light Industrial: 7am-7pm - 70 dB(A), 7pm-7am – 65 db(A)
Industrial: 7am-7pm - 80 dB(A), 7pm-7am – 75 db(A)

With the zoning for site being Agricultural, a particular zone has not been established per the statute. The Residential zone threshold is the most stringent in any defined zone and it is anticipated that the noise emitted for the BESS at a distance of 25 feet beyond the property line will adhere to or be below these levels.

Air Quality
Construction activities associated with the Project would temporarily generate less than significant amounts of particulate matter from soil disturbances and diesel-powered equipment, and less than significant amounts of carbon monoxide and the precursor pollutants to ozone formation from tailpipe emissions. Any air pollutants generated would be widely dispersed across the Project area, short term in duration, and minimized by the small scale of construction operations for the Project. Air pollutants also would be minimized through implementation of dust suppression and proper vehicle maintenance. Upon completion of earth disturbing activities, all disturbed areas will be revegetated or otherwise stabilized. Therefore, Project construction is not expected to contribute negatively to the air quality status in the area. There would be no long term air quality effects associated with routine operation and maintenance of the Project. CORE will implement erosion control BMPs to reduce fugitive dust released during construction.

Waste Management
Enclosed containment will be provided for all trash. All construction waste, including trash and litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials, will be removed from the site and transported to a disposal facility authorized to accept such materials. There will be no significant amount of hazardous materials stored in the Project area. Construction, operation, and maintenance activities will comply with all applicable federal, state, and local laws and regulations regarding the use of hazardous substances. The only hazardous chemicals expected to be used on site are those found in diesel fuel, gasoline, coolant (ethylene glycol), and lubricants in machinery. Hazardous materials will not be drained onto the ground or into streams or drainage areas. In its contract with the construction contractor, CORE can specify that it will hold a required pre-construction meeting with the contractor to ensure all applicable laws and CORE's procedures are followed.

Spill Containment
During construction, on site personnel will handle any fuel or other fluid spills on the Project in accordance with appropriate state and federal spill reporting and response requirements. The Project construction contractor shall notify CORE of reportable spills so they can make appropriate notifications to regulatory authorities, as needed.

Fire Protection/Safety
CORE has developed situational awareness tools that provide fire warnings, watches and forecasts for their service territory. Most of these tools are driven by a geographic information system (GIS) that incorporates wildfire hazard potential maps generated by the U.S. Forest Service's Fire Modeling

Institute overlaid with spatial data representing resources and assets such as power lines, substations, and communities. Daily fire risk is also monitored through fire warnings and watches from the National Weather Service, near real time fire alerts from NASA FIRMS satellites, and social media notifications from fire and police agencies in CORE's service area.
CORE personnel can access this information to adapt CORE's daily operations, emergency preparedness and risk mitigation efforts to changes in fire conditions. It also allows CORE to conduct proactive and real time operations that reduce the risk of fire ignition by their equipment, facilities and activity. CORE System Operators log weather conditions and send pertinent information and warnings to all Operations personnel and contractors, and GIS republishes these map services to the daily operation map service. This situational awareness allows CORE to adapt daily operations, emergency preparedness, and risk mitigation efforts to changes in fire conditions.

BESS, a technology that uses batteries to store and distribute electrical energy, are systems commonly used in electricity grids, renewable energy setups, and even electric vehicles. BESS technologies are designed to meet and exceed qualification standards. These systems are tested and vetted, certified, and ultimately built to comply with the nation's leading safety standard. The U.S. battery energy storage industry uses a suite of important certifications and standards that guide the safe design, installation, and operation of battery energy storage facilities. These documents are regularly updated based on the advice, applied lessons, and research from leading safety experts, fire professionals, fire protection engineers, and scientists.

The American Clean Power Association (ACP) has released a framework to enhance BESS safety, including compliance with standards like National Fire Protection Association (NFPA) 855 and better coordination with local fire departments. As the premier national standard for battery energy storage safety, NFPA 855 guides the collaboration between the battery energy storage industry and firefighters to maximize the safe and reliable performance of battery energy storage as critical grid infrastructure. NFPA 855 provides mandatory requirements for the design, installation, commissioning, operation, maintenance, and decommissioning of BESS facilities, distinguished by battery energy storage technology. NFPA 855 requires all battery energy storage systems be listed to UL 1973 and UL 9540. UL 1973 and UL 9540 are critical safety standards that ensure BESS operate reliably and securely. UL 1973 certifies the safety and performance of battery cells, modules, and packs, evaluating their ability to withstand thermal runaway, mechanical stress, and electrical faults. The UL 9540 certification builds on this by evaluating the entire BESS, verifying that it meets rigorous fire, electrical, and functional safety requirements. Together, these standards provide a robust framework that minimizes risks, protects facilities and communities, and instills confidence in the safety of BESS technology.

BESS fires are rare, 23 incidents in the last 10 years in the US, but can occur due to factors like thermal runaway, manufacturing defects, or improper system management. These incidents often involve lithium ion batteries, which are prone to overheating if damaged or improperly maintained. Historical data shows that many fire incidents involved older systems that lacked modern safety features. CORE's use of battery technology is evolving. Lithium iron phosphate (LiFePO4) batteries are increasingly popular for BESS due to their safety, durability, and environmental benefits. CORE plans to utilize lithium iron phosphate (LiFePO4) batteries at this site.

- Safety: LiFePO4 batteries are less prone to overheating and thermal runaway, making them ideal for large scale energy storage.
- Longevity: They have a longer cycle life compared to other lithium ion chemistries, which means they can be charged and discharged thousands of times without significant degradation.

- Environmental Impact: These batteries avoid the use of cobalt and nickel, making them more sustainable and ethically sourced.

Each battery is continuously monitored by an onsite system to automatically detect abnormal conditions and stop operations, if needed. An off site, 24-hour control room with trained technicians also constantly monitors each site and can remotely shut down the facility, if needed. All of the battery module designs included undergo rigorous industry testing and certification related to fire safety, in order to minimize the risk that a failure of any single battery cell or module spreads to adjacent batteries or other equipment. Each storage facility is equipped with its own air conditioning or cooling system to ensure it operates within the ideal temperature range. Coordination with first responders and fire officials can take place to safely extinguish any fire and dispose of any damaged materials in compliance with local, state and federal regulations.

County Services
The Project's impacts on County services are expected to be minor. Water for dust suppression during construction will be trucked to the site. The Project will not require a permanent water supply, gas supply, or sewage system. It is not expected that the Project will impact services provided by Douglas County's emergency service districts. Given the relatively small size of the crews needed for construction, no impacts on law enforcement or emergency medical services are anticipated. The potential use of local fire department services during construction or operation of the proposed facilities will have a negligible effect on the overall capability of responders to provide services as the Project would only need services in the unlikely event of an emergency.

Visual Quality
Glare from construction or maintenance vehicles may be visible from nearby roads, but the operation of these vehicles will be limited to the construction period and occasional inspections and maintenance work. Outdoor lights within the BESS yard will only be used as necessary for emergency and routine maintenance critical for worker safety. All lights will be cast downward towards the interior of the substation yard. Table 1 lists the ownership and zoning of the adjacent parcels.
Visual simulations of the BESS that illustrate the design and materials to be used are included in Appendix D. These simulations are not site specific but give the reviewer an idea of what the facilities will look like in the field.

Table 1: Adjacent Parcel Information

Parcel Number	Owner	Jurisdiction	Zoning	Current Use
2505-150-00-032	Christopher s. & Cali M. Nichols 880 Yucca Hills Road Castle Rock, CO 80109	Douglas County	A1	Residential
2505-150-00-028	Debra K. Chase 570 Yucca Hills Road Castle Rock, CO 80109	Douglas County	A1	Residential
2505-153-00-002	SDM Family Corporation 512 Wilcox Street Castle Rock, CO 80104	Town of Castle Rock	PD-Westfield Trade Center	Agricultural

2505-154-00-013	SDM Family Corporation 512 Wilcox Street Castle Rock, CO 80104	Town of Castle Rock	PD-Westfield Trade Center	Agricultural
2505-154-99-013	Dawson Trails Metro District #1 7555 E. Hampden Ave. #501 Denver, CO 80231	Town of Castle Rock	PD-Westfield Trade Center	Future Road ROW
2505-154-00-012	SDM Family Corporation 512 Wilcox Street Castle Rock, CO 80104	Town of Castle Rock	PD-Westfield Trade Center	Agricultural
2505-154-00-002	Burlington Northern Santa Fe PO Box 961089 Fort Worth, TX 76161	Douglas County	A1	Railroad
2505-151-00-004	Unknown – Hold Statement	Douglas County	A1	Yucca Hills Road

Compliance with the 2040 Comprehensive Master Plan

This Project is located within the Castle Rock Municipal Planning Area and is in compliance with the Goals, Objectives, and Policies of Section 2 and Section 5 of the Douglas County 2040 Comprehensive Master Plan (CMP), as described below.

Policy 2-5A.4 ***Use creative design and planning approaches to mitigate environmental and visual impacts on the natural terrain***

Visual simulations of the BESS yard that illustrate the design and materials to be used are included in Appendix D. The subject property was selected due to its proximity to an existing substation and the need for interconnection, as well as the specific topographic features of this site. The BESS will be constructed near the existing high point of the property; however, the footprint for the BESS will be 16 feet below the existing grade along the western side. This will minimize the profile and the lower topography will help reduce the visual impact of the Project. Any existing vegetation that can be kept and not disturbed during construction will be left on site. There are no environmental issues or constraints with the Project parcel.

Objective 2-6B ***Use design techniques and land use elements to provide compatibility between residential and nonresidential uses and create a sense of community identity.***

Land use compatibility is the principle of aiming for a harmonious community by ensuring that adjacent land uses do not cause unduly negative impacts. Factors that affect land use compatibility include considerations such as intensity and types of uses, patterns and context of surrounding land use, traffic patterns, noise levels, and many other variables. Mitigation strategies through design of the Project include the site's natural topography as a buffer, minimal post construction traffic, and the proximity to CORE's existing Citadel Substation. These natural and physical buffers provide security, visual screening of equipment, and a sound barrier to reduce impacts on surrounding properties.

Policy 2-6E.3 ***Locate and design intensive nonresidential land uses to minimize conflicts with residential developments, agricultural uses, wildlife areas, and environmentally or visually-sensitive areas.***

Douglas County is a successful and dynamic community that is experiencing growth and change in population, economy, and land uses as residents and businesses continue to move into the area. It has changed from a small rural county and grown into a mixed urban/nonurban county with a larger population. The Douglas County CMP helps guide development to appropriate areas of the county. Changes in technology such as artificial intelligence, electrification of vehicles and buildings, data centers, manufacturing, and remote work have changed demand and usage for vital services like electric utilities. For CORE to continue to effectively serve their customers, the Project will help balance the system during peak load times and during sudden demand changes. It will also serve as a bridge between variable generation and steady consumption. And lastly, BESS is a cost effective alternative to building new infrastructure such as substations. The location for this substation was specifically chosen to minimize potential conflicts with adjacent land uses and for its proximity to an existing substation. The design of the BESS has been thoughtfully undertaken to ensure compatibility with surrounding land uses.

Policy 2-9A.1 ***Evaluate the capacity of existing services and facilities to support development.***
As described in the preceding paragraph, planning for adequate delivery of electric services is important for sustainable growth and development, which is also detailed in the Douglas County CMP. Planning is critical to create supportive infrastructure for sustainable development as opportunities are growing and the market in Douglas County continues to grow and evolve. CORE's power studies and planning for utility capacity utilizing appropriate technologies and equipment such as the Citadel Substation BESS are critical for supporting the community's continued development. This Project will readily interconnect with the existing power grid for support and development of the energy grid and provide value for existing and future development in Douglas County. Factors like the distance to viable points of interconnection, existing substation conditions, conditions of other existing grid equipment, and design investments will provide a safe and reliable grid. Upgrading and ensuring viability of existing civil and structural facilities in Douglas County, such as this Project, is paramount to providing continued support for the community.

Objective 5-1A ***Review existing and projected development to ensure that it does not overwhelm existing services.***
Additional capacity and ensuring grid stability requires new facilities to continue providing reliable electric services to existing customers and to meet future demand. The proposed BESS provides essential grid capacity to accommodate existing demand from current residences, businesses, public facilities, and forecasted growth in Douglas County and Castle Rock.

Policy 5-1A.2 ***Coordinate service needs with relevant special districts, authorities, and municipalities.***
CORE held a presubmittal meeting with Douglas County (PS2025-183) on August 21, 2025. It is CORE's intention that adequate public facilities are provided prior to or concurrent with development. CORE will further satisfy these criteria by working closely with County divisions to meet pertinent County standards and planning objectives. This Project will increase availability and reliability of electrical service, thereby providing a direct benefit to residential, commercial, and industrial development approved by Douglas County.

Policy 5-5A.1 ***Apply design standards to ensure compatibility.***
The proposed BESS is an unmanned electric utility facility with a security fence enclosing it, securing essential BESS equipment. Compatibility will be ensured by reclaiming with a native seed mix and disturbance mitigation in accordance with the approved GESC plan. Night sky compliant outdoor lighting fixtures would only be used during emergency situations by personnel, typically during outages. Any

exterior lighting would comply with County standards, including only illuminating exterior lighting while personnel are working on site and utilizing full cut off fixtures for night sky compliance. The BESS will not generate fumes, odors, or particulates. Visual simulations of the BESS components that illustrate the design and materials to be used are included in Appendix D.

Policy 5-5A.2 ***Recognize the technological, operational, maintenance, and safety constraints of these uses while balancing community desires to mitigate impacts to the natural and built environment.***
CORE, through design and materials, works to minimize visibility as much as is reasonably possible. While BESS can be inherently visible, the BESS will be partially screened by grade and topography. Views are already impacted by the existing substation and overhead transmission line. The visual impact will not be significantly changed.

Policy 5-5A.5 ***Encourage the joint use of utility corridors for new or upgraded major transmission lines.***
The BESS will be constructed adjacent to an existing substation and overhead transmission line corridor encumbered by their associated easements.

3203.01.3 Application Fee

The application fee of $325 and associated Engineering Review Fees will be paid by CORE at the time of filing, once the application has been accepted by Douglas County.

3203.01.4 Location and Extent Plan Exhibit (per Section 3205)

See Appendix B

3203.01.5 Location and Extent Report (per Section 3206)

3206.01 – Community Impact Report describing potential impacts to private and public interests and the project site, and how potential impacts are proposed to be mitigated.

The Project will have a positive impact on private and public interests in Douglas County and Town of Castle Rock. Installing the Project provides a cost effective, flexible solution to improve reliability, reduce peak power costs, defer infrastructure upgrades, and support future renewable integration—directly advancing CORE's mission to deliver reliable and affordable power to its members in this part of CORE's service territory. For further clarification, please see the Summary of the Potential Impacts and Proposed Mitigation Measures listed above. In addition, as described above, the Project is consistent with the 2040 Douglas County Comprehensive Master Plan.

The facility is strategically located adjacent to the CORE's existing Citadel Substation. To the east, the Project parcel borders a BNSF railroad, to the north and west borders are large parcel residential properties (one of which is used as a vacation rental) and on the south borders a large agricultural operation. Natural vegetation and grades outside the BESS security fence will be preserved, as practicable. Visual simulations of the BESS components that illustrate the design and materials to be used are included in Appendix D. Once operational, lighting at the BESS will be night sky compliant, downcast, and only used in an emergency, such as when there is an unplanned outage. Therefore, BESS

lighting will not create a glare or nuisance to surrounding properties. During operations, the Project will not generate fumes, odors, or particulates.

A presubmittal meeting with Douglas County (PS2025-183) was held on August 21, 2025 to introduce the Project and identify the approvals that would be needed prior to construction. CORE has incorporated the applicable County standards into the Project design.

3206.02 – Phase III Drainage Report in accordance with the requirements of the Douglas County Storm Drainage and Design and Technical Criteria Manual, as required, or as required by a condition of approval.

See Appendix C for the Preliminary Phase III Drainage Report

3206.03 – A narrative or traffic study describing the transportation network establishing the availability and adequacy of the system in accordance with the Douglas County Roadway Design and Construction Standards, as required.

See Appendix E for the Trip Generation Analysis Memo

3206.04 – A guarantee of public improvements, such as dedication of rights-of-way, sidewalk construction, and similar improvements, as required.

No public improvements are proposed as part of this Project.

3206.05 – Additional information may be requested by the staff as appropriate to the request, and information required above may be waived by the Planning Services Director, when deemed to be inappropriate.

Any additional information will be provided to Douglas County staff upon request.

3203.01.6 Any additional information as requested by staff needed to thoroughly review the impacts of the location and extent application.

This information will be provided to Douglas County staff upon request.

LAND USE APPLICATION

Please complete, sign, and date this application. Return it with the required items listed on the Submittal Checklist to planningsubmittals@douglas.co.us. Submittals may also be mailed or submitted in person to Planning Services. *NOTE: The Planning Commission or the Board of County Commissioners should not be contacted regarding an open application*.

OFFICE USE ONLY
PROJECT TITLE:
PROJECT NUMBER: LE2026-003

PROJECT TYPE: Location & Extent

MARKETING NAME: CORE Electric Cooperative Citadel Substation Battery Energy Storage System

PRESUBMITTAL REVIEW PROJECT NUMBER: PS2025-183

PROJECT SITE:

Address: 890 Yucca Hills Road, Castle Rock, CO 80109

State Parcel Number(s): 2505-150-00-033

Subdivision/Block#/Lot# *(if platted)*: N/A

PROPERTY OWNER(S):

Name(s): CORE Electric Cooperative

Address: 5496 N. US Highway 85, Sedalia, CO 80135

Phone: 720-733-5493

Email: bkaufman@core.coop

AUTHORIZED REPRESENTATIVE: *(Notarized Letter of Authorization is required from the property owner, unless the owner is acting as the representative)*

Name: Ulteig Operations, LLC - Derek Holscher

Address: 5575 DTC Parkway #200, Greenwood Village, CO 80111

Phone: 720-873-5876

Email: derek.holscher@ulteig.com

To the best of my knowledge, the information contained on this application is true and correct. I have received the County's information sheet regarding the *Preble's Meadow Jumping Mouse*.

_____ 2/17/2026

Applicant Signature Date

PREBLE'S MEADOW JUMPING MOUSE

What is the Preble's Meadow Jumping Mouse?
The Preble's Meadow Jumping Mouse is a rare mouse designated by the United States Fish and Wildlife Service as a "threatened species" under the Endangered Species Act. The federal threatened species designation prohibits the unlawful "take" of the Preble's Meadow Jumping Mouse or its habitat.

Where does the mouse live?
The Preble's Meadow Jumping Mouse lives primarily in heavily vegetated riparian habitats. In Douglas County, the mouse has been located in or near many drainages, including tributaries and the mainstream reaches of East and West Plum Creek. However, any stream reach or potential habitat within Douglas County may be subject to the requirements of the Endangered Species Act. The mouse has also been found in Boulder, Elbert, El Paso, Jefferson, and Larimer counties and in parts of Wyoming.

What activities may be considered a violation of the Endangered Species Act?
In its listing decision, the United States Fish and Wildlife Service identified activities that may result in violation of the Endangered Species Act to include:

1. Unauthorized or unpermitted collection, handling, harassing, or taking of the species;

2. Activities that directly or indirectly result in the actual death or injury death of the mouse, or that modify the known habitat of the species, thereby significantly modifying essential behavioral patterns (e.g., plowing, mowing, or cutting; conversion of wet meadow or riparian habitats to residential, commercial, industrial, recreational areas, or cropland; overgrazing; road and trail construction; water development or impoundment; mineral extraction or processing; off-highway vehicle use; and, hazardous material cleanup or bioremediation); and;

3. The application or discharge of agrichemicals or other pollutants and pesticides onto plants, soil, ground water, or other surfaces in violation of label directions or any use following Service notification that such use, application or discharge is likely to harm the species; would be evidence of unauthorized use, application or discharge.

How to determine if a proposed activity would violate the Endangered Species Act.
Any questions regarding whether an activity will impact the Preble's Meadow Jumping Mouse or its habitat should be directed to:

Field Office Supervisor
USFWS Colorado ES Field Office (MS 65412)
Denver Federal Center
PO Box 25486
Denver, CO 80225-0486
303-236-4773
ColoradoES@fws.gov

Where to find more information on the Preble's Meadow Jumping Mouse.
More information can be found at the US Fish and Wildlife Service website at:
https://ecos.fws.gov/ecp/species/4090

Any approval given by Douglas County does not obviate the need to comply with applicable federal, state, or local laws and/or regulations.

CORE ELECTRIC COOPERATIVE

LOCATION AND EXTENT

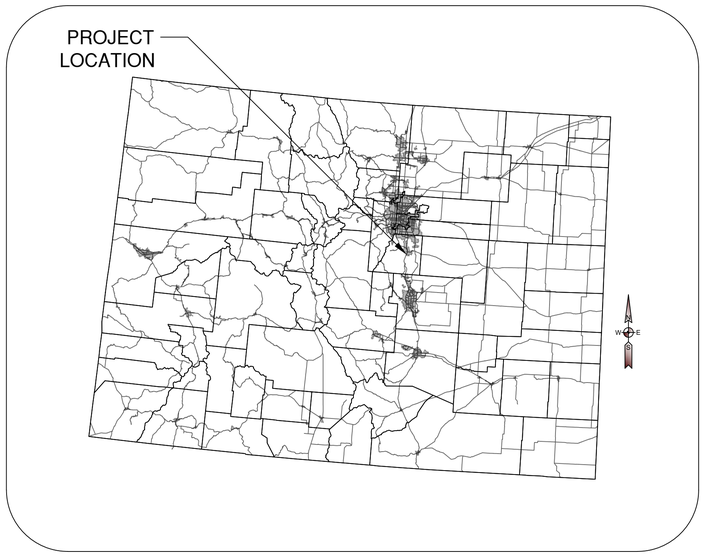
CITADEL BATTERY ENERGY STORAGE SYSTEM (BESS)

890 YUCCA HILLS ROAD, CASTLE ROCK, CO 80109

NE 1/4 SECTION 15, TOWNSHIP 8 SOUTH, RANGE 67 WEST,

OF THE SIXTH PRINCIPAL MERIDIAN, TOWN OF CASTLE ROCK,

COUNTY OF DOUGLAS, STATE OF COLORADO



STATE MAP



VICINITY MAP

0 750 1500 3000

DRAWING INDEX:

DRAWING NO	DRAWING TITLE	REVISION
CIT-G-100	COVER SHEET AND INDEX	A
CIT-C-200	OVERALL SITE PLAN	A
CIT-C-201	TEMPORARY ROAD OVERALL SITE PLAN	A
CIT-C-300	TESLA PLAN VIEW	A
CIT-C-400	FENCE SECTIONS 1	A
CIT-C-401	FENCE SECTIONS 2	A
CIT-C-500	FENCE DETAIL 1	A
CIT-C-501	FENCE DETAIL 2	A

PROJECT OWNER/DEVELOPER

CORE ELECTRIC COOPERATIVE

5496 N. US HWY 85

SEDALIA, CO 80123

BROOKS KAUFMAN

LANDS & RIGHTS OF WAY DIRECTOR

(720) 733-5493

CIVIL ENGINEER

ULTEIG ENGINEERS, INC.

3350 38TH AVE S

FARGO, NORTH DAKOTA 58104

KEVIN KNOTT

(701) 280-8540

ELECTRICAL ENGINEER

ULTEIG ENGINEERS, INC.

3350 38TH AVE SOUTH

FARGO, NORTH DAKOTA 58104

CHUCK MATHSON

(701) 280-8500

GEOTECHNICAL ENGINEER

ANS GEO

4405 SOUTH CLINTON AVENUE

SOUTH PLAINFIELD, NEW JERSEY 07080

VATSAL A. SHAH P.E., PH. D

(908) 754-8383

SURVEYOR

PRECISION SURVEY & MAPPING, INC.

9025 E. KENYON AVE., SUITE 150

DENVER, CO 80237

CHRISTOPHER P. JULIANA, P.L.S

(303) 753-9799

CITADEL BESS
PROJECT

DOUGLAS COUNTY, COLORADO

REV.	DATE	DESCRIPTION	BY
A	02/23/2026	ISSUE FOR COUNTY REVIEW	KJK
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NAD83 COLORADO STATE PLANES,
CENTRAL ZONE, US FOOT

THIS DRAWING IS
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NOT TO BE USED FOR
CONSTRUCTION.
FOR REVIEW
PURPOSES ONLY.

Ulteig

3350 38TH AVE S
FARGO, ND 58104
PHONE: (701) 280-8500
ULTEIG.COM

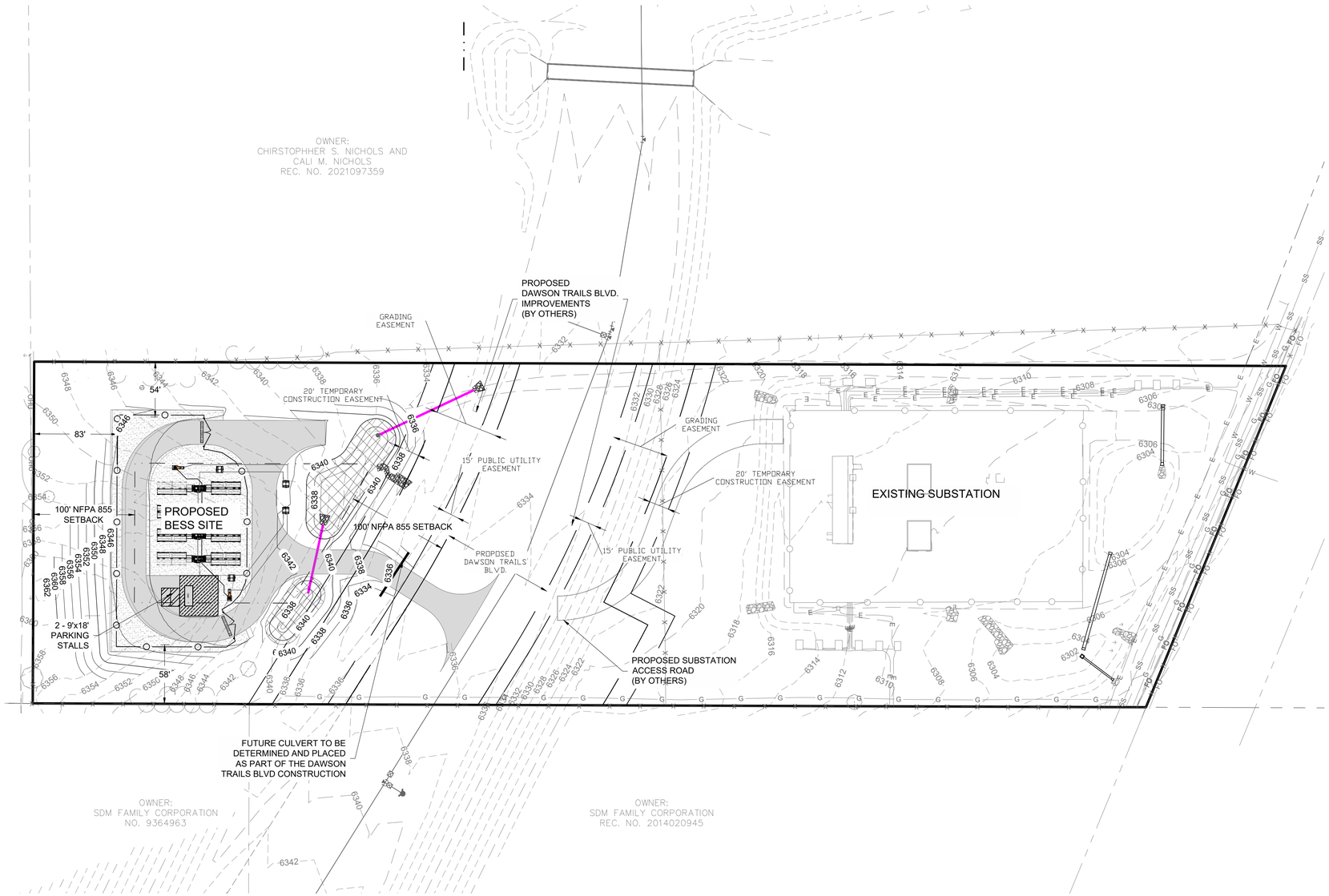
PROJECT NUMBER: 25.01369
DESIGN BY: L. MOFFITT
DRAWN BY: L. MOFFITT
APPROVED BY: K. KNOTT

COVER SHEET

DRAWING NUMBER: CIT-C-100

REVISION: A

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LEGEND

- PROJECT BOUNDARY
- 100' NFPA 855 SETBACK
- ADJACENT PROPERTY LINES
- EXISTING TREELINE
- EXISTING DECIDUOUS TREE
- EXISTING BUSH
- EXISTING FENCE
- EXISTING UTILITY POLE
- EXISTING GUY WIRE
- EXISTING GAS LINE
- EXISTING ELECTRIC LINE
- EXISTING WATER LINE
- EXISTING SANITARY SEWER
- EXISTING FIBER OPTIC
- EXISTING OVERHEAD UTILITY LINE
- EXISTING GRAVEL ROAD
- EXISTING RIPRAP
- PROPOSED RIPRAP
- PROPOSED BESS YARD ROCK
- PROPOSED ACCESS ROAD
- PROPOSED STORMWATER BASIN
- PROPOSED 18" CULVERT
- FUTURE CULVERT FOR DAWSON TRAILS BLVD
- PROPOSED DRAINAGE STRUCTURE
- PROPOSED CHAINLINK FENCE
- PROPOSED 28' SWING GATE
- PROPOSED TESLA MEGAPACK 2XL
- PROPOSED AUX SWITCHBOARD
- PROPOSED METER & DISCONNECT CABINET
- PROPOSED TESLA REQUIRED O&M BUILDING, STORAGE CLEARANCE AREA, AND PARKING ZONE

NOTES:

1. EQUIPMENT FOUNDATIONS ARE SHOWN FOR REFERENCE ONLY, REFER TO THE STRUCTURAL DRAWINGS FOR SPECIFIC FOUNDATION LOCATIONS AND DETAILS.
2. CONTOURS SHOWN ARE TO FINISHED GRADE.

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NAD83 COLORADO STATE PLANES,
CENTRAL ZONE, US FOOT

CITADEL BESS PROJECT

DOUGLAS COUNTY, COLORADO

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A	02/23/2026	ISSUE FOR COUNTY REVIEW	KJK
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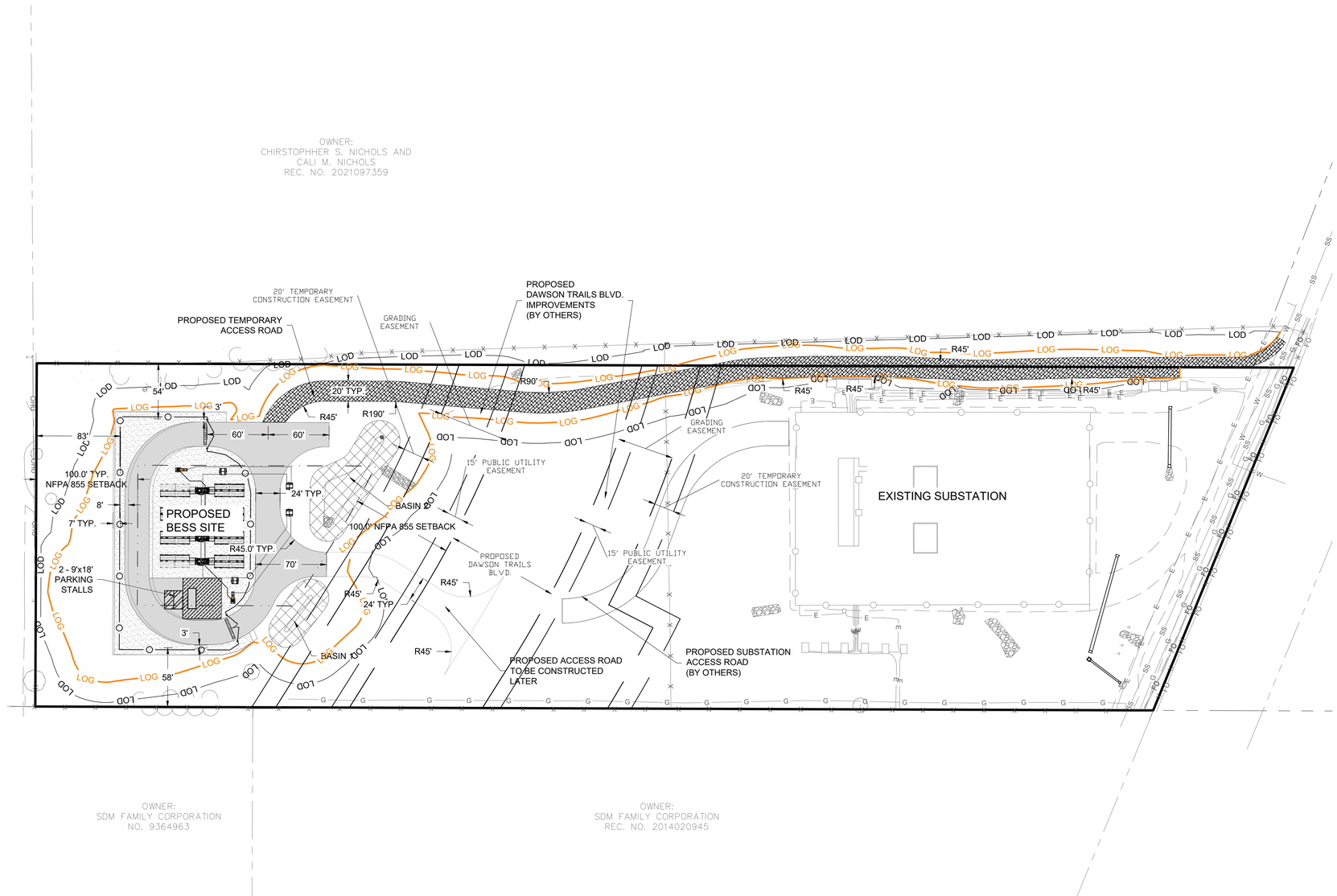
Ulteig
3350 38TH AVE S
FARGO, ND 58104
PHONE: (701) 280-8500
ULTEIG.COM

PROJECT NUMBER: 25.01369
DESIGN BY: L. MOFFITT
DRAWN BY: L. MOFFITT
APPROVED BY: K. KNOTT

OVERALL SITE PLAN

DRAWING NUMBER: CIT-C-200
REVISION: A

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LEGEND

- PROJECT BOUNDARY
- 100' NFPA 855 SETBACK
- ADJACENT PROPERTY LINES
- EXISTING TREELINE
- EXISTING DECIDUOUS TREE
- EXISTING BUSH
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- PROPOSED METER & DISCONNECT CABINET
- PROPOSED TESLA REQUIRED O&M BUILDING, STORAGE CLEARANCE AREA, AND PARKING ZONE

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NAD83 COLORADO STATE PLANES, CENTRAL ZONE, US FOOT

CITADEL BESS PROJECT

DOUGLAS COUNTY, COLORADO

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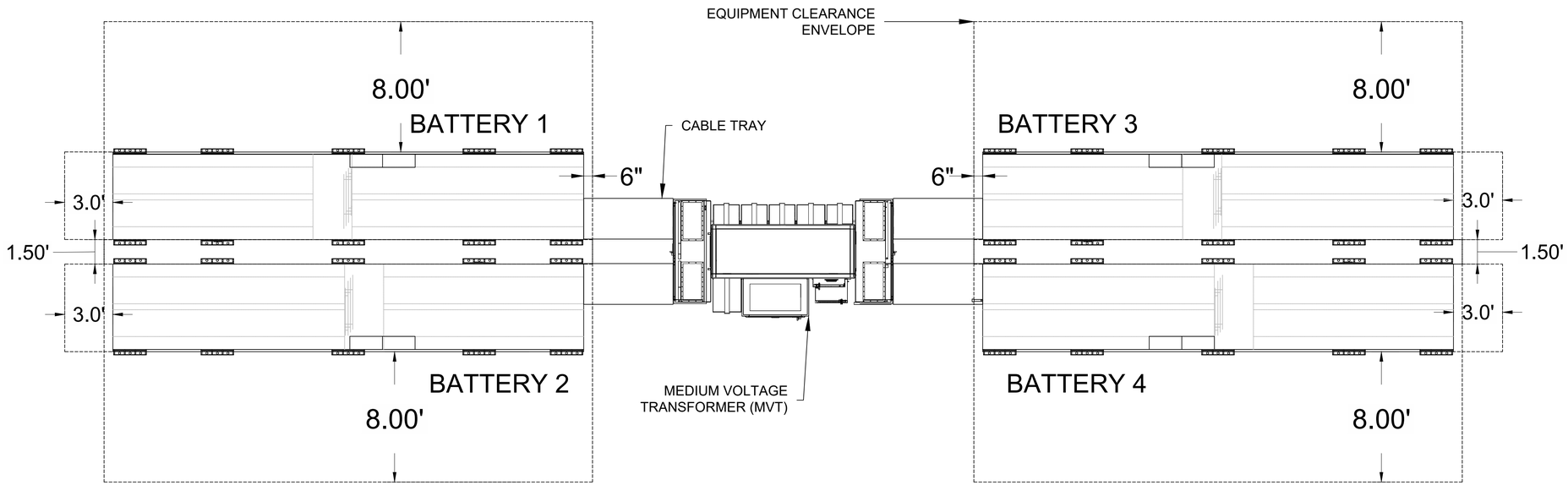
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ULTEIG.COM

PROJECT NUMBER: 25.01369
DESIGN BY: L. MOFFITT
DRAWN BY: L. MOFFITT
APPROVED BY: K. KNOTT

TEMPORARY ROAD OVERALL SITE PLAN

DRAWING NUMBER: CIT-C-201
REVISION: A

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1 TYPICAL EQUIPMENT BLOCK - PLAN VIEW

NOT TO SCALE

LAYOUT NOTES:

1. CABLE TRAY ASSUMED AS 24" OPEN CABLE TRAY - PART NUMBER 24A09-24-240. THE 20FT CABLE TRAY SHALL BE CUT INTO FOUR EQUAL SECTIONS OF 5FT EACH.
2. FOR CABLE TRAY DETAILS SEE DRAWING 20260116-US-WA-GREE-IFC-BESSL-E4-101-R0.
3. FOR DETAILED COMMUNICATION INFORMATION SEE PLANT SCADA SET (BY OTHERS).
4. CONDUITS TO BE 12" AWAY FROM GEOPIERS. SEE STRUCTURAL PACKAGE FOR DETAILS. DUE TO ROUTING CONTRAINTS, MAINTAINING A FULL 12" OFFSET FOR SOME OF THE OUTGOING 8" CONDUITS MAY NOT BE FEASIBLE. A 4" OFFSET WILL BE APPLIED TO WHERE REQUIRED TO PROVIDE THE MAXIMUM PRACTICAL CLEARANCE. CONTRACTOR SHALL VERIFY FINAL ROUTING IN THE FIELD AND COORDINATE AS NEEDED TO AVOID INTERFERENCES WITH ADJACENT SYSTEMS AND EQUIPMENT.

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CITADEL BESS PROJECT

DOUGLAS COUNTY, COLORADO

REV.	DATE	DESCRIPTION	BY
A	02/23/2026	ISSUE FOR COUNTY REVIEW	KJK

LEGEND

- EQUIPMENT CLEARANCE ENVELOPE
- TESLA WIRE-WAY
- EQUIPMENT FOUNDATION PAD

NAD83 COLORADO STATE PLANES, CENTRAL ZONE, US FOOT

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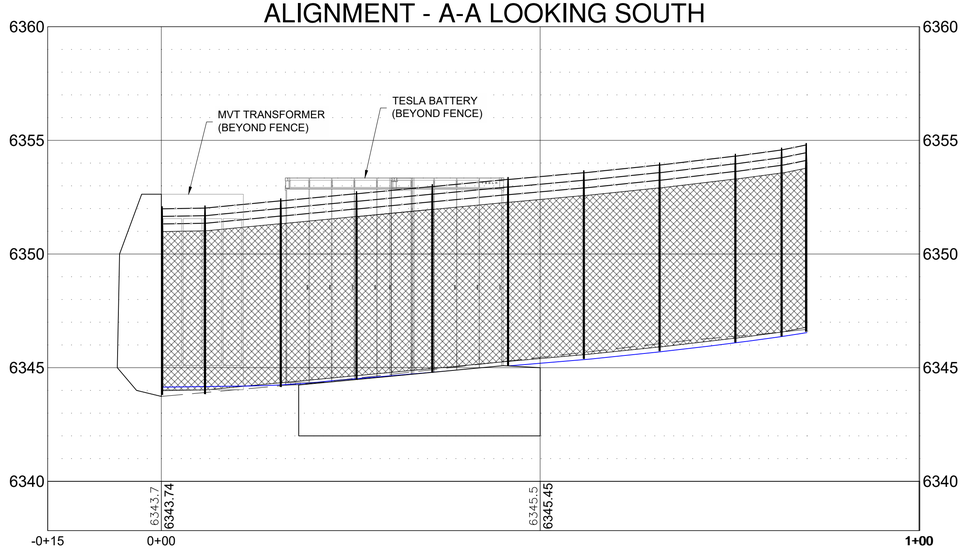
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DESIGN BY: L. MOFFITT
DRAWN BY: L. MOFFITT
APPROVED BY: KJK

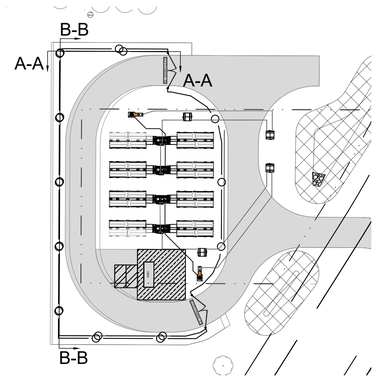
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DRAWING NUMBER: CIT-C-300

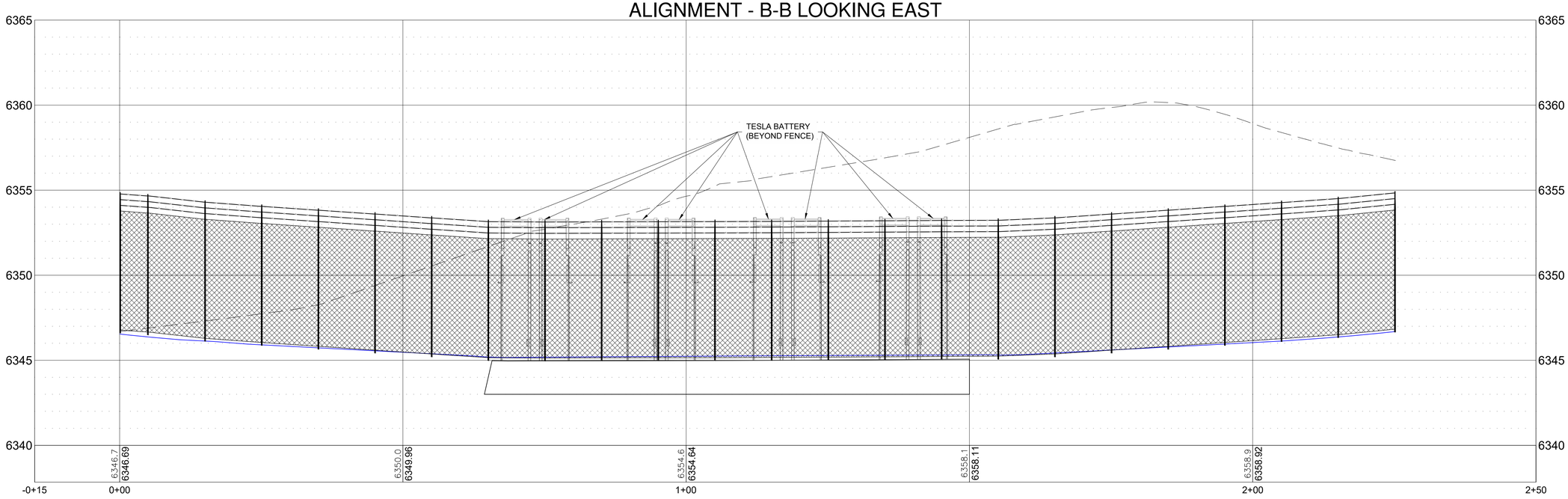
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ALIGNMENT - A-A LOOKING SOUTH





ALIGNMENT - B-B LOOKING EAST



CITADEL BESS PROJECT

DOUGLAS COUNTY, COLORADO

REV.	DATE	DESCRIPTION	BY
A	02/23/2026	ISSUE FOR COUNTY REVIEW	KJK

LEGEND

PROPOSED FINISHED GRADE AT FENCE ALIGNMENT

EXISTING GROUND

HORIZ. 0 5 10 20

VERT. 0 1.67 3.33 6.66

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DRAWN BY: L. MOFFITT
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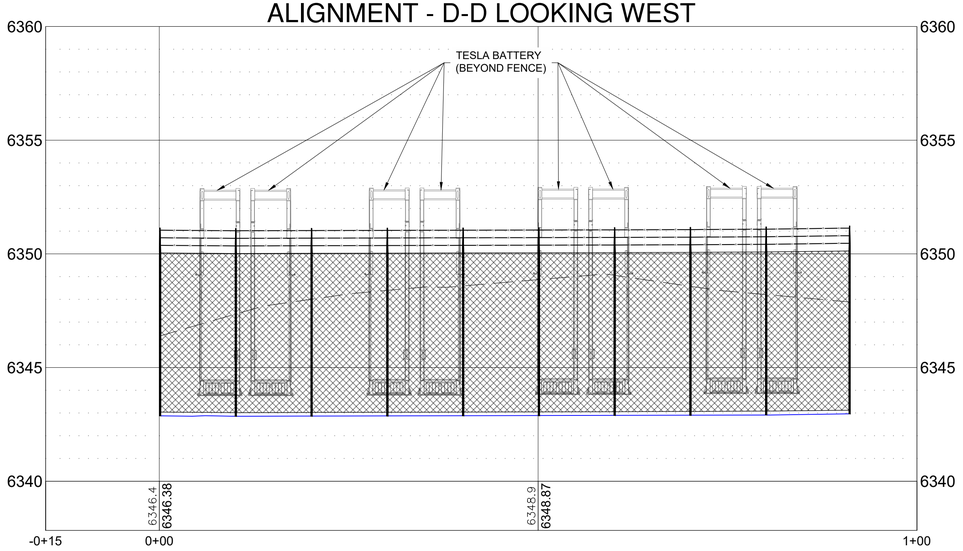
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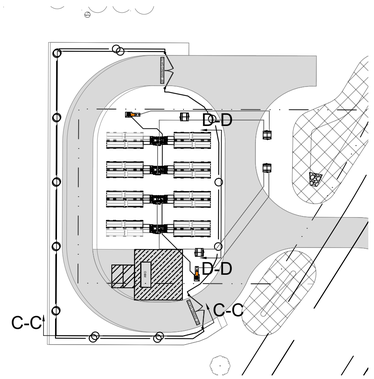
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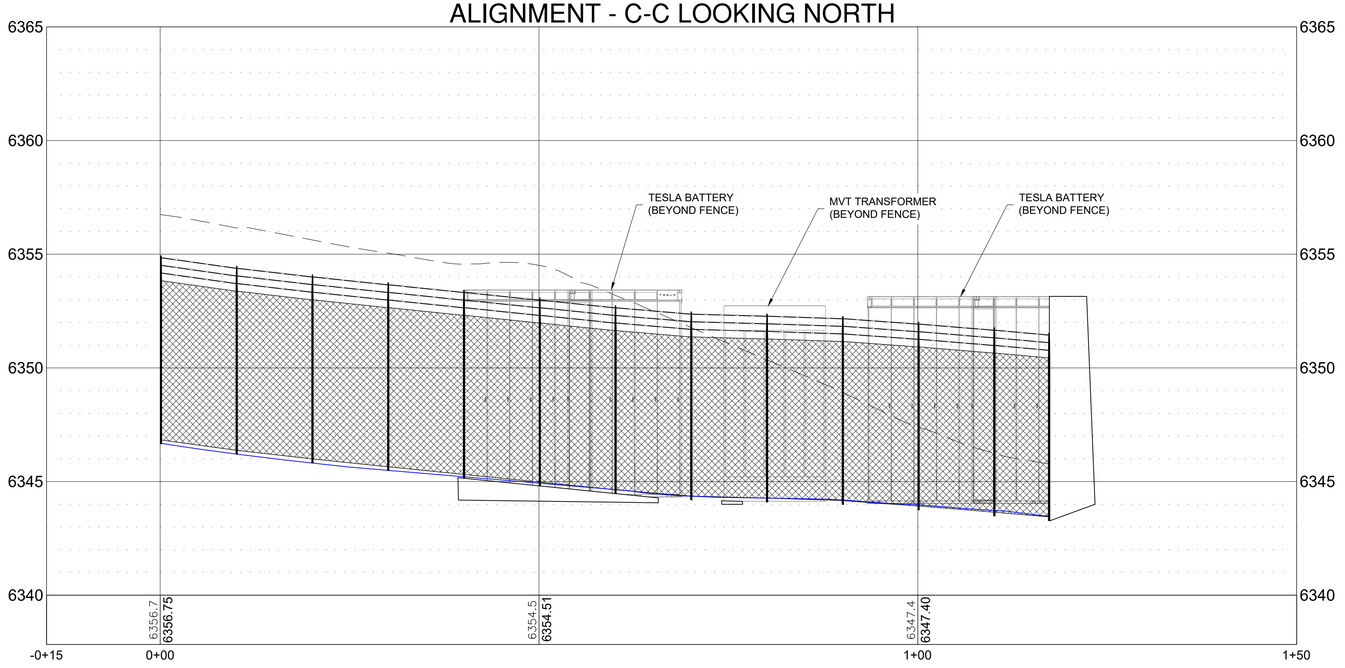
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ALIGNMENT - D-D LOOKING WEST





ALIGNMENT - C-C LOOKING NORTH



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LEGEND

PROPOSED FINISHED GRADE AT FENCE ALIGNMENT

EXISTING GROUND

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0 5 10 20

VERT.
0 1.67 3.33 6.66

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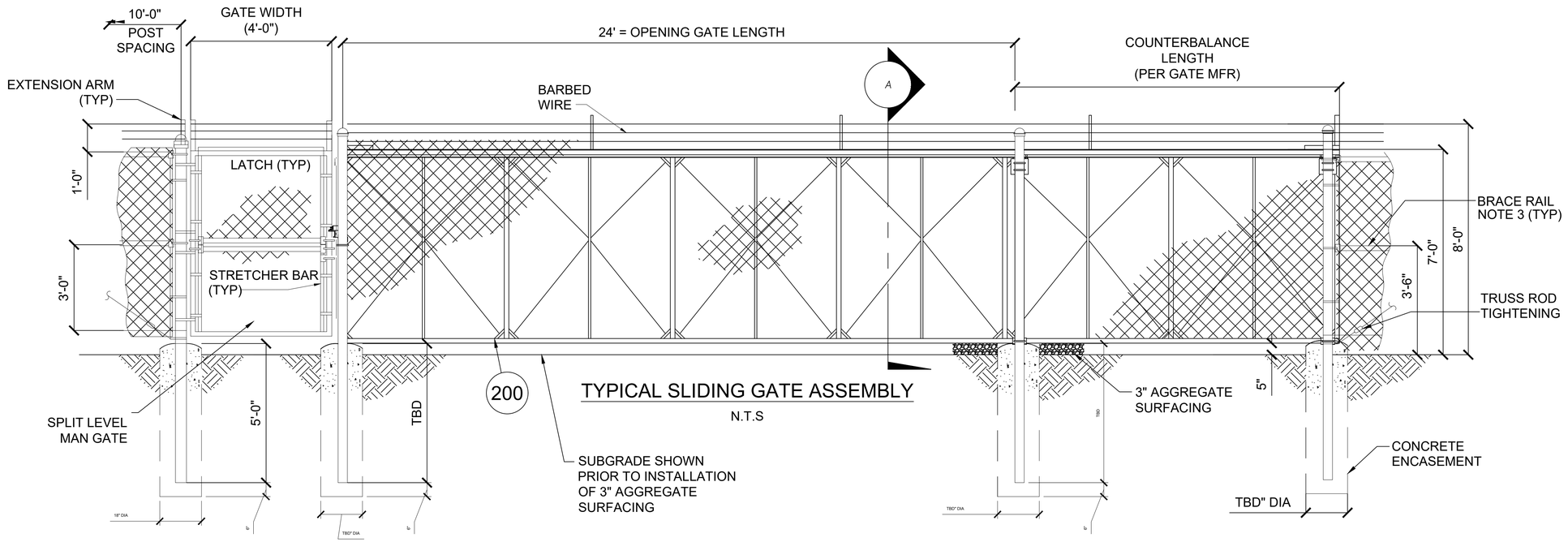
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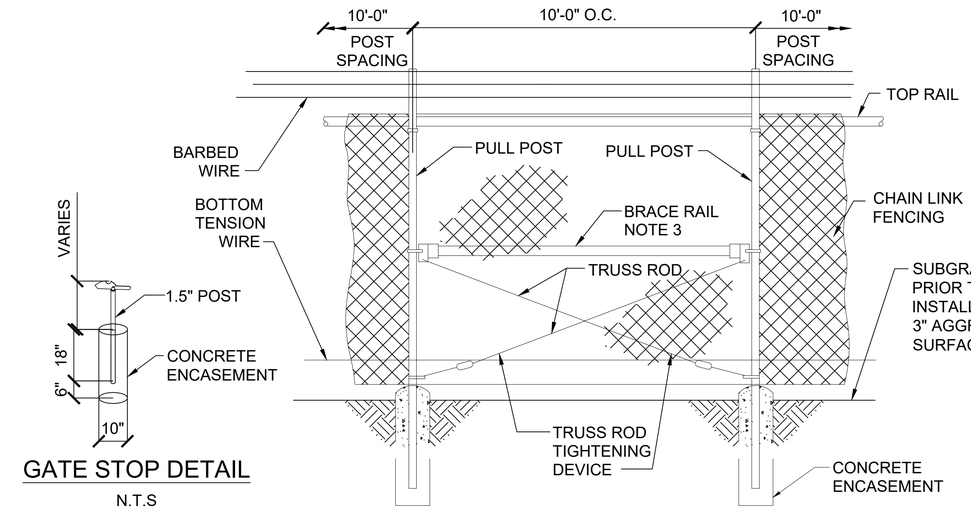


TYPICAL SLIDING GATE ASSEMBLY

N.T.S

SPLIT MAN GATE/PERSONNEL GATE

N.T.S



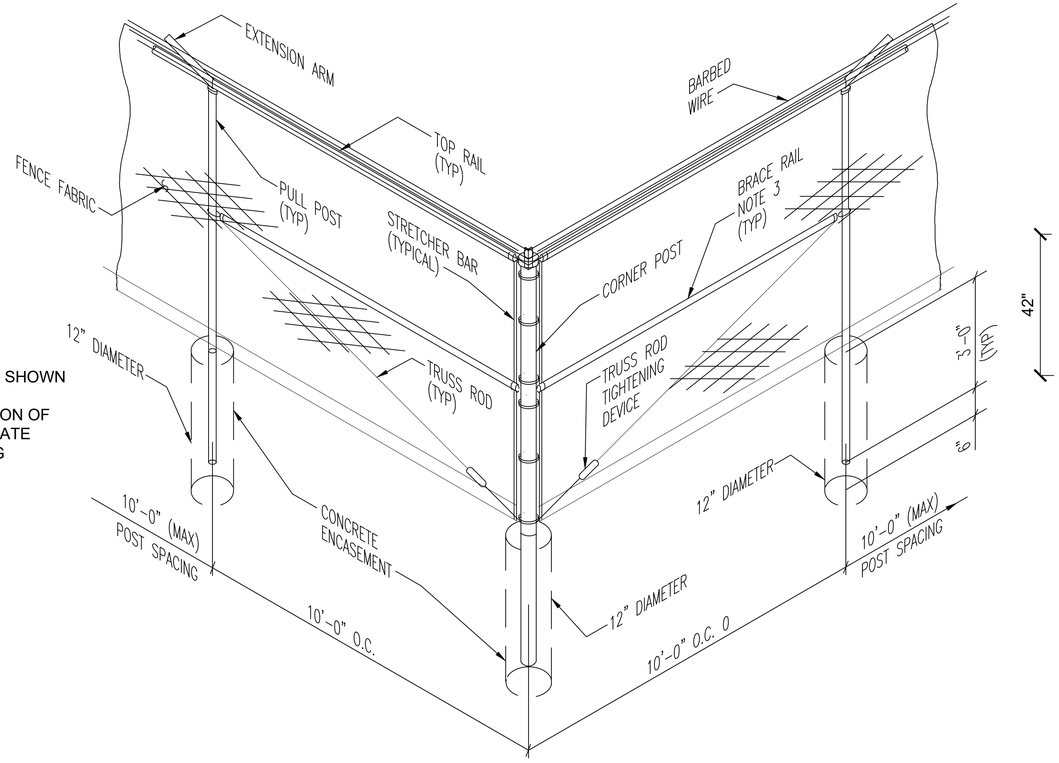
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N.T.S

(TO BE USED WITH SWING GATE)

TYPICAL BRACE ASSEMBLY

N.T.S



TYPICAL CORNER ASSEMBLY

N.T.S

CITADEL BESS PROJECT

DOUGLAS COUNTY, COLORADO

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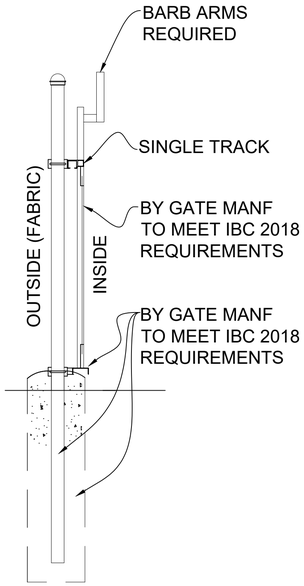
PROJECT NUMBER: 25.01369
DESIGN BY: L. MOFFITT
DRAWN BY: L. MOFFITT
APPROVED BY: K. KNOTT

FENCE DETAIL 1

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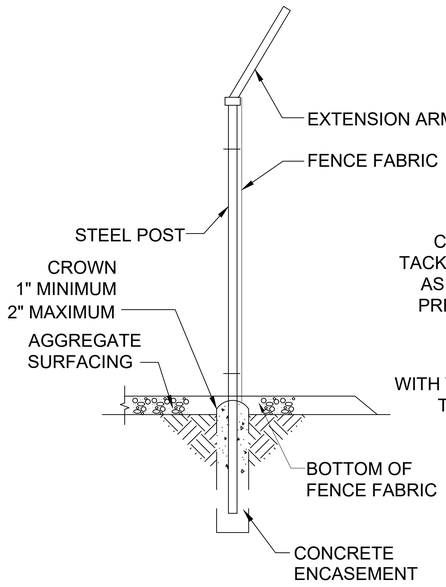
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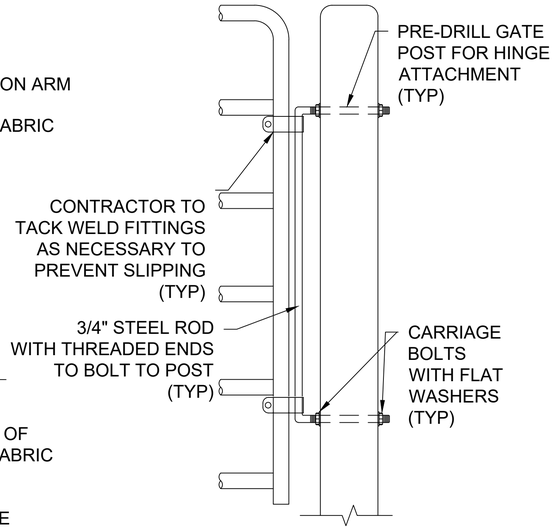
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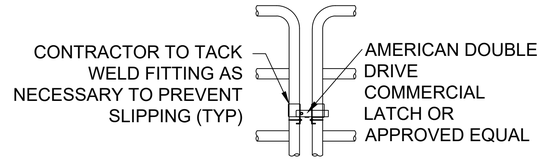


PIPE GATE HINGE DETAIL

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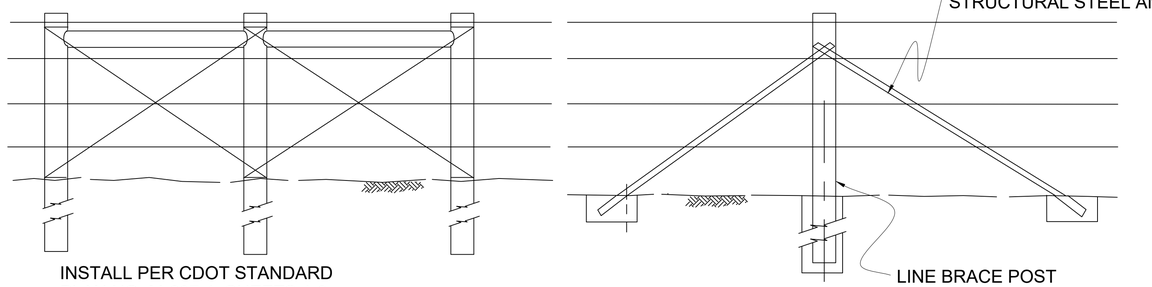
CHAIN LINK FENCE NOTES:

1. A TOTAL OF THREE 24' OPENING CANTILEVER GATES ARE REQUIRED. COUNTERBALANCE LENGTH IS TYPICALLY 50% BUT WILL BE DEPENDENT ON THE GATE MANUFACTURER DESIGN. FOUNDATIONS ARE TBD BASED ON RECOMMENDATIONS FROM THE SELECTED GATE MANUFACTURER.
2. ALL SWING GATES ARE TO SWING OUT ONLY.
3. REFER TO SPECIFICATION DIVISION 15.
4. GATES, GATE POSTS, AND GATE FOUNDATIONS TO BE DESIGNED BY GATE MANUF. GATE MANUF TO SUBMT DESIGN CALCULATIONS DEMONSTRATING COMPLIANCE WITH 2018 IBC. FOR GATE GROUNDING SEE DWG E04C.



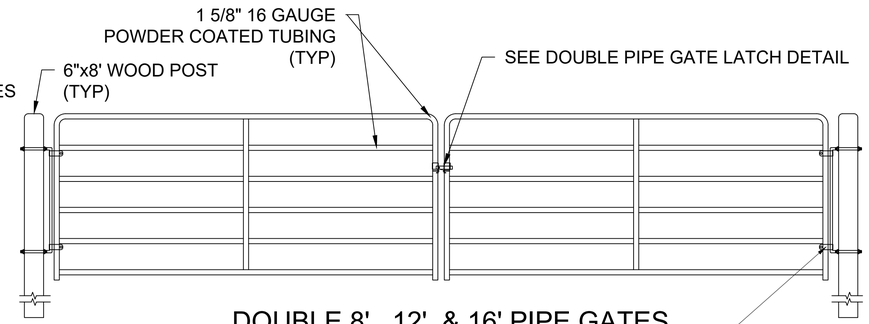
DOUBLE PIPE GATE LATCH DETAIL

N.T.S



SMOOTH WIRE FIELD FENCE DETAIL

N.T.S



DOUBLE 8' , 12', & 16' PIPE GATES

N.T.S

CITADEL BESS PROJECT

DOUGLAS COUNTY, COLORADO

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A	02/23/2026	ISSUE FOR COUNTY REVIEW	KJK

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FENCE DETAIL 2

DRAWING NUMBER: CIT-C-501

REVISION: A

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Citadel BESS Preliminary Drainage Report



Prepared for:

Madison Energy Infastructure
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New York, NY 10012

Prepared by:

Ulteig Engineers, Inc.
25.01369

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REVISION HISTORY

REVISION	DATE	DESCRIPTION
Draft Report	10/03/2025	Draft Report for Client Review
Draft Report	2/18/2026	Draft Report for Client Review

ACRONYMS AND ABBREVIATIONS

%	percent
BESS	Battery Energy Storage System
CN	Curve Number
CONUS	Contiguous United States
CWA	Clean Water Act
DEM	Digital Elevation Map
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
HEC-18	Hydraulic Engineering Circular No. 18
HEC-RAS	Hydraulic Engineering Center River Analysis System
HSG	Hydrologic Soil Group
LiDAR	Light Detection and Ranging
NFIP	National Flood Insurance Program
NLCD	National Land Cover Dataset
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
PFD	Precipitation Frequency Data
ROW	Right-of-way
SCS	Soil Conservations Service
SSA	Storm and Sanitary Analysis
TR-55	Technical Release No. 55
UDFCD	Urban Drainage and Flood Control District
Ulteig	Ulteig Engineers, Inc.
USACE	U.S. Army Corps of Engineers
WOUS	Waters of the United States

1. INTRODUCTION

Madison Energy Infastructure ("Client") has enlisted the services of Ulteig Engineering, Inc. ("Ulteig") to develop a stormwater management plan and design for the Citadel Battery Energy Storage System (BESS) Project in Douglas County, Colorado. This study includes hydrologic analysis of the runoff contributing to the project area and the hydraulic analysis of the proposed on-site stormwater management features. This report was submitted as part of the 30% design package. Revisions are anticipated as the project's design progresses.

1.1 Project Location and Description

The Citadel BESS project-leased property boundary ("property boundary") covers approximately 9.75 acres in Douglas County, Colorado. The project is located adjacent to the west of Interstate 25, south of West Plum Creek Parkway and located in unincorporated Douglas County, Colorado. The latitude and longitude of the site are approximately 39° 21' 19.97" N, 104° 52' 21.34" W, respectively. These coordinates represent the approximate center of the project area. The project limits are shown in **Figure A-1: Vicinity Map**.

Ground cover throughout the property is predominantly grassland herbaceous according to the National Land Cover Dataset (NLCD) 2021. Per aerial imagery, the existing vegetative cover of the project site appears sparse. Hydrologic Soil Group classifications for this area are predominantly Type B soils.

The existing topography of the project site generally consists of mild slopes, which typically range between 2.5% and 5%. The topography for the site was sourced from publicly available LiDAR data and client-provided LiDAR data. Existing site drainage flows from west to east.

The project is not located within a FEMA regulatory floodplain. Local or federal floodplain regulations do not apply to construction activities related to this project. A FEMA Zone AE flood hazard area is located 850 feet from the site, encompassing the East Plum Creek. The FEMA FIRM panel for the project area is 08035C0301G, effective March 16, 2016. **Figure A-2: FEMA Floodplain Map** shows the FEMA flood hazard area in proximity to the project area.

1.2 Proposed Development

The proposed project development includes the construction of a battery energy storage facility, associated access roads, and a stormwater management facility. The BESS pad and access roads will be gravel-surfaced. The project will result in approximately 2.04 acres of disturbance.

2. DRAINAGE BASINS AND SUB-BASINS

2.1 Existing Drainage Basins

In existing conditions, the project area is intersected by a natural ridgeline that runs from west to east. Three drainage basins have been delineated to reflect the natural flow patterns of runoff on-site. Offsite runoff from the west is naturally diverted around the project boundary and flows to the north and south of the project area. A map of the drainage areas, longest flow paths associated with the hydrologic calculations for the area, and the existing topographic contours is provided as **Figure B-1: Existing Drainage Areas Map**.

2.2 Proposed Drainage Basins

Proposed drainage basins have been delineated to reflect the changes to the project due to the proposed grading. The BESS pad has been graded to uniformly drain from west to east towards two stormwater storage facilities, splitting the existing drainage basins into three separate proposed basins. A map of the proposed drainage areas, longest flow paths, and proposed topographic contours is provided as **Figure B-2: Proposed Drainage Areas Map**.

3. DRAINAGE DESIGN CRITERIA

3.1 Regulations

The criteria detailed within the Douglas County Storm Drainage Design and Technical Criteria Manual governs the stormwater management regulations for the proposed project. These standards adhere to the criteria developed and presented within the UDFCD Manual.

The County requires that stormwater detention is provided for all new developments. The storage and release rate criteria are based on the 2-year and 100-year recurrence intervals. Best Management Practices (BMPs) must be implemented to enhance stormwater quality within all new developments in the County.

An extended detention basin design was selected as the stormwater storage best management practice for Citadel BESS. The basin is comprised of three zones; a water quality volume zone, excess urban runoff volume zone, and a flood control zone for extreme storm events (such as the 100-year storm). Additional details on the stormwater management facility design are provided in **Section 4**.

3.2 Hydrology

Hydrologic calculations for the proposed project were performed in compliance with Chapter 6: Hydrology of the Douglas County Storm Drainage Design and Technical Criteria Manual. The County Manual's procedures are based on the methodology presented in the UDFCD Manual, Volume 1. To complete the analysis, the Colorado Urban Hydrograph Procedure (CUHP) was utilized based on Snyder's unit hydrograph principle.

The 2-year and 100-year, 1-hour duration rainfall depths are 0.85 inches and 2.32 inches, respectively. As detailed in Section 2, there is approximately 1.52 total acres draining to the project area. In existing conditions, the total watershed imperviousness is 2.00% and in proposed conditions, the total watershed imperviousness is 57.84%. The total watershed length is approximately 300 feet. A printout that details the inputs and hydrologic calculations is provided in **Appendix B**.

Table 1. Percent Impervious and C-Values
Urban Storm Drainage Citeria Manual, Volume 1

Land Use or Surface Characteristics	Percentage Impervious (%)
Undeveloped Areas	
Historic Flow Analysis	2
Greenbelts, agricultural	2
Off-site flow analysis (when land use not defined)	45
Streets:	
Paved	100
Gravel (packed)	40

Runoff coefficients were determined by cross-referencing the percent impervious estimates with Table 6-7: Runoff Coefficients, "C", NRCS HSG B from Volume 1 of the UDFCD manual. The coefficients were selected based on the 100-year storm. A copy of Table 6-7 is included in **Appendix B**. **Figure B-5** and **Figure B-6** show the existing and proposed impervious values utilized for the site.

4. STORMWATER MANAGEMENT FACILITY DESIGN

4.1 Stormwater Conveyance Facilities

An 18" culvert has been designed in the eastern portion of the BESS area to convey runoff from the southern stormwater storage facility under the proposed access road before ultimately discharging into the stormwater storage facility in the northeastern corner of the project.

The hydraulic calculations for the culvert were completed utilizing HydroCAD version 10.20-c to reflect the dynamic condition of the culvert between the two basins. The culvert was sized to convey the 100-year storm

event and has a headwater to depth ratio of 0.68 during this storm event. The HydroCAD output report is included in **Appendix B.** Outlet erosion control measures and dimensions will be finalized during a future design phase. Rip-rap apron on the inlet and outlet sides of the culvert are anticipated.

4.2 Stormwater Storage Facilities

Chapter 13 of the Douglas County Technical Criteria Manual details the requirements for stormwater storage facilities within the County. The requirements within this chapter reference the storage chapter of Volume 2 of the UDFCD manual. As stated in Section 3.1, all new developments are subject to the storage and release rate criteria based on the 2-year and 100-year recurrence intervals. The detailed requirements for extended detention basins are as follows:

I. The Excess Urban Runoff Volume (EURV) must be captured and released slowly to reduce the discharge from the basin to a level that is less than or equal to pre-developed conditions for all storms greater than the 2-year storm.

II. The Water Quality Volume shall be attenuated with a target draw-down time of 40-hours. Calculations of the water quality control volume shall be completed in accordance with Equation 3-1 of Volume 3 of the USDCM Criteria Manual. This calculation considers the BMP type, draw-down time, and the imperviousness of the contributing drainage area.

III. The 100-year storm event must be released at a rate equal to 90 percent of the pre-developed discharge rate for the upstream watershed, in accordance with Volume 2 of the USDCM Criteria Manual.

IV. Freeboard for the detention facilities must be at least 1-foot above the computed water surface elevation.

The required EURV, water quality volume, and 100-year storm rate control volume were calculated within the MHFD Detention Spreadsheet. These calculations yielded results for Zone 1, Zone 2, and Zone 3 of 0.029, 0.066, and 0.051 acre-feet, respectively. A printout of the basin stage-storage table builder from the MHFD detention spreadsheet is attached in **Appendix B.**

Basin 2 was sized to provide all necessary treatment for the proposed site runoff, but Basin 1 is required to convey runoff from the southern half of the site to Basin 2. To analyze the dynamics of Basin 1 and Basin 2, a HydroCAD model was developed. This model utilizes the Rational Method and replicates the rainfall data utilized within the aforementioned CHUP runoff calculations within the MHFD detention spreadsheet. Output reports for the existing and proposed conditions HydroCAD models are included in **Appendix B**.

Table 2. Stormwater Storage Facilities Summary

Basin ID	Volume (cu. ft)	Water Quality Volume (ac-ft)	100-yr Water Surface Elevation (ft)	100-yr Runoff Rate (cfs)
Basin 1	4,514	0.01	6338.49	0.94
Basin 2	13,064	0.03	6338.49	1.09

As previously mentioned, Basin 1 discharges into Basin 2 through an 18” culvert. An outlet structure has been designed for Basin 2 that consists of three (3) 3/4-inch diameter orifices spaced at 6.7-inches vertically to draw-down the water quality volume and EURV, riser structure with a grate sloped at 4:1 and a Type C inlet, set with the leaning edge at a stage 1.85 feet above the basin bottom, and an ultimate outfall of an 18” culvert with a restrictor plate set 3.3 inches above the invert of the pipe. An emergency spillway has also been designed for extreme storm events, which is set at an elevation of 6339.00 ft. The 30% Civil Plans, which detail the basin and the location of the outlet structures, are included in **Appendix B**. A printout of the MHFD – Detention spreadsheet, which was utilized to complete the preliminary outlet control structure design, is also provided in **Appendix B.** Additional details on the outlet structures will be provided as the design progresses.

4.3 Water Quality Best Management Practices

Water quality capture volume is to be provided in the lower stage of the proposed stormwater storage facility. The basin will provide treatment for the proposed project site based on the design criteria for an extended detention basin, in compliance with the Urban Storm Drainage Criteria Manual, Volume 3.

Temporary erosion controls have been designed to mitigate sediment discharge and erosion on-site and off-site. The design of these measures is detailed within a separate report and the Erosion and Sediment Control Plan Sheet, which has been issued within the 30% civil design plans.

5. CONCLUSION

5.1 Compliance with Standards

All stormwater management facilities and their associated designs conform to the Douglas County standards and Mile High Flood District's Urban Storm Drainage Criteria. No variances are being requested for the project at this time.

5.2 Drainage Concept

The stormwater management design for the proposed Citadel BESS project was completed in compliance with the Douglas County, Colorado and UDFCD Drainage policies and standards. An extended detention basin has been designed for the project with three treatment zones; a water quality zone, an excess urban runoff volume zone, and a rate control zone for the 100-year storm. This basin is located on the northeastern side of the BESS pad. Runoff from the southern half of the BESS area is captured by a smaller basin (Basin 1) on the southeastern side of the pad, which is connected to the primary basin (Basin 2) through an 18" culvert. A preliminary outlet control structure and emergency spillway have been designed in compliance with the MHFD Detention Spreadsheet. Additional revisions to this report are anticipated as the project design progresses.

6. REFERENCES

Storm Drainage Design and Technical Criteria Manual. Douglas County, CA. 8 July, 2008.

Urban Storm Drainage Criteria Manual. MHFD. Volume 1-3. January 2016.

MHFD – Detention Technical Manual. Mile High Flood District, CO. March 2022.

Detention Design – MHFD – Detention v4.07. Mile High Flood District, CO. June 2025.

Environmental Systems Research Institute (ESRI). ArcGIS Release 10.7.1. Redlands, CA. 27 June 2019.

HydroCAD Software Solutions LLC, HydroCAD v. 10.20-6a. 2025.

Multi-Resolution Land Characteristics (MRLC) Consortium. National Land Cover Database (NLCD) 2021 Land Cover (CONUS). Date Accessed: December 2024.

United States Geological Survey (USGS) 3DEP. Date Accessed: September 2025.

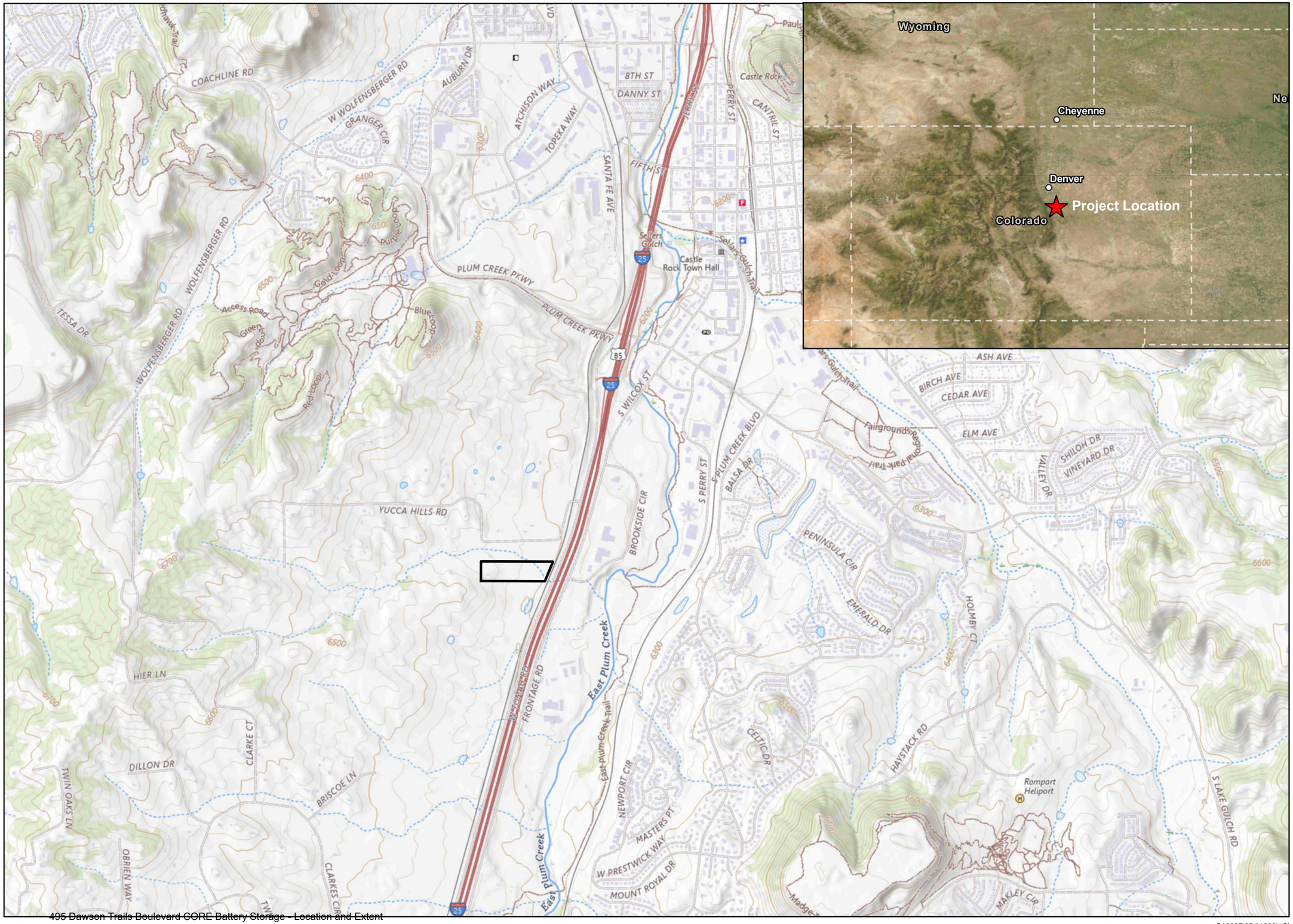
USDA Natural Resources Conservation Service (NRCS) Conservation Engineering Division, Urban Hydrology for Small Watersheds. Technical Release 55 (TR-55). USDASCS, Washington DC. 1986.

USDA Natural Resources Conservation Service (NRCS), Part 630 Hydrology National Engineering Handbook: Chapter 4 – Storm Rainfall Depth and Distribution. Amend Aug 2019.

USDA Natural Resources Conservation Service (NRCS) Web Soil Survey. Date Accessed: September 2025.

Appendix A. Project Location Maps

Figure A-1. Vicinity Map
Figure A-2. FEMA Floodplain Map



CITADEL BATTERY STORAGE PROJECT

DOUGLAS COUNTY, CO

Rev.	Date	Description	By
	10/03/2025	30% Submittal	UEI
	2/18/2026	30% Resubmittal	UEI

Legend

Project Boundary

N

0 1,000 2,000 Feet

NAD 1983 StatePlane Colorado Central
FIPS 0502, US Feet

PRELIMINARY
NOT FOR CONSTRUCTION

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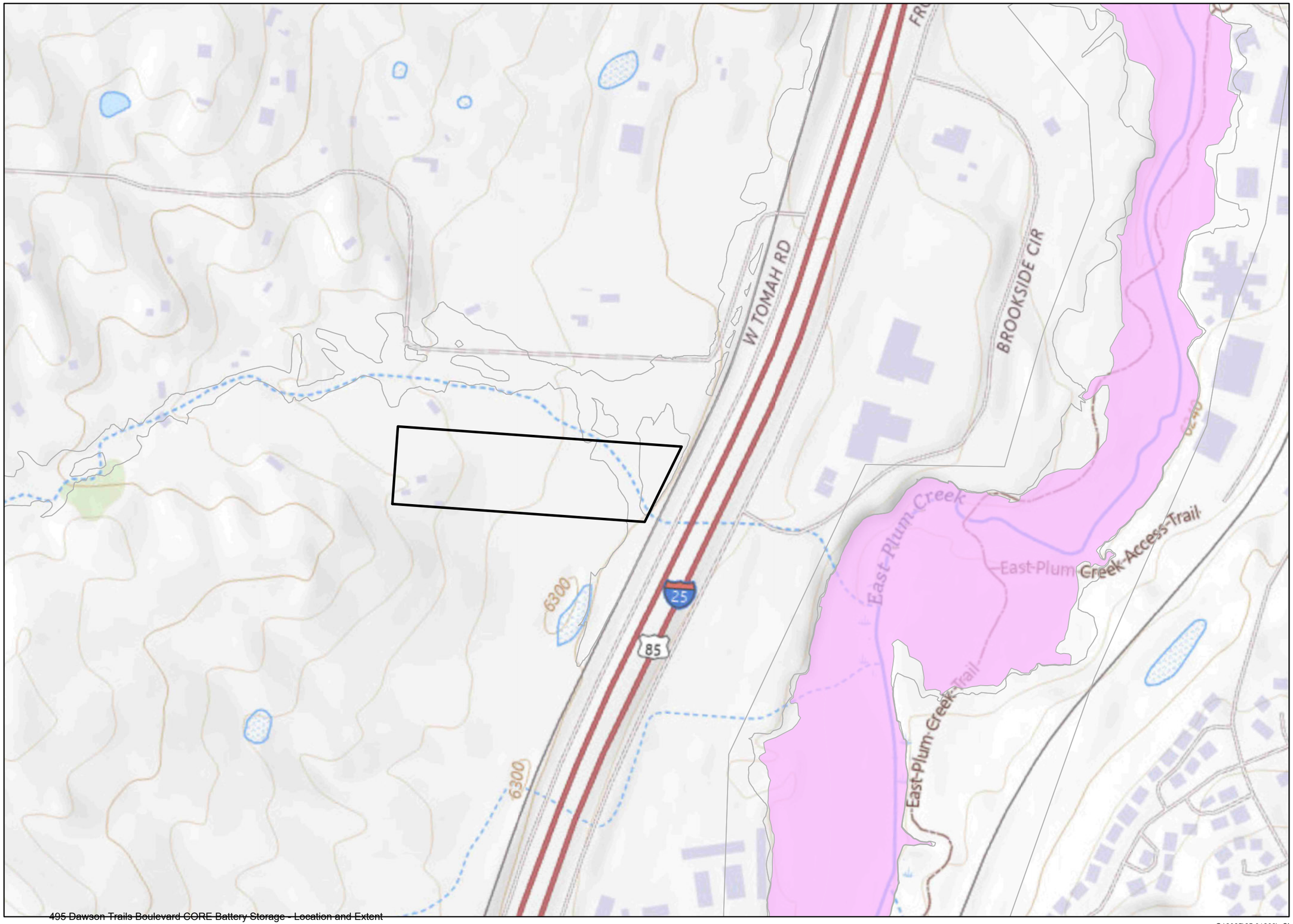
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Drawn By:	L. LOKEN
Approved By:	C. PREST
Project Number:	25.01369

Figure A-1

VICINITY MAP

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CITADEL BATTERY STORAGE PROJECT
DOUGLAS COUNTY, CO

Rev.	Date	Description	By
	10/03/2025	30% Submittal	UEI
	2/18/2026	30% Resubmittal	UEI

Legend

Project Boundary

FEMA Flood Hazard Area

AE

X

N

0 260 520 Feet

NAD 1983 StatePlane Colorado Central FIPS 0502, US Feet

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Project Number:	25.01369

Figure A-2

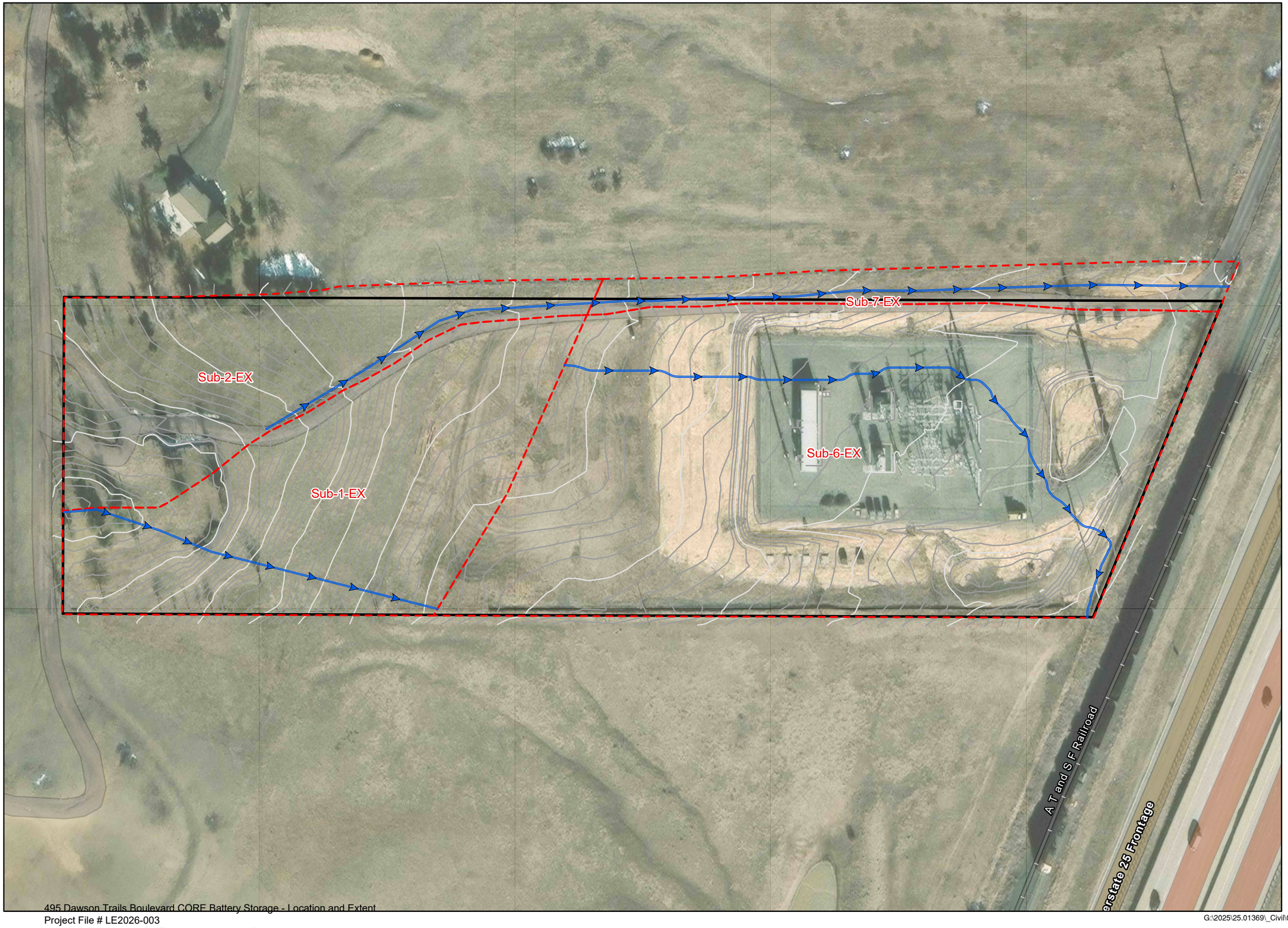
FEMA FLOODPLAIN MAP

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Appendix B. Stormwater Calculations

Figure B-1 . Existing Drainage Areas Map
Figure B-2 . Proposed Drainage Areas Map
Figure B-3. Existing Conditions Land Cover Map
Figure B-4 . Hydrologic Soil Group Map
Figure B-5 . Existing Conditions Runoff Coefficients Map
Figure B-6 . Proposed Conditions Runoff Coefficients Map

NOAA Atlas 14 Point Precipitation Data Frequency Server Printout
Table 6-7: Runoff Coefficients, “c”, NRCS HSG B from UCFCD Manual Volume 1
MHFD Detention – CUHP Hydrologic Calculations Printout
Existing Conditions HydroCAD Output Report
Proposed Conditions HydroCAD Output Report
MHFD Detention – Outlet Control Structure Sizing Printout
Citadel BESS 30% Civil Design Plans



CITADEL BATTERY STORAGE PROJECT

DOUGLAS COUNTY, CO

Rev.	Date	Description	By
	10/03/2025	30% Submittal	UEI
	2/18/2026	30% Resubmittal	UEI

Legend

- Longest Flow Paths
- Existing Drainage Areas
- Project Boundary
- 5-ft Contours
- 1-ft Contours

N

0 50 100 Feet

NAD 1983 StatePlane Colorado Central FIPS 0502, US Feet

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Figure B-1

EXISTING DRAINAGE AREA MAP

495 Dawson Trails Boulevard CORE Battery Storage - Location and Extent
Project File # LE2026-003
Planning Commission Staff Report - Page 43 of 131

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CITADEL BATTERY STORAGE PROJECT

DOUGLAS COUNTY, CO

Rev.	Date	Description	By
	10/03/2025	30% Submittal	UEI
	2/18/2026	30% Resubmittal	UEI

Legend

- Proposed Drainage Areas
- Longest Flow Paths
- Proposed Culverts
- Project Boundary
- 5-ft Contours
- 1-ft Contours
- Proposed Basin Footprints
- BESS Impervious Area

N

0 50 100 Feet

NAD 1983 StatePlane Colorado Central FIPS 0502, US Feet

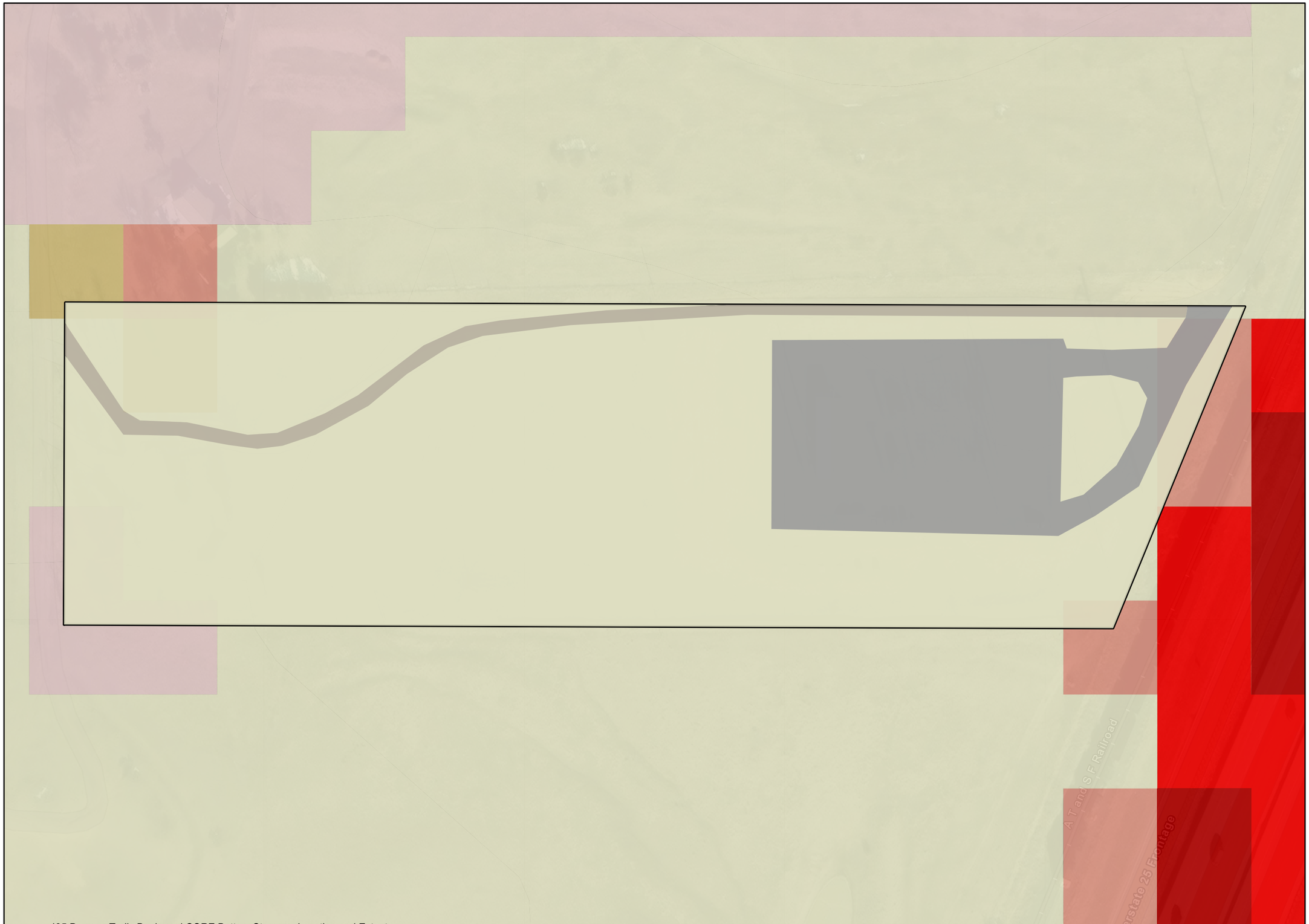
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Project Number:	24.04082

Figure B-2

PROPOSED DRAINAGE AREA MAP



CITADEL BATTERY
STORAGE PROJECT
DOUGLAS COUNTY, CO

Rev.	Date	Description	By
	10/03/2025	30% Submittal	UEI
	2/18/2026	30% Resubmittal	UEI

Legend

Project Boundary

Existing Land Cover

- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Developed, High Intensity
- Shrub Scrub
- Grassland Herbaceous

N

0 75 150 Feet

NAD 1983 StatePlane Colorado Central
FIPS 0502, US Feet

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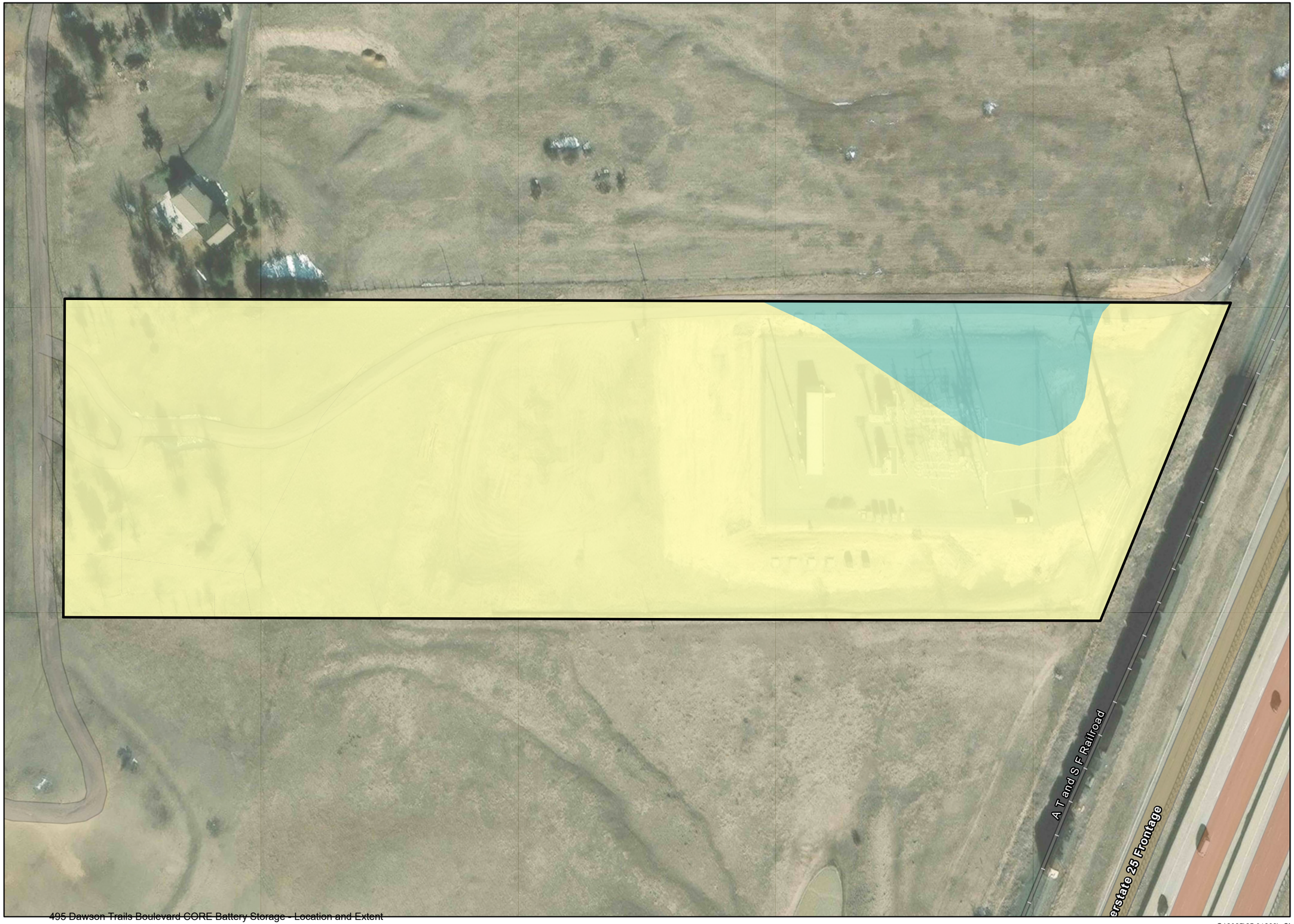
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Figure C-2

EXISTING CONDITIONS
LAND COVER MAP

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CITADEL BATTERY STORAGE PROJECT
DOUGLAS COUNTY, CO

Rev.	Date	Description	By
	10/03/2025	30% Submittal	UEI
	2/18/2026	30% Resubmittal	UEI

Legend

Project Boundary

Hydrologic Soil Group

A

B

N

0 50 100 Feet

NAD 1983 StatePlane Colorado Central
FIPS 0502, US Feet

PRELIMINARY
NOT FOR CONSTRUCTION

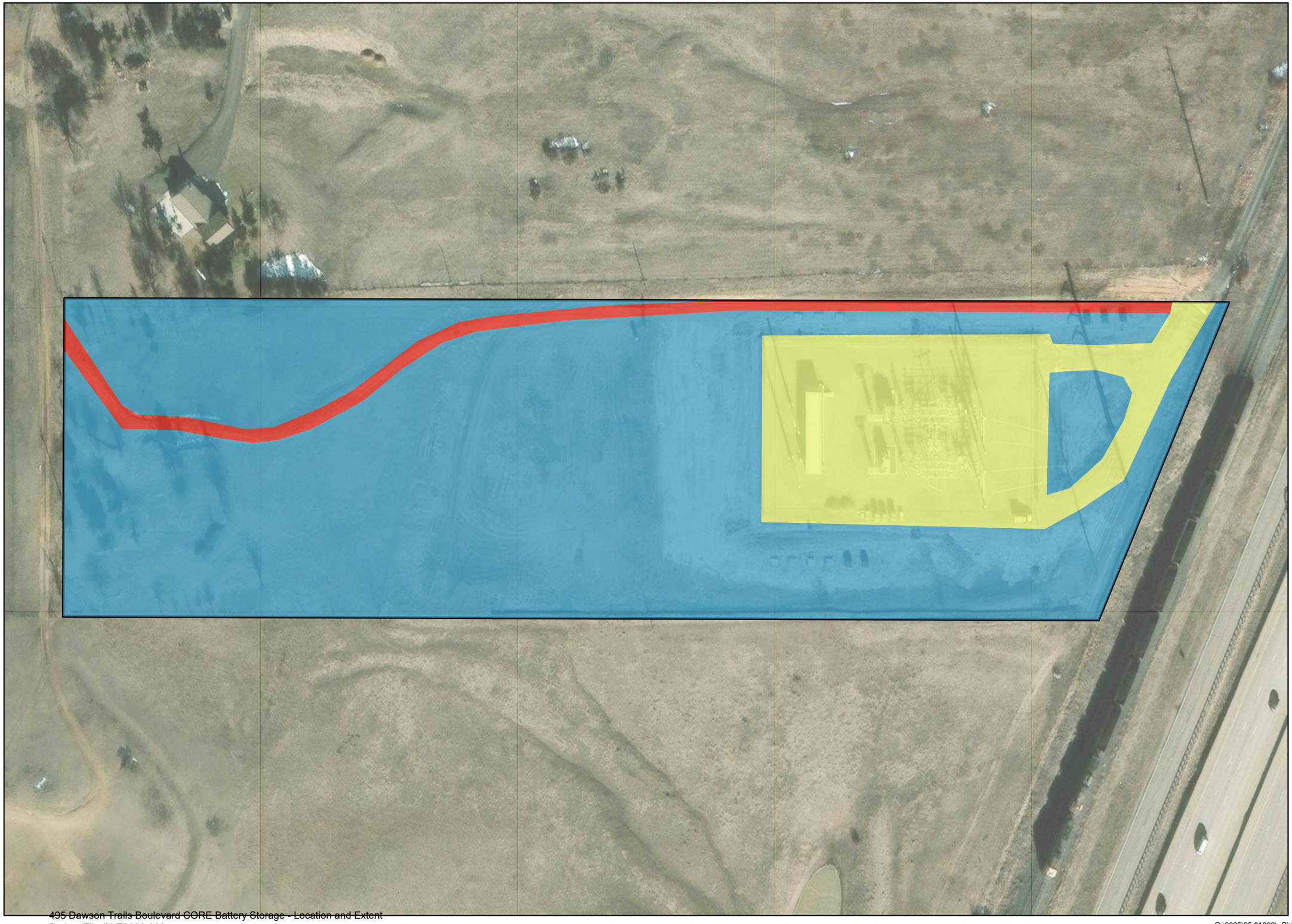
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Figure B-4

HYDROLOGIC SOIL GROUP MAP

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STORAGE PROJECT
DOUGLAS COUNTY, CO

Rev.	Date	Description	By
	10/03/2025	30% Submittal	UEI
	2/18/2026	30% Resubmittal	UEI

Legend

Percent Impervious

- Undeveloped Area - 2%
- Gravel (Packed) - 40%
- Paved - 100%
- Project Boundary

N

0 50 100 Feet

NAD 1983 StatePlane Colorado Central
FIPS 0502, US Feet

PRELIMINARY
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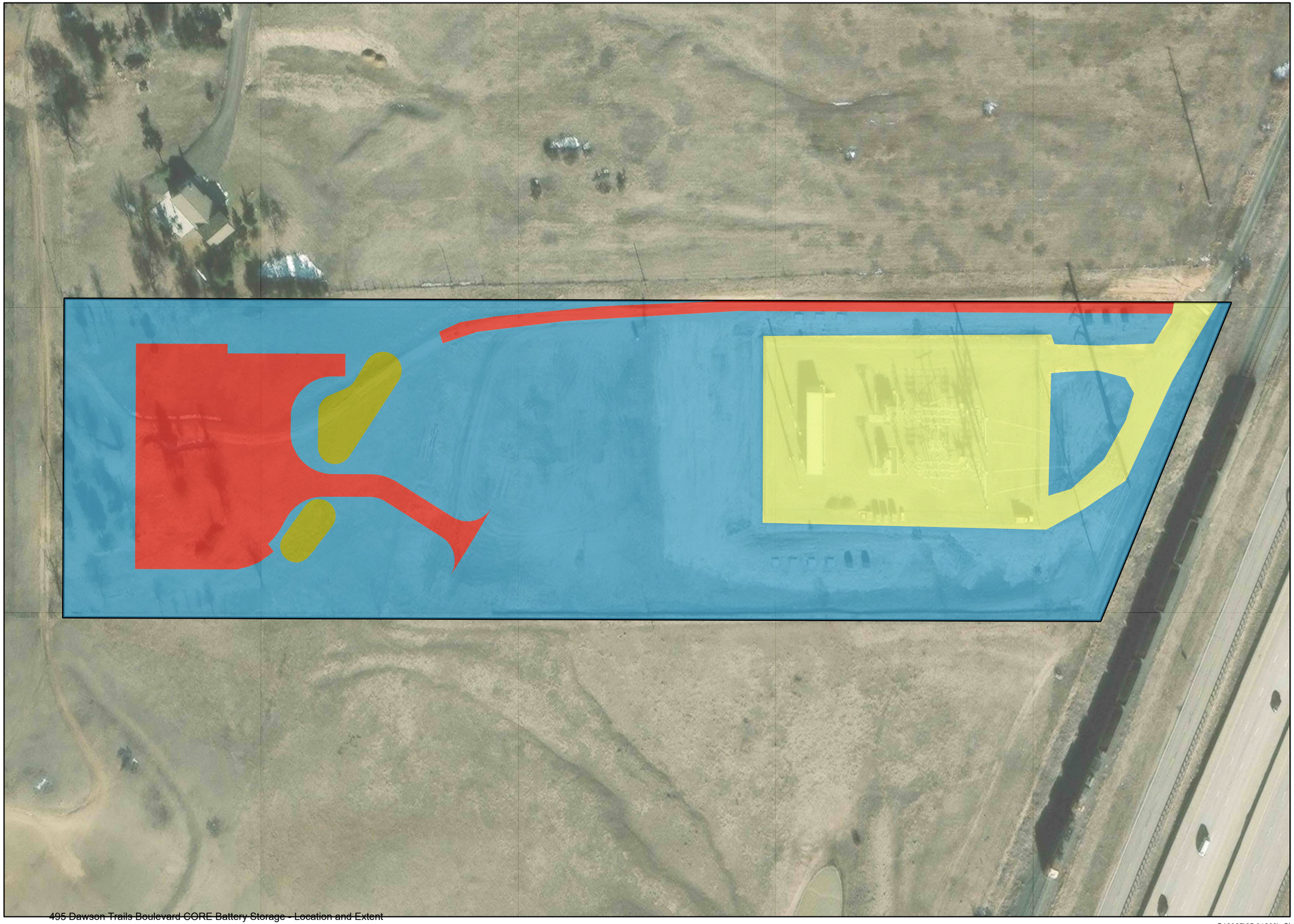
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Figure B-5

EXISTING CONDITIONS
PERCENT IMPERVIOUS
MAP

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CITADEL BATTERY STORAGE PROJECT
DOUGLAS COUNTY, CO

Rev.	Date	Description	By
	10/03/2025	30% Submittal	UEI
	2/18/2026	30% Resubmittal	UEI

Legend

Percent Impervious

- Undeveloped Area - 2%
- Gravel (Packed) - 40%
- Paved - 100%
- Other Impervious - 100%
- Project Boundary

N

0 50 100 Feet

NAD 1983 StatePlane Colorado Central
FIPS 0502, US Feet

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Figure B-6

PROPOSED CONDITIONS
PERCENT IMPERVIOUS
MAP

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NOAA Atlas 14, Volume 8, Version 2
Location name: Castle Rock, Colorado, USA*
Latitude: 39.3591°, Longitude: -104.8699°
Elevation: 6290 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishani Roy, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Michael Yekta, Geoffery Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.228** (0.191-0.276)	**0.290** (0.242-0.352)	**0.393** (0.327-0.478)	**0.480** (0.397-0.587)	**0.604** (0.480-0.764)	**0.701** (0.543-0.899)	**0.801** (0.596-1.05)	**0.904** (0.641-1.22)	**1.04** (0.708-1.44)	**1.15** (0.759-1.62)
10-min	**0.334** (0.279-0.405)	**0.424** (0.354-0.515)	**0.575** (0.479-0.700)	**0.703** (0.581-0.859)	**0.884** (0.703-1.12)	**1.03** (0.794-1.32)	**1.17** (0.872-1.54)	**1.32** (0.939-1.78)	**1.53** (1.04-2.11)	**1.68** (1.11-2.36)
15-min	**0.407** (0.341-0.494)	**0.517** (0.432-0.628)	**0.701** (0.584-0.853)	**0.858** (0.709-1.05)	**1.08** (0.857-1.36)	**1.25** (0.969-1.60)	**1.43** (1.06-1.88)	**1.61** (1.14-2.18)	**1.86** (1.26-2.58)	**2.06** (1.36-2.88)
30-min	**0.538** (0.450-0.652)	**0.685** (0.572-0.831)	**0.930** (0.774-1.13)	**1.14** (0.940-1.39)	**1.43** (1.13-1.81)	**1.66** (1.28-2.12)	**1.89** (1.41-2.48)	**2.13** (1.51-2.87)	**2.46** (1.67-3.40)	**2.71** (1.78-3.80)
60-min	**0.683** (0.571-0.828)	**0.848** (0.709-1.03)	**1.13** (0.941-1.38)	**1.38** (1.14-1.68)	**1.73** (1.38-2.21)	**2.02** (1.57-2.60)	**2.32** (1.73-3.06)	**2.64** (1.88-3.57)	**3.08** (2.09-4.27)	**3.42** (2.26-4.80)
2-hr	**0.828** (0.697-0.998)	**1.01** (0.850-1.22)	**1.33** (1.12-1.61)	**1.62** (1.34-1.96)	**2.04** (1.64-2.59)	**2.39** (1.87-3.06)	**2.76** (2.07-3.62)	**3.15** (2.26-4.24)	**3.70** (2.54-5.11)	**4.14** (2.75-5.77)
3-hr	**0.934** (0.787-1.12)	**1.12** (0.942-1.34)	**1.45** (1.22-1.74)	**1.75** (1.46-2.12)	**2.21** (1.79-2.81)	**2.60** (2.04-3.33)	**3.02** (2.28-3.95)	**3.47** (2.50-4.66)	**4.11** (2.83-5.66)	**4.63** (3.08-6.42)
6-hr	**1.14** (0.964-1.36)	**1.34** (1.14-1.60)	**1.72** (1.45-2.05)	**2.06** (1.73-2.48)	**2.60** (2.12-3.28)	**3.05** (2.42-3.89)	**3.54** (2.70-4.62)	**4.08** (2.97-5.46)	**4.86** (3.37-6.66)	**5.48** (3.68-7.56)
12-hr	**1.38** (1.17-1.63)	**1.63** (1.39-1.93)	**2.09** (1.77-2.48)	**2.51** (2.11-2.99)	**3.13** (2.56-3.91)	**3.65** (2.90-4.60)	**4.21** (3.22-5.43)	**4.81** (3.51-6.36)	**5.66** (3.95-7.69)	**6.34** (4.29-8.69)
24-hr	**1.65** (1.42-1.94)	**1.97** (1.68-2.31)	**2.51** (2.14-2.96)	**2.99** (2.54-3.54)	**3.69** (3.03-4.55)	**4.27** (3.40-5.32)	**4.86** (3.74-6.21)	**5.50** (4.03-7.21)	**6.38** (4.48-8.59)	**7.09** (4.82-9.64)
2-day	**1.95** (1.68-2.27)	**2.31** (1.99-2.70)	**2.92** (2.51-3.42)	**3.45** (2.94-4.06)	**4.21** (3.46-5.13)	**4.81** (3.86-5.94)	**5.44** (4.20-6.88)	**6.09** (4.49-7.91)	**6.99** (4.94-9.32)	**7.69** (5.28-10.4)
3-day	**2.12** (1.83-2.46)	**2.51** (2.17-2.92)	**3.17** (2.73-3.70)	**3.74** (3.19-4.37)	**4.53** (3.74-5.49)	**5.17** (4.15-6.34)	**5.82** (4.50-7.31)	**6.49** (4.80-8.38)	**7.41** (5.25-9.83)	**8.12** (5.59-10.9)
4-day	**2.25** (1.95-2.60)	**2.66** (2.30-3.09)	**3.36** (2.89-3.90)	**3.94** (3.38-4.60)	**4.78** (3.95-5.76)	**5.43** (4.38-6.64)	**6.10** (4.74-7.65)	**6.80** (5.04-8.75)	**7.74** (5.50-10.2)	**8.47** (5.85-11.4)
7-day	**2.60** (2.26-3.00)	**3.04** (2.64-3.50)	**3.77** (3.26-4.35)	**4.39** (3.78-5.10)	**5.28** (4.39-6.34)	**5.98** (4.85-7.28)	**6.71** (5.24-8.36)	**7.46** (5.57-9.55)	**8.49** (6.07-11.2)	**9.28** (6.45-12.4)
10-day	**2.92** (2.55-3.35)	**3.38** (2.94-3.87)	**4.14** (3.59-4.76)	**4.79** (4.14-5.54)	**5.72** (4.77-6.84)	**6.46** (5.25-7.83)	**7.22** (5.65-8.96)	**8.01** (6.00-10.2)	**9.09** (6.53-11.9)	**9.93** (6.93-13.2)
20-day	**3.84** (3.37-4.37)	**4.38** (3.84-4.99)	**5.28** (4.61-6.03)	**6.04** (5.24-6.93)	**7.09** (5.94-8.40)	**7.92** (6.47-9.51)	**8.76** (6.90-10.8)	**9.62** (7.24-12.2)	**10.8** (7.78-14.0)	**11.7** (8.19-15.4)
30-day	**4.59** (4.04-5.20)	**5.23** (4.60-5.93)	**6.27** (5.50-7.14)	**7.13** (6.21-8.15)	**8.31** (6.97-9.76)	**9.21** (7.55-11.0)	**10.1** (7.98-12.4)	**11.0** (8.32-13.8)	**12.2** (8.85-15.8)	**13.1** (9.25-17.2)
45-day	**5.52** (4.88-6.23)	**6.30** (5.56-7.12)	**7.55** (6.64-8.55)	**8.56** (7.48-9.73)	**9.90** (8.32-11.5)	**10.9** (8.96-12.9)	**11.9** (9.41-14.4)	**12.9** (9.74-16.0)	**14.1** (10.2-18.1)	**15.0** (10.6-19.6)
60-day	**6.31** (5.58-7.10)	**7.21** (6.38-8.12)	**8.64** (7.62-9.76)	**9.78** (8.57-11.1)	**11.3** (9.49-13.1)	**12.4** (10.2-14.6)	**13.5** (10.7-16.2)	**14.5** (11.0-18.0)	**15.8** (11.5-20.1)	**16.7** (11.8-21.8)

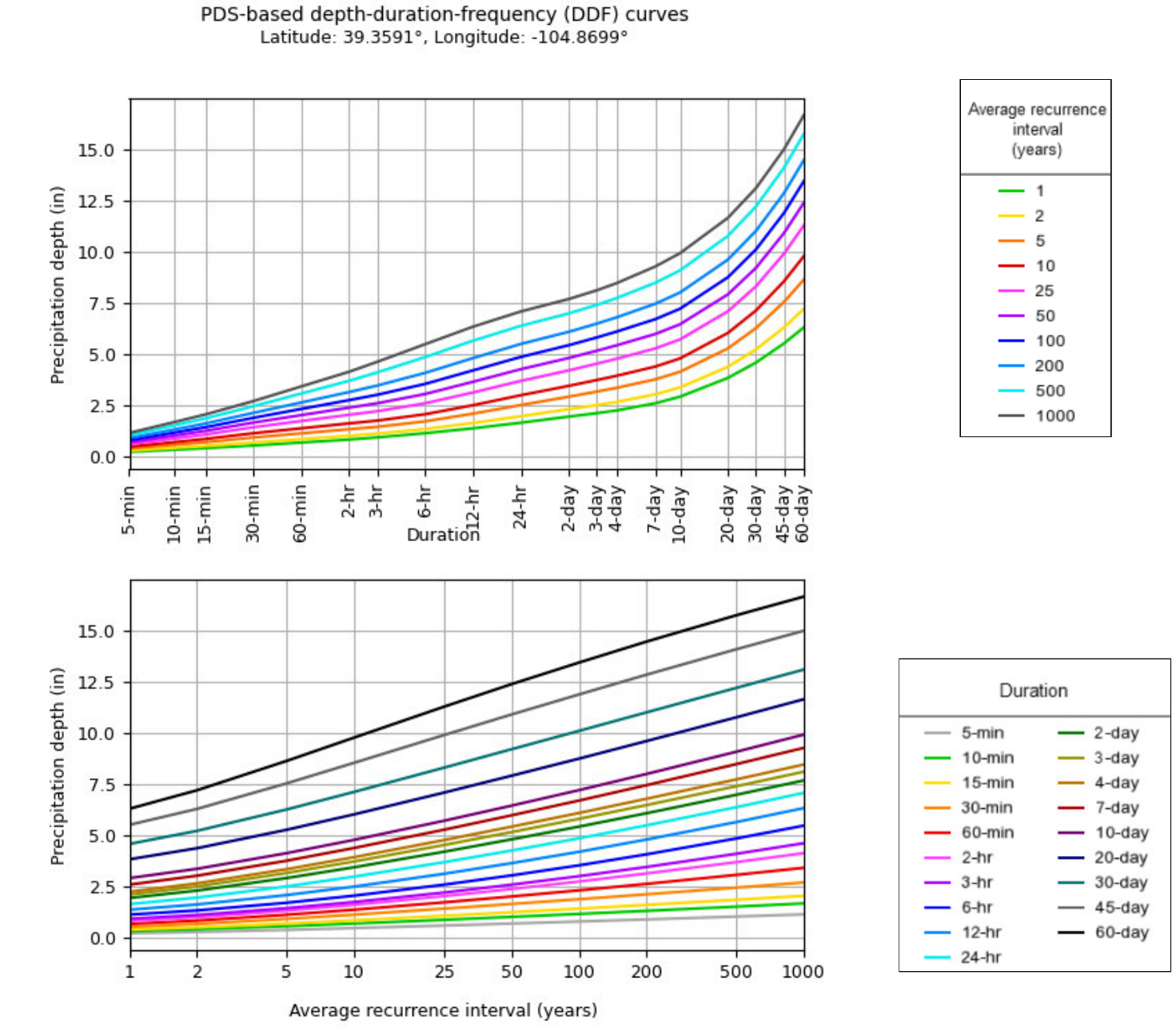
[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

Back to Top

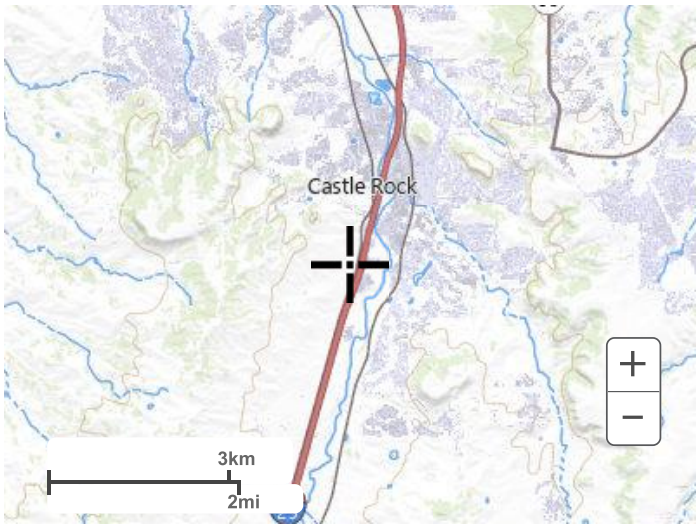
PF graphical



Back to Top

Maps & aerials

Small scale terrain



Large scale terrain



Large scale map



Large scale aerial



Back to Top

US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

TABLE 6-7. RUNOFF COEFFICIENTS, *C*, NRCS HSG B

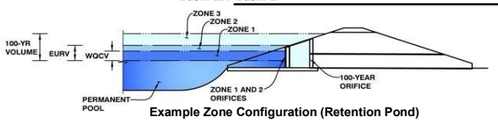
TOTAL OR EFFECTIVE % IMPERVIOUS	NRCS HSG B						
	WQE & 2-Year	5-Year	10-Year	25-Year	50-Year	100-Year	500-Year
2%	0.01	0.01	0.07	0.26	0.34	0.44	0.54
5%	0.03	0.03	0.10	0.28	0.36	0.45	0.55
10%	0.06	0.07	0.14	0.31	0.38	0.47	0.57
15%	0.09	0.11	0.18	0.34	0.41	0.50	0.59
20%	0.13	0.15	0.22	0.37	0.44	0.52	0.61
25%	0.17	0.19	0.26	0.41	0.47	0.54	0.63
30%	0.20	0.23	0.30	0.44	0.50	0.57	0.65
35%	0.24	0.27	0.34	0.47	0.52	0.59	0.66
40%	0.29	0.32	0.38	0.50	0.55	0.61	0.68
45%	0.33	0.36	0.42	0.53	0.58	0.64	0.70
50%	0.37	0.40	0.46	0.56	0.61	0.66	0.72
55%	0.42	0.45	0.50	0.59	0.63	0.68	0.74
60%	0.46	0.49	0.54	0.63	0.66	0.71	0.76
65%	0.50	0.54	0.58	0.66	0.69	0.73	0.77
70%	0.55	0.58	0.62	0.69	0.72	0.75	0.79
75%	0.60	0.63	0.66	0.72	0.75	0.77	0.81
80%	0.64	0.67	0.70	0.75	0.77	0.80	0.83
85%	0.69	0.72	0.74	0.78	0.80	0.82	0.85
90%	0.74	0.76	0.78	0.81	0.83	0.84	0.87
95%	0.79	0.81	0.82	0.85	0.86	0.87	0.88
100%	0.84	0.86	0.86	0.88	0.89	0.89	0.90

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.07 (June 2025)

Project: Citadel Battery Storage

Basin ID: Basin 2



Example Zone Configuration (Retention Pond)

Watershed Information

Selected SCM Type =	EDB	
Watershed Area =	1.55	acres
Watershed Length =	300	ft
Watershed Length to Centroid =	150	ft
Watershed Slope =	0.037	ft/ft
Watershed Imperviousness =	53.46%	percent
Percentage Hydrologic Soil Group A =	0.0%	percent
Percentage Hydrologic Soil Group B =	100.0%	percent
Percentage Hydrologic Soil Groups C/D =	0.0%	percent
Target WQCV Drain Time =	40.0	hours
Location for 1-hr Rainfall Depths =	Castle Pines - City Office	

After providing required inputs above including 1-hour rainfall depths, click 'Run CUHP' to generate runoff hydrographs using the embedded Colorado Urban Hydrograph Procedure.

		Optional User Overrides	
Water Quality Capture Volume (WQCV) =	0.028 acre-feet		acre-feet
Excess Urban Runoff Volume (EURV) =	0.089 acre-feet		acre-feet
2-yr Runoff Volume (P1 = 0.85 in.) =	0.049 acre-feet	0.85	inches
5-yr Runoff Volume (P1 = 1.14 in.) =	0.071 acre-feet	1.14	inches
10-yr Runoff Volume (P1 = 1.38 in.) =	0.096 acre-feet	1.38	inches
25-yr Runoff Volume (P1 = 1.74 in.) =	0.143 acre-feet	1.74	inches
50-yr Runoff Volume (P1 = 2.03 in.) =	0.178 acre-feet	2.03	inches
100-yr Runoff Volume (P1 = 2.33 in.) =	0.219 acre-feet	2.33	inches
500-yr Runoff Volume (P1 = 3.08 in.) =	0.312 acre-feet	3.08	inches
Approximate 2-yr Detention Volume =	0.048 acre-feet		
Approximate 5-yr Detention Volume =	0.070 acre-feet		
Approximate 10-yr Detention Volume =	0.095 acre-feet		
Approximate 25-yr Detention Volume =	0.114 acre-feet		
Approximate 50-yr Detention Volume =	0.124 acre-feet		
Approximate 100-yr Detention Volume =	0.140 acre-feet		

Define Zones and Basin Geometry

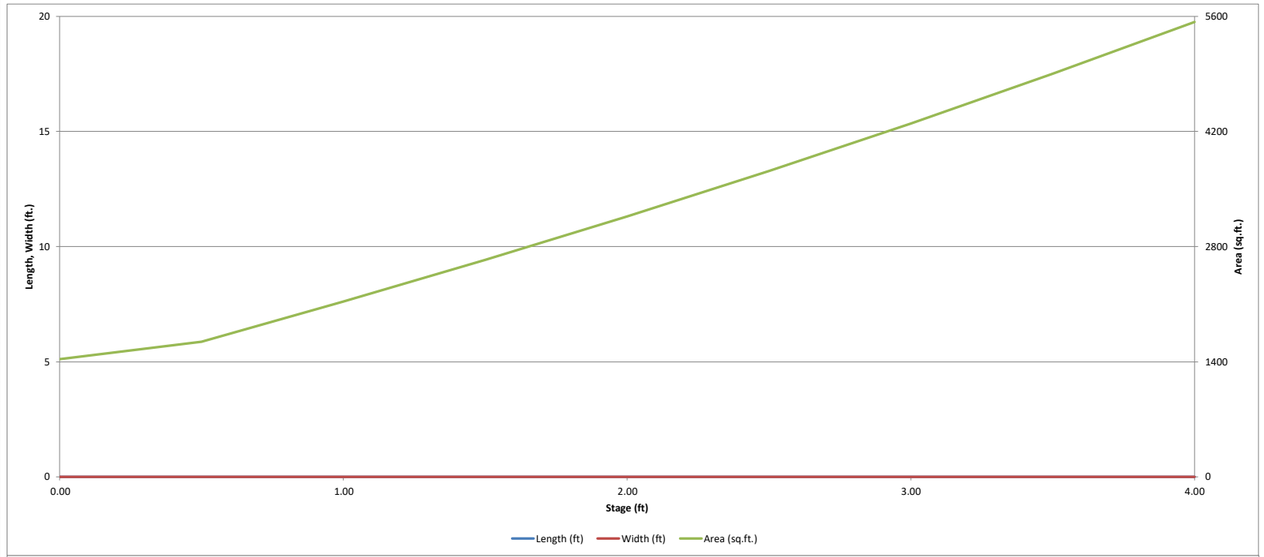
Zone 1 Volume (WQCV) =	0.028	acre-feet
Zone 2 Volume (EURV - Zone 1) =	0.061	acre-feet
Zone 3 Volume (100-year - Zones 1 & 2) =	0.052	acre-feet
Total Detention Basin Volume =	0.140	acre-feet
Initial Surcharge Volume (ISV) =	user	ft^3
Initial Surcharge Depth (ISD) =	user	ft
Total Available Detention Depth (H_{total}) =	user	ft
Depth of Trickle Channel (H_{TC}) =	user	ft
Slope of Trickle Channel (S_{TC}) =	user	ft/ft
Slopes of Main Basin Sides (S_{main}) =	user	H:V
Basin Length-to-Width Ratio ($R_{L/W}$) =	user	
Initial Surcharge Area (A_{ISV}) =	user	ft^2
Surcharge Volume Length (L_{ISV}) =	user	ft
Surcharge Volume Width (W_{ISV}) =	user	ft
Depth of Basin Floor (H_{FLOOR}) =	user	ft
Length of Basin Floor (L_{FLOOR}) =	user	ft
Width of Basin Floor (W_{FLOOR}) =	user	ft
Area of Basin Floor (A_{FLOOR}) =	user	ft^2
Volume of Basin Floor (V_{FLOOR}) =	user	ft^3
Depth of Main Basin (H_{MAIN}) =	user	ft
Length of Main Basin (L_{MAIN}) =	user	ft
Width of Main Basin (W_{MAIN}) =	user	ft
Area of Main Basin (A_{MAIN}) =	user	ft^2
Volume of Main Basin (V_{MAIN}) =	user	ft^3
Calculated Total Basin Volume (V_{total}) =	**user**	acre-feet

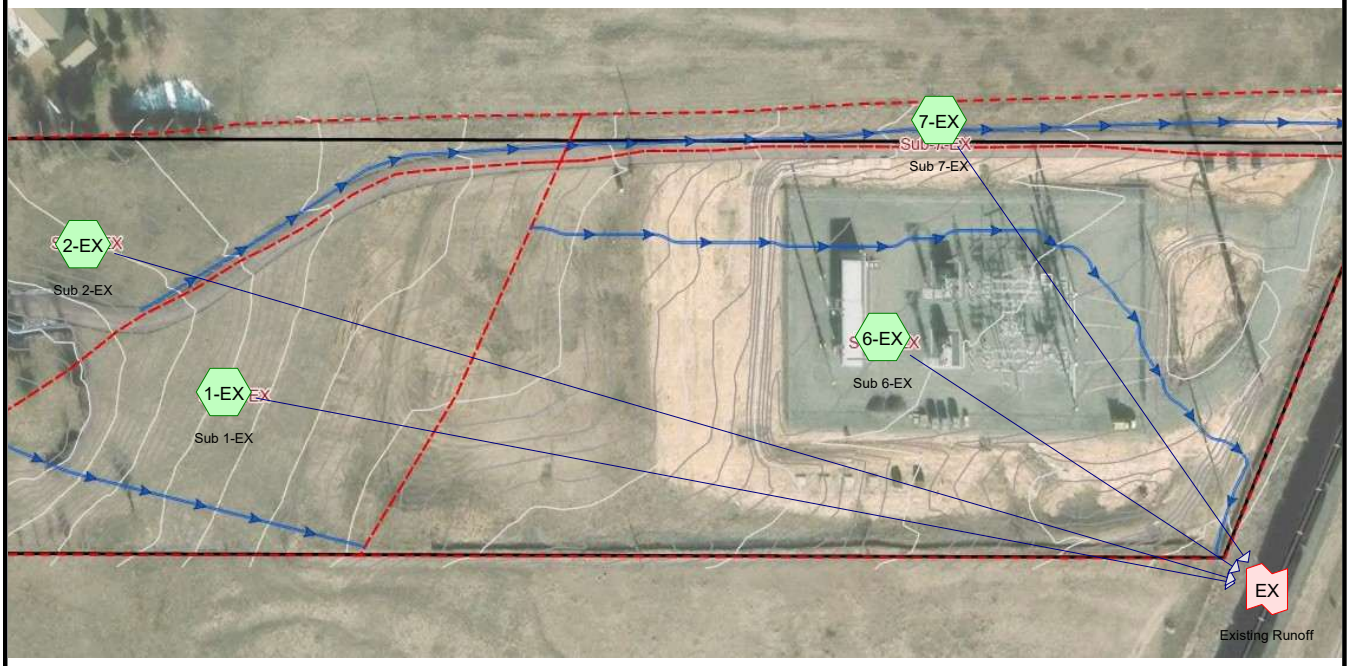
Depth Increment = 0.50 ft

Stage - Storage Description	Stage (ft)	Optional Override Stage (ft)	Length (ft)	Width (ft)	Area (ft^2)	Optional Override Area (ft^2)	Area (acre)	Volume (ft^3)	Volume (ac-ft)
Top of Micropool	--	0.00	--	--	--	1,433	0.033		
6336.5	--	0.50	--	--	--	1,644	0.038	769	0.018
6337	--	1.00	--	--	--	2,134	0.049	1,714	0.039
6337.5	--	1.50	--	--	--	2,638	0.061	2,907	0.067
6338	--	2.00	--	--	--	3,166	0.073	4,358	0.100
6338.5	--	2.50	--	--	--	3,720	0.085	6,079	0.140
6339	--	3.00	--	--	--	4,298	0.099	8,084	0.186
6339.5	--	3.50	--	--	--	4,902	0.113	10,384	0.238
6340	--	4.00	--	--	--	5,533	0.127	12,992	0.298

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.07 (June 2025)





Subcat Reach Pond Link

Routing Diagram for Existing_Conditions_Basin_v3
Prepared by Ulteig Operations, LLC, Printed 2/10/2026
HydroCAD® 10.20-5c s/n 02198 © 2023 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	C	Description (subcatchment-numbers)
0.479	0.61	Gravel (Packed) - 40% (1-EX, 2-EX, 6-EX, 7-EX)
1.695	0.89	Paved - 100% (6-EX, 7-EX)
7.543	0.44	Undeveloped Area - 2% (1-EX, 2-EX, 6-EX, 7-EX)
9.716	**0.53**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
9.716	Other	1-EX, 2-EX, 6-EX, 7-EX
9.716		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	0.479	0.479	Gravel (Packed) - 40%	1-EX, 2-EX, 6-EX, 7-EX
0.000	0.000	0.000	0.000	1.695	1.695	Paved - 100%	6-EX, 7-EX
0.000	0.000	0.000	0.000	7.543	7.543	Undeveloped Area - 2%	1-EX, 2-EX, 6-EX, 7-EX
0.000	**0.000**	**0.000**	**0.000**	**9.716**	**9.716**	**TOTAL AREA**	

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment 1-EX: Sub 1-EX Runoff Area=99,055 sf 0.00% Impervious Runoff Depth=0.38"
Flow Length=415' Tc=20.0 min C=0.45 Runoff=0.88 cfs 0.073 af

Subcatchment 2-EX: Sub 2-EX Runoff Area=70,787 sf 0.00% Impervious Runoff Depth=0.39"
Flow Length=613' Tc=20.0 min C=0.46 Runoff=0.64 cfs 0.053 af

Subcatchment 6-EX: Sub 6-EX Runoff Area=226,244 sf 0.00% Impervious Runoff Depth=0.50"
Flow Length=767' Tc=20.0 min C=0.59 Runoff=2.63 cfs 0.217 af

Subcatchment 7-EX: Sub 7-EX Runoff Area=27,151 sf 0.00% Impervious Runoff Depth=0.42"
Flow Length=672' Tc=20.0 min C=0.49 Runoff=0.26 cfs 0.022 af

Link EX: Existing Runoff Inflow=4.41 cfs 0.365 af
Primary=4.41 cfs 0.365 af

Total Runoff Area = 9.716 ac Runoff Volume = 0.365 af Average Runoff Depth = 0.45"
100.00% Pervious = 9.716 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1-EX: Sub 1-EX

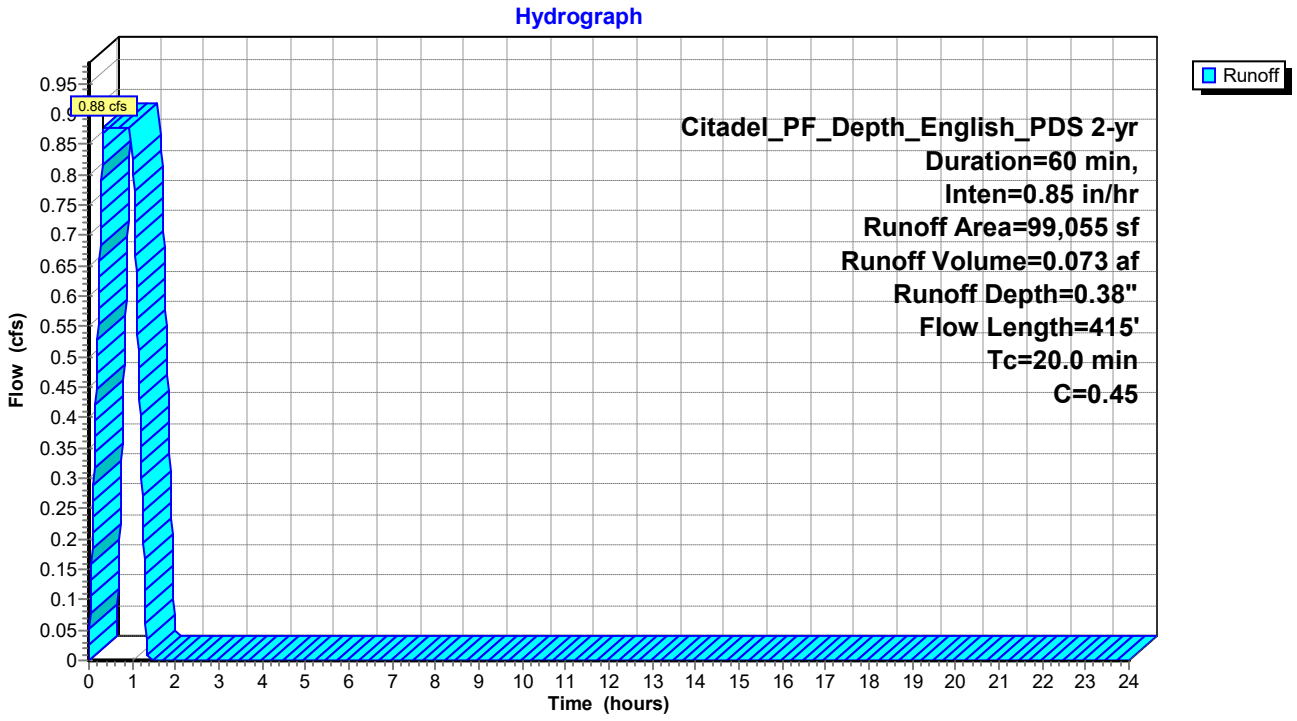
Runoff = 0.88 cfs @ 0.34 hrs, Volume= 0.073 af, Depth= 0.38"
Routed to Link EX : Existing Runoff

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Citadel_PF_Depth_English_PDS 2-yr Duration=60 min, Inten=0.85 in/hr

Area (sf)	C	Description
95,669	0.44	Undeveloped Area - 2%
3,386	0.61	Gravel (Packed) - 40%
0	0.89	Paved - 100%
99,055	0.45	Weighted Average
99,055		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	100	0.0415	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.98"
2.3	315	0.1081	2.30		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.6	415	Total, Increased to minimum Tc = 20.0 min			

Subcatchment 1-EX: Sub 1-EX



Summary for Subcatchment 2-EX: Sub 2-EX

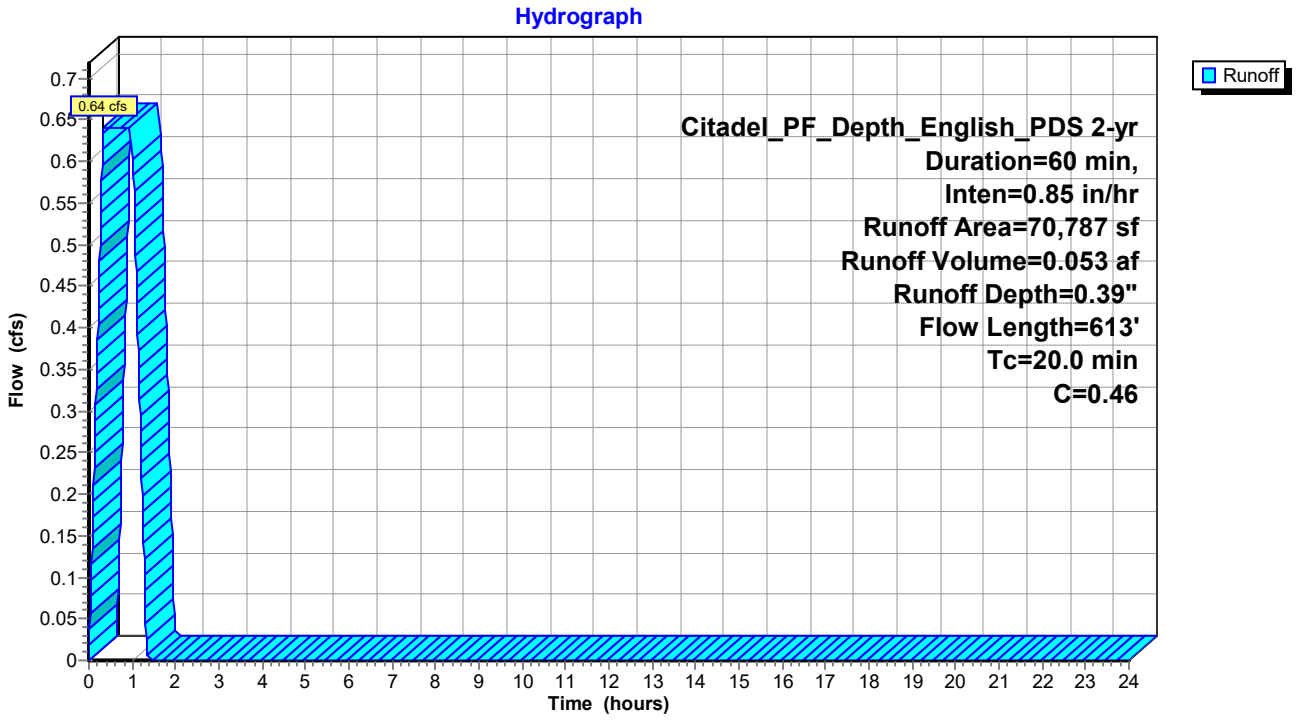
Runoff = 0.64 cfs @ 0.34 hrs, Volume= 0.053 af, Depth= 0.39"
Routed to Link EX : Existing Runoff

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Citadel_PF_Depth_English_PDS 2-yr Duration=60 min, Inten=0.85 in/hr

Area (sf)	C	Description
63,140	0.44	Undeveloped Area - 2%
0	0.89	Paved - 100%
7,647	0.61	Gravel (Packed) - 40%
70,787	0.46	Weighted Average
70,787		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1	100	0.0266	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.98"
6.4	513	0.0368	1.34		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
17.5	613	Total, Increased to minimum Tc = 20.0 min			

Subcatchment 2-EX: Sub 2-EX



Summary for Subcatchment 6-EX: Sub 6-EX

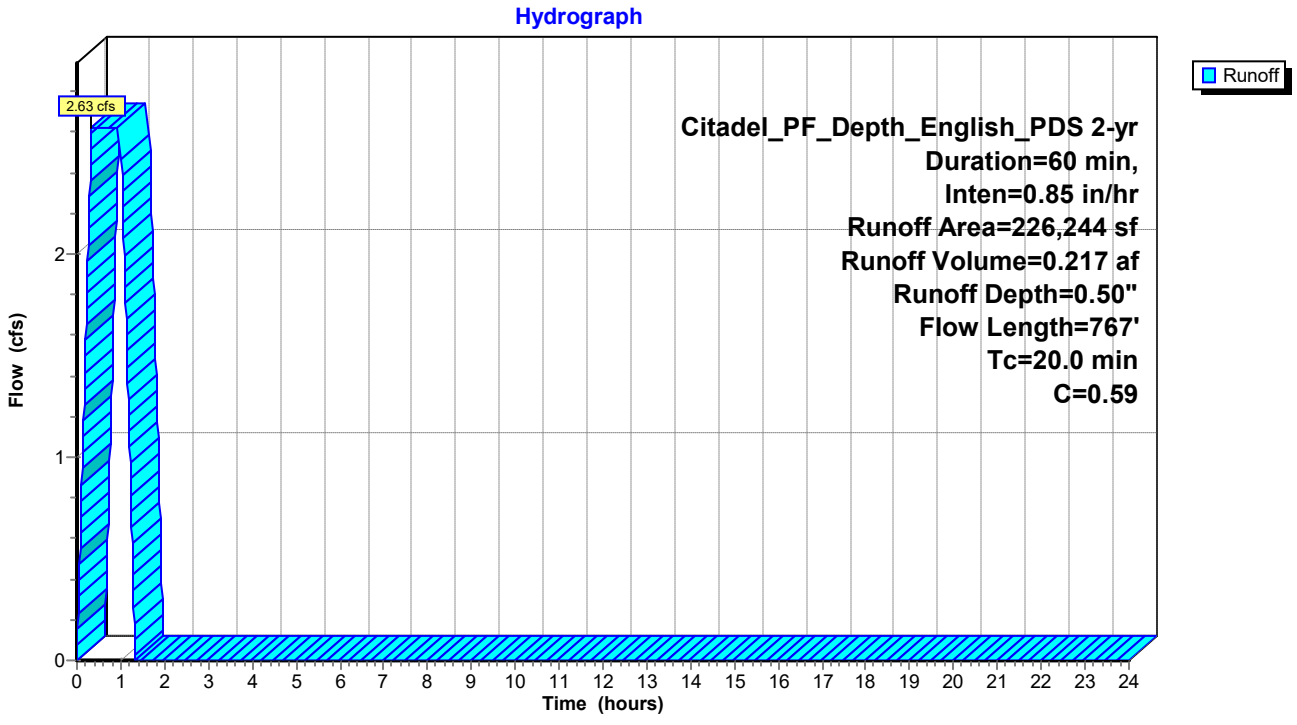
Runoff = 2.63 cfs @ 0.34 hrs, Volume= 0.217 af, Depth= 0.50"
Routed to Link EX : Existing Runoff

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Citadel_PF_Depth_English_PDS 2-yr Duration=60 min, Inten=0.85 in/hr

Area (sf)	C	Description
149,666	0.44	Undeveloped Area - 2%
3,234	0.61	Gravel (Packed) - 40%
73,344	0.89	Paved - 100%
226,244	0.59	Weighted Average
226,244		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	100	0.0448	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.98"
2.9	667	0.0346	3.78		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
11.9	767	Total, Increased to minimum Tc = 20.0 min			

Subcatchment 6-EX: Sub 6-EX



Summary for Subcatchment 7-EX: Sub 7-EX

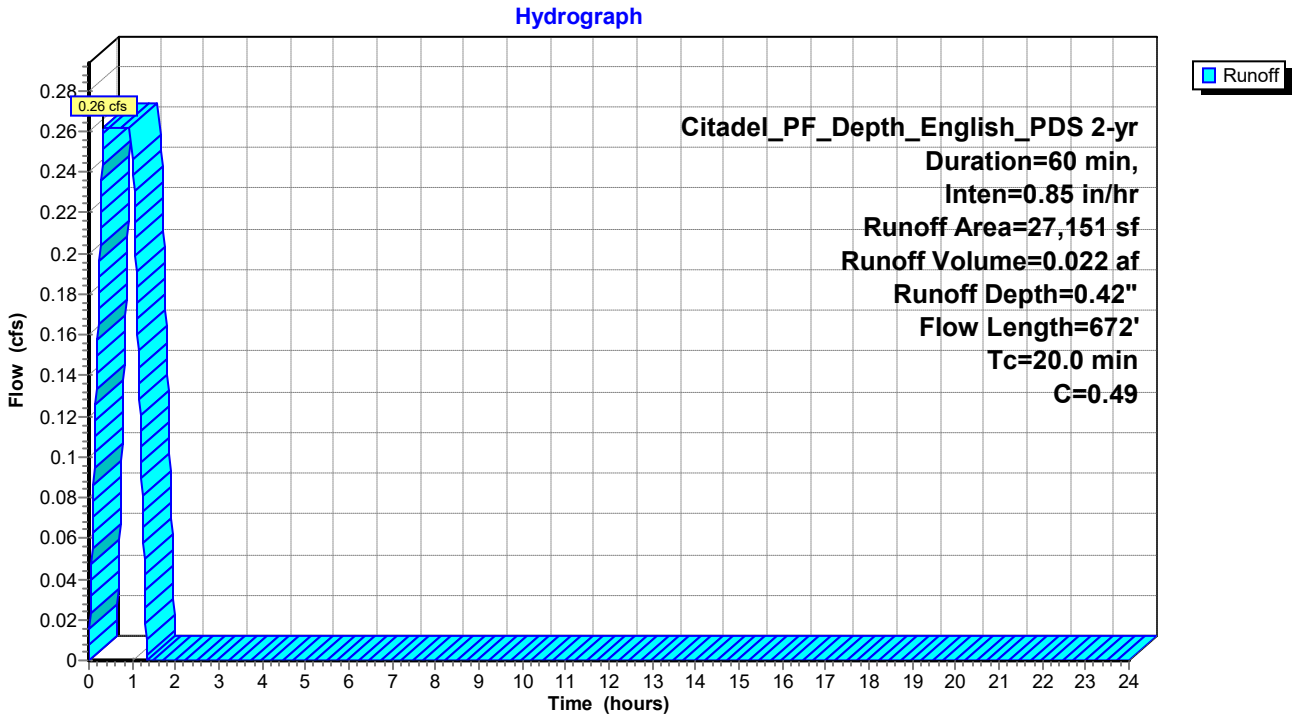
Runoff = 0.26 cfs @ 0.34 hrs, Volume= 0.022 af, Depth= 0.42"
Routed to Link EX : Existing Runoff

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Citadel_PF_Depth_English_PDS 2-yr Duration=60 min, Inten=0.85 in/hr

Area (sf)	C	Description
20,087	0.44	Undeveloped Area - 2%
474	0.89	Paved - 100%
6,590	0.61	Gravel (Packed) - 40%
27,151	0.49	Weighted Average
27,151		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	100	0.0422	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.98"
7.7	572	0.0312	1.24		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.9	672	Total, Increased to minimum Tc = 20.0 min			

Subcatchment 7-EX: Sub 7-EX

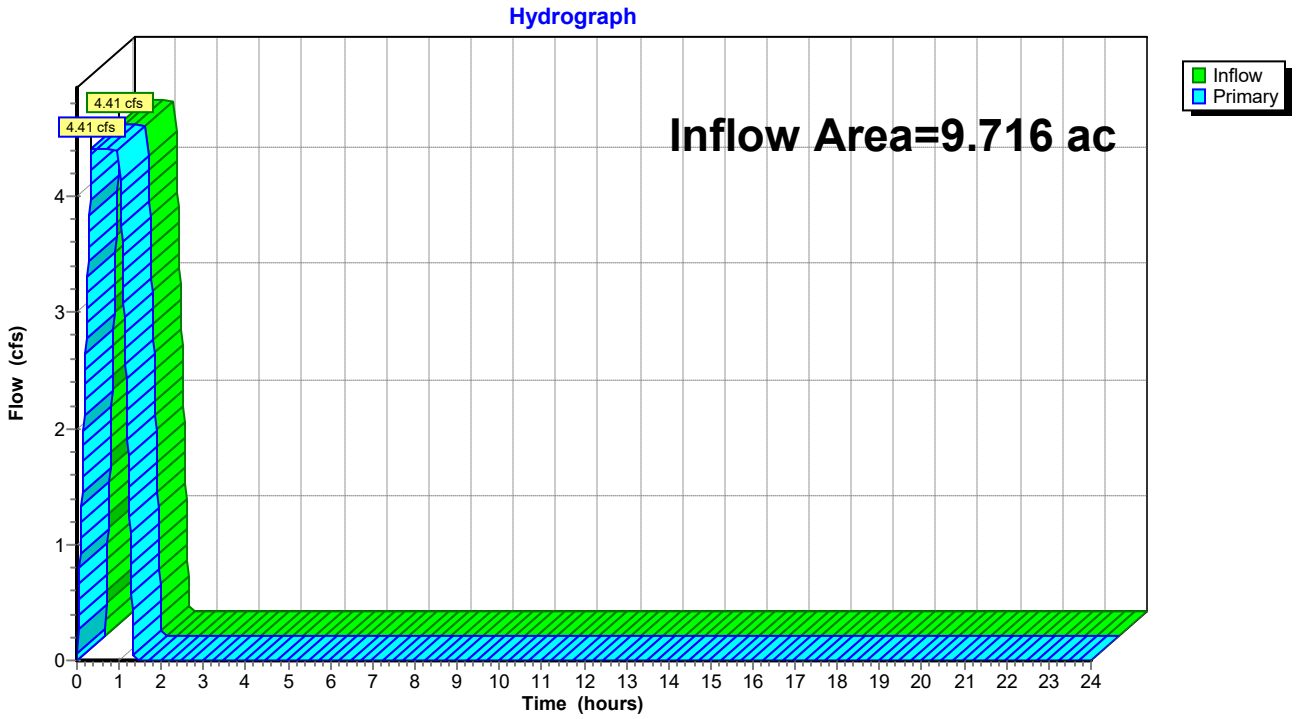


Summary for Link EX: Existing Runoff

Inflow Area = 9.716 ac, 0.00% Impervious, Inflow Depth = 0.45" for 2-yr event
Inflow = 4.41 cfs @ 0.34 hrs, Volume= 0.365 af
Primary = 4.41 cfs @ 0.35 hrs, Volume= 0.365 af, Atten= 0%, Lag= 0.6 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link EX: Existing Runoff



Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment 1-EX: Sub 1-EX Runoff Area=99,055 sf 0.00% Impervious Runoff Depth=1.05"
Flow Length=415' Tc=20.0 min C=0.45 Runoff=2.40 cfs 0.199 af

Subcatchment 2-EX: Sub 2-EX Runoff Area=70,787 sf 0.00% Impervious Runoff Depth=1.07"
Flow Length=613' Tc=20.0 min C=0.46 Runoff=1.76 cfs 0.145 af

Subcatchment 6-EX: Sub 6-EX Runoff Area=226,244 sf 0.00% Impervious Runoff Depth=1.37"
Flow Length=767' Tc=20.0 min C=0.59 Runoff=7.20 cfs 0.595 af

Subcatchment 7-EX: Sub 7-EX Runoff Area=27,151 sf 0.00% Impervious Runoff Depth=1.14"
Flow Length=672' Tc=20.0 min C=0.49 Runoff=0.72 cfs 0.059 af

Link EX: Existing Runoff Inflow=12.08 cfs 0.998 af
Primary=12.08 cfs 0.998 af

Total Runoff Area = 9.716 ac Runoff Volume = 0.998 af Average Runoff Depth = 1.23"
100.00% Pervious = 9.716 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1-EX: Sub 1-EX

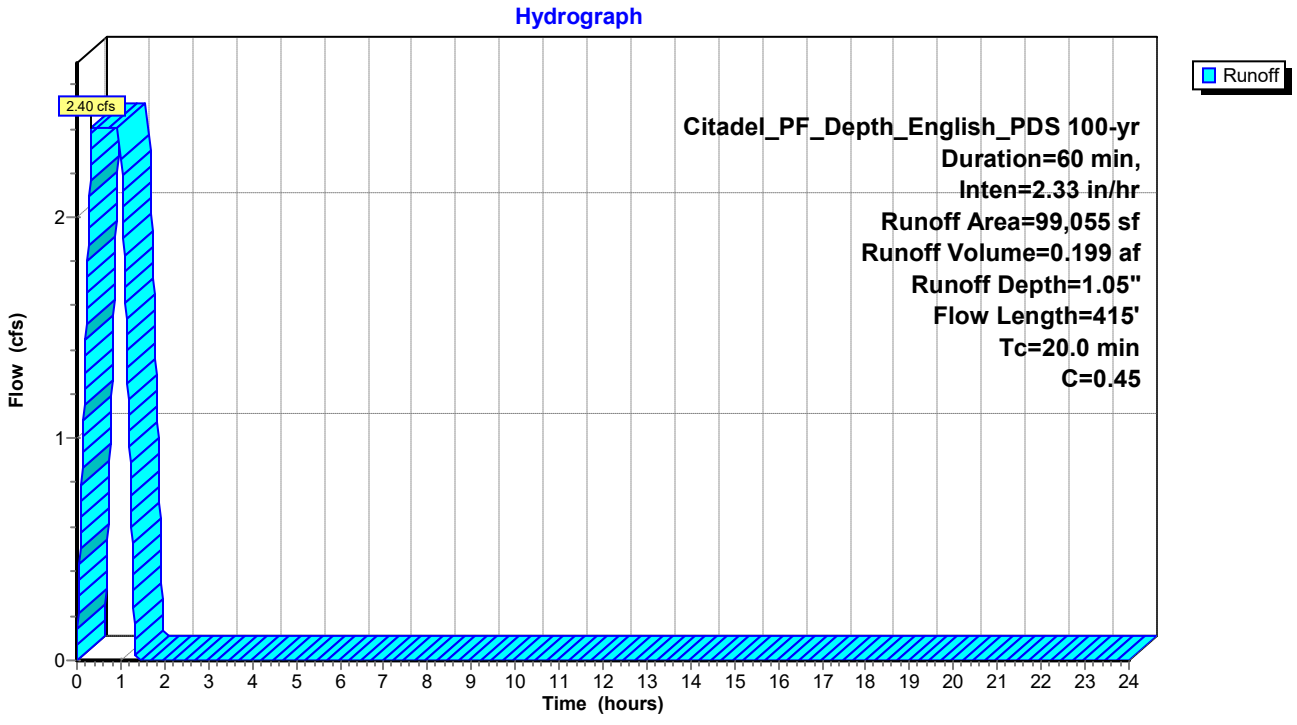
Runoff = 2.40 cfs @ 0.34 hrs, Volume= 0.199 af, Depth= 1.05"
Routed to Link EX : Existing Runoff

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Citadel_PF_Depth_English_PDS 100-yr Duration=60 min, Inten=2.33 in/hr

Area (sf)	C	Description
95,669	0.44	Undeveloped Area - 2%
3,386	0.61	Gravel (Packed) - 40%
0	0.89	Paved - 100%
99,055	0.45	Weighted Average
99,055		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	100	0.0415	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.98"
2.3	315	0.1081	2.30		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.6	415	Total, Increased to minimum Tc = 20.0 min			

Subcatchment 1-EX: Sub 1-EX



Summary for Subcatchment 2-EX: Sub 2-EX

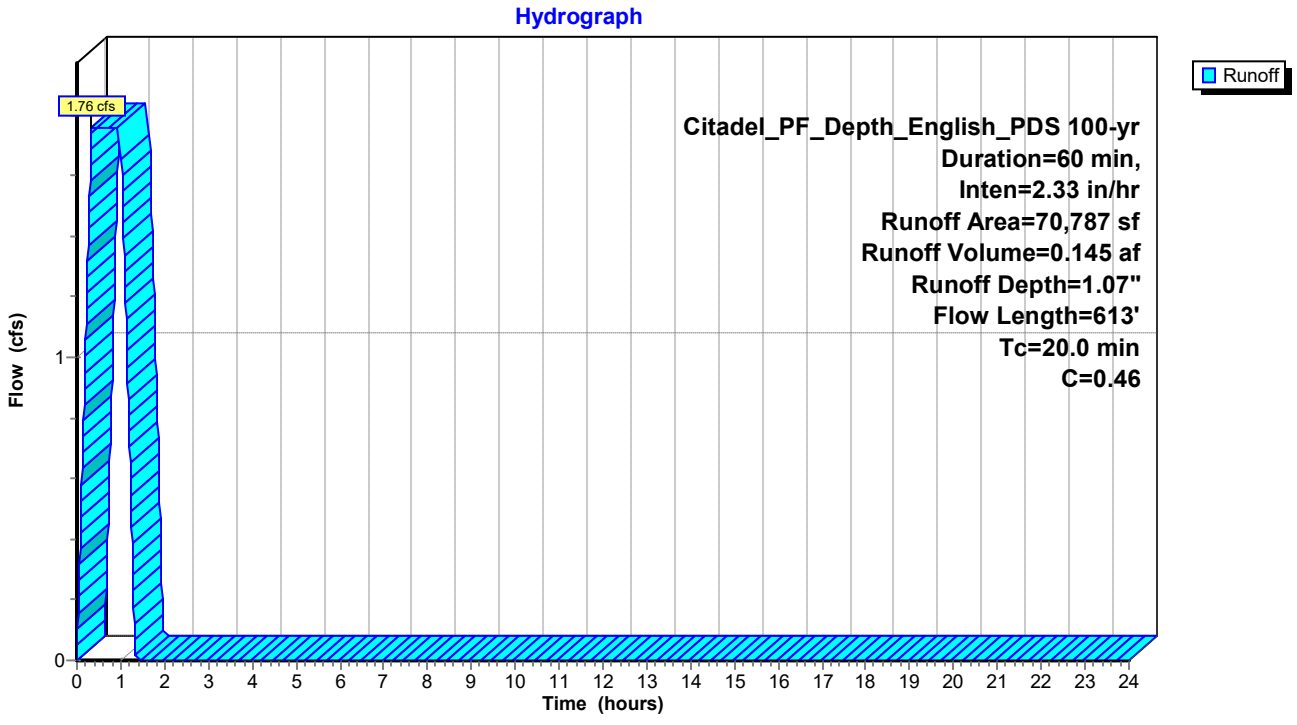
Runoff = 1.76 cfs @ 0.34 hrs, Volume= 0.145 af, Depth= 1.07"
Routed to Link EX : Existing Runoff

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Citadel_PF_Depth_English_PDS 100-yr Duration=60 min, Inten=2.33 in/hr

Area (sf)	C	Description
63,140	0.44	Undeveloped Area - 2%
0	0.89	Paved - 100%
7,647	0.61	Gravel (Packed) - 40%
70,787	0.46	Weighted Average
70,787		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1	100	0.0266	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.98"
6.4	513	0.0368	1.34		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
17.5	613	Total, Increased to minimum Tc = 20.0 min			

Subcatchment 2-EX: Sub 2-EX



Summary for Subcatchment 6-EX: Sub 6-EX

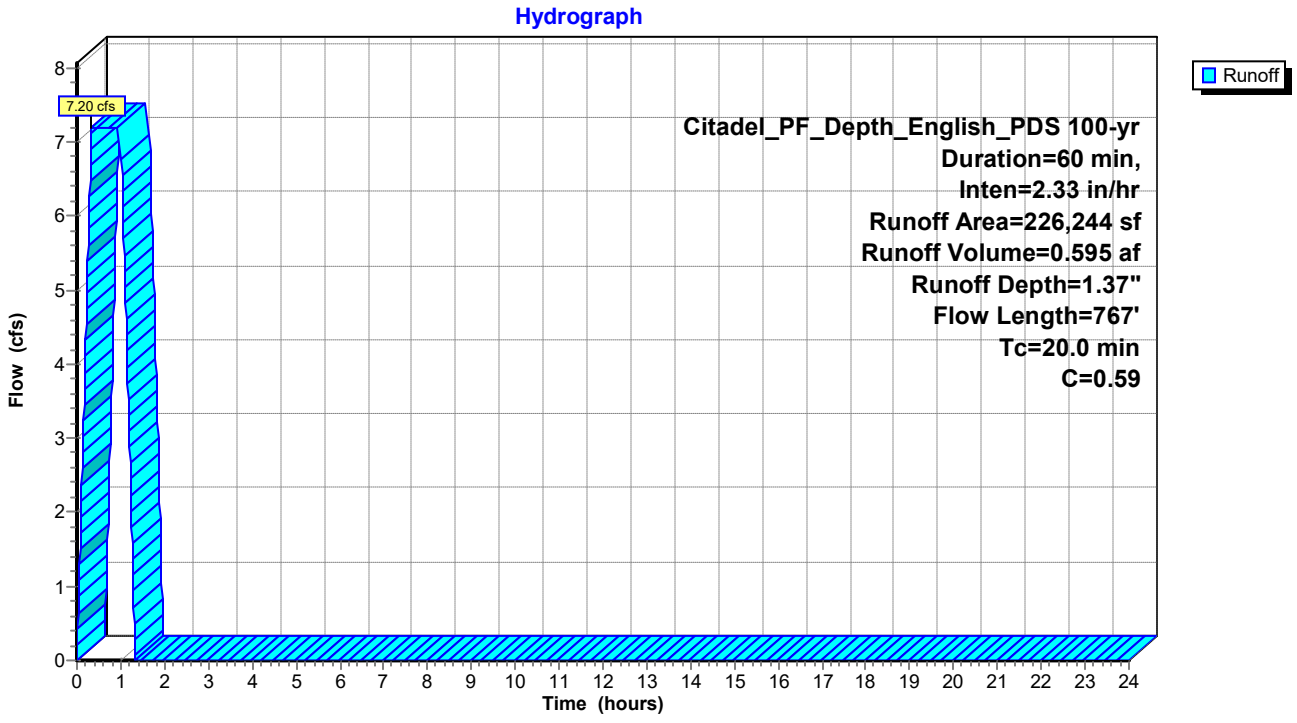
Runoff = 7.20 cfs @ 0.34 hrs, Volume= 0.595 af, Depth= 1.37"
Routed to Link EX : Existing Runoff

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Citadel_PF_Depth_English_PDS 100-yr Duration=60 min, Inten=2.33 in/hr

Area (sf)	C	Description
149,666	0.44	Undeveloped Area - 2%
3,234	0.61	Gravel (Packed) - 40%
73,344	0.89	Paved - 100%
226,244	0.59	Weighted Average
226,244		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	100	0.0448	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.98"
2.9	667	0.0346	3.78		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
11.9	767	Total, Increased to minimum Tc = 20.0 min			

Subcatchment 6-EX: Sub 6-EX



Summary for Subcatchment 7-EX: Sub 7-EX

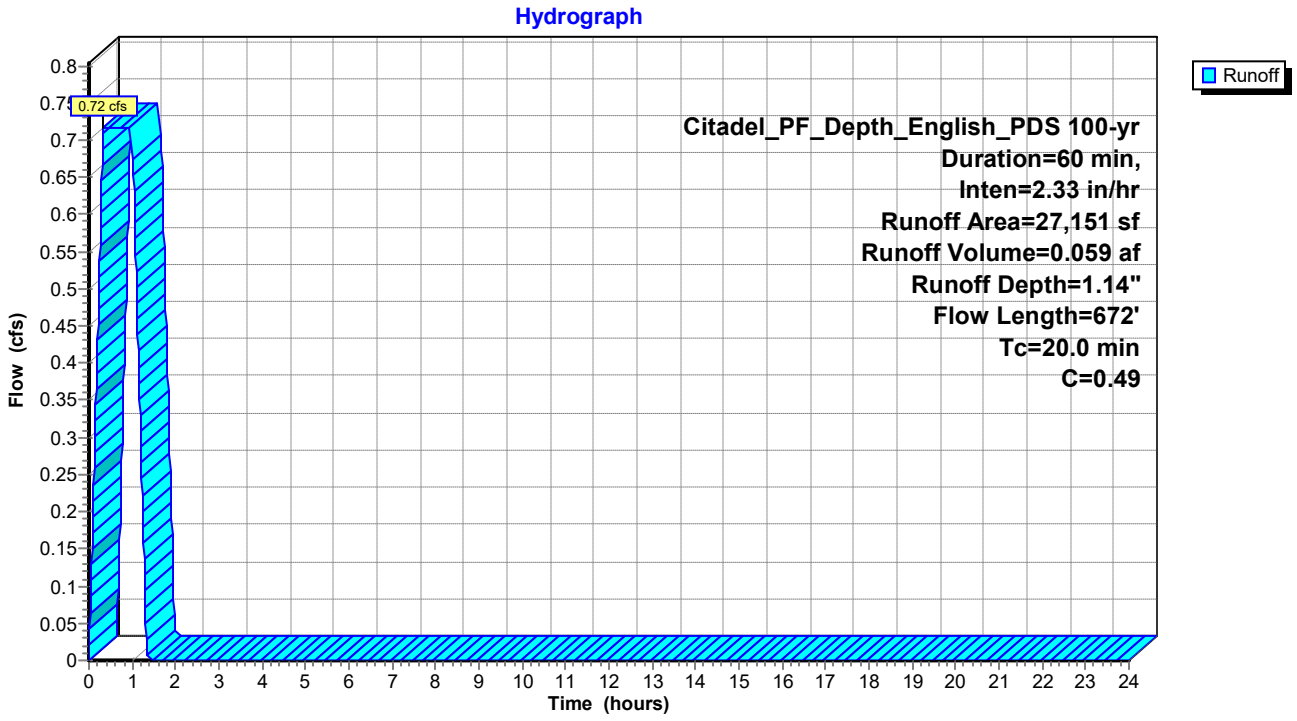
Runoff = 0.72 cfs @ 0.34 hrs, Volume= 0.059 af, Depth= 1.14"
Routed to Link EX : Existing Runoff

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Citadel_PF_Depth_English_PDS 100-yr Duration=60 min, Inten=2.33 in/hr

Area (sf)	C	Description
20,087	0.44	Undeveloped Area - 2%
474	0.89	Paved - 100%
6,590	0.61	Gravel (Packed) - 40%
27,151	0.49	Weighted Average
27,151		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	100	0.0422	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.98"
7.7	572	0.0312	1.24		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.9	672	Total, Increased to minimum Tc = 20.0 min			

Subcatchment 7-EX: Sub 7-EX

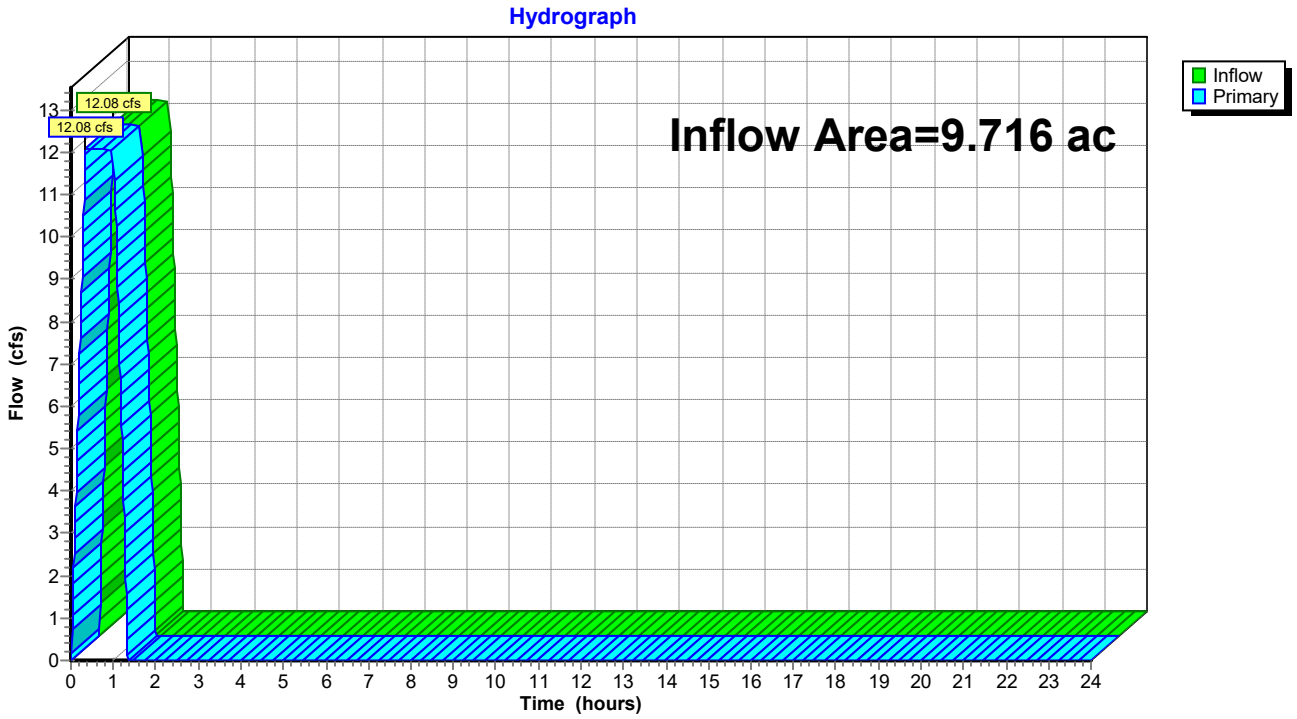


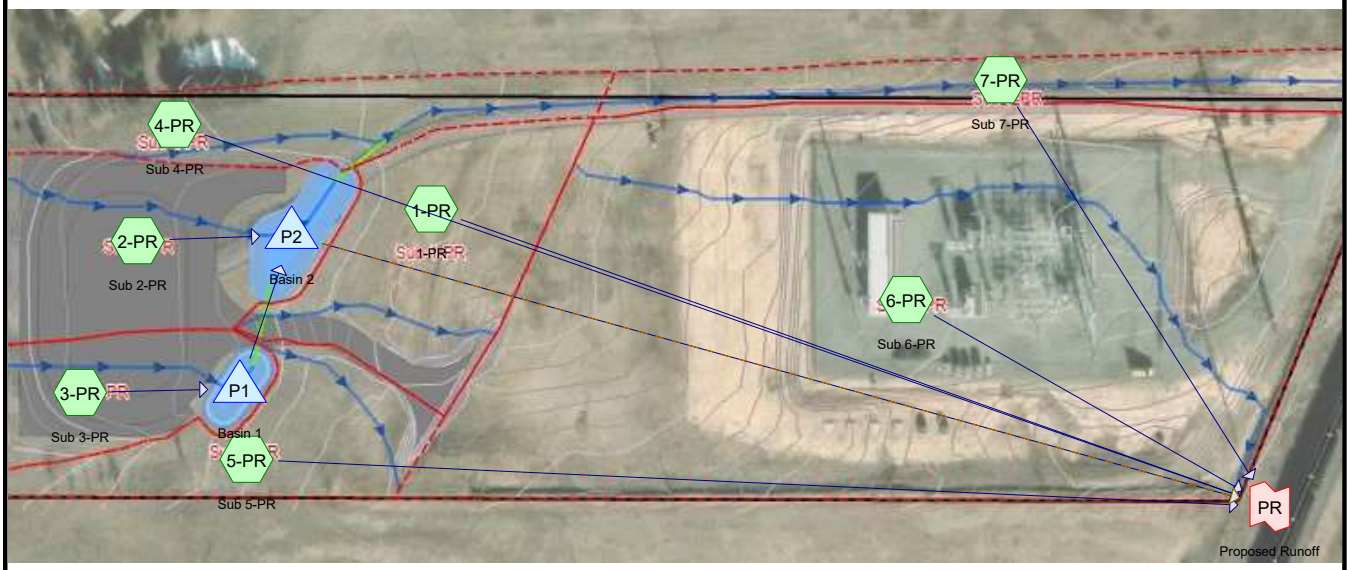
Summary for Link EX: Existing Runoff

Inflow Area = 9.716 ac, 0.00% Impervious, Inflow Depth = 1.23" for 100-yr event
Inflow = 12.08 cfs @ 0.34 hrs, Volume= 0.998 af
Primary = 12.08 cfs @ 0.35 hrs, Volume= 0.998 af, Atten= 0%, Lag= 0.6 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link EX: Existing Runoff





Subcat Reach Pond Link

Routing Diagram for Proposed_Conditions_Basin_v3
Prepared by Ulteig Operations, LLC, Printed 2/10/2026
HydroCAD® 10.20-5c s/n 02198 © 2023 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	C	Description (subcatchment-numbers)
1.306	0.61	Gravel (Packed) - 40% (1-PR, 2-PR, 3-PR, 4-PR, 5-PR, 6-PR, 7-PR)
0.177	0.89	Other Impervious - 100% (2-PR, 3-PR)
1.695	0.89	Paved - 100% (6-PR, 7-PR)
6.539	0.44	Undeveloped Area - 2% (1-PR, 2-PR, 3-PR, 4-PR, 5-PR, 6-PR, 7-PR)
9.716	**0.55**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
9.716	Other	1-PR, 2-PR, 3-PR, 4-PR, 5-PR, 6-PR, 7-PR
9.716		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	1.306	1.306	Gravel (Packed) - 40%	1-PR, 2-PR, 3-PR, 4-PR, 5-PR, 6-PR, 7-PR
0.000	0.000	0.000	0.000	0.177	0.177	Other Impervious - 100%	2-PR, 3-PR
0.000	0.000	0.000	0.000	1.695	1.695	Paved - 100%	6-PR, 7-PR
0.000	0.000	0.000	0.000	6.539	6.539	Undeveloped Area - 2%	1-PR, 2-PR, 3-PR, 4-PR, 5-PR, 6-PR, 7-PR
0.000	**0.000**	**0.000**	**0.000**	**9.716**	**9.716**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	P1	6,337.00	6,336.50	69.3	0.0072	0.010	0.0	18.0	0.0	
2	P2	6,334.00	6,333.00	141.7	0.0071	0.010	0.0	18.0	2.7	

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment 1-PR: 1-PR Runoff Area=37,522 sf 0.00% Impervious Runoff Depth=0.39"
Flow Length=228' Tc=20.0 min C=0.46 Runoff=0.34 cfs 0.028 af

Subcatchment 2-PR: Sub 2-PR Runoff Area=42,860 sf 0.00% Impervious Runoff Depth=0.51"
Flow Length=297' Tc=20.0 min C=0.60 Runoff=0.51 cfs 0.042 af

Subcatchment 3-PR: Sub 3-PR Runoff Area=24,082 sf 0.00% Impervious Runoff Depth=0.49"
Flow Length=300' Tc=20.0 min C=0.58 Runoff=0.28 cfs 0.023 af

Subcatchment 4-PR: Sub 4-PR Runoff Area=36,071 sf 0.00% Impervious Runoff Depth=0.38"
Flow Length=410' Tc=20.0 min C=0.45 Runoff=0.32 cfs 0.026 af

Subcatchment 5-PR: Sub 5-PR Runoff Area=29,300 sf 0.00% Impervious Runoff Depth=0.37"
Flow Length=207' Tc=20.0 min C=0.44 Runoff=0.25 cfs 0.021 af

Subcatchment 6-PR: Sub 6-PR Runoff Area=226,244 sf 0.00% Impervious Runoff Depth=0.50"
Flow Length=767' Tc=20.0 min C=0.59 Runoff=2.63 cfs 0.217 af

Subcatchment 7-PR: Sub 7-PR Runoff Area=27,151 sf 0.00% Impervious Runoff Depth=0.42"
Flow Length=672' Tc=20.0 min C=0.49 Runoff=0.26 cfs 0.022 af

Pond P1: Basin 1 Peak Elev=6,337.35' Storage=83 cf Inflow=0.28 cfs 0.023 af
Discarded=0.00 cfs 0.001 af Primary=0.27 cfs 0.022 af Outflow=0.28 cfs 0.023 af

Pond P2: Basin 2 Peak Elev=6,337.35' Storage=2,583 cf Inflow=0.78 cfs 0.064 af
Discarded=0.02 cfs 0.026 af Primary=0.03 cfs 0.030 af Outflow=0.05 cfs 0.056 af

Link PR: Proposed Runoff Inflow=3.83 cfs 0.344 af
Primary=3.83 cfs 0.344 af

Total Runoff Area = 9.716 ac Runoff Volume = 0.379 af Average Runoff Depth = 0.47"
100.00% Pervious = 9.716 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1-PR: 1-PR

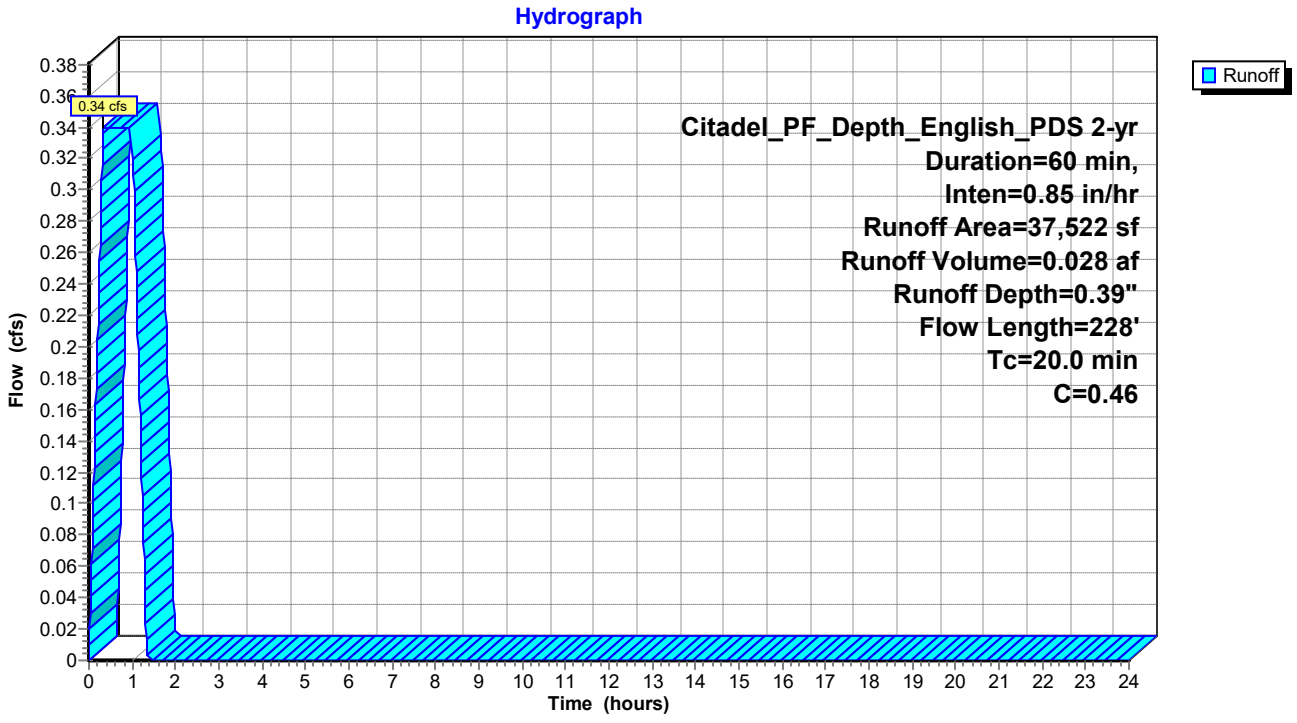
Runoff = 0.34 cfs @ 0.34 hrs, Volume= 0.028 af, Depth= 0.39"
Routed to Link PR : Proposed Runoff

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Citadel_PF_Depth_English_PDS 2-yr Duration=60 min, Inten=0.85 in/hr

Area (sf)	C	Description
32,465	0.44	Undeveloped Area - 2%
5,057	0.61	Gravel (Packed) - 40%
0	0.89	Paved - 100%
37,522	0.46	Weighted Average
37,522		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	100	0.0856	1.94		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 1.98"
1.2	128	0.0595	1.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.1	228	Total, Increased to minimum Tc = 20.0 min			

Subcatchment 1-PR: 1-PR



Summary for Subcatchment 2-PR: Sub 2-PR

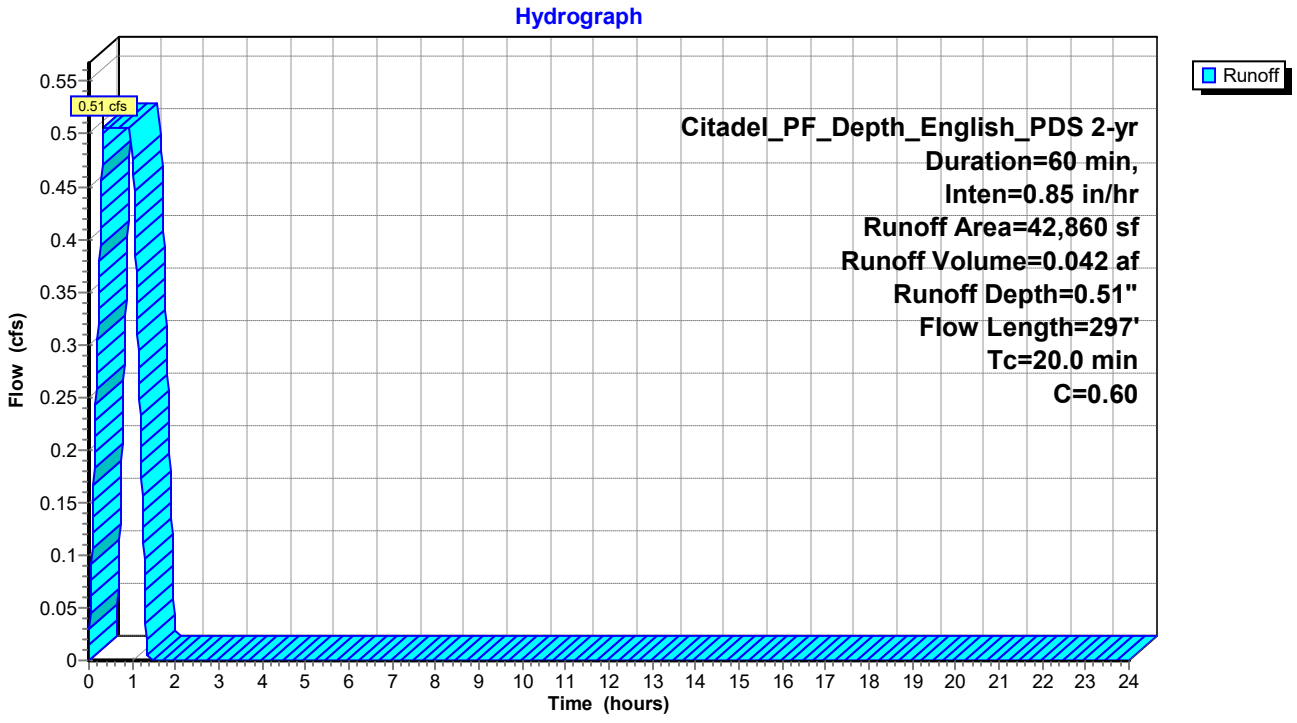
Runoff = 0.51 cfs @ 0.34 hrs, Volume= 0.042 af, Depth= 0.51"
Routed to Pond P2 : Basin 2

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Citadel_PF_Depth_English_PDS 2-yr Duration=60 min, Inten=0.85 in/hr

Area (sf)	C	Description
10,793	0.44	Undeveloped Area - 2%
26,730	0.61	Gravel (Packed) - 40%
5,337	0.89	Other Impervious - 100%
42,860	0.60	Weighted Average
42,860		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0348	1.35		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 1.98"
1.0	197	0.0392	3.19		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
2.2	297	Total, Increased to minimum Tc = 20.0 min			

Subcatchment 2-PR: Sub 2-PR



Summary for Subcatchment 3-PR: Sub 3-PR

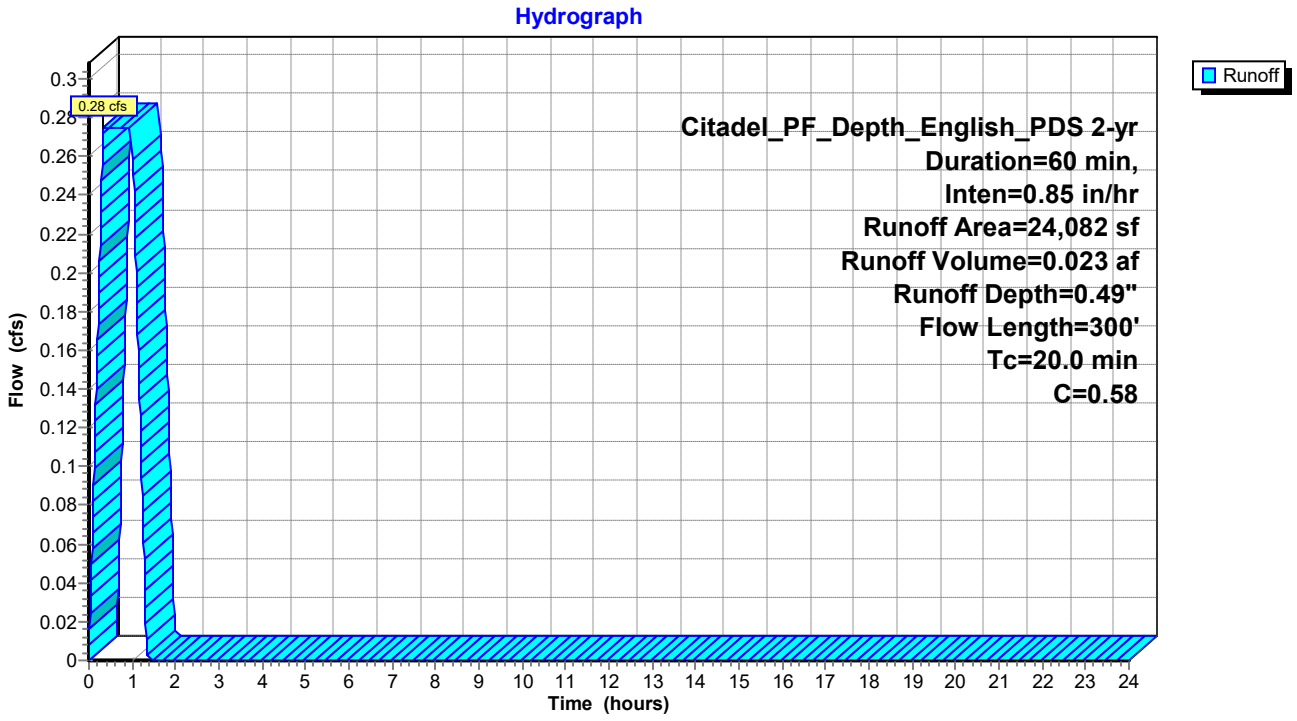
Runoff = 0.28 cfs @ 0.34 hrs, Volume= 0.023 af, Depth= 0.49"
Routed to Pond P1 : Basin 1

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Citadel_PF_Depth_English_PDS 2-yr Duration=60 min, Inten=0.85 in/hr

Area (sf)	C	Description
13,057	0.61	Gravel (Packed) - 40%
8,659	0.44	Undeveloped Area - 2%
2,366	0.89	Other Impervious - 100%
24,082	0.58	Weighted Average
24,082		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	100	0.1574	0.31		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.98"
1.3	200	0.0243	2.51		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
6.8	300	Total, Increased to minimum Tc = 20.0 min			

Subcatchment 3-PR: Sub 3-PR



Summary for Subcatchment 4-PR: Sub 4-PR

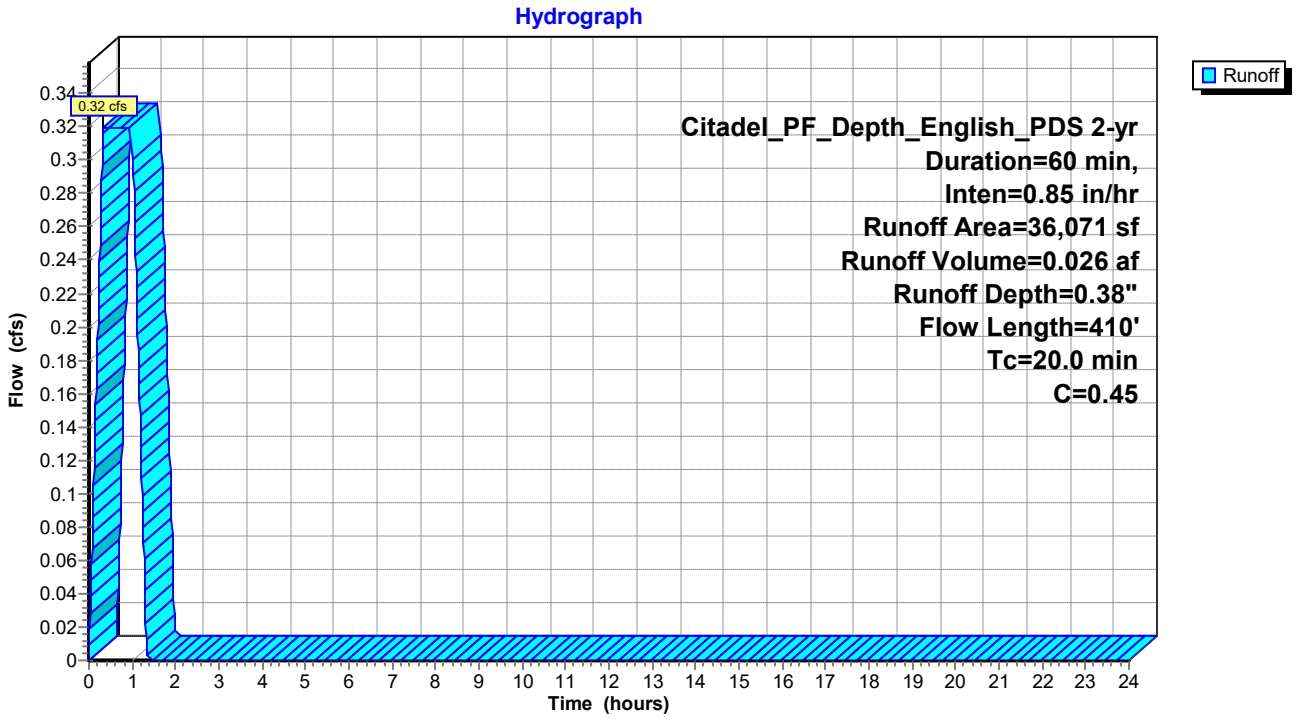
Runoff = 0.32 cfs @ 0.34 hrs, Volume= 0.026 af, Depth= 0.38"
Routed to Link PR : Proposed Runoff

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Citadel_PF_Depth_English_PDS 2-yr Duration=60 min, Inten=0.85 in/hr

Area (sf)	C	Description
34,680	0.44	Undeveloped Area - 2%
0	0.89	Paved - 100%
1,391	0.61	Gravel (Packed) - 40%
36,071	0.45	Weighted Average
36,071		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	100	0.0572	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.98"
3.6	310	0.0421	1.44		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.8	410	Total, Increased to minimum Tc = 20.0 min			

Subcatchment 4-PR: Sub 4-PR



Summary for Subcatchment 5-PR: Sub 5-PR

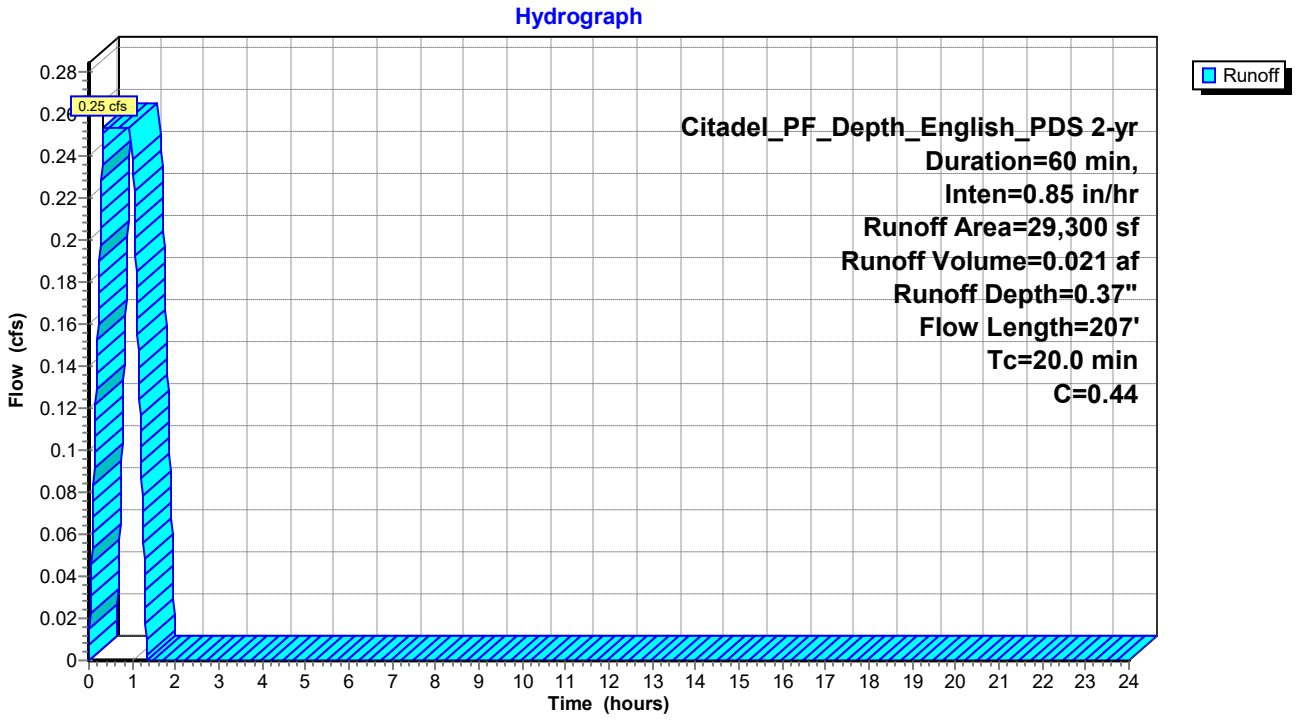
Runoff = 0.25 cfs @ 0.34 hrs, Volume= 0.021 af, Depth= 0.37"
Routed to Link PR : Proposed Runoff

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Citadel_PF_Depth_English_PDS 2-yr Duration=60 min, Inten=0.85 in/hr

Area (sf)	C	Description
28,482	0.44	Undeveloped Area - 2%
0	0.89	Paved - 100%
818	0.61	Gravel (Packed) - 40%
29,300	0.44	Weighted Average
29,300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5	100	0.1016	0.26		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.98"
1.0	107	0.0664	1.80		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
7.5	207	Total, Increased to minimum Tc = 20.0 min			

Subcatchment 5-PR: Sub 5-PR



Summary for Subcatchment 6-PR: Sub 6-PR

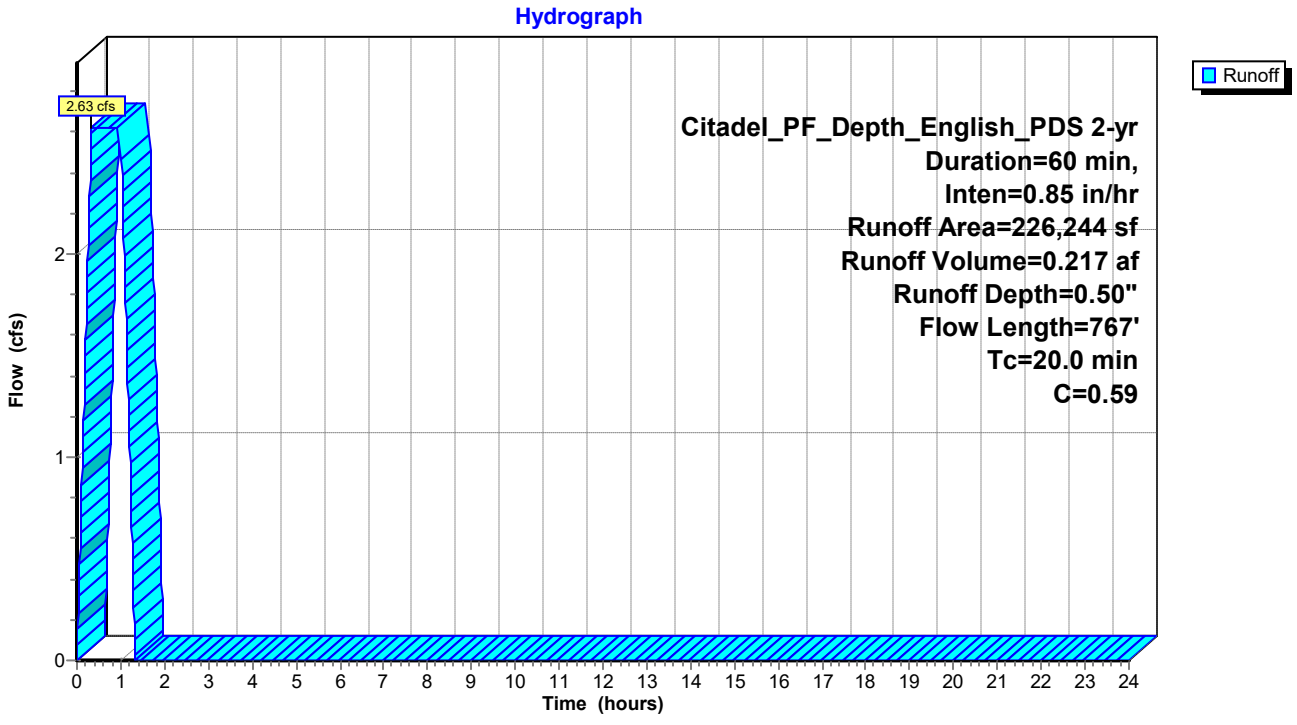
Runoff = 2.63 cfs @ 0.34 hrs, Volume= 0.217 af, Depth= 0.50"
Routed to Link PR : Proposed Runoff

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Citadel_PF_Depth_English_PDS 2-yr Duration=60 min, Inten=0.85 in/hr

Area (sf)	C	Description
149,666	0.44	Undeveloped Area - 2%
3,234	0.61	Gravel (Packed) - 40%
73,344	0.89	Paved - 100%
226,244	0.59	Weighted Average
226,244		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	100	0.0448	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.98"
2.9	667	0.0346	3.78		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
11.9	767	Total, Increased to minimum Tc = 20.0 min			

Subcatchment 6-PR: Sub 6-PR



Summary for Subcatchment 7-PR: Sub 7-PR

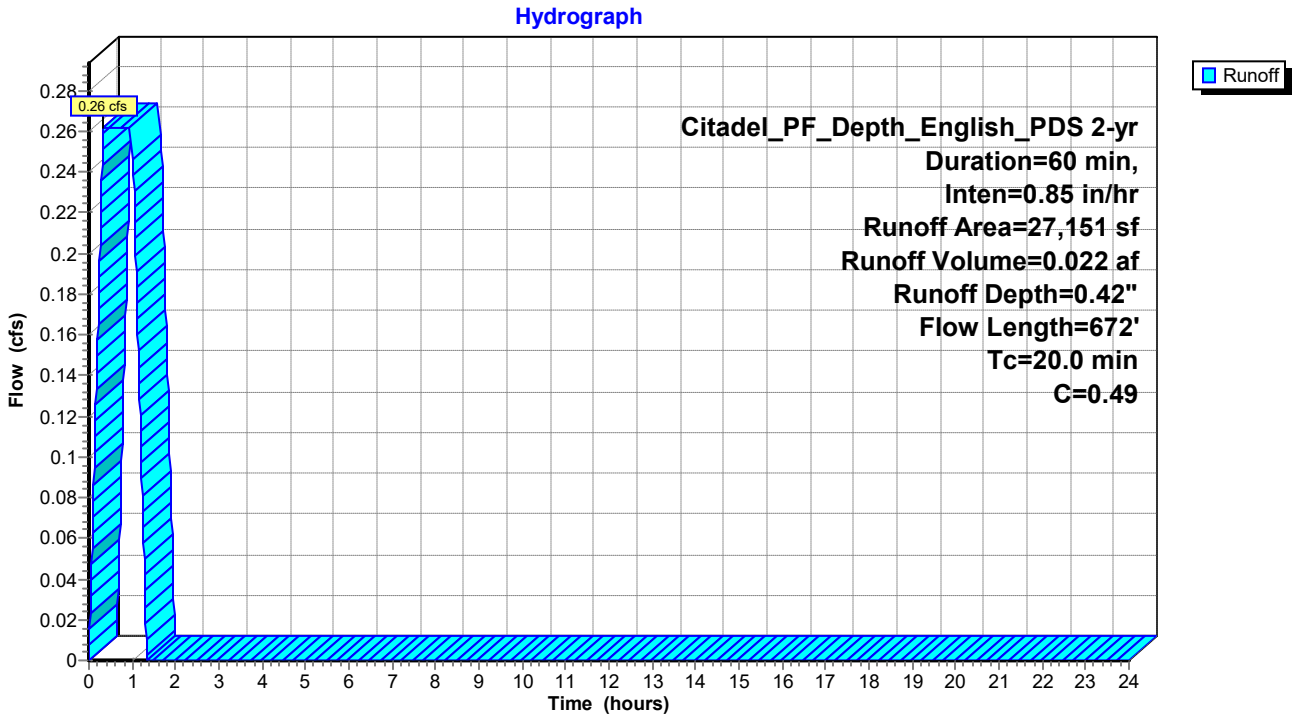
Runoff = 0.26 cfs @ 0.34 hrs, Volume= 0.022 af, Depth= 0.42"
Routed to Link PR : Proposed Runoff

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Citadel_PF_Depth_English_PDS 2-yr Duration=60 min, Inten=0.85 in/hr

Area (sf)	C	Description
20,087	0.44	Undeveloped Area - 2%
474	0.89	Paved - 100%
6,590	0.61	Gravel (Packed) - 40%
27,151	0.49	Weighted Average
27,151		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	100	0.0422	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.98"
7.7	572	0.0312	1.24		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.9	672	Total, Increased to minimum Tc = 20.0 min			

Subcatchment 7-PR: Sub 7-PR



Summary for Pond P1: Basin 1

Inflow Area = 0.553 ac, 0.00% Impervious, Inflow Depth = 0.49" for 2-yr event
Inflow = 0.28 cfs @ 0.34 hrs, Volume= 0.023 af
Outflow = 0.28 cfs @ 0.63 hrs, Volume= 0.023 af, Atten= 0%, Lag= 17.4 min
Discarded = 0.00 cfs @ 1.32 hrs, Volume= 0.001 af
Primary = 0.27 cfs @ 0.63 hrs, Volume= 0.022 af
Routed to Pond P2 : Basin 2

Routing by Sim-Route method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 6,337.35' @ 1.32 hrs Surf.Area= 301 sf Storage= 83 cf

Plug-Flow detention time= 17.0 min calculated for 0.023 af (100% of inflow)
Center-of-Mass det. time= 17.1 min (57.1 - 40.0)

Volume	Invert	Avail.Storage	Storage Description
#1	6,337.00'	4,514 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

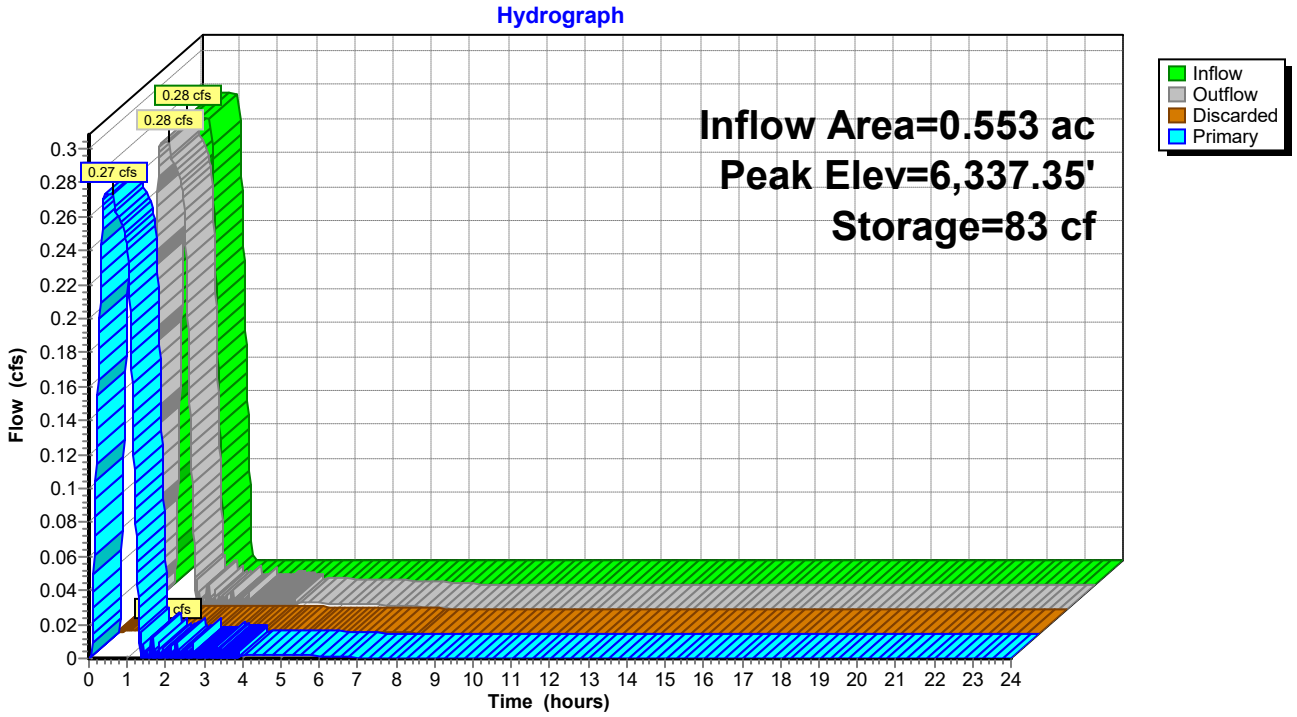
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6,337.00	171	0	0
6,338.00	539	355	355
6,339.00	1,048	794	1,149
6,340.00	1,657	1,353	2,501
6,341.00	2,369	2,013	4,514

Device	Routing	Invert	Outlet Devices
#1	Primary	6,337.00'	**18.0" Round Culvert** L= 69.3' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 6,337.00' / 6,336.50' S= 0.0072 '/' Cc= 0.900 n= 0.010, Flow Area= 1.77 sf
#2	Discarded	6,337.00'	**0.300 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.00 cfs @ 1.32 hrs HW=6,337.35' (Free Discharge)
↑**2=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.27 cfs @ 0.63 hrs HW=6,337.23' TW=6,336.72' (Dynamic Tailwater)
↑**1=Culvert** (Outlet Controls 0.27 cfs @ 2.45 fps)

Pond P1: Basin 1



Summary for Pond P2: Basin 2

Inflow Area = 1.537 ac, 0.00% Impervious, Inflow Depth = 0.50" for 2-yr event
Inflow = 0.78 cfs @ 0.63 hrs, Volume= 0.064 af
Outflow = 0.05 cfs @ 1.32 hrs, Volume= 0.056 af, Atten= 94%, Lag= 41.2 min
Discarded = 0.02 cfs @ 1.32 hrs, Volume= 0.026 af
Primary = 0.03 cfs @ 1.32 hrs, Volume= 0.030 af
Routed to Link PR : Proposed Runoff

Routing by Sim-Route method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 6,337.35' @ 1.32 hrs Surf.Area= 2,498 sf Storage= 2,583 cf

Plug-Flow detention time= 559.2 min calculated for 0.056 af (89% of inflow)
Center-of-Mass det. time= 553.4 min (596.7 - 43.3)

Volume	Invert	Avail.Storage	Storage Description
#1	6,336.00'	13,064 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

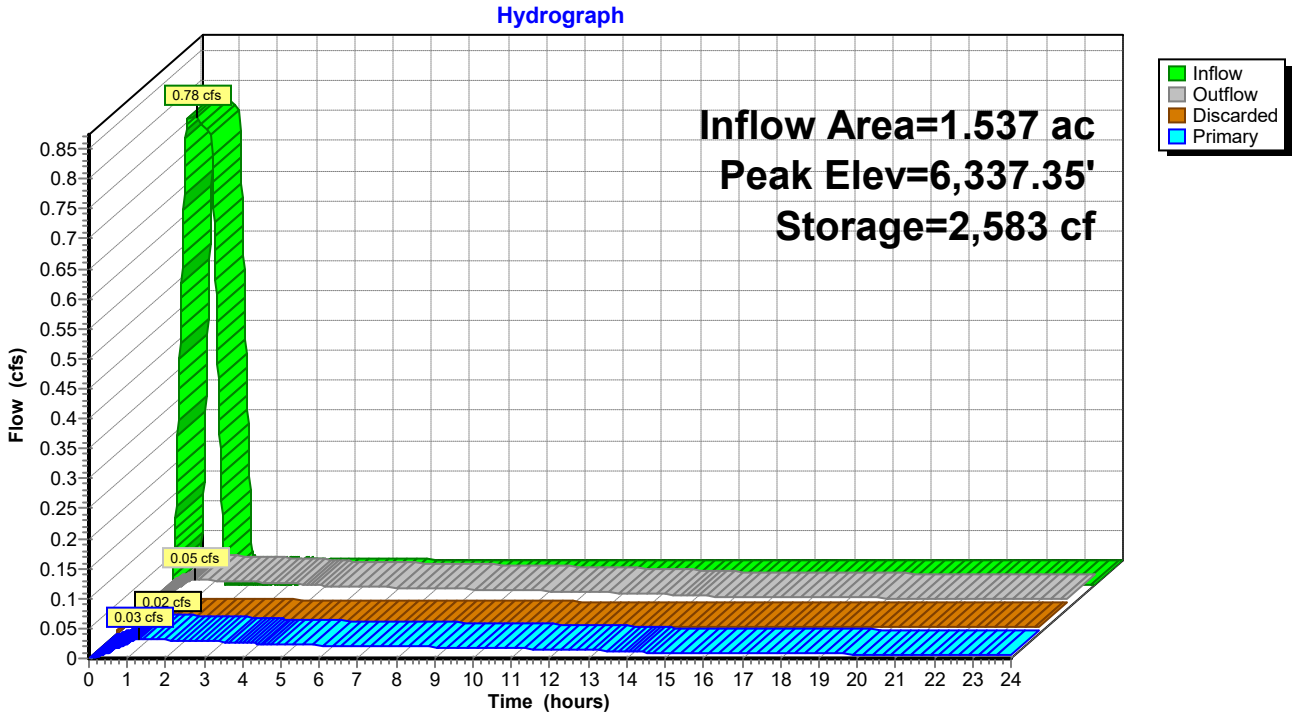
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6,336.00	1,644	0	0
6,336.50	1,644	822	822
6,337.00	2,134	945	1,767
6,338.00	3,166	2,650	4,417
6,339.00	4,298	3,732	8,149
6,340.00	5,533	4,916	13,064

Device	Routing	Invert	Outlet Devices
#1	Discarded	6,336.00'	**0.300 in/hr Exfiltration over Surface area**
#2	Primary	6,334.23'	**18.0" Round Culvert w/ 2.7" inside fill** L= 141.7' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 6,334.00' / 6,333.00' S= 0.0071 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.60 sf
#3	Device 2	6,336.00'	**0.7" Vert. Orifice/Grate** X 3 rows with 6.7" cc spacing C= 0.600 Limited to weir flow at low heads
#4	Primary	6,339.00'	**2.0' long + 4.0 '/' SideZ x 12.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#5	Device 2	6,338.28'	**36.0" W x 12.0" H 14° Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.02 cfs @ 1.32 hrs HW=6,337.35' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.03 cfs @ 1.32 hrs HW=6,337.35' TW=0.00' (Dynamic Tailwater)
├**2=Culvert** (Passes 0.03 cfs of 12.15 cfs potential flow)
│ ├**3=Orifice/Grate** (Orifice Controls 0.03 cfs @ 3.98 fps)
│ └**5=Orifice/Grate** (Controls 0.00 cfs)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P2: Basin 2

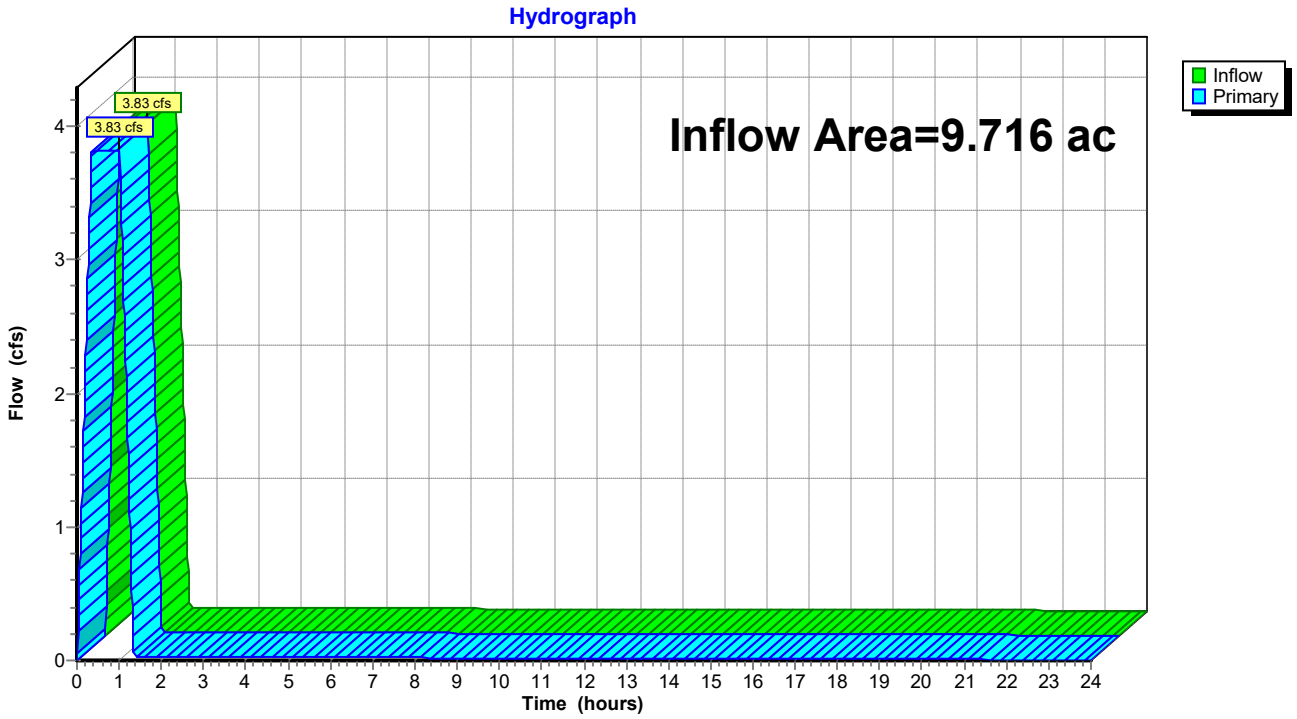


Summary for Link PR: Proposed Runoff

Inflow Area = 9.716 ac, 0.00% Impervious, Inflow Depth > 0.43" for 2-yr event
Inflow = 3.83 cfs @ 1.00 hrs, Volume= 0.344 af
Primary = 3.83 cfs @ 1.01 hrs, Volume= 0.344 af, Atten= 0%, Lag= 0.6 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link PR: Proposed Runoff



Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment 1-PR: 1-PR Runoff Area=37,522 sf 0.00% Impervious Runoff Depth=1.07"
Flow Length=228' Tc=20.0 min C=0.46 Runoff=0.93 cfs 0.077 af

Subcatchment 2-PR: Sub 2-PR Runoff Area=42,860 sf 0.00% Impervious Runoff Depth=1.40"
Flow Length=297' Tc=20.0 min C=0.60 Runoff=1.39 cfs 0.115 af

Subcatchment 3-PR: Sub 3-PR Runoff Area=24,082 sf 0.00% Impervious Runoff Depth=1.35"
Flow Length=300' Tc=20.0 min C=0.58 Runoff=0.75 cfs 0.062 af

Subcatchment 4-PR: Sub 4-PR Runoff Area=36,071 sf 0.00% Impervious Runoff Depth=1.05"
Flow Length=410' Tc=20.0 min C=0.45 Runoff=0.88 cfs 0.072 af

Subcatchment 5-PR: Sub 5-PR Runoff Area=29,300 sf 0.00% Impervious Runoff Depth=1.03"
Flow Length=207' Tc=20.0 min C=0.44 Runoff=0.70 cfs 0.057 af

Subcatchment 6-PR: Sub 6-PR Runoff Area=226,244 sf 0.00% Impervious Runoff Depth=1.37"
Flow Length=767' Tc=20.0 min C=0.59 Runoff=7.20 cfs 0.595 af

Subcatchment 7-PR: Sub 7-PR Runoff Area=27,151 sf 0.00% Impervious Runoff Depth=1.14"
Flow Length=672' Tc=20.0 min C=0.49 Runoff=0.72 cfs 0.059 af

Pond P1: Basin 1 Peak Elev=6,338.48' Storage=676 cf Inflow=0.75 cfs 0.062 af
Discarded=0.01 cfs 0.005 af Primary=1.01 cfs 0.057 af Outflow=1.02 cfs 0.062 af

Pond P2: Basin 2 Peak Elev=6,338.48' Storage=6,052 cf Inflow=2.28 cfs 0.172 af
Discarded=0.03 cfs 0.038 af Primary=1.06 cfs 0.101 af Outflow=1.09 cfs 0.138 af

Link PR: Proposed Runoff Inflow=10.72 cfs 0.962 af
Primary=10.72 cfs 0.962 af

Total Runoff Area = 9.716 ac Runoff Volume = 1.038 af Average Runoff Depth = 1.28"
100.00% Pervious = 9.716 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1-PR: 1-PR

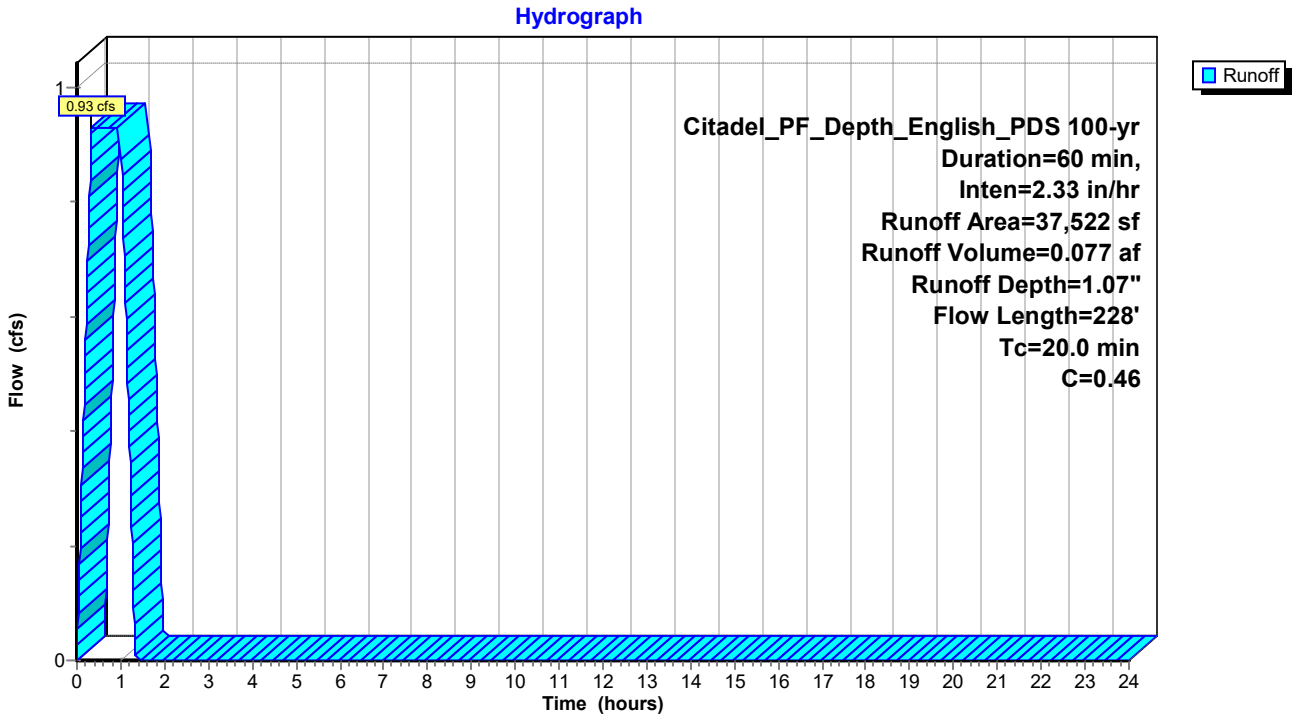
Runoff = 0.93 cfs @ 0.34 hrs, Volume= 0.077 af, Depth= 1.07"
Routed to Link PR : Proposed Runoff

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Citadel_PF_Depth_English_PDS 100-yr Duration=60 min, Inten=2.33 in/hr

Area (sf)	C	Description
32,465	0.44	Undeveloped Area - 2%
5,057	0.61	Gravel (Packed) - 40%
0	0.89	Paved - 100%
37,522	0.46	Weighted Average
37,522		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	100	0.0856	1.94		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 1.98"
1.2	128	0.0595	1.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.1	228	Total, Increased to minimum Tc = 20.0 min			

Subcatchment 1-PR: 1-PR



Summary for Subcatchment 2-PR: Sub 2-PR

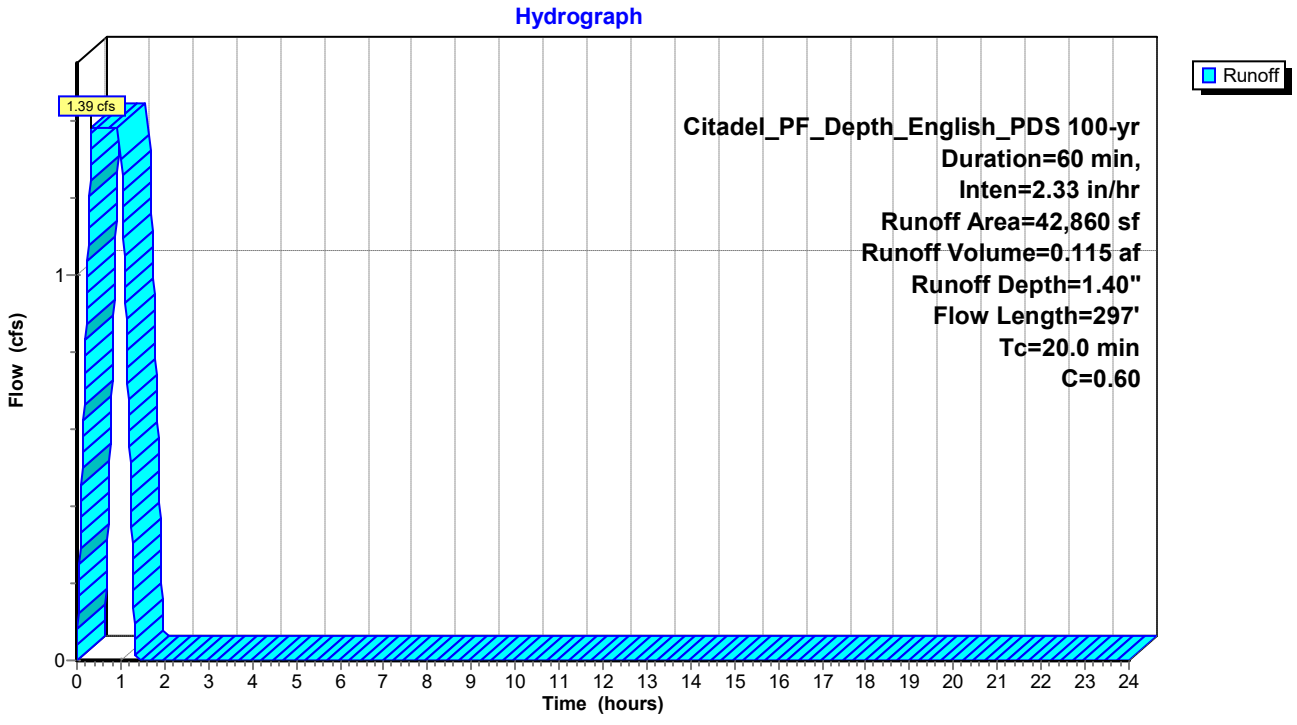
Runoff = 1.39 cfs @ 0.34 hrs, Volume= 0.115 af, Depth= 1.40"
Routed to Pond P2 : Basin 2

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Citadel_PF_Depth_English_PDS 100-yr Duration=60 min, Inten=2.33 in/hr

Area (sf)	C	Description
10,793	0.44	Undeveloped Area - 2%
26,730	0.61	Gravel (Packed) - 40%
5,337	0.89	Other Impervious - 100%
42,860	0.60	Weighted Average
42,860		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0348	1.35		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 1.98"
1.0	197	0.0392	3.19		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
2.2	297	Total, Increased to minimum Tc = 20.0 min			

Subcatchment 2-PR: Sub 2-PR



Summary for Subcatchment 3-PR: Sub 3-PR

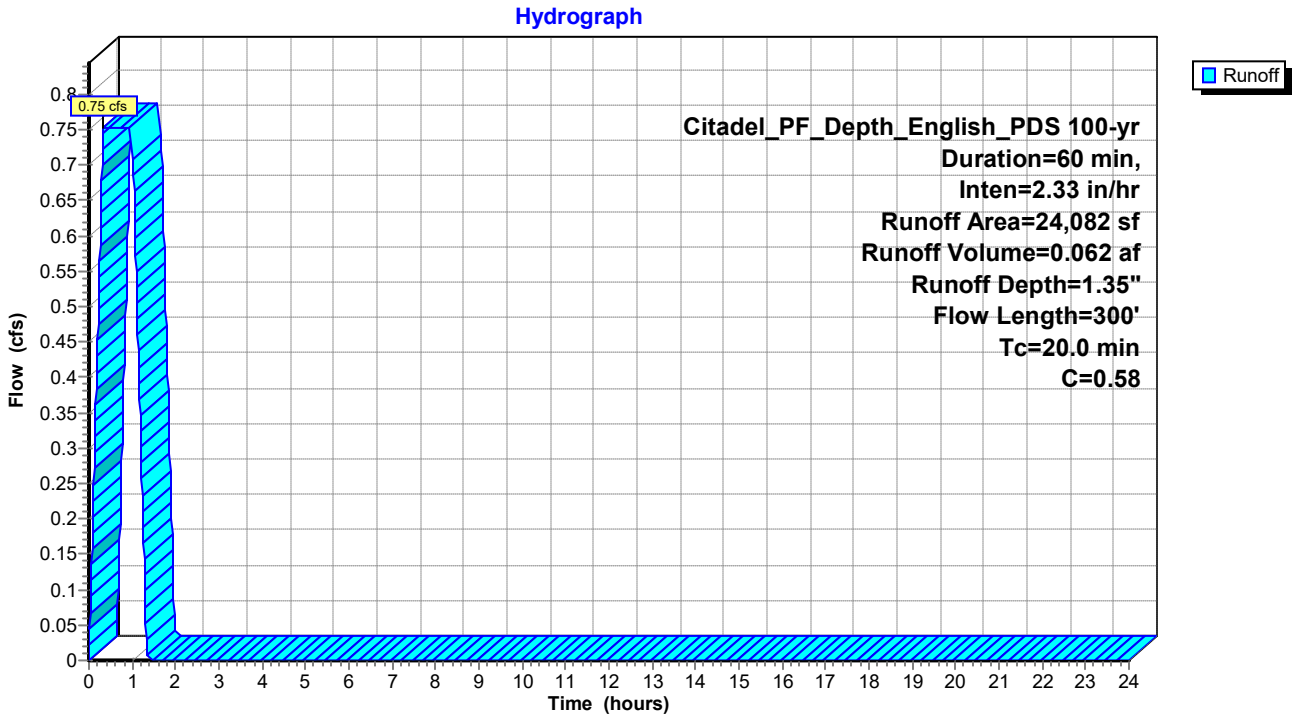
Runoff = 0.75 cfs @ 0.34 hrs, Volume= 0.062 af, Depth= 1.35"
Routed to Pond P1 : Basin 1

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Citadel_PF_Depth_English_PDS 100-yr Duration=60 min, Inten=2.33 in/hr

Area (sf)	C	Description
13,057	0.61	Gravel (Packed) - 40%
8,659	0.44	Undeveloped Area - 2%
2,366	0.89	Other Impervious - 100%
24,082	0.58	Weighted Average
24,082		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	100	0.1574	0.31		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.98"
1.3	200	0.0243	2.51		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
6.8	300	Total, Increased to minimum Tc = 20.0 min			

Subcatchment 3-PR: Sub 3-PR



Summary for Subcatchment 4-PR: Sub 4-PR

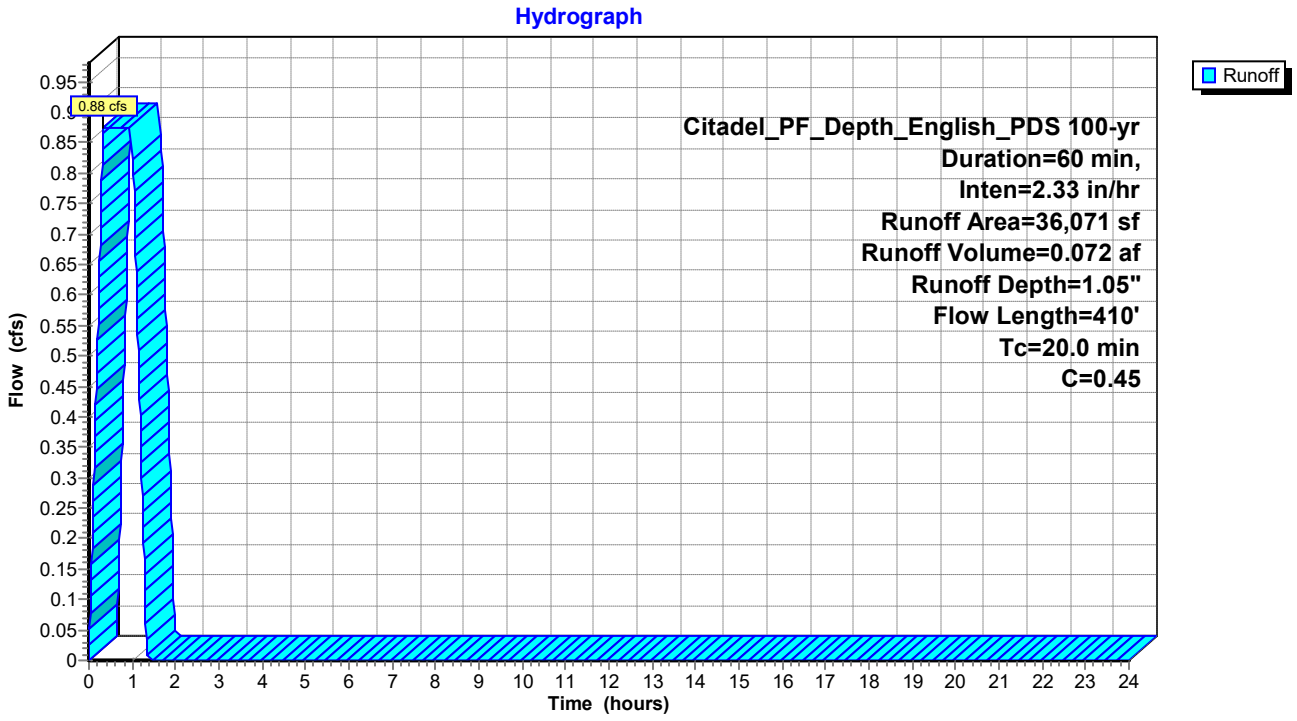
Runoff = 0.88 cfs @ 0.34 hrs, Volume= 0.072 af, Depth= 1.05"
Routed to Link PR : Proposed Runoff

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Citadel_PF_Depth_English_PDS 100-yr Duration=60 min, Inten=2.33 in/hr

Area (sf)	C	Description
34,680	0.44	Undeveloped Area - 2%
0	0.89	Paved - 100%
1,391	0.61	Gravel (Packed) - 40%
36,071	0.45	Weighted Average
36,071		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	100	0.0572	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.98"
3.6	310	0.0421	1.44		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.8	410	Total, Increased to minimum Tc = 20.0 min			

Subcatchment 4-PR: Sub 4-PR



Summary for Subcatchment 5-PR: Sub 5-PR

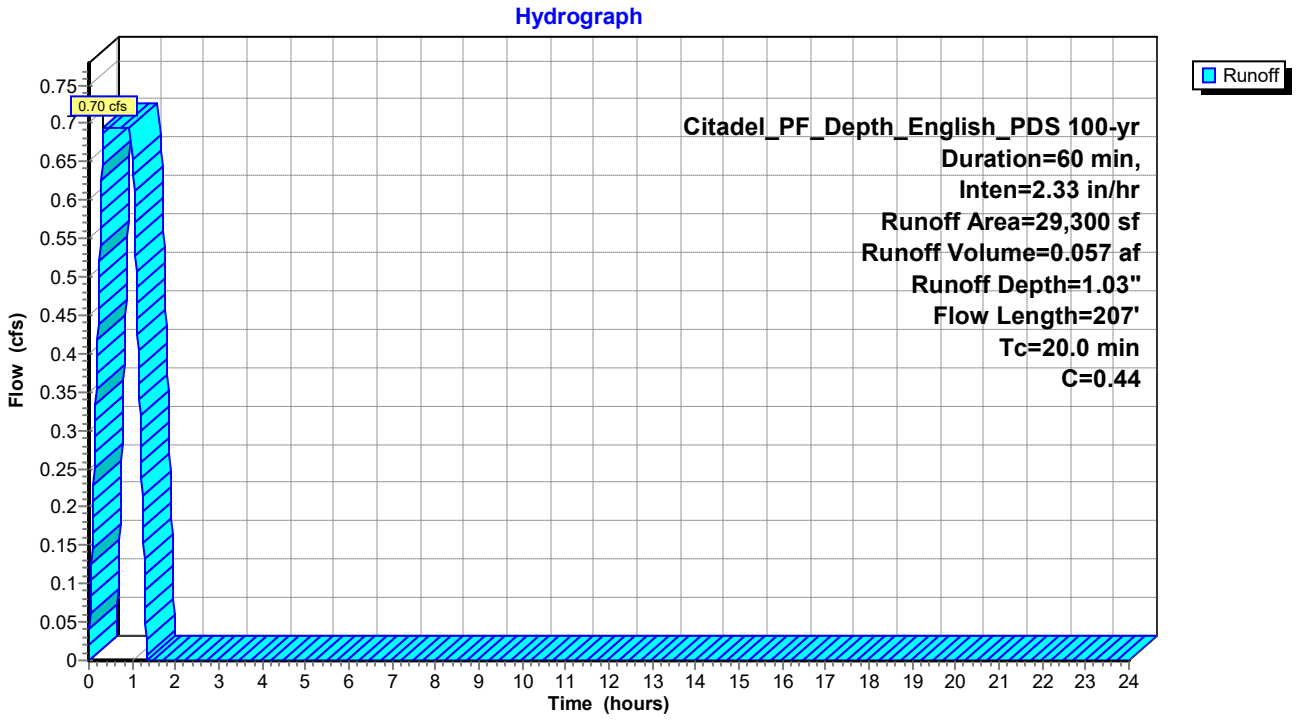
Runoff = 0.70 cfs @ 0.34 hrs, Volume= 0.057 af, Depth= 1.03"
Routed to Link PR : Proposed Runoff

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Citadel_PF_Depth_English_PDS 100-yr Duration=60 min, Inten=2.33 in/hr

Area (sf)	C	Description
28,482	0.44	Undeveloped Area - 2%
0	0.89	Paved - 100%
818	0.61	Gravel (Packed) - 40%
29,300	0.44	Weighted Average
29,300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5	100	0.1016	0.26		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.98"
1.0	107	0.0664	1.80		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
7.5	207	Total, Increased to minimum Tc = 20.0 min			

Subcatchment 5-PR: Sub 5-PR



Summary for Subcatchment 6-PR: Sub 6-PR

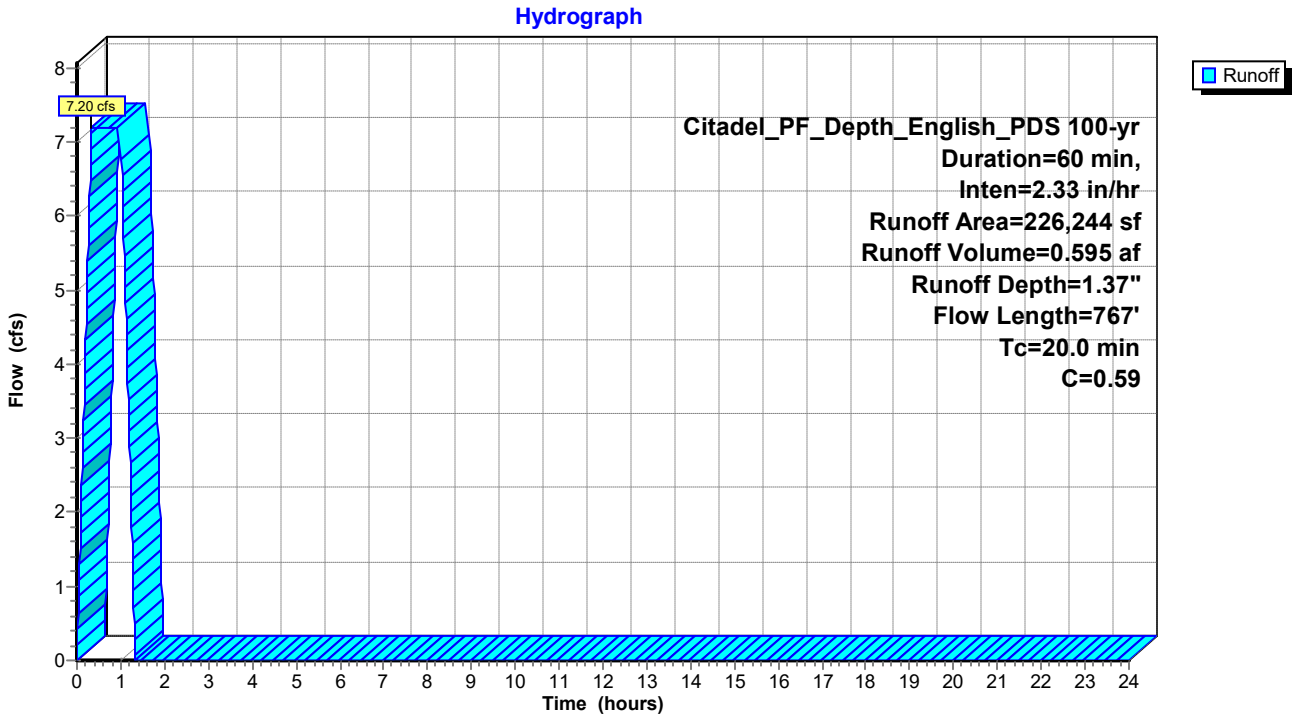
Runoff = 7.20 cfs @ 0.34 hrs, Volume= 0.595 af, Depth= 1.37"
Routed to Link PR : Proposed Runoff

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Citadel_PF_Depth_English_PDS 100-yr Duration=60 min, Inten=2.33 in/hr

Area (sf)	C	Description
149,666	0.44	Undeveloped Area - 2%
3,234	0.61	Gravel (Packed) - 40%
73,344	0.89	Paved - 100%
226,244	0.59	Weighted Average
226,244		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	100	0.0448	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.98"
2.9	667	0.0346	3.78		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
11.9	767	Total, Increased to minimum Tc = 20.0 min			

Subcatchment 6-PR: Sub 6-PR



Summary for Subcatchment 7-PR: Sub 7-PR

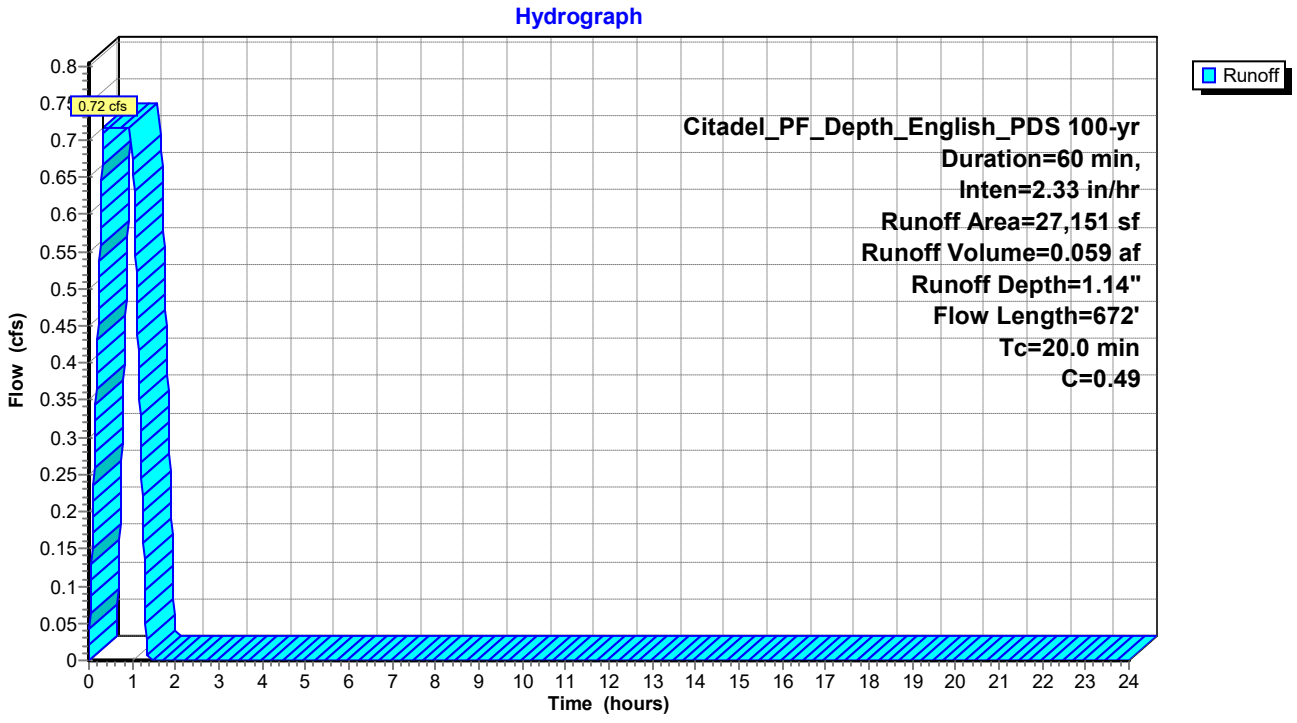
Runoff = 0.72 cfs @ 0.34 hrs, Volume= 0.059 af, Depth= 1.14"
Routed to Link PR : Proposed Runoff

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Citadel_PF_Depth_English_PDS 100-yr Duration=60 min, Inten=2.33 in/hr

Area (sf)	C	Description
20,087	0.44	Undeveloped Area - 2%
474	0.89	Paved - 100%
6,590	0.61	Gravel (Packed) - 40%
27,151	0.49	Weighted Average
27,151		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	100	0.0422	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.98"
7.7	572	0.0312	1.24		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.9	672	Total, Increased to minimum Tc = 20.0 min			

Subcatchment 7-PR: Sub 7-PR



Summary for Pond P1: Basin 1

Inflow Area = 0.553 ac, 0.00% Impervious, Inflow Depth = 1.35" for 100-yr event
Inflow = 0.75 cfs @ 0.34 hrs, Volume= 0.062 af
Outflow = 1.02 cfs @ 1.03 hrs, Volume= 0.062 af, Atten= 0%, Lag= 41.4 min
Discarded = 0.01 cfs @ 1.19 hrs, Volume= 0.005 af
Primary = 1.01 cfs @ 1.03 hrs, Volume= 0.057 af
Routed to Pond P2 : Basin 2

Routing by Sim-Route method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 6,338.48' @ 1.19 hrs Surf.Area= 786 sf Storage= 676 cf

Plug-Flow detention time= 105.5 min calculated for 0.062 af (100% of inflow)
Center-of-Mass det. time= 106.0 min (146.0 - 40.0)

Volume	Invert	Avail.Storage	Storage Description
#1	6,337.00'	4,514 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

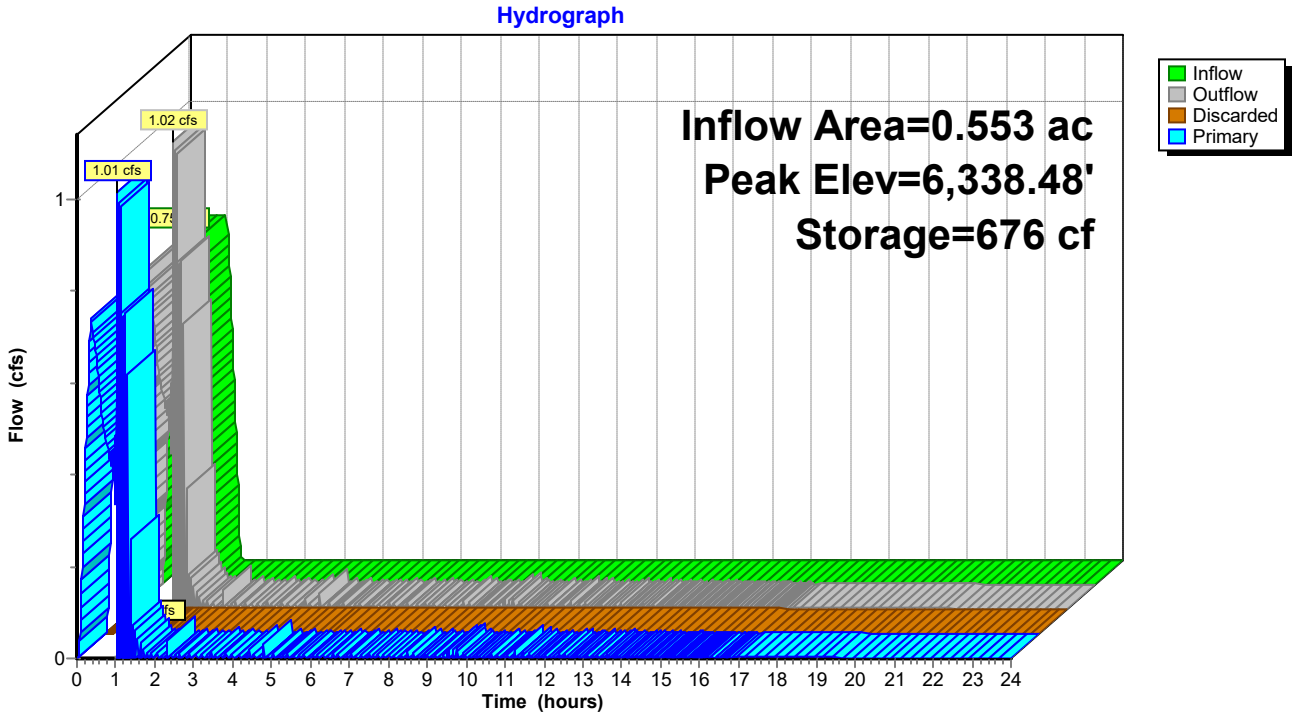
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6,337.00	171	0	0
6,338.00	539	355	355
6,339.00	1,048	794	1,149
6,340.00	1,657	1,353	2,501
6,341.00	2,369	2,013	4,514

Device	Routing	Invert	Outlet Devices
#1	Primary	6,337.00'	**18.0" Round Culvert** L= 69.3' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 6,337.00' / 6,336.50' S= 0.0072 '/' Cc= 0.900 n= 0.010, Flow Area= 1.77 sf
#2	Discarded	6,337.00'	**0.300 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.01 cfs @ 1.19 hrs HW=6,338.48' (Free Discharge)
↑**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.76 cfs @ 1.03 hrs HW=6,338.41' TW=6,338.40' (Dynamic Tailwater)
↑**1=Culvert** (Outlet Controls 0.76 cfs @ 0.57 fps)

Pond P1: Basin 1



Summary for Pond P2: Basin 2

Inflow Area = 1.537 ac, 0.00% Impervious, Inflow Depth = 1.34" for 100-yr event
Inflow = 2.28 cfs @ 1.03 hrs, Volume= 0.172 af
Outflow = 1.09 cfs @ 1.16 hrs, Volume= 0.138 af, Atten= 52%, Lag= 7.8 min
Discarded = 0.03 cfs @ 1.16 hrs, Volume= 0.038 af
Primary = 1.06 cfs @ 1.16 hrs, Volume= 0.101 af
Routed to Link PR : Proposed Runoff

Routing by Sim-Route method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 6,338.48' @ 1.16 hrs Surf.Area= 3,705 sf Storage= 6,052 cf

Plug-Flow detention time= 473.7 min calculated for 0.138 af (81% of inflow)
Center-of-Mass det. time= 445.3 min (508.7 - 63.4)

Volume	Invert	Avail.Storage	Storage Description
#1	6,336.00'	13,064 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

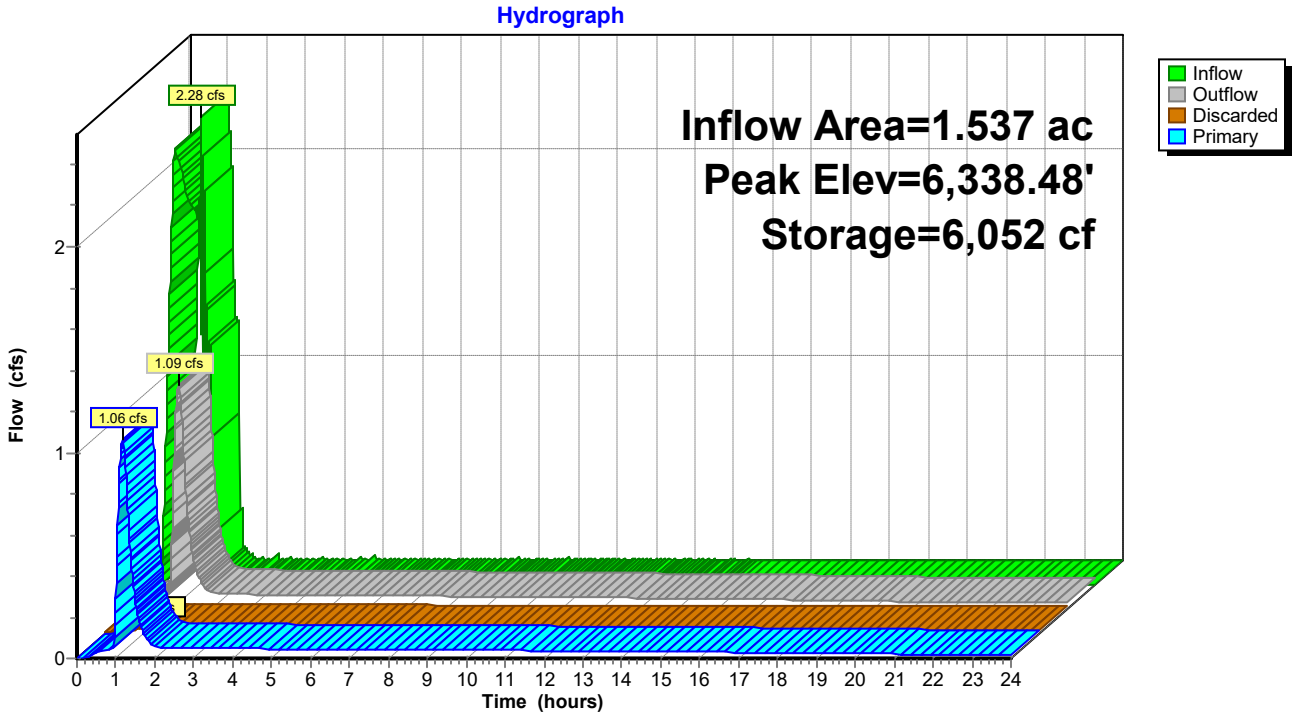
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6,336.00	1,644	0	0
6,336.50	1,644	822	822
6,337.00	2,134	945	1,767
6,338.00	3,166	2,650	4,417
6,339.00	4,298	3,732	8,149
6,340.00	5,533	4,916	13,064

Device	Routing	Invert	Outlet Devices
#1	Discarded	6,336.00'	**0.300 in/hr Exfiltration over Surface area**
#2	Primary	6,334.23'	**18.0" Round Culvert w/ 2.7" inside fill** L= 141.7' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 6,334.00' / 6,333.00' S= 0.0071 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.60 sf
#3	Device 2	6,336.00'	**0.7" Vert. Orifice/Grate** X 3 rows with 6.7" cc spacing C= 0.600 Limited to weir flow at low heads
#4	Primary	6,339.00'	**2.0' long + 4.0 '/' SideZ x 12.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#5	Device 2	6,338.28'	**36.0" W x 12.0" H 14° Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 1.16 hrs HW=6,338.48' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=1.06 cfs @ 1.16 hrs HW=6,338.48' TW=0.00' (Dynamic Tailwater)
├**2=Culvert** (Passes 1.06 cfs of 14.34 cfs potential flow)
│ ├**3=Orifice/Grate** (Orifice Controls 0.05 cfs @ 6.57 fps)
│ └**5=Orifice/Grate** (Weir Controls 1.01 cfs @ 1.36 fps)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P2: Basin 2

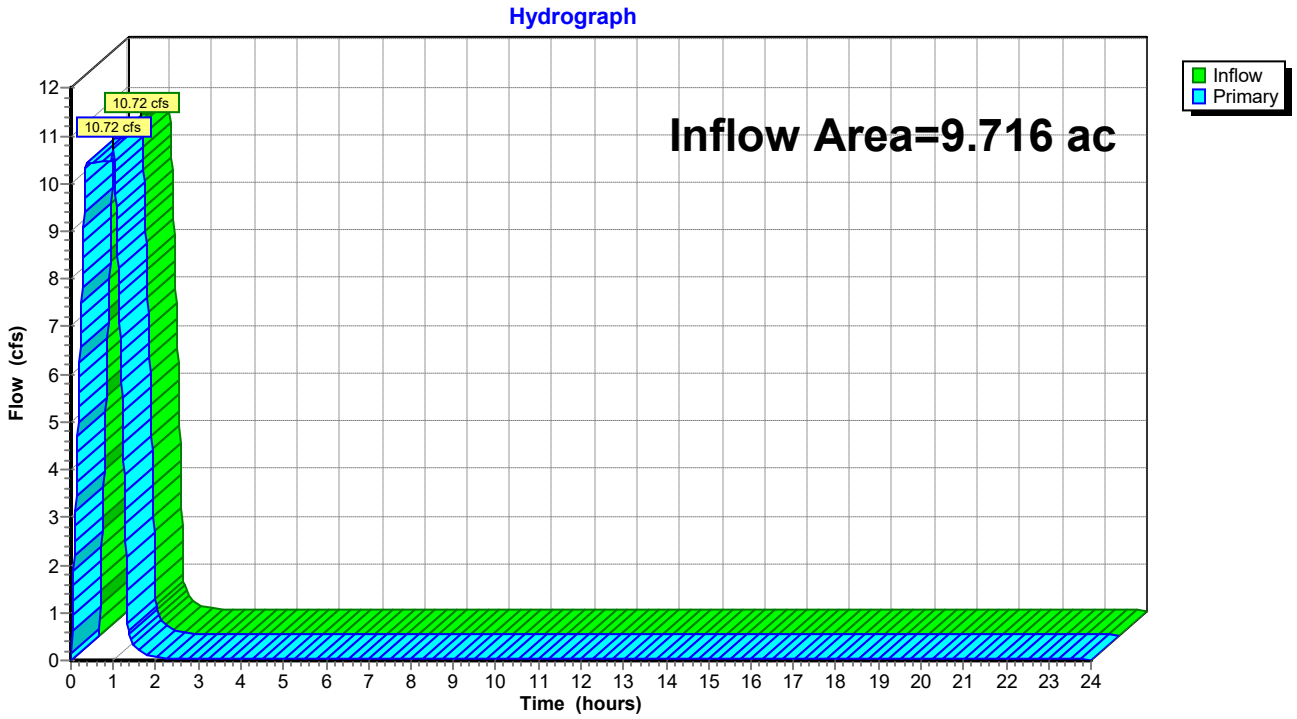


Summary for Link PR: Proposed Runoff

Inflow Area = 9.716 ac, 0.00% Impervious, Inflow Depth > 1.19" for 100-yr event
Inflow = 10.72 cfs @ 1.00 hrs, Volume= 0.962 af
Primary = 10.72 cfs @ 1.01 hrs, Volume= 0.962 af, Atten= 0%, Lag= 0.6 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link PR: Proposed Runoff

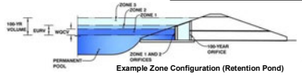


DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.07 (June 2025)

Project: Citadel Battery Storage

Basin ID: Basin 2



Example Zone Configuration (Retention Pond)

	Estimated Stage (ft)	Estimated Volume (ac-ft)	Outlet Type
Zone 1 (WQCV)	0.76	0.028	Orifice Plate
Zone 2 (EURV)	1.85	0.061	Orifice Plate
Zone 3 (100-year)	2.52	0.052	Weir&Pipe (Restrict)
Total (all zones)		0.140	

User Input: Orifice at Underdrain Outlet (typically used to drain WQCV in a Filtration SCM)

Underdrain Orifice Invert Depth =	N/A	ft (distance below the filtration media surface)	Underdrain Orifice Area =	N/A	ft²
Underdrain Orifice Diameter =	N/A	inches	Underdrain Orifice Centroid =	N/A	feet

Calculated Parameters for Underdrain

User Input: Orifice Plate with one or more orifices or Elliptical Slot Weir (typically used to drain WQCV and/or EURV in a sedimentation SCM)

Centroid of Lowest Orifice =	0.00	ft (relative to basin bottom at Stage = 0 ft)	WQ Orifice Area per Row =	3.403E-03	ft²
Depth at top of Zone using Orifice Plate =	1.85	ft (relative to basin bottom at Stage = 0 ft)	Elliptical Half-Width =	N/A	feet
Orifice Plate: Orifice Vertical Spacing =	6.70	inches	Elliptical Slot Centroid =	N/A	feet
Orifice Plate: Orifice Area per Row =	0.49	sq. inches (diameter = 3/4 inch)	Elliptical Slot Area =	N/A	ft²

Calculated Parameters for Plate

User Input: Stage and Total Area of Each Orifice Row (numbered from lowest to highest)

	Row 1 (required)	Row 2 (optional)	Row 3 (optional)	Row 4 (optional)	Row 5 (optional)	Row 6 (optional)	Row 7 (optional)	Row 8 (optional)
Stage of Orifice Centroid (ft)	0.00	0.62	1.23					
Orifice Area (sq. inches)	0.49	0.49	0.49					

	Row 9 (optional)	Row 10 (optional)	Row 11 (optional)	Row 12 (optional)	Row 13 (optional)	Row 14 (optional)	Row 15 (optional)	Row 16 (optional)
Stage of Orifice Centroid (ft)								
Orifice Area (sq. inches)								

User Input: Vertical Orifice (Circular or Rectangular)

	Not Selected	Not Selected			Not Selected	Not Selected	
Invert of Vertical Orifice =	N/A	N/A	ft (relative to basin bottom at Stage = 0 ft)	Vertical Orifice Area =	N/A	N/A	ft²
Depth at top of Zone using Vertical Orifice =	N/A	N/A	ft (relative to basin bottom at Stage = 0 ft)	Vertical Orifice Centroid =	N/A	N/A	feet
Vertical Orifice Diameter =	N/A	N/A	inches				

Calculated Parameters for Vertical Orifice

User Input: Overflow Weir (Dropbox with Flat or Sloped Grate and Outlet Pipe OR Rectangular/Trapezoidal Weir and No Outlet Pipe)

	Zone 3 Weir	Not Selected			Zone 3 Weir	Not Selected	
Overflow Weir Front Edge Height, Ho =	1.85	N/A	ft (relative to basin bottom at Stage = 0 ft)	Height of Grate Upper Edge, H_t =	2.10	N/A	feet
Overflow Weir Front Edge Length =	3.00	N/A	feet	Overflow Weir Slope Length =	1.03	N/A	feet
Overflow Weir Grate Slope =	4.00	N/A	H:V	Grate Open Area / 100-yr Orifice Area =	9.69	N/A	
Horiz. Length of Weir Sides =	1.00	N/A	feet	Overflow Grate Open Area w/o Debris =	2.15	N/A	ft²
Overflow Grate Type =	Type C Grate	N/A		Overflow Grate Open Area w/ Debris =	2.15	N/A	ft²
Debris Clogging % =	0%	N/A	%				

Calculated Parameters for Overflow Weir

User Input: Outlet Pipe w/ Flow Restriction Plate (Circular Orifice, Restrictor Plate, or Rectangular Orifice)

	Zone 3 Restrictor	Not Selected			Zone 3 Restrictor	Not Selected	
Depth to Invert of Outlet Pipe =	2.00	N/A	ft (distance below basin bottom at Stage = 0 ft)	Outlet Orifice Area =	0.22	N/A	ft²
Outlet Pipe Diameter =	18.00	N/A	inches	Outlet Orifice Centroid =	0.16	N/A	feet
Restrictor Plate Height Above Pipe Invert =	3.30		inches	Half-Central Angle of Restrictor Plate on Pipe =	0.88	N/A	radians

Calculated Parameters for Outlet Pipe w/ Flow Restriction Plate

User Input: Emergency Spillway (Rectangular or Trapezoidal)

Spillway Invert Stage=	3.00	ft (relative to basin bottom at Stage = 0 ft)	Spillway Design Flow Depth=	0.55 feet
Spillway Crest Length =	2.00	feet	Stage at Top of Freeboard =	4.55 feet
Spillway End Slopes =	4.00	H:V	Basin Area at Top of Freeboard =	0.13 acres
Freeboard above Max Water Surface =	1.00	feet	Basin Volume at Top of Freeboard =	0.30 acre-ft

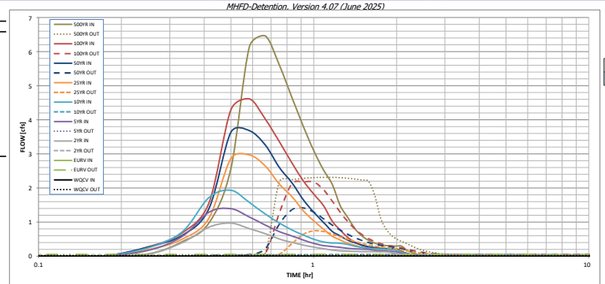
Calculated Parameters for Spillway

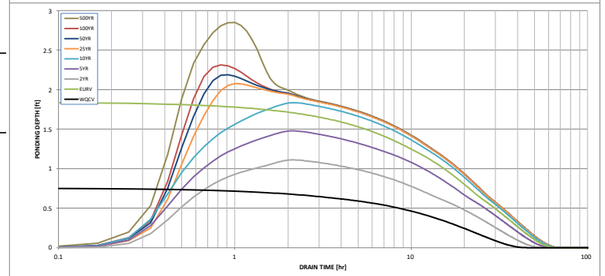
Routed Hydrograph Results — *The user can override the default CUHP hydrographs and runoff volumes by entering new values in the Inflow Hydrographs table (Columns W through AF).*

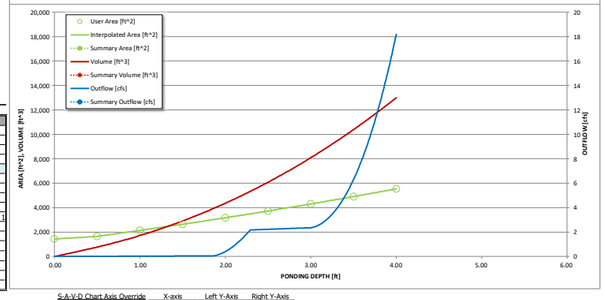
Design Storm Return Period =	WQCV	EURV	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year	500 Year
One-Hour Rainfall Depth (in) =	N/A	N/A	0.85	1.14	1.38	1.74	2.03	2.33	3.08
CUHP Runoff Volume (acre-ft) =	0.028	0.089	0.049	0.071	0.096	0.143	0.178	0.219	0.312
Inflow Hydrograph Volume (acre-ft) =	N/A	N/A	0.049	0.071	0.096	0.143	0.178	0.219	0.312
CUHP Predevelopment Peak Q (cfs) =	N/A	N/A	0.0	0.1	0.5	1.3	1.8	2.3	3.5
OPTIONAL Override Predevelopment Peak Q (cfs) =	N/A	N/A							
Predevelopment Unit Peak Flow, q (cfs/acre) =	N/A	N/A	0.03	0.08	0.29	0.82	1.13	1.50	2.29
Peak Inflow Q (cfs) =	N/A	N/A	1.0	1.4	1.9	3.0	3.7	4.6	6.5
Peak Outflow Q (cfs) =	0.0	0.1	0.0	0.0	0.1	0.7	1.4	2.2	2.3
Ratio Peak Outflow to Predevelopment Q =	N/A	N/A	N/A	0.3	0.1	0.6	0.8	0.9	0.7
Structure Controlling Flow =	Plate	Overflow Weir 1	Plate	Plate	Plate	Overflow Weir 1	Overflow Weir 1	Outlet Plate 1	Outlet Plate 1
Max Velocity through Grate 1 (fps) =	N/A	N/A	N/A	N/A	N/A	0.3	0.6	1.0	1.0
Max Velocity through Grate 2 (fps) =	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Time to Drain 97% of Inflow Volume (hours) =	37	52	45	50	54	51	49	47	43
Time to Drain 99% of Inflow Volume (hours) =	**40**	58	49	55	60	59	58	56	54
Maximum Ponding Depth (ft) =	0.76	1.85	1.11	1.48	1.83	2.08	2.19	2.31	2.85
Area at Maximum Ponding Depth (acres) =	0.04	0.07	0.05	0.06	0.07	0.07	0.08	0.08	0.09
Maximum Volume Stored (acre-ft) =	0.028	0.089	0.045	0.065	0.088	0.105	0.114	0.124	0.170

DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.07 (June 2025)







S-A-V-D Chart Axis Override

	X-axis	Left Y-Axis	Right Y-Axis
minimum bound			
maximum bound			

DETENTION BASIN OUTLET STRUCTURE DESIGN

Outflow Hydrograph Workbook Filename:

Inflow Hydrographs

The user can override the calculated inflow hydrographs from this workbook with inflow hydrographs developed in a separate program.

Time Interval	SOURCE	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP
	TIME	WQCV [cfs]	EURV [cfs]	2 Year [cfs]	5 Year [cfs]	10 Year [cfs]	25 Year [cfs]	50 Year [cfs]	100 Year [cfs]	500 Year [cfs]
5.00 min	0:00:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0:05:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0:10:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
	0:15:00	0	0.00	0.06	0.17	0.25	0.19	0.27	0.27	0.43
	0:20:00	0	0.00	0.40	0.58	0.72	0.50	0.62	0.69	0.98
	0:25:00	0	0.00	0.85	1.29	1.72	1.12	1.40	1.56	2.58
	0:30:00	0	0.00	0.97	1.40	1.93	2.87	3.64	4.30	6.14
	0:35:00	0	0.00	0.81	1.15	1.58	2.97	3.69	4.62	6.46
	0:40:00	0	0.00	0.66	0.91	1.24	2.65	3.26	4.02	5.60
	0:45:00	0	0.00	0.59	0.72	0.97	2.11	2.60	3.36	4.66
	0:50:00	0	0.00	0.40	0.60	0.77	1.75	2.16	2.74	3.82
	0:55:00	0	0.00	0.33	0.47	0.62	1.34	1.66	2.21	3.10
	1:00:00	0	0.00	0.26	0.37	0.50	1.04	1.29	1.82	2.55
	1:05:00	0	0.00	0.22	0.31	0.42	0.80	1.00	1.50	2.11
	1:10:00	0	0.00	0.18	0.28	0.39	0.58	0.73	1.03	1.47
	1:15:00	0	0.00	0.16	0.26	0.38	0.47	0.59	0.77	1.12
	1:20:00	0	0.00	0.15	0.23	0.34	0.37	0.47	0.54	0.79
	1:25:00	0	0.00	0.14	0.22	0.29	0.32	0.39	0.41	0.59
	1:30:00	0	0.00	0.14	0.21	0.26	0.26	0.32	0.32	0.47
	1:35:00	0	0.00	0.13	0.20	0.23	0.23	0.28	0.27	0.38
	1:40:00	0	0.00	0.13	0.17	0.22	0.21	0.25	0.24	0.33
	1:45:00	0	0.00	0.13	0.16	0.21	0.20	0.23	0.22	0.31
	1:50:00	0	0.00	0.13	0.15	0.20	0.19	0.22	0.21	0.30
	1:55:00	0	0.00	0.11	0.14	0.19	0.19	0.22	0.21	0.30
	2:00:00	0	0.00	0.09	0.13	0.17	0.19	0.22	0.21	0.30
	2:05:00	0	0.00	0.06	0.08	0.11	0.12	0.14	0.14	0.19
	2:10:00	0	0.00	0.04	0.05	0.07	0.08	0.09	0.09	0.12
	2:15:00	0	0.00	0.02	0.03	0.04	0.05	0.05	0.05	0.07
	2:20:00	0	0.00	0.01	0.02	0.03	0.03	0.03	0.03	0.04
	2:25:00	0	0.00	0.01	0.01	0.01	0.02	0.02	0.02	0.02
	2:30:00	0	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
	2:35:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2:40:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2:45:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2:50:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2:55:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:00:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:05:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:10:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:15:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:20:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:25:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:30:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:35:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:40:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:45:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:50:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:55:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:00:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:05:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:10:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:15:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:20:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:25:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:30:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:35:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:40:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:45:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:50:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:55:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:00:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:05:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:10:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:15:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:20:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:25:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:30:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:35:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:40:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:45:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:50:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:55:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6:00:00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.07 (June 2025)

Summary Stage-Area-Volume-Discharge Relationships

The user can create a summary S-A-V-D by entering the desired stage increments and the remainder of the table will populate automatically.
The user should graphically compare the summary S-A-V-D table to the full S-A-V-D table in the chart to confirm it captures all key transition points.

Stage - Storage Description	Stage [ft]	Elevation [ft]	Area [ft²]	Area [acres]	Volume [ft³]	Volume [ac-ft]	Total Outflow [cfs]

For best results, include the stages of all grade slope changes (e.g. ISV and Floor) from the S-A-V table on Sheet 'Basin'.

Also include the inverts of all outlets (e.g. vertical orifice, overflow grate, and spillway, where applicable).

BASIN OUTLET CONTROL STRUCTURE POND ORIFICE ELEVATION 6336.0 PIPE INVERT 6334.0

FUTURE PIPE:105 LF 18" CMP @ 2.8%

REMOVE 36 FT OF PIPE LENGTH AND MAKE INVERT 6331.0 FT TO MATCH DAWSON TRAIL IMPROVEMENTS

FUTURE INV: 6331.0'

PROPOSED DAWSON TRAILS BLVD. IMPROVEMENTS (BY OTHERS

RIGHT OF WAY PROPOSED EDGE OF SIDEWALK (BY OTHERS)

TOP OF BERM

EMERGENCY SPILLWAY

INV: 6337.5'

69 LF 18" CMP @ 0.7%

BASIN 2

INV: 6337.0'

TOP OF BERM

BASIN 1

FUTURE CULVERT TO BE DETERMINED AND PLACED AS PART OF THE DAWSON TRAILS BLVD CONSTRUCTION

PROPOSED SUBSTATION ACCESS ROAD (BY OTHERS)

10' BLACK HILLS/COLORADO COMPANY EASEMENT PER REC. NO

S89°48'02"E 1237.44' (M)

N89°48'02"W 1100.40' (M)

8012
6349.12
GCP-ORANGE-PAINT-X
N=1555092.07
E=3176878.02

8011
6357.91
GCP-ORANGE-PAINT-X
N=1554764.22
E=3176883.71

LEGEND

- PROJECT BOUNDARY
- NFPA 855 SETBACK - 100'
- ADJACENT PROPERTY LINES
- 5051 EXISTING MINOR CONTOUR INTERVAL
- 5050 EXISTING MAJOR CONTOUR INTERVAL
- EXISTING TREELINE
- EXISTING DECIDUOUS TREE
- EXISTING BUSH
- GROUND CONTROL POINT
- EXISTING FENCE
- EXISTING UTILITY POLE
- EXISTING GUY WIRE
- EXISTING GAS LINE
- EXISTING ELECTRIC LINE
- EXISTING WATER LINE
- EXISTING SANITARY SEWER
- EXISTING FIBER OPTIC
- EXISTING OVERHEAD UTILITY LINE
- EXISTING GRAVEL ROAD
- PROPOSED RIPRAP
- PROPOSED BESS YARD ROCK
- PROPOSED ACCESS ROAD
- PROPOSED STORMWATER BASIN
- PROPOSED 18" CULVERT
- FUTURE CULVERT FOR DAWSON TRAILS BLVD
- PROPOSED DRAINAGE STRUCTURE
- PROPOSED CHAINLINK FENCE
- LOG PROPOSED LIMIT OF GRADING
- LOD PROPOSED LIMIT OF DISTURBANCE
- PROPOSED 28' SWING GATE
- PROPOSED GRADE BREAK
- 6340 PROPOSED MAJOR CONTOURS
- 6341 PROPOSED MINOR CONTOURS
- PROPOSED TESLA MEGAPACK
- PROPOSED AUX SWITCHBOARD
- PROPOSED METER & DISCONNECT CABINET
- PROPOSED TESLA REQUIRED O&M BUILDING, STORAGE CLEARANCE AREA, AND PARKING ZONE (TESLA LEVEL 2)

NOTES:

1. EQUIPMENT FOUNDATIONS, IF SHOWN, ARE SHOWN FOR REFERENCE ONLY. REFER TO THE STRUCTURAL DRAWINGS FOR SPECIFIC FOUNDATION LOCATIONS AND DETAILS.

N

W E

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0 15 30 60

NAD83 COLORADO STATE PLANES, CENTRAL ZONE, US FOOT

THIS DRAWING IS PRELIMINARY AND IS NOT TO BE USED FOR CONSTRUCTION. FOR REVIEW PURPOSES ONLY.

EARTHWORK ESTIMATES

ITEM – LOCATION	MATERIAL	CUT (Cu. Yd.)	FILL (Cu. Yd.)	NET
BESS SITE AND ACCESS ROAD	NATIVE MATERIAL	11,500	2,000	9,500 (CUT)
TOPSOIL	NATIVE TOPSOIL	3,600	700	2,900 (CUT)

Fill Factor of 1.15 is used.

CITADEL BESS PROJECT

DOUGLAS COUNTY, COLORADO

REV.	DATE	DESCRIPTION	BY
A	10/03/2025	30% DESIGN SUBMITTAL	KJK
B	02/18/2026	30% REDESIGN SUBMITTAL	KJK

Ulteig

3350 38TH AVE S
FARGO, ND 58104
PHONE: (701) 280-8500
ULTEIG.COM

PROJECT NUMBER: 25.01369
DESIGN BY: L. MOFFITT
DRAWN BY: L. MOFFITT
APPROVED BY: K. KNOTT

GRADING SITE PLAN

DRAWING NUMBER: CIT-C-304

REVISION: B

G:\2025\25.01369_CORE Ltr - DRAWINGS\PLAN PRODUCTION\25.01369 CIT_GRD.DWG


TESLA




TESLA



From: Kyle Doe, PE
To: Douglas County Engineering Department
100 Third Street
Castle Rock, CO 80104
Date: February 24, 2026

COLORADO LICENSED
KYLE J DOE
67097
PROFESSIONAL ENGINEER
02/24/2026

Re: Citadel Battery Energy Storage System Site – Trip Generation Analysis Memo

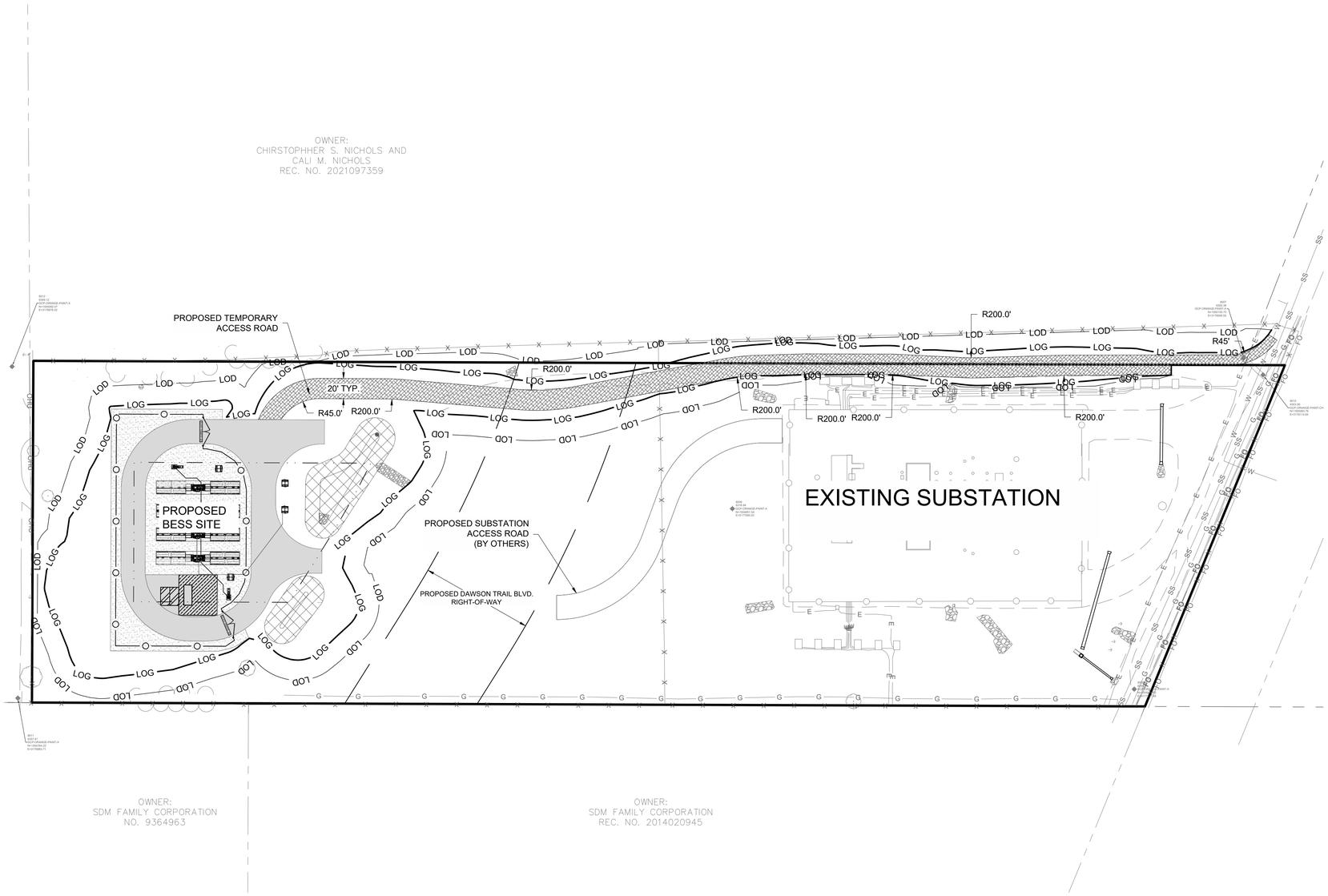
The proposed Citadel Battery Energy Storage System (BESS) project is located in Douglas County, Colorado. The site is located west of the I-25 frontage road, south of Yucca Hills Road. The project will be located west of the existing substation site and share the existing access.

The proposed Dawson Trail Boulevard will cross the proposed site in the future as it connects between Crystal Valley Parkway and East Plum Creek Parkway to the north. The proposed site will then have access along Dawson Trail Boulevard instead of access by the existing substation.

The Institute of Transportation Engineers (ITE) provides trip generation estimates for various land uses based on site observations. Based on the ITE Trip Generation, the closest land use would be Land Use 170, Utility site. The daily trips generated based on ITE land use is 12.29 vehicles per day per 1,000 square feet of gross floor area. However, this is higher than the expected trips of the proposed site. Estimates from the site owner were instead used to provide an accurate assessment of the traffic impacts. During operation, there would be one scheduled service trip per year, with occasional additional trips for corrective or long-term maintenance as needed.

Construction of the battery storage project would generate approximately 6–10 daily vehicle trips during typical construction activities, with short-term peaks of approximately 8–12 daily vehicle trips during equipment delivery and setting, and 3–6 daily vehicle trips during commissioning and closeout.

Based on the Douglas County Roadway Design and Construction Standards, Appendix B - Traffic Impact Study Criteria, a Traffic Impact Study (TIS) is required for developments that will exceed 50 vehicles during any peak hour. However, the proposed site is projected to generate less than the 50 vehicle per hour threshold and therefore does not require a TIS. The projected traffic for the site is not expected to significantly impact operations of the local roadway network adjacent to the development. Attached is the preliminary site plan and ITE traffic estimates during construction. If you have any further questions or concerns, please reach out to Kyle Doe at kyle.doe@ulteig,com or by phone at (512) 755-8210.

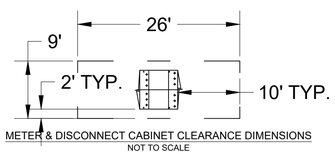


LEGEND

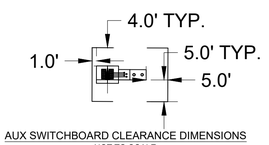
- PROJECT BOUNDARY
- 100' NFPA 855 SETBACK
- ADJACENT PROPERTY LINES
- EXISTING TREELINE
- EXISTING DECIDUOUS TREE
- EXISTING BUSH
- GROUND CONTROL POINT
- EXISTING FENCE
- EXISTING UTILITY POLE
- EXISTING GUY WIRE
- EXISTING GAS LINE
- EXISTING ELECTRIC LINE
- EXISTING WATER LINE
- EXISTING SANITARY SEWER
- EXISTING FIBER OPTIC
- EXISTING OVERHEAD UTILITY LINE
- EXISTING GRAVEL ROAD
- EXISTING RIPRAP
- PROPOSED RIPRAP
- PROPOSED BESS YARD ROCK
- PROPOSED ACCESS ROAD
- PROPOSED TEMPORARY ROAD
- PROPOSED STORMWATER BASIN
- PROPOSED DRAINAGE STRUCTURE
- PROPOSED CHAINLINK FENCE
- PROPOSED LIMIT OF GRADING
- PROPOSED LIMIT OF DISTURBANCE
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- PROPOSED AUX SWITCHBOARD
- PROPOSED METER & DISCONNECT CABINET
- PROPOSED TESLA REQUIRED O&M BUILDING, STORAGE CLEARANCE AREA, AND PARKING ZONE (TESLA LEVEL 2)

NOTES:

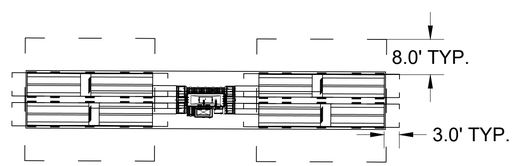
1. EQUIPMENT FOUNDATIONS ARE SHOWN FOR REFERENCE ONLY, REFER TO THE STRUCTURAL DRAWINGS FOR SPECIFIC FOUNDATION LOCATIONS AND DETAILS.



METER & DISCONNECT CABINET CLEARANCE DIMENSIONS
NOT TO SCALE



AUX SWITCHBOARD CLEARANCE DIMENSIONS
NOT TO SCALE

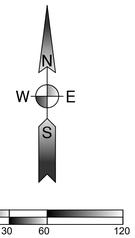


BATTERY UNIT CLEARANCE DIMENSIONS
NOT TO SCALE

CITADEL BESS PROJECT

DOUGLAS COUNTY, COLORADO

REV.	DATE	DESCRIPTION	BY
A	02/18/2026	30% REDESIGN SUBMITTAL	KJK



NAD83 COLORADO STATE PLANES,
CENTRAL ZONE, US FOOT

THIS DRAWING IS
PRELIMINARY AND IS
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CONSTRUCTION.
FOR REVIEW
PURPOSES ONLY.

Ulteig

3350 38TH AVE S
FARGO, ND 58104
PHONE: (701) 280-8500
ULTEIG.COM

PROJECT NUMBER: 25.01369
DESIGN BY: L. MOFFITT
DRAWN BY: L. MOFFITT
APPROVED BY: K. KNOTT

TEMPORARY ROAD OVERALL SITE PLAN

DRAWING NUMBER: CIT-C-200
REVISION: A

G:\2025\25.01369\...\CIVIL\01_DRAWINGS\01 PLAN PRODUCTION\25.01369_01_OSP_TEMP ROAD.DWG

Land Use: 170
Utility

Description

A utility is a free-standing building that can house office space, a storage area, and electromechanical or industrial equipment that supports a local electrical, communication, water supply or control, or sewage treatment utility.

Additional Data

The sites were surveyed in the 1990s, the 2000s, and the 2010s in Delaware, Oregon, and Texas.

Source Numbers

443, 538, 876

Utility
(170)

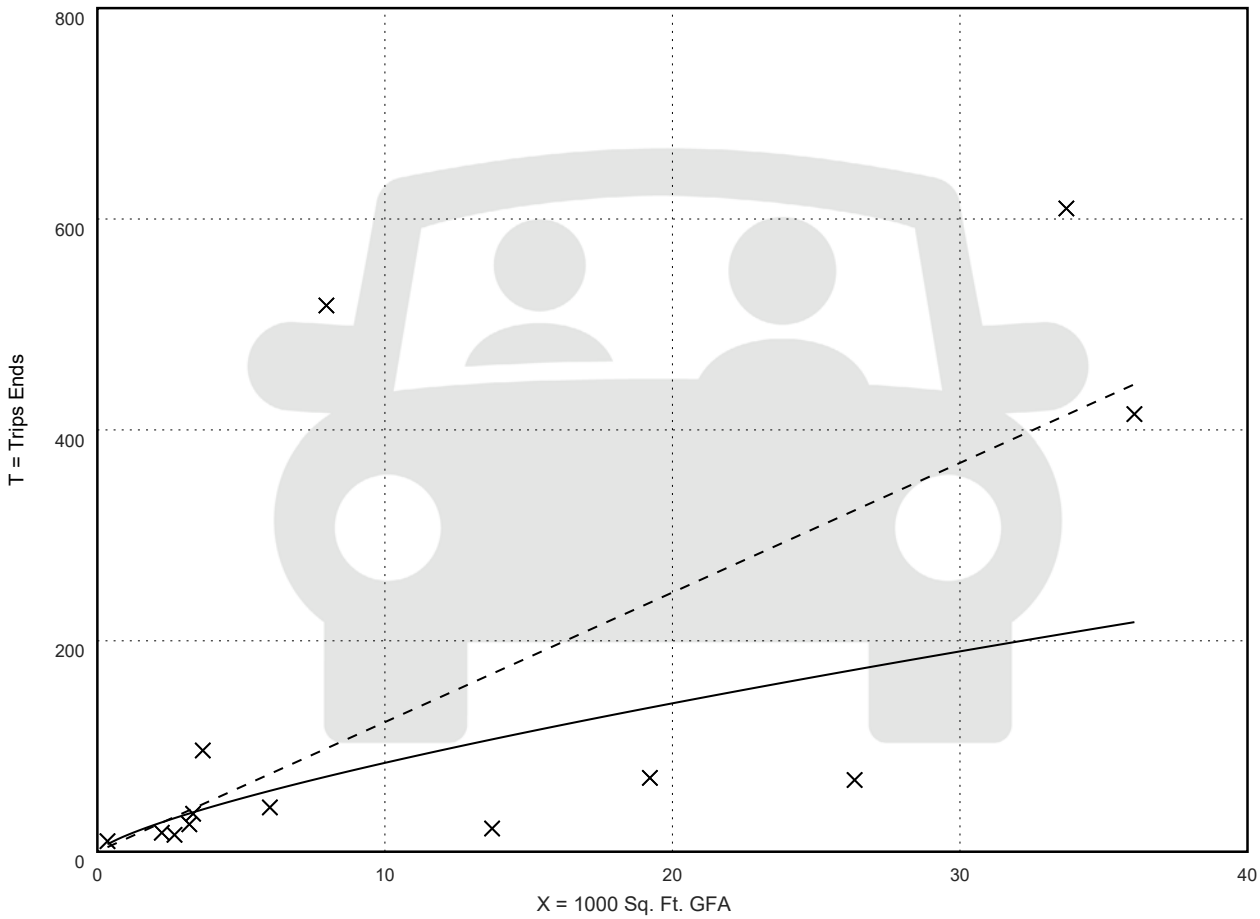
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 13
Avg. 1000 Sq. Ft. GFA: 12
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
12.29	1.60 - 65.03	14.32

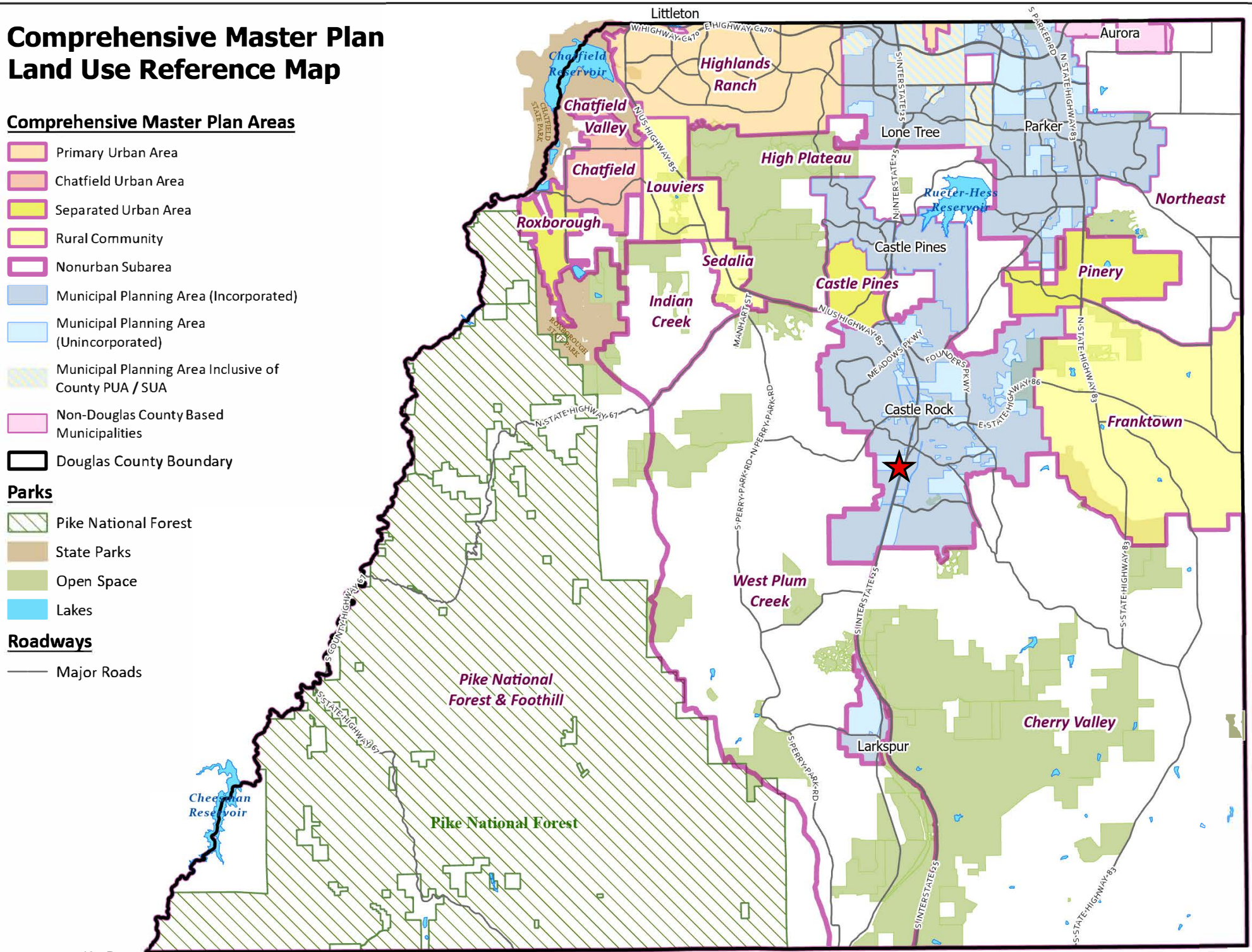
Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.74 Ln(X) + 2.73

R^2= 0.51

Comprehensive Master Plan Land Use Reference Map



Comprehensive Master Plan Areas

- Primary Urban Area
- Chatfield Urban Area
- Separated Urban Area
- Rural Community
- Nonurban Subarea
- Municipal Planning Area (Incorporated)
- Municipal Planning Area (Unincorporated)
- Municipal Planning Area Inclusive of County PUA / SUA
- Non-Douglas County Based Municipalities
- Douglas County Boundary

Parks

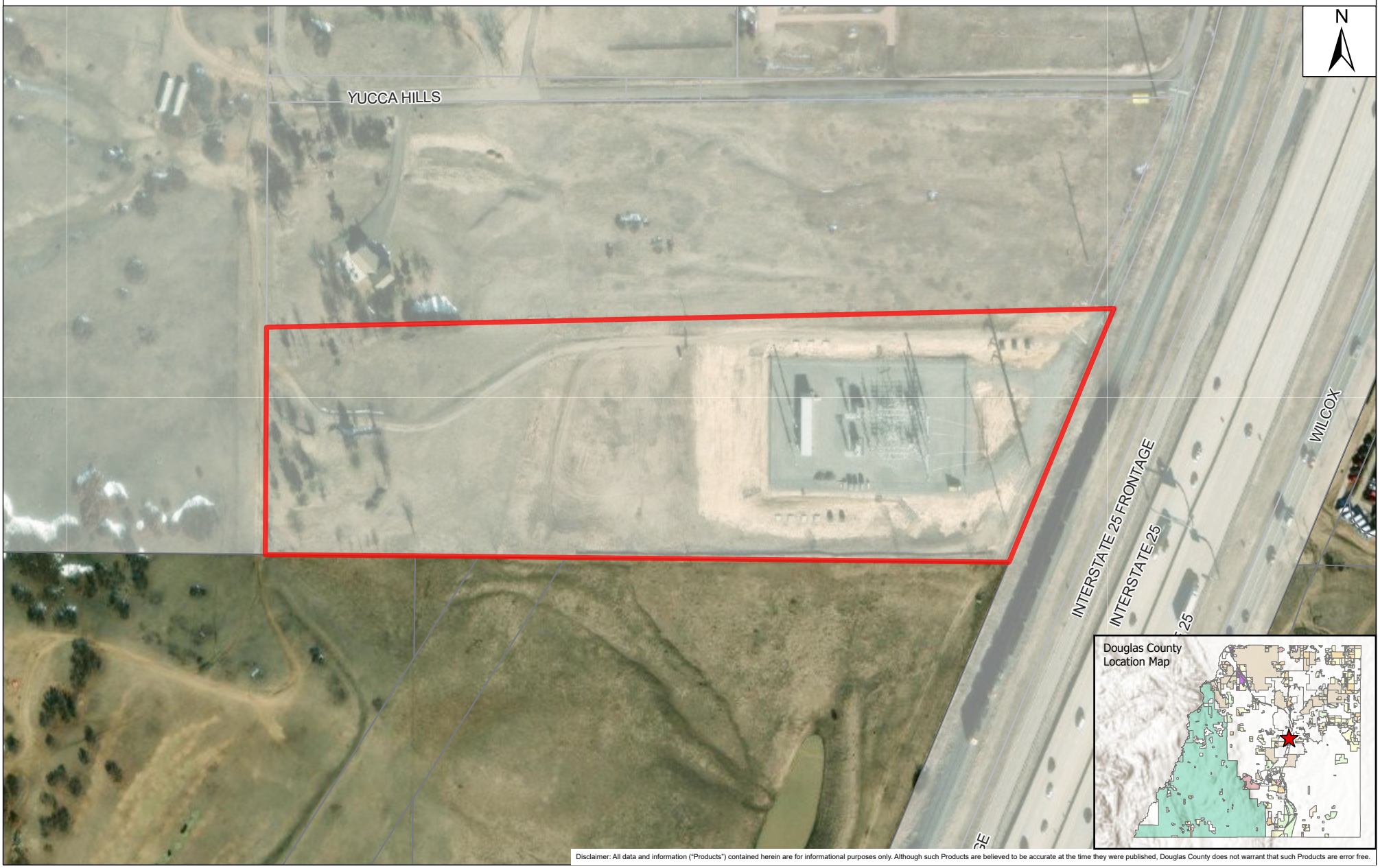
- Pike National Forest
- State Parks
- Open Space
- Lakes

Roadways

- Major Roads

495 Dawson Trails Boulevard LE2026-003

DOUGLAS COUNTY COLORADO



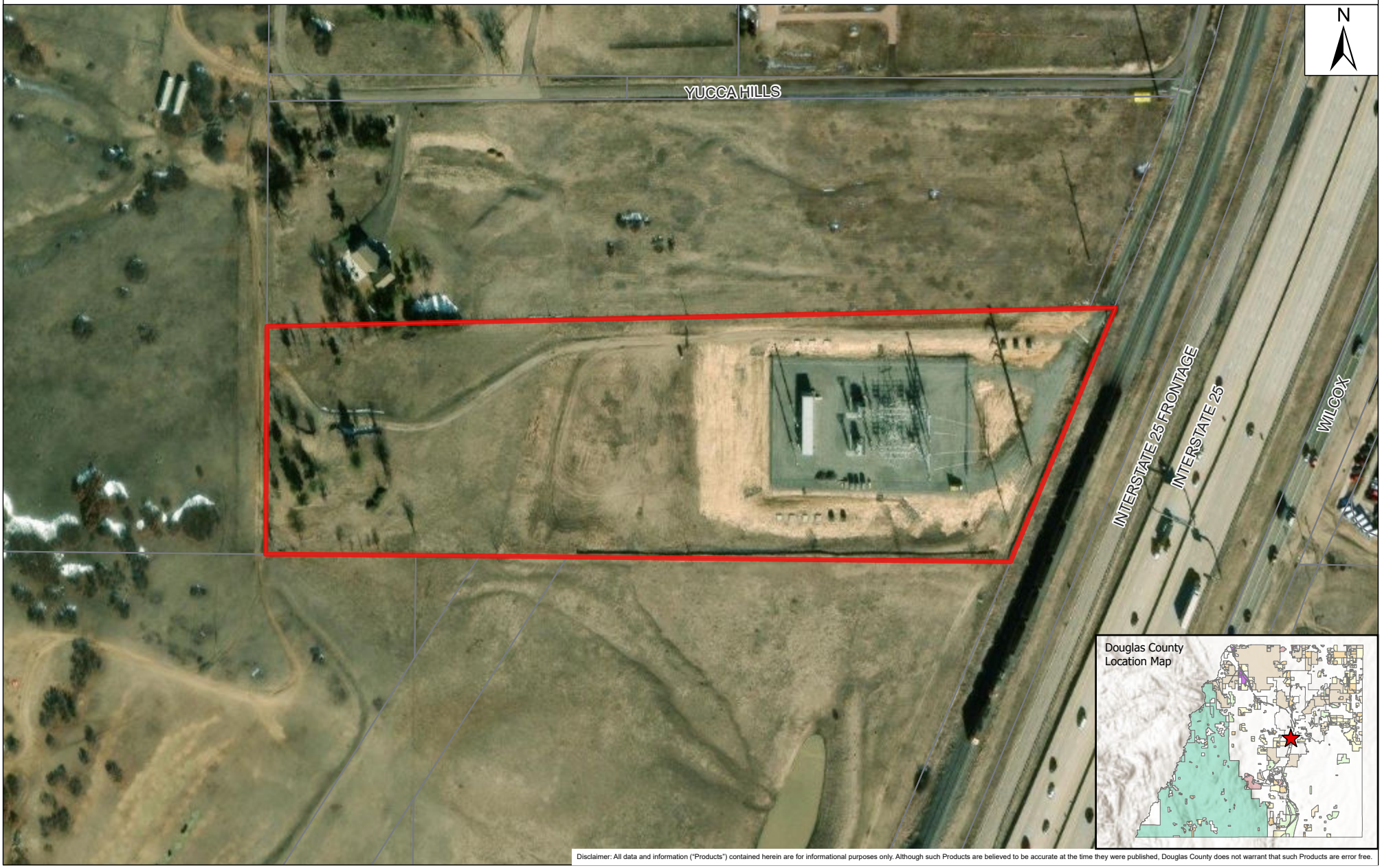
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Date Saved: 3/20/2026 1:07 PM

A1 - AGRICULTURAL ONE

495 Dawson Trails Boulevard LE2026-003

DOUGLAS COUNTY
COLORADO



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Date Saved: 3/20/2026 1:09 PM

Project Name: 495 Dawson Trails Boulevard
Project File #: LE2026-003
Date Sent: 03/12/2026 **Date Due:** 03/26/2026

Agency	Date Received	Agency Response	Response Resolution
AT&T Long Distance - ROW		Awaiting referral response	Awaiting referral response
Addressing Analyst	03/12/2026	The proposed address for this facility is 495 Dawson Trails Blvd. This address is not to be used for any purpose other than for plan review until after this project is approved. Proposed addresses are subject to changes as necessary for 911 dispatch and life safety purposes. The address of 892 Yucca Hills Road for the existing substation on this same parcel will be changed to reflect the new proposed access once Dawson Trails Blvd is constructed and open for traffic. Addresses are recorded by Douglas County following all necessary approvals. Contact DCAddressing@douglas.co.us or 303.660.7411 with questions.	Information provided to applicant
Assessor	03/17/2026	please be aware of the following comments: None	No response necessary
Building Services		Awaiting referral response	Awaiting referral response
Comcast		Awaiting referral response	Awaiting referral response
Engineering Services		Awaiting referral response	Awaiting referral response
CORE Electric Cooperative	03/18/20265	No Comment	No response necessary
Castle Rock Fire and Rescue Department		Awaiting referral response	Awaiting referral response
Office of Emergency Management		Awaiting referral response	Awaiting referral response
Town of Castle Rock	03/23/2026	Please see attached TOCR document. Summary: Requested coordination with Dawson Trails Blvd construction and additional information regarding roadway and driveway designs.	Comments forwarded to applicant
CenturyLink		Awaiting referral response	Awaiting referral response
Sheriff's Office		Awaiting referral response	Awaiting referral response
Sheriff's Office E911		Awaiting referral response	Awaiting referral response
Wildfire Mitigation		Awaiting referral response	Awaiting referral response

Project Name: 495 Dawson Trails Boulevard
Project File #: LE2026-003
Date Sent: 03/12/2026 **Date Due:** 03/26/2026

Xcel Energy-Right of Way & Permits	03/16/2026	Public Service Company of Colorado's (PSCo) Right of Way & Permits Referral Desk has reviewed the above-mentioned application and currently has no apparent conflict. As a safety precaution, PSCo would like to remind the developer to call the Utility Notification Center by dialing 811 for utility locates prior to construction.	Information provided to applicant

Right of Way & Permits

1123 West 3rd Avenue
Denver, Colorado 80223
Telephone: 303.285.6612
violeta.ciocanu@xcelenergy.com

March 16, 2026

Douglas County Planning Services
100 Third Street
Castle Rock, CO 80104

Attn: Trevor Bedford

Re: 495 Dawson Trails Boulevard, Case # LE2026-003

Public Service Company of Colorado's (PSCo) Right of Way & Permits Referral Desk has reviewed the above-mentioned application and currently has **no apparent conflict**.

As a safety precaution, PSCo would like to remind the developer to call the Utility Notification Center by dialing 811 for utility locates prior to construction.

Violeta Ciocanu (Chokanu)
Right of Way and Permits
Public Service Company of Colorado dba Xcel Energy
Office: 303-285-6612 – Email: violeta.ciocanu@xcelenergy.com

Although "branded" as Xcel Energy, the legal owner and operator of the utility facilities in Colorado is Public Service Company of Colorado. All utility facilities and related land rights, including fee property, easements, permits, etc., are owned by, operated by and held in the name of Public Service Company of Colorado, a Colorado Corporation.

Project Written Comments
Town of Castle Rock

Project Number: COU26-0009

Description: **CORE Battery Energy Storage System Addition**

Applied: **3/12/2026**
Approved:
Closed:
Expired:

Site Address:
City, State Zip Code: **,**

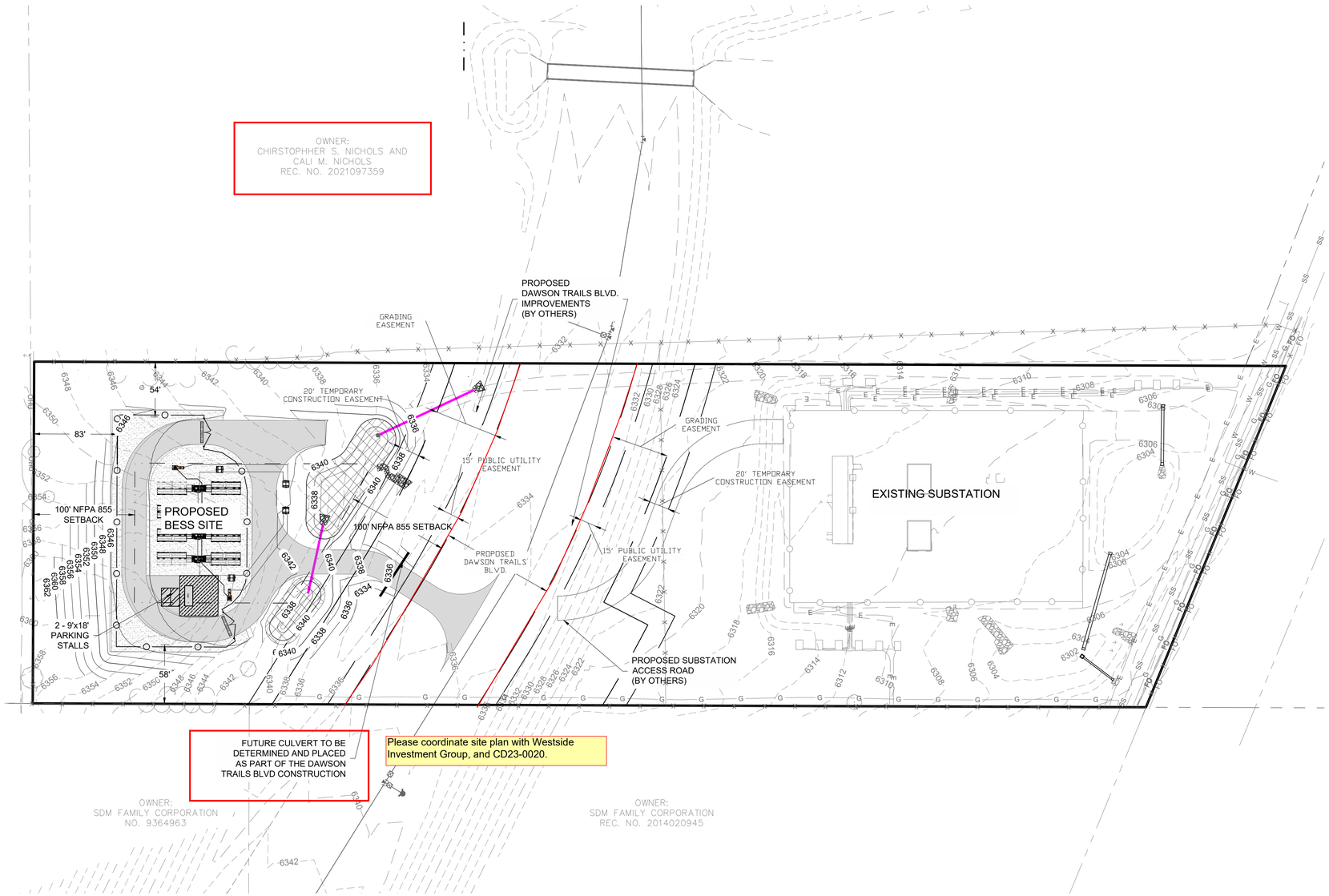
Status: **UNDER REVIEW**
Parent Project:

Applicant: **<NONE>**
Owner: **<NONE>**
Contractor: **<NONE>**

Details:

CORE requests to add a battery energy storage system to the Citadel Substation

LIST OF REVIEWS			
TYPE	**CONTACT**	**STATUS**	**REMARKS**
Review Group: 1ST REVIEW 18 DAY			
PL - SANDY	SANDY VOSSLER	GREEN APPROVED W/COND	See notes and attachments
Notes: PL1. Please contact Planning, Sandy Vossler with questions, 720-733-3556, svossler@crgov.com. PL2. The rating for this review is Green. Only minor comments remain. Note: This rating is specific to this discipline and may not be the overall rating for this review. PL3. Please see and address attached redline comments (PL-COU26-0009 L and E-Rev1).			
PW - BRYSON	BRYSON WILLIAMS	YELLOW - NEED REVISIONS	
Notes: PW1. Please contact Bryson Williams with questions, bwilliams2@crgov.com or (303) 435-0315. PW2. Verify Dawson Trails ROW width is consistent with with what is north and south of this location. The width shown is unclear from the site plan exhibit. PW3. Verify private drive meets criteria.			
CRW-DRAINAGE DAVID V	DAVID VAN DELLEN	NO COMMENT	
Notes:			



LEGEND

- PROJECT BOUNDARY
- 100' NFPA 855 SETBACK
- ADJACENT PROPERTY LINES
- EXISTING TREELINE
- EXISTING DECIDUOUS TREE
- EXISTING BUSH
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- PROPOSED AUX SWITCHBOARD
- PROPOSED METER & DISCONNECT CABINET
- PROPOSED TESLA REQUIRED O&M BUILDING, STORAGE CLEARANCE AREA, AND PARKING ZONE

NOTES:

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2. CONTOURS SHOWN ARE TO FINISHED GRADE.

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NAD83 COLORADO STATE PLANES,
CENTRAL ZONE, US FOOT

CITADEL BESS PROJECT

DOUGLAS COUNTY, COLORADO

REV.	DATE	DESCRIPTION	BY
A	02/23/2026	ISSUE FOR COUNTY REVIEW	KJK
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Ulteig
3350 38TH AVE S
FARGO, ND 58104
PHONE: (701) 280-8500
ULTEIG.COM

PROJECT NUMBER: 25.01369
DESIGN BY: L. MOFFITT
DRAWN BY: L. MOFFITT
APPROVED BY: K. KNOTT

OVERALL SITE PLAN

DRAWING NUMBER: CIT-C-200
REVISION: A

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CORE ELECTRIC COOPERATIVE

LOCATION AND EXTENT

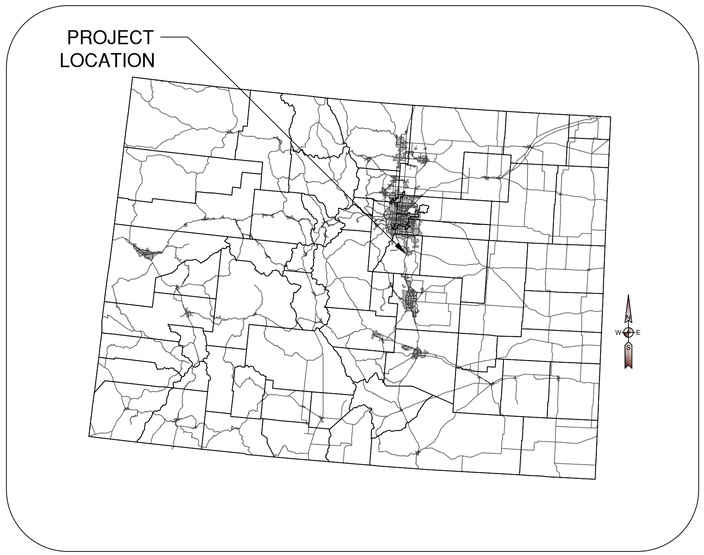
CITADEL BATTERY ENERGY STORAGE SYSTEM (BESS)

890 YUCCA HILLS ROAD, CASTLE ROCK, CO 80109

NE 1/4 SECTION 15, TOWNSHIP 8 SOUTH, RANGE 67 WEST,

OF THE SIXTH PRINCIPAL MERIDIAN, TOWN OF CASTLE ROCK,

COUNTY OF DOUGLAS, STATE OF COLORADO



STATE MAP



VICINITY MAP

0 750 1500 3000

DRAWING INDEX:

DRAWING NO	DRAWING TITLE	REVISION
CIT-G-100	COVER SHEET AND INDEX	A
CIT-C-200	OVERALL SITE PLAN	A
CIT-C-201	TEMPORARY ROAD OVERALL SITE PLAN	A
CIT-C-300	TESLA PLAN VIEW	A
CIT-C-400	FENCE SECTIONS 1	A
CIT-C-401	FENCE SECTIONS 2	A
CIT-C-500	FENCE DETAIL 1	A
CIT-C-501	FENCE DETAIL 2	A

PROJECT OWNER/DEVELOPER

CORE ELECTRIC COOPERATIVE

5496 N. US HWY 85

SEDALIA, CO 80123

BROOKS KAUFMAN

LANDS & RIGHTS OF WAY DIRECTOR

(720) 733-5493

CIVIL ENGINEER

ULTEIG ENGINEERS, INC.

3350 38TH AVE S

FARGO, NORTH DAKOTA 58104

KEVIN KNOTT

(701) 280-8540

ELECTRICAL ENGINEER

ULTEIG ENGINEERS, INC.

3350 38TH AVE SOUTH

FARGO, NORTH DAKOTA 58104

CHUCK MATHSON

(701) 280-8500

GEOTECHNICAL ENGINEER

ANS GEO

4405 SOUTH CLINTON AVENUE

SOUTH PLAINFIELD, NEW JERSEY 07080

VATSAL A. SHAH P.E., PH. D

(908) 754-8383

SURVEYOR

PRECISION SURVEY & MAPPING, INC.

9025 E. KENYON AVE., SUITE 150

DENVER, CO 80237

CHRISTOPHER P. JULIANA, P.L.S

(303) 753-9799

CITADEL BESS
PROJECT

DOUGLAS COUNTY, COLORADO

REV.	DATE	DESCRIPTION	BY
A	02/23/2026	ISSUE FOR COUNTY REVIEW	KJK
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NAD83 COLORADO STATE PLANES,
CENTRAL ZONE, US FOOT

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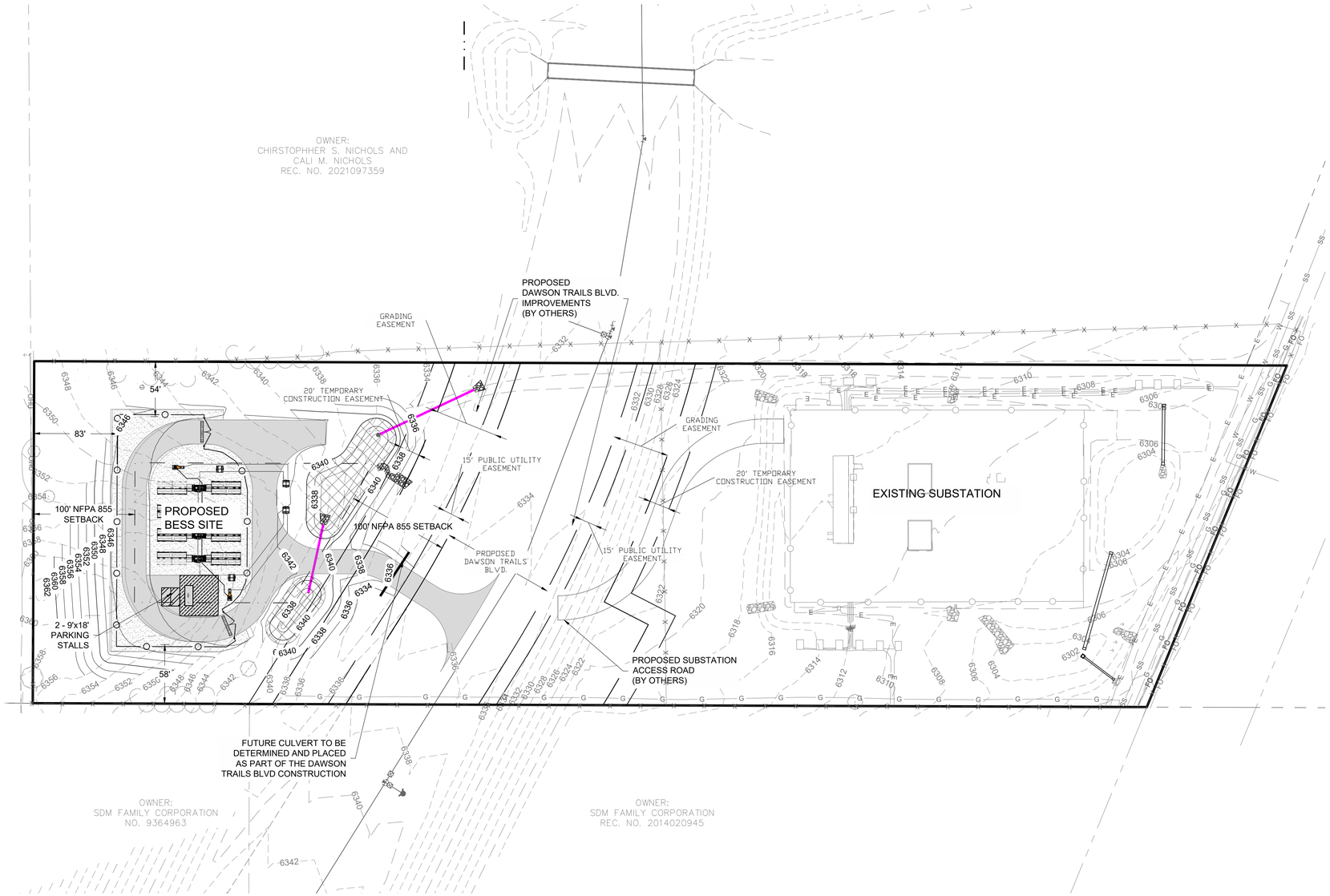
PROJECT NUMBER: 25.01369
DESIGN BY: L. MOFFITT
DRAWN BY: L. MOFFITT
APPROVED BY: K. KNOTT

COVER SHEET

DRAWING NUMBER: CIT-C-100

REVISION: A

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LEGEND

- PROJECT BOUNDARY
- 100' NFPA 855 SETBACK
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CITADEL BESS PROJECT

DOUGLAS COUNTY, COLORADO

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NAD83 COLORADO STATE PLANES, CENTRAL ZONE, US FOOT

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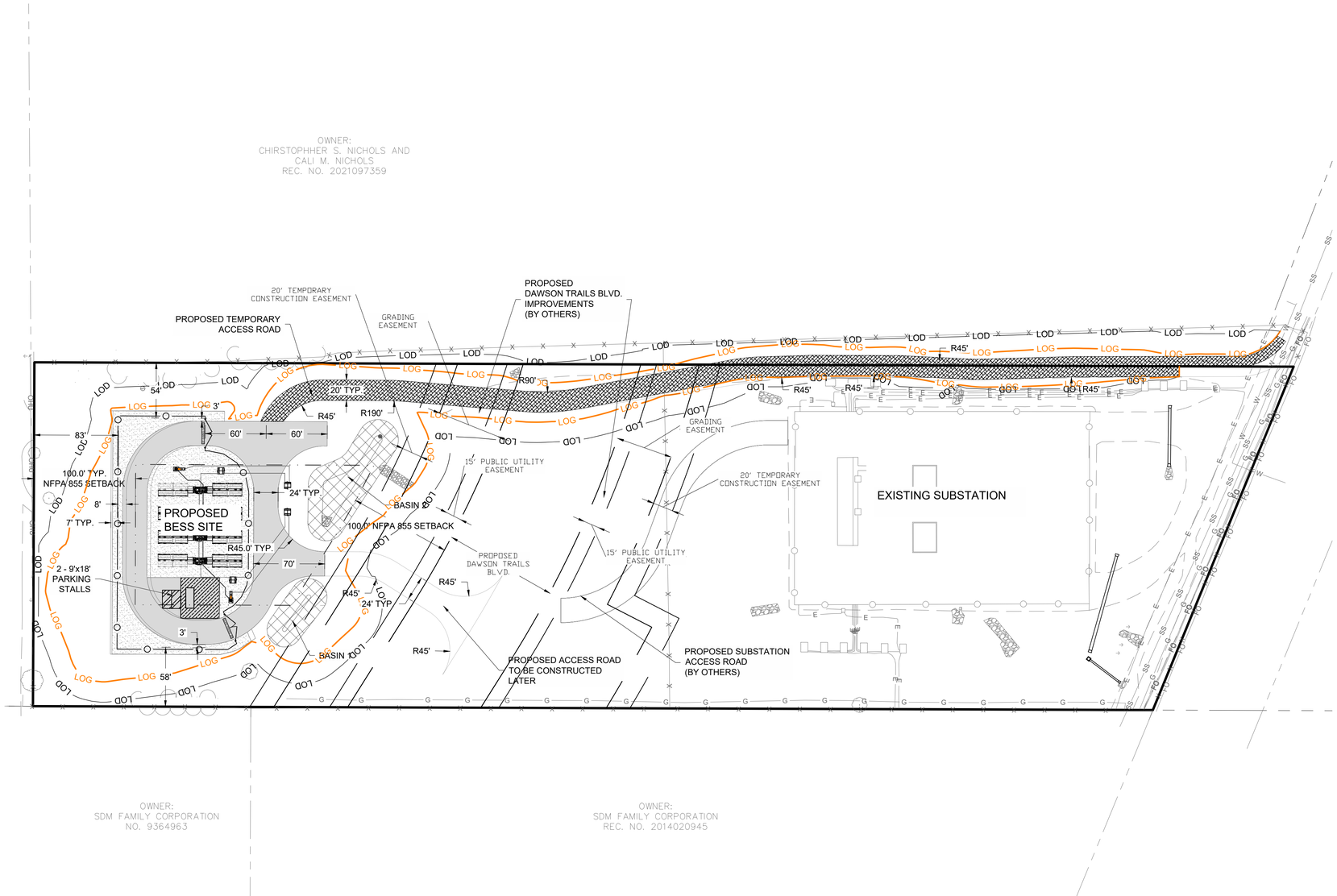
Ulteig
3350 38TH AVE S
FARGO, ND 58104
PHONE: (701) 280-8500
ULTEIG.COM

PROJECT NUMBER: 25.01369
DESIGN BY: L. MOFFITT
DRAWN BY: L. MOFFITT
APPROVED BY: K. KNOTT

OVERALL SITE PLAN

DRAWING NUMBER: CIT-C-200
REVISION: A

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NAD83 COLORADO STATE PLANES, CENTRAL ZONE, US FOOT

CITADEL BESS PROJECT

DOUGLAS COUNTY, COLORADO

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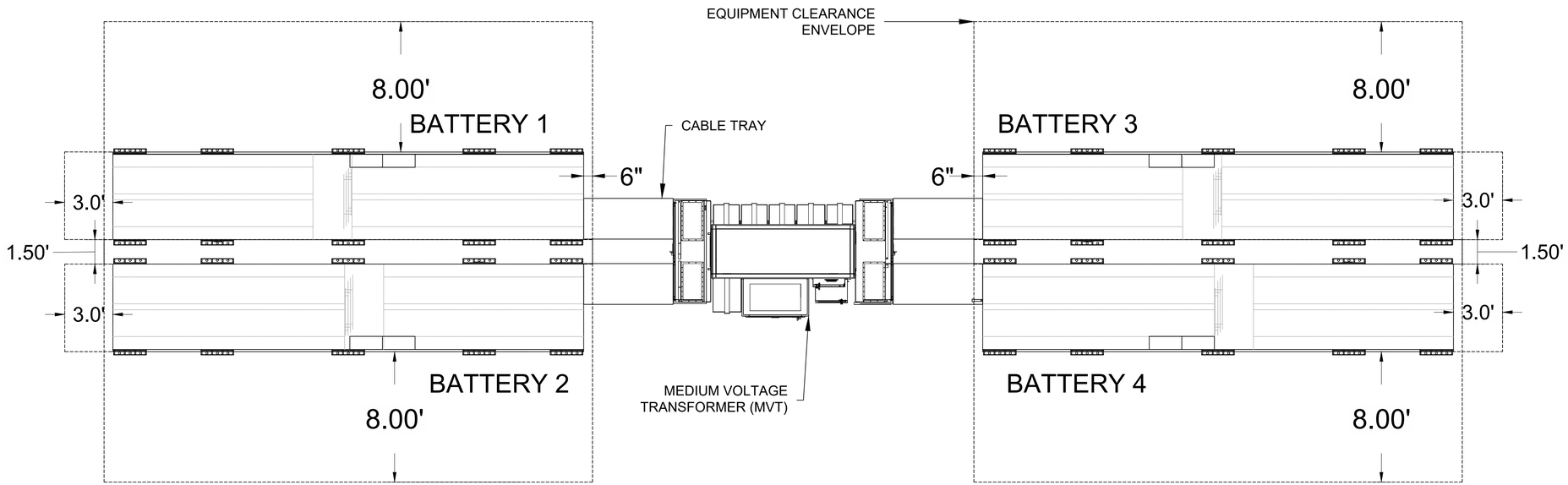
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DESIGN BY: L. MOFFITT
DRAWN BY: L. MOFFITT
APPROVED BY: K. KNOTT

TEMPORARY ROAD OVERALL SITE PLAN

DRAWING NUMBER: CIT-C-201
REVISION: A

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1 TYPICAL EQUIPMENT BLOCK - PLAN VIEW

NOT TO SCALE

LAYOUT NOTES:

1. CABLE TRAY ASSUMED AS 24" OPEN CABLE TRAY - PART NUMBER 24A09-24-240. THE 20FT CABLE TRAY SHALL BE CUT INTO FOUR EQUAL SECTIONS OF 5FT EACH.
2. FOR CABLE TRAY DETAILS SEE DRAWING 20260116-US-WA-GREE-IFC-BESSL-E4-101-R0.
3. FOR DETAILED COMMUNICATION INFORMATION SEE PLANT SCADA SET (BY OTHERS).
4. CONDUITS TO BE 12" AWAY FROM GEOPIERS. SEE STRUCTURAL PACKAGE FOR DETAILS. DUE TO ROUTING CONTRAINTS, MAINTAINING A FULL 12" OFFSET FOR SOME OF THE OUTGOING 8" CONDUITS MAY NOT BE FEASIBLE. A 4" OFFSET WILL BE APPLIED TO WHERE REQUIRED TO PROVIDE THE MAXIMUM PRACTICAL CLEARANCE. CONTRACTOR SHALL VERIFY FINAL ROUTING IN THE FIELD AND COORDINATE AS NEEDED TO AVOID INTERFERENCES WITH ADJACENT SYSTEMS AND EQUIPMENT.

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CITADEL BESS PROJECT

DOUGLAS COUNTY, COLORADO

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LEGEND

- EQUIPMENT CLEARANCE ENVELOPE
- TESLA WIRE-WAY
- EQUIPMENT FOUNDATION PAD

NAD83 COLORADO STATE PLANES, CENTRAL ZONE, US FOOT

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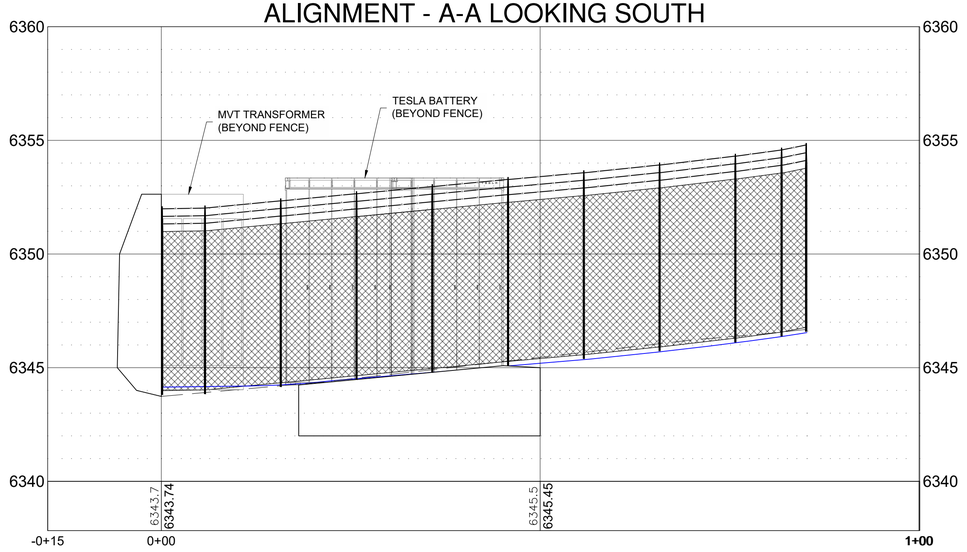
PROJECT NUMBER: 25.01369
DESIGN BY: L. MOFFITT
DRAWN BY: L. MOFFITT
APPROVED BY: KJK

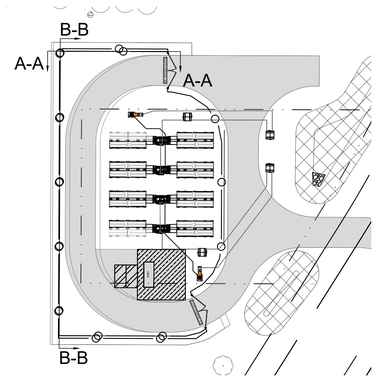
TESLA BATTERY PLAN VIEW

DRAWING NUMBER: CIT-C-300

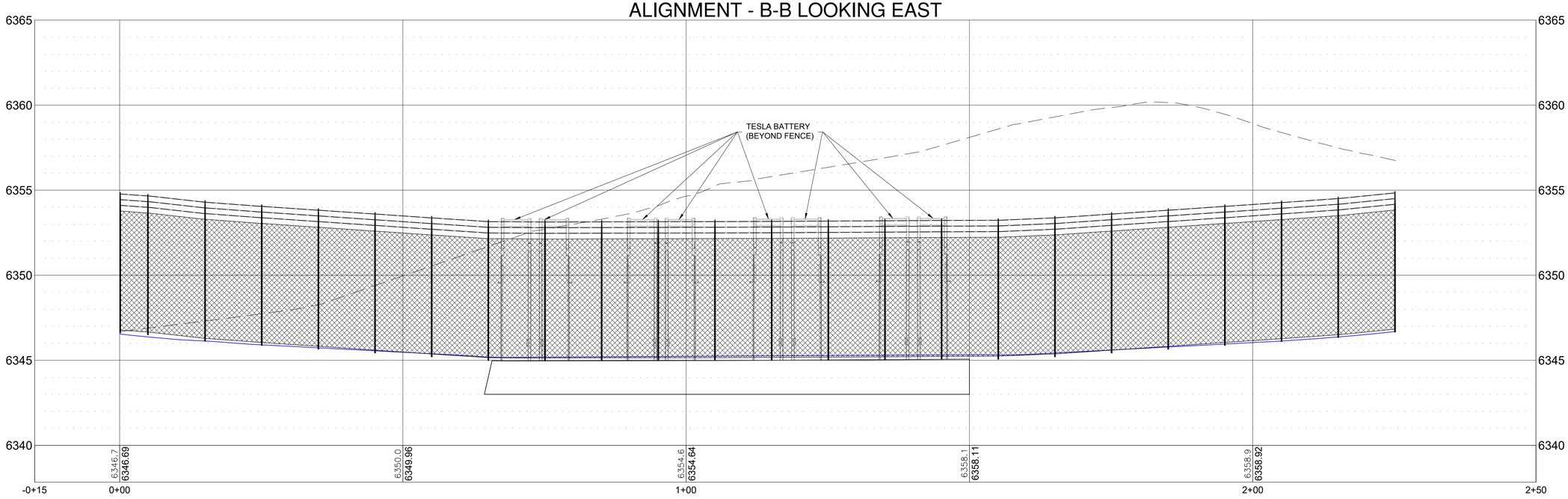
REVISION: A

ALIGNMENT - A-A LOOKING SOUTH





ALIGNMENT - B-B LOOKING EAST



CITADEL BESS PROJECT

DOUGLAS COUNTY, COLORADO

REV.	DATE	DESCRIPTION	BY
A	02/23/2026	ISSUE FOR COUNTY REVIEW	KJK

LEGEND

PROPOSED FINISHED GRADE AT FENCE ALIGNMENT

EXISTING GROUND

HORIZ. 0 5 10 20

VERT. 0 1.67 3.33 6.66

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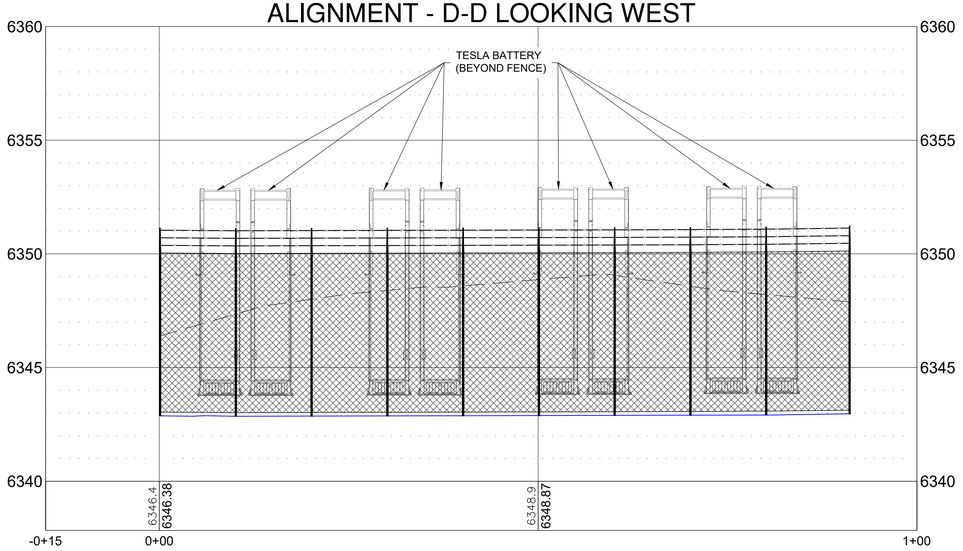
FENCE SECTIONS 1

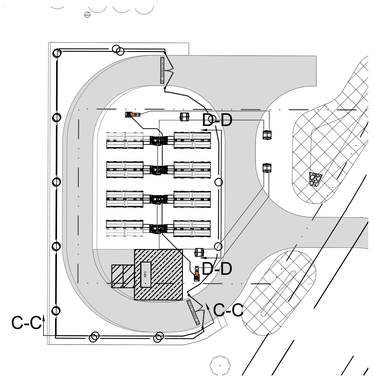
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REVISION: A

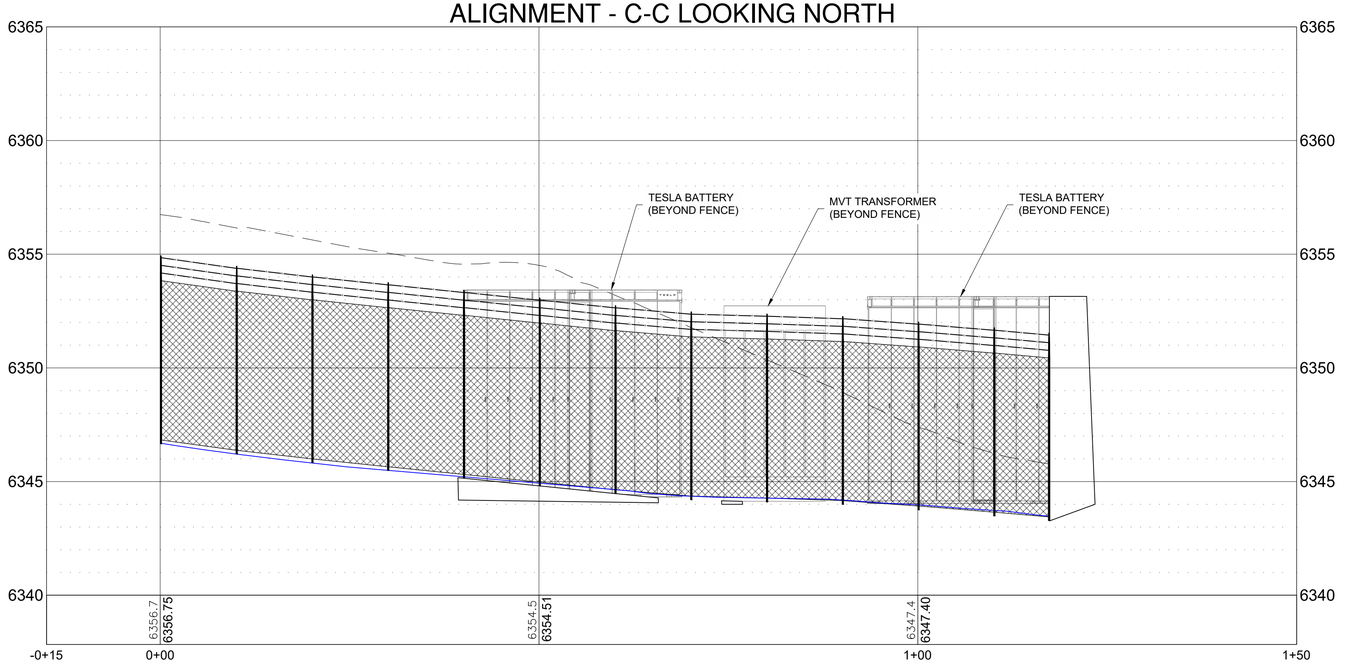
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ALIGNMENT - D-D LOOKING WEST





ALIGNMENT - C-C LOOKING NORTH



LEGEND

PROPOSED FINISHED GRADE AT FENCE ALIGNMENT

EXISTING GROUND

HORIZ. 0 5 10 20

VERT. 0 1.67 3.33 6.66

NAD83 COLORADO STATE PLANES, CENTRAL ZONE, US FOOT

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CITADEL BESS PROJECT

DOUGLAS COUNTY, COLORADO

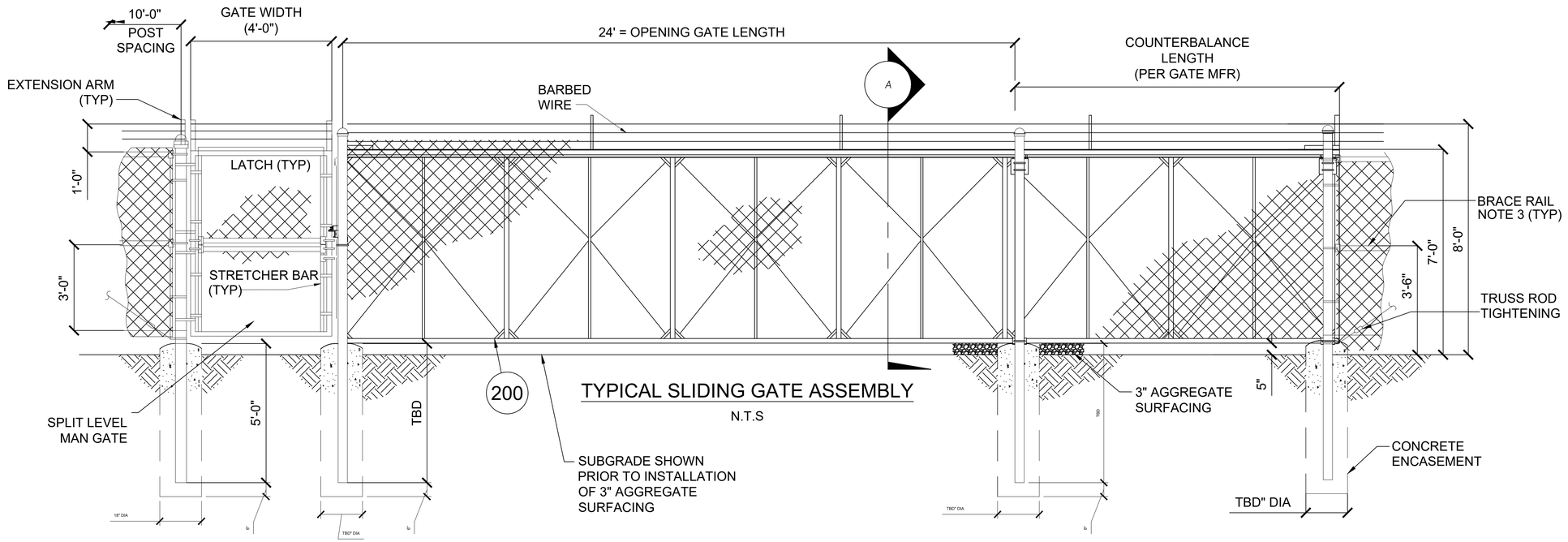
REV.	DATE	DESCRIPTION	BY
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FENCE SECTIONS 2

DRAWING NUMBER: CIT-C-401

REVISION: A

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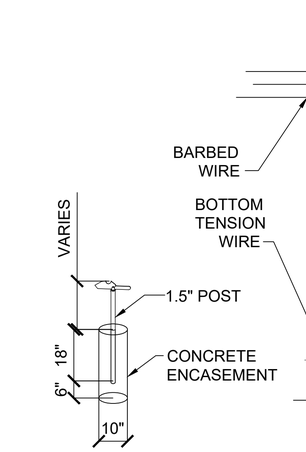


SPLIT MAN GATE/PERSONNEL GATE

N.T.S

TYPICAL SLIDING GATE ASSEMBLY

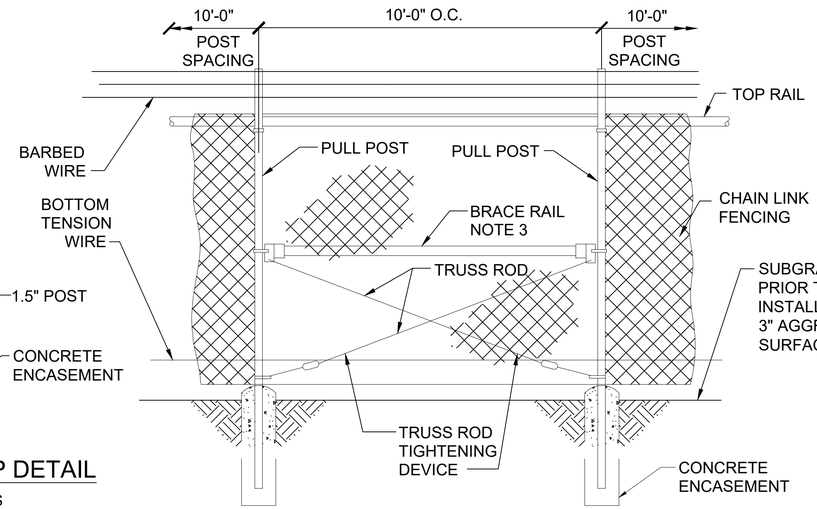
N.T.S



GATE STOP DETAIL

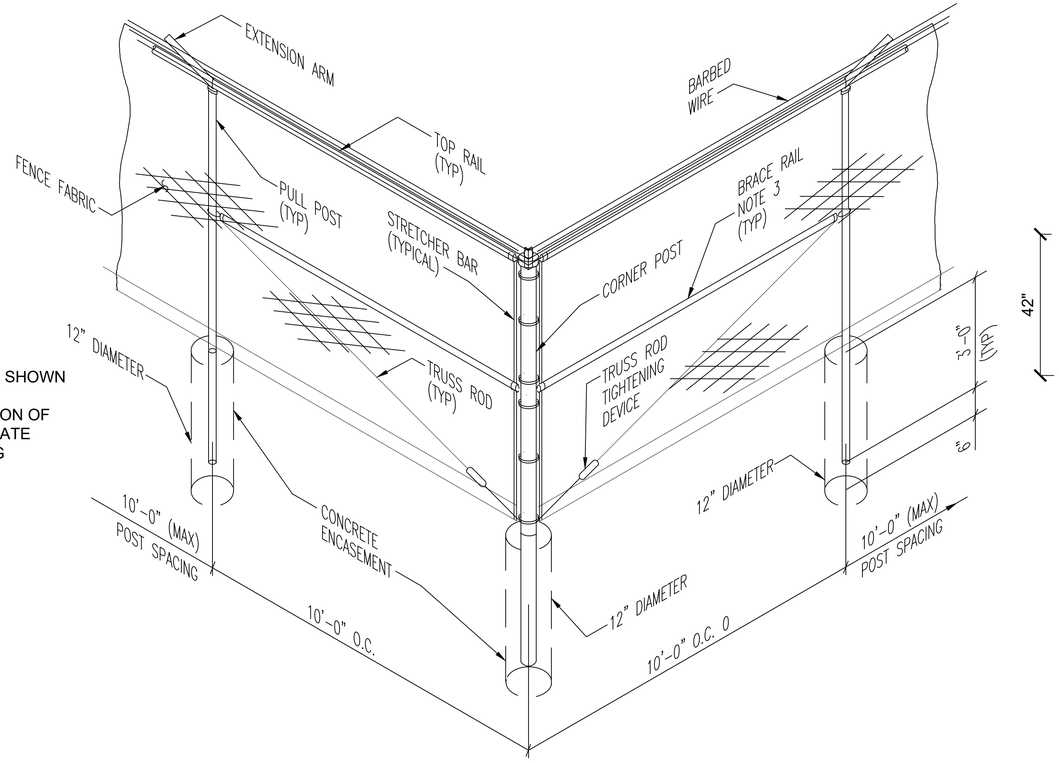
N.T.S

(TO BE USED WITH SWING GATE)



TYPICAL BRACE ASSEMBLY

N.T.S



TYPICAL CORNER ASSEMBLY

N.T.S

CITADEL BESS
PROJECT

DOUGLAS COUNTY, COLORADO

REV.	DATE	DESCRIPTION	BY
A	02/23/2026	ISSUE FOR COUNTY REVIEW	KJK

NAD83 COLORADO STATE PLANES,
CENTRAL ZONE, US FOOT

THIS DRAWING IS
PRELIMINARY AND IS
NOT TO BE USED FOR
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FOR REVIEW
PURPOSES ONLY.

Ulteig

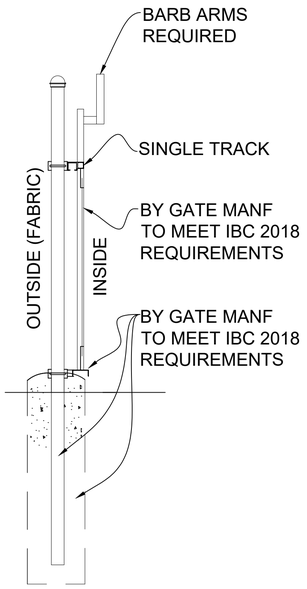
3350 38TH AVE S
FARGO, ND 58104
PHONE: (701) 280-8500
ULTEIG.COM

PROJECT NUMBER: 25.01369
DESIGN BY: L. MOFFITT
DRAWN BY: L. MOFFITT
APPROVED BY: K. KNOTT

FENCE DETAIL 1

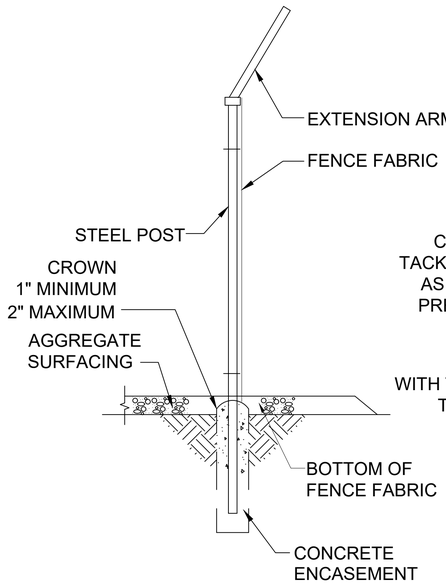
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REVISION: A

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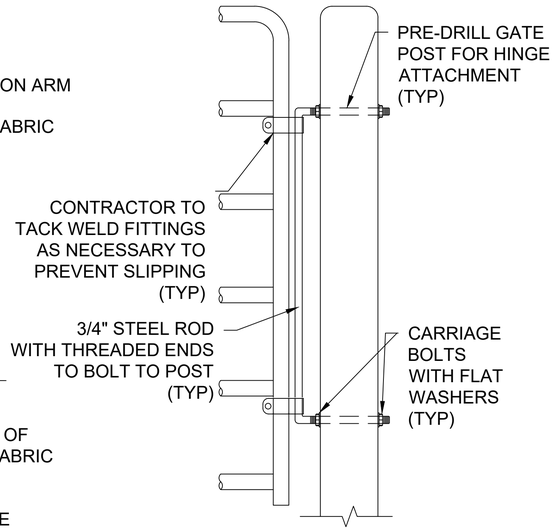
SECTION A-CT01

SCALE: NONE CT01



TYPICAL LINE POST DETAIL

N.T.S

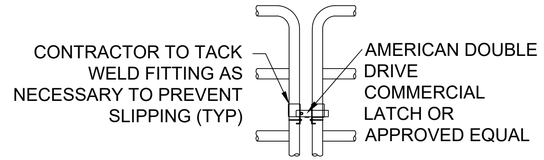


PIPE GATE HINGE DETAIL

N.T.S

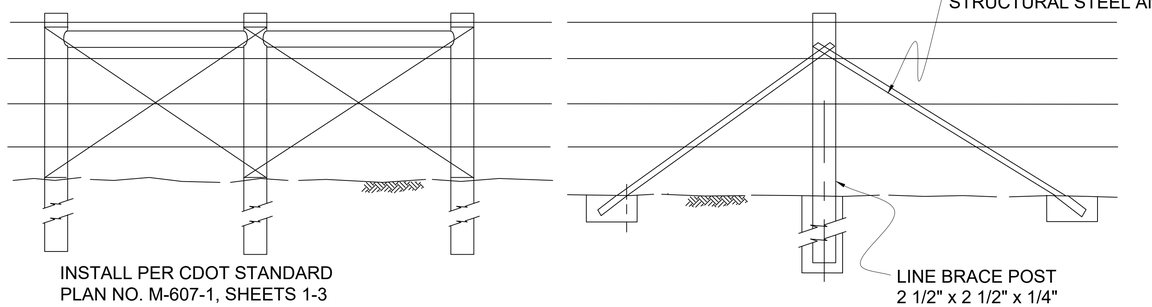
CHAIN LINK FENCE NOTES:

1. A TOTAL OF THREE 24' OPENING CANTILEVER GATES ARE REQUIRED. COUNTERBALANCE LENGTH IS TYPICALLY 50% BUT WILL BE DEPENDENT ON THE GATE MANUFACTURER DESIGN. FOUNDATIONS ARE TBD BASED ON RECOMMENDATIONS FROM THE SELECTED GATE MANUFACTURER.
2. ALL SWING GATES ARE TO SWING OUT ONLY.
3. REFER TO SPECIFICATION DIVISION 15.
4. GATES, GATE POSTS, AND GATE FOUNDATIONS TO BE DESIGNED BY GATE MANUF. GATE MANUF TO SUBMT DESIGN CALCULATIONS DEMONSTRATING COMPLIANCE WITH 2018 IBC. FOR GATE GROUNDING SEE DWG E04C.



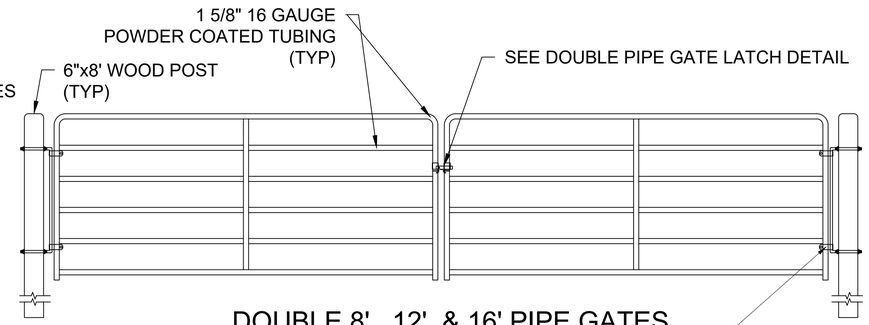
DOUBLE PIPE GATE LATCH DETAIL

N.T.S



SMOOTH WIRE FIELD FENCE DETAIL

N.T.S



DOUBLE 8' , 12', & 16' PIPE GATES

N.T.S

CITADEL BESS PROJECT

DOUGLAS COUNTY, COLORADO

REV.	DATE	DESCRIPTION	BY
A	02/23/2026	ISSUE FOR COUNTY REVIEW	KJK

NAD83 COLORADO STATE PLANES, CENTRAL ZONE, US FOOT

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Ulteig

3350 38TH AVE S
FARGO, ND 58104
PHONE: (701) 280-8500
ULTEIG.COM

PROJECT NUMBER: 25.01369
DESIGN BY: L. MOFFITT
DRAWN BY: L. MOFFITT
APPROVED BY: K. KNOTT

FENCE DETAIL 2

DRAWING NUMBER: CIT-C-501

REVISION: A

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TESLA




TESLA



MEETING DATE: April 6, 2026

STAFF PERSON RESPONSIBLE: Matt Jakubowski, AICP, Chief Planner

DESCRIPTION: Highlands Ranch Planned Development, 84th Amendment - Major Planned Development Amendment - Project File: ZR2026-002.

SUMMARY: Request for a Major Planned Development to the Highlands Ranch PD (HRPD) to add 350 residential dwelling units to Planning Area (PA) 85 of the HRPD.

STAFF ASSESSMENT: Staff has evaluated the request in accordance with Section 15 of the Douglas County Zoning Resolution. Should the Planning Commission find that the approval standards for a Major PD Amendment are met, the following condition should be considered for inclusion in the recommendation to the Board of County Commissioners:

1. Prior to recordation, all technical corrections to the Highlands Ranch Planned Development, 84th Amendment document shall be made to the satisfaction of Douglas County.

ATTACHMENTS:

Cover Page
Staff Report - ZR2026-002

MEETING DATE: April 6, 2026

STAFF PERSON RESPONSIBLE: Matt Jakubowski, AICP, Chief Planner

DESCRIPTION: Highlands Ranch Planned Development, 84th Amendment - Major Planned Development Amendment - Project File: ZR2026-002.

SUMMARY: Request for a Major Planned Development to the Highlands Ranch PD (HRPD) to add 350 residential dwelling units to Planning Area (PA) 85 of the HRPD. The applicant intends to develop multi-family residential units on two adjacent parcels, 4.61 and 10.2 acres in size, owned by the Englewood McLellan Reservoir Foundation. PA 85 currently allows "multi-family dwellings" as a use permitted by right but does not have assigned units available for residential development. The amendment request is to add 350 units for future residential development.

STAFF ASSESSMENT: Staff has evaluated the request in accordance with Section 15 of the Douglas County Zoning Resolution. Should the Planning Commission find that the approval standards for a Major PD Amendment are met, the following condition should be considered for inclusion in the recommendation to the Board of County Commissioners:

1. Prior to recordation, all technical corrections to the Highlands Ranch Planned Development, 84th Amendment document shall be made to the satisfaction of Douglas County.

ATTACHMENTS:

ZR2026-002-HRPD-84thAmd-PCStaffReport

DOUGLAS COUNTY
COLORADO

Major Planned Development Amendment Staff Report

Date:	March 25, 2026
To:	Douglas County Planning Commission
From:	Matt Jakubowski, AICP, Chief Planner MAJ Curt Weitkunat, AICP, Long Range Planning Manager CW Steven E. Koster, AICP, Deputy Director of Community Development SK
Subject:	**Highlands Ranch Planned Development, 84th Amendment**
Project File:	**ZR2026-002**

Planning Commission Hearing:	**April 6, 2026 @ 6:00 p.m.**
Board of County Commissioners Hearing:	**May 12, 2026 @ 2:30 p.m.**

I. EXECUTIVE SUMMARY

The applicant is requesting a Major Planned Development (PD) Amendment to the Highlands Ranch PD (HRPD) to add 350 residential dwelling units to Planning Area 85 (PA 85) of the HRPD. The applicant intends to develop multi-family residential units on two adjacent parcels, 4.61 and 10.2 acres in size, owned by the Englewood McLellan Reservoir Foundation. PA 85 currently allows "multiple-family dwellings" as a use permitted by right but does not have assigned units available for residential development. The amendment request is to add 350 units for future residential development.

II. APPLICATION INFORMATION

A. Applicant

Adam Wallace
Pagewest Acquisitions, LLC
414 N. Mill Street, Floor 2
Aspen, Colorado 81611

B. Applicant's Representative

Norris Design
1101 Bannock Street
Denver, Colorado 80204

C. Request

The applicant requests approval of a Major Amendment to the HRPD through addition of 350 dwelling units to PA 85. The multi-family use is currently allowed in the HRPD by right, but no residential units are assigned to the planning area.

D. Process

A Major PD Amendment application is processed pursuant to Douglas County Zoning Resolution (DCZR) Sections 1519 through 1523. The request is considered a major amendment because it increases the total number of units allowed in the HRPD.

Per Section 1522.06 of the DCZR, "The Planning Commission shall evaluate the application, referral comments, staff report, and public testimony, and make a recommendation to the Board to approve, approve with conditions, table for further study, or deny the amendment request. The Planning Commission's comments shall be based on the evidence presented, compliance with the adopted County standards, regulations, policies and other guidelines."

E. Location

PA 85 is located in northwest Douglas County at the intersection of Plaza Drive and Plaza Circle. A Vicinity Map, Zoning Map, and Aerial Map highlight site location and existing conditions and are within the staff report attachments.

F. Project Description

The applicant is proposing a Major Amendment to the HRPD through addition of 350 dwelling units to PA 85 within the High Density residential dwelling unit subcategory of the Development Plan Zoning Map. The proposed amended Development Plan Zoning Map is attached to the staff report. The proposal would increase the total number of residential units allowed within the HRPD to 36,418. The applicant intends to develop two parcels, 4.61 and 10.2 acres in size, into 350 multi-family units. The applicant has provided a concept layout of the parcels showing 84 attached townhouse units on the 4.61-acre site, and 264 units within a multi-family building on the 10.2-acre site. The parcels were previously platted as Highlands Ranch Filing No. 157, Lot 3 and Lot 4. A future Site Improvement Plan process would be required for the development of these parcels.

III. CONTEXT

A. Background

The HRPD was originally approved in 1979. PA 85 was added to the PD in 1988. Residential development, including one-family attached, two-family, and multi-family dwellings were allowed by right in PA 85, but no residential units were assigned to the PA. In 2015, the HRPD was amended to create PA 85-A within a portion of PA 85. With creation of PA 85-A, 285 dwelling units were transferred from PA 84 (north of the site, across C-470) to PA 85-A. In 2015, the Highlands Ranch Filing No. 157 plat was approved covering PA 85-A, the subject parcels, a potential transit station site, and Ben Franklin Academy. In 2016, PA 85-A was developed into a 285-unit multi-family development.

B. Adjacent Land Uses and Zoning

The site is located in an area with a variety of land uses common to an area abutting a major highway and interchange, including multi-family residences, offices, and a hospital. A potential RTD transit station and park-and-ride is proposed adjacent to the site.

Zoning and Land Use

Direction	Zoning	Land Use
North	HRPD	Multi-family residential, potential RTD transit station & park-and-ride, C-470 right-of-way
South	HRPD	Multi-family residential and Children's Hospital
East	HRPD	Right-of-way for C-470 and Kendrick Castillo Way, and parking lot for an office use
West	HRPD	Ben Franklin Academy Charter School

IV. PHYSICAL SITE CHARACTERISTICS

A. Site Characteristics and Constraints

The subject parcels are undeveloped and vegetated with grasses. The site generally slopes toward C-470 such that the 10-acre parcel is approximately 20 feet lower than the adjoining Children's Hospital building and the intersection of Plaza Drive and Greensborough Drive. Some portions of the parcel along the C-470 right-of-way include an approximately 40 foot grade differential. These physical conditions do not preclude development of the site.

B. Access

The project area includes frontage along both Plaza Drive and Plaza Circle. The applicant's Traffic Impact Study (TIS) anticipates access to the development exclusively from Plaza Circle. Implementation of intersection and other traffic improvements as identified by TIS will be completed as part of future development of the site, including installation of a traffic signal at the Plaza Drive, Plaza Circle, and Greensborough Drive intersection. County Engineering provided no comments on the proposal, and the TIS is accepted.

C. Soils and Geology

Based on a review of the 2040 Douglas County Comprehensive Master Plan (CMP) Class 3 Hazards and Environmental Constraints Map, the property does not include any hazardous geologic or soil conditions.

D. Drainage and Erosion

The applicant will be required to meet all engineering requirements for drainage, grading, and erosion control during future development of the site.

E. Floodplain

No floodplain is present on the site.

V. PROVISION OF SERVICES

A. Schools

The Douglas County School District (DCSD) estimates 18 elementary school students, 3 middle school students, and 6 high school students to be generated by this development, with a land dedication requirement of 0.578 acres. DCSD requests a cash-in-lieu of land dedication payment to be determined with a property appraisal at the time of site development.

B. Fire Protection

South Metro Fire Rescue (South Metro) provides fire protection services in the area. South Metro has no objection to the proposed development.

C. Sheriff Services

The Douglas County Sheriff's Office (DCSO) provides police protection to the site. The DCSO Office of Emergency Management provided a no comment response. DCSO and DCSO E911 provided no response.

D. Water

Water service will be provided by the Highlands Ranch Water and Sanitation District (HR Water). The Colorado Division of Water Resources (CDWR) provided a referral response request and has no objection to the proposal.

E. Sanitation

Sanitary sewer service is also provided by HR Water.

F. Utilities

Utility service providers are Xcel (electrical service and natural gas), AT&T, CenturyLink, and Comcast (phone and data services). AT&T has no conflict with the proposal. Xcel requested a note on future plat documents and indicated that it has a high-pressure gas line on the south side of the development parcels. Future development in this part of the subject parcels will require approvals from Xcel. No response was received from CenturyLink and Comcast.

G. Parks and Trails

Douglas County Parks, Trails, and Building Grounds provided referral comments on the proposal and indicated that park land dedication is determined per Douglas County Subdivision Resolution Article 10. Per Article 10, the applicant is required to either provide a park land dedication or an equivalent cash-in-lieu of land dedication. Determination of a park land dedication or cash-in-lieu amount for the proposal will be finalized at the time of site development.

VI. PUBLIC NOTICE AND INPUT

In accordance with DCZR Section 1523, public notice is required to be published in the Douglas County News Press, posted on site by the applicant, and mailed to owners of property abutting and within PA 85.

Courtesy notices of an application in process were also sent to adjacent property owners as part of the referral period. No comments from adjacent property owners or members of the public have been received. Staff provided referrals to the Highlands Ranch Community Association (HRCA), the Highlands Ranch Golf Club HOA (HRGCA), and the Highlands Ranch Backcountry Association (Backcountry). The HRCA Development Review Committee formally approved the proposal and has no objection to the application. No response was received from HRGCA or Backcountry.

All referral agency comments are outlined in the Referral Agency Response Report attached to the staff report. The applicant provided responses to referral comments within a separate letter included in the staff report appendix.

VII. STAFF ANALYSIS

Per Section 1520 of the DCZR, the following criteria shall be considered for approval of a major amendment:

1520.01: Whether the amendment is consistent with the development standards, commitments, and overall intent of the planned development.
Staff Comment: The application is consistent with the development standards of the HRPD. The HRPD states an intent "to accommodate a balanced mix of residential, commercial, industrial, educational, recreational, and nonurban land uses," as well as allowing "opportunities for innovative community design while at the same time being responsive to changing community needs." It also states, the "New Town of Highlands Ranch is planned and designed to provide for a wide variety and range of housing."

More specific to the subject site, the stated purpose and intent of PA 85 is "to establish land uses and development standards for an Industrial Park" as well as "to encourage the development of businesses and industries primarily engaged in research, development and testing; existing residences and new single-family attached, two-family and multi-family dwellings; compatible light general manufacturing; service industries; warehousing; and construction and activities relating thereto." While the intent of PA 85 is an industrial park and related uses, it also envisioned residential development, including multi-family development.

The applicant's request is for the addition of residential units to PA 85, not rezoning or allowing new uses. Since PA 85 was established, a diversity of land uses both in and around PA 85 have evolved. Offices, multi-family residences, and a hospital have developed adjacent to PA 85. Within PA 85, a school has been developed, and in PA 85-A

(originally part of PA 85) a multi-family project has developed. The applicant's proposal is consistent with the overall PD intent by contributing to housing options in Highlands Ranch. The applicant's proposed concept plan includes a mixture of attached townhouse and multi-family units consistent with the purpose of the PD and PA 85, but also reflective of the evolving nature of development in this area.

1520.02: Whether the amendment is consistent with the intent, efficient development and preservation of the entire planned development.
Staff Comment: As stated above, the overall intent of the PD is a balance of land uses, including a variety of housing options. PA 85's stated purpose is to be an industrial park, and residential development is anticipated as part of that. The proposal adds residential dwelling units to PA 85, an allowed use, and a use considered in the PA 85 intent statement. This supports the intent, efficient development, and preservation of the entire planned development.

1520.03: Whether the amendment will adversely affect the public interest or enjoyment of the adjacent land.
Staff Comment: Multi-family development is allowed by right in PA 85 and the site is adjacent to other land uses typically considered compatible to attached townhouse and multi-family development, including a potential transit station and park-and-ride, existing multi-family development, a hospital, and a school. The parcels in question are located adjacent to C-470 and provide a buffer between C-470 and surrounding parcels.

During future site design, the applicant will finalize site grading, building orientation, screening, buffers, and building height. The applicant's concept plan shows lower scale townhouses along Plaza Drive, and a four-story complex of multi-family buildings and open space to the east closer to C-470 and north of Children's Hospital, although the maximum building height permitted in PA 85 is 90 feet.

The applicant has addressed the 1520.03 approval criteria in its narrative and indicates a desire to construct a quality project that blends the proposal with existing development. The applicant will also implement the recommendations of its TIS, including installation of a traffic signal at the intersection of Plaza Drive, Plaza Circle and Greensborough Drive. Implementation of the TIS will mitigate potential impacts on neighboring property owners.

1520.04: Whether the sole purpose of the amendment is to confer a special benefit upon an individual.
Staff Comment: The application does not as its sole purpose confer a benefit upon an individual. The proposal supports overall development of the HRPD and provides 350 additional housing units to Highlands Ranch.

1520.05: For applications proposing an increase in the intensity of allowed land-uses, including changes in densities, whether the amendment is consistent with the water supply standards in Section 18A, Water Supply Overlay District, of this Resolution.
Staff Comment: DCZR Section 1803A establishes approval standards to be used in the evaluation of land use applications reviewed under Section 18A. HR Water has the capacity to serve the proposed development and has issued a will serve letter as requested by the applicant.

1803A.01: The applicant has demonstrated that the water rights can be used for the proposed uses.
Water and sewer service are to be provided by HR Water.

1803A.02: The reliability of a renewable water right has been analyzed and is deemed sufficient by the County based on its priority date within the Colorado System of Water Rights Administration.
No new renewable water rights are being used to serve this project. HR Water has identified renewable water rights that it currently owns within its portfolio of water rights.

1803A.03: The Water Plan is deemed adequate and feasible by the County to ensure that water supply shortages will not occur due to variations in the hydrologic cycle.
A water plan is not required when water is provided by a District.

1803A.04: The Water Plan is sufficient to meet the demand applicable to the project based on the minimum water demand standards in Section 1805A herein.
A water plan is not required when water is provided by a District.

1520.06: Whether the public facilities and services necessary to accommodate the proposed development will be available concurrently with the impacts of such development.
Staff Comment: The site is in a developed area connected to infrastructure. HR Water will provide water and sewer service. The application has been reviewed by South Metro Fire, utility providers, and the Douglas County Sheriff's Office. None of these agencies expressed an inability to serve the development. Douglas County School District and Douglas County Parks, Trails, and Building Grounds will determine land dedication or cash-in-lieu fees as part of future development.

1520.07: Whether the roadway capacity necessary to maintain the adopted roadway level of service for the proposed development will be available concurrently with the impacts of such development.
Staff Comment: Public Works Engineering has reviewed the applicant's TIS. The applicant will implement the recommendations proposed within the TIS in conjunction with future development of the site.

VIII. STAFF ASSESSMENT

Staff has evaluated the request in accordance with Section 15 of the DCZR. Should the Planning Commission find that the approval standards for a Major PD Amendment are met, the following condition should be considered for inclusion in the recommendation to the Board of County Commissioners:

1. Prior to recordation, all technical corrections to the Highlands Ranch Planned Development, 84th Amendment document shall be made to the satisfaction of Douglas County.

ATTACHMENTS **PAGE**

Douglas County Land Use Application 9
Applicant's Narrative 10
Vicinity Map 16
Zoning Map 17
Aerial Map 18
Referral Agency Response Report 19
Referral Response Letters 24
Applicant Response to Referral Comments 47
Neighborhood Meeting Summary 53
Traffic Impact Study 54
Water Documentation 282
Concept Site Plan 290
Planned Development Redlined Exhibit 291
Planned Development Clean Exhibit 292

DOUGLAS COUNTY
COLORADO

Land Use Application

Please complete, sign, and date this application. Return it with the required items on the Submittal Checklist to planningsubmittals@douglas.co.us. Submittals may also be mailed or submitted in person to Planning Resources.

PROJECT INFORMATION

Project Type: PD Amendment

Marketing Name: Lucent Station

Presubmittal Review Project Number: PS2024-247

PROJECT SITE

Address: Plaza Drive and Lucent Drive

State Parcel Number(s): Parcel 1: 2229-042-08-001; Parcel 2: 2229-042-09-002

Subdivision/Block#/Lot# *(if platted)*:

PROPERTY OWNER(S)

Name(s): Englewood McLellan Reservoir Foundation

Address: 414 N Mill St., Floor 2, Aspen, CO 81611

Phone: 512-788-1428

Email: adam@pagewestco.com

AUTHORIZED REPRESENTATIVE

Name: Adam Wallace; Mallory Mooney

Company: Pagewest Acquisitions, LLC; Norris Design

Address: 1101 Bannock St., Denver, CO 80204

Phone: 303-892-1166

Email: mmooney@norris-design.com

A notarized Letter of Authorization is required from the property owner, unless the owner is acting as the representative.

ACKNOWLEDGMENT

To the best of my knowledge, the information contained on this application is true and correct. I have received the County's information sheet regarding the *Preble's Meadow Jumping Mouse*.

Adam Wallace
Applicant's Signature

02/02/2026
Date

NOTICE: Douglas County Planning does not charge "Approval" fees. Douglas County communicates through our official email accounts ending in @douglas.co.us; beware of phishing scams using similar addresses. If you have questions or concerns about the validity of an email or invoice, please call our public outreach and assistance team at 303-660-7460 or email planning@douglas.co.us.

Project Number (Office Use Only): ZR2026-002

NORRIS DESIGN
PEOPLE + PLACEMAKING

1101 Bannock Street
Denver, Colorado 80204
303.892.1166

February 10, 2026

Douglas County, Department of Community Development
100 Third Street #220
Castle Rock, CO 80104

RE: NARRATIVE FOR AMENDMENT 84 TO THE HIGHLANDS RANCH PLANNED DEVELOPMENT

Dear Douglas County Department of Community Development,

On behalf of Pagewest Acquisitions, LLC, Norris Design is pleased to present the following proposal to amend the Highlands Ranch Planned Development to allow for multi-family development in Planning Area 85 (PA-85).

OWNER: Englewood McLellan Reservoir Foundation 1000 Englewood Parkway Englewood, CO 80110	**DEVELOPER:** Pagewest Acquisitions, LLC 414 N Mill Street, Floor 2 Aspen, CO 81611 Contact: Adam Wallace, Partner adam@pagewestco.com 512-788-1428
ENTITLEMENTS: Norris Design 1101 Bannock St. Denver, CO 80204 Contact: Mallory Mooney, Project Manager mmooney@norris-design.com 720-782-0059	**CIVIL ENGINEER:** Kimley-Horn 1125 17th St #1400 Denver, CO 80202 Contact: Eric McDaniel, PE eric.mcdaniel@kimley-horn.com 720-943-5657

PROJECT OVERVIEW

The subject Site is composed of two separate parcels of land currently owned by the Englewood McLellan Reservoir Foundation. Parcel #1 (County Parcel #2229-042-08-001) is roughly 4.61 acres in size and Parcel #2 (County Parcel #2229-042-09-002) is roughly 10.2 acres in size. The Site is located within Planning Area 85 of the Highlands Ranch Planned Development.

The applicant team is exploring a multifamily development for the two parcels and intends to amend the Highlands Ranch Planned Development to support this development. This Amendment proposes the addition of 350 residential dwelling units to the Highlands Ranch Planned Development, increasing the Total Dwelling Units of the PD from 36,068 to 36,418. These additional residential units would be designated to Planning Area 85 so that the Site may be developed with multifamily residential through a future land use application.

This Amendment does not propose to rezone land within the Highlands Ranch Planned Development, it simply increases the allowed number of dwelling units by roughly 1%. Multifamily residential is already a Use Permitted by Right in Planning Area 85 per Section X-B of the Highlands Ranch Planned Development.

NORRIS DESIGN
PEOPLE + PLACEMAKING
1101 Bannock Street
Denver, Colorado 80204
303.892.1166

The applicant team has met with the Highlands Ranch Metro District (HRMD) and Highlands Ranch Water (HR Water), who confirmed that there are adequate taps and sufficient water for a residential development of up to 400 units. The Site has existing infrastructure to serve a future development of this size.

Community input is an important part of the development process. Following the submittal of this application, the development team intends to meet with adjacent businesses, the Highlands Ranch Community Association, and the community.

TRAFFIC, ACCESS AND CIRCULATION

The Site is accessed through existing roadways – Plaza Drive and Plaza Circle. The nearby connection of Kendrick Castillo Way is an important thoroughfare in Highlands Ranch, with C-470 also nearby as a major regional highway. One item to note is that the Applicant intends to improve the southeast intersection of Plaza Drive and Plaza Circle with a 4-way traffic signal. Additionally, at the northwest intersection of Plaza Drive and Plaza Circle, the Applicant would like to restrict left turn movements during peak travel times, similar to what the Ben Franklin Academy exit does through signage as shown below:



Details for these improvements will come at the time of the future site plan submittal.

Access and circulation, which will be detailed in a future site plan will comply with all applicable local, state and emergency regulations at the time of Site Improvement Plan. The development team will work with the County and the Metro District on requirements.

PROJECT IMPROVEMENTS

The proposed Amendment will allow the Site to be developed as a multifamily residential community. The development team is proposing a community that will complement the existing character of the neighborhood while delivering a premier experience for its residents. The development will enhance the area by providing high-quality housing that supports growing

nearby employers, promotes a healthy lifestyle, minimizes traffic impact, and fits within the area's existing infrastructure capacity.

The architecture will utilize premium materials, including masonry, glazing, and cementitious siding. Ample on-site parking, including covered garages and surface spaces, will fully accommodate residents and guests, preventing any overflow onto surrounding streets.

The community will feature a state-of-the-art fitness center equipped with weight training, cardio facilities, and spin bikes as well as an outdoor pool and spa, dog parks, pet wash stations, pedestrian-friendly pathways, bicycle storage and repair stations, and wellness-focused gathering spaces such as yoga areas and passive outdoor courtyards.

The proposed community will bring much needed housing for nearby employment centers, prioritize high-quality design, thoughtful infrastructure integration, and lifestyle-driven amenities in a location well suited for density.

CONFORMANCE WITH THE GOALS, OBJECTIVES, AND POLICIES OF THE COMPREHENSIVE PLAN

The proposed PD Amendment is in conformance with the Douglas County 2040 Comprehensive Master Plan in the following ways.

Goal 2-1: Improve and enhance existing Infrastructure; support healthy living; reduce vehicle miles travelled; maintain air quality standards; and conserve open space.
The project is proposed within the Primary Urban Area (PUA), in accordance with Objective 2-1A to "Direct urban-level development to designated urban areas". Additionally, as the Site is in close proximity to two major hospital systems, a school, and one of the area's premier employment centers, the community intends for future residents to live and work in the same area. This supports healthy living and reduces vehicle miles traveled while maintaining air quality standards. Further, future residential development of the Site is intended to be programmed with abundant fitness and recreation facilities both indoors and outdoors.

Goal 2-5: Minimize the impact of development on natural and historic resources.
The proposed PD Amendment will allow future residential development of the Site which will not impact natural and historic resources. The Site is already served by existing streets and it is not located near environmentally or visually-sensitive lands, making it an appropriate location for development.

Policy 2-5A.5: Encourage compact development patterns that conserve natural resources.
Future residential development of the Site would be infill development which is more sustainable than a greenfield development because instead of building new infrastructure, it will improve the existing infrastructure that is already in place.

Goal 2-6: Achieve compatibility between residential and nonresidential land uses, In terms of land use and design.
The Site is adjacent to existing higher-density residential development. The proposed PD Amendment will allow for higher-density residential ensuring that future development is consistent with surrounding land uses. The proximity of a nearby school, hospital, office, and retail will provide services to future residents as well as housing for the nearby employers.

Objective 2-6F: Ensure residential and nonresidential building design, scale, and orientation are compatible with the natural and built environment.

NORRIS DESIGN
PEOPLE + PLACEMAKING
1101 Bannock Street
Denver, Colorado 80204
303.892.1166

The PD Amendment only proposes to add residential units to PA-85 of the Highlands Ranch Planned Development. No changes to the existing residential standards of the Highlands Ranch PD are proposed with this application. Future residential development will comply with the existing standards of the PD ensuring development will be compatible with the natural and built environment of the area.

Policy 2-7B.3: Create opportunities for residents to access transportation and community services
Given the Site's location, future development would provide residents with excellent access to transportation and community services. The Site is located close to the intersection of Kendrick Castillo Way, a major arterial, and C-470, a state freeway, offering future residents' easy access to major road corridors in the region. The parcel directly north of the Site is owned by RTD and if it were to ever develop as a transit center, it would provide future residents with adjacent transit access. For bicyclists and other outdoor enthusiasts, Fly'n B Park is located to the north of the Site along Plaza Drive. The park is a trailhead for the Highline Canal, a major regional trail corridor throughout the larger metro area. To the east of the Site is the nearby Central Park retail center as well as the Arc 470 business park campus.

Goal 2-9: Ensure development occurs concurrently with essential services and Infrastructure.
The applicant team has met with the Highlands Ranch Metro District (HRMD) and Highlands Ranch Water (HR Water), who confirmed that there are adequate taps and sufficient water for residential development of up to 400 units. The project site has existing infrastructure to serve a future development of this size.

COMPLIANCE WITH CRITERIA FOR APPROVAL

1. **Whether the Amendment is consistent with the development standards, commitments, and overall intent of the planned development.**
   The proposed Amendment is consistent with the development standards, commitments, and overall intent of the Highlands Ranch Planned Development (HRPD). The HRPD Master Plan and Development Guide provides a comprehensive controlling document for the regulation of land within the HRPD area and this Amendment to the HRPD proposes development consistent with the overall intent of the Planned Development. The HRPD features lots and standards consistent with what is proposed by this Amendment. The proposed amendment will allow for the subject property to be developed in a land use pattern that was approved previously and that is in concert with the surrounding area. The development standards for this property will be those found in Section VI – High Density Residential of the HRPD Development Guide and represent a development approach for the subject property that is consistent with the surrounding area.

2. **Whether the Amendment is consistent with the intent, efficient development and preservation of the entire planned development.**
   The proposed Amendment is consistent with the intent, efficient development and preservation of the entire Planned Development. One of the stated Objectives of the Highlands Ranch Planned Development Guide is to be "…responsive to changing community needs". The Site has remained vacant for many years, while a need for housing, particularly near major employers, has grown. This demonstrates a changing community need for the planning area. Furthermore, a portion of PA 85 has already been re-designated for high-density housing, and the proposed multifamily use is consistent with the surrounding area, which includes the Creekside at Highlands Ranch Apartments, Longs Ridge Apartments, Solana Lucent Sation Apartments, and Windcrest Summit Square Apartments.

The proposed land use does not represent a significant change from the existing land use pattern and allows for the continued success of the HRPD by activating a long vacant property with needed housing. Also, future residential development of the Site is supported by the capacity of existing infrastructure which aligns with the Highlands Ranch Planned Development's Legislative Intent C.5. to "Encourage a more efficient use of land and public services".

3. **Whether the Amendment will adversely affect the public interest or enjoyment of the adjacent land.**
   The proposed Amendment will not adversely affect the public interest or enjoyment of the adjacent land. The proposed Amendment allows for the Site to develop as a residential community similar in size and character to existing nearby uses. The proposed land use is compatible with the surrounding area and will not increase or change the nature and character of the area. Included with this application is a Traffic Study which revealed that the proposal would have minimal impact on the existing traffic patterns in Highlands Ranch. Potential roadway improvements such as a full service intersection at Plaza Circle and Plaza Drive will improve traffic safety in the area. The intent of the proposal is to allow for the development of the subject property in a manner consistent and in harmony with the surrounding area.

4. **Whether the sole purpose of the Amendment is to confer a special benefit upon an individual.**
   The sole purpose of the Amendment is not to confer a special benefit upon an individual. The purpose of this Amendment is to allow for the subject property to be developed in a manner consistent with the surrounding area. The benefit is to the entire community by adding additional and more diverse housing to Highlands Ranch.

5. **For applications proposing an increase in the intensity of allowed land uses, including changes in densities, whether the Amendment is consistent with the water supply standards in Section 18A, Water Supply Overlay District, of this Resolution.**
   A meeting was held with the Highlands Ranch Water (HR Water) on December 20, 2024. HR Water expressed their capacity to serve this proposed community and stated they will need the final unit count plus the size of proposed irrigation meters and the proposed tap for community center in order to issue a will serve letter. Once this information is available, the development team will provide it to HR Water to obtain the will serve letter and comply with the water supply standards in Section 18A.

6. **Whether the public facilities and services necessary to accommodate the proposed development will be available concurrently with the impacts of such development.**
   Public facilities and services such as school and fire protection are available and have the capacity to support the proposed development. Please see the attached will serve letter from South Metro Fire Rescue stating the capacity to provide fire prevention, fire suppression, emergency medical, and special team response services to properties within its jurisdictional boundaries of which the subject parcel is within. A will serve letter from the Douglas County School District is also included with the application materials.

7. **Whether the roadway capacity necessary to maintain the adopted roadway level of service for the proposed development will be available concurrently with the impacts of such development.**

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PEOPLE + PLACEMAKING

1101 Bannock Street
Denver, Colorado 80204
303.892.1166

Included with this application is a detailed traffic study that examined the impact of proposal on the roadway level of service available in the area. The adopted roadway level of service for the proposed development will be available concurrently with the impacts of the development.

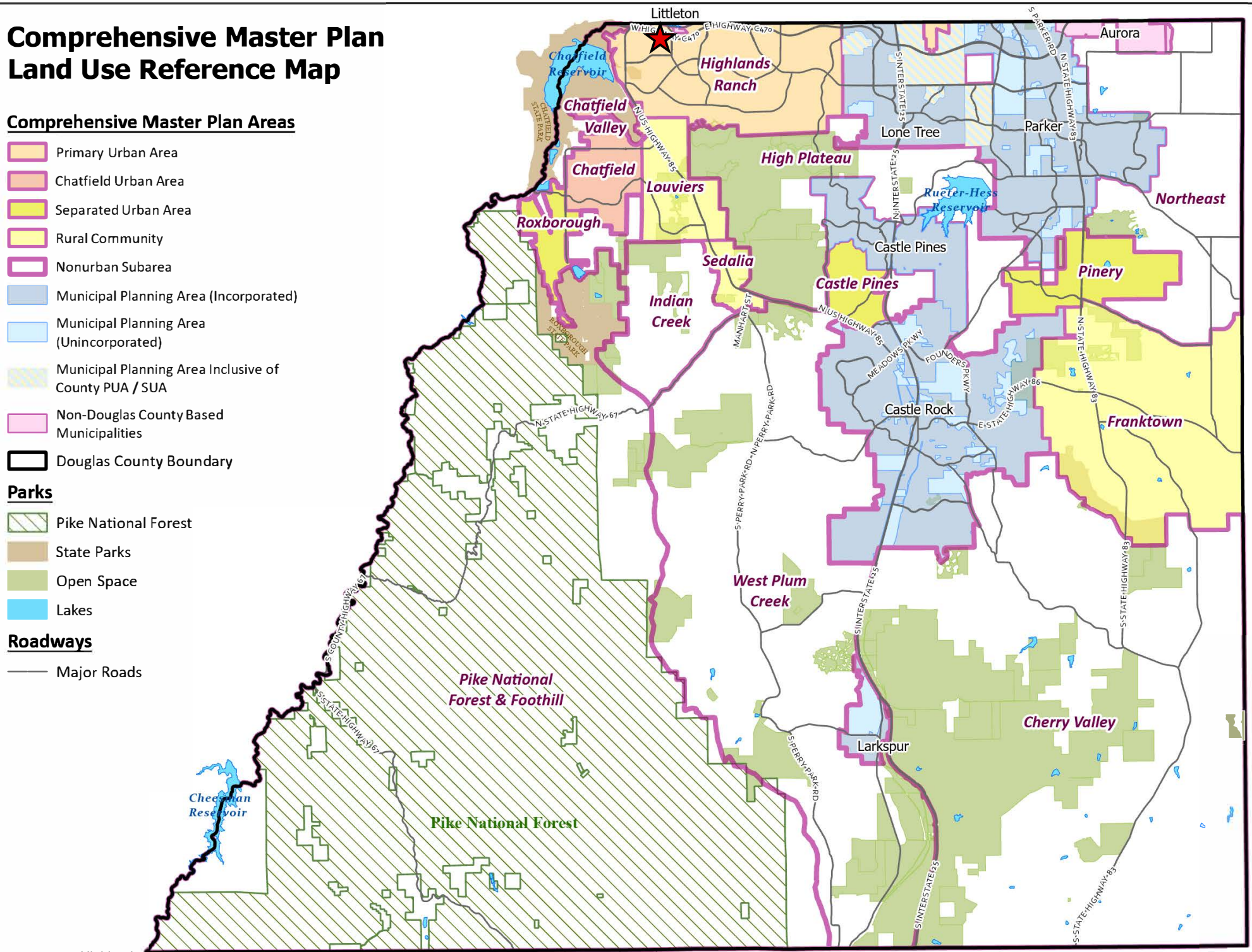
We are excited to work with Douglas County again to make this project a success, and we look forward to meeting with you.

Sincerely,
Norris Design

Mallory Mooney

Mallory Mooney
Project Manager

Comprehensive Master Plan Land Use Reference Map



Highlands Ranch Planned Development, 84th Amendment

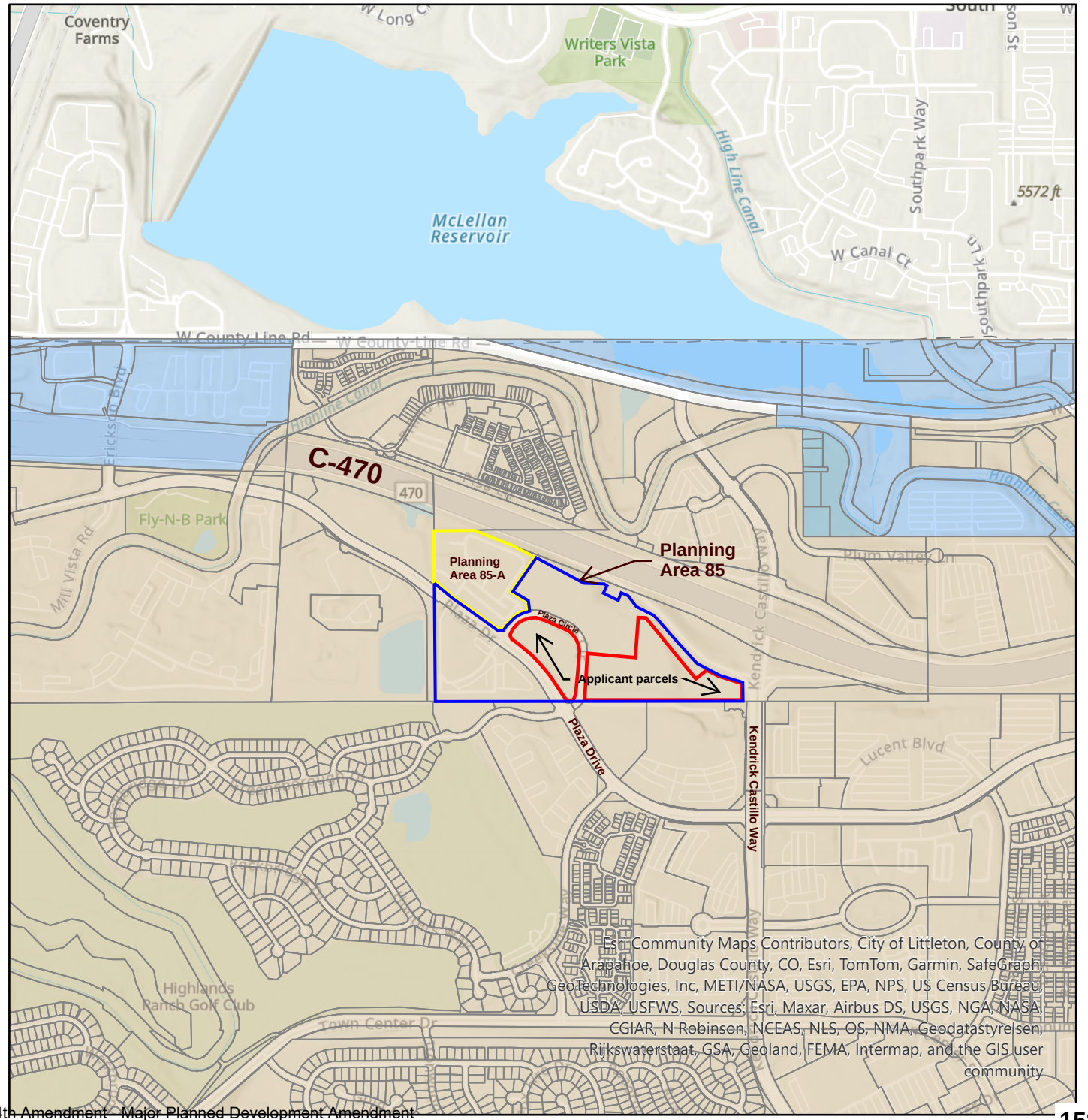
ZR2026-002

Zoning Map

N

LEGEND

- A1 - AGRICULTURAL ONE
- CTY
- PD - PLANNED DEVELOPMENT
- PLANNING AREA 85
- APPLICANT PARCELS
- PLANNING AREA 85-A

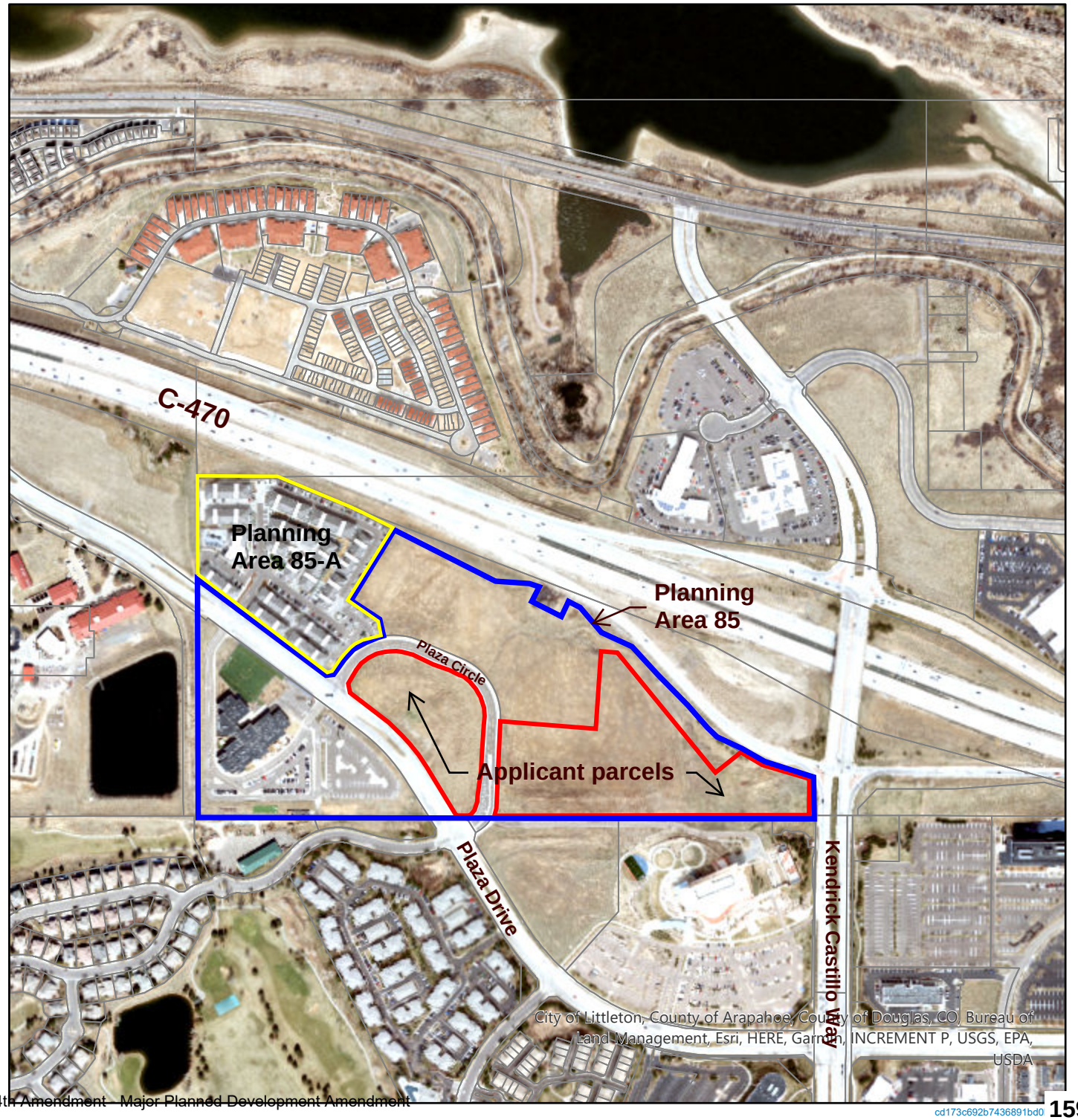


Highlands Ranch Planned Development, 84th Amendment

ZR2026-002
Aerial Map

N

LEGEND
- PLANNING AREA 85
- APPLICANT PARCELS
- PLANNING AREA 85-A



Project Name: Highlands Ranch Planned Development, 84th Amendment
Project File #: ZR2026-002
Date Sent: 02/10/2026 **Date Due:** 03/03/2026

Agency	Date Received	Agency Response	Response Resolution
Addressing Analyst	02/12/2026	No Comment.	No action necessary.
Arapahoe County Engineering Services Division		No Response Received.	No action necessary.
Arapahoe County PWD/ Planning		No Response Received.	No action necessary.
AT&T Long Distance - ROW	02/12/2026	Following is a summary of referral comments received from AT&T. See full letter for detail. No conflicts.	No action necessary.
Backcountry Association, Inc		No Response Received.	No action necessary.
Building Services	02/13/2026	No Comment.	No action necessary.
CenturyLink		No Response Received.	No action necessary.
City of Centennial	02/17/2026	No Comment.	No action necessary.
Colorado Department of Transportation CDOT-Region # 1	02/12/2026	Received (verbatim response): I have reviewed the referral for Highlands Ranch Planned Development, 84th Amendment with PD to add 350 residential units to PA 85 and have the following comments. • Due to the proximity of this development to the C470 EB ramp we would like to review the drainage report to confirm no negative impact. • Any signing for this development visible to the state highway must be compliant with the state rules for outdoor advertising per 2 CCR 601-3. • We ask that the county continue to monitor cumulative impact of development on the Kendrick Castillo Way and C470 interchange. Thank you for the opportunity to review this referral.	Applicant will provide drainage reports to CDOT during future development of the site and will comply with CDOT rules for outdoor advertising as necessary. The Applicant's traffic study incorporates both eastbound and westbound ramps at Kenrick Castillo Way and C-470. County Engineering has accepted the findings of the applicant's traffic study.
Colorado Division of Water Resources	03/09/2026	Following is an excerpt from the referral response received from the Colorado Division of Water Resources (CDWR). See full letter for detail. Our office has no comments regarding this referral.	No action necessary.

Project Name: Highlands Ranch Planned Development, 84th Amendment
Project File #: ZR2026-002
Date Sent: 02/10/2026 **Date Due:** 03/03/2026

Agency	Date Received	Agency Response	Response Resolution
Comcast		No Response Received.	No action necessary.
Douglas County Health Department		No Response Received.	No action necessary.
Douglas County Housing Partnership		No Response Received.	No action necessary.
Douglas County Parks and Trails	02/25/2026	Received (verbatim response): Applicant would be responsible for meeting park land dedication as outlined in Article 10 of the Douglas County Subdivision Resolution. 1003 Parks Whenever land is proposed for residential or non-residential use, the owner of the land is to provide land or cash-in-lieu of land for active and specialized recreation generated by the proposed use. In general, these lands need to be suitable for the development of active play areas, trails, or in some instances serve to preserve unique landforms or natural areas. Where no suitable land is available in a residential or non-residential development, cash-in-lieu of land or of equivalent value in the donation of recreational facilities may be substituted at the County's discretion. Additional dedication for open land may be required by the Board if deemed necessary to preserve areas of special countywide significance (refer to Sections 1003.11.5 and 1003.12.5 of these regulations). 1003.01 The following formula is used to calculate the minimum amount of land dedication required in residential developments which is deemed necessary to provide the needed parks. This formula is based on 15 acres/1000 population. Local Park = Dwelling units x 0.015 acres/unit Regional Park = Dwelling units x 0.030 acres/unit Total = Dwelling units x 0.045 acres/unit The Board reserves the right to adjust the acreage requirement between local and regional park categories as deemed necessary to meet specific needs and to determine the amount of developed park acreage required. The Board may also consider alternative park land dedication formulas for multi-family development proposals.	Final determination of land dedication or parks cash-in-lieu will occur during any future Site Improvement Plan for development of the property.

Project Name: Highlands Ranch Planned Development, 84th Amendment
Project File #: ZR2026-002
Date Sent: 02/10/2026 **Date Due:** 03/03/2026

Agency	Date Received	Agency Response	Response Resolution
Douglas County School District RE 1	03/09/2026	Following is a summary of the referral response received from the Douglas County School District (DCSD). See the letter for full detail. DCSD calculated a land dedication requirement of 0.578 acres from the 18 elementary, 3 middle school, and 6 high school students generated from the development. DCSD requests cash-in-lieu of land dedication per Douglas County Subdivision Resolution 1004.05.03 at Site Plan approval. DCSD has no objection to the proposal provided the applicant agrees to this request.	Final cash-in-lieu determination will occur during any future Site Improvement Plan for development of the property.
Douglas County Water Commission	02/23/2026	No Comment.	No action necessary.
Engineering Services	03/03/2026	No Comment.	No action necessary.
High Line Canal Conservancy		No Response Received.	No action necessary.
Highlands Ranch Community Association	02/11/2026	Received (verbatim response): HRCA appreciates the opportunity to review and opine on this application. We have reviewed the applicant's revised Planned Development amendment (ZR2026-002), which proposes to add 350 residential dwelling units within Planning Area 85 of the Highlands Ranch Planned Development (HRPD). In 2025, HRCA reviewed a substantially similar request involving approximately 400 units and communicated that it took no exceptions to the amendment. The current submittal reflects a reduction in total dwelling units (350 vs. 400), clarifies the residential product mix, and includes additional documentation related to infrastructure capacity and traffic mitigation measures. The proposal does not introduce a new land use, expand the development footprint beyond Planning Area 85, or increase overall development intensity beyond what HRCA previously reviewed. Based on this review, HRCA takes No Exceptions to the proposed 84th Amendment (ZR2026-002). We take this opportunity to remind the applicant that a formal submittal, made directly to HRCA, for review (via our Development Review Committee, DRC) of the SITE IMPROVEMENT PLAN, is required when this project moves into that phase.	No action necessary.

Project Name: Highlands Ranch Planned Development, 84th Amendment
Project File #: ZR2026-002
Date Sent: 02/10/2026 **Date Due:** 03/03/2026

Agency	Date Received	Agency Response	Response Resolution
Highlands Ranch Golf Club HOA		No Response Received.	No action necessary.
Highlands Ranch Metro District	02/26/2026	Following is an excerpt of the referral comments from Highlands Ranch Metro District (HRMD). See the full letter for detail. No comments.	No action necessary.
Highlands Ranch Water and Sanitation District	02/26/2026	Following is a summary of the referral comments received from Highlands Ranch Water and Sanitation. See the full letter for detail. Site, civil, architectural and MEP plans must be submitted for review and approval. Contact the Financial Analyst for required fees.	Applicant will comply with all requirements to receive service from HR Water and at time of development of the project site.
Jefferson County Planning and Zoning	02/12/2026	Received (verbatim response): There are no comments from Jefferson County Planning and Zoning.	No action necessary.
Littleton - Planning	02/13/2026	Following is an excerpt of comments received from the City of Littleton: No comments	No action necessary.
Littleton - Engineering	03/03/2026	Following is a summary of referral comments from the City of Littleton Engineering Staff. See full letter for detail. Littleton Engineering requests that the intersection of Erickson Boulevard and County Line Road be included in the traffic study so Littleton can confirm that intersection has capacity to accommodate peak hour traffic.	Applicant's traffic study has been accepted by County Engineering for purposes of the proposed PD Amendment. Applicant has communicated with Littleton Engineering to discuss the proposal. However, the site is approximately 1 mile from the intersection of Erickson Boulevard and County Line Road and potential impacts to this intersection are not anticipated.

Project Name: Highlands Ranch Planned Development, 84th Amendment
Project File #: ZR2026-002
Date Sent: 02/10/2026 **Date Due:** 03/03/2026

Agency	Date Received	Agency Response	Response Resolution
Mile High Flood District	03/10/2026	Following is a summary of the referral comments received from Mile High Flood District. See full letter for detail. No comments and do not need to see future submittals.	No action necessary.
Office of Emergency Management	02/23/2026	No Comment.	No action necessary.
RTD - Planning & Development Dept	03/02/2026	Following is a summary of comments received from RTD. See full letter for detail. No exceptions from any departments.	No action necessary.
Sheriff's Office		No Response Received.	No action necessary.
Sheriff's Office E911		No Response Received.	No action necessary.
South Metro Fire Rescue	02/17/2026	Received (verbatim response): South Metro Fire Rescue (SMFR) has reviewed the provided documents and has no objection to the proposed Major Planned Development Amendment.	No action necessary.
Xcel Energy-Right of Way & Permits	02/23/2026	Following is a summary of referral comments from Xcel Energy. See the full letter for detail. Xcel requested a note be included on future plat documents. Xcel also indicated the presence of a high-pressure natural gas line on the south side of one of the subject parcels. Any encroachments, grading, landscaping, or similar activities will require Xcel approval and a license agreement.	Applicant will comply with all requirements to receive service from Xcel Energy. The requested note is not applicable to the PD Amendment process. The location of utilities and any potential new easements will be determined as part of future development of the site.

From: annb cwc64.com
Sent: Thursday, February 12, 2026 11:27 AM
To: Matt Jakubowski
CC: LANA SCARLETT-ROWELL (ls1762@att.com); duanew cwc64.com; jt cwc64.com
Subject: Ben Franklin Highlands Ranch, Colorado Douglas County eReferral #ZR2026-002
Attachments: Ben Franklin Highlands Ranch, Colorado.jpg

Caution: This email originated outside the organization. Be cautious with links and attachments.

Hi Matt,

This is in response to your eReferral with a utility map showing any buried AT&T Long Line Fiber Optics near Ben Franklin Highlands Ranch, Colorado. The Earth map shows the project area in red. Based on the address and/or map you provided, there should be NO conflicts with the AT&T Long Lines, as we do not have facilities in that area.

Please feel free to contact us with any questions or concerns.

Ann Barnowski
Clearwater Consulting Group Inc
120 9th Avenue South
Suite 140
Nampa, ID 83651
Annb@cwc64.com

The attached google earth maps are intended to show approximate locations of the buried AT&T long line fiber optic cable. The maps are provided for informational purposes only. In no way should the maps be used for anything other than general guidelines as to where the fiber is or is not and any other use of these maps is strictly prohibited.

-----Original Message-----
From: mjakubow@douglas.co.us <mjakubow@douglas.co.us>
Sent: Tuesday, February 10, 2026 2:55 PM
To: annb cwc64.com <annb@cwc64.com>
Subject: Douglas County eReferral (ZR2026-002) Is Ready For Review

There is an eReferral for your review. Please use the following link to log on to your account:
https://apps.douglas.co.us/planning/projects/Login.aspx

Project Name: Highlands Ranch Planned Development, 84th Amendment
Project File #: ZR2026-002
Project Summary: Applicant, Pagewest Acquisitions, is requesting a Major Planned Development (PD) amendment to the Highlands Ranch PD to add 350 residential units to PA 85. Although one-family attached, two-family, and multifamily dwelling units are allowed uses in PA 85 by right, additional units must be assigned to develop such uses. The applicant ultimately proposes multifamily and townhouse development on the two subject parcels (4.61 acres & 10.2 acres). The parcels are located on the north side of Plaza Drive at Plaza Circle, approximately ½ mile west of the intersection of Kendrick Castillo Way and Plaza Drive. Future development on the property requires separate Site Improvement Plan approval, not subject of this application.

This referral will close on Tuesday, March 3, 2026.

If you have any questions, please contact me.

Sincerely,

Matt Jakubowski, AICP | Chief Planner
Douglas County Department of Community Development Planning Services Division Address | 100 Third St., Castle Rock, CO 80104
Phone | 303-660-7460 Email | mjakubow@douglas.co.us


PROJECT AREA
Google Earth

From: Loeffler - CDOT, Steven
Sent: Thursday, February 12, 2026 8:07 AM
To: Matt Jakubowski
CC: Jessica Varner - CDOT; Joseph Tripple - CDOT
Subject: Re: Douglas County eReferral (ZR2026-002) Is Ready For Review

Caution: This email originated outside the organization. Be cautious with links and attachments.

Matt,

I have reviewed the referral for Highlands Ranch Planned Development, 84th Amendment with PD to add 350 residential units to PA 85 and have the following comments.

- Due to the proximity of this development to the C470 EB ramp we would like to review the drainage report to confirm no negative impact.
- Any signing for this development visible to the state highway must be compliant with the state rules for outdoor advertising per 2 CCR 601-3.
- We ask that the county continue to monitor cumulative impact of development on the Kendrick Castillo Way and C470 interchange.

Thank you for the opportunity to review this referral.

Steve Loeffler
Permits Unit- Region 1

COLORADO
Department of Transportation

P 303.757.9891 | F 303.757.9053
2829 W. Howard Pl. 2nd Floor, Denver, CO 80204
steven.loeffler@state.co.us | www.codot.gov | www.cotrip.org

On Tue, Feb 10, 2026 at 2:56 PM <mjakubow@douglas.co.us> wrote:

> There is an eReferral for your review. Please use the following link to log on to your account:
> https://urldefense.com/v3/__https://apps.douglas.co.us/planning/projects/Login.aspx__;!!PUG2raq7KiCZwBk!ePIT9Q8X_BY9BPtIbsQ46wMIiby6WJg-r-0iT7T9TXAlvmGtTDXYKV0_2Uyu0WEdok2I4ZKOkbZLsrAHEQrN9l6HiNeE$
>
> Project Name: Highlands Ranch Planned Development, 84th Amendment
> Project File #: ZR2026-002
> Project Summary: Applicant, Pagewest Acquisitions, is requesting a Major Planned Development (PD) amendment to the Highlands Ranch PD to add 350 residential units to PA 85. Although one-family attached,

two-family, and multifamily dwelling units are allowed uses in PA 85 by right, additional units must be assigned to develop such uses. The applicant ultimately proposes multifamily and townhouse development on the two subject parcels (4.61 acres & 10.2 acres). The parcels are located on the north side of Plaza Drive at Plaza Circle, approximately ″ mile west of the intersection of Kendrick Castillo Way and Plaza Drive. Future development on the property requires separate Site Improvement Plan approval, not subject of this application.

This referral will close on Tuesday, March 3, 2026.

If you have any questions, please contact me.

Sincerely,

Matt Jakubowski, AICP | Chief Planner
Douglas County Department of Community Development
Planning Services Division
Address | 100 Third St., Castle Rock, CO 80104
Phone | 303-660-7460
Email | mjakubow@douglas.co.us

COMMUNITY DEVELOPMENT DEPARTMENT
2255 West Berry Avenue Littleton, Colorado 80120

March 3, 2026

Matt Jakubowski
303-660-7460
email: mjakubow@douglas.co.us

RE: Douglas County eReferral (ZR2026-002)

Matt,

This letter comes in response to your request for a review for:

Proposed Highlands Ranch Planned Development, 80th Amendment

City of Littleton engineering staff have reviewed the referral request for a Major Planned Development amendment, which proposes additional units to the permitted uses within Planning Area 85. We have a comment concerning the Lucent Station Traffic Impact Study.

Staff acknowledges that the intersection of Erickson Blvd and Plaza Dr (#1) is included in the study. However, we request that the intersection of Erickson Blvd and County Line Rd intersection be included. Per Figure 7, Project Traffic Assignment, Intersection #1 is projected to have 37 AM peak hour trips and 24 PM peak hour trips making the WB right turn onto NB Erickson Blvd. We would like to confirm that the intersection of Erickson Blvd and County Line Rd, owned and operated by the City of Littleton, has sufficient storage and capacity to accommodate the anticipated peak hour traffic, which we assume will involve vehicles making a NB left turn onto WB County Line Rd to access Santa Fe.

Please reach out with any additional questions or comments.

Thank you,

Jessica Stemley
Development
Engineering Manager
jstemley@littletonco.gov
303.795.3868

February 13, 2026

Matt Jakubowski
(303)814-4324
email: mjakubow@douglas.co.us

RE: Highlands Ranch Planned Development, 84th Amendment, ZR2026-002

Matt,

This letter comes in response to your request for a review for:

Highlands Ranch Planned Development, 84th Amendment, ZR2026-002

City of Littleton planning staff have reviewed the above referral request and have **no comments**.

Thank you,

Rachel Vigil

Community Development

Planner I

rvigil@littletonco.gov

303.795.3721

From: Matz - DNR, Michael
Sent: Monday, March 9, 2026 12:08 PM
To: Matt Jakubowski
CC: Javier Vargas-Johnson - DNR
Subject: Re: Douglas County eReferral (ZR2026-002) Is Ready For Review

Caution: This email originated outside the organization. Be cautious with links and attachments.

Good afternoon,

We have received Referral ZR2026-002 regarding a proposal to add 350 residential units to planning area 85 inside the Highlands Ranch Subdivision.

This referral does not appear to qualify as a "subdivision" as defined in section 30-28-101(10)(a), C.R.S. Therefore, pursuant to the State Engineer's March 4, 2005 and March 11, 2011 memorandums to county planning directors, this office will only perform a cursory review of the referral information and provide informal comments. The comments do not address the adequacy of the water supply plan for this project or the ability of the water supply plan to satisfy any County regulations or requirements. In addition, the comments provided herein cannot be used to guarantee a viable water supply plan or infrastructure, the issuance of a well permit, or physical availability of water.

A review of our records indicates there are no production wells on the two subject parcels.

The proposed water source for the multifamily and townhouse dwellings on the two parcels is service through the Highlands Ranch Water District. A will-serve letter indicating the District's willingness to serve the proposed development was included in the referral documents. Our office has no comments regarding this referral.

Thank you for the opportunity to review.

Best,

Mike Matz, P.E.
Water Resources Engineer

COLORADO
Division of Water Resources
Department of Natural Resources

P 303.866.3581 x 8241
1313 Sherman Street, Room 821, Denver, CO 80203
michael.matz@state.co.us | www.colorado.gov/water

On Thu, Feb 12, 2026 at 12:17 PM Matt Jakubowski <mjakubow@douglas.co.us> wrote:

> Hi Mike,

This is not a subdivision action. The proposal is a zoning amendment to assign 350 units to a Planning Area within the Highlands Ranch Planned Development. A future Site Plan will follow for the specific design of the site. Referrals will be sent for the Site Plan process as well.

Matt

Matt Jakubowski, AICP | Chief Planner

Douglas County Department of Community Development

Planning Services Division
Address | 100 Third St., Castle Rock, CO 80104
Phone | 303-660-7460

Email | mjakubow@douglas.co.us

NOTICE: Douglas County Planning does not charge "Approval" fees. Douglas County communicates through our official email accounts ending in @douglas.co.us; beware of phishing scams using similar addresses. If you have questions or concerns about the validity of an email or invoice, please call our Public Outreach and Assistance team at 303-660-7460 or email planning@douglas.co.us.

From: Matz - DNR, Michael <michael.matz@state.co.us>
Sent: Thursday, February 12, 2026 9:09 AM
To: Matt Jakubowski <mjakubow@douglas.co.us>
Subject: Fwd: Douglas County eReferral (ZR2026-002) Is Ready For Review

Caution: This email originated outside the organization. Be cautious with links and attachments.

Good morning,

We just wanted to see if the County was considering this amendment to the Highlands Ranch PD as a subdivision action? Or would the County consider it a non-subdivision action?

Thanks,

Mike Matz, P.E.
Water Resources Engineer

COLORADO
Division of Water Resources
Department of Natural Resources

P 303.866.3581 x 8241
1313 Sherman Street, Room 821, Denver, CO 80203
michael.matz@state.co.us | www.colorado.gov/water

---------- Forwarded message ---------
From: **Vargas-Johnson - DNR, Javier** <javier.vargasjohnson@state.co.us>
Date: Wed, Feb 11, 2026 at 4:16 PM
Subject: Fwd: Douglas County eReferral (ZR2026-002) Is Ready For Review
To: Michael Matz - DNR <michael.matz@state.co.us>

Hi Mike,

Please see this referral for a Major Planned Development. Please note that this may meet the definition of a subdivision as stated in 30-28-101(10)(a) : " ”Subdivision“ or ”subdivided land“ means any parcel of land in the state which is to be used for condominiums, apartments, or any other multiple-dwelling units, unless such land when previously subdivided was accompanied by a filing which complied with the provisions of this part 1 with substantially the same density, or which is divided into two or more parcels, separate interests, or interests in common, unless exempted under paragraph (b), (c), or (d) of this subsection (10). As used in this section, ”interests“ includes any and all interests in the surface of land but excludes any and all subsurface interests."

Javier Vargas-Johnson, P.E.
Chief of Water Supply, Designated Basins

COLORADO
Division of Water Resources
Department of Natural Resources

P 303-866-3581 x8265
1313 Sherman Street, Room 821, Denver, CO 80203
javier.vargasjohnson@state.co.us | https://dwr.colorado.gov/

---------- Forwarded message ---------
From: <mjakubow@douglas.co.us>
Date: Tue, Feb 10, 2026 at 2:56 PM
Subject: Douglas County eReferral (ZR2026-002) Is Ready For Review
To: <javier.vargasjohnson@state.co.us>

There is an eReferral for your review. Please use the following link to log on to your account:
https://urldefense.com/v3/__https://apps.douglas.co.us/planning/projects/Login.aspx__;!!PUG2raq7KiCZwBk!cVyGJ1LV4H7Pc9Df4VnIwVG6FK-vsevsMl-ZFj5bJopvS0C2ot3gMdCI2NHH-Wp1lcpikh4aIjWJo3hZU3SV9Phjl7s8m19y$

Project Name: Highlands Ranch Planned Development, 84th Amendment
Project File #: ZR2026-002
Project Summary: Applicant, Pagewest Acquisitions, is requesting a Major Planned Development (PD) amendment to the Highlands Ranch PD to add 350 residential units to PA 85. Although one-family attached, two-family, and multifamily dwelling units are allowed uses in PA 85 by right, additional units must be assigned to develop such uses. The applicant ultimately proposes multifamily and townhouse development on the two subject parcels (4.61 acres & 10.2 acres). The parcels are located on the north side of Plaza Drive at Plaza Circle, approximately ″ mile west of the intersection of Kendrick Castillo Way and Plaza Drive. Future development on the property requires separate Site Improvement Plan approval, not subject of this application.

This referral will close on Tuesday, March 3, 2026.

If you have any questions, please contact me.

Sincerely,

Matt Jakubowski, AICP | Chief Planner
Douglas County Department of Community Development
Planning Services Division
Address | 100 Third St., Castle Rock, CO 80104
Phone | 303-660-7460
Email | mjakubow@douglas.co.us

DV 26-120

DOUGLAS COUNTY
COLORADO

www.douglas.co.us

Department of Community Development
Planning Services

REFERRAL RESPONSE REQUEST – MAJOR PLANNED DEVEL. AMD.

Date sent: February 10, 2026

Comments due by: **March 3, 2026**
Fax: 303.660.9550

Project Name:	Highlands Ranch Planned Development, 84th Amendment
Project File #:	ZR2026-002
Project Summary:	Applicant, Pagewest Acquisitions, is requesting a Major Planned Development (PD) amendment to the Highlands Ranch PD to add 350 residential units to PA 85. Although one-family attached, two-family, and multifamily dwelling units are allowed uses in PA 85 by right, additional units must be assigned to develop such uses. The applicant ultimately proposes multifamily and townhouse development on the two subject parcels (4.61 acres & 10.2 acres). The parcels are located on the north side of Plaza Drive at Plaza Circle, approximately ½ mile west of the intersection of Kendrick Castillo Way and Plaza Drive. Future development on the property requires separate Site Improvement Plan approval, not subject of this application.

Information on the identified development proposal located in Douglas County is enclosed. Please review and comment in the space provided.

☒	No Comment	
☐	Please be advised of the following concerns:	
☐	See letter attached for detail.	
Agency: ENGINEERING		**Phone #:** 4318
Your Name: AL PETERSON		**Your Signature:** Al Pete
(please print)		**Date:** 3/3/2026

Agencies should be advised that failure to submit written comments prior to the due date, or to obtain the applicant's written approval of an extension, will result in written comments being accepted for informational purposes only.

Sincerely,

Matt Jakubowski, Chief Planner
Enclosure

620 Wilcox Street
Castle Rock, Colorado 80104

March 9, 2026

Matt Jakubowski, AICP | Chief Planner
Douglas County Department of Community Development
Planning Services Division
Address | 100 Third St., Castle Rock, CO 80104
Phone | 303-660-7460
Email | mjakubow@douglas.co.us

RE: Highlands Ranch Planned Development Major Amendment-84th Amendment (ZR2026-002)

Mr. Jakubowski,

It is our understanding that the applicant has requested a Major Amendment to Planning Area 85 of the Highlands Ranch Planned Development to allow for additional residential units. It is also our understanding that the application proposes the addition of 350 residential units to the PD bringing the total allowed dwelling units in the Highlands Ranch PD from 36,068 to 36,418. Finally, it's our understanding that multifamily and townhouse development on two existing parcels totalling approximately 14.8-acres is being proposed. The proposed development is located directly northwest of the Children's Hospital Colorado South Campus at the intersection of Plaza Drive and Kendrick Castillo Way.

DCSD has calculated the amount of school site land requirement for students generated by the proposed planned development (as per the attached conceptual plan). Student generation and the associated land dedication requirement are shown below. A total of 18 elementary school students, 3 middle school students, and 6 high school students are expected from the development (as proposed) generating a land dedication requirement of 0.578-acres. Since this is smaller than DCSD's minimum school site size, DCSD would request cash-in-lieu of land dedication.

CASH-IN-LIEU CALCULATION
STUDENT GENERATION

PROJECT NAME: Highlands Ranch PD 84th Amendment (ZR2026-002)				
DU/	ACRES		DENSITY	
350	14.81		23.63	
			Generation	Number
STUDENT GENERATION RATES	No. of DU's		Rate	of Students
ELEMENTARY	350	X	0.05	18
MIDDLE SCHOOL	350	X	0.008	3
HIGH SCHOOL	350	X	0.017	6
				26
				Required
			School	Land
	Number		Acreage	Dedication
SCHOOL LAND DEDICATION	of Students		Per Student	Acreage
ELEMENTARY	18	X	0.018	0.315
MIDDLE SCHOOL	3	X	0.030	0.084
HIGH SCHOOL	6	X	0.030	0.179
			TOTAL	0.578

As per Article 1004.05.3 of the Douglas County Subdivision Regulations, "The cash-in-lieu fee shall be equivalent to the full market value of the acreage required for school land dedication. Value shall be based on anticipated market value after completion of platting. The applicant shall submit a proposal for the cash-in-lieu fee and supply the information necessary for the Board to evaluate the adequacy of the proposal. This information shall include at least one appraisal of the property by a qualified appraiser."

DCSD would ask that the required cash-in-lieu fee be paid directly to the School District upon Site Plan approval.

Granted the applicant and Douglas County agrees to this request, DCSD has no objection to the proposed PD Major Amendment.

Shavon Caldwell, Planning Manager
DCSD Planning & Construction
scaldwell2l@dcsdk12.org
desk: 303.387.0417

HIGHLANDS RANCH
Metro District

February 26, 2026

Carolyn Washee-Freeland, AICP, Senior Planner
Douglas County Department of Community Development, Planning Services
100 Third Street
Castle Rock, CO 80104

Project name: Highlands Ranch Planned Development 84th Amendment - Apartments

Project File #: ZR2026-002

Review Date: March 3, 206

Project Summary: Requesting a Major Planned Development (PD) amendment to the Highlands Ranch PD to add 350 residential units to PA 85. Although one-family attached, two-family, and multifamily dwelling units are allowed uses in PA 85 by right, additional units must be assigned to develop such uses. The applicant ultimately proposes multifamily and townhouse development on the two subject parcels (4.61 acres & 10.2 acres).

The District appreciated the opportunity to review and comment on the proposed project. District staff have reviewed the proposed application for its impacts on our facilities and offers no comments.

February 26, 2026

Carolyn Washee-Freeland, AICP, Senior Planner
Douglas County Department of Community Development, Planning Services
100 Third Street
Castle Rock, CO 80104

Project name: Highlands Ranch Planned Development 84th Amendment - Apartments

Project File #: ZR2026-002

Review Date: March 3, 206

Project Summary: Requesting a Major Planned Development (PD) amendment to the Highlands Ranch PD to add 350 residential units to PA 85. Although one-family attached, two-family, and multifamily dwelling units are allowed uses in PA 85 by right, additional units must be assigned to develop such uses. The applicant ultimately proposes multifamily and townhouse development on the two subject parcels (4.61 acres & 10.2 acres).

The District appreciated the opportunity to review and comment on the proposed project. District staff has reviewed the proposed application for its impacts on our facilities and offers the following comments:

- Site civil, architectural and MEP plans must be submitted to the District for review and approval.

  Jon Klassen
  Project Manager

- Contact our Financial Analyst to acquire system development and tap fees quotes. 303-791-0430

From: Lindsey Wire
Sent: Thursday, February 12, 2026 9:26 AM
To: Matt Jakubowski; Referrals
Subject: Re: --{EXTERNAL}-- Douglas County eReferral (ZR2026-002) Is Ready For Review

> **Caution:** This email originated outside the organization. Be cautious with links and attachments.

Hello,

Thank you for the referral.

There are no comments from Jefferson County Planning and Zoning.

Thank you,

Lindsey Wire (she/her)
Engineering Supervisor
Planning & Zoning
o 303-271-8717
lwire@jeffco.us | planning.jeffco.us

JEFFERSON COUNTY COLORADO
Planning and Zoning

Help us shape the future of Jefferson County by visiting the Together Jeffco website!
https://togetherjeffco.com

From: mjakubow@douglas.co.us <mjakubow@douglas.co.us>
Sent: Tuesday, February 10, 2026 2:54 PM
To: Referrals <Referrals@co.jefferson.co.us>
Subject: --{EXTERNAL}-- Douglas County eReferral (ZR2026-002) Is Ready For Review

There is an eReferral for your review. Please use the following link to log on to your account:
https://urldefense.com/v3/__https://apps.douglas.co.us/planning/projects/Login.aspx__;!!AimZMsSgOA4!vjoEXtWG5qu7JA4oXxJu7vo9SU4KDnJ4WCL2GSEzbYTVyGyOeanvsV8Aw1EkKjvWPXgKQ6TChFjUPxGGYZ39q6HaxiYcTg$[apps[.]douglas[.]co[.]us]

Project Name: Highlands Ranch Planned Development, 84th Amendment
Project File #: ZR2026-002
Project Summary: Applicant, Pagewest Acquisitions, is requesting a Major Planned Development (PD) amendment to the Highlands Ranch PD to add 350 residential units to PA 85. Although one-family attached, two-family, and multifamily dwelling units are allowed uses in PA 85 by right, additional units must be assigned to develop such uses. The applicant ultimately proposes multifamily and townhouse development on the two subject parcels (4.61 acres & 10.2 acres). The parcels are located on the north side of Plaza Drive at Plaza Circle, approximately ½ mile west of the intersection of Kendrick Castillo Way and Plaza Drive. Future development on the property requires separate Site Improvement Plan approval, not subject of this application.

This referral will close on Tuesday, March 3, 2026.

If you have any questions, please contact me.

Sincerely,

Matt Jakubowski, AICP | Chief Planner
Douglas County Department of Community Development
Planning Services Division
Address | 100 Third St., Castle Rock, CO 80104
Phone | 303-660-7460
Email | mjakubow@douglas.co.us

MILE HIGH FLOOD DISTRICT

2480 W. 26th Ave Suite 156-B | Denver, CO 80211
TEL 303 455 6277 | FAX 303 455 7880

www.mhfd.org

For MHFD staff use only.	
Project ID:	106664
Submittal ID:	10014037

March 10, 2026

To: Douglas County

Via email

Subject: MHFD Review Comments

Re: Highlands Ranch Planned Development 84th Amendment (Partner Case No. ZR2026-002)

This letter is in response to the request for our comments concerning the referenced project. We have reviewed this referral only as it relates to an MHFD drainageway and for maintenance eligibility of storm drainage features, in this case:

- Outfall to Marcy Gulch
- Outfall to Dad Clark Gulch

We have no comments to the referenced project and do not need to see future submittals.

Please feel free to contact me with any questions.

Sincerely,

Laura Hinds, P.E.
Project Manager, Mile High Flood District
lhinds@mhfd.org

From: Clayton Woodruff
Sent: Monday, March 2, 2026 2:31 PM
To: Matt Jakubowski
Subject: RE: Douglas County eReferral (ZR2026-002) Is Ready For Review

Caution: This email originated outside the organization. Be cautious with links and attachments.

RTD Comments

Project Name: Highlands Ranch Planned Development, 84th Amendment - ZR2026-002 - 1st Submittal

Department Comments
Bus Operations No exceptions
Bus Stop Program No exceptions
Commuter Rail No exceptions
Construction Management No exceptions
Engineering No exceptions
Light Rail No exceptions
Real Property No exceptions
Service Development No exceptions
Transit Oriented Development No exceptions
Utilities No exceptions
This review is for Design concepts and to identify any necessary improvements to RTD stops and property affected by the design. This review of the plans does not eliminate the need to acquire, and/or go through the acquisition process of any agreements, easements or permits that may be required by the RTD for any work on or around our facilities and property.

C Scott Woodruff
Engineer III
Capital Programs
o. 303.299.2943
m. 303-720-2025
Clayton.woodruff@rtd-denver.com
rtd-denver.com

Regional Transportation District
1560 Broadway, Suite 700, FAS-72
Denver, CO 80202

We make lives better through connections.

-----Original Message-----
From: mjakubow@douglas.co.us <mjakubow@douglas.co.us>
Sent: Tuesday, February 10, 2026 2:55 PM
To: Engineering <engineering@RTD-Denver.com>
Subject: Douglas County eReferral (ZR2026-002) Is Ready For Review

There is an eReferral for your review. Please use the following link to log on to your account:
https://apps.douglas.co.us/planning/projects/Login.aspx

Project Name: Highlands Ranch Planned Development, 84th Amendment
Project File #: ZR2026-002
Project Summary: Applicant, Pagewest Acquisitions, is requesting a Major Planned Development (PD) amendment to the Highlands Ranch PD to add 350 residential units to PA 85. Although one-family attached, two-family, and multifamily dwelling units are allowed uses in PA 85 by right, additional units must be assigned to develop such uses. The applicant ultimately proposes multifamily and townhouse development on the two subject parcels (4.61 acres & 10.2 acres). The parcels are located on the north side of Plaza Drive at Plaza Circle, approximately ½ mile west of the intersection of Kendrick Castillo Way and Plaza Drive. Future development on the property requires separate Site Improvement Plan approval, not subject of this application.

This referral will close on Tuesday, March 3, 2026.

If you have any questions, please contact me.

Sincerely,

Matt Jakubowski, AICP | Chief Planner
Douglas County Department of Community Development Planning Services Division Address | 100 Third St., Castle Rock, CO 80104
Phone | 303-660-7460 Email | mjakubow@douglas.co.us

SOUTH METRO FIRE RESCUE
FIRE MARSHAL'S OFFICE

Matthew Jakubowski, AICP, Chief Planner
Douglas County Department of Community Development, Planning Services
100 Third St
Castle Rock Co 80104
303.660.7460
303.660.9550 Fax

Project Name:	Highlands Ranch Planned Development, 84th Amendment
Project File #:	**ZR2026-002**
S Metro Review #	REFPDP26-00047
Review date:	February 17, 2026
Plan reviewer:	Aaron Miller 720.989.2246 aaron.miller@southmetro.org
Project Summary:	Applicant, Pagewest Acquisitions, is requesting a Major Planned Development (PD) amendment to the Highlands Ranch PD to add 350 residential units to PA 85. Although one-family attached, two-family, and multifamily dwelling units are allowed uses in PA 85 by right, additional units must be assigned to develop such uses. The applicant ultimately proposes multifamily and townhouse development on the two subject parcels (4.61 acres & 10.2 acres). The parcels are located on the north side of Plaza Drive at Plaza Circle, approximately ½ mile west of the intersection of Kendrick Castillo Way and Plaza Drive. Future development on the property requires separate Site Improvement Plan approval, not subject of this application.
Code Reference:	Douglas County Fire Code, 2018 International Fire Code, and 2021 International Building Code with amendments as adopted by Douglas County.

South Metro Fire Rescue (SMFR) has reviewed the provided documents and has no objection to the proposed Major Planned Development Amendment.

Right of Way & Permits

1123 West 3rd Avenue
Denver, Colorado 80223
Telephone: 303.285.6612
violeta.ciocanu@xcelenergy.com

February 23, 2026

Douglas County Planning Services
100 Third Street
Castle Rock, CO 80104

Attn: Matt Jakubowski

Re: Highlands Ranch Planned Development, 84th Amendment, Case # ZR2026-002

Public Service Company of Colorado's (PSCo) Right of Way and Permits Referral Desk has reviewed the above-mentioned application. As always, thank you for the opportunity to take part in the review process.

In the future, for these *multi-family apartment-type* lots, and to ensure that adequate utility easements are available within this development and per state statutes §31-23-214 (3) and 30-28-133(e), PSCo requests that the following language or plat note be placed on the preliminary and final plats for the subdivision:

> *Minimum 10-foot-wide dry utility easements are hereby dedicated on private property abutting all public streets, and around the perimeter of each lot or platted area including tracts, parcels and/or open space areas. These easements are dedicated to the County of Douglas for the benefit of the applicable utility providers for the installation, maintenance, and replacement of electric, gas, television, cable, and telecommunications facilities (Dry Utilities). Utility easements shall also be granted within any access easements and private streets in the subdivision. Permanent structures, improvements, objects, buildings, wells, water meters and other objects that may interfere with the utility facilities or use thereof (Interfering Objects) shall not be permitted within said utility easements and the utility providers, as grantees, may remove any Interfering Objects at no cost to such grantees, including, without limitation, vegetation. Public Service Company of Colorado (PSCo) and its successors reserve the right to require additional easements and to require the property owner to grant PSCo an easement on its standard form.*

Also, Public Service Company has an existing high-pressure natural gas *transmission* pipeline along the south property line of parcel 2. Any activity including grading, proposed landscaping, erosion control or similar activities involving our existing right-of-way will require Public Service Company approval. Encroachments across Public Service Company's easements must be reviewed for safety standards, operational and maintenance clearances, liability issues, and

acknowledged with a Public Service Company License Agreement to be executed with the property owner. PSCo is requesting that, prior to any final approval of the development plan, it is the responsibility of the property owner/developer/contractor to contact PSCo's Encroachment Team for development plan review and execution of a License Agreement (upload all files in PDF format) at: cloud.marketing.xcelenergy.com/encroachment.

The property owner/developer/contractor must complete the application process for any new natural gas or electric service, or modification to existing facilities via Building and Remodeling | Partner Resources | Xcel Energy. It is then the responsibility of the developer to contact the Xcel Designer assigned to the project for approval of design details.

Additional easements may need to be acquired by separate document. The Designer must contact the appropriate Right-of-Way Agent.

As a safety precaution, PSCo would like to remind the developer to contact Colorado 811 for utility locates prior to construction.

Violeta Ciocanu (Chokanu)
Right of Way and Permits
Public Service Company of Colorado dba Xcel Energy
Office: 303-285-6612 – Email: violeta.ciocanu@xcelenergy.com

Although "branded" as Xcel Energy, the legal owner and operator of the utility facilities in Colorado is Public Service Company of Colorado. All utility facilities and related land rights, including fee property, easements, permits, etc., are owned by, operated by and held in the name of Public Service Company of Colorado, a Colorado Corporation.

NORRIS DESIGN
PEOPLE + PLACEMAKING

1101 Bannock Street
Denver, Colorado 80204
303.892.1166

March 23, 2026

Matt Jakubowski
Department of Community Development
100 Third Street
Castle Rock, CO 80104

Re: Highlands Ranch Planned Development, 80th Amendment (ZR2025-001) – Response to 1st Review Comments

Dear Mr. Jakubowski,

Thank you for your comments for the initial review of a PD Major Amendment to the Highlands Ranch Planned Development to develop the property known as Lucent Station.

We are pleased to make our submittal for a Planned Development, addressing the comments provided by the County on March 10, 2026. We have provided below a response to all written County comments.

Sincerely,
Norris Design

Mallory Mooney

Mallory Mooney
Project Manager

The following agencies had no additional comments:

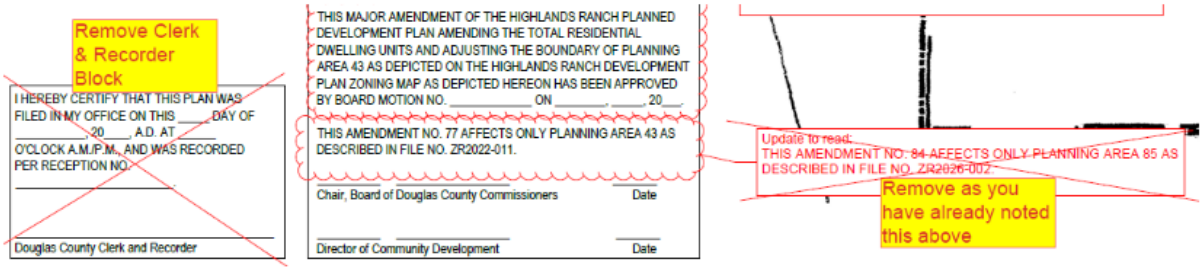
- Addressing Analyst
- Arapahoe County Engineering Services Division
- Arapahoe County PWD/ Planning
- AT&T Long Distance – ROW
- Backcountry Association, Inc
- Building Services
- CenturyLink
- City of Centennial
- Colorado Division of Water Resources
- Comcast
- Douglas County Health Department
- Douglas County Housing Partnership
- Douglas County Water Commission
- Engineering Services
- High Line Canal Conservancy
- Highlands Ranch Golf Club HOA
- Highlands Ranch Metro District
- Jefferson County Planning and Zoning
- Littleton - Planning
- Mile High Flood District
- Office of Emergency Management
- RTD - Planning & Development Dept
- Sheriff's Office
- Sheriff's Office E911
- South Metro Fire Rescue

DOUGLAS COUNTY STAFF AND REFERRAL COMMENTS:

Planning

1. I have no additional project narrative comments at this time.
   Response: Thank you for your review.

2. I have two minor cleanup comments on the HRPD plan exhibit. See below. Please complete and provide me a revised PD redline exhibit.



Response: These items have been revised as indicated and a clean version of the PD Amendment is included with this resubmittal.

3. Please prepare a "clean" version of the PD exhibit with all corrections shown. I am able to discuss preparation of this exhibit anytime.
   Response: Please see the "clean" version of the PD exhibit, included with this resubmittal.

Summary of major referral response comments:

4. Douglas County Parks, Trails and Buildings Grounds responded to the referral and indicated that the applicant is responsible for meeting park land dedication requirements outlined in Article 10, Section 1003 of the Douglas County Subdivision Resolution (DCSR). Final determination of land dedication acreage or cash-in-lieu of land dedication fees would occur as part of a future Site Improvement Plan (SIP) or platting process (if necessary) following a property appraisal. No comments regarding parks, recreation, or open space were provided by the Highlands Ranch Community Association or the Highlands Ranch Metro District.
   Response: Comment noted; park land dedication or cash-in-lieu will be met at the appropriate time.

5. Douglas County School District (DCSD) estimated an impact of 18 elementary students, 3 middle school students, and 6 high school students from the development. This generates a land dedication requirement of 0.578 acres. DCSD requests cash-in-lieu of land dedication to be calculated per DCSR Section 1004.05.03. Final calculation of cash-in-lieu fees would be determined during a future SIP or plat process (if needed) following a property appraisal.
   Response: Comment noted; land dedication or cash-in-lieu will be met at the appropriate time.

6. In your response letter to referral comments, please also respond to the outstanding referral comments not summarized above from CDOT, City of Littleton Engineering, Highlands Ranch Water, and Xcel Energy.
   Response: Noted; please see responses to these agencies in the letter below.

Community outreach:

7. Douglas County encourages community outreach with abutting property owners, nearby neighbors, and homeowners' associations, as these groups may have interest in the proposed PD amendment. If any correspondence is generated from outreach efforts (aside from the referral response received from HRCA) please provide such documentation to staff.
   Response: A first virtual neighborhood meeting was held via Zoom Webinar on April 16, 2025. At that time, no residents or stakeholders attended. In order to assure the development team that the community has had enough opportunity to share their opinions and concerns, another virtual neighborhood meeting is planned for April 2, 2026 at 6 PM. A summary of this meeting will be provided to the County as soon as the meeting is complete.

Colorado Department of Transportation CDOT-Region # 1

1. Due to the proximity of this development to the C470 EB ramp we would like to review the drainage report to confirm no negative impact.
   Response: The drainage report will be provided for review as part of the Site Improvement Plan process.

2. Any signing for this development visible to the state highway must be compliant with the state rules for outdoor advertising per 2 CCR 601-3.
   Response: Any signage visible to the state highway would be compliant with state standards.

3. We ask that the county continue to monitor cumulative impact of development on the Kendrick Castillo Way and C470 interchange.
   Response: The interchange of Kendrick Castillo Way and C-470 interchange was evaluated in the traffic study for the existing, buildout, and 20-year horizons.

DOUGLAS COUNTY PARKS AND TRAILS

1. Applicant would be responsible for meeting park land dedication as outlined in Article 10 of the Douglas County Subdivision Resolution.
   Response: Comment noted; park land dedication or cash-in-lieu will be met at the appropriate time.

4. Whenever land is proposed for residential or non-residential use, the owner of the land is to provide land or cash-in-lieu of land for active and specialized recreation generated by the proposed use. In general, these lands need to be suitable for the development of active play areas, trails, or in some instances serve to preserve unique landforms or natural areas. Where no suitable land is available in a residential or non-residential development, cash-in-lieu of land or of equivalent value in the donation of recreational facilities may be substituted at the County's discretion. Additional dedication for open land may be required by the Board if deemed necessary to preserve areas of special countywide significance (refer to Sections 1003.11.5 and 1003.12.5 of these regulations
   Response: Comment noted; Applicant will work with Douglas County at the appropriate time to provide park land dedication or cash-in-lieu.

2. The following formula is used to calculate the minimum amount of land dedication required in residential developments which is deemed necessary to provide the needed parks. This formula is based on 15 acres/1000 population.

   Local Park = Dwelling units x 0.015 acres/unit

   Regional Park = Dwelling units x 0.030 acres/unit

   Total = Dwelling units x 0.045 acres/unit

   The Board reserves the right to adjust the acreage requirement between local and regional park categories as deemed necessary to meet specific needs and to determine the amount of developed park acreage required. The Board may also consider alternative park land dedication formulas for multi-family development proposals.
   Response: Comment noted.

DOUGLAS COUNTY SCHOOL DISTRICT RE 1

1. DCSD calculated a land dedication requirement of 0.578 acres from the 18 elementary, 3 middle school, and 6 high school students generated from the development. DCSD requests cash-in-lieu of land dedication per Douglas County Subdivision Resolution 1004.05.03 at Site Plan approval. DCSD has no objection to the proposal provided the applicant agrees to this request.
   Response: Comment noted; thank you for your review.

HIGHLANDS RANCH COMMUNITY ASSOCIATION

1. HRCA appreciates the opportunity to review and opine on this application. We have reviewed the applicant's revised Planned Development amendment (ZR2026-002), which proposes to add 350 residential dwelling units within Planning Area 85 of the Highlands Ranch Planned Development (HRPD). In 2025, HRCA reviewed a substantially

similar request involving approximately 400 units and communicated that it took no exceptions to the amendment.

The current submittal reflects a reduction in total dwelling units (350 vs. 400), clarifies the residential product mix, and includes additional documentation related to infrastructure capacity and traffic mitigation measures. The proposal does not introduce a new land use, expand the development footprint beyond Planning Area 85, or increase overall development intensity beyond what HRCA previously reviewed.

Based on this review, HRCA takes No Exceptions to the proposed 84th Amendment (ZR2026-002).

We take this opportunity to remind the applicant that a formal submittal, made directly to HRCA, for review (via our Development Review Committee, DRC) of the SITE IMPROVEMENT PLAN, is required when this project moves into that phase.
Response: Comment noted; thank you for your review. A Site Improvement Plan will be submitted to the DRC at the appropriate time.

HIGHLANDS RANCH WATER AND SANITATION DISTRICT

1. Site, civil, architectural and MEP plans must be submitted for review and approval.
   Response: Comment noted; when these plans are available, they will be shared for review.

2. Contact the Financial Analyst for required fees.
   Response: The project team will coordinate with the Financial Analyst regarding the required fees.

LITTLETON ENGINEERING

1. Littleton Engineering requests that the intersection of Erickson Boulevard and County Line Road be included in the traffic study so Littleton can confirm that intersection has capacity to accommodate peak hour traffic.
   Response: The project team is coordinating with the City of Littleton to determine the extent of this requirement. This was the second application for this PD Amendment. Our first application was last year for a higher density of up to 400-units. As part of that application, we coordinated with Chris Martin at the County on the scope of the traffic study and the study was previously approved by County staff and already had PC and BOCC hearings without adding the intersection of Erickson Blvd and County Line Road. This second application is for a lower density of up to 350-units and we do not anticipate any impact to the LOS at the intersection of Erickson Blvd and County Line Road that is approximately 1-mile travel distance from the Site. We are still determining whether this request is still needed by the City of Littleton.

RTD – PLANNING & DEVELOPMENT DEPT

1. No comment
   Response: Thank you for your review.

XCEL ENERGY – ROW & PERMITS

1. In the future, for these multi-family apartment-type lots, and to ensure that adequate utility easements are available within this development and per state statutes §31-23-214 (3) and 30-28-133(e), PSCo requests that the following language or plat note be placed on the preliminary and final plats for the subdivision:

Minimum 10-foot-wide dry utility easements are hereby dedicated on private property abutting all public streets, and around the perimeter of each lot or platted area including tracts, parcels and/or open space areas. These easements are dedicated to the County of Douglas for the benefit of the applicable utility providers for the installation, maintenance, and replacement of electric, gas, television, cable, and telecommunications facilities (Dry Utilities). Utility easements shall also be granted within any access easements and private streets in the subdivision. Permanent structures, improvements, objects, buildings, wells, water meters and other objects that may interfere with the utility facilities or use thereof (Interfering Objects) shall not be permitted within said utility easements and the utility providers, as grantees, may remove any Interfering Objects at no cost to such grantees, including, without limitation, vegetation. Public Service Company of Colorado (PSCo) and its successors reserve the right to require additional easements and to require the property owner to grant PSCo an easement on its standard form.
Response: Comment noted.

2. Also, Public Service Company has an existing high-pressure natural gas transmission pipeline along the south property line of parcel 2. Any activity including grading, proposed landscaping, erosion control or similar activities involving our existing right-of-way will require Public Service Company approval. Encroachments across Public Service Company's easements must be reviewed for safety standards, operational and maintenance clearances, liability issues, and acknowledged with a Public Service Company License Agreement to be executed with the property owner. PSCo is requesting that, prior to any final approval of the development plan, it is the responsibility of the property owner/developer/contractor to contact PSCo's Encroachment Team for development plan review and execution of a License Agreement (upload all files in PDF format) at: cloud.marketing.xcelenergy.com/encroachment.
Response: Comment noted.

3. The property owner/developer/contractor must complete the application process for any new natural gas or electric service, or modification to existing facilities via Building and Remodeling | Partner Resources | Xcel Energy. It is then the responsibility of the developer to contact the Xcel Designer assigned to the project for approval of design details.
Response: Comment noted.

4. Additional easements may need to be acquired by separate document. The Designer must contact the appropriate Right-of-Way Agent.
Response: Comment noted.

5. As a safety precaution, PSCo would like to remind the developer to contact Colorado 811 for utility locates prior to construction.
Response: Comment noted.

End of comment response letter.

NORRIS DESIGN
PEOPLE + PLACEMAKING
1101 Bannock Street
Denver, Colorado 80204
303.892.1166

MEETING NOTES

PROJECT:	HR PD Amendment #80	**DATE:**	4/16/25
SUBJECT:	Neighborhood Meeting	**TIME:**	6:00 PM
MINUTES BY:	Mallory Mooney	**LOCATION:**	Zoom

COMPANY	ATTENDEES	EMAIL
Development Team:		
Pagewest	Adam Wallace	x@x.com
Norris Design	Daniel Jennings	
Norris Design	Mallory Mooney	
Kimley-Horn	Jeff Planck	
Kimley-Horn	Eric McDaniel	
Neighbors:		

Summary:
The development team hosted a virtual neighborhood meeting on Wednesday, April 16, 2025 at 6:00 PM. Notices were sent to adjacent property owners and stakeholders on Thursday, April 3, 2025. However, as of 6:15 PM, no one other than the development team was in attendance. As a result, the team ended the meeting early.

Questions/Comments:
None.

TRAFFIC IMPACT STUDY

Lucent Station

Douglas County, Colorado

Prepared for:

Pagewest Acquisitions, LLC

Kimley»Horn

T R A F F I C I M P A C T S T U D Y

Lucent Station

Douglas County, Colorado

Prepared for
Pagewest Acquisitions, LLC
2106 W 32nd Avenue
Denver, Colorado 80211

Prepared by
Jeffrey R. Planck, P.E.
Kimley-Horn and Associates, Inc
6200 South Syracuse Way
Suite 300
Greenwood Village, Colorado 80111
(303) 228-2300



February 2026

This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

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1.0 EXECUTIVE SUMMARY

Lucent Station is proposed to be located along the north side of Plaza Drive, between Plaza Circle and Kendrick Castillo Way, in Highlands Ranch within unincorporated Douglas County, Colorado. For the purposes of this analysis, the project is anticipated to include a total of 350 residential units with 84 single family attached units and 266 multifamily units. It is expected that the project will be completed in the next several years. Therefore, analysis was conducted for the 2028 short-term buildout horizon as well as the 2045 long-term twenty-year planning horizon.

The purpose of this traffic study is to identify project traffic generation characteristics to determine potential project traffic related impacts on the local street system and to develop the necessary mitigation measures required for the identified traffic impacts. The following intersections were incorporated into this traffic study in accordance with Douglas County standards and requirements:

- Erickson Boulevard/Mill Vista Road and Plaza Drive
- Plaza Circle and Plaza Drive
- Plaza Circle and Percy Lane
- Plaza Circle/Greensborough Drive and Plaza Drive
- Kendrick Castillo Way and Plaza Drive
- Kendrick Castillo Way and C-470 Eastbound Ramps
- Kendrick Castillo Way and C-470 Westbound Ramps

In addition, the three (3) full movement and one (1) right-in/right/out (RI/RO) accesses along Plaza Circle were evaluated. Each development area is proposing two accesses, with one of the access points for the west and east aligning with each other. Therefore, this results in three access intersections evaluated.

Regional access to the project will be provided by C-470 and Santa Fe Drive (US-85). Primary access will be provided by Plaza Drive, Erickson Boulevard, and Kendrick Castillo Way. Direct access to the west lot will be provided by two (2) full movement accesses, one that aligns with Percy Drive at Plaza Circle and one proposed access that aligns with the proposed access to the east lot. In addition, one (1) right-in/right-out access is proposed near the southern edge of the

east lot. The southern right-in/right-out access is proposed approximately 240 feet south of the proposed full movement access location for the west lot.

The project is expected to generate approximately 2,170 weekday daily trips, with 140 of these trips occurring during the morning peak hour and 175 of these trips occurring during the afternoon peak hour.

Based on the analysis presented in this report, Kimley-Horn believes Lucent Station will be successfully incorporated into the existing and future roadway network. Analysis of the existing street network, the proposed project development, and expected traffic volumes resulted in the following conclusions and recommendations:

- It is recommended that the intersection of Plaza Circle/Greensborough Drive and Plaza Drive (#4) be signalized. This signalized intersection will likely also improve existing long southbound left turn delays at the Plaza Circle/Ben Franklin Academy and Plaza Drive intersection (#2). Additionally, the southbound left movement at the Plaza Circle/Ben Franklin Academy and Plaza Drive intersection (#2) is recommended to be restricted during the arrival and dismissal times at the Ben Franklin Academy. This restriction would match the current restriction on the northbound approach, exiting the academy with a sign restricting the left turn movement onto Plaza Circle between 7:45-8:15 AM and 3:30-4:00 PM.

- It is recommended that the existing 250-foot southbound dual left turn lanes at the Kendrick Castillo Way and Plaza Drive (#5) intersection be extended to 300 feet in the short-term horizon and may need to be extended to 425 feet in 2045. Of note, extension of these dual left turn lanes is independent and not caused by Lucent Station.

- With completion of the Lucent Station project, a full movement access that aligns with the Percy Lane full movement access at Plaza Circle, two (2) full movement accesses in alignment with each other, and a right-in/right-out access will be provided along Plaza Circle. Left turn lanes are recommended to be designated within the double-yellow full lane width median for the Plaza Circle full movement accesses. These left turn lanes are recommended to be striped with lengths of 50 feet as is available. “STOP” (R1-1) signs are recommended to be installed on the approaches of all four (4) accesses, exiting the development. In addition,

a R3-2 No Left Turn sign should be placed underneath the R1-1 “STOP” sign for the Plaza Circle right-in/right-out access.

- Any on-site or offsite improvements should be incorporated into the Civil Drawings and conform to standards of the Douglas County and the current edition of the Manual on Uniform Traffic Control Devices (MUTCD).

2.0 INTRODUCTION

Kimley-Horn has prepared this report to document the results of a Traffic Impact Study for Lucent Station proposed to be located on the north side of Plaza Drive, between Plaza Circle and Kendrick Castillo Way, within unincorporated Douglas County. A vicinity map illustrating the project development location is shown in **Figure 1**. For the purposes of this analysis, the project is anticipated to include a total of 350 residential units with 84 single family attached units and 266 multifamily units. A conceptual site plan is attached in **Appendix A**. It is expected that the project will be completed in the next several years; therefore, analysis was conducted for the 2028 short-term buildout horizon as well as the 2045 long-term twenty-year planning horizon.

The purpose of this traffic study is to identify project traffic generation characteristics to determine potential project traffic related impacts on the local street system and to develop the necessary mitigation measures required for the identified traffic impacts. The following intersections were incorporated into this traffic study in accordance with Douglas County, Colorado standards and requirements:

- Erickson Boulevard/Mill Vista Road and Plaza Drive
- Plaza Circle and Plaza Drive
- Plaza Circle and Percy Lane
- Plaza Circle/Greensborough Drive and Plaza Drive
- Kendrick Castillo Way and Plaza Drive
- Kendrick Castillo Way and C-470 Eastbound Ramps
- Kendrick Castillo Way and C-470 Westbound Ramps

In addition, the three (3) full movement and one (1) right-in/right/out (RI/RO) accesses along Plaza Circle were evaluated. Each development area is proposing two accesses, with one of the access points for the west and east aligning with each other. Therefore, this results in three access intersections evaluated.

NORTH
NTS 296078001

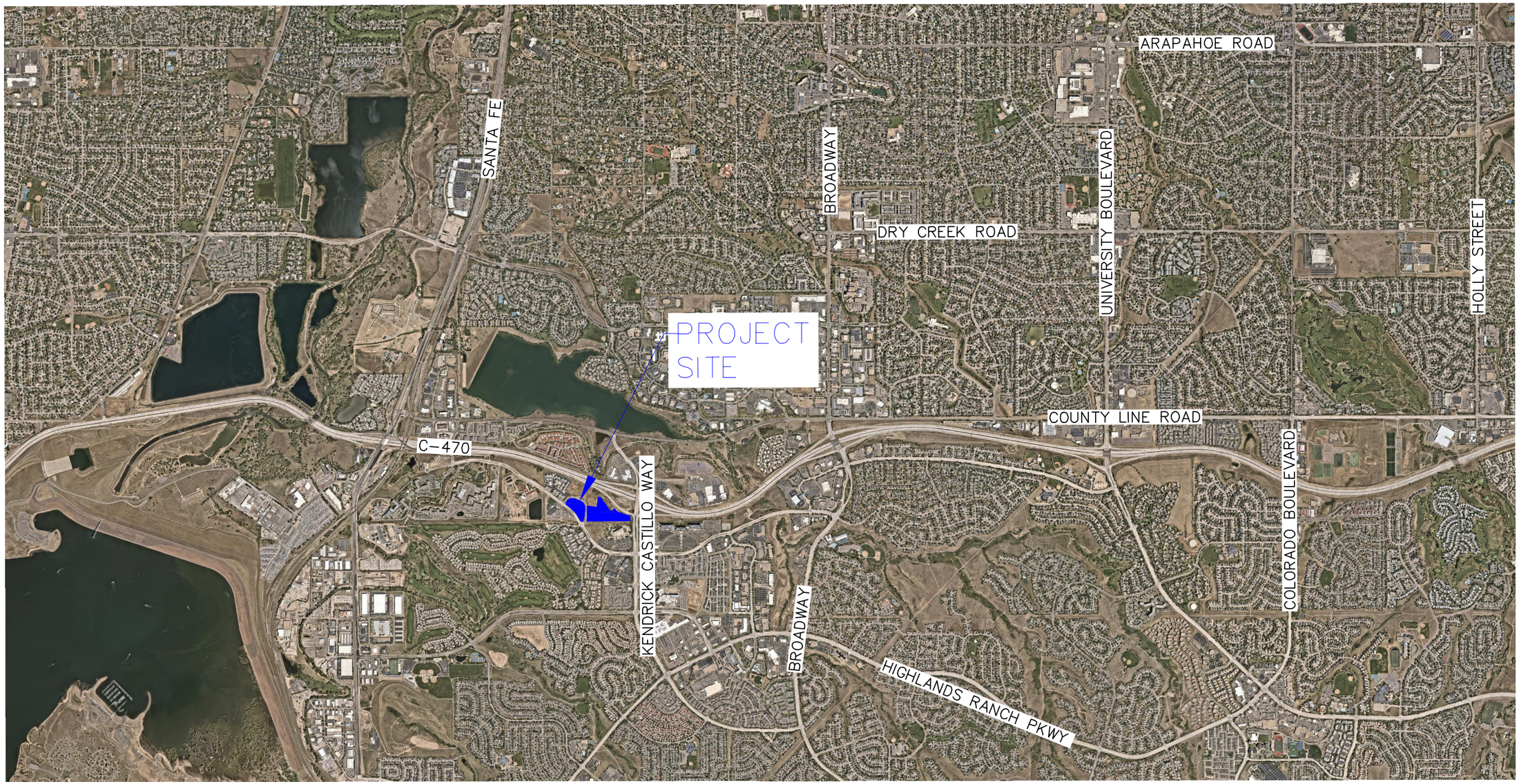


FIGURE 1
LUCENT STATION
DOUGLAS COUNTY, COLORADO
VICINITY MAP

Regional access to the project will be provided by C-470 and Santa Fe Drive (US-85). Primary access will be provided by Plaza Drive, Erickson Boulevard, and Kendrick Castillo Way. Direct access to the west lot will be provided by two (2) full movement accesses, one that aligns with Percy Drive at Plaza Circle and one proposed access that aligns with the proposed access to the east lot. In addition, one (1) right-in/right-out access is proposed near the southern edge of the east lot. The southern right-in/right-out access is proposed approximately 240 feet south of the proposed full movement access location for the west lot.

3.1 Existing Study Area

The existing site is vacant land. Directly to the south is Children's Hospital and directly to the north is C-470. Located to the southwest is Ben Franklin Academy. Solana Lucent Station multifamily apartments exist to the west of the site with Centennial Water located further to the west, along the south side of Plaza Drive. Surrounding the site are a mix of multifamily housing and other undeveloped parcels.

3.2 Existing Roadway Network

Erickson Boulevard extends north-south as a short section street providing two through lanes in each direction. It connects County Line Road along the north side of C-470 to Plaza Drive along the south side of C-470. The posted speed limit is 30 miles per hour.

Plaza Drive extends east-west with two through lanes in each direction and a raised median. The posted speed limit is 40 miles per hour.

Kendrick Castillo Way extends north-south with three through lanes in each direction with a raised median. The posted speed limit is 40 miles per hour in the study area. Kendrick Castillo Way provides a C-470 interchange and extends from County Line Road to the north to Broadway to the south.

The unsignalized intersection of Erickson Boulevard/Mill Vista Road and Plaza Drive operates with all-way stop control on all four approaches. The westbound Plaza Drive and southbound Erickson Boulevard approaches provide a left turn lane, a through lane, and a right turn lane. The eastbound Plaza Drive approach provides a left turn lane and a shared through/right turn lane. The northbound Mill Vista Road approach provides a single lane shared for all movements. An aerial photo of the existing intersection configuration is below.



Erickson Boulevard/Mill Vista Road and Plaza Drive (#1)

The unsignalized intersection of Plaza Circle and Plaza Drive operates with two-way stop control on the northbound Ben Franklin Academy Access and southbound approaches. The eastbound and westbound Plaza Drive approaches provide a left turn lane, a through lane, and a shared through/right lane. The southbound Plaza Circle approach provides a left turn lane and a shared through/right turn lane. The northbound Ben Franklin Academy approach provides a left turn lane and right turn lane. An aerial photo of the existing intersection configuration is below.



Plaza Circle and Plaza Drive (#2)

The unsignalized intersection of Plaza Circle and Percy Lane operates with two-way stop control on the eastbound access approach. The eastbound Percy Lane approach provides a single lane shared for all movements. The northbound Plaza Drive approach provides a left turn lane and a through lane. The southbound Plaza Drive approach provides a single lane shared for all movements. An aerial photo of the existing intersection configuration is below.



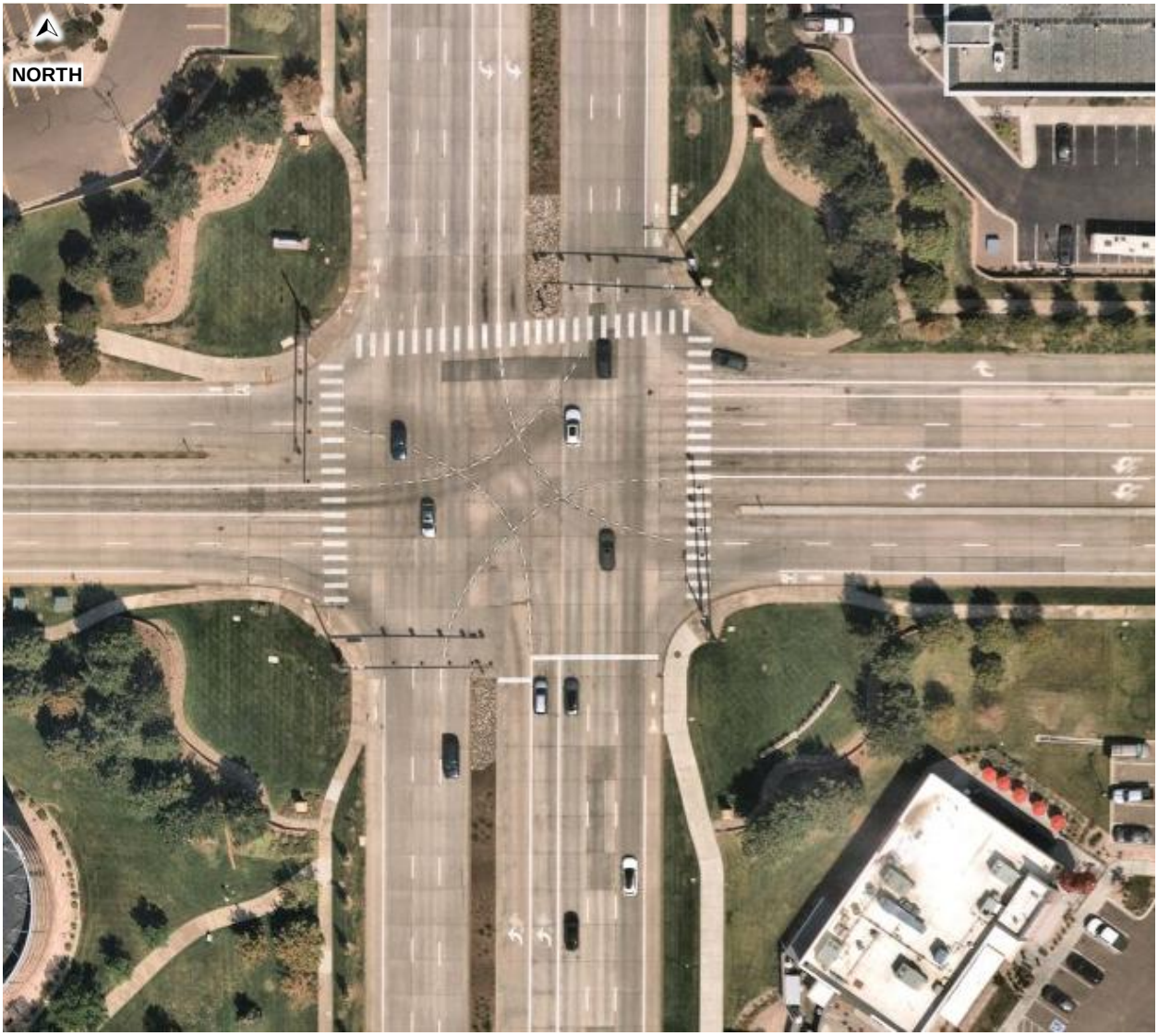
Plaza Circle and Percy Lane (#3)

The unsignalized intersection of Plaza Circle/Greensborough Drive and Plaza Drive operates with two-way stop control on the northbound and southbound approaches. The eastbound and westbound Plaza Drive approaches provide a left turn lane, a through lane, and a shared through/right lane. The southbound Plaza Circle approach provides a left turn lane and a shared through/right turn lane. The northbound Greensborough Drive approach provides a single lane shared for all movements. An aerial photo of the existing intersection configuration is below.



Plaza Circle/Greensborough Drive and Plaza Drive (#4)

The signalized intersection of Kendrick Castillo Way and Plaza Drive operates with protected-only left turn phasing on all four approaches. The northbound and southbound approaches of Kendrick Castillo Way provide dual left turn lanes and three through lanes with the outside lane being a shared through/right turn. The eastbound approach on Plaza Drive provides dual left turn lanes and two through lanes with the outside lane being a shared through/right turn lane. The westbound approach of Plaza Drive provides dual left turn lanes, two through lanes, and a right turn lane. An aerial photo of the existing intersection configuration is below.



Kendrick Castillo Way and Plaza Drive (#5)

The signalized intersection of Kendrick Castillo Way and C-470 eastbound ramps operates with protected-permissive left turn phasing on the southbound approach. The northbound approach of Kendrick Castillo Way provides three through lanes (with the inside lane becoming a dual left turn lane at the C-470 westbound ramps intersection), and a continuous right turn lane. The southbound approach on Kendrick Castillo Way provides a single left turn lane and two through lanes. The eastbound approach of C-470 provides a dedicated left turn lane, a shared left turn/through/right turn lane, and a free right turn lane. An aerial photo of the existing intersection configuration is below.



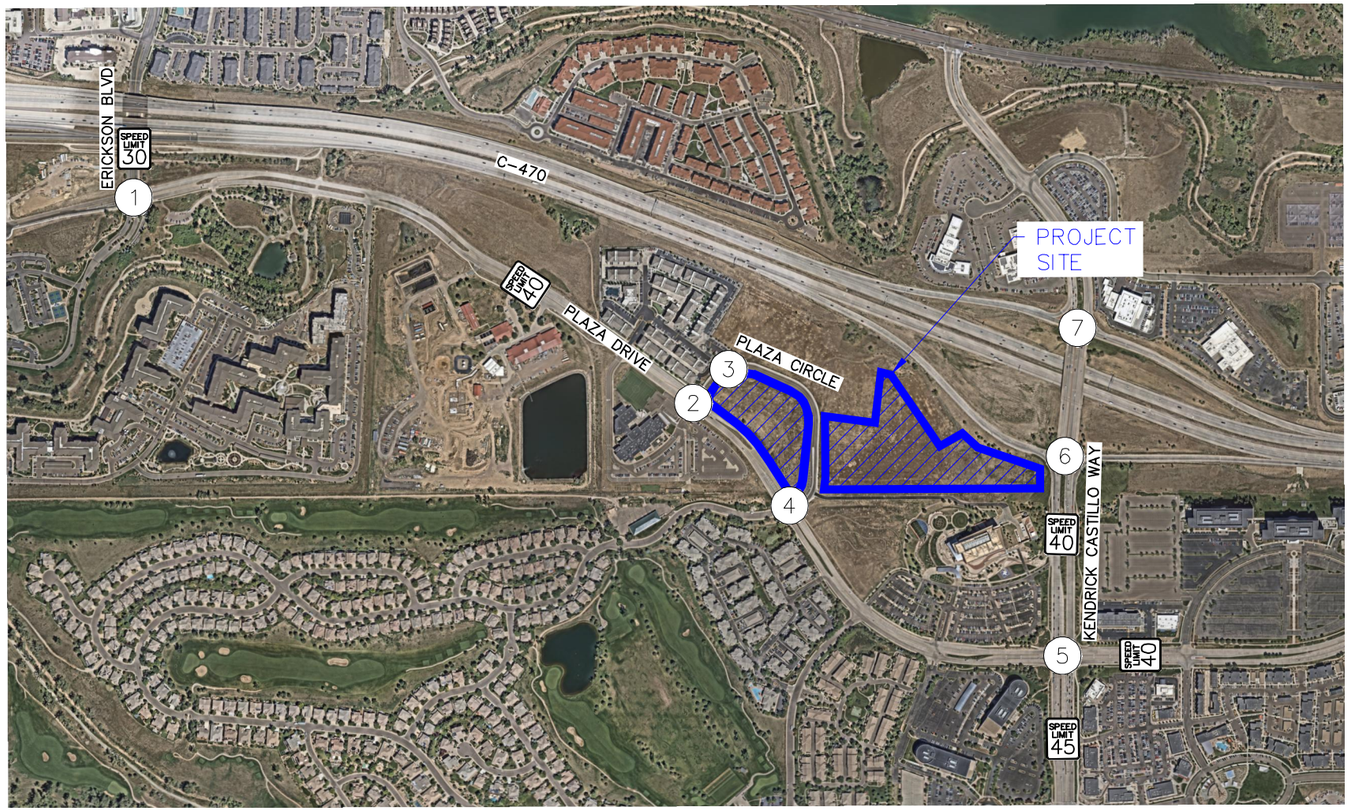
Kendrick Castillo Way and C-470 Eastbound Ramps (#6)

The signalized intersection of Kendrick Castillo Way and C-470 westbound ramps operates with protected-only left turn phasing on the northbound approach. The northbound approach of Kendrick Castillo Way provides dual left turn lanes and two through lanes. The southbound approach on Kendrick Castillo Way provides two through lanes and a free right turn lane. The westbound approach of C-470 provides a dedicated left turn lane, a shared left turn/through/right turn lane, and a free right turn lane. An aerial photo of the existing intersection configuration is below.

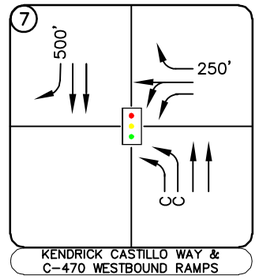


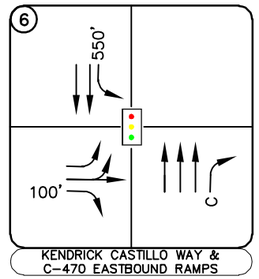
Kendrick Castillo Way and C-470 Westbound Ramps (#7)

The intersection lane configuration and control for the study area intersections are shown in **Figure 2**.



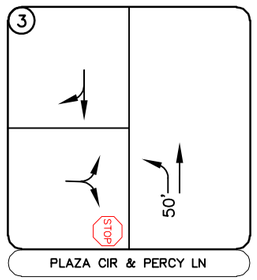
NTS 296078001

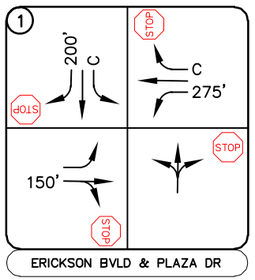


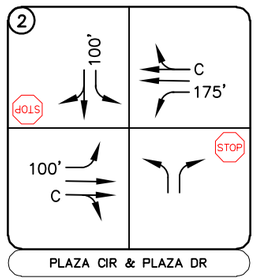


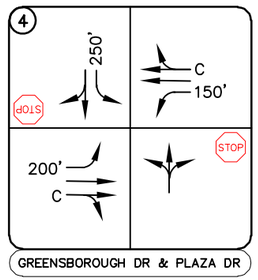
LEGEND

- Study Area Key Intersection
- Signalized Intersection
- Stop-Controlled Approach
- Roadway Speed Limit
- 100' Turn Lane Length (feet)









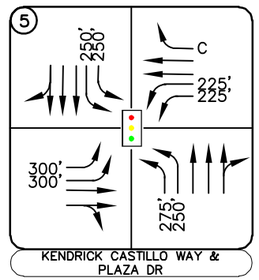


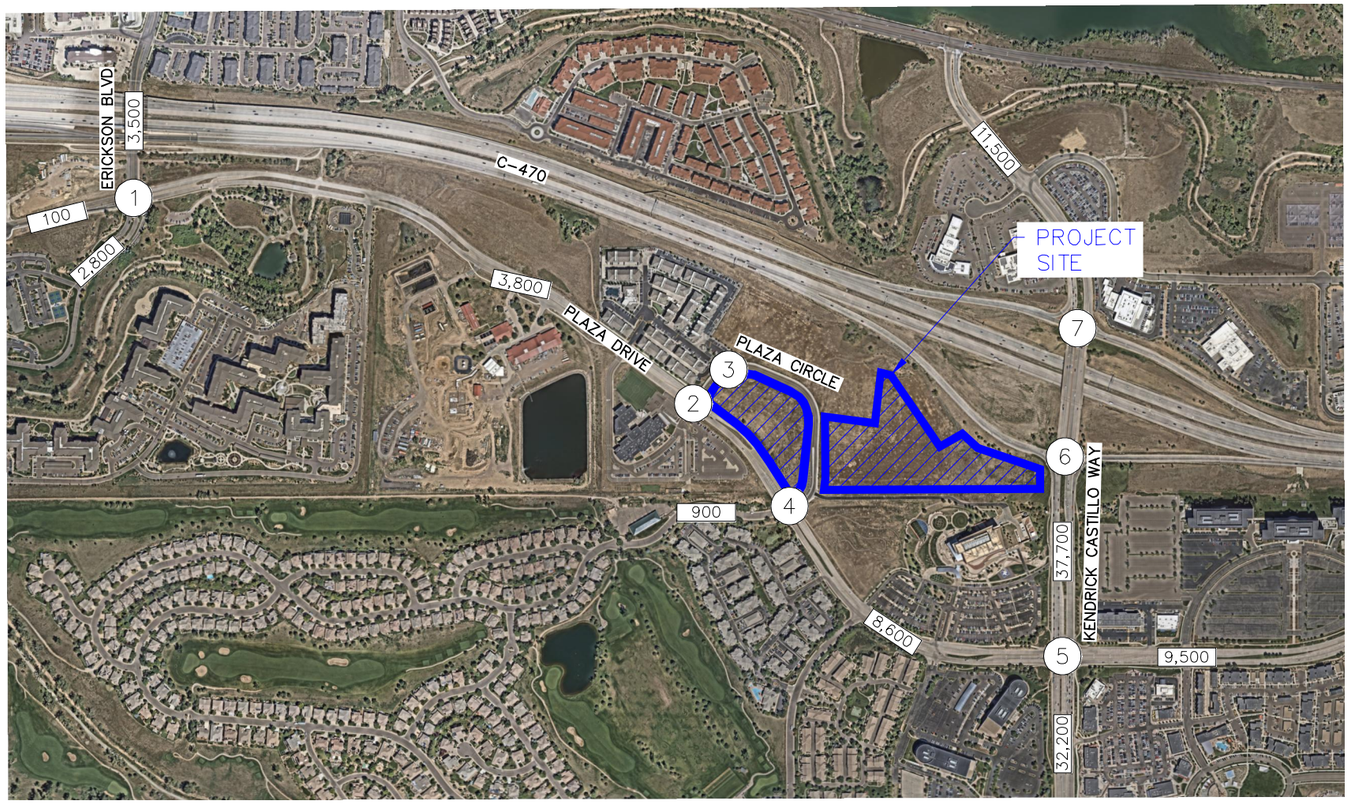
FIGURE 2
LUCENT STATION
DOUGLAS COUNTY, COLORADO
EXISTING GEOMETRY AND CONTROL

3.3 Existing Traffic Volumes

Existing turning movement counts were conducted at the study intersections on Wednesday, January 22, 2025, and Wednesday, January 29, 2025, during the weekday morning and afternoon peak hours. The counts were conducted during the morning and afternoon peak hours of adjacent street traffic in 15-minute intervals from 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM on these count dates. The existing intersection traffic volumes are shown in **Figure 3** with count sheets provided in **Appendix B.**

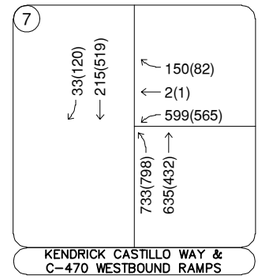
3.4 Unspecified Development Traffic Growth

The Douglas County Transportation Plan does not provide existing and future traffic volumes that can be used to calculate an annual growth rate. The surrounding area is mostly developed and according to traffic projections from the Denver Regional Council of Governments (DRCOG) traffic model, the area surrounding the site is expected to have an annual traffic growth rate of 0.19 percent . Future traffic volume projections and growth rate calculations are provided in **Appendix C**. To be conservative, a one (1) percent annual growth rate was used to calculate future traffic volumes at the study area intersections. It is understood there may be additional development near the project site; however, it is believed that site-specific traffic studies will be required and prepared for any future development projects. Therefore, the one (1) percent annual growth rate is applicable and sufficient to understand the future traffic conditions. This annual growth rate was used to estimate short-term 2028 and long-term 2045 traffic volume projections at the key intersections. The calculated background traffic volumes for 2028 and 2045 are shown in **Figure 4** and **Figure 5,** respectively.

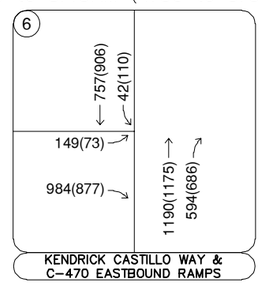


Kimley»Horn NORTH
NTS 296078001

Wednesday, January 29, 2025
7:30 to 8:30AM (4:15 to 5:15PM)



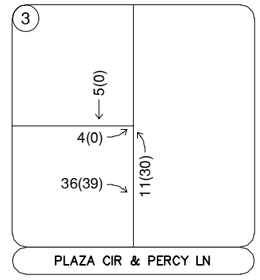
Wednesday, January 22, 2025
7:15 to 8:15AM (4:30 to 5:30PM)



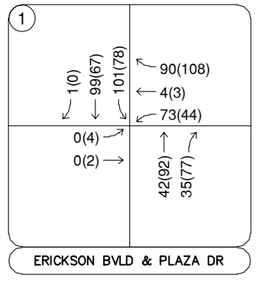
LEGEND

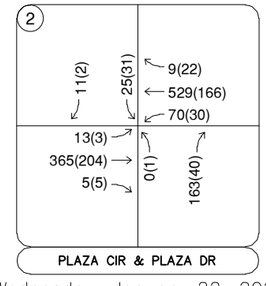
(X)	Study Area Key Intersection
XXX(XXX)	Weekday AM(PM) Peak Hour Traffic Volumes
XX,X00	Estimated Daily Traffic Volume

Wednesday, January 22, 2025
7:15 to 8:15AM (4:30 to 5:30PM)



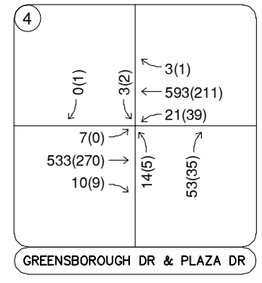
Wednesday, January 22, 2025
7:45 to 8:45AM (4:00 to 5:00PM)





Wednesday, January 22, 2025
7:30 to 8:30AM (4:00 to 5:00PM)

Wednesday, January 22, 2025
7:30 to 8:30AM (4:00 to 5:00PM)



Wednesday, January 29, 2025
7:30 to 8:30AM (4:00 to 5:00PM)

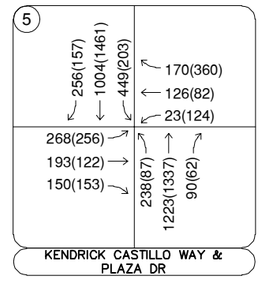
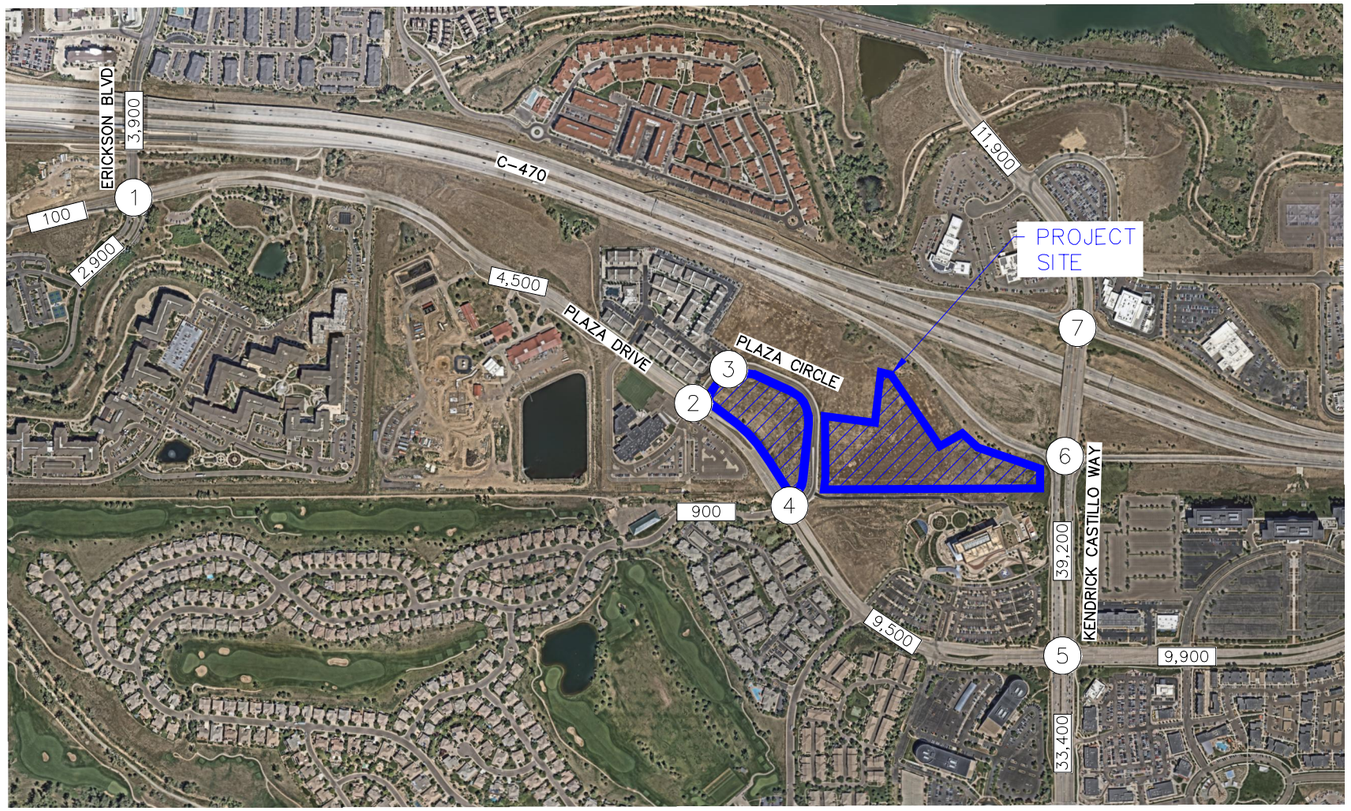
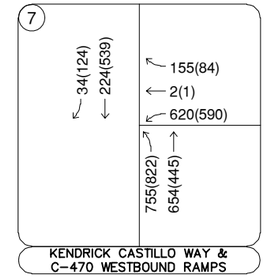


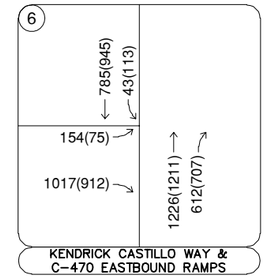
FIGURE 3
LUCENT STATION
DOUGLAS COUNTY, COLORADO
2025 EXISTING TRAFFIC VOLUMES

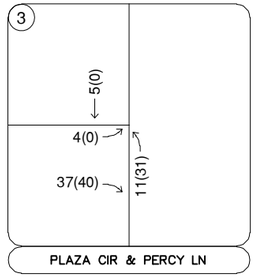
Kimley»Horn

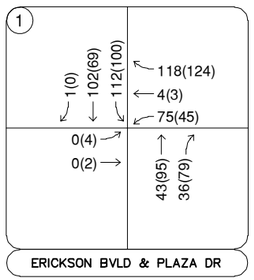


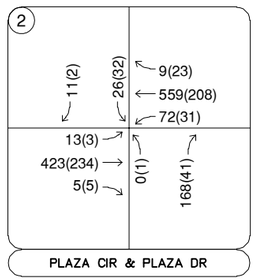
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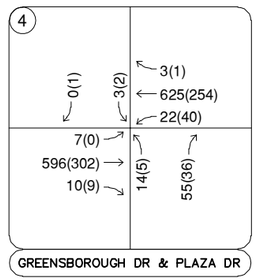


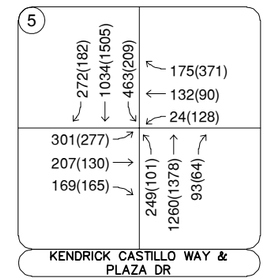












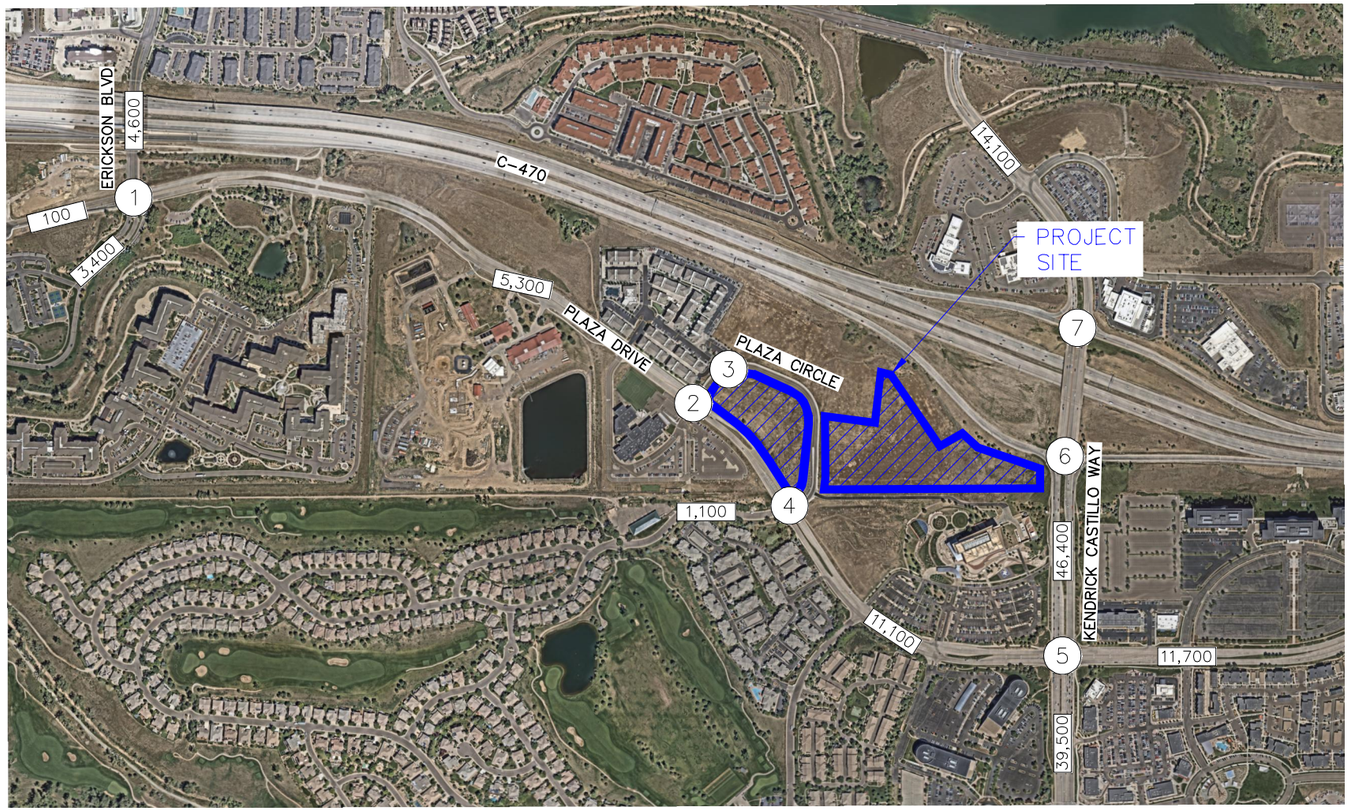
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(X) Study Area Key Intersection

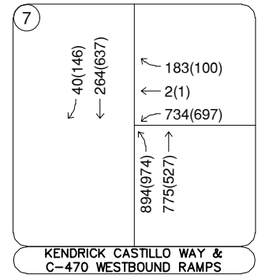
XXX(XXX) Weekday AM(PM) Peak Hour Traffic Volumes

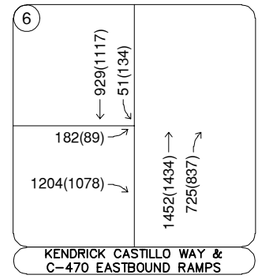
[XX,X00] Estimated Daily Traffic Volume

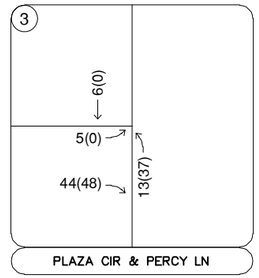
FIGURE 4
LUCENT STATION
DOUGLAS COUNTY, COLORADO
2028 BACKGROUND TRAFFIC VOLUMES

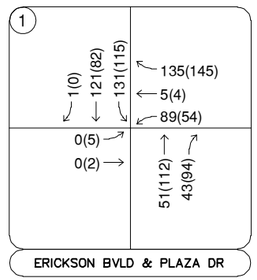


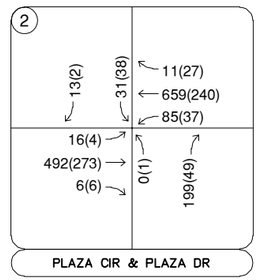
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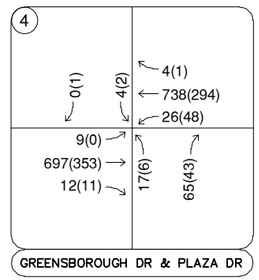


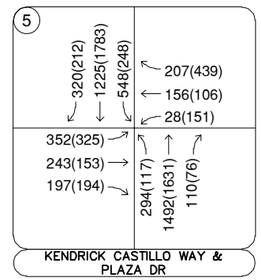












LEGEND

(X) Study Area Key Intersection

XXX(XXX) Weekday AM(PM) Peak Hour Traffic Volumes

[XX,X00] Estimated Daily Traffic Volume

FIGURE 5
LUCENT STATION
DOUGLAS COUNTY, COLORADO
2045 BACKGROUND TRAFFIC VOLUMES

4.1 Trip Generation

Site-generated traffic estimates are determined through a process known as trip generation. Rates and equations are applied to the proposed land use to estimate traffic generated by the development during a specific time interval. The acknowledged source for trip generation rates is the *Trip Generation Manual*[1] published by the Institute of Transportation Engineers (ITE). ITE has established trip rates in nationwide studies of similar land uses. For this study, Kimley-Horn used the ITE Trip Generation Manual average rate and fitted curve equations that applies to Single Family Attached Housing (ITE Land Use Code 215) and Multifamily Low-Rise Housing (ITE 220) for traffic associated with the development.

Lucent Station is expected to generate approximately 2,170 weekday daily trips, with 140 of these trips occurring during the morning peak hour and 175 occurring during the afternoon peak hour. Calculations were based on the procedure and information provided in the ITE Trip Generation Manual, 12th Edition – Volume 1: User's Guide and Handbook, 2025. **Table 1** summarizes the estimated trip generation for the Lucent Station development. The trip generation worksheets are included in **Appendix D**.

Table 1 – Lucent Station Traffic Generation

Land Use and Size	Weekday Vehicle Trips						
	Daily	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Single Family Attached Housing (ITE 215) – 84 Dwelling Units	552	9	25	34	23	17	40
Multifamily Low-Rise Housing (ITE 220) – 266 Dwelling Units	1,618	25	81	106	84	51	135
Total Site Generated Trips 350 Dwelling Units	**2,170**	**34**	**106**	**140**	**107**	**68**	**175**

[1] Institute of Transportation Engineers, *Trip Generation Manual*, Twelfth Edition, Washington DC, 2025.

4.2 Trip Distribution

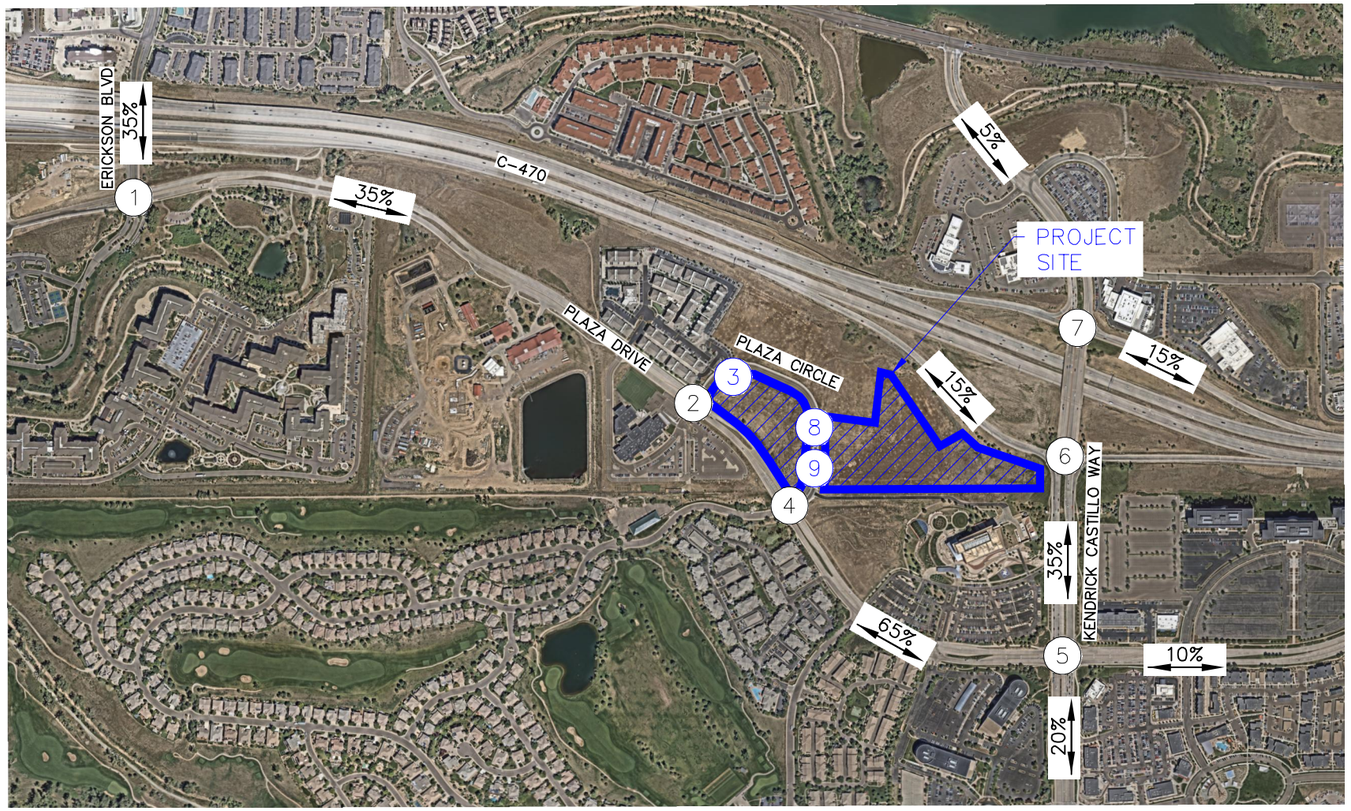
Distribution of site traffic on the street system was based on the area street system characteristics, existing traffic patterns, existing and anticipated surrounding demographic information, and the proposed access system for the project. The directional distribution of traffic is a means to quantify the percentage of site-generated traffic that approaches the site from a given direction and departs the site back to the original source. The project trip distribution for the proposed development is illustrated in **Figure 6**.

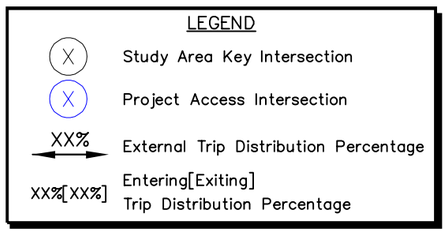
4.3 Traffic Assignment

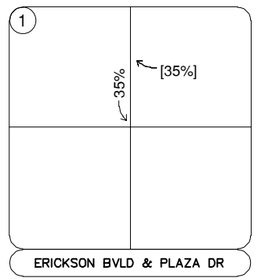
Lucent Station traffic assignment was obtained by applying the project trip distribution to the estimated traffic generation of the development shown in **Table 1**. Traffic assignment is shown in **Figure 7.**

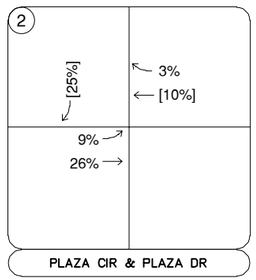
4.4 Total (Background Plus Project) Traffic

Site traffic volumes were added to the background volumes to represent estimated traffic conditions for the short-term 2028 buildout horizon and long-term 2045 twenty-year planning horizon. These total traffic volumes for the study area are illustrated for the 2028 and 2045 horizon years in **Figure 8** and **Figure 9**, respectively.

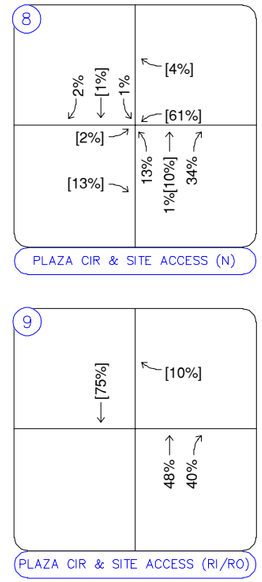


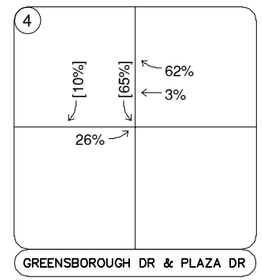


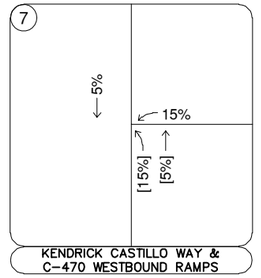


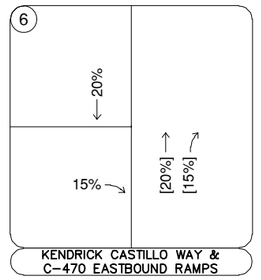












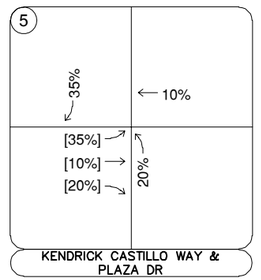
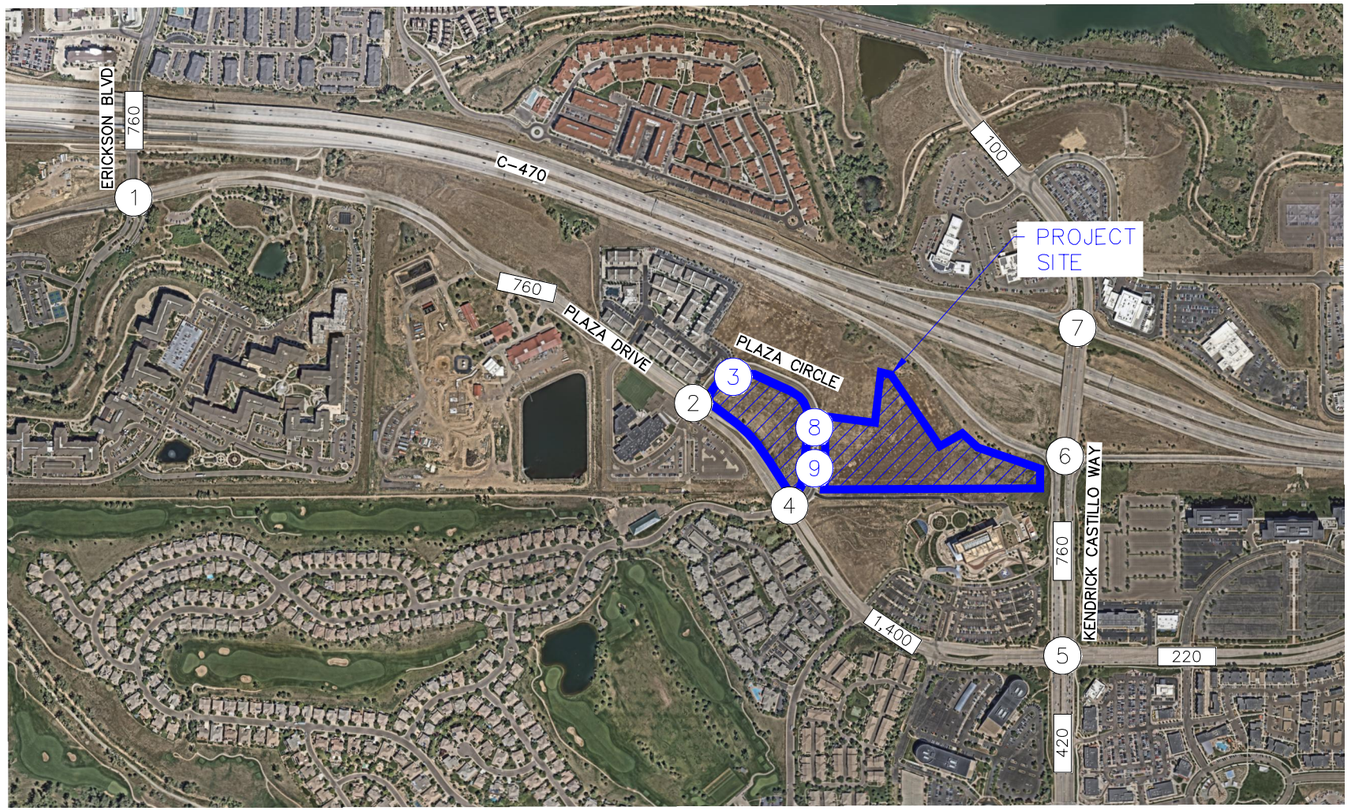
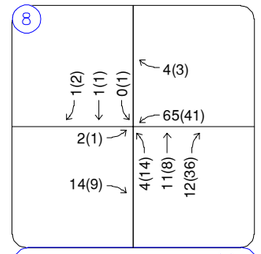
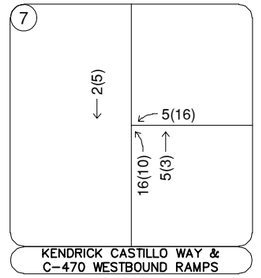
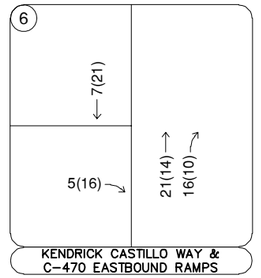


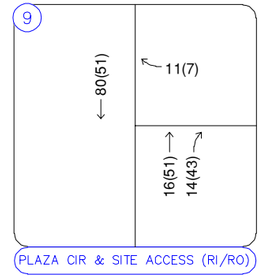
FIGURE 6
LUCENT STATION
DOUGLAS COUNTY, COLORADO
PROJECT TRIP DISTRIBUTION

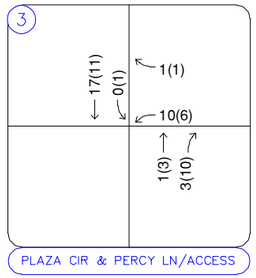


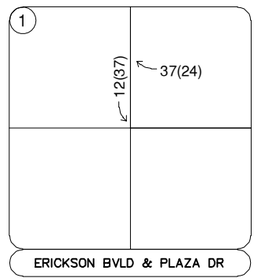


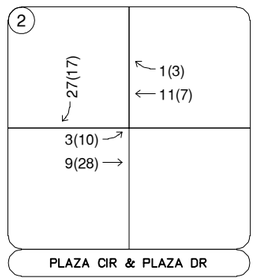


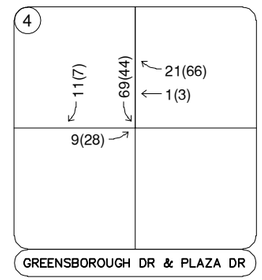


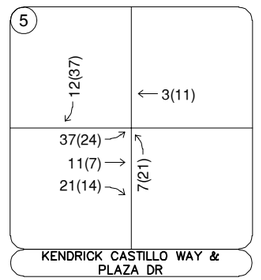








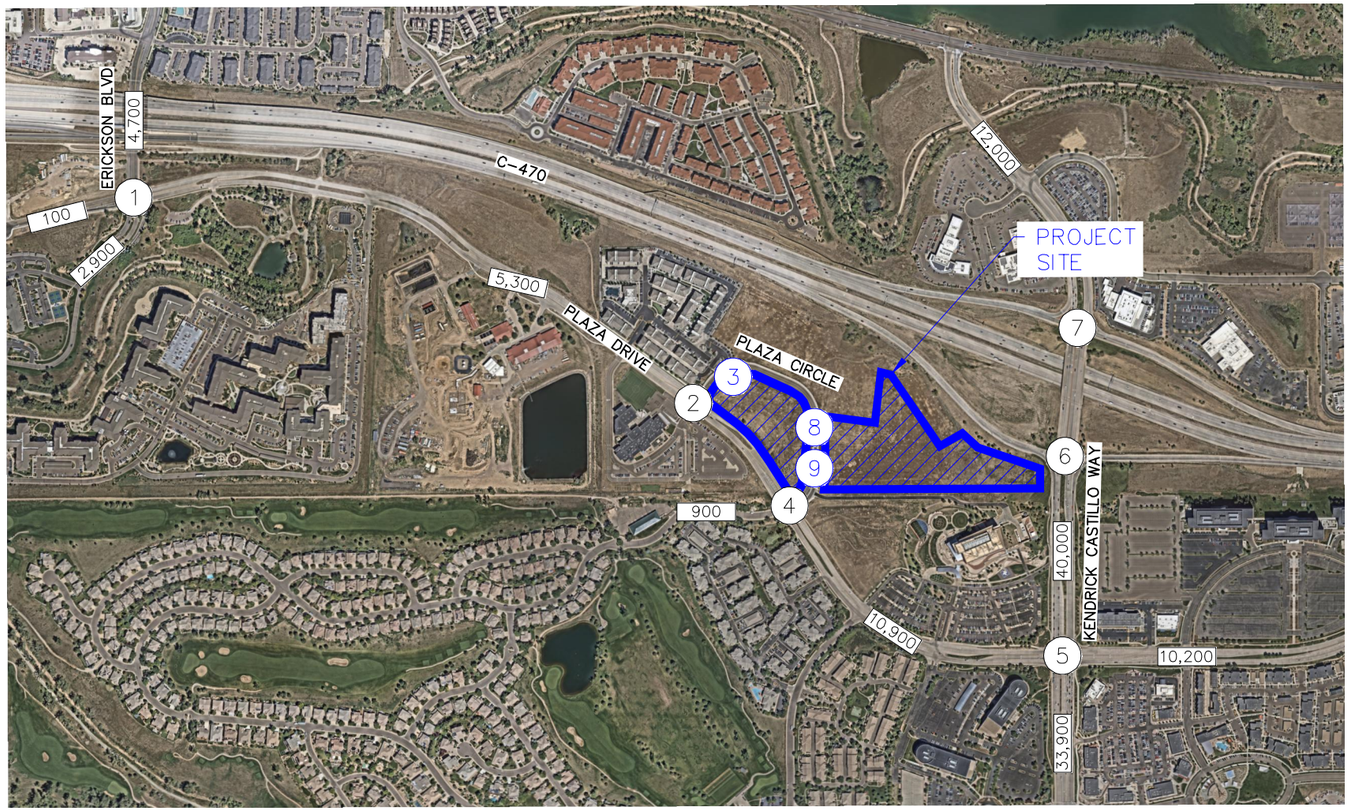


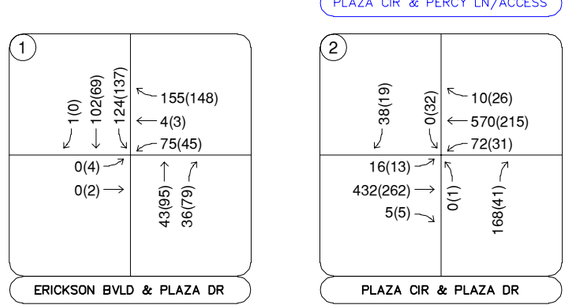


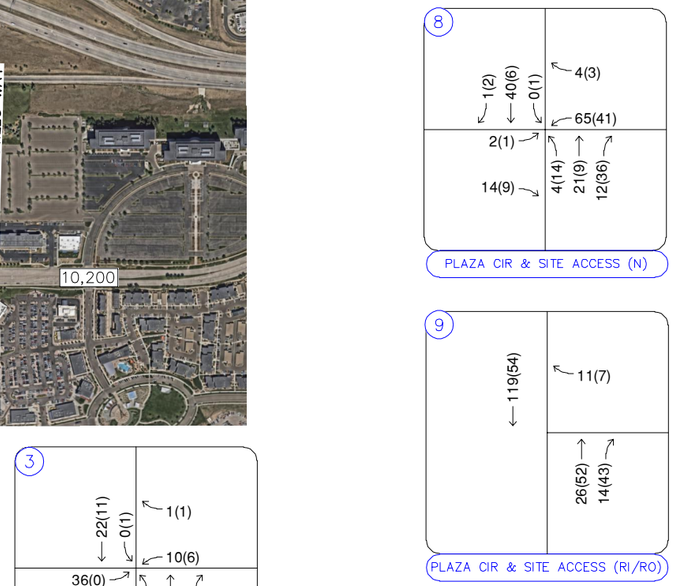
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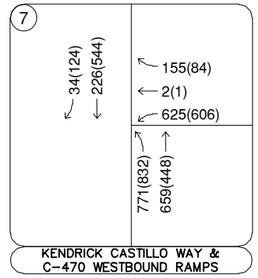
(X)	Study Area Key Intersection
(X)	Project Access Intersection
XXX(XXX)	Weekday AM(PM) Peak Hour Traffic Volumes
XX,X00	Estimated Daily Traffic Volume

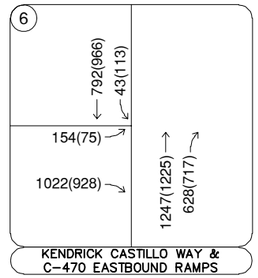
FIGURE 7
LUCENT STATION
DOUGLAS COUNTY, COLORADO
PROJECT TRAFFIC ASSIGNMENT

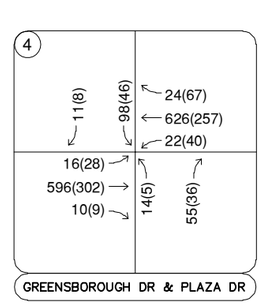


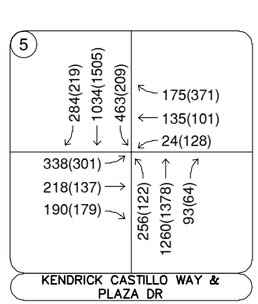








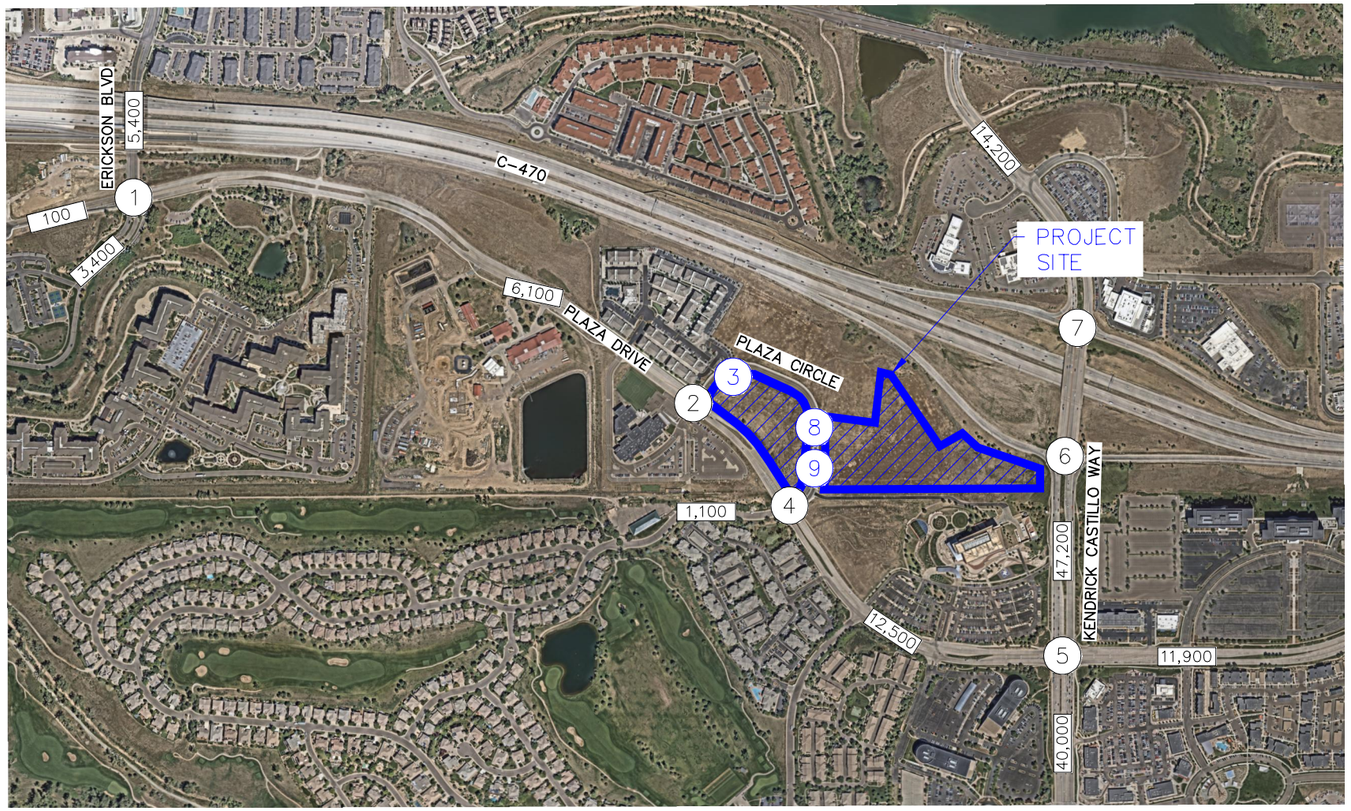




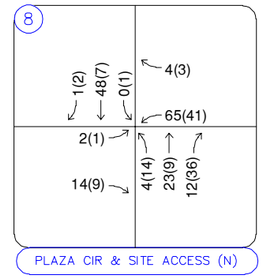
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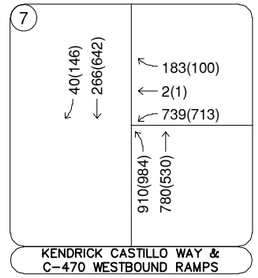
- (X) Study Area Key Intersection
- (X) Project Access Intersection
- XXX(XXX) Weekday AM(PM) Peak Hour Traffic Volumes
- XX,X00 Estimated Daily Traffic Volume

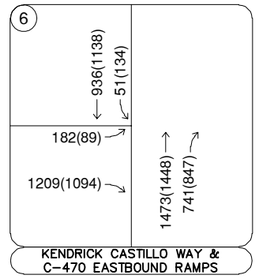
FIGURE 8
LUCENT STATION
DOUGLAS COUNTY, COLORADO
2028 TOTAL TRAFFIC VOLUMES

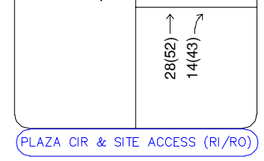


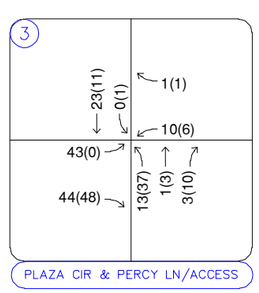
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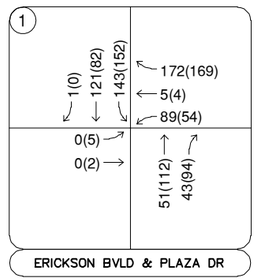


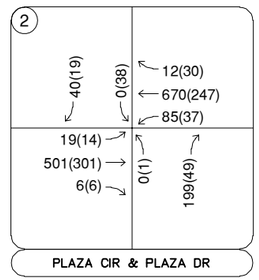


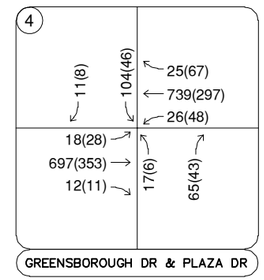


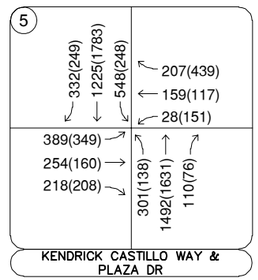












LEGEND

- (X) Study Area Key Intersection
- (X) Project Access Intersection
- XXX(XXX) Weekday AM(PM) Peak Hour Traffic Volumes
- XX,X00 Estimated Daily Traffic Volume

FIGURE 9
LUCENT STATION
DOUGLAS COUNTY, COLORADO
2045 TOTAL TRAFFIC VOLUMES

Kimley-Horn's analysis of traffic operations in the site vicinity was conducted to determine potential capacity deficiencies in the 2028 and 2045 development horizons at the identified key intersections. The acknowledged source for determining overall capacity is the *Highway Capacity Manual (HCM)*[2].

5.1 Analysis Methodology

Capacity analysis results are listed in terms of Level of Service (LOS). LOS is a qualitative term describing operating conditions a driver will experience while traveling on a particular street or highway during a specific time interval. It ranges from A (very little delay) to F (long delays and congestion). For intersections and roadways in this study area, standard traffic engineering practice recommends overall intersection LOS D and movement/approach LOS E as the minimum desirable thresholds for acceptable operations. **Table 2** shows the definition of level of service for signalized and unsignalized intersections.

Table 2 – Level of Service Definitions

Level of Service	Signalized Intersection Average Total Delay (sec/veh)	Unsignalized Intersection Average Total Delay (sec/veh)
A	≤ 10	≤ 10
B	> 10 and ≤ 20	> 10 and ≤ 15
C	> 20 and ≤ 35	> 15 and ≤ 25
D	> 35 and ≤ 55	> 25 and ≤ 35
E	> 55 and ≤ 80	> 35 and ≤ 50
F	> 80	> 50

Definitions provided from the Highway Capacity Manual, Seventh Edition, Transportation Research Board, 2022.

Study area intersections were analyzed based on average total delay analysis for signalized and unsignalized intersections. Under the unsignalized analysis, the LOS for a two-way stop-controlled intersection is determined by the computed or measured control delay and is defined for each minor movement. LOS for a two-way stop-controlled intersection is not defined for the whole intersection. LOS for signalized, roundabout, and all-way stop controlled intersections are defined for each approach and for the overall intersection.

[2] Transportation Research Board, *Highway Capacity Manual*, Seventh Edition, Washington DC, 2022.

5.2 Key Intersection Operational Analysis

Calculations for the operational level of service at the key intersections for the study area are provided in **Appendix E**. The existing year analysis is based on the lane geometry and intersection control shown in **Figure 2.** Existing peak hour factors were utilized in the analysis. The existing heavy vehicle percentages obtained from the turning movement counts were also used in each horizon year. The signalized intersection analysis utilizes the observed cycle lengths with optimized phasing and timing. Based on increased national attention given to establishing appropriate yellow and all-red clearance intervals to improve intersection safety, these have been calculated and are applied for approaches at the signalized intersections. The increase in yellow and all red time sacrifices intersection capacity for improved safety. Synchro traffic analysis software was used to analyze the signalized and unsignalized key intersections for HCM level of service.

Erickson Boulevard/Mill Vista Road and Plaza Drive (#1)

The unsignalized intersection of Erickson Boulevard/Mill Vista Road and Plaza Drive operates with all-way stop control on all four approaches. The intersection operates acceptably at LOS A during both peak hours under existing conditions. With project traffic, the intersection is anticipated to continue operating at an acceptable LOS A in 2028 and LOS B in 2045 during both studied weekday peak hours. Therefore, no improvements or modifications are anticipated to be needed at this intersection based on the addition of project traffic and this operational analysis. **Table 3** provides the results of the LOS analysis conducted at this intersection.

Table 3 – Erickson Boulevard/Mill Vista Road & Plaza Drive LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2025 Existing	**9.1**	**A**	**8.9**	**A**
Eastbound Approach	0.0	-	8.9	A
Westbound Approach	9.0	A	8.6	A
Northbound Approach	9.0	A	9.4	A
Southbound Approach	9.3	A	8.8	A
2028 Background	**9.4**	**A**	**9.2**	**A**
Eastbound Approach	0.0	-	9.1	A
Westbound Approach	9.2	A	8.9	A
Northbound Approach	9.2	A	9.7	A
Southbound Approach	9.6	A	9.1	A
2028 Background Plus Project	**9.7**	**A**	**9.6**	**A**
Eastbound Approach	0.0	-	9.3	A
Westbound Approach	9.6	A	9.2	A
Northbound Approach	9.4	A	9.9	A
Southbound Approach	9.9	A	9.7	A
2045 Background	**10.0**	**A**	**9.8**	**A**
Eastbound Approach	0.0	-	9.4	A
Westbound Approach	9.8	A	9.3	A
Northbound Approach	9.8	A	10.5	A
Southbound Approach	10.2	A	9.5	A
2045 Background Plus Project	**10.3**	**B**	**10.2**	**B**
Eastbound Approach	0.0	-	9.6	A
Westbound Approach	10.1	B	9.8	A
Northbound Approach	10.0	B	10.9	B
Southbound Approach	10.6	B	10.1	B

Plaza Circle and Plaza Drive (#2)

The unsignalized intersection of Plaza Circle and Plaza Drive operates with two-way stop control on the northbound and southbound approaches. All movements currently operate with acceptable level of service with exception of the southbound left turn movement during the morning peak hour. Of note, this poor level of service and need is based on existing traffic, mostly caused by the peaking traffic during the highest 15-minute interval due to Ben Franklin Academy. Although, this southbound left turn movement operates with long delays, the volume isn't high enough to warrant signalization. Therefore, to mitigate the long delay for the southbound left turn movement, a no left turn sign during the arrival and dismissal hours of the Ben Franklin Academy could be placed below the existing R1-1 STOP sign. This restriction would match the current restriction on the northbound approach, exiting the academy with a sign restricting the left turn movement onto Plaza Circle between 7:45-8:15 AM and 3:30-4:00 PM. Additionally, the Plaza Circle/Greensborough Drive (#4) and Plaza Drive intersection is recommended to be signalized. As such, this proposed traffic signal approximately 775 feet to the east of this intersection will provide more gaps in traffic by platooning westbound vehicles along Plaza Drive and can accommodate the rerouted left turning vehicles from Plaza Circle. (#3). Of note, the proposed left turn restriction is only applicable to the morning peak hour since the afternoon peak hour occurs outside of the school's dismissal period. With project traffic, the intersection is anticipated to have all movements operating at an acceptable during the studied weekday morning and afternoon peak hours throughout the 2045 horizon. **Table 4** provides the results of the LOS analysis conducted at this intersection.

Table 4 – Plaza Circle & Plaza Drive LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2025 Existing				
Northbound Left	0.0	A	11.0	B
Northbound Right	13.5	B	9.1	A
Eastbound Left	9.9	A	7.6	A
Westbound Left	9.2	A	7.7	A
Southbound Left	48.2	E	11.5	B
Southbound Through/Right	11.6	B	8.8	A
2028 Background				
Northbound Left	0.0	A	11.4	B
Northbound Right	14.8	B	9.2	A
Eastbound Left	9.7	A	7.7	A
Westbound Left	9.7	A	7.8	A
Southbound Left	61.8	F	12.1	B
Southbound Through/Right	11.9	B	9.0	A
2028 Background Plus Project				
Northbound Left	0.0	A	11.9	B
Northbound Right	15.0	B	9.3	A
Eastbound Left	10.2	B	7.8	A
Westbound Left	9.7	A	7.9	A
Southbound Left	0.0	A	12.5	B
Southbound Through/Right	12.6	B	9.1	A
2045 Background				
Northbound Left	0.0	A	11.0	B
Northbound Right	18.5	C	9.1	A
Eastbound Left	11.0	B	7.6	A
Westbound Left	10.4	B	7.7	A
Southbound Left	220.5	F	11.5	B
Southbound Through/Right	12.9	B	8.8	A
2045 Background Plus Project				
Northbound Left	0.0	A	11.9	B
Northbound Right	18.9	C	9.5	A
Eastbound Left	10.3	B	7.7	A
Westbound Left	10.5	B	8.0	A
Southbound Left	0.0	A	12.4	B
Southbound Through/Right	9.9	A	8.6	A

#Restrict SB Left Turn Movement During AM

Plaza Circle and Percy Lane/Project Access (#3)

The unsignalized T-intersection of Plaza Circle and Percy Lane operates with stop control on the eastbound Percy Lane approach. The intersection movements operate acceptably at LOS A during both peak hours under existing conditions. With project traffic the east leg of the intersection will be constructed and provide access to the site. A southbound left turn lane is recommended to be designated within the double-yellow full lane width median with a length of 50 feet at the proposed project access. It is recommended that the westbound exiting approach of the project access operate a single approach lane shared for all movements with a R1-1 "STOP" installed on this approach. As such, the intersection is anticipated to continue operating with all movements at an acceptable LOS A during both studied weekday peak hours throughout the 2045 horizon. **Table 5** provides the results of the LOS analysis conducted at this intersection.

Table 5 – Plaza Circle & Percy Lane/Project Access LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2025 Existing				
Northbound Left	7.3	A	7.3	A
Eastbound Approach	8.6	A	8.4	A
2028 Background				
Northbound Left	7.3	A	7.3	A
Eastbound Approach	8.6	A	8.5	A
2028 Background Plus Project				
Northbound Left	7.4	A	7.3	A
Eastbound Approach	9.2	A	8.5	A
Westbound Approach	9.1	A	9.2	A
Southbound Left	-	A	7.2	A
2045 Background				
Northbound Left	7.3	A	7.3	A
Eastbound Approach	8.7	A	8.5	A
2045 Background Plus Project				
Northbound Left	7.4	A	7.3	A
Eastbound Approach	9.3	A	8.5	A
Westbound Approach	9.2	A	9.4	A
Southbound Left	-	A	7.2	A

Plaza Circle/Greensborough Drive and Plaza Drive (#4)

The unsignalized intersection of Greensborough Drive and Plaza Drive operates with two-way stop control on the northbound and southbound approaches. The intersection has all movements operating acceptably during both peak hours under existing conditions. With project traffic and the recommendation to restrict the southbound left turn movement during the arrival and dismissal time period at Plaza Drive and Plaza Circle (#3), the southbound left turn may operate with long delays during the peak hours. The restriction of the southbound left turn at Plaza Drive and Plaza Circle (#3) intersection will reroute traffic to this intersection. With the project traffic and reroute volumes, the intersection is anticipated to continue operating at an acceptable level of service during both studied weekday peak hours throughout the 2045 horizon with exception of the southbound left turn movement. An MUTCD Four Hour Signal Warrant was completed, and it was determined two out of the four hours meet warrant volumes. However, this intersection should be considered for signalization in the future. The signal warrant analysis worksheet is included in **Appendix G.** With signalization, this intersection is expected to operate at an acceptable LOS B or better during the morning and afternoon peak hours throughout 2045. **Table 6** provides the results of the LOS analysis conducted at this intersection.

Table 6 – Greensborough Drive & Plaza Drive LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2025 Existing				
Northbound Approach	17.7	C	9.8	A
Eastbound Left	10.3	B	0.0	A
Westbound Left	10.1	B	8.0	A
Southbound Left	28.5	D	12.2	B
Southbound Through/Right	0.0	A	9.0	A
2028 Background				
Northbound Approach	19.7	C	10.0	B
Eastbound Left	10.6	B	0.0	A
Westbound Left	10.6	B	8.1	A
Southbound Left	31.5	D	12.8	B
Southbound Through/Right	0.0	A	9.1	A
2028 Background Plus Project				
Northbound Approach	20.5	C	10.1	B
Eastbound Left	10.9	B	8.1	A
Westbound Left	10.6	B	8.1	A
Southbound Left	219.6	F	15.1	C
Southbound Through/Right	12.7	B	9.4	A
2028 Background Plus Project #	15.2	B	10.0	A
2045 Background				
Northbound Approach	27.8	D	9.8	A
Eastbound Left	11.7	B	0.0	A
Westbound Left	11.7	B	8.0	A
Southbound Left	43.4	E	12.2	B
Southbound Through/Right	0.0	A	9.0	A
2045 Background Plus Project #	17.0	B	9.9	A

Signalized

Kendrick Castillo Way & Plaza Drive (#5)

The signalized intersection of Kendrick Castillo Way and Plaza Drive operates with protected-only left turn phasing on all four approaches. The intersection operates acceptably at LOS D during both the morning and afternoon peak hours under existing conditions. With project traffic, the intersection is anticipated to continue operating at an acceptable level of service of D during the two studied peak hours throughout the 2045 horizon. Of note, the future traffic conditions can sometimes report less delays than the existing condition when background and project traffic assignment volumes are added to movements that have less delay than the average intersection delay. Therefore, no improvements or modifications are anticipated to be needed at this intersection based on the addition of project traffic and this operational level of service analysis. **Table 7** provides the results of the LOS analysis conducted at this intersection.

Table 7 – Kendrick Castillo Way & Plaza Drive LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2025 Existing	46.1	D	39.2	D
2028 Background	48.7	D	41.1	D
2028 Background Plus Project	46.0	D	42.6	D
2045 Background	53.5	D	49.7	D
2045 Background Plus Project	53.2	D	51.6	D

Kendrick Castillo Way & C-470 Eastbound Ramps (#6)

The signalized intersection of Kendrick Castillo Way and C-470 eastbound ramps operates with protected-permissive left turn phasing on the southbound approach. The intersection operates acceptably at LOS B during the morning peak hour and LOS A during the afternoon peak hour under existing conditions. With project traffic, the intersection is anticipated to continue operating at an acceptable level of service of B during the morning peak hour and LOS A throughout the 2045 horizon. Therefore, no improvements or modifications are anticipated to be needed at this intersection based on the addition of project traffic and this operational level of service analysis. **Table 8** provides the results of the LOS analysis conducted at this intersection.

Table 8 – Kendrick Castillo Way & C-470 Eastbound Ramps LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2025 Existing	10.6	B	4.2	A
2028 Background	10.7	B	4.2	A
2028 Background Plus Project	10.7	B	4.2	A
2045 Background	7.6	B	4.7	A
2045 Background Plus Project	7.6	B	4.7	A

Kendrick Castillo Way & C-470 Westbound Ramps (#7)

The signalized intersection of Kendrick Castillo Way and C-470 westbound ramps operates with protected-only left turn phasing on the northbound approach. The intersection operates acceptably at LOS C during both peak hours under existing conditions. With project traffic, the intersection is anticipated to continue operating at an acceptable level of service C during both studied weekday peak hours throughout 2028. In the 2045 horizon, the intersection is anticipated to continue operating at an acceptable level of service of C during the morning peak hour and LOS D. Therefore, no improvements or modifications are anticipated to be needed at this intersection based on the addition of project traffic and this operational level of service analysis. **Table 9** provides the results of the LOS analysis conducted at this intersection.

Table 9 – Kendrick Castillo Way & C-470 Westbound Ramps LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2025 Existing	30.0	C	31.8	C
2028 Background	30.0	C	32.0	C
2028 Background Plus Project	30.0	C	32.3	C
2045 Background	30.2	C	33.8	C
2045 Background Plus Project	30.3	C	34.2	C

Project Accesses

With completion of the Lucent Station project, a full movement access that aligns with the Percy Lane at Plaza Circle, two (2) full movement accesses and a right-in/right-out access will be provided along Plaza Circle. “STOP” (R1-1) signs are recommended to be installed on the exiting approaches of all four (4) accesses, out of the development. In addition, a R3-2 No Left Turn sign should be placed underneath the R1-1 “STOP” sign at the right-in/right-out (RIRO) access to the south of the east lot. A northbound left turn lane is recommended to be designated within the currently striped median of Plaza Circle for the full movement access to the west lot. **Table 10** provides the results of the level of service analysis for these project accesses. As shown in the table, the project access intersections along Plaza Circle are anticipated to have all movements operating with acceptable LOS A during the peak hours in both the buildout year 2028 and the 2045 long term horizons.

Table 10 – Project Access Level of Service Results

Intersection	2028 Total				2045 Total			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Delay (sec/ veh)	LOS	Delay (sec/ veh)	LOS	Delay (sec/ veh)	LOS	Delay (sec/ veh)	LOS
Site Access (#8)								
Northbound Left	7.3	A	7.3	A	7.3	A	7.3	A
Eastbound Approach	8.6	A	8.4	A	8.7	A	8.4	A
Westbound Approach	9.4	A	9.2	A	9.5	A	9.2	A
Southbound Left	0.0	A	7.3	A	0.0	A	7.3	A
Site Access RI/RO (#9)								
Westbound Right	8.5	A	8.7	A	8.5	A	8.7	A

5.3 Vehicle Queuing Analysis

A vehicle queuing analysis was conducted for the study area intersections. The queuing analysis was performed using Synchro presenting the results of the 95th percentile queue lengths. Results are shown in the following **Table 11** with calculations provided within the level of service operational sheets of **Appendix D** for unsignalized intersections and **Appendix E** for signalized intersections.

Table 11 – Turn Lane Queuing Analysis Results

Intersection Turn Lane	Existing Turn Lane Length (feet)	2028 Calculated Queue (feet)	2028 Recommended Length (feet)	2045 Calculated Queue (feet)	2045 Recommended Length (feet)
Erickson Blvd & Plaza Dr (#1)					
Eastbound Through/Right	150’	25’	150’	25’	150’
Westbound Left	275’	25’	275’	25’	275’
Westbound Right	C	25’	C	50’	C
Southbound Left	C	25’	C	50’	C
Southbound Right	200’	25’	200’	25’	200’
Plaza Circle & Plaza Dr (#2)					
Eastbound Left	100’	25’	100’	25’	100’
Westbound Left	175’	25’	175’	25’	175’
Northbound Left	100’	25’	100’	25’	100’
Northbound Right	100’	75’	100’	100’	100’
Southbound Left	100’	25’	100’	25’	100’
Plaza Circle & Percy Ln (#3)					
Northbound Left	50’	25’	50’	25’	50’
Southbound Left	DNE	25’	**50’**	25’	**50’**
Greensborough Dr & Plaza Dr (#4)					
Eastbound Left	200’	25’	200’	25’	200’
Westbound Left	150’	25’	150’	25’	150’
Southbound Left	250’	114’	250’	119’	250’
Kendrick Castillo Way & Plaza Dr (#5)					
Eastbound Left	300’ DL	259’	300’ DL	254’	300’ DL
Westbound Left	225’ DL	101’	225’ DL	116’	225’ DL
Westbound Right	C	335’	C	440’	C
Northbound Left	250’/275’	152’	250’/275’	212’	250’/275’
Southbound Left	250’ DL	283’ DL	**300’ DL**	421’ DL	**425’ DL**
Kendrick Castillo Way & C-470 EB Ramp (#6)					
Eastbound Left	C DL	89’	C DL	106’	C DL
Eastbound Right	100’	Free	100’	Free	100’
Northbound Right	C/975’	483’	C	319’	C
Southbound Left	550’	111’	550’	129’	550’
Kendrick Castillo Way & C-470 EB Ramp (#7)					
Westbound Left	C DL	362’	C DL	481’	C DL
Westbound Right	250’	Free	250’	Free	250’
Northbound Left	C/625’	455’	C/625’	528’	C/625’
Southbound Right	500’	Free	500’	Free	500’
Plaza Circle Full Access (#8)					
Northbound Left	DNE	25’	**50’**	25’	**50’**
Southbound Left	DNE	25’	**50’**	25’	**50’**

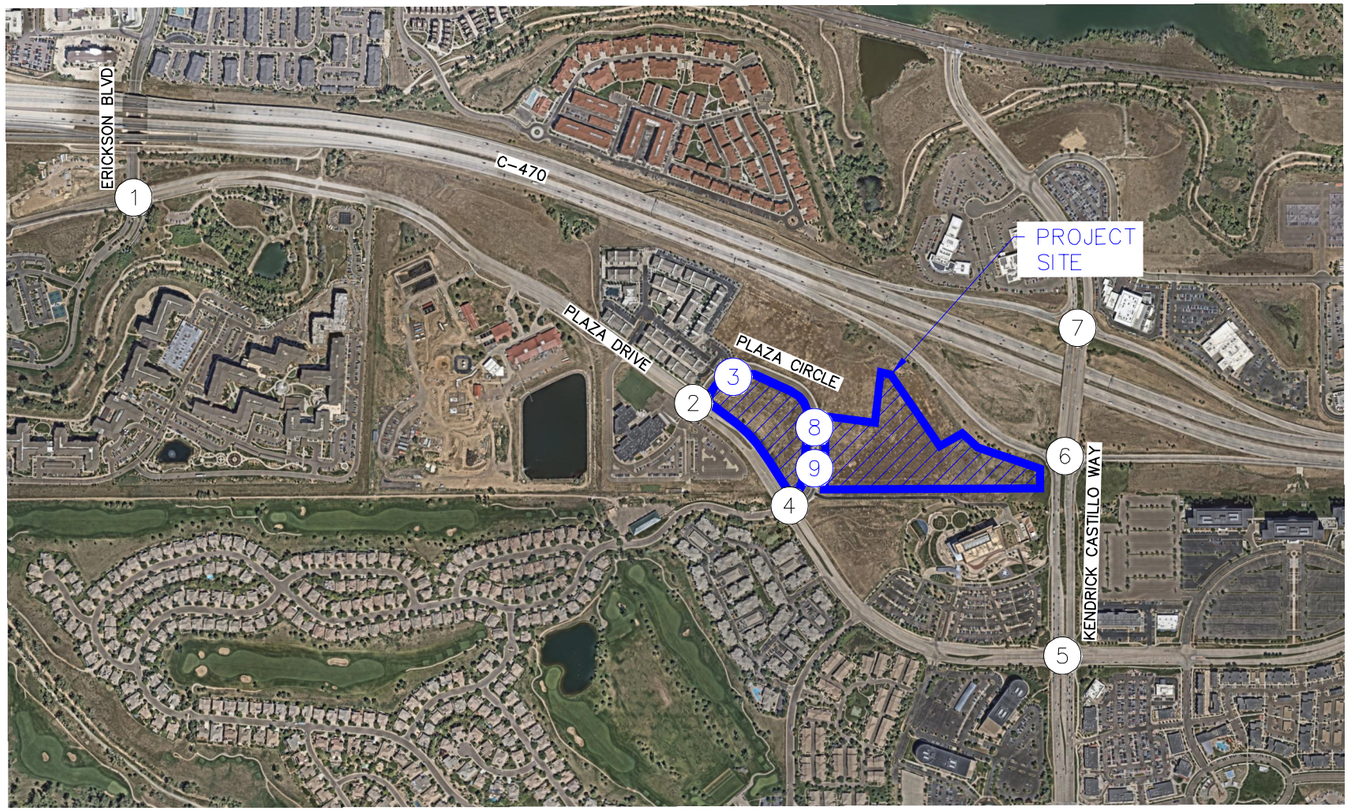
DNE = Does Not Exist; C = Continuous; DL = Dual Lefts: **Red** Text = Storage Deficiency; **Blue** Text = Recommendation

All queues are anticipated to remain within the existing or recommended turn lane lengths with exception of the southbound left turns at the Kendrick Castillo Way & Plaza Drive (#5) intersection.

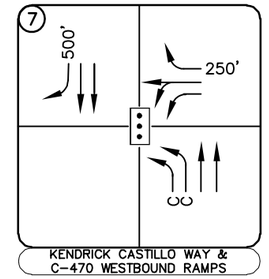
The dual southbound left turn lanes are recommended to be extended from 250 feet to 300 feet. This extension will require a median modification and may require additional length in 2045. Of note, extension of these dual left turn lanes is independent and not caused by Lucent Station. The new left turn lanes along Plaza Circle for the full movement accesses are recommended to provide a length of 50 feet by restriping the existing double-yellow full lane width median.

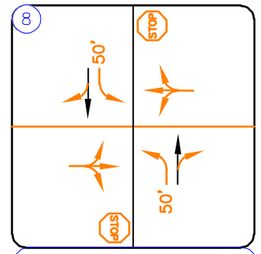
5.4 Improvement Summary

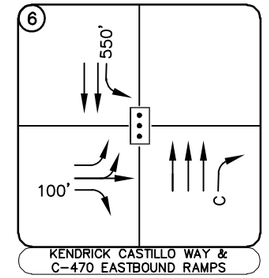
Based on the results of the intersection operational and vehicle queuing analysis, the key intersection recommended improvements and control are shown in **Figure 10** with the conclusion recommendations provided in the next section.

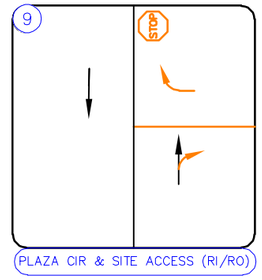


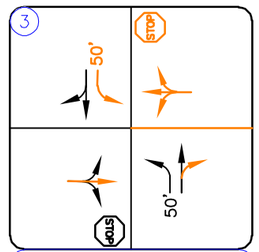
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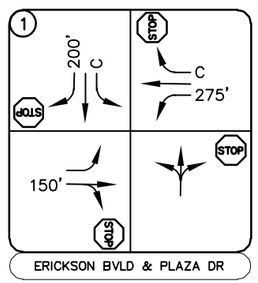


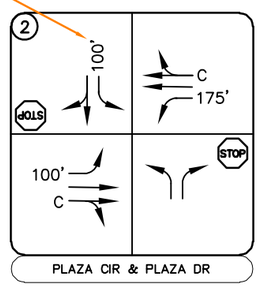


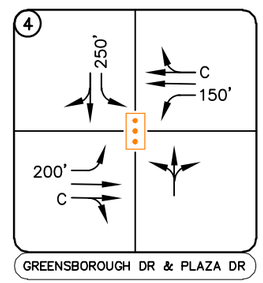




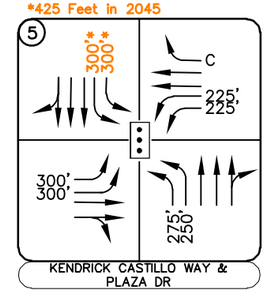
Restrict Left Turn Movement 7:45–8:15 AM and 3:30–4:00 PM







*425 Feet in 2045



LEGEND

- Study Area Key Intersection
- Project Access Intersection
- Signalized Intersection
- Stop-Controlled Approach
- Improvement
- 100' Turn Lane Length (feet)

FIGURE 10
LUCENT STATION
DOUGLAS COUNTY, COLORADO
RECOMMENDED GEOMETRY AND CONTROL

6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis presented in this report, Kimley-Horn believes Lucent Station will be successfully incorporated into the existing and future roadway network. Analysis of the existing street network, the proposed project development, and expected traffic volumes resulted in the following conclusions and recommendations:

- It is recommended that the intersection of Plaza Circle/Greensborough Drive and Plaza Drive (#4) be signalized. This signalized intersection will likely also improve existing long southbound left turn delays at the Plaza Circle/Ben Franklin Academy and Plaza Drive intersection (#2). With signalization of the Plaza Circle/Greensborough Drive and Plaza Drive (#4) intersection, the southbound left movement at the Plaza Circle/Ben Franklin Academy and Plaza Drive intersection (#2) is recommended to be restricted during the arrival and dismissal times at the Ben Franklin Academy. This restriction would match the current restriction on the northbound approach, exiting the academy with a sign restricting the left turn movement onto Plaza Circle between 7:45-8:15 AM and 3:30-4:00 PM.
- It is recommended that the existing 250-foot southbound dual left turn lanes at the Kendrick Castillo Way and Plaza Drive (#5) intersection be extended to 300 feet in the short-term horizon and may need to be extended to 425 feet in 2045. Of note, extension of these dual left turn lanes is independent and not caused by Lucent Station.
- With completion of the Lucent Station project, a full movement access that aligns with the Percy Lane full movement access at Plaza Circle, two (2) full movement accesses in alignment with each other, and a right-in/right-out access will be provided along Plaza Circle. Left turn lanes are recommended to be designated within the double-yellow full lane width median for the Plaza Circle full movement accesses. These left turn lanes are recommended to be striped with lengths of 50 feet as is available. “STOP” (R1-1) signs are recommended to be installed on the approaches of all four (4) accesses, exiting the development. In addition, a R3-2 No Left Turn sign should be placed underneath the R1-1 “STOP” sign for the Plaza Circle right-in/right-out access.
- Any on-site or offsite improvements should be incorporated into the Civil Drawings and conform to standards of the Douglas County and the current edition of the Manual on Uniform Traffic Control Devices (MUTCD).

Appendix A: Conceptual Site Plan

UNITS				TOTALS			
UNIT TYPE	DESCRIPTION	NET SQ. FT.	GROSS SQ. FT.	TOTAL NO. OF UNITS	UNIT %	NET SQ. FT. PER UNIT TYPE	GROSS SQ. FT. PER UNIT TYPE
B	2 BED / 2.5 BATH	1,274	1,734	24	24	30,576	41,616
					28.6%		
C	3 BED / 2.5 BATH	1,475	1,935	48	48	70,800	92,880
					57.1%		
D	4 BED / 2.5 BATH	1,722	2,182	12	12	20,664	26,184
					14.3%		
				TOTAL	84	122,040	160,680
					100%		

AVERAGE UNIT SIZE
1,453

LOT 3 - UNIT MIX

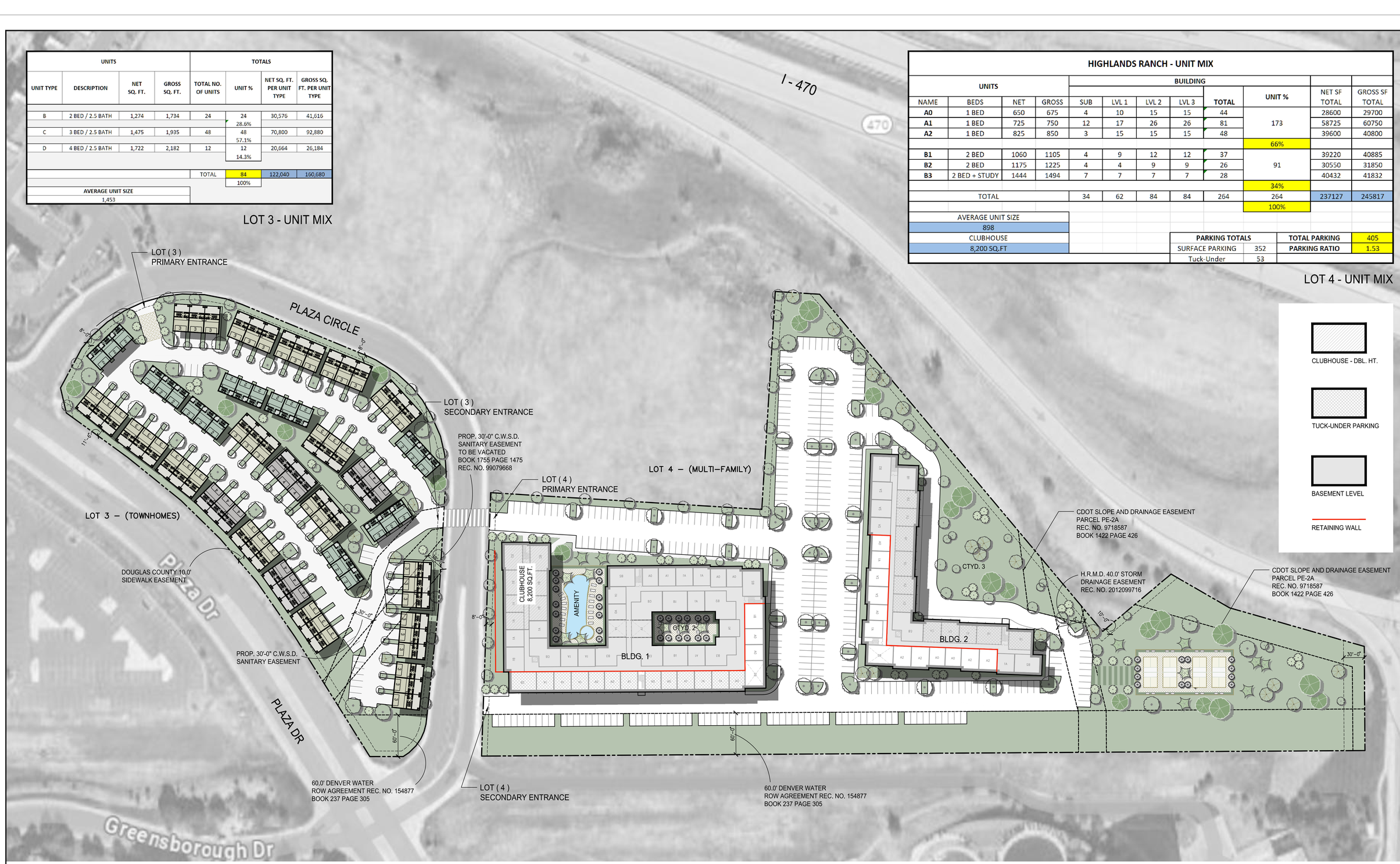
HIGHLANDS RANCH - UNIT MIX

UNITS				BUILDING							
NAME	BEDS	NET	GROSS	SUB	LVL 1	LVL 2	LVL 3	TOTAL	UNIT %	NET SF TOTAL	GROSS SF TOTAL
A0	1 BED	650	675	4	10	15	15	44	173	28600	29700
A1	1 BED	725	750	12	17	26	26	81		58725	60750
A2	1 BED	825	850	3	15	15	15	48		39600	40800
									66%		
B1	2 BED	1060	1105	4	9	12	12	37	91	39220	40885
B2	2 BED	1175	1225	4	4	9	9	26		30550	31850
B3	2 BED + STUDY	1444	1494	7	7	7	7	28		40432	41832
									34%		
TOTAL				34	62	84	84	264	264	237127	245817
									100%		

AVERAGE UNIT SIZE
898
CLUBHOUSE
8,200 SQ.FT

PARKING TOTALS		TOTAL PARKING	405
SURFACE PARKING	352	PARKING RATIO	1.53
Tuck-Under	53		

LOT 4 - UNIT MIX



CLUBHOUSE - DBL. HT.

TUCK-UNDER PARKING

BASEMENT LEVEL

RETAINING WALL

0 100'

1 SITE PLAN
1"=60'-0"

N

10.30.2025

SITE PLAN - HIGHLANDS RANCH APARTMENTS

HIGHLANDS RANCH, CO - PAGEWEST

MEEKS PARTNERS
16000 Memorial Drive
Suite 100
Houston, Texas 77079
281.558.8787

A-01

JOB NO. 23095

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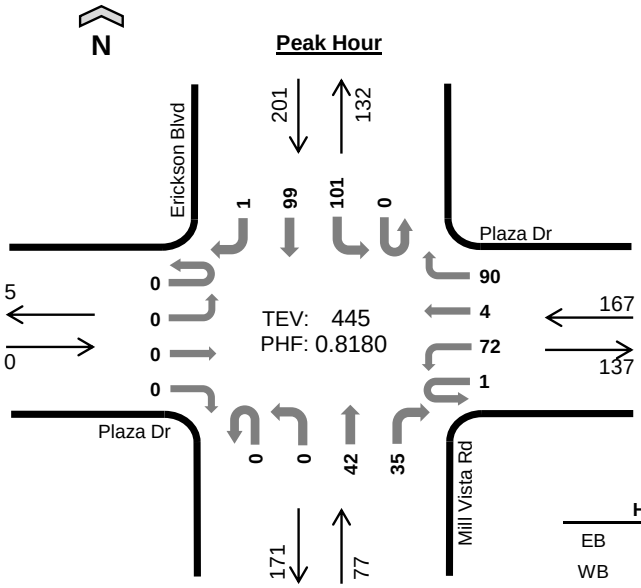
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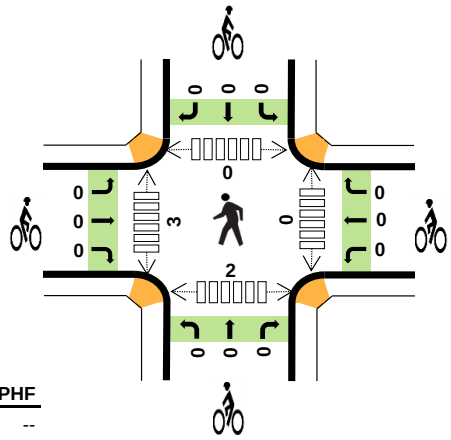
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Appendix B: Intersection Count Sheets

Erickson Blvd
Plaza Dr

Date: 1/22/2025
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM





	HV%	PHF
EB	--	--
WB	2%	0.85
NB	4%	0.69
SB	2%	0.68
TOTAL	2%	0.82

Peak Hour Count Summaries

Peak Hour Interval Start		Plaza Dr Eastbound				Plaza Dr Westbound				Mill Vista Rd Northbound				Erickson Blvd Southbound				15-min Total	Rolling Hour Total
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:45 AM		0	0	0	0	0	27	1	21	0	0	2	6	0	38	26	0	121	0
8:00 AM		0	0	0	0	1	17	1	25	0	0	10	8	0	37	37	0	136	0
8:15 AM		0	0	0	0	0	15	2	24	0	0	19	9	0	13	21	0	103	0
8:30 AM		0	0	0	0	0	13	0	20	0	0	11	12	0	13	15	1	85	445
Pk Hr	All	0	0	0	0	1	72	4	90	0	0	42	35	0	101	99	1	445	
	HV	0	0	0	0	0	1	0	3	0	0	2	1	0	1	3	0	11	
	HV%	-	-	-	-	0%	1%	0%	3%	-	-	5%	3%	-	1%	3%	0%	2%	

Note: For complete count summary (all intervals), see following pages.
*** Heavy Vehicle Classifications include FHWA Classes 4-13.*
*** Count Summaries include heavy vehicles, but exclude bicycles in overall count.*

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
7:45 AM	0	1	0	0	*1*	0	0	0	0	*0*	0	2	0	1	*3*
8:00 AM	0	0	2	1	*3*	0	0	0	0	*0*	0	1	0	1	*2*
8:15 AM	0	2	1	2	*5*	0	0	0	0	*0*	0	0	0	0	*0*
8:30 AM	0	1	0	1	*2*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	0	4	3	4	*11*	0	0	0	0	*0*	0	3	0	2	*5*

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Count Summaries - All Vehicles

Interval Start	Plaza Dr				Plaza Dr				Mill Vista Rd				Erickson Blvd				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	12	0	20	0	0	5	8	0	12	24	0	81	0
7:15 AM	0	0	0	0	0	14	1	27	0	0	4	8	0	14	12	0	80	0
7:30 AM	0	0	1	0	0	12	1	17	0	0	6	8	0	16	19	1	81	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**27**	**1**	**21**	**0**	**0**	**2**	**6**	**0**	**38**	**26**	**0**	**121**	**363**
8:00 AM	**0**	**0**	**0**	**0**	**1**	**17**	**1**	**25**	**0**	**0**	**10**	**8**	**0**	**37**	**37**	**0**	**136**	**418**
8:15 AM	**0**	**0**	**0**	**0**	**0**	**15**	**2**	**24**	**0**	**0**	**19**	**9**	**0**	**13**	**21**	**0**	**103**	**441**
8:30 AM	**0**	**0**	**0**	**0**	**0**	**13**	**0**	**20**	**0**	**0**	**11**	**12**	**0**	**13**	**15**	**1**	**85**	**445**
8:45 AM	0	0	0	0	0	17	0	17	0	0	15	10	0	24	31	0	114	438
Count Total	0	0	1	0	1	127	6	171	0	0	72	69	0	167	185	2	801	
Pk Hr All	**0**	**0**	**0**	**0**	**1**	**72**	**4**	**90**	**0**	**0**	**42**	**35**	**0**	**101**	**99**	**1**	**445**	
Pk Hr HV	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**3**	**0**	**0**	**2**	**1**	**0**	**1**	**3**	**0**	**11**	
Pk Hr HV%	**-**	**-**	**-**	**-**	**0%**	**1%**	**0%**	**3%**	**-**	**-**	**5%**	**3%**	**-**	**1%**	**3%**	**0%**	**2%**	

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
7:00 AM	0	1	1	2	*4*	0	0	0	0	*0*	0	0	0	1	*1*
7:15 AM	0	2	0	0	*2*	0	0	0	0	*0*	0	0	0	1	*1*
7:30 AM	0	1	1	2	*4*	0	0	0	0	*0*	0	0	0	0	*0*
7:45 AM	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**1**	**3**
8:00 AM	**0**	**0**	**2**	**1**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**2**
8:15 AM	**0**	**2**	**1**	**2**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:30 AM	**0**	**1**	**0**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:45 AM	0	2	0	1	*3*	0	0	0	0	*0*	0	0	0	2	*2*
Count Total	0	10	5	9	*24*	0	0	0	0	*0*	0	3	0	6	*9*
Peak Hour	**0**	**4**	**3**	**4**	***11***	**0**	**0**	**0**	**0**	***0***	**0**	**3**	**0**	**2**	**5**

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Count Summaries - Heavy Vehicles

Interval Start	Plaza Dr				Plaza Dr				Mill Vista Rd				Erickson Blvd				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	1	0	0	0	0	0	1	0	0	2	0	4	0
7:15 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	2	0
7:30 AM	0	0	0	0	0	1	0	0	0	0	0	1	0	1	1	0	4	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**11**
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**1**	**0**	**3**	**10**
8:15 AM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**1**	**1**	**0**	**5**	**13**
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**11**
8:45 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	0	3	13
Count Total	0	0	0	0	0	5	0	5	0	0	2	3	0	2	7	0	24	
Pk Hr Heavy	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**3**	**0**	**0**	**2**	**1**	**0**	**1**	**3**	**0**	**11**	

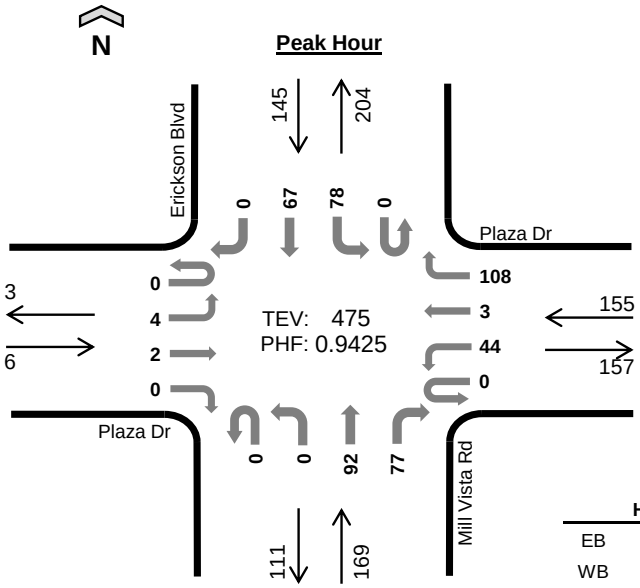
Count Summaries - Bikes

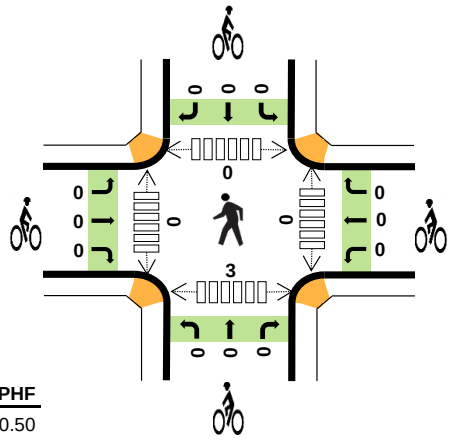
Interval Start	Plaza Dr				Plaza Dr				Mill Vista Rd				Erickson Blvd				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pk Hr Bike	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	

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Erickson Blvd
Plaza Dr

Date: 1/22/2025
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:00 PM to 5:00 PM





	HV%	PHF
EB	0%	0.50
WB	1%	0.86
NB	1%	0.77
SB	1%	0.81
TOTAL	1%	0.94

Peak Hour Count Summaries

Peak Hour Interval Start		Plaza Dr Eastbound				Plaza Dr Westbound				Mill Vista Rd Northbound				Erickson Blvd Southbound				15-min Total	Rolling Hour Total
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		**0**	**0**	**0**	**0**	**0**	**13**	**0**	**28**	**0**	**0**	**32**	**23**	**0**	**12**	**18**	**0**	**126**	**0**
4:15 PM		**0**	**3**	**0**	**0**	**0**	**16**	**1**	**28**	**0**	**0**	**12**	**16**	**0**	**21**	**17**	**0**	**114**	**0**
4:30 PM		**0**	**1**	**0**	**0**	**0**	**5**	**1**	**27**	**0**	**0**	**23**	**22**	**0**	**20**	**12**	**0**	**111**	**0**
4:45 PM		**0**	**0**	**2**	**0**	**0**	**10**	**1**	**25**	**0**	**0**	**25**	**16**	**0**	**25**	**20**	**0**	**124**	**475**
Pk Hr	All	**0**	**4**	**2**	**0**	**0**	**44**	**3**	**108**	**0**	**0**	**92**	**77**	**0**	**78**	**67**	**0**	**475**	
	HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**0**	**5**	
	HV%	**-**	**0%**	**0%**	**-**	**-**	**0%**	**0%**	**2%**	**-**	**-**	**0%**	**3%**	**-**	**0%**	**1%**	**-**	**1%**	

Note: For complete count summary (all intervals), see following pages.
*** Heavy Vehicle Classifications include FHWA Classes 4-13.*
*** Count Summaries include heavy vehicles, but exclude bicycles in overall count.*

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
4:00 PM	**0**	**1**	**1**	**0**	***2***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
4:15 PM	**0**	**1**	**0**	**1**	***2***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
4:30 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**2**	***2***
4:45 PM	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**1**	***1***
Peak Hour	**0**	**2**	**2**	**1**	***5***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**3**	***3***

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Count Summaries - All Vehicles

Interval Start	Plaza Dr				Plaza Dr				Mill Vista Rd				Erickson Blvd				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	**0**	**0**	**0**	**0**	**0**	**13**	**0**	**28**	**0**	**0**	**32**	**23**	**0**	**12**	**18**	**0**	**126**	0
4:15 PM	**0**	**3**	**0**	**0**	**0**	**16**	**1**	**28**	**0**	**0**	**12**	**16**	**0**	**21**	**17**	**0**	**114**	**0**
4:30 PM	**0**	**1**	**0**	**0**	**0**	**5**	**1**	**27**	**0**	**0**	**23**	**22**	**0**	**20**	**12**	**0**	**111**	**0**
4:45 PM	**0**	**0**	**2**	**0**	**0**	**10**	**1**	**25**	**0**	**0**	**25**	**16**	**0**	**25**	**20**	**0**	**124**	**475**
5:00 PM	0	0	1	0	0	9	0	29	0	0	24	18	0	12	16	0	109	458
5:15 PM	0	0	0	0	0	10	1	24	0	0	19	20	0	15	8	0	97	441
5:30 PM	0	0	1	0	0	5	0	31	0	0	15	11	0	12	16	0	91	421
5:45 PM	0	0	0	0	0	6	0	18	0	0	14	15	0	15	11	0	79	376
Count Total	0	4	4	0	0	74	4	210	0	0	164	141	0	132	118	0	851	
Pk Hr All	**0**	**4**	**2**	**0**	**0**	**44**	**3**	**108**	**0**	**0**	**92**	**77**	**0**	**78**	**67**	**0**	**475**	
Pk Hr HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**0**	**5**	
Pk Hr HV%	**-**	**0%**	**0%**	**-**	**-**	**0%**	**0%**	**2%**	**-**	**-**	**0%**	**3%**	**-**	**0%**	**1%**	**-**	**1%**	

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
4:00 PM	**0**	**1**	**1**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4:15 PM	**0**	**1**	**0**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**2**
4:45 PM	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**
5:00 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	3	0	3	*6*
5:15 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	3	0	3	*6*
5:30 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	0	2	2	1	*5*	0	0	0	0	*0*	0	6	0	9	*15*
Peak Hour	**0**	**2**	**2**	**1**	***5***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**3**	**3**

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Count Summaries - Heavy Vehicles

Interval Start	Plaza Dr				Plaza Dr				Mill Vista Rd				Erickson Blvd				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**0**
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**5**
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	2	0	0	0	2	0	0	1	0	5	
Pk Hr Heavy	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**0**	**5**	

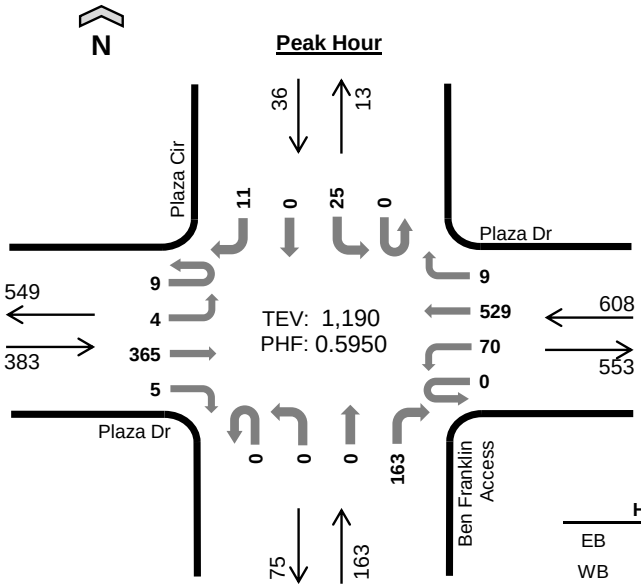
Count Summaries - Bikes

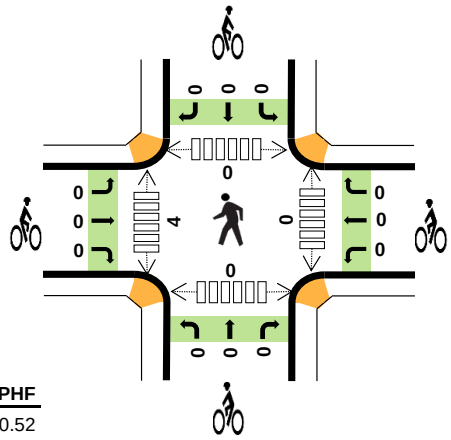
Interval Start	Plaza Dr				Plaza Dr				Mill Vista Rd				Erickson Blvd				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pk Hr Bike	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	

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Plaza Cir
Plaza Dr

Date: 1/22/2025
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM





	HV%	PHF
EB	1%	0.52
WB	1%	0.63
NB	0%	0.45
SB	0%	0.69
TOTAL	1%	0.60

Peak Hour Count Summaries

Peak Hour Interval Start		Plaza Dr Eastbound				Plaza Dr Westbound				Ben Franklin Access Northbound				Plaza Cir Southbound				15-min Total	Rolling Hour Total
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:30 AM		0	0	30	2	0	26	69	1	0	0	0	5	0	6	0	0	139	0
7:45 AM		2	2	116	0	0	6	230	7	0	0	0	49	0	9	0	4	425	0
8:00 AM		4	2	174	3	0	18	197	1	0	0	0	91	0	3	0	7	500	0
8:15 AM		3	0	45	0	0	20	33	0	0	0	0	18	0	7	0	0	126	1,190
Pk Hr	All	9	4	365	5	0	70	529	9	0	0	0	163	0	25	0	11	1,190	
	HV	0	0	4	0	0	0	5	1	0	0	0	0	0	0	0	0	10	
	HV%	0%	0%	1%	0%	-	0%	1%	11%	-	-	-	0%	-	0%	-	0%	1%	

Note: For complete count summary (all intervals), see following pages.
*** Heavy Vehicle Classifications include FHWA Classes 4-13.*
*** Count Summaries include heavy vehicles, but exclude bicycles in overall count.*

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
7:30 AM	2	2	0	0	*4*	0	0	0	0	*0*	0	0	0	0	*0*
7:45 AM	1	1	0	0	*2*	0	0	0	0	*0*	0	0	0	0	*0*
8:00 AM	1	1	0	0	*2*	0	0	0	0	*0*	0	4	0	0	*4*
8:15 AM	0	2	0	0	*2*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	4	6	0	0	*10*	0	0	0	0	*0*	0	4	0	0	*4*

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Count Summaries - All Vehicles

Interval Start	Plaza Dr				Plaza Dr				Ben Franklin Access				Plaza Cir				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	24	2	0	13	33	0	0	1	0	4	0	7	0	1	85	0
7:15 AM	0	0	20	1	0	19	40	0	0	0	0	1	0	15	0	0	96	0
7:30 AM	**0**	**0**	**30**	**2**	**0**	**26**	**69**	**1**	**0**	**0**	**0**	**5**	**0**	**6**	**0**	**0**	**139**	**0**
7:45 AM	**2**	**2**	**116**	**0**	**0**	**6**	**230**	**7**	**0**	**0**	**0**	**49**	**0**	**9**	**0**	**4**	**425**	**745**
8:00 AM	**4**	**2**	**174**	**3**	**0**	**18**	**197**	**1**	**0**	**0**	**0**	**91**	**0**	**3**	**0**	**7**	**500**	**1,160**
8:15 AM	**3**	**0**	**45**	**0**	**0**	**20**	**33**	**0**	**0**	**0**	**0**	**18**	**0**	**7**	**0**	**0**	**126**	**1,190**
8:30 AM	0	0	21	2	0	7	41	2	0	0	0	1	0	7	0	0	81	1,132
8:45 AM	0	0	26	0	0	10	30	1	0	1	0	2	0	11	0	1	82	789
Count Total	9	4	456	10	0	119	673	12	0	2	0	171	0	65	0	13	1,534	
Pk Hr All	**9**	**4**	**365**	**5**	**0**	**70**	**529**	**9**	**0**	**0**	**0**	**163**	**0**	**25**	**0**	**11**	**1,190**	
Pk Hr HV	**0**	**0**	**4**	**0**	**0**	**0**	**5**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	
Pk Hr HV%	**0%**	**0%**	**1%**	**0%**	**-**	**0%**	**1%**	**11%**	**-**	**-**	**-**	**0%**	**-**	**0%**	**-**	**0%**	**1%**	

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
7:00 AM	0	1	0	0	*1*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	0	1	0	0	*1*	0	0	0	0	*0*	0	0	0	0	*0*
7:30 AM	**2**	**2**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
7:45 AM	**1**	**1**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:00 AM	**1**	**1**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**4**
8:15 AM	**0**	**2**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:30 AM	0	1	0	0	*1*	0	0	0	0	*0*	2	0	1	0	*3*
8:45 AM	0	4	0	0	*4*	0	0	0	0	*0*	0	0	1	0	*1*
Count Total	4	13	0	0	*17*	0	0	0	0	*0*	2	4	2	0	*8*
Peak Hour	**4**	**6**	**0**	**0**	***10***	**0**	**0**	**0**	**0**	***0***	**0**	**4**	**0**	**0**	**4**

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Count Summaries - Heavy Vehicles

Interval Start	Plaza Dr				Plaza Dr				Ben Franklin Access				Plaza Cir				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
7:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
7:30 AM	**0**	**0**	**2**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**
7:45 AM	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**8**
8:00 AM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**9**
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**10**
8:30 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	7
8:45 AM	0	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	4	9
Count Total	0	0	4	0	0	2	9	2	0	0	0	0	0	0	0	0	17	
Pk Hr Heavy	**0**	**0**	**4**	**0**	**0**	**0**	**5**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	

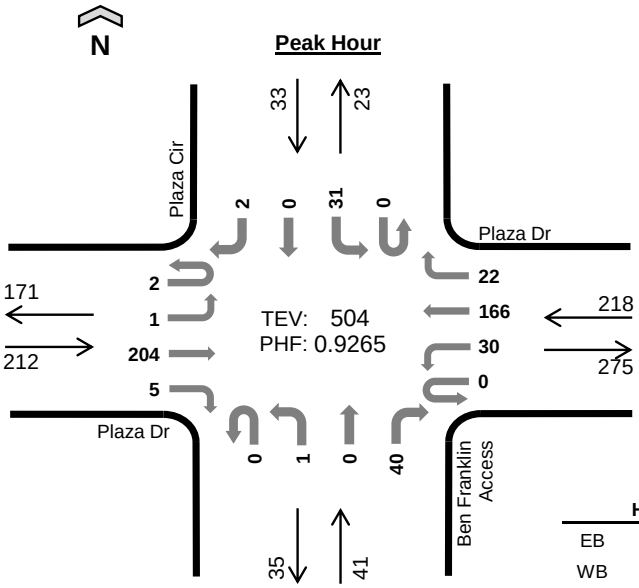
Count Summaries - Bikes

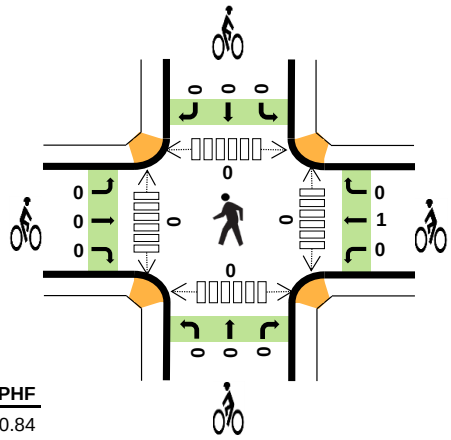
Interval Start	Plaza Dr				Plaza Dr				Ben Franklin Access				Plaza Cir				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pk Hr Bike	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	

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Plaza Cir
Plaza Dr

Date: 1/22/2025
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:00 PM to 5:00 PM





	HV%	PHF
EB	0%	0.84
WB	2%	0.87
NB	0%	0.54
SB	12%	0.63
TOTAL	2%	0.93

Peak Hour Count Summaries

Peak Hour Interval Start		Plaza Dr Eastbound				Plaza Dr Westbound				Ben Franklin Access Northbound				Plaza Cir Southbound				15-min Total	Rolling Hour Total
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		1	1	58	1	0	4	39	4	0	0	0	19	0	5	0	0	132	0
4:15 PM		0	0	37	2	0	10	48	5	0	0	0	6	0	6	0	1	115	0
4:30 PM		1	0	61	1	0	7	36	7	0	1	0	9	0	12	0	1	136	0
4:45 PM		0	0	48	1	0	9	43	6	0	0	0	6	0	8	0	0	121	504
Pk Hr	All	2	1	204	5	0	30	166	22	0	1	0	40	0	31	0	2	504	
	HV	0	0	0	1	0	0	3	1	0	0	0	0	0	4	0	0	9	
	HV%	0%	0%	0%	20%	-	0%	2%	5%	-	0%	-	0%	-	13%	-	0%	2%	

Note: For complete count summary (all intervals), see following pages.
*** Heavy Vehicle Classifications include FHWA Classes 4-13.*
*** Count Summaries include heavy vehicles, but exclude bicycles in overall count.*

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
4:00 PM	1	0	0	1	*2*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	0	1	0	1	*2*	0	0	0	0	*0*	0	0	0	0	*0*
4:30 PM	0	1	0	1	*2*	0	0	0	0	*0*	0	0	0	0	*0*
4:45 PM	0	2	0	1	*3*	0	1	0	0	*1*	0	0	0	0	*0*
Peak Hour	1	4	0	4	*9*	0	1	0	0	*1*	0	0	0	0	*0*

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Count Summaries - All Vehicles

Interval Start	Plaza Dr				Plaza Dr				Ben Franklin Access				Plaza Cir				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	**1**	**1**	**58**	**1**	**0**	**4**	**39**	**4**	**0**	**0**	**0**	**19**	**0**	**5**	**0**	**0**	**132**	0
4:15 PM	**0**	**0**	**37**	**2**	**0**	**10**	**48**	**5**	**0**	**0**	**0**	**6**	**0**	**6**	**0**	**1**	**115**	**0**
4:30 PM	**1**	**0**	**61**	**1**	**0**	**7**	**36**	**7**	**0**	**1**	**0**	**9**	**0**	**12**	**0**	**1**	**136**	**0**
4:45 PM	**0**	**0**	**48**	**1**	**0**	**9**	**43**	**6**	**0**	**0**	**0**	**6**	**0**	**8**	**0**	**0**	**121**	**504**
5:00 PM	0	0	42	0	0	2	39	8	0	1	0	7	0	11	0	0	110	482
5:15 PM	0	0	33	2	0	6	45	7	0	2	0	3	0	8	1	0	107	474
5:30 PM	0	0	25	0	0	9	37	9	0	3	0	12	0	2	0	0	97	435
5:45 PM	0	1	32	2	0	2	28	6	0	0	0	1	0	6	0	1	79	393
Count Total	2	2	336	9	0	49	315	52	0	7	0	63	0	58	1	3	897	
Pk Hr All	**2**	**1**	**204**	**5**	**0**	**30**	**166**	**22**	**0**	**1**	**0**	**40**	**0**	**31**	**0**	**2**	**504**	
Pk Hr HV	**0**	**0**	**0**	**1**	**0**	**0**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**9**	
Pk Hr HV%	**0%**	**0%**	**0%**	**20%**	**-**	**0%**	**2%**	**5%**	**-**	**0%**	**-**	**0%**	**-**	**13%**	**-**	**0%**	**2%**	

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
4:00 PM	**1**	**0**	**0**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4:15 PM	**0**	**1**	**0**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4:30 PM	**0**	**1**	**0**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4:45 PM	**0**	**2**	**0**	**1**	**3**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**
5:00 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
5:15 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	1	0	1	*2*
5:30 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	1	0	0	0	*1*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	2	4	0	4	*10*	0	1	0	0	*1*	0	1	0	1	*2*
Peak Hour	**1**	**4**	**0**	**4**	***9***	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	**0**

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Count Summaries - Heavy Vehicles

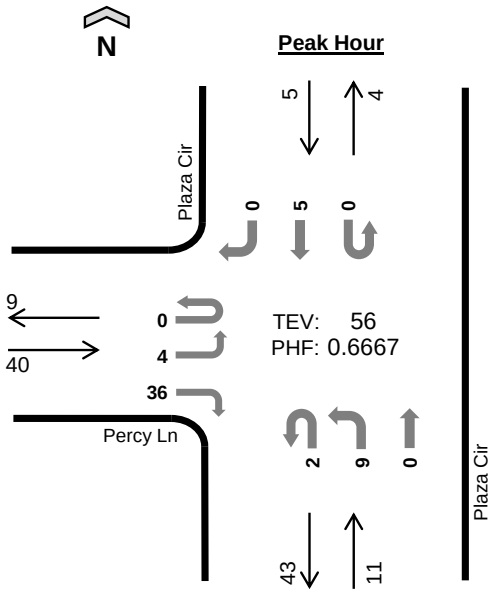
Interval Start	Plaza Dr				Plaza Dr				Ben Franklin Access				Plaza Cir				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**0**
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**0**
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**3**	**9**
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
5:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Count Total	0	0	1	1	0	0	3	1	0	0	0	0	0	4	0	0	10	
Pk Hr Heavy	**0**	**0**	**0**	**1**	**0**	**0**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**9**	

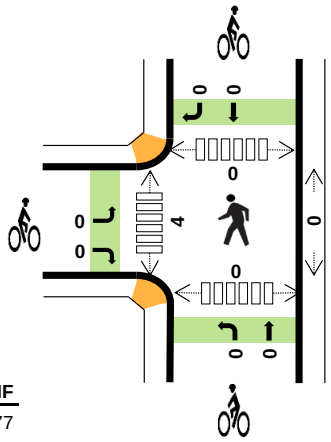
Count Summaries - Bikes

Interval Start	Plaza Dr				Plaza Dr				Ben Franklin Access				Plaza Cir				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	
Pk Hr Bike	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	

Plaza Cir
Percy Ln

Date: 1/22/2025
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:15 AM to 8:15 AM





	HV%	PHF
EB	3%	0.77
WB	--	--
NB	9%	0.34
SB	0%	0.31
TOTAL	4%	0.67

Peak Hour Count Summaries

Peak Hour Interval Start		Percy Ln Eastbound				n/a Westbound				Plaza Cir Northbound				Plaza Cir Southbound				15-min Total	Rolling Hour Total
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:15 AM		0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	13	0
7:30 AM		0	0	0	8	0	0	0	0	0	1	0	0	0	0	0	0	9	0
7:45 AM		0	2	0	10	0	0	0	0	2	6	0	0	0	0	1	0	21	0
8:00 AM		0	2	0	5	0	0	0	0	0	2	0	0	0	0	4	0	13	56
Pk Hr	All	0	4	0	36	0	0	0	0	2	9	0	0	0	0	5	0	56	
	HV	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	
	HV%	-	25%	-	0%	-	-	-	-	0%	11%	-	-	-	-	0%	-	4%	

Note: For complete count summary (all intervals), see following pages.
*** Heavy Vehicle Classifications include FHWA Classes 4-13.*
*** Count Summaries include heavy vehicles, but exclude bicycles in overall count.*

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) E	W	N	S	Total
7:15 AM	0	0	0	0	*0*	0	0	0	0	*0*	0	2	0	0	*2*
7:30 AM	0	0	0	0	*0*	0	0	0	0	*0*	0	2	0	0	*2*
7:45 AM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
8:00 AM	1	0	1	0	*2*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	1	0	1	0	*2*	0	0	0	0	*0*	0	4	0	0	*4*

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Count Summaries - All Vehicles

Interval Start	Percy Ln				n/a				Plaza Cir				Plaza Cir				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	1	0	9	0	0	0	0	0	0	0	0	0	0	1	0	11	0
7:15 AM	**0**	**0**	**0**	**13**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**13**	**0**
7:30 AM	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**9**	**0**
7:45 AM	**0**	**2**	**0**	**10**	**0**	**0**	**0**	**0**	**2**	**6**	**0**	**0**	**0**	**0**	**1**	**0**	**21**	**54**
8:00 AM	**0**	**2**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**4**	**0**	**13**	**56**
8:15 AM	0	0	0	6	0	0	0	0	1	0	0	0	0	0	0	0	7	50
8:30 AM	0	0	0	7	0	0	0	0	0	2	0	0	0	0	0	0	9	50
8:45 AM	0	0	0	10	0	0	0	0	0	1	0	0	0	0	1	0	12	41
Count Total	0	5	0	68	0	0	0	0	3	12	0	0	0	0	7	0	95	
Pk Hr All	**0**	**4**	**0**	**36**	**0**	**0**	**0**	**0**	**2**	**9**	**0**	**0**	**0**	**0**	**5**	**0**	**56**	
Pk Hr HV	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	
Pk Hr HV%	**-**	**25%**	**-**	**0%**	**-**	**-**	**-**	**-**	**0%**	**11%**	**-**	**-**	**-**	**-**	**0%**	**-**	**4%**	

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
7:00 AM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**2**
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**2**
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:00 AM	**1**	**0**	**1**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:15 AM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
8:30 AM	0	0	0	0	*0*	0	0	0	0	*0*	0	1	0	0	*1*
8:45 AM	0	0	1	0	*1*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	1	0	2	0	*3*	0	0	0	0	*0*	0	5	0	0	*5*
Peak Hour	**1**	**0**	**1**	**0**	***2***	**0**	**0**	**0**	**0**	***0***	**0**	**4**	**0**	**0**	**4**

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Count Summaries - Heavy Vehicles

Interval Start	Percy Ln				n/a				Plaza Cir				Plaza Cir				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:00 AM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**2**
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	3
Count Total	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	3	
Pk Hr Heavy	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	

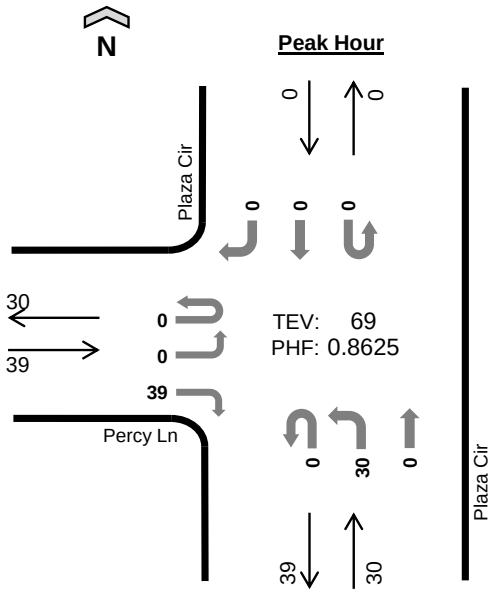
Count Summaries - Bikes

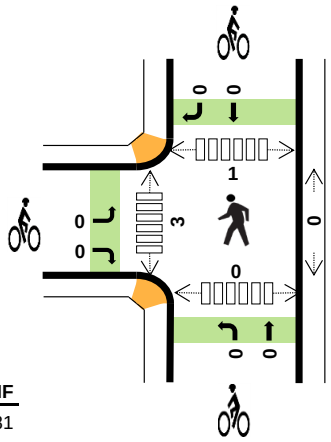
Interval Start	Percy Ln				n/a				Plaza Cir				Plaza Cir				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pk Hr Bike	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	

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Plaza Cir
Percy Ln

Date: 1/22/2025
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM





	HV%	PHF
EB	5%	0.81
WB	--	--
NB	3%	0.83
SB	--	--
TOTAL	4%	0.86

Peak Hour Count Summaries

Peak Hour Interval Start		Percy Ln Eastbound				n/a Westbound				Plaza Cir Northbound				Plaza Cir Southbound				15-min Total	Rolling Hour Total
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM		**0**	**0**	**0**	**12**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**20**	**0**
4:45 PM		**0**	**0**	**0**	**9**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**14**	**0**
5:00 PM		**0**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**16**	**0**
5:15 PM		**0**	**0**	**0**	**10**	**0**	**0**	**0**	**0**	**0**	**9**	**0**	**0**	**0**	**0**	**0**	**0**	**19**	**69**
Pk Hr	All	**0**	**0**	**0**	**39**	**0**	**0**	**0**	**0**	**0**	**30**	**0**	**0**	**0**	**0**	**0**	**0**	**69**	
	HV	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	
	HV%	-	-	-	**5%**	-	-	-	-	-	**3%**	-	-	-	-	-	-	**4%**	

Note: For complete count summary (all intervals), see following pages.
*** Heavy Vehicle Classifications include FHWA Classes 4-13.*
*** Count Summaries include heavy vehicles, but exclude bicycles in overall count.*

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
4:30 PM	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**1**	**0**	***1***
4:45 PM	**2**	**0**	**0**	**0**	***2***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
5:00 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**0**	**0**	***1***
5:15 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**2**	**0**	**0**	***2***
Peak Hour	**2**	**0**	**1**	**0**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**3**	**1**	**0**	***4***

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Count Summaries - All Vehicles

Interval Start	Percy Ln				n/a				Plaza Cir				Plaza Cir				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	5	0	0	0	0	0	5	0	0	0	0	2	0	12	0
4:15 PM	0	0	0	5	0	0	0	0	0	4	0	0	0	0	1	0	10	0
4:30 PM	**0**	**0**	**0**	**12**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**20**	**0**
4:45 PM	**0**	**0**	**0**	**9**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**14**	**56**
5:00 PM	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**16**	**60**
5:15 PM	**0**	**0**	**0**	**10**	**0**	**0**	**0**	**0**	**0**	**9**	**0**	**0**	**0**	**0**	**0**	**0**	**19**	**69**
5:30 PM	0	0	0	3	0	0	0	0	0	9	0	0	0	0	0	0	12	61
5:45 PM	0	0	0	6	0	0	0	0	0	6	0	0	0	0	0	0	12	59
Count Total	0	0	0	58	0	0	0	0	0	54	0	0	0	0	3	0	115	
Pk Hr All	**0**	**0**	**0**	**39**	**0**	**0**	**0**	**0**	**0**	**30**	**0**	**0**	**0**	**0**	**0**	**0**	**69**	
Pk Hr HV	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	
Pk Hr HV%	**-**	**-**	**-**	**5%**	**-**	**-**	**-**	**-**	**-**	**3%**	**-**	**-**	**-**	**-**	**-**	**-**	**4%**	

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
4:00 PM	0	0	0	1	*1*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	0	0	0	1	*1*	0	0	0	0	*0*	0	0	0	0	*0*
4:30 PM	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**
4:45 PM	**2**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**2**
5:30 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	4	0	0	*4*
5:45 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	1	0	0	*1*
Count Total	2	0	1	2	*5*	0	0	0	0	*0*	0	8	1	0	*9*
Peak Hour	**2**	**0**	**1**	**0**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**3**	**1**	**0**	**4**

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Count Summaries - Heavy Vehicles

Interval Start	Percy Ln				n/a				Plaza Cir				Plaza Cir				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**
4:45 PM	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**5**
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	2	0	0	0	0	0	1	0	0	0	0	2	0	5	
Pk Hr Heavy	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	

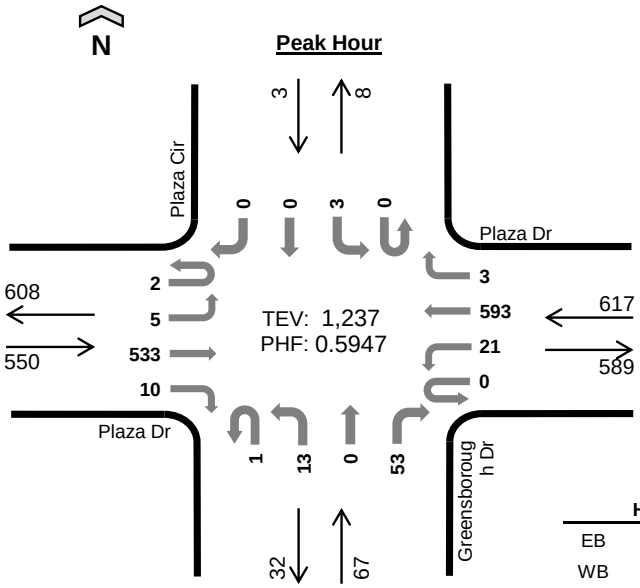
Count Summaries - Bikes

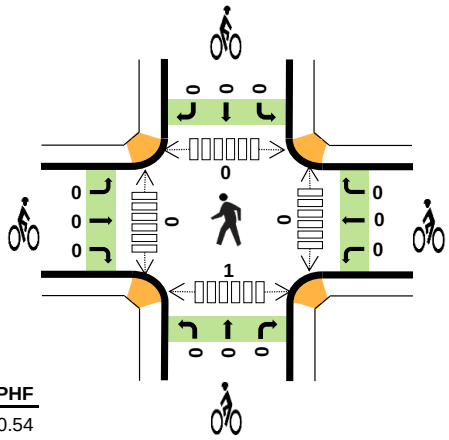
Interval Start	Percy Ln				n/a				Plaza Cir				Plaza Cir				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pk Hr Bike	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	

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Greensborough Dr
Plaza Dr

Date: 1/22/2025
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM





	HV%	PHF
EB	1%	0.54
WB	1%	0.65
NB	0%	0.58
SB	0%	0.38
TOTAL	1%	0.59

Peak Hour Count Summaries

Peak Hour Interval Start		Plaza Dr Eastbound				Plaza Dr Westbound				Greensborough Dr Northbound				Plaza Cir Southbound				15-min Total	Rolling Hour Total
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:30 AM		0	0	33	2	0	2	85	0	1	0	0	9	0	0	0	0	132	0
7:45 AM		0	1	154	3	0	8	229	1	0	4	0	14	0	2	0	0	416	0
8:00 AM		2	4	245	4	0	7	227	1	0	8	0	21	0	1	0	0	520	0
8:15 AM		0	0	101	1	0	4	52	1	0	1	0	9	0	0	0	0	169	1,237
Pk Hr	All	2	5	533	10	0	21	593	3	1	13	0	53	0	3	0	0	1,237	
	HV	0	0	3	0	0	0	6	1	0	0	0	0	0	0	0	0	10	
	HV%	0%	0%	1%	0%	-	0%	1%	33%	0%	0%	-	0%	-	0%	-	-	1%	

Note: For complete count summary (all intervals), see following pages.
*** Heavy Vehicle Classifications include FHWA Classes 4-13.*
*** Count Summaries include heavy vehicles, but exclude bicycles in overall count.*

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
7:30 AM	0	2	0	0	*2*	0	0	0	0	*0*	0	0	0	0	*0*
7:45 AM	1	2	0	0	*3*	0	0	0	0	*0*	0	0	0	0	*0*
8:00 AM	1	1	0	0	*2*	0	0	0	0	*0*	0	0	0	0	*0*
8:15 AM	1	2	0	0	*3*	0	0	0	0	*0*	0	0	0	1	*1*
Peak Hour	3	7	0	0	*10*	0	0	0	0	*0*	0	0	0	1	*1*

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Count Summaries - All Vehicles

Interval Start	Plaza Dr				Plaza Dr				Greensborough Dr				Plaza Cir				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	36	0	0	6	46	0	0	3	0	16	0	1	0	0	108	0
7:15 AM	0	0	37	0	0	0	55	0	0	4	0	16	0	0	0	0	112	0
7:30 AM	**0**	**0**	**33**	**2**	**0**	**2**	**85**	**0**	**1**	**0**	**0**	**9**	**0**	**0**	**0**	**0**	**132**	**0**
7:45 AM	**0**	**1**	**154**	**3**	**0**	**8**	**229**	**1**	**0**	**4**	**0**	**14**	**0**	**2**	**0**	**0**	**416**	**768**
8:00 AM	**2**	**4**	**245**	**4**	**0**	**7**	**227**	**1**	**0**	**8**	**0**	**21**	**0**	**1**	**0**	**0**	**520**	**1,180**
8:15 AM	**0**	**0**	**101**	**1**	**0**	**4**	**52**	**1**	**0**	**1**	**0**	**9**	**0**	**0**	**0**	**0**	**169**	**1,237**
8:30 AM	0	0	33	0	1	3	46	2	0	2	1	7	0	0	1	0	96	1,201
8:45 AM	0	1	33	1	0	8	39	2	0	2	0	18	0	0	0	0	104	889
Count Total	2	6	672	11	1	38	779	7	1	24	1	110	0	4	1	0	1,657	
Pk Hr All	**2**	**5**	**533**	**10**	**0**	**21**	**593**	**3**	**1**	**13**	**0**	**53**	**0**	**3**	**0**	**0**	**1,237**	
Pk Hr HV	**0**	**0**	**3**	**0**	**0**	**0**	**6**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	
Pk Hr HV%	**0%**	**0%**	**1%**	**0%**	**-**	**0%**	**1%**	**33%**	**0%**	**0%**	**-**	**0%**	**-**	**0%**	**-**	**-**	**1%**	

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
7:00 AM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	0	1	0	0	*1*	0	0	0	0	*0*	0	0	0	1	*1*
7:30 AM	**0**	**2**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
7:45 AM	**1**	**2**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:00 AM	**1**	**1**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:15 AM	**1**	**2**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**
8:30 AM	0	2	0	0	*2*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	1	6	0	0	*7*	0	0	0	0	*0*	0	0	0	1	*1*
Count Total	4	16	0	0	*20*	0	0	0	0	*0*	0	0	0	3	*3*
Peak Hour	**3**	**7**	**0**	**0**	***10***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**1**	**1**

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Count Summaries - Heavy Vehicles

Interval Start	Plaza Dr				Plaza Dr				Greensborough Dr				Plaza Cir				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**
7:45 AM	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**6**
8:00 AM	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**8**
8:15 AM	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**10**
8:30 AM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2	10
8:45 AM	0	0	1	0	0	0	5	1	0	0	0	0	0	0	0	0	7	14
Count Total	0	0	4	0	0	0	13	3	0	0	0	0	0	0	0	0	20	
Pk Hr Heavy	**0**	**0**	**3**	**0**	**0**	**0**	**6**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	

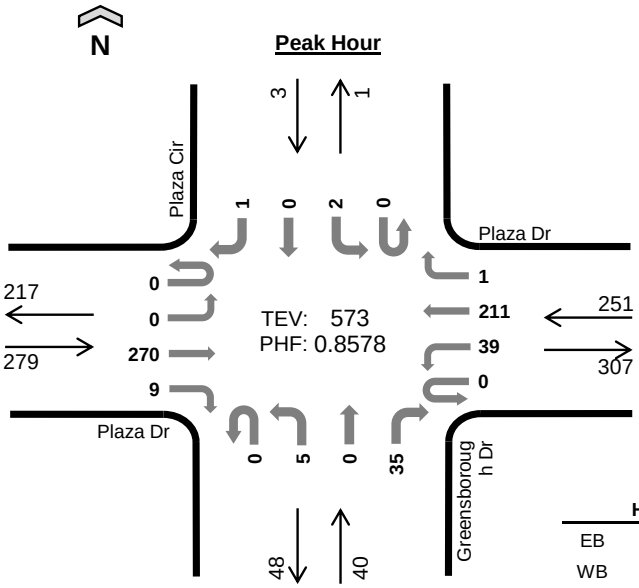
Count Summaries - Bikes

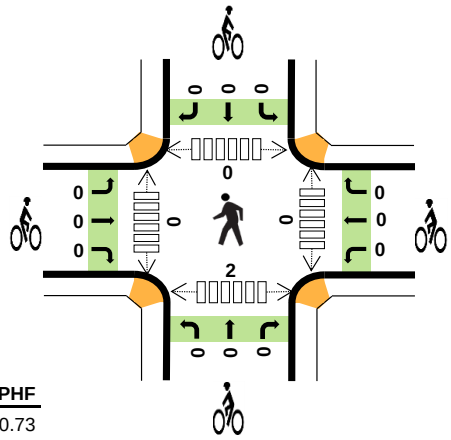
Interval Start	Plaza Dr				Plaza Dr				Greensborough Dr				Plaza Cir				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pk Hr Bike	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	

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Greensborough Dr
Plaza Dr

Date: 1/22/2025
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:00 PM to 5:00 PM





	HV%	PHF
EB	1%	0.73
WB	2%	0.92
NB	0%	0.67
SB	0%	0.38
TOTAL	1%	0.86

Peak Hour Count Summaries

Peak Hour Interval Start		Plaza Dr Eastbound				Plaza Dr Westbound				Greensborough Dr Northbound				Plaza Cir Southbound				15-min Total	Rolling Hour Total
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		**0**	**0**	**93**	**2**	**0**	**13**	**47**	**1**	**0**	**2**	**0**	**9**	**0**	**0**	**0**	**0**	**167**	**0**
4:15 PM		**0**	**0**	**45**	**3**	**0**	**8**	**60**	**0**	**0**	**1**	**0**	**7**	**0**	**1**	**0**	**0**	**125**	**0**
4:30 PM		**0**	**0**	**76**	**1**	**0**	**11**	**48**	**0**	**0**	**2**	**0**	**13**	**0**	**0**	**0**	**0**	**151**	**0**
4:45 PM		**0**	**0**	**56**	**3**	**0**	**7**	**56**	**0**	**0**	**0**	**0**	**6**	**0**	**1**	**0**	**1**	**130**	**573**
Pk Hr	All	**0**	**0**	**270**	**9**	**0**	**39**	**211**	**1**	**0**	**5**	**0**	**35**	**0**	**2**	**0**	**1**	**573**	
	HV	**0**	**0**	**3**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	
	HV%	-	-	**1%**	**0%**	-	**0%**	**2%**	**0%**	-	**0%**	-	**0%**	-	**0%**	-	**0%**	**1%**	

Note: For complete count summary (all intervals), see following pages.
*** Heavy Vehicle Classifications include FHWA Classes 4-13.*
*** Count Summaries include heavy vehicles, but exclude bicycles in overall count.*

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
4:00 PM	**1**	**0**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
4:15 PM	**1**	**1**	**0**	**0**	***2***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
4:30 PM	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
4:45 PM	**1**	**2**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**2**	***2***
Peak Hour	**3**	**4**	**0**	**0**	***7***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**2**	***2***

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Count Summaries - All Vehicles

Interval Start	Plaza Dr				Plaza Dr				Greensborough Dr				Plaza Cir				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	**0**	**0**	**93**	**2**	**0**	**13**	**47**	**1**	**0**	**2**	**0**	**9**	**0**	**0**	**0**	**0**	**167**	0
4:15 PM	**0**	**0**	**45**	**3**	**0**	**8**	**60**	**0**	**0**	**1**	**0**	**7**	**0**	**1**	**0**	**0**	**125**	**0**
4:30 PM	**0**	**0**	**76**	**1**	**0**	**11**	**48**	**0**	**0**	**2**	**0**	**13**	**0**	**0**	**0**	**0**	**151**	**0**
4:45 PM	**0**	**0**	**56**	**3**	**0**	**7**	**56**	**0**	**0**	**0**	**0**	**6**	**0**	**1**	**0**	**1**	**130**	**573**
5:00 PM	0	0	57	4	0	11	47	0	1	2	0	3	0	0	0	0	125	531
5:15 PM	0	0	46	2	0	12	57	1	0	3	0	9	0	0	0	0	130	536
5:30 PM	0	0	36	2	0	8	54	1	0	1	0	8	0	0	0	0	110	495
5:45 PM	0	0	35	1	0	7	35	0	0	1	0	8	0	0	0	0	87	452
Count Total	0	0	444	18	0	77	404	3	1	12	0	63	0	2	0	1	1,025	
Pk Hr All	**0**	**0**	**270**	**9**	**0**	**39**	**211**	**1**	**0**	**5**	**0**	**35**	**0**	**2**	**0**	**1**	**573**	
Pk Hr HV	**0**	**0**	**3**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	
Pk Hr HV%	**-**	**-**	**1%**	**0%**	**-**	**0%**	**2%**	**0%**	**-**	**0%**	**-**	**0%**	**-**	**0%**	**-**	**0%**	**1%**	

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
4:00 PM	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4:15 PM	**1**	**1**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4:30 PM	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4:45 PM	**1**	**2**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**2**
5:00 PM	0	0	0	0	*0*	0	0	0	0	*0*	1	0	0	0	*1*
5:15 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	1	*1*
5:30 PM	0	1	0	0	*1*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	1	0	0	0	*1*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	4	5	0	0	*9*	0	0	0	0	*0*	1	0	0	3	*4*
Peak Hour	**3**	**4**	**0**	**0**	***7***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**2**	**2**

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Count Summaries - Heavy Vehicles

Interval Start	Plaza Dr				Plaza Dr				Greensborough Dr				Plaza Cir				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
4:15 PM	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**
4:45 PM	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**7**
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
5:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	4
5:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
Count Total	0	0	4	0	0	1	4	0	0	0	0	0	0	0	0	0	9	
Pk Hr Heavy	**0**	**0**	**3**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	

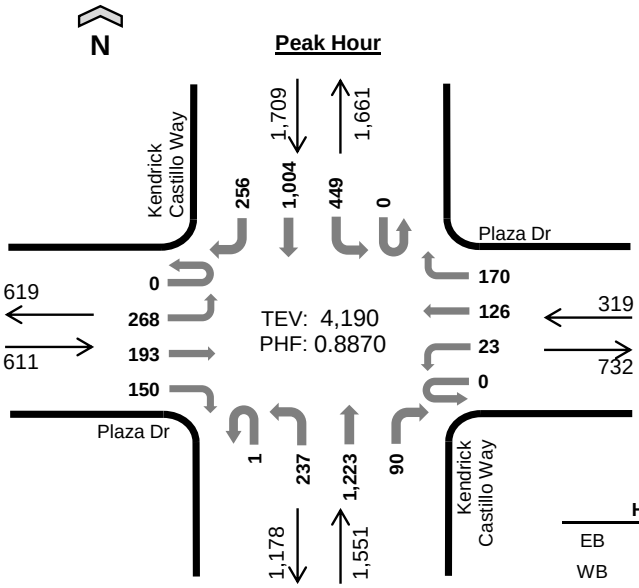
Count Summaries - Bikes

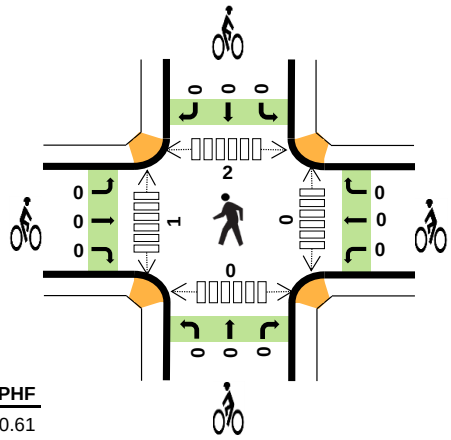
Interval Start	Plaza Dr				Plaza Dr				Greensborough Dr				Plaza Cir				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pk Hr Bike	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	

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Kendrick Castillo Way
Plaza Dr

Date: 1/29/2025
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM





	HV%	PHF
EB	0%	0.61
WB	2%	0.77
NB	1%	0.87
SB	2%	0.93
TOTAL	1%	0.89

Peak Hour Count Summaries

Peak Hour Interval Start		Plaza Dr Eastbound				Plaza Dr Westbound				Kendrick Castillo Way Northbound				Kendrick Castillo Way Southbound				15-min Total	Rolling Hour Total
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:30 AM		0	38	21	7	0	3	13	49	1	25	395	26	0	133	242	40	993	0
7:45 AM		0	81	44	43	0	3	44	41	0	101	268	21	0	109	254	68	1,077	0
8:00 AM		0	98	82	71	0	9	53	41	0	85	265	20	0	121	227	109	1,181	0
8:15 AM		0	51	46	29	0	8	16	39	0	26	295	23	0	86	281	39	939	4,190
Pk Hr	All	0	268	193	150	0	23	126	170	1	237	1,223	90	0	449	1,004	256	4,190	
	HV	0	2	0	1	0	0	3	2	0	0	13	0	0	1	20	5	47	
	HV%	-	1%	0%	1%	-	0%	2%	1%	0%	0%	1%	0%	-	0%	2%	2%	1%	

Note: For complete count summary (all intervals), see following pages.
*** Heavy Vehicle Classifications include FHWA Classes 4-13.*
*** Count Summaries include heavy vehicles, but exclude bicycles in overall count.*

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
7:30 AM	1	0	4	5	*10*	0	0	0	0	*0*	0	1	2	0	*3*
7:45 AM	1	2	2	6	*11*	0	0	0	0	*0*	0	0	0	0	*0*
8:00 AM	1	2	3	4	*10*	0	0	0	0	*0*	0	0	0	0	*0*
8:15 AM	0	1	4	11	*16*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	3	5	13	26	*47*	0	0	0	0	*0*	0	1	2	0	*3*

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Count Summaries - All Vehicles

Interval Start	Plaza Dr				Plaza Dr				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	40	8	12	0	3	10	24	0	16	324	11	0	73	184	24	729	0
7:15 AM	0	65	21	18	0	3	8	45	0	21	335	20	0	125	214	37	912	0
7:30 AM	**0**	**38**	**21**	**7**	**0**	**3**	**13**	**49**	**1**	**25**	**395**	**26**	**0**	**133**	**242**	**40**	**993**	**0**
7:45 AM	**0**	**81**	**44**	**43**	**0**	**3**	**44**	**41**	**0**	**101**	**268**	**21**	**0**	**109**	**254**	**68**	**1,077**	**3,711**
8:00 AM	**0**	**98**	**82**	**71**	**0**	**9**	**53**	**41**	**0**	**85**	**265**	**20**	**0**	**121**	**227**	**109**	**1,181**	**4,163**
8:15 AM	**0**	**51**	**46**	**29**	**0**	**8**	**16**	**39**	**0**	**26**	**295**	**23**	**0**	**86**	**281**	**39**	**939**	**4,190**
8:30 AM	0	38	26	14	0	10	14	27	0	31	334	17	0	78	238	45	872	4,069
8:45 AM	0	32	28	22	0	10	10	24	0	15	305	30	0	103	244	31	854	3,846
Count Total	0	443	276	216	0	49	168	290	1	320	2,521	168	0	828	1,884	393	7,557	
Pk Hr All	**0**	**268**	**193**	**150**	**0**	**23**	**126**	**170**	**1**	**237**	**1,223**	**90**	**0**	**449**	**1,004**	**256**	**4,190**	
Pk Hr HV	**0**	**2**	**0**	**1**	**0**	**0**	**3**	**2**	**0**	**0**	**13**	**0**	**0**	**1**	**20**	**5**	**47**	
Pk Hr HV%	**-**	**1%**	**0%**	**1%**	**-**	**0%**	**2%**	**1%**	**0%**	**0%**	**1%**	**0%**	**-**	**0%**	**2%**	**2%**	**1%**	

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
7:00 AM	0	0	3	3	*6*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	0	1	6	5	*12*	0	0	0	0	*0*	0	2	1	0	*3*
7:30 AM	**1**	**0**	**4**	**5**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**0**	**3**
7:45 AM	**1**	**2**	**2**	**6**	**11**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:00 AM	**1**	**2**	**3**	**4**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:15 AM	**0**	**1**	**4**	**11**	**16**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:30 AM	1	0	4	11	*16*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	1	0	8	11	*20*	0	0	0	0	*0*	1	0	0	0	*1*
Count Total	5	6	34	56	*101*	0	0	0	0	*0*	1	3	3	0	*7*
Peak Hour	**3**	**5**	**13**	**26**	***47***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**2**	**0**	**3**

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Count Summaries - Heavy Vehicles

Interval Start	Plaza Dr				Plaza Dr				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	1	1	1	6	0
7:15 AM	0	0	0	0	0	0	0	1	0	1	4	1	0	1	3	1	12	0
7:30 AM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**5**	**0**	**10**	**0**
7:45 AM	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**2**	**0**	**0**	**1**	**4**	**1**	**11**	**39**
8:00 AM	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**1**	**0**	**0**	**3**	**0**	**0**	**0**	**3**	**1**	**10**	**43**
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**8**	**3**	**16**	**47**
8:30 AM	0	1	0	0	0	0	0	0	0	0	4	0	0	0	8	3	16	53
8:45 AM	0	0	0	1	0	0	0	0	0	0	7	1	0	0	7	4	20	62
Count Total	0	3	0	2	0	0	3	3	0	1	31	2	0	3	39	14	101	
Pk Hr Heavy	**0**	**2**	**0**	**1**	**0**	**0**	**3**	**2**	**0**	**0**	**13**	**0**	**0**	**1**	**20**	**5**	**47**	

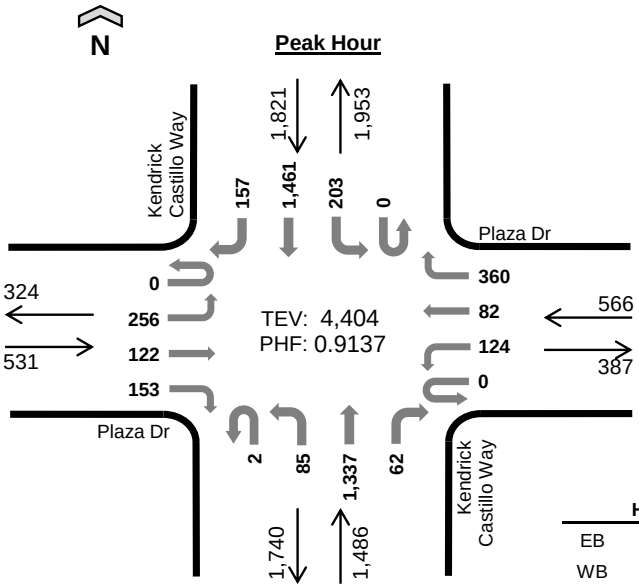
Count Summaries - Bikes

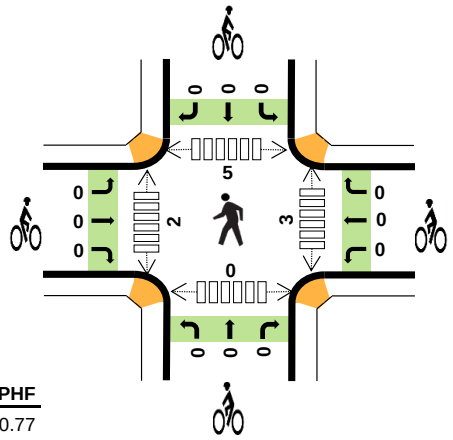
Interval Start	Plaza Dr				Plaza Dr				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pk Hr Bike	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	

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Kendrick Castillo Way
Plaza Dr

Date: 1/29/2025
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:00 PM to 5:00 PM





	HV%	PHF
EB	1%	0.77
WB	1%	0.88
NB	1%	0.88
SB	0%	0.91
TOTAL	1%	0.91

Peak Hour Count Summaries

Peak Hour Interval Start		Plaza Dr Eastbound				Plaza Dr Westbound				Kendrick Castillo Way Northbound				Kendrick Castillo Way Southbound				15-min Total	Rolling Hour Total
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		**0**	**71**	**47**	**54**	**0**	**32**	**23**	**105**	**0**	**23**	**383**	**14**	**0**	**56**	**363**	**34**	**1,205**	**0**
4:15 PM		**0**	**66**	**27**	**30**	**0**	**32**	**24**	**102**	**0**	**18**	**359**	**13**	**0**	**38**	**332**	**40**	**1,081**	**0**
4:30 PM		**0**	**60**	**25**	**38**	**0**	**28**	**18**	**82**	**1**	**30**	**312**	**15**	**0**	**58**	**391**	**49**	**1,107**	**0**
4:45 PM		**0**	**59**	**23**	**31**	**0**	**32**	**17**	**71**	**1**	**14**	**283**	**20**	**0**	**51**	**375**	**34**	**1,011**	**4,404**
Pk Hr	All	**0**	**256**	**122**	**153**	**0**	**124**	**82**	**360**	**2**	**85**	**1,337**	**62**	**0**	**203**	**1,461**	**157**	**4,404**	
	HV	**0**	**3**	**1**	**0**	**0**	**0**	**0**	**3**	**0**	**2**	**15**	**2**	**0**	**1**	**6**	**1**	**34**	
	HV%	-	**1%**	**1%**	**0%**	-	**0%**	**0%**	**1%**	**0%**	**2%**	**1%**	**3%**	-	**0%**	**0%**	**1%**	**1%**	

Note: For complete count summary (all intervals), see following pages.
*** Heavy Vehicle Classifications include FHWA Classes 4-13.*
*** Count Summaries include heavy vehicles, but exclude bicycles in overall count.*

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
4:00 PM	**1**	**2**	**7**	**1**	***11***	**0**	**0**	**0**	**0**	***0***	**2**	**1**	**3**	**0**	***6***
4:15 PM	**2**	**1**	**4**	**3**	***10***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**1**	**0**	***2***
4:30 PM	**0**	**0**	**5**	**2**	***7***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
4:45 PM	**1**	**0**	**3**	**2**	***6***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**1**	**0**	***2***
Peak Hour	**4**	**3**	**19**	**8**	***34***	**0**	**0**	**0**	**0**	***0***	**3**	**2**	**5**	**0**	***10***

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Count Summaries - All Vehicles

Interval Start	Plaza Dr				Plaza Dr				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	**0**	**71**	**47**	**54**	**0**	**32**	**23**	**105**	**0**	**23**	**383**	**14**	**0**	**56**	**363**	**34**	**1,205**	0
4:15 PM	**0**	**66**	**27**	**30**	**0**	**32**	**24**	**102**	**0**	**18**	**359**	**13**	**0**	**38**	**332**	**40**	**1,081**	**0**
4:30 PM	**0**	**60**	**25**	**38**	**0**	**28**	**18**	**82**	**1**	**30**	**312**	**15**	**0**	**58**	**391**	**49**	**1,107**	**0**
4:45 PM	**0**	**59**	**23**	**31**	**0**	**32**	**17**	**71**	**1**	**14**	**283**	**20**	**0**	**51**	**375**	**34**	**1,011**	**4,404**
5:00 PM	1	60	32	23	0	21	18	102	1	22	289	13	0	58	399	49	1,088	4,287
5:15 PM	0	47	17	26	0	37	35	65	1	17	231	22	0	46	373	45	962	4,168
5:30 PM	0	40	22	25	0	39	17	69	2	27	174	19	0	43	376	38	891	3,952
5:45 PM	0	39	15	11	0	25	10	70	0	18	189	16	0	41	295	29	758	3,699
Count Total	1	442	208	238	0	246	162	666	6	169	2,220	132	0	391	2,904	318	8,103	
Pk Hr All	**0**	**256**	**122**	**153**	**0**	**124**	**82**	**360**	**2**	**85**	**1,337**	**62**	**0**	**203**	**1,461**	**157**	**4,404**	
Pk Hr HV	**0**	**3**	**1**	**0**	**0**	**0**	**0**	**3**	**0**	**2**	**15**	**2**	**0**	**1**	**6**	**1**	**34**	
Pk Hr HV%	**-**	**1%**	**1%**	**0%**	**-**	**0%**	**0%**	**1%**	**0%**	**2%**	**1%**	**3%**	**-**	**0%**	**0%**	**1%**	**1%**	

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
4:00 PM	**1**	**2**	**7**	**1**	**11**	**0**	**0**	**0**	**0**	**0**	**2**	**1**	**3**	**0**	**6**
4:15 PM	**2**	**1**	**4**	**3**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**2**
4:30 PM	**0**	**0**	**5**	**2**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4:45 PM	**1**	**0**	**3**	**2**	**6**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**2**
5:00 PM	1	1	4	2	*8*	0	0	0	0	*0*	0	0	1	0	*1*
5:15 PM	3	0	1	4	*8*	0	0	0	0	*0*	0	1	0	0	*1*
5:30 PM	1	1	2	3	*7*	0	0	0	0	*0*	1	1	0	0	*2*
5:45 PM	0	0	0	1	*1*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	9	5	26	18	*58*	0	0	0	0	*0*	4	4	6	0	*14*
Peak Hour	**4**	**3**	**19**	**8**	***34***	**0**	**0**	**0**	**0**	***0***	**3**	**2**	**5**	**0**	**10**

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Count Summaries - Heavy Vehicles

Interval Start	Plaza Dr				Plaza Dr				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**1**	**4**	**2**	**0**	**1**	**0**	**0**	**11**	0
4:15 PM	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**3**	**0**	**0**	**0**	**2**	**1**	**10**	**0**
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**2**	**0**	**7**	**0**
4:45 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**2**	**0**	**6**	**34**
5:00 PM	0	0	1	0	0	0	1	0	0	0	4	0	0	0	2	0	8	31
5:15 PM	0	2	1	0	0	0	0	0	0	0	1	0	0	0	4	0	8	29
5:30 PM	0	0	1	0	0	1	0	0	0	0	2	0	0	0	3	0	7	29
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	24
Count Total	0	5	4	0	0	1	1	3	0	2	22	2	0	1	16	1	58	
Pk Hr Heavy	**0**	**3**	**1**	**0**	**0**	**0**	**0**	**3**	**0**	**2**	**15**	**2**	**0**	**1**	**6**	**1**	**34**	

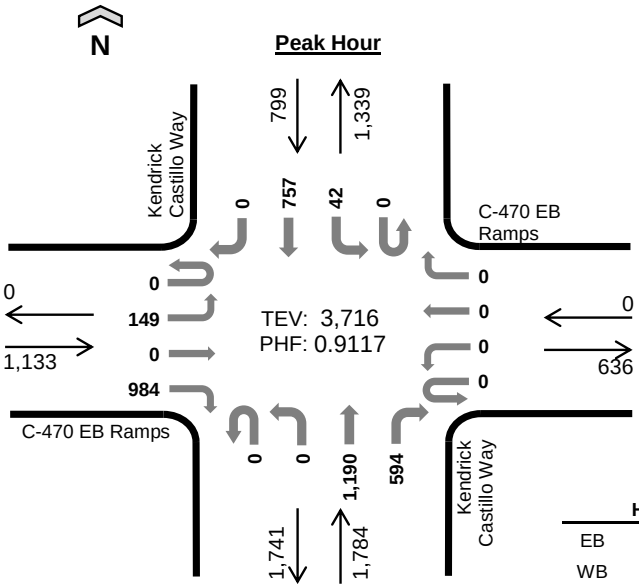
Count Summaries - Bikes

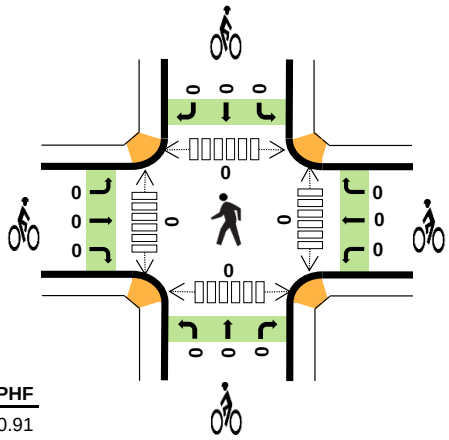
Interval Start	Plaza Dr				Plaza Dr				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pk Hr Bike	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	

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Kendrick Castillo Way
C-470 EB Ramps

Date: 1/22/2025
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:15 AM to 8:15 AM





	HV%	PHF
EB	1%	0.91
WB	--	--
NB	1%	0.92
SB	2%	0.87
TOTAL	1%	0.91

Peak Hour Count Summaries

Peak Hour Interval Start		C-470 EB Ramps Eastbound				C-470 EB Ramps Westbound				Kendrick Castillo Way Northbound				Kendrick Castillo Way Southbound				15-min Total	Rolling Hour Total
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:15 AM		**0**	**36**	**0**	**209**	**0**	**0**	**0**	**0**	**0**	**0**	**286**	**160**	**0**	**7**	**145**	**0**	**843**	**0**
7:30 AM		**0**	**37**	**0**	**236**	**0**	**0**	**0**	**0**	**0**	**0**	**303**	**150**	**0**	**20**	**182**	**0**	**928**	**0**
7:45 AM		**0**	**44**	**0**	**261**	**0**	**0**	**0**	**0**	**0**	**0**	**335**	**150**	**0**	**9**	**220**	**0**	**1,019**	**0**
8:00 AM		**0**	**32**	**0**	**278**	**0**	**0**	**0**	**0**	**0**	**0**	**266**	**134**	**0**	**6**	**210**	**0**	**926**	**3,716**
Pk Hr	All	**0**	**149**	**0**	**984**	**0**	**0**	**0**	**0**	**0**	**0**	**1,190**	**594**	**0**	**42**	**757**	**0**	**3,716**	
	HV	**0**	**2**	**0**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**3**	**0**	**7**	**12**	**0**	**41**	
	HV%	**-**	**1%**	**-**	**1%**	**-**	**-**	**-**	**-**	**-**	**-**	**1%**	**1%**	**-**	**17%**	**2%**	**-**	**1%**	

Note: For complete count summary (all intervals), see following pages.
*** Heavy Vehicle Classifications include FHWA Classes 4-13.*
*** Count Summaries include heavy vehicles, but exclude bicycles in overall count.*

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
7:15 AM	**4**	**0**	**1**	**3**	***8***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
7:30 AM	**1**	**0**	**0**	**7**	***8***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
7:45 AM	**4**	**0**	**6**	**5**	***15***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:00 AM	**3**	**0**	**3**	**4**	***10***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
Peak Hour	**12**	**0**	**10**	**19**	***41***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

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Count Summaries - All Vehicles

Interval Start	C-470 EB Ramps				C-470 EB Ramps				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	19	0	155	0	0	0	0	0	0	239	151	0	12	149	0	725	0
7:15 AM	**0**	**36**	**0**	**209**	**0**	**0**	**0**	**0**	**0**	**0**	**286**	**160**	**0**	**7**	**145**	**0**	**843**	**0**
7:30 AM	**0**	**37**	**0**	**236**	**0**	**0**	**0**	**0**	**0**	**0**	**303**	**150**	**0**	**20**	**182**	**0**	**928**	**0**
7:45 AM	**0**	**44**	**0**	**261**	**0**	**0**	**0**	**0**	**0**	**0**	**335**	**150**	**0**	**9**	**220**	**0**	**1,019**	**3,515**
8:00 AM	**0**	**32**	**0**	**278**	**0**	**0**	**0**	**0**	**0**	**0**	**266**	**134**	**0**	**6**	**210**	**0**	**926**	**3,716**
8:15 AM	0	30	0	202	0	0	0	0	0	0	219	143	0	13	174	0	781	3,654
8:30 AM	0	21	0	187	0	0	0	0	0	0	211	151	0	16	176	0	762	3,488
8:45 AM	0	28	0	218	0	0	0	0	0	0	214	143	0	16	159	0	778	3,247
Count Total	0	247	0	1,746	0	0	0	0	0	0	2,073	1,182	0	99	1,415	0	6,762	
Pk Hr All	**0**	**149**	**0**	**984**	**0**	**0**	**0**	**0**	**0**	**0**	**1,190**	**594**	**0**	**42**	**757**	**0**	**3,716**	
Pk Hr HV	**0**	**2**	**0**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**3**	**0**	**7**	**12**	**0**	**41**	
Pk Hr HV%	**-**	**1%**	**-**	**1%**	**-**	**-**	**-**	**-**	**-**	**-**	**1%**	**1%**	**-**	**17%**	**2%**	**-**	**1%**	

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
7:00 AM	1	0	0	3	*4*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	**4**	**0**	**1**	**3**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
7:30 AM	**1**	**0**	**0**	**7**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
7:45 AM	**4**	**0**	**6**	**5**	**15**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:00 AM	**3**	**0**	**3**	**4**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:15 AM	4	0	5	4	*13*	0	0	0	0	*0*	0	0	0	0	*0*
8:30 AM	5	0	7	3	*15*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	6	0	8	9	*23*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	28	0	30	38	*96*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	**12**	**0**	**10**	**19**	***41***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	**0**

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Count Summaries - Heavy Vehicles

Interval Start	C-470 EB Ramps				C-470 EB Ramps				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3	0	4	0
7:15 AM	**0**	**1**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**2**	**0**	**8**	**0**
7:30 AM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**3**	**0**	**8**	**0**
7:45 AM	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**2**	**0**	**1**	**4**	**0**	**15**	**35**
8:00 AM	**0**	**1**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**1**	**0**	**1**	**3**	**0**	**10**	**41**
8:15 AM	0	0	0	4	0	0	0	0	0	0	3	2	0	1	3	0	13	46
8:30 AM	0	0	0	5	0	0	0	0	0	0	3	4	0	0	3	0	15	53
8:45 AM	0	0	0	6	0	0	0	0	0	0	5	3	0	0	9	0	23	61
Count Total	0	2	0	26	0	0	0	0	0	0	18	12	0	8	30	0	96	
Pk Hr Heavy	**0**	**2**	**0**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**3**	**0**	**7**	**12**	**0**	**41**	

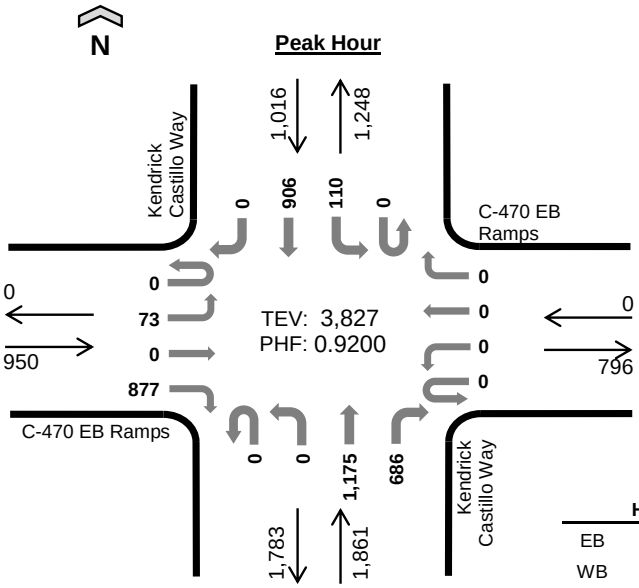
Count Summaries - Bikes

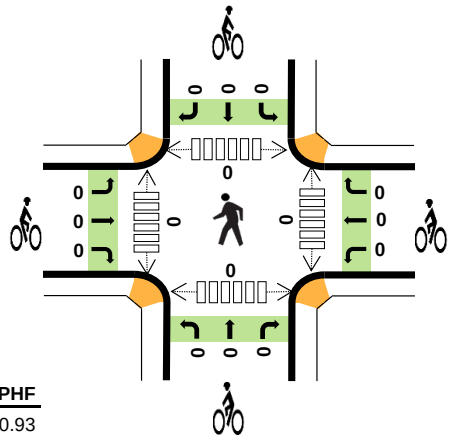
Interval Start	C-470 EB Ramps				C-470 EB Ramps				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pk Hr Bike	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	

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Kendrick Castillo Way
C-470 EB Ramps

Date: 1/22/2025
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM





	HV%	PHF
EB	1%	0.93
WB	--	--
NB	0%	0.88
SB	1%	0.90
TOTAL	1%	0.92

Peak Hour Count Summaries

Peak Hour Interval Start		C-470 EB Ramps				C-470 EB Ramps				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM		0	20	0	236	0	0	0	0	0	0	287	172	0	19	198	0	932	0
4:45 PM		0	13	0	212	0	0	0	0	0	0	256	156	0	25	220	0	882	0
5:00 PM		0	19	0	210	0	0	0	0	0	0	324	206	0	44	237	0	1,040	0
5:15 PM		0	21	0	219	0	0	0	0	0	0	308	152	0	22	251	0	973	3,827
Pk Hr	All	0	73	0	877	0	0	0	0	0	0	1,175	686	0	110	906	0	3,827	
	HV	0	4	0	3	0	0	0	0	0	0	5	3	0	1	9	0	25	
	HV%	-	5%	-	0%	-	-	-	-	-	-	0%	0%	-	1%	1%	-	1%	

Note: For complete count summary (all intervals), see following pages.
*** Heavy Vehicle Classifications include FHWA Classes 4-13.*
*** Count Summaries include heavy vehicles, but exclude bicycles in overall count.*

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
4:30 PM	2	0	1	2	*5*	0	0	0	0	*0*	0	0	0	0	*0*
4:45 PM	1	0	3	4	*8*	0	0	0	0	*0*	0	0	0	0	*0*
5:00 PM	2	0	2	2	*6*	0	0	0	0	*0*	0	0	0	0	*0*
5:15 PM	2	0	2	2	*6*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	7	0	8	10	*25*	0	0	0	0	*0*	0	0	0	0	*0*

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Count Summaries - All Vehicles

Interval Start	C-470 EB Ramps				C-470 EB Ramps				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	13	0	178	0	0	0	0	0	0	274	174	0	41	194	0	874	0
4:15 PM	0	21	0	223	0	0	0	0	0	0	282	195	0	27	204	0	952	0
4:30 PM	**0**	**20**	**0**	**236**	**0**	**0**	**0**	**0**	**0**	**0**	**287**	**172**	**0**	**19**	**198**	**0**	**932**	**0**
4:45 PM	**0**	**13**	**0**	**212**	**0**	**0**	**0**	**0**	**0**	**0**	**256**	**156**	**0**	**25**	**220**	**0**	**882**	**3,640**
5:00 PM	**0**	**19**	**0**	**210**	**0**	**0**	**0**	**0**	**0**	**0**	**324**	**206**	**0**	**44**	**237**	**0**	**1,040**	**3,806**
5:15 PM	**0**	**21**	**0**	**219**	**0**	**0**	**0**	**0**	**0**	**0**	**308**	**152**	**0**	**22**	**251**	**0**	**973**	**3,827**
5:30 PM	0	6	0	205	0	0	0	0	0	0	219	144	0	15	249	0	838	3,733
5:45 PM	0	7	0	199	0	0	0	0	0	0	204	135	0	18	224	0	787	3,638
Count Total	0	120	0	1,682	0	0	0	0	0	0	2,154	1,334	0	211	1,777	0	7,278	
Pk Hr All	**0**	**73**	**0**	**877**	**0**	**0**	**0**	**0**	**0**	**0**	**1,175**	**686**	**0**	**110**	**906**	**0**	**3,827**	
Pk Hr HV	**0**	**4**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**3**	**0**	**1**	**9**	**0**	**25**	
Pk Hr HV%	**-**	**5%**	**-**	**0%**	**-**	**-**	**-**	**-**	**-**	**-**	**0%**	**0%**	**-**	**1%**	**1%**	**-**	**1%**	

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
4:00 PM	2	0	3	4	*9*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	4	0	7	2	*13*	0	0	0	0	*0*	0	0	0	0	*0*
4:30 PM	**2**	**0**	**1**	**2**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4:45 PM	**1**	**0**	**3**	**4**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:00 PM	**2**	**0**	**2**	**2**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:15 PM	**2**	**0**	**2**	**2**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:30 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	0	0	1	1	*2*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	13	0	19	17	*49*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	**7**	**0**	**8**	**10**	***25***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	**0**

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Count Summaries - Heavy Vehicles

Interval Start	C-470 EB Ramps				C-470 EB Ramps				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	2	0	0	0	0	0	0	0	0	0	3	0	0	4	0	9	0
4:15 PM	0	4	0	0	0	0	0	0	0	0	4	3	0	1	1	0	13	0
4:30 PM	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**1**	**0**	**5**	**0**
4:45 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**1**	**0**	**0**	**4**	**0**	**8**	**35**
5:00 PM	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**2**	**0**	**6**	**32**
5:15 PM	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**2**	**0**	**6**	**25**
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
5:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	14
Count Total	0	10	0	3	0	0	0	0	0	0	10	9	0	2	15	0	49	
Pk Hr Heavy	**0**	**4**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**3**	**0**	**1**	**9**	**0**	**25**	

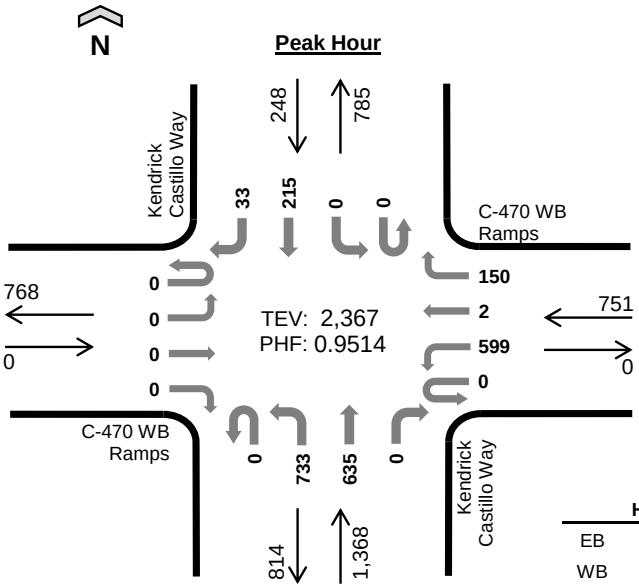
Count Summaries - Bikes

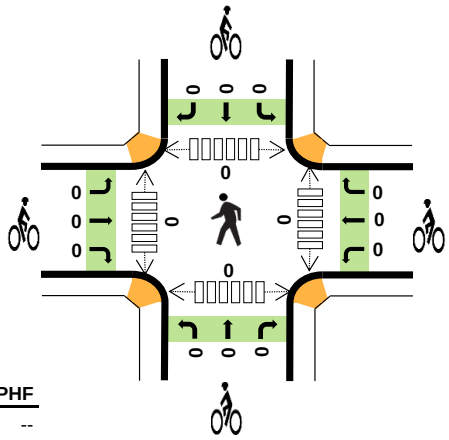
Interval Start	C-470 EB Ramps				C-470 EB Ramps				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pk Hr Bike	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	

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Kendrick Castillo Way
C-470 WB Ramps

Date: 1/29/2025
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM





	HV%	PHF
EB	--	--
WB	2%	0.82
NB	1%	0.93
SB	2%	0.79
TOTAL	1%	0.95

Peak Hour Count Summaries

Peak Hour Interval Start		C-470 WB Ramps Eastbound				C-470 WB Ramps Westbound				Kendrick Castillo Way Northbound				Kendrick Castillo Way Southbound				15-min Total	Rolling Hour Total
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:30 AM		0	0	0	0	0	130	0	29	0	221	148	0	0	0	41	7	576	0
7:45 AM		0	0	0	0	0	182	0	46	0	167	171	0	0	0	50	6	622	0
8:00 AM		0	0	0	0	0	141	2	37	0	186	164	0	0	0	65	13	608	0
8:15 AM		0	0	0	0	0	146	0	38	0	159	152	0	0	0	59	7	561	2,367
Pk Hr	All	0	0	0	0	0	599	2	150	0	733	635	0	0	0	215	33	2,367	
	HV	0	0	0	0	0	15	0	1	0	3	5	0	0	0	4	2	30	
	HV%	-	-	-	-	-	3%	0%	1%	-	0%	1%	-	-	-	2%	6%	1%	

Note: For complete count summary (all intervals), see following pages.
*** Heavy Vehicle Classifications include FHWA Classes 4-13.*
*** Count Summaries include heavy vehicles, but exclude bicycles in overall count.*

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
7:30 AM	0	3	1	1	*5*	0	0	0	0	*0*	0	0	0	0	*0*
7:45 AM	0	4	2	0	*6*	0	0	0	0	*0*	0	0	0	0	*0*
8:00 AM	0	3	2	3	*8*	0	0	0	0	*0*	0	0	0	0	*0*
8:15 AM	0	6	3	2	*11*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	0	16	8	6	*30*	0	0	0	0	*0*	0	0	0	0	*0*

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Count Summaries - All Vehicles

Interval Start	C-470 WB Ramps				C-470 WB Ramps				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	106	0	17	0	180	71	0	0	0	37	13	424	0
7:15 AM	0	0	0	0	0	155	0	25	0	194	97	0	0	0	47	9	527	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**130**	**0**	**29**	**0**	**221**	**148**	**0**	**0**	**0**	**41**	**7**	**576**	**0**
7:45 AM	**0**	**0**	**0**	**0**	**0**	**182**	**0**	**46**	**0**	**167**	**171**	**0**	**0**	**0**	**50**	**6**	**622**	**2,149**
8:00 AM	**0**	**0**	**0**	**0**	**0**	**141**	**2**	**37**	**0**	**186**	**164**	**0**	**0**	**0**	**65**	**13**	**608**	**2,333**
8:15 AM	**0**	**0**	**0**	**0**	**0**	**146**	**0**	**38**	**0**	**159**	**152**	**0**	**0**	**0**	**59**	**7**	**561**	**2,367**
8:30 AM	0	0	0	0	0	127	1	41	0	180	155	0	0	0	58	13	575	2,366
8:45 AM	0	0	0	0	0	119	0	44	2	127	151	0	1	0	47	27	518	2,262
Count Total	0	0	0	0	0	1,106	3	277	2	1,414	1,109	0	1	0	404	95	4,411	
Pk Hr All	**0**	**0**	**0**	**0**	**0**	**599**	**2**	**150**	**0**	**733**	**635**	**0**	**0**	**0**	**215**	**33**	**2,367**	
Pk Hr HV	**0**	**0**	**0**	**0**	**0**	**15**	**0**	**1**	**0**	**3**	**5**	**0**	**0**	**0**	**4**	**2**	**30**	
Pk Hr HV%	**-**	**-**	**-**	**-**	**-**	**3%**	**0%**	**1%**	**-**	**0%**	**1%**	**-**	**-**	**-**	**2%**	**6%**	**1%**	

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
7:00 AM	0	1	0	3	*4*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	0	3	1	1	*5*	0	0	0	0	*0*	0	0	0	0	*0*
7:30 AM	**0**	**3**	**1**	**1**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
7:45 AM	**0**	**4**	**2**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:00 AM	**0**	**3**	**2**	**3**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:15 AM	**0**	**6**	**3**	**2**	**11**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:30 AM	0	8	2	3	*13*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	0	7	4	1	*12*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	0	35	15	14	*64*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	**0**	**16**	**8**	**6**	***30***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	**0**

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Count Summaries - Heavy Vehicles

Interval Start	C-470 WB Ramps				C-470 WB Ramps				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	2	4	0
7:15 AM	0	0	0	0	0	1	0	2	0	1	0	0	0	0	1	0	5	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**5**	**0**
7:45 AM	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**20**
8:00 AM	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**1**	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**2**	**8**	**24**
8:15 AM	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**2**	**0**	**11**	**30**
8:30 AM	0	0	0	0	0	8	0	0	0	1	1	0	0	0	2	1	13	38
8:45 AM	0	0	0	0	0	7	0	0	0	4	0	0	0	0	1	0	12	44
Count Total	0	0	0	0	0	32	0	3	0	9	6	0	0	0	9	5	64	
Pk Hr Heavy	**0**	**0**	**0**	**0**	**0**	**15**	**0**	**1**	**0**	**3**	**5**	**0**	**0**	**0**	**4**	**2**	**30**	

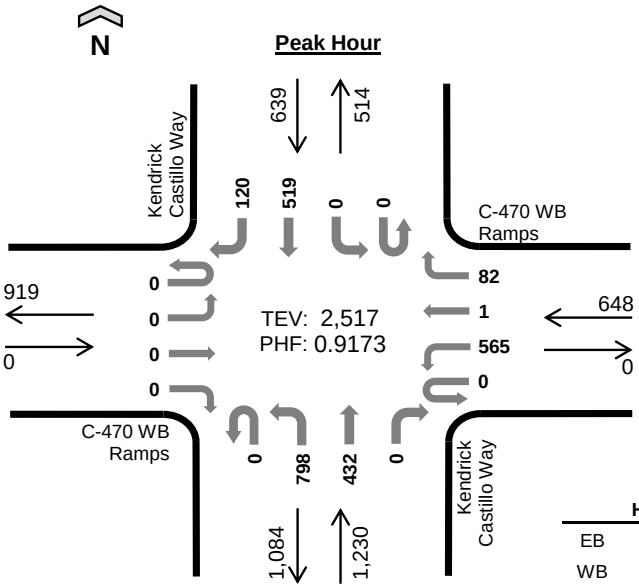
Count Summaries - Bikes

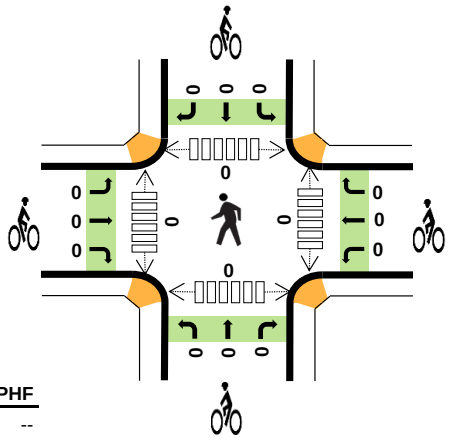
Interval Start	C-470 WB Ramps				C-470 WB Ramps				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pk Hr Bike	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	

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Kendrick Castillo Way
C-470 WB Ramps

Date: 1/29/2025
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:15 PM to 5:15 PM





	HV%	PHF
EB	--	--
WB	2%	0.89
NB	1%	0.89
SB	1%	0.88
TOTAL	1%	0.92

Peak Hour Count Summaries

Peak Hour Interval Start		C-470 WB Ramps Eastbound				C-470 WB Ramps Westbound				Kendrick Castillo Way Northbound				Kendrick Castillo Way Southbound				15-min Total	Rolling Hour Total
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:15 PM		0	0	0	0	0	131	0	25	0	187	116	0	0	0	137	20	616	0
4:30 PM		0	0	0	0	0	130	0	19	0	207	105	0	0	0	124	28	613	0
4:45 PM		0	0	0	0	0	163	1	19	0	161	109	0	0	0	124	25	602	0
5:00 PM		0	0	0	0	0	141	0	19	0	243	102	0	0	0	134	47	686	2,517
Pk Hr	All	0	0	0	0	0	565	1	82	0	798	432	0	0	0	519	120	2,517	
	HV	0	0	0	0	0	9	0	2	0	3	7	0	0	0	2	4	27	
	HV%	-	-	-	-	-	2%	0%	2%	-	0%	2%	-	-	-	0%	3%	1%	

Note: For complete count summary (all intervals), see following pages.
*** Heavy Vehicle Classifications include FHWA Classes 4-13.*
*** Count Summaries include heavy vehicles, but exclude bicycles in overall count.*

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
4:15 PM	0	2	3	1	*6*	0	0	0	0	*0*	0	0	0	0	*0*
4:30 PM	0	7	4	2	*13*	0	0	0	0	*0*	0	0	0	0	*0*
4:45 PM	0	1	0	2	*3*	0	0	0	0	*0*	0	0	0	0	*0*
5:00 PM	0	1	3	1	*5*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	0	11	10	6	*27*	0	0	0	0	*0*	0	0	0	0	*0*

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Count Summaries - All Vehicles

Interval Start	C-470 WB Ramps				C-470 WB Ramps				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	132	0	16	0	230	82	0	0	0	126	29	615	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**131**	**0**	**25**	**0**	**187**	**116**	**0**	**0**	**0**	**137**	**20**	**616**	**0**
4:30 PM	**0**	**0**	**0**	**0**	**0**	**130**	**0**	**19**	**0**	**207**	**105**	**0**	**0**	**0**	**124**	**28**	**613**	**0**
4:45 PM	**0**	**0**	**0**	**0**	**0**	**163**	**1**	**19**	**0**	**161**	**109**	**0**	**0**	**0**	**124**	**25**	**602**	**2,446**
5:00 PM	**0**	**0**	**0**	**0**	**0**	**141**	**0**	**19**	**0**	**243**	**102**	**0**	**0**	**0**	**134**	**47**	**686**	**2,517**
5:15 PM	0	0	0	0	0	165	0	22	0	170	92	0	0	0	136	24	609	2,510
5:30 PM	0	0	0	0	0	113	2	13	0	169	104	0	0	0	107	42	550	2,447
5:45 PM	0	0	0	0	0	131	0	25	0	110	74	0	0	0	115	16	471	2,316
Count Total	0	0	0	0	0	1,106	3	158	0	1,477	784	0	0	0	1,003	231	4,762	
Pk Hr All	**0**	**0**	**0**	**0**	**0**	**565**	**1**	**82**	**0**	**798**	**432**	**0**	**0**	**0**	**519**	**120**	**2,517**	
Pk Hr HV	**0**	**0**	**0**	**0**	**0**	**9**	**0**	**2**	**0**	**3**	**7**	**0**	**0**	**0**	**2**	**4**	**27**	
Pk Hr HV%	**-**	**-**	**-**	**-**	**-**	**2%**	**0%**	**2%**	**-**	**0%**	**2%**	**-**	**-**	**-**	**0%**	**3%**	**1%**	

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
4:00 PM	0	0	2	0	*2*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	**0**	**2**	**3**	**1**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4:30 PM	**0**	**7**	**4**	**2**	**13**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4:45 PM	**0**	**1**	**0**	**2**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:00 PM	**0**	**1**	**3**	**1**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:15 PM	0	5	1	0	*6*	0	0	0	0	*0*	0	1	0	0	*1*
5:30 PM	0	1	2	1	*4*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	0	2	0	1	*3*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	0	19	15	8	*42*	0	0	0	0	*0*	0	1	0	0	*1*
Peak Hour	**0**	**11**	**10**	**6**	***27***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	**0**

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Count Summaries - Heavy Vehicles

Interval Start	C-470 WB Ramps				C-470 WB Ramps				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**1**	**6**	**0**
4:30 PM	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**2**	**0**	**2**	**2**	**0**	**0**	**0**	**0**	**2**	**13**	**0**
4:45 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**3**	**24**
5:00 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**2**	**0**	**0**	**0**	**0**	**1**	**5**	**27**
5:15 PM	0	0	0	0	0	4	0	1	0	1	0	0	0	0	0	0	6	27
5:30 PM	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	0	4	18
5:45 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	1	0	3	18
Count Total	0	0	0	0	0	16	0	3	0	7	8	0	0	0	4	4	42	
Pk Hr Heavy	**0**	**0**	**0**	**0**	**0**	**9**	**0**	**2**	**0**	**3**	**7**	**0**	**0**	**0**	**2**	**4**	**27**	

Count Summaries - Bikes

Interval Start	C-470 WB Ramps				C-470 WB Ramps				Kendrick Castillo Way				Kendrick Castillo Way				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pk Hr Bike	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	

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Appendix C: Future Traffic Projections

DRCOG Traffic Projections: Lucent Station

Location	2020	2050	Growth Factor	Annual Growth
County Line E/O Erickson Dr	11,000	12,000	1.09	0.29%
Kendrick Castillo Way N/O Plaza Dr	41,000	43,000	1.05	0.16%
Total	52,000	55,000	1.06	**0.19%**

Appendix D: Trip Generation Worksheets

Lucent Station Daily Trip Generation Calculations

	TRIP GENERATION CHARACTERISTICS					DIRECTIONAL DISTRIBUTION		NEW EXTERNAL VEHICLE TRIPS		
	Land Use + Code	Source	Scale	ITE Unit	Equation/Rate	Entering %	Exiting %	In	Out	Total
1	(215) Single-Family Attached Housing	ITE 12th Ed	84	DU	T = 6.57(X)	50%	50%	276	276	552
2	(220) Multifamily Housing (Low-Rise)	ITE 12th Ed	266	DU	T = 5.63(X) + 120.45	50%	50%	809	809	1,618
							Total:	1,085	1,085	2,170

Lucent Station AM Peak Hour Trip Generation Calculations

	TRIP GENERATION CHARACTERISTICS					DIRECTIONAL DISTRIBUTION		NEW EXTERNAL VEHICLE TRIPS		
	Land Use + Code	Source	Scale	ITE Unit	Equation/Rate	Entering %	Exiting %	In	Out	Total
1	(215) Single-Family Attached Housing	ITE 12th Ed	84	DU	T = 0.59(X) - 15.25	25%	75%	9	25	34
2	(220) Multifamily Housing (Low-Rise)	ITE 12th Ed	266	DU	T = 0.35(X) + 12.93	24%	76%	25	81	106
							Total:	34	106	140

Lucent Station PM Peak Hour Trip Generation Calculations

	TRIP GENERATION CHARACTERISTICS					DIRECTIONAL DISTRIBUTION		NEW EXTERNAL VEHICLE TRIPS		
	Land Use + Code	Source	Scale	ITE Unit	Equation/Rate	Entering %	Exiting %	In	Out	Total
1	(215) Single-Family Attached Housing	ITE 12th Ed	84	DU	T = 0.57(X) - 7.84	57%	43%	23	17	40
2	(220) Multifamily Housing (Low-Rise)	ITE 12th Ed	266	DU	T = 0.48(X) + 7.35	62%	38%	84	51	135
							Total:	107	68	175

Appendix E: Intersection Analysis Worksheets

Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	73	4	90	0	42	35	101	99	1
Future Vol, veh/h	0	0	0	73	4	90	0	42	35	101	99	1
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	0	0	0	2	2	2	4	4	4	2	2	2
Mvmt Flow	0	0	0	89	5	110	0	51	43	123	121	1
Number of Lanes	1	1	0	1	1	1	0	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	3	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	1	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	3	3	2
HCM Control Delay, s/veh	0	9	9	9.3
HCM LOS	-	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	0%	0%	0%	100%	0%	0%	100%	0%	0%
Vol Thru, %	55%	100%	100%	0%	100%	0%	0%	100%	0%
Vol Right, %	45%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	77	0	0	73	4	90	101	99	1
LT Vol	0	0	0	73	0	0	101	0	0
Through Vol	42	0	0	0	4	0	0	99	0
RT Vol	35	0	0	0	0	90	0	0	1
Lane Flow Rate	94	0	0	89	5	110	123	121	1
Geometry Grp	6	6	6	6	6	6	5	5	5
Degree of Util (X)	0.139	0	0	0.148	0.007	0.145	0.193	0.172	0.002
Departure Headway (Hd)	5.327	5.87	5.87	5.972	5.471	4.769	5.641	5.139	4.437
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	670	0	0	599	653	750	636	697	804
Service Time	3.085	3.645	3.645	3.718	3.217	2.515	3.383	2.881	2.179
HCM Lane V/C Ratio	0.14	0	0	0.149	0.008	0.147	0.193	0.174	0.001
HCM Control Delay, s/veh	9	8.6	8.6	9.8	8.3	8.3	9.7	9	7.2
HCM Lane LOS	A	N	N	A	A	A	A	A	A
HCM 95th-tile Q	0.5	0	0	0.5	0	0.5	0.7	0.6	0

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	2	0	44	3	108	0	92	77	78	67	0
Future Vol, veh/h	4	2	0	44	3	108	0	92	77	78	67	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	4	2	0	47	3	115	0	98	82	83	71	0
Number of Lanes	1	1	0	1	1	1	0	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	3	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	1	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	3	3	2
HCM Control Delay, s/veh	8.9	8.6	9.4	8.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	0%	100%	0%	100%	0%	0%	100%	0%	0%
Vol Thru, %	54%	0%	100%	0%	100%	0%	0%	100%	100%
Vol Right, %	46%	0%	0%	0%	0%	100%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	169	4	2	44	3	108	78	67	0
LT Vol	0	4	0	44	0	0	78	0	0
Through Vol	92	0	2	0	3	0	0	67	0
RT Vol	77	0	0	0	0	108	0	0	0
Lane Flow Rate	180	4	2	47	3	115	83	71	0
Geometry Grp	6	6	6	6	6	6	5	5	5
Degree of Util (X)	0.248	0.007	0.003	0.077	0.005	0.152	0.129	0.101	0
Departure Headway (Hd)	4.967	6.288	5.782	5.958	5.455	4.75	5.579	5.077	5.077
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	721	567	616	601	655	753	642	705	0
Service Time	2.709	4.055	3.549	3.702	3.198	2.493	3.317	2.815	2.815
HCM Lane V/C Ratio	0.25	0.007	0.003	0.078	0.005	0.153	0.129	0.101	0
HCM Control Delay, s/veh	9.4	9.1	8.6	9.2	8.2	8.4	9.1	8.4	7.8
HCM Lane LOS	A	A	A	A	A	A	A	A	N
HCM 95th-tile Q	1	0	0	0.2	0	0.5	0.4	0.3	0

Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	75	4	118	0	43	36	112	102	1
Future Vol, veh/h	0	0	0	75	4	118	0	43	36	112	102	1
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	0	0	0	2	2	2	4	4	4	2	2	2
Mvmt Flow	0	0	0	91	5	144	0	52	44	137	124	1
Number of Lanes	1	1	0	1	1	1	0	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	3	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	1	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	3	3	2
HCM Control Delay, s/veh	0	9.2	9.2	9.6
HCM LOS	-	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	0%	0%	0%	100%	0%	0%	100%	0%	0%
Vol Thru, %	54%	100%	100%	0%	100%	0%	0%	100%	0%
Vol Right, %	46%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	79	0	0	75	4	118	112	102	1
LT Vol	0	0	0	75	0	0	112	0	0
Through Vol	43	0	0	0	4	0	0	102	0
RT Vol	36	0	0	0	0	118	0	0	1
Lane Flow Rate	96	0	0	91	5	144	137	124	1
Geometry Grp	6	6	6	6	6	6	5	5	5
Degree of Util (X)	0.146	0	0	0.153	0.007	0.193	0.218	0.181	0.002
Departure Headway (Hd)	5.461	6.005	6.005	6.035	5.534	4.832	5.735	5.233	4.53
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	652	0	0	593	644	738	624	683	786
Service Time	3.232	3.795	3.795	3.792	3.29	2.588	3.485	2.983	2.28
HCM Lane V/C Ratio	0.147	0	0	0.153	0.008	0.195	0.22	0.182	0.001
HCM Control Delay, s/veh	9.2	8.8	8.8	9.9	8.3	8.8	10.1	9.1	7.3
HCM Lane LOS	A	N	N	A	A	A	B	A	A
HCM 95th-tile Q	0.5	0	0	0.5	0	0.7	0.8	0.7	0

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	2	0	45	3	124	0	95	79	100	69	0
Future Vol, veh/h	4	2	0	45	3	124	0	95	79	100	69	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	4	2	0	48	3	132	0	101	84	106	73	0
Number of Lanes	1	1	0	1	1	1	0	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	3	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	1	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	3	3	2
HCM Control Delay, s/veh	9.1	8.8	9.6	9.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	0%	100%	0%	100%	0%	0%	100%	0%	0%
Vol Thru, %	55%	0%	100%	0%	100%	0%	0%	100%	100%
Vol Right, %	45%	0%	0%	0%	0%	100%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	174	4	2	45	3	124	100	69	0
LT Vol	0	4	0	45	0	0	100	0	0
Through Vol	95	0	2	0	3	0	0	69	0
RT Vol	79	0	0	0	0	124	0	0	0
Lane Flow Rate	185	4	2	48	3	132	106	73	0
Geometry Grp	6	6	6	6	6	6	5	5	5
Degree of Util (X)	0.261	0.008	0.003	0.08	0.005	0.177	0.167	0.105	0
Departure Headway (Hd)	5.075	6.424	5.918	6.053	5.549	4.843	5.636	5.134	5.134
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	705	553	600	590	642	737	635	696	0
Service Time	2.827	4.206	3.699	3.809	3.305	2.599	3.382	2.88	2.88
HCM Lane V/C Ratio	0.262	0.007	0.003	0.081	0.005	0.179	0.167	0.105	0
HCM Control Delay, s/veh	9.6	9.3	8.7	9.3	8.3	8.6	9.5	8.5	7.9
HCM Lane LOS	A	A	A	A	A	A	A	A	N
HCM 95th-tile Q	1	0	0	0.3	0	0.6	0.6	0.4	0

Intersection	
Intersection Delay, s/veh	9.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	75	4	155	0	43	36	124	102	1
Future Vol, veh/h	0	0	0	75	4	155	0	43	36	124	102	1
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	0	0	0	2	2	2	4	4	4	2	2	2
Mvmt Flow	0	0	0	91	5	189	0	52	44	151	124	1
Number of Lanes	1	1	0	1	1	1	0	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	3	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	1	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	3	3	2
HCM Control Delay, s/veh	0	9.6	9.4	9.9
HCM LOS	-	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	0%	0%	0%	100%	0%	0%	100%	0%	0%
Vol Thru, %	54%	100%	100%	0%	100%	0%	0%	100%	0%
Vol Right, %	46%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	79	0	0	75	4	155	124	102	1
LT Vol	0	0	0	75	0	0	124	0	0
Through Vol	43	0	0	0	4	0	0	102	0
RT Vol	36	0	0	0	0	155	0	0	1
Lane Flow Rate	96	0	0	91	5	189	151	124	1
Geometry Grp	6	6	6	6	6	6	5	5	5
Degree of Util (X)	0.15	0	0	0.155	0.008	0.257	0.245	0.184	0.002
Departure Headway (Hd)	5.614	6.253	6.253	6.091	5.589	4.887	5.842	5.339	4.636
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	633	0	0	586	637	730	611	668	765
Service Time	3.402	3.953	3.953	3.852	3.351	2.649	3.609	3.106	2.403
HCM Lane V/C Ratio	0.152	0	0	0.155	0.008	0.259	0.247	0.186	0.001
HCM Control Delay, s/veh	9.4	9	9	10	8.4	9.4	10.5	9.3	7.4
HCM Lane LOS	A	N	N	A	A	A	B	A	A
HCM 95th-tile Q	0.5	0	0	0.5	0	1	1	0.7	0

Intersection	
Intersection Delay, s/veh	9.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	2	0	45	3	148	0	95	79	137	69	0
Future Vol, veh/h	4	2	0	45	3	148	0	95	79	137	69	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	4	2	0	48	3	157	0	101	84	146	73	0
Number of Lanes	1	1	0	1	1	1	0	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	3	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	1	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	3	3	2
HCM Control Delay, s/veh	9.3	9.2	9.9	9.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	0%	100%	0%	100%	0%	0%	100%	0%	0%
Vol Thru, %	55%	0%	100%	0%	100%	0%	0%	100%	100%
Vol Right, %	45%	0%	0%	0%	0%	100%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	174	4	2	45	3	148	137	69	0
LT Vol	0	4	0	45	0	0	137	0	0
Through Vol	95	0	2	0	3	0	0	69	0
RT Vol	79	0	0	0	0	148	0	0	0
Lane Flow Rate	185	4	2	48	3	157	146	73	0
Geometry Grp	6	6	6	6	6	6	5	5	5
Degree of Util (X)	0.269	0.008	0.004	0.082	0.005	0.217	0.231	0.106	0
Departure Headway (Hd)	5.236	6.712	6.204	6.18	5.676	4.969	5.709	5.207	5.207
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	681	536	580	577	627	716	627	684	0
Service Time	3.005	4.412	3.904	3.949	3.444	2.737	3.471	2.969	2.969
HCM Lane V/C Ratio	0.272	0.007	0.003	0.083	0.005	0.219	0.233	0.107	0
HCM Control Delay, s/veh	9.9	9.5	8.9	9.5	8.5	9.1	10.2	8.6	8
HCM Lane LOS	A	A	A	A	A	A	B	A	N
HCM 95th-tile Q	1.1	0	0	0.3	0	0.8	0.9	0.4	0

Intersection	
Intersection Delay, s/veh	10
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	89	5	135	0	51	43	131	121	1
Future Vol, veh/h	0	0	0	89	5	135	0	51	43	131	121	1
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	0	0	0	2	2	2	4	4	4	2	2	2
Mvmt Flow	0	0	0	109	6	165	0	62	52	160	148	1
Number of Lanes	1	1	0	1	1	1	0	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	3	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	1	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	3	3	2
HCM Control Delay, s/veh	0	9.8	9.8	10.2
HCM LOS	-	A	A	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	0%	0%	0%	100%	0%	0%	100%	0%	0%
Vol Thru, %	54%	100%	100%	0%	100%	0%	0%	100%	0%
Vol Right, %	46%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	94	0	0	89	5	135	131	121	1
LT Vol	0	0	0	89	0	0	131	0	0
Through Vol	51	0	0	0	5	0	0	121	0
RT Vol	43	0	0	0	0	135	0	0	1
Lane Flow Rate	115	0	0	109	6	165	160	148	1
Geometry Grp	6	6	6	6	6	6	5	5	5
Degree of Util (X)	0.184	0	0	0.188	0.01	0.229	0.26	0.22	0.002
Departure Headway (Hd)	5.777	6.412	6.412	6.22	5.718	5.016	5.868	5.366	4.662
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	625	0	0	573	621	708	607	664	760
Service Time	3.477	4.118	4.118	4.004	3.502	2.799	3.646	3.143	2.44
HCM Lane V/C Ratio	0.184	0	0	0.19	0.01	0.233	0.264	0.223	0.001
HCM Control Delay, s/veh	9.8	9.1	9.1	10.5	8.6	9.3	10.7	9.7	7.4
HCM Lane LOS	A	N	N	B	A	A	B	A	A
HCM 95th-tile Q	0.7	0	0	0.7	0	0.9	1	0.8	0

Intersection	
Intersection Delay, s/veh	9.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	2	0	54	4	145	0	112	94	115	82	0
Future Vol, veh/h	5	2	0	54	4	145	0	112	94	115	82	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	5	2	0	57	4	154	0	119	100	122	87	0
Number of Lanes	1	1	0	1	1	1	0	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	3	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	1	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	3	3	2
HCM Control Delay, s/veh	9.4	9.3	10.5	9.5
HCM LOS	A	A	B	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	0%	100%	0%	100%	0%	0%	100%	0%	0%
Vol Thru, %	54%	0%	100%	0%	100%	0%	0%	100%	100%
Vol Right, %	46%	0%	0%	0%	0%	100%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	206	5	2	54	4	145	115	82	0
LT Vol	0	5	0	54	0	0	115	0	0
Through Vol	112	0	2	0	4	0	0	82	0
RT Vol	94	0	0	0	0	145	0	0	0
Lane Flow Rate	219	5	2	57	4	154	122	87	0
Geometry Grp	6	6	6	6	6	6	5	5	5
Degree of Util (X)	0.319	0.01	0.004	0.1	0.007	0.216	0.196	0.128	0
Departure Headway (Hd)	5.243	6.815	6.306	6.247	5.742	5.035	5.774	5.272	5.272
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	679	528	571	570	619	706	618	675	0
Service Time	3.02	4.515	4.006	4.025	3.52	2.812	3.547	3.045	3.045
HCM Lane V/C Ratio	0.323	0.009	0.004	0.1	0.006	0.218	0.197	0.129	0
HCM Control Delay, s/veh	10.5	9.6	9	9.7	8.6	9.2	10	8.8	8
HCM Lane LOS	B	A	A	A	A	A	A	A	N
HCM 95th-tile Q	1.4	0	0	0.3	0	0.8	0.7	0.4	0

Intersection	
Intersection Delay, s/veh	10.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	89	5	172	0	51	43	143	121	1
Future Vol, veh/h	0	0	0	89	5	172	0	51	43	143	121	1
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	0	0	0	2	2	2	4	4	4	2	2	2
Mvmt Flow	0	0	0	109	6	210	0	62	52	174	148	1
Number of Lanes	1	1	0	1	1	1	0	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	3	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	1	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	3	3	2
HCM Control Delay, s/veh	0	10.1	10	10.6
HCM LOS	-	B	A	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	0%	0%	0%	100%	0%	0%	100%	0%	0%
Vol Thru, %	54%	100%	100%	0%	100%	0%	0%	100%	0%
Vol Right, %	46%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	94	0	0	89	5	172	143	121	1
LT Vol	0	0	0	89	0	0	143	0	0
Through Vol	51	0	0	0	5	0	0	121	0
RT Vol	43	0	0	0	0	172	0	0	1
Lane Flow Rate	115	0	0	109	6	210	174	148	1
Geometry Grp	6	6	6	6	6	6	5	5	5
Degree of Util (X)	0.189	0	0	0.189	0.01	0.296	0.29	0.224	0.002
Departure Headway (Hd)	5.95	6.577	6.577	6.277	5.775	5.073	5.978	5.475	4.772
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	606	0	0	567	613	701	595	649	740
Service Time	3.65	4.283	4.283	4.071	3.569	2.866	3.772	3.269	2.564
HCM Lane V/C Ratio	0.19	0	0	0.192	0.01	0.3	0.292	0.228	0.001
HCM Control Delay, s/veh	10	9.3	9.3	10.5	8.6	10	11.2	9.9	7.6
HCM Lane LOS	A	N	N	B	A	A	B	A	A
HCM 95th-tile Q	0.7	0	0	0.7	0	1.2	1.2	0.9	0

Intersection	
Intersection Delay, s/veh	10.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	2	0	54	4	169	0	112	94	152	82	0
Future Vol, veh/h	5	2	0	54	4	169	0	112	94	152	82	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	5	2	0	57	4	180	0	119	100	162	87	0
Number of Lanes	1	1	0	1	1	1	0	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	3	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	1	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	3	3	2
HCM Control Delay, s/veh	9.6	9.8	10.9	10.1
HCM LOS	A	A	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	0%	100%	0%	100%	0%	0%	100%	0%	0%
Vol Thru, %	54%	0%	100%	0%	100%	0%	0%	100%	100%
Vol Right, %	46%	0%	0%	0%	0%	100%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	206	5	2	54	4	169	152	82	0
LT Vol	0	5	0	54	0	0	152	0	0
Through Vol	112	0	2	0	4	0	0	82	0
RT Vol	94	0	0	0	0	169	0	0	0
Lane Flow Rate	219	5	2	57	4	180	162	87	0
Geometry Grp	6	6	6	6	6	6	5	5	5
Degree of Util (X)	0.329	0.01	0.004	0.102	0.007	0.258	0.263	0.13	0
Departure Headway (Hd)	5.405	7.033	6.523	6.374	5.869	5.162	5.851	5.348	5.348
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	657	512	552	557	604	687	608	663	0
Service Time	3.203	4.733	4.223	4.17	3.664	2.956	3.64	3.138	3.138
HCM Lane V/C Ratio	0.333	0.01	0.004	0.102	0.007	0.262	0.266	0.131	0
HCM Control Delay, s/veh	10.9	9.8	9.2	9.9	8.7	9.8	10.7	8.9	8.1
HCM Lane LOS	B	A	A	A	A	A	B	A	N
HCM 95th-tile Q	1.4	0	0	0.3	0	1	1.1	0.4	0

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	365	5	70	529	9	0	0	163	25	0	11
Future Vol, veh/h	13	365	5	70	529	9	0	0	163	25	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	175	-	-	0	-	0	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	60	60	60	60	60	60	60	60	60
Heavy Vehicles, %	1	1	1	1	1	1	0	0	0	0	0	0
Mvmt Flow	22	608	8	117	882	15	0	0	272	42	0	18

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	897	0	0	617	0	0	1330	-	308	1470	1783	448
Stage 1	-	-	-	-	-	-	656	-	-	1123	1123	-
Stage 2	-	-	-	-	-	-	674	-	-	348	660	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.5	-	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Follow-up Hdwy	2.21	-	-	2.21	-	-	3.5	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	759	-	-	966	-	-	115	0	694	90	83	563
Stage 1	-	-	-	-	-	-	426	0	-	223	283	-
Stage 2	-	-	-	-	-	-	415	0	-	647	463	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	759	-	-	966	-	-	95	-	694	47	71	563
Mov Cap-2 Maneuver	-	-	-	-	-	-	211	-	-	124	162	-
Stage 1	-	-	-	-	-	-	414	-	-	196	249	-
Stage 2	-	-	-	-	-	-	353	-	-	382	450	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.34	1.06	13.49	37.02
HCM LOS			B	E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	694	759	-	-	966	-	-	124	563
HCM Lane V/C Ratio	-	0.392	0.029	-	-	0.121	-	-	0.337	0.033
HCM Ctrl Dly (s/v)	0	13.5	9.9	-	-	9.2	-	-	48.2	11.6
HCM Lane LOS	A	B	A	-	-	A	-	-	E	B
HCM 95th %tile Q(veh)	-	1.9	0.1	-	-	0.4	-	-	1.3	0.1

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	204	5	30	166	22	1	0	40	31	0	2
Future Vol, veh/h	3	204	5	30	166	22	1	0	40	31	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	175	-	-	0	-	0	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	3	219	5	32	178	24	1	0	43	33	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	202	0	0	225	0	0	382	-	112	371	486	101
Stage 1	-	-	-	-	-	-	228	-	-	255	255	-
Stage 2	-	-	-	-	-	-	154	-	-	116	231	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	-	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1382	-	-	1356	-	-	555	0	926	566	484	941
Stage 1	-	-	-	-	-	-	759	0	-	733	700	-
Stage 2	-	-	-	-	-	-	839	0	-	882	717	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1382	-	-	1356	-	-	540	-	926	525	472	941
Mov Cap-2 Maneuver	-	-	-	-	-	-	603	-	-	583	527	-
Stage 1	-	-	-	-	-	-	758	-	-	716	683	-
Stage 2	-	-	-	-	-	-	817	-	-	839	715	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.11	1.06	9.13	11.38
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	603	926	1382	-	-	1356	-	-	583	941
HCM Lane V/C Ratio	0.002	0.046	0.002	-	-	0.024	-	-	0.057	0.002
HCM Ctrl Dly (s/v)	11	9.1	7.6	-	-	7.7	-	-	11.5	8.8
HCM Lane LOS	B	A	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0	0.1	0	-	-	0.1	-	-	0.2	0

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	423	5	72	559	9	0	0	168	26	0	11
Future Vol, veh/h	13	423	5	72	559	9	0	0	168	26	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	175	-	-	0	-	0	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	60	60	60	60	60	60	60	60	60
Heavy Vehicles, %	1	1	1	1	1	1	0	0	0	0	0	0
Mvmt Flow	22	705	8	120	932	15	0	0	280	43	0	18

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	947	0	0	713	0	0	1458	-	357	1575	1936	473
Stage 1	-	-	-	-	-	-	753	-	-	1179	1179	-
Stage 2	-	-	-	-	-	-	706	-	-	396	757	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.5	-	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Follow-up Hdwy	2.21	-	-	2.21	-	-	3.5	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	727	-	-	889	-	-	92	0	646	76	66	543
Stage 1	-	-	-	-	-	-	373	0	-	206	267	-
Stage 2	-	-	-	-	-	-	397	0	-	606	419	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	727	-	-	889	-	-	75	-	646	~ 36	56	543
Mov Cap-2 Maneuver	-	-	-	-	-	-	186	-	-	105	142	-
Stage 1	-	-	-	-	-	-	362	-	-	178	231	-
Stage 2	-	-	-	-	-	-	332	-	-	333	406	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.3	1.09	14.78	46.92
HCM LOS			B	E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	646	727	-	-	889	-	-	105	543
HCM Lane V/C Ratio	-	0.434	0.03	-	-	0.135	-	-	0.414	0.034
HCM Ctrl Dly (s/v)	0	14.8	10.1	-	-	9.7	-	-	61.8	11.9
HCM Lane LOS	A	B	B	-	-	A	-	-	F	B
HCM 95th %tile Q(veh)	-	2.2	0.1	-	-	0.5	-	-	1.7	0.1

Notes	
~: Volume exceeds capacity	$: Delay exceeds 300s
+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	234	5	31	208	23	1	0	41	32	0	2
Future Vol, veh/h	3	234	5	31	208	23	1	0	41	32	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	175	-	-	0	-	0	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	3	252	5	33	224	25	1	0	44	34	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	248	0	0	257	0	0	439	-	128	435	566	124
Stage 1	-	-	-	-	-	-	261	-	-	303	303	-
Stage 2	-	-	-	-	-	-	178	-	-	132	263	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	-	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1329	-	-	1320	-	-	506	0	904	510	436	910
Stage 1	-	-	-	-	-	-	727	0	-	687	667	-
Stage 2	-	-	-	-	-	-	812	0	-	863	694	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1329	-	-	1320	-	-	491	-	904	471	424	910
Mov Cap-2 Maneuver	-	-	-	-	-	-	567	-	-	541	492	-
Stage 1	-	-	-	-	-	-	725	-	-	670	651	-
Stage 2	-	-	-	-	-	-	789	-	-	819	692	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.1	0.92	9.24	11.92
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	567	904	1329	-	-	1320	-	-	541	910
HCM Lane V/C Ratio	0.002	0.049	0.002	-	-	0.025	-	-	0.064	0.002
HCM Ctrl Dly (s/v)	11.4	9.2	7.7	-	-	7.8	-	-	12.1	9
HCM Lane LOS	B	A	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0	0.2	0	-	-	0.1	-	-	0.2	0

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	432	5	72	570	10	0	0	168	0	0	38
Future Vol, veh/h	16	432	5	72	570	10	0	0	168	0	0	38
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	175	-	-	0	-	0	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	60	60	60	60	60	60	60	60	60
Heavy Vehicles, %	1	1	1	1	1	1	0	0	0	0	0	0
Mvmt Flow	27	720	8	120	950	17	0	0	280	0	0	63

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	967	0	0	728	0	0	1493	-	364	1612	1980	483
Stage 1	-	-	-	-	-	-	778	-	-	1198	1198	-
Stage 2	-	-	-	-	-	-	715	-	-	413	782	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.5	-	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Follow-up Hdwy	2.21	-	-	2.21	-	-	3.5	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	714	-	-	878	-	-	87	0	638	71	62	535
Stage 1	-	-	-	-	-	-	360	0	-	200	261	-
Stage 2	-	-	-	-	-	-	392	0	-	592	408	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	714	-	-	878	-	-	64	-	638	33	52	535
Mov Cap-2 Maneuver	-	-	-	-	-	-	168	-	-	100	136	-
Stage 1	-	-	-	-	-	-	347	-	-	173	225	-
Stage 2	-	-	-	-	-	-	299	-	-	320	393	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.36	1.08	14.97	12.64
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	638	714	-	-	878	-	-	-	535
HCM Lane V/C Ratio	-	0.439	0.037	-	-	0.137	-	-	-	0.118
HCM Ctrl Dly (s/v)	0	15	10.2	-	-	9.7	-	-	0	12.6
HCM Lane LOS	A	B	B	-	-	A	-	-	A	B
HCM 95th %tile Q(veh)	-	2.2	0.1	-	-	0.5	-	-	-	0.4

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	262	5	31	215	26	1	0	41	32	0	19
Future Vol, veh/h	13	262	5	31	215	26	1	0	41	32	0	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	175	-	-	0	-	0	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	14	282	5	33	231	28	1	0	44	34	0	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	259	0	0	287	0	0	495	-	144	481	627	130
Stage 1	-	-	-	-	-	-	312	-	-	312	312	-
Stage 2	-	-	-	-	-	-	182	-	-	169	315	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	-	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1317	-	-	1287	-	-	462	0	884	473	403	903
Stage 1	-	-	-	-	-	-	679	0	-	679	661	-
Stage 2	-	-	-	-	-	-	808	0	-	822	659	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1317	-	-	1287	-	-	435	-	884	433	388	903
Mov Cap-2 Maneuver	-	-	-	-	-	-	521	-	-	515	465	-
Stage 1	-	-	-	-	-	-	671	-	-	661	644	-
Stage 2	-	-	-	-	-	-	769	-	-	773	652	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.36	0.9	9.35	11.22
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	521	884	1317	-	-	1287	-	-	515	903
HCM Lane V/C Ratio	0.002	0.05	0.011	-	-	0.026	-	-	0.067	0.023
HCM Ctrl Dly (s/v)	11.9	9.3	7.8	-	-	7.9	-	-	12.5	9.1
HCM Lane LOS	B	A	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0	0.2	0	-	-	0.1	-	-	0.2	0.1

Intersection	
Int Delay, s/veh	7.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	492	6	85	659	11	0	0	199	31	0	13
Future Vol, veh/h	16	492	6	85	659	11	0	0	199	31	0	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	175	-	-	0	-	0	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	60	60	60	60	60	60	60	60	60
Heavy Vehicles, %	1	1	1	1	1	1	0	0	0	0	0	0
Mvmt Flow	27	820	10	142	1098	18	0	0	332	52	0	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1117	0	0	830	0	0	1711	-	415	1854	2274	558
Stage 1	-	-	-	-	-	-	878	-	-	1391	1391	-
Stage 2	-	-	-	-	-	-	833	-	-	463	883	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.5	-	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Follow-up Hdwy	2.21	-	-	2.21	-	-	3.5	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	627	-	-	804	-	-	60	0	592	~ 47	41	478
Stage 1	-	-	-	-	-	-	313	0	-	152	211	-
Stage 2	-	-	-	-	-	-	334	0	-	553	366	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	627	-	-	804	-	-	45	-	592	~ 16	32	478
Mov Cap-2 Maneuver	-	-	-	-	-	-	141	-	-	55	101	-
Stage 1	-	-	-	-	-	-	300	-	-	125	174	-
Stage 2	-	-	-	-	-	-	262	-	-	233	351	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.34	1.17	18.55	159.14
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	592	627	-	-	804	-	-	55	478
HCM Lane V/C Ratio	-	0.56	0.043	-	-	0.176	-	-	0.932	0.045
HCM Ctrl Dly (s/v)	0	18.5	11	-	-	10.4	-	-	220.5	12.9
HCM Lane LOS	A	C	B	-	-	B	-	-	F	B
HCM 95th %tile Q(veh)	-	3.5	0.1	-	-	0.6	-	-	4.2	0.1

Notes	
~: Volume exceeds capacity	$: Delay exceeds 300s
+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	204	5	30	166	22	1	0	40	31	0	2
Future Vol, veh/h	3	204	5	30	166	22	1	0	40	31	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	175	-	-	0	-	0	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	3	219	5	32	178	24	1	0	43	33	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	202	0	0	225	0	0	382	-	112	371	486	101
Stage 1	-	-	-	-	-	-	228	-	-	255	255	-
Stage 2	-	-	-	-	-	-	154	-	-	116	231	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	-	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1382	-	-	1356	-	-	555	0	926	566	484	941
Stage 1	-	-	-	-	-	-	759	0	-	733	700	-
Stage 2	-	-	-	-	-	-	839	0	-	882	717	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1382	-	-	1356	-	-	540	-	926	525	472	941
Mov Cap-2 Maneuver	-	-	-	-	-	-	603	-	-	583	527	-
Stage 1	-	-	-	-	-	-	758	-	-	716	683	-
Stage 2	-	-	-	-	-	-	817	-	-	839	715	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.11	1.06	9.13	11.38
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	603	926	1382	-	-	1356	-	-	583	941
HCM Lane V/C Ratio	0.002	0.046	0.002	-	-	0.024	-	-	0.057	0.002
HCM Ctrl Dly (s/v)	11	9.1	7.6	-	-	7.7	-	-	11.5	8.8
HCM Lane LOS	B	A	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0	0.1	0	-	-	0.1	-	-	0.2	0

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	501	6	85	670	12	0	0	199	0	0	40
Future Vol, veh/h	19	501	6	85	670	12	0	0	199	0	0	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	175	-	-	0	-	0	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	60	60	60	60	60	60	60	60	60
Heavy Vehicles, %	1	1	1	1	1	1	0	0	0	0	0	0
Mvmt Flow	32	835	10	142	1117	20	0	0	332	0	0	67

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1137	0	0	845	0	0	1745	-	423	1891	2318	568
Stage 1	-	-	-	-	-	-	903	-	-	1410	1410	-
Stage 2	-	-	-	-	-	-	842	-	-	481	908	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.5	-	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Follow-up Hdwy	2.21	-	-	2.21	-	-	3.5	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	707	-	-	794	-	-	72	0	585	53	39	798
Stage 1	-	-	-	-	-	-	303	0	-	193	243	-
Stage 2	-	-	-	-	-	-	492	0	-	540	357	-
Platoon blocked, %	0	-	-		-	-	0			0	0	0
Mov Cap-1 Maneuver	707	-	-	794	-	-	52	-	585	18	30	798
Mov Cap-2 Maneuver	-	-	-	-	-	-	166	-	-	57	105	-
Stage 1	-	-	-	-	-	-	289	-	-	158	200	-
Stage 2	-	-	-	-	-	-	370	-	-	224	341	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.37	1.17	18.88	9.92
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	585	707	-	-	794	-	-	-	798
HCM Lane V/C Ratio	-	0.567	0.045	-	-	0.178	-	-	-	0.084
HCM Ctrl Dly (s/v)	0	18.9	10.3	-	-	10.5	-	-	0	9.9
HCM Lane LOS	A	C	B	-	-	B	-	-	A	A
HCM 95th %tile Q(veh)	-	3.5	0.1	-	-	0.6	-	-	-	0.3

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	301	6	37	247	30	1	0	49	38	0	19
Future Vol, veh/h	14	301	6	37	247	30	1	0	49	38	0	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	175	-	-	0	-	0	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	15	324	6	40	266	32	1	0	53	41	0	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	298	0	0	330	0	0	569	-	165	553	722	149
Stage 1	-	-	-	-	-	-	357	-	-	361	361	-
Stage 2	-	-	-	-	-	-	212	-	-	192	360	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	-	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1368	-	-	1241	-	-	482	0	857	495	397	*1035
Stage 1	-	-	-	-	-	-	639	0	-	731	689	-
Stage 2	-	-	-	-	-	-	901	0	-	797	630	-
Platoon blocked, %	0	-	-		-	-	0			0	0	0
Mov Cap-1 Maneuver	1368	-	-	1241	-	-	452	-	857	445	380	*1035
Mov Cap-2 Maneuver	-	-	-	-	-	-	525	-	-	524	456	-
Stage 1	-	-	-	-	-	-	632	-	-	707	667	-
Stage 2	-	-	-	-	-	-	854	-	-	740	623	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.33	0.94	9.53	11.15
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	525	857	1368	-	-	1241	-	-	524	1035
HCM Lane V/C Ratio	0.002	0.061	0.011	-	-	0.032	-	-	0.078	0.02
HCM Ctrl Dly (s/v)	11.9	9.5	7.7	-	-	8	-	-	12.4	8.6
HCM Lane LOS	B	A	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0	0.2	0	-	-	0.1	-	-	0.3	0.1

Notes	
~: Volume exceeds capacity	$: Delay exceeds 300s
+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	7.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	36	11	0	5	0
Future Vol, veh/h	4	36	11	0	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	67	67	67	67	67	67
Heavy Vehicles, %	3	3	9	9	0	0
Mvmt Flow	6	54	16	0	7	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	40	7	7	0	-	0
Stage 1	7	-	-	-	-	-
Stage 2	33	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.19	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.281	-	-	-
Pot Cap-1 Maneuver	969	1072	1568	-	-	-
Stage 1	1013	-	-	-	-	-
Stage 2	987	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	959	1072	1568	-	-	-
Mov Cap-2 Maneuver	891	-	-	-	-	-
Stage 1	1002	-	-	-	-	-
Stage 2	987	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	8.63	7.32	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1568	-	1050	-	-
HCM Lane V/C Ratio	0.01	-	0.057	-	-
HCM Ctrl Dly (s/v)	7.3	-	8.6	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	7.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	39	30	0	0	0
Future Vol, veh/h	0	39	30	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	45	35	0	0	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	71	1	1	0	-	0
Stage 1	1	-	-	-	-	-
Stage 2	70	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	938	1089	1635	-	-	-
Stage 1	1027	-	-	-	-	-
Stage 2	958	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	918	1089	1635	-	-	-
Mov Cap-2 Maneuver	863	-	-	-	-	-
Stage 1	1005	-	-	-	-	-
Stage 2	958	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	8.45	7.25	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1635	-	1089	-	-
HCM Lane V/C Ratio	0.021	-	0.042	-	-
HCM Ctrl Dly (s/v)	7.3	-	8.4	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection	
Int Delay, s/veh	7.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	37	11	0	5	0
Future Vol, veh/h	4	37	11	0	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	67	67	67	67	67	67
Heavy Vehicles, %	3	3	9	9	0	0
Mvmt Flow	6	55	16	0	7	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	40	7	7	0	-	0
Stage 1	7	-	-	-	-	-
Stage 2	33	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.19	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.281	-	-	-
Pot Cap-1 Maneuver	969	1072	1568	-	-	-
Stage 1	1013	-	-	-	-	-
Stage 2	987	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	959	1072	1568	-	-	-
Mov Cap-2 Maneuver	891	-	-	-	-	-
Stage 1	1002	-	-	-	-	-
Stage 2	987	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	8.64	7.32	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1568	-	1051	-	-
HCM Lane V/C Ratio	0.01	-	0.058	-	-
HCM Ctrl Dly (s/v)	7.3	-	8.6	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	7.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	40	31	0	0	0
Future Vol, veh/h	0	40	31	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	47	36	0	0	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	73	1	1	0	-	0
Stage 1	1	-	-	-	-	-
Stage 2	72	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	936	1089	1635	-	-	-
Stage 1	1027	-	-	-	-	-
Stage 2	956	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	915	1089	1635	-	-	-
Mov Cap-2 Maneuver	861	-	-	-	-	-
Stage 1	1005	-	-	-	-	-
Stage 2	956	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	8.45	7.25	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1635	-	1089	-	-
HCM Lane V/C Ratio	0.022	-	0.043	-	-
HCM Ctrl Dly (s/v)	7.3	-	8.5	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection	
Int Delay, s/veh	7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	36	0	37	10	0	1	11	1	3	0	22	0
Future Vol, veh/h	36	0	37	10	0	1	11	1	3	0	22	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	67	92	67	92	92	92	67	67	92	92	67	67
Heavy Vehicles, %	3	2	3	2	2	2	9	9	2	2	0	0
Mvmt Flow	54	0	55	11	0	1	16	1	3	0	33	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	67	70	33	69	69	3	33	0	0	5	0	0
Stage 1	33	33	-	36	36	-	-	-	-	-	-	-
Stage 2	34	38	-	33	33	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.52	6.23	7.12	6.52	6.22	4.19	-	-	4.12	-	-
Critical Hdwy Stg 1	6.13	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.018	3.327	3.518	4.018	3.318	2.281	-	-	2.218	-	-
Pot Cap-1 Maneuver	923	820	1038	923	822	1081	1535	-	-	1617	-	-
Stage 1	981	868	-	980	865	-	-	-	-	-	-	-
Stage 2	979	864	-	983	868	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	912	811	1038	865	813	1081	1535	-	-	1617	-	-
Mov Cap-2 Maneuver	912	811	-	865	813	-	-	-	-	-	-	-
Stage 1	981	868	-	969	856	-	-	-	-	-	-	-
Stage 2	968	854	-	931	868	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	9.17	9.14	5.72	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1535	-	-	972	881	1617	-	-
HCM Lane V/C Ratio	0.011	-	-	0.112	0.014	-	-	-
HCM Ctrl Dly (s/v)	7.4	-	-	9.2	9.1	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.4	0	0	-	-

Intersection	
Int Delay, s/veh	6.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	40	6	0	1	31	3	10	1	11	0
Future Vol, veh/h	0	0	40	6	0	1	31	3	10	1	11	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	92	86	92	92	92	86	86	92	92	86	86
Heavy Vehicles, %	0	2	0	2	2	2	0	0	2	2	0	0
Mvmt Flow	0	0	47	7	0	1	36	3	11	1	13	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	91	101	13	96	96	9	13	0	0	14	0	0
Stage 1	15	15	-	81	81	-	-	-	-	-	-	-
Stage 2	76	86	-	15	15	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.52	6.2	7.12	6.52	6.22	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.018	3.3	3.518	4.018	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	899	789	1073	887	794	1073	1619	-	-	1604	-	-
Stage 1	1010	883	-	927	828	-	-	-	-	-	-	-
Stage 2	939	823	-	1005	883	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	877	771	1073	829	776	1073	1619	-	-	1604	-	-
Mov Cap-2 Maneuver	877	771	-	829	776	-	-	-	-	-	-	-
Stage 1	1009	882	-	907	809	-	-	-	-	-	-	-
Stage 2	917	805	-	961	882	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	8.51	9.24	5.2	0.57
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1619	-	-	1073	857	1604	-	-
HCM Lane V/C Ratio	0.022	-	-	0.043	0.009	0.001	-	-
HCM Ctrl Dly (s/v)	7.3	-	-	8.5	9.2	7.2	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0	0	-	-

Intersection	
Int Delay, s/veh	7.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	44	13	0	6	0
Future Vol, veh/h	5	44	13	0	6	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	67	67	67	67	67	67
Heavy Vehicles, %	3	3	9	9	0	0
Mvmt Flow	7	66	19	0	9	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	48	9	9	0	-	0
Stage 1	9	-	-	-	-	-
Stage 2	39	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.19	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.281	-	-	-
Pot Cap-1 Maneuver	959	1070	1566	-	-	-
Stage 1	1011	-	-	-	-	-
Stage 2	981	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	947	1070	1566	-	-	-
Mov Cap-2 Maneuver	883	-	-	-	-	-
Stage 1	999	-	-	-	-	-
Stage 2	981	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	8.7	7.33	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1566	-	1047	-	-
HCM Lane V/C Ratio	0.012	-	0.07	-	-
HCM Ctrl Dly (s/v)	7.3	-	8.7	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	7.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	48	37	0	0	0
Future Vol, veh/h	0	48	37	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	56	43	0	0	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	87	1	1	0	-	0
Stage 1	1	-	-	-	-	-
Stage 2	86	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	919	1089	1635	-	-	-
Stage 1	1027	-	-	-	-	-
Stage 2	942	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	895	1089	1635	-	-	-
Mov Cap-2 Maneuver	847	-	-	-	-	-
Stage 1	1000	-	-	-	-	-
Stage 2	942	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	8.48	7.26	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1635	-	1089	-	-
HCM Lane V/C Ratio	0.026	-	0.051	-	-
HCM Ctrl Dly (s/v)	7.3	-	8.5	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

Intersection	
Int Delay, s/veh	7.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	43	0	44	10	0	1	13	1	3	0	23	0
Future Vol, veh/h	43	0	44	10	0	1	13	1	3	0	23	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	67	92	67	92	92	92	67	67	92	92	67	67
Heavy Vehicles, %	3	2	3	2	2	2	9	9	2	2	0	0
Mvmt Flow	64	0	66	11	0	1	19	1	3	0	34	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	75	78	34	76	76	3	34	0	0	5	0	0
Stage 1	34	34	-	42	42	-	-	-	-	-	-	-
Stage 2	40	44	-	34	34	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.52	6.23	7.12	6.52	6.22	4.19	-	-	4.12	-	-
Critical Hdwy Stg 1	6.13	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.018	3.327	3.518	4.018	3.318	2.281	-	-	2.218	-	-
Pot Cap-1 Maneuver	913	812	1036	913	814	1081	1533	-	-	1617	-	-
Stage 1	979	866	-	973	860	-	-	-	-	-	-	-
Stage 2	972	859	-	982	866	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	901	802	1036	845	804	1081	1533	-	-	1617	-	-
Mov Cap-2 Maneuver	901	802	-	845	804	-	-	-	-	-	-	-
Stage 1	979	866	-	960	849	-	-	-	-	-	-	-
Stage 2	959	848	-	919	866	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	9.31	9.24	5.93	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1533	-	-	964	862	1617	-	-
HCM Lane V/C Ratio	0.013	-	-	0.135	0.014	-	-	-
HCM Ctrl Dly (s/v)	7.4	-	-	9.3	9.2	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.5	0	0	-	-

Intersection	
Int Delay, s/veh	6.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	48	6	0	1	37	3	10	1	11	0
Future Vol, veh/h	0	0	48	6	0	1	37	3	10	1	11	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	92	86	92	92	92	86	86	92	92	86	86
Heavy Vehicles, %	0	2	0	2	2	2	0	0	2	2	0	0
Mvmt Flow	0	0	56	7	0	1	43	3	11	1	13	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	104	115	13	110	110	9	13	0	0	14	0	0
Stage 1	15	15	-	95	95	-	-	-	-	-	-	-
Stage 2	90	100	-	15	15	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.52	6.2	7.12	6.52	6.22	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.018	3.3	3.518	4.018	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	880	775	1073	868	780	1073	1619	-	-	1604	-	-
Stage 1	1010	883	-	912	816	-	-	-	-	-	-	-
Stage 2	923	812	-	1005	883	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	855	754	1073	801	759	1073	1619	-	-	1604	-	-
Mov Cap-2 Maneuver	855	754	-	801	759	-	-	-	-	-	-	-
Stage 1	1009	882	-	888	795	-	-	-	-	-	-	-
Stage 2	897	790	-	952	882	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	8.54	9.37	5.46	0.57
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1619	-	-	1073	831	1604	-	-
HCM Lane V/C Ratio	0.027	-	-	0.052	0.009	0.001	-	-
HCM Ctrl Dly (s/v)	7.3	-	-	8.5	9.4	7.2	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0	0	-	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	533	10	21	593	3	14	0	53	3	0	0
Future Vol, veh/h	7	533	10	21	593	3	14	0	53	3	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	150	-	-	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	59	59	59	59	59	59	59	59	59	59	59	59
Heavy Vehicles, %	1	1	1	1	1	1	0	0	0	0	0	0
Mvmt Flow	12	903	17	36	1005	5	24	0	90	5	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1010	0	0	920	0	0	1509	2017	460	1554	2023	505
Stage 1	-	-	-	-	-	-	936	936	-	1079	1079	-
Stage 2	-	-	-	-	-	-	574	1081	-	475	944	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.21	-	-	2.21	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	688	-	-	744	-	-	85	59	554	78	59	518
Stage 1	-	-	-	-	-	-	289	347	-	237	297	-
Stage 2	-	-	-	-	-	-	476	296	-	544	343	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	688	-	-	744	-	-	79	55	554	61	55	518
Mov Cap-2 Maneuver	-	-	-	-	-	-	192	162	-	158	158	-
Stage 1	-	-	-	-	-	-	284	341	-	225	283	-
Stage 2	-	-	-	-	-	-	453	282	-	448	338	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.13	0.34	17.66	28.53
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	397	688	-	-	744	-	-	158	-
HCM Lane V/C Ratio	0.286	0.017	-	-	0.048	-	-	0.032	-
HCM Ctrl Dly (s/v)	17.7	10.3	-	-	10.1	-	-	28.5	0
HCM Lane LOS	C	B	-	-	B	-	-	D	A
HCM 95th %tile Q(veh)	1.2	0.1	-	-	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	270	9	39	211	1	5	0	35	2	0	1
Future Vol, veh/h	0	270	9	39	211	1	5	0	35	2	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	150	-	-	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	314	10	45	245	1	6	0	41	2	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	247	0	0	324	0	0	533	656	162	494	661	123
Stage 1	-	-	-	-	-	-	319	319	-	337	337	-
Stage 2	-	-	-	-	-	-	213	337	-	157	324	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1331	-	-	1247	-	-	434	388	860	463	385	911
Stage 1	-	-	-	-	-	-	672	656	-	657	645	-
Stage 2	-	-	-	-	-	-	775	645	-	835	653	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1331	-	-	1247	-	-	418	373	860	425	371	911
Mov Cap-2 Maneuver	-	-	-	-	-	-	512	461	-	504	450	-
Stage 1	-	-	-	-	-	-	672	656	-	633	622	-
Stage 2	-	-	-	-	-	-	746	621	-	796	653	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	1.24	9.82	11.11
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	793	1331	-	-	1247	-	-	504	911
HCM Lane V/C Ratio	0.059	-	-	-	0.036	-	-	0.005	0.001
HCM Ctrl Dly (s/v)	9.8	0	-	-	8	-	-	12.2	9
HCM Lane LOS	A	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0	0

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	596	10	22	625	3	14	0	55	3	0	0
Future Vol, veh/h	7	596	10	22	625	3	14	0	55	3	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	150	-	-	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	59	59	59	59	59	59	59	59	59	59	59	59
Heavy Vehicles, %	1	1	1	1	1	1	0	0	0	0	0	0
Mvmt Flow	12	1010	17	37	1059	5	24	0	93	5	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1064	0	0	1027	0	0	1647	2181	514	1665	2187	532
Stage 1	-	-	-	-	-	-	1042	1042	-	1136	1136	-
Stage 2	-	-	-	-	-	-	604	1139	-	529	1051	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.21	-	-	2.21	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	656	-	-	678	-	-	67	47	511	65	46	497
Stage 1	-	-	-	-	-	-	249	309	-	218	279	-
Stage 2	-	-	-	-	-	-	457	278	-	506	306	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	656	-	-	678	-	-	62	43	511	49	43	497
Mov Cap-2 Maneuver	-	-	-	-	-	-	167	145	-	141	140	-
Stage 1	-	-	-	-	-	-	245	304	-	206	264	-
Stage 2	-	-	-	-	-	-	432	263	-	407	301	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.12	0.36	19.71	31.48
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	360	656	-	-	678	-	-	141	-
HCM Lane V/C Ratio	0.325	0.018	-	-	0.055	-	-	0.036	-
HCM Ctrl Dly (s/v)	19.7	10.6	-	-	10.6	-	-	31.5	0
HCM Lane LOS	C	B	-	-	B	-	-	D	A
HCM 95th %tile Q(veh)	1.4	0.1	-	-	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	302	9	40	254	1	5	0	36	2	0	1
Future Vol, veh/h	0	302	9	40	254	1	5	0	36	2	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	150	-	-	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	351	10	47	295	1	6	0	42	2	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	297	0	0	362	0	0	597	746	181	565	751	148
Stage 1	-	-	-	-	-	-	356	356	-	389	389	-
Stage 2	-	-	-	-	-	-	241	390	-	176	362	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1276	-	-	1208	-	-	391	344	837	412	342	878
Stage 1	-	-	-	-	-	-	639	632	-	612	612	-
Stage 2	-	-	-	-	-	-	747	611	-	815	629	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1276	-	-	1208	-	-	375	331	837	377	329	878
Mov Cap-2 Maneuver	-	-	-	-	-	-	479	429	-	464	417	-
Stage 1	-	-	-	-	-	-	639	632	-	588	588	-
Stage 2	-	-	-	-	-	-	717	588	-	774	629	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	1.1	10	11.56
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	767	1276	-	-	1208	-	-	464	878
HCM Lane V/C Ratio	0.062	-	-	-	0.038	-	-	0.005	0.001
HCM Ctrl Dly (s/v)	10	0	-	-	8.1	-	-	12.8	9.1
HCM Lane LOS	B	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0	0

Intersection	
Int Delay, s/veh	16

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	596	10	22	626	24	14	0	55	98	0	11
Future Vol, veh/h	16	596	10	22	626	24	14	0	55	98	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	150	-	-	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	59	59	59	59	59	59	59	59	59	59	59	59
Heavy Vehicles, %	1	1	1	1	1	1	0	0	0	0	0	0
Mvmt Flow	27	1010	17	37	1061	41	24	0	93	166	0	19

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1102	0	0	1027	0	0	1678	2249	514	1715	2237	551
Stage 1	-	-	-	-	-	-	1073	1073	-	1156	1156	-
Stage 2	-	-	-	-	-	-	605	1176	-	559	1081	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.21	-	-	2.21	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	635	-	-	678	-	-	63	42	511	~ 59	43	483
Stage 1	-	-	-	-	-	-	239	299	-	212	273	-
Stage 2	-	-	-	-	-	-	456	267	-	486	296	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	635	-	-	678	-	-	55	38	511	~ 44	39	483
Mov Cap-2 Maneuver	-	-	-	-	-	-	154	132	-	~ 134	133	-
Stage 1	-	-	-	-	-	-	229	286	-	201	258	-
Stage 2	-	-	-	-	-	-	415	253	-	380	284	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.28	0.35	20.5	198.76
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	348	635	-	-	678	-	-	134	483
HCM Lane V/C Ratio	0.336	0.043	-	-	0.055	-	-	1.24	0.039
HCM Ctrl Dly (s/v)	20.5	10.9	-	-	10.6	-	-	219.6	12.7
HCM Lane LOS	C	B	-	-	B	-	-	F	B
HCM 95th %tile Q(veh)	1.4	0.1	-	-	0.2	-	-	10.2	0.1

Notes	
~: Volume exceeds capacity	$: Delay exceeds 300s
+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	28	302	9	40	257	67	5	0	36	46	0	8
Future Vol, veh/h	28	302	9	40	257	67	5	0	36	46	0	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	150	-	-	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	33	351	10	47	299	78	6	0	42	53	0	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	377	0	0	362	0	0	664	891	181	672	858	188
Stage 1	-	-	-	-	-	-	422	422	-	431	431	-
Stage 2	-	-	-	-	-	-	242	470	-	241	427	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1193	-	-	1208	-	-	350	284	837	346	297	828
Stage 1	-	-	-	-	-	-	586	592	-	578	586	-
Stage 2	-	-	-	-	-	-	745	564	-	747	589	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1193	-	-	1208	-	-	324	265	837	307	278	828
Mov Cap-2 Maneuver	-	-	-	-	-	-	428	367	-	411	375	-
Stage 1	-	-	-	-	-	-	570	576	-	556	564	-
Stage 2	-	-	-	-	-	-	709	542	-	690	573	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.67	0.89	10.13	14.23
HCM LOS			B	B

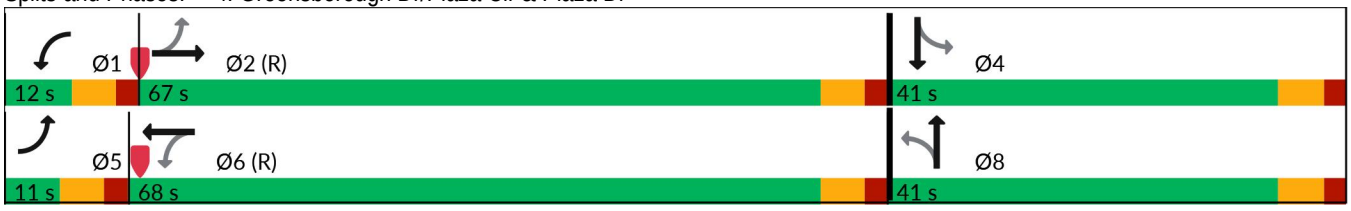
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	750	1193	-	-	1208	-	-	411	828
HCM Lane V/C Ratio	0.064	0.027	-	-	0.038	-	-	0.13	0.011
HCM Ctrl Dly (s/v)	10.1	8.1	-	-	8.1	-	-	15.1	9.4
HCM Lane LOS	B	A	-	-	A	-	-	C	A
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0.1	-	-	0.4	0

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	16	596	22	626	14	0	98	0
Future Volume (vph)	16	596	22	626	14	0	98	0
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	24.0	11.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	11.0	67.0	12.0	68.0	41.0	41.0	41.0	41.0
Total Split (%)	9.2%	55.8%	10.0%	56.7%	34.2%	34.2%	34.2%	34.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	None	C-Max	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 4: Greensborough Dr/Plaza Cir & Plaza Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	596	10	22	626	24	14	0	55	98	0	11
Future Volume (veh/h)	16	596	10	22	626	24	14	0	55	98	0	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	27	1010	17	37	1061	41	24	0	93	166	0	19
Peak Hour Factor	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	0	0	0
Cap, veh/h	373	2384	40	406	2342	90	69	20	203	250	0	256
Arrive On Green	0.02	0.66	0.66	0.03	0.67	0.67	0.16	0.00	0.16	0.16	0.00	0.16
Sat Flow, veh/h	1795	3605	61	1795	3516	136	205	123	1272	1324	0	1610
Grp Volume(v), veh/h	27	502	525	37	540	562	117	0	0	166	0	19
Grp Sat Flow(s),veh/h/ln	1795	1791	1874	1795	1791	1861	1601	0	0	1324	0	1610
Q Serve(g_s), s	0.6	15.8	15.8	0.8	17.3	17.3	0.8	0.0	0.0	8.9	0.0	1.2
Cycle Q Clear(g_c), s	0.6	15.8	15.8	0.8	17.3	17.3	7.7	0.0	0.0	16.6	0.0	1.2
Prop In Lane	1.00		0.03	1.00		0.07	0.21		0.79	1.00		1.00
Lane Grp Cap(c), veh/h	373	1184	1239	406	1193	1239	291	0	0	250	0	256
V/C Ratio(X)	0.07	0.42	0.42	0.09	0.45	0.45	0.40	0.00	0.00	0.66	0.00	0.07
Avail Cap(c_a), veh/h	404	1184	1239	443	1193	1239	498	0	0	426	0	470
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.77	0.77	0.77	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.2	9.6	9.6	7.0	9.6	9.6	45.6	0.0	0.0	49.9	0.0	42.9
Incr Delay (d2), s/veh	0.1	1.1	1.1	0.1	1.0	0.9	0.9	0.0	0.0	3.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.4	9.9	10.2	0.5	10.0	10.3	5.9	0.0	0.0	8.8	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	7.3	10.7	10.6	7.0	10.5	10.5	46.5	0.0	0.0	52.9	0.0	43.0
LnGrp LOS	A	B	B	A	B	B	D			D		D
Approach Vol, veh/h		1054			1139			117			185	
Approach Delay, s/veh		10.6			10.4			46.5			51.9	
Approach LOS		B			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.5	85.4		25.1	9.0	85.9		25.1				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	6.0	61.0		35.0	5.0	62.0		35.0				
Max Q Clear Time (g_c+I1), s	2.8	17.8		18.6	2.6	19.3		9.7				
Green Ext Time (p_c), s	0.0	7.5		0.5	0.0	8.4		0.7				

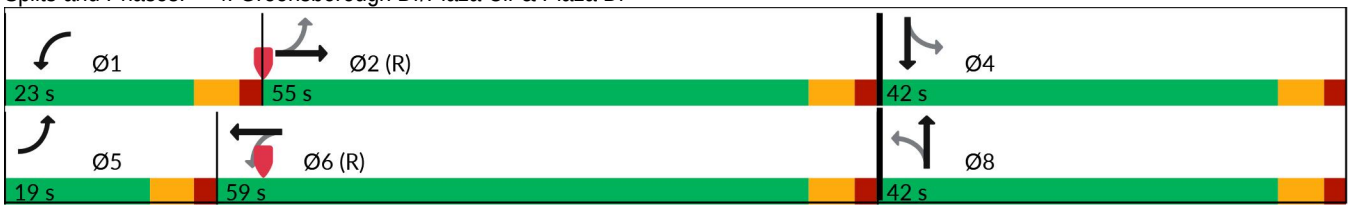
Intersection Summary		
HCM 7th Control Delay, s/veh		15.2
HCM 7th LOS		B

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	28	302	40	257	5	0	46	0
Future Volume (vph)	28	302	40	257	5	0	46	0
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	24.0	11.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	19.0	55.0	23.0	59.0	42.0	42.0	42.0	42.0
Total Split (%)	15.8%	45.8%	19.2%	49.2%	35.0%	35.0%	35.0%	35.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	None	C-Max	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 4: Greensborough Dr/Plaza Cir & Plaza Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	302	9	40	257	67	5	0	36	46	0	8
Future Volume (veh/h)	28	302	9	40	257	67	5	0	36	46	0	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	33	351	10	47	299	78	6	0	42	53	0	9
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	875	2762	79	893	2206	566	40	4	65	137	0	75
Arrive On Green	0.03	0.77	0.77	0.03	0.78	0.78	0.05	0.00	0.05	0.05	0.00	0.05
Sat Flow, veh/h	1810	3585	102	1810	2844	730	124	77	1405	1386	0	1610
Grp Volume(v), veh/h	33	176	185	47	188	189	48	0	0	53	0	9
Grp Sat Flow(s),veh/h/ln	1810	1805	1882	1810	1805	1769	1606	0	0	1386	0	1610
Q Serve(g_s), s	0.4	3.0	3.0	0.6	3.1	3.2	1.4	0.0	0.0	0.0	0.0	0.6
Cycle Q Clear(g_c), s	0.4	3.0	3.0	0.6	3.1	3.2	3.5	0.0	0.0	3.5	0.0	0.6
Prop In Lane	1.00		0.05	1.00		0.41	0.12		0.87	1.00		1.00
Lane Grp Cap(c), veh/h	875	1391	1450	893	1400	1372	108	0	0	137	0	75
V/C Ratio(X)	0.04	0.13	0.13	0.05	0.13	0.14	0.44	0.00	0.00	0.39	0.00	0.12
Avail Cap(c_a), veh/h	1021	1391	1450	1089	1400	1372	510	0	0	488	0	483
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.88	0.88	0.88	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	2.5	3.5	3.5	2.4	3.4	3.4	56.2	0.0	0.0	56.2	0.0	54.9
Incr Delay (d2), s/veh	0.0	0.2	0.2	0.0	0.2	0.2	2.8	0.0	0.0	1.8	0.0	0.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.2	1.6	1.7	0.3	1.7	1.7	2.7	0.0	0.0	3.0	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	2.5	3.7	3.7	2.4	3.5	3.6	59.0	0.0	0.0	58.0	0.0	55.6
LnGrp LOS	A	A	A	A	A	A	E			E		E
Approach Vol, veh/h		394			424			48			62	
Approach Delay, s/veh		3.6			3.4			59.0			57.6	
Approach LOS		A			A			E			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	98.5		11.6	9.3	99.1		11.6				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	17.0	49.0		36.0	13.0	53.0		36.0				
Max Q Clear Time (g_c+I1), s	2.6	5.0		5.5	2.4	5.2		5.5				
Green Ext Time (p_c), s	0.1	2.1		0.2	0.0	2.2		0.2				

Intersection Summary	
HCM 7th Control Delay, s/veh	10.0
HCM 7th LOS	A

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	697	12	26	738	4	17	0	65	4	0	0
Future Vol, veh/h	9	697	12	26	738	4	17	0	65	4	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	150	-	-	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	59	59	59	59	59	59	59	59	59	59	59	59
Heavy Vehicles, %	1	1	1	1	1	1	0	0	0	0	0	0
Mvmt Flow	15	1181	20	44	1251	7	29	0	110	7	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1258	0	0	1202	0	0	1936	2568	601	1964	2575	629
Stage 1	-	-	-	-	-	-	1222	1222	-	1342	1342	-
Stage 2	-	-	-	-	-	-	714	1346	-	621	1232	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.21	-	-	2.21	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	554	-	-	582	-	-	40	26	449	39	26	430
Stage 1	-	-	-	-	-	-	194	254	-	163	223	-
Stage 2	-	-	-	-	-	-	393	222	-	446	252	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	554	-	-	582	-	-	36	24	449	26	24	430
Mov Cap-2 Maneuver	-	-	-	-	-	-	126	109	-	101	103	-
Stage 1	-	-	-	-	-	-	188	247	-	151	206	-
Stage 2	-	-	-	-	-	-	363	205	-	327	245	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.15	0.4	27.83	43.39
HCM LOS			D	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	293	554	-	-	582	-	-	101	-
HCM Lane V/C Ratio	0.474	0.028	-	-	0.076	-	-	0.067	-
HCM Ctrl Dly (s/v)	27.8	11.7	-	-	11.7	-	-	43.4	0
HCM Lane LOS	D	B	-	-	B	-	-	E	A
HCM 95th %tile Q(veh)	2.4	0.1	-	-	0.2	-	-	0.2	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	270	9	39	211	1	5	0	35	2	0	1
Future Vol, veh/h	0	270	9	39	211	1	5	0	35	2	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	150	-	-	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	314	10	45	245	1	6	0	41	2	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	247	0	0	324	0	0	533	656	162	494	661	123
Stage 1	-	-	-	-	-	-	319	319	-	337	337	-
Stage 2	-	-	-	-	-	-	213	337	-	157	324	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1331	-	-	1247	-	-	434	388	860	463	385	911
Stage 1	-	-	-	-	-	-	672	656	-	657	645	-
Stage 2	-	-	-	-	-	-	775	645	-	835	653	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1331	-	-	1247	-	-	418	373	860	425	371	911
Mov Cap-2 Maneuver	-	-	-	-	-	-	512	461	-	504	450	-
Stage 1	-	-	-	-	-	-	672	656	-	633	622	-
Stage 2	-	-	-	-	-	-	746	621	-	796	653	-

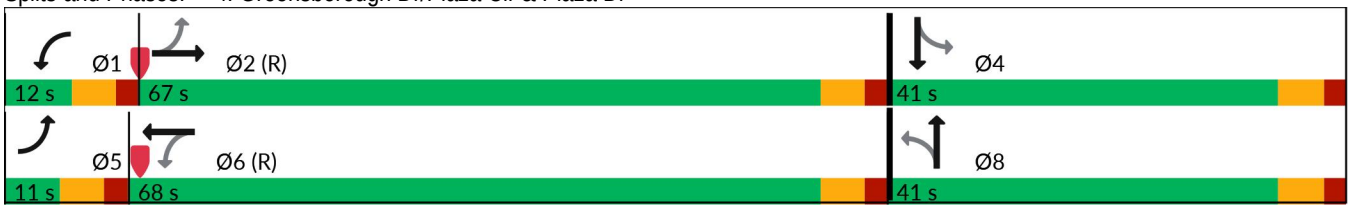
Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	1.24	9.82	11.11
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	793	1331	-	-	1247	-	-	504	911
HCM Lane V/C Ratio	0.059	-	-	-	0.036	-	-	0.005	0.001
HCM Ctrl Dly (s/v)	9.8	0	-	-	8	-	-	12.2	9
HCM Lane LOS	A	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0	0

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	18	697	26	739	17	0	104	0
Future Volume (vph)	18	697	26	739	17	0	104	0
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	24.0	11.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	11.0	67.0	12.0	68.0	41.0	41.0	41.0	41.0
Total Split (%)	9.2%	55.8%	10.0%	56.7%	34.2%	34.2%	34.2%	34.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	None	C-Max	None	None	None	None

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated

Splits and Phases: 4: Greensborough Dr/Plaza Cir & Plaza Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	697	12	26	739	25	17	0	65	104	0	11
Future Volume (veh/h)	18	697	12	26	739	25	17	0	65	104	0	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	31	1181	20	44	1253	42	29	0	110	176	0	19
Peak Hour Factor	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	0	0	0
Cap, veh/h	302	2307	39	336	2282	76	75	20	225	260	0	286
Arrive On Green	0.03	0.64	0.64	0.03	0.65	0.65	0.18	0.00	0.18	0.18	0.00	0.18
Sat Flow, veh/h	1795	3604	61	1795	3536	118	220	113	1264	1304	0	1610
Grp Volume(v), veh/h	31	587	614	44	634	661	139	0	0	176	0	19
Grp Sat Flow(s),veh/h/ln	1795	1791	1874	1795	1791	1864	1597	0	0	1304	0	1610
Q Serve(g_s), s	0.7	21.0	21.0	1.0	23.3	23.4	2.2	0.0	0.0	9.7	0.0	1.2
Cycle Q Clear(g_c), s	0.7	21.0	21.0	1.0	23.3	23.4	9.1	0.0	0.0	18.8	0.0	1.2
Prop In Lane	1.00		0.03	1.00		0.06	0.21		0.79	1.00		1.00
Lane Grp Cap(c), veh/h	302	1147	1200	336	1156	1203	320	0	0	260	0	286
V/C Ratio(X)	0.10	0.51	0.51	0.13	0.55	0.55	0.43	0.00	0.00	0.68	0.00	0.07
Avail Cap(c_a), veh/h	328	1147	1200	368	1156	1203	498	0	0	408	0	470
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.64	0.64	0.64	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.1	11.6	11.6	8.6	11.7	11.7	44.3	0.0	0.0	49.2	0.0	41.1
Incr Delay (d2), s/veh	0.1	1.6	1.6	0.1	1.2	1.2	0.9	0.0	0.0	3.1	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.5	12.7	13.2	0.6	12.6	13.0	6.9	0.0	0.0	9.2	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	9.2	13.2	13.1	8.8	12.9	12.8	45.2	0.0	0.0	52.2	0.0	41.2
LnGrp LOS	A	B	B	A	B	B	D			D		D
Approach Vol, veh/h		1232			1339			139			195	
Approach Delay, s/veh		13.0			12.7			45.2			51.2	
Approach LOS		B			B			D			D	

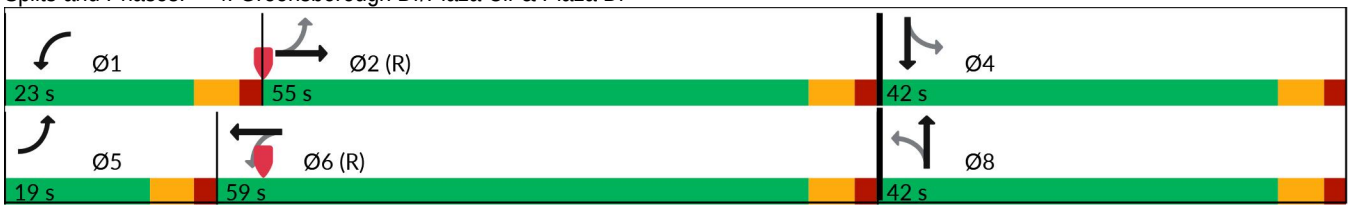
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.8	82.8		27.3	9.2	83.5		27.3				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	6.0	61.0		35.0	5.0	62.0		35.0				
Max Q Clear Time (g_c+I1), s	3.0	23.0		20.8	2.7	25.4		11.1				
Green Ext Time (p_c), s	0.0	9.4		0.5	0.0	10.6		0.8				

Intersection Summary												
HCM 7th Control Delay, s/veh			17.0									
HCM 7th LOS			B									

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	28	353	48	297	6	0	46	0
Future Volume (vph)	28	353	48	297	6	0	46	0
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	24.0	11.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	19.0	55.0	23.0	59.0	42.0	42.0	42.0	42.0
Total Split (%)	15.8%	45.8%	19.2%	49.2%	35.0%	35.0%	35.0%	35.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	None	C-Max	None	None	None	None

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 4: Greensborough Dr/Plaza Cir & Plaza Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	353	11	48	297	67	6	0	43	46	0	8
Future Volume (veh/h)	28	353	11	48	297	67	6	0	43	46	0	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	33	410	13	56	345	78	7	0	50	53	0	9
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	833	2722	86	840	2257	504	40	4	74	142	0	85
Arrive On Green	0.03	0.76	0.76	0.04	0.77	0.77	0.05	0.00	0.05	0.05	0.00	0.05
Sat Flow, veh/h	1810	3572	113	1810	2932	655	118	79	1410	1376	0	1610
Grp Volume(v), veh/h	33	207	216	56	211	212	57	0	0	53	0	9
Grp Sat Flow(s),veh/h/ln	1810	1805	1880	1810	1805	1782	1607	0	0	1376	0	1610
Q Serve(g_s), s	0.5	3.7	3.7	0.8	3.7	3.7	1.7	0.0	0.0	0.0	0.0	0.6
Cycle Q Clear(g_c), s	0.5	3.7	3.7	0.8	3.7	3.7	4.1	0.0	0.0	3.7	0.0	0.6
Prop In Lane	1.00		0.06	1.00		0.37	0.12		0.88	1.00		1.00
Lane Grp Cap(c), veh/h	833	1376	1433	840	1389	1371	118	0	0	142	0	85
V/C Ratio(X)	0.04	0.15	0.15	0.07	0.15	0.15	0.48	0.00	0.00	0.37	0.00	0.11
Avail Cap(c_a), veh/h	979	1376	1433	1032	1389	1371	510	0	0	483	0	483
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.85	0.85	0.85	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	2.7	3.8	3.8	2.6	3.6	3.6	55.8	0.0	0.0	55.6	0.0	54.2
Incr Delay (d2), s/veh	0.0	0.2	0.2	0.0	0.2	0.2	3.0	0.0	0.0	1.6	0.0	0.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.2	2.1	2.2	0.4	2.0	2.0	3.3	0.0	0.0	3.0	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	2.8	4.1	4.1	2.6	3.8	3.8	58.8	0.0	0.0	57.2	0.0	54.7
LnGrp LOS	A	A	A	A	A	A	E			E		D
Approach Vol, veh/h		456			479			57			62	
Approach Delay, s/veh		4.0			3.7			58.8			56.9	
Approach LOS		A			A			E			E	

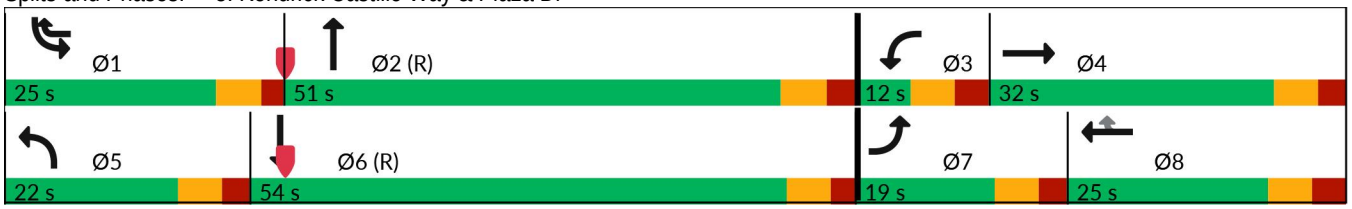
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.2	97.5		12.3	9.3	98.3		12.3				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	17.0	49.0		36.0	13.0	53.0		36.0				
Max Q Clear Time (g_c+I1), s	2.8	5.7		5.7	2.5	5.7		6.1				
Green Ext Time (p_c), s	0.1	2.5		0.2	0.0	2.5		0.3				

Intersection Summary												
HCM 7th Control Delay, s/veh			9.9									
HCM 7th LOS			A									

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	268	193	23	126	170	238	1223	449	1004
Future Volume (vph)	268	193	23	126	170	238	1223	449	1004
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	1	5	2	1	6
Permitted Phases					8				
Detector Phase	7	4	3	8	1	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.5	25.0	12.0	25.0	11.0	11.5	24.5	11.0	24.0
Total Split (s)	19.0	32.0	12.0	25.0	25.0	22.0	51.0	25.0	54.0
Total Split (%)	15.8%	26.7%	10.0%	20.8%	20.8%	18.3%	42.5%	20.8%	45.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	3.0	3.0	2.0	2.5	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	7.0	7.0	6.0	6.5	6.5	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	12.4	22.4	5.0	10.2	40.2	14.5	48.4	23.1	57.0
Actuated g/C Ratio	0.10	0.19	0.04	0.09	0.34	0.12	0.40	0.19	0.48
v/c Ratio	0.83	0.51	0.18	0.47	0.30	0.64	0.72	0.76	0.60
Control Delay (s/veh)	72.8	29.8	58.6	57.3	7.9	57.2	32.9	47.0	33.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	72.8	29.8	58.6	57.3	7.9	57.2	32.9	47.0	33.5
LOS	E	C	E	E	A	E	C	D	C
Approach Delay (s/veh)		48.6		31.1			36.6		37.1
Approach LOS		D		C			D		D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 54.5 (45%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay (s/veh): 38.1	Intersection LOS: D
Intersection Capacity Utilization 74.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 5: Kendrick Castillo Way & Plaza Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	268	193	150	23	126	170	238	1223	90	449	1004	256
Future Volume (veh/h)	268	193	150	23	126	170	238	1223	90	449	1004	256
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1870	1870	1870	1885	1885	1885	1870	1870	1870
Adj Flow Rate, veh/h	301	217	169	26	142	191	267	1374	101	504	1128	288
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	0	0	0	2	2	2	1	1	1	2	2	2
Cap, veh/h	356	381	283	83	427	441	330	1974	145	547	1877	479
Arrive On Green	0.10	0.19	0.19	0.02	0.12	0.12	0.09	0.40	0.40	0.05	0.15	0.15
Sat Flow, veh/h	3510	1974	1467	3456	3554	1585	3483	4892	360	3456	4053	1035
Grp Volume(v), veh/h	301	197	189	26	142	191	267	964	511	504	947	469
Grp Sat Flow(s),veh/h/ln	1755	1805	1636	1728	1777	1585	1742	1716	1820	1728	1702	1684
Q Serve(g_s), s	10.1	11.9	12.6	0.9	4.4	11.9	9.0	28.0	28.0	17.4	31.2	31.2
Cycle Q Clear(g_c), s	10.1	11.9	12.6	0.9	4.4	11.9	9.0	28.0	28.0	17.4	31.2	31.2
Prop In Lane	1.00		0.90	1.00		1.00	1.00		0.20	1.00		0.61
Lane Grp Cap(c), veh/h	356	349	316	83	427	441	330	1385	735	547	1576	780
V/C Ratio(X)	0.85	0.57	0.60	0.31	0.33	0.43	0.81	0.70	0.70	0.92	0.60	0.60
Avail Cap(c_a), veh/h	366	384	348	144	533	489	450	1385	735	547	1576	780
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.83	0.83	0.83
Uniform Delay (d), s/veh	53.0	43.9	44.2	57.6	48.4	35.5	53.2	29.7	29.7	56.1	40.5	40.5
Incr Delay (d2), s/veh	16.3	1.6	2.3	2.1	0.5	0.7	7.7	2.9	5.4	18.4	1.4	2.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.9	9.2	9.0	0.7	3.5	8.1	7.6	17.1	18.5	14.1	20.2	20.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	69.3	45.5	46.5	59.7	48.8	36.2	60.9	32.6	35.1	74.5	41.9	43.3
LnGrp LOS	E	D	D	E	D	D	E	C	D	E	D	D
Approach Vol, veh/h		687			359			1742			1920	
Approach Delay, s/veh		56.2			42.9			37.7			50.8	
Approach LOS		E			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.0	54.9	9.9	30.2	17.9	62.1	18.7	21.4
Change Period (Y+Rc), s	6.0	6.5	7.0	* 7	6.5	* 6.5	6.5	7.0
Max Green Setting (Gmax), s	19.0	44.5	5.0	* 26	15.5	* 48	12.5	18.0
Max Q Clear Time (g_c+I1), s	19.4	30.0	2.9	14.6	11.0	33.2	12.1	13.9
Green Ext Time (p_c), s	0.0	7.9	0.0	1.6	0.4	8.0	0.0	0.5

Intersection Summary	
HCM 7th Control Delay, s/veh	46.1
HCM 7th LOS	D

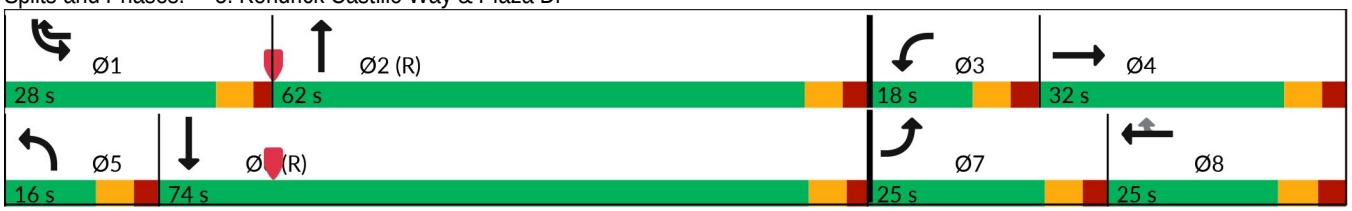
Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	256	122	124	82	360	87	1337	203	1461
Future Volume (vph)	256	122	124	82	360	87	1337	203	1461
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	1	5	2	1	6
Permitted Phases					8				
Detector Phase	7	4	3	8	1	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.5	25.0	12.0	25.0	11.0	11.5	24.5	11.0	24.0
Total Split (s)	25.0	32.0	18.0	25.0	28.0	16.0	62.0	28.0	74.0
Total Split (%)	17.9%	22.9%	12.9%	17.9%	20.0%	11.4%	44.3%	20.0%	52.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	3.0	3.0	2.0	2.5	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	7.0	7.0	6.0	6.5	6.5	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	16.0	14.8	10.0	8.9	36.4	9.2	68.6	20.5	79.9
Actuated g/C Ratio	0.11	0.11	0.07	0.06	0.26	0.07	0.49	0.15	0.57
v/c Ratio	0.70	0.62	0.54	0.39	0.77	0.42	0.61	0.44	0.61
Control Delay (s/veh)	69.3	35.2	70.9	67.7	40.7	67.9	28.8	55.8	21.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	69.3	35.2	70.9	67.7	40.7	67.9	28.8	55.8	21.4
LOS	E	D	E	E	D	E	C	E	C
Approach Delay (s/veh)		51.7		51.2			31.1		25.2
Approach LOS		D		D			C		C

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay (s/veh): 33.7	Intersection LOS: C
Intersection Capacity Utilization 72.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 5: Kendrick Castillo Way & Plaza Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	256	122	153	124	82	360	87	1337	62	203	1461	157
Future Volume (veh/h)	256	122	153	124	82	360	87	1337	62	203	1461	157
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	281	134	168	136	90	330	96	1469	68	223	1605	173
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	337	303	271	186	464	336	143	2587	120	282	2592	279
Arrive On Green	0.10	0.17	0.17	0.05	0.13	0.13	0.04	0.51	0.51	0.08	0.55	0.55
Sat Flow, veh/h	3510	1805	1610	3510	3610	1610	3510	5081	235	3510	4754	512
Grp Volume(v), veh/h	281	134	168	136	90	330	96	1000	537	223	1167	611
Grp Sat Flow(s),veh/h/ln	1755	1805	1610	1755	1805	1610	1755	1729	1858	1755	1729	1808
Q Serve(g_s), s	11.0	9.3	13.6	5.3	3.1	18.0	3.8	27.9	28.0	8.7	32.4	32.5
Cycle Q Clear(g_c), s	11.0	9.3	13.6	5.3	3.1	18.0	3.8	27.9	28.0	8.7	32.4	32.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.13	1.00		0.28
Lane Grp Cap(c), veh/h	337	303	271	186	464	336	143	1761	946	282	1885	986
V/C Ratio(X)	0.83	0.44	0.62	0.73	0.19	0.98	0.67	0.57	0.57	0.79	0.62	0.62
Avail Cap(c_a), veh/h	464	329	293	276	464	336	238	1761	946	552	1885	986
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88	0.88	0.88
Uniform Delay (d), s/veh	62.2	52.3	54.1	65.3	54.5	55.1	66.2	23.7	23.7	63.2	21.8	21.9
Incr Delay (d2), s/veh	9.0	1.0	3.5	5.4	0.2	43.7	5.4	1.3	2.5	4.4	1.4	2.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.1	7.7	9.6	4.5	2.6	21.9	3.2	16.8	18.2	7.1	18.5	19.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	71.2	53.3	57.6	70.7	54.7	98.8	71.6	25.1	26.2	67.6	23.2	24.5
LnGrp LOS	E	D	E	E	D	F	E	C	C	E	C	C
Approach Vol, veh/h		583			556			1633			2001	
Approach Delay, s/veh		63.2			84.8			28.2			28.5	
Approach LOS		E			F			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.3	77.8	14.4	30.5	12.2	82.8	20.0	25.0
Change Period (Y+Rc), s	6.0	6.5	7.0	* 7	6.5	* 6.5	6.5	7.0
Max Green Setting (Gmax), s	22.0	55.5	11.0	* 26	9.5	* 68	18.5	18.0
Max Q Clear Time (g_c+I1), s	10.7	30.0	7.3	15.6	5.8	34.5	13.0	20.0
Green Ext Time (p_c), s	0.5	11.2	0.1	1.1	0.1	16.2	0.4	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	39.2
HCM 7th LOS	D

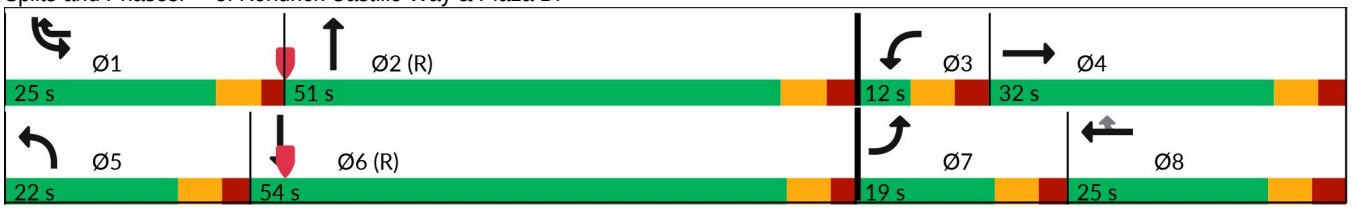
Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	301	207	24	132	175	249	1260	463	1034
Future Volume (vph)	301	207	24	132	175	249	1260	463	1034
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	1	5	2	1	6
Permitted Phases					8				
Detector Phase	7	4	3	8	1	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.5	25.0	12.0	25.0	11.0	11.5	24.5	11.0	24.0
Total Split (s)	19.0	32.0	12.0	25.0	25.0	22.0	51.0	25.0	54.0
Total Split (%)	15.8%	26.7%	10.0%	20.8%	20.8%	18.3%	42.5%	20.8%	45.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	3.0	3.0	2.0	2.5	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	7.0	7.0	6.0	6.5	6.5	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	12.5	22.8	5.0	10.5	41.1	14.9	47.4	23.6	56.1
Actuated g/C Ratio	0.10	0.19	0.04	0.09	0.34	0.12	0.40	0.20	0.47
v/c Ratio	0.93	0.55	0.19	0.48	0.31	0.65	0.75	0.77	0.63
Control Delay (s/veh)	85.7	30.9	58.8	56.9	8.3	57.1	34.5	47.1	34.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	85.7	30.9	58.8	56.9	8.3	57.1	34.5	47.1	34.6
LOS	F	C	E	E	A	E	C	D	C
Approach Delay (s/veh)		55.2		31.3			38.0		37.9
Approach LOS		E		C			D		D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 54.5 (45%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay (s/veh): 40.1	Intersection LOS: D
Intersection Capacity Utilization 76.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 5: Kendrick Castillo Way & Plaza Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	301	207	169	24	132	175	249	1260	93	463	1034	272
Future Volume (veh/h)	301	207	169	24	132	175	249	1260	93	463	1034	272
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1870	1870	1870	1885	1885	1885	1870	1870	1870
Adj Flow Rate, veh/h	338	233	190	27	148	197	280	1416	104	520	1162	306
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	0	0	0	2	2	2	1	1	1	2	2	2
Cap, veh/h	366	383	299	85	437	446	343	1946	143	547	1825	481
Arrive On Green	0.10	0.20	0.20	0.02	0.12	0.12	0.10	0.40	0.40	0.05	0.15	0.15
Sat Flow, veh/h	3510	1928	1506	3456	3554	1585	3483	4892	359	3456	4024	1060
Grp Volume(v), veh/h	338	217	206	27	148	197	280	993	527	520	983	485
Grp Sat Flow(s),veh/h/ln	1755	1805	1629	1728	1777	1585	1742	1716	1821	1728	1702	1680
Q Serve(g_s), s	11.5	13.2	13.9	0.9	4.6	12.2	9.5	29.4	29.4	18.0	32.6	32.6
Cycle Q Clear(g_c), s	11.5	13.2	13.9	0.9	4.6	12.2	9.5	29.4	29.4	18.0	32.6	32.6
Prop In Lane	1.00		0.92	1.00		1.00	1.00		0.20	1.00		0.63
Lane Grp Cap(c), veh/h	366	358	323	85	437	446	343	1365	724	547	1544	762
V/C Ratio(X)	0.92	0.61	0.64	0.32	0.34	0.44	0.82	0.73	0.73	0.95	0.64	0.64
Avail Cap(c_a), veh/h	366	384	346	144	533	489	450	1365	724	547	1544	762
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.81	0.81	0.81
Uniform Delay (d), s/veh	53.3	43.8	44.1	57.5	48.1	35.4	53.0	30.6	30.6	56.4	41.7	41.7
Incr Delay (d2), s/veh	28.7	2.5	3.5	2.1	0.5	0.7	8.7	3.4	6.3	23.1	1.6	3.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	10.6	10.0	9.8	0.8	3.6	8.3	7.9	17.9	19.5	14.8	20.9	21.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	82.0	46.3	47.6	59.6	48.6	36.1	61.7	34.1	36.9	79.5	43.4	45.0
LnGrp LOS	F	D	D	E	D	D	E	C	D	E	D	D
Approach Vol, veh/h		761			372			1800			1988	
Approach Delay, s/veh		62.5			42.8			39.2			53.2	
Approach LOS		E			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.0	54.2	10.0	30.8	18.3	60.9	19.0	21.8
Change Period (Y+Rc), s	6.0	6.5	7.0	* 7	6.5	* 6.5	6.5	7.0
Max Green Setting (Gmax), s	19.0	44.5	5.0	* 26	15.5	* 48	12.5	18.0
Max Q Clear Time (g_c+I1), s	20.0	31.4	2.9	15.9	11.5	34.6	13.5	14.2
Green Ext Time (p_c), s	0.0	7.6	0.0	1.6	0.3	7.8	0.0	0.5

Intersection Summary	
HCM 7th Control Delay, s/veh	48.7
HCM 7th LOS	D

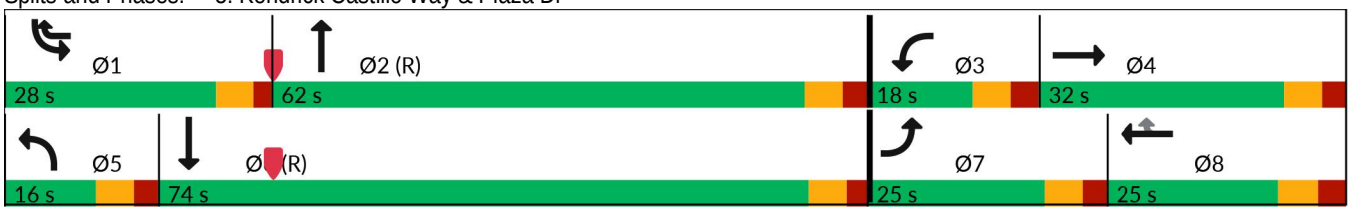
Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	277	130	128	90	371	101	1378	209	1505
Future Volume (vph)	277	130	128	90	371	101	1378	209	1505
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	1	5	2	1	6
Permitted Phases					8				
Detector Phase	7	4	3	8	1	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.5	25.0	12.0	25.0	11.0	11.5	24.5	11.0	24.0
Total Split (s)	25.0	32.0	18.0	25.0	28.0	16.0	62.0	28.0	74.0
Total Split (%)	17.9%	22.9%	12.9%	17.9%	20.0%	11.4%	44.3%	20.0%	52.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	3.0	3.0	2.0	2.5	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	7.0	7.0	6.0	6.5	6.5	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	16.6	15.6	10.1	9.2	37.4	9.8	67.1	21.2	78.4
Actuated g/C Ratio	0.12	0.11	0.07	0.07	0.27	0.07	0.48	0.15	0.56
v/c Ratio	0.73	0.65	0.56	0.42	0.77	0.45	0.64	0.43	0.65
Control Delay (s/veh)	70.4	37.9	71.3	67.8	41.1	68.1	30.5	55.3	23.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	70.4	37.9	71.3	67.8	41.1	68.1	30.5	55.3	23.0
LOS	E	D	E	E	D	E	C	E	C
Approach Delay (s/veh)		53.6		51.7			32.9		26.6
Approach LOS		D		D			C		C

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay (s/veh): 35.3	Intersection LOS: D
Intersection Capacity Utilization 74.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 5: Kendrick Castillo Way & Plaza Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	277	130	165	128	90	371	101	1378	64	209	1505	182
Future Volume (veh/h)	277	130	165	128	90	371	101	1378	64	209	1505	182
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	304	143	181	141	99	342	111	1514	70	230	1654	200
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	360	312	279	191	464	340	159	2544	118	289	2506	302
Arrive On Green	0.10	0.17	0.17	0.05	0.13	0.13	0.05	0.50	0.50	0.08	0.53	0.53
Sat Flow, veh/h	3510	1805	1610	3510	3610	1610	3510	5081	235	3510	4691	566
Grp Volume(v), veh/h	304	143	181	141	99	342	111	1030	554	230	1218	636
Grp Sat Flow(s),veh/h/ln	1755	1805	1610	1755	1805	1610	1755	1729	1858	1755	1729	1798
Q Serve(g_s), s	11.9	10.0	14.7	5.5	3.4	18.0	4.4	29.7	29.7	9.0	35.5	35.7
Cycle Q Clear(g_c), s	11.9	10.0	14.7	5.5	3.4	18.0	4.4	29.7	29.7	9.0	35.5	35.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.13	1.00		0.31
Lane Grp Cap(c), veh/h	360	312	279	191	464	340	159	1732	930	289	1848	961
V/C Ratio(X)	0.84	0.46	0.65	0.74	0.21	1.01	0.70	0.60	0.60	0.79	0.66	0.66
Avail Cap(c_a), veh/h	464	329	293	276	464	340	238	1732	930	552	1848	961
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.84	0.84	0.84
Uniform Delay (d), s/veh	61.7	52.0	53.9	65.2	54.7	55.2	65.9	24.9	24.9	63.1	23.4	23.5
Incr Delay (d2), s/veh	10.8	1.0	4.7	5.9	0.2	50.5	5.4	1.5	2.8	4.2	1.6	3.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.7	8.1	10.3	4.7	2.8	23.3	3.7	17.7	19.2	7.2	20.0	21.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	72.6	53.0	58.6	71.1	54.9	105.7	71.3	26.4	27.7	67.2	25.0	26.5
LnGrp LOS	E	D	E	E	D	F	E	C	C	E	C	C
Approach Vol, veh/h		628			582			1695			2084	
Approach Delay, s/veh		64.1			88.7			29.7			30.1	
Approach LOS		E			F			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.5	76.6	14.6	31.2	12.9	81.3	20.8	25.0
Change Period (Y+Rc), s	6.0	6.5	7.0	* 7	6.5	* 6.5	6.5	7.0
Max Green Setting (Gmax), s	22.0	55.5	11.0	* 26	9.5	* 68	18.5	18.0
Max Q Clear Time (g_c+I1), s	11.0	31.7	7.5	16.7	6.4	37.7	13.9	20.0
Green Ext Time (p_c), s	0.5	11.3	0.1	1.2	0.1	16.3	0.4	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	41.1
HCM 7th LOS	D

Notes

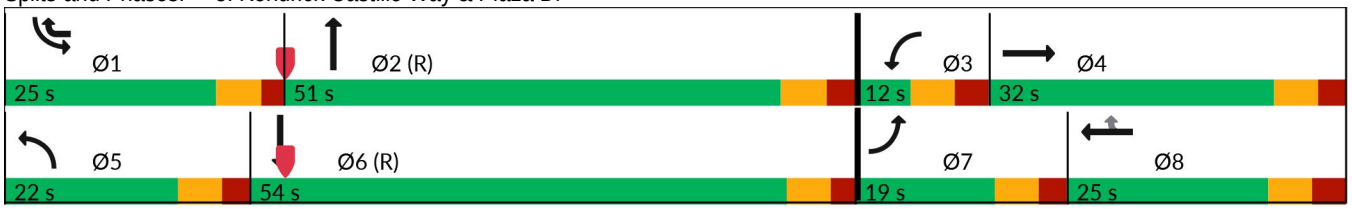
* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

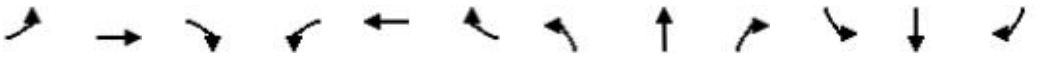
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	338	218	24	135	175	256	1260	463	1034
Future Volume (vph)	338	218	24	135	175	256	1260	463	1034
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	1	5	2	1	6
Permitted Phases					8				
Detector Phase	7	4	3	8	1	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.5	25.0	12.0	25.0	11.0	11.5	24.5	11.0	24.0
Total Split (s)	19.0	32.0	12.0	25.0	25.0	22.0	51.0	25.0	54.0
Total Split (%)	15.8%	26.7%	10.0%	20.8%	20.8%	18.3%	42.5%	20.8%	45.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	3.0	3.0	2.0	2.5	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	7.0	7.0	6.0	6.5	6.5	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 54.5 (45%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 5: Kendrick Castillo Way & Plaza Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	338	218	190	24	135	175	256	1260	93	463	1034	284
Future Volume (veh/h)	338	218	190	24	135	175	256	1260	93	463	1034	284
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1870	1870	1870	1885	1885	1885	1870	1870	1870
Adj Flow Rate, veh/h	380	245	213	27	152	197	288	1416	104	520	1162	319
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	0	0	0	2	2	2	1	1	1	2	2	2
Cap, veh/h	366	370	309	85	438	446	350	1946	143	547	1798	494
Arrive On Green	0.10	0.20	0.20	0.02	0.12	0.12	0.10	0.40	0.40	0.16	0.45	0.45
Sat Flow, veh/h	3510	1867	1558	3456	3554	1585	3483	4892	359	3456	3984	1094
Grp Volume(v), veh/h	380	237	221	27	152	197	288	993	527	520	993	488
Grp Sat Flow(s),veh/h/ln	1755	1805	1620	1728	1777	1585	1742	1716	1821	1728	1702	1674
Q Serve(g_s), s	12.5	14.5	15.2	0.9	4.7	12.2	9.7	29.4	29.4	17.9	27.1	27.1
Cycle Q Clear(g_c), s	12.5	14.5	15.2	0.9	4.7	12.2	9.7	29.4	29.4	17.9	27.1	27.1
Prop In Lane	1.00		0.96	1.00		1.00	1.00		0.20	1.00		0.65
Lane Grp Cap(c), veh/h	366	358	321	85	438	446	350	1364	724	547	1536	755
V/C Ratio(X)	1.04	0.66	0.69	0.32	0.35	0.44	0.82	0.73	0.73	0.95	0.65	0.65
Avail Cap(c_a), veh/h	366	384	344	144	533	489	450	1364	724	547	1536	755
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.81	0.81	0.81
Uniform Delay (d), s/veh	53.8	44.4	44.7	57.5	48.2	35.4	52.9	30.6	30.6	50.0	25.5	25.5
Incr Delay (d2), s/veh	57.6	3.8	5.3	2.1	0.5	0.7	9.3	3.4	6.3	23.1	1.7	3.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	13.3	11.0	10.6	0.8	3.8	8.3	8.1	17.9	19.5	13.8	15.7	15.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	111.3	48.2	49.9	59.6	48.7	36.1	62.2	34.1	37.0	73.2	27.2	29.0
LnGrp LOS	F	D	D	E	D	D	E	C	D	E	C	C
Approach Vol, veh/h		838			376			1808			2001	
Approach Delay, s/veh		77.3			42.8			39.4			39.6	
Approach LOS		E			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.0	54.2	10.0	30.8	18.6	60.6	19.0	21.8
Change Period (Y+Rc), s	6.0	6.5	7.0	* 7	6.5	* 6.5	6.5	7.0
Max Green Setting (Gmax), s	19.0	44.5	5.0	* 26	15.5	* 48	12.5	18.0
Max Q Clear Time (g_c+I1), s	19.9	31.4	2.9	17.2	11.7	29.1	14.5	14.2
Green Ext Time (p_c), s	0.0	7.6	0.0	1.7	0.3	9.7	0.0	0.5

Intersection Summary	
HCM 7th Control Delay, s/veh	46.0
HCM 7th LOS	D

Notes

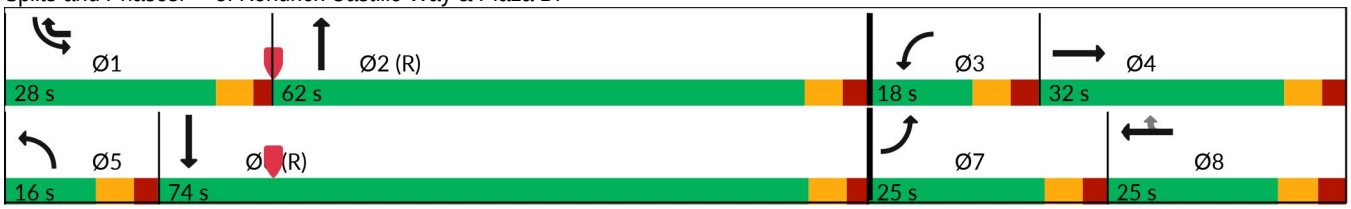
* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	301	137	128	101	371	122	1378	209	1505
Future Volume (vph)	301	137	128	101	371	122	1378	209	1505
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	1	5	2	1	6
Permitted Phases					8				
Detector Phase	7	4	3	8	1	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.5	25.0	12.0	25.0	11.0	11.5	24.5	11.0	24.0
Total Split (s)	25.0	32.0	18.0	25.0	28.0	16.0	62.0	28.0	74.0
Total Split (%)	17.9%	22.9%	12.9%	17.9%	20.0%	11.4%	44.3%	20.0%	52.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	3.0	3.0	2.0	2.5	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	7.0	7.0	6.0	6.5	6.5	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 5: Kendrick Castillo Way & Plaza Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	301	137	179	128	101	371	122	1378	64	209	1505	219
Future Volume (veh/h)	301	137	179	128	101	371	122	1378	64	209	1505	219
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	331	151	197	141	111	342	134	1514	70	230	1654	241
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	385	326	290	191	464	340	183	2507	116	289	2380	345
Arrive On Green	0.11	0.18	0.18	0.05	0.13	0.13	0.05	0.49	0.49	0.08	0.52	0.52
Sat Flow, veh/h	3510	1805	1610	3510	3610	1610	3510	5081	235	3510	4575	664
Grp Volume(v), veh/h	331	151	197	141	111	342	134	1030	554	230	1249	646
Grp Sat Flow(s),veh/h/ln	1755	1805	1610	1755	1805	1610	1755	1729	1858	1755	1729	1781
Q Serve(g_s), s	13.0	10.5	16.0	5.5	3.9	18.0	5.3	30.1	30.1	9.0	38.0	38.3
Cycle Q Clear(g_c), s	13.0	10.5	16.0	5.5	3.9	18.0	5.3	30.1	30.1	9.0	38.0	38.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.13	1.00		0.37
Lane Grp Cap(c), veh/h	385	326	290	191	464	340	183	1706	917	289	1799	926
V/C Ratio(X)	0.86	0.46	0.68	0.74	0.24	1.01	0.73	0.60	0.60	0.79	0.69	0.70
Avail Cap(c_a), veh/h	464	329	293	276	464	340	238	1706	917	552	1799	926
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.83	0.83	0.83
Uniform Delay (d), s/veh	61.2	51.3	53.6	65.2	54.8	55.2	65.4	25.6	25.6	63.1	25.2	25.3
Incr Delay (d2), s/veh	13.0	1.0	6.1	5.9	0.3	50.5	7.9	1.6	2.9	4.1	1.9	3.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	10.6	8.4	11.2	4.7	3.2	23.3	4.5	18.0	19.5	7.2	21.3	22.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	74.2	52.4	59.7	71.1	55.1	105.7	73.3	27.2	28.5	67.2	27.1	28.9
LnGrp LOS	E	D	E	E	E	F	E	C	C	E	C	C
Approach Vol, veh/h		679			594			1718			2125	
Approach Delay, s/veh		65.1			88.0			31.2			32.0	
Approach LOS		E			F			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.5	75.6	14.6	32.2	13.8	79.3	21.9	25.0
Change Period (Y+Rc), s	6.0	6.5	7.0	* 7	6.5	* 6.5	6.5	7.0
Max Green Setting (Gmax), s	22.0	55.5	11.0	* 26	9.5	* 68	18.5	18.0
Max Q Clear Time (g_c+I1), s	11.0	32.1	7.5	18.0	7.3	40.3	15.0	20.0
Green Ext Time (p_c), s	0.5	11.2	0.1	1.1	0.1	16.0	0.4	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	42.6
HCM 7th LOS	D

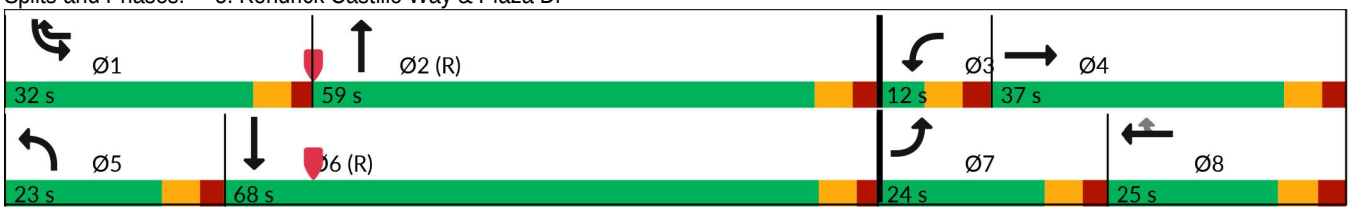
Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	352	243	28	156	207	294	1492	548	1225
Future Volume (vph)	352	243	28	156	207	294	1492	548	1225
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	1	5	2	1	6
Permitted Phases					8				
Detector Phase	7	4	3	8	1	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.5	25.0	12.0	25.0	11.0	11.5	24.5	11.0	24.0
Total Split (s)	24.0	37.0	12.0	25.0	32.0	23.0	59.0	32.0	68.0
Total Split (%)	17.1%	26.4%	8.6%	17.9%	22.9%	16.4%	42.1%	22.9%	48.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	3.0	3.0	2.0	2.5	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	7.0	7.0	6.0	6.5	6.5	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	17.4	29.5	5.0	12.2	48.9	17.9	54.7	29.6	66.4
Actuated g/C Ratio	0.12	0.21	0.04	0.09	0.35	0.13	0.39	0.21	0.47
v/c Ratio	0.91	0.61	0.25	0.57	0.37	0.74	0.90	0.85	0.73
Control Delay (s/veh)	85.8	39.9	71.0	68.3	15.4	69.5	47.8	64.9	31.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	85.8	39.9	71.0	68.3	15.4	69.5	47.8	64.9	31.5
LOS	F	D	E	E	B	E	D	E	C
Approach Delay (s/veh)		60.3		40.4			51.1		40.2
Approach LOS		E		D			D		D

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay (s/veh): 47.3	Intersection LOS: D
Intersection Capacity Utilization 85.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 5: Kendrick Castillo Way & Plaza Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	352	243	197	28	156	207	294	1492	110	548	1225	320
Future Volume (veh/h)	352	243	197	28	156	207	294	1492	110	548	1225	320
Initial Q (Qb), veh	1	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1870	1870	1870	1885	1885	1885	1870	1870	1870
Adj Flow Rate, veh/h	396	273	221	31	175	233	330	1676	102	616	1376	248
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	0	0	0	2	2	2	1	1	1	2	2	2
Cap, veh/h	439	433	339	86	457	498	379	1860	113	642	1950	351
Arrive On Green	0.13	0.22	0.22	0.03	0.13	0.13	0.11	0.38	0.38	0.19	0.45	0.45
Sat Flow, veh/h	3510	1925	1508	3456	3554	1585	3483	4960	302	3456	4350	783
Grp Volume(v), veh/h	396	255	239	31	175	233	330	1159	619	616	1077	547
Grp Sat Flow(s),veh/h/ln	1755	1805	1629	1728	1777	1585	1742	1716	1831	1728	1702	1729
Q Serve(g_s), s	15.6	17.9	18.6	1.2	6.3	16.5	13.1	44.6	44.7	24.7	35.7	35.8
Cycle Q Clear(g_c), s	15.6	17.9	18.6	1.2	6.3	16.5	13.1	44.6	44.7	24.7	35.7	35.8
Prop In Lane	1.00		0.93	1.00		1.00	1.00		0.16	1.00		0.45
Lane Grp Cap(c), veh/h	439	406	366	86	457	498	379	1287	687	642	1526	775
V/C Ratio(X)	0.90	0.63	0.65	0.36	0.38	0.47	0.87	0.90	0.90	0.96	0.71	0.71
Avail Cap(c_a), veh/h	439	406	366	123	457	498	411	1287	687	642	1526	775
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67
Uniform Delay (d), s/veh	60.5	49.0	49.3	67.1	55.9	38.6	61.4	41.3	41.3	56.5	31.2	31.2
Incr Delay (d2), s/veh	21.6	3.1	4.1	2.5	0.5	0.7	17.1	10.3	17.3	20.0	1.9	3.6
Initial Q Delay(d3), s/veh	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	13.0	13.1	12.5	1.0	5.1	10.6	10.8	27.3	30.5	17.1	19.8	20.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	82.4	52.1	53.3	69.6	56.4	39.3	78.5	51.6	58.6	76.5	33.0	34.8
LnGrp LOS	F	D	D	E	E	D	E	D	E	E	C	C
Approach Vol, veh/h		890			439			2108			2240	
Approach Delay, s/veh		65.9			48.3			57.9			45.4	
Approach LOS		E			D			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	32.0	59.0	10.5	38.5	21.7	69.3	24.0	25.0
Change Period (Y+Rc), s	6.0	6.5	7.0	* 7	6.5	* 6.5	6.5	7.0
Max Green Setting (Gmax), s	26.0	52.5	5.0	* 31	16.5	* 62	17.5	18.0
Max Q Clear Time (g_c+I1), s	26.7	46.7	3.2	20.6	15.1	37.8	17.6	18.5
Green Ext Time (p_c), s	0.0	4.5	0.0	2.0	0.2	12.3	0.0	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	53.5
HCM 7th LOS	D

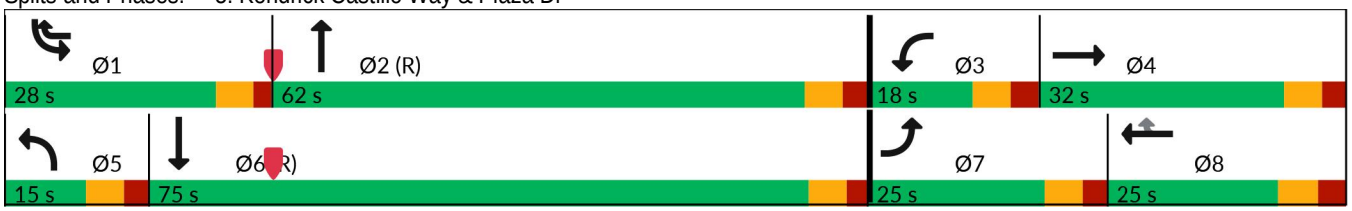
Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	325	153	151	106	439	117	1631	248	1783
Future Volume (vph)	325	153	151	106	439	117	1631	248	1783
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	1	5	2	1	6
Permitted Phases					8				
Detector Phase	7	4	3	8	1	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.5	25.0	12.0	25.0	11.0	11.5	24.5	11.0	24.0
Total Split (s)	25.0	32.0	18.0	25.0	28.0	15.0	62.0	28.0	75.0
Total Split (%)	17.9%	22.9%	12.9%	17.9%	20.0%	10.7%	44.3%	20.0%	53.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	3.0	3.0	2.0	2.5	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	7.0	7.0	6.0	6.5	6.5	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	17.6	17.5	10.5	10.3	42.3	10.2	61.2	24.9	75.9
Actuated g/C Ratio	0.13	0.13	0.08	0.07	0.30	0.07	0.44	0.18	0.54
v/c Ratio	0.81	0.73	0.64	0.44	0.83	0.51	0.83	0.44	0.79
Control Delay (s/veh)	74.7	47.7	74.3	66.5	45.4	69.2	39.9	53.1	28.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	74.7	47.7	74.3	66.5	45.4	69.2	39.9	53.1	28.9
LOS	E	D	E	E	D	E	D	D	C
Approach Delay (s/veh)		60.7		54.9			41.8		31.6
Approach LOS		E		D			D		C

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay (s/veh): 41.6	Intersection LOS: D
Intersection Capacity Utilization 85.5%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 5: Kendrick Castillo Way & Plaza Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	325	153	194	151	106	439	117	1631	76	248	1783	212
Future Volume (veh/h)	325	153	194	151	106	439	117	1631	76	248	1783	212
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	357	168	213	166	116	416	129	1792	84	273	1959	233
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	409	325	290	216	464	360	177	2407	113	333	2423	285
Arrive On Green	0.12	0.18	0.18	0.06	0.13	0.13	0.05	0.47	0.47	0.09	0.52	0.52
Sat Flow, veh/h	3510	1805	1610	3510	3610	1610	3510	5078	238	3510	4704	554
Grp Volume(v), veh/h	357	168	213	166	116	416	129	1220	656	273	1435	757
Grp Sat Flow(s),veh/h/ln	1755	1805	1610	1755	1805	1610	1755	1729	1857	1755	1729	1800
Q Serve(g_s), s	14.0	11.8	17.5	6.5	4.1	18.0	5.1	40.1	40.2	10.7	48.2	49.3
Cycle Q Clear(g_c), s	14.0	11.8	17.5	6.5	4.1	18.0	5.1	40.1	40.2	10.7	48.2	49.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.13	1.00		0.31
Lane Grp Cap(c), veh/h	409	325	290	216	464	360	177	1639	881	333	1781	927
V/C Ratio(X)	0.87	0.52	0.73	0.77	0.25	1.16	0.73	0.74	0.75	0.82	0.81	0.82
Avail Cap(c_a), veh/h	464	329	293	276	464	360	213	1639	881	552	1781	927
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.75	0.75	0.75
Uniform Delay (d), s/veh	60.8	51.9	54.2	64.7	54.9	54.4	65.5	29.9	29.9	62.2	28.1	28.4
Incr Delay (d2), s/veh	15.1	1.4	9.1	9.5	0.3	96.9	9.6	3.1	5.7	3.8	3.0	6.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	11.4	9.2	12.3	5.7	3.3	31.9	4.4	23.3	25.6	8.0	26.1	28.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	75.9	53.3	63.3	74.2	55.2	151.3	75.1	33.0	35.6	65.9	31.2	34.5
LnGrp LOS	E	D	E	E	E	F	E	C	D	E	C	C
Approach Vol, veh/h		738			698			2005			2465	
Approach Delay, s/veh		67.1			117.0			36.6			36.0	
Approach LOS		E			F			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.3	72.9	15.6	32.2	13.6	78.6	22.8	25.0
Change Period (Y+Rc), s	6.0	6.5	7.0	* 7	6.5	* 6.5	6.5	7.0
Max Green Setting (Gmax), s	22.0	55.5	11.0	* 26	8.5	* 69	18.5	18.0
Max Q Clear Time (g_c+I1), s	12.7	42.2	8.5	19.5	7.1	51.3	16.0	20.0
Green Ext Time (p_c), s	0.6	9.3	0.1	1.1	0.0	13.5	0.3	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	49.7
HCM 7th LOS	D

Notes

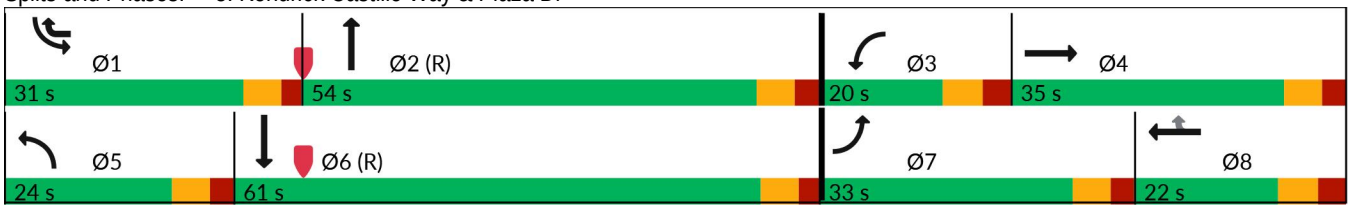
* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

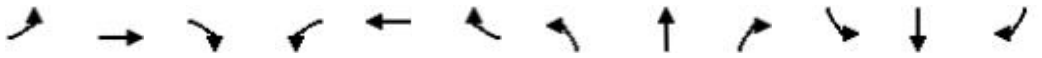
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	389	254	28	159	207	301	1492	548	1225
Future Volume (vph)	389	254	28	159	207	301	1492	548	1225
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	1	5	2	1	6
Permitted Phases					8				
Detector Phase	7	4	3	8	1	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.5	25.0	12.0	25.0	11.0	11.5	24.5	11.0	24.0
Total Split (s)	33.0	35.0	20.0	22.0	31.0	24.0	54.0	31.0	61.0
Total Split (%)	23.6%	25.0%	14.3%	15.7%	22.1%	17.1%	38.6%	22.1%	43.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	3.0	3.0	2.0	2.5	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	7.0	7.0	6.0	6.5	6.5	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated

Splits and Phases: 5: Kendrick Castillo Way & Plaza Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	389	254	218	28	159	207	301	1492	110	548	1225	332
Future Volume (veh/h)	389	254	218	28	159	207	301	1492	110	548	1225	332
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1870	1870	1870	1885	1885	1885	1870	1870	1870
Adj Flow Rate, veh/h	437	285	245	31	179	233	338	1676	124	616	1376	261
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	0	0	0	2	2	2	1	1	1	2	2	2
Cap, veh/h	502	414	345	86	381	453	389	1885	139	617	1935	367
Arrive On Green	0.14	0.22	0.22	0.03	0.11	0.11	0.11	0.39	0.39	0.18	0.45	0.45
Sat Flow, veh/h	3510	1867	1558	3456	3554	1585	3483	4890	361	3456	4311	817
Grp Volume(v), veh/h	437	275	255	31	179	233	338	1175	625	616	1086	551
Grp Sat Flow(s),veh/h/ln	1755	1805	1620	1728	1777	1585	1742	1716	1820	1728	1702	1723
Q Serve(g_s), s	17.1	19.6	20.3	1.2	6.6	15.0	13.4	44.8	45.0	24.9	36.2	36.2
Cycle Q Clear(g_c), s	17.1	19.6	20.3	1.2	6.6	15.0	13.4	44.8	45.0	24.9	36.2	36.2
Prop In Lane	1.00		0.96	1.00		1.00	1.00		0.20	1.00		0.47
Lane Grp Cap(c), veh/h	502	400	359	86	381	453	389	1323	702	617	1528	774
V/C Ratio(X)	0.87	0.69	0.71	0.36	0.47	0.51	0.87	0.89	0.89	1.00	0.71	0.71
Avail Cap(c_a), veh/h	664	400	359	321	381	453	435	1323	702	617	1528	774
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.79	0.79	0.79	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67
Uniform Delay (d), s/veh	58.7	50.0	50.3	67.1	58.8	41.9	61.2	40.2	40.2	57.5	31.2	31.2
Incr Delay (d2), s/veh	7.8	3.9	5.1	2.5	0.9	1.0	15.8	9.2	15.8	29.2	1.9	3.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	12.2	13.6	12.9	1.0	5.4	11.1	10.9	27.2	30.2	18.1	20.0	20.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	66.5	53.9	55.4	69.6	59.7	42.9	76.9	49.4	56.0	86.7	33.1	35.0
LnGrp LOS	E	D	E	E	E	D	E	D	E	F	C	C
Approach Vol, veh/h		967			443			2138			2253	
Approach Delay, s/veh		60.0			51.5			55.7			48.2	
Approach LOS		E			D			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	31.0	60.5	10.5	38.0	22.1	69.3	26.5	22.0
Change Period (Y+Rc), s	6.0	6.5	7.0	* 7	6.5	* 6.5	6.5	7.0
Max Green Setting (Gmax), s	25.0	47.5	13.0	* 29	17.5	* 55	26.5	15.0
Max Q Clear Time (g_c+I1), s	26.9	47.0	3.2	22.3	15.4	38.2	19.1	17.0
Green Ext Time (p_c), s	0.0	0.5	0.0	1.6	0.3	10.0	1.0	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	53.2
HCM 7th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

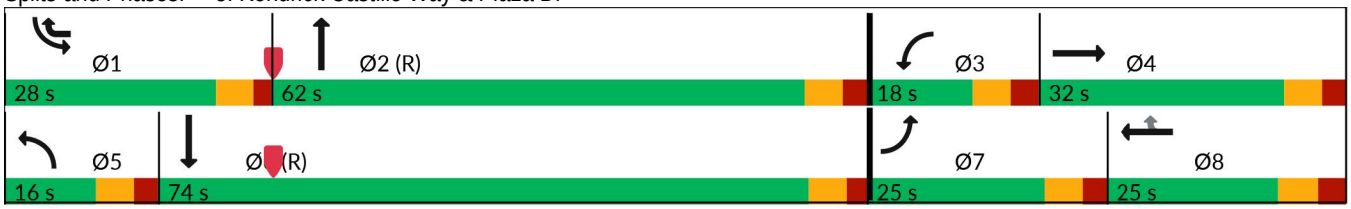
* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	349	160	151	117	439	138	1631	248	1783
Future Volume (vph)	349	160	151	117	439	138	1631	248	1783
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	1	5	2	1	6
Permitted Phases					8				
Detector Phase	7	4	3	8	1	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.5	25.0	12.0	25.0	11.0	11.5	24.5	11.0	24.0
Total Split (s)	25.0	32.0	18.0	25.0	28.0	16.0	62.0	28.0	74.0
Total Split (%)	17.9%	22.9%	12.9%	17.9%	20.0%	11.4%	44.3%	20.0%	52.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	3.0	3.0	2.0	2.5	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	7.0	7.0	6.0	6.5	6.5	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated

Splits and Phases: 5: Kendrick Castillo Way & Plaza Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	349	160	208	151	117	439	138	1631	76	248	1783	249
Future Volume (veh/h)	349	160	208	151	117	439	138	1631	76	248	1783	249
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	384	176	229	166	129	416	152	1792	84	273	1959	274
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	434	337	301	216	464	360	201	2372	111	333	2310	319
Arrive On Green	0.12	0.19	0.19	0.06	0.13	0.13	0.06	0.47	0.47	0.09	0.50	0.50
Sat Flow, veh/h	3510	1805	1610	3510	3610	1610	3510	5078	238	3510	4607	636
Grp Volume(v), veh/h	384	176	229	166	129	416	152	1220	656	273	1464	769
Grp Sat Flow(s),veh/h/ln	1755	1805	1610	1755	1805	1610	1755	1729	1857	1755	1729	1785
Q Serve(g_s), s	15.1	12.3	18.9	6.5	4.5	18.0	6.0	40.6	40.8	10.7	51.3	52.8
Cycle Q Clear(g_c), s	15.1	12.3	18.9	6.5	4.5	18.0	6.0	40.6	40.8	10.7	51.3	52.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.13	1.00		0.36
Lane Grp Cap(c), veh/h	434	337	301	216	464	360	201	1616	868	333	1734	895
V/C Ratio(X)	0.89	0.52	0.76	0.77	0.28	1.16	0.76	0.75	0.76	0.82	0.84	0.86
Avail Cap(c_a), veh/h	464	337	301	276	464	360	238	1616	868	552	1734	895
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.99	0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00	0.74	0.74	0.74
Uniform Delay (d), s/veh	60.4	51.3	53.9	64.7	55.1	54.4	65.0	30.7	30.7	62.2	30.2	30.6
Incr Delay (d2), s/veh	17.4	1.4	10.7	9.5	0.3	96.9	10.9	3.3	6.1	3.7	3.9	8.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	12.2	9.5	13.2	5.7	3.7	31.9	5.3	23.7	26.0	8.0	27.9	30.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	77.7	52.7	64.6	74.2	55.4	151.3	76.0	34.0	36.8	65.9	34.1	38.6
LnGrp LOS	E	D	E	E	E	F	E	C	D	E	C	D
Approach Vol, veh/h		789			711			2028			2506	
Approach Delay, s/veh		68.4			115.9			38.1			39.0	
Approach LOS		E			F			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.3	71.9	15.6	33.2	14.5	76.7	23.8	25.0
Change Period (Y+Rc), s	6.0	6.5	7.0	* 7	6.5	* 6.5	6.5	7.0
Max Green Setting (Gmax), s	22.0	55.5	11.0	* 26	9.5	* 68	18.5	18.0
Max Q Clear Time (g_c+I1), s	12.7	42.8	8.5	20.9	8.0	54.8	17.1	20.0
Green Ext Time (p_c), s	0.6	9.0	0.1	1.0	0.1	10.7	0.2	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	51.6
HCM 7th LOS	D

Notes

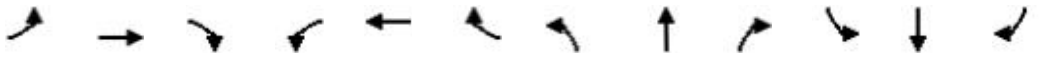
* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	149	0	984	1190	594	42	757
Future Volume (vph)	149	0	984	1190	594	42	757
Turn Type	Prot	NA	Free	NA	Perm	pm+pt	NA
Protected Phases	7	4		2		1	6
Permitted Phases			Free		2	6	
Detector Phase	7	4		2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5		24.0	24.0	11.0	24.0
Total Split (s)	44.5	44.5		44.0	44.0	31.5	75.5
Total Split (%)	37.1%	37.1%		36.7%	36.7%	26.3%	62.9%
Yellow Time (s)	3.5	3.5		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		6.0	6.0	6.0	6.0
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None		C-Max	C-Max	None	C-Max
Act Effct Green (s)	33.3	32.0	120.0	69.1	69.1	78.4	79.6
Actuated g/C Ratio	0.28	0.27	1.00	0.58	0.58	0.65	0.66
v/c Ratio	0.17	0.18	0.68	0.44	0.55	0.18	0.35
Control Delay (s/veh)	30.4	29.4	2.3	17.1	11.8	23.8	25.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	30.4	29.4	2.3	17.1	11.8	23.8	25.8
LOS	C	C	A	B	B	C	C
Approach Delay (s/veh)		5.9		15.3			25.7
Approach LOS		A		B			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay (s/veh): 14.7	Intersection LOS: B
Intersection Capacity Utilization 58.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	149	0	984	0	0	0	0	1190	594	42	757	0
Future Volume (veh/h)	149	0	984	0	0	0	0	1190	594	42	757	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885				0	1885	1885	1870	1870	0
Adj Flow Rate, veh/h	164	0	0				0	1308	0	46	832	0
Peak Hour Factor	0.91	0.91	0.91				0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	1	1				0	1	1	2	2	0
Cap, veh/h	236	0					0	3933		377	3010	0
Arrive On Green	0.07	0.00	0.00				0.00	0.51	0.00	0.07	1.00	0.00
Sat Flow, veh/h	3591	0	1598				0	5316	1598	1781	3647	0
Grp Volume(v), veh/h	164	0	0				0	1308	0	46	832	0
Grp Sat Flow(s),veh/h/ln	1795	0	1598				0	1716	1598	1781	1777	0
Q Serve(g_s), s	5.4	0.0	0.0				0.0	17.9	0.0	0.6	0.0	0.0
Cycle Q Clear(g_c), s	5.4	0.0	0.0				0.0	17.9	0.0	0.6	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	236	0					0	3933		377	3010	0
V/C Ratio(X)	0.70	0.00					0.00	0.33		0.12	0.28	0.00
Avail Cap(c_a), veh/h	1197	0					0	3933		697	3010	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	0.67	0.67	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	0.66	0.00	0.88	0.88	0.00
Uniform Delay (d), s/veh	54.9	0.0	0.0				0.0	11.3	0.0	3.9	0.0	0.0
Incr Delay (d2), s/veh	3.7	0.0	0.0				0.0	0.2	0.0	0.1	0.2	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.6	0.0	0.0				0.0	11.1	0.0	0.3	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	58.6	0.0	0.0				0.0	11.4	0.0	4.0	0.2	0.0
LnGrp LOS	E							B		A	A	
Approach Vol, veh/h		164						1308			878	
Approach Delay, s/veh		58.6						11.4			0.4	
Approach LOS		E						B			A	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	9.9	97.7		12.4		107.6
Change Period (Y+Rc), s	6.0	6.0		4.5		6.0
Max Green Setting (Gmax), s	25.5	38.0		40.0		69.5
Max Q Clear Time (g_c+I1), s	2.6	19.9		7.4		2.0
Green Ext Time (p_c), s	0.1	8.5		0.5		6.6

Intersection Summary	
HCM 7th Control Delay, s/veh	10.6
HCM 7th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	73	0	877	1175	686	110	906
Future Volume (vph)	73	0	877	1175	686	110	906
Turn Type	Prot	NA	Free	NA	Perm	pm+pt	NA
Protected Phases	7	4		2		1	6
Permitted Phases			Free		2	6	
Detector Phase	7	4		2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5		24.0	24.0	11.0	24.0
Total Split (s)	44.5	44.5		44.0	44.0	31.5	75.5
Total Split (%)	37.1%	37.1%		36.7%	36.7%	26.3%	62.9%
Yellow Time (s)	3.5	3.5		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		6.0	6.0	6.0	6.0
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None		C-Max	C-Max	None	C-Max
Act Effct Green (s)	26.5	24.0	120.0	72.7	72.7	87.3	89.7
Actuated g/C Ratio	0.22	0.20	1.00	0.61	0.61	0.73	0.75
v/c Ratio	0.10	0.12	0.59	0.41	0.59	0.37	0.37
Control Delay (s/veh)	31.0	28.4	1.6	17.9	3.7	19.8	14.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	31.0	28.4	1.6	17.9	3.7	19.8	14.3
LOS	C	C	A	B	A	B	B
Approach Delay (s/veh)		3.7		12.7			14.9
Approach LOS		A		B			B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.59	
Intersection Signal Delay (s/veh): 11.0	Intersection LOS: B
Intersection Capacity Utilization 66.5%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	0	877	0	0	0	0	1175	686	110	906	0
Future Volume (veh/h)	73	0	877	0	0	0	0	1175	686	110	906	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900				0	1900	1900	1900	1900	0
Adj Flow Rate, veh/h	79	0	0				0	1277	0	120	985	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0				0	0	0	0	0	0
Cap, veh/h	140	0					0	4061		447	3155	0
Arrive On Green	0.04	0.00	0.00				0.00	0.78	0.00	0.08	1.00	0.00
Sat Flow, veh/h	3619	0	1610				0	5358	1610	1810	3705	0
Grp Volume(v), veh/h	79	0	0				0	1277	0	120	985	0
Grp Sat Flow(s),veh/h/ln	1810	0	1610				0	1729	1610	1810	1805	0
Q Serve(g_s), s	2.6	0.0	0.0				0.0	8.5	0.0	1.4	0.0	0.0
Cycle Q Clear(g_c), s	2.6	0.0	0.0				0.0	8.5	0.0	1.4	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	140	0					0	4061		447	3155	0
V/C Ratio(X)	0.56	0.00					0.00	0.31		0.27	0.31	0.00
Avail Cap(c_a), veh/h	1206	0					0	4061		758	3155	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	0.72	0.00	0.81	0.81	0.00
Uniform Delay (d), s/veh	56.7	0.0	0.0				0.0	3.8	0.0	2.2	0.0	0.0
Incr Delay (d2), s/veh	3.5	0.0	0.0				0.0	0.1	0.0	0.3	0.2	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.2	0.0	0.0				0.0	4.1	0.0	0.5	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	60.2	0.0	0.0				0.0	3.9	0.0	2.4	0.2	0.0
LnGrp LOS	E							A		A	A	
Approach Vol, veh/h		79						1277			1105	
Approach Delay, s/veh		60.2						3.9			0.4	
Approach LOS		E						A			A	

Timer - Assigned Phs	1	2		4	6							
Phs Duration (G+Y+Rc), s	10.9	100.0		9.1	110.9							
Change Period (Y+Rc), s	6.0	6.0		4.5	6.0							
Max Green Setting (Gmax), s	25.5	38.0		40.0	69.5							
Max Q Clear Time (g_c+I1), s	3.4	10.5		4.6	2.0							
Green Ext Time (p_c), s	0.3	10.1		0.2	8.4							

Intersection Summary												
HCM 7th Control Delay, s/veh			4.2									
HCM 7th LOS			A									

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	154	0	1017	1226	612	43	785
Future Volume (vph)	154	0	1017	1226	612	43	785
Turn Type	Prot	NA	Free	NA	Perm	pm+pt	NA
Protected Phases	7	4		2		1	6
Permitted Phases			Free		2	6	
Detector Phase	7	4		2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5		24.0	24.0	11.0	24.0
Total Split (s)	44.5	44.5		44.0	44.0	31.5	75.5
Total Split (%)	37.1%	37.1%		36.7%	36.7%	26.3%	62.9%
Yellow Time (s)	3.5	3.5		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		6.0	6.0	6.0	6.0
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None		C-Max	C-Max	None	C-Max
Act Effct Green (s)	33.4	32.0	120.0	69.1	69.1	78.4	79.6
Actuated g/C Ratio	0.28	0.27	1.00	0.58	0.58	0.65	0.66
v/c Ratio	0.18	0.19	0.70	0.46	0.56	0.19	0.37
Control Delay (s/veh)	30.6	29.5	2.6	16.4	11.7	23.7	25.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	30.6	29.5	2.6	16.4	11.7	23.7	25.7
LOS	C	C	A	B	B	C	C
Approach Delay (s/veh)		6.2		14.9			25.6
Approach LOS		A		B			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.70	
Intersection Signal Delay (s/veh): 14.5	Intersection LOS: B
Intersection Capacity Utilization 60.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	154	0	1017	0	0	0	0	1226	612	43	785	0
Future Volume (veh/h)	154	0	1017	0	0	0	0	1226	612	43	785	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885				0	1885	1885	1870	1870	0
Adj Flow Rate, veh/h	169	0	0				0	1347	0	47	863	0
Peak Hour Factor	0.91	0.91	0.91				0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	1	1				0	1	1	2	2	0
Cap, veh/h	241	0					0	3924		365	3004	0
Arrive On Green	0.07	0.00	0.00				0.00	0.51	0.00	0.07	1.00	0.00
Sat Flow, veh/h	3591	0	1598				0	5316	1598	1781	3647	0
Grp Volume(v), veh/h	169	0	0				0	1347	0	47	863	0
Grp Sat Flow(s),veh/h/ln	1795	0	1598				0	1716	1598	1781	1777	0
Q Serve(g_s), s	5.5	0.0	0.0				0.0	18.6	0.0	0.6	0.0	0.0
Cycle Q Clear(g_c), s	5.5	0.0	0.0				0.0	18.6	0.0	0.6	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	241	0					0	3924		365	3004	0
V/C Ratio(X)	0.70	0.00					0.00	0.34		0.13	0.29	0.00
Avail Cap(c_a), veh/h	1197	0					0	3924		685	3004	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	0.67	0.67	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	0.59	0.00	0.86	0.86	0.00
Uniform Delay (d), s/veh	54.8	0.0	0.0				0.0	11.5	0.0	4.0	0.0	0.0
Incr Delay (d2), s/veh	3.7	0.0	0.0				0.0	0.1	0.0	0.1	0.2	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.7	0.0	0.0				0.0	11.2	0.0	0.3	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	58.5	0.0	0.0				0.0	11.7	0.0	4.2	0.2	0.0
LnGrp LOS	E							B		A	A	
Approach Vol, veh/h		169						1347			910	
Approach Delay, s/veh		58.5						11.7			0.4	
Approach LOS		E						B			A	

Timer - Assigned Phs	1	2		4	6							
Phs Duration (G+Y+Rc), s	10.0	97.5		12.6	107.4							
Change Period (Y+Rc), s	6.0	6.0		4.5	6.0							
Max Green Setting (Gmax), s	25.5	38.0		40.0	69.5							
Max Q Clear Time (g_c+I1), s	2.6	20.6		7.5	2.0							
Green Ext Time (p_c), s	0.1	8.6		0.6	6.9							

Intersection Summary												
HCM 7th Control Delay, s/veh			10.7									
HCM 7th LOS			B									

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	75	0	912	1211	707	113	945
Future Volume (vph)	75	0	912	1211	707	113	945
Turn Type	Prot	NA	Free	NA	Perm	pm+pt	NA
Protected Phases	7	4		2		1	6
Permitted Phases			Free		2	6	
Detector Phase	7	4		2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5		24.0	24.0	11.0	24.0
Total Split (s)	44.5	44.5		44.0	44.0	31.5	75.5
Total Split (%)	37.1%	37.1%		36.7%	36.7%	26.3%	62.9%
Yellow Time (s)	3.5	3.5		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		6.0	6.0	6.0	6.0
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None		C-Max	C-Max	None	C-Max
Act Effct Green (s)	33.1	32.0	120.0	63.2	63.2	78.4	79.6
Actuated g/C Ratio	0.28	0.27	1.00	0.53	0.53	0.65	0.66
v/c Ratio	0.09	0.09	0.61	0.48	0.63	0.43	0.43
Control Delay (s/veh)	28.0	28.1	1.8	22.2	4.3	25.9	18.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	28.0	28.1	1.8	22.2	4.3	25.9	18.4
LOS	C	C	A	C	A	C	B
Approach Delay (s/veh)		3.8		15.6			19.2
Approach LOS		A		B			B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay (s/veh): 13.6	Intersection LOS: B
Intersection Capacity Utilization 68.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	0	912	0	0	0	0	1211	707	113	945	0
Future Volume (veh/h)	75	0	912	0	0	0	0	1211	707	113	945	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900				0	1900	1900	1900	1900	0
Adj Flow Rate, veh/h	82	0	0				0	1316	0	123	1027	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0				0	0	0	0	0	0
Cap, veh/h	141	0					0	4059		435	3153	0
Arrive On Green	0.04	0.00	0.00				0.00	0.78	0.00	0.08	1.00	0.00
Sat Flow, veh/h	3619	0	1610				0	5358	1610	1810	3705	0
Grp Volume(v), veh/h	82	0	0				0	1316	0	123	1027	0
Grp Sat Flow(s),veh/h/ln	1810	0	1610				0	1729	1610	1810	1805	0
Q Serve(g_s), s	2.7	0.0	0.0				0.0	8.9	0.0	1.4	0.0	0.0
Cycle Q Clear(g_c), s	2.7	0.0	0.0				0.0	8.9	0.0	1.4	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	141	0					0	4059		435	3153	0
V/C Ratio(X)	0.58	0.00					0.00	0.32		0.28	0.33	0.00
Avail Cap(c_a), veh/h	1206	0					0	4059		745	3153	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	0.68	0.00	0.79	0.79	0.00
Uniform Delay (d), s/veh	56.7	0.0	0.0				0.0	3.8	0.0	2.2	0.0	0.0
Incr Delay (d2), s/veh	3.8	0.0	0.0				0.0	0.1	0.0	0.3	0.2	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.3	0.0	0.0				0.0	4.2	0.0	0.5	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	60.5	0.0	0.0				0.0	3.9	0.0	2.5	0.2	0.0
LnGrp LOS	E							A		A	A	
Approach Vol, veh/h		82						1316			1150	
Approach Delay, s/veh		60.5						3.9			0.5	
Approach LOS		E						A			A	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	10.9	99.9		9.2		110.8						
Change Period (Y+Rc), s	6.0	6.0		4.5		6.0						
Max Green Setting (Gmax), s	25.5	38.0		40.0		69.5						
Max Q Clear Time (g_c+I1), s	3.4	10.9		4.7		2.0						
Green Ext Time (p_c), s	0.3	10.4		0.2		8.9						

Intersection Summary	
HCM 7th Control Delay, s/veh	4.2
HCM 7th LOS	A

Notes

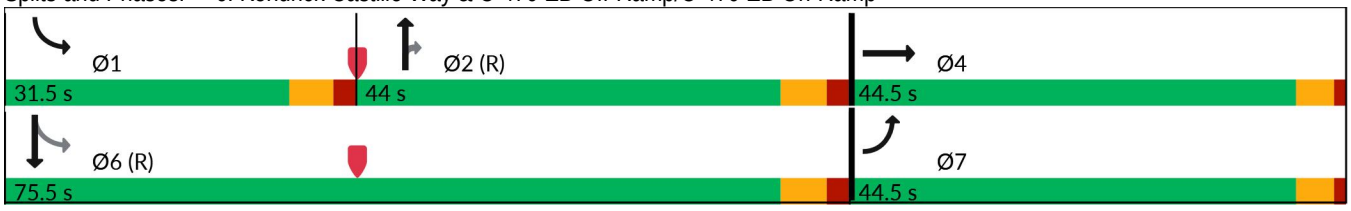
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	154	0	1022	1247	628	43	792
Future Volume (vph)	154	0	1022	1247	628	43	792
Turn Type	Prot	NA	Free	NA	Perm	pm+pt	NA
Protected Phases	7	4		2		1	6
Permitted Phases			Free		2	6	
Detector Phase	7	4		2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5		24.0	24.0	11.0	24.0
Total Split (s)	44.5	44.5		44.0	44.0	31.5	75.5
Total Split (%)	37.1%	37.1%		36.7%	36.7%	26.3%	62.9%
Yellow Time (s)	3.5	3.5		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		6.0	6.0	6.0	6.0
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None		C-Max	C-Max	None	C-Max

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	154	0	1022	0	0	0	0	1247	628	43	792	0
Future Volume (veh/h)	154	0	1022	0	0	0	0	1247	628	43	792	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885				0	1885	1885	1870	1870	0
Adj Flow Rate, veh/h	169	0	0				0	1370	0	47	870	0
Peak Hour Factor	0.91	0.91	0.91				0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	1	1				0	1	1	2	2	0
Cap, veh/h	241	0					0	3924		358	3004	0
Arrive On Green	0.07	0.00	0.00				0.00	0.51	0.00	0.07	1.00	0.00
Sat Flow, veh/h	3591	0	1598				0	5316	1598	1781	3647	0
Grp Volume(v), veh/h	169	0	0				0	1370	0	47	870	0
Grp Sat Flow(s),veh/h/ln	1795	0	1598				0	1716	1598	1781	1777	0
Q Serve(g_s), s	5.5	0.0	0.0				0.0	19.0	0.0	0.6	0.0	0.0
Cycle Q Clear(g_c), s	5.5	0.0	0.0				0.0	19.0	0.0	0.6	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	241	0					0	3924		358	3004	0
V/C Ratio(X)	0.70	0.00					0.00	0.35		0.13	0.29	0.00
Avail Cap(c_a), veh/h	1197	0					0	3924		678	3004	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	0.67	0.67	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	0.56	0.00	0.86	0.86	0.00
Uniform Delay (d), s/veh	54.8	0.0	0.0				0.0	11.6	0.0	4.1	0.0	0.0
Incr Delay (d2), s/veh	3.7	0.0	0.0				0.0	0.1	0.0	0.1	0.2	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.7	0.0	0.0				0.0	11.3	0.0	0.3	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	58.5	0.0	0.0				0.0	11.8	0.0	4.3	0.2	0.0
LnGrp LOS	E							B		A	A	
Approach Vol, veh/h		169						1370			917	
Approach Delay, s/veh		58.5						11.8			0.4	
Approach LOS		E						B			A	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	10.0	97.5		12.6		107.4
Change Period (Y+Rc), s	6.0	6.0		4.5		6.0
Max Green Setting (Gmax), s	25.5	38.0		40.0		69.5
Max Q Clear Time (g_c+I1), s	2.6	21.0		7.5		2.0
Green Ext Time (p_c), s	0.1	8.7		0.6		7.0

Intersection Summary	
HCM 7th Control Delay, s/veh	10.7
HCM 7th LOS	B

Notes

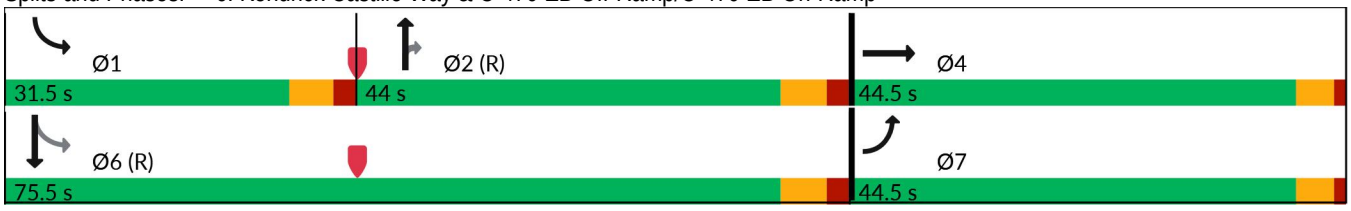
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	75	0	928	1225	717	113	966
Future Volume (vph)	75	0	928	1225	717	113	966
Turn Type	Prot	NA	Free	NA	Perm	pm+pt	NA
Protected Phases	7	4		2		1	6
Permitted Phases			Free		2	6	
Detector Phase	7	4		2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5		24.0	24.0	11.0	24.0
Total Split (s)	44.5	44.5		44.0	44.0	31.5	75.5
Total Split (%)	37.1%	37.1%		36.7%	36.7%	26.3%	62.9%
Yellow Time (s)	3.5	3.5		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		6.0	6.0	6.0	6.0
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None		C-Max	C-Max	None	C-Max

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	0	928	0	0	0	0	1225	717	113	966	0
Future Volume (veh/h)	75	0	928	0	0	0	0	1225	717	113	966	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900				0	1900	1900	1900	1900	0
Adj Flow Rate, veh/h	82	0	0				0	1332	0	123	1050	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0				0	0	0	0	0	0
Cap, veh/h	141	0					0	4059		430	3153	0
Arrive On Green	0.04	0.00	0.00				0.00	0.78	0.00	0.08	1.00	0.00
Sat Flow, veh/h	3619	0	1610				0	5358	1610	1810	3705	0
Grp Volume(v), veh/h	82	0	0				0	1332	0	123	1050	0
Grp Sat Flow(s),veh/h/ln	1810	0	1610				0	1729	1610	1810	1805	0
Q Serve(g_s), s	2.7	0.0	0.0				0.0	9.0	0.0	1.4	0.0	0.0
Cycle Q Clear(g_c), s	2.7	0.0	0.0				0.0	9.0	0.0	1.4	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	141	0					0	4059		430	3153	0
V/C Ratio(X)	0.58	0.00					0.00	0.33		0.29	0.33	0.00
Avail Cap(c_a), veh/h	1206	0					0	4059		740	3153	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	0.67	0.00	0.77	0.77	0.00
Uniform Delay (d), s/veh	56.7	0.0	0.0				0.0	3.8	0.0	2.3	0.0	0.0
Incr Delay (d2), s/veh	3.8	0.0	0.0				0.0	0.1	0.0	0.3	0.2	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.3	0.0	0.0				0.0	4.3	0.0	0.5	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	60.5	0.0	0.0				0.0	4.0	0.0	2.5	0.2	0.0
LnGrp LOS	E							A		A	A	
Approach Vol, veh/h		82						1332			1173	
Approach Delay, s/veh		60.5						4.0			0.5	
Approach LOS		E						A			A	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	10.9	99.9		9.2		110.8
Change Period (Y+Rc), s	6.0	6.0		4.5		6.0
Max Green Setting (Gmax), s	25.5	38.0		40.0		69.5
Max Q Clear Time (g_c+I1), s	3.4	11.0		4.7		2.0
Green Ext Time (p_c), s	0.3	10.6		0.2		9.2

Intersection Summary	
HCM 7th Control Delay, s/veh	4.2
HCM 7th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

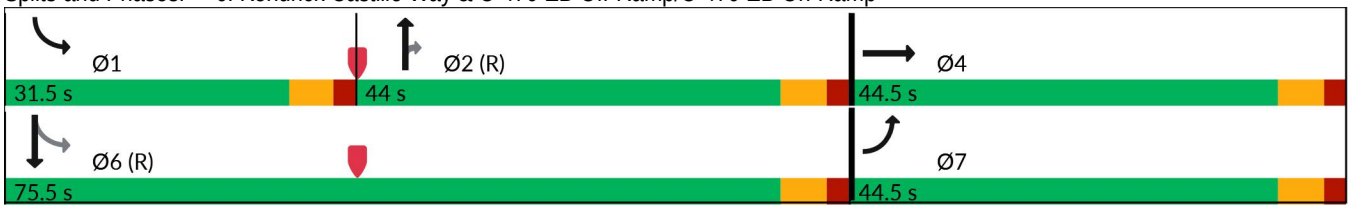
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

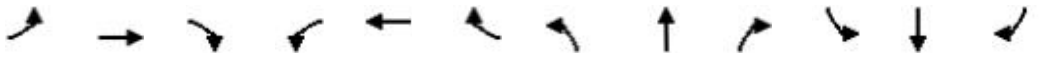
Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	182	0	1204	1452	725	51	929
Future Volume (vph)	182	0	1204	1452	725	51	929
Turn Type	Prot	NA	Free	NA	Perm	pm+pt	NA
Protected Phases	7	4		2		1	6
Permitted Phases			Free		2	6	
Detector Phase	7	4		2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	24.0		24.0	24.0	11.0	24.0
Total Split (s)	44.5	44.5		44.0	44.0	31.5	75.5
Total Split (%)	37.1%	37.1%		36.7%	36.7%	26.3%	62.9%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	6.0
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None		C-Max	C-Max	None	C-Max

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	182	0	1204	0	0	0	0	1452	725	51	929	0
Future Volume (veh/h)	182	0	1204	0	0	0	0	1452	725	51	929	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885				0	1885	1885	1870	1870	0
Adj Flow Rate, veh/h	200	0	0				0	1596	0	56	1021	0
Peak Hour Factor	0.91	0.91	0.91				0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	1	1				0	1	1	2	2	0
Cap, veh/h	275	0					0	3799		321	2926	0
Arrive On Green	0.08	0.00	0.00				0.00	0.74	0.00	0.07	1.00	0.00
Sat Flow, veh/h	3591	0	1598				0	5316	1598	1781	3647	0
Grp Volume(v), veh/h	200	0	0				0	1596	0	56	1021	0
Grp Sat Flow(s),veh/h/ln	1795	0	1598				0	1716	1598	1781	1777	0
Q Serve(g_s), s	6.5	0.0	0.0				0.0	14.1	0.0	0.8	0.0	0.0
Cycle Q Clear(g_c), s	6.5	0.0	0.0				0.0	14.1	0.0	0.8	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	275	0					0	3799		321	2926	0
V/C Ratio(X)	0.73	0.00					0.00	0.42		0.17	0.35	0.00
Avail Cap(c_a), veh/h	1152	0					0	3799		636	2926	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	0.41	0.00	0.77	0.77	0.00
Uniform Delay (d), s/veh	54.2	0.0	0.0				0.0	6.0	0.0	3.9	0.0	0.0
Incr Delay (d2), s/veh	3.7	0.0	0.0				0.0	0.1	0.0	0.2	0.3	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.5	0.0	0.0				0.0	6.4	0.0	0.4	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	57.8	0.0	0.0				0.0	6.1	0.0	4.1	0.3	0.0
LnGrp LOS	E							A		A	A	
Approach Vol, veh/h		200						1596			1077	
Approach Delay, s/veh		57.8						6.1			0.5	
Approach LOS		E						A			A	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	10.2	94.6		15.2		104.8						
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0						
Max Green Setting (Gmax), s	25.5	38.0		38.5		69.5						
Max Q Clear Time (g_c+I1), s	2.8	16.1		8.5		2.0						
Green Ext Time (p_c), s	0.1	11.8		0.7		8.9						

Intersection Summary												
HCM 7th Control Delay, s/veh			7.6									
HCM 7th LOS			A									

Notes

User approved volume balancing among the lanes for turning movement.

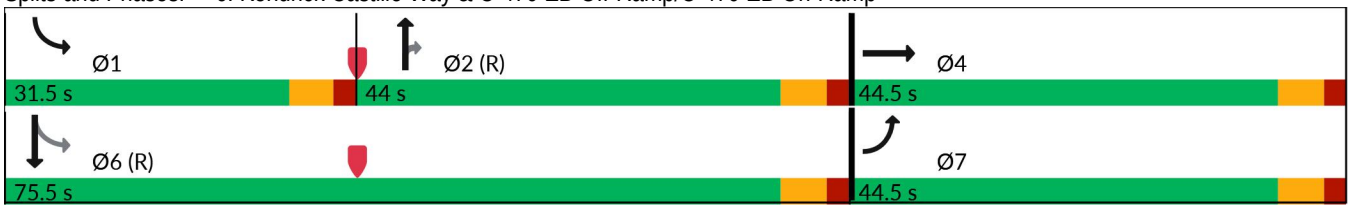
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	89	0	1078	1434	837	134	1117
Future Volume (vph)	89	0	1078	1434	837	134	1117
Turn Type	Prot	NA	Free	NA	Perm	pm+pt	NA
Protected Phases	7	4		2		1	6
Permitted Phases			Free		2	6	
Detector Phase	7	4		2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	24.0		24.0	24.0	11.0	24.0
Total Split (s)	44.5	44.5		44.0	44.0	31.5	75.5
Total Split (%)	37.1%	37.1%		36.7%	36.7%	26.3%	62.9%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	6.0
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None		C-Max	C-Max	None	C-Max

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	0	1078	0	0	0	0	1434	837	134	1117	0
Future Volume (veh/h)	89	0	1078	0	0	0	0	1434	837	134	1117	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900				0	1900	1900	1900	1900	0
Adj Flow Rate, veh/h	97	0	0				0	1559	0	146	1214	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0				0	0	0	0	0	0
Cap, veh/h	158	0					0	3968		358	3091	0
Arrive On Green	0.04	0.00	0.00				0.00	0.76	0.00	0.08	1.00	0.00
Sat Flow, veh/h	3619	0	1610				0	5358	1610	1810	3705	0
Grp Volume(v), veh/h	97	0	0				0	1559	0	146	1214	0
Grp Sat Flow(s),veh/h/ln	1810	0	1610				0	1729	1610	1810	1805	0
Q Serve(g_s), s	3.2	0.0	0.0				0.0	12.1	0.0	2.0	0.0	0.0
Cycle Q Clear(g_c), s	3.2	0.0	0.0				0.0	12.1	0.0	2.0	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	158	0					0	3968		358	3091	0
V/C Ratio(X)	0.61	0.00					0.00	0.39		0.41	0.39	0.00
Avail Cap(c_a), veh/h	1161	0					0	3968		668	3091	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	0.45	0.00	0.59	0.59	0.00
Uniform Delay (d), s/veh	56.4	0.0	0.0				0.0	4.7	0.0	3.3	0.0	0.0
Incr Delay (d2), s/veh	3.8	0.0	0.0				0.0	0.1	0.0	0.4	0.2	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.7	0.0	0.0				0.0	5.4	0.0	0.8	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	60.2	0.0	0.0				0.0	4.9	0.0	3.8	0.2	0.0
LnGrp LOS	E							A		A	A	
Approach Vol, veh/h		97						1559			1360	
Approach Delay, s/veh		60.2						4.9			0.6	
Approach LOS		E						A			A	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	11.0	97.8		11.2		108.8
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0
Max Green Setting (Gmax), s	25.5	38.0		38.5		69.5
Max Q Clear Time (g_c+I1), s	4.0	14.1		5.2		2.0
Green Ext Time (p_c), s	0.3	12.1		0.3		11.7

Intersection Summary	
HCM 7th Control Delay, s/veh	4.7
HCM 7th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

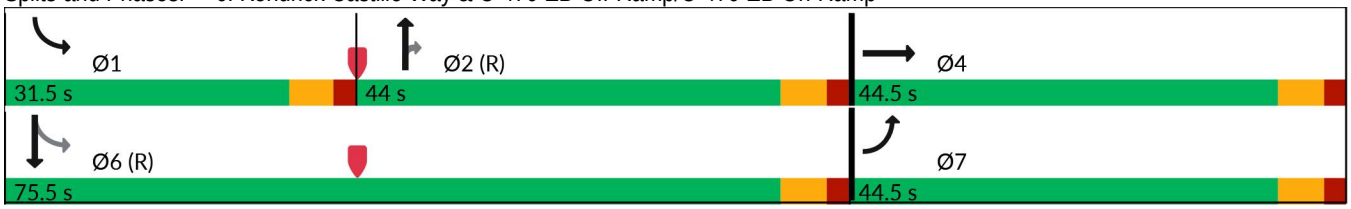
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	182	0	1209	1473	741	51	936
Future Volume (vph)	182	0	1209	1473	741	51	936
Turn Type	Prot	NA	Free	NA	Perm	pm+pt	NA
Protected Phases	7	4		2		1	6
Permitted Phases			Free		2	6	
Detector Phase	7	4		2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	24.0		24.0	24.0	11.0	24.0
Total Split (s)	44.5	44.5		44.0	44.0	31.5	75.5
Total Split (%)	37.1%	37.1%		36.7%	36.7%	26.3%	62.9%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	6.0
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None		C-Max	C-Max	None	C-Max

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	182	0	1209	0	0	0	0	1473	741	51	936	0
Future Volume (veh/h)	182	0	1209	0	0	0	0	1473	741	51	936	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885				0	1885	1885	1870	1870	0
Adj Flow Rate, veh/h	200	0	0				0	1619	0	56	1029	0
Peak Hour Factor	0.91	0.91	0.91				0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	1	1				0	1	1	2	2	0
Cap, veh/h	275	0					0	3799		316	2926	0
Arrive On Green	0.08	0.00	0.00				0.00	0.74	0.00	0.07	1.00	0.00
Sat Flow, veh/h	3591	0	1598				0	5316	1598	1781	3647	0
Grp Volume(v), veh/h	200	0	0				0	1619	0	56	1029	0
Grp Sat Flow(s),veh/h/ln	1795	0	1598				0	1716	1598	1781	1777	0
Q Serve(g_s), s	6.5	0.0	0.0				0.0	14.4	0.0	0.8	0.0	0.0
Cycle Q Clear(g_c), s	6.5	0.0	0.0				0.0	14.4	0.0	0.8	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	275	0					0	3799		316	2926	0
V/C Ratio(X)	0.73	0.00					0.00	0.43		0.18	0.35	0.00
Avail Cap(c_a), veh/h	1152	0					0	3799		631	2926	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	0.33	0.00	0.76	0.76	0.00
Uniform Delay (d), s/veh	54.2	0.0	0.0				0.0	6.0	0.0	3.9	0.0	0.0
Incr Delay (d2), s/veh	3.7	0.0	0.0				0.0	0.1	0.0	0.2	0.3	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.5	0.0	0.0				0.0	6.2	0.0	0.4	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	57.8	0.0	0.0				0.0	6.1	0.0	4.1	0.3	0.0
LnGrp LOS	E							A		A	A	
Approach Vol, veh/h		200						1619			1085	
Approach Delay, s/veh		57.8						6.1			0.5	
Approach LOS		E						A			A	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	10.2	94.6		15.2		104.8
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0
Max Green Setting (Gmax), s	25.5	38.0		38.5		69.5
Max Q Clear Time (g_c+I1), s	2.8	16.4		8.5		2.0
Green Ext Time (p_c), s	0.1	11.9		0.7		9.0

Intersection Summary	
HCM 7th Control Delay, s/veh	7.6
HCM 7th LOS	A

Notes

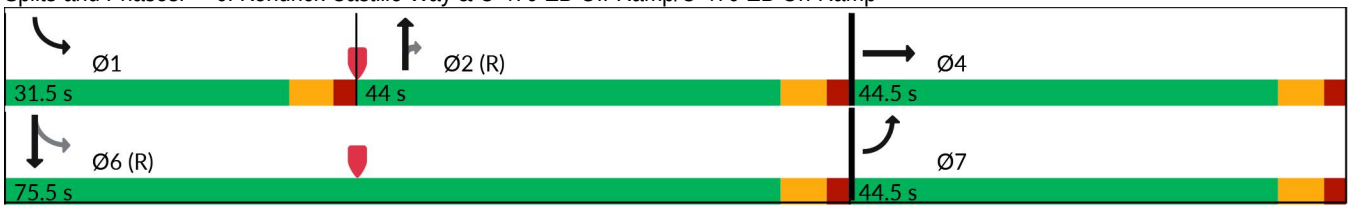
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	89	0	1094	1448	847	134	1138
Future Volume (vph)	89	0	1094	1448	847	134	1138
Turn Type	Prot	NA	Free	NA	Perm	pm+pt	NA
Protected Phases	7	4		2		1	6
Permitted Phases			Free		2	6	
Detector Phase	7	4		2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	24.0		24.0	24.0	11.0	24.0
Total Split (s)	44.5	44.5		44.0	44.0	31.5	75.5
Total Split (%)	37.1%	37.1%		36.7%	36.7%	26.3%	62.9%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	6.0
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None		C-Max	C-Max	None	C-Max

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 6: Kendrick Castillo Way & C-470 EB Off-Ramp/C-470 EB On-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	0	1094	0	0	0	0	1448	847	134	1138	0
Future Volume (veh/h)	89	0	1094	0	0	0	0	1448	847	134	1138	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900				0	1900	1900	1900	1900	0
Adj Flow Rate, veh/h	97	0	0				0	1574	0	146	1237	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0				0	0	0	0	0	0
Cap, veh/h	158	0					0	3968		354	3091	0
Arrive On Green	0.04	0.00	0.00				0.00	0.76	0.00	0.08	1.00	0.00
Sat Flow, veh/h	3619	0	1610				0	5358	1610	1810	3705	0
Grp Volume(v), veh/h	97	0	0				0	1574	0	146	1237	0
Grp Sat Flow(s),veh/h/ln	1810	0	1610				0	1729	1610	1810	1805	0
Q Serve(g_s), s	3.2	0.0	0.0				0.0	12.3	0.0	2.0	0.0	0.0
Cycle Q Clear(g_c), s	3.2	0.0	0.0				0.0	12.3	0.0	2.0	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	158	0					0	3968		354	3091	0
V/C Ratio(X)	0.61	0.00					0.00	0.40		0.41	0.40	0.00
Avail Cap(c_a), veh/h	1161	0					0	3968		664	3091	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	0.43	0.00	0.57	0.57	0.00
Uniform Delay (d), s/veh	56.4	0.0	0.0				0.0	4.8	0.0	3.4	0.0	0.0
Incr Delay (d2), s/veh	3.8	0.0	0.0				0.0	0.1	0.0	0.4	0.2	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.7	0.0	0.0				0.0	5.4	0.0	0.8	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	60.2	0.0	0.0				0.0	4.9	0.0	3.8	0.2	0.0
LnGrp LOS	E							A		A	A	
Approach Vol, veh/h		97						1574			1383	
Approach Delay, s/veh		60.2						4.9			0.6	
Approach LOS		E						A			A	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	11.0	97.8		11.2		108.8
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0
Max Green Setting (Gmax), s	25.5	38.0		38.5		69.5
Max Q Clear Time (g_c+I1), s	4.0	14.3		5.2		2.0
Green Ext Time (p_c), s	0.3	12.2		0.3		12.0

Intersection Summary	
HCM 7th Control Delay, s/veh	4.7
HCM 7th LOS	A

Notes

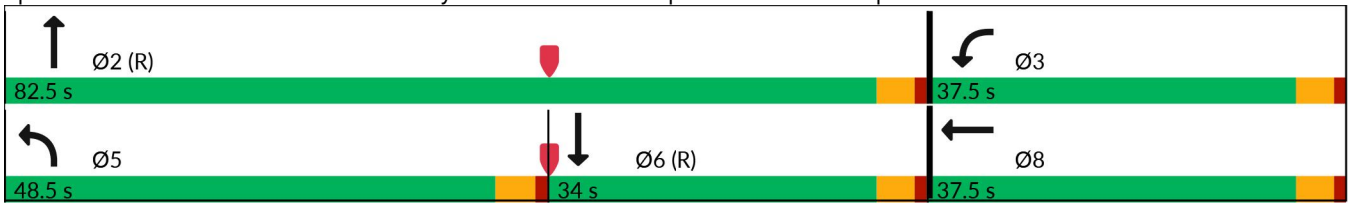
User approved volume balancing among the lanes for turning movement.

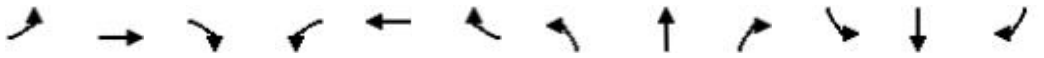
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	599	2	150	733	635	215	33
Future Volume (vph)	599	2	150	733	635	215	33
Turn Type	Prot	NA	Free	Prot	NA	NA	Free
Protected Phases	3	8		5	2	6	
Permitted Phases			Free				Free
Detector Phase	3	8		5	2	6	
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5	22.5	
Total Split (s)	37.5	37.5		48.5	82.5	34.0	
Total Split (%)	31.3%	31.3%		40.4%	68.8%	28.3%	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	
Lead/Lag				Lead		Lag	
Lead-Lag Optimize?				Yes		Yes	
Recall Mode	None	None		None	C-Max	C-Max	
Act Effct Green (s)	33.0	33.0	120.0	32.9	78.0	40.6	120.0
Actuated g/C Ratio	0.28	0.28	1.00	0.27	0.65	0.34	1.00
v/c Ratio	0.68	0.69	0.10	0.81	0.29	0.19	0.02
Control Delay (s/veh)	47.5	47.7	0.1	70.3	2.8	29.8	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	47.5	47.7	0.1	70.3	2.8	29.8	0.0
LOS	D	D	A	E	A	C	A
Approach Delay (s/veh)		38.1			39.0	25.8	
Approach LOS		D			D	C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay (s/veh): 37.3	Intersection LOS: D
Intersection Capacity Utilization 58.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	599	2	150	733	635	0	0	215	33
Future Volume (veh/h)	0	0	0	599	2	150	733	635	0	0	215	33
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Lane Width Adj.				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1885	1885	0	0	1870	1870
Adj Flow Rate, veh/h				632	0	0	772	668	0	0	226	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				2	2	2	1	1	0	0	2	2
Cap, veh/h				725	0		858	2584	0	0	1554	
Arrive On Green				0.20	0.00	0.00	0.41	1.00	0.00	0.00	0.44	0.00
Sat Flow, veh/h				3563	0	1585	3483	3676	0	0	3647	1585
Grp Volume(v), veh/h				632	0	0	772	668	0	0	226	0
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1742	1791	0	0	1777	1585
Q Serve(g_s), s				20.6	0.0	0.0	24.8	0.0	0.0	0.0	4.6	0.0
Cycle Q Clear(g_c), s				20.6	0.0	0.0	24.8	0.0	0.0	0.0	4.6	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				725	0		858	2584	0	0	1554	
V/C Ratio(X)				0.87	0.00		0.90	0.26	0.00	0.00	0.15	
Avail Cap(c_a), veh/h				980	0		1277	2584	0	0	1554	
HCM Platoon Ratio				1.00	1.00	1.00	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.91	0.91	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				46.3	0.0	0.0	33.9	0.0	0.0	0.0	20.3	0.0
Incr Delay (d2), s/veh				6.7	0.0	0.0	5.7	0.2	0.0	0.0	0.2	0.0
Initial Q Delay(d3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				14.8	0.0	0.0	14.1	0.1	0.0	0.0	3.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				52.9	0.0	0.0	39.7	0.2	0.0	0.0	20.5	0.0
LnGrp LOS				D			D	A			C	
Approach Vol, veh/h					632			1440			226	
Approach Delay, s/veh					52.9			21.4			20.5	
Approach LOS					D			C			C	

Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	91.1		34.1	57.0		28.9						
Change Period (Y+Rc), s	4.5		4.5	4.5		4.5						
Max Green Setting (Gmax), s	78.0		44.0	29.5		33.0						
Max Q Clear Time (g_c+I1), s	2.0		26.8	6.6		22.6						
Green Ext Time (p_c), s	4.9		2.7	1.3		1.8						

Intersection Summary	
HCM 7th Control Delay, s/veh	30.0
HCM 7th LOS	C

Notes

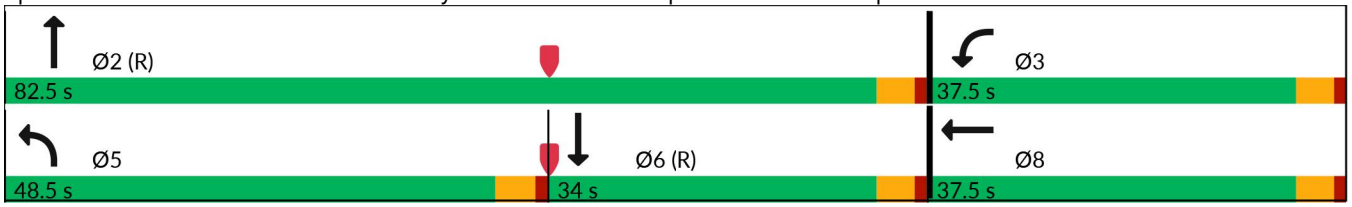
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	565	1	82	798	432	519	120
Future Volume (vph)	565	1	82	798	432	519	120
Turn Type	Prot	NA	Free	Prot	NA	NA	Free
Protected Phases	3	8		5	2	6	
Permitted Phases			Free				Free
Detector Phase	3	8		5	2	6	
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5	22.5	
Total Split (s)	37.5	37.5		48.5	82.5	34.0	
Total Split (%)	31.3%	31.3%		40.4%	68.8%	28.3%	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	
Lead/Lag				Lead		Lag	
Lead-Lag Optimize?				Yes		Yes	
Recall Mode	None	None		None	C-Max	C-Max	
Act Effct Green (s)	33.0	33.0	120.0	35.9	78.0	37.6	120.0
Actuated g/C Ratio	0.28	0.28	1.00	0.30	0.65	0.31	1.00
v/c Ratio	0.65	0.65	0.06	0.83	0.20	0.50	0.08
Control Delay (s/veh)	46.0	46.0	0.1	66.5	6.5	36.5	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	46.0	46.0	0.1	66.5	6.5	36.5	0.1
LOS	D	D	A	E	A	D	A
Approach Delay (s/veh)		40.2			45.4	29.7	
Approach LOS		D			D	C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay (s/veh): 40.1	Intersection LOS: D
Intersection Capacity Utilization 66.5%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	565	1	82	798	432	0	0	519	120
Future Volume (veh/h)	0	0	0	565	1	82	798	432	0	0	519	120
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Lane Width Adj.				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1900	1900	1900	1900	1900	0	0	1900	1900
Adj Flow Rate, veh/h				615	0	0	867	470	0	0	564	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				711	0		952	2630	0	0	1516	
Arrive On Green				0.20	0.00	0.00	0.45	1.00	0.00	0.00	0.42	0.00
Sat Flow, veh/h				3619	0	1610	3510	3705	0	0	3705	1610
Grp Volume(v), veh/h				615	0	0	867	470	0	0	564	0
Grp Sat Flow(s),veh/h/ln				1810	0	1610	1755	1805	0	0	1805	1610
Q Serve(g_s), s				19.7	0.0	0.0	27.6	0.0	0.0	0.0	12.9	0.0
Cycle Q Clear(g_c), s				19.7	0.0	0.0	27.6	0.0	0.0	0.0	12.9	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				711	0		952	2630	0	0	1516	
V/C Ratio(X)				0.87	0.00		0.91	0.18	0.00	0.00	0.37	
Avail Cap(c_a), veh/h				995	0		1287	2630	0	0	1516	
HCM Platoon Ratio				1.00	1.00	1.00	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.92	0.92	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				46.7	0.0	0.0	31.5	0.0	0.0	0.0	23.9	0.0
Incr Delay (d2), s/veh				5.9	0.0	0.0	7.3	0.1	0.0	0.0	0.7	0.0
Initial Q Delay(d3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				14.4	0.0	0.0	15.3	0.1	0.0	0.0	9.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				52.6	0.0	0.0	38.8	0.1	0.0	0.0	24.6	0.0
LnGrp LOS				D			D	A			C	
Approach Vol, veh/h					615			1337			564	
Approach Delay, s/veh					52.6			25.2			24.6	
Approach LOS					D			C			C	

Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	91.9		37.1	54.9		28.1						
Change Period (Y+Rc), s	4.5		4.5	4.5		4.5						
Max Green Setting (Gmax), s	78.0		44.0	29.5		33.0						
Max Q Clear Time (g_c+I1), s	2.0		29.6	14.9		21.7						
Green Ext Time (p_c), s	3.2		3.0	3.0		1.8						

Intersection Summary		
HCM 7th Control Delay, s/veh	31.8	
HCM 7th LOS	C	

Notes

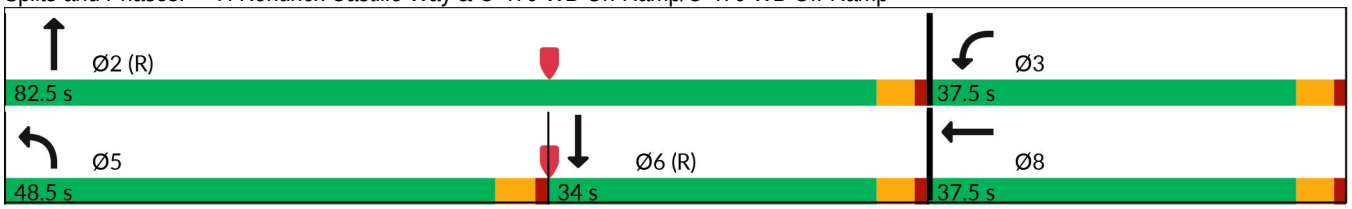
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	620	2	155	755	654	224	34
Future Volume (vph)	620	2	155	755	654	224	34
Turn Type	Prot	NA	Free	Prot	NA	NA	Free
Protected Phases	3	8		5	2	6	
Permitted Phases			Free				Free
Detector Phase	3	8		5	2	6	
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5	22.5	
Total Split (s)	37.5	37.5		48.5	82.5	34.0	
Total Split (%)	31.3%	31.3%		40.4%	68.8%	28.3%	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	
Lead/Lag				Lead		Lag	
Lead-Lag Optimize?				Yes		Yes	
Recall Mode	None	None		None	C-Max	C-Max	
Act Effct Green (s)	33.0	33.0	120.0	33.6	78.0	39.9	120.0
Actuated g/C Ratio	0.28	0.28	1.00	0.28	0.65	0.33	1.00
v/c Ratio	0.71	0.71	0.10	0.82	0.30	0.20	0.02
Control Delay (s/veh)	48.7	48.9	0.1	70.5	3.0	30.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	48.7	48.9	0.1	70.5	3.0	30.5	0.0
LOS	D	D	A	E	A	C	A
Approach Delay (s/veh)		39.1			39.2	26.5	
Approach LOS		D			D	C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay (s/veh): 37.8	Intersection LOS: D
Intersection Capacity Utilization 60.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	620	2	155	755	654	0	0	224	34
Future Volume (veh/h)	0	0	0	620	2	155	755	654	0	0	224	34
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Lane Width Adj.				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1885	1885	0	0	1870	1870
Adj Flow Rate, veh/h				654	0	0	795	688	0	0	236	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				2	2	2	1	1	0	0	2	2
Cap, veh/h				747	0		881	2562	0	0	1510	
Arrive On Green				0.21	0.00	0.00	0.42	1.00	0.00	0.00	0.42	0.00
Sat Flow, veh/h				3563	0	1585	3483	3676	0	0	3647	1585
Grp Volume(v), veh/h				654	0	0	795	688	0	0	236	0
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1742	1791	0	0	1777	1585
Q Serve(g_s), s				21.3	0.0	0.0	25.6	0.0	0.0	0.0	4.9	0.0
Cycle Q Clear(g_c), s				21.3	0.0	0.0	25.6	0.0	0.0	0.0	4.9	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				747	0		881	2562	0	0	1510	
V/C Ratio(X)				0.88	0.00		0.90	0.27	0.00	0.00	0.16	
Avail Cap(c_a), veh/h				980	0		1277	2562	0	0	1510	
HCM Platoon Ratio				1.00	1.00	1.00	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.90	0.90	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				45.9	0.0	0.0	33.3	0.0	0.0	0.0	21.3	0.0
Incr Delay (d2), s/veh				7.2	0.0	0.0	6.1	0.2	0.0	0.0	0.2	0.0
Initial Q Delay(d3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				15.3	0.0	0.0	14.3	0.1	0.0	0.0	3.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				53.1	0.0	0.0	39.4	0.2	0.0	0.0	21.5	0.0
LnGrp LOS				D			D	A			C	
Approach Vol, veh/h					654			1483			236	
Approach Delay, s/veh					53.1			21.2			21.5	
Approach LOS					D			C			C	

Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	90.3		34.9	55.5		29.7						
Change Period (Y+Rc), s	4.5		4.5	4.5		4.5						
Max Green Setting (Gmax), s	78.0		44.0	29.5		33.0						
Max Q Clear Time (g_c+I1), s	2.0		27.6	6.9		23.3						
Green Ext Time (p_c), s	5.1		2.8	1.3		1.8						

Intersection Summary	
HCM 7th Control Delay, s/veh	30.0
HCM 7th LOS	C

Notes

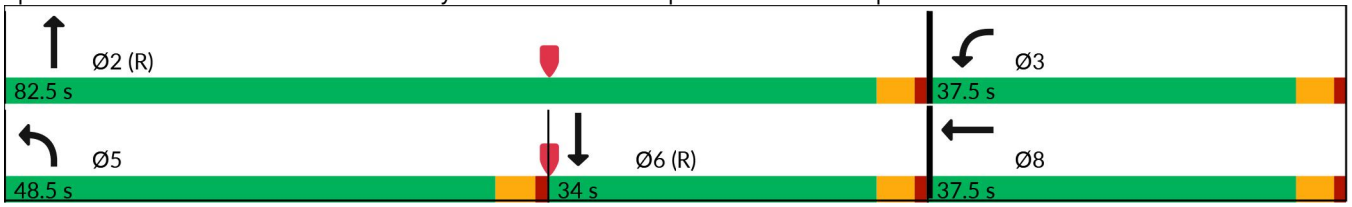
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	590	1	84	822	445	539	124
Future Volume (vph)	590	1	84	822	445	539	124
Turn Type	Prot	NA	Free	Prot	NA	NA	Free
Protected Phases	3	8		5	2	6	
Permitted Phases			Free				Free
Detector Phase	3	8		5	2	6	
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5	22.5	
Total Split (s)	37.5	37.5		48.5	82.5	34.0	
Total Split (%)	31.3%	31.3%		40.4%	68.8%	28.3%	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	
Lead/Lag				Lead		Lag	
Lead-Lag Optimize?				Yes		Yes	
Recall Mode	None	None		None	C-Max	C-Max	
Act Effct Green (s)	33.0	33.0	120.0	36.8	78.0	36.7	120.0
Actuated g/C Ratio	0.28	0.28	1.00	0.31	0.65	0.31	1.00
v/c Ratio	0.68	0.68	0.06	0.83	0.21	0.53	0.08
Control Delay (s/veh)	47.2	47.3	0.1	71.9	6.5	37.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	47.2	47.3	0.1	71.9	6.5	37.7	0.1
LOS	D	D	A	E	A	D	A
Approach Delay (s/veh)		41.4			48.9	30.7	
Approach LOS		D			D	C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay (s/veh): 42.3	Intersection LOS: D
Intersection Capacity Utilization 68.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	590	1	84	822	445	0	0	539	124
Future Volume (veh/h)	0	0	0	590	1	84	822	445	0	0	539	124
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Lane Width Adj.				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1900	1900	1900	1900	1900	0	0	1900	1900
Adj Flow Rate, veh/h				642	0	0	893	484	0	0	586	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				738	0		977	2603	0	0	1463	
Arrive On Green				0.20	0.00	0.00	0.46	1.00	0.00	0.00	0.41	0.00
Sat Flow, veh/h				3619	0	1610	3510	3705	0	0	3705	1610
Grp Volume(v), veh/h				642	0	0	893	484	0	0	586	0
Grp Sat Flow(s),veh/h/ln				1810	0	1610	1755	1805	0	0	1805	1610
Q Serve(g_s), s				20.6	0.0	0.0	28.4	0.0	0.0	0.0	13.8	0.0
Cycle Q Clear(g_c), s				20.6	0.0	0.0	28.4	0.0	0.0	0.0	13.8	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				738	0		977	2603	0	0	1463	
V/C Ratio(X)				0.87	0.00		0.91	0.19	0.00	0.00	0.40	
Avail Cap(c_a), veh/h				995	0		1287	2603	0	0	1463	
HCM Platoon Ratio				1.00	1.00	1.00	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.88	0.88	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				46.2	0.0	0.0	30.8	0.0	0.0	0.0	25.3	0.0
Incr Delay (d2), s/veh				6.5	0.0	0.0	7.5	0.1	0.0	0.0	0.8	0.0
Initial Q Delay(d3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				15.0	0.0	0.0	15.5	0.1	0.0	0.0	9.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				52.8	0.0	0.0	38.3	0.1	0.0	0.0	26.1	0.0
LnGrp LOS				D			D	A			C	
Approach Vol, veh/h					642			1377			586	
Approach Delay, s/veh					52.8			24.9			26.1	
Approach LOS					D			C			C	

Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	91.0		37.9	53.1		29.0						
Change Period (Y+Rc), s	4.5		4.5	4.5		4.5						
Max Green Setting (Gmax), s	78.0		44.0	29.5		33.0						
Max Q Clear Time (g_c+I1), s	2.0		30.4	15.8		22.6						
Green Ext Time (p_c), s	3.4		3.0	3.1		1.9						

Intersection Summary	
HCM 7th Control Delay, s/veh	32.0
HCM 7th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

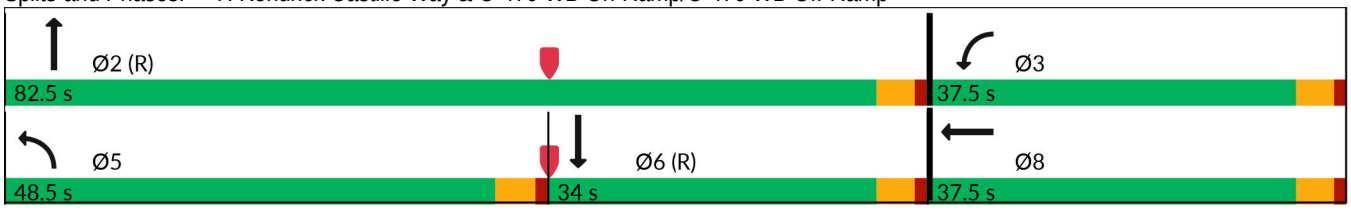
Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	625	2	155	771	659	226	34
Future Volume (vph)	625	2	155	771	659	226	34
Turn Type	Prot	NA	Free	Prot	NA	NA	Free
Protected Phases	3	8		5	2	6	
Permitted Phases			Free				Free
Detector Phase	3	8		5	2	6	
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5	22.5	
Total Split (s)	37.5	37.5		48.5	82.5	34.0	
Total Split (%)	31.3%	31.3%		40.4%	68.8%	28.3%	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	
Lead/Lag				Lead		Lag	
Lead-Lag Optimize?				Yes		Yes	
Recall Mode	None	None		None	C-Max	C-Max	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated

Splits and Phases: 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	625	2	155	771	659	0	0	226	34
Future Volume (veh/h)	0	0	0	625	2	155	771	659	0	0	226	34
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Lane Width Adj.				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1885	1885	0	0	1870	1870
Adj Flow Rate, veh/h				659	0	0	812	694	0	0	238	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				2	2	2	1	1	0	0	2	2
Cap, veh/h				752	0		898	2557	0	0	1488	
Arrive On Green				0.21	0.00	0.00	0.43	1.00	0.00	0.00	0.42	0.00
Sat Flow, veh/h				3563	0	1585	3483	3676	0	0	3647	1585
Grp Volume(v), veh/h				659	0	0	812	694	0	0	238	0
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1742	1791	0	0	1777	1585
Q Serve(g_s), s				21.5	0.0	0.0	26.1	0.0	0.0	0.0	5.0	0.0
Cycle Q Clear(g_c), s				21.5	0.0	0.0	26.1	0.0	0.0	0.0	5.0	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				752	0		898	2557	0	0	1488	
V/C Ratio(X)				0.88	0.00		0.90	0.27	0.00	0.00	0.16	
Avail Cap(c_a), veh/h				980	0		1277	2557	0	0	1488	
HCM Platoon Ratio				1.00	1.00	1.00	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.89	0.89	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				45.8	0.0	0.0	32.8	0.0	0.0	0.0	21.7	0.0
Incr Delay (d2), s/veh				7.3	0.0	0.0	6.3	0.2	0.0	0.0	0.2	0.0
Initial Q Delay(d3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				15.4	0.0	0.0	14.5	0.1	0.0	0.0	3.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				53.1	0.0	0.0	39.1	0.2	0.0	0.0	22.0	0.0
LnGrp LOS				D			D	A			C	
Approach Vol, veh/h					659			1506			238	
Approach Delay, s/veh					53.1			21.2			22.0	
Approach LOS					D			C			C	

Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	90.2		35.4	54.7		29.8						
Change Period (Y+Rc), s	4.5		4.5	4.5		4.5						
Max Green Setting (Gmax), s	78.0		44.0	29.5		33.0						
Max Q Clear Time (g_c+I1), s	2.0		28.1	7.0		23.5						
Green Ext Time (p_c), s	5.2		2.8	1.3		1.8						

Intersection Summary	
HCM 7th Control Delay, s/veh	30.0
HCM 7th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

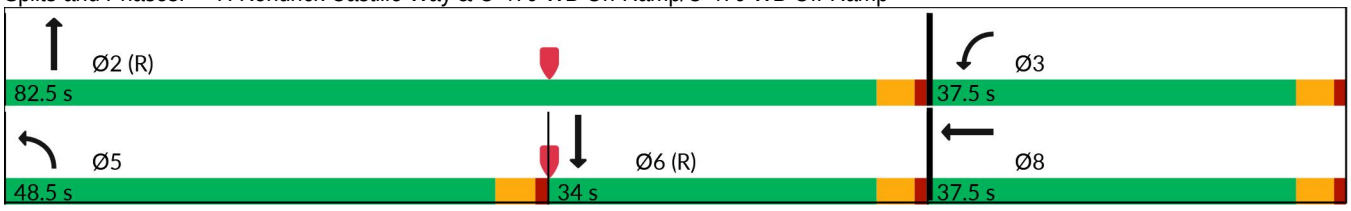
Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

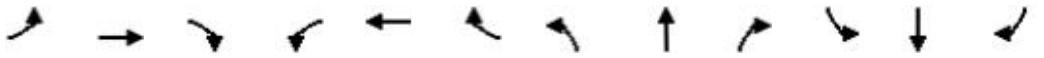
Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	606	1	84	832	448	544	124
Future Volume (vph)	606	1	84	832	448	544	124
Turn Type	Prot	NA	Free	Prot	NA	NA	Free
Protected Phases	3	8		5	2	6	
Permitted Phases			Free				Free
Detector Phase	3	8		5	2	6	
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5	22.5	
Total Split (s)	37.5	37.5		48.5	82.5	34.0	
Total Split (%)	31.3%	31.3%		40.4%	68.8%	28.3%	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	
Lead/Lag				Lead		Lag	
Lead-Lag Optimize?				Yes		Yes	
Recall Mode	None	None		None	C-Max	C-Max	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	606	1	84	832	448	0	0	544	124
Future Volume (veh/h)	0	0	0	606	1	84	832	448	0	0	544	124
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Lane Width Adj.				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1900	1900	1900	1900	1900	0	0	1900	1900
Adj Flow Rate, veh/h				660	0	0	904	487	0	0	591	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				755	0		988	2586	0	0	1435	
Arrive On Green				0.21	0.00	0.00	0.47	1.00	0.00	0.00	0.40	0.00
Sat Flow, veh/h				3619	0	1610	3510	3705	0	0	3705	1610
Grp Volume(v), veh/h				660	0	0	904	487	0	0	591	0
Grp Sat Flow(s),veh/h/ln				1810	0	1610	1755	1805	0	0	1805	1610
Q Serve(g_s), s				21.2	0.0	0.0	28.7	0.0	0.0	0.0	14.2	0.0
Cycle Q Clear(g_c), s				21.2	0.0	0.0	28.7	0.0	0.0	0.0	14.2	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				755	0		988	2586	0	0	1435	
V/C Ratio(X)				0.87	0.00		0.92	0.19	0.00	0.00	0.41	
Avail Cap(c_a), veh/h				995	0		1287	2586	0	0	1435	
HCM Platoon Ratio				1.00	1.00	1.00	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.88	0.88	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				46.0	0.0	0.0	30.5	0.0	0.0	0.0	26.0	0.0
Incr Delay (d2), s/veh				6.9	0.0	0.0	7.7	0.1	0.0	0.0	0.9	0.0
Initial Q Delay(d3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				15.3	0.0	0.0	15.7	0.1	0.0	0.0	10.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				52.9	0.0	0.0	38.2	0.1	0.0	0.0	26.9	0.0
LnGrp LOS				D			D	A			C	
Approach Vol, veh/h					660			1391			591	
Approach Delay, s/veh					52.9			24.9			26.9	
Approach LOS					D			C			C	

Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	90.5		38.3	52.2		29.5						
Change Period (Y+Rc), s	4.5		4.5	4.5		4.5						
Max Green Setting (Gmax), s	78.0		44.0	29.5		33.0						
Max Q Clear Time (g_c+I1), s	2.0		30.7	16.2		23.2						
Green Ext Time (p_c), s	3.4		3.0	3.1		1.9						

Intersection Summary	
HCM 7th Control Delay, s/veh	32.3
HCM 7th LOS	C

Notes

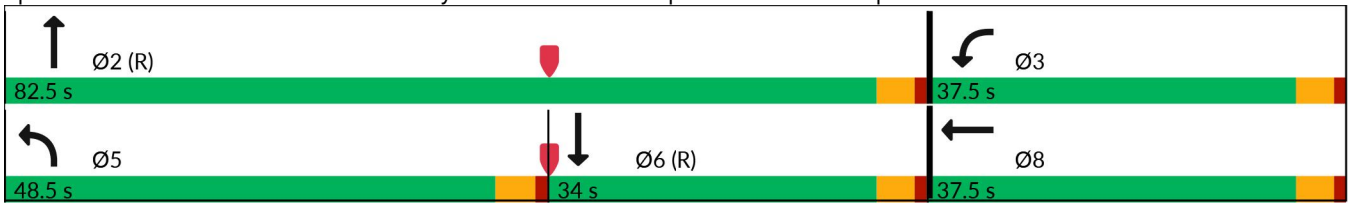
User approved volume balancing among the lanes for turning movement.

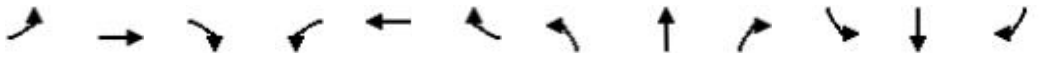
Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	734	2	183	894	775	264	40
Future Volume (vph)	734	2	183	894	775	264	40
Turn Type	Prot	NA	Free	Prot	NA	NA	Free
Protected Phases	3	8		5	2	6	
Permitted Phases			Free				Free
Detector Phase	3	8		5	2	6	
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5	22.5	
Total Split (s)	37.5	37.5		48.5	82.5	34.0	
Total Split (%)	31.3%	31.3%		40.4%	68.8%	28.3%	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	
Lead/Lag				Lead		Lag	
Lead-Lag Optimize?				Yes		Yes	
Recall Mode	None	None		None	C-Max	C-Max	
Act Effct Green (s)	33.0	33.0	120.0	38.2	78.0	35.3	120.0
Actuated g/C Ratio	0.28	0.28	1.00	0.32	0.65	0.29	1.00
v/c Ratio	0.84	0.84	0.12	0.85	0.35	0.27	0.03
Control Delay (s/veh)	58.0	58.4	0.2	76.2	5.3	34.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	58.0	58.4	0.2	76.2	5.3	34.5	0.0
LOS	E	E	A	E	A	C	A
Approach Delay (s/veh)		46.6			43.3	29.9	
Approach LOS		D			D	C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay (s/veh): 43.0	Intersection LOS: D
Intersection Capacity Utilization 67.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	734	2	183	894	775	0	0	264	40
Future Volume (veh/h)	0	0	0	734	2	183	894	775	0	0	264	40
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Lane Width Adj.				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1885	1885	0	0	1870	1870
Adj Flow Rate, veh/h				774	0	0	941	816	0	0	278	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				2	2	2	1	1	0	0	2	2
Cap, veh/h				858	0		1021	2450	0	0	1256	
Arrive On Green				0.24	0.00	0.00	0.49	1.00	0.00	0.00	0.35	0.00
Sat Flow, veh/h				3563	0	1585	3483	3676	0	0	3647	1585
Grp Volume(v), veh/h				774	0	0	941	816	0	0	278	0
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1742	1791	0	0	1777	1585
Q Serve(g_s), s				25.3	0.0	0.0	30.2	0.0	0.0	0.0	6.6	0.0
Cycle Q Clear(g_c), s				25.3	0.0	0.0	30.2	0.0	0.0	0.0	6.6	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				858	0		1021	2450	0	0	1256	
V/C Ratio(X)				0.90	0.00		0.92	0.33	0.00	0.00	0.22	
Avail Cap(c_a), veh/h				980	0		1277	2450	0	0	1256	
HCM Platoon Ratio				1.00	1.00	1.00	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.76	0.76	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				44.2	0.0	0.0	29.3	0.0	0.0	0.0	27.2	0.0
Incr Delay (d2), s/veh				10.4	0.0	0.0	7.6	0.3	0.0	0.0	0.4	0.0
Initial Q Delay(d3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				17.9	0.0	0.0	15.6	0.2	0.0	0.0	5.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				54.6	0.0	0.0	37.0	0.3	0.0	0.0	27.6	0.0
LnGrp LOS				D			D	A			C	
Approach Vol, veh/h					774			1757			278	
Approach Delay, s/veh					54.6			19.9			27.6	
Approach LOS					D			B			C	

Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	86.6		39.7	46.9		33.4						
Change Period (Y+Rc), s	4.5		4.5	4.5		4.5						
Max Green Setting (Gmax), s	78.0		44.0	29.5		33.0						
Max Q Clear Time (g_c+I1), s	2.0		32.2	8.6		27.3						
Green Ext Time (p_c), s	6.4		3.0	1.6		1.6						

Intersection Summary	
HCM 7th Control Delay, s/veh	30.2
HCM 7th LOS	C

Notes

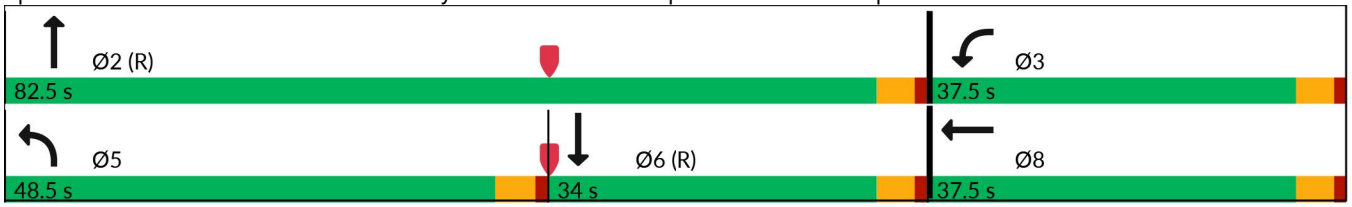
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	697	1	100	974	527	637	146
Future Volume (vph)	697	1	100	974	527	637	146
Turn Type	Prot	NA	Free	Prot	NA	NA	Free
Protected Phases	3	8		5	2	6	
Permitted Phases			Free				Free
Detector Phase	3	8		5	2	6	
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5	22.5	
Total Split (s)	37.5	37.5		48.5	82.5	34.0	
Total Split (%)	31.3%	31.3%		40.4%	68.8%	28.3%	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	
Lead/Lag				Lead		Lag	
Lead-Lag Optimize?				Yes		Yes	
Recall Mode	None	None		None	C-Max	C-Max	
Act Effct Green (s)	33.0	33.0	120.0	40.9	78.0	32.6	120.0
Actuated g/C Ratio	0.28	0.28	1.00	0.34	0.65	0.27	1.00
v/c Ratio	0.80	0.80	0.07	0.89	0.24	0.71	0.10
Control Delay (s/veh)	54.9	54.8	0.1	73.0	8.5	44.8	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	54.9	54.8	0.1	73.0	8.5	44.8	0.1
LOS	D	D	A	E	A	D	A
Approach Delay (s/veh)		48.0			50.4	36.4	
Approach LOS		D			D	D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay (s/veh): 46.2	Intersection LOS: D
Intersection Capacity Utilization 77.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	697	1	100	974	527	0	0	637	146
Future Volume (veh/h)	0	0	0	697	1	100	974	527	0	0	637	146
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Lane Width Adj.				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1900	1900	1900	1900	1900	0	0	1900	1900
Adj Flow Rate, veh/h				759	0	0	1059	573	0	0	692	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				848	0		1130	2493	0	0	1196	
Arrive On Green				0.23	0.00	0.00	0.54	1.00	0.00	0.00	0.33	0.00
Sat Flow, veh/h				3619	0	1610	3510	3705	0	0	3705	1610
Grp Volume(v), veh/h				759	0	0	1059	573	0	0	692	0
Grp Sat Flow(s),veh/h/ln				1810	0	1610	1755	1805	0	0	1805	1610
Q Serve(g_s), s				24.4	0.0	0.0	33.7	0.0	0.0	0.0	19.0	0.0
Cycle Q Clear(g_c), s				24.4	0.0	0.0	33.7	0.0	0.0	0.0	19.0	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				848	0		1130	2493	0	0	1196	
V/C Ratio(X)				0.89	0.00		0.94	0.23	0.00	0.00	0.58	
Avail Cap(c_a), veh/h				995	0		1287	2493	0	0	1196	
HCM Platoon Ratio				1.00	1.00	1.00	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.80	0.80	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				44.5	0.0	0.0	26.6	0.0	0.0	0.0	33.2	0.0
Incr Delay (d2), s/veh				9.4	0.0	0.0	10.1	0.2	0.0	0.0	2.0	0.0
Initial Q Delay(d3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				17.5	0.0	0.0	17.2	0.1	0.0	0.0	13.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				53.9	0.0	0.0	36.8	0.2	0.0	0.0	35.2	0.0
LnGrp LOS				D			D	A			D	
Approach Vol, veh/h					759			1632			692	
Approach Delay, s/veh					53.9			23.9			35.2	
Approach LOS					D			C			D	

Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	87.4		43.1	44.3		32.6						
Change Period (Y+Rc), s	4.5		4.5	4.5		4.5						
Max Green Setting (Gmax), s	78.0		44.0	29.5		33.0						
Max Q Clear Time (g_c+I1), s	2.0		35.7	21.0		26.4						
Green Ext Time (p_c), s	4.1		2.9	2.8		1.8						

Intersection Summary	
HCM 7th Control Delay, s/veh	33.8
HCM 7th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

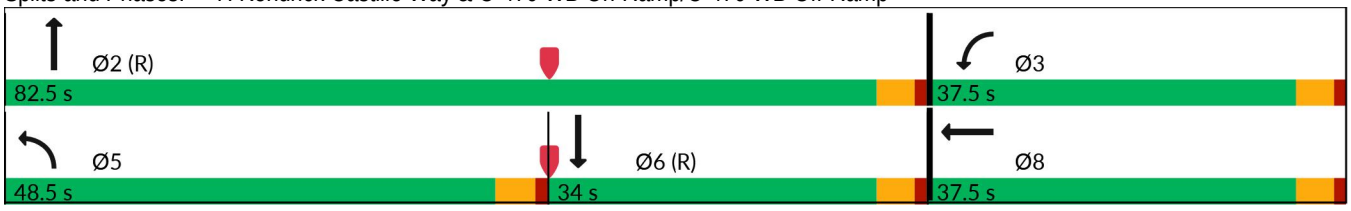
Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	739	2	183	910	780	266	40
Future Volume (vph)	739	2	183	910	780	266	40
Turn Type	Prot	NA	Free	Prot	NA	NA	Free
Protected Phases	3	8		5	2	6	
Permitted Phases			Free				Free
Detector Phase	3	8		5	2	6	
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5	22.5	
Total Split (s)	37.5	37.5		48.5	82.5	34.0	
Total Split (%)	31.3%	31.3%		40.4%	68.8%	28.3%	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	
Lead/Lag				Lead		Lag	
Lead-Lag Optimize?				Yes		Yes	
Recall Mode	None	None		None	C-Max	C-Max	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	739	2	183	910	780	0	0	266	40
Future Volume (veh/h)	0	0	0	739	2	183	910	780	0	0	266	40
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Lane Width Adj.				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1885	1885	0	0	1870	1870
Adj Flow Rate, veh/h				779	0	0	958	821	0	0	280	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				2	2	2	1	1	0	0	2	2
Cap, veh/h				863	0		1037	2446	0	0	1235	
Arrive On Green				0.24	0.00	0.00	0.50	1.00	0.00	0.00	0.35	0.00
Sat Flow, veh/h				3563	0	1585	3483	3676	0	0	3647	1585
Grp Volume(v), veh/h				779	0	0	958	821	0	0	280	0
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1742	1791	0	0	1777	1585
Q Serve(g_s), s				25.4	0.0	0.0	30.7	0.0	0.0	0.0	6.7	0.0
Cycle Q Clear(g_c), s				25.4	0.0	0.0	30.7	0.0	0.0	0.0	6.7	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				863	0		1037	2446	0	0	1235	
V/C Ratio(X)				0.90	0.00		0.92	0.34	0.00	0.00	0.23	
Avail Cap(c_a), veh/h				980	0		1277	2446	0	0	1235	
HCM Platoon Ratio				1.00	1.00	1.00	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.75	0.75	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				44.1	0.0	0.0	28.9	0.0	0.0	0.0	27.7	0.0
Incr Delay (d2), s/veh				10.6	0.0	0.0	7.8	0.3	0.0	0.0	0.4	0.0
Initial Q Delay(d3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				18.1	0.0	0.0	15.8	0.2	0.0	0.0	5.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				54.7	0.0	0.0	36.7	0.3	0.0	0.0	28.1	0.0
LnGrp LOS				D			D	A			C	
Approach Vol, veh/h					779			1779			280	
Approach Delay, s/veh					54.7			19.9			28.1	
Approach LOS					D			B			C	

Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	86.4		40.2	46.2		33.6						
Change Period (Y+Rc), s	4.5		4.5	4.5		4.5						
Max Green Setting (Gmax), s	78.0		44.0	29.5		33.0						
Max Q Clear Time (g_c+I1), s	2.0		32.7	8.7		27.4						
Green Ext Time (p_c), s	6.5		3.0	1.6		1.6						

Intersection Summary	
HCM 7th Control Delay, s/veh	30.3
HCM 7th LOS	C

Notes

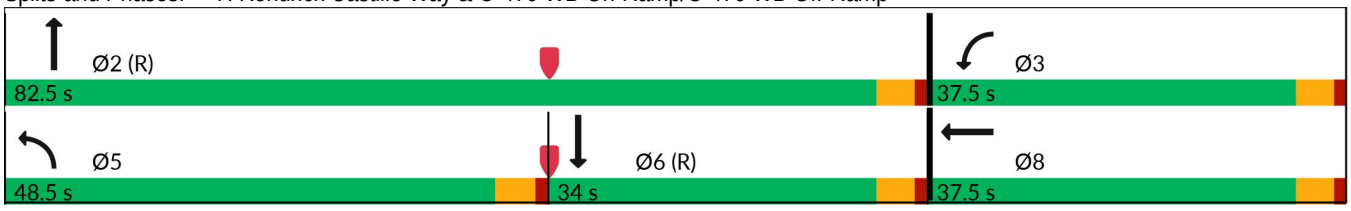
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	713	1	100	984	530	642	146
Future Volume (vph)	713	1	100	984	530	642	146
Turn Type	Prot	NA	Free	Prot	NA	NA	Free
Protected Phases	3	8		5	2	6	
Permitted Phases			Free				Free
Detector Phase	3	8		5	2	6	
Switch Phase							
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5	22.5	
Total Split (s)	37.5	37.5		48.5	82.5	34.0	
Total Split (%)	31.3%	31.3%		40.4%	68.8%	28.3%	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	
Lead/Lag				Lead		Lag	
Lead-Lag Optimize?				Yes		Yes	
Recall Mode	None	None		None	C-Max	C-Max	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 7: Kendrick Castillo Way & C-470 WB On-Ramp/C-470 WB Off-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	713	1	100	984	530	0	0	642	146
Future Volume (veh/h)	0	0	0	713	1	100	984	530	0	0	642	146
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Lane Width Adj.				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1900	1900	1900	1900	1900	0	0	1900	1900
Adj Flow Rate, veh/h				776	0	0	1070	576	0	0	698	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				864	0		1139	2478	0	0	1171	
Arrive On Green				0.24	0.00	0.00	0.54	1.00	0.00	0.00	0.32	0.00
Sat Flow, veh/h				3619	0	1610	3510	3705	0	0	3705	1610
Grp Volume(v), veh/h				776	0	0	1070	576	0	0	698	0
Grp Sat Flow(s),veh/h/ln				1810	0	1610	1755	1805	0	0	1805	1610
Q Serve(g_s), s				24.9	0.0	0.0	34.1	0.0	0.0	0.0	19.4	0.0
Cycle Q Clear(g_c), s				24.9	0.0	0.0	34.1	0.0	0.0	0.0	19.4	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				864	0		1139	2478	0	0	1171	
V/C Ratio(X)				0.90	0.00		0.94	0.23	0.00	0.00	0.60	
Avail Cap(c_a), veh/h				995	0		1287	2478	0	0	1171	
HCM Platoon Ratio				1.00	1.00	1.00	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.80	0.80	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				44.3	0.0	0.0	26.4	0.0	0.0	0.0	34.0	0.0
Incr Delay (d2), s/veh				9.9	0.0	0.0	10.4	0.2	0.0	0.0	2.2	0.0
Initial Q Delay(d3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				17.9	0.0	0.0	17.3	0.1	0.0	0.0	13.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				54.2	0.0	0.0	36.8	0.2	0.0	0.0	36.2	0.0
LnGrp LOS				D			D	A			D	
Approach Vol, veh/h					776			1646			698	
Approach Delay, s/veh					54.2			24.0			36.2	
Approach LOS					D			C			D	

Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	86.9		43.4	43.4		33.1						
Change Period (Y+Rc), s	4.5		4.5	4.5		4.5						
Max Green Setting (Gmax), s	78.0		44.0	29.5		33.0						
Max Q Clear Time (g_c+I1), s	2.0		36.1	21.4		26.9						
Green Ext Time (p_c), s	4.1		2.8	2.7		1.7						

Intersection Summary	
HCM 7th Control Delay, s/veh	34.2
HCM 7th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	0	14	65	0	4	4	21	12	0	40	1
Future Vol, veh/h	2	0	14	65	0	4	4	21	12	0	40	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	0	15	71	0	4	4	23	13	0	43	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	76	89	44	82	83	29	45	0	0	36	0	0
Stage 1	44	44	-	38	38	-	-	-	-	-	-	-
Stage 2	32	45	-	43	45	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	914	802	1026	906	808	1045	1564	-	-	1575	-	-
Stage 1	970	858	-	977	863	-	-	-	-	-	-	-
Stage 2	985	858	-	971	858	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	908	799	1026	890	805	1045	1564	-	-	1575	-	-
Mov Cap-2 Maneuver	908	799	-	890	805	-	-	-	-	-	-	-
Stage 1	970	858	-	974	861	-	-	-	-	-	-	-
Stage 2	978	855	-	956	858	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	8.63	9.37	0.79	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1564	-	-	1010	898	1575	-	-
HCM Lane V/C Ratio	0.003	-	-	0.017	0.084	-	-	-
HCM Ctrl Dly (s/v)	7.3	-	-	8.6	9.4	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.3	0	-	-

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	9	41	0	3	14	9	36	1	6	2
Future Vol, veh/h	1	0	9	41	0	3	14	9	36	1	6	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	10	45	0	3	15	10	39	1	7	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	50	89	8	68	71	29	9	0	0	49	0	0
Stage 1	10	10	-	60	60	-	-	-	-	-	-	-
Stage 2	40	79	-	9	11	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	950	801	1075	924	820	1045	1611	-	-	1558	-	-
Stage 1	1011	887	-	952	845	-	-	-	-	-	-	-
Stage 2	975	829	-	1013	887	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	937	793	1075	906	812	1045	1611	-	-	1558	-	-
Mov Cap-2 Maneuver	937	793	-	906	812	-	-	-	-	-	-	-
Stage 1	1011	887	-	943	837	-	-	-	-	-	-	-
Stage 2	962	821	-	1003	886	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	8.43	9.15	1.72	0.81
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1611	-	-	1059	915	1558	-	-
HCM Lane V/C Ratio	0.009	-	-	0.01	0.052	0.001	-	-
HCM Ctrl Dly (s/v)	7.3	-	-	8.4	9.2	7.3	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0	-	-

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	0	14	65	0	4	4	23	12	0	48	1
Future Vol, veh/h	2	0	14	65	0	4	4	23	12	0	48	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	0	15	71	0	4	4	25	13	0	52	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	86	99	53	92	93	32	53	0	0	38	0	0
Stage 1	53	53	-	40	40	-	-	-	-	-	-	-
Stage 2	34	47	-	52	53	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	899	791	1015	891	797	1042	1552	-	-	1572	-	-
Stage 1	960	851	-	975	861	-	-	-	-	-	-	-
Stage 2	982	856	-	961	850	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	893	788	1015	876	794	1042	1552	-	-	1572	-	-
Mov Cap-2 Maneuver	893	788	-	876	794	-	-	-	-	-	-	-
Stage 1	960	851	-	972	859	-	-	-	-	-	-	-
Stage 2	975	854	-	946	850	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	8.67	9.45	0.75	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1552	-	-	998	884	1572	-	-
HCM Lane V/C Ratio	0.003	-	-	0.017	0.085	-	-	-
HCM Ctrl Dly (s/v)	7.3	-	-	8.7	9.5	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.3	0	-	-

Intersection	
Int Delay, s/veh	4.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	9	41	0	3	14	9	36	1	7	2
Future Vol, veh/h	1	0	9	41	0	3	14	9	36	1	7	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	10	45	0	3	15	10	39	1	8	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	51	90	9	70	72	29	10	0	0	49	0	0
Stage 1	11	11	-	60	60	-	-	-	-	-	-	-
Stage 2	40	79	-	10	12	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	948	800	1073	922	819	1045	1610	-	-	1558	-	-
Stage 1	1010	887	-	952	845	-	-	-	-	-	-	-
Stage 2	975	829	-	1011	886	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	936	792	1073	905	810	1045	1610	-	-	1558	-	-
Mov Cap-2 Maneuver	936	792	-	905	810	-	-	-	-	-	-	-
Stage 1	1009	886	-	943	837	-	-	-	-	-	-	-
Stage 2	962	821	-	1001	885	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	8.44	9.16	1.72	0.73
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1610	-	-	1058	913	1558	-	-
HCM Lane V/C Ratio	0.009	-	-	0.01	0.052	0.001	-	-
HCM Ctrl Dly (s/v)	7.3	-	-	8.4	9.2	7.3	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	11	26	14	0	119
Future Vol, veh/h	0	11	26	14	0	119
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	12	28	15	0	129

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	36	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-	-
Pot Cap-1 Maneuver	0	1037	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	1037	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	8.51	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	1037	-
HCM Lane V/C Ratio	-	-	0.012	-
HCM Ctrl Dly (s/v)	-	-	8.5	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q(veh)	-	-	0	-

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	7	52	43	0	54
Future Vol, veh/h	0	7	52	43	0	54
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	8	57	47	0	59

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	80	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-	-
Pot Cap-1 Maneuver	0	980	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	980	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	8.7	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	980	-
HCM Lane V/C Ratio	-	-	0.008	-
HCM Ctrl Dly (s/v)	-	-	8.7	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q(veh)	-	-	0	-

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	11	28	14	0	127
Future Vol, veh/h	0	11	28	14	0	127
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	12	30	15	0	138

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	38	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-	-
Pot Cap-1 Maneuver	0	1034	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	1034	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	8.52	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	1034	-
HCM Lane V/C Ratio	-	-	0.012	-
HCM Ctrl Dly (s/v)	-	-	8.5	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q(veh)	-	-	0	-

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	7	52	43	0	55
Future Vol, veh/h	0	7	52	43	0	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	8	57	47	0	60

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	80	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-	-
Pot Cap-1 Maneuver	0	980	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	980	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	8.7	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	980	-
HCM Lane V/C Ratio	-	-	0.008	-
HCM Ctrl Dly (s/v)	-	-	8.7	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q(veh)	-	-	0	-

Appendix F: Queue Analysis Worksheets



Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	27	1027	37	1102	117	166	19
v/c Ratio	0.08	0.43	0.10	0.47	0.33	0.81	0.05
Control Delay (s/veh)	6.6	12.2	9.2	16.1	14.2	74.5	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	6.6	12.2	9.2	16.1	14.2	74.5	0.2
Queue Length 50th (ft)	5	207	8	248	16	125	0
Queue Length 95th (ft)	11	177	19	244	20	114	0
Internal Link Dist (ft)		726		1812	1011		239
Turn Bay Length (ft)	200		150			250	
Base Capacity (vph)	346	2362	378	2358	530	344	575
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.43	0.10	0.47	0.22	0.48	0.03

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	33	361	47	377	48	53	9
v/c Ratio	0.04	0.13	0.06	0.14	0.23	0.37	0.01
Control Delay (s/veh)	2.8	5.4	2.8	4.5	5.5	58.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	2.8	5.4	2.8	4.5	5.5	58.7	0.0
Queue Length 50th (ft)	4	40	5	38	0	39	0
Queue Length 95th (ft)	11	63	14	60	9	75	0
Internal Link Dist (ft)		726		1812	1011		244
Turn Bay Length (ft)	200		150			250	
Base Capacity (vph)	925	2748	951	2753	538	511	896
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.13	0.05	0.14	0.09	0.10	0.01

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	31	1201	44	1295	139	176	19
v/c Ratio	0.11	0.54	0.15	0.56	0.36	0.84	0.05
Control Delay (s/veh)	7.8	15.6	7.8	15.1	13.4	77.5	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	7.8	15.6	7.8	15.1	13.4	77.5	0.2
Queue Length 50th (ft)	6	273	9	305	19	133	0
Queue Length 95th (ft)	13	225	17	243	21	119	0
Internal Link Dist (ft)		726		1812	1011		239
Turn Bay Length (ft)	200		150			250	
Base Capacity (vph)	273	2234	300	2305	540	323	556
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.54	0.15	0.56	0.26	0.54	0.03

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	33	423	56	423	57	53	9
v/c Ratio	0.04	0.15	0.07	0.15	0.27	0.40	0.01
Control Delay (s/veh)	2.8	5.5	2.8	4.7	7.9	60.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	2.8	5.5	2.8	4.7	7.9	60.5	0.0
Queue Length 50th (ft)	4	48	6	45	0	40	0
Queue Length 95th (ft)	11	74	16	69	18	75	0
Internal Link Dist (ft)		726		1812	1011		244
Turn Bay Length (ft)	200		150			250	
Base Capacity (vph)	893	2740	910	2759	538	470	864
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.15	0.06	0.15	0.11	0.11	0.01

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	380	458	27	152	197	288	1520	520	1481
v/c Ratio	1.04	0.59	0.19	0.48	0.31	0.66	0.75	0.78	0.64
Control Delay (s/veh)	110.9	31.6	58.8	56.3	8.3	57.6	34.5	47.9	35.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	110.9	31.6	58.8	56.3	8.3	57.6	34.5	47.9	35.0
Queue Length 50th (ft)	~164	114	10	61	22	111	375	208	378
Queue Length 95th (ft)	#259	162	26	92	72	152	438	#283	447
Internal Link Dist (ft)		1812		1854			1575		1061
Turn Bay Length (ft)	300		225		300	275		250	
Base Capacity (vph)	364	870	143	530	644	471	2014	666	2319
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.04	0.53	0.19	0.29	0.31	0.61	0.75	0.78	0.64

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	331	348	141	111	408	134	1584	230	1895
v/c Ratio	0.77	0.67	0.56	0.45	0.77	0.50	0.65	0.44	0.68
Control Delay (s/veh)	72.2	39.9	71.3	67.9	41.1	68.3	30.9	55.9	24.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	72.2	39.9	71.3	67.9	41.1	68.3	30.9	55.9	24.9
Queue Length 50th (ft)	151	92	64	52	238	61	404	98	445
Queue Length 95th (ft)	205	144	101	83	335	95	515	134	545
Internal Link Dist (ft)		1812		1854			1575		1061
Turn Bay Length (ft)	300		225		300	275		250	
Base Capacity (vph)	462	721	275	464	562	276	2449	599	2791
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.48	0.51	0.24	0.73	0.49	0.65	0.38	0.68

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	437	530	31	179	233	338	1800	616	1749
v/c Ratio	0.78	0.59	0.19	0.58	0.37	0.77	0.99	0.86	0.79
Control Delay (s/veh)	66.7	37.8	66.2	68.8	16.0	71.7	62.7	65.8	36.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	66.7	37.8	66.2	68.8	16.0	71.7	62.7	65.8	36.9
Queue Length 50th (ft)	199	175	14	85	63	155	~650	279	500
Queue Length 95th (ft)	247	225	32	123	138	#212	#733	#421	593
Internal Link Dist (ft)		1812		1854			1575		1061
Turn Bay Length (ft)	300		225		300	275		250	
Base Capacity (vph)	662	898	318	379	635	455	1822	720	2203
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.59	0.10	0.47	0.37	0.74	0.99	0.86	0.79

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	384	405	166	129	482	152	1876	273	2233
v/c Ratio	0.85	0.73	0.64	0.45	0.83	0.57	0.84	0.45	0.82
Control Delay (s/veh)	78.0	45.8	74.3	66.1	45.2	70.6	40.5	53.9	31.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	78.0	45.8	74.3	66.1	45.2	70.6	40.5	53.9	31.2
Queue Length 50th (ft)	178	125	76	60	296	69	583	111	602
Queue Length 95th (ft)	#254	177	116	92	440	108	657	162	732
Internal Link Dist (ft)		1812		1854			1575		1061
Turn Bay Length (ft)	300		225		300	275		250	
Base Capacity (vph)	462	714	275	464	591	275	2233	635	2711
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.57	0.60	0.28	0.82	0.55	0.84	0.43	0.82

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	84	85	1123	1370	690	47	870
v/c Ratio	0.18	0.19	0.70	0.46	0.57	0.19	0.37
Control Delay (s/veh)	30.6	29.5	2.6	16.1	11.7	23.7	25.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	30.6	29.5	2.6	16.1	11.7	23.7	25.7
Queue Length 50th (ft)	48	48	0	322	288	29	286
Queue Length 95th (ft)	89	90	0	m347	m483	m47	336
Internal Link Dist (ft)		1200		1061			645
Turn Bay Length (ft)			100			550	
Base Capacity (vph)	566	453	1599	2955	1202	484	2347
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.19	0.70	0.46	0.57	0.10	0.37

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	41	41	1009	1332	779	123	1050
v/c Ratio	0.09	0.09	0.62	0.49	0.64	0.43	0.44
Control Delay (s/veh)	28.0	28.1	1.8	22.3	4.5	26.1	18.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	28.0	28.1	1.8	22.3	4.5	26.1	18.5
Queue Length 50th (ft)	23	23	0	271	3	56	250
Queue Length 95th (ft)	50	50	0	338	86	m111	287
Internal Link Dist (ft)		1200		1061			645
Turn Bay Length (ft)			100			550	
Base Capacity (vph)	571	457	1615	2733	1215	495	2394
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.09	0.62	0.49	0.64	0.25	0.44

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	100	100	1329	1619	814	56	1029
v/c Ratio	0.18	0.18	0.83	0.64	0.73	0.32	0.50
Control Delay (s/veh)	30.6	30.6	5.2	25.1	8.9	25.6	31.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	30.6	30.6	5.2	25.1	8.9	25.6	31.2
Queue Length 50th (ft)	58	58	0	349	68	35	340
Queue Length 95th (ft)	106	106	0	415	245	m50	392
Internal Link Dist (ft)		1200		1061			645
Turn Bay Length (ft)			100			550	
Base Capacity (vph)	544	544	1599	2511	1120	426	2049
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.18	0.83	0.64	0.73	0.13	0.50

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	48	49	1189	1574	921	146	1237
v/c Ratio	0.11	0.11	0.74	0.59	0.76	0.59	0.52
Control Delay (s/veh)	29.3	29.4	3.0	25.0	9.9	37.6	19.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	29.3	29.4	3.0	25.0	9.9	37.6	19.5
Queue Length 50th (ft)	27	27	0	347	72	91	294
Queue Length 95th (ft)	57	58	0	435	319	m129	360
Internal Link Dist (ft)		1200		1061			645
Turn Bay Length (ft)			100			550	
Base Capacity (vph)	550	440	1615	2690	1208	456	2394
Starvation Cap Reductn	0	0	0	0	0	0	95
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.11	0.74	0.59	0.76	0.32	0.54

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	329	331	163	812	694	238	36
v/c Ratio	0.71	0.71	0.10	0.82	0.30	0.21	0.02
Control Delay (s/veh)	49.0	49.2	0.1	70.6	3.2	30.9	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	49.0	49.2	0.1	70.6	3.2	30.9	0.0
Queue Length 50th (ft)	246	247	0	351	36	71	0
Queue Length 95th (ft)	362	365	0	416	64	113	0
Internal Link Dist (ft)		1177			645	1677	
Turn Bay Length (ft)			250				500
Base Capacity (vph)	462	463	1583	1271	2323	1159	1583
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.71	0.10	0.64	0.30	0.21	0.02

Intersection Summary



Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	329	331	91	904	487	591	135
v/c Ratio	0.70	0.70	0.06	0.84	0.21	0.54	0.08
Control Delay (s/veh)	48.2	48.2	0.1	72.0	6.6	38.1	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	48.2	48.2	0.1	72.0	6.6	38.1	0.1
Queue Length 50th (ft)	241	243	0	388	44	201	0
Queue Length 95th (ft)	353	356	0	455	60	282	0
Internal Link Dist (ft)		1177			645	1677	
Turn Bay Length (ft)			250				500
Base Capacity (vph)	471	473	1615	1284	2346	1095	1615
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.70	0.06	0.70	0.21	0.54	0.08

Intersection Summary



Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	389	391	193	958	821	280	42
v/c Ratio	0.84	0.84	0.12	0.86	0.35	0.27	0.03
Control Delay (s/veh)	58.7	58.9	0.2	74.6	7.8	34.8	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	58.7	58.9	0.2	74.6	7.8	34.8	0.0
Queue Length 50th (ft)	304	306	0	415	88	90	0
Queue Length 95th (ft)	#481	#483	0	481	131	136	0
Internal Link Dist (ft)		1177			645	1677	
Turn Bay Length (ft)			250				500
Base Capacity (vph)	462	463	1583	1271	2323	1027	1583
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.84	0.12	0.75	0.35	0.27	0.03

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

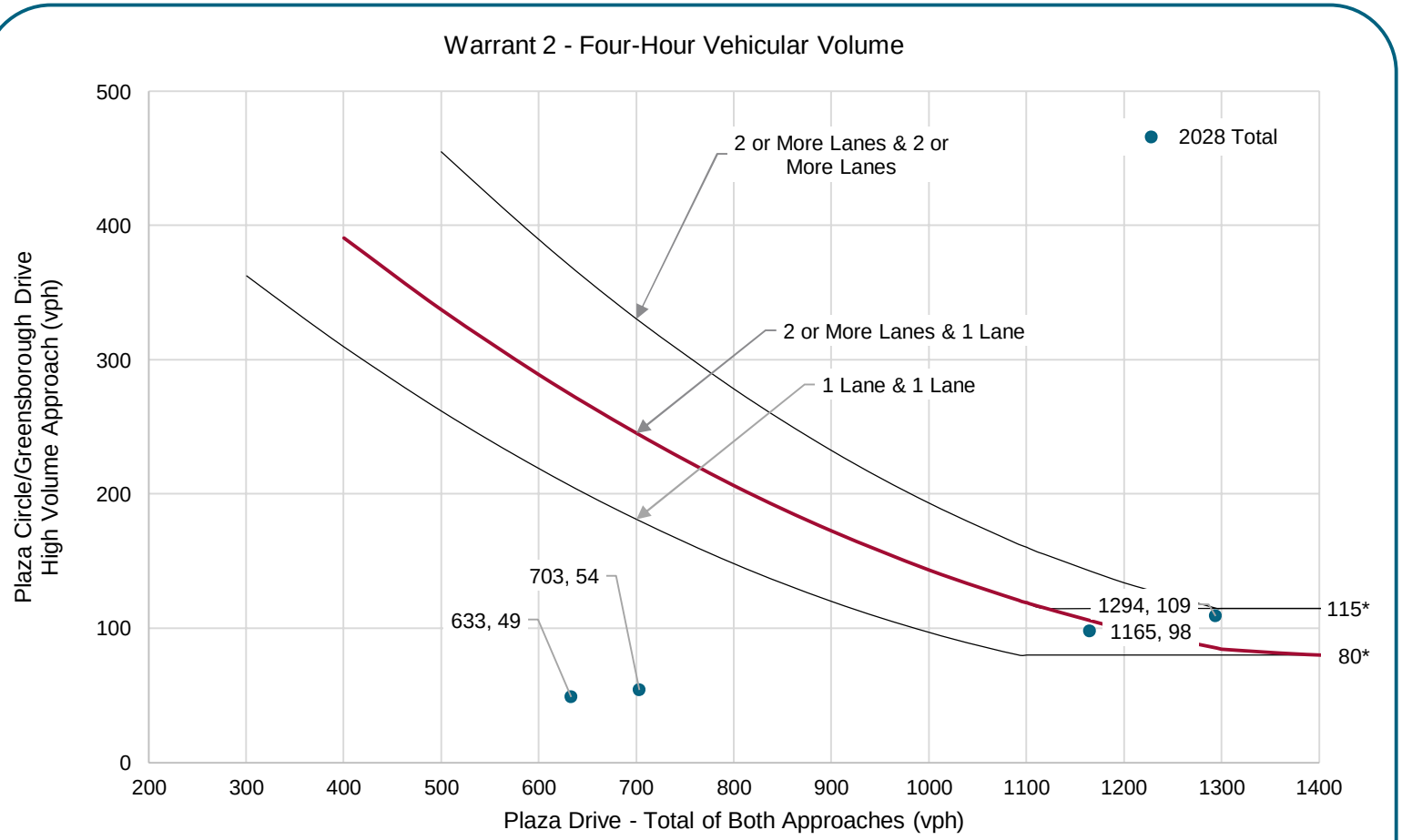


Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	387	389	109	1070	576	698	159
v/c Ratio	0.82	0.82	0.07	0.89	0.25	0.72	0.10
Control Delay (s/veh)	56.4	56.6	0.1	73.1	8.7	45.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	56.4	56.6	0.1	73.1	8.7	45.4	0.1
Queue Length 50th (ft)	295	297	0	459	53	264	0
Queue Length 95th (ft)	#462	#464	0	528	120	339	0
Internal Link Dist (ft)		1177			645	1677	
Turn Bay Length (ft)			250				500
Base Capacity (vph)	471	472	1615	1284	2346	971	1615
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.82	0.07	0.83	0.25	0.72	0.10

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Appendix G: Signal Warrant Analysis Worksheet



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Plaza Drive & Plaza Circle/Greensborough Drive
Signal Warrant Analysis
Four-Hour Volume Warrant

Source: Manual on Uniform Traffic Control Devices 2023

Intersection #4

Kimley»Horn

Highlands Ranch WATER

April 22, 2025

Douglas County Planning Services
100 Third Street
Castle Rock, CO 80104

Re: Water and Sewer for Project ZR2025-001, Highlands Ranch Planned Development, 80th Amendment

To Whom It May Concern:

Pursuant to Section 1805A.01 of the Douglas County Zoning Resolution, Highlands Ranch Water and Sanitation District (the "District") acknowledges its willingness and ability to serve all future proposed developments in its Highlands Ranch service area, including parcels in Filing 157, Lot 3 and 4.

Verification of District Status:

The District hereby verifies that the statements made in the letters and reports submitted by the District for the State Engineer and the County, and in the current materials are true and accurate, with the exception of any updates to the District's available water supply in accordance with the attached information.

Commitment to Serve:

The District is committed to providing service for all future developments within its service area based upon the water supply sources so identified. The connection to and use of such lines, mains and facilities is conditioned upon compliance with all the Rules and Regulations of the Districts, including the payment of the appropriate fees. Any applicant, owner or customer desiring water and/or sewer service from the District shall pay a Tap Fee prior to the installation of a water meter. Such fee shall be paid in addition to all other charges relating to water and/or sewer service as established from time to time by the Board of Directors.

Water Demand:

Based on the demands at buildout of Highlands Ranch, all existing and future developments within our service area will require 19,600 to 22,600 AF/year. At this time, with the existing development at approximately 95% of buildout, demand has not exceeded 17,000 AF/year.

The representative for the developer has stated that the development will include a mix of commercial uses and associated landscaping totaling 234 Single Family Equivalent (SFE) taps for domestic use. Based on Highlands Ranch's standard water demand requirements, this project will therefore require 117 acre-feet (AF) of water per year.

Water Supply:

The District's existing water supply (in accordance with the attached report on sources, storage and decrees) of over 30,000 AF/year is adequate to deliver water to all future development within its service area. Highlands Ranch's water supply includes an amount sufficient to meet the water demands for this property.

Water Quality:

The District is in compliance with the Colorado Department of Public Health and Environment testing and quality requirements and provides a high-quality water supply to all of its customers.

Sanitary Sewer Service:

The District shall provide sanitary sewer service for all water taps requested for this development. Treatment is provided by Highlands Ranch's Marcy Gulch Wastewater Treatment Plant.

Feasibility of Service:

Since its inception, Highlands Ranch has developed and funded an infrastructure plan to provide service to all properties within its service area. It is physically and economically feasible for the District to extend service to the proposed development.

Documentation:

Information describing Highlands Ranch's water supply including decrees is contained in the attached letter from Samuel L. Calkins, General Manager of Highlands Ranch Water and Sanitation District.

Sincerely,

Ryan Edwards
Director of Engineering
Highlands Ranch Water and Sanitation District

Enclosures

Highlands Ranch WATER

April 22, 2025

Douglas County Planning Services
100 Third Street
Castle Rock, CO 80104

Re: Statement of Water Availability

This letter serves as a general summary addressing the water supply for customers seeking water service within the Highlands Ranch Water and Sanitation District's (HRWSD) service area through the Northern Douglas County Water and Sanitation District (NDCWSD), the Highlands Ranch Metropolitan District and Mirabelle Metropolitan District.

For planning purposes, the water demand projected for all existing and future customers in the HRWSD service area is estimated to be from 19,600 to 22,600 acre-feet per year (AF/yr.). The actual annual demand for the last few years has averaged about 17,000 AF/yr. and the HRWSD's service area is approximately 95% developed. Approximately 90% of HRWSD's reusable water is recycled for municipal purposes in the HRWSD water service area.

Water demands in the HRWSD service area are met through a robust conjunctive use system that includes both renewable surface water and reusable Denver Basin ground water. Captured surface-water supplies are stored in four reservoirs and in three of the four Denver Basin aquifers through an aquifer storage and recovery (ASR) program. HRWSD's surface-water supplies are from several sources on the South Platte River and its tributaries, which are summarized in Table 1.

Table 1

Surface-Water Sources	Average Year Yield (AF/yr.)
Augmentation / Exchange Plan	3,000
Plum Creek	550
Cline Ranch	400
South Platte River / Reservoir	700
Hock Hocking Mine	100
Tingle Reservoir	100
Englewood Agreements	6,120
Denver Water ("Patti water")	1,000
Bargas Ranch	900
Castle Pines North	50
WISE	1,000
Chatfield Reservoir	2,500
Total Surface Water Supply (current)	**16,420**

HRWSD's decreed annual yield of Denver Basin ground-water rights total 17,717 AF/yr., which are defined in Table 2. Ground water can be pumped from the Denver Basin aquifers through a well field array comprised of more than 50 wells.

Table 2

Bedrock Aquifer	Decree Yield (af/yr.)
Arapahoe	4,915
Denver	5,111
Laramie-Fox Hills	4,500
Laramie-Fox Hills West	340
Dawson	390
Not-Nontributary Denver	1,876
Phipps Arapahoe	585
TOTAL	**17,717**

In an average year, the total volume of water currently available for use by CWSD customers is more than 30,000 AF. In addition to these water rights, HRWSD has the use of 3,885 AF of storage space in McLellan Reservoir, 6,400 AF of storage space in South Platte Reservoir, 205 AF of storage space in James Tingle Reservoir, and 6,922 AF of storage space in the Chatfield Reservoir Reallocation Project. The total storage space is 17,412 AF.

HRWSD operates a successful ASR program that stores treated surface water in three of the four Denver Basin aquifers, and makes that water available for use at any time. The ASR program has been operated for over 20 years. To date, nearly 15,300 AF of treated potable water has been stored in the Denver Basin aquifers beneath Highlands Ranch and is available when needed to supplement the annual decreed quantities defined above.

The attached sheet lists the water right decrees for the various water sources available for service to HRWSD customers.

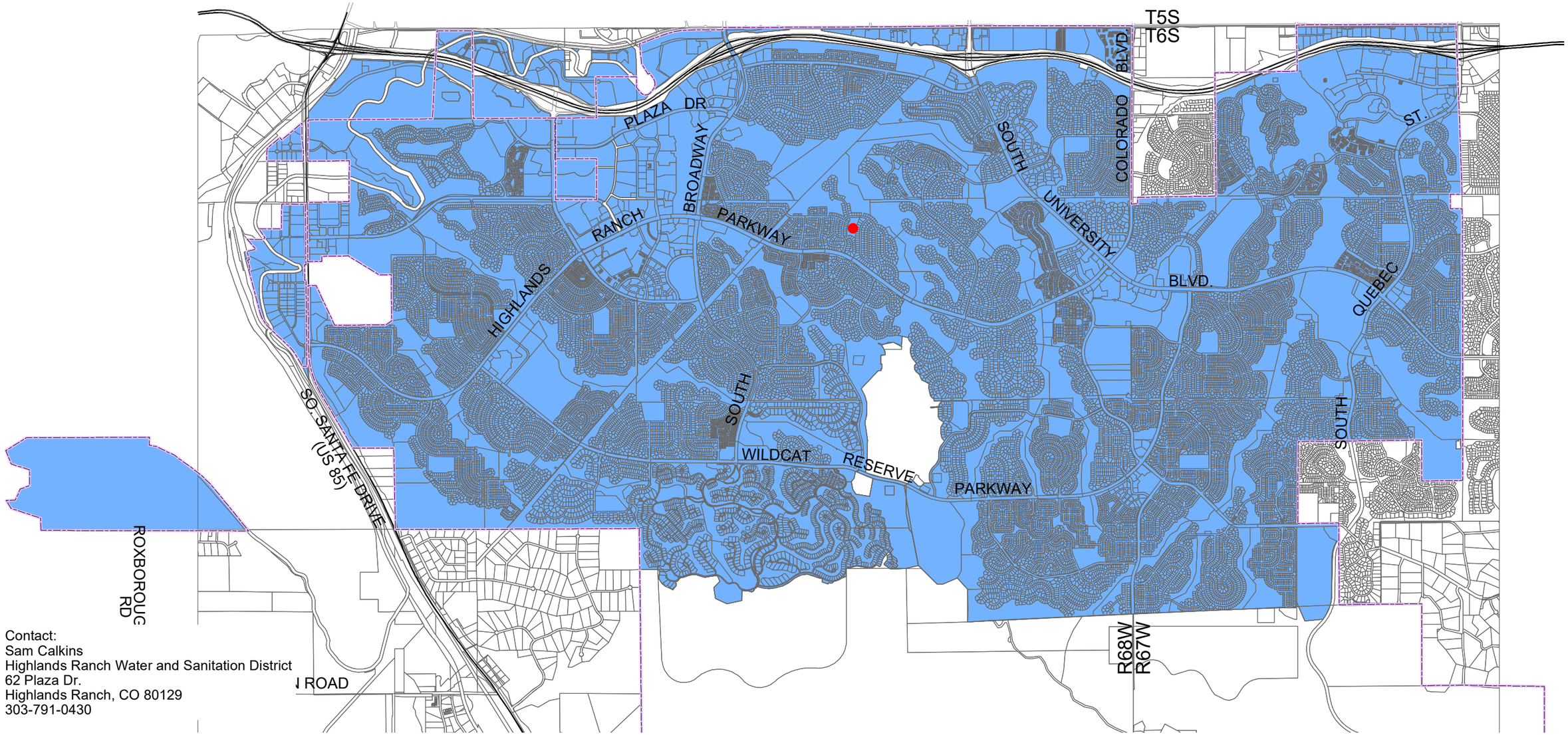
Sincerely,

Samuel L. Calkins
General Manager

Cc: Ryan Edwards

Attachment: Water Right Decree List

Highlands Ranch WSD's Water Court Case Numbers								12/9/24
Water Right	Original	Change Case	Diligence/ Absolute Decrees					When next
Description	Decree	Decree	First	Second	Third	Fourth	Fifth/Sixth	diligence due
Surface Water Rights								
Plum Creek	W - 6072	85CW415	NA					
		93CW177						
Augmentation Plan/	85CW415	93CW178	94CW286	02CW037	11CW244	19CW3140		1/31/2027
Exchange	19CW3257							
So. Platte Direct	88CW222	93CW179	96CW219	04CW033	12CW184	19CW3222		11/30/2026
Chatfield Storage	84CW411	93CW082	93CW081	01CW101	14CW3155	21CW3183		6/30/2028
		83CW184*	95CW111	02CW041	09CW076	17CW3176	24CW3140	TBD
So. Platte Reservoir	95CW239	93CW082	03CW295	12CW199	20CW3078			2/28/2028
Highlands Ranch	79CW316		85CW288	89CW168	96CW124	03CW266	12CW291	
Reservoirs	to 330		to 294				19CW3139	2/28/2026
Highlands Ranch	86CW332	95CW160	95CW159	02CW311	BD-11CW171			Dropped
Gulches	to 336	(Big Dry)	to 164	to 315	DC-11CW024			Dropped
					SPG-11CW129			Dropped
					MG-11CW130			Dropped
Cline	99CW199(A)		08CW20	15CW3133	22CW3180			6/30/2029
Fairview								
Senior	84CW058							
Junior	85CW314		01CW276	12CW119	18CW3222			8/31/2026
Hock Hocking	W-1318		83CW214	87CW161	97CW222	04CW271		Completed
Randall Ditch/ Tingle Res	05CW111		13CW3029	19CW3223				10/31/2026
Junior Application	09CW180		17CW3207	24CW3092				11/30/2030
CD Catholic Schools	07CW62							
United Development		18CW3188						
Groundwater Rights								
Dawson	82CW480							
Denver Trib	85CW415							
Denver Non-Trib	80CW445	97CW145			88CV335			
		(locations)			D-3 Settlemt			
Arapahoe	W-9192-78	84CW483	84CW482	06CW202				
		(locations)	(diligence)	(A-1 reloca.)				
Laramie-Foxhills	W-9192-78	83CW237	83CW237					
		(locations)						
Chatfield LFH	82CW479							
Willows Arap.(PA -5,7)	W-9310-78	90CW109	also	85CW163, 85CW170, 88CW079,				10CW171
				and 99CW163				PA-7
Plum Creek Non-Trib	W-6072							



Contact:
Sam Calkins
Highlands Ranch Water and Sanitation District
62 Plaza Dr.
Highlands Ranch, CO 80129
303-791-0430

Boundary Map
Highlands Ranch Water and Sanitation District
Tax Authority # 4058

LGID 18025 - 39°32'53.23" N, 104°58'26.21" W

Highlands Ranch Water and Sanitation District

N
W E
S

0 1,625 3,250
Feet

January 1, 2025

12600 West Colfax Avenue
Suite A-270
Lakewood, CO, 80215
P: 303.350.4090

May 30, 2025

Douglas County Department of Community Development
100 Third Street
Castle Rock, Colorado 80104

Attn: Mr. Matt Jakubowski, AICP
Chief Planner

Subject: Review of Water Supply and Demand for the Highlands Ranch Filing 157, Lots 3 and 4, File No. ZR2025-001.

Project No. 24822

Dear Matt,

Moore Engineering, Inc, dba Lytle Water Solutions, LLC ("LWS"), has reviewed the pertinent documents related to Lots 3 and 4 in Highlands Ranch Filing No. 157, File No. ZR2025-001. This property is comprised of 4.61 acres ("ac") on Lot 3 and 10.2 ac on Lot 4. This application is a major amendment to the Highlands Ranch Planned Development (PD), 80th Amendment, which seeks to add 400 residential units to Planning Area 85. Water service for this property will be provided by Highlands Ranch Water.

Highlands Ranch Water has provided a will-serve letter for this property, dated April 22, 2025, which commits to serve the proposed development described above. Based on the mix of uses within the parcel, it was estimated that the 400 residential units equates to 234 single family equivalents (“SFEs”). According to Highland Ranch Water's presumptive water demand of 0.50 acre-feet per year ("ac-ft/yr") per SFE, the total water demand for this proposed development is 117 ac-ft/yr.

According to an April 22, 2025 attachment to the will-serve letter, Highlands Ranch Water has 17,717 ac-ft/yr of Denver Basin aquifer water and an additional average-year yield from renewable sources of 12,870 ac-ft/yr. There was 1,000 ac-ft/yr of water from the Water Infrastructure System Efficiency (“WISE”) project and 50 ac-ft/yr from Castle Pines North Metropolitan District included in Table 1 of the April 22 letter as renewable water sources. However, these supplies are not firm in a dry year analysis and, therefore, were excluded in our analysis. We also excluded the estimated yield from Chatfield Reservoir as no data have been provided that this is a firm yield.

Highlands Ranch Water has also stored approximately 14,700 ac-ft of treated water in the Denver Basin aquifers, which can be recovered through its existing Denver Basin wells. This provides additional flexibility in meeting demands during dry years; however, while it is an additional supply, this injected water is not considered a firm water supply as it doesn't provide a reliable, permanent water source.

Highlands Ranch Water also has use of 3,885 ac-ft of water storage in McLellan Reservoir, 6,350 ac-ft of water storage in the South Platte River Reservoir, and 205 ac-ft of water storage in the James Tingle Reservoir. Highlands Ranch Water is also participating in the Chatfield Reservoir re-allocation project, with a storage subscription of 7,000 ac-ft and an estimated future average-year yield of 2,500 ac-ft. This allows Highlands Ranch Water the ability to carryover water in storage from wet to dry years to firm its water supply yields. Given these supplies, Highlands Ranch Water currently has a firm average-year supply in excess of 30,000 ac-ft/yr, with the ability to manage this supply through multiple storage projects.

Highlands Ranch Water estimates that its buildout demand will be in the range of 19,600-22,600 ac-ft/yr. According to its April 22 will-serve letter, Highlands Ranch Water's current water demand has not exceeded 17,000 ac-ft/yr. As such, Highlands Ranch Water currently has over 13,000 ac-ft/yr of excess water supply available, including service to the Highlands Ranch Filing No. 157, Lots 3 and 4, and approximately 8,000 ac-ft of excess supply at buildout.

In summary, it is our opinion that Highlands Ranch Water has sufficient water to serve this proposed development. If you have questions regarding our review of the Highlands Ranch Filing No. 157, Lots 3 and 4 application, please feel free to give us a call.

Yours truly,

Bruce A. Lytle, P.E.
Senior Project Manager

UNITS				TOTALS			
UNIT TYPE	DESCRIPTION	NET SQ. FT.	GROSS SQ. FT.	TOTAL NO. OF UNITS	UNIT %	NET SQ. FT. PER UNIT TYPE	GROSS SQ. FT. PER UNIT TYPE
B	2 BED / 2.5 BATH	1,274	1,734	24	24	30,576	41,616
					28.6%		
C	3 BED / 2.5 BATH	1,475	1,935	48	48	70,800	92,880
					57.1%		
D	4 BED / 2.5 BATH	1,722	2,182	12	12	20,664	26,184
					14.3%		
				TOTAL	84	122,040	160,680
					100%		

AVERAGE UNIT SIZE
1,453

LOT 3 - UNIT MIX

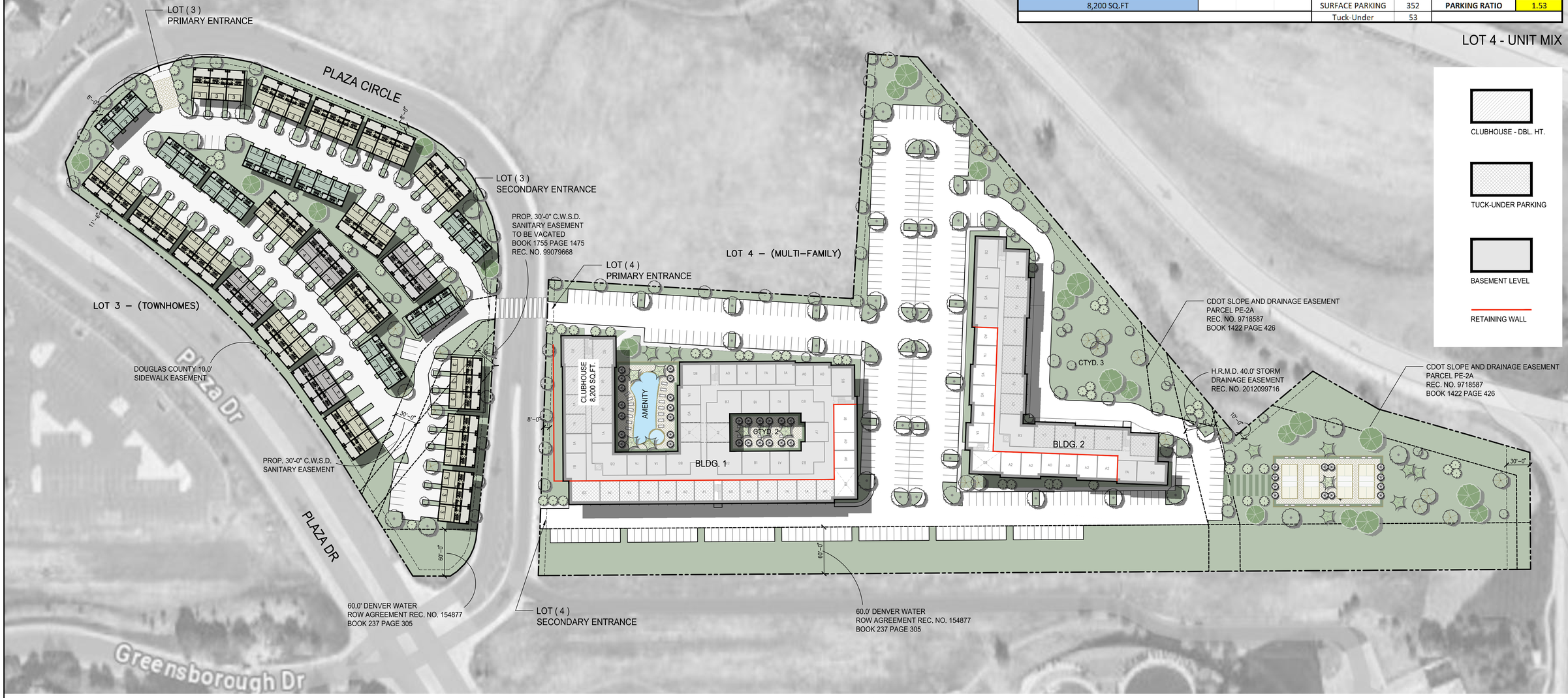
HIGHLANDS RANCH - UNIT MIX

UNITS				BUILDING							
NAME	BEDS	NET	GROSS	SUB	LVL 1	LVL 2	LVL 3	TOTAL	UNIT %	NET SF TOTAL	GROSS SF TOTAL
A0	1 BED	650	675	4	10	15	15	44	173	28600	29700
A1	1 BED	725	750	12	17	26	26	81		58725	60750
A2	1 BED	825	850	3	15	15	15	48		39600	40800
									66%		
B1	2 BED	1060	1105	4	9	12	12	37	91	39220	40885
B2	2 BED	1175	1225	4	4	9	9	26		30550	31850
B3	2 BED + STUDY	1444	1494	7	7	7	7	28		40432	41832
									34%		
TOTAL				34	62	84	84	264	264	237127	245817
									100%		

AVERAGE UNIT SIZE
898
CLUBHOUSE
8,200 SQ.FT

PARKING TOTALS		TOTAL PARKING	405
SURFACE PARKING	352	PARKING RATIO	1.53
Tuck-Under	53		

LOT 4 - UNIT MIX



0 100'

1 SITE PLAN
1"=60'-0"

N

10.30.2025

SITE PLAN - HIGHLANDS RANCH APARTMENTS

HIGHLANDS RANCH, CO - PAGEWEST

MEEKS PARTNERS
16000 Memorial Drive
Suite 100
Houston, Texas 77079
281.558.8787

A-01

JOB NO. 23095

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URBAN USES

RESIDENTIAL DENSITY-LOW
1,5,7,23 & 51

	PA[1]	GRA[2]	DU/GRA[4]	TOTAL DU
	1	165	2.6	433
	2	66	3.2	212
	3	165	3.6	594
	4	51	2.0	102
	5	53	3.8	198
	7	194	2.9	562
	23	64	1.6	104
	51	77	3.2	246
SUB TOTAL		835	2.9	2,451

MEDIUM-LOW
20,24-32,52,57 & 58

	PA[1]	GRA[2]	DU/GRA[4]	TOTAL DU
	6	87	4.9	429
	20	353	4.3	1,518
	24	185	4.0	740
	25	77	4.0	308
	26	234	4.0	936
	27	95	4.0	380
	28	94	4.0	376
	29	108	4.0	432
	30	91	4.0	364
	31	253	4.1	1,032
	32	187	4.0	748
	52	226	4.4	1,004
	57	391	4.4	1,737
	58	336	4.2	1,400
SUB TOTAL		2,717	4.2	11,404

MEDIUM
33,40-50,53-56 & 59

	PA[1]	GRA[2]	DU/GRA[4]	TOTAL DU
	33	65	6.4	419
	40	87	5.3	465
	41	216	5.3	1,134
	42	43	5.9	275
	43	179	5.0	893
	44	186	5.0	957
	45	86	5.0	430
	46	224	5.9	1,330
	47	46	5.0	230
	48	72	5.0	360
	49	98	5.0	490
	50	181	5.0	905
	53	154	5.0	770
	54	47	5.6	265
	55	258	5.8	1,493
	56	101	5.0	505
	59	362	4.8	1,749
SUB TOTAL		2,405	5.3	12,670

For the addition of residential dwelling units to the PD: the following changes are proposed.
-Add new line under High for PA 85 with:
-GRA: --
-DU/GRA: 8.0-25.0
-Total DU: 350
-Update High Sub Total:
- DU/GRA: 8.0 - 25.0
- Total DU: 9,893
-Update Total Residential:
-Total DU: 36,418

HIGH
60-69

	PA[1]	GRA[2]	DU/GRA[4]	TOTAL DU
	60	32	8.0-15.0	284
	61	168	8.0-15.0	1,794
	62	51	8.0-15.0	447
	63	35	8.0-15.0	280
	64	98	8.0-15.0	863
	65	151	8.0-15.0	2,187
	66	229	8.0-15.0	1,832
	67	44	8.0-15.0	456
	68	17	8.0-15.0	255
	69	36	8.0-15.0	725
	84,87	--	--	135
	85-A	--	--	285
SUB TOTAL		861	8.0-15.0	9,543

TOTAL RESIDENTIAL	6,818		36,068

NONRESIDENTIAL

		PA[2]	GNA[3]
70, 89-91	COMMUNITY ACTIVITY CENTER	70	85
		89	11
		90	13
		91	14
71	CIVIC CENTER	71	151
72,73	TOWN CENTER	72	173
		73	286
74	CORRIDOR ACTIVITY CENTER	74	132
T	SHOP-N-RIDE		13
75-88	INDUSTRIAL PARK	75	45
		76	57
		77	107
		78	80
		79	12
		80	61
		81	40
		84	72
		85	69
		86	27
		87	15
		88	8
SUB TOTAL		1,471	

CIRCULATION
- 2 LANE ARTERIAL HIGHWAYS
- 4 LANE ARTERIAL HIGHWAYS
- 6 LANE ARTERIAL HIGHWAYS
- INTERCHANGE

TOTAL ARTERIALS 443

TOTAL NONRESIDENTIAL 1,914

NON-URBAN USES

		GNA[3]
	SCHOOLS	
E	ELEMENTARY SCHOOLS	462
MS	MIDDLE SCHOOL	
HS	HIGH SCHOOL	
L	LIBRARY	3
P	MASS TRANSIT PARKING SITE	7
RP	REGIONAL PARK	300
A	HIGHLANDS RANCH COMMUNITY ASSOCIATION FACILITY SITE	35
CP	COMMUNITY PARK	160
	NONURBAN	
	EASEMENTS	600
	FLOODPLAINS (100 YR.)	741
	REMAINING AREA	2,382

OPEN SPACE CONSERVATION AREA

PA	GNA[3]
A	467
B	87
C	191
D	87
E	272
F	34
G	19
H	10
I	33
SUBTOTAL	1,200
J	125
	6,875
	7,000
TOTAL OPEN SPACE CONSERVATION AREA	8,200

TOTAL NONURBAN 12,890

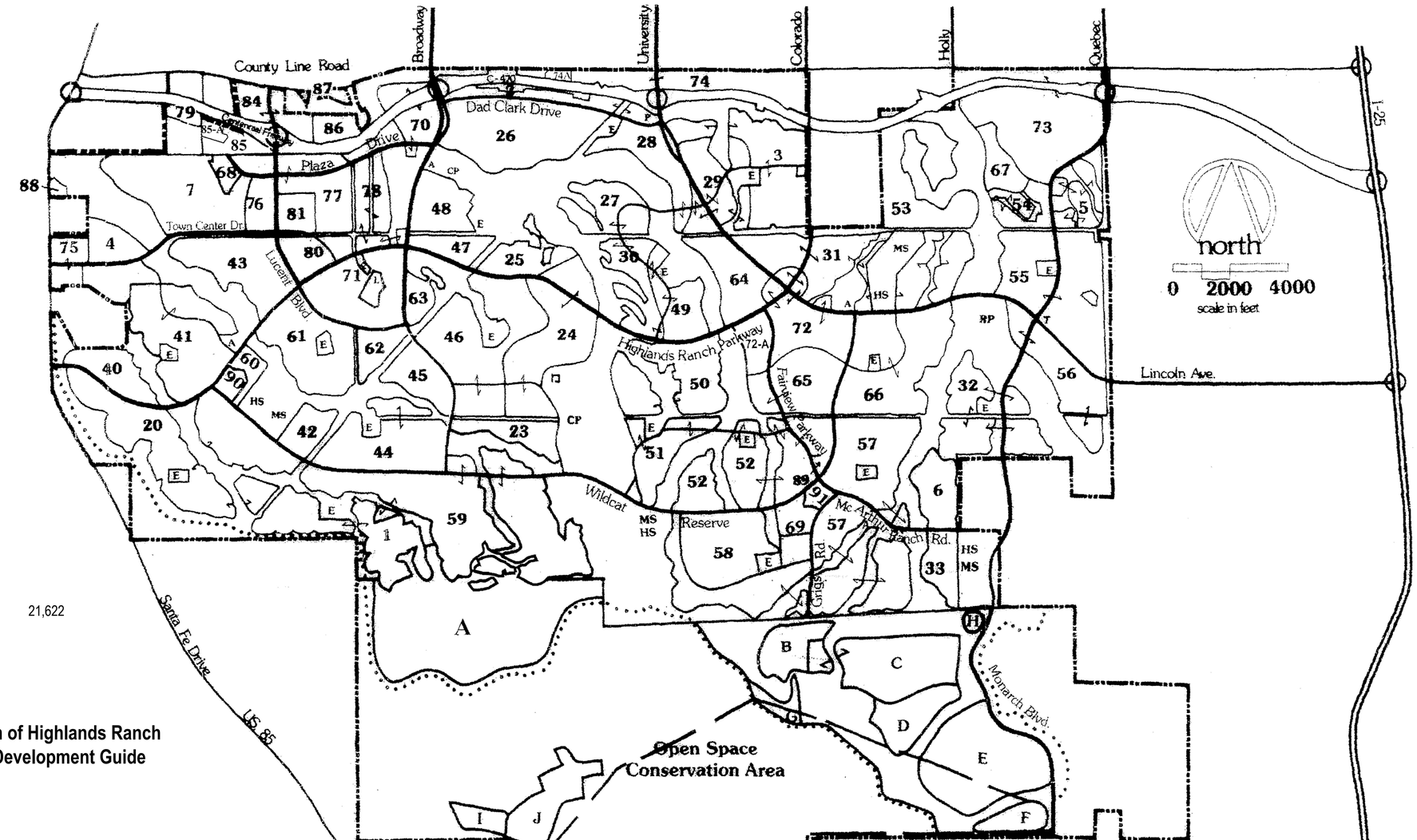
TOTAL PLANNED COMMUNITY DISTRICT (ACRES)

21,622

Section XVIII of the New Town of Highlands Ranch Planned Community District Development Guide

FOOTNOTES:
[1]PLANNING AREA
[2]GROSS RESIDENTIAL ACRES
[3]GROSS NONRESIDENTIAL ACRES
[4]DWELLING UNITS/GROSS RESIDENTIAL ACRE

GENERAL NOTES:
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5: HIGHLANDS RANCH BOUNDARY IS SHOWN BY THE FOLLOWING SYMBOL: ———•———
6: OFF-STREET HIKING AND BIKING TRAIL - - - - - - - -
7: THE CULTURAL AND HISTORICAL PROTECTION OVERLAY ZONE IS DELINEATED BY THE FOLLOWING SYMBOL: ——— ———
8: SOME NONURBAN AREAS EXIST INTERIOR TO ADJACENT PLANNING AREAS, AND ARE NOT GRAPHICALLY REPRESENTED. THESE NONURBAN AREAS REMAIN SUBJECT TO SECTION XIII OF THE HIGHLANDS RANCH DEVELOPMENT GUIDE.



Updated to read:
THIS MAJOR AMENDMENT OF THE HIGHLANDS RANCH PLANNED DEVELOPMENT PLAN AMENDING THE TOTAL RESIDENTIAL DWELLING UNITS IN PLANNING AREA 85 AS DEPICTED HEREON HAS BEEN APPROVED BY BOARD MOTION NO. ___ ON, _____, ___, 2026.

Update to:
AMENDMENT NO. 84
ZR2026-002

(File No. TBD)

I HEREBY CERTIFY THAT THIS PLAN WAS FILED IN MY OFFICE ON THIS _____ DAY OF _____, 20___, A.D. AT _____ O'CLOCK A.M./P.M., AND WAS RECORDED PER RECEPTION NO. _____.

_____
Douglas County Clerk and Recorder

Removed per staff instruction.

THIS MAJOR AMENDMENT OF THE HIGHLANDS RANCH PLANNED DEVELOPMENT PLAN AMENDING THE TOTAL RESIDENTIAL DWELLING UNITS AND ADJUSTING THE BOUNDARY OF PLANNING AREA 43 AS DEPICTED ON THE HIGHLANDS RANCH DEVELOPMENT PLAN ZONING MAP AS DEPICTED HEREON HAS BEEN APPROVED BY BOARD MOTION NO. _____ ON _____, _____, 20___.

THIS AMENDMENT NO. 77 AFFECTS ONLY PLANNING AREA 43 AS DESCRIBED IN FILE NO. ZR2022-011.

_____ _____ _____
Chair, Board of Douglas County Commissioners Date

_____ _____ _____
Director of Community Development Date

Update to read:
THIS AMENDMENT NO. 84 AFFECTS ONLY PLANNING AREA 85 AS DESCRIBED IN FILE NO. ZR2026-002.

HIGHLANDS RANCH

PLANNED COMMUNITY DISTRICT

DEVELOPMENT PLAN

ZONING MAP

AMENDMENT NO. 77
ZR2022-011

PAGE 1 OF 1

NORTH 0 1000 2000 4000 SCALE: 1" = 2000'

URBAN USES

RESIDENTIAL DENSITY-LOW
1,5,7,23 & 51

PA[1]	GRA[2]	DU/GRA[4]	TOTAL DU
1	165	2.6	433
2	66	3.2	212
3	165	3.6	594
4	51	2.0	102
5	53	3.8	198
7	194	2.9	562
23	64	1.6	104
51	77	3.2	246
SUB TOTAL	835	2.9	2,451

MEDIUM-LOW
20,24-32,52,57 & 58

PA[1]	GRA[2]	DU/GRA[4]	TOTAL DU
6	87	4.9	429
20	353	4.3	1,518
24	185	4.0	740
25	77	4.0	308
26	234	4.0	936
27	95	4.0	380
28	94	4.0	376
29	108	4.0	432
30	91	4.0	364
31	253	4.1	1,032
32	187	4.0	748
52	226	4.4	1,004
57	391	4.4	1,737
58	336	4.2	1,400
SUB TOTAL	2,717	4.2	11,404

MEDIUM
33,40-50,53-56 & 59

PA[1]	GRA[2]	DU/GRA[4]	TOTAL DU
33	65	6.4	419
40	87	5.3	465
41	216	5.3	1,134
42	43	5.9	275
43	179	5.0	893
44	186	5.0	957
45	86	5.0	430
46	224	5.9	1,330
47	46	5.0	230
48	72	5.0	360
49	98	5.0	490
50	181	5.0	905
53	154	5.0	770
54	47	5.6	265
55	258	5.8	1,493
56	101	5.0	505
59	362	4.8	1,749
SUB TOTAL	2,405	5.3	12,670

HIGH
60-69

PA[1]	GRA[2]	DU/GRA[4]	TOTAL DU
60	32	8.0-15.0	284
61	168	8.0-15.0	1,794
62	51	8.0-15.0	447
63	35	8.0-15.0	280
64	98	8.0-15.0	863
65	151	8.0-15.0	2,187
66	229	8.0-15.0	1,832
67	44	8.0-15.0	456
68	17	8.0-15.0	255
69	36	8.0-15.0	725
84,87	--	--	135
85	--	8.0-25.0	**350**
85-A	--	--	285
SUB TOTAL	861	8.0-25.0	**9,893**

TOTAL RESIDENTIAL 6,818 36,**418**

NONRESIDENTIAL

		PA[2]	GNA[3]
70, 89-91	COMMUNITY ACTIVITY CENTER	70	85
		89	11
		90	13
		91	14
71	CIVIC CENTER	71	151
72,73	TOWN CENTER	72	173
		73	286
74	CORRIDOR ACTIVITY CENTER	74	132
T	SHOP-N-RIDE		13
75-88	INDUSTRIAL PARK	75	45
		76	57
		77	107
		78	80
		79	12
		80	61
		81	40
		84	72
		85	69
		86	27
		87	15
		88	8
	SUB TOTAL		1,471

CIRCULATION
- 2 LANE ARTERIAL HIGHWAYS
- 4 LANE ARTERIAL HIGHWAYS
- 6 LANE ARTERIAL HIGHWAYS

TOTAL ARTERIALS 443

INTERCHANGE

TOTAL NONRESIDENTIAL 1,914

NON-URBAN USES

		GNA[3]
SCHOOLS		
E	ELEMENTARY SCHOOLS	462
MS	MIDDLE SCHOOL	
HS	HIGH SCHOOL	
L	LIBRARY	3
P	MASS TRANSIT PARKING SITE	7
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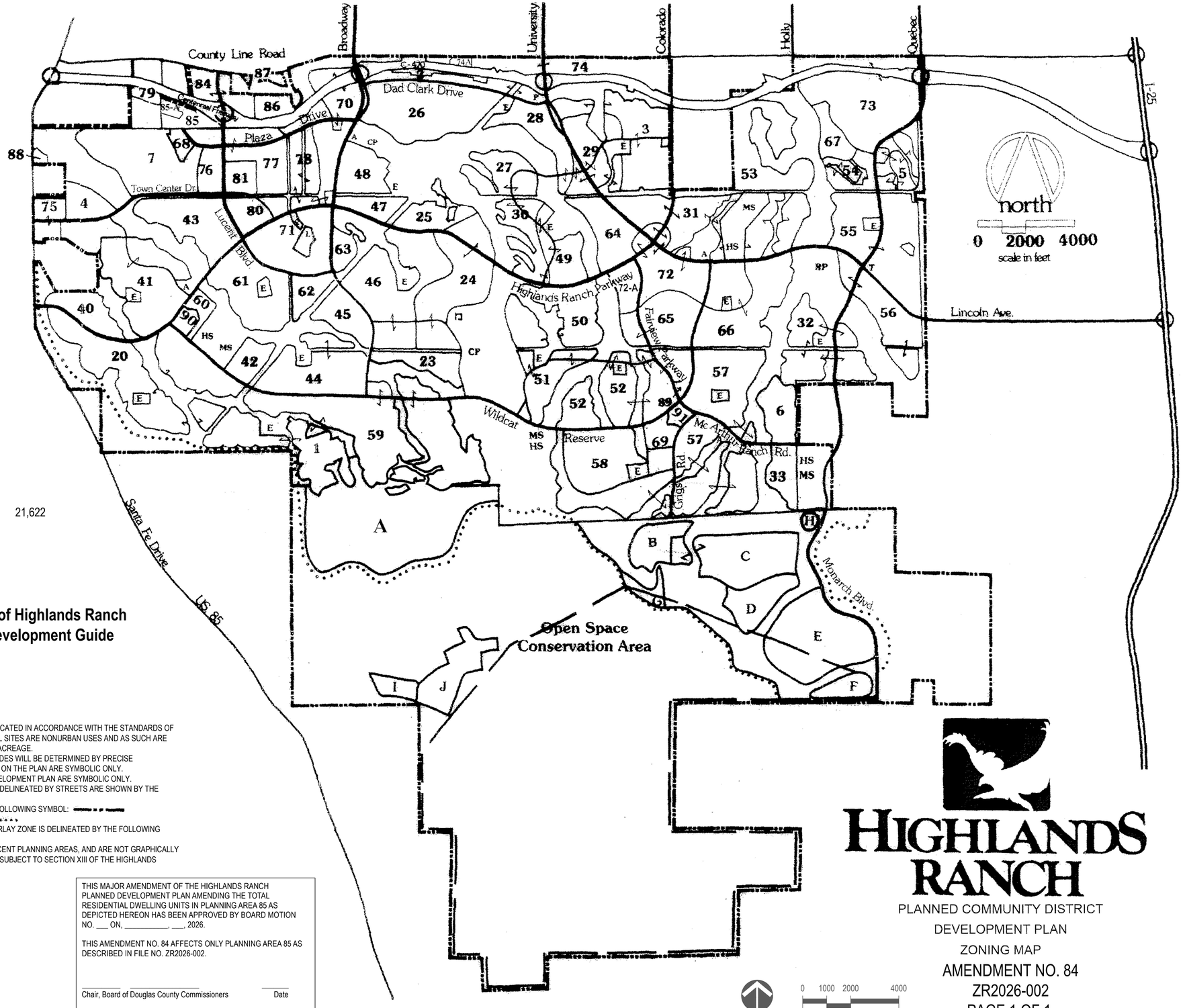
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THIS AMENDMENT NO. 84 AFFECTS ONLY PLANNING AREA 85 AS DESCRIBED IN FILE NO. ZR2026-002.

_____ _____ _____
Chair, Board of Douglas County Commissioners Date

_____ _____ _____
Director of Community Development Date



HIGHLANDS RANCH

PLANNED COMMUNITY DISTRICT
DEVELOPMENT PLAN
ZONING MAP
AMENDMENT NO. 84
ZR2026-002
PAGE 1 OF 1

NORTH SCALE: 1" = 2000' (0 1000 2000 4000)

MEETING DATE: April 6, 2026

STAFF PERSON RESPONSIBLE: Brett Thomas, AICP, Chief Planner

DESCRIPTION: Zoning Resolution Waiver for 5970 N US Highway 85, 6th Amendment - Use by Special Review - Project File: US2025-001.

SUMMARY: The applicant proposes to amend the Use by Special Review for the 124.2-acre Sedalia Recycling Center and Depository, located at 5970 N US Highway 85, to increase the permit area to approximately 165.9 acres, with 88.3 acres available for landfill activities. The site is located north of Sedalia, approximately 1,500 feet north of the intersection of N US Highway 85 and Delva Way. The site is part of the Sedalia Rural Community as designated on the Douglas County 2040 Comprehensive Maser Plan.

As part of the USR Amendment, the applicant is requesting a waiver of certain provisions of Section 21, Use by Special Review, of the Douglas County Zoning Resolution (DCZR). Specifically, the applicant requests a waiver of the provision in Section 2107.30 which requires the applicant to receive a recommendation of approval for a certificate of designation from the Colorado Department of Health and Environment (CDPHE) prior to applying for a USR. Should the waiver be granted, the full USR request would be brought back for consideration at subsequent Planning Commission and Board of County Commissioners' public hearings. The CDPHE recommendation and certificate of designation approval would be obtained prior to final approval of the USR.

STAFF ASSESSMENT: Staff has evaluated the waiver request in accordance with Section 122 of the Douglas County Zoning Resolution. Should the Planning Commission find that the approval standards for the waiver request are met, the following proposed conditions should be considered for inclusion in the motion:

1. All other applicable requirements and approval standards associated with the Use by Special Review application (US2025-001) currently in process shall be met prior to final approval of the Use by Special Review.
2. The recommendation of approval on the certificate of designation from the Colorado Department of Public Health and Environment shall be

received and the certificate of designation shall be approved by the Board of County Commissioners prior to final approval of the record copy of the Use by Special Review plan exhibit.

ATTACHMENTS:

Cover Page
Staff Report - US2025-001

MEETING DATE: April 6, 2026

STAFF PERSON RESPONSIBLE: Brett Thomas, AICP, Chief Planner

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received and the certificate of designation shall be approved by the Board of County Commissioners prior to final approval of the record copy of the Use by Special Review plan exhibit.

ATTACHMENTS:

US2025-001 5970 N US Highway 85
6th Amendment

DOUGLAS COUNTY
COLORADO

Use by Special Review Amendment Staff Report

Date: March 24, 2026

To: Douglas County Planning Commission

CC: Brett Thomas, AICP, Chief Planner BT
Jeanette Bare, AICP, Planning Manager JB
Steven E. Koster, AICP, Deputy Director of Community Development K EC for SK

Subject: **Zoning Resolution Waiver for 5970 N US Highway 85, 6th Amendment – USR Amendment for the Sedalia Recycling Center and Depository**

Project File: **US2025-001**

Planning Commission Hearing:	**April 6, 2026 @ 6:00 p.m.**
Board of County Commissioners Hearing:	**April 28, 2026 @ 2:30 p.m.**

I. EXECUTIVE SUMMARY

The applicant proposes to amend the Use by Special Review (USR) for the 124.2-acre Sedalia Recycling Center and Depository (SRCD), located at 5970 N US Highway 85, to increase the permit area to approximately 165.9 acres, with 88.3 acres available for landfill activities. The site is located north of Sedalia, approximately 1,500 feet north of the intersection of N US Highway 85 and Delva Way. The site is part of the Sedalia Rural Community as designated on the Douglas County 2040 Comprehensive Maser Plan.

As part of the USR Amendment, the applicant is requesting a waiver of certain provisions of Section 21, Use by Special Review, of the Douglas County Zoning Resolution (DCZR). Specifically, the applicant requests a waiver of the provision in Section 2107.30 which requires the applicant to receive a recommendation of approval for a certificate of designation from the Colorado Department of Health and Environment (CDPHE) prior to applying for a USR. Should the waiver be granted, the full USR request would be brought back for consideration at subsequent Planning Commission and Board of County Commissioners' public hearings. The CDPHE recommendation and certificate of designation approval would be obtained prior to final approval of the USR.

II. APPLICATION INFORMATION

A. Applicant

Sedalia Land Co.
1235 North Loop W, Suite 205
Houston, Texas 77008

B. Applicant's Representative

Dalton Ellis, PE, Region Engineer
Waste Connections, Inc
5970 N US Highway 85
Sedalia, Colorado 80135

C. Request

Approval of a waiver of the provision in Section 2107.30 which requires the applicant to receive a recommendation of approval for a certificate of designation from the Colorado Department of Health and Environment (CDPHE) prior to applying for a USR.

The applicant indicates that the detailed nature of the submittals required for CDPHE review and certificate of designation approval are more appropriate to be provided toward the end of the USR process, rather than before the USR application has been submitted. The waiver will allow all other elements of the USR to be submitted and reviewed by the public, referral agencies, Planning Commission, and Board prior to the Board's approval of the certificate of designation for the landfill as required by CDPHE regulations.

D. Process

A USR application is processed pursuant to Section 21 of the Zoning Resolution. Section 21 states the intent of the process is "to provide for uses in specific zone districts that shall require a public notice and hearing and the approval of the Board of County Commissioners subject to subject to such conditions and safeguards as may be imposed by the Board." Major amendments to an approved USR follow the same process as that required for new USR applications. For landfills, Section 2107.30 states that landfills are allowed provided, "that such use is approved by the Douglas County Health Department and is located 500 feet from all lot lines or 1,000 feet from any existing residential land use, whichever is greater. Prior to applying for a use by special review, the applicant must first receive a recommendation of approval for the certificate of designation from the Colorado Department of Health. Any proposal must be in compliance with the Douglas County Comprehensive Master Plan."

The waiver process is set forth in Section 122 of the DCZR. Waivers may be requested by an applicant in conjunction with any application subject to the standards or other criteria established with the DCZR. Section 122.03 sets forth a series of findings that must be made by the Board in order to approve a waiver request. Specifically, Section 122 provides that "The Board, at a public hearing on a specific application, may hear the request for a waiver from the standards and decide to accept or reject the request, or make modifications to the waiver request." Section 122.02 states that "The Planning Commission, as part of the hearing on a specific application, will hear the request for a waiver from the standards and make recommendations to the Board."

E. Location

The project area is located approximately 1,500 feet north of the intersection of N US Highway 85 and Delva Way near Sedalia. The attached CMP vicinity map, zoning map, and aerial map highlight site location and existing conditions.

F. Project Description

The applicant requests approval of a USR amendment to expand the landfill permit area of the SRCD. The current facility encompasses an approximately 124.2-acre USR permit area, with approximately 66.9 acres available for disposal. The USR amendment application proposes to increase the USR permit area to approximately 165.9 acres with 88.3 acres available for disposal activities. The site, including the additional land to be added to the permit area, is zoned Agricultural One (A-1). "Landfill" is a use allowed subject to USR approval within the A-1 zone district.

A certificate of designation is issued by the Board of County Commissioners to authorize the use of land for a solid waste disposal site or facility. The certificate of designation is issued if the technical standards set out in regulation are met and after local issues are considered and satisfied. The certificate of designation is issued by the Board, based on the recommendation of the CDPHE to approve the application. If the CDPHE disapproves the application, the Board cannot issue the certificate of designation. The Board may also deny the certificate of designation even if it has been approved by the CDPHE.

The applicant requests that the Board waive the requirement that a recommendation of approval for the certificate of designation from the CDPHE be received prior to the County processing the USR amendment. If the waiver request is approved, the USR application will come back before the Planning Commission and Board for a decision on the specifics of the USR application request. The certificate of designation is required to be approved by the Board prior to final approval of the record copy of the USR plan exhibit by the Director of Community Development per proposed condition #2.

Per Section 122.01, the applicant is required to provide a written request that explains in detail the extent of the waiver, and the grounds for the requested waiver. The applicant's assessment of the waiver is attached to this staff report and noted in the staff analysis section below. Generally, the applicant requests Board permission to process the USR amendment application prior to submitting the certificate of designation application to the CDPHE.

III. CONTEXT

A. Background

The original USR application for a limited-use landfill and recycling facility was approved by the Board in 2004 and the site improvement plan component was approved in 2005. Subsequent amendments to the USR were approved in 2005, 2016,

and 2018 for changes to the site including the addition of accessory structures, realignment of easements, and adjustments to the phasing plan.

B. Adjacent Land Uses and Zoning

The project site is bordered by the Cherokee Ranch and Castle Foundation along its entire north and east property lines, along a majority of its south property line, and a portion of its west property line. Beyond the Cherokee Ranch and Castle property to the south are CORE Electric Cooperative offices. Also to the south of the site is the Sedalia Business Park PD and the future location of the County's biochar facility. To the west of the site is additional land owned by Cherokee Ranch and Castle Foundation. The applicant, Sedalia Land Co, owns four residential parcels and there are two additional residential parcels under separate ownership. The following table reflects those zone districts and land uses surrounding the PD.

Zoning and Land Use

Direction	Zoning	Land Use
North	Agricultural One (A1)	Cherokee Ranch and Castle Foundation
East	Agricultural One (A1)	Cherokee Ranch and Castle Foundation
South	Agricultural One (A1) Planned Development (PD)	Cherokee Ranch and Castle Foundation Sedalia Business Park (Future Biochar Facility)
West	Agricultural One (A1)	Cherokee Ranch and Castle Foundation, Residential

IV. PHYSICAL SITE CHARACTERISTICS

The site is currently operated as the Sedalia Recycling Center and Depository, which accepts non-putrescible construction and demolition waste. The SRCD is authorized to fill to an elevation of 6,060 feet and the deepest excavation is 5,870 feet. The maximum height and deepest excavations are not proposed to change as part of the proposed expansion.

V. PROVISION OF SERVICES

The site is served by CORE Electric Cooperative, Xcel Energy, Douglas County Sheriff's Office, West Douglas County Fire District, CenturyLink, and Comcast. None of these agencies objected to the waiver request. If the waiver request is approved, additional review from these agencies will occur through a final referral of the USR application. All referral agency comments are outlined in the referral response report and referral response letters attached to this staff report.

VI. PUBLIC NOTICE AND INPUT

Courtesy notices of an application in process were sent to adjacent property owners during the 21-day referral period. Correspondence was received from two abutting

landowners who primarily had comments regarding the process, setbacks, and potential noise.

Referral response requests were sent to referral agencies on May 19, 2025. All referral responses have been included as an attachment to the staff report or are provided in the referral response report, also attached to the staff report. In general, referral responses received provided comments related to the proposed USR amendment, not the request for a waiver. Mailed, published, and posted notices of the public hearings are required in compliance with Section 2113 of the DCZR.

VII. STAFF ANALYSIS

Pursuant to Section 122 of the DCZR, the waiver may be approved only upon the finding, based upon the evidence presented, that the following criteria are met.

122.03.01: The waiver does not have the effect of nullifying the intent and purpose of this Resolution.
Staff Comment: Section 2107.30 of the DCZR requires the applicant must first receive a recommendation of approval for the certificate of designation from the CDPHE. The applicant's waiver request notes that there are many approvals required to permit the expansion of a landfill, including those from Douglas County, the Douglas County Health Department, and the CDPHE. The request is not to waive the requirement for a certificate of designation; rather, it allows the applicant to defer the timing of the recommendation of approval from CDPHE so that the County can review and approve the proposed expansion prior to submittal to the CDPHE. Once the certificate of designation is approved, required technical corrections to the USR exhibit would be made prior to final approval of the record copy of the USR exhibit by the Director of Community Development.

122.03.2: The granting of the waiver will not be detrimental to the public safety, health, or welfare or injurious to other property.
Staff Comment: The granting of the waiver is not detrimental to the public safety, health, or welfare or injurious to other property. All applicable requirements and approval standards associated with the USR application are required to be met prior to final approval of the Use by Special Review.

122.03.3: The conditions upon which the request for a waiver is based are unique to the property for which the waiver is sought and are not applicable to other property.
Staff Comment: The waiver request is specific to the proposed development on the subject property as depicted on the USR plan exhibit (US2025-001). The unique request does not waive any development standards or other requirements, it defers the timing for the recommendation of approval for the certificate of designation from the CDPHE.

122.03.4: A particular noneconomic hardship to the owner would result from a strict application of this Resolution.

Staff Comment: The applicant indicates that to efficiently process the proposed expansion, the recommendation of approval for the certificate of designation from the CDPHE and approval of the certificate of designation by the Board should be the final step.

122.03.5: The waiver will not in any manner vary the provisions of the Zoning Resolution of County Building Code.
Staff Comment: The waiver request does not fall under the variance provisions as defined within Section 26, Variance Standards and Procedures, of the DCZR. The applicant will be required to comply with all other DCZR requirements and Douglas County building codes through the USR and building permit processes.

122.03.6: The proposed development will be in conformance with the Douglas County Master Plan.
Staff Comment: The site is located within the Sedalia Rural Community as designated with the 2040 CMP. Approval of the waiver will not nullify the requirement for the application to conform with the 2040 CMP.

Approval standards for a USR are set forth in Section 2102 of the DCZR. These standards will be assessed as part of a future staff report on the full USR request.

VIII. STAFF ASSESSMENT

Staff has evaluated the waiver request in accordance with Section 122 of the DCZR. Should the Planning Commission find that the approval standards for the waiver request are met, the following proposed conditions should be considered for inclusion in the motion:

1. All other applicable requirements and approval standards associated with the Use by Special Review application (US2025-001) currently in process shall be met prior to final approval of the Use by Special Review.

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ATTACHMENTS **PAGE**

Douglas County Land Use Application 8
Applicant's Narrative 9
Applicant's Waiver Request 19
CMP Vicinity Map 21
Zoning Map 22
Aerial Map 23
Referral Agency Response Report 24
Referral Agency Response Letters 27

Public Correspondence 94
Applicant Response to Referral Comments 96
Use by Special Review Exhibit 100

DOUGLAS COUNTY
COLORADO

Department of Community Development

www.douglas.co.us

LAND USE APPLICATION

Please complete, sign, and date this application. Return it with the required items listed on the Submittal Checklist to planningsubmittals@douglas.co.us. Submittals may also be mailed or submitted in person to Planning Services. *NOTE: The Planning Commission or the Board of County Commissioners should not be contacted regarding an open application.*

OFFICE USE ONLY
PROJECT TITLE:
PROJECT NUMBER:

PROJECT TYPE: USR Application

MARKETING NAME: Sedalia Land Company

PRESUBMITTAL REVIEW PROJECT NUMBER: PS24-223 Waste Connections - USR

PROJECT SITE:

Address: 5970 North US Highway 85, Sedalia, CO 80135

State Parcel Number(s): 235314100005, 235314100004, 235314100002, 235314100001

Subdivision/Block#/Lot# *(if platted)*: N/A

PROPERTY OWNER(S):

Name(s): Sedalia Land Co

Address: 1235 North Loop W, Suite 205, Houston, TX 77008

Phone: 720-733-8584

Email:

AUTHORIZED REPRESENTATIVE: *(Notarized Letter of Authorization is required from the property owner, unless the owner is acting as the representative)*

Name: Dalton Ellis and Jason Edwards

Address: 5970 North US Highway 85, Sedalia, CO 80135; 6420 Southwest Blvd., Suite 206, Fort Worth, TX 76109

Phone: 720-236-7359; 817-735-9770

Email:

To the best of my knowledge, the information contained on this application is true and correct. I have received the County's information sheet regarding the *Preble's Meadow Jumping Mouse*.

Dalton Ellis
Applicant Signature

1/30/2025
Date

SEDALIA RECYCLING CENTER AND DEPOSITORY
DOUGLAS COUNTY, COLORADO

USE BY SPECIAL REVIEW AMENDMENT

NARRATIVE AND PLAN EXHIBIT



01-09-2026

Prepared for

Sedalia Land Company

January 2025

Revised December 2025

Prepared by

Weaver Consultants Group, LLC
6420 Southwest Boulevard, Suite 206
Fort Worth, Texas 76109
817-735-9770

WCG Project No. 0601-361-11-34-01

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01-09-2026

1 INTRODUCTION

1.1 Purpose

The purpose of this application is to provide the initial frame work for a future, full, and detailed Use by Special Review (USR) Application for the proposed expansion of the Sedalia Recycling Center and Depository (SRCD). Central to that proposed expansion are the waiver requests from minimum allowable set back standards and the order of operations for the Certificate of Designation (CD) approval process. This USR submittal is being made to secure general acceptance of the waiver requests for proposed setbacks and CD process before a full, detailed USR is submitted to consider the expansion of the SRCD. The proposed expansion of the SRCD will occur onto adjacent properties owned by SLC. The adjacent properties have single family residences on them.

The adjacent properties are currently zoned A1 – Agriculture One. Per the Douglas County Zoning Resolution, a landfill is an authorized use in A1 zoning with an approved USR.

The location of the USR Boundary and the portion of the USR Boundary to be designated for landfilling is shown on Drawing 2 included in Appendix A. The following information is provided in this Plan to meet the requirements of the USR regulations.

- Section 2 (Operational Plan) – includes detailed information about the design and continued development of the SRDC.
- Section 3 (Land Use) – includes a description of the land use and zoning information in and adjacent to the USR Boundary.
- Appendix A (Drawings) – includes site plans (including excavation and final cover grades) infrastructure improvements, and photo simulations for the proposed expansion of the SRDC

Additionally, this Plan describes how the site will meet the regulatory criteria set forth in Colorado Revised Statutes (CRS) Title 30, Article 20, Part 1, and Code of Colorado Regulations (CCR) Title 6, Section 1007-2, Part 1. The operation of the landfill includes provisions for preventing unauthorized waste from being brought into the facility; fire prevention and control; procedures for controlling stormwater runoff, dust, odors, and vectors; monitoring gas and groundwater; and litter control and prevention.

1.2 Owner/Operator Information

The existing Sedalia Recycling Center and Depository is owned and operated by Sedalia Land Company. SLC has operated this facility since 2004.

1.3 Facility Operations

The SRCD is now and will continue to be operated by trained and certified personnel. This Plan includes a summary of operational procedures in place for the SRCD as presented in Section 2. Note that the Engineering Design and Operations Plan (EDOP) issued by the CDPHE incorporates a comprehensive operating plan that presents in greater detail all aspects of landfill operation, maintenance and recordkeeping, and includes periodic inspections by CDPHE's enforcement group. Copies of the complete EDOP and operational records are maintained at the SRCD and are available for inspection.

1.4 Required Authorizations

The USR application and submittal of this Plan are the initial steps in obtaining the required permits for a landfill expansion. A summary list of CDPHE and other permits that will be obtained by SLC before the landfill expansion is approved are listed below.

- CDPHE Revised EDOP. CDPHE will issue the operating permit for this landfill expansion. In addition to issuing the operating permit, CDPHE's enforcement group will inspect the facility periodically to verify that the landfill is operating consistent with the operating permit and all applicable regulations.
- Certificate of Designation. Douglas County will issue the CD for the proposed development of the SRCD. Per the waiver request, Douglas County will review the USR application before an approved EDOP is issued by CDPHE. The County will have an opportunity to verify that the EDOP is in conformance with the USR once the EDOP is approved by CDPHE and a CD application is submitted.
- Colorado Division of Reclamation Mining and Safety (DRMS) Construction Materials Operation Permit. Portions of the proposed SRCD Expansion is currently permitted as a mining operation for construction materials (clay). Before developing within the proposed expansion area, the permit with DRMS will be reissued to allow for landfilling once clay materials have been removed.
- Douglas County Health Department. The proposed SRCD Expansion will need to be approved by the local health department. In the past, this has been approved by the Tri-County Health Department (TCHD). However, with TCHD's dissolution at the end of 2022, it is assumed Douglas County's Health Department will issue this approval.

2 OPERATIONAL PLAN

2.1 Existing Site Conditions

The SRCD is situated on approximately 205.5 acres some 10 miles south of Denver, Colorado and one-half mile north of Sedalia, Colorado on the north side of State Highway 85. On September 3, 2004, the Douglas County Commissioners issued the original Certificate of Designation (CD) for the facility with 23 conditions of approval. Additionally, the County issued 18 conditions of approval to the Use by Special Review (USR) application. The EDOP was originally approved by the Colorado Department of Public Health and Environment (CDPHE) and Douglas County in 2005. Subsequent leachate collection system and Site Operation Plan (alternate daily cover and Leachate Sampling and Analysis Plan) revisions were approved in 2006. The Soil and Liner Quality Assurance Plan for the SRCD was updated in 2024. A site plan showing the currently permitted property and waste footprint is included as Drawing 2 in Appendix A. As shown on Drawing 2, the facility maintains permitted minimum setbacks of 105 feet, 45 feet, 35 feet and 150 feet from the east, north, west and south USR boundary lines, respectively, and the limit of waste.

2.2 Current and Future Landfilling

The SRCD is authorized to use compacted clay liner as the cell liner system. The facility accepts non-putrescible construction and demolition waste. The SRCD is authorized to fill to an elevation of 6,060 ft-msl, and the deepest excavation is 5,870 ft-msl. The maximum height and deepest excavation are not proposed to change as a part of the proposed expansion of the SRCD. The waste disposal footprint is permitted to be 67 acres on the 205.5-acre property. This is proposed to increase to 88 acres.

2.2.1 Surface Water Management

Because of the limited amount of precipitation in the area (approximately 18" total annual) and the predominance of vegetation and relatively-permeable near-surface soils across the site, little or no run-off occurs. Most snowmelt evaporates or percolates directly into the soils and only a limited number of severe summer storms are intense and severe enough to generate surface run-off.

Ponds will be constructed to collect and control storm water from the facility footprint during the different stages of site development. Run-on into the facility area will be routed around the facility, via diversion ditches, to natural drainage

features on the western side of the property. Surface run-off from the vicinity of the depository flows into Plum Creek, which is a low flow stream except during precipitation events. The drainage from Plum Creek ultimately flows to the South Platte River. There will be no discharge from the site to Plum Creek due to onsite ponds and improvements.

2.2.2 Groundwater Monitoring

The purpose of the groundwater monitoring system is to verify the integrity of the landfill containment system and to confirm that groundwater is not adversely impacted by the proposed or permitted landfill. The current system incorporates a groundwater monitoring system, consisting of six monitoring wells. The locations of the groundwater monitoring wells are shown on Drawing 1. The expansion of the landfill onto the adjacent property will require that new monitoring wells be installed along the perimeter of the landfill at intervals and depths to be determined as a component of the updated EDOP, and compliant with the CDPHE Regulations.

2.2.3 Landfill Gas Migration Monitoring

Monitoring of gas migration at the landfill permit boundary is performed to demonstrate that landfill gases are not migrating from the landfill onto adjacent properties and structures. The existing and proposed gas probe locations are shown on the Drawings in Appendix A. Additionally, probes will be installed on the adjacent Property to ensure the proposed landfill gases are managed and monitored properly. Probe locations for the expansion area will be determined as part of the updated EDOP.

2.2.4 Air Criteria and Odor Control

The SRCD is subject to CDPHE Air Pollution Control Division (APCD) concerning burning and air pollution control and thus will ensure that the operation of the facility does not violate applicable requirements of the approved State Implementation Plan developed under the Clean Air Act, §110, as amended, and Colorado regulations that prohibit the open burning of waste.

SRCD operated in compliance with Construction Permit 08DG1021 issued by APCD, which mandates the monitoring of useable emissions, waste acceptance, fugitive particulate matter emissions, and odor control. Additionally, the SRCD adheres to an Air Pollutant Emissions Notice, which is updated as needed to align with CDPHE APCD regulations.

The application of daily cover (6 inches soil or an approved alternative) and the control of ponded water at the site will greatly minimize the potential for generation of objectionable or nuisance odors from the SRCD. Most odors typically originate near the working face and are produced by incoming waste. These odors usually dissipate within a few hundred feet. If a particular load or source of incoming waste

is expected to be odorous, the operator will, when possible, be notified prior to its arrival to allow time for preparation of a trench within the working face to deposit the load. The odorous material will then immediately be covered with additional waste and/or cover soil.

2.2.5 Site Access and Traffic Patterns

The main public roadway providing access to the site is U.S. Highway 85, and the traffic patterns into the site have been well-established over the past 20 years. The scalehouse, offices and maintenance facilities are located near the site entrance and along the western edge of the currently permitted property as shown on Drawing 2 (Appendix A) and will be relocated south as shown on Drawing 3.

The site access road includes a paved roadway (Delta Way) that transitions into a crushed stone landfill perimeter road. The paved access road serves as mud control for waste hauling vehicles prior to exiting the landfill site and returning to U.S. Highway 85. The crushed stone perimeter road is maintained for all-weather access by site personnel. Stockpiles of crushed stone, concrete rubble, masonry demolition debris, or other similar material may be available for use in maintaining passable access roads. Grading equipment or other appropriate equipment will be used, as necessary, to control or remove mud accumulations on the perimeter access road around the landfill and the paved landfill access road.

Vehicle access to the landfill is controlled at the site entrance by signs that direct all landfill traffic to the scalehouse during site operating hours. As a part of this project, the entrance will be relocated south onto adjacent property. Personnel on duty at the entrance regulate access to the landfill as well as inspecting arriving loads for compliance with the EDOP. Outside operating hours, the gate to the site will be locked to prevent unauthorized vehicle access**.**

2.2.6 Fire Protection and Personnel Safety

The SRCD is operated and will continue to be operated in compliance with a comprehensive Fire Protection Plan as set forth in the EDOP. The Fire Protection Plan incorporates fire protection training of employees, fire protection standards, fire safety rules, procedures addressing waste load fires and fires at the disposal face of the landfill, preventative procedures and agency notification and recordkeeping requirements.

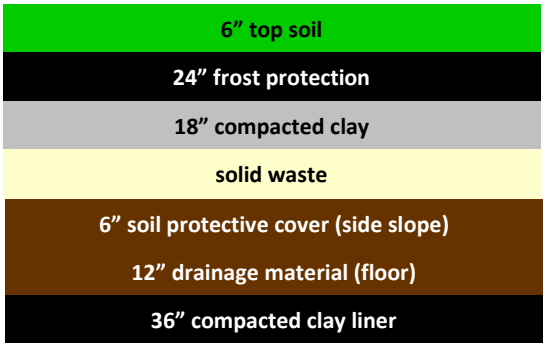
The EDOP also includes extensive requirements for personnel safety including safe work practices, equipment and vehicle safety, site access controls, hazardous materials communications, preparedness and prevention measures, and recordkeeping requirements.

2.3 Landfill Expansion and Site Development Plan

The expansion of the SRCD, as proposed in this Plan, will include the development of the adjacent property under an amended USR application to incorporate new waste disposal cells. This Plan sets forth the overall design and operating characteristics of the landfill. Drawings showing the proposed landfill configuration (including site plan, bottom liner grades, and final grades of the expanded landfill) are presented in Appendix A. A summary of the expanded landfill configuration is provided below.

- The current property boundary of the SRCD facility encompasses 205.5 acres with a currently permitted area available for disposal of about 67 acres. With this USR amendment the total USR boundary will increase by approximately 42 acres and the permitted waste disposal area will increase approximately 21 acres to a total of 88 acres.
- The minimum elevation of the landfill excavation grades will remain at approximately 5,870 ft-msl (i.e., the top of the excavation in deepest sump, as shown on Drawing 2).
- The maximum elevation of the final cover is not proposed to change and will remain at 6,060 ft-msl (as shown on Drawing 3).
- The USR expansion disposal cells will be constructed with a compacted clay liner system as shown below.
- Above grade waste disposal will conform to the lines and grades set forth on Drawing 3 in Appendix A. Exterior fill slopes will not exceed 25 percent (4H:1V) from the toe of the perimeter berm embankment to the top of the slope. The slope of the landfill top deck will be constructed at a 10 percent maximum slope.
- A final cover system (e.g., compacted clayey soil barrier layer/frost protected layer, topsoil) will be constructed over the filled waste area as shown in Drawing 2 included in Appendix A. The final cover system is designed to minimize storm water infiltration into the underlying waste.
- Setback distances from the USR boundary to the proposed expansion limit of waste will be equal or greater than those in the current USR. The west setback will increase from a minimum of 35 feet to a minimum of 200 feet. The north setback will increase from a minimum of 45 feet to a minimum of 520 feet. The south and east setbacks of 150 feet and 105 feet will not change from the existing USR minimum setbacks.

The design objective of the containment systems is to isolate the solid waste and remove leachate (defined as water that has contacted solid waste) that may collect above the liner system. A detail of the combined liner and final cover systems is provided in the adjacent detail.



The liner and cover systems will be designed to meet or exceed all state and federal regulations.

3 LAND USE

3.1 Location and Zoning

The SRCD and the adjacent property lie within Douglas County. The landfill is located at 5970 US-85, Sedalia, Colorado, approximately 1,600 feet north and 900 feet east of the U.S. Highway 85. The current zoning of the properties (A1 – Agriculture One) allows for the continued development of the landfill, including the proposed expansion with the proposed USR amendment. Aside from this USR amendment, no other zoning related permits are required for this project.

3.2 Surrounding Land Use

The properties surrounding the landfill and proposed USR Properties are generally undeveloped or having low-density residential uses. US-85 acts as a major transportation corridor that separates commercial/residential areas located south and west of US-85 from the landfill, which is located north of US-85. The land use within one-mile of the landfill can be generally characterized as low-density residences, commercial and agricultural.

A comprehensive land use study will be prepared for the expansion in support of the USR and EDOP amendment applications, that will address adjacent land uses, business types, schools, daycare facilities, churches, cemeteries, archaeological sites, water bodies, and other relevant features.

Weaver Consultants Group

January 9, 2026
Project No. 0601-606-11-34-03

Jeanette Bare
Principal Planner
Douglas County – Planning Services Division
100 Third Street, 2nd Floor
Castle Rock, CO 80104

Re: Zoning Regulations Waiver Requests
Sedalia Recycling Center and Depository
Douglas County, Colorado

Dear Ms. Bare:

On behalf of Sedalia Land Company, Inc., the purpose of this letter is to request a waiver from a portion of Douglas County Zoning Regulation 2107.30. This regulation requires that a landfill receives recommendation of approval for a Certificate of Designation (CD) from the Colorado Department of Public Health and Environment (CDPHE) before the landfill can apply to Douglas County for a Use by Special Review (USR). This regulation also requires minimum setbacks from lot lines and existing residents. These waivers, if granted, would defer the requirement for a recommendation of approval of a CD until after Douglas County has approved the USR Application and decrease the minimum setbacks to the currently-permitted values or greater, as shown in the USR exhibit.

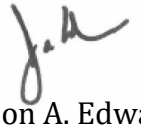
The Sedalia Recycling Center and Depository (SRCD) is an existing non-hazardous, non-putrescible solid waste landfill located at 5970 North Highway 85, Sedalia, CO. The SRCD is proposing to apply for a USR on adjacent properties to allow for the expansion of the SRCD disposal footprint. Many separate approvals are required to permit the expansion of a landfill, including those from Douglas County and the CDPHE. To efficiently complete the expansion application process, recommendation for approval of the CD from CDPHE and approval of the CD by Douglas County should be the final step. Sedalia Land Company is seeking a waiver from the Douglas County Zoning Regulation requirement that CDPHE issues a recommendation of approval of a CD before the USR application can be made. The waiver will allow for Douglas County to review, issue comments on, and approve the proposed landfill development prior to submittal to CDPHE.

Assuming approval is granted for the USR application, all other authorizations for the proposed expansion are obtained, and the CDPHE recommends approval of a CD, Sedalia Land Company would then make any necessary updates to the previously approved USR application and allow Douglas County to have a final review of the USR, consistent with Zoning Regulations. This proposed waiver would retain the intent of the zoning regulations and provide an efficient process for the expansion application.

The waiver from the setback regulations is being made to allow for the currently-permitted setback distances of 105 feet, 45 feet, 35 feet, and 150 feet to continue to be used for the SRCD for the east, north, west, and south sides, respectively, of the USR boundary. As a part of the proposed landfill development, the north and west setbacks are proposed to increase the 520 feet and 200 feet, respectively.

We appreciate your consideration of this request. If you have any questions or need any more information, please do not hesitate to contact me.

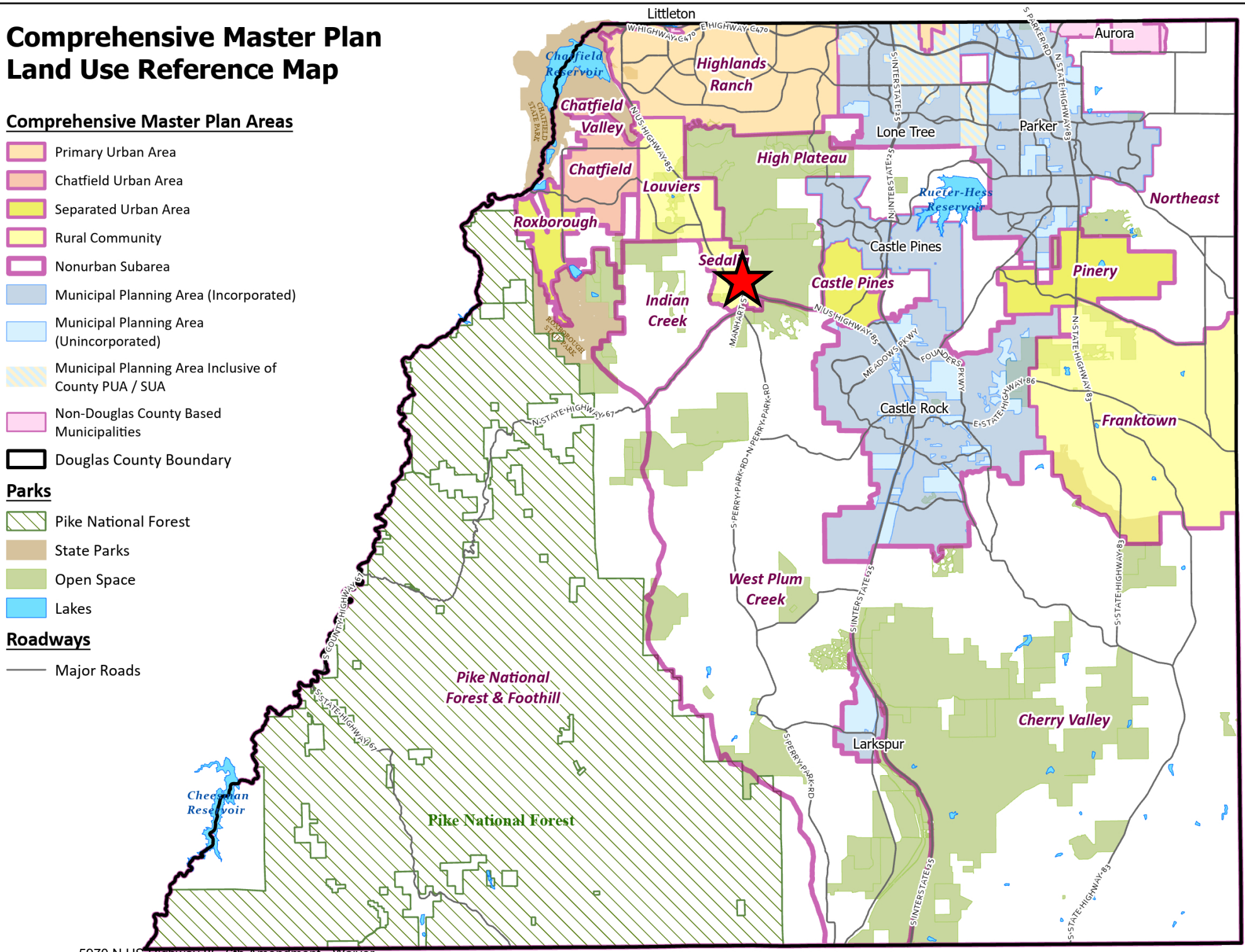
Sincerely,
Weaver Consultants Group, LLC



Jason A. Edwards, P.E.
Senior Engineer

cc: Mark Adams, Sedalia Land Company, Inc.
Dalton Ellis, P.E., Sedalia Land Company, Inc.

Comprehensive Master Plan Land Use Reference Map



Comprehensive Master Plan Areas

- Primary Urban Area
- Chatfield Urban Area
- Separated Urban Area
- Rural Community
- Nonurban Subarea
- Municipal Planning Area (Incorporated)
- Municipal Planning Area (Unincorporated)
- Municipal Planning Area Inclusive of County PUA / SUA
- Non-Douglas County Based Municipalities
- Douglas County Boundary

Parks

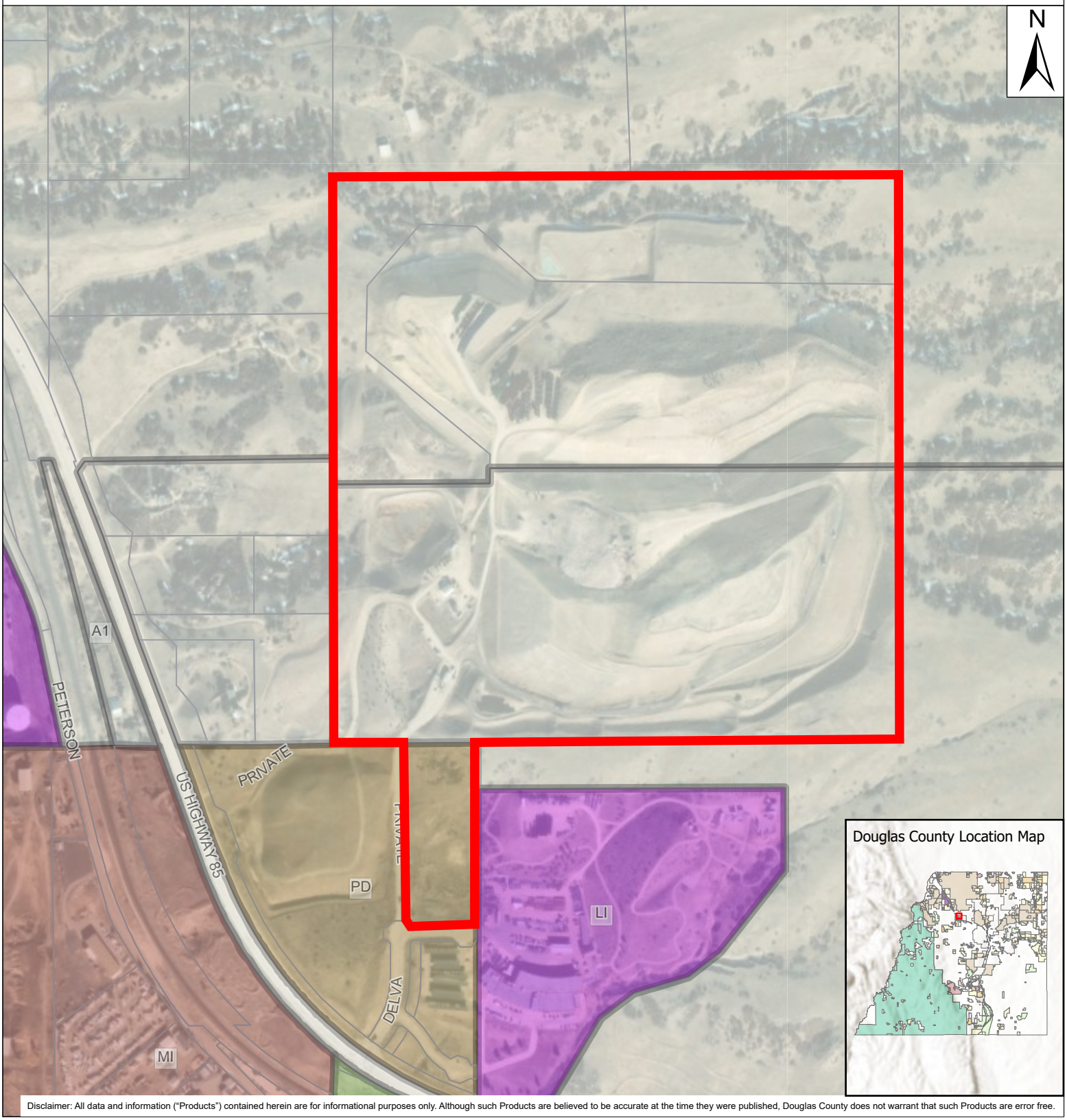
- Pike National Forest
- State Parks
- Open Space
- Lakes

Roadways

- Major Roads

5970 N US Highway 85, 2nd Amendment US2025-001

DOUGLAS COUNTY COLORADO

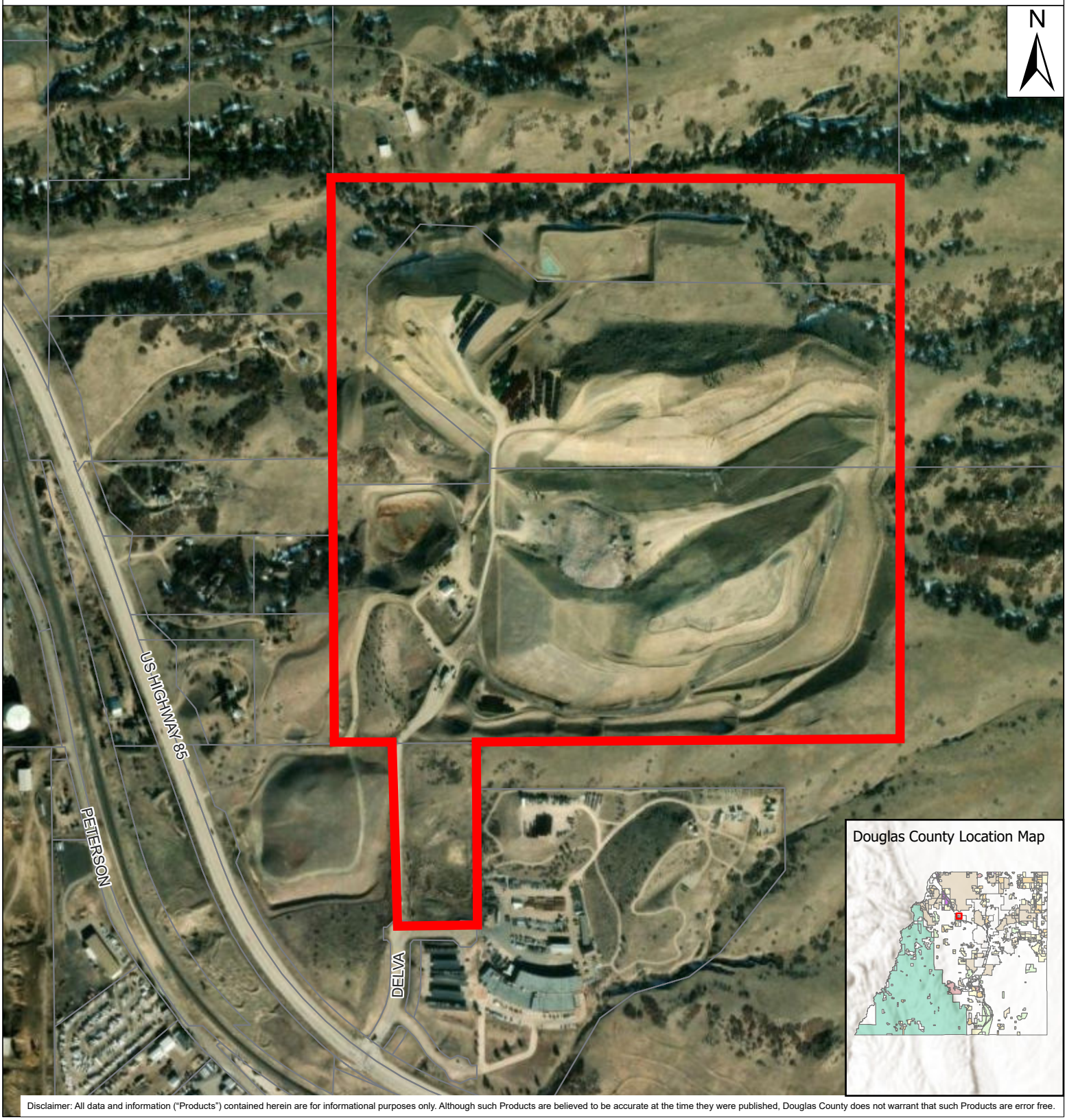


Disclaimer: All data and information ("Products") contained herein are for informational purposes only. Although such Products are believed to be accurate at the time they were published, Douglas County does not warrant that such Products are error free.

- CMTY - SEDALIA COMMUNITY
- MI - SEDALIA MIXED INDUSTRIAL
- PD - PLANNED DEVELOPMENT
- A1 - AGRICULTURAL ONE
- B - BUSINESS
- LI - LIGHT INDUSTRIAL
- GI - GENERAL INDUSTRIAL

5970 N US Highway 85, 2nd Amendment US2025-001

DOUGLAS COUNTY COLORADO



Disclaimer: All data and information ("Products") contained herein are for informational purposes only. Although such Products are believed to be accurate at the time they were published, Douglas County does not warrant that such Products are error free.

Project Name: 5970 N US Hwy 85, 2nd Amendment
Project File #: US2025-001
Date Sent: 05/19/2025 **Date Due:** 06/09/2025

Agency	Date Received	Agency Response	Response Resolution
Addressing Analyst	05/22/2025	No comment.	No action necessary.
AT&T Long Distance - ROW	05/21/2025	**Summary of response letter:** AT&T reviewed the request and noted no conflict with the request.	No action necessary.
Black Hills Energy		No response received.	
Building Services	05/21/2025	**Verbatim response:** Permit is required. Please visit Douglas County's web site for requirements and contact 303-660-7497 if you have any questions.	Necessary permits will be applied for following approvals related to the USR amendment.
CDPHE - All Referrals	06/04/2025	**Summary of response letter:** CDPHE noted air and land development permits may be required for the proposed project. Comments were provided related to fugitive dust and APENs (Air Pollutant Emission Notices) and permit forms.	The applicant acknowledged air and land permits will be required, in addition to a revision to the facility's Engineering Design and Operations Plan (EDOP) to permit the expansion of the facility's disposal footprint. The applicant indicated it maintains a current air permit for the existing facility.
CenturyLink	07/03/2025	**Summary of response letter:** CenturyLink indicated that it has no objections.	No action necessary.
Chatfield Watershed Authority		No response received.	
Colorado Department of Transportation CDOT-Region # 1	06/06/2025	**Summary of response letter:** CDOT provided comments related to disturbance within the right-of-way, stormwater management plan, drainage, access permits, and vehicle queueing.	The applicant clarified there will not be disturbance in the right-of-way and that the existing northern access is only used for occasional maintenance. The applicant prepared an updated traffic study and acknowledged a stormwater management plan will be prepared.
Colorado Division of Water Resources	06/11/2025	**Summary of response letter:** The Division of Water Resources stated as long as the existing well (#62607-F) is used in accordance with its ascribed permit and the water for the project is obtained from a qualified legal source, it has no comments on the proposed project.	No action necessary.
Colorado Geological Survey	06/03/2025	No comment.	No action necessary.
Colorado Parks and Wildlife (Northwest DC - District 551)	05/24/2025	**Summary of response letter:** CPW noted it has no concerns with the project as it pertains to wildlife issues.	No action necessary.

Project Name: 5970 N US Hwy 85, 2nd Amendment
Project File #: US2025-001
Date Sent: 05/19/2025 **Date Due:** 06/09/2025

Agency	Date Received	Agency Response	Response Resolution
Comcast		No response received.	
CORE Electric Cooperative	05/23/2025	**Verbatim response:** CORE Electric Cooperative has reviewed the contents in the above-referenced referral response packet. We reviewed the project for maintaining our existing facilities, utility easements, electric loading, and service requirements. We are advising you of the following concerns and comments: CORE has existing overhead electric facilities on the subject property. CORE will maintain these existing utility easements and facilities unless otherwise requested by the applicant to modify them under the CORE's current extension policies. The proposed expansion will affect existing overhead electric facilities and will be required to be relocated for the proposed weigh station. CORE and the applicant will address the relocation of the existing overhead electric facilities at electric design. CORE approves the Use by Special Review.	The applicant acknowledged relocation of existing overhead lines is being coordinated with CORE.
Division of Reclamation, Mining, & Safety		No response received.	
Douglas County Conservation District	06/09/2025	**Summary of response letter:** The Conservation District submitted advisory comments related to soil suitability, phased grading, erosion control, and low impact development techniques.	The applicant acknowledged detailed plans and reports will be developed as part of the permitting process with CDPHE and Douglas County.
Douglas County Health Department	06/04/2025	**Summary of response letter:** The DCHD provided comments related to stormwater impacts and mosquito control for stormwater facilities.	The applicant acknowledged a drainage plan will be reviewed and approved by CDPHE and Douglas County. Mosquito control measures will be incorporated into the detailed site development and operations plan.
Douglas County Historic Preservation	06/09/2025	**Summary of response letter:** The Curator noted no concerns at this time for cultural resources and has no further recommendations.	No action necessary.

Project Name: 5970 N US Hwy 85, 2nd Amendment
Project File #: US2025-001
Date Sent: 05/19/2025 **Date Due:** 06/09/2025

Agency	Date Received	Agency Response	Response Resolution
Douglas County Parks and Trails	05/20/2025	**Verbatim response:** Parks has no concerns about this request.	No action necessary.
Engineering Services	06/09/2025	No comment.	No action necessary.
History Colorado		No response received.	
Mile High Flood District		No response received.	
Office of Emergency Management	05/19/2025	No comment.	No action necessary.
Open Space and Natural Resources		No response received.	
Sedalia Property Owners Coalition		No response received.	
Sedalia Water & Sanitation District		No response received.	
Sheriff's Office		No response received.	
Sheriff's Office E911		No response received.	
West Douglas County FD	06/09/2025	**Verbatim response:** We have no issues with this project as proposed.	No action necessary.
Xcel Energy-Right of Way & Permits	06/04/2025	**Summary of response letter:** Xcel reviewed the request and noted no apparent conflict with the application.	No action necessary.

Brett Thomas

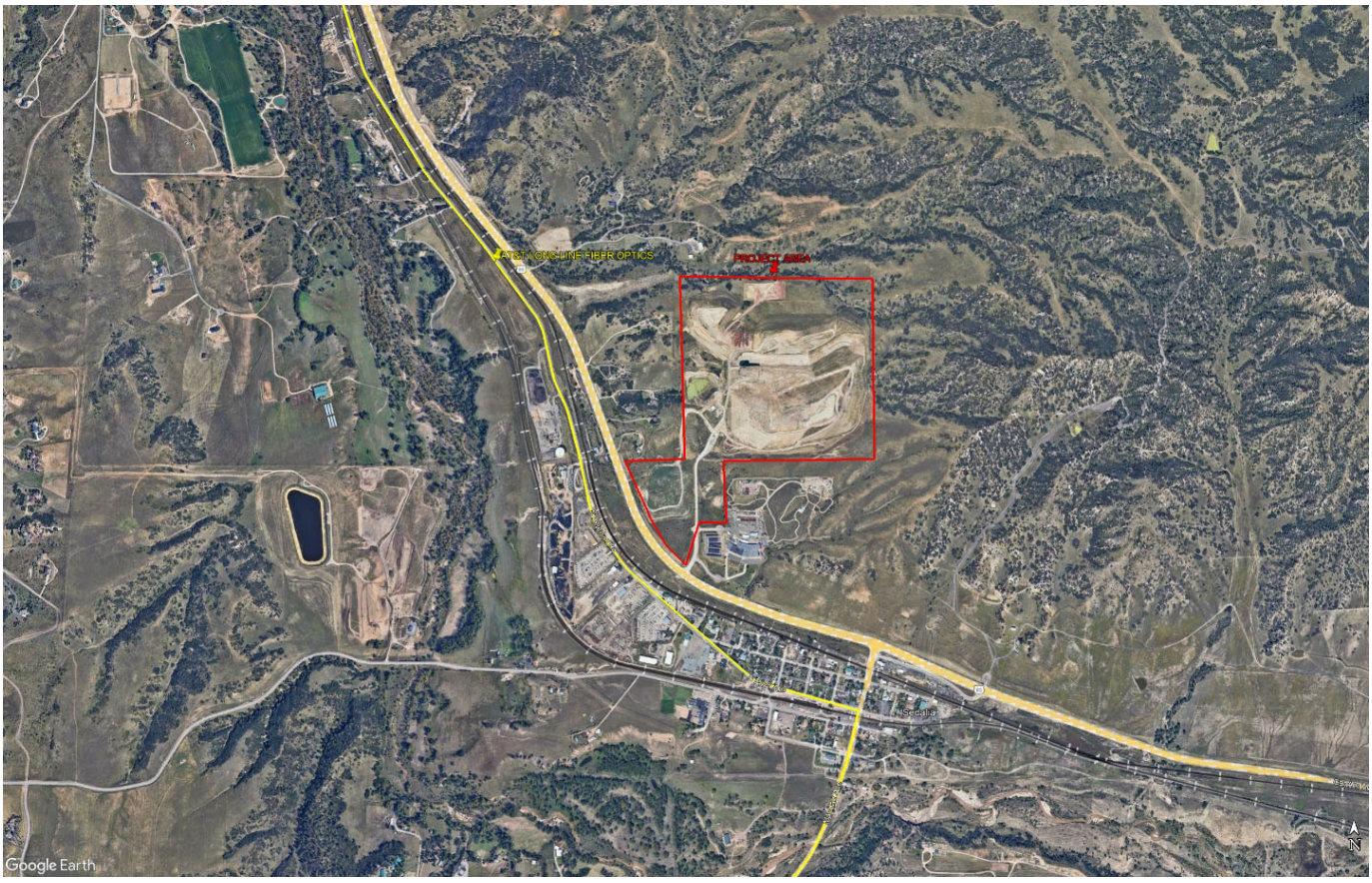
From: annb cwc64.com <annb@cwc64.com>
Sent: Wednesday, May 21, 2025 5:12 PM
To: Brett Thomas <bthomas@douglas.co.us>
Cc: Pam Choy (pc2914@att.com) <pc2914@att.com>; duanew cwc64.com <duanew@cwc64.com>; jt cwc64.com <jt@cwc64.com>
Subject: HWY 85 Sedalia, Colorado Douglas County eReferral #US2025-001

Hi Brett,

This is in response to your eReferral with a utility map showing any buried AT&T Long Line Fiber Optics near HWY 85 Sedalia, Colorado. The Earth map shows the project area in red and the buried AT&T Long Line Fiber Optics in yellow. Based on the address and/or map you provided, there should be NO conflicts with the AT&T Long Line facilities.

Please feel free to contact us with any questions or concerns.

Ann Barnowski
Clearwater Consulting Group Inc
120 9th Avenue South
Suite 140
Nampa, ID 83651
Annb@cwc64.com



The attached google earth maps are intended to show approximate locations of the buried AT&T long line fiber optic cable. The maps are provided for informational purposes only. In no way should the maps be used for anything other than general guidelines as to where the fiber is or is not and any other use of these maps is strictly prohibited.

COLORADO
Department of Public Health & Environment

Dedicated to protecting and improving the health and environment of the people of Colorado

Brett Thomas
Chief Planner
Douglas County Planning Services
100 Third Street Castle Rock, CO 80104

VIA EMAIL
RE: Douglas County eReferral (US2025-001) Is Ready For Review

Dear Brett Thomas,

The Colorado Department of Public Health and Environment's Air Pollution Control Division (APCD or Division) received a request for an air quality administrative review concerning the proposed Sedalia Recycling Center and Depository expansion project as described in your correspondence dated May 19, 2025. The Division has reviewed the project letter and respectfully offers the following comments. Please note that the following Air Quality Control Commission (AQCC) regulations may not be inclusive of the regulations the proposed project will be subject to. It is the responsibility of the involved parties to determine what regulations they are subject to and follow them accordingly.

Land Development
We also note that projects similar to this proposal often involve land development. Under Colorado air quality regulations, land development refers to all land clearing activities, including but not limited to land preparation such as excavating or grading, for residential, commercial or industrial development. Land development activities release fugitive dust, a pollutant regulation by the Division. Small land development activities are not subject to the same reporting and permitting requirements as large land activities. Specifically, land development activities that are less than 25 contiguous acres and less than 6 months in duration do not need to report air emissions to the Division. It is important to note that even if a permit is not required, fugitive dust control measures including the Land Development APEN Form APCD-223 must be followed at the site. Fugitive dust control techniques commonly included in the plan are included in the table below.

Control Options for Unpaved Roadways	
Watering	Use of chemical stabilizer
Paving	Controlling vehicle speed
Graveling	
Control Options for Mud and Dirt Carry-Out Onto Paved Surfaces	
Gravel entry ways	Washing vehicle wheels
Covering the load	Not overfilling trucks
Control Options for Disturbed Areas	
Watering	Application of a chemical stabilizer
Revegetation	Controlling vehicle speed
Compaction	Furrowing the soil
Wind Breaks	Minimizing the areas of disturbance

Synthetic or Natural Cover for Slopes

Please refer to the website https://cdphe.colorado.gov/apens-and-air-permits for information on land use APENs and permit forms. Click on “Land Development” to access the land development specific APEN form. Please contact KC Houlden, Construction Permits Unit Supervisor, at 303-692-4092, kenneth.houlden@state.co.us if you have any specific questions about APENs and permit forms.

If you have any other questions or need additional information, please use the contact info listed above, or e-mail or call me directly. Thank you for contacting the Air Pollution Control Division about your project.

Sincerely,
Brendan Cicione
Air Quality and Transportation Planner
General SIP Unit
Air Pollution Control Division
Colorado Department of Public Health and Environment
303-691-4104 // brendan.cicione@state.co.us

July 3, 2025

CenturyLink

Brett Thomas, AICP, Chief Planner
Planning Services
100 Third Street
Castle Rock CO 80104

Sent To: bthomas@douglas.co.us
Copied To: Ben.Hoselton@lumen.com

P866196
No Reservations/No Objection

No Reservations/No Objection for: US25-001 N USH 85 / Use by Special Review (USR) Amendment to expand the landfill permit area of the Sedalia Recycling Center and Depository/ 5970 N US Highway 85, Sedalia, CO/ Douglas County SRN 2353-141-00-004, -005

Dear Mr. Thomas:

Qwest Corporation, d/b/a CenturyLink QC ("CenturyLink") has reviewed the request for comment on the project described above and has determined that it has No Reservations/No Objections.

It is the intent and understanding of CenturyLink that this Letter of No Objection shall not reduce our rights to any existing easement or rights we have on this site or in the area.

This Letter of No Comment/No Objection response is submitted WITH THE STIPULATION that if CenturyLink facilities are found and/or damaged within the area as described, the Applicant will notify Lumen and bear the cost of relocation and repair of said facilities.

If you have any questions and/or if the Aerial Drop Conflicts, please contact Ben Hoselton at Ben.Hoselton@lumen.com or Stephanie Canary at (352) 425-8763 or stephanie.canary@lumen.com.

Sincerely yours,

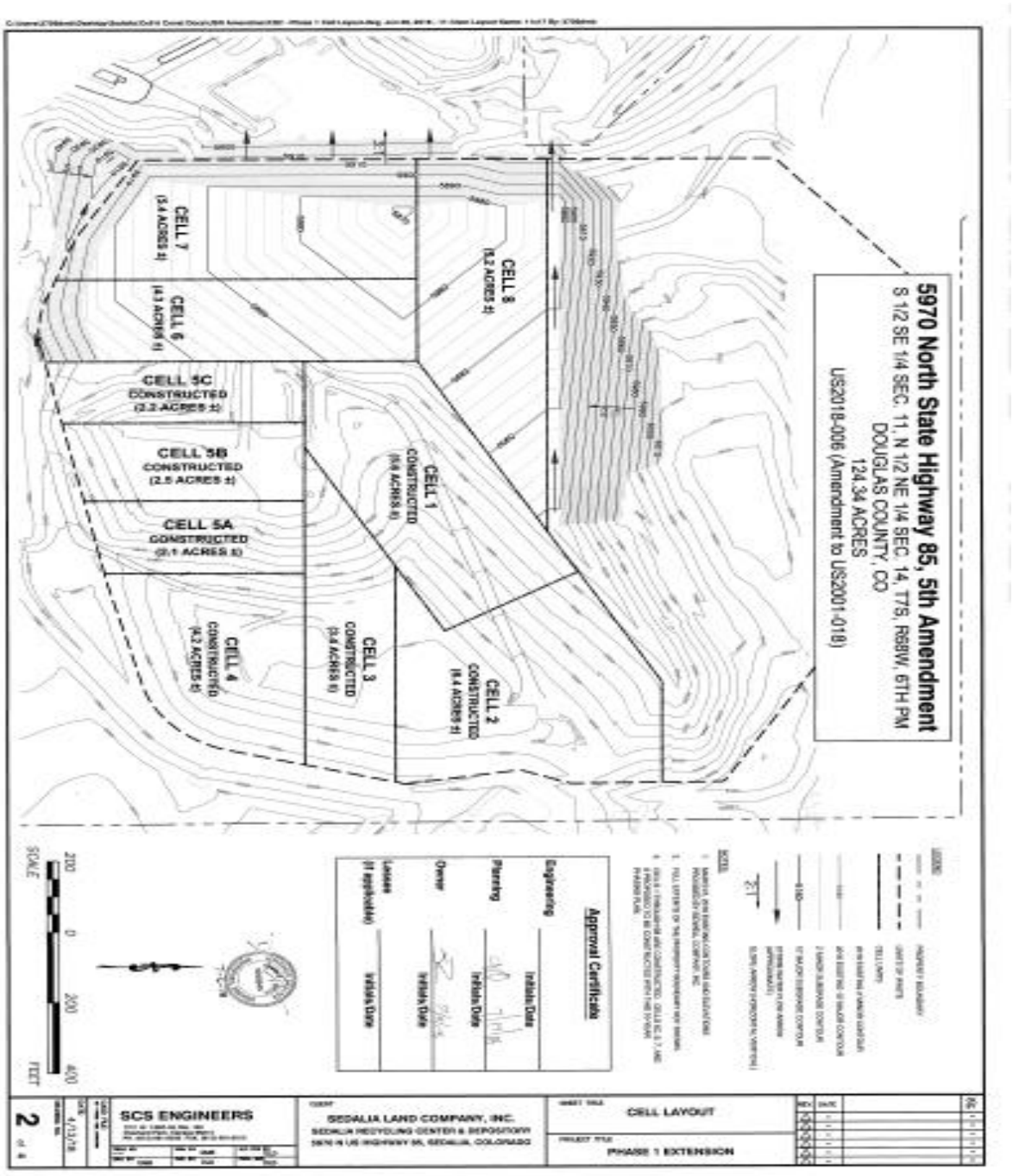
CenturyLink Right of Way Team

EXHIBIT P866196 Page 1 of 3



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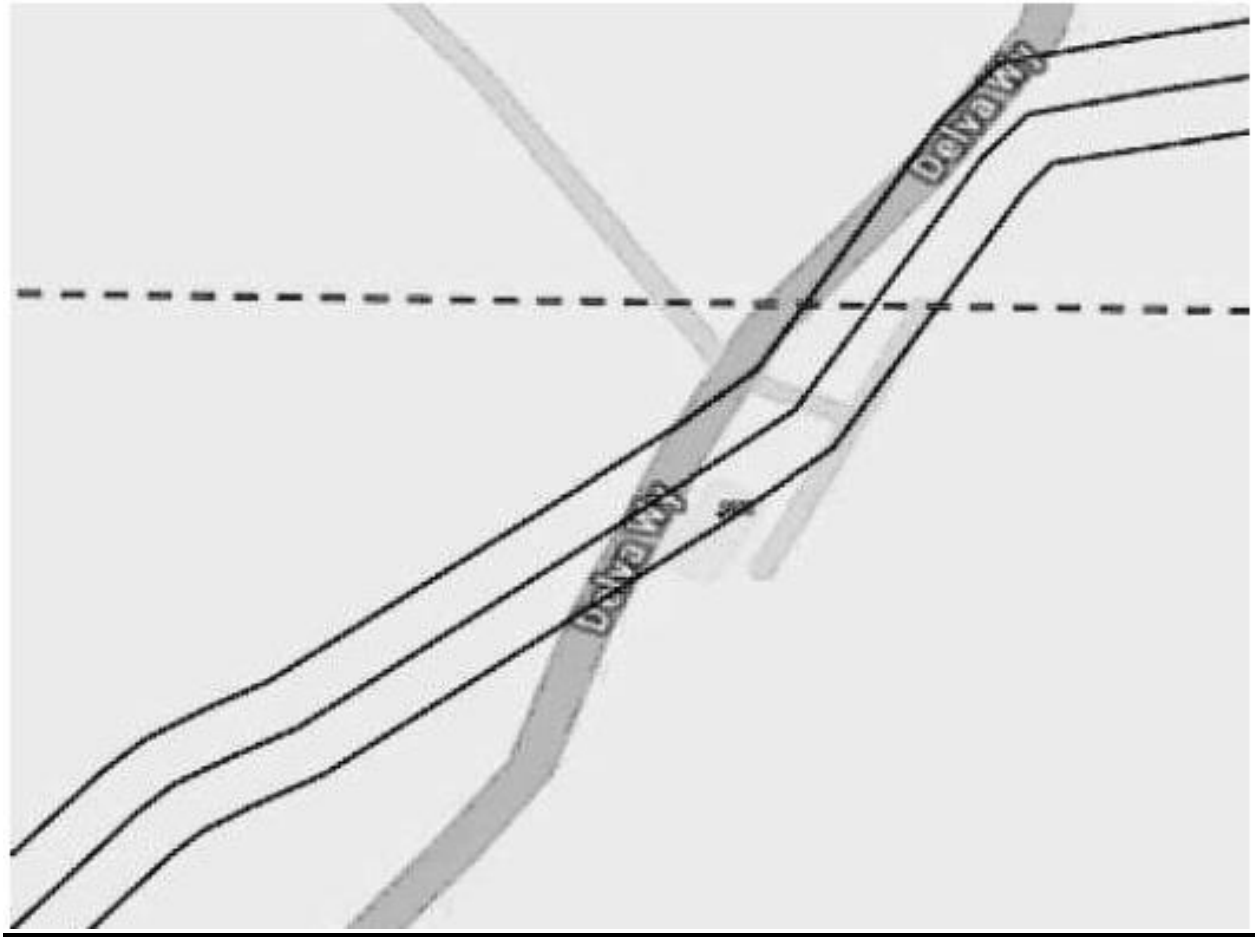
EXHIBIT P866196 Page 2 of 3



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EXHIBIT P866196 Page 3 of 3
Lumen Exhibit

NO RESERVATIONS, UNLESS THE AERIAL DROP CONFLICTS(DOTTED LINE BELOW).



Not to Scale-For Illustration Only

Traffic & Safety
Region 1
2829 W Howard Place, 2nd Floor
Denver, Colorado 80204

COLORADO
Department of Transportation
Region 1

Project Name: 5970 N US Highway 85

Print Date: 6/6/2025 **Highway**: 085 **Mile Marker**: 190.896

A comment response letter is REQUIRED along with the next submittal.

Review POC: Varner, Jessica

Environmental Comments:

Planning has no concerns

For ANY ground disturbance/work within CDOT ROW---

Required:

Arch/History/Paleo:

Since this is a permit, a file search for Arch, Paleo and History is required. If the file search identifies anything, a more extensive report will be required. If nothing is identified, then the file search should be sufficient. For the file search contact:

Cultural/History File Search: https://www.historycolorado.org/file-access Email: hc_filesearch@state.co.us

Paleo File Search: Colorado University Museum of Natural History - https://www.colorado.edu/cumuseum/research-collections/paleontology/policies-procedure Email: jacob.vanveldhuizen@colorado.edu and from the Denver Museum of Nature and Science – Email: kristen.mackenzie@dmns.org https://www.dmns.org/science/locality-search-request/

If there is NO ground disturbance within CDOT ROW, the applicant shall submit an email/memo to the R1 Environmental Permit Review Specialist stating this.

Info for Applicant/Contractor:

The Permittee shall complete a stormwater management plan (SWMP) which must be prepared with good engineering, hydrologic, and pollution control practices and include at a minimum the following components: qualified stormwater manager; spill prevention and response plan; materials handling; potential sources of pollution; implementation of control measures; site description; and site map.

In addition, the Permittee shall comply with all local/state/federal regulations and obtain all necessary permits. Permittee shall comply with CDOT's MS4 Permit. When working within a local MS4 jurisdictional boundary, the permittee shall obtain concurrence from the local MS4 that the local MS4 will provide construction stormwater oversight. The local MS4 concurrence documentation shall be retained with the SWMP.

Clear Zone: It is the responsibility of the engineer/architect who stamps the plans to ensure that: any new landscaping/trees are outside of the clear zones for any State Highway/CDOT ROW and that the new landscaping/trees do not interfere with site lines from any State Highway/CDOT ROW.

Landscape: Any new or changes to existing landscaping within CDOT ROW must be reviewed and approved by CDOT. Landscaping plans should be submitted and should include details of all proposed plant species and seed mixes/ratios.

Hydraulics Comments:

Robert_Rivera 6-4-2025:

The on-site ponds must be located outside CDOT right-of-way. The minor water surface elevation and the major water surface elevation may not encroach onto CDOT right-of-way.

Runoff to be released at or below existing flow rate conditions.

Permits Comments:

6/5/25 - JT

It looks like there is an additional access point at MP 191.174 along 85. What is this access being used for?

6.5.25

- Is there an existing state highway access permit for Hwy 85 and Delva Way? -- Aaron Eyl 6.5.25

Residential Engineer Comments:

5/21/2025 JB - No roadway design concerns right now. Along with Traffic, I am also wary of moving the scalehouse closer to US-85 and if it would impact US-85. I would need to further review this design if any modifications to US-85 auxiliary lanes occur.

Traffic Comments:

5/20/2025 GRilling

1. Relocation of scalehouse places it roughly 800ft closer to US85.

-Confirm that vehicle queueing will not occur out to the highway (provide supporting evidence)

-Confirm that vehicle queue will not impact access to CORE electric (provide supporting evidence)

2. Projected traffic volume

-CDOT utilizes OTIS's projection function for this, found here:

https://dtdapps.coloradodot.info/otis/TrafficData

-2045 traffic on the west side of SH67 (MP 190.367 to 193.992) is 21,862. Truck percentage is 7.6

-2045 traffic on the east side of SH67 (MP 187.778 to 190.367) is 26,160. Truck percentage is 7.5

3. Table 2-2, conceptual traffic impact assessment

-Why does this use 2024/2044 when table 2-1 used 2025/2045?

-Overall roadway capacity (and landfill traffic relative to it) isn't the bottleneck for landfill operations, nor the largest impact to the highway.

-The impact will be felt at the US85 & Delva Way signal, specifically with the turning movements. Precise impacts depend upon signal timing and other conditions, but the rule of thumb is that a single left turn lane can handle 300-350vph. At that point, start looking into double left turn lanes.

-Regarding operations of the highway, specifically the intersection, an analysis would look at how many vehicles are turning left into Delva during a peak hour between both the landfill and CORE. It would also look at how many are making the SB left out of Delva and onto US85 during the peak. These are the movements most likely to be overwhelmed by traffic accessing the landfill.

4. What volumes were projected with the Delva Way access permit? Or with CORE's permit when they expanded? Is this landfill expansion within the permitted threshold?

COLORADO
Division of Water Resources
Department of Natural Resources

June 11, 2025

Brett Thomas, Chief Planner
Douglas County Planning Services
Transmission via email: bthomas@douglas.co.us

Re: Case No.: US2025-001, Use by Special Review Amendment – Sedalia Recycling Center and Depository
The S ½ of the SE ¼, Sec. 11, Twp. 7S, Rng. 68W, 6th P.M., and the N ½ of the NE ¼ Sec. 14, Twp. 7S, Rng. 68W, 6th P.M., Douglas County
Water Division 1, Water District 8

Dear Brett Thomas:

We have received your May 19, 2025 submittal concerning the above referenced proposal for a Use by Special Review Amendment to expand the landfill permit area of the Sedalia Recycling Center and Depository on a parcel known as 5970 N. US Highway 85, Douglas County.

Our office previously provided comments for the Sedalia Recycling Center Rezone project (case no. ZR09-007) in a letter dated September 9, 2009. The comments outlined in that letter remain in effect.

This referral does not appear to qualify as a "subdivision" as defined in Section 30-28-101(10)(a), C.R.S. Therefore, pursuant to the State Engineer's March 4, 2005 and March 11, 2011 memorandums to county planning directors, this office will only perform a cursory review of the referral information and provide informal comments. The comments do not address the adequacy of the water supply plan for this project

or the ability of the water supply plan to satisfy any County regulations or requirements. In addition, the comments provided herein cannot be used to guarantee a viable water supply plan or infrastructure, the issuance of a well permit, or physical availability of water.

No water supply source or water supply demands were provided in the application documents. Therefore, the proposed water supply source and water supply demands are unknown. According to the previous referral for case no. ZR09-007, the proposed water source for the Recycling Center is an existing well, permit no. 62607-F and the planned acquisition of some amount of water from the decree entered in case no. 03CW169. Our records indicate that the subject property is inside the Sedalia Water & Sanitation District.

A review of our records indicates that well permit no. 62607-F is located on the subject property. Well permit no. 62607-F was issued on May 9, 2005 in accordance with the decree entered in case nos. 85CW322 and 94CW228 pursuant to CRS 37-90-137(4) and (10) as an additional well to Well A-1 Well A-2 for municipal, agricultural, industrial, commercial, irrigation, stock watering, recreation, fish and wildlife, and fire protection uses, with an average annual withdrawal not to exceed 78.9 acre-feet and a maximum pumping rate of 200 GPM.

The application materials indicate that a stormwater detention structure will be constructed as a part of this project. The applicant should be aware that unless the structure can meet the requirements of a "storm water detention and infiltration facility" as defined in section 37-92-602(8), C.R.S., the structure may be subject to administration by this office. The applicant should review DWR's Administrative Statement Regarding the Management of Storm Water Detention Facilities and Post-Wildland Fire Facilities in Colorado to ensure that the notification, construction and operation of the proposed structure meets statutory and administrative requirements.

The Applicant is encouraged to use the Colorado Stormwater Detention and Infiltration Facility Notification Portal to meet the notification requirements.

So long as well no. 62607-F is used in accordance with its ascribed permit and the water for the project is obtained from a qualified legal source, our office has no comments on the proposed project.

Please contact Mike Matz at 303-866-3581 x8241 or at michael.matz@state.co.us with any questions.

Sincerely,

Ioana Comaniciu, P.E.
Water Resources Engineer

Ec: Referral no. 34072
Permit no. 62607-F

Brett Thomas

From: Olson - DNR, Justin <justin.olson@state.co.us>
Sent: Saturday, May 24, 2025 12:36 PM
To: Brett Thomas <bthomas@douglas.co.us>
Cc: Matt Martinez <matt.martinez@state.co.us>
Subject: Douglas County Land Use eReferral (US2025-001)

Mr. Thomas,

Thank you for including Colorado Parks and Wildlife in the referral request process for the proposed Use by Special Permit under Project Number US2025-001. I have reviewed the documents and referral request, and I wanted to inform you that CPW has no concerns with this project as it pertains to any wildlife issues. If you have any further questions or need more information, do not hesitate to let me know. Thank you for your time.

Justin Olson
District Wildlife Manager
Littleton District - Area 5
LIVE LIFE OUTSIDE
P 303.291.7131 | F 303.291.7114
6060 Broadway, Denver, CO 80216
justin.olson@state.co.us | cpw.state.co.us

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DOUGLAS COUNTY
COLORADO

www.douglas.co.us

Department of Community Development
Planning Services

REFERRAL RESPONSE REQUEST

Date sent: May 19, 2025

Comments due by: **June 9, 2025**
Fax: 303.660.9550

Project Name: 5970 N US Highway 85, 2nd Amendment
Project File #: US2025-001

Project Summary:

A Use by Special Review (USR) Amendment to expand the landfill permit area of the Sedalia Recycling Center and Depository located at 5970 N US Highway 85. The current facility encompasses an approximately 124.2-acre USR permit area, with approximately 66.9 acres available for disposal. The applicant requests to increase the USR permit area to approximately 165.9 acres with 88.3 acres available for disposal. The applicant is requesting the Board of County Commissioners (Board) establish lesser setbacks from the west lot line, as well as the existing residences to the west of the site.

The applicant is also requesting the Board grant a waiver to defer the requirement of Section 2107.30 of the *Douglas County Zoning Resolution* which requires the applicant receive a recommendation of approval for the certificate of designation from the Colorado Department of Public Health and Environment (CDPHE) prior to applying for a USR. The applicant would be required to obtain a recommendation of approval for the certificate of designation from the CDPHE prior to final approval of the record copy of the USR Plan Exhibit by the Director of Community Development.

Two sets of public hearings are anticipated. The first public hearings will focus on the *DCZR* waiver. If approved, the second public hearings will consider the full USR application.

Information on the identified development proposal located in Douglas County is enclosed. Please review and comment in the space provided.

☐ No Comment	
☐ Please be advised of the following concerns:	
☒ See letter attached for detail.	
Agency: Douglas County Conservation District	**Phone #:** (303) 218.2622
Your Name: David Shohet, President	**Your Signature:** Signed by: David.Shohet 6E6067CEE3D2404...
(please print)	**Date:** 6/6/2025

Agencies should be advised that failure to submit written comments prior to the due date, or to obtain the applicant's written approval of an extension, will result in written comments being accepted for informational purposes only.

Sincerely,

Brett Thomas, AICP, Chief Planner

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DOUGLAS
—CONSERVES—
DOUGLAS COUNTY CONSERVATION DISTRICT
PO Box 688 / 7519A E. Hwy 86 Franktown, CO 80116 / Phone 303-218-2622

DATE: June 9, 2025

RE: US2025-001

The Douglas County Conservation District (the District) provides subdivision referral responses as directed by Senate Bill 35. District comments are made on the suitability of soils for the proposed land uses, floodwater management, and watershed protection. The District also often submits advisory comments regarding rural water supply issues, agricultural land use conversion, and endangered species protection if the development plan affects those issues.

According to U.S.D.A. Natural Resources Conservation Service (NRCS) soils survey (enclosed Pages 38 - 43), units in the area are very limited to somewhat limited for supporting the land uses described in this referral. In addition, the NRCS notes that this type of land use can result in the pollution of ground water. Due to the limitations on the above soils on the site, alternatives to mitigate the limitations of the soil will be required in your engineering design or construction techniques.

Topsoil should be stripped to a depth of 6 inches and all stockpiles should have side slopes no steeper than 3:1 and seeded. All disturbed areas should be seeded and mulched with weed free hay mulch at 4,000 lbs. /acre. Recommended seeding dates for Colorado are November 1 to May 1, when the soil is not frozen. Grasses should be seeded when soil moisture and temperature are optimum for germination, unless a dormant planting is desired. Grass seed should be drilled at a depth of ¼ to ½ inch deep and if broadcasted, double the seeding rate. For more information on grass seed selections and seeding rates please contact the Douglas County Conservation District.

The District recommends disturbed land be mulched or revegetated within 45 days of disturbance.

The District recommends using a phased grading approach. By limiting the area being graded to 15 acres or less and seeding with native grasses the land area disturbed is minimized. The development site is 189.056 acres.

There is no Integrated Noxious Weed Control plan and it is recommended that an integrated weed management program be reviewed and approved by the Douglas County Weed Inspector

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DOUGLAS
—CONSERVES—
DOUGLAS COUNTY CONSERVATION DISTRICT
PO Box 688 / 7519A E. Hwy 86 Franktown, CO 80116 / Phone 303-218-2622

and/or Weed Advisory board, the County Extension Agent, NRCS, or a qualified weed management professional prior to the land use authority approval.

Vehicle tracking control stations need to be installed at all entrance and exit points on the site. The station should consist of a pad of 3 to 6-inch rock or a vehicle control pad/mat to strip mud from tires prior to vehicles leaving the construction site to prevent spreading of noxious weeds.

The channels of many of the major streams are not stable and undergo substantial shifts in alignment during flood events. Upstream development increases the magnitude and frequency of local flooding. Floods that exceed the computed 100-year storm do regularly occur. Note that the project slopes from east to west; floods would flow downstream into the Upper South Platte Watershed. The District does not support development proposals that are located in or near drainages or development that disturbs wetlands.

Silt fences or other forms of erosion barriers need to be planned and installed as a temporary sediment control device used on construction sites to protect water quality.

The District strongly recommends that Low Impact Development (LID) techniques be implemented for economic and conservation benefits.

Thank you for the opportunity to review this project. Direct any questions to Heather Kelly, District Manager, at Admin@DouglasConserves.org or (303) 218 – 2622.

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United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Castle Rock Area, Colorado

US2025-001



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Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

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alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

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scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

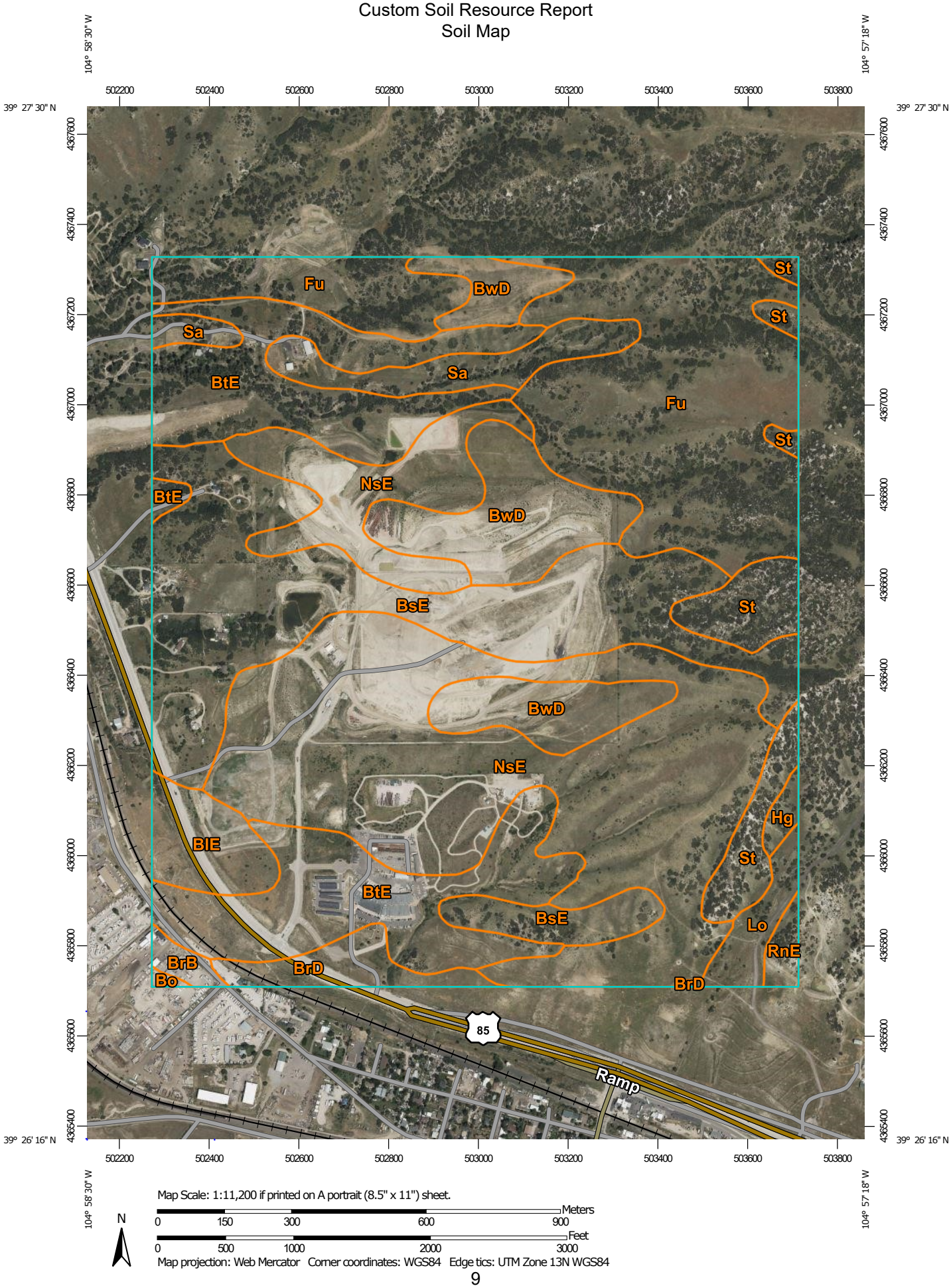
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Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

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Custom Soil Resource Report
Soil Map



Docusign Envelope ID: D349FBBA-3622-4859-AB90-24A31E5FBB12

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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 1:20,000.

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: Castle Rock Area, Colorado
Survey Area Data: Version 17, Aug 29, 2024

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

Date(s) aerial images were photographed: Mar 1, 2023—Sep 1, 2023

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.

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Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BlE	Blakeland sandy loam, 1 to 15 percent slopes	13.3	2.3%
Bo	Blakeland-Orsa association, 1 to 4 percent slopes	0.5	0.1%
BrB	Bresser sandy loam, cool, 1 to 3 percent slopes	2.8	0.5%
BrD	Bresser sandy loam, cool, 5 to 9 percent slopes	10.3	1.8%
BsE	Bresser-Louviers complex, 7 to 30 percent slopes	96.9	16.8%
BtE	Bresser-Truckton sandy loams, 5 to 25 percent slopes	87.9	15.2%
BwD	Buick-Satanta loams, 3 to 9 percent slopes	49.7	8.6%
Fu	Fondis-Kutch association	102.1	17.6%
Hg	Hilly gravelly land	2.1	0.4%
Lo	Loamy alluvial land	7.3	1.3%
NsE	Newlin-Satanta complex, 5 to 20 percent slopes	163.1	28.2%
RnE	Renohill-Manzanola clay loams, 3 to 20 percent slopes	2.9	0.5%
Sa	Sampson loam	17.9	3.1%
St	Stapleton-Bresser association	21.9	3.8%
Totals for Area of Interest		**578.7**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

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Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion

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of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

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Castle Rock Area, Colorado

BIE—Blakeland sandy loam, 1 to 15 percent slopes

Map Unit Setting

National map unit symbol: jqy4
Elevation: 5,500 to 6,600 feet
Mean annual precipitation: 15 to 19 inches
Mean annual air temperature: 47 to 50 degrees F
Frost-free period: 120 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition

Blakeland and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Blakeland

Setting

Landform: Hills, hillsides
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium and/or eolian deposits

Typical profile

H1 - 0 to 13 inches: sandy loam
H2 - 13 to 24 inches: loamy coarse sand
H3 - 24 to 60 inches: loamy coarse sand

Properties and qualities

Slope: 1 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 4.9 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Minor Components

Truckton

Percent of map unit: 10 percent
Hydric soil rating: No

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Bresser
Percent of map unit: 5 percent
Hydric soil rating: No

Stapleton
Percent of map unit: 5 percent
Hydric soil rating: No

Bo—Blakeland-Orsa association, 1 to 4 percent slopes

Map Unit Setting
National map unit symbol: jqy5
Elevation: 5,500 to 6,600 feet
Mean annual precipitation: 15 to 19 inches
Mean annual air temperature: 47 to 50 degrees F
Frost-free period: 120 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition
Blakeland and similar soils: 50 percent
Orsa and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Blakeland

Setting
Landform: Alluvial fans, hills
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium and/or eolian deposits

Typical profile
H1 - 0 to 13 inches: sandy loam
H2 - 13 to 24 inches: loamy coarse sand
H3 - 24 to 60 inches: loamy coarse sand

Properties and qualities
Slope: 1 to 4 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 (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 4.9 inches)

Docusign Envelope ID: D349FBBA-3622-4859-AB90-24A31E5FBB12

Interpretive groups

Land capability classification (irrigated): 4s
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Description of Orsa

Setting

Landform: Alluvial fans, hills
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from arkosic sedimentary rock

Typical profile

H1 - 0 to 20 inches: coarse sandy loam
H2 - 20 to 60 inches: gravelly loamy coarse sand

Properties and qualities

Slope: 1 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Very 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 4.4 inches)

Interpretive groups

Land capability classification (irrigated): 4s
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Minor Components

Bresser

Percent of map unit: 5 percent
Hydric soil rating: No

Kassler

Percent of map unit: 5 percent
Hydric soil rating: No

Sandy alluvial land

Percent of map unit: 5 percent
Hydric soil rating: No

Docusign Envelope ID: D349FBBA-3622-4859-AB90-24A31E5FBB12

BrB—Bresser sandy loam, cool, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2tlpj
Elevation: 5,500 to 6,500 feet
Mean annual precipitation: 15 to 19 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 100 to 130 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Bresser, cool, and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bresser, Cool

Setting

Landform: Terraces, hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Tertiary aged alluvium derived from arkose

Typical profile

Ap - 0 to 5 inches: sandy loam
Bt1 - 5 to 8 inches: sandy loam
Bt2 - 8 to 27 inches: sandy clay loam
Bt3 - 27 to 36 inches: sandy loam
C - 36 to 80 inches: loamy coarse sand

Properties and qualities

Slope: 1 to 3 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): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.1 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.4 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 4s

Docusign Envelope ID: D349FBBA-3622-4859-AB90-24A31E5FBB12

Hydrologic Soil Group: B
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Minor Components

Truckton
Percent of map unit: 5 percent
Landform: Terraces, hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Sampson
Percent of map unit: 5 percent
Landform: Alluvial fans, terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R049XC202CO - Loamy Foothill Palmer Divide
Hydric soil rating: No

BrD—Bresser sandy loam, cool, 5 to 9 percent slopes

Map Unit Setting
National map unit symbol: 2tlpk
Elevation: 5,500 to 6,960 feet
Mean annual precipitation: 15 to 19 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 100 to 130 days
Farmland classification: Not prime farmland

Map Unit Composition
Bresser, cool, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bresser, Cool

Setting
Landform: Interfluves
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Tertiary aged alluvium derived from arkose

Docusign Envelope ID: D349FBBA-3622-4859-AB90-24A31E5FBB12

Typical profile

Ap - 0 to 5 inches: sandy loam
Bt1 - 5 to 8 inches: sandy loam
Bt2 - 8 to 27 inches: sandy clay loam
Bt3 - 27 to 36 inches: sandy loam
C - 36 to 80 inches: loamy coarse sand

Properties and qualities

Slope: 5 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 to high (0.60 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.1 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.4 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Minor Components

Ascalon

Percent of map unit: 10 percent
Landform: Interfluves
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Truckton

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Docusign Envelope ID: D349FBBA-3622-4859-AB90-24A31E5FBB12

BsE—Bresser-Louviers complex, 7 to 30 percent slopes

Map Unit Setting

National map unit symbol: jqy8
Elevation: 5,500 to 6,600 feet
Mean annual precipitation: 15 to 19 inches
Mean annual air temperature: 47 to 52 degrees F
Frost-free period: 120 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition

Bresser and similar soils: 45 percent
Louviers and similar soils: 30 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bresser

Setting

Landform: Hills
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy eolian deposits

Typical profile

H1 - 0 to 8 inches: sandy loam
H2 - 8 to 30 inches: sandy clay loam
H3 - 30 to 60 inches: loamy sand

Properties and qualities

Slope: 7 to 15 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 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: Moderate (about 7.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Docusign Envelope ID: D349FBBA-3622-4859-AB90-24A31E5FBB12

Description of Louviers

Setting

Landform: Hills, knobs
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from noncalcareous shale

Typical profile

H1 - 0 to 4 inches: clay
H2 - 4 to 12 inches: clay
H3 - 12 to 16 inches: weathered bedrock

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 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 1.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: R049XB208CO - Clayey Foothill
Hydric soil rating: No

Minor Components

Newlin

Percent of map unit: 10 percent
Hydric soil rating: No

Buick

Percent of map unit: 10 percent
Hydric soil rating: No

Satanta

Percent of map unit: 5 percent
Hydric soil rating: No

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BtE—Bresser-Truckton sandy loams, 5 to 25 percent slopes

Map Unit Setting

National map unit symbol: jqy9
Elevation: 5,500 to 6,600 feet
Mean annual precipitation: 15 to 19 inches
Mean annual air temperature: 47 to 52 degrees F
Frost-free period: 120 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition

Bresser and similar soils: 50 percent
Truckton and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bresser

Setting

Landform: Terraces
Landform position (three-dimensional): Riser, tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy eolian deposits

Typical profile

H1 - 0 to 8 inches: sandy loam
H2 - 8 to 30 inches: sandy clay loam
H3 - 30 to 60 inches: loamy sand

Properties and qualities

Slope: 5 to 15 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 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: Moderate (about 7.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Docusign Envelope ID: D349FBBA-3622-4859-AB90-24A31E5FBB12

Description of Truckton

Setting

Landform: Terraces
Landform position (three-dimensional): Riser, tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from arkosic sedimentary rock

Typical profile

H1 - 0 to 4 inches: sandy loam
H2 - 4 to 19 inches: sandy loam
H3 - 19 to 60 inches: sandy loam

Properties and qualities

Slope: 10 to 25 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: A
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Minor Components

Newlin

Percent of map unit: 5 percent
Hydric soil rating: No

Blakeland

Percent of map unit: 5 percent
Hydric soil rating: No

Stapleton

Percent of map unit: 4 percent
Hydric soil rating: No

Aquic haplustolls

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

Docusign Envelope ID: D349FBBA-3622-4859-AB90-24A31E5FBB12

BwD—Buick-Satanta loams, 3 to 9 percent slopes

Map Unit Setting

National map unit symbol: jqyf
Elevation: 5,500 to 6,800 feet
Mean annual precipitation: 15 to 19 inches
Mean annual air temperature: 47 to 50 degrees F
Frost-free period: 120 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition

Buick and similar soils: 50 percent
Satanta and similar soils: 40 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Buick

Setting

Landform: Ridges, interfluves
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian deposits over alluvial material silty

Typical profile

H1 - 0 to 4 inches: loam
H2 - 4 to 15 inches: silty clay loam
H3 - 15 to 22 inches: loam
H4 - 22 to 60 inches: sandy clay 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
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.9 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R049XC202CO - Loamy Foothill Palmer Divide

Docusign Envelope ID: D349FBBA-3622-4859-AB90-24A31E5FBB12

Hydric soil rating: No

Description of Satanta

Setting

Landform: Ridges, interfluves
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian deposits derived from mixed

Typical profile

H1 - 0 to 9 inches: loam
H2 - 9 to 30 inches: clay loam
H3 - 30 to 60 inches: loam

Properties and qualities

Slope: 6 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 to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Available water supply, 0 to 60 inches: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: R049XC202CO - Loamy Foothill Palmer Divide
Hydric soil rating: No

Minor Components

Bresser

Percent of map unit: 3 percent
Hydric soil rating: No

Fondis

Percent of map unit: 3 percent
Hydric soil rating: No

Newlin

Percent of map unit: 3 percent
Hydric soil rating: No

Aquic haplustolls

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

Docusign Envelope ID: D349FBBA-3622-4859-AB90-24A31E5FBB12

Fu—Fondis-Kutch association

Map Unit Setting

National map unit symbol: jqyq
Elevation: 5,500 to 6,800 feet
Mean annual precipitation: 15 to 19 inches
Mean annual air temperature: 47 to 50 degrees F
Frost-free period: 120 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition

Fondis and similar soils: 50 percent
Kutch and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fondis

Setting

Landform: Draws, valley sides
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian deposits over coarse-silty outwash derived from arkose

Typical profile

H1 - 0 to 7 inches: loam
H2 - 7 to 24 inches: clay
H3 - 24 to 60 inches: sandy clay loam

Properties and qualities

Slope: 5 to 15 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 low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: R049XB208CO - Clayey Foothill
Hydric soil rating: No

Docusign Envelope ID: D349FBBA-3622-4859-AB90-24A31E5FBB12

Description of Kutch

Setting

Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Fine-textured residuum weathered from calcareous shale

Typical profile

H1 - 0 to 6 inches: sandy loam
H2 - 6 to 32 inches: clay
H3 - 32 to 36 inches: weathered bedrock

Properties and qualities

Slope: 5 to 40 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Gypsum, maximum content: 2 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: R049XB208CO - Clayey Foothill
Hydric soil rating: No

Minor Components

Bresser

Percent of map unit: 5 percent
Hydric soil rating: No

Newlin

Percent of map unit: 5 percent
Hydric soil rating: No

Hilly gravelly land

Percent of map unit: 4 percent
Hydric soil rating: No

Aquic haplustolls

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

Docusign Envelope ID: D349FBBA-3622-4859-AB90-24A31E5FBB12

Hg—Hilly gravelly land

Map Unit Setting

National map unit symbol: jqyw
Elevation: 5,500 to 6,600 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 48 to 51 degrees F
Frost-free period: 120 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition

Hilly gravelly land: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hilly Gravelly Land

Setting

Landform: Hills
Landform position (three-dimensional): Side slope, base slope, crest
Down-slope shape: Linear
Across-slope shape: Linear

Typical profile

H1 - 0 to 7 inches: cobbly sandy loam
H2 - 7 to 24 inches: cobbly clay loam
H3 - 24 to 28 inches: weathered bedrock

Properties and qualities

Slope: 5 to 50 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 2.00 in/hr)
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
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: D
Ecological site: R049XY213CO - Cobbly Foothill
Hydric soil rating: No

Docusign Envelope ID: D349FBBA-3622-4859-AB90-24A31E5FBB12

Minor Components

Bresser
Percent of map unit: 4 percent
Hydric soil rating: No

Kutch
Percent of map unit: 4 percent
Hydric soil rating: No

Fondis
Percent of map unit: 4 percent
Hydric soil rating: No

Newlin
Percent of map unit: 4 percent
Hydric soil rating: No

Truckton
Percent of map unit: 3 percent
Hydric soil rating: No

Aquic haplustolls
Percent of map unit: 1 percent
Landform: Swales
Hydric soil rating: Yes

Lo—Loamy alluvial land

Map Unit Setting
National map unit symbol: jqzb
Elevation: 7,000 to 8,000 feet
Mean annual precipitation: 17 to 19 inches
Mean annual air temperature: 44 to 46 degrees F
Frost-free period: 115 to 120 days
Farmland classification: Not prime farmland

Map Unit Composition
Loamy alluvial land: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Loamy Alluvial Land

Setting
Landform: Swales, flood plains
Down-slope shape: Linear
Across-slope shape: Linear

Typical profile
H1 - 0 to 20 inches: sandy loam
H2 - 20 to 40 inches: stratified loamy sand to clay loam

Docusign Envelope ID: D349FBBA-3622-4859-AB90-24A31E5FBB12

H3 - 40 to 60 inches: sand and gravel

Properties and qualities

Slope: 1 to 5 percent
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 6.00 in/hr)
Depth to water table: About 48 to 72 inches
Frequency of flooding: Frequent
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C
Ecological site: R049XY036CO - Overflow
Hydric soil rating: No

Minor Components

Sampson

Percent of map unit: 7 percent
Hydric soil rating: No

Bresser

Percent of map unit: 7 percent
Hydric soil rating: No

Sandy alluvial land

Percent of map unit: 5 percent

Fluvaquentic haplustolls

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

NsE—Newlin-Satanta complex, 5 to 20 percent slopes

Map Unit Setting

National map unit symbol: jqzh
Elevation: 5,500 to 6,600 feet
Mean annual precipitation: 15 to 19 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 120 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition

Newlin and similar soils: 50 percent
Satanta and similar soils: 30 percent

Docusign Envelope ID: D349FBBA-3622-4859-AB90-24A31E5FBB12

Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Newlin

Setting
Landform: Knobs, drainageways
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Unconformable sandy and gravelly and/or mixed source alluvium

Typical profile
H1 - 0 to 8 inches: gravelly sandy loam
H2 - 8 to 17 inches: gravelly sandy clay loam
H3 - 17 to 22 inches: gravelly sandy loam
H4 - 22 to 60 inches: very gravelly sand

Properties and qualities
Slope: 5 to 20 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 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: Low (about 3.8 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R049XC202CO - Loamy Foothill Palmer Divide
Hydric soil rating: No

Description of Satanta

Setting
Landform: Knobs, drainageways
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian deposits derived from mixed

Typical profile
H1 - 0 to 9 inches: loam
H2 - 9 to 30 inches: clay loam
H3 - 30 to 60 inches: loam

Properties and qualities
Slope: 5 to 10 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 to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None

Docusign Envelope ID: D349FBBA-3622-4859-AB90-24A31E5FBB12

Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Available water supply, 0 to 60 inches: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: R049XY214CO - Gravelly Foothill
Hydric soil rating: No

Minor Components

Bresser

Percent of map unit: 6 percent
Hydric soil rating: No

Buick

Percent of map unit: 6 percent
Hydric soil rating: No

Truckton

Percent of map unit: 6 percent
Hydric soil rating: No

Aquic haplustolls

Percent of map unit: 2 percent
Landform: Swales
Hydric soil rating: Yes

RnE—Renohill-Manzanola clay loams, 3 to 20 percent slopes

Map Unit Setting

National map unit symbol: jqzz
Elevation: 5,500 to 6,200 feet
Mean annual precipitation: 15 to 17 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 120 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition

Renohill and similar soils: 50 percent
Manzanola and similar soils: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Renohill

Setting

Landform: Valley sides, drainageways
Down-slope shape: Linear

Docusign Envelope ID: D349FBBA-3622-4859-AB90-24A31E5FBB12

Across-slope shape: Linear
Parent material: Weathered, calcareous clayey shale

Typical profile
H1 - 0 to 3 inches: clay loam
H2 - 3 to 12 inches: clay loam
H3 - 12 to 24 inches: clay loam
H4 - 24 to 28 inches: unweathered bedrock

Properties and qualities
Slope: 3 to 20 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.3 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: R049XB208CO - Clayey Foothill
Hydric soil rating: No

Description of Manzanola

Setting
Landform: Ridges, valley sides
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock and/or eolian deposits

Typical profile
H1 - 0 to 8 inches: clay loam
H2 - 8 to 42 inches: clay loam
H3 - 42 to 60 inches: clay loam

Properties and qualities
Slope: 3 to 20 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 low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Gypsum, maximum content: 2 percent
Maximum salinity: Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.7 inches)

Docusign Envelope ID: D349FBBA-3622-4859-AB90-24A31E5FBB12

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: R049XB208CO - Clayey Foothill
Hydric soil rating: No

Minor Components

Buick

Percent of map unit: 5 percent
Hydric soil rating: No

Fondis

Percent of map unit: 5 percent
Hydric soil rating: No

Newlin

Percent of map unit: 5 percent
Hydric soil rating: No

Other soils

Percent of map unit: 3 percent
Hydric soil rating: No

Aquic haplustolls

Percent of map unit: 2 percent
Landform: Swales
Hydric soil rating: Yes

Sa—Sampson loam

Map Unit Setting

National map unit symbol: jr02
Elevation: 5,500 to 6,600 feet
Mean annual precipitation: 15 to 19 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 120 to 135 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Sampson and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sampson

Setting

Landform: Stream terraces on drainageways
Landform position (three-dimensional): Tread

Docusign Envelope ID: D349FBBA-3622-4859-AB90-24A31E5FBB12

Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Weathered alluvium derived from arkose

Typical profile
H1 - 0 to 9 inches: loam
H2 - 9 to 28 inches: clay loam
H3 - 28 to 38 inches: loam
H4 - 38 to 60 inches: silt loam

Properties and qualities
Slope: 1 to 4 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): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.5 inches)

Interpretive groups
Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3c
Hydrologic Soil Group: B
Ecological site: R049XC202CO - Loamy Foothill Palmer Divide
Hydric soil rating: No

Minor Components

Englewood
Percent of map unit: 8 percent
Hydric soil rating: No

Bresser
Percent of map unit: 7 percent
Hydric soil rating: No

Loamy alluvial land
Percent of map unit: 4 percent
Hydric soil rating: No

Aquic haplustolls
Percent of map unit: 1 percent
Landform: Swales
Hydric soil rating: Yes

Docusign Envelope ID: D349FBBA-3622-4859-AB90-24A31E5FBB12

St—Stapleton-Bresser association

Map Unit Setting

National map unit symbol: jr09
Elevation: 5,500 to 6,600 feet
Mean annual precipitation: 15 to 19 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 120 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition

Stapleton and similar soils: 60 percent
Bresser and similar soils: 25 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Stapleton

Setting

Landform: Valley sides, knobs, ridges
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Weathered alluvium derived from arkose

Typical profile

H1 - 0 to 7 inches: sandy loam
H2 - 7 to 16 inches: sandy loam
H3 - 16 to 60 inches: 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: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 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 5.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Docusign Envelope ID: D349FBBA-3622-4859-AB90-24A31E5FBB12

Description of Bresser

Setting

Landform: Valley sides
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy alluvium and/or sandy eolian deposits

Typical profile

H1 - 0 to 8 inches: sandy loam
H2 - 8 to 30 inches: sandy clay loam
H3 - 30 to 60 inches: loamy sand

Properties and qualities

Slope: 8 to 15 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 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: Moderate (about 7.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Minor Components

Loamy alluvial land

Percent of map unit: 14 percent
Hydric soil rating: No

Aquic haplustolls

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

Docusign Envelope ID: D349FBBA-3622-4859-AB90-24A31E5FBB12

Soil Information for All Uses

Suitabilities and Limitations for Use

The Suitabilities and Limitations for Use section includes various soil interpretations displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each interpretation.

Sanitary Facilities

Sanitary Facilities interpretations are tools designed to guide the user in site selection for the safe disposal of sewage and solid waste. Example interpretations include septic tank absorption fields, sewage lagoons, and sanitary landfills.

Sanitary Landfill (Area) (US2025-001)

ENG - Engineering

In an "area sanitary landfill," solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. A landfill must be able to bear heavy vehicular traffic. It can result in the pollution of ground water. Ease of excavation and revegetation should be considered.

The ratings are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, saturated hydraulic conductivity (Ksat), depth to a water table, ponding, slope, and depth to bedrock or a cemented pan. Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If Ksat is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

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The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Custom Soil Resource Report
Map—Sanitary Landfill (Area) (US2025-001)



Docusign Envelope ID: D349FBBA-3622-4859-AB90-24A31E5FBB12

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Very limited
- Somewhat limited
- Not limited
- Not rated or not available

Soil Rating Lines
- Very limited
- Somewhat limited
- Not limited
- Not rated or not available

Soil Rating Points
- Very limited
- Somewhat limited
- Not limited
- 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 1:20,000.

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: Castle Rock Area, Colorado
Survey Area Data: Version 17, Aug 29, 2024

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

Date(s) aerial images were photographed: Mar 1, 2023—Sep 1, 2023

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.

Docusign Envelope ID: D349FBBA-3622-4859-AB90-24A31E5FBB12

Tables—Sanitary Landfill (Area) (US2025-001)

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
BlE	Blakeland sandy loam, 1 to 15 percent slopes	Very limited	Blakeland (80%)	Seepage (1.00)	13.3	2.3%
Bo	Blakeland-Orsa association, 1 to 4 percent slopes	Very limited	Blakeland (50%)	Seepage (1.00)	0.5	0.1%
			Orsa (35%)	Seepage (1.00)		
				Dusty (0.02)		
BrB	Bresser sandy loam, cool, 1 to 3 percent slopes	Somewhat limited	Bresser, cool (90%)	Dusty (0.09)	2.8	0.5%
			Truckton (5%)	Dusty (0.02)		
BrD	Bresser sandy loam, cool, 5 to 9 percent slopes	Somewhat limited	Bresser, cool (85%)	Dusty (0.09)	10.3	1.8%
			Ascalon (10%)	Dusty (0.09)		
			Truckton (5%)	Dusty (0.02)		
BsE	Bresser-Louviers complex, 7 to 30 percent slopes	Somewhat limited	Bresser (45%)	Slope (0.37)	96.9	16.8%
				Dusty (0.08)		
BtE	Bresser-Truckton sandy loams, 5 to 25 percent slopes	Somewhat limited	Bresser (50%)	Slope (0.16)	87.9	15.2%
				Dusty (0.08)		
BwD	Buick-Satanta loams, 3 to 9 percent slopes	Somewhat limited	Buick (50%)	Dusty (0.38)	49.7	8.6%
			Satanta (40%)	Dusty (0.24)		
Fu	Fondis-Kutch association	Somewhat limited	Fondis (50%)	Dusty (0.30)	102.1	17.6%
				Slope (0.16)		
Hg	Hilly gravelly land	Very limited	Hilly gravelly land (80%)	Depth to bedrock (1.00)	2.1	0.4%
				Slope (1.00)		
				Seepage (1.00)		
				Dusty (0.21)		
Lo	Loamy alluvial land	Very limited	Loamy alluvial land (80%)	Flooding (1.00)	7.3	1.3%
				Depth to saturated zone (1.00)		
				Seepage (1.00)		
				Dusty (0.02)		
NsE	Newlin-Satanta complex, 5 to 20 percent slopes	Somewhat limited	Newlin (50%)	Slope (0.84)	163.1	28.2%
				Dusty (0.07)		
			Satanta (30%)	Dusty (0.26)		
RnE	Renohill-Manzanola	Somewhat limited	Renohill (50%)	Slope (0.63)	2.9	0.5%

Docusign Envelope ID: D349FBBA-3622-4859-AB90-24A31E5FBB12

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
	clay loams, 3 to 20 percent slopes			Dusty (0.31)		
			Manzanola (30%)	Slope (0.63)		
				Dusty (0.33)		
Sa	Sampson loam	Very limited	Sampson (80%)	Seepage (1.00)	17.9	3.1%
				Dusty (0.26)		
St	Stapleton-Bresser association	Very limited	Stapleton (60%)	Slope (1.00)	21.9	3.8%
				Dusty (0.03)		
Totals for Area of Interest					**578.7**	**100.0%**

Rating	Acres in AOI	Percent of AOI
Somewhat limited	515.6	89.1%
Very limited	63.1	10.9%
Totals for Area of Interest	**578.7**	**100.0%**

Rating Options—Sanitary Landfill (Area) (US2025-001)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Docusign Envelope ID: D349FBBA-3622-4859-AB90-24A31E5FBB12

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

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United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

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National Flood Hazard Layer FIRMette

FEMA

104°58'9"W 39°27'7"N



104°57'32"W 39°26'39"N

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

1:6,000

Basemap Imagery Source: USGS National Map 2023

5970 N US Highway 85, 6th Amendment - Waiver
Project File US2025-001, Use by Special Review
Planning Commission Staff Report - Page 89 of 102

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
- 513 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 6/6/2025 at 1:53 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

DOUGLAS COUNTY
HEALTH DEPARTMENT COLORADO

June 4, 2025

Brett Thomas
100 Third St.
Castle Rock, CO 80104

RE: US2025-001

Dear Mr. Thomas,

Thank you for the opportunity to review and comment on the request for the expansion of the Sedalia Recycling Center & Depository. Douglas County Health Department (DCHD) staff have reviewed the application for compliance with pertinent environmental and public health regulations. After reviewing the application, DCHD has the following comments.

Stormwater Impacts on Nearby Waterway
Development of the subject parcel will potentially result in an increase of stormwater and snowmelt runoff that may contribute significant pollutant loadings to Plum Creek. These pollutants include bacteria, nutrients, metals, and oxygen consuming contaminants.
A Conceptual Drainage Plan has been submitted. This plan will be reviewed and approved by CDPHE.

Mosquito Control – Stormwater Facilities
Although we do not anticipate that the stormwater features will provide significant habitat for the breeding of mosquitoes, it is possible for limited areas with shallow, stagnant water, and decaying organic matter to provide suitable mosquito breeding habitat. To reduce the potential for human exposures to West Nile and other mosquito-borne viruses, DCHD recommends that the applicant develop an integrated mosquito plan for the stormwater features.

Please feel free to contact me at 720-907-4886 or bfreyer@douglas.co.us if you have any questions about our comments.

Sincerely,



Brent Freyer
Environmental Health Specialist II
Douglas County Health Department

June 9, 2025

Brett Thomas, Chief Planner
100 Third Street
Castle Rock, CO 80104

Re: SB2024-024 Perry Park Filing 1

Dear Mr. Thomas:

The letter provides comments regarding the request for an Amendment to expand the landfill permit area of the Sedalia Recycling Center and Depository located at 5970 N US Highway 85. The current facility encompasses an approximately 124.2-acre USR permit area, with approximately 66.9 acres available for disposal. The applicant requests to increase the USR permit area to approximately 165.9 acres with 88.3 acres available for disposal.

Upon researching the cultural resources on the property and the surrounding area, it has been determined that the property has not been surveyed for cultural resources. Due to the surface disturbance from driving machinery and vehicles over the proposed area, the Curator has no concerns at this time for cultural resources and has no further recommendations.

Should buried artifacts and features be discovered, we recommend completion of the appropriate Colorado Office of Archaeology and Historic Preservation (OAHP) Data Management and Historic and/or Prehistoric Component forms, following OAHP guidelines, with accompanying sketch maps and photographs. Completed forms are submitted to OAHP to ensure that Douglas County's historic or prehistoric data is included in the Colorado OAHP state-wide database of cultural resources.

Thank you in advance for your attention to the preservation and protection of Douglas County's cultural resources for future generations.

Sincerely,

Brittany Cassell

Brittany Cassell, Curator

DV 25-083

DOUGLAS COUNTY
COLORADO

www.douglas.co.us

Department of Community Development
Planning Services

REFERRAL RESPONSE REQUEST

Date sent: May 19, 2025

Comments due by: **June 9, 2025**
Fax: 303.660.9550

Project Name: 5970 N US Highway 85, 2nd Amendment
Project File #: US2025-001

Project Summary:

A Use by Special Review (USR) Amendment to expand the landfill permit area of the Sedalia Recycling Center and Depository located at 5970 N US Highway 85. The current facility encompasses an approximately 124.2-acre USR permit area, with approximately 66.9 acres available for disposal. The applicant requests to increase the USR permit area to approximately 165.9 acres with 88.3 acres available for disposal. The applicant is requesting the Board of County Commissioners (Board) establish lesser setbacks from the west lot line, as well as the existing residences to the west of the site.

The applicant is also requesting the Board grant a waiver to defer the requirement of Section 2107.30 of the *Douglas County Zoning Resolution* which requires the applicant receive a recommendation of approval for the certificate of designation from the Colorado Department of Public Health and Environment (CDPHE) prior to applying for a USR. The applicant would be required to obtain a recommendation of approval for the certificate of designation from the CDPHE prior to final approval of the record copy of the USR Plan Exhibit by the Director of Community Development.

Two sets of public hearings are anticipated. The first public hearings will focus on the *DCZR* waiver. If approved, the second public hearings will consider the full USR application.

Information on the identified development proposal located in Douglas County is enclosed. Please review and comment in the space provided.

☒	No Comment	
☐	Please be advised of the following concerns:	
☐	See letter attached for detail.	
Agency:	ENGINEERING	**Phone #:** 4318
Your Name:	AL PETERSON *(please print)*	**Your Signature:**
		Date: 6/9/25

Agencies should be advised that failure to submit written comments prior to the due date, or to obtain the applicant's written approval of an extension, will result in written comments being accepted for informational purposes only.

Sincerely,

Brett Thomas, AICP, Chief Planner

100 Third Street, Castle Rock, Colorado 80104 • 303.660.7460

Right of Way & Permits

1123 West 3rd Avenue
Denver, Colorado 80223
Telephone: 303.285.6612
violeta.ciocanu@xcelenergy.com

June 4, 2025

Douglas County Planning Services
100 Third Street
Castle Rock, CO 80104

Attn: Brett Thomas

Re: 5970 N US Highway 85, 2nd Amendment, Case # US2025-001

Public Service Company of Colorado's (PSCo) Right of Way & Permits Referral Desk has reviewed the plans for **5970 N US Highway 85, 2nd Amendment** and currently has **no apparent conflict**. Please be aware PSCo owns and operates existing natural gas and electric distribution facilities within the

As a safety precaution, PSCo would like to remind the developer to call the Utility Notification Center by dialing 811 for utility locates prior to construction.

Violeta Ciocanu (Chokanu)
Right of Way and Permits
Public Service Company of Colorado dba Xcel Energy
Office: 303-285-6612 – Email: violeta.ciocanu@xcelenergy.com

Brett Thomas

From: Mark Blohm <mwblohm@gmail.com>
Sent: Thursday, May 29, 2025 10:57 AM
To: Brett Thomas <bthomas@douglas.co.us>
Cc: Steven Blohm <stvnblohm@gmail.com>
Subject: Project US2025-001, Landfill 2nd amendment

Hi Brett,
I left a message on your vmail yesterday. I am the trustee of the Florence F Blohm Family Trust which owns property adjacent to this project. Some questions for you:
* Do you have dates for the hearings yet? Can I attend remotely (i.e. Zoom or other)?
* What is the current setback, and are they proposing changing those and to what? I read somewhere about 140' setbacks from property lines?
*It would be helpful if the applicant provided elevation drawings (elevation cross-sections through the proposed landfill to the existing landowner houses). The existing elevations are already an eyesore.
*We are also worried about excessive noise from construction and operations (filling) at the proposed extension. Maybe elevation cross-sections would help us out with this.

We will likely have more questions as this progresses.
Thanks,
Mark Blohm

Brett Thomas

From: Amy Terry - Realtor <amyaterry@gmail.com>
Sent: Tuesday, June 10, 2025 11:39 AM
To: Planning Commission <PlanningCommission@douglas.co.us>
Subject: Sedalia Landfill Expansion Questions/Options

Hello,

I am the owner of 6222 N Us Hwy 85. The property just west of the landfill. I am aware that they bought the clay mine that borders my property and they're looking to expand all the way up to the property line. I would love to have input on this expansion as I make future plans for my property.

I know they're using where the original house is now sitting as a set back, but my long term goal is build on the North East corner of my lot that has the best views and sides to open space (unfortunately the south border already is surrounded by the landfill) With their current proposal I would have a landfill right up against that property line running from North to South. This was obviously not the case when I purchased the property.

Anyhow, I would love to know my options to be involved in the decision making process and how we can come to some sort of compromise.

Warmly,

Amy Terry
Broker Associate | Team Leader at
THE **AGENCY**
Redefining Real Estate
m:303.882.3954 | **e:**AmyATerry@gmail.com
TheAgencyRE.com

*** The Agency will never ask you to wire money or provide wiring instructions. Beware of phishing emails requesting a bank wire. Please contact your lender, title company, or closing attorney to confirm any wiring instructions over the phone. ***

Weaver Consultants Group

January 9, 2026
Project No.: 0601-361-11-34-01

Mr. Brett Thomas
Chief Planner – Planning Services Division
Douglas County Government
100 Third Street, 2nd Floor
Castle Rock, CO 80104

Re: US2025-01 Referral Comments
Sedalia Recycling Center and Depository

Dear Mr. Thomas:

The purpose of this letter, submitted on behalf of the Sedalia Land Company (SLC), is to provide acknowledgement of and responses to referral comments for the USR Amendment Application, case number US2025-01.

Request for comments from referral agencies were distributed on May 19, 2025, and responses were received between May 19 and June 11. Most agencies did not provide comments or did not respond to the request for comments. The list below includes summaries of comments received and, where appropriate, how the comments will be addressed.

Referral Comments:

- **AT&T Long Distance ROW: "…there should be NO conflicts with the AT&T long line facilities."** No response required.

- **Douglas County Building Services: "Permit is required…"** A building permit application will be developed for the proposed relocation of the entrance facilities before construction of those facilities begins.

- **CDPHE: Air and Land Development Permits may be required for this project.** Air and land permits in addition to a revision to the facility's Engineering Design and Operations Plan to permit the expansion of the facility's disposal footprint, will be approved by CDPHE prior to beginning activities outside of the currently permitted limit of waste. SLC maintains a current air permit for the existing Sedalia Recycling Center and Depository (SRCD).

- **Colorado Department of Transportation (CDOT)**
  - **Environmental: If no disturbance within CDOT right-of-way, submit an email stating such.** A memo stating no disturbance within CDOT right-of-way will occur is attached to this letter.

- **Environmental: Prepare a Stormwater Management Plan.** A Stormwater Management Plan and a site-wide Drainage Analysis will be completed for this project prior to any ground disturbance.
- **Hydraulics: Locate ponds outside CDOT right-of-way and release discharges below existing flow rate conditions.** Ponds will be located outside of CDOT right-of-way, and a detailed Drainage Report will be prepared to demonstrate no increase to existing/permitted discharge rates.
- **Permits: Are there existing access permits for the project and what is the northern access point used for?** The current facility access, via the intersection of Delva Way and US Highway 85, was permitted and constructed in approximately 2006. Before that time, the northern access point served as the main entrance to the SRCD. The north access point is not currently used except for occasional maintenance access.
- **Residential Engineer/Traffic: CDOT wants to confirm no impacts to Highway 85 via queuing backup onto US 85 or to the signal at the intersection of Delva Way and Highway 85.** Weaver Consultants Group has prepared the attached, revised Traffic Study to address the received comments. It is important to note that the proposed rezoning and expansion of the SRDC will not add any additional traffic to the roadway system, nor change the existing traffic patterns used to access the facility for the last 30 years.

- **Colorado Parks and Wildlife: "…CPW has no concerns with this project…"** No response required.

- **CORE Electric Cooperative: CORE approved the USR amendment application and noted that overhead lines will need to be relocated in the future.** Relocation of existing overhead lines is being coordinated with CORE.

- **Douglas County Conservation District: The district provided recommendations for erosion control, phased grading, and low impact development techniques.** Detailed plans for managing grading, erosion, and sediment control will be developed as a part of Permit Applications to Douglas County and CDPHE as a part of this project. The District's recommendations will be considered and applied to the detailed plans for the proposed site development, consistent with how the SRDC has operated for the past 30 years.

- **Douglas County Health Department: The Department issued comments related to Stormwater Quality and Mosquito Control.** The Stormwater Quality issue is being reviewed by CDPHE. Mosquito control measures will be incorporated into the detailed site development and operations plans.

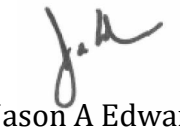
- **Douglas County Historic Preservation: "…no concerns at this time for cultural resources…"** No response required.

- **Douglas County Parks and Trails: No concerns.** No response required.
- **West Douglas County FD: No issues.** No response required.
- **Xcel Energy Right-Of-Way & Permits: "...no apparent conflict."** No response required.
- **Century Link: "no reservations/no objection."** No response required.

In addition to the referral agencies listed above, two adjacent property owners provided feedback on the proposed SRCD project. Interests, including noise, visibility, and setbacks were raised. SLC has worked with the landowners and is committed to continue working with them to address their concerns. The narrative has also been revised to provide clarity to the existing and proposed setbacks for this facility.

If you have any questions about the proposed responses to the above listed comments, please feel free to contact us.

Sincerely,
Weaver Consultants Group, LLC



Jason A Edwards, P.E.
Senior Engineer

Attachments: Attachment 1 – CDOT Memo
Attachment 2 – Revised USR Application

cc: Dalton Ellis, P.E., Sedalia Land Company

Weaver Consultants Group

6420 SOUTHWEST BLVD., STE. 206
FORT WORTH, TEXAS 76109
PHONE: (817) 735-9770
FAX: (817) 735-9775

MEMORANDUM

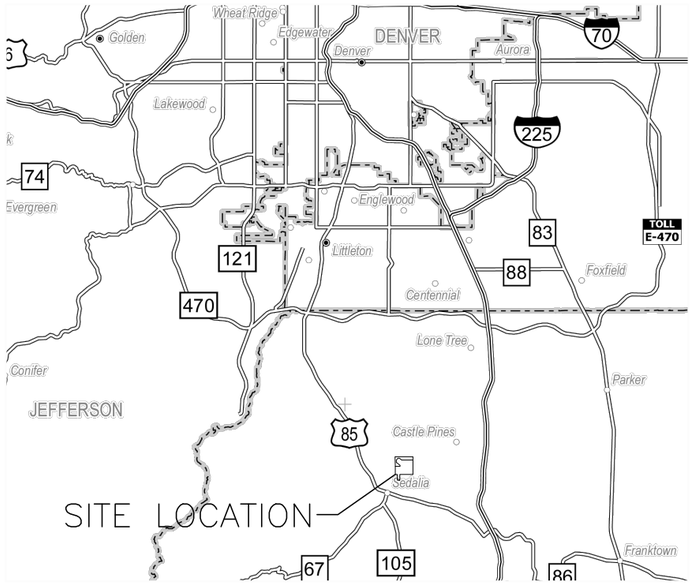
To:	Jessica Varner Colorado Department of Transportation (CDOT)	**Date:**	January 6, 2026
From:	Charles R. Marsh, P.E. Jason A. Edwards, P.E. Weaver Consultants Group, LLC (WCG)	**Project No:**	0601-361-11-34-01
Re:	CDOT Right of Way Disturbance Sedalia Recycling Center and Depository (Sedalia Landfill)		

The purpose of this memo is to indicate to CDOT that there will be no ground disturbance within CDOT right of way as a part of the proposed development of the Sedalia Landfill. If any additional information is required, please contact us.

COLORADO LICENSED
CHARLES R. MARSH
0054978
PROFESSIONAL ENGINEER

01-09-2026

5970 NORTH STATE HIGHWAY 85, 6TH AMENDMENT
S ½ SE ¼ SEC. 11, N ½ NE¼ SEC. 14, T7S, R68W, 6TH PM
DOUGLAS COUNTY, CO
165.9 ACRES
US 2025 001 (AMENDMENT TO US 2018-006)



VICINITY MAP

N.T.S.

INDEX TO DRAWINGS

DRAWING NO.	DRAWING TITLE
1	COVER SHEET
2	PERMITTED COMPLETION PLAN
3	PROPOSED COMPLETION PLAN

APPROVAL CERTIFICATE

THE USE BY SPECIAL REVIEW AS DEPICTED HEREON WAS APPROVED BY THE BOARD OF COUNTY COMMISSIONERS ON _____, 2 ___.

_____
Director of Community Development

- The use by special review is subject to yearly review, or as otherwise defined by the Board of County Commissioners as part of its approval of the use by special review, to ensure compliance with the approval standards and conditions of approval.
- Construction shall commence pursuant to the use by special review within 3 years from the date of approval, or within the extended effective approval period, or the use by special review shall terminate.
- The use by special review shall terminate when the use of the land changes or when the time period established by the Board of County Commissioners through the approval process expires. The owner shall notify the Zoning Division of a termination of the use. When the Zoning Division is notified of a termination of use or observes that the use has been terminated during the annual review, a written notice of termination shall be sent to the landowner.
- Acceptance of site construction drawings by Douglas County Engineering shall be required (as applicable) prior to issuance of building permits. Acceptance of site construction drawings expires three (3) years after the date of signature.
- Signs shown hereon are NOT approved. All signs require approval of a sign permit in accordance with the Sign Standards section of the Douglas County Zoning Resolution.

The undersigned as the owner or owner's representative of the lands described herein hereby agree on behalf of itself, its successors and assigns to develop and maintain the property described hereon in accordance and compliance with this approved Plan Exhibit and the Douglas County Zoning Resolution.

(for Corporate or LLC owner, print corporation or LLC name)

By: _____(signature)_____
Title: _____
Date: _____

ATTEST: (if corp.)

Secretary/Treasurer

STATE OF COLORADO)
) ss.
COUNTY OF_____)

Acknowledged before me this ___ day of _____, 20___, by _____ as _____ and _____ as _____ of _____, a _____ corporation/LLC.

My commission expires: _____

Witness my hand and official seal.

_____
Notary Public

(For Individual Owner)

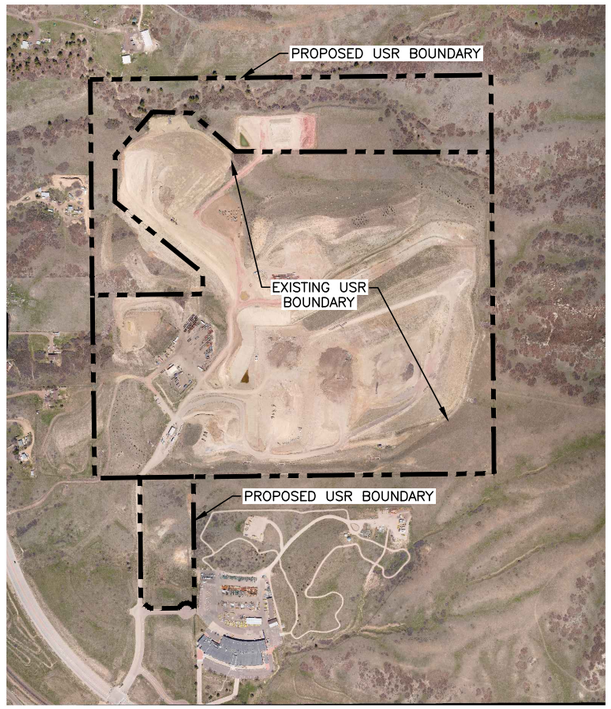
(signature of owner(s))

Acknowledged before me this _____ day of _____, 20___, by _____.

My commission expires: _____

Witness my hand and official seal.

_____
Notary Public



SITE MAP

0 500 1000
SCALE IN FEET

PURPOSE:

THE PURPOSE OF THIS APPLICATION IS TO EXPAND THE EXISTING USR BOUNDARY TO ADJACENT PROPERTIES TO ALLOW FOR FURTHER DEVELOPMENT OF THE SEDALIA RECYCLING CENTER AND DEPOSITORY, PROVIDING LONG-TERM DISPOSAL SERVICES FOR THE REGION.

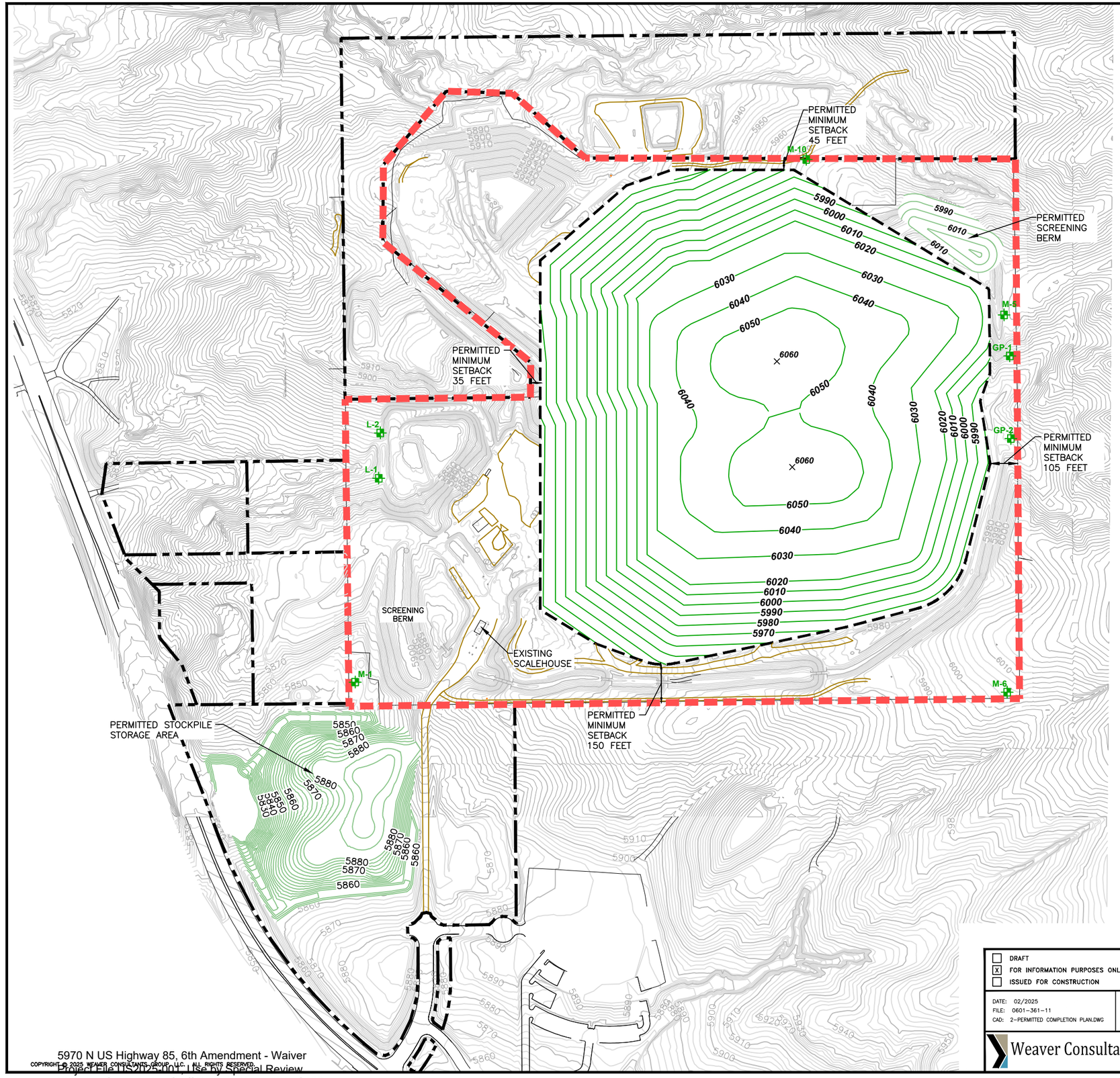
PREPARED FOR
SEDALIA RECYCLING CENTER AND DEPOSITORY
5970 STATE HIGHWAY 85
SEDALIA, CO 80315
(720) 733-8584

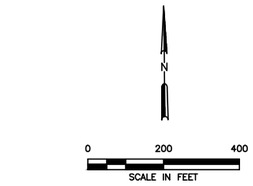
PREPARED BY
Weaver Consultants Group
6420 SOUTHWEST BLVD., SUITE 206
FORT WORTH, TEXAS 76109
(817) 735-9770
(817) 735-9775 (FAX)

MARCH 2025, REVISION 1

D:\0001\361\EXPANSION 2024\USR APPLICATION\USR EXHIBIT\1-COVER.dwg, cmarsh, 1:2

5970 NORTH STATE HIGHWAY 85, 6TH AMENDMENT
S ½ SE ¼ SEC. 11, N ½ NE ¼ SEC.14, T7S, R68W, 6TH PM
DOUGLAS COUNTY, CO
165.9 ACRES
US2025-001 (AMENDMENT TO US2018-006)





LEGEND

- PROPERTY BOUNDARY
- PERMITTED LIMIT OF WASTE
- 6050 — PERMITTED TOP OF FINAL COVER GRADES
- 6000 — COMPOSITE TOPOGRAPHY (SEE NOTE 1)
- EXISTING USR BOUNDARY
- M-1 — EXISTING NETWORK MONITORING WELL, PROBE, OR PIEZOMETER

NOTES:

1. COMPOSITE TOPOGRAPHY IS A COMPOSITE OF 2008, 2012 THROUGH 2015, 2018 THROUGH 2021 SURVEYS.



01-09-2026

Approval Certificate

Planning _____ Initials/Date

Owner _____ Initials/Date

Lessee *(if applicable)* _____ Initials/Date

- [ ] DRAFT
- [x] FOR INFORMATION PURPOSES ONLY
- [ ] ISSUED FOR CONSTRUCTION

DATE: 02/2025
FILE: 0601-361-11
CAD: 2-PERMITTED COMPLETION PLAN.DWG
DRAWN BY: JBM
DESIGN BY: JBM
REVIEWED BY: JAE

PREPARED FOR
SEDALIA LAND COMPANY

REVISIONS		
NO.	DATE	DESCRIPTION
1	12/2025	REVISED USR TITLE BLOCK

Weaver Consultants Group

PERMITTED COMPLETION PLAN

SEDALIA RECYCLING CENTER AND DEPOSITORY
DOUGLAS COUNTY, COLORADO

WWW.WCGRP.COM

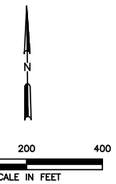
DRAWING 2

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G:\0601\361\EXPANSION 2024\USR APPLICATION\USR EXHIBIT\2-PERMITTED FINAL COVER PLAN.dwg, cmarsh, 1:2

5970 NORTH STATE HIGHWAY 85, 6TH AMENDMENT
S ½ SE ¼ SEC. 11, N ½ NE ¼ SEC.14, T7S, R68W, 6TH PM
DOUGLAS COUNTY, CO
165.9 ACRES
US2025-001 (AMENDMENT TO US2018-006)

PROPOSED MINIMUM SETBACK 520 FEET
FUTURE STORMWATER POND
PERMITTED MINIMUM SETBACK 45 FEET
PROPOSED MINIMUM SETBACK 200 FEET
EXISTING PRIVATE RESIDENCE TO REMAIN
269'
FARM UTILITY BUILDING
30' PERIMETER ROAD AND BERM
PERMITTED SCREENING BERM
EXISTING PRIVATE RESIDENCE TO REMAIN
769'
PERMITTED MINIMUM SETBACK 105 FEET
EXISTING PRIVATE RESIDENCE TO REMAIN
224'
541'
EXISTING PRIVATE RESIDENCE TO REMAIN
225'
FARM UTILITY BUILDING
SCREENING BERM
EXISTING SCALEHOUSE
EXISTING PRIVATE RESIDENCE TO REMAIN
436'
PERMITTED MINIMUM SETBACK 150 FEET
PERMITTED STOCKPILE STORAGE AREA
FUTURE SCALEHOUSE
M-10
M-9
GP-1
GP-2
L-2
L-1
M-1
M-6
7%



LEGEND

- PROPERTY BOUNDARY
- PERMITTED LIMIT OF WASTE
- PROPOSED EXPANSION LIMIT OF WASTE
- 6050 — PERMITTED TOP OF FINAL COVER GRADES
- 6000 — COMPOSITE TOPOGRAPHY (SEE NOTE 1)
- 6050 — PROPOSED EXPANSION TOP OF FINAL COVER GRADES
- ROADS
- PROPERTY TO BE ADDED TO USR BOUNDARY
- M-1 — EXISTING NETWORK MONITORING WELL, PROBE, OR PIEZOMETER

NOTES:

1. COMPOSITE TOPOGRAPHY IS A COMPOSITE OF 2008, 2012 THROUGH 2015, 2018 THROUGH 2021 SURVEYS.

COLORADO LICENSED
CHARLES R. MARSH
0054978
PROFESSIONAL ENGINEER

01-09-2026

Approval Certificate

Planning _____ Initials/Date
Owner _____ Initials/Date
Lessee *(if applicable)* _____ Initials/Date

☐ DRAFT
☒ FOR INFORMATION PURPOSES ONLY
☐ ISSUED FOR CONSTRUCTION

DATE: 02/2025
FILE: 0601-361-11
CAD: 3-PROPOSED COMPLETION PLAN.DWG
DRAWN BY: SRF
DESIGN BY: JAE
REVIEWED BY: JAE

PREPARED FOR
SEDALIA LAND COMPANY

REVISIONS		
NO.	DATE	DESCRIPTION
1	12/2025	REVISED USR TITLE AND RESIDENCE DESCRIPTIONS

Weaver Consultants Group

PROPOSED COMPLETION PLAN

SEDALIA RECYCLING CENTER AND DEPOSITORY
DOUGLAS COUNTY, COLORADO

WWW.WCGRP.COM

DRAWING 3

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C:\0601\361\EXPANSION 2024\USR APPLICATION\USR EXHIBIT\3-FINAL COVER PLAN.dwg, cmarsh, 1:2

MEETING DATE: April 6, 2026

STAFF PERSON RESPONSIBLE: Mike Pesicka, AICP, Principal Planner

DESCRIPTION: Bloom Preliminary Plan - Project File: SB2025-017.

SUMMARY: The request is for approval of a preliminary plan for 32 single-family detached residential lots, six tracts, and associated private roads on approximately 81 acres on property zoned Estate Residential (ER).

STAFF ASSESSMENT: Staff has evaluated the preliminary plan request in accordance with Article 4 of the Douglas County Subdivision Resolution. Should the Planning Commission find that the approval standards for the preliminary plan are met, the following proposed conditions should be considered for inclusion in the recommendation to the Board of County Commissioners.

1. Prior to the Board's consideration of the final plat, the applicant shall provide evidence of inclusion of the property in the Parker Water and Sanitation District.
2. Prior to recordation of final plat, the applicant shall file a required Well Abandonment Report with the Colorado Division of Water Resources.
3. Prior to recordation of the final plat, cash-in-lieu of park land and school land dedication shall be paid in accordance with Article 10 of the Douglas County Subdivision Resolution
4. During construction activity within the development, the applicant, its successors and assigns shall take all reasonable care to watch for historic resources, paleontological resources, and other cultural history resources and shall immediately notify Douglas County and complete appropriate Colorado Office of Archaeology and Historic Preservation data management forms in the event of such discovery.
5. Technical corrections to the record copy of the preliminary plan exhibit shall be made to the satisfaction of Douglas County.

ATTACHMENTS:

Cover Page
Staff Report - SB2025-017

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ATTACHMENTS:

PC Staff Report-SB2025-017 Bloom Preliminary Plan

DOUGLAS COUNTY
COLORADO

Preliminary Plan Staff Report

Date: March 25, 2026

To: Douglas County Planning Commission

From: Mike Pesicka, Principal Planner MP
Jeanette Bare, AICP, Current Planning Manager JB
Steven E. Koster, AICP, Deputy Director of Community Development SK

Subject: **Bloom Preliminary Plan**

Project File: **SB2025-017**

Planning Commission Hearing:	**April 6, 2026 @ 6:00 p.m.**
Board of County Commissioners Hearing:	**April 28, 2026 @ 2:30 p.m.**

I. EXECUTIVE SUMMARY

The request is for approval of a preliminary plan for 32 single-family detached residential lots, six tracts, and associated private roads on approximately 81 acres on property zoned Estate Residential (ER).

Access will occur via Bayou Gulch Road. Water and sewer service will be provided through inclusion into the Parker Water and Sanitation District (PWSD).

This property is within the Northeast Subarea as identified by the 2040 Comprehensive Master Plan.

II. APPLICATION INFORMATION

A. Applicant

Cayd Bader, CEO
Affinity Holdings, LLC

B. Applicant's Representative

Paul Shoukas, Vice President
PCS Group
200 Kalamath St.
Denver, CO 80223

C. Request

The request is for approval of a preliminary plan consisting of 32 single-family residential lots, six tracts, and associated roads on approximately 81 acres.

D. Process

A preliminary plan application is processed pursuant to Article 4 of the Douglas County Subdivision Resolution (DCSR). Article 4 states the intent of the process is "An in-depth analysis of the proposed subdivision, including a review of the design considering the ability to obtain water and sanitation, identified geologic hazards, environmentally sensitive areas, wildlife habitat areas, source of required services, vehicular and pedestrian circulation, storm drainage and water quality, relationship to surrounding land uses, and conformance with the Master Plan."

Per Section 405.08 of the DCSR, "The Planning Commission shall evaluate the preliminary plan, staff report, referral comments, applicant responses, public comment and testimony, and make a recommendation to the Board to approve, approve with conditions, continue for further study, or deny the preliminary plan. The Planning Commission's decision shall be based on the evidence presented; compliance with adopted County standards, regulations, and policies; and other guidelines."

E. Location

Bloom is located at the northwest corner of the intersection of Bayou Gulch Road and Scott Avenue. The preliminary plan abuts single-family development in the Town of Parker to the north, Bayou Gulch Road to the east, the Pradera subdivision to the south, and agricultural land to the west. The attached CMP vicinity map, zoning map, and aerial map highlight site location and existing conditions.

F. Project Description

This preliminary plan is for 32 detached single-family residential lots within the ER zone district. Lots are generally evenly distributed throughout the project site with open space tracts and buffer areas providing separation from adjacent residential development to the north and south and Bayou Gulch Road to the east.

Proposed lots range in size from 43,931 square feet (1.01 acres) to 72,202 square feet (1.66 acres) with an average lot size of 1.35 acres and a gross density of one lot per 2.53 acres which is allowed by the ER zone district. All lots are designed to accommodate detached single-family dwellings.

Project Details

Zoning	Estate Residential (ER)
Gross Site Acreage	81.07 acres
Residential Lots	32 Single-family
Tracts	6 tracts
Private Roadways	3
Gross Density	1 dwelling per 2.53 acres

The Bloom Metropolitan District (the "Metro District") will own and maintain the six tracts proposed within the preliminary plan area for open space, drainage, utilities,

access, and operations. Proposed Tracts A, B, and C provide for the majority of the open space, drainage, and buffer areas (26.97 acres). Tracts D and E will provide for a defined entryway including a faux guard house into the development. Tract F is to provide for private and emergency access to the project site from Bayou Gulch Road. All lots will be accessed via internal private roads. Right-of-way for Bayou Gulch Road will be dedicated to Douglas County at the time of final plat.

Central water services are proposed to all 32 lots by PWSD. PWSD will enter into a separate intergovernmental agreement (IGA) with Pinery Water and Wastewater District (PWWD) to provide sewer service for the 32 single-family lots.

Section 406.07 of the DCSR requires submittal of evidence that the property has been included into the water that has committed to serving the subdivision at the time of application for a preliminary plan. Section 406.07 also includes a provision for submittal of this documentation to be deferred by the Community Development Director for reason of good cause shown. In this case, the applicant requested to defer submitting documentation showing that the property has been included within the PWSD to avoid delays in the development process. The Director approved the applicant's request to defer the submittal requirement for evidence of inclusion of the property into the PWSD, on the condition that such evidence must be submitted prior to consideration of the first final plat associated with the Bloom Preliminary Plan by the Board of County Commissioners.

III. CONTEXT

A. Background

The property has historically been zoned and used for agriculture. In 2016, the Board of County Commissioners approved a rezoning from Agricultural One to Estate Residential for the subject property via Resolution No. R-016-086.

B. Adjacent Land Uses and Zoning

The current preliminary plan request is adjacent to Bayou Gulch Road on the east, the Town of Parker to the north, agricultural zoning to the west and the Pinery Planned Development (PD) to the south.

Zoning and Land Use

Direction	Zoning	Land Use
North	Town of Parker	Single-family residential
South	Pinery Planned Development	Single-family residential
East	Planned Development, Rural Residential	Single-family residential, drainage facility
West	Agricultural One	Agriculture, single family residential

IV. PHYSICAL SITE CHARACTERISTICS

A. Site Characteristics and Constraints

The site generally consists of rolling terrain and drainages which slope from west to east towards Bayou Gulch Road. Areas of highest elevation are within the western area of the property. There are a few areas of slopes that exceed 20 percent on the site, most of them will be included in open space and drainage tracts. There are no existing structures on the site. Vegetation on the site consists mostly of grasses with shrubs and small trees scattered around the site. There is no 100-year floodplain on the property.

B. Access

One point of access is proposed from Bayou Gulch Road. A Traffic Impact Analysis (TIS) has been reviewed and accepted by Engineering Services. The applicant will be responsible for their fair share contributions to future traffic signals at Bayou Gulch Road and Scott Avenue and at Bayou Gulch Road and N. Pinery Parkway.

C. Soils and Geology

The CMP Class 3 Hazards and Environmental Constraints map indicates no constraints on the site. The Colorado Geological Survey (CGS) reviewed the request and noted that the geotechnical recommendations in the subsurface soil study provided by the applicant are valid. CGS has no objection to the preliminary plan, if the recommendations in the geotechnical report are rigorously adhered to.

D. Drainage and Erosion

Engineering has reviewed the Phase II Drainage Report and found it to be acceptable. The Metro District will own and maintain stormwater facilities with the County to accept backup drainage easements via the final plat.

E. Floodplain

There is no mapped 100-year floodplain on the project site.

F. Wildlife

The CMP Wildlife Resources map identifies the site as having low habitat value. There are no identified wildlife crossings or overland connections on the project site. Colorado Parks and Wildlife (CPW) reviewed the application and stated in a letter dated July 30, 2025, that the main impacts to wildlife would be fragmentation and loss of habitat and although it is impossible to eliminate fragmentation and habitat loss with any development, impacts to wildlife can be minimized through the use of clustering configurations, reduction in density, and providing open space for wildlife. CPW also had recommendations regarding wildlife friendly fencing, and placement and design of trails, living with wildlife, protection of raptors and migratory birds if any active nest is discovered within the project area, and noxious weeds. CPW provided a follow-up email dated January 28, 2026, stating they appreciated the developer following through with some of the recommendations in the July 2025 letter. CPW

also noted that there is an active bald eagle nest approximately 0.92 miles from the proposed development. Although this particular project is outside of recommended ¼ mile and ½ mile buffer zones, it is important that the developer recognize that there are bald eagles in the area and that there are guidelines if a nest were to be established closer to the project site.

G. Historic Preservation

The applicant previously submitted a Class II cultural resource report in 2022. The Douglas County Curator has reviewed the completed survey and stated that new sites were discovered, but none are eligible to be listed on the state register. Should buried artifacts and features be discovered in future phases, the Curator recommends completion of appropriate Colorado Office of Archaeology and Historic Preservation (OAHP) Data Management and Historic and/or Prehistoric Component forms and submitting them to OAHP to ensure Douglas County's historic or prehistoric data is included in the Colorado OAHP state-wide database.

H. Wildland Fire Mitigation

The Douglas County Wildland Fire Mitigation Specialist assessed the project and recommended incorporating perimeter mowing against private property boundaries on at least a bi-annual basis to address grass fuel concerns and incorporating these management actions into an open space management plan. Additional guidance can be provided at the time of final plat application or when the management plan is developed.

V. PROVISION OF SERVICES

A. Schools

The Douglas County School District (DCSD) stated in its referral letter dated July 11, 2025, that a total of 32 students are expected from this development which would equate to a total land dedication requirement of 0.753 acres. This land dedication requirement is less than DCSD's minimum site requirements and therefore, DCSD requests cash-in-lieu of land dedication. Land for a school site is not proposed to be dedicated by the Bloom Preliminary Plan. An appraisal will be provided at the time of final plat for the purpose of determining the amount of required cash-in-lieu of school land dedication.

B. Fire Protection

Fire protection is provided by South Metro Fire Rescue (South Metro). South Metro reviewed the request and had no objections to the proposed preliminary plan. South Metro requested that the applicant coordinate with the future design of fire flow requirements and the placement of fire hydrants at the time of submittal of utility plans and construction documents which typically occurs at final plat.

C. Sheriff Services

The Douglas County Sheriff's Office (DCSO) provides protection to the site. DSCO did not comment on the proposal. The Office of Emergency Management (OEM) recommends that the applicant follow through with plans to provide a secondary/emergency access road. The applicant revised the plans to remove the proposed secondary access to the northwest corner of the site which would not connect to any existing road or access easement. In a follow-up email, OEM stated that they understand the requirements, codes, and challenges stated by the applicant and have no authority in the matter but wants it noted that "A best practice in emergency preparedness for any community is to have more than one access/egress point to facilitate rapid evacuation of the entire community. Engineering Services reviewed the revised access points and found the preliminary plan to be acceptable.

D. Water

All lots are proposed to be served by central water from PWSD. The applicant has provided a will-serve letter from PWSD indicating that the district is committed to serving the lots. Section 406.07of the DCSR requires submittal of evidence that the property has been included into the water district that has committed to serving the subdivision at the time of applicant for a preliminary plan, but includes a provision for this to be deferred by the director with good cause. In this case, the applicant requested and was granted a deferral of this until consideration of the final plat.

E. Sanitation

The applicant proposes to serve the 32 single-family lots with central sewer services through an IGA between PWSD and PWWD. The Douglas County Health Department (DCHD) responded to the referral request with a favorable recommendation for water service and sewage disposal.

F. Utilities

Utility service is provided by CORE Electric and Xcel Energy. CORE noted that additional easements may be required for private road crossings at the time of final electric design. CORE has no concerns with the proposed preliminary plan. Xcel responded to the referral request with information regarding easements and natural gas service.

G. Dedications

Proposed dedications of roads, tracts, and easements are shown in the following table:

Roads	The internal roads will be private and dedicated to the Bloom Metro District.
Tracts	Open Space Tracts A through F will be dedicated to the Bloom Metro District for open space, drainage, and public utilities.

Drainage and Blanket Access Easements	Drainage and blanket access easements will be dedicated to Douglas County and the Bloom Metro District.
Utilities	General Purpose utility easements will be dedicated to Douglas County

H. Parks, Trails, and Open Space

The applicant proposes approximately 27.50 acres of open space that will provide for future trails for the development and buffers to adjacent properties. Additional contributions, including cash-in-lieu of land dedication, will be determined at final plat.

VI. PUBLIC NOTICE AND INPUT

In accordance with Section 408 of the DCSR, public notice is required to be published in the Douglas County News Press and posted on the site by the applicant. In addition to the notice requirements, adjacent landowners were mailed courtesy notices at the beginning of the referral period. Significant public comment was received with comments on topics such as wildlife habitat and migration routes, traffic, the proposed density, and the existing rural character of the area. The public comments are attached to this staff report. All referral agency comments are outlined in the Referral Agency Response Report, as well as the referral response letters, attached to this staff report.

VII. STAFF ANALYSIS

A preliminary plan may be approved upon the finding by the Board of County Commissioners that the preliminary plan:

403.01: Conforms with the goals, objectives, and polices of the Master Plan.
Staff Comment: The property is located within the Northeast Subarea as identified in Section 3 of the 2040 CMP. The CMP states that while approval criteria for land use applications require a finding of compliance with the CMP, "…the competing values of the plan must be balanced through the public review process to achieve the larger vision of the community." As such, the CMP acknowledges its own competing values and that implementation can only be achieved through the balancing of community values during the review process. The Bloom Preliminary Plan attempts to balance the competing values of the CMP.

Goals, objectives, and policies within Section 3 often discuss open space and wildlife (Policy 3-1E.1, Policy 3-2A.2, Policy 3-2D.1, Policy 3-3E.6), compatibility with the natural and rural characteristics of the area (Objective 3-2A, Objective 3-2B, Policy 3-2B.1, Policy 3-3E.1, Policy 3-3E.2, Policy 3-3E.3, Policy 3-3E.7) and availability of services including central water and sewer services (Policy 3-3E.2 and Policy 3-3E.3).

The applicant has identified open space buffers and will implement wildlife fencing where appropriate for the development. The single-family residential lots have been located to provide open space buffers adjacent to existing single-family developments. Additionally, the project will be served by central water and sewer for all 32 single-family lots.

Policy 3-3E.1 states that "A maximum gross density of one dwelling unit per 2.5 acres is supported in the Northeast Subarea where it is logical infill, where approximately 50 percent of the property boundary is adjacent to zoned lands or parcel sizes consistent with the proposed development, and where site characteristics generally support it." This project has a gross density of one dwelling unit per 2.53 acres. In their narrative, the applicant states that they believe the project's overall density and layout of lots and open space tracts are consistent with adjacent land use patterns.

403.02: Address the design elements established in Article 4, Section 404.
Staff Comment: The proposed subdivision is in conformance with the design elements. Proposed lot sizes allow for setbacks that conform to the requirements of the ER zone district. The site has no Class 3 geologic hazards. Subdivision-wide drainage and grading concepts have been reviewed and accepted by Engineering Services on a preliminary basis. The applicant will take care to protect archaeological and historical resources if uncovered during construction. Vehicular, pedestrian, and bicycle access is provided through the inclusion of internal streets, sidewalks, and trails.

403.03: Conforms with Section 18A, Water Supply Overlay District, of the Zoning Resolution.
Staff Comment: DCZR Section 1803A establishes approval standards to be used in the evaluation of land use applications reviewed under Section 18A. The CDWR has reviewed the preliminary plan request and has determined that the supply is adequate. The applicant will be required to provide evidence of inclusion into the PWSD prior to consideration of the first Bloom final plat.

> **1803A.01 The applicant has demonstrated that the water rights can be used for the proposed uses.**
> *Staff Comment: The will-serve letter and other documentation from PWSD demonstrates that the water rights owned by PWSD can be used for the proposed uses within the subdivision.*
>
> **1803A.02 The reliability of a renewable right has been analyzed and is deemed sufficient by the County based on its priority dates within the Colorado System of Water Rights Administration.**
> *Staff Comment: No renewable water rights are proposed to serve the development.*
>
> **1803A.03 The Water Plan is deemed adequate and feasible by the County to ensure that water supply shortage will not occur due to variations in the hydrologic cycle.**

Staff Comment: A Water Plan is not required for review of proposed water service by a District.

1803A.04 The Water Plan is sufficient to meet the demand applicable to the project based on the minimum water demand standards in Section 1805A herein.
Staff Comment: A Water Plan is not required for review of proposed water service by a District.

403.04 Provides for a public wastewater collection and treatment system and, if other methods of wastewater collection and treatment are proposed, such systems comply with State and local laws and regulations.
Staff Comment: Sanitation Services will be provided by the Pinery Water and Wastewater District (PWWD) through an IGA with PWSD and the Bloom Metro District. The evidence of inclusion into PWSD will be provided prior to consideration of the first final plat within the project area. DCHD provided a favorable recommendation regarding the method of sewage disposal.

403.05 Identifies all areas of the proposed subdivision, which may involve soil or topographical conditions presenting hazards or requiring special precautions and the proposed uses of these areas are compatible with such conditions.
Staff Comment: A geotechnical study was provided by the applicant and reviewed by Colorado Geologic Survey (CGS). CGS responded to the referral request with no objection noting that there were no unusual geologic conditions or constraints within the proposed subdivision area that would preclude residential use and density.

403.06 Provides adequate drainage improvements.
Staff Comment: A Phase II Drainage Report has been reviewed by Engineering and found to be acceptable. A Phase III Drainage Report will be reviewed through the final plat process and formal easements established in conjunction with construction plans.

403.07 Provides adequate transportation improvements.
Staff Comment: Engineering has reviewed and accepted the traffic impact study provided with the preliminary plan.

403.08 Protects significant cultural, archaeological, natural, and historical resources and unique landforms.
Staff Comment: No unique landforms are located within the subject property. During construction activity within the development, the applicant, its successors and assigns shall take all reasonable care to watch for historic resources, paleontological resources and other cultural history resources and shall immediately notify Douglas County in the event of such a discovery.

403.09 Has available all necessary services, including fire and police protection, recreation facilities, utility services, streets, and open space to serve the proposed subdivision.

Staff Comment: The proposed subdivision will be served by South Metro Fire, the Douglas County Sheriff's Office, the Douglas County School District, CORE Electric Cooperative, Xcel Energy, Comcast, and CenturyLink. Private streets are proposed within the project. Approximately 27.5 acres of open space and a trail system are proposed. Applicable cash-in-lieu fees for school and park land dedication will be identified with the final plat and provided prior to plat recordation.

403.10 Does not interfere with the extraction of any known commercial mining deposit.
Staff Comment: There are no known significant mineral deposits on site per the Douglas County Minerals Extraction Master Plan.

VIII. STAFF ASSESSMENT

Staff has evaluated the preliminary plan request in accordance with Article 4 of the DCSR. Should the Planning Commission find that the approval standards for the preliminary plan are met, the following proposed conditions should be considered for inclusion in the recommendation to the Board of County Commissioners.

1. Prior to the Board's consideration of the final plat, the applicant shall provide evidence of inclusion of the property in the Parker Water and Sanitation District.

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ATTACHMENTS **PAGE**

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LAND USE APPLICATION

Please complete, sign, and date this application. Return it with the required items listed on the Submittal Checklist to planningsubmittals@douglas.co.us. Submittals may also be mailed or submitted in person to Planning Services. *NOTE: The Planning Commission or the Board of County Commissioners should not be contacted regarding an open application.*

OFFICE USE ONLY
PROJECT TITLE:
PROJECT NUMBER:

PROJECT TYPE: Preliminary Plan - Single Family Residential

MARKETING NAME: Bloom

PRESUBMITTAL REVIEW PROJECT NUMBER: PS2024-198

PROJECT SITE:

Address: The SW Intersection of Bayou Gulch Rd & Presidio Pakwy

State Parcel Number(s): 2349-090-00-002, 2349-093-00-001

Subdivision/Block#/Lot# *(if platted)*:

PROPERTY OWNER(S):

Name(s): 6244 N Crowfoot Valley Road, LLC

Address: 110 Front Street, STE 400, Jupiter FL, 33477

Phone:

Email:

AUTHORIZED REPRESENTATIVE: *(Notarized Letter of Authorization is required from the property owner, unless the owner is acting as the representative)*

Name: Paul Shoukas

Address: 200 Kalamath Street. Denver, CO 80223

Phone: 720-259-8248

Email: paul@pcsgroupco.com

To the best of my knowledge, the information contained on this application is true and correct. I have received the County's information sheet regarding the *Preble's Meadow Jumping Mouse*.

Applicant Signature

15 May 2025
Date

Narrative

Project Vision

As Colorado's front range continues to flourish with density and growth, Bloom is an opportunity in Douglas County to retreat to a more open landscape. Peaceful vistas, gently rolling terrain, an indigenous wildlife and vegetation, and seclusion from the pressures of urban life are often the images that come to mind when describing a classic Western landscape in the Colorado. At Bloom, just such a piece of historic Colorado ranchland has been masterfully designed to preserve and enhance those images well into the next century.

With a reverence for the native landscape as well as the land, the community takes inspiration from its name, "Bloom". Seasonal landscape is proposed within the community which takes the form of clusters of trees and shrubs organized in a meaningful fashion around the site which will be in seasonal bloom, creating botanical interest within the site. This proposed landscape is planted at key points of interest within the site to flower as early as April and as late as August. Once fall and winter are upon us, seasonal color and textures will consume the landscape with aesthetic interest.

Generous spaces between lots and carefully placed building envelopes ensure sensitive placement of homes to maximize open space and privacy for each residence. The scale and texture of this rolling ranchland has itself dictated an architectural style that minimizes intrusion onto this extraordinary landscape. Homes will nestle into the tapestry of sagebrush, juniper, drainages, and alpine wildflowers, and feature a distinctive architecture that draws upon the romance of a Modern Mountain house designs.

Low-profile, two-story designs that hug the land, combined with the use of natural materials, will blend residences at Bloom harmoniously and unobtrusively with their surroundings. Yet this style and theme has been modified with artistic refinement, energy efficiency, and technological advancements designed to fit the individual lifestyle needs of today's homeowner.

The community proposes large lots which will be a minimum of 1 acre in size and boasts 30% of the land to be dedicated open space. This custom home community will provide high-quality single-family homes along the Bayou Gulch Road corridor while preserving the natural landscape and providing passive recreational amenities for the community.

The project remains consistent with the surrounding residential land uses as it shares a southern property boundary with Pradera, while respecting the natural landscape. The plan utilizes and preserves the natural features through open space corridors, limiting over lot grading and highlighting features with a recreational trail network.

Existing Conditions Information

Location:

Bloom is +/-80 acres located along the west side of Bayou Gulch Road between Presidio Parkway and Scott Avenue in unincorporated Douglas County. The site is bounded by agricultural to the west, The Trails at Crowfoot neighborhood to the north, Allison Ranch the east, and the Pradera neighborhood to the south. More specifically, the parcel of ground is Part of the Southeast 1/4 Section 9 Township 7 South, Range 66 West of the 6th Principal Meridian, County of Douglas, State of Colorado. The parcel of ground is currently zoned Estate Residential. The community is essentially an infill site with the Pradera subdivision directly to the South (zoned PD with Single Family Detached Use), the Allison Ranch (Cielo subdivision) directly to the East (zoned PD with Single Family Detached Use), and Trails at Crowfoot subdivision (zoned PD with Single Family Detached Use) directly to the North in the Town of Parker.

Existing Conditions:

Topography

Topography of the site includes low hills with dry drainages toward Cherry Creek. The Federal Emergency Management Agency Flood Maps identify that no portion of the property is within the 100-year flood zone. The high point of the site is located just west of the property. The slope generally drops +/- 150 feet from this high point to the southern and eastern boundaries at an average slope of 5%.

Hazards

No natural or man-made hazards are known to exist on the site. The Environmental Study report did not indicate any severe slopes that could be hazardous as existing topography is rolling and gentle (5% average). Slope-failures can be caused by soil-eroded gullies, which undercut unstable slopes and cause failure.

Vegetation

The property mostly consists of open grassy areas with some lowland wooded drainages. Vegetation on the property could be classified into two main categories: open grasslands, and natural drainage ways. Landscape consists of non-irrigated native upland grasses, woody shrubs and trees including Juniper and Gambel Oak, Mullen, curly dock, Russian thistle, and yucca were also present. Most native trees and shrubs are on the western half of the site. Two drainage ways are in the northern and eastern parts of the site. No part of the site is in a floodplain.

Climate - The Palmer Divide is a high upland divide that extends eastward from the mountains and separates the Arkansas and South Platte River drainages. The topographic feature is approximately 2,000 ft higher than other areas of the Colorado Piedmont to the north and south. Due to its topographic location, the Palmer Divide has a climate that is like the mountains located to the west. The area is subject to delayed warming in the spring, lower summer temperatures, delayed cooling in the fall, and higher amounts of precipitation. The average high temperate in January between 6,000 and 8,000 ft is 45°F and the average low is 15° F; the average July high is 85° F, and the average low is 56° F.

History
No roads or trails were observed on the property. Development of the subdivision (Pradera) located south of the project was first observed on aerial photos dated May 2005, and construction of the subdivision located to the north (Trails at Crowfoot) began in September 2019.

Current Land Use
The current land use is agriculture and there are no existing structures on site. The underlying zoning for the property is Estate Residential, which allows a density of 1 single family home for every 2.5 acres. For a total of 32 home sites allowed on the property. The predominant surrounding land uses are single-family residential communities of varying densities.

Directly to the south is the Pradera neighborhood of custom-single family residential homes. This neighborhood is of a similar density to the proposed Preliminary Plan. The neighborhoods to the north and east are single-family communities, both of which are currently under construction. To the west of the property is agricultural land with one homesite and further west across Crowfoot Road are two single-family homes and 300 acres of undeveloped land in unincorporated Douglas County.

Comprehensive Plan Designation

Subareas:
The site is within the Northeast Subarea. This subarea is intended to serve as a guide for future development in Douglas County. The subareas differ significantly in their suggested densities. The Northeast subarea calls for a maximum of 2.5 dwellings per acre.

The density proposed within the Preliminary Plan is compatible with the Northeast Subarea Plan at one Dwelling Unit per 2.5 Acres. The property is an infill parcel surrounded by development on 3 of its 4 sides.

Detailed discussion clarifying the rational for this layout is supported in the body of this narrative, proving how the proposed development meets the intent of the Comprehensive Plan with “a density compatible with adjoining incorporated and unincorporated land uses” and clustering development adjacent to existing development (Policy 3-3 C.3).

Discussion Points:

Infill Site
Bloom is an infill site with existing single-family development along 75% of its boundary’s edge. The property is located in the middle of three different communities (Trails at Crowfoot, Cielo and Pradera). The proposed Preliminary Plan utilizes a more compact development pattern to preserve open space and encourages smart growth by taking advantage of existing surrounding infrastructure along Bayou Gulch Road and Scott Avenue. This includes vehicular access, existing water, sanitary sewer, storm sewer and electric utilities. Proposing this type of infill development in a location that has already established surrounding development helps preserve natural lands in rural Douglas County to be used for more open space and scenic uses for large lot, low- density development

Transition Of Density

Bloom creates a beneficial transition of density between three different communities with Pradera (to the South) having the comparable sized single family lots as Bloom and transitioning to smaller lots to the North (Trails at Crowfoot) and East (Cielo) of the property. More specifically, Cielo, the property East (across Bayou Gulch Road) is a community with average lot sizes of 8500 sf in size. Trails at Crowfoot shares Bloom's entire Northern property line with average lot sizes of 8500 sf in size. The Pradera subdivision abuts the entire South Side of the property line. While this golf course community has a range of home sites from 12,000 sf to 2 acres in size, the homesites abutting the property line are approximately 1.5 acres in size.

Adjacent Zoning

This site is classified as an infill development since there is existing development surrounding it on 3 of its 4 property boundary's with zoning predominately PD – Planned Development.

Southern Boundary – Pradera (PD in Douglas County)

Eastern Boundary – Cielo (PD in Douglas County)

Northern Boundary – Trails at Crowfoot (PD in Parker, CO)

Western Boundary – Miles Shasteen – (Agricultural-One, Douglas County)

Adjacent developments are compatible with the proposed project, so the proposed density would be complimentary with existing land uses.

Preliminary Plan Design

The proposed Preliminary Plan is designed to be a custom home community with a maximum of 32 single-family homes ranging in price from $2 million to $5 million and located on lots averaging over 1 acre in size.

Gates have been planned at Bayou Gulch Road. The streets are anticipated to be private and maintained by Metro District and constructed to Douglas County standards. Setbacks have been provided along the perimeter of the property that will include seasonal landscape. An understated curvilinear sign wall with built in planters is proposed within the setback giving the community identity for those arriving. Bosques of ornamental and canopy trees and shrubs are proposed within the setback, strengthening the seasonal "Bloom" experience.

After passing the sign wall, drivers will navigate a proposed one way split landscaped median street after entering from Bayou Gulch Road that meanders and varies in width. The split median also houses a faux guard shack and entry gates for those living in the community.

Approximately 30 acres are designed for open space, trails, water quality and community amenities. This includes an internal trail system that loops around the neighborhood. The trail system is anticipated to be a naturalistic dirt trail approximately 1.5 miles in length. Construction and phasing has not been determined yet, and is mainly dependent on market conditions.

Landscape

Seasonal landscape is proposed within the community which takes the form of clusters of trees and shrubs organized in a meaningful fashion around the site which will be in seasonal bloom, creating botanical interest within the site. This proposed landscape is proposed planted at key points of interest within the site and will be planned to flower as early as April and as late as August. Once fall and winter are upon us, seasonal color and textures will consume the landscape with aesthetic interest.

This design is intended to retain the natural features of the site, while also adding identifiable and manicured landscape at specific areas of interest. The open space area ensures that wildlife habitat and corridors remain intact, and that the community is in harmony with its rural location.

Access & Connectivity

Bayou Gulch Road will provide primary access to the community along its eastern property line, directly across from Presido Parkway and is anticipated to be an unsignalized full movement intersection. A right-of-way dedication along the western portion of Bayou Gulch Road will be granted to Douglas County via Subdivision Plat.

Corridors

The Preliminary Plan is designed as a larger-lot clustered community. The layout intentionally incorporates slightly smaller individual lots to allow for perimeter landscape buffers and open space tracts throughout the property. This design approach provides greater separation and privacy for existing residents to the north and south and creates opportunities for substantial landscape buffering. The layout also incorporates a system of pedestrian-friendly pathways that could link to individual lots in the form of open space tracts. Their varying widths, ranging from approximately 50 to 200 feet, create a sense of openness and preserve view corridors while offering opportunities for passive recreation and habitat continuity.

The internal open space corridors promote pedestrian connectivity while also serving as wildlife movement pathways that remain unimpeded by fencing. Where fencing is proposed, Colorado Parks and Wildlife suggests that open-rail fencing is safer for wildlife to navigate than many other barricade-style fence types. Unlike larger-lot or agricultural properties that typically use barbed-wire fencing along their boundaries, this community anticipates using open-rail fencing around individual lots. This approach provides a safer and more permeable route for wildlife while also maintaining an open and visually cohesive character throughout the community.

Proposed Utilities

Water and Sewer

While the site is located within the Pinery SUA, the site is not currently included within the Pinery Water and Wastewater District (Pinery WWD). During the site due diligence efforts communication with Pinery WWD and Parker Water and Sanitation District (Parker WSD) occurred to understand the ability to service the site and the locations and capacities of the existing utilities within and around the project area. Parker WSD has infrastructure in closer proximity to the site and can better accommodate the site's water and sanitary capacity needs. Numerous conversations have occurred with both entities yielding

recommendations for inclusion within the Parker WSD from a logistic and serviceability aspect. It is understood that the existing Inter-Governmental Agreement (IGA) between the two entities will need to be updated for Parker WSD to service the subdivision. Based upon these conversations and the existing IGA, we understand that the site's inclusion to Parker WSD will not negatively impact the Pinery WWD. An intent to serve letter from Parker WSD indicates Parker WSD's willingness to serve the development. We have confirmed with the District, that there is adequate capacity in the existing sanitary sewer system. The Bloom subdivision sanitary sewer system will connect to an existing sanitary sewer manhole within the Cielo subdivision just north of Scott Avenue within the cul de sac of Margarita Point. The proposed water system will connect at two locations, one at the northeast corner of the subdivision, on the west side of Bayou Gulch Road at Presido Parkway, and one at the southwest corner of the subdivision, within Scott Avenue just south of the Margarita Point cul de sac. . Based upon our conversations with PWWD and PWSD our understanding is that there are no adverse impacts on either District, rather development of the parcel should add to the fiscal health to both Districts from tap fees and monthly service fees. Additional benefits to the District include the looping of water mains, conveyance of easements at no cost to the District, and development of infrastructure by a private developer or metropolitan district without County funding.

Approval Criteria

Approval Criteria for a Preliminary Plan:

Per Section 403, Article 4 of Douglas County's Zoning Resolution the Preliminary Plan approval is based from the following criteria:

403.01 Conforms with the goals, objectives, and policies of the Master Plan.

Compliance With Section 3 Of the County's Nonurban Land Use

OBJECTIVE 3-3E
Ensure development in the Northeast Subarea is consistent with this plan.

POLICY 3-3E.1
The Preliminary Plan is in compliance with policy 3-3.E.1 as a maximum gross density of one dwelling unit per 2.5 acres is supported in the Northeast Subarea where it is logical infill, and over 50% of the property boundary is adjacent to zoned lands or parcel sizes consistent with the proposed development, and has site characteristics which can support the layout and use.

Over 75% of the property is surrounded by single family development as Trails at Crowfoot is to the North, Pradera is to the South and Cielo is to the East, qualifying Bloom as an Infill property. As

mentioned above, the proposed Preliminary Plan depicts a maximum density of 1 dwelling unit per 2.5 acres on the property which totals 32 homesites.

POLICY 3-3E.2, 3-3E.3
A maximum gross density of one dwelling unit per 2.5 acres is proposed within the Preliminary Plan which resides within the Northeast Subarea where there is adequate public infrastructure in the existing Bayou Gulch Road to support the proposed development.

POLICY 3-3E.4, POLICY 3-3E.5, POLICY 3-3E.6
The proposed Preliminary Plan is within the Northeast Subarea and takes measures to protect the existing alluvial wells used as water supply by proposing central water and sewer services with Parker Water and Sanitation District. The large lot layout minimizes the removal of vegetation and works with the existing terrain to minimize grading and earthwork where possible. Open space corridors and natural drainages which will also act as wildlife movement are proposed through the community and may provide open space linkages between adjacent communities. Additional trees and vegetation will be proposed along landscape buffer areas to screen development.

POLICY 3-3E.7
While the property does not have viewsheds of the front range, the proposed Preliminary Plan has been designed to with proposed development along existing roads. The plan allows for landscape buffers as the Northeast Subarea criteria suggests the plan should be sensitive to minimizing visual impacts from Bayou Gulch Road.

Compliance With Section 5 Of the County's Community Resources

Goal 5-1
Ensure the provision of adequate community resources in an efficient and cost-effective manner.
Objective 5-1A
Review existing and projected development to ensure that it does not overwhelm existing services.

POLICY 5-1A.1, 5-1A.2
The proposed development is located in an area of growth within Douglas County with new neighborhoods such as Pradera, Trails at Crowfoot, and Cielo, with commercial and residential development that are recently completed, underway or in the planning process. Utility services are in place or expanding due to these neighboring developments. The potential development of Bloom will provide a logical extension of these facilities and the development of new infrastructure where needed for the development. Discussions are underway with service providers to ensure capability of providing the services as well as the needs for accommodating new residents. Facilities will be provided if necessary and/or mitigation of the impacts provided, as negotiated with the service provider.

Objective 5-1B
Maintain a development pattern of contiguous and logical extensions of community resources and infrastructure.

POLICY 5-1B.1, 5-1B.2
Bloom is surrounded on three sides by existing or proposed neighborhoods and therefore development of the site is a logical extension of existing facilities and services.

Goal 5-2
Provide educational facilities that serve the County's population.
The applicant will continue to coordinate with Douglas County School District to ensure that public educational facilities are available to the students within Bloom. It is anticipated that cash-in-lieu of land dedication and capital mitigation of impacts may be provided to the School District in accordance with District rules and regulations.

Goal 5-3
Promote the sustainability of special districts.
It is anticipated that the development will seek a Special Metropolitan District to assist in the financing of public improvements. All development will be in accordance with the service plan. The district will need to be approved by the County who will ensure that district does not unnecessarily burden County residents.

Goal 5-4 Ensure library resources are available to all County residents.
The applicant will work with and with the Douglas County Libraries' Board of Trustees to mitigate growth-related impacts through planning, and the land development referral process.

Goal 5-6
Provide quality emergency services to County residents in the most efficient and cost-effective manner possible.
The Douglas County Sheriff's Department currently provides law enforcement to the developments surrounding Bloom. Adequate access will be provided for the law enforcement officers through the private streets. Response time should be no greater than that provided for the surrounding neighborhoods.

Provide opportunities for cultural experiences.
Currently, the existing arts and cultural facilities available for the residents of Bloom are primarily clustered in the Denver Central Business District, with the closest facility being in Parker on Mainstreet. However, with recent growth trends south of the downtown area, it is anticipated that the demographics of this may require that additional cultural services be established in this southeast metropolitan region.

E. Compliance With Section 6 Of the County's Transportation Criteria

Goal 6-1
Develop an efficient, multifunctional transportation network designed to ensure safety, promote user access, and facilitate cost-effective operations and maintenance.
Objective 6-1A
Ensure consistency between the Transportation Master Plan and local and regional transportation plans.

POLICY 6-1A.1, 6-1A.2
A Traffic Impact Analysis has been conducted by LSC based on proposed density assumptions for development of Bloom. The analysis addresses volume and capacity of the roads, establishes a hierarchy for the roads and provides a classification of the streets. All roads internal to the site will be local streets.

Goal 6-2

Develop and maintain an efficient and safe road network in harmony with natural features and existing neighborhoods

Objective 6-2A
Plan and construct an efficient road network.

POLICY 6-2A.1, 6-2A.2, 6-2A.3
The low density proposed within Bloom limits the need for an extensive road network. It is anticipated that local roads, which are primarily loop streets and cul-de-sacs, will provide access to the homes, therefore limiting long stretches of roads and eliminating the opportunity for cut-through traffic.

Objective 6-2B
Ensure new development pays its fair share.

POLICY 6-2B.1, 6-2B.2, 6-2B.3
It is understood that the developer, builder, or metropolitan district will be responsible for completing the public improvements directly associated with the development of Bloom.

Objective 6-2C
Provide adequate primary, secondary, and emergency connections for subdivisions.

POLICY 6-2C.1, 6-2C.2, 6-2C.3, 6-2C.4\
The proposed road network will be designed to Douglas County standards. The network will ensure ease of access to the homes without impacting adjacent residents. The proposed layout eliminates opportunity for cut-through traffic to or through the site as the Preliminary Plan depicts a loop road internal to the property, entering and exiting on Bayou Gulch Road.

Objective 6-2D
Design local roads to serve the purpose and scale of the neighborhood or local environment.

POLICY 6-2D.1, 6-2D.2, 6-2D.3, 6-2D.4, 6-2D.5
The low density proposed within Bloom limits the need for an extensive road network. It's anticipated that local roads, which are primarily loop streets and cul-de-sacs, will provide access to the homes, therefore limiting long stretches of roads or the opportunity for cut-through traffic. A trail system through the neighborhood will encourage the residents to walk to community amenities.

Compliance With Section 7 Of the County's Water Supply Criteria

Goal 7-1
Prolong the life of water resources.
Objective 7-1A
Minimize water consumption.

POLICY 7-1A.1, 7-1A.2, 7-1A.3, 7-1A.4

The landscaping of community amenities by the developer/builder such as entry features, landscape buffers, open space, and trail corridors will primarily utilize native plant species that conserve on irrigation and utilize best management practices.

Objective 7-1B
Maximize the efficient use of water.

POLICY 7-1B.1, POLICY 7-1B.2, POLICY 7-1B.3, POLICY 7-1B.4
Homeowner's will be encouraged to utilize xeriscape techniques for all private area landscaping. Builder installed landscaping will also utilize these techniques. Builders will be encouraged to install low water usage fixtures and appliances.

Objective 7-1C
Support long-term water supply planning.

Cooperation between the developer and the Parker Water and Sanitation District will be ongoing to ensure that new residents comply with the District suggested water conservation techniques. A "will-serve" agreement is in place with the District for water and wastewater service. The letter states the District will provide service for up to 32 dwelling units for the Property. Additional infrastructure and wells will be required to meet the needs of the proposed development. Parker Water and Sanitation District has consistently provided reliable service to its residents even in the years with severe drought conditions.

Compliance with Section 8 Of The County's Environmental Quality Criteria

Goal 8-1
Recognize and respect natural geologic conditions.
Objective 8-1A
POLICY 8-1A.1, 8-1A.2, 8-1A.3, 8-1A.4, 8-1A.5, 8-1A.6, 8-1A.7, 8-1A.8
Ensure development is appropriate when weighed against hazards and constraints.

The Environmental Study report did not indicate any sever slopes that could be hazardous as existing topography is rolling and gentle (5% average). Slope-failures can be caused by soil-eroded gullies which undercut unstable slopes and cause failure. It should be noted that the maps within the CMP for Environmental Hazards and Constraints are general in nature and should be supplemented with site-specific studies during the development review process if warranted.

Goal 8-2
Limit land uses in floodplains.
Objective 8-2A
Preclude damage to life and property.
The property is not in a floodplain or floodway and does not have any notable streams or drainages that run through the site.

Goal 8-3
Reduce the risks of loss from wildfire hazard.
Objective 8-3A
POLICY 8-3A.1, 8-3A.2, 8-3A.3
The property does not have any significant natural vegetation within the landscape, and the risk of wildfire is low given the low-density nature of the residential application.

Goal 8-5
Maintain high water quality and protect water resources.
Objective 8-5A
Coordinate with regional agencies to protect water quality.

POLICY 8-5A.1, 8-5A.2
Cooperation between the proposed community and the Parker Water and Sanitation District will be ongoing to ensure that new residents comply with the District suggested water conservation techniques.

Objective 8-5B
Ensure new development maintains and improves water quality in accordance with all adopted clean water regulations.

POLICY 8-5B.1, 8-5B.2, 8-5B.3, 8-5B.4, 8-5B.5
Irrigation and planting designs should blend or complement the existing terrain and utilize indigenous, historically adaptable, low maintenance, turf, plants, and trees. Overtime the restoration and enhancement of all areas surrounding individual home sites will establish a common natural landscape feature that will visually link the Bloom community and the adjacent open space.
Proposed landscape will mitigate, surface erosion, and sedimentation sources through Best Management Practices will be filtered naturally as water permeates back to alluvial wells.

Objective 8-5C
Ensure that water treatment and septic systems will not harm either ground or surface water quality.

POLICY 8-5C.1, 8-5C.2, 8-5C.3
Central Sewer and Water systems are proposed and anticipated to be serviced by Parker Water and Sanitation District.

Goal 8-6
Maintain appropriate noise levels.
Objective 8-6A
Evaluate and mitigate noise impacts, where appropriate.

POLICY 8-6A.1, 8-6A.2, 8-6A.3
To meet the intent of the Comprehensive Plan, the following will occur with the planning and design of the neighborhood:
A Traffic Impact analysis has been conducted by LSC and will be provided with the application. Berming and landscaping will be provided to soften and enhance the frontage along Bayou Gulch Road. The

design of the homes will include methods to mitigate noise such as central forced air, additional insulation, double pane windows, etc. as recommend.

Compliance With Section 9 Of The County's Wildlife, Wildlife Habitat, And Movement Corridors Criteria

Goal 9-1
Protect and enhance wildlife habitat and movement corridors and foster wildlife conservation.
Objective 9-1A
Maintain healthy ecosystems within the County by establishing, maintaining, buffering, and improving a set of core habitat areas, such as habitat conservation areas (HCAs), connected by movement corridors and overland connections as shown in the Wildlife Resources Map.

Objective 9-1B
Minimize impacts to wildlife by ensuring that development and land use are compatible with wildlife, wildlife habitat, and movement corridors.

POLICY 9-1A.1, 9-1A.2, 9-1A.3, 9-1B.1, 9-1B.2, 9-1B.3, 9-1B.4, 9-1B.5, 9-1B.6, 9-1B.7, 9-1B.8, 9-1B.9
Most of the site has been disturbed by ranching operations over the years and is categorized as low habitat value with a small portion being moderate habitat value (per Map 9.1 in Douglas County's Comprehensive Plan). However, the proposed Preliminary Plan will have open space corridors going through the property that will assist with the migration of wildlife through the site. The proposed development shall maintain open space lands as corridors for wildlife.

Covenants conditions and restrictions established for the neighborhood and enforced by the homeowner's association will most likely prohibit domestic animals from free roaming. Pet containment fencing will be required for the homes along these corridors. Disturbed areas not intended for development will be revegetated to native grassland species and shrubs.

403.02 Addresses the design elements established in Article 4, Section 404

404.01 Lots are of an appropriate size and configuration for the site's characteristics and intended uses, and otherwise capable of meeting minimum

- All lots have been designed to be over one acre in size, which is compatible with the surrounding area as both Cielo and Trails at Crowfoot have been designed with 8500sf lot sizes, and Pradera is approximately 2 acres in lot size. Furthermore, the density of the project is 1 unit per 2.5 Acres.

404.02 Geologic hazards, floodplains, wildfire, or other hazardous conditions are mitigated or avoided.

- Hazards have been avoided as no significant hazardous conditions have presented themselves in the Environmental Assessment report.

404.03 Conflicts between proposed and surrounding land uses are minimized through lot and tract orientation, setbacks, landscaping, or other buffering techniques.

- There are no conflicts between land uses as the surrounding and proposed land uses are Single Family Detached homes. Furthermore, efforts have been made within the Preliminary Plan by proposing landscape buffers throughout the perimeter of the site.

404.04 Streets and stormwater facilities are laid out with the ability to meet the Douglas County Roadway Design and Construction Standards, Storm Drainage Design and Technical Criteria Manual, and other applicable County regulations.

- The proposed streets are intended to be private and associated grading have been designed to meet the Douglas County Roadway Design and Construction Standards. Utilities layout and design will comply with criteria set forth in the Storm Drainage Design and Technical Criteria Manual

404.05 Elements of the site's natural terrain, drainageways, riparian areas, and vegetation are preserved or integrated into the subdivision layout.

- While the site has few notable natural characteristics, the layout is designed to minimize road grading and walls and preserve drainage corridors which could also be used for pedestrian corridors and wildlife corridors.

404.06 Archeological and historical resources of special significance are protected.

- Per the Cultural Resource Survey, the site is not eligible for listing in the SRHP under any criteria. The site is not associated with any known events, or persons, significant to the history of the area, nor does it embody any distinctive characteristics of a type, period, or method of construction. The site is not geographically important and furthermore, soil probe results indicate that there is minimal deposition, and the site will not yield additional important information regarding Indigenous use of the area.

404.07 Opportunities for safe and convenient vehicular, pedestrian, and other connections within the subdivision and adjacent neighborhoods, shopping, employment, and recreational areas are provided.

- Recreational opportunities will be provided to adequately serve the residents of the proposed neighborhood including picnic shelters, wildlife viewing areas (bird watching, walking trail connections, and like amenities). The Cherry Creek Regional Trail is near the site which provides off-street bike and pedestrian trail system that will connect this neighborhood to nearby amenities such as schools, recreational facilities and to downtown Parker. These trails also continue for several miles into the Denver Metropolitan area offering alternatives for commuters. Furthermore, residents will support already established commercial areas as the parcel of ground is less than 3 miles from retail shopping such as grocery, restaurants, pet stores, banks, automotive care, and pharmacies (Intersection of Stroh Road and South Parker Road). This symbiosis of services supports healthy communities.

404.08 Specific recommendations of other required development reports or technical studies are implemented.

- Recommendations will be heeded from development reports or technical studies.

403.03 Conforms with Section 18A, Water Supply - Overlay District, of the Zoning Resolution.

Water and sanitary sewer service is available through a service agreement with the Parker Water and Sanitation District. While the site is located within the Pinery SUA, the site is not currently included within the Pinery Water and Wastewater District (PWWD). During the site due diligence efforts communication with PWWD and Parker Water and Sanitation District (PWSD) occurred to understand the ability to service the site and the locations and capacities of the existing utilities within and around the project area. PWWD infrastructure is limited, and significant off-site improvements would be required. PWSD has infrastructure in closer proximate to the site and better accommodates the site due to physical land constraints in the form of topography. Numerous conversations with both entities yielded recommendations for inclusion within the Parker Water and Sanitation District from a logistic and serviceability aspect. This coordination with the Pinery Water and Wastewater District concluded they were in support of including this property in Parker Water and Sanitation District and will implement the existing Inter-Governmental Agreement between the entities to service the greater area. Based upon these conversations and the existing IGA we understand that the site's inclusion to PWSD does not negatively impact the Pinery Water and Wastewater District. An intent to serve letter indicates PWSD's willingness to serve the site with up to 32 dwelling units with the required additional wells and infrastructure necessary to serve the residents and associated amenities. It is anticipated that there is adequate capacity in the sanitary sewer system, which will connect at a minimum two locations, one north to the Trails at Crowfoot subdivision and one east to the Cielo subdivision connection within Scott Road, as required due to the ridgeline with the site. Based upon our conversations with PWWD and PWSD our understanding is that there are no adverse impacts on either District, rather development of the parcel should add to the fiscal health to both Districts from tap fees and monthly service fees. Additional benefits to the District include the looping of water mains, conveyance of easements at no cost to the District, and development of infrastructure by a private developer or metropolitan district without County funding.

403.04 Provides for a public wastewater collection and treatment system and, if other methods of wastewater collection and treatment are proposed, such systems comply with State and local laws and regulations.'

As stated above, The Property has a "will serve" letter from Parker Water and Sanitation District to provide water and sanitary sewer service. The letter states the Districts willingness to provide service for up to 32 dwelling units on the Property with the required dedication of well sites and improvements to infrastructure. Currently, there is adequate capacity to serve the property with sanitary sewer service.

403.05 Identifies all areas of the proposed subdivision, which may involve soil or topographical conditions

presenting hazards or requiring special precautions and the proposed uses of these areas are compatible with such conditions.

The Environmental Study report did not indicate any sever slopes that could be hazardous as existing topography is rolling and gentle (5% average). Slope-failures can be caused by soil-eroded gullies which undercut unstable slopes and cause failure. It should be noted that the maps within the CMP for Environmental Hazards and Constraints are general in nature and should be supplemented with site-specific studies during the development review process if warranted.

403.06 Provides adequate drainage improvements.

A central stormwater utility plan along with a Phase II Drainage Report has been submitted with the plan set identifying detention along with associated hydrology calculations justifying the proposed design.

403.07 Provides adequate transportation improvements.

Bayou Gulch Road will provide primary access along the eastern property line which is anticipated to be an unsignalized full movement turn. A 60’ Right of Way dedication for the western portion of Bayou Gulch Road is anticipated. All internal local streets are anticipated to be private and maintained by the Metro District. These streets will be designed to meet the Douglas County Roadway Design and Construction Standards.

403.09 Has available all necessary services, including fire and police protection, recreation facilities, utility services, streets, and open space to serve the proposed subdivision.

Bloom is located within the South Metro Fire Protection District and the intended development will meet the safety standards and design requirements of the District. The site is equidistant from South Metro Fire Station 46 on Stroh Road, and Franktown Fire Protection on Bayou Gulch Road. This station has been constructed within the Pradera Subdivision at the corner of Bayou Gulch Road and Bridle Path. Both stations have an adequate emergency response time to the site. South Metro Fire District currently serves the surrounding neighborhoods and therefore they should be capable of serving this proposed development without overextending available resources. Taxes paid to the District will aid in off-setting increased costs of services.

Law Enforcement Services / Police Protection - Law enforcement for Bloom will be provided by the Douglas County Sheriff’s Department. Given the proposed low-density nature of the community and its proximity to existing developments in the County currently receiving these same services, the property should have limited impacts on police protection services.

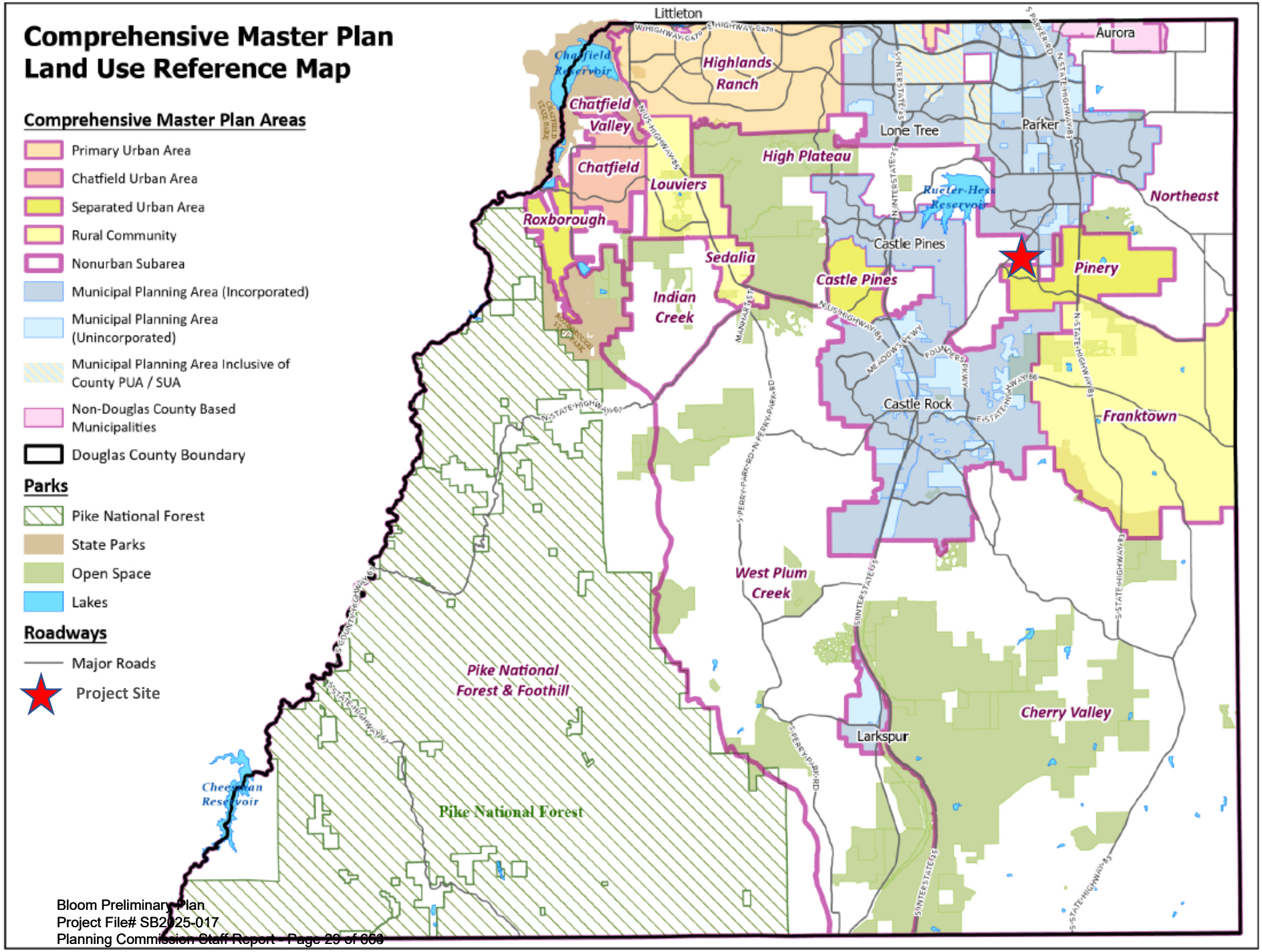
As stated above, The Property has a “will serve” letter from Parker Water and Sanitation District to provide water and sanitary sewer service. IREA is anticipated to provide Gas and Electric services.

Lastly, this custom home community will provide high-quality single-family homes along the Bayou Gulch Road corridor while preserving the natural landscape and providing passive recreational amenities for the community. The project remains consistent with the surrounding residential land uses as it shares a southern property boundary with Pradera, while respecting the natural landscape. The plan utilizes and preserves the natural features through open space corridors, limiting over lot grading and highlighting features with a recreational trail network.

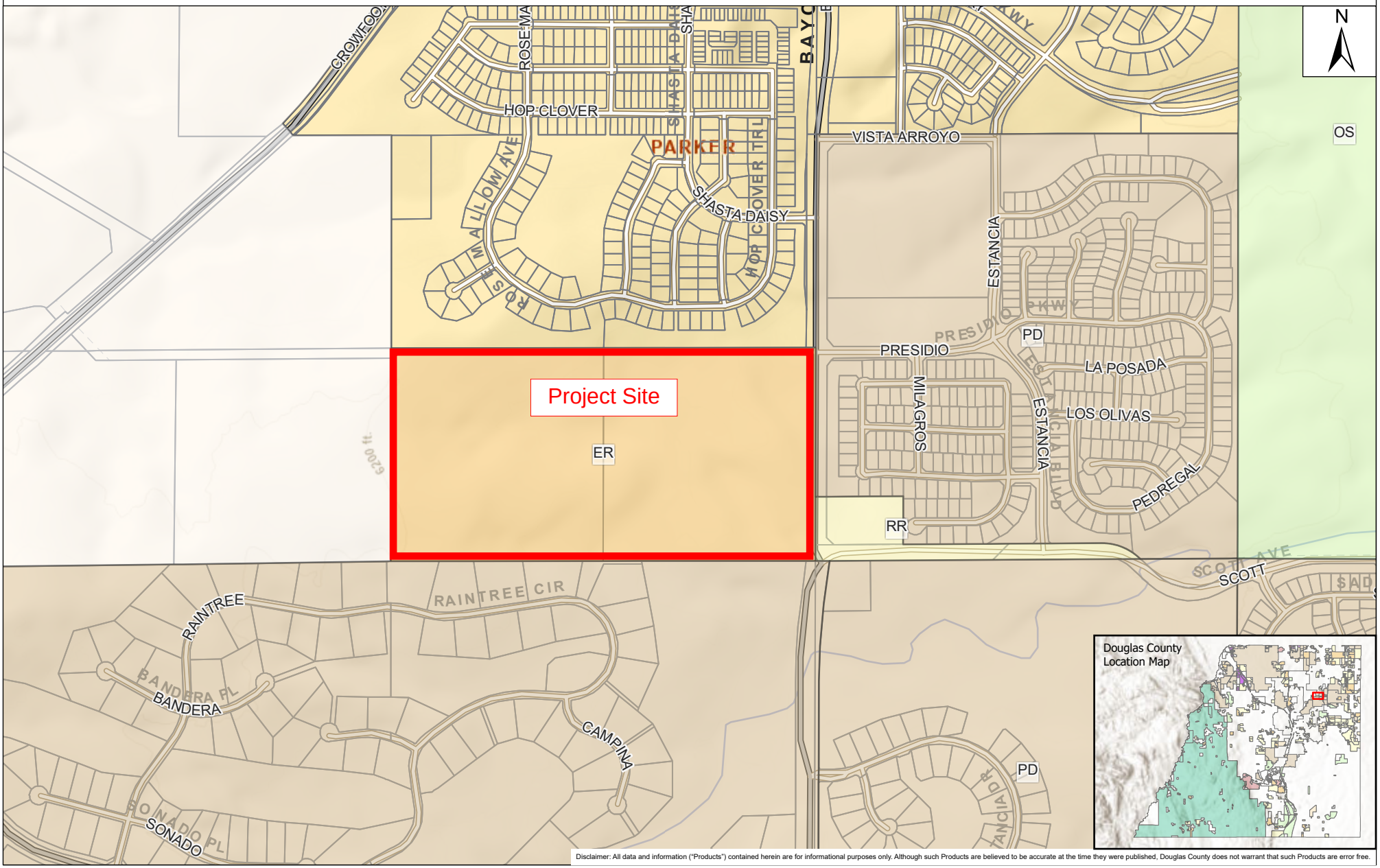
403.10 Does not interfere with the extraction of any known commercial mining deposit.

There is not a commercial mining operation on the site and is not applicable.

Comprehensive Master Plan Land Use Reference Map



Zoning Map Bloom Preliminary Plan - SB2025-017



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- PD - PLANNED DEVELOPMENT
- OS - OPEN SPACE CONSERVATION
- A1 - AGRICULTURAL ONE
- RR - RURAL RESIDENTIAL
- ER - ESTATE RESIDENTIAL

Aerial Map Bloom Preliminary Plan - SB2025-017

DOUGLAS COUNTY
COLORADO



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ER - ESTATE RESIDENTIAL
A1 - AGRICULTURAL ONE
PD - PLANNED DEVELOPMENT
RR - RURAL RESIDENTIAL

Project Name: Bloom Preliminary Plan
Project File #: SB2025-017
Date Sent: 07/08/2025 **Date Due:** 07/29/2025

Agency	Date Received	Agency Response	Response Resolution
Addressing Analyst	07/08/2025	Received: Douglas County Addressing has completed review of the Bloom Preliminary Plan and has the following comments: • Four streets must be named. • One street name may be used twice with different suffixes.	The applicant will coordinate with Douglas County Addressing to address street names at time of final plat application.
AT&T Long Distance - ROW	07/09/2025	Received: This is in response to your eReferral with a utility map showing any buried AT&T Long Line Fiber Optics near Bayou Gulch Rd Parker, Colorado. The Earth map shows the project area in red and the buried AT&T Long Line Fiber Optics in yellow. Based on the address and/or map you provided, there should be NO conflicts with the AT&T Long Line facilities.	No Response Required.
Black Hills Energy		No Response Received:	No Response Required.
Building Services	07/08/2025	No Comment:	No Response Required.
Castle Park Ranch Property Owners Association		No Response Received:	No Response Required.
CenturyLink		No Response Received:	No Response Required.
Cherry Creek Basin Water Quality Authority	07/25/2025	Received: The Cherry Creek Basin Water Quality Authority (Authority) acknowledges notification from Douglas County that the proposed development plans for SB2025-017, Bloom Preliminary Plan have been or will be reviewed by Douglas County for compliance with the applicable Regulation 72 construction and post-construction requirements. Based on the Authority's current policy, the Authority will no longer routinely conduct a technical review and instead the Authority will defer to Douglas County's review and ultimate determination that the proposed development plans comply with Regulation 72.	The applicant has acknowledged the response from the Authority.

Project Name: Bloom Preliminary Plan
Project File #: SB2025-017
Date Sent: 07/08/2025 **Date Due:** 07/29/2025

Agency	Date Received	Agency Response	Response Resolution
City of Castle Pines		No Response Received:	No Response Necessary.
Colorado Division of Water Resources	07/30/2025	Received: Following is a summary of comments received from the Division of Water Resources (DWR). For details please reference their letter dated August 7, 2025. -Well Permit No. 138031 was issued for the not nontributary Upper Dawson aquifer. This well must be plugged and abandoned prior to the subdivision approval. The applicant has noted that they will plug and abandon this well. The applicant must submit a Well Abandonment Report. -DWR's opinion is that the water supply is adequate and can be provided without causing injury.	A condition of approval will be included with the preliminary plan requiring the applicant to file a Well Abandonment Report with DWR prior to approval of the final plat.
Colorado Geological Survey	07/28/2025	Received: Following is a summary of comments received from the Colorado Geological Survey. For details, please reference their review letter dated July 28, 2025.The proposed Bloom Preliminary Plan site (39.4511, -104.7889) contains only isolated areas of slopes steeper than 20%, and no geologic hazards or unusual geotechnical constraints are known or suspected to be present that would preclude the proposed residential use and density. If the applicant follows the recommendations included in the submitted geological study, then CGS has no objection to the proposal.	No response required.

Project Name: Bloom Preliminary Plan
Project File #: SB2025-017
Date Sent: 07/08/2025 **Date Due:** 07/29/2025

Agency	Date Received	Agency Response	Response Resolution
Colorado Parks and Wildlife (East DC - Dist 549)	07/30/2025	Received: Following is a summary of comments received from Colorado Parks and Wildlife (CPW). For details please reference their review letter dated July 30, 2025. -CPW raised concerns with fragmentation and loss of wildlife habitat, fencing and consideration of placement and designs for wildlife friendly fencing, placement and design of trails to limit impacts to wildlife, the spread and control of noxious and invasive weeds. -CPW also recommends limiting disruption to raptors if any active next is discovered on the site. -If burrowing owls are discovered on the site and any earth-moving that will begin between March 15th and August 31st, a burrowing owl survey should be performed.	A condition of approval will be included with the preliminary plan regarding burrowing owls and limiting disruption during certain times of the year. Placement of wildlife friendly fencing will be further evaluated during the final plat process.
Comcast		No Response Received:	No Response Required.
CORE Electric Cooperative	07/28/2025	Received: CORE Electric Cooperative may require additional easements for private road crossing at electric design. CORE approves the preliminary plan.	At the time of final plat application, the applicant will coordinate with CORE Electric on final easement locations and requirements.
Douglas County Conservation District	07/29/2025	Received: Following is a summary of comments received from the Douglas County Conservation District. For details please reference their review letter dated July 29, 2025. -The District appreciates the compact development pattern described in the project narrative that leaves more open space for wildlife corridors, and the plan to minimize the removal of vegetation and to work with the natural landscape.	No Response Required.

Project Name: Bloom Preliminary Plan
Project File #: SB2025-017
Date Sent: 07/08/2025 **Date Due:** 07/29/2025

Agency	Date Received	Agency Response	Response Resolution
Douglas County Health Department	07/09/2025	Received: The Douglas County Health Department (DCHD) responded and made recommendations for controlling fugitive dust for developments of 25 acres and more than 6 months in duration. DCHD is providing a favorable recommendation regarding the proposed method of sewage disposal.	The applicant has acknowledged comments from the DCHD regarding methods for controlling fugitive dust during construction.
Douglas County Historic Preservation	07/28/2025	Received: Following is a summary of comments received from Douglas County Historic Preservation. For details please review their letter dated July 28, 2025. -The Curator has reviewed the completed Class II survey on the project site. New sites were discovered but none are eligible to be listed on the state register.	No Response Required.
Douglas County Parks and Trails	07/22/2025	Received: Applicant will be responsible for meeting the park land dedication standards outlined in Article 10 of the Douglas County Subdivision Resolution.	The applicant will be required to comply with Article 10 of the Douglas County Subdivision Resolution at the time of final plat application.
Douglas County School District RE 1	07/11/2025	Received: Following is a summary of comments received from the Douglas County School District (DCSD). For details please review their letter dated July 11, 2025. -A total of 32 students are expected from the development requiring a total land dedication of 0.753 acres. Since this amount of land dedication is less than DCSD's minimum site requirements, DSCD requests cash-in-lieu of land based on the anticipated full market value after platting occurs. Assuming the applicant agrees with the payment of fees, DCSD has no objections to this application.	Payment of cash-in-lieu fees will be required prior to recordation of the final plat.

Project Name: Bloom Preliminary Plan
Project File #: SB2025-017
Date Sent: 07/08/2025 **Date Due:** 07/29/2025

Agency	Date Received	Agency Response	Response Resolution
Engineering Services	07/29/2025	Received: Following is a summary of comments received from Engineering Services, for details please reference their review letter dated July 29, 2025. -Engineering had minor comments on verifying roadway centerlines, bearings and distances, minimum and maximum grades, and requesting minimum drainage easement widths of 25 feet. Traffic Engineering had comments on proposed access points, turning lanes on Bayou Gulch Road, and minor corrections to the submitted traffic study. The applicant will be required to pay their fair contributions for future traffic signals at Bayou Gulch Road and Scott Avenue and Bayou Gulch Road and N. Pinery Parkway.	Revised documents, including a traffic impact study, have been submitted and comments from Engineering have been addressed. The fair share traffic signal contributions will be included in the Site Improvement Agreement for the final plat.
Mile High Flood District		No Response Received:	No Response Required.
Office of Emergency Management	07/11/2025	Received: It is imperative the applicant follow through with plans to construct a secondary access / emergency access easement road. This will help facilitate rapid evacuation of the entire community in an emergency. The Office of Emergency Management (OEM) also noted that they understand the requirements, codes, and challenges stated by the applicant and have no authority to require the secondary/emergency access. It should be noted that "a best practice in emergency preparedness for any community is to have more than one access/egress point to facilitate rapid evacuation of the entire community."	Comments from OEM have been noted by the applicant. The applicant is proposing one access point on Bayou Gulch Road. Engineering services is not requiring a secondary/emergency access point and to theirknowledge a roadway network is not planned for the adjacent property.

Project Name: Bloom Preliminary Plan
Project File #: SB2025-017
Date Sent: 07/08/2025 **Date Due:** 07/29/2025

Agency	Date Received	Agency Response	Response Resolution
Parker Water & Sanitation District	07/08/2025	Received: Please note this project has not currently been included into the Parker Water & Sanitation District (PWSD) service area. We will not provide Water or Sanitary service to a property that is not in our service area.	PWSD has provided a will-serve letter contingent upon the property being included in the district's service area. The applicant is working towards including the property in the PWSD service area which must occur prior to a final plat being heard by the Board of County Commissioners.
Pradera Homeowners' Association		No Response Received:	No Response Required.
RTD - Planning & Development Dept		No Response Received:	No Response Required.
Sheriff's Office		No Response Received:	No Response Required.
Sheriff's Office E911		No Response Received:	No Response Required.
South Metro Fire Rescue	07/14/2025	Received: South Metro Fire Rescue (SMFR) has reviewed the provided documents and has no objection to the proposed preliminary plan. Note that the preliminary utility plan provided does not show fire hydrants in acceptable locations. Designers shall coordinate fire flow requirements and hydrant placement with SMFR prior to developing utility plans for construction and plan approval.	The applicant has coordinated with South Metro Fire to answer their questions regarding fire flow which will be further addressed at the time if final plat.
The Pinery HOA		No Response Received:	No Response Necessary.
Town of Castle Rock	07/15/2025	No Comment:	No Response Necessary.
Town of Parker Development Review		No Response Received:	No Response Necessary.
Town of Parker Public Works		No Response Received:	No Response Necessary.

Project Name: Bloom Preliminary Plan
Project File #: SB2025-017
Date Sent: 07/08/2025 **Date Due:** 07/29/2025

Agency	Date Received	Agency Response	Response Resolution
Wildfire Mitigation	07/30/2025	Received: The project area was assessed for wildfire, the project proposal appears to be over lot graded, fuels are light, native grasses will remain in the open space tracts. Wildfire mitigation recommends incorporating perimeter mowing (strip) and mowing (strip) against the private property boundaries on a minimum bi-annual basis to address wildfire in grass fuels concerns. Staff recommends these management actions be incorporated into an open space management plan. Additional guidance on strip size can be provided at the time of Final Plat or when the management plan is developed.	The applicant will continue to coordinate with County Wildfire implement their recommendations to form an open space management plan at the time of final plat.

Project Name: Bloom Preliminary Plan
Project File #: SB2025-017
Date Sent: 07/08/2025 **Date Due:** 07/29/2025

Agency	Date Received	Agency Response	Response Resolution
Xcel Energy-Right of Way & Permits	07/22/2025	Received: For these single-family residential lots, Public Service Company requests that the following language or plat note is placed on the preliminary and final plats for the subdivision: -The utility easements are dedicated to the County of Douglas for the benefit of the applicable utility providers for the installation, maintenance, and replacement of electric, gas, television, cable, and telecommunications facilities (Dry Utilities). Utility easements shall also be granted within any access easements and private streets in the subdivision. Permanent structures, improvements, objects, buildings, wells, water meters and other objects that may interfere with the utility facilities or use thereof (Interfering Objects) shall not be permitted within said utility easements and the utility providers, as grantees, may remove any Interfering Objects at no cost to such grantees, including, without limitation, vegetation. Public Service Company of Colorado (PSCo) and its successors reserve the right to require additional easements and to require the property owner to grant PSCo an easement on its standard form. -Additional easements may need to be acquired by separate document.	The requested plat note has been added to the preliminary plan and will be included on any future final plats. Xcel Energy will receive future final plat applications for review to determine if additional easements are necessary.

From: annb cwc64.com
To: Michael Pesicka
Cc: CHOY, PAM; duanew cwc64.com; jt cwc64.com
Subject: Bayou Gulch Rd Parker, Colorado Douglas County eReferral #SB2025-017
Date: Wednesday, July 9, 2025 10:29:59 AM

Hi Mike,

This is in response to your eReferral with a utility map showing any buried AT&T Long Line Fiber Optics near Bayou Gulch Rd Parker, Colorado. The Earth map shows the project area in red and the buried AT&T Long Line Fiber Optics in yellow. Based on the address and/or map you provided, there should be NO conflicts with the AT&T Long Line facilities.

Please feel free to contact us with any questions or concerns.

Ann Barnowski
Clearwater Consulting Group Inc
120 9th Avenue South
Suite 140
Nampa, ID 83651
Annb@cwc64.com

The attached google earth maps are intended to show approximate locations of the buried AT&T long line fiber optic cable. The maps are provided for informational purposes only. In no way should the maps be used for anything other than general guidelines as to where the fiber is or is not and any other use of these maps is strictly prohibited.

-----Original Message-----
From: mpesicka@douglas.co.us <mpesicka@douglas.co.us>
Sent: Tuesday, July 8, 2025 10:18 AM
To: annb cwc64.com <annb@cwc64.com>
Subject: Douglas County eReferral (Project Number SB2025-017) Is Ready For Review

There is an eReferral for your review. Please use the following link to log on to your account:
https://apps.douglas.co.us/planning/projects/Login.aspx

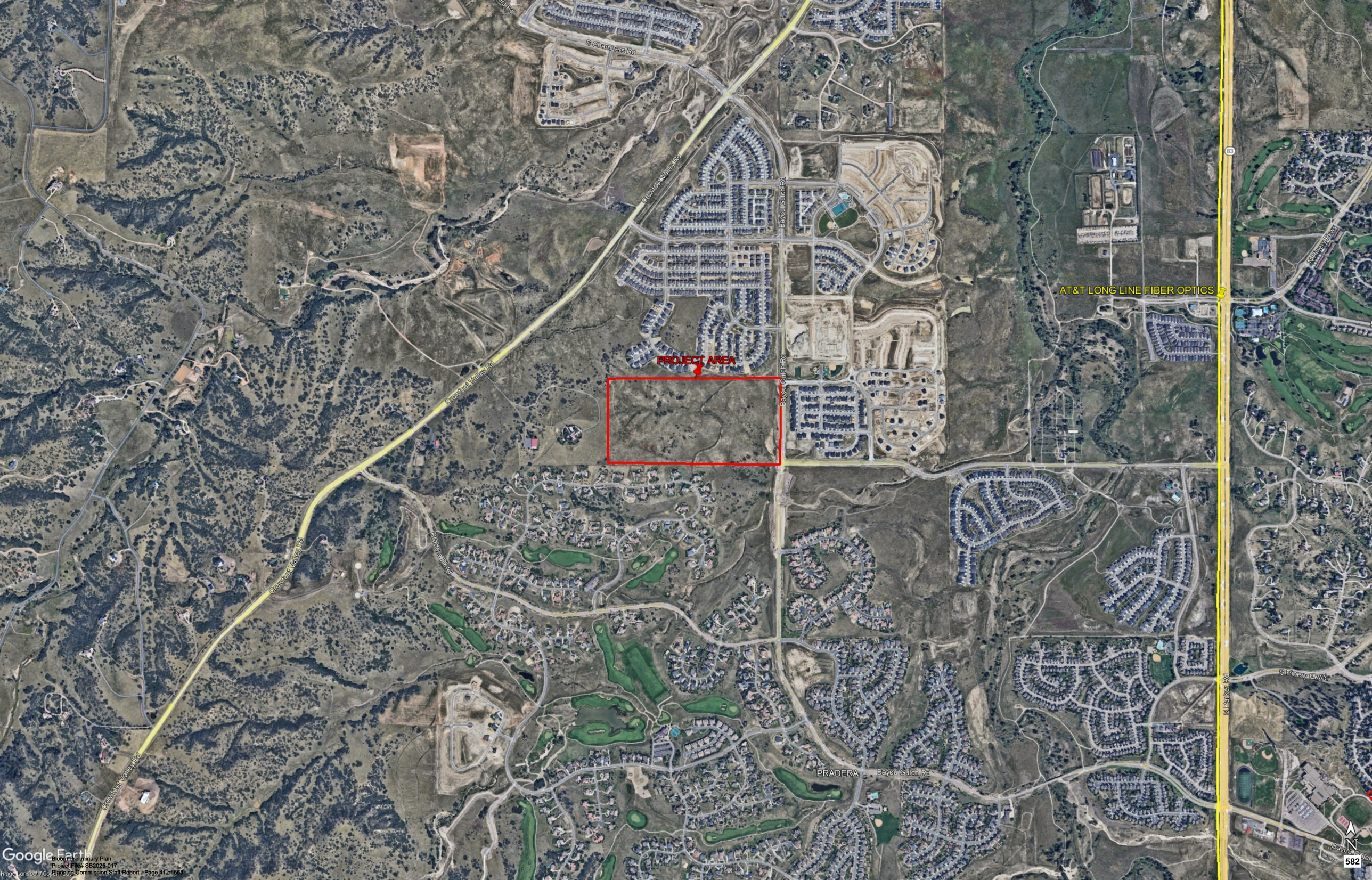
Project number SB2025-017, Bloom Preliminary Plan. The applicant requests a preliminary plan for 32 residential lots, and 3 tracts for drainage, open space, landscaping, public access, and utilities, on approximately 81 acres of land zoned Estate Residential (ER). One point of access is proposed from Bayou Gulch Road with a future secondary access road proposed in the northwest corner of the development

This referral will close on Tuesday, July 29th, 2025.

If you have any questions, please contact me.

Sincerely,

Mike Pesicka, Principal Planner
Planning Services
100 Third Street
Castle Rock, CO 80104
303-660-7460 (main)


S Chambers Rd
Crowfoot Valley Rd
Bayou Gulch Rd
PROJECT AREA
AT&T LONG LINE FIBER OPTICS
83
N Pinery Pkwy
Ridgeline Pkwy
PRADERA
S Parker Rd
S Pinery Pkwy
582
Google Earth
Image Landsat / Copernicus

10/3/25

Mike Pesicka, Principal Planner
Planning Services
Douglas County
100 Third Street
Castle Rock, CO 80104
SUBJECT: APPROVAL TO PROCEED WITH ENCROACHMENT – P866786

Project Name & Location: SB2025-017 – Bloom Preliminary Plan

To Whom It May Concern:

Qwest Corporation, Inc. d/b/a CENTURYLINK ("CenturyLink") has reviewed the request for the subject encroachment and has determined that it has no objections with respect to the areas proposed for encroachment as shown and/or described on Exhibit "A", said Exhibit "A" attached hereto and incorporated by this reference. It is the intent and understanding of CenturyLink that this Encroachment shall not reduce our rights to any other existing easement or rights we have on this site or in the area.
This encroachment response is submitted WITH THE STIPULATION that if CenturyLink facilities are found and/or damaged within the areas as described, the Applicant will bear the cost of relocation and repair of said facilities.

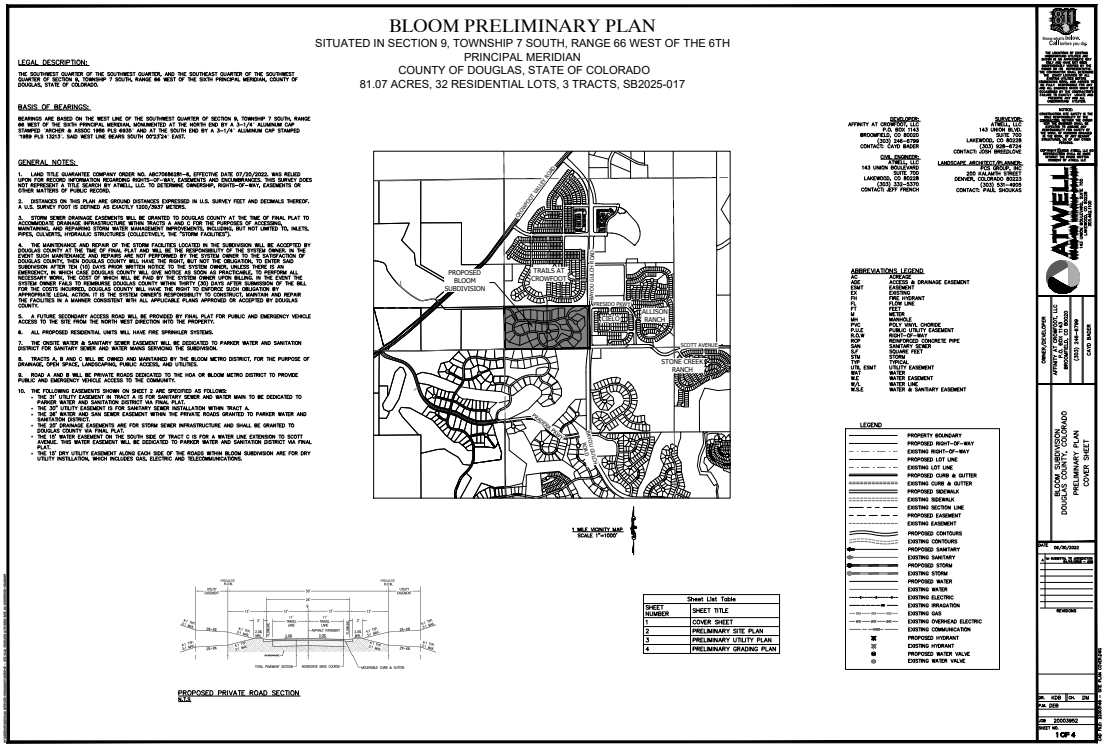
If you have any questions or would like to discuss this action further, please contact Tom Hoopes at Tom.Hoopes@lumen.com.

Sincerely yours,

/s/

CenturyLink Right of Way Team

EXHIBIT A



BLOOM PRELIMINARY PLAN

SITUATED IN SECTION 9, TOWNSHIP 7 SOUTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN
COUNTY OF DOUGLAS, STATE OF COLORADO
81.07 ACRES, 32 RESIDENTIAL LOTS, 3 TRACTS, SB2025-017

LEGAL DESCRIPTION:

THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER, AND THE SOUTHEAST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 9, TOWNSHIP 7 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, COUNTY OF DOUGLAS, STATE OF COLORADO.

BASIS OF BEARINGS:

BEARINGS ARE BASED ON THE WEST LINE OF THE SOUTHWEST QUARTER OF SECTION 9, TOWNSHIP 7 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, MONUMENTED AT THE NORTH END BY A 3-1/4" ALUMINUM CAP STAMPED "ARCHER & ASSOC 1998 PLS 6935" AND AT THE SOUTH END BY A 3-1/4" ALUMINUM CAP STAMPED "1999 PLS 13213", SAID WEST LINE BEARS SOUTH 00°37'24" EAST.

GENERAL NOTES:

1. LAND TITLE GUARANTEE COMPANY ORDER NO. ABC70486281-4, EFFECTIVE DATE 07/20/2023, WAS RELIED UPON FOR RECORD INFORMATION REGARDING RIGHTS-OF-WAY, EASEMENTS AND ENCUMBRANCES. THIS SURVEY DOES NOT REPRESENT A TITLE SEARCH BY ATWELL, LLC. TO DETERMINE OWNERSHIP, RIGHTS-OF-WAY, EASEMENTS OR OTHER MATTERS OF PUBLIC RECORD.

2. DISTANCES ON THIS PLAN ARE GROUND DISTANCES EXPRESSED IN U.S. SURVEY FEET AND DECIMALS THEREOF. A U.S. SURVEY FOOT IS DEFINED AS EXACTLY 1200/3937 METERS.

3. STORM SEWER DRAINAGE EASEMENTS WILL BE GRANTED TO DOUGLAS COUNTY AT THE TIME OF FINAL PLAT TO ACCOMODATE DRAINAGE INFRASTRUCTURE WITHIN TRACTS A AND C FOR THE PURPOSES OF ACCESSING, MAINTAINING, AND REPAIRING STORM WATER MANAGEMENT IMPROVEMENTS, INCLUDING, BUT NOT LIMITED TO, INLETS, PIPES, CULVERTS, HYDRAULIC STRUCTURES (COLLECTIVELY, THE "STORM FACILITIES").

4. THE MAINTENANCE AND REPAIR OF THE STORM FACILITIES LOCATED IN THE SUBDIVISION WILL BE ACCEPTED BY DOUGLAS COUNTY AT THE TIME OF FINAL PLAT AND WILL BE THE RESPONSIBILITY OF THE SYSTEM OWNER, IN THE EVENT SUCH MAINTENANCE AND REPAIRS ARE NOT PERFORMED BY THE SYSTEM OWNER TO THE SATISFACTION OF DOUGLAS COUNTY, DOUGLAS COUNTY MAY GIVE NOTICE TO THE SYSTEM OWNER OF THE DEFICIENCIES AND SUBDIVISION AFTER TEN (10) DAYS PRIOR WRITTEN NOTICE TO THE SYSTEM OWNER, UNLESS THERE IS AN EMERGENCY, IN WHICH CASE DOUGLAS COUNTY WILL GIVE NOTICE AS SOON AS PRACTICABLE, TO PERFORM ALL NECESSARY WORK, THE COST OF WHICH WILL BE PAID BY THE SYSTEM OWNER UPON BILLING. IN THE EVENT THE SYSTEM OWNER FAILS TO REIMBURSE DOUGLAS COUNTY WITHIN THIRTY (30) DAYS AFTER BILLING, A LIEN MAY BE PLACED AGAINST THE PROPERTY IN THE AMOUNT OF THE BILL AND DOUGLAS COUNTY MAY PURSUE ANY APPROPRIATE LEGAL ACTION. IT IS THE SYSTEM OWNER'S RESPONSIBILITY TO CONSTRUCT, MAINTAIN AND REPAIR THE FACILITIES IN A MANNER CONSISTENT WITH ALL APPLICABLE PLANS APPROVED OR ACCEPTED BY DOUGLAS COUNTY.

5. A FUTURE SECONDARY ACCESS ROAD WILL BE PROVIDED BY FINAL PLAT FOR PUBLIC AND EMERGENCY VEHICLE ACCESS TO THE SITE FROM THE NORTH WEST DIRECTION INTO THE PROPERTY.

6. ALL PROPOSED RESIDENTIAL UNITS WILL HAVE FIRE SPRINKLER SYSTEMS.

7. THE ONSITE WATER & SANITARY SEWER EASEMENT WILL BE DEDICATED TO PARKER WATER AND SANITATION DISTRICT FOR SANITARY SEWER AND WATER MAINS SERVICING THE SUBDIVISION.

8. TRACTS A, B AND C WILL BE OWNED AND MAINTAINED BY THE BLOOM METRO DISTRICT, FOR THE PURPOSE OF DRAINAGE, OPEN SPACE, LANDSCAPING, PUBLIC ACCESS, AND UTILITIES.

9. ROAD A AND B WILL BE PRIVATE ROADS DEDICATED TO THE HOA OR BLOOM METRO DISTRICT TO PROVIDE PUBLIC AND EMERGENCY VEHICLE ACCESS TO THE COMMUNITY.

10. THE FOLLOWING EASEMENTS SHOWN ON SHEET 2 ARE SPECIFIED AS FOLLOWS:
- THE 20' UTILITY EASEMENT IN TRACT A IS FOR SANITARY SEWER AND WATER MAIN TO BE DEDICATED TO PARKER WATER AND SANITATION DISTRICT VIA FINAL PLAT.
- THE 20' UTILITY EASEMENT IS FOR SANITARY SEWER INSTALLATION WITHIN TRACT A.
- THE 24' WATER AND SAN SEWER EASEMENT WITHIN THE PRIVATE ROADS GRANTED TO PARKER WATER AND SANITATION DISTRICT.
- 50' & 24' DRAINAGE EASEMENTS ARE FOR STORM SEWER INFRASTRUCTURE AND SHALL BE GRANTED TO DOUGLAS COUNTY VIA FINAL PLAT.
- THE 10' WATER EASEMENT ALONG THE SOUTH SIDE OF TRACT C IS FOR A WATER LINE EXTENSION TO SCOTT AVENUE. THIS WATER EASEMENT WILL BE DEDICATED TO PARKER WATER AND SANITATION DISTRICT VIA FINAL PLAT.
- THE 10' DRY UTILITY EASEMENT ALONG EACH SIDE OF THE ROADS WITHIN BLOOM SUBDIVISION ARE FOR DRY UTILITY INSTALLATION, WHICH INCLUDES GAS, ELECTRIC AND TELECOMMUNICATIONS.

PROPOSED PRIVATE ROAD SECTION
N.T.S

1 MILE VICINITY MAP
SCALE 1"=1000'

Sheet List Table

SHEET NUMBER	SHEET TITLE
1	COVER SHEET
2	PRELIMINARY SITE PLAN
3	PRELIMINARY UTILITY PLAN
4	PRELIMINARY GRADING PLAN

OWNER/DEVELOPER:
AFFINITY AT CROWFOOT, LLC
P.O. BOX 1143
BROOMFIELD, CO 80038
(303) 246-4799
CONTACT: DAVID BAZER

CIVIL ENGINEER:
ATWELL, LLC
143 UNION BOULEVARD
SUITE 700
LAKEWOOD, CO 80228
(303) 232-5200
CONTACT: JEFF FRENCH

SURVEYOR:
ATWELL, LLC
143 UNION BLVD.
SUITE 700
LAKEWOOD, CO 80228
(303) 808-6704
CONTACT: JOSH BREDLOVE

LANDSCAPE ARCHITECT (PLANNER):
P2N GROUP, INC
250 KALAMATH STREET
DENVER, COLORADO 80223
(303) 893-1560
CONTACT: PAUL SIKOWAS

ABBREVIATIONS LEGEND:

ACC	ACCESS
ADE	ACCESS & DRAINAGE EASEMENT
ESMT	EASEMENT
EX	EXISTING
FH	FIRE HYDRANT
FL	FLOW LINE
FT	FEET
M	METER
MH	MANHOLE
PVC	POLY VINYL CHORIDE
P.U.E.	PUBLIC UTILITY EASEMENT
R.O.W	RIGHT-OF-WAY
RCP	REINFORCED CONCRETE PIPE
SAN	SANITARY SEWER
S.F.	SQUARE FEET
STM	STORM
TYP	TYPICAL
UTIL ESMT	UTILITY EASEMENT
V	VALVE
W.E.	WATER EASEMENT
W/L	WATER LINE
W.S.E.	WATER & SANITARY EASEMENT

LEGEND

	PROPERTY BOUNDARY
	PROPOSED RIGHT-OF-WAY
	EXISTING RIGHT-OF-WAY
	PROPOSED LOT LINE
	EXISTING LOT LINE
	PROPOSED CURB & GUTTER
	EXISTING CURB & GUTTER
	PROPOSED SIDEWALK
	EXISTING SIDEWALK
	EXISTING SECTION LINE
	PROPOSED EASEMENT
	EXISTING EASEMENT
	PROPOSED CONTOURS
	EXISTING CONTOURS
	PROPOSED SANITARY
	EXISTING SANITARY
	PROPOSED STORM
	EXISTING STORM
	PROPOSED WATER
	EXISTING WATER
	EXISTING ELECTRIC
	EXISTING IRRIGATION
	EXISTING GAS
	EXISTING OVERHEAD ELECTRIC
	EXISTING COMMUNICATION
	PROPOSED HYDRANT
	EXISTING HYDRANT
	PROPOSED WATER VALVE
	EXISTING WATER VALVE

ATWELL
Affinity at Crowfoot, LLC
P.O. Box 1143
Broomfield, CO 80038
(303) 246-4799

BLOOM SUBDIVISION
DOUGLAS COUNTY, COLORADO
PRELIMINARY PLAN
COVER SHEET

04/30/2025

DR: KDB CH: DM
PM: DEB
JOB 20003952
SHEET NO. 1 OF 4

COLORADO
Parks and Wildlife
Department of Natural Resources

Northeast Regional Office
6060 Broadway
Denver, CO 80216
P 303.291.7227

July 30, 2025

Mike Pesicka, Principal Planner
Planning Services
100 Third Street
Castle Rock, CO 80104

RE: Bloom Preliminary Plan, Project # SB2025-017

Dear Mr. Pesicka,

Thank you for the opportunity to comment on the development proposal for Bloom Preliminary Plan. The mission of Colorado Parks and Wildlife (CPW) is to perpetuate the wildlife resources of the state, to provide a quality state parks system, and to provide enjoyable and sustainable outdoor recreation opportunities that educate and inspire current and future generations to serve as active stewards of Colorado's natural resources. Our goal in responding to land use proposals such as this is to provide complete, consistent, and timely information to all entities who request comment on matters within our statutory authority.

District Wildlife Manager Katie Doyle recently analyzed the site. The 81-acre Castle Rock site is located along Bayou Gulch Road between N. Pinery Parkway and Pradera Parkway in unincorporated Douglas County. This site development plan includes 32 residential lots, and 3 tracts for drainage, open space, landscaping, public access, and utilities, along with access roads along Bayou Gulch Road and on the northwest corner of the development.

Habitat

The main impacts to wildlife from this development would be fragmentation and loss of habitat. Although it is impossible to eliminate fragmentation and habitat loss with any development, impacts to wildlife can be minimized through the use of clustering configurations, density reduction, and providing open space for wildlife.

Fragmentation of wildlife habitat has been shown to impede the movement of wildlife across the landscape. Open space areas are more beneficial to wildlife if they connect to other nearby natural areas. The areas of wildlife habitat that most closely border human development show heavier impacts than do areas on the interior of the open space. However, when open space areas are smaller in size, the overall impacts of the fragmentation is greater (Odell and Knight, 2001). Thus, CPW recommends that the developer and Douglas County employ a collaborative approach with neighboring cities and towns and with other

Jeff Davis, Director, Colorado Parks and Wildlife
Parks and Wildlife Commission: Richard Reading, Chair · James 'Jay' Tutchton, Vice-Chair · Eden Vardy, Secretary · Jessica Beaulieu · Frances Silva Blaney · John Emerick · Tai Jacober · Dallas May · Jack Murphy · Gabriel Otero · Murphy Robinson

developments within the county to maintain wildlife habitat in as whole a state as possible. By keeping open space areas contiguous and of larger size, the overall benefit to wildlife increases dramatically.

Fencing

Fencing inhibits wildlife movement and can contribute to habitat fragmentation. If it is necessary for the development and alternate options are not sufficient, consider fence placement and designs that provide safe crossing options for wildlife. CPW has created a "Fencing with Wildlife in Mind" booklet which provides recommendations for wildlife-friendly fencing and specifications for many common fences. This can be downloaded from our website at http://cpw.state.co.us/Documents/LandWater/PrivateLandPrograms/FencingWithWildlifeInMind.pdf.

Trails

When planning trails in the development area, special consideration should be given to the impact trails have on wildlife within the area. Trails should not cut through riparian areas and should remain at least 50 feet from them. They should also be placed at the edges of open space areas and should be no wider than 8 feet throughout their entire length. Trails have the ability to contribute to fragmentation of habitat, disrupting the natural movement of wildlife through an area, and the spreading of noxious weeds.

Noxious Weeds

Noxious weeds should be monitored very closely. The spread and control of noxious weeds on and around this site is a concern for wildlife. Invasive plants endanger the ecosystem by disturbing natural processes and jeopardizing the survival of native plants and the wildlife that depend on them. CPW would recommend the implementation of a weed management plan that may already exist within Douglas County.

Wildlife

CPW would expect a variety of wildlife species to utilize this site regularly, most notably small to mid-sized mammals, song birds, and raptors, but also with the possibility for big game species (elk, deer, bear, and mountain lion), reptiles, and amphibians to be present.

Raptors

Raptors and migratory birds are protected from take, harassment, and nest disruption at both the state and federal levels. If any active nest is discovered within the development area, CPW recommends that buffer zones around the nest site be implemented during any period of activity that may interfere with the nesting season. This will prevent the intentional or unintentional destruction of an active nest.

For further information on this topic, a copy of the document "Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors," is available from your local District Wildlife

Manager. Following the recommendations outlined in this document will decrease the likelihood of unintentional take through disturbance.

Prairie Dogs and Burrowing Owls

If a prairie dog colony is discovered within the project area, the potential may also exist for the presence of burrowing owls. Burrowing owls live on flat, treeless land with short vegetation, and nest underground in burrows dug by prairie dogs, badgers, and foxes. Burrowing owls are classified as a state-threatened species and are protected by both state and federal laws, including the Migratory Bird Treaty Act. These laws prohibit the killing of burrowing owls or the disturbance of their nests. Therefore, if any earth-moving will begin between March 15th and August 31st, a burrowing owl survey should be performed. Guidelines for performing a burrowing owl survey can be obtained from your local District Wildlife Manager.

If prairie dog colonies are active, CPW recommends humane euthanasia of live animals before any earth-moving occurs. The possibility of donating carcasses to a raptor rehabilitation facility or the black-footed ferret recovery program may also exist. If interested, please contact the local District Wildlife Manager for more information and any required permits or forms. Please note that a permit from CPW and approval from the Douglas County Board of Commissioners will likely be required for any live relocation of prairie dogs to another site.

Living with Wildlife

Future residents should be informed that wildlife, such as foxes, coyotes, deer, elk, and even bears or mountain lions, frequently visit the development area in search of food and cover. Coyotes, foxes, cottontail rabbits, and raccoons are several species that have adapted well to living in urban environments. This proposed site within Douglas County will also have the presence of bears that have been accustomed to living in close proximity to humans. This should be considered when deciding distances to residential areas. Bears, as well as other wildlife, should not be a concern for residents if the following CPW recommendations are met: People moving into and residing in this area take the proper precautions to prevent unnecessary conflicts with wildlife through the use of pet leash laws, protection of their pets and hobby livestock when not under direct supervision, and reducing attractants on their property.

Homeowners can do their part by **not** inviting wildlife into their yards. Due to the potential for human-wildlife conflicts associated with this project, please consider the following recommendations when educating future homeowners about the existence of wildlife in the area:

- Pet foods and bowls should be kept indoors.
- Garbage should be kept in secure containers to minimize its attractiveness to wildlife. Trash should be placed in containers with tight seals and remain indoors until shortly before pickup.
- Feeding of wildlife, with the exception of birds, **is illegal.**

- “Living with Wildlife” pamphlets are available through CPW offices.

For further information, Colorado Parks and Wildlife can provide copies of the following brochures: “Your Guide to Avoiding Human-Coyote Conflicts,” “Don’t Feed the Wildlife,” “Living with Bears,” and “Too Close for Comfort: Avoid Conflicts with Wildlife in the City” to residents of the surrounding open space. These brochures can also be downloaded from our website at http://cpw.state.co.us/learn/Pages/LivingwithWildlife.aspx.

Thank you again for the opportunity to comment on the proposed Bloom Preliminary Plan. Please do not hesitate to contact us about ways to continue managing the property in order to maximize wildlife value while minimizing potential conflicts. If you have any further questions, please contact District Wildlife Manager Katie Doyle at (720) 930-8039.

Sincerely,



Matt Martinez
Area Wildlife Manager

Cc: M. Leslie, S. Schaller, K. Doyle

From:	Doyle - DNR, Katie
To:	Michael Pesicka
Cc:	matt.martinez@state.co.us; Casey Westbrook - DNR
Subject:	Re: FW: Re-Submittal of SB2025-017 / Bloom Preliminary Plan
Date:	Wednesday, January 28, 2026 2:53:38 PM
Attachments:	image001.png Raptor-Buffer-Guidelines.pdf

Caution: This email originated outside the organization. Be cautious with links and attachments.

Hi Mike,
We appreciate the developer following through with some of the recommendations from the comment letter that was submitted for the Bloom Preliminary Plan under Project #SB2025-017 on July 30th, 2025.

The only additional comment to mention would be that there is an active bald eagle nest approximately .93 miles from the proposed development. Colorado Parks and Wildlife (CPW) has established recommended buffer zones and seasonal restrictions for raptors in Colorado, including bald eagles. CPW developed these raptor guidelines to assist with compliance with the Federal Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. To avoid impacts to nesting bald eagles, CPW recommends no surface occupancy within ¼ mile of an active eagle nest, and no human activities within ½ mile of the nest from December 1st to July 31st. Although this project is outside of these buffers, it is important that the developer recognizes that there are bald eagles in the area and that there are guidelines set if a nest were to be established closer to the development. I am attaching the document "Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors" for reference.

Thank you for reaching out regarding the Bloom Preliminary Plan. Let me know if you have any questions or concerns.

Take care,

Katie Doyle
District Wildlife Manager
Parker/Castle Rock East- Area 5
P 303.291.7139 | C 720.930.8039
6060 Broadway, Denver, CO 80216
katie.doyle@state.co.us | cpw.state.co.us

On Wed, Jan 28, 2026 at 8:39 AM Michael Pesicka <mpesicka@douglas.co.us> wrote:

> Katie and Matt,
>
> Will you have any additional comments on the resubmittal of the Bloom Preliminary Plan, Project No. SB2025-017?

Thank you,

Mike Pesicka | Principal Planner

Douglas County Department of Community Development

Address | 100 Third St., Castle Rock, CO 80104
Direct | 303-814-4367 **Main** | 303-660-7460

Email | mpesicka@douglas.co.us

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---

From: Paul Shoukas <paul@pcsgroupco.com>
Sent: Friday, December 12, 2025 4:23 PM
To: katie.doyle@state.co.us; Matt.Martinez@state.co.us
Cc: Cayd Bader <caydb@affinholdings.com>; Kurt Moje <kurt@pcsgroupco.com>; Noah Carl <noah@pcsgroupco.com>; Ben Satterwhite <bsatterwhite@atwell.com>; Michael Pesicka <mpesicka@douglas.co.us>
Subject: Re-Submittal of SB2025-017 / Bloom Preliminary Plan

Caution: This email originated outside the organization. Be cautious with links and attachments.

Hi Katie and Matt,

Hope all is well and Happy Holidays.

Please find attached collateral you had requested from our initial submittal to Douglas County. We have included a weed management plan and wildlife analysis letter at your request. Please let us know if you have any questions or need any other information.

Thanks and have a good one,

pcs group

paul shoukas, pla

vice president

200 kalamath street denver, co 80223

office. (720) 259-8248 **cell.** (303) 956-6259

www.pcsgroupco.com

PCS Group will be closed from December 25th through January 1st

DOUGLAS COUNTY
HEALTH DEPARTMENT COLORADO

July 9th, 2025

Mike Pesicka
100 Third St.
Castle Rock, CO 80104

RE: SB2025-017

Dear Mr. Pesicka

Thank you for the opportunity to review and comment on the Bloom Preliminary Plan. Douglas County Health Department (DCHD) staff have reviewed the application for compliance with pertinent environmental and public health regulations. After reviewing the application, DCHD has the following comments.

Fugitive Dust - Developments of 25 acres and more than 6 months in duration
Exposure to air pollution is associated with a number of health problems including asthma, lung cancer, and heart disease. The Colorado Department of Public Health and Environment Air Pollution Control Division (APCD) regulates air emissions, including fugitive dust from developments of 25 acres or more that last at least 6 months. The applicant shall contact the APCD, at (303) 692-3100 for more information. Additional information is available at https://cdphe.colorado.gov/apens-and-air-permits.

Water and Sewer Service
A will-serve letter has been provided by Parker Water and Sanitation. Based on this letter, DCHD is providing a favorable recommendation regarding the proposed method of sewage disposal.

Sincerely,

Caden Thompson
Environmental Health Specialist I
Douglas County Health Department

Date: July 8, 2025

To: Paul Shoukas | PCS Group
paul@pcsgroupco.com

From: Caitlin Zeiler, Planning & Addressing Specialist

CC: Mike Pesicka, Planner III

Subject: **Bloom Preliminary Plan**

Project File: **SB2025-017**

Douglas County Addressing has completed review of the Bloom Preliminary Plan and has the following comments:

- Four streets must be named.
- One street name may be used twice with different suffixes.

See the map on the following page for details.

Please propose street names to use on the final plat. Submit proposed street names to Douglas County for evaluation. Pre-check street names online before submitting to Douglas County using the Street Names dataset available on the DougCo Hub. Please review all guidelines in the Douglas County Addressing and Street Naming Manual.

Street alignments as shown on the Bloom Preliminary Plan have been evaluated. Per the Addressing and Street Naming Manual, street alignments determine the suffix. The same street name may be used up to three times, with a unique suffix, where the streets are connected.

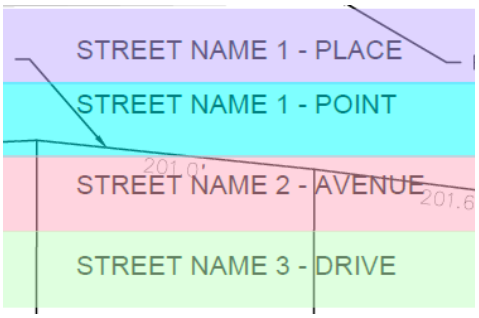
Please submit a revised preliminary plan exhibit to this office for review. Let me know if you have any questions.

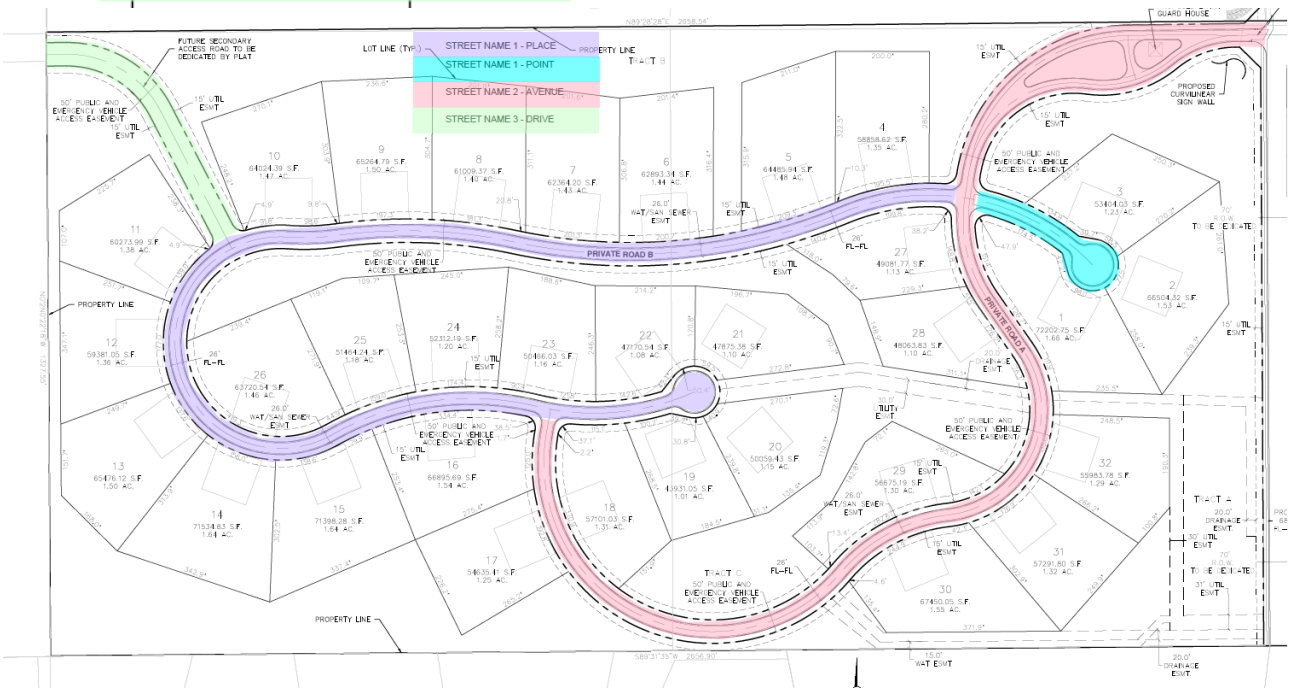
Sincerely,

Caitlin Zeiler
Planning & Addressing Specialist
DCAddressing@douglas.co.us
303.660.7449

Douglas County Addressing has completed review of the Bloom Preliminary Plan and has the following comments:

- Four streets must be named.
- One street name may be used twice with different suffixes.





Douglas County School District
Learn Today, Lead Tomorrow
620 Wilcox Street
Castle Rock, Colorado 80104

July 11th, 2025

Mike Pesicka
Douglas County Department of Community Development
Planning Services Division
100 Third St.
Castle Rock, CO 80104
mpesicka@douglas.co.us

RE: Bloom Preliminary Plan (SB2025-017)

Dear Mr. Pesicka,

Thank you for the opportunity to respond to the above referenced application. It is our understanding that the applicant is requesting to subdivide 81.07 acres into 32 residential lots and three tracts for drainage, open space, landscaping, public access, and utilities. The property is generally located west of the intersection of Bayou Gulch Rd and Scott Avenue, directly south of the Trails at Crowfoot development.

On behalf of Douglas County School District, we have a couple comments regarding this application. DCSD has calculated the amount of school site land dedication required for students generated by the proposal. A total of 32 students are expected from the development requiring a total land dedication requirement of 0.753-acres. Since this amount of land dedication is smaller than DCSD's minimum site requirements and the applicant has stated in their submitted project narrative that no land will be dedicated, DCSD would request cash-in-lieu of land.

CASH-IN-LIEU CALCULATION
STUDENT GENERATION

PROJECT NAME: BLOOM PRELIMINARY PLAN (SB2025-017)					
DU/	ACRES		DENSITY		
32	81.07		0.39		
			Generation	Number	
STUDENT GENERATION RATES	No. of DU's		Rate	of Students	
ELEMENTARY	32	X	0.54	17	
MIDDLE SCHOOL	32	X	0.15	5	
HIGH SCHOOL	32	X	0.31	10	
				32	
				Required	
			School	Land	
	Number		Acreage	Dedication	
SCHOOL LAND DEDICATION	of Students		Per Student	Acreage	
ELEMENTARY	17	X	0.018	0.311	
MIDDLE SCHOOL	5	X	0.030	0.144	
HIGH SCHOOL	10	X	0.030	0.298	
			TOTAL	0.753	

Pursuant to Section 1004.05.3 of the Douglas County Subdivision Resolution, "The cash-in-lieu fee shall be equivalent to the full market value of the acreage required for school land dedication. Value shall be based on anticipated market value after completion of platting. The applicant shall submit a proposal for the cash-in-lieu fee and supply the information necessary for the Board to evaluate the adequacy of the proposal. This information shall include at least one appraisal of the property by a qualified appraiser."

Assuming the applicant agrees with the payment of these fee requirements, DCSD has no objection to approval of this application. Thank you for your support of our mutual constituents

Shavon Caldwell, Planning Manager
DCSD Planning & Construction
scaldwell2@dcsdk12.org
office: 303.387.0417
mobile: 720.428.1170

August 7, 2025

Eric Pavlinek
Douglas County Planning Services
Transmission via email: epavlinek@douglas.co.us

Re: Bloom Subdivision - Preliminary Plan (2nd Letter)
Case No. SB2025-017
Part of the SW ¼ of Sec. 9, Twp. 7S, Rng. 66W, 6th P.M., Douglas County
Water Division 1, Water District 8
CDWR Assigned Referral No. 34251

Dear Eric Pavlinek,

We received the additional information provided on August 7, 2025 regarding the plan to subdivide two parcels on approximately 81 acres to create 32 new residential lots, along with 3 tracts for drainage, open space, landscaping, public access, and utilities.

Our office previously provided comments on the proposed preliminary plan for the subdivision in a letter dated July 30, 2025. The comments outlined in this letter supersede those from the previous letter.

Water Supply Demand

No water supply demands were included with the application documents. However, a will-serve letter dated February 5, 2025 indicates that the Parker Water & Sanitation District ("District") will provide water to the subdivision at a standard amount of 0.7 acre-feet per year per single-family equivalent ("SFE") tap. For planning purposes,

the District estimates 32 SFEs will be required to serve the 32 residential lots, and approximately 10 SFEs will be required for landscape irrigation inside the subdivision. The total demands for the 42 total SFEs within the subdivision are estimated to be 29.4 acre-feet per year.

Source of Water Supply

The proposed source of water supply is the Parker Water & Sanitation District ("District"). According to the will-serve letter included with the application documents, the District ***"acknowledges its willingness and ability to serve the "Bloom Development" upon successful completion of inclusion."***

The will-serve letter indicates that the District will provide sanitary sewer service for all water taps requested for the Bloom development through an Intergovernmental Agreement with the Pinery Water & Wastewater District.

In a previous comment letter responding to the subdivision rezoning plan (ZR2016-013) dated July 21, 2016, our office noted that ***"a condition of inclusion into the District is that the developer deeds all water rights available to the property to the District. According to our records the ground water underlying the 81.07 acre parcel in the Laramie-Fox Hills, Arapahoe, Denver, Lower Dawson and Upper Dawson aquifers was adjudicated in Division 1 Water Court case no. 2007CW56".*** Based on the additional information provided on August 7, 2025, the Applicant has clarified that the groundwater underlying the 81 +/- acres subject to this referral located in the SW ¼ of Sec. 9, Twp. 7S, Rng. 66W will be deeded to the District and not the groundwater underlying 8996 Motsenbocker Road, Parker Colorado, 80134 (located in Sections 27 and 28 of Twp. 6S, Rng. 66W). According to the Applicant, the mention of the parcel at 8996 Motsenbocker Road in the previous referral documents was made in error.

According to the February 5, 2025 will-serve letter, the District has 25,223.50 acre-feet per year of adjudicated nontributary water rights and 5,487.1 acre-feet per year of not nontributary water rights, of which only a portion is currently covered under court approved augmentation plans. The District also has storage and reuse rights, which can provide additional water supplies. As the date of the letter, the District's current demand is approximately 7,700 acre-feet per year, while at buildout, it is estimated that the total water demand will be 23,500 acre-feet per year. Based on this information, the District has sufficient water available to serve this development.

The majority of the District's water supply is water from bedrock aquifers in the Denver Basin. The State Engineer's Office does not have evidence regarding the length of time for which this source will be a physically and economically viable source of water. According to section 37-90-137(4)(b)(I), C.R.S., "Permits issued pursuant to this subsection (4) shall allow withdrawals on the basis of an aquifer life of one hundred years." Based on this allocation approach, the annual amounts of undecreed water is equal to one percent of the total amount, as determined by rules 8.A and 8.B of the Statewide Nontributary Ground Water Rules, 2 CCR 402-7. Therefore, the water may be withdrawn in those annual amounts for a maximum of 100 years.

A review of our records indicates that well permit no. 138031 is located on the subject property. Well permit no. 138031 was issued on November 23, 1984 pursuant to CRS 37-92-602(3)(b)(II) as the only well on a tract of land of 40 acres, described as the SW ¼ of the SW ¼ of Sec. 9, Twp. 7S, Rng 66W, 6th P.M. for ordinary household purposes inside one single family dwelling, fire protection, the watering of poultry, domestic animals, and livestock on farms and ranches, and the irrigation of not over one acre of home gardens and lawns. Well permit no. 138031 was issued for the not nontributary Upper Dawson aquifer.

Section 37-92-602(3)(b)(III) C.R.S., requires that the cumulative effect of all wells in a subdivision be considered when evaluating material injury to decreed water rights. **Therefore, well no. 138031 must be included in an augmentation plan, or must be plugged and abandoned prior to the subdivision approval since the provisions of section 37-92-602 which allowed for issuance of the well permits will no longer apply.** According to the additional information provided on August 7, 2025, the Applicant has indicated that well permit no. 138031 will be plugged and abandoned.

Additional Comments

The application materials indicate that a stormwater detention structure will be constructed as a part of this project. The applicant should be aware that unless the structure can meet the requirements of a "storm water detention and infiltration facility" as defined in section 37-92-602(8), C.R.S., the structure may be subject to administration by this office. The applicant should review DWR's Administrative Statement Regarding the Management of Storm Water Detention Facilities and Post-Wildland Fire Facilities in Colorado to ensure that the notification, construction and operation of the proposed structure meets statutory and administrative requirements. The Applicant is encouraged to use the Colorado Stormwater Detention and Infiltration Facility Notification Portal to meet the notification requirements.

State Engineer's Office Opinion

Based upon the above and pursuant to section 30-28-136(1)(h)(I) and section 30-28-136(1)(h)(II), C.R.S., it is our opinion that the proposed water supply is adequate and can be provided without causing injury to decreed water rights, **on the condition that well no. 138031 is plugged and abandoned. The Applicant is required to submit a**

Well Abandonment Report (eform) for well no. 138031 to affirm the well was plugged and abandoned.

Our opinion that the water supply is **adequate** is based on our determination that the amount of water required annually to serve the subdivision is currently physically available, based on current estimated aquifer conditions.

Our opinion that the water supply can be **provided without causing injury** is based on our determination that the amount of water that is legally available on an annual basis, according to the statutory **allocation** approach, for the proposed uses is greater than the annual amount of water required to supply existing water commitments and the demands of the proposed subdivision.

Our opinion is qualified by the following:

The Division 1 Water Court has retained jurisdiction over the final amount of water available pursuant to the above-referenced decree, pending actual geophysical data from the aquifer.

The amounts of water in the Denver Basin aquifer, and identified in this letter, are calculated based on estimated current aquifer conditions. The source of water is from a non-renewable aquifer, the allocations of which are based on a 100-year aquifer life. The county should be aware that the economic life of a water supply based on wells in a given Denver Basin aquifer may be less than the 100 years used for allocation due to anticipated water level declines. We recommend that the county determine whether it is appropriate to require development of renewable water resources for this subdivision to provide for a long-term water supply.

Please contact Mike Matz at 303-866-3581 x8241 or at michael.matz@state.co.us with any questions.

Sincerely,



Ioana Comaniciu, P.E.
Water Resources Engineer

Ec: File for Permit no. 138031

REFERRAL RESPONSE REQUEST

Date sent: July 8, 2025

Comments due by: **July 29, 2025**

Project Name:	Bloom Preliminary Plan
Project File #:	SB2025-017
Project Summary:	The applicant requests a preliminary plan for 32 residential lots, and 3 tracts for drainage, open space, landscaping, public access, and utilities, on approximately 81 acres of land zoned Estate Residential (ER). One point of access is proposed from Bayou Gulch Road with a future secondary access road proposed in the northwest corner of the development.

Information on the identified development proposal located in Douglas County is enclosed. Please review and comment in the space provided.

☐	No Comment	
☐	Please be advised of the following concerns:	
☒	See letter attached for detail.	
Agency: ENGINEERING		**Phone #:** 4318
Your Name: AL PETERSON *(please print)*		**Your Signature:** Al Pet
		Date: 7/29/2025

Agencies should be advised that failure to submit written comments prior to the due date, or to obtain the applicant's written approval of an extension, will result in written comments being accepted for informational purposes only.

Sincerely,

Mike Pesicka

Mike Pesicka, Principal Planner

DOUGLAS COUNTY
COLORADO

July 29, 2025 DV 25-223

Mike Pesicka – Principal Planner
Douglas County Planning
100 Third Street
Castle Rock, CO. 80104

RE: Bloom Preliminary Plan

Dear Mike,

Engineering has reviewed the Preliminary Plan and the following comments have been generated:

1. Thank you for denoting the 70' ROW dedication for Bayou Gulch Road to come with the Final Plat.

2. Per the roadway cross section depicted on the cover sheet, a set of private alternate road standards will be required at the time of Final Plat.

3. Please delineate the roadway centerline with all distances, bearings, radii and cul-de-sac radii to verify the minimum road standards have been met.

4. Please note the relative road grades to verify the minimum and maximum grades have not been exceeded.

5. Please revise all drainage easements to a minimum width of 25'

Should you have any questions in regard to these comments, I can be reached at 303-660-7490 or apeterso@douglas.co.us.

Respectfully,

Al Peterson
Sr. Development Review Engineer

c: Brad Jackson, P.E., Development Review Supervisor
DV File

From: Al Peterson
To: Michael Pesicka
Subject: FW: Bloom TIA DV25-223
Date: Monday, August 11, 2025 7:40:12 AM

Mike,

Here are Chris' TIA comments for Bloom. Can you please forward these to the applicant.

Thanks AP

From: Chris Martin <CMartin@douglas.co.us>
Sent: Friday, August 8, 2025 11:24 AM
To: Al Peterson <APeterso@douglas.co.us>
Subject: RE: Bloom TIA DV25-223

Al,

I have reviewed the preliminary plan TIA for the Bloom project. The site access and Land-Use (number of residential units) have changed since the study provided for the map change process.

Review comments:

Access

> The project now has a single point of access onto Bayou Gulch Rd forming the west leg of the Bayou Gulch Rd/Presidio Pkwy in the short term. Per the site plan shown in Figure 2, a future secondary public access is proposed to connect to the property to the west. Note, to my knowledge, there has not been a roadway network planned for this adjacent property that would justify the construction of this road connection. Is there a known plan for the property to the west?
>
> The cross-section of the access at Bayou Gulch Rd is shown to be 26 ft FL to FL. It is likely that this cross-section will need to be wider to accommodate turning movements into the site and to operate properly with the laneage existing on the east leg of the Presidio Pkwy / Bayou Gulch Rd intersection.

Land-Use

The site is currently proposed to included 32 SF DU's (compared to the 130 SF DU's contemplated in the 2021 study done for the map change process). This results in a significantly lower trip generation.

Traffic Growth

The long term traffic growth projections for future traffic scenarios shown in Figures 5 & 9 and used in the 2045 background and total condition capacity analysis (Synchro Reports) are inconsistent with the projections found for Bayou Gulch Rd in other traffic studies in the area. For example; In Figure 9 - Total Traffic, the volume shown on Bayou Gulch Rd south of Presidio Pkwy is below 5,500 ADT. The 2023 Leman Academy TIS (LSC #221210) shows 21,700 ADT for the same location in the 2043 horizon (Figure 9a – 2043 Total Traffic). The future scenarios need to be reanalyzed to provide a realistic representation of traffic along Bayou Gulch Rd.

On page 2, for the 2045 Background Traffic the study indicates that half buildout of the of the Leman Academy is assumed. This is likely a typo, since full-buildout of Leman Academy should be assumed for this horizon.

Per Figure 9 (2045), there is no change in the volume on the site's connection to Bayou Gulch Rd compared to the volume shown in Figure 8 (2028) . The study should indicate what is expected to change, volume wise, with the future roadway connection to the property to the west.

This traffic study needs to be revised to address the above comments. Let me know if you have any questions regarding the above information.

Thank you
Chris

From: Chris Martin
To: Al Peterson
Subject: RE: Bloom Preliminary Plan Resubmittal-SB2025-017
Date: Monday, December 15, 2025 4:46:00 PM

Al,

My previous comments have been addressed.

Identified Mitigations

- Per page 3 – Projected Levels of Service, this updated study, the intersection of Bayou Gulch Rd / Scott Ave is expected to be signalized in the 2045 horizon.
- Per the note on Table 1, Bayou Gulch Rd and N Pinery Pkwy will also be signalized in the future.

This project should be responsible for fair share contributions to the future signals at Bayou Gulch Rd / Scott Ave and at Bayou Gulch Rd / N Pinery Pkwy.

Let me know if you have any questions on the above information.

Thanks
Chris

From: Al Peterson <APeterso@douglas.co.us>
Sent: Monday, December 15, 2025 1:13 PM
To: Chris Martin <CMartin@douglas.co.us>
Subject: FW: Bloom Preliminary Plan Resubmittal-SB2025-017

Chris,

Looks like they responded to your traffic comments.

AP

From: Michael Pesicka <mpesicka@douglas.co.us>
Sent: Monday, December 15, 2025 12:25 PM
To: Al Peterson <APeterso@douglas.co.us>
Cc: Carol LeMaire <CLemaire@douglas.co.us>
Subject: Bloom Preliminary Plan Resubmittal-SB2025-017

Al,

Attached are the documents for the resubmittal of the Bloom Preliminary Plan, Project No.

SB2025-017.

Thank you,

Mike Pesicka | Principal Planner
Douglas County Department of Community Development
Address | 100 Third St., Castle Rock, CO 80104
Direct | 303-814-4367 **Main** | 303-660-7460
Email | mpesicka@douglas.co.us

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July 28, 2025

Mike Pesicka, Principal Planner
100 Third Street
Castle Rock, CO 80104

Re: SB2025-017, Bloom Preliminary Plan

Dear Mr. Pesicka:

The letter provides comments regarding the request for approval of a preliminary plan for 32 residential lots, and 3 tracts for drainage, open space, landscaping, public access, and utilities, on approximately 81 acres of land zoned Estate Residential (ER). One point of access is proposed from Bayou Gulch Road with a future secondary access road proposed in the northwest corner of the development. The applicant previously submitted a cultural resource survey report completed in 2022. A Class II survey was completed by ERO Resources Corporation.

The Curator has reviewed the completed Class II survey on the project site. New sites were discovered but none are eligible to be listed on the state register.

Should buried artifacts and features be discovered in future phases, we recommend completion of the appropriate Colorado Office of Archaeology and Historic Preservation (OAHP) Data Management and Historic and/or Prehistoric Component forms, following OAHP guidelines, with accompanying sketch maps and photographs. Completed forms are submitted to OAHP to ensure that Douglas County's historic or prehistoric data is included in the Colorado OAHP state-wide database of cultural resources.

Thank you in advance for your attention to the preservation and protection of Douglas County's cultural resources for future generations.

Sincerely,

Brittany Cassell

Brittany Cassell, Curator

Docusign Envelope ID: C33ACCE1-F57A-4B3C-9E3E-EC793E8BF37B

REFERRAL RESPONSE REQUEST

Date sent: July 8, 2025 Comments due by: **July 29, 2025**

Project Name:	Bloom Preliminary Plan
Project File #:	SB2025-017
Project Summary:	The applicant requests a preliminary plan for 32 residential lots, and 3 tracts for drainage, open space, landscaping, public access, and utilities, on approximately 81 acres of land zoned Estate Residential (ER). One point of access is proposed from Bayou Gulch Road with a future secondary access road proposed in the northwest corner of the development.

Information on the identified development proposal located in Douglas County is enclosed. Please review and comment in the space provided.

☐	No Comment		
☐	Please be advised of the following concerns:		
☒	See letter attached for detail.		
Agency:	Douglas County Conservation District	**Phone #:**	303 218 2622
Your Name:	David Shohet, President	**Your Signature:**	Signed by: David.Shohet 6E6057CEE3D2404...
	(please print)	**Date:**	7/29/2025

Agencies should be advised that failure to submit written comments prior to the due date, or to obtain the applicant's written approval of an extension, will result in written comments being accepted for informational purposes only.

Sincerely,

Mike Pesicka

Mike Pesicka, Principal Planner

Docusign Envelope ID: C33ACCE1-F57A-4B3C-9E3E-EC793E8BF37B

DOUGLAS
—CONSERVES—
DOUGLAS COUNTY CONSERVATION DISTRICT
PO Box 688 / 7519A E. Hwy 86 Franktown, CO 80116 / Phone 303-218-2622

DATE: July 29, 2025

RE: SB2025-017

The Douglas County Conservation District provides development responses for Douglas County in accordance with Senate Bill 35. District comments are made on the suitability of soils for the proposed land uses, floodwater management, and watershed protection. In addition, the District submits advisory comments regarding rural water supply issues, agricultural land use conversion, and endangered species protection if the development plan affects those issues.

The District appreciates the compact development pattern noted in the Narrative that leaves more open space for wildlife corridors to preserve the moderate wildlife value in place for generations (Douglas County Map 9-1). In addition, the plan to minimize the removal of native vegetation and to work with the natural landscape is appreciated for this same reason.

It is important to note that 12 neighbors from the surrounding neighborhood attended the Regular Monthly Meeting of the Board of Supervisors on July 28. The neighbors voiced their concern about the following:
1. Ephemeral drainage from SB2025-017 into downstream properties
2. Alteration of historical stormwater flows towards bordering properties.
2. Wildlife impacts and loss of wildlife corridors

According to U.S.D.A. Natural Resources Conservation Service (NRCS) soils survey (enclosed Pages 19-21), the Fondis-Kutch association and Newlin gravelly sandy loam located at the development site are somewhat to very limited for dwellings with and without basements, and small commercial buildings due to flooding, and roads due to shrink-swell soil properties, slope, and depth to hard bedrock. Due to the limitations of the above soils on the site, alternatives to mitigate the limitations of the soil will be required in your engineering design or construction techniques.

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Topsoil should be stripped to a depth of 6 inches, and all stockpiles should have side slopes no steeper than 3:1 and seeded. All disturbed areas should be seeded and mulched with weed free hay mulch at 4,000 lbs. /acre. Recommended seeding dates for Colorado are November 1 to May 1, when the soil is not frozen. Grasses should be seeded when soil moisture and temperature are optimum for germination, unless a dormant planting is desired. Grass seed should be drilled at a depth of ¼ to ½ inch deep and if broadcasted, double the seeding rate. For more information on grass seed selections and seeding rates, please contact the Douglas County Conservation District.

The District recommends that disturbed land be mulched or revegetated within 45 days of disturbance.

The District recommends using a phased grading approach. By limiting the area being graded to 15 acres or less and seeding with native grasses, the land area disturbed is minimized. The development site is 80 acres.

There is no Integrated Noxious Weed Control plan. An integrated weed management program needs to be proposed by the Applicant, and reviewed and approved by the Douglas County Weed Inspector and/or Weed Advisory board, the County Extension Agent, NRCS, or a qualified weed management professional prior to the land use authority approval.

Vehicle tracking control stations need to be installed and maintained at all entrance and exit points on the site. The station should consist of a pad of 3 to 6-inch rock or a vehicle control pad/mat to strip mud from tires prior to vehicles leaving the construction site to prevent the spreading of noxious weeds.

The channels of many of the major streams are not stable and undergo substantial shifts in alignment during flood events. Upstream development increases the magnitude and frequency of local flooding. Floods that exceed the computed 100-year storm do regularly occur. The District does not support development proposals that are located in or near drainages or development that disturbs wetlands.

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Silt fences or other forms of erosion barriers need to be planned, installed, and maintained as a temporary sediment control device used on construction sites to protect water quality.

The District strongly recommends that Low Impact Development (LID) techniques be implemented for economic and conservation benefits.

Thank you for the opportunity to review this project. Direct any questions to Heather Kelly, District Manager, at Admin@DouglasConserves.org or (303) 218 – 2622.

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WILDLIFE

SECTION 9



INTRODUCTION

Wildlife is one of the most valuable community assets. Preservation of wildlife habitat enriches the human experience by providing beautiful vistas and vital links to natural systems such as watersheds for Douglas County residents. The existence of wildlife is entirely dependent upon the existence of sufficient wildlife habitat.

Douglas County accommodates the long-term needs of wildlife by creating a habitat plan based on an ecosystem model. The County model relies on a system of large, core-habitat areas connected by movement corridors to various habitat types dispersed throughout the county. The CMP also acknowledges the importance of smaller habitat areas and corridors, including the open areas within residential lots. This model uses a three-tiered approach to prioritize habitat needs for wildlife:

- ### Tier 1: County/Regional
  Countywide or regional (extending beyond the County) habitat areas. These areas and connections are prioritized at the highest level of importance. Countywide habitat includes large blocks of land connected by wide, multi-directional connections. Examples include the Pike National Forest; Daniels Park; Highlands Ranch Backcountry Wilderness; and the series of corridors that connect these areas such as Plum Creek and the 2,000-foot wide DuPont corridor which crosses US Highway 85.

- ### Tier 2: Local
  Local- or community-level areas are moderately-sized wildlife habitat areas contained within, or shaped by, development. These habitat areas and connections are prioritized at a moderate level of importance. The wildlife habitat and corridor plan within Castle Pines Village is an example. Integral wildlife movement corridors are generally 300 feet wide.

- ### Tier 3: Parcel
  Parcel-level habitat or connections are found within individual residential lots, small commercial sites, or small neighborhoods. These habitat areas are given the lowest priority. Land fragmentation, impacts to natural systems, changes in vegetation, and disturbance reduce the value of such habitat. However, wildlife uses these areas, so the cumulative value of parcel-level habitat must not be discounted totally.

The land use review process in Douglas County seeks to identify, minimize, and mitigate impacts to wildlife and the various tiers of wildlife habitat. Stricter review and mitigation of development and other land uses is required of applications in, or adjacent to, important wildlife resources, including moderate or high-value wildlife habitat areas, wildlife habitat conservation areas, movement corridors and overland connections as designated on the Wildlife Resources Map. Efforts to educate and assist residents about proper land management and living alongside wildlife are beneficial to sustaining healthy populations of wildlife.

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FUNDING OPEN SPACE AND HABITAT

Douglas County has thousands of acres of protected land. Much of that land was purchased or protected through open space funding that was secured through the passage of a sales tax in 1994. Douglas County Open Space acquisition dollars used in habitat protection have been leveraged almost 3 to 1 through partnerships and grants.

In 1998, Douglas County bonded its open space sales tax money primarily to facilitate acquisitions. Between 1995 and 2018, over 63,000 acres of open lands were permanently protected. Of this total, Douglas County owns approximately 17,000 acres in fee title. Over 44,000 acres are protected through conservation easements. The County contributed to the acquisition and preservation of almost 2,000 acres owned by other agencies. As acquisition money dwindles, the pace of protection also slows. Douglas County relies more on partnerships with other agencies, citizen groups, landowners, and developers to conserve additional open lands and wildlife habitat.

The County also works to conserve additional wildlife habitat through alternative means, including mitigation of land use impacts and the restoration and improvement of existing habitat. For more information on the protected lands within Douglas County, please visit www.douglas.co.us/openspace.



WILDLIFE RESOURCES

GOAL 9-1

PROTECT AND ENHANCE WILDLIFE HABITAT AND MOVEMENT CORRIDORS AND FOSTER WILDLIFE CONSERVATION.

OBJECTIVE 9-1A

MAINTAIN HEALTHY ECOSYSTEMS WITHIN THE COUNTY BY ESTABLISHING, MAINTAINING, BUFFERING, AND IMPROVING A SET OF CORE HABITAT AREAS, SUCH AS HABITAT CONSERVATION AREAS (HCAS), CONNECTED BY MOVEMENT CORRIDORS AND OVERLAND CONNECTIONS AS SHOWN IN THE WILDLIFE RESOURCES MAP.

POLICY 9-1A.1

Identify important habitat and movement corridors on the Wildlife Resources Map; revise the map to reflect changes over time.

POLICY 9-1A.2

Develop partnerships to conserve additional habitat and manage and improve existing habitat.

POLICY 9-1A.3

Protect important wildlife habitat, habitat conservation areas (HCAs), movement corridors and overland connections.

OBJECTIVE 9-1B

MINIMIZE IMPACTS TO WILDLIFE BY ENSURING THAT DEVELOPMENT AND LAND USE ARE COMPATIBLE WITH WILDLIFE, WILDLIFE HABITAT, AND MOVEMENT CORRIDORS.

POLICY 9-1B.1

Identify important wildlife habitat, habitat conservation areas (HCAs), movement corridors, and overland connections, as designated on the Wildlife Resources Map in applicable land use applications. Evaluate the potential impact of the proposed change in land use on wildlife and habitat. The identified design solutions should be appropriate to the scale and intensity of the proposed land use.

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POLICY 9-1B.2
Consider wildlife opportunities on neighboring lands, as well as a countywide scale, when evaluating land use applications.

POLICY 9-1B.3
Link wildlife habitat and movement corridors, wherever possible.

POLICY 9-1B.4
Locate development outside of important wildlife habitat and movement corridors.

POLICY 9-1B.5
Balance the location and design of transportation infrastructure with accommodation of wildlife habitat and movement values.

POLICY 9-1B.6
Minimize fencing that is exclusionary or dangerous to wildlife, except when necessary for human safety, commercial and industrial uses, protection of at-risk crops, and domestic animal containment. All other fencing should be wildlife friendly.

POLICY 9-1B.7
Require development to appropriately revegetate degraded and disturbed lands with native or beneficial vegetation and wildlife-friendly species in important wildlife habitat and movement corridors.

POLICY 9-1B.8
Require noxious weed management plans and encourage Integrated Pest Management (IPM) for new development.

POLICY 9-1B.9
Require habitat restoration, improvement, and management practices such as restoration of native or beneficial flora; stream stabilization; erosion control; maintenance of residual cover during the winter; and proper pasture management on new development and special uses, as appropriate.

OBJECTIVE 9-1C
SUPPORT PUBLIC AND PRIVATE PROGRAMS THAT FOSTER WILDLIFE CONSERVATION.

POLICY 9-1C.1
Support incentives and programs to foster conservation.

POLICY 9-1C.2
Support measures to educate landowners and homeowners about the impacts of domestic animals on wildlife, impacts of feeding wildlife, as well as measures that improve wildlife habitat and species success.

OBJECTIVE 9-1D
SUPPORT THE MANAGEMENT OF WILDLIFE POPULATIONS TO MAINTAIN VIABLE POPULATIONS, SPECIES HEALTH, AND TO MINIMIZE CONFLICTS BETWEEN PEOPLE AND WILDLIFE.

POLICY 9-1D.1
Support efforts by Colorado Parks and Wildlife and the US Fish and Wildlife Service to manage wildlife populations.

POLICY 9-1D.2
In designated high value wildlife habitat areas, require wildlife management and habitat conservation plans for new development, in consultation with professional agencies, as appropriate.

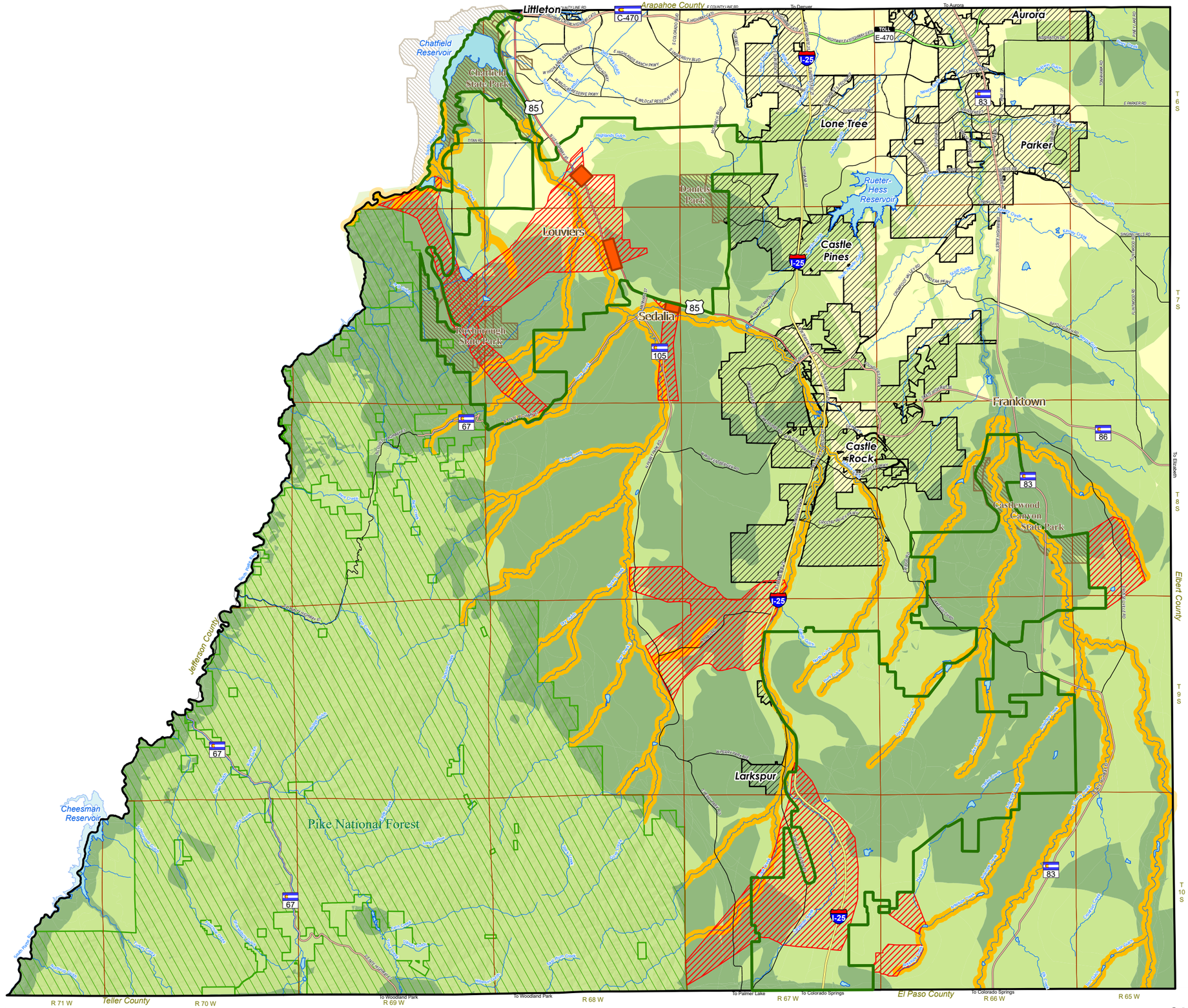


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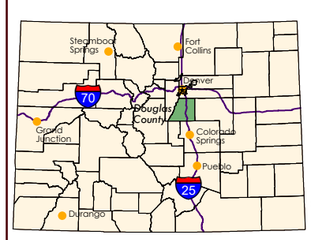
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Map 9.1 Wildlife Resources
Comprehensive Master Plan 2040

- Wildlife Habitat Conservation Area
- Overland Connection
- Wildlife Movement Corridor
- Low Habitat Value
- Moderate Habitat Value
- High habitat Value
- Wildlife Crossing Area
- Parks
- Pike National Forest
- Municipalities
- Townships
- Douglas County Boundary
- Streams
- Interstate
- US Highway
- State Highway
- Toll Highway
- Major Road



Vicinity Map
State of Colorado



0 0.25 0.5
Miles

Note:
For information pertaining to our Douglas County GIS data use disclaimer, see Land Use map 1.1, for more information.

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United States Department of Agriculture

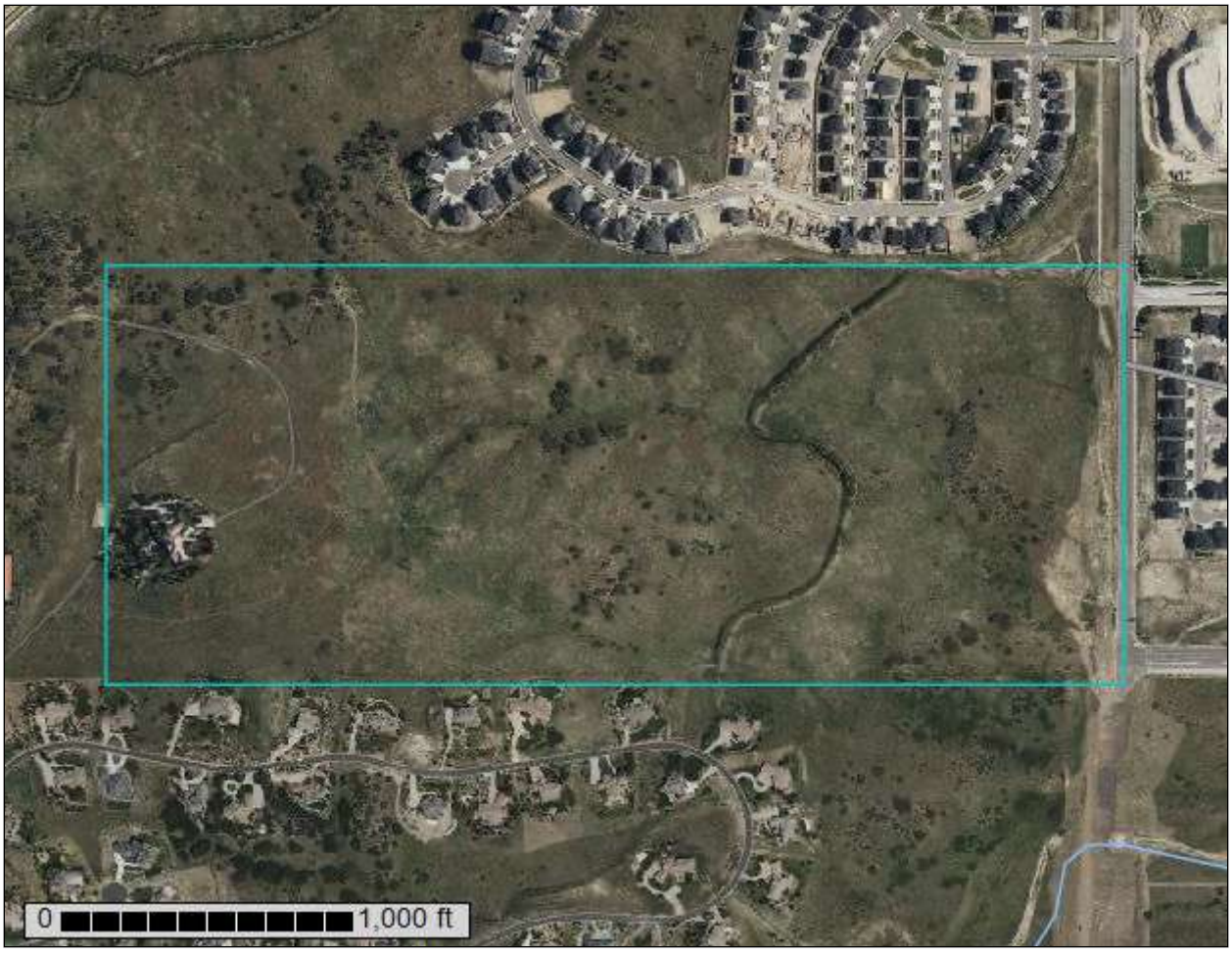
NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Castle Rock Area, Colorado

SB2025-017



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Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

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scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

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Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



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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 1:20,000.

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: Castle Rock Area, Colorado
Survey Area Data: Version 17, Aug 29, 2024

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

Date(s) aerial images were photographed: Mar 1, 2023—Sep 1, 2023

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.

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Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Fu	Fondis-Kutch association	53.3	46.1%
NeE	Newlin gravelly sandy loam, 8 to 30 percent slopes	62.2	53.9%
Totals for Area of Interest		**115.5**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

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onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Docusign Envelope ID: C33ACCE1-F57A-4B3C-9E3E-EC793E8BF37B

Castle Rock Area, Colorado

Fu—Fondis-Kutch association

Map Unit Setting

National map unit symbol: jqyq
Elevation: 5,500 to 6,800 feet
Mean annual precipitation: 15 to 19 inches
Mean annual air temperature: 47 to 50 degrees F
Frost-free period: 120 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition

Fondis and similar soils: 50 percent
Kutch and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fondis

Setting

Landform: Draws, valley sides
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian deposits over coarse-silty outwash derived from arkose

Typical profile

H1 - 0 to 7 inches: loam
H2 - 7 to 24 inches: clay
H3 - 24 to 60 inches: sandy clay loam

Properties and qualities

Slope: 5 to 15 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 low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: R049XB208CO - Clayey Foothill
Hydric soil rating: No

Description of Kutch

Setting

Down-slope shape: Linear

Docusign Envelope ID: C33ACCE1-F57A-4B3C-9E3E-EC793E8BF37B

Across-slope shape: Linear
Parent material: Fine-textured residuum weathered from calcareous shale

Typical profile

H1 - 0 to 6 inches: sandy loam
H2 - 6 to 32 inches: clay
H3 - 32 to 36 inches: weathered bedrock

Properties and qualities

Slope: 5 to 40 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Gypsum, maximum content: 2 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: R049XB208CO - Clayey Foothill
Hydric soil rating: No

Minor Components

Bresser

Percent of map unit: 5 percent
Hydric soil rating: No

Newlin

Percent of map unit: 5 percent
Hydric soil rating: No

Hilly gravelly land

Percent of map unit: 4 percent
Hydric soil rating: No

Aquic haplustolls

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

Docusign Envelope ID: C33ACCE1-F57A-4B3C-9E3E-EC793E8BF37B

NeE—Newlin gravelly sandy loam, 8 to 30 percent slopes

Map Unit Setting

National map unit symbol: jqzg
Elevation: 5,500 to 6,600 feet
Mean annual precipitation: 15 to 19 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 120 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition

Newlin and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Newlin

Setting

Landform: Plateaus, mesas, terraces
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Unconformable sandy and gravelly and/or mixed source alluvium

Typical profile

H1 - 0 to 8 inches: gravelly sandy loam
H2 - 8 to 17 inches: gravelly sandy clay loam
H3 - 17 to 22 inches: gravelly sandy loam
H4 - 22 to 60 inches: very gravelly sand

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 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: Low (about 3.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R049XY214CO - Gravelly Foothill
Hydric soil rating: No

Docusign Envelope ID: C33ACCE1-F57A-4B3C-9E3E-EC793E8BF37B

Minor Components

Bresser
Percent of map unit: 5 percent
Hydric soil rating: No

Stapleton
Percent of map unit: 4 percent
Hydric soil rating: No

Satanta
Percent of map unit: 4 percent
Hydric soil rating: No

Aquic haplustolls
Percent of map unit: 2 percent
Landform: Swales
Hydric soil rating: Yes

Soil Information for All Uses

Suitabilities and Limitations for Use

The Suitabilities and Limitations for Use section includes various soil interpretations displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each interpretation.

Building Site Development

Building site development interpretations are designed to be used as tools for evaluating soil suitability and identifying soil limitations for various construction purposes. As part of the interpretation process, the rating applies to each soil in its described condition and does not consider present land use. Example interpretations can include corrosion of concrete and steel, shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping.

Dwellings With Basements (SB2025-017)

ENG - Engineering

Dwellings are single-family houses of three stories or less. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet.

The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification of the soil. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Docusign Envelope ID: C33ACCE1-F57A-4B3C-9E3E-EC793E8BF37B

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

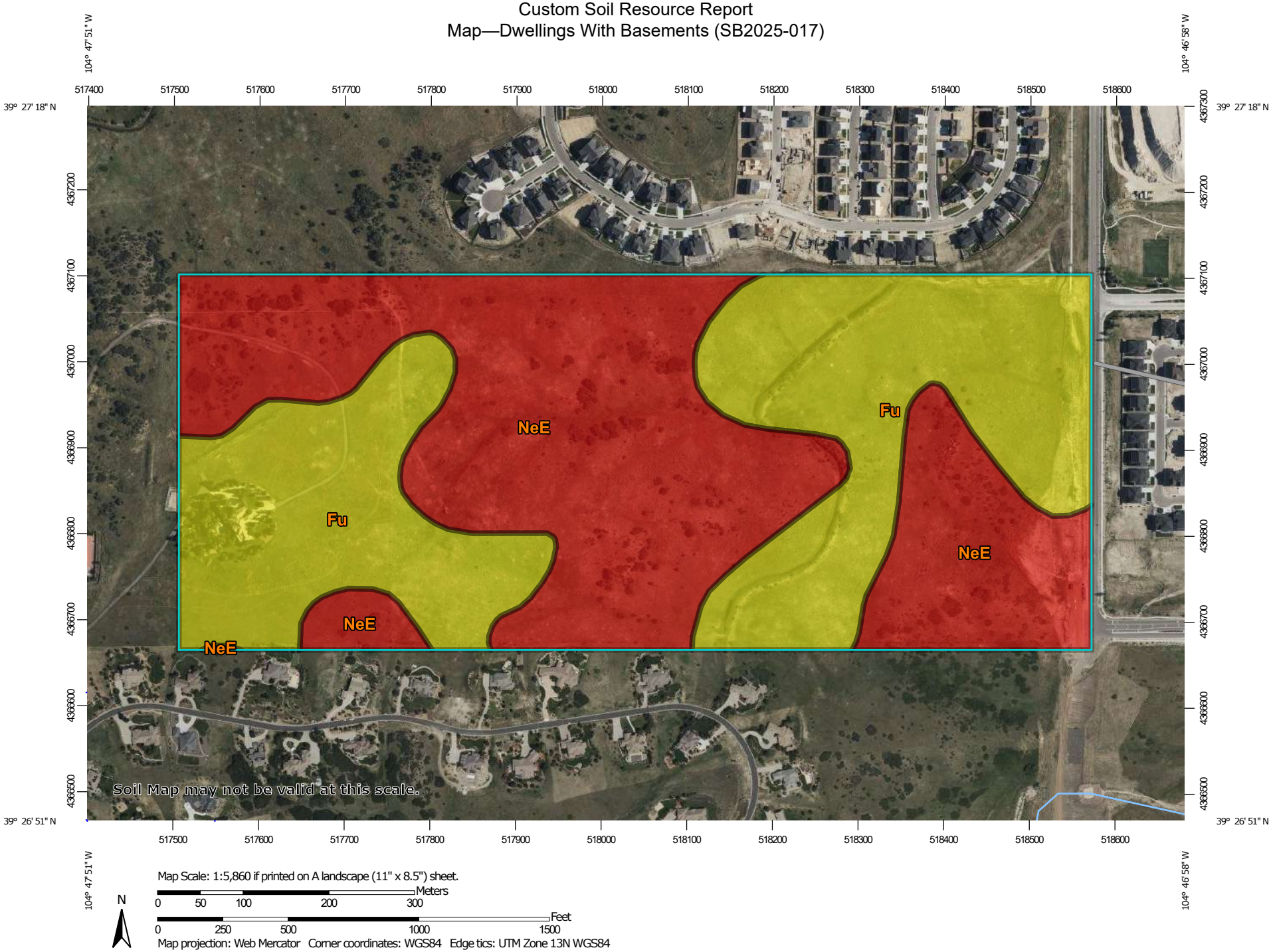
Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Docusign Envelope ID: C33ACCE1-F57A-4B3C-9E3E-EC793E8BF37B

Custom Soil Resource Report
Map—Dwellings With Basements (SB2025-017)



Docusign Envelope ID: C33ACCE1-F57A-4B3C-9E3E-EC793E8BF37B

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Very limited
- Somewhat limited
- Not limited
- Not rated or not available

Soil Rating Lines
- Very limited
- Somewhat limited
- Not limited
- Not rated or not available

Soil Rating Points
- Very limited
- Somewhat limited
- Not limited
- 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 1:20,000.

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: Castle Rock Area, Colorado
Survey Area Data: Version 17, Aug 29, 2024

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

Date(s) aerial images were photographed: Mar 1, 2023—Sep 1, 2023

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.

Docusign Envelope ID: C33ACCE1-F57A-4B3C-9E3E-EC793E8BF37B

Tables—Dwellings With Basements (SB2025-017)

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
Fu	Fondis-Kutch association	Somewhat limited	Fondis (50%)	Slope (0.16)	53.3	46.1%
				Shrink-swell (0.01)		
NeE	Newlin gravelly sandy loam, 8 to 30 percent slopes	Very limited	Newlin (85%)	Slope (1.00)	62.2	53.9%
Totals for Area of Interest					**115.5**	**100.0%**

Rating	Acres in AOI	Percent of AOI
Very limited	62.2	53.9%
Somewhat limited	53.3	46.1%
Totals for Area of Interest	**115.5**	**100.0%**

Rating Options—Dwellings With Basements (SB2025-017)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Docusign Envelope ID: C33ACCE1-F57A-4B3C-9E3E-EC793E8BF37B

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

Docusign Envelope ID: C33ACCE1-F57A-4B3C-9E3E-EC793E8BF37B

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

Docusign Envelope ID: C33ACCE1-F57A-4B3C-9E3E-EC793E8BF37B



PIN
Approximate location based on user input and does not represent an authoritative property location

MAP PANELS
Selected FloodMap Boundary
Digital Data Available
No Digital Data Available
Unmapped
NO SCREEN Area of Minimal Flood Hazard Zone X
Effective LOMRs

OTHER AREAS

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

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 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
Profile Baseline
Hydrographic Feature

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

From: Heather Kelly
To: Michael Pesicka
Subject: Re: FW: Re-Submittal of SB2025-017 / Bloom Preliminary Plan
Date: Wednesday, January 28, 2026 9:10:52 AM
Attachments: image001.png

Caution: This email originated outside the organization. Be cautious with links and attachments.

Hello Mike,
The Douglas County Conservation District does not have any further comment at this time.
Thank you,
Heather Kelly

On Wed, Jan 28, 2026 at 8:39 AM Michael Pesicka <mpesicka@douglas.co.us> wrote:

> Hi Heather,
>
> Will the Conservation District have any additional comments on the Bloom Preliminary Plan application, Project No. SB2025-017?
>
> Thank you,
>
> **Mike Pesicka** | Principal Planner
>
> **Douglas County Department of Community Development**
>
> **Address** | 100 Third St., Castle Rock, CO 80104
> **Direct** | 303-814-4367 **Main** | 303-660-7460
>
> **Email** | mpesicka@douglas.co.us
>
> NOTICE: Douglas County Planning does not charge “Approval” fees. Douglas County communicates through our official email accounts ending in @douglas.co.us; beware of phishing scams using similar addesses. If you have questions or concerns about the validity of an email or invoice, please call our Public Outreach and Assistance team at 303-660-7460 or email planning@douglas.co.us
>
> ---
>
> **From:** Paul Shoukas <paul@pcsgroupco.com>
> **Sent:** Friday, December 12, 2025 4:24 PM

From: Michael Pesicka
To: Michael Pesicka
Subject: FW: Bloom Preliminary Plan Resubmittal
Date: Friday, January 23, 2026 3:08:23 PM
Attachments: image001.png

Thanks Michael, I do understand the requirements, codes, and challenges mentioned by the applicant. I have no authority in the matter; I would just recommend we have it recorded that:

“A best practice in emergency preparedness for any community is to have more than one access/egress point to facilitate rapid evacuation of the entire community.”

Mike Alexander, CO-CEM, MS
Director, Office of Emergency Management
Douglas County Sheriff’s Office
O: 303-660-7589 / C: 720-474-6310



SOUTH METRO FIRE RESCUE
FIRE MARSHAL'S OFFICE

Mike Pesicka, Principal Planner
Douglas County Department of Community Development, Planning Services
100 Third St
Castle Rock Co 80104
303.660.7460
303.660.9550 Fax

Project Name:	Bloom Preliminary Plan
Project File #:	**SB2025-017**
S Metro Review #	REFSP25-00122
Review date:	July 14, 2025
Plan reviewer:	Aaron Miller 720.989.2246 aaron.miller@southmetro.org
Project Summary:	The applicant requests a preliminary plan for 32 residential lots, and 3 tracts for drainage, open space, landscaping, public access, and utilities, on approximately 81 acres of land zoned Estate Residential (ER). One point of access is proposed from Bayou Gulch Road with a future secondary access road proposed in the northwest corner of the development.
Code Reference:	Douglas County Fire Code, 2018 International Fire Code, and 2021 International Building Code with amendments as adopted by Douglas County.

South Metro Fire Rescue (SMFR) has reviewed the provided documents and has no objection to the proposed preliminary plan.

Note that the preliminary utility plan provided does not show fire hydrants in acceptable locations. Designers shall coordinate fire flow requirements and hydrant placement with SMFR prior to developing utility plans for construction and plan approval. Applicants and Contractors are encouraged to contact SMFR regarding the applicable fire code and permit requirements for the proposed project.

DOUGLAS COUNTY
COLORADO

Memorandum

Date: July 30, 2025

To: Michael Pesicka, Principal Planner

From: DJ Beckwith, Principal Planner
Lauren Pulver, Planning Supervisor
Kati Carter, AICP, Assistant Director of Planning Resources
Chris Pratt, Managing County Attorney

CC: Terence T. Quinn, AICP, Director of Community Development

Subject: **Water Commission Member Referral Comments**
SB2025-017 Bloom Preliminary Plan

The Douglas County Water Commission (Commission) met on July 28, 2025 and provided comment on SB2025-017 – Bloom Preliminary Plan (Project). There was no consensus comment from the Commission, only individual comments were provided. All other members had no comment. The following is a summary of comments from each Commission member that provided comments on the Project. This Project was pulled from the agenda for discussion by Commission Member Don Langley.

Don Langley: Member Langley commented on an error in the "Will Serve Letter" from Parker Water, which showed a presumptive demand of 0.7-acre feet per single family equivalent taps (SFE) instead of the current 1.1-acre feet per SFE. A corrected letter has been sent to the developer.

Clark Hammelman: Member Hammelman commented that the Project is a good example of a mid-size development working with existing water providers for service, allowing the development to be wrapped into long term planning of the water provider.

Right of Way & Permits

1123 West 3rd Avenue
Denver, Colorado 80223
Telephone: 303.285.6612
violeta.ciocanu@xcelenergy.com

July 22, 2025

Douglas County Planning Services
100 Third Street
Castle Rock, CO 80104

Attn: Mike Pesicka

Re: Bloom Preliminary Plan, Case # SB2025-017

Public Service Company of Colorado's (PSCo) Right of Way and Permits Referral Desk has reviewed the plan for the above-mentioned project. For these *single-family residential* lots, Public Service Company requests that the following language or plat note is placed on the preliminary and final plats for the subdivision:

> *The utility easements are dedicated to the County of Douglas for the benefit of the applicable utility providers for the installation, maintenance, and replacement of electric, gas, television, cable, and telecommunications facilities (Dry Utilities). Utility easements shall also be granted within any access easements and private streets in the subdivision. Permanent structures, improvements, objects, buildings, wells, water meters and other objects that may interfere with the utility facilities or use thereof (Interfering Objects) shall not be permitted within said utility easements and the utility providers, as grantees, may remove any Interfering Objects at no cost to such grantees, including, without limitation, vegetation. Public Service Company of Colorado (PSCo) and its successors reserve the right to require additional easements and to require the property owner to grant PSCo an easement on its standard form.*

The property owner/developer/contractor must complete the application process for any new natural gas service via xcelenergy.com/InstallAndConnect. It is then the responsibility of the developer to contact the Xcel Designer assigned to the project for approval of design details.

Additional easements may need to be acquired by separate document. The Designer must contact the appropriate Right-of-Way Agent.

As a safety precaution, PSCo would like to remind the developer to contact Colorado 811 for utility locates prior to construction.

Violeta Ciocanu (Chokanu)
Right of Way and Permits
Public Service Company of Colorado dba Xcel Energy
Office: 303-285-6612 – Email: violeta.ciocanu@xcelenergy.com

December 2025

Mike Pesicka
Douglas County
100 Third Street
Castle Rock, CO 80104

Re: Bloom Preliminary Plan
Project File: SB2025-017

Dear Mr. Pesicka

Below are the responses to the comments received from the completeness review.

DOUGLAS COUNTY - PLANNING SERVICES
Mike Pesicka, Principal Planner

General Comments:

1. Although not required, you may wish to meet with neighbors or provide a written response to the public comment received to date.
   RESPONSE: *The Developer has retained a consultant to assist with coordinating with the adjacent neighbors given the interest this site has generated. Furthermore, an informative website has been created to assist with clearer lines of communication. A neighborhood meeting was held on December 15th with adjacent neighbors from Pradera. Another one is being planned for neighbors within the Trails at Crowfoot in that reside in the Town Parker, CO.*
2. A Preliminary Plan requires a demonstration of compliance with Section 18A of the Douglas County Zoning Resolution (DCZR). A conditional will serve letter from Parker Water and Sanitation District (PWSD) was submitted, however, there is additional information required to be submitted per Section 1806A.02.2 of the DCZR as listed below. Please note that Section 18A requires that the property be formally included in the water district, or that an executed IGA between the new metro district and a water district be in place, before the preliminary plan goes to public hearing:
   - That the property that is the subject of the application has been included in the District or is served by contract. The property will need to be included in the PWSD prior to the Planning Commission hearing for the preliminary plan.

   RESPONSE: *Parker Water and Sanitation District has confirmed its ability to serve the property at this time via a commitment to provide service to the property and revised the letter to accommodate the County's RESPEC referral agency. Formal inclusion into the District will occur at the time of Final Plat approval, as the inclusion fee is non-refundable if the project is not approved through the public process and would not be practical for the District to include the property prior to plat approval.*
   - The amount of water that can be supplied to the subdivision pursuant to deeded water, contracts, and/or IGAs. The final executed and recorded IGA between PWSD and Pinery Water and Wastewater (PWWD) needs to be provided prior to the Board of County Commissioners hearing.

   RESPONSE: *IGA will be drafted after approval by Board of County Commissioners and can be a condition of approval if necessary.*

- The PWSD needs to include the proposed uses, the uses allowed by PWSD's water rights, and that the proposed uses correspond to the allowed uses of PWSD's water rights.

RESPONSE: *The will server letter has been updated from PWSD to include proposed uses for the property.*

- A Declaration of Restrictive Covenants in a form prescribed by the County shall be executed and recorded prior to the Board of County Commissioners hearing on the preliminary plan.

RESPONSE: *Restrictive Covenants should be executed (per the template provided by the County) and recorded at Final Plat should the project not be approved by Board of County Commissioners. The covenants are being reviewed currently by the owner.*

- Once staff has received this information it will be provided to the County water consultant for review and comment.

RESPONSE: *Understood.*

3. Review and respond to the letter dated August 12, 2025, from the County's water consultant.
   RESPONSE: *Received and reviewed – we have met with Alan Leak with RESPEC to review the requests.*
4. The Douglas County Water Commission reviewed the application referral at their regularly scheduled meeting on July 28, 2025. Advisory comments or questions they provided are included with this letter.
   RESPONSE: *Noted.*
5. A specialized appraisal is required to be submitted to establish post-platted (with improvement in place) land values within the subdivision. You may submit that during the preliminary plan process or with the final plat application. The County has retained an appraisal consultant that can assist your appraiser to scope the cash-in-lieu appraisal.
   RESPONSE: *Noted. The preference is to wait until the Final Plat application before executing an appraisal.*
6. Update the project narrative to address potential wildlife conflicts. The 2040 Comprehensive Master Plan (CMP) identifies this area as being of low to moderate habitat value. Discuss how wildlife movement will be accommodated through the proposed layout of lots and open space tracts. Has wildlife friendly fencing been considered if fences are proposed? Colorado Parks and Wildlife has additional information on wildlife friendly fencing options.
   RESPONSE: *A section under Conceptual Design under the Preliminary Plat narrative with a subheading called "Corridors" speak to the layout and buffers provided facilitating movement throughout the site. Also, the developer has commissioned a report from an Environmental Consultant to better understand the amount of wildlife activity this site is hosting given its proximity to busy roads and urban development on the east and north side. The Wildlife Analysis Letter is included in the submittal*
7. Review and respond to comments received from the Douglas County Health Department in their letter dated July 9, 2025.
   RESPONSE: *Responses have been provided to the Douglas County Health Department and are included in this response letter.*
8. Review and respond to comments received from the Division of Water Resources in their letter dated August 7, 2025.
   RESPONSE: *Responses have been provided to the Division of Water Resources and are included in this response letter.*
9. Review and respond to comments from Engineering Services in their review letter dated July 29, 2025, and the email response from Traffic Engineering dated August 11, 2025.
   RESPONSE: *Responses have been provided to Engineering Services and are included in this response letter.*
10. Douglas County will continue to evaluate the preliminary plan for consistency with required Design Elements outlined in Article 4 of the Douglas County Subdivision Resolution (DCSR).
    RESPONSE: *Noted.*

Revise the preliminary plan exhibit in accordance with Article 4, Preliminary Plan of the DCSR as indicated below:

Plan Exhibit (DCSR 407)

11. Verify that all proposed and existing easements are clearly labeled on the plans and include the use, dimensions, owners, entity responsible for construction or maintenance, and reception or recorded book and page number (407.07).
    RESPONSE: *All easements have been labeled with width and use. These easements are planned to be recorded via a future plat so there are no reception numbers. General notes have been added to denote the ownership and maintenance of utilities within easements.*
12. Provide the land use and ownership of the adjacent lands (407.14).
    RESPONSE: *Land ownership of adjacent tracts has been labeled.*
13. Consideration should be given to locating proposed roads away from exterior property boundaries. Locating roads and utility infrastructure next to the adjacent lot lines may result in the need to obtain construction easements from the adjacent property owners. The redlines identifies those road segments that are very close to the property boundary.
    RESPONSE: *The proposed roadway and utilities will be designed in a manner that will not require construction easements from adjacent property owners.*
14. Did South Metro Fire ask for Note 6 to be included on the plans? Douglas County Building would need to review any proposal which mandates home sprinklering. As this property is served by central water, sprinklering does not seem warranted.
    RESPONSE: *Sprinkler systems will not be required and the note has been removed from the Preliminary Plan.*
15. In the Tract Area table on sheet 2, the HOA is listed for ownership and maintenance of the proposed tracts but Note 8 on the cover sheet states that it will be the Bloom Metro District, please clarify.
    RESPONSE: *The Bloom Home Owners Association or Metropolitan District will own and maintain the tracts within the development.*
16. Will the HOA or Bloom Metro District own and maintain the proposed entry guard house? Is the guard house within a tract?
    RESPONSE: *This will be maintained by the HOA*
17. Building envelopes should only be considered if there are significant areas of steep slopes or other constraints within a lot. Consideration should be given to using no- build areas in lieu of building envelopes if the desire is to limit site disturbance within the overall subdivision. Alternatively, the open space tracts could be increased in size to provide more visual buffering to neighbors.
    RESPONSE: *Building envelopes have been replaced with setback lines (no-build areas).*
18. When envelopes or no-build zones are established, all accessory buildings and structures (such as pools and pergolas) are required to be located within the envelope. If the developable areas of the lot are made too restrictive, the County will likely receive several requests for envelope or no-build adjustments from individual property owners. What uses (dog runs, fencing, play structures) will be allowed outside the envelope?
    RESPONSE: *Noted.*
19. Proposed fencing restrictions, particularly from a wildlife perspective, should be addressed at this time.
    RESPONSE: *A note has been added to the plans which dictates that open rail fencing is permitted along lot lines outside of the building envelope and within designated tracts to define or delineate boundaries, enhance community aesthetics, or provide separation as needed. Privacy fencing may be installed within the building envelope to screen elements such as pools, patios, decks, and other similar features located on individual lots.*
20. Easements should not be proposed within building envelopes. Given the number of lots, it is preferable to establish a separate tract for the proposed private roads.
    RESPONSE: *Tract F is proposed for the private roads and utility easements.*
21. On sheet 2 in the Land Use Table, please provide the square footage and percentage of open space area provided.
    RESPONSE: *Percentages have been added to the Land Use Table as requested.*

DOUGLAS COUNTY - HISTORIC PRESERVATION

Brittany Cassell

The letter provides comments regarding the request for approval of a preliminary plan for 32 residential lots, and 3 tracts for drainage, open space, landscaping, public access, and utilities, on approximately 81 acres of land zoned Estate Residential (ER). One point of access is proposed from Bayou Gulch Road with a future secondary access road proposed in the northwest corner of the development. The applicant previously submitted a cultural resource survey report completed in 2022. A Class II survey was completed by ERO Resources Corporation.

The Curator has reviewed the completed Class II survey on the project site. New sites were discovered but none are eligible to be listed on the state register.
Should buried artifacts and features be discovered in future phases, we recommend completion of the appropriate Colorado Office of Archaeology and Historic Preservation (OAHP) Data Management and Historic and/or Prehistoric Component forms, following OAHP guidelines, with accompanying sketch maps and photographs. Completed forms are submitted to OAHP to ensure that Douglas County's historic or prehistoric data is included in the Colorado OAHP state-wide database of cultural resources.
Thank you in advance for your attention to the preservation and protection of Douglas County's cultural resources for future generations.
RESPONSE: *Noted.*

DOUGLAS COUNTY - ENGINEERING

Al Peterson-Sr. Development Review Engineer

1. Thank you for denoting the 70' ROW dedication for Bayou Gulch Road to come with the Final Plat.
   RESPONSE: *Noted.*
2. Per the roadway cross section depicted on the cover sheet, a set of private alternate road standards will be required at the time of Final Plat.
   RESPONSE: *Noted.*
3. Please delineate the roadway centerline with all distances, bearings, radii and cul-de-sac radii to verify the minimum road standards have been met.
   RESPONSE: *Centerlines have been labeled with all distances, bearings, radii. Cul-de-sac radii have also been labeled. Please note that this site plan proposes an Entry Street connection to the Arterial (Bayou Gulch Rd). Per the code, access to an arterial is only allowed via a collector or arterial street. The Entry Street configuration is proposed to allow for a private gated access with required turn-around.*
4. Please note the relative road grades to verify the minimum and maximum grades have not been exceeded.
   RESPONSE: *Road grades added to the Grading Plan.*
5. Please revise all drainage easements to a minimum width of 25'
   RESPONSE: *Drainage easements are now 25' wide.*

DOUGLAS COUNTY - TRAFFIC ENGINEERING

Chris Martin

Review comments:

Access

The project now has a single point of access onto Bayou Gulch Rd forming the west leg of the Bayou Gulch Rd/Presidio Pkwy in the short term. Per the site plan shown in Figure 2, a future secondary public access is proposed to connect to the property to the west. Note, to my knowledge, there has not been a roadway network planned for this adjacent property that would justify the construction of this road connection. Is there a known plan for the property to the west?
RESPONSE: *The secondary access for the property to the west has been removed.*

The cross-section of the access at Bayou Gulch Rd is shown to be 26 ft FL to FL. It is likely that this cross-section will need to be wider to accommodate turning movements into the site and to operate properly with the laneage existing on the east leg of the Presidio Pkwy / Bayou Gulch Rd intersection.
RESPONSE: *Comment noted - the site plan will be updated as appropriate..*

Land-Use
The site is currently proposed to included 32 SF DU's (compared to the 130 SF DU's contemplated in the 2021 study done for the map change process). This results in a significantly lower trip generation.
RESPONSE: *Noted.*

Traffic Growth
The long term traffic growth projections for future traffic scenarios shown in Figures 5 & 9 and used in the 2045 background and total condition capacity analysis (Synchro Reports) are inconsistent with the projections found for Bayou Gulch Rd in other traffic studies in the area. For example; In Figure 9 - Total Traffic, the volume shown on Bayou Gulch Rd south of Presidio Pkwy is below 5,500 ADT. The 2023 Leman Academy TIS (LSC #221210) shows 21,700 ADT for the same location in the 2043 horizon (Figure 9a – 2043 Total Traffic). The future scenarios need to be reanalyzed to provide a realistic representation of traffic along Bayou Gulch Rd.
RESPONSE: *The 2045 projections were updated to be consistent with the 2023 Leman Academy TIA by LSC..*
On page 2, for the 2045 Background Traffic the study indicates that half buildout of the of the Leman Academy is assumed. This is likely a typo, since full-buildout of Leman Academy should be assumed for this horizon.
RESPONSE: *Leman Academy is assumed to be fully built out by 2045 – the report narrative has been updated.*
Per Figure 9 (2045), there is no change in the volume on the site's connection to Bayou Gulch Rd compared to the volume shown in Figure 8 (2028). The study should indicate what is expected to change, volume wise, with the future roadway connection to the property to the west.
RESPONSE: *The secondary access for the property to the west has been removed.*

DOUGLAS COUNTY - HEALTH DEPARTMENT
Caden Thompson-Environmental Health Specialist

Fugitive Dust - Developments of 25 acres and more than 6 months in duration
Exposure to air pollution is associated with a number of health problems including asthma, lung cancer, and heart disease. The Colorado Department of Public Health and Environment Air Pollution Control Division (APCD) regulates air emissions, including fugitive dust from developments of 25 acres or more that last at least 6 months. The applicant shall contact the APCD, at (303) 692-3100 for more information. Additional information is available at https://cdphe.colorado.gov/apens-and-air-permits.
RESPONSE: *The applicant acknowledges that exposure to air pollution can result in adverse health effects and that the Colorado Department of Public Health and Environment's Air Pollution Control Division (APCD) regulates air emissions, including fugitive dust, for developments exceeding 25 acres or lasting more than six months. The contractor will implement standard best management practices (BMPs) during construction to minimize dust generation and air quality impacts. Should the project scope change or exceed the APCD threshold, the applicant will contact the APCD at (303) 692-3100 for further guidance and permitting requirements.*

Noise – Loud Use
Regular exposure to elevated sound levels can have a negative impact on both physical and mental health by increasing the risk of stress, hearing impairment, hypertension, ischemic heart disease, and sleep disturbance. Colorado's noise abatement statute (CRS 25-12-103) sets maximum permissible noise levels for various land uses at different time periods. Noises that exceed these levels are considered to be a public nuisance. Noise levels from commercial uses are considered a public nuisance if they exceed 60 db(A) beyond 25 feet of the property boundary during the day (7 a.m.-7 p.m.). At night (7 p.m.-7 a.m.), the nuisance level is 55 db(A).
RESPONSE: *Understood.*

DOUGLAS COUNTY - ADDRESSING

Caitlin Zeiler-Planning & Addressing Specialist

Douglas County Addressing has completed review of the Bloom Preliminary Plan and has the following comments:

- Four streets must be named.
  RESPONSE: *Three streets have been given names that are Revival Place, Revival Avenue, and Renewal Point. The access easement at the northwest corner of the site has been removed.*
- One street name may be used twice with different suffixes.
  RESPONSE: *Noted. We have used Revival and Renewal throughout the plans with different suffixes.*

Please propose street names to use on the final plat. Submit proposed street names to Douglas County for evaluation. Pre-check street names online before submitting to Douglas County using the Street Names dataset available on the DougCo Hub. Please review all guidelines in the Douglas County Addressing and Street Naming Manual.
RESPONSE: *Noted. We have used the name "Revival" for two separate streets with different suffixes.*

Street alignments as shown on the Bloom Preliminary Plan have been evaluated. Per the Addressing and Street Naming Manual, street alignments determine the suffix. The same street name may be used up to three times, with a unique suffix, where the streets are connected.
RESPONSE: *Noted.*

DOUGLAS COUNTY - WATER COMMISSION MEMBER REFERRAL COMMENTS

DJ Beckwith, Lauren Pulver, Kati Carter, Chris Pratt

The Douglas County Water Commission (Commission) met on July 28, 2025 and provided comment on SB2025-017 – Bloom Preliminary Plan (Project). There was no consensus comment from the Commission, only individual comments were provided. All other members had no comment. The following is a summary of comments from each Commission member that provided comments on the Project. This Project was pulled from the agenda for discussion by Commission Member Don Langley.

Don Langley: Member Langley commented on an error in the "Will Serve Letter" from Parker Water, which showed a presumptive demand of 0.7-acre feet per single family equivalent taps (SFE) instead of the current 1.1-acre feet per SFE. A corrected letter has been sent to the developer.
RESPONSE: *Thank you.*

Clark Hammelman: Member Hammelman commented that the Project is a good example of a mid-size development working with existing water providers for service, allowing the development to be wrapped into long term planning of the water provider.

RESPONSE: *Thank you.*

DOUGLAS COUNTY SCHOOL DISTRICT

Shavon Caldwell-Planning Manager

On behalf of Douglas County School District, we have a couple comments regarding this application. DCSD has calculated the amount of school site land dedication required for students generated by the proposal. A total of 32 students are expected from the development requiring a total land dedication requirement of 0.753-acres. Since this amount of land dedication is smaller than DCSD's minimum site requirements and the applicant has stated in their submitted project narrative that no land will be dedicated, DCSD would request cash-in-lieu of land.

RESPONSE: *Noted. Cash in Lieu will be provided at Time of Final Plat.*

Pursuant to Section 1004.05.3 of the Douglas County Subdivision Resolution, "The cash-in-lieu fee shall be equivalent to the full market value of the acreage required for school land dedication. Value shall be based on anticipated market value after completion of platting. The applicant shall submit a proposal for the cash-in-lieu fee and supply the information necessary for the Board to evaluate the adequacy of the proposal. This information shall include at least one appraisal of the property by a qualified appraiser."

RESPONSE: *Noted. Cash in Lieu will be provided at Time of Final Plat once the property has been appraised.*

DOUGLAS COUNTY - CONSERVATION DISTRICT

Heather Kelly, District Manager

The Douglas County Conservation District provides development responses for Douglas County in accordance with Senate Bill 35. District comments are made on the suitability of soils for the proposed land uses, floodwater management, and watershed protection. In addition, the District submits advisory comments regarding rural water supply issues, agricultural land use conversion, and endangered species protection if the development plan affects those issues.

The District appreciates the compact development pattern noted in the Narrative that leaves more open space for wildlife corridors to preserve the moderate wildlife value in place for generations (Douglas County Map 9-1). In addition, the plan to minimize the removal of native vegetation and to work with the natural landscape is appreciated for this same reason.

RESPONSE: *Noted.*

It is important to note that 12 neighbors from the surrounding neighborhood attended the Regular Monthly Meeting of the Board of Supervisors on July 28. The neighbors voiced their concern about the following:

1. Ephemeral drainage from SB2025-017 into downstream properties
2. Alteration of historical stormwater flows towards bordering properties.
3. Wildlife impacts and loss of wildlife corridors

RESPONSE: *Noted.*

According to U.S.D.A. Natural Resources Conservation Service (NRCS) soils survey (enclosed Pages 19-21), the Fondis-Kutch association and Newlin gravelly sandy loam located at the development site are somewhat to very limited for dwellings with and without basements, and small commercial buildings due to flooding, and roads due to shrink-swell soil properties, slope, and depth to hard bedrock. Due to the limitations of the above soils on the site, alternatives to mitigate the limitations of the soil will be required in your engineering design or construction techniques.

RESPONSE: *Noted.*

Topsoil should be stripped to a depth of 6 inches, and all stockpiles should have side slopes no steeper than 3:1 and seeded. All disturbed areas should be seeded and mulched with weed free hay mulch at 4,000 lbs. /acre. Recommended seeding dates for Colorado are November 1 to May 1, when the soil is not frozen. Grasses should be seeded when soil moisture and temperature are optimum for germination, unless a dormant planting is desired. Grass seed should be drilled at a depth of ¼ to ½ inch deep and if broadcasted, double the seeding rate.
For more information on grass seed selections and seeding rates, please contact the Douglas County Conservation District.
RESPONSE: *Noted.*
The District recommends that disturbed land be mulched or revegetated within 45 days of disturbance.
RESPONSE: *Noted.*
The District recommends using a phased grading approach. By limiting the area being graded to 15 acres or less and seeding with native grasses, the land area disturbed is minimized. The development site is 80 acres.
RESPONSE: *Noted. A phased grading approach will be evaluated as design progresses. Because this is planned to be a custom home community with larger lots, over lot grading is not anticipated and will aid in minimizing disturbance to the natural landscape.*
There is no Integrated Noxious Weed Control plan. An integrated weed management program needs to be proposed by the Applicant, and reviewed and approved by the Douglas County Weed Inspector and/or Weed Advisory board, the County Extension Agent, NRCS, or a qualified weed management professional prior to the land use authority approval.
RESPONSE: *A Weed Management Plan has been included in the submittal.*
Vehicle tracking control stations need to be installed and maintained at all entrance and exit points on the site. The station should consist of a pad of 3 to 6-inch rock or a vehicle control pad/mat to strip mud from tires prior to vehicles leaving the construction site to prevent the spreading of noxious weeds.
RESPONSE: *Noted.*
The channels of many of the major streams are not stable and undergo substantial shifts in alignment during flood events. Upstream development increases the magnitude and frequency of local flooding. Floods that exceed the computed 100-year storm do regularly occur. The District does not support development proposals that are located in or near drainages or development that disturbs wetlands.
RESPONSE: *Noted.*
Silt fences or other forms of erosion barriers need to be planned, installed, and maintained as a temporary sediment control device used on construction sites to protect water quality.
RESPONSE: *Noted.*
The District strongly recommends that Low Impact Development (LID) techniques be implemented for economic and conservation benefits.
RESPONSE: *Noted.*

DOUGLAS COUNTY PARKS AND TRAILS

Applicant will be responsible for meeting the park land dedication standards outline in Article 10 of the Douglas County Subdivision Resolution.
RESPONSE: *Noted.*

CORE ELECTRIC COOPERATIVE

CORE Electric Cooperative may require additional easements for private road crossing at electric design. CORE approves the preliminary plan.
RESPONSE: *Noted.*

COLORADO PARKS AND WILDLIFE

Matt Martinez-Area Wildlife Manager
Katie Doyle-District Wildlife Manager

Habitat

The main impacts to wildlife from this development would be fragmentation and loss of habitat. Although it is impossible to eliminate fragmentation and habitat loss with any development, impacts to wildlife can be minimized through the use of clustering configurations, density reduction, and providing open space for wildlife.

Fragmentation of wildlife habitat has been shown to impede the movement of wildlife across the landscape. Open space areas are more beneficial to wildlife if they connect to other nearby natural areas. The areas of wildlife habitat that most closely border human development show heavier impacts than do areas on the interior of the open space. However, when open space areas are smaller in size, the overall impacts of the fragmentation is greater (Odell and Knight, 2001). Thus, CPW recommends that the developer and Douglas County employ a collaborative approach with neighboring cities and towns and with other developments within the county to maintain wildlife habitat in as whole a state as possible. By keeping open space areas contiguous and of larger size, the overall benefit to wildlife increases dramatically.

RESPONSE: *Noted.*

Fencing

Fencing inhibits wildlife movement and can contribute to habitat fragmentation. If it is necessary for the development and alternate options are not sufficient, consider fence placement and designs that provide safe crossing options for wildlife. CPW has created a "Fencing with Wildlife in Mind" booklet which provides recommendations for wildlife-friendly fencing and specifications for many common fences. This can be downloaded from our website at http://cpw.state.co.us/Documents/LandWater/PrivateLandPrograms/FencingWithWildlifeInM ind.pdf.

RESPONSE: *Noted, thank you for the "Fencing with Wildlife in Mind" booklet.*

Trails

When planning trails in the development area, special consideration should be given to the impact trails have on wildlife within the area. Trails should not cut through riparian areas and should remain at least 50 feet from them. They should also be placed at the edges of open space areas and should be no wider than 8 feet throughout their entire length. Trails have the ability to contribute to fragmentation of habitat, disrupting the natural movement of wildlife through an area, and the spreading of noxious weeds.

RESPONSE: *Noted, the trails will be further refined through the entitlement process.*

Noxious Weeds

Noxious weeds should be monitored very closely. The spread and control of noxious weeds on and around this site is a concern for wildlife. Invasive plants endanger the ecosystem by disturbing natural processes and jeopardizing the survival of native plants and the wildlife that depend on them. CPW would recommend the implementation of a weed management plan that may already exist within Douglas County.

RESPONSE: *Noted, a weed management plan has been included.*

Wildlife

CPW would expect a variety of wildlife species to utilize this site regularly, most notably small to mid-sized mammals, song birds, and raptors, but also with the possibility for big game species (elk, deer, bear, and mountain lion), reptiles, and amphibians to be present.

RESPONSE: *Noted, a wildlife analysis letter has been included.*

Raptors

Raptors and migratory birds are protected from take, harassment, and nest disruption at both the state and federal levels. If any active nest is discovered within the development area, CPW recommends that buffer zones around the nest site be implemented during any period of activity that may interfere with the nesting season. This will prevent the intentional or unintentional destruction of an active nest.

For further information on this topic, a copy of the document "Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors," is available from your local District Wildlife Manager. Following the recommendations outlined in this document will decrease the likelihood of unintentional take through disturbance.
RESPONSE: *Noted.*

Prairie Dogs and Burrowing Owls

If a prairie dog colony is discovered within the project area, the potential may also exist for the presence of burrowing owls. Burrowing owls live on flat, treeless land with short vegetation, and nest underground in burrows dug by prairie dogs, badgers, and foxes. Burrowing owls are classified as a state-threatened species and are protected by both state and federal laws, including the Migratory Bird Treaty Act. These laws prohibit the killing of burrowing owls or the disturbance of their nests. Therefore, if any earth-moving will begin between March 15th and August 31st, a burrowing owl survey should be performed. Guidelines for performing a burrowing owl survey can be obtained from your local District Wildlife Manager.

If prairie dog colonies are active, CPW recommends humane euthanasia of live animals before any earth-moving occurs. The possibility of donating carcasses to a raptor rehabilitation facility or the black-footed ferret recovery program may also exist. If interested, please contact the local District Wildlife Manager for more information and any required permits or forms. Please note that a permit from CPW and approval from the Douglas County Board of Commissioners will likely be required for any live relocation of prairie dogs to another site.
RESPONSE: *Noted.*

Living with Wildlife

Future residents should be informed that wildlife, such as foxes, coyotes, deer, elk, and even bears or mountain lions, frequently visit the development area in search of food and cover. Coyotes, foxes, cottontail rabbits, and raccoons are several species that have adapted well to living in urban environments. This proposed site within Douglas County will also have the presence of bears that have been accustomed to living in close proximity to humans. This should be considered when deciding distances to residential areas. Bears, as well as other wildlife, should not be a concern for residents if the following CPW recommendations are met: People moving into and residing in this area take the proper precautions to prevent unnecessary conflicts with wildlife through the use of pet leash laws, protection of their pets and hobby livestock when not under direct supervision, and reducing attractants on their property.

Homeowners can do their part by not inviting wildlife into their yards. Due to the potential for human-wildlife conflicts associated with this project, please consider the following recommendations when educating future homeowners about the existence of wildlife in the area:

- Pet foods and bowls should be kept indoors.
- Garbage should be kept in secure containers to minimize its attractiveness to wildlife. Trash should be placed in containers with tight seals and remain indoors until shortly before pickup.
- Feeding of wildlife, with the exception of birds, is illegal.
- "Living with Wildlife" pamphlets are available through CPW offices.

For further information, Colorado Parks and Wildlife can provide copies of the following brochures: "Your Guide to Avoiding Human-Coyote Conflicts," "Don't Feed the Wildlife," "Living with Bears," and "Too Close for Comfort: Avoid Conflicts with Wildlife in the City" to residents of the surrounding open space. These brochures can also be downloaded from our website at http://cpw.state.co.us/learn/Pages/LivingwithWildlife.aspx.
RESPONSE: *Noted.*

COLORADO DIVISION OF WATER RESOURCES
Ioana Comaniciu-Water Resources Engineer
Mike Matz - Engineer

Water Supply Demand
No water supply demands were included with the application documents. However, a will-serve letter dated February 5, 2025 indicates that the Parker Water & Sanitation District ("District") will provide water to the subdivision at a standard amount of 0.7 acre-feet per year per single-family equivalent ("SFE") tap. For planning purposes, the District estimates 32 SFEs will be required to serve the 32 residential lots, and approximately 10 SFEs will be required for landscape irrigation inside the subdivision. The total demands for the 42 total SFEs within the subdivision are estimated to be 29.4 acre-feet per year.
RESPONSE: *Noted. See attached updated Will Serve letter.*

Source of Water Supply
The proposed source of water supply is the Parker Water & Sanitation District ("District"). According to the will-serve letter included with the application documents, the District **"acknowledges its willingness and ability to serve the "Bloom Development" upon successful completion of inclusion."**

The will-serve letter indicates that the District will provide sanitary sewer service for all water taps requested for the Bloom development through an Intergovernmental Agreement with the Pinery Water & Wastewater District.

In a previous comment letter responding to the subdivision rezoning plan (ZR2016- 013) dated July 21, 2016, our office noted that ***"a condition of inclusion into the District is that the developer deeds all water rights available to the property to the District. According to our records the ground water underlying the 81.07 acre parcel in the Laramie-Fox Hills, Arapahoe, Denver, Lower Dawson and Upper Dawson aquifers was adjudicated in Division 1 Water Court case no. 2007CW56"***. Based on the additional information provided on August 7, 2025, the Applicant has clarified that the groundwater underlying the 81 +/- acres subject to this referral located in the SW ¼ of Sec. 9, Twp. 7S, Rng. 66W will be deeded to the District and not the groundwater underlying 8996 Motsenbocker Road, Parker Colorado, 80134 (located in Sections 27 and 28 of Twp. 6S, Rng. 66W). According to the Applicant, the mention of the parcel at 8996 Motsenbocker Road in the previous referral documents was made in error.

According to the February 5, 2025 will-serve letter, the District has 25,223.50 acre- feet per year of adjudicated nontributary water rights and 5,487.1 acre-feet per year of not nontributary water rights, of which only a portion is currently covered under court approved augmentation plans. The District also has storage and reuse rights, which can provide additional water supplies. As the date of the letter, the District's current demand is approximately 7,700 acre-feet per year, while at buildout, it is estimated that the total water demand will be 23,500 acre-feet per year. Based on this information, the District has sufficient water available to serve this development.

The majority of the District's water supply is water from bedrock aquifers in the Denver Basin. The State Engineer's Office does not have evidence regarding the length of time for which this source will be a physically and economically viable source of water. According to section 37-90-137(4)(b)(I), C.R.S., "Permits issued pursuant to this subsection (4) shall allow withdrawals on the basis of an aquifer life of one hundred years." Based on this allocation approach, the

annual amounts of undecreed water is equal to one percent of the total amount, as determined by rules 8.A and 8.B of the Statewide Nontributary Ground Water Rules, 2 CCR 402-7. Therefore, the water may be withdrawn in those annual amounts for a maximum of 100 years.

A review of our records indicates that well permit no. 138031 is located on the subject property. Well permit no. 138031 was issued on November 23, 1984 pursuant to CRS 37-92-602(3)(b)(II) as the only well on a tract of land of 40 acres, described as the SW ¼ of the SW ¼ of Sec. 9, Twp. 7S, Rng 66W, 6th P.M. for ordinary household purposes inside one single family dwelling, fire protection, the watering of poultry, domestic animals, and livestock on farms and ranches, and the irrigation of not over one acre of home gardens and lawns. Well permit no. 138031 was issued for the not nontributary Upper Dawson aquifer.

Section 37-92-602(3)(b)(III) C.R.S., requires that the cumulative effect of all wells in a subdivision be considered when evaluating material injury to decreed water rights.
Therefore, well no. 138031 must be included in an augmentation plan, or must be plugged and abandoned prior to the subdivision approval since the provisions of section 37-92-602 which allowed for issuance of the well permits will no longer apply. According to the additional information provided on August 7, 2025, the Applicant has indicated that well permit no. 138031 will be plugged and abandoned.
***RESPONSE**: The Owner and Owner's consultants are working with the Parker Water and Sanitation District and the County to satisfy this comment, and anticipate plugging and abandoning the well once included in the District.*

Additional Comments
The application materials indicate that a stormwater detention structure will be constructed as a part of this project. The applicant should be aware that unless the structure can meet the requirements of a "storm water detention and infiltration facility" as defined in section 37-92-602(8), C.R.S., the structure may be subject to administration by this office. The applicant should review DWR's Administrative Statement Regarding the Management of Storm Water Detention Facilities and Post- Wildland Fire Facilities in Colorado to ensure that the notification, construction and operation of the proposed structure meets statutory and administrative requirements. The Applicant is encouraged to use the Colorado Stormwater Detention and Infiltration Facility Notification Portal to meet the notification requirements.

State Engineer's Office Opinion
Based upon the above and pursuant to section 30-28-136(1)(h)(I) and section 30-28- 136(1)(h)(II), C.R.S., it is our opinion that the proposed water supply is adequate and can be provided without causing injury to decreed water rights, **on the condition that well no. 138031 is plugged and abandoned. The Applicant is required to submit a Well Abandonment Report (eform) for well no. 138031 to affirm the well was plugged and abandoned.**

Our opinion that the water supply is **adequate** is based on our determination that the amount of water required annually to serve the subdivision is currently physically available, based on current estimated aquifer conditions.

Our opinion that the water supply **can be provided without causing injury** is based on our determination that the amount of water that is legally available on an annual basis, according to the statutory **allocation** approach, for the proposed uses is greater than the annual amount of water required to supply existing water commitments and the demands of the proposed subdivision.

Our opinion is qualified by the following:
The Division 1 Water Court has retained jurisdiction over the final amount of water available pursuant to the above-referenced decree, pending actual geophysical data from the aquifer.
The amounts of water in the Denver Basin aquifer, and identified in this letter, are calculated based on estimated current aquifer conditions. The source of water is from a non-renewable aquifer, the allocations of

which are based on a 100-year aquifer life. The county should be aware that the economic life of a water supply based on wells in a given Denver Basin aquifer may be less than the 100 years used for allocation due to anticipated water level declines. We recommend that the county determine whether it is appropriate to require development of renewable water resources for this subdivision to provide for a long-term water supply.
RESPONSE: *Noted.*

SOUTH METRO FIRE RESCUE
Aaron Miller

South Metro Fire Rescue (SMFR) has reviewed the provided documents and has no objection to the proposed preliminary plan.
RESPONSE: *Noted.*
Note that the preliminary utility plan provided does not show fire hydrants in acceptable locations. Designers shall coordinate fire flow requirements and hydrant placement with SMFR prior to developing utility plans for construction and plan approval. Applicants and Contractors are encouraged to contact SMFR regarding the applicable fire code and permit requirements for the proposed project.
RESPONSE: *Noted - Final hydrant locations will be coordinated with development of the utility plans, however, have been adjusted with this most recent submittal to better reflect more appropriate locations.*

AT&T REFERRAL - CLEARWATER CONSULTING GROUP, INC.
Ann Branowski

This is in response to your eReferral with a utility map showing any buried AT&T Long Line Fiber Optics near Bayou Gulch Rd Parker, Colorado. The Earth map shows the project area in red and the buried AT&T Long Line Fiber Optics in yellow. Based on the address and/or map you provided, there should be NO conflicts with the AT&T Long Line facilities.
RESPONSE: *Noted.*

XCEL ENERGY
Violeta Ciocanu (Chokanu)

Public Service Company of Colorado's (PSCo) Right of Way and Permits Referral Desk has reviewed the plan for the above-mentioned project. For these single-family residential lots, Public Service Company requests that the following language or plat note is placed on the preliminary and final plats for the subdivision:

> *The utility easements are dedicated to the County of Douglas for the benefit of the applicable utility providers for the installation, maintenance, and replacement of electric, gas, television, cable, and telecommunications facilities (Dry Utilities). Utility easements shall also be granted within any access easements and private streets in the subdivision. Permanent structures, improvements, objects, buildings, wells, water meters and other objects that may interfere with the utility facilities or use thereof (Interfering Objects) shall not be permitted within said utility easements and the utility providers, as grantees, may remove any Interfering Objects at no cost to such grantees, including, without limitation, vegetation. Public Service Company of Colorado (PSCo) and its successors reserve the right to require additional easements and to require the property owner to grant PSCo an easement on its standard form.*

RESPONSE: *Noted.*

The property owner/developer/contractor must complete the application process for any new natural gas service via xcelenergy.com/InstallAndConnect. It is then the responsibility of the developer to contact the Xcel Designer assigned to the project for approval of design details.
RESPONSE: *Understood.*
Additional easements may need to be acquired by separate document. The Designer must contact the appropriate Right-of-Way Agent.
RESPONSE: *Understood.*
As a safety precaution, PSCo would like to remind the developer to contact Colorado 811 for utility locates prior to construction.
RESPONSE: *Understood.*

RESPEC

Alan J. Leak, P.E.

FINDINGS AND CONCLUSIONS

Douglas County Zoning Resolution Section 1803A provides the required approval standards to be used to determine if the application meets the provisions of Section 18A. The summary of our review and findings are as follows:

1803A.01 - THE APPLICANT HAS DEMONSTRATED THAT THE WATER RIGHTS CAN BE USED FOR THE PROPOSED USE(S).
The will-serve letter from PWSD demonstrates that the water rights owned by PWSD can be used for the proposed use since the PWSD service area already includes significant residential development and it is feasible to include the Bloom development into the PWSD service area.
RESPONSE: *Noted.*

1803A.02 - THE RELIABILITY OF A RENEWABLE WATER RIGHT HAS BEEN ANALYZED AND IS DEEMED SUFFICIENT BY THE COUNTY BASED ON ITS PRIORITY DATE WITH THE COLORADO SYSTEM OF WATER RIGHTS ADMINISTRATION.
The PWSD has been determined to be an Established District pursuant to Section 1811A.10 and thus the water supply meets the requirements of this standard.
RESPONSE: *Noted.*

1803A.03 - THE WATER PLAN IS DEEMED ADEQUATE AND FEASIBLE BY THE COUNTY TO ENSURE THAT WATER SUPPLY SHORTAGES WILL NOT OCCUR DUE TO VARIATIONS IN THE HYDROLOGIC CYCLE.
The PWSD has been determined to be an Established District pursuant to Section 1811A.10 and thus the water supply meets the requirements of this standard.
RESPONSE: *Noted.*

1803A.04 - THE WATER PLAN IS SUFFICIENT TO MEET THE DEMAND APPLICABLE TO THE PROJECTBASED ON THEMINIMUMWATERDEMAND STANDARDS IN SECTION 1805AHEREIN.
The will-serve letter provided the total demand for the Bloom development based on the PWSD Rules and Regulations. The water supply table attached to the will-serve letter provides sufficient information to conclude that the PWSD can meet the water demand for the Bloom development.
RESPONSE: *Noted.*

Douglas County Zoning Resolution Section 1806A provides the required documentation standards to be used to determine if the application meets the provisions of Section 18A. Section 1806A.02.2 is the required standard since this application is for a District entity and is a preliminary plan. The summary of our review and findings are as follows:
RESPONSE: *Noted.*

1806A.02.2(1) A LETTER FROM THE DISTRICT REFERENCING THE SUBDIVISION NAME (AS SUBMITTED TO THE COUNTY)
The application included a will-serve letter from PWSD which in included (a) the District's commitment to serve the subdivision, (b) that the commitment is irrevocable or the conditions under which the commitment may be revoked, (c) that the property that is the subject of the application has been included in the District or is served by contract, (d) the estimated demand of the subdivision based on the water demand standards as established in Section 1805A, and (e) the amount of water that can be supplied to the subdivision pursuant to deeded water, contracts, and/or IGAs, and (g) the feasibility of extending service to the development. However, the will-serve letter did not include (f) the proposed uses, the allowed uses of the District's water rights, and that the proposed uses correspond to the allowed uses of the District's water rights.
RESPONSE: *Noted.*

1806A.02.2(2) A WATER SUPPLY REPORT FROM THE DISTRICT
The application in this case did not include a separate water supply report from the District. However, the will-serve letter from PWSD included a section discussing the District's water demand and supply. It also contained a summary table of the District's water rights. These sections of the will-serve letter, along with the summary table, provided the required information typically found in a water supply report and demonstrated that the District's water supply portfolio is sufficient to serve the Bloom development.
RESPONSE: *Noted.*

1806A.02.2(3) EVIDENCE CONCERNING THE POTABILITY OF THE PROPOSED WATER SUPPLY FOR THE SUBDIVISION
Attached to the will-serve letter was evidence about the potability of the water provided by the PWSD.
RESPONSE: *Noted.*

1806A.02.2(4) PROOF THAT THE WATER RIGHTS IN ALL DENVER BASIN AQUIFERS HAVE BEEN RESERVED IN PERPETUITY, FOR THE BENEFIT OF FUTURE LANDOWNERS WITHIN THE PROPOSED DEVELOPMENT, PURSUANT TO A DECLARATION OF RESTRICTIVE COVENANTS IN A FORM PRESCRIBED BY THE COUNTY
The application did not include proof that the water rights in Denver Basin aquifers from PWSD have been reserved in perpetuity, for the benefit of future landowners within the proposed development, pursuant to a declaration of restrictive covenants in a form prescribed by the County.
RESPONSE: *Once Bloom is included in the District, it will have a dedicated water bank in perpetuity. Until the project is approved and the water rights are formally dedicated, the rights will remain in a reservation status. Alan from Respect will coordinate with Mike Pesika to confirm the appropriate form of restrictive covenants acceptable to the County, separate from this letter, consistent with our November 19, 2025 meeting with Respect and Parker Water and Sanitation District. Currently, the landowner is reviewing the covenants and may revise or sign them; however, they will not be executed unless the property is approved, in order to preserve the associated water rights*

1806A.02.2(5) WHEN SERVICE IS PROPOSED THROUGH AN INTERGOVERNMENTAL AGREEMENT (IGA), THE APPLICANT SHALL PROVIDE EVIDENCE THAT THE IGA HAS BEEN EXECUTED BY BOTH PARTIES.
Service for this application needs an updated IGA between the Pinery Water and Wastewater District and the Parker Water Sanitation District. However, there was no evidence that the updated IGA has been executed by both parties.
RESPONSE: *The Intergovernmental Agreement will not be executed until the property is formally included in the District. Parker Water and Sanitation District will revise the letter to decouple the Will-Serve commitments from the Pinery, as service will not be directly provided by the Pinery. PWSD will provide sanitary service directly and will bill the Pinery for any associated charges as needed.*

1806A.02.2(1) A LETTER FROM THE DISTRICT REFERENCING THE SUBDIVISION NAME (AS SUBMITTED TO THE COUNTY)
However, the will-serve letter did not include (f) the proposed uses, the allowed uses of the District's water rights, and that the proposed uses correspond to the allowed uses of the District's water rights.
RESPONSE: *The District's water rights are part of the decreed water use outlined in the Parker Water and Sanitation letter, and Parker Water and Sanitation District will revise the letter accordingly to the best of their ability.*

WILDFIRE MITIGATION

The project area was assessed for wildfire, the project proposal appears to be over lot graded, fuels are light, native grasses will remain in the open space tracts. Wildfire mitigation recommends incorporating perimeter mowing (strip) and mowing (strip) against the private property boundaries on a minimum bi-annual basis to address wildfire in grass fuels concerns. Staff recommends these management actions be incorporated into an open space management plan. Additional guidance on strip size can be provided at the time of Final Plat or when the management plan is developed.
RESPONSE: *Noted.*

PARKER WATER & SANITATION DISTRICT

Please note this project has not currently been included into the Parker Water & Sanitation service area.
We will not provide Water or Sanitary service to a property that is not in our service area.
RESPONSE: *Noted.*

CENTURY LINK – QWEST CORPORATION

Qwest Corporation, Inc. d/b/a CENTURYLINK ("CenturyLink") has reviewed the request for the subject encroachment and has determined that it has no objections with respect to the areas proposed for encroachment as shown and/or described on Exhibit "A", said Exhibit "A" attached hereto and incorporated by this reference. It is the intent and understanding of CenturyLink that this Encroachment shall not reduce our rights to any other existing easement or rights we have on this site or in the area.
This encroachment response is submitted WITH THE STIPULATION that if CenturyLink facilities are found and/or damaged within the areas as described, the Applicant will bear the cost of relocation and repair of said facilities.
RESPONSE: *Noted.*

CHERRY CREEK BASIN WATER QUALITY AUTHORITY

The Cherry Creek Basin Water Quality Authority (Authority) acknowledges notification from Douglas County that the proposed development plans for SB2025-017, Bloom Preliminary Plan have been or will be reviewed by Douglas County for compliance with the applicable Regulation 72 construction and post-construction requirements. Based on the authority's current policy, the Authority will no longer routinely conduct a technical review and instead the Authority will defer to Douglas County's review and ultimate determination that the proposed development plans comply with Regulation 72. If a technical review of the proposed development is needed, please contact LandUseReferral@ccbwqa.org . The review may include consultation with the Authority's Technical Manager to address specific questions or to conduct a more detailed Land Use Review, if warranted.
RESPONSE: *Noted.*

COLORADO GEOLOGICAL SURVEY

The proposed Bloom Preliminary Plan site (39.4511, -104.7889) contains only isolated areas of slopes steeper than 20%, and no geologic hazards or unusual geotechnical constraints are known or suspected to be present that would preclude the proposed residential use and density. CTL|Thompson's Due Diligence Preliminary Geotechnical Investigation, Bayou Gulch Road & Presidio Parkway Parcel (May 20, 2022) contains a valid characterization of subsurface conditions based on the results of six borings, and makes appropriate preliminary geotechnical recommendations. Provided CTL's recommendations are rigorously adhered to, the Colorado Geological Survey has no objection to approval of the preliminary plan as proposed.
RESPONSE: *Noted.*

OFFICE OF EMERGENCY MANAGEMENT

It is imperative that the applicant follow through with plans to construct a secondary access / emergency access easement road. This will help facilitate rapid evacuation of the entire community in an emergency.
RESPONSE: *It is our understanding that DC Planning will route the updated submittal materials and responses to comments to the Office of Emergency Management for review. In addition, our team will coordinate with Public Works for further clarification. Due to the minimum access spacing requirement of one-quarter mile along Bayou Gulch, providing a secondary access point along this roadway is extremely challenging.*

Per Douglas County Standards and Specifications, Chapter 4.3.1, a cul-de-sac may serve up to 40 dwelling units for safter emergency circulation. The proposed site plan does not provide a secondary access given the plan is under the required amount of units. The proposed layout provides a loop road that includes 32 dwelling units and utilizes a looping roadway, which provides better circulation and more reliable fire/emergency access than a traditional cul-de-sac. To address this concern, a split median has been incorporated into the design to improve circulation during emergency conditions. We will continue to evaluate this option so emergency responder safety is not compromised.

Thank you for your comments.

Sincerely,

Paul Shoukas
Vice President

From:	Blythe Sinclair
To:	Michael Pesicka
Subject:	We don't need more homes - Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date:	Thursday, July 31, 2025 5:57:57 PM

Dear Mr. Pesicka,

I hope this letter finds you well. I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan SB2025-017.
Location Description: SW1/4SW1/4 9-7-66 40.00 AM/L 189-445 & SE1/4SW1/4 9-7-66 40 AM/L.
We vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds.

Kindly,

Blythe

Sent from my iPhone

From: indraja reddy
To: Michael Pesicka
Cc: Vamsi Reddy
Subject: Re: Objection to the Proposed Bloom Subdivision (SB2025-017)
Date: Tuesday, August 5, 2025 9:14:58 AM

Thanks Michael,

We had to wait for 2years before approvals were given to our home construction in 2021 (Allison Ranch) from when we signed the contract.
We signed the house when interest rates were 3 % and we saw everything go to 7% when the home was finally handed over to us. Now because of economy we are seeing the prices drop on our already over priced homes.
We urge Douglous county to reconsider giving approvals for construction as inadvertently, you are forcing prices down and this could lead to a crash in prices and effect the economy inadvertently.

Not to mention another issue we are seeing with rattle snakes in our neighborhood. Literally everyday our Facebook group is abuzz with rattle snakes encounters because of the massive construction happening everywhere that is displacing the natural habitat. I am afraid by approving construction in the 83 acres we are again going to cause havoc to the ecosystem and we will have to pay the price again. I think this is what happened in Austin, Texas, where resident live in fear of snakes every time they enter their homes, because the Texas Officials gave blind approvals causing the crisis, I hope that Colorado is better than Texas in this and every other regard.

Thanks,
Indraja Reddy

On Mon, Jul 28, 2025 at 4:16 PM Michael Pesicka <mpesicka@douglas.co.us> wrote:

> Indraja,
>
> Thank you for your correspondence regarding the proposed Bloom Preliminary Plan, Project File No. SB2025-017. Your comments will be included in the public record and will be provided to the Planning Commission and Board of County Commissioners as part of their consideration of the Preliminary Plan request. Public hearings have not been scheduled at this time. Additional information and documents can be found on the www.douglas.co.us/pro home page and performing a Project Search for the Project File Number provided above. Your response will also be provided to the applicant.
>
> The property in question is zoned Estate Residential (ER), please reference the attached zoning map. You can find more information about the ER zone district in Section 6 of the Douglas County Zoning Resolution.

Sincerely,

Mike Pesicka | Principal Planner

Douglas County Department of Community Development

Address | 100 Third St., Castle Rock, CO 80104
Direct | 303-814-4367 **Main** | 303-660-7460

Email | mpesicka@douglas.co.us

From: indraja reddy <indraja10@gmail.com>
Sent: Sunday, July 27, 2025 6:36 PM
To: Michael Pesicka <mpesicka@douglas.co.us>
Cc: Vamsi Reddy <vamsigrt@gmail.com>
Subject: Objection to the Proposed Bloom Subdivision (SB2025-017)

Dear Douglas County Planning Officials,

I am writing as a concerned resident of the Cielo Metro District in Parker, Colorado, regarding the proposed Bloom Subdivision (SB2025-017) located in Section 9, Township 7 South, Range 66 West, as outlined in the preliminary planning map.

This proposed development would significantly alter the natural and rural character of the area. The land currently serves as open space where cattle peacefully graze, providing not only ecological balance but also a serene, pastoral buffer between the dense housing of Trails at Crowfoot, Cielo, and Pradera.

I urge the County to consider the following concerns before approving any new development in this area:

1. Loss of Agricultural Land and Open Space:

   This land has long supported livestock and contributes to the peaceful rural aesthetic of our region. Introducing 32 residential lots and related infrastructure would permanently eliminate this valuable open space and disrupt the existing balance between developed and agricultural land.

2. Traffic and Infrastructure Impact:

   Bayou Gulch Road and Presidio Parkway already experience increased traffic from recent developments. The proposed subdivision would only add further strain without meaningful road upgrades or transit alternatives. It feels like never ending construction since the past 3years and with the approval of this it would only add to it. We are afraid this is taking away from charm of living in Parker.

3. Wildlife and Environmental Concerns:

   The area serves as a habitat for local wildlife and is a critical part of our shared ecosystem. New construction threatens to displace wildlife and increase runoff into neighboring communities.

4. Community Identity and Quality of Life:

   Residents of Cielo and neighboring subdivisions chose to live here for the natural surroundings and relative seclusion. Large new developments will irreparably change the community character we value so deeply.

I respectfully ask the Planning Commission to deny approval for the Bloom Subdivision in its current form. Please consider preserving the natural character of this land for the enjoyment and ecological benefit of current and future residents.

We love Parker and have been residents here since the past 3 years, but all this new construction is going to severally throw the balance off.

I humbly request to reconsider your position on this.

Thanks,

Indraja Reddy

From: Sarah Sanniola
To: Michael Pesicka
Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date: Wednesday, August 6, 2025 2:31:08 AM

Dear Mr. Pesicka,

I hope this letter finds you well. I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan (SB2025-017).

We strongly oppose this subdivision for the following reason: The land in question serves as the last remaining migration route for a resident herd of over 100 elk that live in Parker. Any development in this area would significantly disrupt the herd's ability to migrate to their essential winter feeding grounds.

Sincerely,
Sanniola Family

Sent from Sarah Sanniola's iPhone

From:	Sean McMullen
To:	Michael Pesicka
Subject:	Opposition to Bloom Preliminary Plan SB2025-017 – Critical Wildlife Corridor and Ecological Concerns
Date:	Wednesday, September 24, 2025 10:30:28 AM

Dear Mr. Pesicka,

I hope this message finds you well. My name is Sean McMullen, and I am currently pursuing a Master's degree in Wildlife Biology. I am writing to formally and unequivocally oppose the proposed Bloom Subdivision Preliminary Plan (SB2025-017).

As someone dedicated to the conservation of wildlife and the preservation of ecological integrity, I am deeply concerned by the potentially irreversible consequences this development would pose—not only to the resident elk population in the Parker area, but to the broader environmental health of the region.

Loss of Critical Wildlife Corridor

The land designated for the Bloom Subdivision constitutes the **last remaining migration corridor** for a resident elk herd of over 100 individuals. This corridor is essential for their seasonal movement to winter foraging grounds. Fragmenting or removing this habitat would severely disrupt migratory patterns, increase vehicle-wildlife collisions, and reduce the herd's long-term viability.

Importantly, it is not just elk that utilize this corridor. Numerous other species—such as mule deer, foxes, coyotes, birds of prey, and various small mammals—depend on this undeveloped stretch for **foraging, shelter, breeding, and movement** between habitats. The proposed development would result in widespread **habitat fragmentation**, a leading driver of biodiversity loss.

Water Use and Long-Term Sustainability

Equally troubling is the question of water sustainability. As Colorado continues to experience prolonged drought and diminishing snowpack, water is becoming an increasingly scarce and contested resource. Adding a large-scale subdivision will only **intensify the strain** on already over-allocated water supplies.

The development would likely require increased groundwater extraction or surface water diversions—both of which come at significant ecological cost, particularly to **riparian systems** that are essential for both wildlife and native vegetation.

Ecological Footprint and Irreversibility

The cumulative ecological footprint of this project is incompatible with responsible land stewardship. The loss of open space, increased human-wildlife conflict, rising impermeable surface area, and expanded infrastructure all contribute to **environmental degradation** that cannot easily be undone.

Given the significance of this land as a **multi-species habitat corridor**, the increasing

urgency of water conservation in the West, and the growing importance of sustainable land-use planning, I urge you to **reject the Bloom Preliminary Plan SB2025-017** in its current form.

As a student and future professional in the field of wildlife conservation, I am deeply invested in protecting the integrity of ecosystems like this one—not just for the benefit of wildlife, but for the health and sustainability of our communities as well. I urge you to think beyond the short-term gain in your pockets by approving this development, considering the long-term impact this loss of land will have on future generations.

Sincerely,
Sean McMullen
M.S. Candidate, Wildlife Biology
Colorado State University
Warner College of Natural Resources

From:	Kaushik Kannan
To:	Michael Pesicka
Subject:	Proposed build (SB2025-017): Public comment
Date:	Friday, July 25, 2025 4:41:06 PM

Hello,

My wife and I live in Allison Ranch nearby. We just moved yesterday. One of our favorite aspects of living here is the walk we took down Bayou Gulch to look at the cows and the hills.

We are devastated to hear about this proposal for a new luxury housing community. If we fill every plot of a available land with houses then the community loses it's charm. Please reconsider this proposal.

There's so much open land in Douglas county that we shouldn't need to fill every single open plot with housing communities.

I hope that the public opinion and community is valued over making as much money as possible. One of the things that makes Parker so great is their commitment to open spaces and was one of the reasons we even moved here.

Vote NO on this proposed development

Thank you

Best,
Kaushik Kannan and Abiraami Sivaramakrishnan
from 6345 Las Conchas Pt Parker, CO 80134

From: Abigail Peabody
To: Michael Pesicka
Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 11:08:05 AM

Dear Mr. Pesicka,

I hope this letter finds you well. I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

We vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds.

There is enough development in the area. Please let these people go find somewhere else to build that doesn't further impact this beautiful herd!

Sincerely,

Abby Peabody

From: Alejandra Cano
To: Michael Pesicka
Subject: Formal and Unwavering opposition to Bloom preliminary plan
Date: Tuesday, July 29, 2025 9:47:19 AM

Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017

I hope this letter finds you well. I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

We vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds.

Thanks in advance for your help!

Alex Cano
Parker resident
720-560-2187

From:	X O
To:	Michael Pesicka
Subject:	Concern Regarding Proposed Development on Green Space with 32 new luxury homes (Bloom) Near Our Homes-near to trails at crowfoot and Pradera.
Date:	Sunday, July 27, 2025 11:28:22 AM

Dear Douglas County Planning Department,

I hope this message finds you well. I'm writing on behalf of our family and neighbors regarding the proposed development of luxury homes on the green patch of land located directly in front of our homes, near to Pradera , Allison Ranch and trails at crowfoot (80134).

This small stretch of open space means a great deal to us. It's not just a piece of land — it's a peaceful haven that offers relief from the increasingly crowded and fast-paced environment we experience elsewhere. It's a space where wildlife such as deer and even cows occasionally graze, and we genuinely enjoy and value this rare connection to nature right outside our front doors.

Developing this area would not only take away a much-loved and appreciated piece of greenery, but it would also negatively impact the local environment. The presence of wildlife would likely diminish, and the ecological balance of the area could be disrupted. The added traffic and density would change the peaceful, semi-rural atmosphere we've grown to cherish.

We kindly ask that you take these concerns into consideration and explore alternatives that would preserve this green space for both current residents and local wildlife.

We deeply appreciate your attention to this matter and hope that community voices will play a role in shaping the future of our neighborhood.

Thank you for your time and understanding.

Sincerely,

Alina Husain

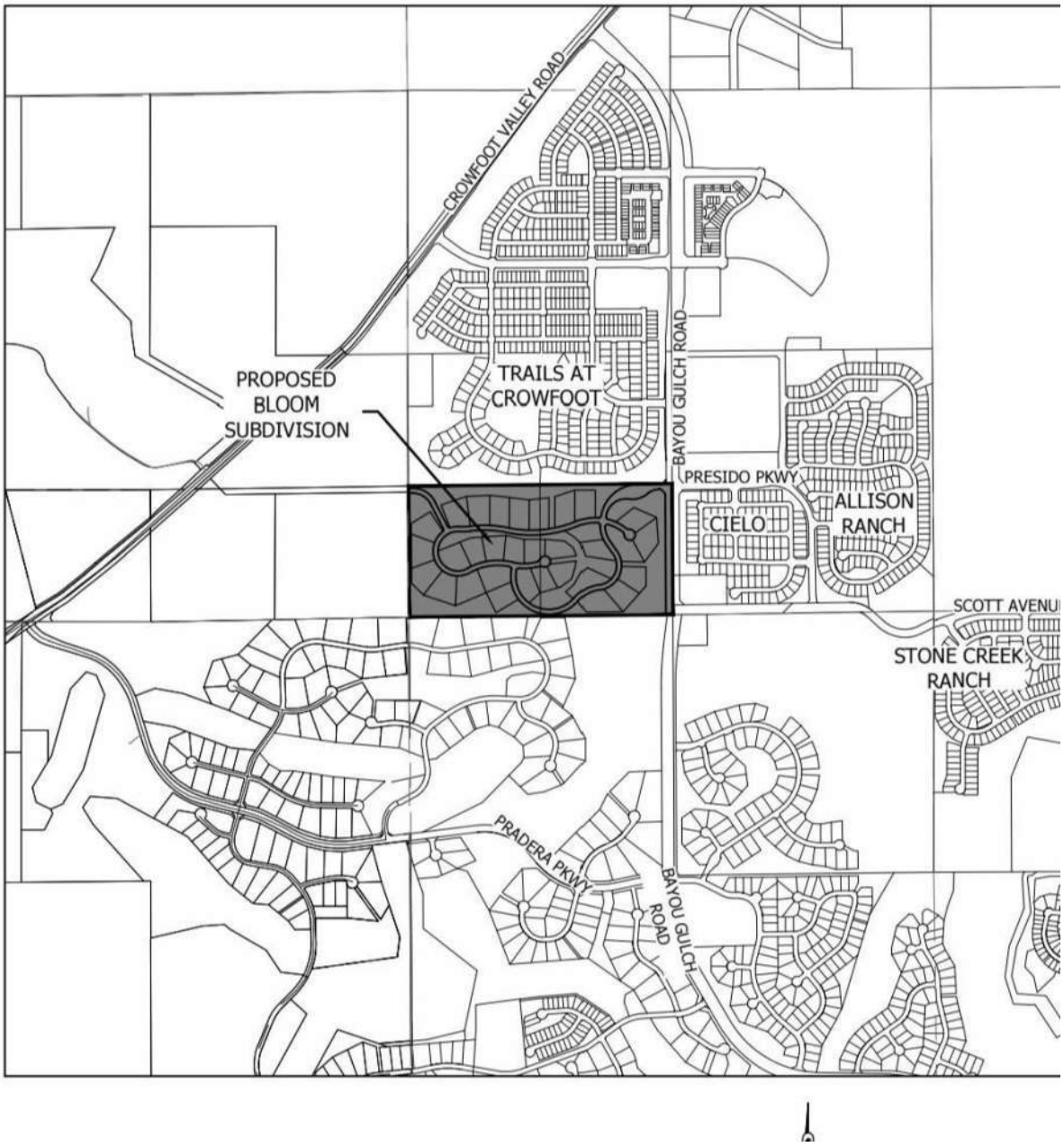
5531, loma vista drive, 80134, Parker, Colorado

Contact no:- 7202923365

Email address:- alinahusain87@gmail.com

BLOOM PRELIMINARY PLAN

:D IN SECTION 9, TOWNSHIP 7 SOUTH, RANGE 66 WEST OF THE 6
PRINCIPAL MERIDIAN
COUNTY OF DOUGLAS, STATE OF COLORADO
81.07 ACRES, 32 RESIDENTIAL LOTS, 3 TRACTS, SB2025-017



July 24, 2025

Dear Douglas County Planning Commission,

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment, infrastructure, and quality of life.

For many reasons which will be discussed at all future commission meetings, I urge the planning commission to **deny approval** of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.

Sincerely,

From: Kate Varozza
To: Michael Pesicka
Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 11:19:58 AM

Dear Mr. Pesicka,

I hope this letter finds you well. I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

We vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds.

Thank you for your time and all that you do for our county,
Ally Varozza

From: Alyson Lorenzo
To: Michael Pesicka
Subject: Bloom Plan Objection - please enter into public record
Date: Tuesday, July 29, 2025 5:17:59 PM

Dear Douglas County Planning Commission,

I am writing to formally **object** to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment and infrastructure, and quality of life.

For many reasons, which will be discussed at all future commission meetings, I urge the Planning Commission to deny approval of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents that you serve.

Sincerely,
Alyson Lorenzo German

From: Amanda Mervine Edwards
To: Michael Pesicka
Subject: Opposition to SB2025-017
Date: Tuesday, July 29, 2025 12:10:20 PM

Dear Mr. Pesicka,
I hope this email finds you well.

I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017. I am a resident of Parker and have seen firsthand the devastation caused by development on land necessary for the local flora and fauna most recently adjacent to my home just behind the PACE center.

I vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds. With subdivisions approved and in builds across the town already, SOME regard MUST be made for this specific area and its protection.

Please and thank you for your consideration,
Amanda

Sent from my iPhone. Please excuse any spelling or grammatical errors.

7/27/25

Mark and Amelia Buckley
5023 Raintree Dr.
Parker, CO 80134
Buckley.amy1@gmail.com
858-449-2942

Mike Pesicka
Douglas County Planning Services
100 Third Street
Castle Rock, CO 80104

Subject: Opposition to Bloom Preliminary Plan SB2025-017

Dear Mr. Pesicka,

It has come to our attention that open space just north of the community of Pradera is being considered again for residential development. I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan SB2025-017. Location Description: SW1/4SW1/4 9-7-66 40.00 AM/L 189-445 & SE1/4SW1/4 9-7-66 40 AM/ L.

We vehemently oppose the proposed subdivision because of the following reasons:

1. Preservation of Agricultural Land: As adjacent landowners whose property shares a boundary with the proposed subdivision, we are deeply concerned about the proposed zoning of the land for Estate Residential (ER) use. It is imperative to maintain the agricultural zoning to preserve local farming practices and the ecological balance of the area. Any deviation from this designation is not only detrimental but also potentially illegal under current zoning laws.

2. Environmental Concerns: The conversion of agricultural land to residential use poses significant and potentially irreversible environmental risks, including disruption to local ecosystems, increased strain on local resources, and a host of other ecological consequences.

3. Community Impact: The proposed development will have a profoundly adverse effect on the character and quality of life in the surrounding community. It will likely lead to increased traffic, loss of green space, and other community-related issues that are unacceptable and against the public interest.
We hereby formally request that the proposed Bloom Subdivision Preliminary Plan SB2025-017 be denied in its current form. We urge the Planning Services to take immediate action to prevent this unlawful and environmentally harmful development. Should this proposal

be approved, we reserve the right to pursue all legal recourses available to us to protect our community and the environment but we hope that it will not come down to that option.

Thank you for your consideration regarding this matter. We look forward to your prompt action and understanding of our serious concerns.

Sincerely,

Mark and Amelia Buckley

Andrea Lassen

10359 Bristleridge Court, Parker, CO 80134

andrea.m.lassen@gmail.com
(720) 234-6835

7/27/2025

Mike Pesicka

Douglas County Planning Services
100 Third Street
Castle Rock, CO 80104

Subject: Formal Opposition to Bloom Preliminary Plan SB2025-017

Dear Mr. Pesicka,

I hope this letter finds you well. I am writing to formally express our opposition to the proposed Bloom Subdivision Preliminary Plan SB2025-017.

The location description is as follows: SW1/4SW1/4 9-7-66 40.00 AM/L 189-445 & SE1/4SW1/4 9-7-66 40 AM/L.

We strongly oppose the proposed subdivision for the following reasons:

- **Preservation of Agricultural Land**: The land in question is currently zoned for agricultural use, and maintaining its agricultural zoning is crucial for the preservation of local ranching practices and the ecological balance of the area.

- **Environmental Concerns**: The conversion of agricultural land to residential use poses significant environmental risks, including potential disruption to local ecosystems and increased strain on local resources.

- **Community Impact**: The proposed development could adversely affect the character and quality of life in the surrounding community, potentially leading to increased traffic, loss of green space, and other community-related issues.

We respectfully request that the proposed Bloom Subdivision Preliminary Plan SB2025-017 not be approved as submitted. We urge the Planning Services to consider the long-term benefits of keeping the land as Agricultural, in line with its current zoning and the best interests of the community.

Thank you for your attention to this matter. We look forward to your understanding and consideration of our concerns.

Sincerely,

Andrea Lassen

From:	walterannette@comcast.net
To:	Michael Pesicka
Subject:	Please Deny Approval of Bloom - Project Number SB2025-017
Date:	Tuesday, July 29, 2025 3:29:59 AM

July 29, 2025

Dear Douglas County Planning Commission – Mike Pesicka,

As residents of the Trails at Crowfoot community and direct neighbors to the proposed Bloom Preliminary Plan (Project File SB2025-017), my husband Don Walter and I formally object to its approval.

We purchased our home approximately four years ago, specifically valuing its location adjacent to this property. The absence of information regarding a potential change in use for this site significantly affects the understanding of the area's planned development. This large-scale proposal raises serious concerns regarding its long-term impact on the environment, the strain it will place on local infrastructure, and the irreversible alteration of the community's quality of life and character.

For this and many other reasons which will be discussed at all future commission meetings, **we urge the planning commission to please deny approval of this current proposal**.

We respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.

Sincerely,

Thank you,
Annette M. Walter
14413 Shasta Daisy Lane
Parker, CO 80134
Email: walterannette@comcast.net
Cell: 408-431-6545

From: Beatriz Sutton
To: Michael Pesicka
Subject: Strong Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 12:36:36 PM

Dear Mr. Pesicka,

I hope you're doing well. I'm writing to formally express my firm opposition to the Bloom Subdivision Preliminary Plan (SB2025-017).

This proposal raises serious concerns for me—most importantly, the impact it would have on the local elk population. This area represents the final remaining migration corridor for a resident herd of over 100 elk in Parker. Any development here would significantly disrupt their ability to reach essential winter feeding grounds.

Respectfully,
Beatriz Sutton

10907 Clifford Ct, Parker, CO 80134

From: bill hogan
To: Michael Pesicka; Emily Kropf
Subject: Project number SB2025-017
Date: Monday, July 28, 2025 6:48:49 PM

Hello, my name is William Hogan and I respectfully ask that you deny this development project.

Thank you

Bill Hogan

From: blizzard06 (null)
To: Michael Pesicka
Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 10:56:08 AM

Dear Mr. Pesicka,

I hope this letter finds you well. I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

We vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds.

Sincerely,

Brendan Plourde

From: Brenden Pyke
To: Michael Pesicka
Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 12:13:43 PM

Dear Mr. Pesicka,
I hope this letter finds you well.
I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.
I am 100% against and oppose the proposed subdivision for the following reasons:
This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker.
Any development will hinder the herds ability to migrate to their winter feeding grounds, and would become more vulnerable to predation.
Please reconsider the development in this subdivision as it can and ultimately will cause great harm to our elk and other wildlife.
Thank you.

From: Yvette Portz
To: Michael Pesicka
Cc: Brian Portz
Subject: Objection to Bloom Preliminary Plan - project file SB2025-017
Date: Monday, July 28, 2025 8:31:26 PM

Hello Mr. Pesicka,

I am emailing our strong opposition to the plan housing development in the Trails at Crowfoot neighborhood, specifically project SB2025-.017 proposed by Bloom. Our opposition is due to the concern for overpopulation of an area which is expanding too quickly with limited infrastructure and resources. Water and soil erosion are already a major concern for those who have lived in this neighborhood for over 2 years. Roads and streets are already congested during the workweek and would only be increasingly so at this time but also would increase the congestion during the weekend with so many additional homes.

The area already has home builders increasing the number of homes in Looking Glass, Macanta,Allison Ranch, and Tantara. New home developments are not needed nor are they desired in an area with so many other still building.

We would appreciate your consideration of this official objection to the Bloom Plan, Project file SB2025-017. Let this stand and be recorded in the official public record in opposition to Bloom Preliminary Plan, Project SB2025-017.

Thank you for your continued public service,

Sincerely,

Brian and Yvette Portz, residents of 17070 Hop Clover Ave, Parker CO 80134

From: Brian Matsumoto
To: Michael Pesicka
Subject: Objection to Bloom Preliminary Plan - project file SB2025-017
Date: Sunday, July 27, 2025 10:39:42 PM

To the Douglas County Planning Commissioners: July 27, 2025
Attention: Mr. Mike Pesicka
I am writing to express my strong opposition to the proposed housing development near our Trails at Crowfoot neighborhood. While I understand the need for additional housing in our city, I believe that this project would have a detrimental impact on our community.

First and foremost, the proposed development is simply too large for our area. The increase in population density is already putting a strain on our already overburdened infrastructure, leading to increased traffic congestion, noise pollution, and strain on our public services. Additionally, the construction of this project would result in significant environmental damage, destroying our natural habitats and the reputation of the Crowfoot Valley Road as the quiet “hidden gem” (neighborhood) of Parker.

Finally, I am deeply concerned about the impact this development would have on the diminishing open space and quality of life we experience. I just cannot imagine how crowded it will be like once all the additional housing along Hess Road up to the Canyon’s development in Castle Pines and along Chambers Road at Mainstreet nears completion!
While I recognize the need for additional housing, I believe that this particular project and builder is simply not the right fit for our neighborhood. The original plan included more than 120 homes in the same area. What is to say that this proposed current plan for 32 homes doesn’t grow to be much larger in scope ! Let this letter stand and be recorded in official public record in opposition to the Bloom Preliminary Plan project File SB2025-017, which is now under review.

Sincerely,
Brian Matsumoto, resident, 17004 Hop Clover Avenue, Parker, Colorado 80134

From:	Brianne Lammers
To:	Michael Pesicka
Subject:	Formal Opposition to Bloom Preliminary Plan SB2025-017
Date:	Sunday, July 27, 2025 11:29:34 AM

Dear Mr. Pesicka-

I am writing to formally express our opposition to the proposed Bloom Subdivision Preliminary Plan SB2025-017.

The location description is as follows: SW1/4SW1/4 9-7-66 40.00 AM/L 189-445 & SE1/4SW1/4 9-7-66 40 AM/L.

I strongly oppose the proposed subdivision for the following reason:
1. Preservation of Agricultural Land: the land in question is currently zoned for agricultural use, and maintaining its agricultural zoning is crucial for the preservation of local ranching practices and the ecological balance of the area.
2. Environmental Concerns: the conversion of the agricultural land to residential use poses significant environmental risks, including potential disruption to local ecosystems and increased strain on local resources.
3. Community Impact: the proposed development could adversely affect the character and quality of life in the surrounding community, potentially leading to increased traffic and pedestrian safety concerns, loss of green space, and other community quality of life-related issues.

I respectfully request that the proposed Bloom Subdivision Preliminary Plan SB2025-017 not be approved. I urge the planning services to consider the long-term benefits of keeping the land zoned as agricultural, in line with the best interest of the community.

Thank you for your attention to this matter. I look forward to your understanding and consideration of Douglas County residents and active voter concerns.

Sincerely,

Brianne Valverde

From:	millettbrittany@icloud.com
To:	Michael Pesicka
Subject:	Elk migration
Date:	Tuesday, July 29, 2025 11:37:58 AM

I hope this letter finds you well. I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.
We vehemently oppose the proposed
subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds. I live in Pradera and every year my kids love to watch the elk come through, I would hate to have that not happen. These animals need a place to live too!

From:	Rocio Lores
To:	Michael Pesicka
Subject:	Formal Opposition to Bloom Preliminary Plan SB2025-017
Date:	Saturday, July 26, 2025 1:07:10 PM

Bruno Meli Jr.
17406 Rose Mallow Av.
Parker CO. 80134
bm2907@columbia.edu
(858)344-0815
July 26, 2025

Mike Pesicka
Douglas County Planning Services
100 Third Street
Castle Rock, CO 80104

Dear Mr. Pesicka,
Subject: Formal Opposition to Bloom Preliminary Plan SB2025-017

I hope this letter finds you well. I am writing to formally express our opposition to the proposed Bloom Subdivision Preliminary Plan SB2025-017.
1. The location description is as follows: SW1/4SW1/4 9-7-66 40.00 AM/L 189-445 & SE1/4SW1/4 9-7-66 40 AM/L.
We strongly oppose the proposed subdivision for the following reasons:
1. Preservation of Agricultural Land: The land in question is currently zoned for agricultural use, and maintaining its agricultural zoning is crucial for the preservation of local ranching practices and the ecological balance of the area.
2. Environmental Concerns: The conversion of agricultural land to residential use poses significant environmental risks, including potential disruption to local ecosystems and increased strain on local resources.
3. Community Impact: The proposed development could adversely affect the character and quality of life in the surrounding community, potentially leading to increased traffic, loss of green space, and other community-related issues.
We respectfully request that the proposed Bloom Subdivision Preliminary Plan SB2025-017 not be approved as submitted. We urge the Planning Services to consider the long-term benefits of
keeping the land as Agricultural, in line with its current zoning and the best interests of the community.
Thank you for your attention to this matter. We look forward to your understanding and consideration of our concerns.

Sincerely,

Bruno Meli Jr.

17406 Rose Mallow Av
Parker, CO 80134
bm2907@columbia.edu

From: Carrie Classick
To: Michael Pesicka
Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 3:56:11 PM

Dear Mr. Pesicka,

I hope this letter finds you well. I am writing to formally and unequivocally express my strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

I vehemently oppose the proposed subdivision as this land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds.

Thank you,
Carrie
--
Carrie Classick Johnson
carrie.classick@gmail.com
303.475.5508

From: Carrie Glassburn
To: Michael Pesicka
Subject: Formal opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 1:53:48 PM

Mr. Pesicka,

I am writing to formally request that you reconsider the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

This land is the last remaining migration route for the elk herd that lives in the area. The property all around this area has already been taken away from them, and just yesterday I witnessed several scared and confused elk running around in a panic, crossing back and forth across Hess road, trying to get around the bulldozers that were working on the latest development. Any additional development will destroy their ability to migrate to their winter feeding grounds.

I implore you to consider the dwindling number of native animals that are running out of space to live before you approve this project.

Thank you,
Carrie Glassburn

From:	Chandler Gibbons
To:	Michael Pesicka
Cc:	Shuhei Sugiura
Subject:	Objection to Bloom Preliminary Plan - Project File SB2025-017
Date:	Monday, July 28, 2025 5:42:30 PM

To the Douglas County Planning Commissioners
Attention: Mr. Mike Pesicka

We are writing to express our strong opposition to the proposed Bloom housing development in Parker near the Trails at Crowfoot neighborhood. We understand the need for additional housing in the Town of Parker, but we believe this project would have a detrimental effect on our community.

First of all, the proposed development is too large for our area. Adding another development in the proposed area will put a strain on our public infrastructure (including road access) and result in significant environmental damage.

Second, we have concerns about this specific project and builder. The original plan included more than 120 homes, which was scaled down to 32. We and many of our neighbors are concerned that, if approved, the project could grow to be significantly larger in scope and have an even more destructive effect on the community, our open space, and the wildlife in the area.

Please let this letter stand and be recorded in official public record in opposition to the Bloom Preliminary Plan project file SB2025-017, which is now under review.

Sincerely,
Chandler Gibbons and Shuhei Sugiura
16977 Birds Foot Trail
Parker, CO 80134

Andrew and Susan Davis
14460 Hop Clover Trail
Parker, CO 80134
chaos.suz@gmail.com
720-877-1135

26 July 2025

Mike Pesicka
Douglas County Planning Services
100 Third Street
Castle Rock, CO 80104

Dear Mr. Pesicka,

Subject: Formal Opposition to Bloom Preliminary Plan SB2025-017

First off, I wanted to to personally thank you for the work you do for Douglas County. Douglas County has become a place near and dear to our hearts.

I would like to formally express my strong opposition and safety concern for the Bloom Subdivision SB2025-017.

We strongly oppose the proposed subdivision for the following reasons:

1. **SAFETY of our children:** We have lived in the Trails at Crowfoot Subdivision since 2021, well before the Allison Ranch neighborhood was completed and Bayou Gulch was opened to connect down through Pradera. Our home backs to the South and we have an unobstructed view of the new Bayou Gulch Road as well as the proposed location of the Bloom Subdivision. In the short time since Bayou Gulch has been connected through to Pradera my wife and I have witnessed 3 car crashes in the vicinity of the Scott Rd and Bayou Gulch intersection, all requiring an ambulance on site. Many children in the Trails at Crowfoot neighborhood attend the Leman Academy Bayou Gulch campus on the East side of bayou Gulch. When the weather is nice, many parents walk their children to school at Leman, requiring them to cross Bayou Gulch. My family, for one, has been nearly hit several time by vehicles traveling well above the speed limit on Bayou Gulch. The Bloom neighborhood will exacerbate the current safety problem by adding more vehicle volume serviced by Bayou Gulch. Douglas County is a place where the safety of our children should be the #1 priority. Please do not sacrifice the safety of our children by approving the Bloom subdivision.
2. **Community Impact:** The proposed development could adversely affect the character and quality of life in the surrounding community, potentially leading to increased traffic, loss of green space, and other community-related issues. Additionally, the dust, dirt and construction trash from the development will severely detract from what residents of Douglas County live here for….clean air and open spaces.

It is mainly in the interest of **SAFETY** that We respectfully request that the proposed Bloom Subdivision Preliminary Plan SB2025-017 not be approved as submitted. We urge the Planning Services to consider the long-term benefits ofnkeeping the land as Agricultural, in line with its current zoning and the best interests of then. community.
Thank you for your attention to this matter ad thank you for what you do for our community. We look forward to your understanding and consideration of our concerns.

Respectfully,

Andy and Susan Davis

From: Charli W
To: Michael Pesicka
Subject: Bloom Preliminary Plan (Project File SB2025-017)
Date: Tuesday, July 29, 2025 1:52:04 PM

July 29th, 2025

To the Douglas County Planning Commission,

I write to oppose the Bloom Preliminary Plan (Project File SB2025-17). This development poses serious risk to our environment, our already strained infrastructure, and the peaceful character of our neighborhoods. We must prioritize the long-term health and sustainability of our community.

I respectfully request that this objection be officially recorded and that you deny approval of the proposal as it currently stands. I hope the Commision will stand with the residents who love and care for this place.

Thank you for listening to our voices.

Sincerely,
Charli Wolenetz

From: Chris Gates
To: Michael Pesicka
Subject: Bloom: Proposed Development
Date: Friday, July 25, 2025 5:01:57 PM

Good evening, my name is Chris Gates, and I live on Loma Vista Dr in Parker. I strongly oppose the proposed development at [location]. This project threatens the character of our community, strains local infrastructure, and will negatively impact traffic, safety, and the natural environment. It would also obstruct the open views that make our neighborhood unique and livable. I urge you to prioritize responsible growth that respects the existing community.

Please reject this proposal.

From: Chrisstie Beumel
To: Michael Pesicka
Subject: Concerned Douglas County Citizen
Date: Tuesday, July 29, 2025 2:02:38 PM

Dear Mr. Pesicka, 7.29.2025

As a longtime concerned Douglas county citizen, I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017. We, vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds. These herds have been traveling these routes since time immemorial.

Douglas County has monies in place for conservation and planned open space for exactly this reason! To disregard the last migration route through Douglas County into Parker for this Elk herd would be a travesty.

Sincerely,
Chrisstie Beumel

Chrisstie Beumel BSN RN OCN, ELNEC, BMT

c) 720.206.9186
e) chrisstiebeumel@yahoo.com

From: christy.ayres
To: Michael Pesicka
Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 11:00:22 AM

Dear Mr. Pesicka,

I hope this letter finds you well. I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

I vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds.

Please stop destroying the beauty of Douglas County!

Christy Ayres
10080 Boca Circle
Parker, CO

From: Cullen White
To: Michael Pesicka
Subject: Re: Bloom Preliminary Plan
Date: Sunday, July 27, 2025 4:59:08 PM

Dear Douglas County Planning Commission,

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment and infrastructure, and quality of life.

For many reasons, which will be discussed at all future commission meetings, I urge the planning commission to deny the approval of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.

Kind regards,

Cullen White

From: CINDI WATSON
To: Michael Pesicka
Subject: Bloom proposed new housing development
Date: Monday, July 28, 2025 11:12:21 AM

Dear Douglas County Planning Commission,
I am writing o formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment and infrastructure, and quality of life.
For many reason, which will be discussed at all future commission meetings, I urge the planning Commission to deny approval of the current proposal.
I respectfully request that this objection be entered in the public record.
Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.
Sincerely,
Cynthia Watson

From: Danielle Ross
To: Michael Pesicka
Subject: Formal Opposition to Bloom Subdivision Preliminary Plan (SB2025-017)
Date: Monday, July 28, 2025 11:21:30 AM

Dear Mr. Pesicka,

I am writing to formally express my strong opposition to the proposed Bloom Subdivision Preliminary Plan (SB2025-017). I urge you not to approve this development for the following reasons:

1. **Preservation of Agricultural Land**: The land in question is currently zoned for agricultural use. Preserving this zoning is essential to support local ranching practices and to maintain the ecological integrity of the area.

2. **Environmental Concerns**: Converting agricultural land to residential development carries significant environmental risks, including the disruption of local ecosystems and added strain on water and other natural resources.

3. **Impact on the Community**: The proposed subdivision threatens to alter the character of the surrounding community. It could lead to increased traffic, heightened pedestrian safety concerns, the loss of open green space, and an overall decline in residents' quality of life.

Given these concerns, I respectfully request that the Bloom Subdivision Preliminary Plan not be approved.

Thank you for your time and consideration.

Sincerely,

Danielle Ross
(303)229-7092

From: Darin Weiland
To: Michael Pesicka
Subject: SB2025-017
Date: Monday, July 28, 2025 5:35:19 PM

Dear Mr. Pesicka,
I am writing to urge you NOT to approve this development project. We purchased our lot at significant premium to enjoy this open space. It has been disappointing, to say the least, that developers will seemingly operate with impunity from the appeal of rural Douglas County with little to no regard for its current citizens. Please do not allow this to happen again in our neighborhood!
Sincerely,
Darin Weiland
14454 Hop Clover Trail
Sent from my iPhone

To: Douglas County Planning Commission,

Dear Mr. Pesicka,

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment, infrastructure, and quality of life.

For many reasons that will be addressed in the future commission meetings, I respectfully request that the planning commission decline approval of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.

Sincerely,

David Sloan

David Sloan
17251 Birds Foot Trail
Parker, CO 80134

RECEIVED
JUL 29 2025
Douglas County Planning

RECEIVED
JUL 29 2025
Douglas County Planning

To: Douglas County Planning Commission,

Dear Mr. Pesicka,

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment, infrastructure, and quality of life.

For many reasons that will be addressed in the future commission meetings, I respectfully request that the planning commission decline approval of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.

Sincerely,

Dawei Wei
Jiezhuang Zhou
17434 Birds foot Ave
Parker CO 80134

Doug Redman
5043 Raintree Circle
Parker CO 80134
Redmandoug1@gmail.com
3083809575

RECEIVED
JUL 29 2025
Douglas County Planning

July 24, 2025

Mike Pesicka
Douglas County Planning Services
100 Third Street
Castle Rock, CO 80104

Re: Opposition to Bloom Preliminary Plan SB2025-017

Dear Mr. Pesicka,

We are writing to formally express our opposition to the proposed Bloom Subdivision (**Preliminary Plan SB2025-017**), which includes the development of 32 residential lots and 3 tracts designated for drainage, open space, landscaping, and public access on approximately 81 acres of land currently zoned as Agricultural, as per Douglas County account records R0135626 and R0480779. The property is legally described as SW1/4SW1/4 9-7-66 40.00 AM/ L 189-445 and SE1/4SW1/4 9-7-66 40 AM/L.

We are directly adjacent landowners whose property shares a boundary with the subject parcels. Even though, we will be immediately and materially affected by the proposed development. We are concerned that the proposed subdivision will significantly alter the rural and agricultural character of the area. The current zoning reflects appropriate land use for this region, and we believe it should be maintained in order to preserve the environmental, aesthetic, and community values associated with agricultural land.

We respectfully request that the Bloom Preliminary Plan not be approved as submitted and that the land remain zoned and used for agricultural purposes.

Thank you for your time and consideration of our concerns.

Sincerely,
Doug Redman
Adjacent landowners Letter of Opposition



From: Douglas Bessette
To: Michael Pesicka
Subject: Bloom Preliminary Plan
Date: Friday, July 25, 2025 8:08:53 PM

Dear Douglas County Planning Commission,
I am writing to formally object to the proposed Bloom Preliminary Plan (Project SB2025-017), currently under review by Douglas County. As a resident of this community (Trails at Crowfoot), I am deeply concerned about the long-term impact this large-scale development will have on our environment, infrastructure, and quality of life. Open space is one of our most coveted wants and this project will take more of it.
Fo many reasons, which will be discussed at all future commission meetings, I urge the planning Commission to deny approval of the current proposal. I respectfully request that this objection be entered into the public record.
Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.
Sincerely,
Douglas Bessette

From: Drew Jordan
To: Michael Pesicka; governorpolis@state.co.us
Subject: Formal Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 2:25:42 PM

Dear Mr. Pesicka & Governor Polis,

I hope this letter finds you well.

I am writing to formally and unequivocally express my strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

I vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds.

Please do not encroach on the wildlife. Instead, protect their natural movement/existence here in Colorful Colorado.

Drew Jordan
Castle Rock, CO

Drew Jordan
drewjordan@ymail.com

From:	Edward Nichols
To:	Michael Pesicka
Cc:	Claudia Martinez-Nichols
Subject:	Formal Opposition to Bloom Preliminary Plan SB2025-017
Date:	Monday, July 28, 2025 8:06:16 AM

Dear Mr Pesicka,

I am writing to formally express my (and my wife's) opposition to the proposed Bloom subdivision preliminary plan SB2025-017.

The location description is as follows: SW1/4SW1/4 9-7-66 40.00 AM/L 189-445 & SE1/4SW1/9-7-40 AM/L.

I strongly oppose the proposed subdivision for the following reasons:

1) Preservation of Agriculture Land: The land in question is currently zoned for agriculture use, and maintaining its agriculture zoning is crucial for the preservation of local ranching practices and the ecological balance of the area.

2) Environmental Concerns: The conversation of agriculture land to residential use poses significant risks, including potential risks, including potential disruption to the local ecosystems and increase strain on local the resources.

3) Community Impact: The proposed development could adversely affect the character and quality of life in the surrounding community, potentially leading to increased traffic and pedestrian concerns, loss of green space and other community quality of life-related issues.

We respectfully request that the proposed Bloom Subdivision Preliminary Plan (SB2025-017) not be approved. We urge the Planning Services to consider the long-term benefits of keeping the land zoned as Agricultural, in line with the best interests of the community.

Thank you for your attention to this matter. We look forward to your understanding and consideration of Douglas County residents and active voter concerns.

Sincerely,
Edward Tharpe Nichols, Jr.
17525 Hop Clover Ave.
Parker, CO 80134

RECEIVED
JUL 30 2025
Douglas County Community Development

To: Douglas County Planning Commission,

Dear Mr. Pesicka,

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment, infrastructure, and quality of life.

For many reasons that will be addressed in the future commission meetings, I respectfully request that the planning commission decline approval of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.

Sincerely,

Elias and Helen Mercado

From: Emily Kropf
To: Michael Pesicka
Subject: Fwd: Project number SB2025-017
Date: Monday, July 28, 2025 7:11:45 PM

Hello, my name is Emily Hogan and I respectfully ask you to deny this development project, as well.

Thank you,
Emily Hogan

---------- Forwarded message ---------
From: **bill hogan** <hoganbill6@gmail.com>
Date: Mon, Jul 28, 2025 at 6:48 PM
Subject: Project number SB2025-017
To: <mpesicka@douglas.co.us>, Emily Kropf <emily.kropf@gmail.com>

Hello, my name is William Hogan and I respectfully ask that you deny this development project.

Thank you

Bill Hogan

From: Eric
To: Michael Pesicka
Subject: Bloom development adjacent to Trails at Crowfoot
Date: Wednesday, July 30, 2025 5:48:57 PM

Mike Pesicka
Douglas County Planning Services
100 Third Street
Castle Rock, CO 80104

Dear Mr. Pesicka,

I hope this finds you well. I am writing to formally express our opposition to the proposed Bloom Subdivision Preliminary Plan SB2025-017. Location Description: SW1/4SW1/4 9-7-66 40.00 AM/L 189-445 & SE1/4SW1/4 9-7-66 40 AM/L.

We are opposed to the proposed subdivision for the following reasons:

1. Preservation of Agricultural Land: There should be a balance of nature or agricultural and open space around neighborhoods. There is already plenty of development between Pradera and Trails at Crowfoot. Additionally there is the Tantera development going on currently. One of the great things about Parker is the amount of surrounding open land. Parker should not become another Thorton, full of suburban congestion and no character.

2. Environmental Concerns: The conversion of agricultural land to residential use poses significant and potentially irreversible environmental risks, including disruption to local ecosystems, increased strain on local resources, and a host of other ecological consequences.

3. Community Impact: The proposed development will have a profoundly adverse effect on the character and quality of life in the surrounding community. It will likely lead to increased traffic, loss of green space, and other community-related issues that are unacceptable and against the public interest. There are already new apartments going on
.
We hereby formally request that the proposed Bloom Subdivision Preliminary Plan SB2025-017 be denied in its current form. We urge the Planning Services to take immediate action to prevent this development as it will move Parker in the wrong direction.

Thank you for your immediate attention to this matter. We look forward to your prompt action and understanding of our serious concerns.

Regards,
Eric Schraeder
14431 Shasta Daisy Lane

From:	Erica Brennan
To:	Michael Pesicka
Subject:	Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date:	Tuesday, July 29, 2025 12:54:39 PM

Dear Mr. Pesicka,

I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

This land is the last remaining migration route for a resident herd of over 100 elk in Parker. Any development on this property would permanently block this corridor, preventing the herd from reaching its essential winter feeding grounds. Disrupting this natural pathway threatens the survival of this herd and irreversibly damages the ecological balance of the area.

In addition to the devastating impact on wildlife, this subdivision would:

- Destroy open space and natural habitats that cannot be restored once developed.
- Increase traffic congestion and heighten the risk of vehicle-wildlife collisions.
- Strain already burdened local infrastructure, schools, and emergency services.
- Erase the unique character and natural beauty that define Parker.

Once this land is developed, there is no turning back. Protecting the elk migration route is not just about wildlife—it is about preserving the character, beauty, and legacy of Parker for generations to come. We strongly urge you to deny this proposal.

Thank you for your time and thoughtful consideration of our concerns.

Sincerely,

Erica Brennan

From: Garrett Barton
To: Michael Pesicka
Subject: Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 2:27:57 PM

Dear Mr. Pesicka,

I hope this letter finds you well. I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.
We vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker.
Any development will hinder the herds ability to migrate to their winter feeding grounds.

Finest Regards,

Garrett V Barton

To: Douglas County Planning Commission,

Dear Mr. Pesicka,

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment, infrastructure, and quality of life.

For many reasons that will be addressed in the future commission meetings, I respectfully request that the planning commission decline approval of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.

Sincerely,

Greg V. Wanke

17315 Birds Foot Trl

Parker, Co.

80134

RECEIVED

JUL 29 2025

Douglas County Planning

From: Gina Kazakova
To: Michael Pesicka
Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 1:42:24 PM

Dear Mr. Pesicka,

I hope this letter finds you well. I am writing to formally and unequivocally express my strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

I vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds, which is a loss to beautiful nature of Parker and a reason why people want to move here. Please help preserve our natural resources in our community.

Thank you,
Gina Helms

Sent from Proton Mail for iOS

From: Pamela Seki
To: Michael Pesicka
Subject: Opposition to Bloom Re-Zoning
Date: Friday, July 25, 2025 11:17:48 AM

Mr. Pesicka:

We appreciate your attention to our letter expressing our adamant objection to the proposed Bloom Subdivision Preliminary Plan SB2025-017. The location description is as follows: SW1/4SW1/4 9-7-66 40.00 AM/L 189-445 & SE1/4SW1/4 9-7-66 40 AM/L. We are homeowners in the subdivision of Trails at Crowfoot and are extremely concerned that the above proposed change in zoning will adversely affect our and the surrounding communities. We chose our home's location in large part to the current zoning that we trusted would be intact in future years. There currently are multiple large subdivisions under construction in the surrounding areas (i..e. Looking Glass, Tanterra, southeast Hess & Motsenbocker Rds., Macanta) that have already negatively impacted the agricultural environment (loss of green space) ,significantly increased traffic and housing density.

Please consider the current developments and **continue to honor the zoning** that protects the significantly diminished remaining agricultural/green space and local ecosystem. We strongly oppose the proposed subdivision for the following reasons:
- Preservation of remaining agricultural/open green space
- Environmental concerns, disruption of current ecosystems
- Community impact, increased traffic, local resources

We respectfully request that the proposed Bloom Subdivision Preliminary Plan SB2025-017 not be approved as submitted. We urge the Planning Services to consider the long-term benefits of keeping the land as Agricultural, in line with its current zoning and the best interests of the Community.

Sincerely,
Glenn & Pamela Seki
17172 Hop Clover Avenue
Parker, CO 80134

From: A N
To: Michael Pesicka
Subject: Deny: SB2025-017
Date: Monday, July 28, 2025 4:43:20 PM

Dear Douglas County Planning Commission,

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment, infrastructure, and quality of life.

For many reasons which will be discussed at all future commission meetings, I urge the planning commission to deny approval of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.

Sincerely,
Hoang Nguyen Vo
17376 Rose Mallow St, Parker, CO 80134

From: Hollyanne Hilzendeger
To: Michael Pesicka
Subject: Bloom Preliminary Plan
Date: Friday, July 25, 2025 5:32:55 PM

Dear Douglas County Planning Commission,

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment, infrastructure, and quality of life.

For many reasons which will be discussed at all future commission meetings, I urge the planning commission to deny approval of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.

Sincerely,
Hollyanne Hilzendeger

From:	indraja reddy
To:	Michael Pesicka
Cc:	Vamsi Reddy
Subject:	Objection to the Proposed Bloom Subdivision (SB2025-017)
Date:	Sunday, July 27, 2025 6:36:27 PM

Dear Douglas County Planning Officials,

I am writing as a concerned resident of the Cielo Metro District in Parker, Colorado, regarding the proposed Bloom Subdivision (SB2025-017) located in Section 9, Township 7 South, Range 66 West, as outlined in the preliminary planning map.

This proposed development would significantly alter the natural and rural character of the area. The land currently serves as open space where cattle peacefully graze, providing not only ecological balance but also a serene, pastoral buffer between the dense housing of Trails at Crowfoot, Cielo, and Pradera.

I urge the County to consider the following concerns before approving any new development in this area:

1. Loss of Agricultural Land and Open Space:

   This land has long supported livestock and contributes to the peaceful rural aesthetic of our region. Introducing 32 residential lots and related infrastructure would permanently eliminate this valuable open space and disrupt the existing balance between developed and agricultural land.

2. Traffic and Infrastructure Impact:

   Bayou Gulch Road and Presidio Parkway already experience increased traffic from recent developments. The proposed subdivision would only add further strain without meaningful road upgrades or transit alternatives. It feels like never ending construction since the past 3years and with the approval of this it would only add to it. We are afraid this is taking away from charm of living in Parker.

3. Wildlife and Environmental Concerns:

   The area serves as a habitat for local wildlife and is a critical part of our shared ecosystem. New construction threatens to displace wildlife and increase runoff into neighboring communities.

4. Community Identity and Quality of Life:

   Residents of Cielo and neighboring subdivisions chose to live here for the natural surroundings and relative seclusion. Large new developments will irreparably change

the community character we value so deeply.

I respectfully ask the Planning Commission to deny approval for the Bloom Subdivision in its current form. Please consider preserving the natural character of this land for the enjoyment and ecological benefit of current and future residents.

We love Parker and have been residents here since the past 3 years, but all this new construction is going to severally throw the balance off.

I humbly request to reconsider your position on this.

Thanks,

Indraja Reddy

From: Irene Haskell
To: Michael Pesicka
Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 11:01:06 AM

Dear Mr. Pesicka,

Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017

I hope this letter finds you well. I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

We vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds.

From:	James Buff
To:	Michael Pesicka
Subject:	Support: Project # SB2025-017
Date:	Sunday, July 27, 2025 6:34:22 PM
Attachments:	CCE07272025.pdf

Hi! I'm e-mailing to support Project # SB2025-017, the Bloom proposal on Crowfoot Valley Rd, in whatever form the county deems to be in alignment with county development goals and standards.

I got a flyer (attached) from a neighbor in Trails at Crowfoot raising a bunch of concerns about an impact to "the open, spacious lifestyle we all value, but also traffic, wildlife, water resources and more".

Unmentioned are the identical impacts that our own houses (mine included) had on Pradera and Vistancia when our neighborhood was built.

The organizing / complaining party undoubtedly paid a 5-figure lot premium to their builder for a yard with open-space behind it, with no guarantee that the space would remain open. The fault here is not with the land owner or developer behind them, but their builder for selling them a view they could not guarantee.

James Buff
14334 Beebalm Loop, Parker
james.buff@gmail.com
972-824-4728

From: Jayachandra Badiginchala
To: Michael Pesicka
Subject: Project Number SB2025-017
Date: Sunday, July 27, 2025 3:05:53 PM

Dear Douglas County Planning Commission,

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment, infrastructure, and quality of life.

For many reasons which will be discussed at all future commission meetings, I urge the planning commission to **deny approval** of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.

Sincerely,
Jay
17300 Rose Mallow Ave
Parker

From: Jeannine Crooks
To: Michael Pesicka
Subject: Unwavering Opposition to Bloom Preliminary Plan
Date: Tuesday, July 29, 2025 8:05:05 PM

Hello Mr. Pesicka,

Hope you are well. In case you didn't see my message via LinkedIn, I wanted to send this email to ensure you are aware of my preferences.

I wanted to express my opposition to the proposed Bloom Subdivision Preliminary Plan. I know that the land is zoned for what they want to do, but must we always only do that?

Douglas County is steadily losing the natural beauty to a myriad of subdivisions. Surely there must be a way to redesign this one to allow for our elk population to co-exist. If not, what do we need to do to reclaim this property for the County?

You have the chance here to be the hero or the villain. Douglas County will survive without yet another subdivision, but the elk won't survive with this one.

Please do the right thing.

Thank you for your consideration,

Jeannine Crooks

Douglas County Resident

From: Jeff Kloenne
To: Michael Pesicka
Subject: Bloom Development (Bayou Gulch Road area)
Date: Monday, July 28, 2025 4:35:21 PM

Hi Mike - I am a long time Realtor at Pradera and a resident of the Trails at Crowfoot Valley, and the overwhelming neighbor opinion is to stop this development. There have been multiple attempts, which have been previously denied, and I believe it should be denied again. It is important to maintain the current neighborhood feel, and there are also water, traffic, and wildlife reasons to stop it as well.

From: Jen Smardo
To: Michael Pesicka
Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 1:18:41 PM

Dear Mr. Pesicka,

Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017

I hope this letter finds you well. I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

We vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds.

Please support stopping the development of this area and support saving the elk. Their lives depend on this.

Thank you,
Jennifer Smardo

From: Jenny Morales
To: Michael Pesicka
Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 8:21:22 PM

Dear Mr. Pesicka,
I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017. We vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds.

Colorado and Parker prides themselves on our wildlife and sharing the community with them. Please please lets do our part to keep Colorado wildlife friendly with a balance of caring for our animals and helping our city developing in areas that keep a balance with our wildlife. We have such beautiful parks and open space, I know we can find another solution and keep the beautiful Elk their migration patterns that is so important to our state, history, and community.

Warm Regards,
Jenny Morales
303.906.3451
jen_kingsley@hotmail.com

Sent from Outlook

From: Jessica Bates
To: Michael Pesicka
Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 9:45:49 PM

Dear Mr. Pesicka,

Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017

I hope this letter finds you well. I am writing to formally and unequivocally express my strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

I vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds. This will also undoubtedly lead to more animal-vehicle collisions. The area doesn't need another subdivision. Part of what makes Parker great, are its natural areas, wildlife, and lands it's comprised of. Please keep it that way.

Thank you for your consideration,
Jessica B

From: Joanna Cummings
To: Michael Pesicka
Subject: Opposition to Bloom development
Date: Tuesday, July 29, 2025 11:51:48 AM

Dear Mr. Pesicka,

Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017

I hope this letter finds you well. I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

We vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds.

As an 8th generation Parker resident, I understand the reasons why Parker has developed but this last bit of land for our animals to migrate in is worth saving! We did it at Sandstone and I encourage you to stand up and find a solution that does not involve developing this land.

Thank you,
Joanna Cummings
303-204-6444

From: Anne Sieve
To: Michael Pesicka
Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 11:11:16 PM

Dear Mr. Pesicka

I hope this letter finds you well. I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

We vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds.

Thank you,

JoAnnette Sieve

From: Jocelynn Barrientos
To: Michael Pesicka
Subject: Urgent
Date: Tuesday, July 29, 2025 12:30:00 PM

Dear Mr. Pesicka,

Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017

I hope this letter finds you well. I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

We vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds.

From: Joe Lugo
To: Michael Pesicka
Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 3:35:45 PM

Dear Mr. Pesicka,

I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

We vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds. Additionally it will cause property damage as the elk navigate through communities of this route is eliminated.

Thank you for your attention to this matter!

Joe Lugo, Trails at Crowfoot Resident
Sent from my iPhone

From: John German
To: Michael Pesicka
Subject: Bloom Plan Objection
Date: Tuesday, July 29, 2025 6:10:02 PM

Dear Douglas County Planning Commission,

I am writing to formally **object** to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment and infrastructure, and quality of life.

For many reasons, which will be discussed at all future commission meetings, I urge the Planning Commission to deny approval of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents that you serve.

Sincerely,
John German

From: John Kane
To: Michael Pesicka
Subject: Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 9:10:51 PM

Mr. Pesicka,
I am writing to express my opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017. This is the second time in the past ten years that a developer has attempted to convince the county to allow the development of housing in this narrow wedge between two existing developments.

The reasons are the same now on why this is a terrible plan and destructive to our county's best interests. Losing any open space between these developments will lead to drainage and flooding issues along with impacts to wildlife including an elk herd and bald eagles nesting nearby.

Please stop allowing developers to build on every square inch along Crowfoot where adequate planning and infrastructure to support more development no longer exists.

Thank you,
John Kane
Nearby Resident

From: Jon Engelson
To: Michael Pesicka
Subject: Formal Opposition to Bloom Preliminary Plan SB2025-017
Date: Monday, July 28, 2025 3:57:02 PM

Dear Mr. Pesicka:

I am writing to formally express my (and my wife's) opposition to the proposed Bloom subdivision preliminary plan SB2025-017.

The location description is as follows: SW1/4SW1/4 9-7-66 40.00 AM/L 189-445 & SE1/4SW1/9-7-40 AM/L.

We strongly oppose the proposed subdivision for the following reasons:

1) Preservation of Agriculture Land: The land in question is currently zoned for agriculture use, and maintaining its agriculture zoning is crucial for the preservation of local ranching practices and the ecological balance of the area.

2) Environmental Concerns: The conversation of agriculture land to residential use poses significant risks, including potential risks, including potential disruption to the local ecosystems and increase strain on local the resources.

3) Community Impact: The proposed development could adversely affect the character and quality of life in the surrounding community, potentially leading to increased traffic and pedestrian concerns, loss of green space and other community quality of life-related issues.

We respectfully request that the proposed Bloom Subdivision Preliminary Plan (SB2025-017) not be approved. We urge the Planning Services to consider the long-term benefits of keeping the land zoned

as Agricultural, in line with the best interests of the community.

Thank you for your attention to this matter. We look forward to your understanding and consideration of Douglas County residents and active voter concerns.

Sincerely,
Jon Engelson
14289 Hop Clover Street
Parker, CO 80134

From: Julie Clark
To: Michael Pesicka
Subject: Formal opposition to Bloom prelim plan SB2025-017
Date: Tuesday, July 29, 2025 11:28:34 AM

Dear Mr. Pesicka,

Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017

I hope this letter finds you well. I am writing to formally and unequivocally express my strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

I vehemently oppose the proposed subdivision for the following reasons:
This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds.

We must protect our wildlife in Colorado!

Thank you,
Julie Clark

From: Kaci Paetz
To: Michael Pesicka
Subject: Stop Bloom Preliminary Plan
Date: Monday, July 28, 2025 8:17:11 PM

July 23, 2025

Dear Douglas County Planning Commission,

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment, infrastructure, and quality of life.

For many reasons which will be discussed at all future commission meetings, I urge the planning commission to deny approval of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.

Best,

Kaci Paetz
505-280-5264
kcpaetz@gmail.com

From: Kaitlyn Hering
To: Michael Pesicka
Subject: URGENT Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 11:38:51 AM

Dear Mr. Pesicka,

I am writing to express my firm and unequivocal opposition to the proposed Bloom Subdivision Preliminary Plan (SB2025-017).

This development threatens one of Parker's most critical and irreplaceable natural resources: the last remaining migration corridor for a resident herd of over 100 elk. Any construction on this land will severely disrupt the herd's ability to reach their winter feeding grounds, potentially leading to long-term harm or displacement of the population.

This herd is not just a part of our ecosystem—they are a vital symbol of Parker's natural heritage. Once this land is developed, it cannot be undone. I urge you to prioritize wildlife preservation and community values over unsustainable expansion.

Please do not approve SB2025-017.

From: Kamilah Beasley
To: Michael Pesicka
Subject: PROJECT NUMBER: SB2025-017
Date: Saturday, July 26, 2025 6:03:25 PM

Dear Douglas County Planning Commission,
I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment and infrastructure, and quality of life.
For many reasons, which will be discussed at all future commission meetings, I urge the Planning Commission to deny approval of the current proposal. I respectfully request that this objection be entered into the public record.
Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.

From: kthivierge4@aol.com
To: Michael Pesicka
Subject: Bloom Subdivison.
Date: Tuesday, July 29, 2025 10:51:19 AM

Dear Mr. Pesicka,

Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017

I hope this letter finds you well. I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

We vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds.

I think we ruined enough of Parker as is. Please save this migration route for the elk. For the community.

Kathy Thivierge

From:	Keith Hugenberg
To:	Michael Pesicka
Cc:	Keith Hugenberg
Subject:	Objection to New Proposed Housing Development - SB2025-017
Date:	Sunday, July 27, 2025 10:35:16 PM

To the Planning Commission and Mike Pesicka,

I am writing to express my unequivocal opposition to the proposed residential development planned near my home – **Project Number: SB2025-017**. Our area has already reached a saturation point with housing density, and the addition of even more units will only deepen the problems we currently face. The infrastructure was never designed to support this level of population, and it's evident in the worsening traffic congestion, increasingly dangerous intersections, and daily commuter delays. Cramming more homes into an already overburdened area is reckless and shortsighted.

Equally concerning is the strain this project would place on our public schools, which are already operating at or above capacity. Classroom sizes are growing, resources are being stretched thin, and adding more families to the district would further compromise educational quality for every child already enrolled. These are not abstract risks—they are real, immediate consequences for existing residents who made home-buying decisions based on promises of a balanced, sustainable community.

Additionally, the land in question is one of the few remaining open spaces in the area—a habitat for bald eagles, deer, elk, and even buffalo. This development would decimate a fragile and irreplaceable ecosystem, displacing wildlife and eroding the natural character that makes our community so unique. Once the land is paved and the noise, light, and human activity increase, there is no bringing it back.

Finally, water is already under restriction in this region, with homeowners required to limit usage during peak months. Adding dozens or hundreds of new homes with additional landscaping, bathrooms, and irrigation will worsen this imbalance. Our community should be working to conserve, not expand beyond our natural and infrastructural means.

In summary:
Approving this development would irreparably harm our environment, our infrastructure, and our quality of life. It ignores the best interests of current residents in favor of unchecked growth. I strongly urge you to reject this proposal in defense of our community's long-term health, safety, and sustainability.

Sincerely,

Keith Hugenberg
17544 Rose Mallow Ave
Parker, CO 80134

From: K Bsly
To: Michael Pesicka
Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 5:04:31 PM

Dear Mr. Pesicka,

I hope this letter finds you well. I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

We vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds.

Kelly Beasley
Parker Resident

Sent from my iPhone

From: Kelly Colleran
To: Michael Pesicka
Subject: Formal and unwavering opposition to Bloom preliminary plan SB2025–017
Date: Tuesday, July 29, 2025 11:55:13 PM

I hope this letter finds you well. I am writing formally and unequivocally express our strong opposition to the preliminary plans of Bloom SB2025-017.

We absolutely oppose this subdivision as it would completely interfere with one of the last elk migration spots in Douglas county and interfere with the bald eagles the have seem to have nested in the area as well.

Thank you for you time.

Kelly Colleran

From: Kelly Habel
To: Michael Pesicka
Subject: Elk herd migration land
Date: Tuesday, July 29, 2025 10:49:27 AM

Dear Mr. Pesicka,

Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017

I hope this letter finds you well. I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

We vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds.

Thank you for your time

Sincerely
Kelly Habel

Yahoo Mail: Search, Organize, Conquer

From: Kerry Grammerstorf
To: Michael Pesicka
Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 1:30:12 PM

Mr. Pesicka,

I hope this letter finds you well. I am writing to officially express our complete opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

We strongly object to the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds.

Thank you,
Kerry Grammerstorf
Bret Grammerstorf

Sent from my iPhone

To: Douglas County Planning Commission,

Dear Mr. Pesicka, + FRIENDS

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment, infrastructure, and quality of life.

→ THE PRAIRIE DOGS + COWS

↓ THERE'S AN APARTMENT DOWN THE STREET :(

→ ALREADY TOO MUCH TRAFFIC AS IS :(

For many reasons that will be addressed in the future commission meetings, I respectfully request that the planning commission decline approval of the current proposal. I respectfully request that this objection be entered into the public record. PLEASE AND THANK YOU

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve. (A PARK WOULD BE MORE BENEFICIAL)

Sincerely, & CONCERNED RESIDENTS

KEVIN + LISA

RECEIVED
JUL 29 2025
Douglas County Planning

From: Kirbi Rogers
To: Michael Pesicka
Subject: Opposition to Bloom Subdivision Preliminary Plan (SB2025-017)
Date: Tuesday, July 29, 2025 4:44:01 PM

Dear Mr. Pesicka,

I am writing to formally and firmly express our opposition to the proposed Bloom Subdivision Preliminary Plan (SB2025-017).

This development would destroy the last remaining migration corridor for Parker's resident elk herd, a herd of more than 100 animals that rely on this route to reach their winter feeding grounds. Disrupting this critical pathway would not only threaten the health and survival of these animals, but also undermine the integrity of Douglas County's commitment to responsible land stewardship. Allowing this to proceed would be a short-sighted and irreversible loss.

One of the reasons people are drawn to Parker is its deep connection to open space and native wildlife, including elk. While responsible growth is important, this proposal compromises the very natural assets that make our community special.

I urge you to pursue alternative solutions that preserve this essential habitat. As stewards of this land, we have a responsibility to balance development with conservation. We can, and should, do better.

Sincerely,
Kirbi Rogers
Parker, Colorado

To: Douglas County Planning Commission,

Dear Mr. Pesicka,

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment, infrastructure, and quality of life.

For many reasons that will be addressed in the future commission meetings, I respectfully request that the planning commission decline approval of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.

Sincerely,

Kathleen Ludeman

RECEIVED
JUL 29 2025
Douglas County Planning

From: Kris Bess
To: Michael Pesicka
Subject: Deny Project Bloom
Date: Friday, July 25, 2025 8:22:37 PM

Dear Douglas County Planning Commission,

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), Currently under review by Douglas County. As a resident of this community, I am concerned about the long-term impact this large scale development will have on the environment and quality of life.

I moved to Colorado for the land, the animals, fresh air, the beauty of it all and year after year, the land disappears, the animals are forced to retreat to the mountains, all I can is smell is the exhaust and fumes from all the trucks in the developments, so the fresh clean air is slowly depleting. I can only imagine what all the pollution from the trucks, excavators, etc. are doing to my health.

For these reasons, I'm requesting the planning commission to deny approval of the current proposal. I am requesting that this objection be entered into public records.

Thank you for your attention and your commitment to protecting the interests of the residents and community you serve.

Sincerely,
Kristen Bessette

From:	Kristen Weiland
To:	Michael Pesicka
Subject:	Project Number SB2025-017 ("Bloom")
Date:	Monday, July 28, 2025 5:55:25 PM

Mr. Pesicka-
I am writing to let you know I am in opposition to Project SB2025-017 ("Bloom"),for the following reasons.

We purchased our home because it backed up to open space. It was an intentional decision, and the idea that between 32-120 homes may be sandwiched into an 80-acre parcel between two developed neighborhoods, and without appropriate or adequate infrastructure here in the Parker area, is, quite frankly, ludicrous. Schools in this area are already impacted, especially middle schools. While Parker has charter schools, they do not cater to every type of student. Not to mention that Bayou Gulch is only a two-lane road right now. The development of this open space, which, is, frankly, becoming scarce in this area, would directly and negatively affect the following:
-traffic
-wildlife
-water resources (a huge issue right now in this county)
-school enrollment (more impacted public schools)
-keeping open spaces so as to preserve the allure of this beautiful area

Douglas County, under the helm of these Commissioners, is going way too far with development on this side of the county. We desperately need more public schools as well as better, safer roads, to support the amount of homes being built. Why are we constantly putting the cart before the horse? By developing this 80 acres that is, quite frankly, wedged between Pradera and Trails at Crowfoot, we are only adding to the congestion here while lessening the quality of life everyone here initially sought by purchasing homes in this area. The Commissioners have put themselves under the microscope lately, especially after the Home Rule fiasco that cost taxpayers upwards of $700,000. In addition, it sounds like Zebulon is more of the same taxpayer-funded Ponzi scheme for big developers compliments of the Douglas County Commissioners. Sterling Ranch is a prime example of what happens when developers come in and build homes, yet, have no obligation to also provide infrastructure to support the sprawl of tract homes. Sterling Ranch needs a public school, and it got a charter school with a dubious reputation for educational standards. This is not the way to responsibly develop land. We need to support the homes that are built, something that has not been happening.

As I mentioned, it is time to slow the development in Parker, as it is clearly outpacing the support and infrastructure required to adequately meet the demands of the increasing population. We purchased our home in 2022 in order to be away from loud, traffic-riddled roads, in addition to having a beautiful backdrop to look out upon from our backyard. Since Bayou Gulch was paved to connect it to Pradera, we have seen several head on car accidents, and I cannot imagine how a two-lane street would look should another 32-120 homes be added to this congested area between Pradera and Trails. Enough is enough. If you want to maintain Parker's (Douglas County's) desirability as a community and keep home values higher, at some point you need to quit digging up every single area of open space just to pack more people into them. Help us maintain our property values, our views, our peace and quiet, as well as slowing the over-enrollment and impacted status of local public schools. We don't

have to develop every single inch of open space here.

We oppose the development of the 80 acres behind our home (Project SB2025-017 ("Bloom"). If 32 homes is not feasible, and it is assuredly not, certainly anything more than that is completely unacceptable and lacks foresight.

Thank you for your attention to this matter,

Kristen Weiland
14454 Hop Clover Trail
Parker, CO 80134

From:	SCrawford
To:	Michael Pesicka
Cc:	Kurt Crawford
Subject:	Subject: Opposition to the Bloom Preliminary Plan (Project File SB2025-017)
Date:	Monday, July 28, 2025 4:36:45 PM

Subject: Opposition to the Bloom Preliminary Plan (Project File SB2025-017)

Dear Douglas County Planning Commission,

I am writing to express my strong opposition to the proposed Bloom Preliminary Plan (Project File SB2025-017) currently under review by Douglas County. As a concerned resident of this community, I believe that the rapid growth associated with this development poses significant risks to our environment, infrastructure, and overall quality of life, both now and for generations to come.

There are numerous critical issues that warrant discussion in future Planning Commission meetings, and I strongly urge the Commission to reconsider and ultimately deny approval of this proposal.

Please ensure that this email of objection is recorded in the public record regarding this development, as it reflects the deep concerns of many residents.

Thank you for your attention to this important matter and for your dedication to safeguarding the interests of our community.

Sincerely,

Kurt Crawford

From: Ky P
To: Michael Pesicka
Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 12:08:32 PM

Dear Mr. Pesicka,

I hope this letter finds you well.

I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

I am against and oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker.

Any development will hinder the herds ability to migrate to their winter feeding grounds, and would become more vulnerable to predation.

Please take a minute and think about how this development / subdivision will effect wildlife

Thank you.

From: Kyle Bates
To: Michael Pesicka
Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 9:50:18 PM

Dear Mr Pesicka,

I hope this email finds you well. I am writing to formally and unequivocally express my strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

I vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds. This will also undoubtedly lead to more animal-vehicle collisions. The area doesn't need another subdivision. Part of what makes Parker great, are its natural areas, wildlife, and lands it's comprised of. Please keep it that way.

Thank you for your consideration,
Kyle Bates

From: Lani Phillips
To: Michael Pesicka
Subject: Re: Object to Bloom Preliminary Plan (Project file SB2025-017)
Date: Tuesday, July 29, 2025 11:02:54 AM

Attn: Mike Pesicka

Dear Douglas County Planning Commission,

I am writing to formally **object** to the proposed Bloom Preliminary Plan (Project File SB2025-017), Currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment and Intrastructure, and quality of life.

For many reasons, which will be discussed at all future commission meetings, I urge the planning Commission to deny approval of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.

Sincerely,
Lani and Chris Phillips
Trails at Crowfoot Resident
14093 Scarlet Sage St

Sent from my iPhone

From: Lauren Kennedy
To: Michael Pesicka
Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 12:52:14 PM

Dear Mr. Pesicka,

Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017

I hope this letter finds you well. I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

We vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds.

Please listen to us!

Lauren Anest

From: Lauren Pennetti
To: Michael Pesicka
Subject: Bloom preliminary plan
Date: Tuesday, July 29, 2025 1:09:39 PM

Dear Douglas County Planning Commission,

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment, infrastructure, and quality of life.

For many reasons which will be discussed at all future commission meetings, I urge the planning commission to deny approval of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.

Sincerely,
Lauren Pennetti

Dr. Lauren Pennetti
Prenatal and Postpartum Chiropractor
Prime Chiropractic
5956 S. Holly St.
Greenwood Village, CO 80111
www.primechiropracticdenver.com

From: Leah Ryan
To: Michael Pesicka
Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 10:23:53 AM

Dear Mr. Pesicka,

I hope this letter finds you well. I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

We vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds.

Please do not allow this to happen.

--
Regards,

Leah Ryan

From: Lisa Gialamas
To: Michael Pesicka
Subject: Project #SB2025-017
Date: Sunday, July 27, 2025 8:59:49 AM

To the Douglas County Planning Commission,

With great concern, I write to oppose the Bloom Preliminary Plan as this development poses serious risks to out infrastructure and peascuel character of our neighborhoods.

I respectfully reuse that this objection be officially recorded and they you deny approval of the proposals as it currently stands.

Thank you for listening,
Lisa Gialamas

From: Rocio Lores
To: Michael Pesicka
Subject: Formal Opposition to Bloom Preliminary Plan SB2025-017
Date: Saturday, July 26, 2025 1:11:37 PM

Lorenza Meli
17406 Rose Mallow Av.
Parker CO. 80134
lore.fabrev@gmail.com
281-6420017
July 26, 2025

Mike Pesicka
Douglas County Planning Services
100 Third Street
Castle Rock, CO 80104

Dear Mr. Pesicka,
Subject: Formal Opposition to Bloom Preliminary Plan SB2025-017

I hope this letter finds you well. I am writing to formally express our opposition to the proposed Bloom Subdivision Preliminary Plan SB2025-017.
1. The location description is as follows: SW1/4SW1/4 9-7-66 40.00 AM/L 189-445 & SE1/4SW1/4 9-7-66 40 AM/L.
We strongly oppose the proposed subdivision for the following reasons:
1. Preservation of Agricultural Land: The land in question is currently zoned for agricultural use, and maintaining its agricultural zoning is crucial for the preservation of local ranching practices and the ecological balance of the area.
2. Environmental Concerns: The conversion of agricultural land to residential use poses significant environmental risks, including potential disruption to local ecosystems and increased strain on local resources.
3. Community Impact: The proposed development could adversely affect the character and quality of life in the surrounding community, potentially leading to increased traffic, loss of green space, and other community-related issues.
We respectfully request that the proposed Bloom Subdivision Preliminary Plan SB2025-017 not be approved as submitted. We urge the Planning Services to consider the long-term benefits of keeping the land as Agricultural, in line with its current zoning and the best interests of the community.
Thank you for your attention to this matter. We look forward to your understanding and consideration of our concerns.
Sincerely,

Lorenza Meli

17406 Rose Mallow Av
Parker, CO 80134
lore.fabrev@gmail.com

From: Lucas Moss
To: Michael Pesicka
Subject: Bloom Proposal Concerns
Date: Tuesday, July 29, 2025 9:42:01 AM

Mike,

I am writing to express my concern over the potential Bloom Development currently under review by Douglas County. This development will destroy a significant portion of what little nature still exists in Parker. There are numerous native species that call the area home including fox, coyote, prairie dog, rabbit, hawk, and many other birds. Additionally, I am concerned about the reputation of the builder. It is hard to separate fact from fiction on these things, but reports of what can only be described as shady business practices warrants investigation. I am hopeful that the committee with complete thorough vetting of the builder and their previous projects. Thank you for your consideration.

From: Lydia Daugherty
To: Michael Pesicka
Subject: Formal Opposition to Bloom Preliminary Plan SB2025=017
Date: Monday, July 28, 2025 7:33:24 AM

Dear Mr. Pesicka,

I hope this email finds you well. I am writing to formally express our opposition to the proposed Bloom Subdivision Preliminary Plan SB2025-017.

The location description is as follows: SW1/4SW1/4 9-7-66 40.0AM/L 189-445 & SE1/4SW1/4 9-7-66 40 AM/L

We strongly oppose the proposed subdivision for the following reasons:
1. Preservation of Agricultural Land; The land in question currently zoned for agricultural use, and maintaining its agricultural zoning is crucial for the preservation of local ranching practices and ecological balance of the area.

2. Environmental Concerns: The conversion of agricultural land to residential use poses significant environmental risks, including potential disruption to local ecosystems and increased strain on local resources.

3. Community Impact: The proposed development could adversely affect the character and quality of life in the surrounding community, potentially leading to increased traffic and pedestrian safety concerns, loss of green space, and other community quality of life-related issues.

We respectfully request that the proposedBloom Subdivision PreliminaryPlan SB2025-017 not be approved. We urge the Planning Services to consider the long-term benefits of keeping the land zoned as Agricultural, in line with the best interests of the community.

Thank you for your attention to this matter. We look forward to your understanding and consideration of Douglas County residents and active voter concerns.

Lydia Daugherty
5856 Tesoro Pt.
Parker, CO 80134

From: Maddie D
To: Michael Pesicka
Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 1:00:56 PM

Dear Mr. Pesicka,

I hope this letter finds you well. I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

We vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds.

Madeline Dickman

RECEIVED
JUL 30 2025
Douglas County Community Development

To: Douglas County Planning Commission,

Dear Mr. Pesicka,

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment, infrastructure, and quality of life.

For many reasons that will be addressed in the future commission meetings, I respectfully request that the planning commission decline approval of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.

Sincerely,

Madison Claire Paige

From: Mallory DeVol
To: Michael Pesicka
Subject: Formal Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 9:52:58 AM

Dear Mr. Pesicka,

I hope this email finds you well.

I am writing to formally and unequivocally express my strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

I strongly oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds.

Please consider the ramifications prior to this development.

Thank you,

Mallory DeVol
Parker resident

From: Martha Crawford
To: Michael Pesicka
Subject: Opposition to Bloom Subdivision Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 12:28:50 PM

Hi Mr Pesicka,
I'm skipping the form letter sent out so that I can use my own words. I just want to ask you "When does it end?" When do we stop allowing developers eat up all the land needed by wildlife to survive? When do we stop allowing developers to use money and influence just so they can make more money?
When do we start to care about our effect on the water we need to survive?
Douglas County is getting to the point where soon we will no longer have views of the front range. The more we build, kill off wildlife habitat and wildlife itself because so many get hit by cars, lose beautiful land and views, there will be absolutely nothing that makes Douglas County special.
Our country is jacked up right now, largely due to politics. People are angry and mean. Nature has an amazing calming effect on most people. It's necessary for our survival and the survival of wildlife. More roads, concrete, houses, businesses doesn't make anyone happy.
Anyway, please consider standing up for something that matters instead of being like every other disengaged, heartless and selfish politician and/or official out there.
Thanks for listening and have a blessed day.
Martha Crawford
26 year resident of Douglas County

Sent from my iPhone

From: megantoad@gmail.com
To: Michael Pesicka
Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 3:15:13 PM

Dear Mr. Pesicka,

I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

This land serves as the last remaining migration route for a resident herd of over 100 elk that reside in Parker. Any development on this land would significantly hinder the herd's ability to migrate to their winter feeding grounds. Please reconsider destroying their native habitat.

Megan Christian

To: Douglas County Planning Commission,

Dear Mr. Pesicka,

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment, infrastructure, and quality of life.

For many reasons that will be addressed in the future commission meetings, I respectfully request that the planning commission decline approval of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.

Sincerely,

Mercedes Anderson

RECEIVED
JUL 29 2025
Douglas County Planning

From: Michael Goebel
To: Michael Pesicka
Subject: Bloom Development- Objection to entrance location
Date: Tuesday, July 29, 2025 8:00:54 AM

Mr. Pesicka:

I am the new owner of the property at 14440 Hop Clover Trail in the Trails at Crowfoot Subdivision. I have been made aware of the Bloom Development adjacent to our subdivision. I have lived in Parker for the last seven years.

I would hope that the County considers:

1. Assuring that the Bloom development is only for 32 home sights.
2. Having the developer move the main entrance closer to the middle of the property to be less obtrusive to either The Trails or Pradera subdivisions. If it remains where it is then it is more disruptive to The Trails development and if upsetting the fewest adjacent homeowners is important to the county, then moving to the middle of the property, off Bayou Gulch would be prudent. I believe the entrance and exit should be most disruptive to the homeowners of this development and not to the adjacent owners. The Project Narrative states "With a reverence for the native landscape as well as the land, the community takes inspiration from its name, “Bloom”." If "reverence" means something to the developer then they will move the entrance.

Michael Goebel
14440 Hop Clover Trail, Parker
303-815-7201

From: Michelle Jordan
To: Michael Pesicka; Governorpolis@state.co.us
Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 1:27:36 PM

Dear Mr. Pesicka & Governor Polis,

I hope this letter finds you well. I am writing to formally and unequivocally express my strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

I vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds.

Please do not encroach on the wildlife. Instead, protect their natural movement/existence here in Colorful Colorado.

Michelle Jordan

From: Mindy Kaemingk
To: Michael Pesicka
Subject: PROJECT NUMBER: SB2025-017
Date: Tuesday, July 29, 2025 9:54:09 PM

Dear Douglas County Planning Commission,

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment, infrastructure, wildlife and quality of life.

This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds.

For many reasons, which will be discussed at all future commission meetings, I urge the Planning Commission to deny approval of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.
Sincerely,
Mindy Kaemingk

From: Nancy Baltimore
To: Michael Pesicka
Subject: Project #SB2025-017 - Bloom
Date: Saturday, July 26, 2025 5:36:46 PM

I would appreciate your consideration re the project listed above (Bloom) and deny this development! Enough building that impacts traffic, wildlife, water resources and beautiful open spaces that are appreciated by all Coloradans. This developer has a reputation of proposing one plan and then increasing the density later.

Please deny this builder's request.

Many thanks,

Nancy Baltimore
Resident of Parker, CO

From:	Nanette Redman
To:	Michael Pesicka
Subject:	Objection to Bloom Project in Parker
Date:	Monday, July 28, 2025 4:40:03 PM

Mike Pesicka

Douglas County Planning Services

100 Third Street

Castle Rock, CO 80104

Re: Opposition to Bloom Preliminary Plan SB2025-017

Dear Mr. Pesicka,

I am writing to formally express my opposition to the proposed Bloom Subdivision (**Preliminary Plan SB2025-017**), which includes the development of 32 residential lots and 3 tracts designated for drainage, open space, landscaping, and public access on approximately 81 acres of land currently zoned as Agricultural, as per Douglas County account records

R0135626 and R0480779. The property is legally described as SW1/4SW1/4 9-7-66 40.00 AM/ L 189-445 and SE1/4SW1/4 9-7-66 40 AM/L.

Our home is directly adjacent landowners whose property shares a boundary with the subject parcels. Even though, our family will be immediately and materially affected by the proposed development. We are concerned that the proposed subdivision will significantly alter the rural and agricultural character of the area. The current zoning reflects appropriate land use for this region, and we believe it should be maintained in order to preserve the environmental, aesthetic, and community values associated with agricultural land.

I respectfully request that the Bloom Preliminary Plan not be approved as submitted and that the land remain zoned and used for agricultural purposes. Please, I ask you to carefully look at this development and its impact on the communities it will touch. I think you will see that the problems it will cause far out weigh any profit that will be recognized by the community. Please be a good steward of our town and our land.

Thank you for your time and consideration of our concerns.

Sincerely,

Nanette Redman

5043 Raintree Circle

Parker, CO 80134

From: Narsing Rao
To: Michael Pesicka
Subject: Project number: SB2025-017 -- Denied
Date: Monday, July 28, 2025 8:28:31 AM

Hello Mike,

Sending this email to provide our denial for this development in our neighborhood

Thanks,

Narsing

From: Natalie Foster
To: Michael Pesicka
Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 7:45:29 PM

Dear Mr. Pesicka,

I hope this letter finds you well. I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

We vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds.

Thank you for your consideration to oppose this plan.

Natalie and Michael Ryan
14407 Shasta Daisy Ln
Parker, 80134

From: Nathan Sturgis
To: Michael Pesicka
Subject: PROJECT NUMBER: SB2025-017
Date: Saturday, July 26, 2025 12:48:20 PM

Dear Douglas County Planning Commission,

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment and infrastructure, and quality of life.
For many reasons, which will be discussed at all future commission meetings, I urge the Planning Commission to deny approval of the current proposal. I respectfully request that this objection be entered into the public record.
Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.

Nathan Sturgis

From:	Wendy Miller
To:	Michael Pesicka
Subject:	Re: Opposition to Bloom Preliminary Plan SB2025-017
Date:	Tuesday, July 29, 2025 8:44:36 AM

Mike Pesicka
Douglas County Planning Services
100 Third Street
Castle Rock, CO 80104

Re: Opposition to Bloom Preliminary Plan SB2025-017

Dear Mr. Pesicka,

As residents of The Trails at Crowfoot, we're writing to express our opposition to the proposed Bloom Subdivision (Preliminary Plan SB2025-017). Our understanding is that this plan has been opposed in the past and the reasons that applied then appear to be even more dire now.

The plan includes the development of 32 residential lots and 3 tracts designated for drainage, open space, landscaping, and public access on approximately 81 acres of land currently zoned as Agricultural, as per Douglas County account records R0135626 and R0480779. The property is legally described as SW1/4SW1/4 9-7-66 40.00 AM/ L 189-445 and SE1/4SW1/4 9-7-66 40 AM/L.

Although we're not directly adjacent landowners, we *will* be affected by the proposed development as the proposed subdivision will significantly alter the rural and agricultural character of the area, something that's very important to us as longtime Colorado residents and environmentally concerned citizens. The current zoning reflects appropriate land use for this region and we believe it should be maintained in order to preserve the environmental values associated with agricultural land.

We respectfully request that the Bloom Preliminary Plan not be approved as submitted and that the land remain zoned and used for agricultural purposes.

Thank you for your time and consideration of our concerns.

Sincerely,

Neal & Wendy Miller
14327 Shasta Daisy Pt.
The Trails At Crowfoot

From:	Nicole Von Zup
To:	Michael Pesicka
Subject:	Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date:	Tuesday, July 29, 2025 2:30:56 PM

Dear Mr. Pesicka,

I hope this letter finds you well. I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.
We vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker.
Any development will hinder the herds ability to migrate to their winter feeding grounds.

Best Regards,

Nicole

From: Niki Macklin
To: Michael Pesicka
Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 11:11:14 PM

Dear Mr. Pesicka,

I hope this letter finds you well. I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

We vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds.

Sincerely,
Niki

From: noreen ajmal
To: Michael Pesicka
Subject: Alison Ranch-Bloom Opposition to Proposed Housing
Date: Sunday, July 27, 2025 3:12:59 PM

I am writing to express my strong opposition to the proposed construction of new homes behind the open space near our community and behind the home we live on at 5554 Loma Vista Dr.

The proposed development would not only disrupt the cherished landscape but also increase traffic, strain public infrastructure, and negatively impact the quality of life for current residents.

Our community was built with an appreciation for open space and thoughtful development. Replacing this area with housing would fundamentally alter the character of our neighborhood and undermine the sense of peace and balance that drew so many of us here. Some much of Parker has lost its open spaces due to development and very little thought has been towards what residents of Parker like maintaining open space.

I respectfully urge you to reconsider or reject this development plan and explore alternatives that prioritize preservation and responsible growth.

Thank you for your time.

Noreen Healy

Sent from Yahoo Mail for iPhone

July 27, 2025

Objection Letter for Bloom Preliminary Plan SB2025-017

Mr. Michael Pesicka
Principal Planner
Douglas County
100 Third Street
Castle Rock, CO 80104

Dear Mr. Pesicka,

As property owners on Raintree Circle, we are writing to urge you to reject the subdivision plan submitted by Affinity Holdings, LLC. We have concerns about the proposed Bloom Development for several reasons:

1. POOR ROADWAY PLAN:

The Bloom subdivision request should be denied due to its unacceptable roadway and lot plan. At the southernmost part of the proposed Bloom Development, Bloom's main community roadway is placed right up to the lot lines of Pradera homeowners with inadequate setbacks and no buffers between neighborhoods. Pradera homes are valued up to $5mm in large part due to the private, peaceful, and wide-open nature of our neighborhood. Pradera emphasizes a natural habitat and acts as a fire buffer in unincorporated Douglas County to counteract already planned and built dense subdivisions that are surrounding our neighborhood. Bloom's proposed main roadway would put traffic within 50 FEET of the back doors of several of Pradera's luxury residences, seriously diminishing the enjoyment and use of these properties. This poorly designed plan would have cars driving upwards of 40+ MPH in the proposed Bloom subdivision that would produce excessive noise, polluting car exhaust, and unsavory views of close-in traffic right at our back doors. Moreover, if Bloom's proposed subdivision plan is approved, significant property loss would occur to Pradera's homeowners on Raintree Circle due to this roadway encroachment. At the very least, Bloom should redesign its subdivision plan to have its backyards adjacent to the Pradera and Trails at Crowfoot backyards while putting arterial streets at its interior. This plan shows how inconsiderate and inexperienced Affinity Holdings, LLC is as a developer.

2. POOR SOIL AND DRAINAGE PLAN:

The Bloom subdivision plan should be rejected because its drainage plan flows directly into Pradera's lots and existing residences. This drainage will further erode our soil and may risk significant damage to Pradera homes’ foundations and infrastructure. This subdivision request should be denied until a soil study with impact to current structures is conducted to ensure that existing property owners are not negatively affected by this subdivision.

3. REMOVAL OF NECESSARY FIRE BUFFER:

The Bloom subdivision should be rejected due to its close proximity to Pradera that eliminates our much needed fire buffer between neighborhoods, something that the Douglas County Planners should reject due to the current and future planned density of neighboring developments. Our state has significant drought conditions that require much better planning in terms of population density, water management, and adequate buffers to safeguard against loss of life and property destruction from wildfires. As the property values of Pradera are significant, any wildfire that spreads from neighborhood to neighborhood would make this area uninsurable and lead to declining property values similar to the situation in Florida and California.

4. DESTROYS EXISTING WILDLIFE CORRIDOR:

The Bloom subdivision request should be rejected because it threatens a well established elk corridor as well as displaces many species that live here including burrowing owls, bald eagles, great horned owls, coyotes, deer, foxes among others. Very little attention has been paid to our natural environment in the development of 20,000 homes along Crowfoot Valley Road, and this development serves no purpose other than to enrich a few at the expense of many species as well as neighbors who moved here for our natural habitat. The Bloom subdivision plan should be denied until a wildlife study is conducted per guidance to conserve elk populations and wildlife corridors as mandated by state law.

5. HISTORY OF BANKRUPTCIES AND LACK OF DEVELOPMENT EXPERTISE:

The Douglas County Planning Office should reject Affinity Holdings, LLC subdivision request because Affinity Holdings, LLC and its agents are a going concern with almost no track record of development, a history of bankruptcies, and tax liens at the federal, state, and local level. Agents of Affinity Holdings, LLC are not the property owners of the two parcels in this subdivision request so we do not understand how Douglas County Planning would allow these agents to use 100% leverage to enrich themselves at the expense of Pradera property owners. These agents are not Douglas County residents (they are Denver area and Boulder area based) and should not be given the benefit of the doubt as developers when they have not developed any estate residential communities in Douglas County or elsewhere.

6. UNHEALTHY FOR RESIDENTS OF PRADERA AND TRAILS AT CROWFOOT

A development of this sort will need to consider the health, particularly of children, that neighbor this particular area of land. Any construction project of this length where soil dust and pollutants are created / emitted into the air by large machinery over numerous months / years clearly will be unhealthy for those of us that have to breath it in. This particular piece of land is surrounded by homes in close proximity to an area that will require substantial preparation before any building can be done.

Thank you for your consideration.

Eoin & Emily Theobald
4851 Raintree Circle
Parker, CO 80134

From: Paul Kropinak
To: Michael Pesicka
Subject: Bloom project
Date: Tuesday, July 29, 2025 8:57:45 PM

Good day,

I am a resident in the "Trails at Crowfoot" community and I am requesting that the Bloom housing development be denied. This builder has a history of proposing one plan and then increasing the density later.
This land is home to diverse wildlife including bald eagles. It also provides crucial open space for the citizens of the area.

Thank you for your time and consideration,
Sincerely,
Paul Kropinak
17017 Birds Foot Trail
Parker CO. 80134

From: Jennifer Rice
To: Michael Pesicka
Subject: Bloom project feedback
Date: Sunday, July 27, 2025 7:11:12 AM

Mr. Pesicka-

My husband and I are residents of Pradera and wish to provide feedback on the Bloom project. Without an initial exit from the property to Crowfoot, it will significantly increase traffic on Bayou Gulch, which adversely affects safety in an area where there's already been a LOT of serious accidents (Pradera Pkwy and Bayou Gulch). We are also opposed to the project given the number of homes already in the area up and down Crowfoot. The area is too congested. The Bloom project property also negatively impacts the views from many Pradera lots, and we've paid a lot of money to live in a community without congestion, with larger lots and better views.

Thanks,
Scott and Jennifer Rice
Sent from my iPhone

From: Robert Wolfe
To: Michael Pesicka
Subject: Bloom Preliminary Plan (Project File SB2025-017)
Date: Monday, July 28, 2025 6:12:16 PM

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As residents of this community, we are very concerned about the long-term impact this large scale development will have on our environment, infrastructure and quality of life.

For many reasons which will be discussed at all future commission meetings, I urge the planning commission to **deny approval** of the current proposal. I respectfully request that our objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interest of the current residents you serve.

Sincerely,
Robert R. and Diane C. Wolfe
17500 Rose Mallow Ave., Parker, CO 80134

From: Robyn Cooper
To: Michael Pesicka
Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 1:28:30 PM

Dear Mr. Pesicka,

I hope this letter finds you well. I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

We strongly oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds.

Thank you for your consideration.

Robyn Cooper

From:	Rocio Lores
To:	Michael Pesicka
Subject:	Formal Opposition to Bloom Preliminary Plan SB2025-017
Date:	Saturday, July 26, 2025 1:00:21 PM

Rocio Meli
17406 Rose Mallow Av.
Parker CO. 80134
rociolores@gmail.com
720-9880952
July 26, 2025

Mike Pesicka
Douglas County Planning Services
100 Third Street
Castle Rock, CO 80104

Dear Mr. Pesicka,
Subject: Formal Opposition to Bloom Preliminary Plan SB2025-017

I hope this letter finds you well. I am writing to formally express our opposition to the proposed Bloom Subdivision Preliminary Plan SB2025-017.
1. The location description is as follows: SW1/4SW1/4 9-7-66 40.00 AM/L 189-445 & SE1/4SW1/4 9-7-66 40 AM/L.
We strongly oppose the proposed subdivision for the following reasons:
1. Preservation of Agricultural Land: The land in question is currently zoned for agricultural use, and maintaining its agricultural zoning is crucial for the preservation of local ranching practices and the ecological balance of the area.
2. Environmental Concerns: The conversion of agricultural land to residential use poses significant environmental risks, including potential disruption to local ecosystems and increased strain on local resources.
3. Community Impact: The proposed development could adversely affect the character and quality of life in the surrounding community, potentially leading to increased traffic, loss of green space, and other community-related issues.
We respectfully request that the proposed Bloom Subdivision Preliminary Plan SB2025-017 not be approved as submitted. We urge the Planning Services to consider the long-term benefits of keeping the land as Agricultural, in line with its current zoning and the best interests of the community.
Thank you for your attention to this matter. We're looking forward to your understanding and consideration of our concerns.
Sincerely,
Rocio Meli

Opposed not adjacent
Rocio Meli
17406 Rose Mallow Av
Parker, CO 80134
rociolores@gmail.com
(720) 988-0952

From: Roseanne Tracy
To: Michael Pesicka
Subject: Bloom preliminary plan
Date: Sunday, July 27, 2025 10:28:24 PM

Please oppose this. Parker is already seeing monumental growth. We need our land to to remain free for the elk. We need to stop the over building and keep what we are know for. Land.

Thank you.

Roseanne Tracy
Parker

Sent from Yahoo Mail for iPhone

From: sam fischer
To: Michael Pesicka
Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 1:16:05 PM

Dear Mr. Pesicka,

Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017

I hope this letter finds you well. I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

We vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds.

We need to stop building in Parker!!!

From: Samantha OBrien
To: Michael Pesicka
Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 11:14:12 AM

Dear Mr. Pesicka,

I hope this letter finds you well. I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

We vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds.

Thank you,

From:	sammantha thunberg
To:	Michael Pesicka
Subject:	Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date:	Tuesday, July 29, 2025 9:18:52 AM

Dear Mr. Pesicka,
I hope this letter finds you well. I am writing to express formally and unequivocally our strong
opposition to the proposed Bloom Subdivision Preliminary Plan SB2025-017.
Location Description: SW1/4SW1/4 9-7-66 40.00 AM/L 189-445 & SE1/4SW1/4 9-7-66 40 AM/L.
We vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter-feeding grounds. When I first moved to Parker 2 years ago before the construction on ridge gate parkway my husband and I saw a herd of 50-70 pronghorns and it was truly magical and what Colorado is about. Ever since the construction started, we have not seen a single pronghorn unless your headed to Colorado Springs and that's starting to be rare. Please hear us. Please hear the people, keep Colorado wild at heart. Please Don't drive our wildlife away for greed.

Get Outlook for iOS

From: Ann Sanmartin
To: Michael Pesicka
Subject: Deny Bloom Development
Date: Tuesday, July 29, 2025 5:36:39 PM

Hi Mike -
I am a resident of Trails at Crowfoot Tri Pointe homes community. I am writing to ask you to deny the proposed Bloom development (project # SB2025-017) adjacent to our community. It will not only impact the open, spacious lifestyle we all value, but it will impact traffic, wildlife, environment, water resources and more.

Please consider the voice of the community and consider denying the development proposal.

Thank you,
Ann Sanmartin
(720) 232-8088
14401 Hop Clover St.
Parker, CO 80134

DOUGLAS COUNTY
COLORADO

www.douglas.co.us

Department of Community Development

Planning Services

REFERRAL RESPONSE REQUEST

Date sent: July 8, 2025

Comments due by: **July 29, 2025**

Project Name:	Bloom Preliminary Plan
Project File #:	SB2025-017
Project Summary:	The applicant requests a preliminary plan for 32 residential lots, and 3 tracts for drainage, open space, landscaping, public access, and utilities, on approximately 81 acres of land zoned Estate Residential (ER). One point of access is proposed from Bayou Gulch Road with a future secondary access road proposed in the northwest corner of the development.

Information on the identified development proposal located in Douglas County is enclosed. Please review and comment in the space provided.

☐ No Comment	
☐ Please be advised of the following concerns:	
☒ See letter attached for detail.	
Agency:	**Phone #:** (303) 547-6521
Your Name: Sandra Cintron *(please print)*	**Your Signature:**
	Date: 7/29/2025

Agencies should be advised that failure to submit written comments prior to the due date, or to obtain the applicant's written approval of an extension, will result in written comments being accepted for informational purposes only.

Sincerely,

Mike Pesicka

Mike Pesicka, Principal Planner

July 29,2025

To whom it may concern:

I declined to allow this project to proceed. This project is expected to increase traffic in the neighborhood, particularly around the newly constructed school, where numerous children are already playing. It is essential to preserve the green spaces, as the proliferation of housing developments has already encroached upon the habitats of local wildlife.

Sincerely,

Sandra Cintron- Board Director

Trails at Crowfoot Metropolitan District No.1

From: Sarah Speight
To: Michael Pesicka
Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 4:39:35 PM

Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017

Dear Mr. Pesicka,

I hope this letter finds you well. I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

We vehemently oppose the proposed subdivision for the following reasons:

This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds.

The project plan does not adequately address Goal 9-1 to account for the impact on the Elk herd with vague responses around open space and requiring fencing for pets.

I am also concerned about the long-term impact this development will have on our environment, infrastructure and public resources.

I strongly encourage the Commission to deny approval of this project.

Regards,

Sarah Speight

From: Sarah Sperlbaum
To: Michael Pesicka
Subject: Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 9:54:07 PM

Mr. Pesicka,
I hope this letter finds you well. I am writing to formally and unequivocally express my strong opposition to the proposed Bloom Subdivision Preliminary Plan SB2025-017.
Location Description: SW1/4SW1/4 9-7-66 40.00 AM/L 189-445 & SE1/4SW1/4 9-7-66 40 AM/L.

I vehemently oppose the proposed subdivision for the following reasons:
1) This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker.
2) Any development will hinder the herds ability to migrate to their winter feeding grounds.
3) There has been so much development in the surrounding area recently and taking a break will be welcomed.

Please do not proceed with additional development, it has ruined our community!

Sarah Sperlbaum
5571 Rim View PI, Parker, CO 80134
303-807-8885

From: Sarah Tagliavia
To: Michael Pesicka
Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 7:35:42 PM

Dear Mr. Pesicka,

I hope this letter finds you well. I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

We vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds.

Sincerely,
Sarah Tagliavia, Parker Resident

From: Shamien Perkins
To: Michael Pesicka
Subject: No More Development!
Date: Tuesday, July 29, 2025 10:43:29 AM

Dear Mr. Pesicka,

Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017

I hope this letter finds you well. I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

We vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds.

From: Shannon Payne Hoggatt
To: Michael Pesicka
Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date: Monday, July 28, 2025 10:09:22 AM

Dear Mr. Pesicka,

I hope this letter finds you well. I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan SB2025-017.

Location Description: SW1/4SW1/4 9-7-66 40.00 AM/L 189-445 & SE1/4SW1/4 9-7-66 40 AM/L.

I vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds.

Thank you for your time,
Shannon Hoggatt

From: Shawn Peel
To: Michael Pesicka
Subject: Bloom Development
Date: Saturday, July 26, 2025 6:23:31 PM
Attachments: Outlook-2obzae4h.png
Outlook-5dted1ah.png

Mike,

I am writing to formally object to the proposed Bloom Preliminary Plan (Project Fil SB2025-017) currently under review by Douglas County. As a resident of this community (14096 Black Sedge Circle Parker, CO), I am deeply concerned about the long-term impact this large-scale development will have on our environment, infrastructure, and quality of life.

For many reasons, which will be discussed at all future commission meetings, I urge the planning commission to deny approval of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.

Thank you,

SHAWN PEEL
Broker
O: 303-577-9967 (ext.315) **C:** 713-517-4941
shawn.peel@dhlb.com
David, Hicks & Lampert Brokerage, LLC
5750 DTC Parkway, Suite 200
Greenwood Village, CO 80111
www.dhlb.com

From: Shelie Gustafson
To: Michael Pesicka
Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 12:21:32 PM

Dear Mr. Pesicka,
I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

We vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds.

And, there needs to be a better plan for managing sprawl and growth in Parker to help protect the beauty of our surroundings.

Thank you
Shelie Gustafson

Get Outlook for iOS

To: Douglas County Planning Commission,

Dear Mr. Pesicka,

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment, infrastructure, and quality of life.

For many reasons that will be addressed in the future commission meetings, I respectfully request that the planning commission decline approval of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.

Sincerely,

7/24/2025

Nhi Y Nguyen

RECEIVED
JUL 29 2025
Douglas County Planning

To: Douglas County Planning Commission,

Dear Mr. Pesicka,

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment, infrastructure, and quality of life.

For many reasons that will be addressed in the future commission meetings, I respectfully request that the planning commission decline approval of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.

Sincerely,

Sonny Nguyen
07/24/25

RECEIVED
JUL 29 2025
Douglas County Planning

July 29, 2025

Mike Pesicka
Douglas County Planning Services
100 Third Street
Castle Rock, CO 80104

Re: Bloom Preliminary Plan SB2025-017

Dear Mr. Pesicka,

I am writing to formally express concerns to the proposed Bloom Subdivision Preliminary Plan SB2025-017. Location Description: SW1/4SW1/4 9-7-66 40.00 AM/L 189-445 & SE1/4SW1/4 9-7-66 40 AM/L.

We are adjacent homeowners to the 81 acres where the Bloom Development is proposing to develop. My concern with the current plan is as follows.

1. The Traffic Impact Analysis that was submitted is dated February 2025 before Bayou Gulch connection was complete. Since the road opened and more houses have been occupied, there have been multiple head-on collisions, and the traffic counts are higher. I would like to see a new traffic study done on Bayou Gulch as well as on Crowfoot where they are proposing to add another road in the future. What is their plan with the lot adjacent to them, are they proposing to "infill" here to? The Preliminary Plan states "Future Secondary Access Road to be Dedicated by Plat" on the NW corner.
2. The Bloom Preliminary plan shows a guard house, and a gate at Bayou Gulch (in "Narrative") and the roads are marked as private, with a future road through an adjacent lot to Crowfoot. Are they proposing a gated community? This would not benefit our wildlife.
3. The Bloom "Narrative" that was submitted states large lots with a minimum of 1 acre in size and 30% of the land to be dedicated to open space, trails, water quality and community amenities. The Preliminary Plan shows all the lots between 1.01 and 1.66 acres. With the roadways and homesites, where is the open space, trails, water quality and community amenities? Can they show this on the preliminary plan?
4. We that are on the southern border and fear that these lots sizes and home values will negatively affect the value of our homes. We are all on 1.5 – 2 acre lots and have semi-custom homes. Increasing the lot sizes and reducing the number of homes in Bloom would benefit those of us in Pradera and provide more open land for our wildlife.
5. What will happen to the Preble's Meadow Jumping mice on site?
6. What will happen to the Burrowing Owls on site?
7. What will happen to the bald eagle and two fledglings living nearby that feast on the food from the land and may live on or near it?
8. Will this be a low light community? The Trails at Crowfoot look like Christmas year-round, every night, especially with all the whole house lighting everyone is installing.

9. When looking at the Drainage study it looks like the southern edge slopes down toward the Pradera neighborhood which will potentially cause problems especially if we continue to have rains as we have this past month.
10. Fugitive Dust – my husband has suffered from asthma for his entire life. With the high winds that occur in our area we are very concerned about the air quality during the development of the land.
11. When looking at the Preliminary Plan the road on the southern edge of the development is right against our property lines (that we paid a premium for), is it possible to request a larger buffer that includes large trees, shrubs, etc. between the community and our homes for noise, vehicle exhaust, lighting, and to provide a passage for the wildlife to continue to pass through this corridor? We have hundreds of heads of elk that are now using our golf course rather than the land to migrate.
12. When we bought our home, we came here for peace and quiet, we aren't' thrilled that there may be construction occurring in our backyard over the next five + years. We spent $250,000 building a koi pond with falls, landscaping and making It our sanctuary and to think that this will all be disturbed soon is very disheartening.
13. Real estate markets across Colorado are experiencing a continuation of the growing inventory seen last month, June 2025. While housing prices have remained stagnant for some, other markets are seeing significant price drops. Why continue to approve new developments?
14. Preservation of Agricultural Land: The land in question is currently zoned for agricultural use, and maintaining its agricultural zoning is crucial for the preservation of local ranching practices and the ecological balance of the area. Environmental Concerns: The conversion of agricultural land to residential use poses significant environmental risks, including potential disruption to local ecosystems and increased strain on local resources.
15. Community Impact: The proposed development could adversely affect the character and quality of life in the surrounding community, potentially leading to increased traffic, loss of green space, and other community-related issues.

We respectfully request that the proposed Bloom Subdivision Preliminary Plan SB2025-017 not be approved as submitted. Thank you for your attention to this matter. We look forward to your understanding and consideration of our concerns.

Sincerely,

Stephanie Robertson

Stephanie Robertson
720-220-4501
4951 Raintree Circle (adjacent homeowner)
Parker, CO 80134
srobertson@icscolorado.com

From: Sumer Sandel
To: Michael Pesicka
Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 11:36:02 AM

Dear Mr. Pesicka,

I hope this letter finds you well. I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.

We vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds.

Thank you,
Parker resident,
Sumer Daley
Sent from my iPhone

From: Taylor McCardle
To: Michael Pesicka
Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 12:50:32 PM

I hope this letter finds you well. I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.
We vehemently oppose the proposed subdivision for the following reasons: This land is the last remaining migration route for a resident herd of 100+ elk that live in Parker. Any development will hinder the herds ability to migrate to their winter feeding grounds. You people only care about the final line. We don't need anymore apartment complexes in Parker. We need to protect the wildlife that makes Colorado what Colorado is all about: outdoors and wildlife. I highly doubt this email will change minds about anything but here ya go.

Taylor McCardle

From: Teresa Greenhalgh
To: Michael Pesicka
Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
Date: Tuesday, July 29, 2025 10:31:47 AM

Mr. Pesicka,

Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017

I am writing to formally and unequivocally express our strong opposition to the proposed Bloom Subdivision Preliminary Plan, SB2025-017.
We vehemently oppose the proposed subdivision for the following reasons: This land is the **last remaining migration route for a resident herd of 100+ elk that live in Parker**.
Any development will hinder the herds ability to migrate to their winter feeding grounds.

Have an ounce of compassion. Parker has developed every bit of the land which has been detrimental enough to the animals that used to live here.

Teresa Greenhalgh
Parker, CO

From: Thomas Kaufman
To: Michael Pesicka
Subject: Project number SB2025-017
Date: Monday, July 28, 2025 6:38:05 AM

Dear Mr. Pesicka,

I am writing to formally object to the proposed Bloom Preliminary Plan (project file SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large scale development will have on our environment, infrastructure and quality of life.

I urge the planning commission to deny approval of the current proposal and/or any future community developments in the area. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.

Respectfully,

Tom Kaufman
18032 Sky Pilot Ave.
Parker, CO 80134

Sent from Yahoo Mail for iPhone

Todd and Angela Carnes
4923 Raintree Cir.
Parker, CO. 80134

7/23/25

RECEIVED
JUL 28 2025
Douglas County Planning

Principal Planner Planning Services
Attention: Mr. Mike Pesicka
100 Third Street
Castle Rock, CO 80104

Dear Mr. Pesicka,

We live on Raintree Circle in Pradera and even though we did not receive a letter, we are aware of the Bloom Project #SB2025-017 and we are fully opposed to it. We intend to object, debate, support neighbors and do whatever it takes to prevent this unwanted development from ever breaking ground. Please note our concern for this unwelcome development and the massive amount of opposition it will be receiving from us and numerous others who are against it.

Sincerely,

Todd B. Carnes - Angela Carnes

Todd & Angela Carnes

From: Todd Stockford
To: Michael Pesicka
Subject: Bloom proposal
Date: Sunday, July 27, 2025 10:25:46 AM

Hello Mike,

I'm writing to voice my concern about the proposed Bloom neighborhood near Pradera and Trails at Crowfoot. While I understand Parker is experiencing tremendous growth, that doesn't mean it makes sense to essentially shoehorn a neighborhood tightly between two existing ones.

This open space is home to grazing cattle and is an active thoroughfare for elk and deer. Open space has become a dwindling commodity in this area with new neighborhoods sprouting thousands of homes that are already tightly packed together. Soon, Parker will just be a sea of houses, a la Highlands Ranch. And every additional house adds a burden to limited resources, especially water, and will increase traffic, noise, and light pollution.

Thank you for your time.

Sincerely,
Todd Stockford
17026 Rose Mallow Way

Get Outlook for iOS

From: Venkat Rao
To: Michael Pesicka
Subject: Project number: SB2025-01
Date: Monday, July 28, 2025 8:30:52 AM

Hello Mike,

As a parker resident for more than a decade and resident of trail at crowfoot resident we are against this development of Project SB2025-017

Thanks,
Venkat

From: Wendy Krutka
To: Michael Pesicka
Subject: Project No: SB2025-017
Date: Monday, July 28, 2025 3:54:32 PM

Dear Douglas County Planning Commission:

I am emailing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017) currently under review by Douglas County. As a resident of this community, I am concerned about the long-term impact this large scale development will have on our environment, infrastructure, and quality of life.

I urge the planning commission to deny approval of the current proposal. I respectfully request this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of residents you serve.

Kind regards,
Wendy Krutka

To the Douglas County Planning Commission:

On September 1, 2022 my wife Gayle and I moved to a home we had built in the Trails at Crowfoot development after spending 20 years in a home we had built in the City of Aurora. It was our desire to downsize from our two story home into a single story ranch style home. We were attracted to the development because of the lovely views and close by open spaces. One of those spaces is between the Trails at Crowfoot and Pradera.

With great concern, we write to oppose the Bloom Preliminary Plan (Project File SB2025-017). This development poses serious risks to our already stressed infrastructure and the peaceful character of our neighborhoods. We understand that progress is part of life but please do not turn the Town of Parker into the City of Parker!

Thank you for your consideration.

Wesley and Gayle Rock

14387 Hop Clover Street, Parker, CO 80134

From: Y Ellerbroek
To: Michael Pesicka
Subject: Formal Opposition to Bloom Preliminary Plan SB2025-017
Date: Saturday, July 26, 2025 3:13:37 PM

Dear Mr, Pesicka,

I hope this email fins you well. I am writing to formally express our opposition to the proposed Bloom Subdivision Preliminary Plan SB2025-17.

The location description is as follows: SW1/4ST1/4 9-7-66 40.00 AM/L 189-445 & SE 1/45W1/4 9-7-66 40 AM/L.

We strongly oppose the proposed subdivision for the following reasons:

1. Preservation of Agricultural Land:
   The land in question is currently zoned for agricultural use, and maintaining its agricultural zoning is crucial for the preservation of local ranching practices and the ecological balance of the area.
2. Environmental Concerns:
   The conversion of agricultural land to residential use poses significant environmental risks, including potential disruption to local ecosystems and increased strain on local resources.
3. Community Impact:
   The proposed development could adversely affect the character and quality of life in the surrounding community, potentially leading to increased traffic, and pedestrian safety concerns, loss of green space, and other community quality of life-related issues.

We respectfully request that the proposed Bloom Subdivision Preliminary Plan SB2025-017 not be approved. We urge the Planning Services to consider the long-term benefits of keeping the land zoned as Agricultural, in line with the best interests of the community.

Thank you for your attention to this matter. We look forward to your understanding and consideration of Douglas County residents and active voter concerns.

Sincerely,
YEllerbroek@gmail.com

--
YEllerbroek@gmail.com

From:	Yasir Zaidi
To:	Michael Pesicka
Subject:	Concern Regarding Proposed Development on Green Space with 32 new luxury homes (Bloom) Near Our Homes-near to trails at crowfoot and Pradera.
Date:	Sunday, July 27, 2025 2:54:38 PM

Dear Douglas County Planning Department,

I hope this message finds you well. I'm writing on behalf of our family and neighbors regarding the proposed development of luxury homes on the green patch of land located directly in front of our homes, near to Pradera , Allison Ranch and trails at crowfoot (80134).

This small stretch of open space means a great deal to us. It's not just a piece of land — it's a peaceful haven that offers relief from the increasingly crowded and fast-paced environment we experience elsewhere. It's a space where wildlife such as deer and even cows occasionally graze, and we genuinely enjoy and value this rare connection to nature right outside our front doors.

Developing this area would not only take away a much-loved and appreciated piece of greenery, but it would also negatively impact the local environment. The presence of wildlife would likely diminish, and the ecological balance of the area could be disrupted. The added traffic and density would change the peaceful, semi-rural atmosphere we've grown to cherish.

We kindly ask that you take these concerns into consideration and explore alternatives that would preserve this green space for both current residents and local wildlife.

We deeply appreciate your attention to this matter and hope that community voices will play a role in shaping the future of our neighborhood.

Thank you for your time and understanding.

Sincerely,

Yasir Zaidi

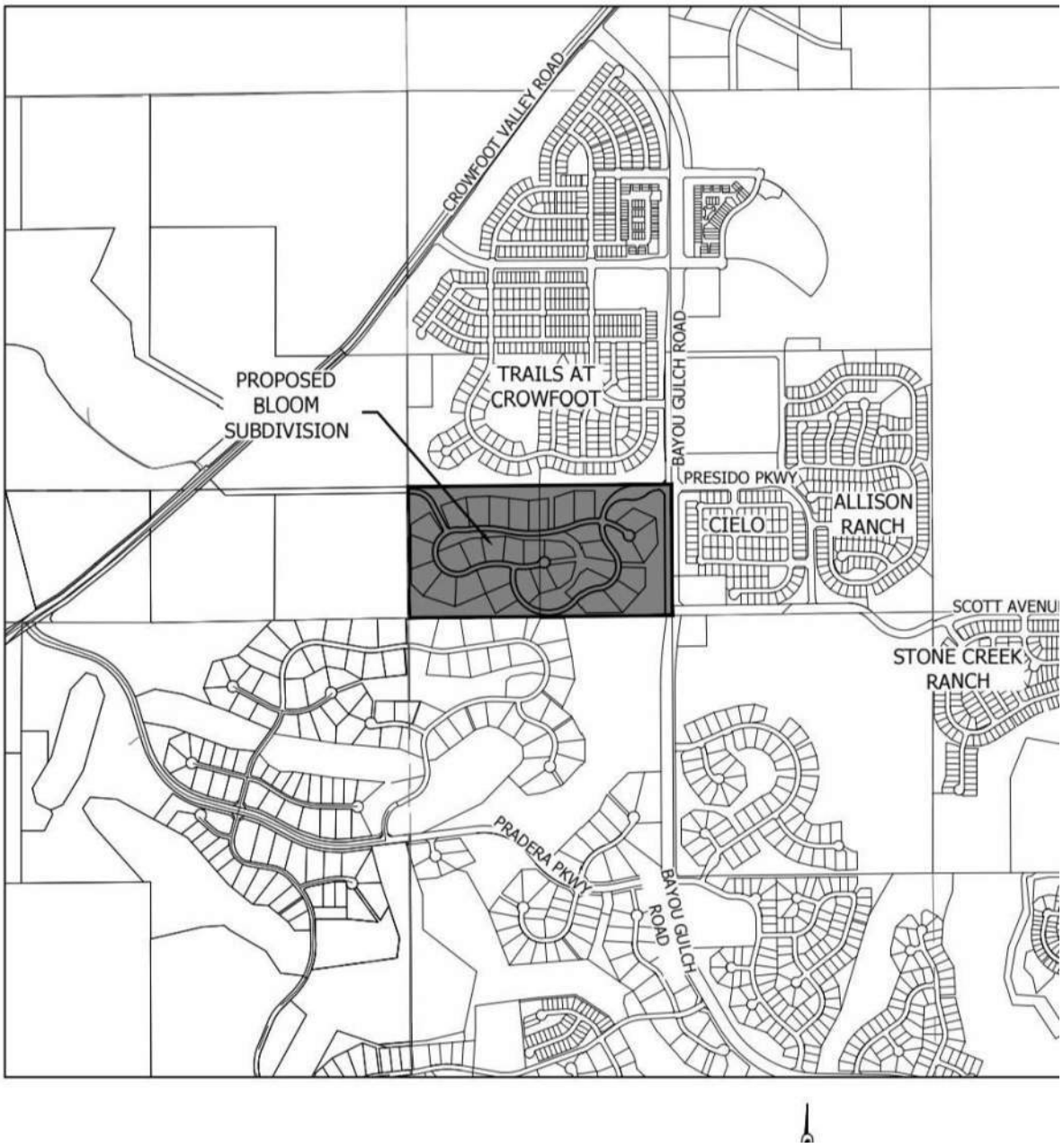
5538 loma vista drive, 80134, Parker, Colorado

Contact no:- 5122015501

Email address:- yzaidi@outlook.com

BLOOM PRELIMINARY PLAN

:D IN SECTION 9, TOWNSHIP 7 SOUTH, RANGE 66 WEST OF THE 6
PRINCIPAL MERIDIAN
COUNTY OF DOUGLAS, STATE OF COLORADO
81.07 ACRES, 32 RESIDENTIAL LOTS, 3 TRACTS, SB2025-017



From: Zachary Burgeson
To: Michael Pesicka
Subject: Please deny project SB2025-017
Date: Saturday, July 26, 2025 9:54:33 AM

Hello, I am a resident in the trails at crowfoot subdivision and kindly request you deny the new development under project SB2025-017 aka the 'Bloom' division.

We are already seeing high amounts of automotive accidents and congestion in this area as well as wish to preserve the views and resale value of our homes with the open space between pradera, Allison ranch, and trails at crowfoot. Additional homes will harm the aesthetic we all bought into.

Please do not let this project move forward. Thank you.

Please include my objection into public record. Thank you

Zachary Burgeson

RECEIVED
JUL 31 2025
Douglas County Community Development

To: Douglas County Planning Commission,

Dear Mr. Pesicka,

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment, infrastructure, and quality of life.

For many reasons that will be addressed in the future commission meetings, I respectfully request that the planning commission decline approval of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.

Sincerely,



To: Douglas County Planning Commission,

RECEIVED
JUL 31 2025
Douglas County Community Development

Dear Mr. Pesicka,

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment, infrastructure, and quality of life.

For many reasons that will be addressed in the future commission meetings, I respectfully request that the planning commission decline approval of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.

Sincerely,

RECEIVED
JUL 31 2025
Douglas County Community Development

To: Douglas County Planning Commission,

Dear Mr. Pesicka,

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment, infrastructure, and quality of life.

For many reasons that will be addressed in the future commission meetings, I respectfully request that the planning commission decline approval of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.

Sincerely,

AC.

TRAILS AT CROWFOOT
RESIDENT

WE DONT NEED
ANYMORE HOMES HERE!!!

KEEP THE WILDLIFE!

ABSOLUTELY UNNECESSARY
TO BUILD!!

Matt Weiss
5001 Raintree Circle
Parker, CO 80134
m_weiss@verizon.net
310.872.6018
July 23, 2025

Mike Pesicka
Douglas County Planning Services
100 Third Street
Castle Rock, CO 80104

Re: Formal Objection to Bloom Preliminary Plan SB2025-017

Dear Mr. Pesicka,

I am writing this letter to formally object to and emphatically oppose the proposed Bloom Preliminary Project, Project number SB2025-017. The above stated project seeks to subdivide approximately 81 acres into 32 residential lots and 3 tracts designated for drainage, open space, landscaping, and public access. The land in question is currently zoned Agricultural under Douglas County Account Numbers R0135626 and R0480779, with legal descriptions as follows: SW1/4SW1/4 Section 9, Township 7 South, Range 66 West of the 6th P.M., 40.00 acres more or less (Reception No. 189-445), and SE1/4SW1/4 Section 9, Township 7 South, Range 66 West, 40 acres more or less.

I strongly reject the suggested conversion from the current Agricultural (AG District) to residential subdivision as proposed in the Bloom Preliminary Plan SB2025-017. There is no debate that I, as a landowner whose property backs up to and consequentially shares a boundary with the subject parcels of the proposed development, will be directly and negatively impacted by this project. It is important to note that not only will my property be adversely affected, but the whole community and surrounding communities will be critically impacted by this proposed build should it be approved.

The shift of these parcels from Agricultural (AG District) to residential use would ultimately strain local infrastructure, increase traffic congestion, and create numerous environmental concerns. The proposed Bloom Preliminary Project, Project number SB2025-017 will irreversibly alter and decimate the rural character of this region as well as the environing areas. Furthermore, the above proposed development will result in a reduction of my property value as well as surrounding property values.

My neighbors and I fully intend to actively oppose this development through all available avenues and resources. We will be present to make formal objections at public hearings and participate in debates/discussions regarding this proposal. We will work in collaboration with neighbors and community stakeholders who will be directly and/or indirectly impacted to

prevent this plan from moving forward. This proposal is not compatible and clashes with the County's stated goals for responsible growth management, land preservation, and the long-term protection of Agricultural zoning.

The Bloom Preliminary Plan SB2025-017 represents a major divergence from current zoning regulations and challenges the intent as well as the purpose of Douglas County's comprehensive land use framework. Subsequently, we strongly urge Douglas County Planning Services, the Planning Commission, and the Board of County Commissioners to deny the approval of the Bloom Preliminary Plan SB2025-017 in its immediate form. We request that the property remain designated and utilized as Agricultural land, in accordance with its existing zoning and in the best interest of surrounding landowners and the broader community.

Please ensure this letter is included in the official public record. We reserve the right to submit additional comments and evidence, and to remain actively engaged throughout the review and decision-making process.

Your attention and consideration of this matter is sincerely appreciated.

Respectfully,
Matt Weiss

Heather Weiss
5001 Raintree Circle
Parker, CO 80134
hcweiss@verizon.net
310.872.6117
July 23, 2025

Mike Pesicka
Douglas County Planning Services
100 Third Street
Castle Rock, CO 80104

Re: Formal Objection to Bloom Preliminary Plan SB2025-017

Dear Mr. Pesicka,

I am writing this letter to formally object to and emphatically oppose the proposed Bloom Preliminary Project, Project number SB2025-017. The above stated project seeks to subdivide approximately 81 acres into 32 residential lots and 3 tracts designated for drainage, open space, landscaping, and public access. The land in question is currently zoned Agricultural under Douglas County Account Numbers R0135626 and R0480779, with legal descriptions as follows: SW1/4SW1/4 Section 9, Township 7 South, Range 66 West of the 6th P.M., 40.00 acres more or less (Reception No. 189-445), and SE1/4SW1/4 Section 9, Township 7 South, Range 66 West, 40 acres more or less.

I strongly reject the suggested conversion from the current Agricultural (AG District) to residential subdivision as proposed in the Bloom Preliminary Plan SB2025-017. There is no debate that I, as a landowner whose property backs up to and consequentially shares a boundary with the subject parcels of the proposed development, will be directly and negatively impacted by this project. It is important to note that not only will my property be adversely affected, but the whole community and surrounding communities will be critically impacted by this proposed build should it be approved.

The shift of these parcels from Agricultural (AG District) to residential use would ultimately strain local infrastructure, increase traffic congestion, and create numerous environmental concerns. The proposed Bloom Preliminary Project, Project number SB2025-017 will irreversibly alter and decimate the rural character of this region as well as the environing areas. Furthermore, the above proposed development will result in a reduction of my property value as well as surrounding property values.

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prevent this plan from moving forward. This proposal is not compatible and clashes with the County's stated goals for responsible growth management, land preservation, and the long-term protection of Agricultural zoning.

The Bloom Preliminary Plan SB2025-017 represents a major divergence from current zoning regulations and challenges the intent as well as the purpose of Douglas County's comprehensive land use framework. Subsequently, we strongly urge Douglas County Planning Services, the Planning Commission, and the Board of County Commissioners to deny the approval of the Bloom Preliminary Plan SB2025-017 in its immediate form. We request that the property remain designated and utilized as Agricultural land, in accordance with its existing zoning and in the best interest of surrounding landowners and the broader community.

Please ensure this letter is included in the official public record. We reserve the right to submit additional comments and evidence, and to remain actively engaged throughout the review and decision-making process.

Your attention and consideration of this matter is sincerely appreciated.

Respectfully,
Heather Weiss

From: mel bisulca.com
To: Michael Pesicka
Subject: Objection letter for SB2025-017
Date: Wednesday, July 23, 2025 11:28:54 AM

Melanie Bisulca
4981 Raintree Cir
Parker, CO 80134
mel@bisulca.com
720.530.1464
7/23/25

Mike Pesicka
Douglas County Planning Services
100 Third Street
Castle Rock, CO 80104

Re: Formal Objection to Bloom Preliminary Plan SB2027-017

Dear Mr. Pesicka,

We are writing to formally object to the proposed Bloom Preliminary Plan SB2027-017, which seeks to subdivide approximately 81 acres into 32 residential lots and 3 tracts designated for drainage, open space, landscaping, and public access. The land in question is currently zoned Agricultural under Douglas County Account Numbers R0135626 and R0480779, with legal descriptions as follows: SW1/4SW1/4 Section 9, Township 7 South, Range 66 West of the 6th P.M., 40.00 acres more or less (Reception No. 189-445), and SE1/4SW1/4 Section 9, Township 7 South, Range 66 West, 40 acres more or less.

As adjacent landowners whose property shares a boundary with the subject parcels, we will be directly and materially impacted by this proposed development. The transition from Agricultural (AG District) to residential use would irreversibly alter the rural character of the area, potentially strain local infrastructure, raise traffic and environmental concerns, and reduce surrounding property values.

We also intend to actively oppose this development through all available channels. This includes presenting formal objections at public hearings, participating in debate, and working in coordination with our neighbors and community stakeholders—both those directly bordering the proposed subdivision and others who would be indirectly impacted by its consequences. We believe this proposal is incompatible with the County's stated goals for responsible growth management, land preservation, and the long-term protection of Agricultural zoning.

The proposed plan represents a significant deviation from current zoning regulations and contradicts the intent and purpose of Douglas County's comprehensive land use framework. As such, we respectfully urge Douglas County Planning Services, the Planning Commission, and the Board of County Commissioners to deny approval of the Bloom Preliminary Plan

SB2027-017 in its current form. We request that the property remain designated and utilized as Agricultural land, in accordance with its existing zoning and in the best interest of surrounding landowners and the broader community.

Please ensure this letter is included in the official public record. We reserve the right to submit additional comments and evidence, and to remain actively engaged throughout the review and decision-making process.

Thank you for your attention and consideration.

Sincerely,
Melanie Bisulca

From: Jamie Minshall
To: Michael Pesicka
Subject: Bloom Preliminary Plan SB2025-017 - Deny Approval
Date: Wednesday, July 23, 2025 1:17:58 PM

Dear Douglas County Planning Commission,

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment, infrastructure, and quality of life.

For many reasons which will be discussed at all future commission meetings, I urge the planning commission to **deny approval** of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve. Please notify me of any future hearings or actions related to this project.

Sincerely,

Jamie Minshall
17452 Rose Mallow Ave
Parker CO, 80134

From: Meagan Mayer
To: Michael Pesicka
Subject: Re: Bloom Preliminary Plan
Date: Wednesday, July 23, 2025 1:19:24 PM

Mike,
After reviewing the proposed plan. I am not in favor of this community for many reasons. Parker is already over populated for our infrastructure and adding more homes will only add to this never ending problem.

Please pass along my concern.

Thanks,
Meagan

> On Jul 16, 2025, at 12:08 PM, Michael Pesicka <mpesicka@douglas.co.us> wrote:
>
> Meagan,
>
> This application is in the 21-day referral and courtesy notice period of the Preliminary Plan process (Article 4 of the Douglas County Subdivision Resolution) which ends on Wednesday, July 29th. Once the referral/courtesy notice period ends then the applicant addresses referral comments from review agencies and resubmits the application. There may be a few rounds of review after the end of the referral process for the applicant to address comments. Once comments have been address the application will then be scheduled for public hearings before the Planning Commission and then the Board of County Commissioners (public hearings have not been scheduled at this time). You may submit written comments at any time although we encourage you to submit them by July 29th (end of the referral and courtesy notice period). Your comments will become part of the public record and forwarded to the Planning Commission and Board of County Commissioners as part of their consideration of the application.
>
> If the Preliminary Plan is approved by the Board of County Commissioners, then the next step is the submittal of a Final Plat application per Article 5 of the Douglas County Subdivision Resolution.
>
> Sincerely,
>
> Mike Pesicka | Principal Planner
> Douglas County Department of Community Development
> Address | 100 Third St., Castle Rock, CO 80104
> Direct | 303-814-4367 Main | 303-660-7460
> Email | mpesicka@douglas.co.us
>
> -----Original Message-----
> From: Meagan Mayer <meaganmayer@hotmail.com>
> Sent: Monday, July 14, 2025 3:56 PM
> To: Michael Pesicka <mpesicka@douglas.co.us>
> Cc: Jamie Minshall <jminshall2002@yahoo.com>
> Subject: Bloom Preliminary Plan
>
> Mike,
> I just left you a voicemail, but also wanted to follow up via email. We received notice of the application for the Bloom development and have multiple concerns regarding this. Will there be a public hearing we can attend?
>
> Any additional information is greatly appreciated.
>
> Thanks,
> Jamie & Meagan Minshall

From: Jessica Levine
To: Michael Pesicka
Subject: Bloom Preliminary Plan
Date: Wednesday, July 23, 2025 1:30:18 PM

July 23, 2025

Dear Douglas County Planning Commission,

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment, infrastructure, and quality of life.

For many reasons which will be discussed at all future commission meetings, I urge the planning commission to deny approval of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.

Sincerely,
Jessica Behrens

From: Sarah Kohn
To: Michael Pesicka
Subject: Proposed Plan for Bloom
Date: Wednesday, July 23, 2025 2:00:40 PM

July 23, 2025

Dear Douglas County Planning Commission,

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment, infrastructure, and quality of life.

For many reasons which will be discussed at all future commission meetings, I urge the planning commission to **deny approval** of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.

Sincerely,
Sarah Fitzpatrick

From: Usha Apparasu
To: Michael Pesicka
Cc: Dharma Apparasu
Subject: Project File SB2025-017 - please Decline
Date: Wednesday, July 23, 2025 2:17:05 PM

July 23, 2025

Dear Douglas County Planning Commission,

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment, infrastructure, and quality of life.

For many reasons which will be discussed at all future commission meetings, I urge the planning commission to deny approval of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.

Sincerely,
Prathyusha & Dharmender

From: Kathy Rhoades
To: Michael Pesicka
Subject: Project File SB2025-017
Date: Wednesday, July 23, 2025 2:19:20 PM

Dear Douglas County Planning Commission,

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment, infrastructure, and quality of life.

For many reasons which will be discussed at all future commission meetings, I urge the planning commission to deny approval of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.

Sincerely,

Kathleen Rhoades
17100 Rose Mallow Ave
Parker Co 80134

Sent via the Samsung Galaxy S23 Ultra 5G, an AT&T 5G smartphone

From: Jeff McKnight
To: Michael Pesicka
Subject: Concerns on New Developments in Parker
Date: Wednesday, July 23, 2025 3:14:47 PM

Dear Douglas County Planning Commission,

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment, infrastructure, and quality of life.

For many reasons which will be discussed at all future commission meetings, I urge the planning commission to **deny approval** of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve. Please notify me of any future hearings or actions related to this project.

Sincerely,

Jeff S. McKnight
303-956-5835

From: mel bisulca.com
To: Michael Pesicka
Subject: Corrected formal objection to bloom SB2025-017
Date: Wednesday, July 23, 2025 3:22:50 PM

Melanie Bisulca
4981 Raintree Cir
Parker, CO 80134
mel@bisulca.com
720.530.1464
7/23/25

Mike Pesicka
Douglas County Planning Services
100 Third Street
Castle Rock, CO 80104

Re: Formal Objection to Bloom Preliminary Plan SB2025-017

Dear Mr. Pesicka,

We are writing to formally object to the proposed Bloom Preliminary Plan SB2025-017, which seeks to subdivide approximately 81 acres into 32 residential lots and 3 tracts designated for drainage, open space, landscaping, and public access. The land in question is currently zoned Agricultural under Douglas County Account Numbers R0135626 and R0480779, with legal descriptions as follows: SW1/4SW1/4 Section 9, Township 7 South, Range 66 West of the 6th P.M., 40.00 acres more or less (Reception No. 189-445), and SE1/4SW1/4 Section 9, Township 7 South, Range 66 West, 40 acres more or less.

As adjacent landowners whose property shares a boundary with the subject parcels, we will be directly and materially impacted by this proposed development. The transition from Agricultural (AG District) to residential use would irreversibly alter the rural character of the area, potentially strain local infrastructure, raise traffic and environmental concerns, and reduce surrounding property values.

We also intend to actively oppose this development through all available channels. This includes presenting formal objections at public hearings, participating in debate, and working in coordination with our neighbors and community stakeholders—both those directly bordering the proposed subdivision and others who would be indirectly impacted by its consequences. We believe this proposal is incompatible with the County's stated goals for responsible growth management, land preservation, and the long-term protection of Agricultural zoning.

The proposed plan represents a significant deviation from current zoning regulations and contradicts the intent and purpose of Douglas County's comprehensive land use framework. As such, we respectfully urge Douglas County Planning Services, the Planning Commission, and the Board of County Commissioners to deny approval of the Bloom Preliminary Plan

SB2025-017 in its current form. We request that the property remain designated and utilized as Agricultural land, in accordance with its existing zoning and in the best interest of surrounding landowners and the broader community.

Please ensure this letter is included in the official public record. We reserve the right to submit additional comments and evidence, and to remain actively engaged throughout the review and decision-making process.

Thank you for your attention and consideration.

Sincerely,
Melanie Bisulca

From: Adam Clarke
To: Michael Pesicka
Subject: Douglas County New Communities
Date: Wednesday, July 23, 2025 4:00:19 PM

Dear Douglas County Planning Commission,

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment, infrastructure, and quality of life.

For many reasons which will be discussed at all future commission meetings, I urge the planning commission to **deny approval** of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve. Please notify me of any future hearings or actions related to this project.

Adam Clarke
(720)284-7016

From: M Laughlin
To: Michael Pesicka
Subject: Please stop the outrageous building
Date: Wednesday, July 23, 2025 4:22:59 PM

July 23, 2025

Dear Douglas County Planning Commission,

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment, infrastructure, and quality of life.

For many reasons which will be discussed at all future commission meetings, I urge the planning commission to deny approval of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.

Sincerely,
Michele Laughlin
Sent from my iPhone

From: Chris Suess
To: Michael Pesicka
Subject: Bloom preliminary plan
Date: Wednesday, July 23, 2025 5:15:55 PM

To the Douglas County Planning Commission,

I am writing to express my strong opposition to the Bloom Preliminary Plan (Project File SB2025-017). This proposal presents significant concerns regarding environmental impact, strain on existing infrastructure, and the disruption of the quiet, established character of our neighborhoods.

As a member of this community, I believe we must prioritize thoughtful, sustainable development that safeguards the long-term well-being of our shared environment and quality of life.

I respectfully ask that this objection be formally entered into the record and that the Commission withhold approval of the project in its current form. I intend to speak further on these issues in upcoming public meetings and urge you to consider the voices of those who live here and care deeply for this community's future.

Thank you for your time and attention.

Sincerely, Chris Suess

From: Angie Garcia
To: Michael Pesicka
Subject: PROJECT NUMBER: SB2025-017
Date: Wednesday, July 23, 2025 9:26:10 PM

Dear Douglas County Planning Commission,

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment and infrastructure, and quality of life.

For many reasons, which will be discussed at all future commission meetings, I urge the Planning Commission to deny approval of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.

Sincerely,

Tamara

From: MARTY HALL
To: Michael Pesicka
Subject: Fwd: Objection to Bloom Preliminary Plan SB2025-017
Date: Thursday, July 24, 2025 1:28:16 PM

Marty Hall
Resident of The Pinery
7765 Windwood Way
Parker, CO 80134
Martin.hall@comcast.net
303-885-8860
July 24, 2025
Mike Pesicka
Douglas County Planning Services
100 Third Street
Castle Rock, CO 80104
Dear Mr. Pesicka,
Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017
I hope this letter finds you well. I am writing to formally and unequivocally express our strong
opposition to the proposed Bloom Subdivision Preliminary Plan SB2025-017.
Location Description: SW1/4SW1/4 9-7-66 40.00 AM/L 189-445 & SE1/4SW1/4 9-7-66 40
AM/L.
We vehemently oppose the proposed subdivision for the following reasons:

1. **Preservation of Agricultural Land:** The land in question is currently zoned for agricultural

use, and it is imperative to maintain this zoning to preserve local farming practices and the
ecological balance of the area. Any deviation from this designation is not only detrimental
but also potentially illegal under current zoning laws.

2. **Environmental Concerns:** The conversion of agricultural land to residential use poses

significant and potentially irreversible environmental risks, including disruption to local
ecosystems, increased strain on local resources, and a host of other ecological
consequences.

3. **Community Impact:** The proposed development will have a

profoundly adverse effect on

the character and quality of life in the surrounding community. It will likely lead to increased
traffic, loss of green space, and other community-related issues that are unacceptable and
against the public interest.
We hereby formally request that the proposed **Bloom Subdivision Preliminary Plan
SB2025-017** be denied in its current form. We urge the Planning Services to take immediate
action to prevent this unlawful and environmentally harmful development. Should this proposal
be approved, we reserve the right to pursue all legal recourses available to us to protect our
community and the environment.
Thank you for your immediate attention to this matter. We look forward to your prompt action
and understanding of our serious concerns.
Sincerely,
Marty Hall

From: Kostal
To: Michael Pesicka
Subject: Bloom Preliminary plan
Date: Thursday, July 24, 2025 8:49:00 PM

Dear Mr Pesicka,

I am writing to formally object to the proposed Bloom Preliminary Plan (project file SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large scale development will have on our environment, infrastructure, and quality of life.
For many reasons that will be addressed in the future commission meetings, I respectfully request that the planning commission decline approval of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.

Sincerely,
Diane & Tom Kostal

From: G V Rao
To: Michael Pesicka
Subject: Project File SB2025-017
Date: Thursday, July 24, 2025 10:24:13 PM

Dear Douglas County Planning Commission,

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment, infrastructure, and quality of life.

For many reasons which will be discussed at all future commission meetings, I urge the planning commission to deny approval of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.

Sincerely,
Thank You,
Venkateshwar Rao Gangavelli
M (303) 328-1485

From:	Erica Haycock
To:	Michael Pesicka
Subject:	Opposition to Bloom
Date:	Thursday, July 24, 2025 8:44:53 PM

Erica Haycock

4932 Raintree Circle

Parker, CO 80134

ericahaycock@gmail.com

303-668-0155

July 24, 2025

Mike Pesicka
Douglas County Planning Services 100 Third Street
Castle Rock, CO 80104

Dear Mr. Pesicka,

Subject: Formal and Unwavering Opposition to Bloom Preliminary Plan SB2025-017

I hope this letter finds you well. I am writing to formally and unequivocally express my strong opposition to the proposed **Bloom Subdivision Preliminary Plan SB2025-017**.

Location Description: SW1/4SW1/4 9-7-66 40.00 AM/L 189-445 & SE1/4SW1/4 9-7-66 40 AM/L.

I live directly across the street from the homes that will back up to this development. I am extremely concerned on the effect this will have on the Pradera neighborhood. I vehemently oppose the proposed subdivision for the following reasons:

1. **Preservation of Agricultural Land:** The land in question is currently zoned for agricultural use, and it is imperative to maintain this zoning to preserve local farming practices and the ecological balance of the area. Any deviation from this designation is not only detrimental but also potentially illegal under current zoning laws.

2. **Environmental Concerns:** The conversion of agricultural land to residential use poses significant and potentially irreversible environmental risks, including disruption to local ecosystems, increased strain on local resources, and a host of other ecological consequences.

3. **Community Impact:** The proposed development will have a profoundly adverse effect on the character and quality of life in the surrounding community. It will likely lead to increased traffic, loss of green space, and other community-related issues that are unacceptable and against the public interest.

I hereby formally request that the proposed **Bloom Subdivision Preliminary Plan SB2025-017** be denied in its current form. We urge the Planning Services to take immediate action to prevent this unlawful and environmentally harmful development. Should this proposal be approved, we reserve the right to pursue all legal recourses available to us to protect our community and the environment.

Thank you for your immediate attention to this matter. I look forward to your prompt action and

understanding of our serious concerns.

Sincerely,

Erica Haycock

From: Lindsey M.
To: Michael Pesicka
Subject: PROJECT NUMBER: SB2025-017
Date: Thursday, July 24, 2025 3:24:04 PM

Dear Douglas County Planning Commission,

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment and infrastructure, and quality of life.

For many reasons, which will be discussed at all future commission meetings, I urge the Planning Commission to deny approval of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.

Best,
Lindsey Moore

From:	jlwa1951@aol.com
To:	Michael Pesicka
Subject:	Bloom Preliminary Plan
Date:	Thursday, July 24, 2025 4:02:35 PM

Dear Douglas County Planning Commission,

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment, infrastructure, and quality of life. We have already been through this process once, and that proposal was denied. How many times do we have to go through this before there is a firm and final answer to potential builders. We chose the location for our home and paid a premium for it with the understanding there would be no further building to the west of our property.

For many reasons which will be discussed at all future commission meetings, I urge the planning commission to deny approval of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.

Sincerely,

Judy Anderson
Trails at Crowfoot resident

Sent from my iPhone

From: Darci Evanish
To: Michael Pesicka
Subject: Objection to Project SB2025-017
Date: Thursday, July 24, 2025 5:50:04 PM

Dear Mr. Pesicka and the Douglas County Planning Commission,

I would like to formally object to the proposed Bloom development plan (Project File SB2025-17), currently under review by Douglas County. As a resident of this community, I am very concerned about the long term impact this development will have on the environment, infrastructure, and degradation of the quality of life for Parker residents.

For many reasons that I recognize will be addressed in future commission meetings, I request that the planning commission decline the proposal and respectfully request this objection be entered into public record.

Thank you for your time, consideration, and commitment to protecting the interests of the residents & communities you serve.

Best regards,
Darci

--
Darci Evanish
303-746-0258
darci77@gmail.com

From: Julia Grek
To: Michael Pesicka
Subject: PROJECT NUMBER: SB2025-017
Date: Thursday, July 24, 2025 7:00:05 PM

Dear Douglas County Planning Commission,

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment and infrastructure, and quality of life.

For many reasons, which will be discussed at all future commission meetings, I urge the Planning Commission to deny approval of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.

Respectfully,
Julia Grek
Resident Trails Of Crowfoot

From: Joseph Evanish
To: Michael Pesicka
Subject: Unconditional Opposition and Request for Denial – Bloom Development (Project File SB2025-17)
Date: Thursday, July 24, 2025 10:11:25 PM

Good Evening Mr. Pesicka and the Douglas County Planning Commission,

This email serves as a formal objection to the proposed Bloom development plan (Project File SB2025-17). As residents of Parker, we request this project be denied. It represents a direct threat to our community's infrastructure, ecological stability, public safety, and the essential character that defines our town.

Approving this plan would be an act of gross negligence. Our concerns are not abstract; they are based on the daily realities of living here:

Infrastructural Collapse: Our roads, particularly Parker Road, Mainstreet, and Crowfoot Valley Road, are already at or beyond capacity. The addition of hundreds of homes, representing potentially thousands of new daily vehicle trips, is untenable. This isn't an inconvenience; it is a guarantee of gridlock that will paralyze our community and drastically increase emergency response times for fire and medical services, putting lives at risk.

Environmental Degradation: The proposed land is a vital open space and wildlife corridor for mule deer, foxes, and birds of prey. This development will not "integrate with nature"—it will pave over it.

Overburdened Public Services: Douglas County schools are already facing capacity challenges. This development will flood our local schools, forcing the use of temporary portable classrooms and diminishing the quality of education for all children. The developer's projected tax revenue will be a meager compensation for the permanent strain placed on our schools, libraries, and parks.
The short-term economic gains promised by a developer cannot be weighed against the long-term, irreversible damage to our community. Your duty is not to facilitate developer profits; it is to protect the interests and quality of life of the existing residents you were appointed to serve.

We are not opposed to growth, but we are vehemently opposed to reckless, unsustainable development that degrades our community. The Bloom proposal is precisely that.

I ask that the Planning Commission uphold its responsibility to the citizens of Parker and Douglas County by denying Project File SB2025-17 in its entirety. I ask that this letter be entered into the public record for this project.

Sincerely,

Joe Evanish
303-476-0815

From: Moore, Jesse
To: Michael Pesicka
Subject: PROJECT NUMBER: SB2025-017
Date: Friday, July 25, 2025 9:08:53 AM

Dear Douglas County Planning Commission,

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment and infrastructure, and quality of life.

For many reasons, which will be discussed at all future commission meetings, I urge the Planning Commission to deny approval of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.

Regards,

Jesse Moore

From: Marcel OBrien
To: Michael Pesicka
Subject: PROJECT NUMBER: SB2025-017
Date: Friday, July 25, 2025 9:17:45 AM

Dear Douglas County Planning Commission,

I am writing to formally object to the proposed Bloom Preliminary Plan (Project File SB2025-017), currently under review by Douglas County. As a resident of this community, I am deeply concerned about the long-term impact this large-scale development will have on our environment and infrastructure, and quality of life.
For many reasons, which will be discussed at all future commission meetings, I urge the Planning Commission to deny approval of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this matter and your commitment to protecting the interests of the residents you serve.

Regards
Marcel OBrien

From: Kendra Buttner
To: Michael Pesicka
Subject: Objection Bloom plan
Date: Friday, July 25, 2025 2:46:18 PM

Dear Douglas County Planning Commission,

I am writing to formally object to the proposed **Bloom Preliminary Plan (Project SB2025-017)** currently under review by Douglas County. As a long-time resident of Douglas County and a permanent resident of the Parker Trails at Crowfoot community, I have serious concerns regarding the long-term impacts this large-scale development will have on our infrastructure, environmental sustainability, and overall quality of life.

For a multitude of reasons—many of which I intend to address in future commission meetings—I strongly urge the Planning Commission to deny approval of the current proposal. I respectfully request that this objection be entered into the public record.

Thank you for your attention to this urgent matter and for your continued commitment to protecting the interests of the residents you serve.

Kindly,

Kendra Buttner

17064 Rose Mallow Ave.

Parker, CO. 80134

From: Planning Commission
To: Michael Pesicka
Subject: FW: Crowsnest
Date: Thursday, January 22, 2026 11:17:57 AM
Attachments: v15044gf0000d5a20i7og65inb1mku80.mp4

From: brittany mchugh <brittany091090@gmail.com>
Sent: Wednesday, January 21, 2026 3:00 PM
To: ak@wkccolorado.com; Planning <Planning@douglas.co.us>; Planning Commission <PlanningCommission@douglas.co.us>; BOCC <BOCC@douglas.co.us>; matt.martinez@state.co.us; kara.vanhoose@state.co.us
Subject: Crowsnest

> **Caution:** This email originated outside the organization. Be cautious with links and attachments.

My name is Brittany McHugh and I am against the crowfoot project. I live in Pradera and I drive crowfoot every day and you wouldn't believe the amount of wildlife I have seen in this area. I'm attaching a video of the herd of elk roaming around just a few weeks ago. I think it's important to note my husband owns the largest residential electrical contracting company in the state so we are normally all for Colorado growth but this is just not right and everyone knows it. I will see you at the next meeting.

We are writing as residents of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.

This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:

1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.

2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big

game.

3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:

• A comprehensive Wildlife Impact Study conducted during peak migration months.

• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,
Brittany McHugh
5203 Soledad Circle, Parker CO 80134

From:	Planning Commission
To:	Michael Pesicka
Subject:	FW: Preserving elk migration habitat
Date:	Thursday, January 22, 2026 11:21:05 AM

From: A Basile <basile347@yahoo.com>
Sent: Thursday, January 22, 2026 9:48 AM
To: k@wkccolorado.com; Planning <Planning@douglas.co.us>; Planning Commission <PlanningCommission@douglas.co.us>; BOCC <BOCC@douglas.co.us>; matt.martinez@state.co.us; Kara.VanHoose@state.co.us
Subject: Preserving elk migration habitat

Caution: This email originated outside the organization. Be cautious with links and attachments.

I am writing as a resident of Douglas County and the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.
This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:
1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.
2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.
3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:
• A comprehensive Wildlife Impact Study conducted during peak migration months.
• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on

January 29th and expect the County to hold this project to the highest environmental standards.

Further, the amount of development in Parker and Douglas County is counter to the quality of life and wildlife heritage that we hold dear as Colorado residents. Impacts are becoming more and more evident from our ability to preserve critical wildlife habitat to future concerns over the quality of our water supply.

Sincerely,

Alfred Basile
10855 Touchstone Loop
Parker, CO

From: Planning Commission
To: Michael Pesicka
Subject: FW: Bloom Estates Opposition
Date: Thursday, January 22, 2026 11:20:05 AM

From: Amy A. <hokie1996@gmail.com>
Sent: Wednesday, January 21, 2026 10:11 PM
To: ak@wkccolorado.com; Planning <Planning@douglas.co.us>; Planning Commission <PlanningCommission@douglas.co.us>; BOCC <BOCC@douglas.co.us>; matt.martinez@state.co.us; kara.vanhoose@state.co.us
Subject: Bloom Estates Opposition

> **Caution:** This email originated outside the organization. Be cautious with links and attachments.

Dear representatives,

We are writing as residents of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.

This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:

1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.

2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.

3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:

• A comprehensive Wildlife Impact Study conducted during peak migration months.

• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,
Amy & Ben Alderton
7553 Nuthatch Circle
Parker, CO 80134

~~~~~~~~~~~~~~~~
Amy Alderton
~~~~~~~~~~~~~~~~

From:	walterannette@comcast.net
To:	ak@wkccolorado.com; Planning; Planning Commission; BOCC; matt.martinez@state.co.us; Kara.VanHoose@state.co.us
Subject:	Trails at Crowfoot Community - Annette & Don Walter Resident Response To: Proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave)
Date:	Thursday, January 22, 2026 1:50:26 PM

Caution: This email originated outside the organization. Be cautious with links and attachments.

My name is Annette Walter, and I am writing on behalf of my husband Donald and I regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). We are residents of the Trails at Crowfoot community and reside a few hundred feet from the proposed location of the Bloom Estates development.

While we understand the pressures of growth in Parker and Franktown, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.

This parcel of land serves as a vital corridor for local herds. I personally have witnessed the migration of these spectacular animals adjacent to our neighborhood and cannot imagine what would happen to animals and our property if their migration patterns are disrupted. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors.

We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:

1. **Non-Compliance with Governor Polis's Executive Order B 2019 008:** state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors
2. **Increased Wildlife-Vehicle Collisions**: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.
3. **Habitat Fragmentation:** Violating the spirit of state-level protections for Colorado's big game.
4. **Property Damage:** Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners and injuries to the elk.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:

1. A comprehensive Wildlife Impact Study conducted during peak migration months.
2. A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).
3. A site plan that includes a dedicated, unbuilt migration buffer of at least 300–500 feet to allow passage.

4. Binding fencing restrictions (wildlife-friendly designs only) to be written into the development's HOA bylaws.

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,
Annette M. Walter and Donald R. Walter
14413 Shasta Daisy Lane
Parker, CO 80134
Email: walterannette@comcast.net
Cell: 408-431-6545

From: Planning Commission
To: Michael Pesicka
Subject: FW: Elk migration corridor
Date: Friday, January 23, 2026 7:41:55 AM

From: Bhaskar Nayak <bhaskarnyk20@gmail.com>
Sent: Thursday, January 22, 2026 2:25 PM
To: ak@wkccolorado.com; Planning <Planning@douglas.co.us>; Planning Commission <PlanningCommission@douglas.co.us>; BOCC <BOCC@douglas.co.us>; matt.martinez@state.co.us; kara.vanhoose@state.co.us
Subject: Elk migration corridor

> **Caution:** This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.

This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:

1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.

2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.

3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:

• A comprehensive Wildlife Impact Study conducted during peak migration months.

• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,
Bhaskar Nayak
11554 Tyrolite Trl, Parker, CO 80138

From: carrie N.
To: Planning
Subject: against the Bloom development
Date: Thursday, January 22, 2026 6:43:23 PM

Caution: This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.

This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:

1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.

2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.

3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:

• A comprehensive Wildlife Impact Study conducted during peak migration months.

• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,
Carrie and Shaun Niles
13798 Deertrack Ln, Parker, CO 80134

From:	Casey Connelly
To:	ak@wkcolorado.com; Planning; planningcommision@douglas.co.us; matt.martinez@state.co.us; kara.vanhoose@state.co.us
Subject:	Stop Bloom
Date:	Wednesday, January 21, 2026 10:16:45 PM

Caution: This email originated outside the organization. Be cautious with links and attachments.

Hello,

We are writing as residents of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.

This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:

1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.

2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.

3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:

• A comprehensive Wildlife Impact Study conducted during peak migration months.

• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,

Casey Connelly

From: Planning Commission
To: Michael Pesicka
Subject: FW: Elk Migration Route and Bloom Estates Development
Date: Friday, January 23, 2026 7:42:17 AM

From: Chelsea Hays <chelseahays503@gmail.com>
Sent: Thursday, January 22, 2026 8:38 PM
To: ak@wkccolorado.com; Planning <Planning@douglas.co.us>; Planning Commission <PlanningCommission@douglas.co.us>; BOCC <BOCC@douglas.co.us>; matt.martinez@state.co.us; kara.vanhoose@state.co.us
Subject: Elk Migration Route and Bloom Estates Development

> **Caution:** This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.

This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:

1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.

2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.

3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:

• A comprehensive Wildlife Impact Study conducted during peak migration months.

• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,
Chelsea Hays
5464 Military Trl
Parker, CO 80134

From: Planning Commission
To: Michael Pesicka
Subject: FW: Objection to the Bloom Development in Parker.
Date: Thursday, January 22, 2026 11:20:11 AM

From: Christine Plentyhoops <christine@plentyhoops.com>
Sent: Wednesday, January 21, 2026 10:28 PM
To: Planning <Planning@douglas.co.us>; Planning Commission <PlanningCommission@douglas.co.us>; BOCC <BOCC@douglas.co.us>; matt.martinez@state.co.us; kara.vanhoose@state.co.us
Subject: Objection to the Bloom Development in Parker.

> **Caution:** This email originated outside the organization. Be cautious with links and attachments.

I am writing as a resident of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.

This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:

1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.

2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.

3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:

• A comprehensive Wildlife Impact Study conducted during peak migration months.

• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,
Christine Plentyhoops
21758 Omaha Ave
Parker, CO 80138

Kind Regards,

Christine Plentyhoops
720-488-0516 (O)
720-338-8875 (C)
877-267-8196 (F)
cplentyhoops@primerica.com

From:	Planning Commission
To:	Michael Pesicka
Subject:	FW: Bloom Estates Development/Negative Environmental Impact Involving Elk Migration Route
Date:	Thursday, January 22, 2026 11:19:05 AM

From: Kristen Weiland <kmarie.weiland@gmail.com>
Sent: Wednesday, January 21, 2026 4:11 PM
To: ak@wkccolorado.com; Planning <Planning@douglas.co.us>; Planning Commission <PlanningCommission@douglas.co.us>; BOCC <BOCC@douglas.co.us>; matt.martinez@state.co.us; kara.vanhoose@state.co.us
Cc: darin weiland <darindub@gmail.com>
Subject: Bloom Estates Development/Negative Environmental Impact Involving Elk Migration Route

Caution: This email originated outside the organization. Be cautious with links and attachments.

To Whom It May Concern:

We are writing as residents of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.

This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:

1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.

2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.

3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:

• A comprehensive Wildlife Impact Study conducted during peak migration months.

• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,
Darin & Kristen Weiland
14454 Hop Clover Trail
Parker, CO 80134

From: Planning
To: Michael Pesicka
Subject: FW: The proposed Bloom Estates development
Date: Friday, January 23, 2026 8:12:30 AM

Shanna Austin | Public Outreach & Assistance Manager
Douglas County Department of Community Development
Planning Resources Division
Address | 100 Third St., Castle Rock, CO 80104
Direct | 303-814-4349 **Main** | 303-660-7460
Email | saustin@douglas.co.us | planning@douglas.co.us
NOTICE: Douglas County Planning does not charge "Approval" fees. Douglas County communicates through our official email accounts ending in @douglas.co.us; beware of phishing scams using similar addresses. If you have questions or concerns about the validity of an email or invoice, please call our Public Outreach and Assistance team at 303-660-7460 or email planning@douglas.co.us.

From: DAVID PERRETT <dperrett3@msn.com>
Sent: Thursday, January 22, 2026 2:17 PM
To: ak@wkccolorado.com; Planning <Planning@douglas.co.us>; Planning Commission <PlanningCommission@douglas.co.us>; BOCC <BOCC@douglas.co.us>; matt.martinez@state.co.us; kara.vanhoose@state.co.us
Cc: Carol Perrett <cperrett3@msn.com>
Subject: The proposed Bloom Estates development

Caution: This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.

This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:

1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.

2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.

3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:

• A comprehensive Wildlife Impact Study conducted during peak migration months.

• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

All the best,
David and Carol Perrett

From: Planning Commission
To: Michael Pesicka
Subject: FW: Proposed Bloom Estates Development in Douglas County
Date: Friday, January 23, 2026 7:41:36 AM

From: Dave Wheat <davewheat503@gmail.com>
Sent: Thursday, January 22, 2026 3:49 PM
To: ak@wkccolorado.com; Planning <Planning@douglas.co.us>; Planning Commission <PlanningCommission@douglas.co.us>; BOCC <BOCC@douglas.co.us>; matt.martinez@state.co.us; Kara.VanHoose@state.co.us
Cc: Dave Wheat <davewheat503@gmail.com>; Toni Wheat <wheatsrus@gmail.com>
Subject: Proposed Bloom Estates Development in Douglas County

> **Caution:** This email originated outside the organization. Be cautious with links and attachments.

Hello,

We are writing as residents of the Pradera/Trails at Crowfoot communities regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave) in Parker. While we understand the pressures of growth in Parker and Franktown, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.

This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:

1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.
2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.
3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:

• A comprehensive Wildlife Impact Study conducted during peak migration months.
• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).
• A site plan that includes a dedicated, unbuilt migration buffer of at least 300–500 feet to allow passage.
• Binding fencing restrictions (wildlife-friendly designs only) to be written into the development's HOA bylaws.

For those of us in the Trails at Crowfoot neighborhood, we are much closer (distance-wise) to the proposed Bloom Estates build. In addition to the above:

1. Trails at Crowfoot properties on the immediate Northern border of the proposed Bloom Estates build were charged premiums for our lots. This was done less than 5-years ago for the reasons of viewing wildlife, backyard privacy, and especially the view of Pikes Peak. This will be taken away by the addition of the Bloom Estates. Adequate compensation for financial and lifestyle losses incurred due to the creation of Bloom Estates should be offered. At a minimum, compensation should include: a) the lot premium we paid, and b) the loss of property value we will inevitably incur by losing said wildlife, privacy, peace of mind, and the view of Pikes Peak.
2. Being closer to the build site, we will certainly experience several years of dust, noise, construction traffic, disruption, and inconvenience, all literally in our respective back yard. The land owner, the developer, contractors, Douglas County, and anyone else involved in establishing or receiving tax revenue from Bloom Estates are all going to profit handsomely from this project -- yet it will be at the expense and permanent damage of area native wildlife, migration routes, and Bloom Estates neighbor's financial investments, peace of mind, and well being. Compensation is warranted.

We look forward to discussing these concerns with the developer’s representative on January 29th.

Sincerely,

Dave and Toni Wheat
17566 Rose Mallow Ave.
Parker, CO 80134

cell: 503.705.0801
e-mail: davewheat503@gmail.com
LinkedIn: www.linkedin.com/in/davewheat/

From: Planning Commission
To: Michael Pesicka
Subject: FW: Bloom estates
Date: Thursday, January 22, 2026 11:19:21 AM

-----Original Message-----
From: David Bauer <bauer434@yahoo.com>
Sent: Wednesday, January 21, 2026 6:20 PM
To: ak@wkccolorado.com; Planning <Planning@douglas.co.us>; Planning Commission <PlanningCommission@douglas.co.us>; BOCC <BOCC@douglas.co.us>; matt.martinez@state.co.us; kara.vanhoose@state.co.us
Subject: Bloom estates

Caution: This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.

This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:

1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.

2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.

3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:

• A comprehensive Wildlife Impact Study conducted during peak migration months.

• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,
David Bauer
17329 Rose Mallow St.
Parker CO

From: Planning Commission
To: Michael Pesicka
Subject: FW: Bloom estates development
Date: Thursday, January 22, 2026 11:20:52 AM

From: Emily Kirlin <emilyvanderbosch@gmail.com>
Sent: Thursday, January 22, 2026 9:11 AM
To: ak@wkccolorado.com; Planning <Planning@douglas.co.us>; Planning Commission <PlanningCommission@douglas.co.us>; BOCC <BOCC@douglas.co.us>; matt.martinez@state.co.us; kara.vanhoose@state.co.us
Subject: Bloom estates development

> **Caution:** This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.

This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:

1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.

2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.

3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:

• A comprehensive Wildlife Impact Study conducted during peak migration months.

• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,
Emily Kirlin
10769 Appaloosa Court
Parker, Colorado 80134

From: Planning Commission
To: Michael Pesicka
Subject: FW: Bloom Estates Development
Date: Thursday, January 22, 2026 11:20:43 AM

From: Jacqueline Phillips <nursejphillips@gmail.com>
Sent: Thursday, January 22, 2026 8:32 AM
To: ak@wkccolorado.com; Planning <Planning@douglas.co.us>; Planning Commission <PlanningCommission@douglas.co.us>; BOCC <BOCC@douglas.co.us>; matt.martinez@state.co.us; Kara.VanHoose@state.co.us
Subject: Bloom Estates Development

> **Caution:** This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Trails at Crowfoot community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker and Franktown, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.
This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:
1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.
2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.
3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:
• A comprehensive Wildlife Impact Study conducted during peak migration months.
• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).
• A site plan that includes a dedicated, unbuilt migration buffer of at least 300–500 feet to allow passage.
• Binding fencing restrictions (wildlife-friendly designs only) to be written into the

development's HOA bylaws.
We look forward to discussing these concerns with the developer’s representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,
Jackie Phillips
14293 Hop Clover Trail
Parker, CO 80134

From: BOCC
To: Michael Pesicka
Subject: FW: Proposed Bloom Estates development
Date: Friday, January 23, 2026 11:15:42 AM

From: Jaime Jackson <jrd1192@msn.com>
Sent: Friday, January 23, 2026 11:07 AM
To: ak@wkccolorado.com; Planning <Planning@douglas.co.us>; Planning Commission <PlanningCommission@douglas.co.us>; BOCC <BOCC@douglas.co.us>; matt.martinez@state.co.us; kara.vanhoose@state.co.us
Subject: Proposed Bloom Estates development

> **Caution:** This email originated outside the organization. Be cautious with links and attachments.

I am writing as a resident of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While I understand the pressures of growth in Parker, I have significant concerns regarding the impact this specific project will have on a documented elk migration route.
This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:

1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.
2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.
3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:

• A comprehensive Wildlife Impact Study conducted during peak migration months.
• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

I look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,
Jaime Davis Jackson
17767 Weymouth Ave Parker

From: Planning Commission
To: Michael Pesicka
Subject: FW: Formal Concerns Regarding Bloom Estates Development and Elk Migration Corridors
Date: Friday, January 23, 2026 7:41:24 AM

From: Jamie Sunderman <nordyaddict@gmail.com>
Sent: Thursday, January 22, 2026 6:29 PM
To: ak@wkccolorado.com; Planning <Planning@douglas.co.us>; Planning Commission <PlanningCommission@douglas.co.us>; BOCC <BOCC@douglas.co.us>; matt.martinez@state.co.us; kara.vanhoose@state.co.us
Subject: Formal Concerns Regarding Bloom Estates Development and Elk Migration Corridors

> **Caution:** This email originated outside the organization. Be cautious with links and attachments.

I am writing as a resident of the Parker community to address the proposed Bloom Estates development. While I recognize the inevitability of growth in our region, I have significant concerns regarding the impact this high-density project will have on a documented elk migration route south of Crowfoot and Rose Mallow Ave.

This land is a vital corridor. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats. The current proposal threatens to permanently sever this route, which will likely result in:

• Public Safety Risks: Increased wildlife-vehicle collisions on Crowfoot Valley Rd and Hwy 83.

• Regulatory Non-Compliance: Fragmentation that contradicts state-level big game protections.

• Residential Conflict: Property damage as displaced elk move into existing neighborhoods.

I formally request that the Planning Commission require a comprehensive Wildlife Impact Study and a written consultation summary from Colorado Parks and Wildlife (CPW) before any zoning approvals. I look forward to discussing these requirements with the developer on January 29th.

Sincerely,
Jamie Sunderman
14933 Rider Pl, Parker, CO 80134

From: Planning Commission
To: Michael Pesicka
Subject: FW: Bloom Development
Date: Friday, January 23, 2026 7:41:43 AM

From: Jessica Carcoana <jclarkparis@gmail.com>
Sent: Thursday, January 22, 2026 4:21 PM
To: ak@wkccolorado.com; Planning <Planning@douglas.co.us>; Planning Commission <PlanningCommission@douglas.co.us>; BOCC <BOCC@douglas.co.us>; matt.martinez@state.co.us; Kara.VanHoose@state.co.us
Subject: Bloom Development

> **Caution:** This email originated outside the organization. Be cautious with links and attachments.

Good afternoon,
I am writing as a resident of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.
This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:
1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.
2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.
3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:
• A comprehensive Wildlife Impact Study conducted during peak migration months.
• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental

standards.
Sincerely,

Jessica Carcoana
13787 Ashgrove Cir, Parker, CO 80134

From:	Planning Commission
To:	Michael Pesicka
Subject:	FW: Bloom Estates Development
Date:	Thursday, January 22, 2026 11:19:58 AM

From: Jordan Smith <jbird1098@aol.com>
Sent: Wednesday, January 21, 2026 9:08 PM
To: Planning Commission <PlanningCommission@douglas.co.us>
Subject: Bloom Estates Development

> **Caution:** This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.

This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:

1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.

2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.

3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:

• A comprehensive Wildlife Impact Study conducted during peak migration months.

• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,
Jordan Smith
17900 Calendula Dr Parker

From:	Planning Commission
To:	Michael Pesicka
Subject:	FW: Proposed Bloom Estates development
Date:	Thursday, January 22, 2026 11:19:34 AM

From: Kathy Rhoades <katheeez@msn.com>
Sent: Wednesday, January 21, 2026 7:25 PM
To: ak@wkcolorado.com; planning@douglaa.co.us; BOCC <BOCC@douglas.co.us>; matt.martinez@state.co.us; Kara.VanHoose@state.co.us
Cc: Planning Commission <PlanningCommission@douglas.co.us>
Subject: Proposed Bloom Estates development

> **Caution:** This email originated outside the organization. Be cautious with links and attachments.

Good evening,
We are writing as residents of the Trails at Crowfoot community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave).

While we understand the pressures of growth in Parker and Franktown, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.

This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:

1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.

2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.

3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:

• A comprehensive Wildlife Impact Study conducted during peak migration months.
• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).
• A site plan that includes a dedicated, unbuilt migration buffer of at least 300–500 feet to allow passage.
• Binding fencing restrictions (wildlife-friendly designs only) to be written into the development's HOA bylaws.

We look forward to discussing these concerns with the developer’s representative on January 29th and expect the County to hold this project to the highest environmental standards.
Sincerely,

Kathy Rhoades
17100 Rose Mallow Ave
Parker Co 80134

Sent via the Samsung Galaxy S23 Ultra 5G, an AT&T 5G smartphone

From: Planning Commission
To: Michael Pesicka
Subject: FW: Bloom development - fight to protect the last remaining elk migration corridors
Date: Thursday, January 22, 2026 11:19:29 AM

From: LENORE BATES <klbates6625@msn.com>
Sent: Wednesday, January 21, 2026 6:26 PM
To: ak@wkccolorado.com; Planning <Planning@douglas.co.us>; Planning Commission <PlanningCommission@douglas.co.us>; BOCC <BOCC@douglas.co.us>; matt.martinez@state.co.us; Kara.VanHoose@state.co.us
Subject: Bloom development - fight to protect the last remaining elk migration corridors

> **Caution:** This email originated outside the organization. Be cautious with links and attachments.

Parker & Douglas Couty:

I join in on my community's comments on this zoning, and making sure significant consideration is for wildlife. I know it is important because my neighborhood's large deer and antelope herds have been impacted by large-annexed developments on Inspiration and Piney Lake Rd. As well as the changes to our trees, birds, dark skies, scenic views, land contours, secluded gulches, and the added infrastructure, such as 385' towers, traffic, and noise.

Therefore, we are writing as residents of the Parker community and Douglas County regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.

This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:

1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.
2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.
3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning

Commission require the developer to provide:

• A comprehensive Wildlife Impact Study conducted during peak migration months.

• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,

Lenore Bates
12803 N Piney Lake Rd
Parker CO 80138
303-841-9029 landline/home
303-884-7879 cell

From: Planning Commission
To: Michael Pesicka
Subject: FW: Bloom project
Date: Thursday, January 22, 2026 11:20:48 AM

From: Leslie Ufford <leslieufford@gmail.com>
Sent: Thursday, January 22, 2026 8:52 AM
To: ak@wkccolorado.com
Cc: Planning <Planning@douglas.co.us>; Planning Commission <PlanningCommission@douglas.co.us>; bocce@douglas.co.us; matt.martinez@state.co.us; kara.vanhoose@state.co.us
Subject: Bloom project

Caution: This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.
This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:
1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.
2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.
3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:
• A comprehensive Wildlife Impact Study conducted during peak migration months.
• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,
Leslie Ufford
9422 Tammy Ln, Parker, CO 80134

From: Planning Commission
To: Michael Pesicka
Subject: FW: Elk migration corridor preservation
Date: Thursday, January 22, 2026 11:21:00 AM

-----Original Message-----
From: Lbjbasile@yahoo.com <lbjbasile@yahoo.com>
Sent: Thursday, January 22, 2026 9:34 AM
To: ak@wkccolorado.com; Planning <Planning@douglas.co.us>; Planning Commission <PlanningCommission@douglas.co.us>; BOCC <BOCC@douglas.co.us>; matt.martinez@state.co.us; Kara.VanHoose@state.co.us
Subject: Elk migration corridor preservation

Caution: This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route. This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:
1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.
2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.
3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:
• A comprehensive Wildlife Impact Study conducted during peak migration months.
• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.
Sincerely,

Lorri Basile
10855 Touchstone Loop
Parker, CO
80134
Sent from my iPhone

From: Planning Commission
To: Michael Pesicka
Subject: FW: Bloom Estates Development
Date: Thursday, January 22, 2026 11:19:54 AM

-----Original Message-----
From: Maddie D <madelinedickman1@gmail.com>
Sent: Wednesday, January 21, 2026 9:06 PM
To: ak@wkccolorado.com; Planning <Planning@douglas.co.us>; Planning Commission <PlanningCommission@douglas.co.us>; BOCC <BOCC@douglas.co.us>; matt.martinez@state.co.us; Kara.VanHoose@state.co.us
Subject: Bloom Estates Development

Caution: This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route. This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:
1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.
2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.
3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:
• A comprehensive Wildlife Impact Study conducted during peak migration months.
• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.
Sincerely,

Madeline Dickman
6353 Trappers Trail Ave
Parker, CO 80134

From: Planning Commission
To: Michael Pesicka
Subject: FW: Protect Elk Migration - Parker CO
Date: Thursday, January 22, 2026 11:19:16 AM

-----Original Message-----
From: Madison Griffin <griffinmadisonl07@gmail.com>
Sent: Wednesday, January 21, 2026 5:54 PM
To: ak@wkccolorado.com; Planning <Planning@douglas.co.us>; Planning Commission <PlanningCommission@douglas.co.us>; BOCC <BOCC@douglas.co.us>; matt.martinez@state.co.us; kara.vanhoose@state.co.us
Subject: Protect Elk Migration - Parker CO

Caution: This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.

This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:

1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.

2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.

3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:

• A comprehensive Wildlife Impact Study conducted during peak migration months.

• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,
Madison
Hitching post trail, 80134

From:	Planning Commission
To:	Michael Pesicka
Subject:	FW: Crowsnest annexation
Date:	Thursday, January 22, 2026 11:20:30 AM

From: Dana Knauff <danaknauff14@gmail.com>
Sent: Thursday, January 22, 2026 7:41 AM
To: ak@wkccolorado.com; Planning <Planning@douglas.co.us>; Planning Commission <PlanningCommission@douglas.co.us>; BOCC <BOCC@douglas.co.us>; matt.martinez@state.co.us; kara.vanhoose@state.co.us
Subject: Crowsnest annexation

> **Caution:** This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.

This parcel of land serves as a vital corridor for local deer, elk and pronghorn herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:

1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.

2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.

3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:

• A comprehensive Wildlife Impact Study conducted during peak migration months.

• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,
Mary Dana Knauff

7827 E Warbonnet Trl
Parker, Co 80138

--
Dana

"Peace begins with a smile"
Mother Teresa

From: Planning
To: Michael Pesicka
Subject: FW: Bloom Estates
Date: Thursday, January 22, 2026 11:55:37 AM

-----Original Message-----
From: Meagan Mayer <meaganmayer@hotmail.com>
Sent: Thursday, January 22, 2026 10:28 AM
To: ak@wkccolorado.com; Planning <Planning@douglas.co.us>; Planning Commission <PlanningCommission@douglas.co.us>; BOCC <BOCC@douglas.co.us>; matt.martinez@state.co.us; Kara.VanHoose@state.co.us
Subject: Bloom Estates

Caution: This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Pradera/ Trails at Crowfoot communities regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker and Franktown, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.
This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:
1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.
2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.
3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:
• A comprehensive Wildlife Impact Study conducted during peak migration months.
• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).
• A site plan that includes a dedicated, unbuilt migration buffer of at least 300–500 feet to allow passage.
• Binding fencing restrictions (wildlife-friendly designs only) to be written into the development's HOA bylaws.
We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.
Sincerely,
Meagan Minshall
17452 Rose Mallow Ave

From:	Melissa Heffernan
To:	ak@wkccolorado.com; Planning; planningcommission@douglas.co; BOCC; matt.martinez@state.co.us; kara.vanhoose@state.co
Cc:	Brian Heffernan
Subject:	Bloom Estates Development Concerns
Date:	Wednesday, January 21, 2026 9:27:43 PM

Caution: This email originated outside the organization. Be cautious with links and attachments.

Hello,

We are writing as residents of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.

This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:

1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.

2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.

3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:

• A comprehensive Wildlife Impact Study conducted during peak migration months.

• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Kind Regards,

Melissa Heffernan
23702 Glenmoor Dr
Parker, CO 80138

From: Planning Commission
To: Michael Pesicka
Subject: FW: Bloom Housing Project off of Bayou Gulch and Scott Road
Date: Friday, January 23, 2026 7:42:05 AM

From: Michael Hurley <landmhurley@gmail.com>
Sent: Thursday, January 22, 2026 4:24 PM
To: ak@wkccolorado.com; Planning <Planning@douglas.co.us>; Planning Commission <PlanningCommission@douglas.co.us>; BOCC <BOCC@douglas.co.us>; matt.martinez@state.co.us; Kara.VanHoose@state.co.us
Subject: Bloom Housing Project off of Bayou Gulch and Scott Road

> **Caution:** This email originated outside the organization. Be cautious with links and attachments.

Hello, this is Michael and Laura Hurley. We are residents of the Pradera community (5621 Raintree Dr) and are concerned about the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the desire for growth we are very concerned about the amount of growth that has already been approved along Crowfoot Valley Rd. We are already seeing a large disruption in elk migration paths and this proposed development will have further negative consequences on a documented elk migration route.

This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:
1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.
2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.
3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:
• A comprehensive Wildlife Impact Study conducted during peak migration months.
• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).
• A site plan that includes a dedicated, unbuilt migration buffer of at least 300–500 feet to allow passage.
• Binding fencing restrictions (wildlife-friendly designs only) to be written into the development's HOA bylaws.
We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,

Michael and Laura Hurley

From:	Planning Commission
To:	Michael Pesicka
Subject:	FW: Community Concerns Regarding Bloom Estates Development and Elk Migration Corridor
Date:	Thursday, January 22, 2026 11:21:35 AM

From: Molly Barnwell <mollylane227@gmail.com>
Sent: Thursday, January 22, 2026 10:45 AM
To: ak@wkccolorado.com; Planning <Planning@douglas.co.us>; Planning Commission <PlanningCommission@douglas.co.us>; BOCC <BOCC@douglas.co.us>; matt.martinez@state.co.us; Kara.VanHoose@state.co.us
Subject: Community Concerns Regarding Bloom Estates Development and Elk Migration Corridor

> **Caution:** This email originated outside the organization. Be cautious with links and attachments.

Dear Bloom Estates Development Team,

I am writing on behalf of residents of the Trails at Crowfoot community regarding the proposed Bloom Estates development located south of Crowfoot and Rose Mallow Avenue. While we recognize the continued growth pressures in Parker and Franktown, we have serious concerns about the environmental impact of this specific project — particularly its location within a documented elk migration corridor.

This parcel of land currently serves as a critical passageway for local elk herds moving between seasonal habitats. Under Governor Polis's Executive Order B 2019-008, state agencies are directed to prioritize the protection of big game migration routes and seasonal habitat connectivity. We are concerned that the current high-density proposal for Bloom Estates risks permanently disrupting this corridor and could result in several unintended consequences, including:

1. Increased wildlife-vehicle collisions as displaced elk are forced toward Crowfoot Valley Road and Highway 83.
2. Habitat fragmentation that undermines long-term conservation efforts for Colorado's big game populations.
3. Increased human-wildlife conflict, including property damage as animals are pushed into existing residential neighborhoods.

Before any zoning approvals or site plans move forward, we respectfully request that the Planning Commission require the following actions as part of the development review process:

• A comprehensive wildlife impact study conducted during peak migration periods.
• Formal written input and recommendations from Colorado Parks and Wildlife (CPW).
• A site design that includes a dedicated, undeveloped wildlife movement buffer of at least 300–500 feet to allow safe passage.
• Binding wildlife-friendly fencing standards incorporated into HOA covenants and development requirements.

We appreciate the opportunity to engage in dialogue and look forward to discussing these concerns with your team on January 29th. Our community strongly encourages the developer and county to hold this project to the highest environmental and conservation standards while balancing responsible growth.

Thank you for your time and consideration.

Sincerely,
Molly Barnwell
Trails at Crowfoot Resident

From: Planning Commission
To: Michael Pesicka
Subject: FW: Bloom Estates Project
Date: Thursday, January 22, 2026 11:20:25 AM

-----Original Message-----
From: Nadine Goldberg <nadinegoldberg@outlook.com>
Sent: Thursday, January 22, 2026 5:15 AM
To: ak@wkccolorado.com; Planning <Planning@douglas.co.us>; Planning Commission <PlanningCommission@douglas.co.us>; BOCC <BOCC@douglas.co.us>; matt.martinez@state.co.us; kara.vanhoose@state.co.us
Subject: Bloom Estates Project

Caution: This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.

This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:

1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.

2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.

3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:

• A comprehensive Wildlife Impact Study conducted during peak migration months.

• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Stop the insanity!!!

Sincerely,
Nadine Goldberg
10276 Arrowhead Lane Parker, CO 80138

From:	Planning Commission
To:	Michael Pesicka
Subject:	FW: Protect the Last Remaining Elk Migration Corridor
Date:	Friday, January 23, 2026 7:42:32 AM

From: Solveig Swenson <solveigswenson@gmail.com>
Sent: Friday, January 23, 2026 6:37 AM
To: Planning Commission <PlanningCommission@douglas.co.us>
Subject: Protect the Last Remaining Elk Migration Corridor

> **Caution:** This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.
This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:
1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.
2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.
3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:
• A comprehensive Wildlife Impact Study conducted during peak migration months.
• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.
Sincerely,
Solveig Swenson

9407 Twenty Mile Rd #205
Parker 80144

From:	Planning Commission
To:	Michael Pesicka
Subject:	FW: Bloom Development
Date:	Thursday, January 22, 2026 11:21:10 AM

From: Niki Nguyen <nguynik@gmail.com>
Sent: Thursday, January 22, 2026 10:27 AM
To: Planning <Planning@douglas.co.us>; Planning Commission <PlanningCommission@douglas.co.us>; BOCC <BOCC@douglas.co.us>; matt.martinez@state.co.us; Kara.VanHoose@state.co.us; ak@wkccolorado.com
Subject: Bloom Development

> **Caution:** This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Pradera/ Trails at Crowfoot communities regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker and Franktown, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.
This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:
1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.
2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.
3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:
• A comprehensive Wildlife Impact Study conducted during peak migration months.
• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).
• A site plan that includes a dedicated, unbuilt migration buffer of at least 300–500 feet to allow passage.

• Binding fencing restrictions (wildlife-friendly designs only) to be written into the development's HOA bylaws.

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,

Son Ngoc Nguyen
Nhi Y Nguyen
17268 Rose Mallow Ave.
Parker, CO 80134

From:	Planning Commission
To:	Michael Pesicka
Subject:	FW: Bloom Estates development
Date:	Thursday, January 22, 2026 11:20:20 AM

From: Steve House <stevenmhouse307@gmail.com>
Sent: Thursday, January 22, 2026 2:43 AM
To: ak@wkccolorado.com; Planning <Planning@douglas.co.us>; Planning Commission <PlanningCommission@douglas.co.us>; BOCC <BOCC@douglas.co.us>; matt.martinez@state.co.us; kara.vanhoose@state.co.us
Subject: Bloom Estates development

> **Caution:** This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.

This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:

1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.

2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.

3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:

• A comprehensive Wildlife Impact Study conducted during peak migration months.

• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,
Steve House
6639 Pinery Villa Pl
Parker, CO 80134

From: Planning Commission
To: Michael Pesicka
Subject: FW: Apposition Statement for Bloom Estate Development
Date: Thursday, January 22, 2026 11:19:38 AM

-----Original Message-----
From: Sumer Sandel <sumer.sandel@hotmail.com>
Sent: Wednesday, January 21, 2026 8:34 PM
To: ak@wkccolorado.com; Planning <Planning@douglas.co.us>; Planning Commission <PlanningCommission@douglas.co.us>; BOCC <BOCC@douglas.co.us>; matt.martinez@state.co.us; Kara.VanHoose@state.co.us
Subject: Apposition Statement for Bloom Estate Development

Caution: This email originated outside the organization. Be cautious with links and attachments.

To whom it may concern:

We are writing as residents of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.

This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:
1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.
2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.
3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:
• A comprehensive Wildlife Impact Study conducted during peak migration months.
• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.
Sincerely,

Sumer Daley
8916 Mad River rd
Parker Co 81034
Sent from my iPhone

From: Planning Commission
To: Michael Pesicka
Subject: FW: Bloom Project
Date: Thursday, January 22, 2026 11:19:10 AM

From: Todd Carnes <todd.carnes.ll@gmail.com>
Sent: Wednesday, January 21, 2026 5:23 PM
To: ak@wkccolorado.com; Planning <Planning@douglas.co.us>; Planning Commission <PlanningCommission@douglas.co.us>; BOCC <BOCC@douglas.co.us>; matt.martinez@state.co.us; Kara.VanHoose@state.co.us
Subject: Bloom Project

> **Caution:** This email originated outside the organization. Be cautious with links and attachments.

To whom it may concern,

We are writing as residents of the Pradera/ Trails at Crowfoot communities regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker and Franktown, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.
This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:
1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.
2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.
3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:
• A comprehensive Wildlife Impact Study conducted during peak migration months.
• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).
• A site plan that includes a dedicated, unbuilt migration buffer of at least 300–500 feet

to allow passage.
• Binding fencing restrictions (wildlife-friendly designs only) to be written into the development's HOA bylaws.
We look forward to discussing these concerns with the developer’s representative on January 29th and expect the County to hold this project to the highest environmental standards.
Sincerely,

Todd and Angela Carnes
4923 Raintree Cir.
Parker, CO. 80134

From:	Planning Commission
To:	Michael Pesicka
Subject:	FW: Proposed Crowfoot Development
Date:	Thursday, January 22, 2026 11:19:48 AM

From: Will Trail <willtrail@yahoo.com>
Sent: Wednesday, January 21, 2026 9:02 PM
To: ak@wkccolorado.com
Cc: Planning <Planning@douglas.co.us>; matt.martinez@state.co.us; BOCC <BOCC@douglas.co.us>; Planning Commission <PlanningCommission@douglas.co.us>
Subject: Proposed Crowfoot Development

> **Caution:** This email originated outside the organization. Be cautious with links and attachments.

Dear Members of the Planning Commission,

We are writing as residents of the Parker community to express our concerns regarding the proposed Bloom Estates development, located south of Crowfoot and Rose Mallow Avenue. While we recognize and appreciate the need to plan for Parker's continued growth, we believe this particular proposal raises serious environmental concerns due to its location within a documented elk migration corridor.

This parcel of land functions as a critical pathway for local elk herds. Governor Polis's Executive Order B 2019 008 directs state agencies to prioritize the protection of seasonal wildlife habitats and migration corridors. In its current high-density form, the Bloom Estates proposal risks permanently disrupting this corridor, which would likely result in:

- Increased wildlife-vehicle collisions, as elk are forced onto nearby roadways such as Crowfoot Valley Road and Highway 83.
- Significant habitat fragmentation, undermining the intent of statewide protections for Colorado's big game species.
- Increased property damage and human-wildlife conflict, as displaced elk move into existing neighborhoods, gardens, and fenced properties.

Before any zoning changes or site plans are approved, we respectfully request that the Planning Commission require the developer to provide:

- A comprehensive wildlife impact study conducted during peak migration periods.
- A written summary of findings and recommendations from a local representative of Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative at the January 29th meeting and expect the County to hold this project to the highest environmental and stewardship standards.

Sincerely,
Will Trail
Parker, CO

From:	Planning
To:	Michael Pesicka
Subject:	FW: Proposed Bloom Project
Date:	Wednesday, January 21, 2026 11:06:06 AM

From: Doug Redman <redmandoug1@gmail.com>
Sent: Wednesday, January 21, 2026 11:05 AM
To: Planning <Planning@douglas.co.us>
Subject: Proposed Bloom Project

> **Caution:** This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Pradera/ Trails at Crowfoot communities regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker and Franktown, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.
This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:
1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.
2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.
3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:
• A comprehensive Wildlife Impact Study conducted during peak migration months.
• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).
• A site plan that includes a dedicated, unbuilt migration buffer of at least 300–500 feet to allow passage.
• Binding fencing restrictions (wildlife-friendly designs only) to be written into the development's HOA bylaws.
We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.
Sincerely,
Doug Redman
5043 Raintree Circle
Parker, CO 80134

Doug Redman
Red Mountain Breakfast Company
Colorado Dunkin Franchisee
Cell: 308-380-9575

From:	Julie Moss
To:	ak@wkccolorado.com; Planning; Planning Commission; BOCC; matt.martinez@state.co.us; kara.vanhoose@state.co.us; Lucas Moss; Michael Pesicka
Subject:	Bloom Development Concern
Date:	Wednesday, January 21, 2026 10:31:23 AM

Caution: This email originated outside the organization. Be cautious with links and attachments.

To Whom it May Concern:

We are writing as residents of the Trails at Crowfoot community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker and Franktown, we have significant concerns regarding the impact this specific project will have on a documented elk migration route. This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:

1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.
2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.
3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:
• A comprehensive Wildlife Impact Study conducted during peak migration months.
• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).
• A site plan that includes a dedicated, unbuilt migration buffer of at least 300–500 feet to allow passage.
• Binding fencing restrictions (wildlife-friendly designs only) to be written into the development's HOA bylaws.

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,

Julie Roach Moss
17428 Rose Mallow Avenue
julroach@gmail.com
(936) 718-2228

From: Planning
To: Michael Pesicka
Subject: FW: Elk Migration
Date: Wednesday, January 21, 2026 11:24:00 AM

-----Original Message-----
From: Abigail Smith <abbismith1@me.com>
Sent: Wednesday, January 21, 2026 11:10 AM
To: ak@wkccolorado.com; Planning <Planning@douglas.co.us>; planningcommission@doulgas.co.us; BOCC <BOCC@douglas.co.us>; matt.martinez@state.co.us; Kara.VanHoose@state.co.us
Subject: Elk Migration

Caution: This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route. This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:
1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.
2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.
3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:
• A comprehensive Wildlife Impact Study conducted during peak migration months.
• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.
Sincerely,
Abbi Johnson
abbismith1@me.com

From: Planning
To: Michael Pesicka
Subject: FW: Bloom development vs elk migration
Date: Wednesday, January 21, 2026 11:24:06 AM

-----Original Message-----
From: Roseanne Tracy <roseannetracy@yahoo.com>
Sent: Wednesday, January 21, 2026 11:18 AM
To: ak@wkccolarado.com; Planning <Planning@douglas.co.us>; Planning Commission <PlanningCommission@douglas.co.us>; BOCC <BOCC@douglas.co.us>; Matt.Martinez@state.co.us; Kara.VanHoose@stste.co.us
Subject: Bloom development vs elk migration

Caution: This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.
This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:
1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.
2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.
3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:
• A comprehensive Wildlife Impact Study conducted during peak migration months.
• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.
Sincerely,
Roseanne Tracy
11119 Shining Star Cir
Parker, CO 80134
[

Sent from Yahoo Mail for iPhone <https://mail.onelink.me/107872968?pid=nativeplacement&c=Global_Acquisition_YMktg_315_Internal_EmailSignature&af_sub1=Acquisition&af_sub2=Global_YMktg&af_sub3=&af_sub4=100000604&af_sub5=EmailSignature__Static_&af_ios_store_cpp=9d3a686e-218d-4849-8298-b480188dc8ac&af_android_url=https%3A%2F%2Fplay.google.com%2Fstore%2Fapps%2Fdetails%3Fid%3Dcom.yahoo.mobile.client.android.mail%26listing%3Demail_signature>

From: Kiera Casey
To: Planning
Subject: Proposed Bloom Estates Development
Date: Wednesday, January 21, 2026 10:44:44 AM

> **Caution:** This email originated outside the organization. Be cautious with links and attachments.

Hello,

I am writing as a resident of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While I, and other citizens, understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.
This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:
1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.
2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.
3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:
• A comprehensive Wildlife Impact Study conducted during peak migration months.
• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,
Kiera Casey
720-765-3444
kieracasey01@gmail.com

From: Jennifer Kelsey
To: Planning
Subject: No Bloom Estates
Date: Wednesday, January 21, 2026 10:43:55 AM

Caution: This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route. This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:
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2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.
3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:
• A comprehensive Wildlife Impact Study conducted during peak migration months.
• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.
Sincerely,
Jennifer Kelsey
10746 Foxwood Court, Parker CO 80138

Sent from my iPhone

From:	Emily Erlewine
To:	ak@wkccolorado.com; Planning; Planning Commission; BOCC; matt.martinez@state.co.us; Kara.VanHoose@state.co.us
Subject:	Protect the Last Remaining Elk Corridor in Parker
Date:	Wednesday, January 21, 2026 10:43:44 AM

Caution: This email originated outside the organization. Be cautious with links and attachments.

Hello,

We are writing as residents of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.
This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:
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2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.
3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:
• A comprehensive Wildlife Impact Study conducted during peak migration months.
• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,

Emily Renova
20705 Omaha Ave
Parker, CO 80138

From:	Kamilah Beasley
To:	ak@wkccolorado.com; Planning; Planning Commission; BOCC; matt.martinez@state.co.us; Kara.VanHoose@state.co.us
Subject:	Bloom Estates Development
Date:	Wednesday, January 21, 2026 10:28:10 AM

Caution: This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Trails at Crowfoot community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker and Franktown, we have significant concerns regarding the impact this specific project will have on a documented elk migration route. This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:
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2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.
3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:
• A comprehensive Wildlife Impact Study conducted during peak migration months.
• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).
• A site plan that includes a dedicated, unbuilt migration buffer of at least 300–500 feet to allow passage.
• Binding fencing restrictions (wildlife-friendly designs only) to be written into the development's HOA bylaws.
We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,
Kamilah Beasley
14311 Shasta Daisy Pt, Parker CO 80134

From:	Nanette Redman
To:	Planning
Subject:	proposed Bloom Project
Date:	Wednesday, January 21, 2026 10:20:42 AM

Caution: This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Pradera/ Trails at Crowfoot communities regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker and Franktown, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.
This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:
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2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.
3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:
• A comprehensive Wildlife Impact Study conducted during peak migration months.
• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).
• A site plan that includes a dedicated, unbuilt migration buffer of at least 300–500 feet to allow passage.
• Binding fencing restrictions (wildlife-friendly designs only) to be written into the development's HOA bylaws.
We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,
Nanette Redman
5043 Raintree Circle

Nanette Redman nanrdm@aol.com

From:	Vandana Murria
To:	ak@wkccolorado.com; Planning Commission; Planning; BOCC; matt.martinez@state.co.us; Kara.VanHoose@state.co.us
Subject:	Regarding proposed bloom estates development
Date:	Wednesday, January 21, 2026 9:28:14 AM

Caution: This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Trails at Crowfoot community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker and Franktown, we have significant concerns regarding the impact this specific project will have on a documented elk migration route. This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:

1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.

2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.

3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:

• A comprehensive Wildlife Impact Study conducted during peak migration months.
• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).
• A site plan that includes a dedicated, unbuilt migration buffer of at least 300–500 feet to allow passage.
• Binding fencing restrictions (wildlife-friendly designs only) to be written into the development's HOA bylaws.
We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.
Sincerely,

Vandana Murria
17377 Gandy Dancer Ln
Parker CO 80134

From:	Brendan Plourde
To:	ak@wkccolorado.com; Planning; Planning Commission; BOCC; matt.martinez@state.co.us; Kara.VanHoose@state.co.us
Subject:	Bloom Development
Date:	Wednesday, January 21, 2026 1:07:58 PM

Caution: This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.
This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:
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2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.
3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:
• A comprehensive Wildlife Impact Study conducted during peak migration months.
• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.
Sincerely,
Brendan Plourde
11392 Canterberry Ln, Parker CO 80138

From: lisa friley
To: ak@wkccolorado.com
Cc: Planning
Subject: Proposed Bloom Estates
Date: Wednesday, January 21, 2026 12:46:06 PM

Caution: This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route. This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:
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2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.
3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:
• A comprehensive Wildlife Impact Study conducted during peak migration months.
• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,
Lisa Cypher
6850 N Windpoint Cir
Parker

Sent from my iPad

From:	Peggy Miniter
To:	ak@wkccolorado.com; Planning; Planning Commission; BOCC; matt.martinez@state.co.us; Kara.VanHoose@state.co.us
Subject:	Bloom Estates Proposed Development
Date:	Wednesday, January 21, 2026 12:30:27 PM

Caution: This email originated outside the organization. Be cautious with links and attachments.

To whom it may concern,
We are writing as residents of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.

This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:
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2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.
3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:
• A comprehensive Wildlife Impact Study conducted during peak migration months.
• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,
Peggy Miniter
22046 E Tallkid Ave, Parker, CO 80148

From:	jlwa1951@aol.com
To:	ak@wkccolorado.com; Planning; Planning Commission; BOCC; matt.martinez@state.co.us; Kara.VanHoose@state.co.us
Subject:	Bloom project
Date:	Wednesday, January 21, 2026 12:21:50 PM

Caution: This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Pradera/ Trails at Crowfoot communities regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker and Franktown, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.
This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:
1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.
2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.
3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.
In addition, when we purchased our lot on Rose Mallow Ave with a $100,000 premium we were told there would never be any building to the west of us. We feel we were misled and continue to be lied to about further development in this area. We have been through this process once before, and it was denied. How many times do we need to jump through hoops to get the finalized once and for all? Parker is getting over developed as it is.
Sincerely,
Judy & Mark Anderson
Trails at Crowfoot

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:
• A comprehensive Wildlife Impact Study conducted during peak migration months.
• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).
• A site plan that includes a dedicated, unbuilt migration buffer of at least 300–500 feet to allow passage.
• Binding fencing restrictions (wildlife-friendly designs only) to be written into the development's HOA bylaws.
We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to

the highest environmental standards.
Sincerely,

From:	Kaylee Cahill
To:	ak@wkccolorado.com; Planning; Planning Commission; matt.martinez@state.co.us; Kara.VanHoose@state.co.us; BOCC
Subject:	Bloom Estates development
Date:	Wednesday, January 21, 2026 12:21:16 PM

Caution: This email originated outside the organization. Be cautious with links and attachments.

To whom it may concern,

We are writing as residents of the Parker community regarding the proposed (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.
This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:
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2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.
3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:
• A comprehensive Wildlife Impact Study conducted during peak migration months.
• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,
Kaylee Cahill
17153 Desert Wine Trl

From:	Marti Longo
To:	Planning
Subject:	Bloom project concerns
Date:	Wednesday, January 21, 2026 2:59:28 PM

Caution: This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Pradera/ Trails at Crowfoot communities regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker and Franktown, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.

This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:

1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.

2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.

3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:

- **A comprehensive Wildlife Impact Study conducted during peak migration months.**
- **A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).**
- **A site plan that includes a dedicated, unbuilt migration buffer of at least 300–500 feet to allow passage.**
- **Binding fencing restrictions (wildlife-friendly designs only) to be written into the development's HOA bylaws.**

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,

Marti Longo
4854 Sonado Place

Parker
Sent from my iPhone

From:	Katey Gibson
To:	ak@wkccolorado.com; Planning; Planning Commission; BOCC; matt.martinez@state.co.us; kara.vanhoose@state.co.us
Subject:	Bloom Estates
Date:	Wednesday, January 21, 2026 2:53:37 PM

Caution: This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.

This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:

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2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.

3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:

• A comprehensive Wildlife Impact Study conducted during peak migration months.

• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,
Katey Gibson
16906 Black Rose Place

From:	Megan Rudden
To:	ak@wkccolorado.com; Planning; Planning Commission; BOCC; matt.martinez@state.co.us; kara.vanhoose@state.co.us
Subject:	RE: Bloom Estates Development
Date:	Wednesday, January 21, 2026 2:52:40 PM

Caution: This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.

This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:

1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.

2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.

3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:

• A comprehensive Wildlife Impact Study conducted during peak migration months.

• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,

Megan Rudden
16041 Relic Rock Terrace, Parker, CO 80134
...

Megan Rudden

From:	Kerry Grammerstorf
To:	ak@wkccolorado.com; Planning; Planning Commission; BOCC; matt.martinez@state.co.us; Kara.VanHoose@state.co.us
Subject:	Proposed Bloom Estates Development
Date:	Wednesday, January 21, 2026 2:23:54 PM

Caution: This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Trails at Crowfoot community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker and Franktown, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.
This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:
1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.
2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.
3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:
• A comprehensive Wildlife Impact Study conducted during peak migration months.
• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).
• A site plan that includes a dedicated, unbuilt migration buffer of at least 300–500 feet to allow passage.
• Binding fencing restrictions (wildlife-friendly designs only) to be written into the development's HOA bylaws.

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,
Kerry Grammerstorf
17225 Rose Mallow St
Parker, CO 80134

From:	Samantha Rawlings
To:	Planning; Planning Commission; BOCC; matt.martinez@state.co.us; Kara.VanHoose@state.co.us
Subject:	Looking Glass resident opposed to Bloom development
Date:	Wednesday, January 21, 2026 1:37:29 PM

Caution: This email originated outside the organization. Be cautious with links and attachments.

I am writing as a resident of the Parker, specifically a resident in the Looking Glass community, regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While I can understand the pressures of growth in Parker, I have significant concerns regarding the impact this specific project will have on a documented elk migration route as well as traffic flow.

This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:
1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.
2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.
3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:
• A comprehensive Wildlife Impact Study conducted during peak migration months.
• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

Also, I've seen comments that the Bloom builders will pay for additional road expansions and such. However, that doesn't make the additional traffic wanted or accepted by existing residents. The opening of Chambers Road has already made it a very busy road for residents seeking a quicker route to I-25. We do not need another massive increase in residents and traffic to the roads or to the area in general. Many of my neighbors sought the "back country" feel and that was a major decision in purchasing a home in this area. I know we're already frustrated by the major increase in homes and Looking Glass is only around 25% occupancy. Not to mention, there are condos and apartments being constructed at the intersection of Stroh and Crowfoot. Lord knows we do not need another subdivision around here period!

I look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards as well as in the best interests of the existing Parker residents.

Sincerely,
Samantha Rawlings
720-280-3189

From: Chun Lu
To: Planning
Subject: Bloom Estates development
Date: Wednesday, January 21, 2026 3:19:43 PM

> **Caution:** This email originated outside the organization. Be cautious with links and attachments.

Hi,

We are writing as residents of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.
This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:
1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.
2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.
3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:
• A comprehensive Wildlife Impact Study conducted during peak migration months.
• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.
Sincerely,
Alice Carter
6814 Hillside Way
Parker, CO 80134

From:	Nicole Von Zup
To:	ak@wkccolorado.com; Planning; Planning Commission; BOCC; matt.martinez@state.co.us; kara.vanhoose@state.co.us
Subject:	Begging for the Protection of the Elk-Every Creature Deserves a Home
Date:	Wednesday, January 21, 2026 3:13:26 PM

Caution: This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.

This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:

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2. Habitat Fragmentation: Violating the spirit of state-level protections for Colorado's big game.

3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:

• A comprehensive Wildlife Impact Study conducted during peak migration months.

• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,
Nicole Barton
E Indian Brook Circle
Parker, CO 80134

From:	Christina Bakhour
To:	ak@wkccolorado.com; Planning; Planning Commission; BOCC; matt.martinez@state.co.us; Kara.VanHoose@state.co.us
Subject:	Bloom Estates Development
Date:	Wednesday, January 21, 2026 3:12:23 PM

Caution: This email originated outside the organization. Be cautious with links and attachments.

To whom it may concern:

We are writing as residents of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.

This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:

1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.

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3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:

• A comprehensive Wildlife Impact Study conducted during peak migration months.
• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,
Christina Bakhour
11892 Chipper Lane
Parker, CO 80134

From:	Tammi Hoerner
To:	ak@wkccolorado.com; Planning; Planning Commission; BOCC; matt.martinez@state.co.us; kara.vanhoose@state.co.us
Subject:	Parker Community Concerned Citizens.
Date:	Wednesday, January 21, 2026 3:12:19 PM

Caution: This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.

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• A comprehensive Wildlife Impact Study conducted during peak migration months.

• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,
Tammi Hoerner
2396 Elkhorn St
Parker 80138

Be sure to stop into my website at: sweethomescolorado.net

UPCOMING HOLIDAYS & CLOSURES:
SUNDAYS: By appointment only
April 5th: Easter
May 10th: Mother's Day
May 24th-25th: Memorial Day
June 13th- 21st: Travel & Father's Day
July 4th

From:	Bruno J. Meli
To:	ak@wkccolorado.com; Planning; Planning Commission; BOCC; matt.martinez@state.co.us; Kara.VanHoose@state.co.us
Subject:	Bloom Development Objections
Date:	Wednesday, January 21, 2026 3:08:19 PM

Caution: This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Pradera/ Trails at Crowfoot communities regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker and Franktown, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.
This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:
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Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:
• A comprehensive Wildlife Impact Study conducted during peak migration months.
• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).
• A site plan that includes a dedicated, unbuilt migration buffer of at least 300–500 feet to allow passage.
• Binding fencing restrictions (wildlife-friendly designs only) to be written into the development's HOA bylaws.
We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,

Bruno J. Meli

720-581-9126

brunojmeli@icloud.com

From:	Kacie Baker
To:	ak@wkccolorado.com; Planning; kara.vanhoose@state.co.us; matt.martinez@state.co.us; BOCC; Planning Commission
Subject:	Tired Parker Citizen
Date:	Wednesday, January 21, 2026 3:07:46 PM

Caution: This email originated outside the organization. Be cautious with links and attachments.

Good afternoon -

We are writing as residents of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.

This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:

1. Increased Wildlife-Vehicle Collisions: Forcing elk onto roads like Crowfoot Valley Rd or Hwy 83.

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3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:

• A comprehensive Wildlife Impact Study conducted during peak migration months.

• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Why do we as the people have to continuously advocate for the rights of what makes CO so special, unique and sought after. Get the dollar signs out of your eyes for 2 seconds to see that this is the wrong choice.

Sincerely,
Kacie Baker
11019 Brownstone Drive
Parker, CO

From: vanessa schafer
To: Planning
Subject: Bloom development
Date: Wednesday, January 21, 2026 3:05:22 PM

Caution: This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.

This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:

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Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:

• A comprehensive Wildlife Impact Study conducted during peak migration months.

• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,
Vanessa Schafer
17165 Rose Mallow St.
Parker CO 80134
Sent from my iPhone

From:	Nat Brancaccio
To:	ak@wkccolorado.com; Planning; Planning Commission; BOCC; matt.martinez@state.co.us; kara.vanhoose@state.co.us
Subject:	Proposed Bloom Estates Development
Date:	Wednesday, January 21, 2026 3:33:26 PM

Caution: This email originated outside the organization. Be cautious with links and attachments.

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3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

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• A comprehensive Wildlife Impact Study conducted during peak migration months.

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We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,
The Adkins Family
Parker, CO

From:	Brandon .
To:	ak@wkccolorado.com; Planning Commission; Planning; matt.martinez@state.co.us; BOCC; kara.vanhoose@state.co.us
Subject:	Concerned resident.
Date:	Wednesday, January 21, 2026 3:32:50 PM

Caution: This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.

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• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,

Brandon Jeanpaul
18340 Tree Sparrow ave Parker, CO 80134

From:	Jennifer Richmond
To:	ak@wkccolorado.com; Planning; Planning Commission; BOCC; matt.martinez@state.co.us; kara.vanhoose@state.co.us
Subject:	Bloom Estates
Date:	Wednesday, January 21, 2026 3:37:02 PM

Caution: This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Parker community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.

This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:

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3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:

• A comprehensive Wildlife Impact Study conducted during peak migration months.

• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,
Jennifer Richmond
17029 Motsenbocker Way
Parker,CO 80134
Sent from my iPhone

From:	Pamela Seki
To:	Planning
Subject:	Bloom Estates Proposal
Date:	Wednesday, January 21, 2026 3:49:18 PM

Caution: This email originated outside the organization. Be cautious with links and attachments.

We are writing as residents of the Trails at Crowfoot community regarding the proposed Bloom Estates development (located south of Crowfoot and Rose Mallow Ave). While we understand the pressures of growth in Parker and Franktown, we have significant concerns regarding the impact this specific project will have on a documented elk migration route.

This parcel of land serves as a vital corridor for local herds. Under Governor Polis's Executive Order B 2019 008, state agencies are directed to prioritize the conservation of seasonal habitats and migration corridors. We believe the current high-density proposal for Bloom Estates threatens to permanently sever this route, leading to:

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3. Property Damage: Displaced elk are more likely to move into existing residential gardens and fenced areas, causing conflict with current homeowners.

Before any zoning or site plans are approved, we formally request that the Planning Commission require the developer to provide:

• A comprehensive Wildlife Impact Study conducted during peak migration months.

• A written summary of recommendations from the local representative from Colorado Parks and Wildlife (CPW).

• A site plan that includes a dedicated, unbuilt migration buffer of at least 300–500 feet to allow passage.

• Binding fencing restrictions (wildlife-friendly designs only) to be written into the development's HOA bylaws.

We look forward to discussing these concerns with the developer's representative on January 29th and expect the County to hold this project to the highest environmental standards.

Sincerely,

Glenn & Pamela Seki

17172 Hop Clover Avenue

Parker, CO 80134

9.1 Phase Drainage Report

PHASE II DRAINAGE STUDY

For:

Bloom Subdivision

PARKER, COLORADO

Prepared for

AFFINITY AT CROWFOOT, LLC
P.O. BOX 1143
BROOMFIELD, CO 80020
ATTN: CAYD BADER

Submitted by: Atwell, LLC

DONNA BARRENTINE, P.E.
6200 SOUTH SYRACUSE WAY
GREENWOOD VILLAGE, CO 80111
303.825.7100

PROJECT NO. 21003148

SUBMITTAL DATE: 04/15/2025

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CERTIFICATION STATEMENT

"I hereby certify that this Final Drainage Study for the ***Bloom Subdivision*** *development was prepared by me (or under my direct supervision) in accordance with the provisions of the* ***Douglas County Storm Drainage Design and Technical Criteria Manual*** *for the owners thereof."*

_____

Donna Barrentine*, Registered Professional Engineer*

State of Colorado ***No. LICENSE 0044754***

GENERAL LOCATION AND DESCRIPTION

Bloom Subdivision (herein after referred to as "Site") is located within Douglas County, Colorado in Section 9, Township 7 South, Range 66 West of the 6th Meridian, Douglas County, Colorado. The Site is a proposed single-family detached residential development on 81.07 acres of undeveloped land.

This Site is bordered by Bayou Gulch Road to the east, Trails at Crowfoot Subdivision to the north and agricultural land to the west. One access point along Bayou Gulch Road will be provided to allow access to the site and utility infrastructure for the residential development. The stormwater runoff will be routed to the detention basin located in the south west section of the Cielo Development across Bayou Gulch Road from Bloom Subdivision.

The proposed residential development is designated as medium-density residential with 32 single-family detached residential units with lot sizes ranging from 1 acre to 2.5 acres each. A General Vicinity Map is provided as Appendix A of this report.

Soil Conditions

NRCS Soils Survey results indicate that the existing soils are Fondis-Kutch Association and Newlin Gravelly Sandy Loam, 8 to 30 percent slopes. These soils are identified as a Groups B and C having a moderately high to very high infiltration rates when thoroughly wet. The NRCS Soils Survey for the site has been included as Appendix B.

The Site does not include mapped floodplains. A copy of the FEMA FIRM Map is included in Appendix C.

DRAINAGE BASINS AND SUB-BASINS

Existing Major Drainage Basins

Runoff from existing basins will flow directly into existing storm sewer network strucutes. The existing conditions of the site are mainly open space grassy vegetated areas. See the Existing Drainage Map for existing basin boundaries associated with this development included in Appendix F.

E Basins

The historical existing drainage basins within the property boundary consists of approximately 27.15 acres grassy wooded areas. Four sub-basins have been delineated. These sub-basins convey stormwater by sheet flowing directly to Scott Gulch and Cherry Creek.

Sub-Basin E-1 (4.15 acres) is located along the eastern boundary of the site. The basin has a composite imperviousness of 2.0%. Runoff sheet flows east to design point E1 directly into an existing flared end section that conveys runoff into the existing storm sewer and carrys it east to existing Pond A. (Interception Q_5=0.44 CFS, Q_{100}=8.91 CFS).

Sub-Basin E-2 (9.17 acres) is located along the northern boundary of the site. The basin has a composite imperviousness of 2.0%. Runoff sheet flows east to design point E2 and into existing Bauoy Gulch Road directly into an existing Type-R, sump inlet that conveys runoff into the existing storm sewer and carrys it east to existing Pond A. (Interception Q_5=0.70 CFS, Q_{100}=14.06 CFS).

Sub-Basin E-3 (33.70 acres) is located at the center of the site. The basin has a composite imperviousness of 2.0%. Runoff sheet flows east to design point E3 and into an Type-C area inlet that conveys runoff into the existing storm sewer and carrys it east to existing Pond A. (Interception Q_5=0.89 CFS, Q_{100}=66.80 CFS).

Sub-Basin E-4 (0.68 acres) is located at the north west corner of the site. The basin has a composite imperviousness of 2.0%. Runoff sheet flows east to design point E4 and flow off site. (Interception Q_5=0.02 CFS, Q_{100}=1.71 CFS).

Sub-Basin E-5 (11.95 acres) is located at the center of the site. The basin has a composite imperviousness of 2.0%. Runoff sheet flows east to design point E5 and into existing Bauoy Gulch Road directly into an existing Type-R, sump inlet that conveys runoff into the existing storm sewer and carrys it east to existing Pond A. (Interception Q_5=0.21 CFS, Q_{100}=15.43 CFS).

Sub-Basin E-5 (19.03 acres) is located at the center of the site. The basin has a composite imperviousness of 2.0%. %. Runoff sheet flows east to design point E6 and into existing Bauoy Gulch Road directly into an existing Type-R, sump inlet that conveys runoff into the existing storm sewer and carrys it east to existing Pond A. (Interception Q_5=0.34 CFS, Q_{100}=25.11 CFS).

Proposed Major Drainage Basins

This Drainage Report describes the proposed drainage basins based on the proposed grading for this development. Runoff from on-site basins are tributary to an existing stormwater detention pond entitled "Pond A" located within the Cielo Subdivision Filing No. 1 development, located east of the Bloom Subdivision, on the east side of Bayou Gulch Road. Onsite drainage will be collected in on-site inlets and conveyed through proposed storm sewer infrastructure into an existing storm pipe on the west side of Bayou Gulch Road within the southwest corner of the property. See the Proposed Drainage Map for basin boundaries associated with this development included in Appendix F.

A Basins

The A Basins occupy most of the site and consist of approximately 74.86 acres of single-family residential areas with some landscaped open space. Twenty sub-basins have been delineated. These sub-basins convey stormwater through street conveyance to onsite storm inlets and into storm sewer system or conveyed stormwater to existing type C inlets or flared end sections to onsite storm inlets. The collected stormwater within A basins will ultimately outlet into existing Pond A within the Cielo Subdivision Filing No. 1 development.

Sub-Basin A-1 (1.62 acres) is located in the northwest corner of the site along Local Road B. The basin consists of roadway, open space, and residential lots. The basin has a composite imperviousness of 10.0%. Runoff will sheet flow to the street curb and gutter and then conveyed to the local low point at the southern section of the sub-basin to design point A1. Runoff will continue to be conveyed by street curb and gutter through sub-basin A-2 to design point A2, through sub-basin A-3 to design point A3 until it reaches sub-basin A-4 where it will enter the storm sewer network via a 15-foot Type-R, sump inlet at design point A4 and be routed southeast to existing Pond A. (Interception Q_5=0.45 CFS, Q_{100}=4.27 CFS, Cumulative Q_5=1.44 CFS, Q_{100}=13.7 CFS).

Sub-Basin A-2 (6.72 acres) is located in the northwest corner of the site along Local Road B. The basin consists of roadway, open space, and residential lots. The basin has a composite imperviousness of 15.0%. Runoff will sheet flow to the street curb and gutter and then conveyed to the local low point at the southeastern section of the sub-basin to design point A2. Runoff will continue to be conveyed by street curb and gutter through sub-basin A-3 to design point A3 until it reaches sub-basin A-4 where it will enter the storm sewer network via a 15-foot Type-R, sump inlet at design point A4 and be routed southeast to existing Pond A. (Interception Q_5= 1.73 CFS, Q_{100}=16.47 CFS, Cumulative Q_5=3.17 CFS, Q_{100}=30.17 CFS).

Sub-Basin A-3 (7.03 acres) is located in the north central section of the site along Local Road B. The basin consists of roadway, open space, and residential lots. The basin has a composite imperviousness of 15.0%. Runoff will sheet flow to the street curb and gutter and then conveyed to the local low point at the southeastern section of the sub-basin to design point A3. Runoff will continue to be conveyed by street curb and gutter to sub-basin A-4 where it will enter the storm sewer network via a 15-foot Type-R, sump inlet at design point A4 and be routed southeast to existing Pond A. (Interception Q_5= 2.73 CFS, Q_{100}=19.82 CFS, Cumulative Q_5=5.9 CFS, Q_{100}=30.17 CFS).

Sub-Basin A-4 (3.41 acres) is located in the north central section of the site along Local Road A and Local Road B. The basin consists of roadway, open space, and residential lots. The basin has a composite imperviousness of

15.0%. Runoff will sheet flow to the street curb and gutter and then conveyed to the low point within Local Road B of the sub-basin at design point A4. It will enter the storm sewer network via a 15-foot Type-R, sump inlet at design point A4 and be routed southeast to existing Pond A. (Interception Q_5= 1.47 CFS, Q_{100}=10.68 CFS, Cumulative Q_5=5.9 CFS, Q_{100}=30.17 CFS).

Sub-Basin A-5 (1.41 acres) is located at north east portion of the site along Local Road A. The basin consists of roadway and open space. The basin has a composite imperviousness of 35.0%. Runoff will sheet flow to the street curb and gutter and then conveyed to a low point within Local Road A of the sub-basin at design point A5, from there it will be conveyed along Bayou Gulch Road. It will enter the storm sewer via an existing 10-foot Type-R sump inlet and be routed east to Pond A. (Interception Q_5=1.06 CFS, Q_{100}=4.33 CFS).

Sub-Basin A-6 (0.67 acres) is located at the north east portion of the site along Local Road A. The basin consists of roadway and open space. The basin has a composite imperviousness of 40.0%. %. Runoff will sheet flow to the street curb and gutter and then conveyed to a low point within Local Road A of the sub-basin at design point A6, from there it will be conveyed along Bayou Gulch Road. It will enter the storm sewer via an existing 10-foot Type-R sump inlet and be routed east to Pond A. (Interception Q_5=0.81 CFS, Q_{100}=3.05 CFS).

Sub-Basin A-7 (5.10 acres) is located at the north east portion of the site along Local Road A and existing Bayou Gulch Road. The basin consists of residential lots and open space. The basin has a composite imperviousness of 55.0%. Runoff will sheet flow to the street curb and gutter and then conveyed to a low point within Local Road B of the sub-basin at design point A7. It will enter the storm sewer via a 15-foot Type-R, sump inlet and be routed south to existing Pond A. (Interception Q_5=1.79 CFS, Q_{100}=12.96 CFS).

Sub-Basin A-8 (4.26 acres) is located in the western boundary of the site along Local Road B. The basin consists of roadway, open space, and residential lots. The basin has a composite imperviousness of 15.0%. Runoff will sheet flow to the street curb and gutter and then conveyed to the local low point at the north east section of the sub-basin to design point A8. Runoff will continue to be conveyed by street curb and gutter through sub-basin A-1 to design point A1, through sub-basin A-2 to design point A2, through sub-basin A-3 to design point A3 until it reaches sub-basin A-4 where it will enter the storm sewer network via a 15-foot Type-R, sump inlet at design point A4 and be routed southeast to existing Pond A. (Interception Q_5=0.99 CFS, Q_{100}=9.43 CFS)

Sub-Basin A-9 (4.32 acres) is located in the center of the site along Local Road B. The basin consists of roadway, open space, and residential lots. The basin has a composite imperviousness of 15.0%. Runoff will sheet flow to the street curb and gutter and then conveyed to a local low point at the north east section of the sub-basin to design point A9. Runoff will continue to be conveyed by street curb and gutter through sub-basin A10 where it will enter the storm sewer network via a 15-foot Type-R, sump inlet at design point A10 and be routed southeast to existing Pond A. (Interception Q_5=0.87 CFS, Q_{100}=8.25 CFS).

Sub-Basin A-10 (5.20 acres) is located in the center of the site along Local Road B. The basin consists of a roadway, residential lots, and open space. The basin has a composite imperviousness of 15.0%. Runoff will sheet flow to the street curb and gutter and then conveyed to a low point within Local Road B of the sub-basin at design point A10. It will enter the storm sewer via a 15-foot Type-R, sump inlet and be routed southeast to Pond A. (Interception Q_5=1.34 CFS, Q_{100}=12.79 CFS, Cumulative Q_5=2.21 CFS, Q_{100}=21.04 CFS).

Sub-Basin A-11 (6.97 acres) is located within the center of the site along Local Road C. The basin consists of roadway, residential lots, and open space. The basin has a composite imperviousness of 15.0%. Runoff will sheet flow to the street curb and gutter and then conveyed to a low point within Local Road C of the sub-basin at design point A11. It will enter the storm sewer via a 10-foot Type-R, sump inlet and be routed east to existing Pond A. (Interception Q_5=2.72 CFS, Q_{100}=19.74 CFS).

Sub-Basin A-12 (2.25 acres) is located within the north east portion of the site along Local Road C. The basin consists of a roadway, residential lots, and open space. The basin has a composite imperviousness of 20.0%. Runoff will sheet flow to the street curb and gutter and then conveyed to a low point within Local Road C of the sub-basin at design point A12. It will enter the storm sewer via a 10-foot Type-R, sump inlet and be routed east to Pond A. (Interception Q_5=0.86 CFS, Q_{100}=6.26 CFS).

Sub-Basin A-13 (5.60 acres) is located along the eastern boundary of the site along existing Bayou Gulch Road. The basin consists of a residential lots and open space. The basin has a composite imperviousness of 15.0%. Runoff will sheet flow over open space and then conveyed to a low point of the sub-basin at design point A13. It will enter the storm sewer via an existing Type-C inlet and be routed east to Pond A. (Interception Q_5=1.52 CFS, Q_{100}=14.44 CFS).

Sub-Basin A-14 (1.33 acres) is located within the south west portion of the site along Local Road B. The basin consists roadway, residential lots, and open space. The basin has a composite imperviousness of 20.0%. Runoff will sheet flow to the street curb and gutter and then conveyed to the local low point at the eastern section of the sub-basin to design point A14. Runoff will continue to be conveyed by street curb and gutter through sub-basin A-17 to Type-R on grade inlets at design point A17, runoff from sub-basin A-20 will also be conveyed into sub-basin A-17 and flow via street curb and gutter to a Type-R inlet at design point A17 and be routed east to existing Pond A. (Interception Q_5=0.51 CFS, Q_{100}=3.69 CFS).

Sub-Basin A-15 (1.13 acres) is located within the south west portion of the site along Local Road B. The basin consists of roadway, residential lots, and open space. The basin has a composite imperviousness of 20.0%. Runoff will sheet flow to the street curb and gutter and then conveyed to the local low point at the eastern section of the sub-basin to design point A15. Runoff will continue to be conveyed by street curb and gutter through sub-basin A-16 to design point A16 where it will enter the storm sewer via a 10-foot Type-R Inlet, sump inlet and be routed east to existing pond A. (Interception Q_5=0.44 CFS, Q_{100}=3.21 CFS,)

Sub-Basin A-16 (1.32 acres) is located within the center of the site along Local Road B. The basin consists of roadway, residential lots, and open space. The basin has a composite imperviousness of 20.0%. Runoff will sheet flow to the street curb and gutter and then conveyed to a low point within Local Road B of the sub-basin at design point A16. It will enter the storm sewer via a 10-foot Type-R, sump inlet and be routed east to existing Pond A. (Interception Q_5=0.59 CFS, Q_{100}=4.32 CFS, Cumulative Q_5=1.03 CFS, Q_{100}=7.53 CFS).

Sub-Basin A-17 (0.96 acres) is located within the center of the site along Local Road C. The basin consists of roadway, residential lots, and open space. The basin has a composite imperviousness of 15.0%. Runoff will sheet flow to the street curb and gutter and then conveyed to a low point within Local Road C of the sub-basin at

design point A17. It will enter the storm sewer via a 10-foot Type-R, on-grade inlet and be routed east to existing Pond A. (Interception Q_5=0.26 CFS, Q_{100}=2.52 CFS, Cumulative Q_5=2.11 CFS, Q_{100}=25.19 CFS).

Sub-Basin A-18 (4.25 acres) is located within the center of the site along Local Road C. The basin consists of roadway, residential lots, and open space. The basin has a composite imperviousness of 15.0%. Runoff will sheet flow to the street curb and gutter and then conveyed to a low point within Local Road C of the sub-basin at design point A18. It will enter the storm sewer via a 10-foot Type-R, on-grade inlet and be routed east to existing Pond A. (Interception Q_5=1.78 CFS, Q_{100}=12.88 CFS).

Sub-Basin A-19 (1.23 acres) is located within the center of the site along Local Road C. The basin consists of roadway, residential lots, and open space. The basin has a composite imperviousness of 15.0%. Runoff will sheet flow to the street curb and gutter and then conveyed to a low point within Local Road C of the sub-basin at design point A19. It will enter the storm sewer via a 10-foot Type-R, sump inlet and be routed east to existing Pond A. (Interception Q_5=1.78 CFS, Q_{100}=12.88 CFS).

Sub-Basin A-20 (10.06 acres) is located along the south western boundary line of the site. The basin consists of residential lots and open space. The basin has a composite imperviousness of 10.0%. Runoff will sheet flow to the street curb and gutter within sub-basin A-17 and then be conveyed to a low point within Local Road C of the sub-basin at design point A17. It will enter the storm sewer via a 10-foot Type-R, on-grade inlet and be routed east to existing Pond A. (Interception Q_5=1.34 CFS, Q_{100}=18.98 CFS).

OS Basins

OS Basins consist of approximately 3.70 acres of single-family residential area within the southeastern portion of the site. Runoff within these basins will sheet flow off the site as it has historically done.

Sub-Basin 0S-1 (3.70 acres) is located along the southern portion of the site property boundary and consists of residential lots and open space. The basin has an estimated composite imperviousness of 10.0%. Runoff will sheet flow within the open space and run off site as it historically has. (Q_5=0.63 CFS, Q_{100}=8.86 CFS)

DRAINAGE DESIGN CRITERIA

Regulations

This drainage report was prepared in accordance with the Douglas County Drainage Criteria Manual (DCDCM) as well as the Mile-High Flood District Urban Storm Drainage Criteria Manual (USDCM).

Hydrologic Criteria

The rational method was used to determine peak runoff rates from the site. One-Hour rainfall of 1.11 and 2.32 inches, for Parker – The Pinery Country Club, have been utilized for the 5-year and 100-year respectfully for runoff calculations. Soil types were derived using the National Resources Conservation Service (NRCS) Web Soil Survey and found to include a mix of type B and C soils; however, the majority of the site is type B soils. The Rational Method Calculations for this development are included in Appendix D.

STORMWATER MANAGEMENT FACILITY DESIGN

General Concept

The proposed drainage plan for this project was developed to maintain flow patterns similar to historic flows. Flows from the developed portion of the site will be collected and conveyed through proposed storm sewer infrastructure and routed to an existing detention facility, known as Pond A, located within the Cielo subdivision located just east of the Bloom subdivision. Existing Pond A outfalls to the existing natural drainage way south of Scott Avenue. Details are included in the following section.

Specific Details

The land will be developed with urban infrastructure typical for Colorado including streets with curb and gutter, grass-lined swales, inlets and storm sewers and detention pond. In accordance with the approved final drainage report for the Cielo Subdivision, the existing detention pond is designed to provide full spectrum extended detention to provide water quality and flood attenuation for the development goal of zero negative impacts downstream.

Stormwater Conveyance Facilities

Within the road network, stormwater runoff from the developed site will be conveyed overland via surface flow within streets to proposed storm sewer inlets. At sump locations, inlets will be sized to collect 100-year flows. Runoff entering the inlets will be conveyed through the proposed storm sewer system to the detention Pond.

Stormwater Storage Facilities

Detention/Existing Water Quality Pond A

The Bloom Development is tributary to existing Pond A, which will provide full spectrum detention and water quality treatment before being discharged to the existing drainage way south of Scott Avenue. Pond A was designed to handle the developed flows within the development.

According to the approved final drainage report for the Cielo Subdivision, it was anticipated that the future Sagewood Development, now known as the Bloom subdivision, would have a composite imperviousness of 20% with approximately 92.34 acres that would be tributary to Pond A with the Cielo Subdivision. Per Atwell's drainage evaluation of the actual area tributary to the existing Pond A within this proposed 81 acre Bloom Development, our estimated composite imperviousness is 17.5% with approximately 74.86 acres of tributary area. Based on actual anticipated conditions for the Bloom Development with less tributary acreage and lower composite imperviousness, we are estimating a lower drainage contribution to Pond A, and thus, the drainage design will be in compliance with the approved design conditions of Pond A.

CONCLUSIONS

Compliance with Standards

This Phase II Drainage Report for the proposed Bloom Subdivision presents the drainage analysis and the proposed improvements for the development using the criteria and standards of the Douglas County Storm Drainage Design Manual criteria and the MHFD Urban Storm Drainage Criteria Manual and is in full compliance

with CRS37-92-602(8) for storm water storage facilities within the State of Colorado with zero expected negative downstream impacts on adjacent property and drainage facilities.

REFERENCES

1. *Urban Storm Drainage Criteria Manual*; Mile High Flood District, Latest Edition.

2. *Douglas County Drainage and Technical Criteria Manual,* Latest Edition.

3. Flood Insurance Rate Map; Federal Emergency Management Agency, December 2006.

4. Phase III Final Drainage Report, Cielo Subdivision, Atwell, LLC; December 2018.

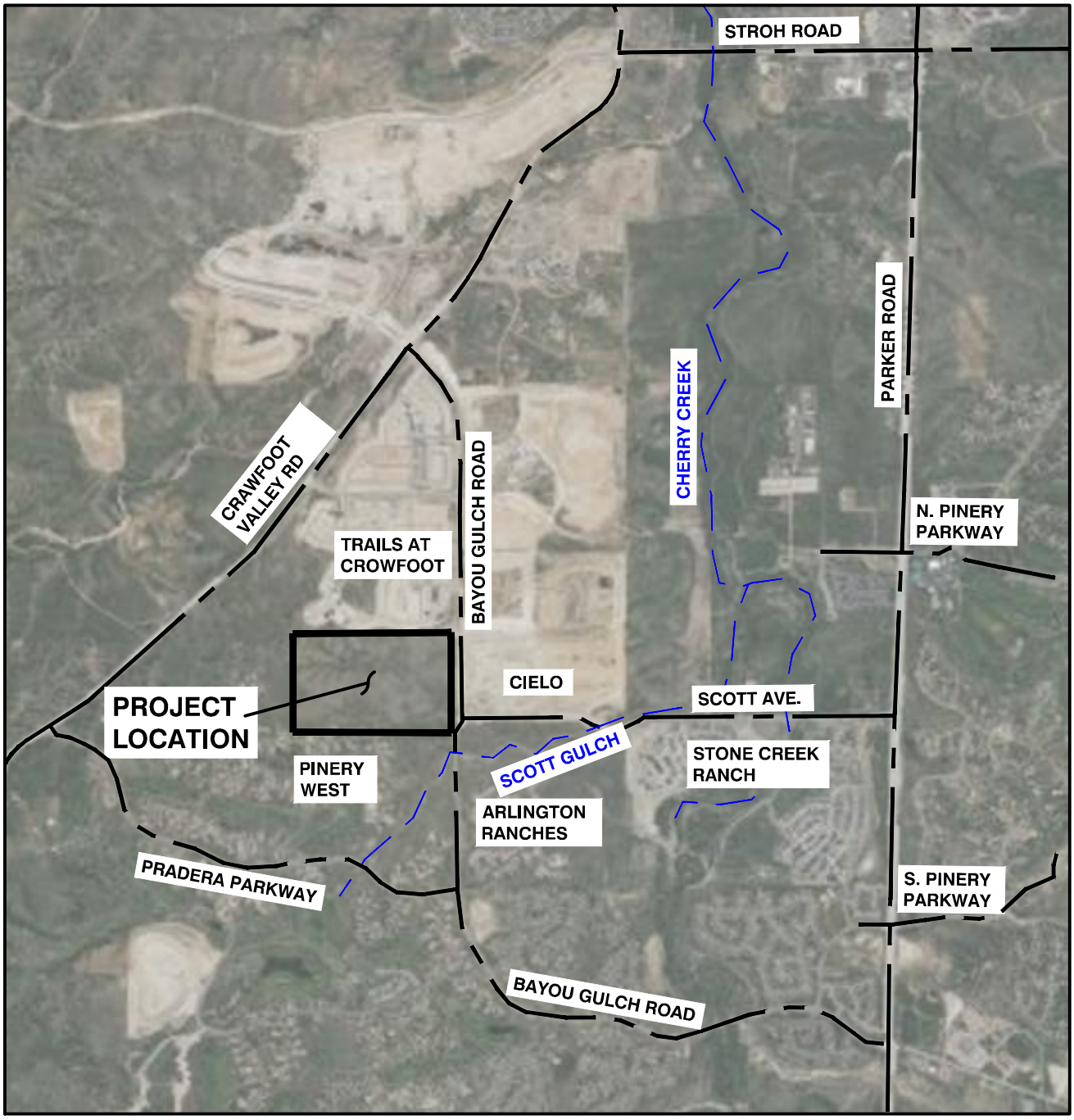
APPENDIX A

VICINITY MAP

BLOOM SUBDIVISION

VICINITY MAP

SHEET 01 OF 01



PROJECT NO.: 22003148
DATE: 06/27/2022

SCALE: 1"=2500'

ATWELL
866.850.4200 www.atwell-group.com
143 UNION BOULEVARD, SUITE 700
LAKEWOOD, CO 80228
303.462.1100

APPENDIX B

SOILS SURVEY

United States Department of Agriculture

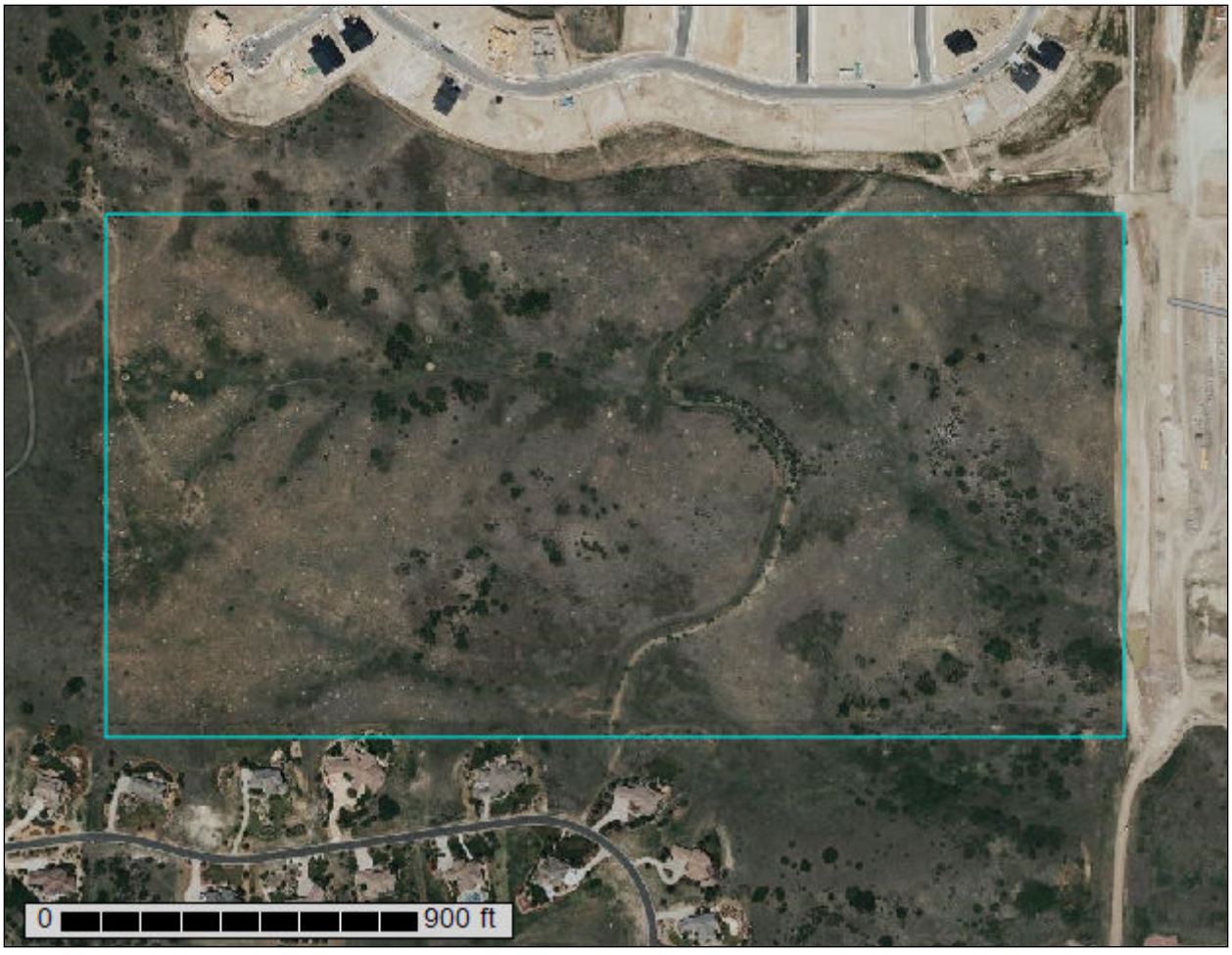
NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Castle Rock Area, Colorado

Bloom



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.


104° 47' 40" W
104° 47' 0" W
39° 27' 14" N
39° 26' 54" N
517700
517800
517900
518000
518100
518200
518300
518400
518500
518600
4367100
4367000
4366900
4366800
4366700
4366600
B
NeE
Fu
C
Soil Map may not be valid at this scale.
Map Scale: 1:4,300 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0 50 100 200 300
Feet
0 200 400 800 1200
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 1:20,000.

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: Castle Rock Area, Colorado
Survey Area Data: Version 14, 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: 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
Fu	Fondis-Kutch association	31.6	~ 40% C 40.7%
NeE	Newlin gravelly sandy loam, 8 to 30 percent slopes	46.0	~ 60% B 59.3%
Totals for Area of Interest		**77.6**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Castle Rock Area, Colorado

Fu—Fondis-Kutch association

Map Unit Setting

National map unit symbol: jqyq
Elevation: 5,500 to 6,800 feet
Mean annual precipitation: 15 to 19 inches
Mean annual air temperature: 47 to 50 degrees F
Frost-free period: 120 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition

Fondis and similar soils: 50 percent
Kutch and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fondis

Setting

Landform: Valley sides, draws
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian deposits over coarse-silty outwash derived from arkose

Typical profile

H1 - 0 to 7 inches: loam
H2 - 7 to 24 inches: clay
H3 - 24 to 60 inches: sandy clay loam

Properties and qualities

Slope: 5 to 15 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 low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: R049XB208CO - Clayey Foothill
Hydric soil rating: No

Description of Kutch

Setting

Down-slope shape: Linear

Across-slope shape: Linear
Parent material: Fine-textured residuum weathered from calcareous shale

Typical profile

H1 - 0 to 6 inches: sandy loam
H2 - 6 to 32 inches: clay
H3 - 32 to 36 inches: weathered bedrock

Properties and qualities

Slope: 5 to 40 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Gypsum, maximum content: 2 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: R049XB208CO - Clayey Foothill
Hydric soil rating: No

Minor Components

Bresser

Percent of map unit: 5 percent
Hydric soil rating: No

Newlin

Percent of map unit: 5 percent
Hydric soil rating: No

Hilly gravelly land

Percent of map unit: 4 percent
Hydric soil rating: No

Aquic haplustolls

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

NeE—Newlin gravelly sandy loam, 8 to 30 percent slopes

Map Unit Setting

National map unit symbol: jqzg
Elevation: 5,500 to 6,600 feet
Mean annual precipitation: 15 to 19 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 120 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition

Newlin and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Newlin

Setting

Landform: Terraces, mesas, plateaus
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Unconformable sandy and gravelly and/or mixed source alluvium

Typical profile

H1 - 0 to 8 inches: gravelly sandy loam
H2 - 8 to 17 inches: gravelly sandy clay loam
H3 - 17 to 22 inches: gravelly sandy loam
H4 - 22 to 60 inches: very gravelly sand

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 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: Low (about 3.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R049XY214CO - Gravelly Foothill
Hydric soil rating: No

Minor Components

Bresser

Percent of map unit: 5 percent
Hydric soil rating: No

Satanta

Percent of map unit: 4 percent
Hydric soil rating: No

Stapleton

Percent of map unit: 4 percent
Hydric soil rating: No

Aquic haplustolls

Percent of map unit: 2 percent
Landform: Swales
Hydric soil rating: Yes

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

APPENDIX C

FIRMette Map

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables shown on this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Floodway Data table shown on this FIRM.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 13. The **horizontal datum** was NAD 83, GRS 1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713- 3242**, or visit its website at http://www.ngs.noaa.gov.

Base map information shown on this FIRM was provided by the Douglas County GIS Department and the Town of Castle Rock GIS Department. Additional input was provided by the City of Lone Tree and Town of Parker. These data are current as of 2010.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **profile baselines** depicted on this map represent the hydraulic modeling baselines that match the flood profiles in the FIS report. As a result of improved topographic data, the **profile baseline**, in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

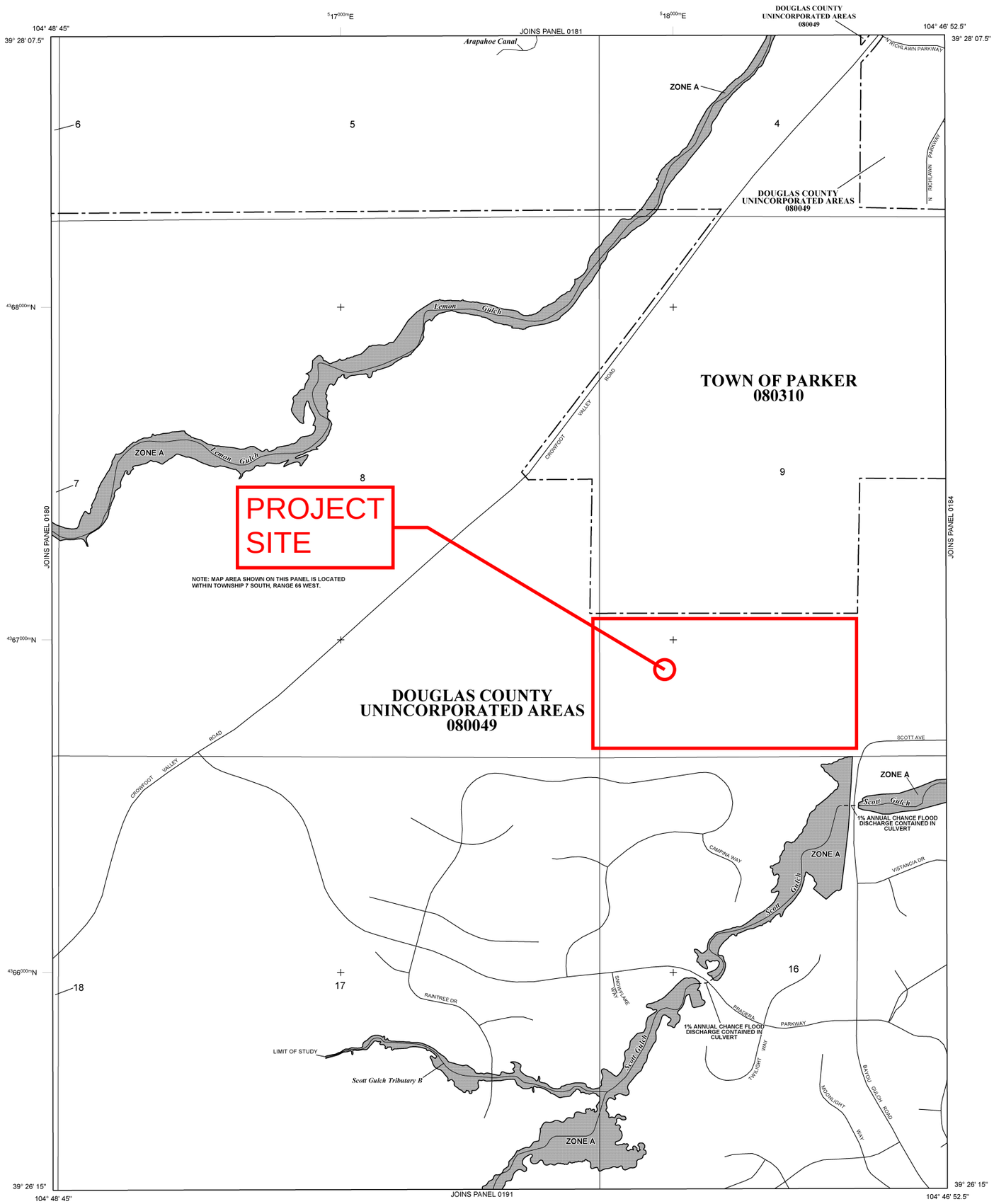
Based on updated topographic information, this map reflects more detailed and up-to-date **stream channel configurations and floodplain delineations** than those shown on the previous FIRM for this jurisdiction. As a result, the Flood Profiles and Floodway Data tables for multiple streams in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on the map. Also, the road to floodplain relationships for unrevised streams may differ from what is shown on previous maps.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

For information on available products associated with this FIRM visit the **Map Service Center (MSC)** website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

If you have **questions about this map,** how to order products, or the National Flood Insurance Program in general, please call the **FEMA Map Information eXchange (FMIX)** at **1-877-FEMA-MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip.



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, A99, V, 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 Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Areas formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	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 drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside 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.

	1% Annual Chance Floodplain Boundary
	0.2% Annual Chance Floodplain Boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities.
513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988

A A	Cross section line
23 23	Transect line
45° 02' 08", 93° 02' 12"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) Western Hemisphere
$^{4}89^{000m}$N	1000-meter Universal Transverse Mercator grid values, zone 13
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
M1.5	River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP

SEPTEMBER 30, 2005

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

MARCH 16, 2016: to update corporate limits, to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to update map format, to add roads and road names, to reflect updated topographic information, 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 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000 FEET
150 0 150 300 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0183G

FIRM

FLOOD INSURANCE RATE MAP

DOUGLAS COUNTY, COLORADO AND INCORPORATED AREAS

PANEL 183 OF 495
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
DOUGLAS COUNTY	080049	0183	G
PARKER, TOWN OF	080310	0183	G

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
08035C0183G
MAP REVISED
MARCH 16

Federal Emergency Management Agency

APPENDIX D

HYDROLOGICAL CALCULATIONS

Calculation of Peak Runoff using Rational Method

Designer: KDB
Company: Atwell, LLC
Date: 7/7/2022
Project: Bloom
Location: Parker, CO

Version 2.00 released May 2017

Cells of this color are for required user-input
Cells of this color are for optional override values
Cells of this color are for calculated results based on overrides

$t_i = \frac{0.395(1.1 - C_5)\sqrt{L}}{S^{0.33}}$ Computed $t_c = t_i + t_t$

$t_t = \frac{L_t}{60(14i + 9)}$ Regional $t_c = (26 - 17i) + \frac{L_t}{60(14i + 9)}$

$t_{minimum}$ = 5 (urban)
$t_{minimum}$ = 10 (non-urban)

Selected $t_c = \max\{t_{minimum}, \min(\text{Computed } t_c, \text{Regional } t_c)\}$

Select UDFCD location for NOAA Atlas 14 Rainfall Depths from the pulldown list OR enter your own depths obtained from the NOAA website (click this link)

	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
1-hour rainfall depth, P1 (in) =	0.83	1.11	1.36	1.72	2.01	2.32	3.10
	a	b	c				
Rainfall Intensity Equation Coefficients =	28.50	10.00	0.786				

$I(in/hr) = \frac{a * P_1}{(b + t_c)^c}$

$Q(cfs) = CIA$

Subcatchment Name	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness	Runoff Coefficient, C							Overland (Initial) Flow Time			Channelized (Travel) Flow Time					Time of Concentration			Rainfall Intensity, I (in/hr)							Peak Flow, Q (cfs)						
				2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr	Overland Flow Length L_i (ft)	Overland Flow Slope S_i (ft/ft)	Overland Flow Time t_i (min)	Channelized Flow Length L_t (ft)	Channelized Flow Slope S_t (ft/ft)	NRCS Conveyance Factor K	Channelized Flow Velocity V_t (ft/sec)	Channelized Flow Time t_t (min)	Computed t_c (min)	Regional t_c (min)	Selected t_c (min)	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
E-1	4.15	C	2.0	0.01	0.05	0.15	0.33	0.40	0.49	0.59	300.00	0.062	17.96	235.00	0.042	5	1.02	3.82	21.78	27.72	21.78	1.56	2.09	2.56	3.23	3.78	4.36	5.83	0.07	0.44	1.56	4.43	6.32	8.91	14.37
E-2	9.17	C	2.0	0.01	0.05	0.15	0.33	0.40	0.49	0.59	300.00	0.053	18.91	1600.00	0.048	5	1.10	24.34	43.26	38.78	38.78	1.12	1.49	1.83	2.31	2.70	3.11	4.16	0.11	0.70	2.46	6.99	9.97	14.06	22.68
E-3	33.70	B	2.0	0.01	0.01	0.07	0.26	0.34	0.44	0.54	300.00	0.570	8.96	2360.00	0.500	5	3.54	11.13	20.08	31.65	20.08	1.63	2.18	2.67	3.38	3.95	4.55	6.08	0.47	0.89	6.58	29.76	45.09	66.80	111.41
E-4	0.68	B	2.0	0.01	0.01	0.07	0.26	0.34	0.44	0.54	160.00	0.087	12.17	10.00	0.087	5	1.47	0.11	12.28	25.72	12.28	2.07	2.76	3.38	4.27	5.00	5.77	7.70	0.01	0.02	0.17	0.76	1.15	1.71	2.85
E-5	11.95	B	2.0	0.01	0.01	0.07	0.26	0.34	0.44	0.54	300.00	0.028	24.22	2020.00	0.050	5	1.12	30.11	54.33	41.88	41.88	1.06	1.42	1.74	2.20	2.57	2.97	3.96	0.11	0.21	1.52	6.88	10.42	15.43	25.74
E-6	19.03	B	2.0	0.01	0.01	0.07	0.26	0.34	0.44	0.54	300.00	0.062	18.63	1900.00	0.053	5	1.15	27.51	46.14	40.48	40.48	1.09	1.45	1.78	2.25	2.63	3.03	4.05	0.18	0.34	2.47	11.19	16.95	25.11	41.88

Calculation of Peak Runoff using Rational Method

Designer: KDB
Company: Atwell, LLC
Date: 7/7/2022
Project: Bloom
Location: Parker, CO

Version 2.00 released May 2017

Cells of this color are for required user-input
Cells of this color are for optional override values
Cells of this color are for calculated results based on overrides

$t_i = \frac{0.}{}$ Computed $t_c = t_i + t_t$

$t_t =$ { Regional $t_c = (26 - 17i) + \frac{L_t}{60(14i+9)}$; Selected $t_c = \max\{t_{minimum}, \min(\text{Computed } t_c, \text{Regional } t_c)\}$

$t_{minimum} = 5$ (urban)
$t_{minimum} = 10$ (non-urban)

Select UDFCD location for NOAA Atlas 14 Rainfall Depths from the pulldown list OR enter your own depths obtained from the NOAA website (click this link)

	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
1-hour rainfall depth, P1 (in) =	0.83	1.11	1.36	1.72	2.01	2.32	3.10
	a	b	c				
Rainfall Intensity Equation Coefficients =	28.50	10.00	0.786				

$I(in/hr) = \frac{a * P_1}{(b + t_c)^c}$

$Q(cfs) = CIA$

Subcatchment Name	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness	Runoff Coefficient, C							Overland (Initial) Flow Time			Channelized (Travel) Flow Time					Time of Concentration			Rainfall Intensity, I (in/hr)							Peak Flow, Q (cfs)						
				2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr	Overland Flow Length L_i (ft)	Overland Flow Slope S_i (ft/ft)	Overland Flow Time t_i (min)	Channelized Flow Length L_t (ft)	Channelized Flow Slope S_t (ft/ft)	NRCS Conveyance Factor K	Channelized Flow Velocity V_t (ft/sec)	Channelized Flow Time t_t (min)	Computed t_c (min)	Regional t_c (min)	Selected t_c (min)	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
A-1	1.62	C	10.0	0.06	0.12	0.21	0.38	0.44	0.52	0.62	300.00	0.072	16.03	140.00	0.042	20	4.10	0.57	16.60	25.39	16.60	1.80	2.40	2.94	3.72	4.35	5.02	6.70	0.18	0.45	0.98	2.26	3.11	4.27	6.73
A-2	6.72	B	15.0	0.09	0.11	0.18	0.34	0.41	0.50	0.59	300.00	0.093	14.85	595.00	0.050	20	4.47	2.22	17.07	27.45	17.07	1.77	2.37	2.90	3.67	4.29	4.95	6.61	1.08	1.73	3.47	8.46	11.85	16.47	26.24
A-3	7.03	C	15.0	0.10	0.16	0.24	0.40	0.47	0.55	0.64	300.00	0.114	13.21	670.00	0.055	20	4.69	2.38	15.59	27.74	15.59	1.85	2.47	3.03	3.83	4.48	5.17	6.91	1.29	2.73	5.16	10.86	14.71	19.82	30.85
A-4	3.41	C	15.0	0.10	0.16	0.24	0.40	0.47	0.55	0.64	190.00	0.087	11.49	200.00	0.033	20	3.63	0.92	12.41	25.10	12.41	2.06	2.75	3.36	4.26	4.97	5.74	7.67	0.70	1.47	2.78	5.85	7.92	10.68	16.62
A-5	1.41	C	35.0	0.26	0.32	0.39	0.52	0.57	0.63	0.70	300.00	0.052	14.15	620.00	0.027	20	3.29	3.14	17.30	24.57	17.30	1.76	2.35	2.88	3.64	4.26	4.92	6.57	0.64	1.06	1.58	2.64	3.39	4.33	6.45
A-6	0.67	C	40.0	0.30	0.36	0.43	0.54	0.59	0.65	0.71	25.00	0.036	4.37	600.00	0.028	20	3.35	2.99	7.36	23.29	7.36	2.52	3.36	4.11	5.20	6.08	7.02	9.37	0.50	0.81	1.18	1.90	2.41	3.05	4.49
A-7	5.10	C	15.0	0.10	0.16	0.24	0.40	0.47	0.55	0.64	300.00	0.064	15.98	290.00	0.045	7	1.48	3.25	19.23	25.50	19.23	1.67	2.23	2.73	3.45	4.04	4.66	6.22	0.85	1.79	3.37	7.10	9.62	12.96	20.17
A-8	4.26	B	15.0	0.09	0.11	0.18	0.34	0.41	0.50	0.59	300.00	0.042	19.30	420.00	0.050	20	4.47	1.57	20.87	26.27	20.87	1.60	2.13	2.62	3.31	3.87	4.46	5.96	0.62	0.99	1.99	4.84	6.79	9.43	15.02
A-9	4.32	B	15.0	0.09	0.11	0.18	0.34	0.41	0.50	0.59	300.00	0.020	24.66	700.00	0.050	20	4.47	2.61	27.27	28.15	27.27	1.38	1.84	2.26	2.85	3.33	3.85	5.14	0.54	0.87	1.74	4.23	5.93	8.25	13.13
A-10	5.20	B	15.0	0.09	0.11	0.18	0.34	0.41	0.50	0.59	300.00	0.113	13.93	870.00	0.055	20	4.69	3.09	17.02	29.02	17.02	1.78	2.37	2.90	3.67	4.29	4.96	6.62	0.84	1.34	2.69	6.56	9.20	12.79	20.36
A-11	6.97	C	15.0	0.10	0.16	0.24	0.40	0.47	0.55	0.64	300.00	0.113	13.24	660.00	0.061	20	4.94	2.23	15.47	27.46	15.47	1.86	2.48	3.04	3.85	4.50	5.19	6.94	1.29	2.72	5.14	10.81	14.64	19.74	30.72
A-12	2.25	B	20.0	0.13	0.15	0.22	0.37	0.44	0.52	0.61	70.00	0.020	11.43	775.00	0.045	20	4.24	3.04	14.48	27.76	14.48	1.92	2.56	3.14	3.97	4.64	5.36	7.16	0.55	0.86	1.54	3.35	4.59	6.26	9.82
A-13	5.60	B	15.0	0.09	0.11	0.18	0.34	0.41	0.50	0.59	300.00	0.103	14.36	295.00	0.057	20	4.77	1.03	15.39	25.31	15.39	1.87	2.49	3.05	3.86	4.51	5.20	6.95	0.95	1.52	3.04	7.41	10.39	14.44	23.00
A-14	1.33	B	20.0	0.13	0.15	0.22	0.37	0.44	0.52	0.61	75.00	0.020	11.83	790.00	0.060	20	4.90	2.69	14.52	27.16	14.52	1.92	2.56	3.13	3.96	4.63	5.35	7.15	0.32	0.51	0.91	1.98	2.71	3.69	5.79
A-15	1.13	B	20.0	0.13	0.15	0.22	0.37	0.44	0.52	0.61	70.00	0.020	11.43	715.00	0.060	20	4.90	2.43	13.86	26.72	13.86	1.96	2.61	3.20	4.05	4.73	5.46	7.30	0.28	0.44	0.79	1.72	2.36	3.21	5.04
A-16	1.32	B	20.0	0.13	0.15	0.22	0.37	0.44	0.52	0.61	70.00	0.200	5.35	335.00	0.056	20	4.73	1.18	6.53	24.60	10.00	2.25	3.00	3.68	4.65	5.44	6.28	8.39	0.38	0.59	1.06	2.31	3.17	4.32	6.77
A-17	0.96	B	15.0	0.09	0.11	0.18	0.34	0.41	0.50	0.59	70.00	0.020	11.91	850.00	0.060	20	4.90	2.89	14.80	28.66	14.80	1.90	2.54	3.11	3.93	4.59	5.30	7.08	0.17	0.26	0.53	1.29	1.81	2.52	4.02
A-18	4.25	C	15.0	0.10	0.16	0.24	0.40	0.47	0.55	0.64	65.00	0.020	10.92	720.00	0.060	20	4.90	2.45	13.37	27.86	13.37	1.99	2.66	3.26	4.12	4.81	5.55	7.42	0.84	1.78	3.35	7.06	9.56	12.88	20.05
A-19	1.23	B	15.0	0.09	0.11	0.18	0.34	0.41	0.50	0.59	80.00	0.020	12.73	480.00	0.061	20	4.94	1.62	14.35	26.37	14.35	1.93	2.57	3.15	3.99	4.66	5.38	7.18	0.21	0.34	0.69	1.68	2.35	3.27	5.21
A-20	10.06	B	10.0	0.06	0.07	0.14	0.31	0.38	0.47	0.57	300.00	0.060	17.83	920.00	0.080	7	1.98	7.74	25.58	29.51	25.58	1.43	1.91	2.34	2.96	3.46	3.99	5.33	0.82	1.34	3.24	9.29	13.36	18.98	30.73
OS-1	3.70	B	10.0	0.06	0.07	0.14	0.31	0.38	0.47	0.57	300.00	0.080	16.22	10.00	0.080	7	1.98	0.08	16.30	24.36	16.30	1.81	2.42	2.97	3.75	4.38	5.06	6.76	0.38	0.63	1.51	4.33	6.23	8.86	14.34

APPENDIX E

REFERENCE MATERIALS

Phase III Drainage Report

for

Cielo Subdivision

Prepared for

Owner / Developer:

Arlington Land Partners, LLC

6700 E. Scott Avenue

Parker, CO 80134

(310) 460-6324

Contact: Mike Sanders

Submitted by: Atwell, LLC

Project Number 16000498

May 2016

Revised February 2018

Revised July 2018

Revised January 2018

This report amendment and plan amendment for the Phase III drainage design of Cielo Subdivision was prepared by me (or under my direct supervision) in accordance with the provisions of Douglas County Drainage Design and Technical Criteria for the owners thereof. I understand that Douglas County does not and will not assume liability for drainage facilities designed by others.

SIGNATURE: _____ 01/15/2019

Registered Professional Engineer State
Of Colorado No. 32615
(Affix Seal)

COLORADO REGISTERED
JEFFREY J. FRENCH
32615
PROFESSIONAL ENGINEER

Arlington Land Partners, LLC hereby certifies that the drainage facilities of Cielo Subdivision shall be constructed according to the design presented in this report. I understand that Douglas County does not and will not assume liability for the drainage facilities designed and/or certified by my engineer and that Douglas County reviews drainage plans pursuant to Colorado Revised Statutes, Title 30, Article 28; but cannot, on behalf of Cielo Subdivision guarantee that final drainage design review will absolve Arlington Land Partners, LLC 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.

Michael Sanders
Name of Developer

Authorized Signature

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Drainage Plan and Historic Drainage Plan — Back Pocket

I. INTRODUCTION

This Phase III Drainage Study has been completed for Arlington Land Partners, LLC in order to present an effective storm water management plan for the proposed Cielo Subdivision Filing No. 1. Included within this report is an overall drainage plan for the site along with reference information for drainage basins and storm water conveyance facilities.

II. GENERAL LOCATION AND DESCRIPTION

A. The Cielo site is generally located at the northeast corner of the intersection of Scott Avenue and Bayou Gulch Road south of Parker, Colorado. More specifically, the site is located in the Southeast Quarter of Section 9, Township 7 South, Range 66 west of the Sixth Principal Meridian, County of Douglas, State of Colorado. The Cielo site consists of approximately 151.08 acres of agricultural land and is entirely within unincorporated Douglas County. A site vicinity map is included in the appendix.

The site is bounded by Scott Avenue and the Vistancia community/open space to the south, the Hess Ranch Property annexed into the Town of Parker to the North, the Hungry Horse Open Space owned by Douglas County to the east and the proposed Sagewood Development zoned low density residential to the west. The Pradera Community is just southwest of the site and the proposed Stone Creek Ranch development is to the southeast. The overall area consists of 151.08 acres that is proposed be developed into approximately 343 single family residential lots (2.2 du/ac), a K-8 school site, open space, parks and associated roadways.

B. The site is currently undeveloped land. The ground is covered with native grasses and brush with pockets of small trees. The topography is gently rolling terrain with a majority of the slopes under 10%. There are three to four pockets of steeper terrain on the south portion of the property at the edge of Scott Gulch. The site's only body of water is Scott Gulch that runs in the Southeast corner of the site. Existing drainageways follow the existing terrain and drain towards Scott Gulch to the south and Cherry Creek to the east. The historic Arapahoe Canal is on the western edge of the site but it is no longer in use. There are existing stock ponds located in the southwest corner of the site. The ponds are no longer in use and are not used for water storage.

Five distinct soils are identified on-site and in the tributary areas: 1) Fondis Clay Loam (Type C); 2) Fondis Kutch Association (Type C); 3) Newlin Gravelly SandyLoam (Type B); 4) Sampson Loam (Type B); 5) Sandy alluvial land (Type A). Generally, the Type C hydrologic group soils exist in the higher elevations of the site in the north west corner and center of the site. The Type A soils exist only within the Scott Gulch drainageway. Off-site tributary areas are a mix of Type B and C soils. Since there will be extensive grading activities and significant transport of soil from the high areas of the site to lower areas, Type C soils are conservatively assumed for the entire developed condition drainage design.

According to the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map, the majority of the site lies within Zone X. The Southeast corner of the site lies within

Zone A. Zone X is designated as "Areas determined to be outside the 500-year flood plain." Zone A is designated as the 100-year flood plain or "Areas with a 1% annual chance of flooding" where no base flood elevations are provided. Mandatory flood insurance purchase requirements and floodplain management standards apply. A portion of the FEMA map, Community Panel No. 08035C0183F & 08035C0184F (Reference 2).

On the western edge of the site, a part of the historic Arapahoe Canal remains. In 1889, the Denver Water Storage Company built a Dam in Castlewood Canyon. The overflow for the Dam was handled by a ditch called the Arapahoe Canal. In 1933, the dam collapsed and caused a flood destroying property and livestock as far north as Denver. The remnants of the dam and the canal are visible along the western slopes of the Cherry Creek. This debris has been discernible and is known by the surrounding communities for many years and will have no adverse impact on the Cielo development.

Preliminary subsurface investigations were previously conducted by Colorado Geoscience and Design, Inc. The scope of the study was to perform field and laboratory investigations to identify general subsurface conditions across the site for the purpose of developing typical foundation and geotechnical engineering related recommendations for the design and construction of the previously submitted development. A new report was prepared by CTL Thompson based on the project final site plan and is more comprehensive and specific to the new lot locations (Reference 8).

The subsurface conditions encountered varied across the site. The soils consist of non-expansive to highly expansive slightly sandy to sandy very stiff clay. Clayey sand underlain by clayey sandstone or sandstone/claystone was also encountered within the site. These soil conditions are typical throughout Douglas County and standard mitigation procedures such as over excavation and the installation of underdrain systems can be used to address the swelling potential (Reference 9).

III. DRAINAGE BASINS AND SUB-BASINS

A. Major Basins are described as follows, including historic basins, developed condition basins, and off-site basins:

Historic Basin H1 is defined by the 55.6 acres of undeveloped land in the southwest half of the site. The historic drainage pattern is overland sheet flow in the direction of northwest to southeast towards the Scott Gulch with slopes ranging from 2% to 25%. Existing swales conveys flows across the basis and crosses the existing Scott Avenue (gravel road) via culverts to the Scott Gulch.

Historic Basin H2 is defined by the 42.2 acres of undeveloped land in the Northwest half of the site. The historic drainage pattern is overland sheet flow in the direction of Southwest to Northeast towards the Cherry Creek with slopes ranging from 1% to 15%. Existing swales conveys flows to the north property line.

Historic Basin H3 is defined by the 46.9 acres of undeveloped land in the Northeast half of the site. The historic drainage pattern is overland sheet flow in the direction of Southwest to Northeast towards the Cherry Creek with slopes ranging from 1% to 15%. Existing swales conveys flows to the north and east property line.

Historic Basin H4 is defined by the 13.8 acres of undeveloped land in part of the East half of the site. The historic drainage pattern is overland sheet flow in the direction of West to East towards the Cherry Creek with slopes ranging from 1% to 15%.

Offsite Basin OS-1 is defined by 101.8 acres of open space (Vistancia Open Space) and single family residential development (Vistancia Subdivision) south of the site. Runoff from the basin flows northeast towards the Scott Gulch (Reference 4). The basin will not affect the Cielo site but will factor into the CLOMR for the Scott Gulch. Flows for this basin are taken directly from the Scott Gulch OSP (Reference 4).

Offsite Basin OS-2 is defined by 24.1 acres of undeveloped land space partly within the Hess Ranch Property north of the site. Runoff from the basin flows northeast towards the Cherry Creek. The basin is downstream of the proposed site and will not factor into any proposed drainage design.

Offsite Basin OS-3 is defined by 41.9 acres of open space (Hungry Horse Open Space) east of the site. Runoff from the basin flows northeast towards the Cherry Creek. The basin is downstream of the propose site and will not factor into any proposed drainage design.

Offsite Basin OS-4 is defined by 34.6 acres of open space (Hungry Horse Open Space) east of the site. Runoff from the basin flows east towards Scott Gulch before its confluence with Cherry Creek. The basin is downstream of the proposed site and will not factor into any proposed drainage design.

Offsite Basin OS-5 is defined by the 10.6 acres of open space to the west of the site. Runoff from the basin flows west toward the proposed Cielo site. The basin generates a 100 year flow rate of 30.8 cfs which will collect in low point near the northwest corner of the site that will form when Bayou Gulch Road is constructed. The runoff conceptually conveyed in an open swale around along the north property line to its existing flow path.

Offsite Basins OS-6 and OS-7 are defined by the 92 acres of open space to the west of the site. Runoff from the basin flows west toward the proposed Cielo site. Under historic conditions, the basins generate a 100-year flow of 210 cfs.

Offsite Basin OS-8 is defined by 305.8 acres of single family residential development (Pradera Subdivision) southwest of the site. Runoff from the basin flows east towards the existing Pradera Regional Detention Facility (Reference 5). The pond outlets to the west into the Scott Gulch and will factor into the CLOMR for the Scott Gulch. Flows for this basin are taken directly from the Scott Gulch OSP (Reference 5).

The Scott Gulch major drainageway crosses the southeast corner of the property. Scott Gulch has an upstream tributary area of approximately 4 square miles and conveys 100-year flows of 2580 cfs, at the Scott Avenue culvert crossing (Reference 5). The existing channel bottom varies from 15 to 30 feet wide with a sandy surface and moderate side slopes south of Scott Gulch and east of the Cielo property. Within the Cielo property, Scott Gulch follows a course that contains multiple short-radius bends and highly eroded side-slopes of up to 1:1. The average channel grade through this segment is approximately 1.6%.

For the proposed developed condition, the site divided in to 6 major basin areas as follows:

The proposed Basin A consists of the westernmost areas of residential lots, tributary to the proposed Detention Pond A located in the southwest corner of the project site. Pond A also receives storm water run-on from the 92 acres of offsite area from the proposed Sagewood Development and runoff from Bayou Gulch Road. The offsite tributary areas are designated as basins O61-O63 and O71-O73, which coincide with the historic basins OS-6 and OS-7. These areas will be mostly lower density residential and have an overall developed imperviousness of 15.5%. Basin A will consist of 20.6 acres of single-family residential development dwelling units per acre. Overall composite imperviousness of Basin A is 44.6%. Overall composite imperviousness of Basins A + O61-O73 is 20.8% requiring about 6.2 acre-ft of storage for 100-year detention. Basin A generally follows the same drainage patterns as historic basin H1 and outfalls to Scott Gulch adjacent to the development site.

The proposed Basin B is generally the southeast area of the site and is tributary to the proposed detention pond B located in the southeast corner of the site. Basin B will consist of 34.4 acres of single-family residential development. Overall composite imperviousness of Basin B is 48.7%, requiring about 3.23 acre-ft of storage for 100-year detention. Basin B generally follows the same drainage patterns as historic basin H1 and outfalls to Scott Gulch adjacent to the development site.

The proposed Basin C primarily covers the future school parcel in the northwest corner of the site and is tributary to the proposed detention pond C located in the existing natural swale at north edge of the site. The on-site portion of Basin C consists of 28.91 acres of land proposed for a future school and adjacent roads with minor overland runoff from residential lots. Overall composite imperviousness of Basin C will be 58.5% under fully developed conditions. The undeveloped land, approximately 10.6 acres, to the west of Bayou Gulch Road (Historic sub-basin OS-5/Proposed sub-basin O-51 as described below) will be routed through Pond C at historic flow rates and additional storage will only be provided for the WQCV for this additional area. Approximately 3.0 acre-feet of storage will be required for on-site 100-year detention plus an additional 0.1 acre-feet for the WQCV from the off-site area. Basin C generally follows the same drainage patterns as historic basin H2 and Pond C will outfall to the natural swale in OS-2 which drains through the future Hess Ranch development and the Hungry Horse open space to Cherry Creek.

The proposed Basin D generally covers the northeast corner of the site, but will also include the park and well sites in the west-central area of the site. Basin D will consist of 36.9 acres of single-family residential development. Overall composite imperviousness of Basin

D will be 40.4%, requiring about 3.05 acre-ft of volume for 100-year detention in Pond D. Basin D generally follows the same drainage patterns as historic basin H3 and will outfall to the natural swale in OS-3 which drains through the Hungry Horse Open Space to Cherry Creek.

The proposed Basin E is generally the south-central areas of the site and is tributary to the proposed detention pond E located in the south-central area of the site, just east of proposed Estancia Boulevard. Basin E will generally consist of 24.3 acres of single-family residential development. Overall composite imperviousness of Basin E is 49.2%, requiring 2.3 acre-ft of storage for 100-year detention. Basin E generally follows the same drainage patterns as historic basin H1 to Scott Gulch adjacent to the development site.

Areas designated as Basins F include perimeter areas of the site which cannot be captured and directed to on-site detention ponds. Due to attenuation of flows in the detention ponds on-site, the flows from Basin F areas that leave the site will not cause receiving drainages to exceed historic flows.

Areas designated as Basin G include drainage from Scott Avenue in the vicinity of the Scott Gulch box culvert crossing. These areas are below what can be captured by the proposed detention facilities and are collected in inlets that exclusively serve Scott Avenue.

B. Each major basin is divided into multiple sub-basins for detailed analysis and design of drainage features. Most of the on-site sub-basins include residential lots and are assigned a uniform imperviousness of 45% per USDCM Figure 6-3 (Lot size < 0.25 ac.) Sub-basins that are open space are assigned an imperviousness of 10%. Sub-basins that consist primarily of collector or arterial rights of way are assigned an imperviousness of 100%. All other imperviousness values used for sub-basins are specifically explained.

Basin A is divided into 17 sub-basins which will be served by two storm sewer systems that outfall to Pond A as follows:

- Sub -basins A1 – A3 include the east half of Milagros Drive and adjacent residential lots and streets. These basins drain to On-Grade Inlet A3 (10’ Type R), with carry-over flow continuing west to A8.1.
- Sub-basins A4-A6 include the west half of Milagros Drive, adjacent lots and streets, and the south half of Presidio Parkway. These basins drain to On-Grade Inlet A6 (10’ Type R), with carry-over flow continuing west to A8.1.
- Sub-basin A8.1 includes a portion of the north half of the east/west Loma Vista Drive loop and adjacent lots. This basin drains to On-Grade Inlet A8.1 (10’ Type R), with carry-over flow continuing west to A8.
- Sub-basins A7 and A8 include the east half of the north/south Loma Vista Drive loop and adjacent lots and streets. These basins drain to Sump Inlet A8 (10’ Type R).
- Sub-basin A9.1 includes a portion of the south half of the east/west Loma Vista Drive loop and adjacent lots. This basin drains to On-Grade Inlet A9.1 (5’ Type R), with carry-over flow continuing west to A10.

- Sub-basins A9 and A10 include the outer half of the Loma Vista Drive loop and adjacent lots. These basins drain to On-Grade Inlet A9.1 (5' Type R), with carry-over flow continuing west to Sump Inlet A10 (15' Type R). Inlets A8 and A10 act as a pair and A8 can attain 5.6" of ponding before spilling across the road crown to A10, which can attain 6" of ponding before spilling to tract C, which drains directly to Pond A.
- Sub-basin A11 includes residential lots the back up to the tract for Pond A and drains direct to the pond.
- Sub-basin A12 includes an open space tract east of Bayou Gulch Road which drains via a grass swale to Pond A.
- Sub-basin A13 includes the east half of Bayou Gulch Road north of Presidio Parkway and drains to on-grade inlet A13 (15' Type R) north of the Presidio Parkway intersection, which captures minor and major storm runoff. 15' of inlet is required for 97% major storm capture, with carryover flow continuing east to D2.
- Sub-basin A14 includes the east half of Bayou Gulch Road between Scott Avenue and Presidio Parkway. The basin drains to On-Grade Inlet 14 (15' Type R) and Sump Inlet A14.1 (10' Type R) at the low point in Bayou Gulch. The profile of Bayou Gulch Road was generally determined through a conceptual regional arterial study that was provided by Douglas County. The intersection with Scott Avenue, which has been designed to conform to the county-provided profile, limits the attainable ponding depth at the low point to 0.33 feet. On-grade inlet A14 has been provided to partially capture Basin A14 flows so that Inlet A14.1 can intercept the remaining flows within the allowable ponding depth. Overflow from Inlet A14.1 is around the curb return of Scott Avenue.
- Sub-basin A15 is the tract for Pond A.

The areas of OS-6 and OS-7 are also tributary to Pond A. For developed condition analysis, these areas are divided into sub-basins O61-O63 and O71-O73 as follows:

- Sub-basin O61includes 25 acres of the future Hess Ranch development that is west of Bayou Gulch Road and ultimately tributary to Scott Gulch. The natural flow path for O61 crosses into the Sagewood site before crossing Bayou Gulch and it is anticipated with the master plan for Hess Ranch that O61 developed peak will be detained on that property before being released at historic rates. It is anticipated that the peak 100-year release from the future pond will not exceed the historic runoff. For this reason, the area is analyzed assuming 2% imperviousness to compute the maximum expected flow.
- Sub-basin O62 coincides with Basin P-1B of the Sagewood Phase 1 drainage plan and is shown to drain to a set of inlets in a future street opposite Presidio Parkway. The Cielo storm sewer design accommodates future connections for O61 and O62 with a pipe stub from the trunk line in Bayou Gulch Road. The preliminary land plan for Sagewood shows lots sizes that are greater than 0.75 acres, so a 20% imperviousness is assigned for this area.
- Sub-basin O63 coincides with Basin P-1A of the Sagewood Phase 1 drainage plan an drains to a natural low point that will be cut off by Chamber Road grading. A flared end section will be installed to collect these flows and direct them to Pond A. This area is also assigned 20% imperviousness. In the interim condition, before Sagewood is developed, the flared end section at DP 23 will collect all of the undeveloped runoff from OS-6.

- Sub-basin O71 includes a large area that drains overland to the existing drainage path across from Pond A. This area includes multiple sub-basins with the Sagewood drainage plan and areas that are off-site to that property. The areas of O71 within Sagewood are taken at 20% imperviousness and the offsite areas are taken at 2%. O71 runoff will drain via the existing natural drainage path to the low point west of Bayou Gulch and will be intercepted by an Inlet O71 (triple type D) immediately west of Bayou Gulch Road. Due to the elevation difference between existing ground and the Bayou Gulch Road profile, a 3 foot sump will be graded to ensure the flows will be fully captured by the inlets with ample freeboard to avoid right-of –way encroachment by inlet ponding. In the interim condition, before development of the Sagewood site, the triple type D inlet with standard grate and receiving pipe will accommodate all of the existing undeveloped runoff from OS-7. Fully developed conditions, under the current Sagewood site would reduce flows to Inlet O71 since the tributary area of Basin O71 is significantly less. In this case, a close mesh grate will still enable full capture of flows with less the 1 foot of ponding if required for pedestrian safety next to the completed west half of Bayou Gulch Road.
- Sub-basin O72 includes the west half of Bayou Gulch road and adjacent cut slopes that may drain to Bayou Gulch. Flow from basin O72 will be captured by On-Grade Inlet O72.1 (15' Type R) and Sump Inlet O72.2 (10' Type R), which function similar to A14.1 and A14.2 with the ponding limitation at the low point. The west half of the road is not expected to be constructed with the Cielo development.
- Sub-basin O73 coincides with Basin P-5A of the Sagewood Phase 1 drainage plan and is shown to drain to a set of inlets in a future street opposite Scott Avenue. A 20% imperviousness is assigned to this area. The Cielo storm sewer design accommodates future connections for O73 with a pipe stub from the trunk line in Bayou Gulch Road.

Additionally, Basin O11 defines an off-site area of Bayou Gulch Road the will be captured in a proposed inlet at the southeast corner of Bayou Gulch Road and Scott Avenue immediately south of the Cielo site. Because the county's design of Bayou Gulch Road is preliminary, Basin O11 is conservatively defined as the east half of the road section to the future inlets between the pond outlet and future pond overflow. Basin O11 is within the limits of historic Basin O-1which flows direct to Scott gulch. Inlet O11 (15' Type R) will connect directly to the Pond A Outfall pipe which discharges to Scott Gulch via open swale.

Basin B is divided into 15 sub-basins which will be served by one storm sewer system that outfalls to Pond B as follows:

- Sub-basin B1 includes residential lots on Los Olivios Point and part of Estancia Boulevard. B1 drains to On-grade Inlet B1 (10' Type R) with carry-over flow continuing down Los Olivos Point into B3.
- Sub-Basins B2-B4 include lots on Los Olivios Point and La Posada Place and drain to On-grade Inlet B3 (10' Type R) and Sump Inlet B4 (15' Type R). The overflow for B4 is through Tract J to B8.
- Sub-basins B5 and B6 include the block between La Posada Place and Vista Arroyo Street and drain to On-grade Inlets B5 and B6 (Both 15' Type R). Carry-over flows continue in Vista Arroyo Street to B8.

- Sub-basins B7-B12 include the west/north half of Vista Arroyo Street, adjacent lots, and adjoining segments of La Posada Place and Tesoro Point. On-Grade Inlet B7 (10' Type R) intercepts flow from B7 with carry-over flow continuing to B8. On-Grade Inlet B8 (15' Type R) intercepts flow from B8 with carry-over flow continuing to Inlet B11. On-Grade Inlet B9 (15' Type R) intercepts flow form B9 with carry-over flow continuing to Inlet B11. On-Grade Inlet B11 (15' Type R) intercepts flow form B11 with carry-over flow continuing to Inlet B12. Sump Inlet B12 (15' Type R) intercepts direct flows from B12 and any remaining carry-over flow from B5-B10.
- Sub-basins B13 and B14 include the outer half of Vista Arroyo Street and adjacent lots and drain to Sump Inlet B14 (15' Type R) opposite Inlet B12. Inlets B12 and B14 act as a pair and B12 can attain 5.6" of ponding before spilling across the road crown to B14, which can attain 6" of ponding before spilling to tract N, which drains directly to Pond B.
- Sub-basin B15 is the tract for Pond B and immediately adjacent areas.
- Sub-basins G6 and G7 include portions of Scott Avenue that will be diverted to Pond B.

Basin C is divided into 8 sub-basins as follows:

- Basin C1 includes Tract A which is reserved as a future school site and will be developed separately from the residential areas of the Cielo Subdivision. Presently, a site plan for the school has not been developed. Storm sewer infrastructure downstream of the school, including Detention Pond C and receiving storm sewer are sized for the build-out of the school site at 55% assumed imperviousness per USDCM Table 6-3. As an interim condition, a double Type D inlet will be constructed to collect runoff from the undeveloped site. At the time when the drainage design for the school site is done, it is anticipated that Inlet C1 will serve as the tie-in point for the site's internal storm infrastructure and/or be replaced.

- Sub-basins C2 and C3 includes the east half of Bayou Gulch Road and south half of Pedregal Drive and will drain via curb and gutter to On-grade inlet C3 (10' Type R) immediately west of the Estancia Boulevard intersection. C2 flows are routed to C3 so that they can be detained in Pond C. Carry-over flow from C3 rounds the corner to sub-basin C4.
- Sub-basin C4 includes the west half of Estancia Boulevard adjacent to the future school site and receives carry-over flow from D4. C4 drains to Sump Inlet C4 (10' Type R) at the low point opposite Pond C. Inlet C4 also accepts major storm carry-over from C3 and C5 immediately to the north.
- Sub-basin C5 includes the north half of Pedregal Drive and drains to On-Grade Inlet C5 (10' Type R) opposite Inlet C3. Inlet C3 and C5 are intended to capture the majority of flows from Pedregal Drive and minimize the frequency that carry-over flows occur through the crosspan or around the return of the Pedegral Drive/Estancia Boulevard intersection, where heightened vehicle and pedestrian traffic is anticipated due to the future school site.
- Sub-basin C6 includes east half of Estancia Boulevard and drains to Sump Inlet C6 (10' Type R) at the low point next to Pond C. Pedregal Drive and Estancia Boulevard both have typical roadway sections that begin to daylight at the back of walk and limit gutter flow and inlet ponding depth to 7.2 inches for the major storm. These limitations are

reflected in the calculations. In the major storm, Inlet C4 and C6 function as an inlet pair due to crown overtopping.

- Sub-basin C7 includes the back halves of a strip of residential lots that flow directly to Pond C from the south.
- Sub-basin C8 is an open space area that contains Pond C.
- Basin O51 includes the area of the future Hess Ranch development that is tributary to Basin C. It is anticipated with the master plan for Hess Ranch that the O51 developed runoff volume will be detained on that property before being released at historic rates. It is anticipated that the peak 100-year release from the future pond will not exceed the historic runoff. For this reason, the area is analyzed assuming 2% imperviousness to compute the maximum expected flow. Flows from O51 are routed around the Cielo subdivision through a storm sewer in Bayou Gulch Road and Pedregal Drive. The detained flows will be discharged into Pond C for water quality before being released into the existing, natural drainage swale routing water through sub-basin OS-2, the historic flow path of Basins OS-5 and H2. A type D inlet is used to intercept Basin O51 flows and allows for a pipe depth that will not be prohibitive to future connection by a pond outlet structure.

Basin D is divided into 19 sub-basins as follows:

- Sub-basins D1 and D3 contain the park site north of Presidio Parkway and are assigned a 10% imperviousness. Drainage from these parcels will be overland flow to the curb/gutter of adjacent Presidio Parkway and Estancia Boulevard. Carry-over flow from sub-basins D1 and D3 continues to sub-basin D4 via overland flow.
- Sub-basin D2 and D4 include north and west halves of Presidio Parkway and Estancia Boulevard and drains to On-Grade Inlet D4 (15' Type R) after collection of overland flow from D1 and D3. Intercepted flow from D4 is directed to Pond D via storm sewer through Tract Q. Carry-over flow from D4 continues in Estancia Boulevard to sub-basin C4.
- Sub-basins D5, D6 and D8 include residential lots fronting Las Palmas, Los Conchas and Cristobal Points, respectively. Each of these basins drain to Sump Inlet D5, D6 (10' Type R) and D8 (15' Type R) which are located at the end of each cul-de-sac. Emergency overflow from these inlets is through Tract Q.
- Sub Basins D5.1, D6.1, D7.1 and D8.1 contain areas of the Tract Q open space and the rear halves of residential abutting Tract Q. The four basins drain to area inlets in the open space tract. Each of these areas contributes less than 5 cfs of flow in the major storm. Grass lining is adequate for all segment of the swale as verified with USDCM Figures 8-22 and 8-23, which are included in the report calculations for controlling swale segments.
- Sub-basin D9 is a strip of residential lots that back to open space tracts and flow directly to sub-basin D16.
- Sub-basins D10-D12 include residential lots fronting Las Rosas Drive and Santa Cruz Point and drain to Sump Inlets D11 and D12 (10' Type R). Overflow for both inlets is west into the Pond D tract.
- Sub-basins D13-D15 include residential lots fronting the east-west segment of Las Rosas Drive and drain to Sump Inlets D13 and D15 (10' Type R). Overflow for both inlets is

east into Tract S toward the Pond D outfall location. This path also serves as the emergency overflow for Pond D.

- Sub-basin D16 is an open space tract that includes Pond D.

Basin E is divided into 13 sub-basins as follows:

- Sub-basins E1-E2 include Amarosa Drive and Palmia Lane and adjacent lots. E1 and E2 drain to On-Grade Inlet E2 (15' Type R), which is intended to capture minor storm flows and most larger event flows before the cross-slope transition in Amarosa Drive diminishes gutter capacity. Un-intercepted flow from the major storm crosses Amarosa Drive to E7 after the crown transitions to cross-slope due to upward extension of the flowline warp from the Loma Vista Drive/Amarosa Drive intersection.
- Sub-basin E3 includes the east half of Amarosa Drive and drains to on-grade inlet E3 (10' Type R).
- Sub-basin E4 includes the north half of Loma Vista Drive east of the intersection with Amarosa Drive. Sub-basin E4 is captured by On-Grade Inlet E4 (10' Type R) before the cross-slope transition in Loma Vista Drive diminishes gutter capacity.
- Sub-basins E5-E7 include the Margarita Point cul-de-sac and the south half of Loma Vista Drive. On-Grade Inlet E5 (10' Type R) intercepts flow from sub-basin E5 with carry-over flow combining with sub-basins E6 and E7 before On-grade Inlet E7 (15' Type R). E7 also collects sheet flow from the Loma Vista Drive/Amarosa Drive intersection that flows southeast due to the cross-slope that results from flowline warping at that intersection to transition the relatively steep approach grades. Carry-over flow from E7 flows to E11 at Estancia Boulevard. Due to the significant elevation difference between the upper reaches of Village A and Scott Avenue, relatively steep street grades are necessary in the area of the subdivision and the drainage design is intended to accommodate the atypical warps and cross-slopes that result by maximizing capture of flows uphill of the street transitions out of standard section.
- Sub-basin E8 includes the west half of Estancia Boulevard and adjacent tract and lots and drains to on-grade Inlets E8 (10' Type R). Carry over flow from E8 continues south in Estancia Boulevard south to E11.
- Sub-basin E9 includes the east half of Estancia Boulevard and the back halves of adjacent residential lots and drains to On-grade Inlet E9 and Sump Inlet E10 (both 10' Type R). Inlet E10 only accommodates 10 feet of minor storm spread between the inlet and median so capture of minor storm flows required by On-grade inlet E9 before spread encroaches beyond acceptable limits for minor storm. Major storm ponding depth for E10 is controlled by the northeast curb return with Scott Avenue.
- Sub-basin E11 includes the west half of Estancia Boulevard and the back halves of adjacent residential lots. Direct runoff from E11 and remaining un-intercepted flows from E1-E8 are intercepted by Sump Inlet E11 (15' Type R). The minor storm capacity for E11 is aided by the left turn Bay at Scott Avenue, which allows for 17 feet of spread and 10 feet of unobstructed passage between the inlet and median. Major storm ponding depth for E11 is controlled by the southern median return.
- Sub-basin E12 includes the back halves of the residential lots adjacent to the north half of Scott Avenue between Chamber and Estancia Boulevard. E12 drains to the 18" flared end section before routing water to Pond E.
- Sub-basin E13 is the open space tract that includes Pond E.

- Sub-basin G 5 includes a portion of Scott Avenue that will be diverted to Pond E.

IV. DESIGN CRITERIA

A. The Douglas County Storm Drainage Design and Technical Criteria Manual (SDDTCM) serves as the governing document for the Cielo drainage design. Where the SDDTCM defers to Urban Drainage, the 2016 edition of the Urban Storm Drainage Criteria Manual (USDCM) is referenced.

B. The Cielo subdivision is not part of a previously prepared master drainage plan. Drainage studies for the constructed Vistancia subdivision and the under-design Stone Creek Ranch subdivision do not impact the Cielo site as they are not directly tributary or downstream of the Cielo Site.

Scott Gulch is the subject of and Outfall Systems Plan that was produced in 2004 by CH2M Hill (Reference 5). The OSP presents a drainage analysis for anticipated development within the Scott Gulch watershed and identifies alternatives to mitigate the effect of development and changes in runoff. The recommended alternative, Alternative 5, proposes a modification of the Pradera regional detention pond 2500 ft. upstream of the Scott Avenue crossing of Scott Gulch. At present, Bayou Gulch Road serves as the embankment for the Pradera regional pond. The OSP recommendation proposes raising the Bayou Gulch by 0.5 feet to provide an increase in storage. The resulting 100-year design flow for the downstream reach of Scott Gulch is 1477 cfs. The Bayou Gulch roadway improvements and associated regional detention volume modifications are currently under design. For this reason, the recommended design flow of 1477 cfs is appropriate for design of improvements to Scott Gulch and Scott Avenue. Existing and future Scott Gulch flows for relevant design storms are also taken from the OSP Study.

Additionally, the preliminary design in the OSP for the recommended alternative proposes bank protection at sharp channel bends and grade control structures in the reach of Scott Gulch that crosses through the Cielo property. However, due the proposed Scott Avenue re-alignment, culvert reconstruction and resulting modifications to the Scott Gulch Channel, a more detailed and site-specific design will be used in favor of the OSP recommendation. Relevant excerpts from the OSP have been included in the appendix.

C. The rational method is used for hydrologic calculations since all major drainage basins are smaller than 90 acres. Per Douglas County Criteria, a 5 year recurrence interval is used as the minor event storm and a 100-year recurrence interval is used as the major event storm. Rainfall Intensities for Rational Method calculations computed from Intensity-Duration curves based on Eqn 5-4 of the USDCM and the one hour point rainfalls depths for Douglas

County Zone 1 (1.43 in for 5-yr storm and 2.60 in. for 100-yr storm). The rainfall intensity values computed are consistent with the I-D curve in Figure 6-2 of the SDDTCM. Time of concentration and runoff calculations follow the SF-2 and SF-3 formats given in the SDDTCM.

All five (5) Detention Ponds are designed as full-spectrum facilities. Rainfall depths for storage calculation are taken from the Douglas County Zone 1 one-hour point rainfall depths. NOAA Atlas 14 values were used for the 25-year and 500-year rainfall depths as these storm events are not presented in the Douglas County values. Storage volumes have been computed for Water Quality Capture Volume (WQCV), Excess Urban Runoff Volume (EURV) and 100-year detention volume. Pond volumes are compliant with the UDFCD recommendation in Section 12-4 of the 2016 USDCM that additional volumes are not added to the 100-year detention volume. Hence, the UD-Detention v3.07 spreadsheet is used for volume and outlet computation without any accessory calculation or customization of the standard UD template. Outlets are designed with an orifice plate to control WQCV and EURV releases and a grated drop box with restrictor plate over the outlet pipe to control 100-year releases.

D. Hydraulic design: Curb and gutter conveyance capacities for major and minor storms are determined using the UD-Inlet v4.05 spreadsheet by UDFCD. Interception and carry-over flows for on-grade inlets are included in the spreadsheet, as required by Section 8.4.1 for final design of on-grade inlets. Capacities of inlets in sump locations based on available or allowable ponding depth per Figures 8-12 and 8-13 of the county's SDDTCM. All inlet computations use the recommended and/or default weir and orifice coefficients and clogging factors provided by UDFCD.

Storm sewers are designed to meet the minor and major storm performance criteria that are defined in section 9.8 of the Douglas County SDDTCM. Pipe slopes and manhole drops are designed to efficiently manage the significant grade differences across the site and to meet the velocity constraint of 18 feet per second, with a maximum velocity of 15 feet per second at all outfalls. Storm sewer hydraulics are analyzed using StormCAD V8i software by Bentley. Headloss computations in manholes use the standard method for bends and generic method for lateral junctions, which are consistent with USDCM equations 7-56 and 7-58, respectively. Loss coefficients used within the StormCAD software are provided by UDFCD in a technical memorandum titled 'Modeling Hydraulic and Energy Gradients in Storm Sewers: A Comparison of Computational Methods', dated October 6, 2009 (Reference 13). In all cases, the major storm hydraulic grade lines are kept at least 1 foot below grade.

Releases from detention ponds and bypass flows are directly via pipe and/or surface swales to historic drainage paths and historic or lesser flow rates. The uppermost segments of the detention pond outlet pipes are designed to flow in open channel conditions with

supercritical flow to allow proper flow control function from the restrictor plate. Pipe and swale outfalls are designed to dissipate energy and disperse flows so that flows velocities do not exceed 15 feet per second. Minor swales designs are guided by USDCM Figures 8-22 through 8-25, where appropriate. Flowmaster V8i software by Bentley is used to provide supplemental open channel and weir calculations where necessary.

The Scott Gulch drainage way design has been guided by a combination of Douglas County SDDTCM and USDCM criteria, as well as direct guidance from UDFCD in coordination meetings. The specific Scott Gulch design criteria and there relation to the drainageway design are described in detail in Section V of the report.

E. Water quality enhancement will be provided in the full-spectrum detention facilities on-site. Water Quality Capture Volume is per the USDCM calculation and WQ outlets are sized to drain the WQCV over 40 hours or more.

V. STORMWATER MANAGEMENT FACILTY DESIGN

A. The proposed on-site conveyance facilities will consist of a combination of storm pipe, swales/channels, curb/gutter, and inlets. Generally, surface conveyance (curb/gutter, street and swales) will be utilized where practicable to manage stormwater within the minor and major storm constraints set forth in Chapter 7 of the SDDTCM (Reference 1). Inlets and storm sewers will be used to intercept surface flows where necessary to keep flow depth/spread within acceptable limits for the minor and major storm or in situations where surface stormwater may cause specific hazards or nuisance. Due to the overall grading design required to cover the elevation differences across the site, there are several areas where on-grade inlet are used to intercept flow because sump conditions are impractical. Local flow patterns in each sub-basin, inlet locations, and overflow paths are included in the minor drainage basin section of the report (III.B).

Scott Gulch Drainageway.

The Scott Avenue crossing of Scott Gulch is proposed to be reconstructed with this development. At present 3 existing 72" culverts convey Scott Gulch under Scott Avenue, which is an unpaved rural road. The existing crossing does not have capacity for the 100-year flow in Scott Gulch. Between Scott Avenue and the east boundary of Cielo, Scott Gulch follows a steep, meandering segment with significant bank erosion. To upgrade to a minor collector, Scott Road will require a horizontal realignment, flattened vertical profile, and a wider crossing over Scott Gulch. The right-of way for the proposed Scott Avenue encroaches on one of the existing meanders in Scott Gulch, which will require modification of the Scott Gulch alignment. Additionally, the existing bend radii and side slopes are not adequate to maintain channel stability and are more difficult to mitigate than to re-design.

The Scott Gulch drainageway is designed as a composite channel section with a low-flow and overbanks. Design flows for each component are as follows:

- Low flow design flow is **85 cfs**, or approximately 1/3 of the developed 2-year flow.
- Full channel design flow is **1477 cfs**, the 100-year flow from the OSP Study accounting for regional detention in the Pradera Pond, ½ mile upstream.
- Additionally, the conveyance of the fully developed, un-detained flow of **3519 cfs** is verified for an emergency condition only, as identified in the OSP Study.

The channel design is controlled by the following design criteria, as discussed with UDFCD:

- Maximum depth of 2 feet for the low-flow channel
- Maximum depth of 5 feet above overbank areas for 100-year design flows
- Maximum velocity in overbank areas of 5 feet per second (outside of bend areas)
- Maximum average velocity of 7 feet per second for 100-year design flows

Ideally, the channel velocity for low-flow and overbanks should be limited to 5 feet per second. However, the steep existing topography, space limitations and relatively large design flows require two to three times the available channel width to limit average velocity to 5 feet per second and concurrently restrict maximum depth to 5 feet. Instead, the available space will be optimized by lining the low-flow channel with type VL soil riprap and limiting both average channel velocity and low-flow velocity to less than 7 feet per second for the 100-year design flows. The riprap lining also helps to better manage the channel roughness in the newly constructed condition and limit the extremes in depth and velocity performance between the newly constructed and mature channel conditions.

The resulting channel section is a 12 foot wide low flow 2 feet of depth and 2.5:1 side slopes. The unlined channel overbanks are 8 feet each side with 4:1 side slopes. The channel grade will be flattened to 0.24% with four grouted stepped boulder drop structures for grade control and energy dissipation. The channel section is analyzed for both the newly constructed and mature channel conditions to ensure that maximum velocity and maximum depth criteria are met, respectively. Assumed manning's n roughness values are listed below:

Manning's n value	Low flow	Overbanks
New construction	0.035	0.032
Mature channel	0.040	0.041

The composite channel has been preliminarily design using UD-Channels v1.04 spreadsheet and Flowmaster V8i software by Bentley. Calculations for relevant design scenarios are included in the appendix. Channel centerline radii do not exceed double the top width of the

channel water surface at design flow. Additional protection will be provided at bends per USDCM criteria.

Four grouted stepped boulder drop structures will be constructed to manage grade control. The drop structures will match the cross section of the channel with low-flow and overbanks. The drops will be 5 feet vertical over a 5:1 drop face with a 1.5 foot deep, 20 foot long stilling basin, for a net height of 3.5 feet. B36 boulders will be used. Due to the unit discharge exceeding 35 cfs/ft, the UDFCD detailed design method is used. Calculations are included in the report appendix. Low flow and overbank sections have been analyzed independently. As with the general composite channel, flow calculations for the drops have been done using Flowmaster V8i software by Bentley.

The new culvert crossing must be design to pass the 100-year flow in Scott Gulch without overtopping since Scott Gulch is a major drainageway. The improved crossing is proposed as a triple cell concrete box culvert with a longitudinal slope of 0.4%. The outer cells will have a height of 6 ft. and the center cell will have a height of 8 ft and a dropped invert to correspond with the depth of the low-flow channel relative to the overbanks. Since the 100-year design flow depth in the channel is less than 5 feet in the overbanks, the box culvert will operate under open channel flow conditions in the design event. The box culverts are also analyzed under the emergency flow condition. A froude number of at least 1.2 is maintained in all cases the ensure that critical flow conditions are not approached. A drop structure is placed immediately downstream of the box culvert to avoid possible hydraulic jump or backwater conditions.

B. Five storm water storage facilities are being proposed on the Site. The ponds are sized based on the contributing impervious which determine the 100-year detention volumes. The EURV release rate is based on a drain time to not exceed 72 hours. The ponds have been generally located based on the historic flow paths (Refer to the Phase III Drainage Plan).

Pond A is located at the northwest corner of Bayou Gulch Road and Scott Road. The Pond will occupy an off-site parcel that is specifically intended for storm water detention for Basin A of the Cielo site, Bayou Gulch Road and the 92acre Sagewood site directly west of Bayou Gulch Road. The Pond will accept and detain un-attenuated offsite flow from developed basins Basin O61-O73as well as onsite flow from Basin A. Required detention for Pond A is 6.63 acre-feet, which accommodates an overall tributary area of 113 acres with a composite imperviousness of 20.8%. Pond A will outfall to the existing natural drainage path on the south of Scott Avenue that leads up from the Scott Gulch crossing. A riprap apron will be provided at the pipe outfall, with calculations provided in the appendix. The outfall swale will be 10 feet wide with 4:1 side slopes and a longitudinal grade of 0.65% to limit major storm velocity to less than 5 feet per second. Check structures will be installed to manage grade. The confluence of the Pond A outfall swale with Scott Gulch will be located at the westernmost drop structure.

Pond B is located in the southeast corner of the site and will detain onsite flow from Basin B. Required detention for Pond B is 3.23 acre-feet, which accommodates an overall tributary area of 33 acres with a composite imperviousness of 48.7%. Pond B will outfall directly to

Scott Gulch on the north side of Scott Avenue. Detention Pond B is located outside of the existing and final limits of the 100-year floodplain.

Pond C is located inside the northern edge of the site and will detain onsite flow from Basin C, which is approximately 28.9 acres with a composite imperviousness of 58.5%. The required detention for Pond C plus the WQCV from O-51 is 3.1 acre-feet. Sub-basin O-51 will be detained by the future Hess Ranch project, therefore, the historic/future detained discharge of 29.63 CFS will pass through Pond C undetained. Pond C will outfall to an existing swale at the northern site boundary which is the historic flow path of runoff from the Basin C area of the site. A riprap apron will be constructed at the Pond C outfall for energy dissipation. The existing flow path between the Pond C outfall is concentrated and eroded and will be improved as a riprap lined swale down to the north property line. Beyond the north property line, the existing swale topography disperses flow and reduces velocity and depth to limits suitable for overland flow. Coordination required with the property across the north site boundary will be ongoing through the detailed design.

Pond D is located in an open space tract in the northeast quadrant of the site. Pond D will detain flows from adjacent residential lots in Basin D. Required detention volume for Pond D is 3.05 acre-feet, which accommodates an overall tributary area of 37 acres with a composite imperviousness of 40.4%. Pond D will outfall to a low point in the northeast corner of the site and eastward as per historic conditions. The final pipe segment of the Pond D outfall has flattened slope and up-sized pipe to reduce exit velocities. A low tailwater basin is proposed in a broad swale where flows can be more easily dispersed. Immediately east of the property line, the flow path is more heavily vegetated.

Pond E is located in an open space tract in the south-central area of the site. Required detention for Pond E is 2.3 acre-feet, which accommodates an overall tributary area of 24.3 acres with a composite imperviousness of 49.2%. Pond E will outfall directly to Scott Gulch on the north side of Scott Avenue. Detention Pond E is and will be located out of the final limits of the 100-year flood plain. The outlet for Pond E will be located at the downstream drop structure on Scott Gulch, which will provide energy dissipation for the outlet.

The outfall swales from Ponds C and D both pass through existing stock ponds downstream of the project within the Hungry Horse Open Space. Due to flow attenuation, these ponds will not see greater peak flows for design storms in than existing condition. Since the stock ponds are within county property, the minor stock ponds may either be improved or left undisturbed at the county's discretion.

C. All water quality features on site are located in the proposed full-spectrum detention ponds and function and described in the previous section.

D. A CLOMR for Scott Gulch is in development and is being coordinated with the proposed drainageway design. The CLOMR has been submitted to FEMA and Urban Drainage and is currently under review for approval of the revised floodplain limits. The CLOMR has been developed to define the impacts to the floodplain, floodway, and appropriate mitigation. All of the proposed lots on the site are outside of the 100-year floodplain. It is not anticipated

that installation of the culvert or associated approach grading will significantly impact upstream properties with backwater effect since the culvert will have 100-year flow capacity and the area immediately upstream is a large open space tract. It is also not anticipated that channel improvements will create adverse effects downstream because the parcel to the east is also open space.

E. Apart from the CLOMR for Scott Gulch, the need for additional permitting requirements is not anticipated.

F. Relevant tables, figures and charts used in rainfall analysis of stormwater facility design have been included in the appendix. The applicability of each included item is described in the Design Criteria section or the report or in other previous sections as appropriate.

VI. CONCLUSIONS

This Phase III Drainage Report outlines the basic storm water management plan for the proposed development. This report follows all standard criteria with no requested variances. Downstream drainage facilities will not be negatively affected, as historic drainage patterns and allowable release rates are planned to be maintained. The CLOMR for the project is currently being processed through Urban Drainage and FEMA. A copy of the most recent CLOMR submittal has been coordinated and provided to Douglas County.

VII. REFERENCES

1. Douglas County Storm Drainage Design and Technical Criteria Manual; Douglas County; July 8, 2008.

2. Urban Storm Drainage Criteria Manuals; Urban Drainage and Flood Control District; latest edition.

3. Flood Insurance Rate Map of Douglas County Colorado, Federal Emergency Management Agency, Panel's #08035C0183F & #08035C0184F, September 30, 2005.

4. Kinney Creek and Fonder Draw Watersheds Outfall Systems Planning Report; WRC; May 2007.

5. Scott Gulch and Lemon Gulch Watersheds Outfall System Plan, CH2MHill, July 2006.

6. Phase III Drainage Report for Scott Road Filing No. 1, Peak Civil Consultants; September 2004.

7. Scott Gulch Channel Improvements An Addendum to the Phase III Drainage Report For Scott Road Filing No. 1, Peak Civil Consultants; December 2004.

8. Flood Insurance Study Volumes 1-3 for Douglas County, Colorado and Incorporated Areas, Federal Emergency Management Agency; September 30, 2005.

9. Geologic and Preliminary Geotechnical Investigation - Arlington ranch Property Northwest of South Parker Road and East Scott Avenue, Douglas County, Colorado, CTL Thompson, May 18; 2015.

10. Hydrologic Soil Group – Castle Rock Area, Colorado, Web Soil Survey, National Cooperative Soils Survey, December 23, 2013.

11. Lemon and Scott Gulches - Outfall System Planning Alternatives Evaluation Report; CH2MHill, November 2005.

12. Phase I Drainage Report for Sagewood Estates; Manhard Consulting; April 11, 2016

13. Modeling Hydraulic and Energy Gradients in Storm Sewers: A Comparison of Computational Methods, AMEC Earth & Environmental, Inc.; October 6, 2009.

APPENDIX A

HYDROLOGIC CALCULATIONS

PROJECT INFORMATION

Project Name:	Cielo Subdivision
Project Number:	16000498
Submittal:	CD
Calculated By:	DIF
Calculated By Date:	1/15/2019
Checked By:	JJF
Checked By Date:	1/15/2019

2 Year 1-Hour Point Depth (in)	1.060
5 Year 1-Hour Point Depth (in)	1.43
10 Year 1-Hour Point Depth (in)	1.66
50 Year 1-Hour Point Depth (in)	2.26
100 Year 1-Hour Point Depth (in)	2.60
Rainfall Data Source	Douglas County Storm Drainage Design and Technical Criteria Manual
Soil Type (A,B,C,D)	B&C

IDF Curve for StormCAD

Duration Tc (min)	I 2-Year (in/hr)	I 5-Year (in/hr)	I 100-Year (in/hr)
5	3.60	4.85	8.82
6	3.42	4.61	8.38
7	3.26	4.40	7.99
8	3.12	4.20	7.64
9	2.99	4.03	7.32
10	2.87	3.87	7.03
15	2.41	3.25	5.90
20	2.09	2.81	5.11
30	1.66	2.24	4.08
40	1.40	1.88	3.42
50	1.21	1.63	2.97
60	1.07	1.45	2.63

COMPOSITE C-FACTOR & WEIGHTED PERCENT IMPERVIOUSNESS ANALYSIS
Cielo Subdivision

Atwell, LLC.
LCC
Date: January 2019

Runoff Coefficients

	C2	C5	C10	C100	I (%)	
Undeveloped Area (Type B Soil)	0.01	0.01	0.07	0.44	2.0%	(Tables 6-3 6-5, USDCM)
Undeveloped Area (Type C Soil)	0.01	0.05	0.15	0.49	2.0%	(Tables 6-3 6-5, USDCM)
Historic (Type C Soil)	0.01	0.05	0.15	0.49	2.0%	(Tables 6-3 6-5, USDCM)
Paved Area / Pond WSE (Type B/C Soil)	0.84	0.86	0.87	0.89	100.0%	(Tables 6-3 6-5, USDCM)
Basin O62-O72 Lots (Type C Soil)	0.14	0.20	0.28	0.57	20.0%	(Tables 6-3 6-5, USDCM)
Basin A Lots (Type C Soil)	0.34	0.40	0.46	0.67	45.0%	(Tables 6-3 6-5, USDCM)
Basin B Lots (Type C Soil)	0.34	0.40	0.46	0.67	45.0%	(Tables 6-3 6-5, USDCM)
Basin D Lots (Type C Soil)	0.34	0.40	0.46	0.67	45.0%	(Tables 6-3 6-5, USDCM)
Basin E Lots (Type C Soil)	0.34	0.40	0.46	0.67	45.0%	(Tables 6-3 6-5, USDCM)
Park Area (Type C Soil)	0.06	0.12	0.21	0.52	10.0%	(Tables 6-3 6-5, USDCM)
School (Type C Soil)	0.43	0.48	0.54	0.71	55.0%	(Tables 6-3 6-5, USDCM)

	BASIN ID	Total Area (AC)	Undeveloped (AC)	Paved Area (AC)	Lots (AC)	Park Area (AC)	Area Check (AC)	Comp. C2	Comp. C5	Comp. C10	Comp. C100	Comp. I (%)
OFF-SITE BASINS ROUTED TO POND A	O61	24.62	24.62	0.00	0.00	0.00	Ok	0.01	0.01	0.07	0.44	2.0%
	O62	9.98	0.00	0.00	9.98	0.00	Ok	0.14	0.20	0.28	0.57	20.0%
	O63	3.48	0.00	0.00	3.48	0.00	Ok	0.14	0.20	0.28	0.57	20.0%
	O71	38.84	6.44	0.00	32.40	0.00	Ok	0.12	0.17	0.25	0.55	17.0%
	O72	3.60	0.00	2.00	0.00	1.60	Ok	0.49	0.53	0.58	0.73	60.0%
	O73	11.82	0.00	0.00	11.82	0.00	Ok	0.14	0.20	0.28	0.57	20.0%
	Total Offsite Tributary to Pond A:	**92.34**	**31.06**	**2.00**	**57.68**	**1.60**	**Ok**	**0.23**	**0.27**	**0.33**	**0.59**	**15.5%**
ON-SITE BASINS ROUTED TO POND A	A1	0.69	0.00	0.00	0.69	0.00	Ok	0.34	0.40	0.46	0.67	45.0%
	A2	0.82	0.00	0.00	0.82	0.00	Ok	0.34	0.40	0.46	0.67	45.0%
	A3	0.63	0.00	0.00	0.63	0.00	Ok	0.34	0.40	0.46	0.67	45.0%
	A4	0.44	0.00	0.00	0.44	0.00	Ok	0.34	0.40	0.46	0.67	45.0%
	A5	0.63	0.00	0.00	0.63	0.00	Ok	0.34	0.40	0.46	0.67	45.0%
	A6	1.38	0.00	0.00	1.38	0.00	Ok	0.34	0.40	0.46	0.67	45.0%
	A7	1.17	0.00	0.00	1.17	0.00	Ok	0.34	0.40	0.46	0.67	45.0%
	A8	1.46	0.00	0.00	1.46	0.00	Ok	0.34	0.40	0.46	0.67	45.0%
	A8.1	0.50	0.00	0.00	0.50	0.00	Ok	0.34	0.40	0.46	0.67	45.0%
	A9	0.31	0.00	0.00	0.31	0.00	Ok	0.34	0.40	0.46	0.67	45.0%
	A9.1	0.38	0.00	0.00	0.38	0.00	Ok	0.34	0.40	0.46	0.67	45.0%
	A10	3.24	0.00	0.00	3.24	0.00	Ok	0.34	0.40	0.46	0.67	45.0%
	A11	0.50	0.00	0.00	0.50	0.00	Ok	0.34	0.40	0.46	0.67	45.0%
	A12	1.67	0.00	0.00	0.00	1.67	Ok	0.06	0.12	0.21	0.52	10.0%
	A13	1.12	0.00	1.12	0.00	0.00	Ok	0.84	0.86	0.87	0.89	100.0%
	A14	2.06	0.00	2.06	0.00	0.00	Ok	0.84	0.86	0.87	0.89	100.0%
	A15	3.58	0.00	0.00	0.00	3.58	Ok	0.06	0.12	0.21	0.52	10.0%
	Total Onsite Basin A:	**20.58**	**0.00**	**3.18**	**12.15**	**5.25**	**Ok**	**0.35**	**0.40**	**0.46**	**0.67**	**44.6%**
	Total Tributary to Pond A:	**112.92**	**31.06**	**5.18**	**69.83**	**6.85**	**Ok**	**0.08**	**0.09**	**0.12**	**0.27**	**20.8%**

STANDARD FORM SF-2
TIME OF CONCENTRATION

PROJECT: Cielo Subdivision

CALCULATED BY: DIF DATE: 1/15/2019

SUB-BASIN DATA			INITIAL/OVERLAND TIME (Tc)			TRAVEL TIME (Tt)				Tc CHECK (Urbanized Basins)			FINAL Tc	REMARKS
DESIG:	AREA (acres)	C_5	LENGTH (ft)	AVG. SLOPE (%)	Ti (min)	LENGTH (ft)	AVG. SLOPE (%)	VEL (fps)	Tt (min)	COMP Tc	TOTAL LENGTH (ft)	Tc=(L/180)+10 (min)	(min)	
O61	24.62	0.01	300	10.0	15.9	850	6.0	1.2	11.6	**27.5**	1150	16.4	**16.4**	
O62	9.98	0.14	70	3.0	10.1	1900	4.0	4.0	7.9	**18.0**	1970	20.9	**18.0**	
O63	3.48	0.14	300	6.0	16.6	250	4.0	1.0	4.2	**20.8**	550	13.1	**13.1**	
O71	38.84	0.12	300	8.0	15.5	2700	5.0	1.1	40.2	**55.7**	3000	26.7	**26.7**	
O72	3.60	0.49	30	2.0	4.8	1700	4.0	4.0	7.1	**11.9**	1730	19.6	**11.9**	
O73	11.82	0.14	70	3.0	10.1	2200	7.0	5.3	6.9	**17.0**	2270	22.6	**17.0**	
A1	0.69	0.34	140	3.0	11.3	130	1.0	2.0	1.1	**12.4**	270	11.5	**11.5**	
A2	0.82	0.34	180	4.5	11.2	100	2.0	2.8	0.6	**11.8**	280	11.6	**11.6**	
A3	0.63	0.34	120	2.0	12.0	170	1.6	2.5	1.1	**13.1**	290	11.6	**11.6**	
A4	0.44	0.34	20	2.0	4.9	450	2.0	2.8	2.7	**7.5**	470	12.6	**7.5**	
A5	0.63	0.34	140	3.0	11.3	130	1.0	2.0	1.1	**12.4**	270	11.5	**11.5**	
A6	1.38	0.34	180	4.0	11.7	100	2.0	2.8	0.6	**12.2**	280	11.6	**11.6**	
A7	1.17	0.34	180	3.0	12.8	180	2.0	2.8	1.1	**13.9**	360	12.0	**12.0**	
A8	1.46	0.34	125	2.0	12.2	400	1.6	2.5	2.6	**14.8**	525	12.9	**12.9**	
A8.1	0.50	0.34	125	2.0	12.2	140	1.6	2.5	0.9	**13.1**	265	11.5	**11.5**	
A9	0.31	0.34	45	2.0	7.3	200	1.6	2.5	1.3	**8.6**	245	11.4	**8.6**	
A9.1	0.38	0.34	45	2.0	7.3	240	1.6	2.5	1.6	**8.9**	285	11.6	**8.9**	
A10	3.24	0.34	140	4.0	10.3	800	3.5	3.7	3.6	**13.8**	940	15.2	**13.8**	
A11	0.50	0.34	60	10.0	5.0			0.0		**5.0**	60	10.3	**5.0**	
A12	1.67	0.06	70	10.0	7.3	750	3.3	3.6	3.4	**10.8**	820	14.6	**10.8**	
A13	1.12	0.84	40	2.0	2.4	600	3.0	3.5	2.9	**5.2**	640	13.6	**5.2**	
A14	2.06	0.84	40	2.0	2.4	900	4.0	4.0	3.8	**6.1**	940	15.2	**6.1**	
A15	3.58	0.06	100	20.0	7.0			0.0		**7.0**	100	10.6	**7.0**	
B1	2.52	0.34	180	3.5	12.2	300	1.0	2.0	2.5	**14.7**	480	12.7	**12.7**	
B2	1.24	0.34	40	2.0	6.9	650	2.8	3.3	3.2	**10.1**	690	13.8	**10.1**	
B3	1.55	0.34	200	4.0	12.3	400	1.0	2.0	3.3	**15.6**	600	13.3	**13.3**	
B4	1.98	0.34	40	2.0	6.9	600	1.0	2.0	5.0	**11.9**	640	13.6	**11.9**	
B5	4.13	0.34	120	3.0	10.5	1250	2.5	3.2	6.6	**17.0**	1370	17.6	**17.0**	
B6	3.79	0.34	120	5.0	8.8	1050	3.0	3.5	5.1	**13.9**	1170	16.5	**13.9**	
B7	0.68	0.34	40	2.0	6.9	500	3.8	3.9	2.1	**9.0**	540	13.0	**9.0**	
B8	1.30	0.34	80	3.0	8.5	370	0.9	1.9	3.3	**11.9**	450	12.5	**11.9**	
B9	3.54	0.34	180	3.0	12.8	550	2.1	2.9	3.2	**16.0**	730	14.1	**14.1**	
B10	1.13	0.34	80	3.0	8.5	400	0.9	1.9	3.6	**12.1**	480	12.7	**12.1**	
B11	0.84	0.34	40	2.0	6.9	700	1.9	2.8	4.2	**11.1**	740	14.1	**11.1**	
B12	2.73	0.34	40	2.0	6.9	850	3.0	3.5	4.1	**11.0**	890	14.9	**11.0**	
B13	1.46	0.34	40	2.0	6.9	850	3.0	3.5	4.1	**11.0**	890	14.9	**11.0**	
B14	2.21	0.34	40	2.0	6.9	1300	0.9	1.9	11.7	**18.6**	1340	17.4	**17.4**	
B15	3.72	0.53	40	2.0	5.1	1300	0.9	1.9	11.7	**16.8**	1340	17.4	**16.8**	
G5	0.30	0.71	50	2.0	4.0	250	1.0	2.0	2.1	**6.0**	300	11.7	**6.0**	
G6	1.26	0.84	300	1.0	8.1	1300	1.0	2.0	10.8	**19.0**	1600	18.9	**18.9**	

STANDARD FORM SF-2
TIME OF CONCENTRATION

PROJECT: Cielo Subdivision

CALCULATED BY: DIF DATE: 1/15/2019

SUB-BASIN DATA			INITIAL/OVERLAND TIME (Tc)			TRAVEL TIME (Tt)				Tc CHECK (Urbanized Basins)			FINAL Tc	REMARKS
DESIG:	AREA (acres)	C_5	LENGTH (ft)	AVG. SLOPE (%)	Ti (min)	LENGTH (ft)	AVG. SLOPE (%)	VEL (fps)	Tt (min)	COMP Tc	TOTAL LENGTH (ft)	Tc=(L/180)+10 (min)	(min)	
O51	10.60	0.01	300	7.0	17.9	800	6.0	1.2	10.9	**28.8**	1100	16.1	**16.1**	
C1 (INT)	22.44	0.01	300	2.0	27.1	1500	2.0	0.7	35.4	**62.5**	1800	20.0	**20.0**	
C1 (DEV)	22.44	0.43	50	2.0	6.8	1700	2.7	3.3	8.6	**15.4**	1750	19.7	**15.4**	
C2	0.98	0.84	40	2.0	2.4	550	2.0	2.8	3.2	**5.6**	590	13.3	**5.6**	
C3	0.70	0.84	20	2.0	1.7	1000	4.5	4.2	3.9	**5.6**	1020	15.7	**5.6**	
C4	0.36	0.84	20	2.0	1.7	550	2.0	2.8	3.2	**4.9**	570	13.2	**5.0**	
C5	0.73	0.84	20	2.0	1.7	1000	4.5	4.2	3.9	**5.6**	1020	15.7	**5.6**	
C6	0.33	0.84	20	2.0	1.7	450	2.0	2.8	2.7	**4.3**	470	12.6	**5.0**	
C7	0.74	0.34	80	12.0	5.4			0.0		**5.4**	80	10.4	**5.4**	
C8	2.63	0.35	100	20.0	5.1			0.0		**5.1**	100	10.6	**5.1**	
D1	3.89	0.06	200	4.0	16.8	350	1.5	2.4	2.4	**19.2**	550	13.1	**13.1**	
D2	0.57	0.84	30	2.0	2.0	500	1.8	2.7	3.1	**5.2**	530	12.9	**5.2**	
D3	2.95	0.06	200	4.0	16.8	250	2.5	1.1	3.8	**20.6**	450	12.5	**12.5**	
D4	0.90	0.84	30	2.0	2.0	1150	1.8	2.7	7.1	**9.2**	1180	16.6	**9.2**	
D5	2.93	0.34	150	3.0	11.7	400	3.5	3.7	1.8	**13.5**	550	13.1	**13.1**	
D5.1	0.44	0.34	40	10.0	4.1			0.0		**4.1**	40	10.2	**5.0**	
D6	3.52	0.34	150	3.0	11.7	550	4.0	4.0	2.3	**14.0**	700	13.9	**13.9**	
D6.1	0.75	0.34	40	10.0	4.1			0.0		**4.1**	40	10.2	**5.0**	
D7.1	0.30	0.34	40	10.0	4.1			0.0		**4.1**	40	10.2	**5.0**	
D8	4.68	0.34	150	5.0	9.9	700	3.0	3.5	3.4	**13.2**	850	14.7	**13.2**	
D8.1	0.79	0.34	40	10.0	4.1			0.0		**4.1**	40	10.2	**5.0**	
D9	0.91	0.34	60	5.0	6.2			0.0		**6.2**	60	10.3	**6.2**	
D10	1.05	0.34	80	2.0	9.8	400	3.6	3.8	1.8	**11.5**	480	12.7	**11.5**	
D11	3.59	0.34	160	4.0	11.0	500	1.0	2.0	4.2	**15.2**	660	13.7	**13.7**	
D12	0.99	0.34	50	2.0	7.7	350	1.0	2.0	2.9	**10.6**	400	12.2	**10.6**	
D13	2.89	0.34	50	2.0	7.7	1400	1.9	2.8	8.5	**16.2**	1450	18.1	**16.2**	
D14	0.54	0.34	10	2.0	3.5	600	1.6	2.5	4.0	**7.4**	610	13.4	**7.4**	
D15	2.73	0.34	80	3.0	8.5	1400	1.9	2.8	8.5	**17.0**	1480	18.2	**17.0**	
D16	2.51	0.32	120	10.0	7.2			0.0		**7.2**	120	10.7	**7.2**	
E1	2.97	0.34	150	20.0	6.3			0.0		**6.3**	150	10.8	**6.3**	
E2	1.07	0.34	200	13.0	8.3			0.0		**8.3**	200	11.1	**8.3**	
E3	2.38	0.34	150	13.0	7.2			0.0		**7.2**	150	10.8	**7.2**	
E4	1.58	0.34	175	3.5	12.0	500	1.0	0.7	11.9	**23.9**	675	13.8	**13.8**	
E5	3.21	0.34	150	2.0	13.4	800	1.0	0.7	19.0	**32.4**	950	15.3	**15.3**	
E6	0.53	0.34	100	2.0	10.9	800	1.0	0.7	19.0	**30.0**	900	15.0	**15.0**	
E7	1.71	0.34	50	2.0	7.7	700	1.0	0.7	16.7	**24.4**	750	14.2	**14.2**	
E8	2.50	0.34	100	2.0	10.9	450	1.0	0.7	10.7	**21.6**	550	13.1	**13.1**	
E9	1.65	0.34	100	2.0	10.9	500	1.0	0.7	11.9	**22.8**	600	13.3	**13.3**	
E10	0.22	0.77	100	2.0	4.8			0.0		**4.8**	100	10.6	**5.0**	
E11	1.18	0.56	100	2.0	7.8			0.0		**7.8**	100	10.6	**7.8**	
E12	3.00	0.34	300	2.0	21.2	500	5.0	1.6	5.3	**26.5**	800	14.4	**14.4**	

STANDARD FORM SF-2
TIME OF CONCENTRATION

PROJECT: Cielo Subdivision

CALCULATED BY: DIF DATE: 1/15/2019

SUB-BASIN DATA			INITIAL/OVERLAND TIME (Tc)			TRAVEL TIME (Tt)				Tc CHECK (Urbanized Basins)			FINAL Tc	REMARKS
DESIG:	AREA (acres)	C_5	LENGTH (ft)	AVG. SLOPE (%)	Ti (min)	LENGTH (ft)	AVG. SLOPE (%)	VEL (fps)	Tt (min)	COMP Tc	TOTAL LENGTH (ft)	Tc=(L/180)+10 (min)	(min)	
E13	1.44	0.68	50	5.0	3.2			0.0		**3.2**	50	10.3	**5.0**	
G7	0.83	0.84	300	1.0	8.1	700	1.0	2.0	5.8	**14.0**	1000	15.6	**14.0**	

STANDARD FORM SF-2
TIME OF CONCENTRATION

PROJECT: Cielo Subdivision

CALCULATED BY: DIF DATE: 1/15/2019

SUB-BASIN DATA			INITIAL/OVERLAND TIME (Tc)			TRAVEL TIME (Tt)				Tc CHECK (Urbanized Basins)			FINAL Tc	REMARKS
DESIG:	AREA (acres)	C_5	LENGTH (ft)	AVG. SLOPE (%)	Ti (min)	LENGTH (ft)	AVG. SLOPE (%)	VEL (fps)	Tt (min)	COMP Tc	TOTAL LENGTH (ft)	Tc=(L/180)+10 (min)	(min)	
F1	3.99	0.07	15	2.0	5.7	370	2.5	3.2	2.0	**7.7**	385	12.1	**7.7**	
F2	5.04	0.34	15	2.0	4.2	370	2.5	3.2	2.0	**6.2**	385	12.1	**6.2**	
F3	3.38	0.34	15	2.0	4.2	320	4.4	4.2	1.3	**5.5**	335	11.9	**5.5**	
F4	2.87	0.34	15	2.0	4.2	320	4.4	4.2	1.3	**5.5**	335	11.9	**5.5**	
O11	0.73	0.84	20	2.0	1.7	200	0.8	1.8	1.9	**3.5**	220	11.2	**5.0**	
G1	0.43	0.84	300	1.0	8.1	100	1.0	2.0	0.8	**9.0**	400	12.2	**9.0**	
G2	1.59	0.32	300	1.0	24.4	200	1.0	2.0	1.7	**26.0**	500	12.8	**12.8**	
G3	0.35	0.84	300	1.0	8.1	150	1.0	2.0	1.3	**9.4**	450	12.5	**9.4**	
G4	0.18	0.84	300	1.0	8.1	100	1.0	2.0	0.8	**9.0**	400	12.2	**9.0**	
H1	55.60	0.01	300	3.0	23.7	2700	3.0	0.9	52.0	**75.7**	3000	26.7	**26.7**	
H2	42.20	0.01	300	4.0	21.6	2400	4.0	1.0	40.0	**61.6**	2700	25.0	**25.0**	
H3	46.90	0.01	300	4.6	20.6	1800	4.6	1.1	28.0	**48.6**	2100	21.7	**21.7**	
H4	13.80	0.01	300	2.5	25.2	900	2.5	0.8	19.0	**44.2**	1200	16.7	**16.7**	
OS-1	101.80	0.01	300	2.0	27.1	4700	2.0	0.7	110.8	**137.9**	5000	37.8	**37.8**	
OS-2	24.10	0.01	300	2.0	27.1	2200	2.0	0.7	51.9	**79.0**	2500	23.9	**23.9**	
OS-3	41.90	0.01	300	2.0	27.1	2100	2.0	0.7	49.5	**76.6**	2400	23.3	**23.3**	
OS-4	34.60	0.01	300	2.0	27.1	1800	2.0	0.7	42.4	**69.5**	2100	21.7	**21.7**	
OS-5	10.60	0.01	300	7.0	17.9	800	6.0	1.2	10.9	**28.8**	1100	16.1	**16.1**	
OS-6	26.60	0.01	300	8.0	17.2	1200	6.5	1.3	15.7	**32.9**	1500	18.3	**18.3**	
OS-7	62.96	0.01	300	6.0	18.9	2700	6.0	1.2	36.7	**55.6**	3000	26.7	**26.7**	
OS-8	305.80	0.01	300	2.0	27.1	4700	2.0	0.7	110.8	**137.9**	5000	37.8	**37.8**	

*VEL $= C_v S_w^{0.5}$

FROM UD Table R0-2

Type of Land Surface	Conveyance Coefficient, C_v
Tillage/Field	5
Short Pasture and Lawns	7
Paved Areas	20

Atwell, LLC

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

CALCULATED BY: DIF
DATE: 1/15/2019
CHECKED BY:

JOB NO: 16000498
PROJECT: Cielo Subdivision (DEVELOPED)
DESIGN STORM: 5-year

DESCRIPTION	DESIGN POINT	DIRECT RUNOFF							TOTAL RUNOFF				STREET		PIPE			TRAVEL TIME			REMARKS
		AREA DESIG.	AREA (Acres)	RUNOFF COEFF	Tc (min)	C A (Acres)	I (in/hour)	Q (cfs)	Tc (min)	(C A) (Acres)	I (in/hour)	Q (cfs)	SLOPE (%)	CARRY-OVER FLOW (cfs)	INTERCEPTED FLOW (cfs)	SLOPE (%)	PIPE SIZE (in.)	LENGTH (ft)	VELOCITY (fps)	Tt (min)	
Crosspan	1	A1	0.69	0.40	11.5	0.28	3.65	1.01													carry-over to A3
Crosspan	2	A2	0.82	0.40	11.6	0.33	3.65	1.20													carry-over to A3
10' Type R On-Grade Inlet A3	3	A3	0.63	0.40	11.6	0.25	3.64	0.92													
Street	4	A4	0.44	0.40	7.5	0.18	4.29	0.75													carry-over to A6
Crosspan	5	A5	0.63	0.40	11.5	0.25	3.65	0.92													carry-over to A6
10' Type R On-Grade Inlet A6	6	A6	1.38	0.40	11.6	0.55	3.65	2.01													
Crosspan	7	A7	1.17	0.40	12.0	0.47	3.59	1.67													carry-over to A8
10' Type R Sump Inlet A8	8	A8	1.46	0.40	12.9	0.58	3.48	2.03													
5' Type R On-Grade Inlet A8.1	8.1	A8.1	0.50	0.40	11.5	0.20	3.66	0.73													carry-over to A8
Street	9	A9	0.31	0.40	8.6	0.12	4.09	0.51													carry-over to A10
5' Type R On-Grade Inlet 9.1	9.1	A9.1	0.38	0.40	8.9	0.15	4.04	0.61													carry-over to A10
15' Type R Sump Inlet A10	10	A10	3.24	0.40	13.8	1.30	3.37	4.37													
Direct to Pond	11	A11	0.50	0.40	5.0	0.20	4.85	0.98													
Swale	12	A12	1.67	0.12	10.8	0.20	3.75	0.75													
On-Grade Inlet A13	13	A13	1.12	0.86	5.2	0.97	4.79	4.63													carry-over to C4
Future Detained from Hess	21	O61	24.62	0.01	16.4	0.25	3.11	0.77													
Future Sagewood Inlets	22	O62	9.98	0.20	18.0	2.00	2.97	5.93													
Future FES Inlet O-63	23	O63	3.48	0.20	13.1	0.70	3.46	2.41													
Interim FES Inlet O-63	23	OS-6	26.60	0.05	18.3	1.33	2.94	3.91													
Future Scott Gulch Tributary	24	O71	38.84	0.17	26.7	6.54	2.40	15.72													
Interim Scott Gulch Tributary	24	OS-7	62.96	0.05	26.7	3.15	2.40	7.56													
Future Sump Inlet O72	25	O72	3.60	0.53	11.9	1.91	3.61	6.90													
Future Sagewood Inlets	26	O73	11.82	0.20	17.0	2.36	3.05	7.22													
Sump Inlet A14	14	A14	2.06	0.86	6.1	1.77	4.59	8.12													
Direct to Pond	15	A15	3.58	0.12	7.0	0.43	4.40	1.89													
10' Type R On-Grade Inlet B1	31	B1	2.52	0.40	12.7	1.01	3.51	3.53													
Crosspan	32	B2	1.24	0.40	10.1	0.50	3.85	1.91													carry-over to B3
10' Type R On-Grade Inlet B3	33	B3	1.55	0.40	13.3	0.62	3.43	2.12													
15' Type R Sump Inlet B4	34	B4	1.98	0.40	11.9	0.79	3.60	2.85													
10' Type R On Grade-Inlet B5	35	B5	4.13	0.40	17.0	1.65	3.05	5.04													
10' Type R On Grade-Inlet B6	36	B6	3.79	0.40	13.9	1.52	3.36	5.10													
10' Type R On Grade-Inlet B7	37	B7	0.68	0.40	9.0	0.27	4.02	1.10													
10' Type R On Grade-Inlet B8	38	B8	1.30	0.40	11.9	0.52	3.61	1.87													
On Grade-Inlet B9	39	B9	3.54	0.40	14.1	1.42	3.35	4.74													

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

CALCULATED BY: DIF
DATE: 1/15/2019
CHECKED BY:

JOB NO: 16000498
PROJECT: Cielo Subdivision (DEVELOPED)
DESIGN STORM: 5-year

DESCRIPTION	DESIGN POINT	DIRECT RUNOFF							TOTAL RUNOFF				STREET		PIPE			TRAVEL TIME			REMARKS
		AREA DESIG.	AREA (Acres)	RUNOFF COEFF	Tc (min)	C A (Acres)	I (in/hour)	Q (cfs)	Tc (min)	(C A) (Acres)	I (in/hour)	Q (cfs)	SLOPE (%)	CARRY-OVER FLOW (cfs)	INTERCEPTED FLOW (cfs)	SLOPE (%)	PIPE SIZE (in.)	LENGTH (ft)	VELOCITY (fps)	Tt (min)	
Street	40	B10	1.13	0.40	12.1	0.45	3.57	1.61													carry-over to B11
15' Type R On-Grade Inlet B11	41	B11	0.84	0.40	11.1	0.34	3.70	1.24													carry-over to B12
15' Type R Sump Inlet B12	42	B12	2.73	0.40	11.0	1.09	3.72	4.07													
Street	43	B13	1.46	0.40	11.0	0.58	3.72	2.18													corry-over to B14
15' Type R Sump Inlet B14	44	B14	2.21	0.40	17.4	0.88	3.02	2.66													
Direct to Pond	45	B15	3.72	0.57	16.8	2.14	3.07	6.56													
10' Type R On-Grade Inlet G5	126	G5	0.30	0.74	6.0	0.22	4.60	1.02													
10' Type R On-Grade Inlet G6	127	G6	1.26	0.86	18.9	1.08	2.90	3.14													
Interim Area Inlet C1	71	C1 (INT)	22.44	0.05	20.0	1.12	2.81	3.16													Area Inlet Design
Future Pipe Stub	71	C1 (DEV)	22.44	0.48	15.4	10.77	3.20	34.51													
Street	72	C2	0.98	0.86	5.6	0.84	4.70	3.96													carry-over to C3
10' Type R On-Grade Inlet C3	73	C3	0.70	0.86	5.6	0.60	4.70	2.83													
10' Type R Sump Inlet C4	74	C4	0.36	0.86	5.0	0.31	4.85	1.50		58.33											
10' Type R On-Grade Inlet C5	75	C5	0.73	0.86	5.6	0.63	4.70	2.94													
10' Type R Sump Inlet C6	76	C6	0.33	0.86	5.0	0.28	4.85	1.37													
Direct to Pond	77	C7	0.74	0.40	5.4	0.30	4.75	1.41													
Direct to Pond	78	C8	2.63	0.39	5.1	1.03	4.84	5.00													
Future Detained from Hess	79	O51	10.60	0.05	16.1	0.53	3.14	1.66		5-yr detained release = (up to 1.0 * pre-dev peak)		*1.66*									
Interim FES Inlet O-51	79	OS-5	10.60	0.05	16.1	0.53	3.14	1.66													
Overland	81	D1	3.89	0.12	13.1	0.47	3.46	1.61													carry-over to D4
Street	82	D2	0.57	0.86	5.2	0.49	4.81	2.38													carry-over to D4
Overland	83	D3	2.95	0.12	12.5	0.35	3.53	1.25													carry-over to D4
15' Type R On-Grade Inlet D4	84	D4	0.90	0.86	9.2	0.77	4.00	3.09													
10' Type R Sump Inlet D5	85	D5	2.93	0.40	13.1	1.17	3.46	4.05													
Type C Area Inlet D5.1	85.1	D5.1	0.44	0.40	5.0	0.18	4.85	0.86													
10' Type R Sump Inlet D6	86	D6	3.52	0.40	13.9	1.41	3.36	4.73													
Type D Area Inlet D6.1	86.1	D6.1	0.75	0.40	5.0	0.30	4.85	1.45													
Type D Area Inlet D7.1	87.1	D7.1	0.30	0.40	5.0	0.12	4.85	0.58													
15' Type R Sump Inlet D8	88	D8	4.68	0.40	13.2	1.87	3.44	6.43													
Type D Area Inlet D8.1	88.1	D8.1	0.79	0.40	5.0	0.31	4.85	1.52													
Direct to Pond	89	D9	0.91	0.40	6.2	0.36	4.55	1.66													
Street	90	D10	1.05	0.40	11.5	0.42	3.65	1.54													carry-over to D11
10' Type R Sump Inlet D11	91	D11	3.59	0.40	13.7	1.44	3.39	4.87													
10' Type R Sump Inlet D12	92	D12	0.99	0.40	10.6	0.39	3.77	1.49													
10' Type R Sump Inlet D13	93	D13	2.89	0.40	16.2	1.16	3.13	3.63													
Street	94	D14	0.54	0.40	7.4	0.22	4.32	0.93													carry-over to D15
10' Type R Sump Inlet D15	95	D15	2.73	0.40	17.0	1.09	3.06	3.33													
Direct to Pond	96	D16	2.51	0.37	7.2	0.92	4.35	4.02													

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

CALCULATED BY: DIF
DATE: 1/15/2019
CHECKED BY:

JOB NO: 16000498
PROJECT: Cielo Subdivision (DEVELOPED)
DESIGN STORM: 5-year

DESCRIPTION	DESIGN POINT	DIRECT RUNOFF							TOTAL RUNOFF				STREET		PIPE			TRAVEL TIME			REMARKS
		AREA DESIG.	AREA (Acres)	RUNOFF COEFF	Tc (min)	C A (Acres)	I (in/hour)	Q (cfs)	Tc (min)	(C A) (Acres)	I (in/hour)	Q (cfs)	SLOPE (%)	CARRY-OVER FLOW (cfs)	INTERCEPTED FLOW (cfs)	SLOPE (%)	PIPE SIZE (in.)	LENGTH (ft)	VELOCITY (fps)	Tt (min)	
Crosspan	51	E1	2.97	0.40	6.3	1.19	4.55	5.41													carry-over to E2
15' Type R On-Grade Inlet E2	52	E2	1.07	0.40	8.3	0.43	4.14	1.77													
10' Type R On-Grade Inlet E3	53	E3	2.38	0.40	7.2	0.95	4.35	4.14													
10' Type R On-Grade Inlet E4	54	E4	1.58	0.40	13.8	0.63	3.38	2.13													
10' Type R On-Grade Inlet E5	55	E5	3.21	0.40	15.3	1.29	3.22	4.14													
Crosspan	56	E6	0.53	0.40	15.0	0.21	3.25	0.69													carry-over to E7
15' Type R On-Grade Inlet E7	57	E7	1.71	0.40	14.2	0.68	3.33	2.28													
10' Type R On-Grade Inlet E8	58	E8	2.50	0.40	13.1	1.00	3.46	3.45													
10' Type R On-Grade Inlet E9	59	E9	1.65	0.40	13.3	0.66	3.43	2.26													
10' Type R On-Grade Inlet E10	60	E10	0.22	0.79	5.0	0.17	4.85	0.85													
10' Type R On-Grade Inlet E11	61	E11	1.18	0.59	7.8	0.70	4.24	2.95													
18" FES E12	62	E12	3.01	0.31	14.4	0.93	3.30	3.07													
Direct to Pond	63	E13	1.44	0.71	5.0	1.02	4.85	4.96													
15' Type R On-Grade Inlet G7	128	G7	0.83	0.86	14.0	0.71	3.36	2.40													
Overland	111	F1	3.99	0.12	7.7	0.47	4.27	2.02													
Overland	112	F2	5.04	0.40	6.2	2.02	4.57	9.22													
Overland	113	F3	3.38	0.40	5.5	1.35	4.73	6.38													
Overland	114	F4	2.87	0.40	5.5	1.15	4.73	5.42													
15' Type R On-Grade Inlet O11	121	O11	0.73	0.86	5.0	0.63	4.85	3.05													
10' Type R On-Grade Inlet G1	122	G1	0.43	0.86	9.0	0.37	4.03	1.49													
10' Type R On-Grade Inlet G2	123	G2	1.59	0.37	12.8	0.59	3.49	2.06													
10' Type R On-Grade Inlet G3	124	G3	0.35	0.86	9.4	0.30	3.97	1.19													
10' Type R On-Grade Inlet G4	125	G4	0.18	0.86	9.0	0.15	4.03	0.62													
Scott Gulch		H1	55.60	0.05	26.7	2.78	2.40	6.68													
Cherry Creek		H2	42.20	0.05	25.0	2.11	2.49	5.26													
Cherry Creek		H3	46.90	0.05	21.7	2.35	2.70	6.32													
Cherry Creek		H4	13.80	0.05	16.7	0.69	3.09	2.13													
Scott Gulch		OS-1	101.80	0.05	37.8	5.09	1.95	9.93													
Cherry Creek		OS-2	24.10	0.05	23.9	1.21	2.56	3.08													
Cherry Creek		OS-3	41.90	0.05	23.3	2.10	2.59	5.42													
Scott Gulch		OS-4	34.60	0.05	21.7	1.73	2.70	4.66													
Cherry Creek		OS-5	10.60	0.05	16.1	0.53	3.14	1.66													
Scott Gulch		OS-6	26.60	0.05	18.3	1.33	2.94	3.91													
Cherry Creek		OS-7	62.96	0.05	26.7	3.15	2.40	7.56													

5-year P1 = 1.43 inches (UDFCD, Fig. RA-2) I = 28.5(P1)/(10+Tc)^0.786 (Ref. 2, Eq RA-3)

Atwell, LLC

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

CALCULATED BY: DIF
DATE: 1/15/2019
CHECKED BY:

JOB NO: 16000498
PROJECT: Cielo Subdivision (DEVELOPED)
DESIGN STORM: 100-year

DESCRIPTION	DESIGN POINT	DIRECT RUNOFF							TOTAL RUNOFF				STREET		PIPE			TRAVEL TIME			REMARKS
		AREA DESIG.	AREA (Acres)	RUNOFF COEFF	Tc (min)	C A (Acres)	I (in/hour)	Q (cfs)	Tc (min)	(C A) (Acres)	I (in/hour)	Q (cfs)	SLOPE (%)	CARRY-OVER FLOW (cfs)	INTERCEPTED FLOW (cfs)	SLOPE (%)	PIPE SIZE (in.)	LENGTH (ft)	VELOCITY (fps)	Tt (min)	
Crosspan	1	A1	0.69	0.67	11.5	0.46	6.65	3.09													carry-over to A3
Crosspan	2	A2	0.82	0.67	11.6	0.55	6.63	3.65													carry-over to A3
10' Type R On-Grade Inlet A3	3	A3	0.63	0.67	11.6	0.42	6.62	2.79													
Street	4	A4	0.44	0.67	7.5	0.29	7.80	2.29													carry-over to A6
Crosspan	5	A5	0.63	0.67	11.5	0.42	6.65	2.81													carry-over to A6
10' Type R On-Grade Inlet A6	6	A6	1.38	0.67	11.6	0.92	6.63	6.12													
Crosspan	7	A7	1.17	0.67	12.0	0.78	6.53	5.10													carry-over to A8
10' Type R Sump Inlet A8	8	A8	1.46	0.67	12.9	0.98	6.32	6.18													
5' Type R On-Grade Inlet A8.1	8.1	A8.1	0.50	0.67	11.5	0.34	6.65	2.23													carry-over to A8
Street	9	A9	0.31	0.67	8.6	0.21	7.43	1.54													carry-over to A10
5' Type R On-Grade Inlet 9.1	9.1	A9.1	0.38	0.67	8.9	0.25	7.35	1.87													carry-over to A10
15' Type R Sump Inlet A10	10	A10	3.24	0.67	13.8	2.17	6.13	13.31													
Direct to Pond	11	A11	0.50	0.67	5.0	0.34	8.82	2.98													
Swale	12	A12	1.67	0.52	10.8	0.87	6.82	5.92													carry-over to C4
On-Grade Inlet A13	13	A13	1.12	0.89	5.2	1.00	8.71	8.71													
Future Detained from Hess	21	O61	24.62	0.44	16.4	10.83	5.66	61.28													
Future Sagewood Inlets	22	O62	9.98	0.57	18.0	5.69	5.40	30.71													
Future FES Inlet O-63	23	O63	3.48	0.57	13.1	1.98	6.29	12.48													
Interim FES Inlet O-63	23	OS-6	26.60	0.49	18.3	13.03	5.35	69.73													
Future Scott Gulch Tributary	24	O71	38.84	0.55	26.7	21.30	4.37	93.05													
Interim Scott Gulch Tributary	24	OS-7	62.96	0.49	26.7	30.85	4.37	134.76													
Future Sump Inlet O72	25	O72	3.60	0.73	11.9	2.61	6.56	17.14													
Future Sagewood Inlets	26	O73	11.82	0.57	17.0	6.74	5.55	37.41													
Sump Inlet A14	14	A14	2.06	0.89	6.1	1.83	8.34	15.28													
Direct to Pond	15	A15	3.58	0.52	7.0	1.86	8.00	14.87													
10' Type R On-Grade Inlet B1	31	B1	2.52	0.67	12.7	1.69	6.38	10.75													
Crosspan	32	B2	1.24	0.67	10.1	0.83	7.00	5.83													carry-over to B3
10' Type R On-Grade Inlet B3	33	B3	1.55	0.67	13.3	1.04	6.23	6.45													
15' Type R Sump Inlet B4	34	B4	1.98	0.67	11.9	1.33	6.55	8.69													
10' Type R On Grade-Inlet B5	35	B5	4.13	0.67	17.0	2.77	5.55	15.35													
10' Type R On Grade-Inlet B6	36	B6	3.79	0.67	13.9	2.54	6.12	15.54													
10' Type R On Grade-Inlet B7	37	B7	0.68	0.67	9.0	0.46	7.31	3.34													
10' Type R On Grade-Inlet B8	38	B8	1.30	0.67	11.9	0.87	6.56	5.70													
On Grade-Inlet B9	39	B9	3.54	0.67	14.1	2.37	6.08	14.44													

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

CALCULATED BY: DIF
DATE: 1/15/2019
CHECKED BY:

JOB NO: 16000498
PROJECT: Cielo Subdivision (DEVELOPED)
DESIGN STORM: 100-year

DESCRIPTION	DESIGN POINT	DIRECT RUNOFF							TOTAL RUNOFF				STREET		PIPE			TRAVEL TIME			REMARKS
		AREA DESIG.	AREA (Acres)	RUNOFF COEFF	Tc (min)	C A (Acres)	I (in/hour)	Q (cfs)	Tc (min)	(C A) (Acres)	I (in/hour)	Q (cfs)	SLOPE (%)	CARRY-OVER FLOW (cfs)	INTERCEPTED FLOW (cfs)	SLOPE (%)	PIPE SIZE (in.)	LENGTH (ft)	VELOCITY (fps)	Tt (min)	
Street	40	B10	1.13	0.67	12.1	0.76	6.50	4.91													carry-over to B11
15' Type R On-Grade Inlet B11	41	B11	0.84	0.67	11.1	0.56	6.74	3.79													carry-over to B12
15' Type R Sump Inlet B12	42	B12	2.73	0.67	11.0	1.83	6.77	12.38													
Street	43	B13	1.46	0.67	11.0	0.98	6.77	6.63													corry-over to B14
15' Type R Sump Inlet B14	44	B14	2.21	0.67	17.4	1.48	5.49	8.11													
Direct to Pond	45	B15	3.72	0.75	16.8	2.79	5.58	15.58													
10' Type R On-Grade Inlet G5	126	G5	0.30	0.83	6.0	0.25	8.36	2.08													
10' Type R On-Grade Inlet G6	127	G6	1.26	0.89	18.9	1.12	5.27	5.91													
Interim Area Inlet C1	71	C1 (INT)	22.44	0.49	20.0	11.00	5.11	56.24													Area Inlet Design
Future Pipe Stub	71	C1 (DEV)	22.44	0.71	15.4	15.93	5.82	92.81													
Street	72	C2	0.98	0.89	5.6	0.87	8.55	7.46													carry-over to C3
10' Type R On-Grade Inlet C3	73	C3	0.70	0.89	5.6	0.62	8.55	5.33													
10' Type R Sump Inlet C4	74	C4	0.36	0.89	5.0	0.32	8.82	2.82													
10' Type R On-Grade Inlet C5	75	C5	0.73	0.89	5.6	0.65	8.55	5.53													
10' Type R Sump Inlet C6	76	C6	0.33	0.89	5.0	0.29	8.82	2.58													
Direct to Pond	77	C7	0.74	0.67	5.4	0.50	8.64	4.29													
Direct to Pond	78	C8	2.63	0.66	5.1	1.73	8.79	15.19													
Future Detained from Hess	79	O51	10.60	0.49	16.1	5.19	5.70	29.63	100-yr detained release = (up to 1.0 * pre-dev peak)			*29.63*									
Interim FES Inlet O-51	79	OS-5	10.60	0.49	16.1	5.19	5.70	29.63													
Overland	81	D1	3.89	0.52	13.1	2.02	6.29	12.71													carry-over to D4
Street	82	D2	0.57	0.89	5.2	0.51	8.75	4.48													carry-over to D4
Overland	83	D3	2.95	0.52	12.5	1.53	6.41	9.83													carry-over to D4
15' Type R On-Grade Inlet D4	84	D4	0.90	0.89	9.2	0.80	7.27	5.82													
10' Type R Sump Inlet D5	85	D5	2.93	0.67	13.1	1.96	6.29	12.34													
Type C Area Inlet D5.1	85.1	D5.1	0.44	0.67	5.0	0.30	8.82	2.61													
10' Type R Sump Inlet D6	86	D6	3.52	0.67	13.9	2.36	6.12	14.42													
Type D Area Inlet D6.1	86.1	D6.1	0.75	0.67	5.0	0.50	8.82	4.42													
Type D Area Inlet D7.1	87.1	D7.1	0.30	0.67	5.0	0.20	8.82	1.77													
15' Type R Sump Inlet D8	88	D8	4.68	0.67	13.2	3.14	6.25	19.59													
Type D Area Inlet D8.1	88.1	D8.1	0.79	0.67	5.0	0.53	8.82	4.64													
Direct to Pond	89	D9	0.91	0.67	6.2	0.61	8.28	5.06													
Street	90	D10	1.05	0.67	11.5	0.70	6.64	4.68													carry-over to D11
10' Type R Sump Inlet D11	91	D11	3.59	0.67	13.7	2.41	6.16	14.82													
10' Type R Sump Inlet D12	92	D12	0.99	0.67	10.6	0.66	6.86	4.54													
10' Type R Sump Inlet D13	93	D13	2.89	0.67	16.2	1.94	5.69	11.04													
Street	94	D14	0.54	0.67	7.4	0.36	7.85	2.84													carry-over to D15
10' Type R Sump Inlet D15	95	D15	2.73	0.67	17.0	1.83	5.56	10.15													
Direct to Pond	96	D16	2.51	0.64	7.2	1.62	7.92	12.81													

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

CALCULATED BY: DIF
DATE: 1/15/2019
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JOB NO: 16000498
PROJECT: Cielo Subdivision (DEVELOPED)
DESIGN STORM: 100-year

DESCRIPTION	DESIGN POINT	DIRECT RUNOFF							TOTAL RUNOFF				STREET		PIPE			TRAVEL TIME			REMARKS
		AREA DESIG.	AREA (Acres)	RUNOFF COEFF	Tc (min)	C A (Acres)	I (in/hour)	Q (cfs)	Tc (min)	(C A) (Acres)	I (in/hour)	Q (cfs)	SLOPE (%)	CARRY-OVER FLOW (cfs)	INTERCEPTED FLOW (cfs)	SLOPE (%)	PIPE SIZE (in.)	LENGTH (ft)	VELOCITY (fps)	Tt (min)	
Crosspan	51	E1	2.97	0.67	6.3	1.99	8.28	16.48													carry-over to E2
15' Type R On-Grade Inlet E2	52	E2	1.07	0.67	8.3	0.72	7.54	5.39													
10' Type R On-Grade Inlet E3	53	E3	2.38	0.67	7.2	1.59	7.92	12.60													
10' Type R On-Grade Inlet E4	54	E4	1.58	0.67	13.8	1.06	6.15	6.50													
10' Type R On-Grade Inlet E5	55	E5	3.21	0.67	15.3	2.15	5.85	12.60													
Crosspan	56	E6	0.53	0.67	15.0	0.36	5.90	2.10													carry-over to E7
15' Type R On-Grade Inlet E7	57	E7	1.71	0.67	14.2	1.15	6.06	6.95													
10' Type R On-Grade Inlet E8	58	E8	2.50	0.67	13.1	1.67	6.29	10.52													
10' Type R On-Grade Inlet E9	59	E9	1.65	0.67	13.3	1.11	6.23	6.90													
10' Type R On-Grade Inlet E10	60	E10	0.22	0.86	5.0	0.19	8.82	1.66													
10' Type R On-Grade Inlet E11	61	E11	1.18	0.76	7.8	0.89	7.70	6.86													
18" FES E12	62	E12	3.01	0.62	14.4	1.87	6.01	11.23													
Direct to Pond	63	E13	1.44	0.82	5.0	1.18	8.82	10.39													
15' Type R On-Grade Inlet G7	128	G7	0.83	0.89	14.0	0.74	6.10	4.51													
Overland	111	F1	3.99	0.53	7.7	2.10	7.76	16.26													
Overland	112	F2	5.04	0.67	6.2	3.38	8.31	28.08													
Overland	113	F3	3.38	0.67	5.5	2.26	8.59	19.44													
Overland	114	F4	2.87	0.67	5.5	1.92	8.59	16.51													
15' Type R On-Grade Inlet O11	121	O11	0.73	0.89	5.0	0.65	8.82	5.73													
10' Type R On-Grade Inlet G1	122	G1	0.43	0.89	9.0	0.38	7.33	2.81													
10' Type R On-Grade Inlet G2	123	G2	1.59	0.65	12.8	1.03	6.35	6.54													
10' Type R On-Grade Inlet G3	124	G3	0.35	0.89	9.4	0.31	7.21	2.25													
10' Type R On-Grade Inlet G4	125	G4	0.18	0.89	9.0	0.16	7.33	1.17													
Scott Gulch		H1	55.60	0.49	26.7	27.24	4.37	119.01													
Cherry Creek		H2	42.20	0.49	25.0	20.68	4.53	93.69													
Cherry Creek		H3	46.90	0.49	21.7	22.98	4.90	112.65													
Cherry Creek		H4	13.80	0.49	16.7	6.76	5.61	37.94													
Scott Gulch		OS-1	101.80	0.49	37.8	49.88	3.55	176.97													
Cherry Creek		OS-2	24.10	0.49	23.9	11.81	4.65	54.88													
Cherry Creek		OS-3	41.90	0.49	23.3	20.53	4.71	96.66													
Scott Gulch		OS-4	34.60	0.49	21.7	16.95	4.90	83.10													
Cherry Creek		OS-5	10.60	0.49	16.1	5.19	5.70	29.63													
Scott Gulch		OS-6	26.60	0.49	18.3	13.03	5.35	69.73													
Cherry Creek		OS-7	62.96	0.49	26.7	30.85	4.37	134.76													

100-year P1 = 2.6 inches (UDFCD, Fig. RA-6) I = 28.5(P1)/(10+Tc)^0.786 (Ref. 2, Eq RA-3)

Atwell, LLC

APPENDIX B

HYDRAULIC CALCULATIONS

Cielo Subdivision

5-year Pipe Summary

Label	Start Node	Stop Node	Invert (Start) (ft)	Invert (Stop) (ft)	Length (ft)	Slope (Calculated) (ft/ft)	Diameter (in)	Manning's n	Flow (cfs)	Velocity (ft/s)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Energy Grade Line (In) (ft)	Energy Grade Line (Out) (ft)	Capacity (Design) (cfs)
11	011	FB-A1	6,041.42	6036.00	216.9	0.025	36	0.013	16.50	10.86	6042.72	6039.23	6043.21	6039.31	105.43
12	A10	011	6,046.96	6045.92	26.1	0.040	30	0.013	16.51	13.05	6048.33	6046.82	6048.89	6048.51	81.87
13	013	A10	6,047.87	6047.57	22.6	0.013	30	0.013	11.23	7.89	6048.99	6048.47	6049.42	6049.24	47.26
13.1	A08	013	6,049.72	6048.86	40.3	0.021	18	0.013	4.51	7.55	6050.54	6049.43	6050.86	6050.26	15.34
14	014	013	6,050.88	6048.37	135.1	0.019	24	0.013	6.77	7.87	6051.80	6049.01	6052.16	6049.97	30.83
15	015	014	6,054.39	6051.08	220.1	0.015	24	0.013	6.82	7.31	6055.32	6051.76	6055.67	6052.58	27.74
16	016	015	6,055.70	6054.59	72.7	0.015	24	0.013	6.84	7.35	6056.63	6055.79	6056.98	6055.98	27.95
16.1	A03	016	6,056.63	6056.20	21.5	0.020	18	0.013	3.14	6.66	6057.30	6057.04	6057.56	6057.19	14.85
16.2	A06	016	6,056.63	6056.20	21.5	0.020	18	0.013	3.71	6.98	6057.37	6057.04	6057.65	6057.25	14.85
17	A14.1	018	6,047.29	6046.53	38.2	0.020	24	0.013	0.00	0.00	6047.29	6046.84	6047.29	6046.84	31.91
18	O72.1	018	6,048.93	6046.53	80.2	0.030	24	0.013	0.00	0.00	6048.93	6046.84	6048.93	6046.84	39.13
19	018	019	6,045.53	6044.52	100.5	0.010	36	0.013	7.22	6.19	6046.38	6045.19	6046.68	6045.78	66.86
20	019	A14	6,040.20	6040.00	39.2	0.005	60	0.013	40.14	7.56	6041.97	6041.61	6042.62	6042.45	186.02
21	A14	FB-A7	6,037.43	6037.00	84.5	0.005	72	0.013	44.40	7.64	6039.20	6039.23	6039.83	6039.56	302.10
22	022	018	6,047.17	6046.03	113.9	0.010	30	0.013	7.22	6.29	6048.06	6046.74	6048.39	6047.35	41.03
23	023	022	6,048.91	6047.67	124.1	0.010	24	0.013	7.22	6.40	6049.86	6048.45	6050.23	6049.08	22.61
24	O72	019	6,045.14	6042.71	81.2	0.030	60	0.013	20.67	11.65	6046.40	6043.46	6046.84	6045.39	450.52
24.1	O71	O72	6,045.98	6045.64	16.8	0.020	60	0.013	16.01	9.41	6047.08	6046.47	6047.47	6047.34	370.49
25	025	019	6,051.34	6044.22	315.5	0.023	42	0.013	13.42	9.70	6052.45	6044.92	6052.86	6046.39	151.13
26	026	025	6,064.46	6051.84	315.5	0.040	42	0.013	13.51	11.90	6065.58	6052.45	6065.98	6054.65	201.21
26.1	FES-063	026	6,074.07	6069.94	126.7	0.033	36	0.013	3.97	7.84	6074.69	6070.31	6074.91	6071.27	120.41
27	027	026	6,078.23	6068.96	370.8	0.025	36	0.013	11.30	9.74	6079.30	6069.62	6079.69	6071.10	105.45
27.1	A13	027	6,085.80	6083.73	151.2	0.014	24	0.013	4.70	6.36	6086.56	6084.30	6086.85	6084.93	26.47
28	028	027	6,084.72	6082.73	99.7	0.020	36	0.013	6.70	7.71	6085.53	6083.27	6085.82	6084.20	94.23
34	B5	MH44	6,037.49	6036.34	58.0	0.020	18	0.013	5.11	7.60	6038.36	6036.95	6038.72	6037.83	14.79
35	MH44	MH40	6,035.34	6031.09	424.9	0.010	30	0.013	9.79	6.86	6036.38	6032.67	6036.78	6032.81	41.02
36	MH40	MH39	6,030.59	6029.29	127.6	0.010	36	0.013	21.31	8.45	6032.07	6030.45	6032.65	6031.56	67.32
37	B6	MH44	6,037.26	6036.34	45.9	0.020	18	0.013	5.19	7.66	6038.14	6036.96	6038.50	6037.83	14.87
38	MH39	MH38	6,029.09	6028.57	55.3	0.009	36	0.013	21.18	8.19	6030.57	6029.79	6031.15	6030.75	64.67
42	MH38	MH37	6,028.37	6027.96	40.8	0.010	36	0.013	21.12	8.38	6029.85	6029.18	6030.42	6030.14	66.86
43	MH37	MH36	6,027.76	6027.36	41.2	0.010	36	0.013	21.07	8.28	6029.23	6028.58	6029.81	6029.52	65.72
44	MH36	MH35	6,027.16	6026.82	42.1	0.008	36	0.013	21.03	7.73	6028.63	6028.08	6029.21	6028.94	59.94
45	MH35	MH34	6,026.62	6024.54	158.1	0.013	36	0.013	20.98	9.23	6028.09	6026.61	6028.67	6026.86	76.50
46	MH34	MH33	6,024.34	6020.35	228.2	0.017	36	0.013	24.96	10.73	6025.95	6022.00	6026.60	6022.61	88.19
47	MH33	MH32	6,020.35	6019.43	54.4	0.017	36	0.013	24.73	10.58	6021.95	6020.60	6022.60	6022.05	86.73
48	MH32	MH31	6,019.23	6018.63	26.7	0.022	36	0.013	24.67	11.71	6020.83	6020.33	6021.47	6020.88	99.98
49	MH31	B14	6,017.93	6017.50	21.6	0.020	42	0.013	30.86	11.79	6019.65	6019.42	6020.32	6019.93	141.95
50	B14	MH30	6,017.50	6012.42	164.6	0.031	42	0.013	35.54	14.37	6019.35	6014.97	6020.09	6015.32	176.74
51	B12	MH31	6,020.09	6019.88	15.9	0.013	24	0.013	6.96	7.01	6021.03	6020.65	6021.39	6021.26	26.00
52	B9	MH34	6,027.34	6025.34	45.7	0.044	24	0.013	4.81	9.68	6028.11	6026.61	6028.40	6026.69	47.32
53	B1	MH43	6,045.67	6045.13	27.1	0.020	18	0.013	3.60	6.92	6046.39	6045.65	6046.68	6046.32	14.83

Cielo Subdivision

5-year Pipe Summary

Label	Start Node	Stop Node	Invert (Start) (ft)	Invert (Stop) (ft)	Length (ft)	Slope (Calculated) (ft/ft)	Diameter (in)	Manning's n	Flow (cfs)	Velocity (ft/s)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Energy Grade Line (In) (ft)	Energy Grade Line (Out) (ft)	Capacity (Design) (cfs)
54	MH42	MH41	6,041.35	6040.40	66.0	0.014	18	0.013	7.49	7.44	6042.41	6041.24	6042.90	6042.09	12.60
55	MH43	MH42	6,044.93	6041.55	337.7	0.010	18	0.013	3.59	5.39	6045.65	6042.66	6045.94	6042.77	10.51
56	MH41	B4	6,039.70	6038.14	56.8	0.027	24	0.013	7.46	9.30	6040.67	6039.27	6041.05	6039.53	37.49
57	B4	B8	6,037.94	6032.28	141.5	0.040	24	0.013	10.12	11.61	6039.08	6032.92	6039.55	6035.02	45.24
58	B8	MH40	6,031.58	6031.09	17.3	0.028	30	0.013	12.91	10.77	6032.79	6032.67	6033.26	6032.91	69.03
59	MP-AA	INL-05	6,031.27	6029.40	167.4	0.011	48	0.013	0.80	3.19	6031.53	6029.61	6031.61	6029.77	151.81
60	MH62	MH61	6,028.45	6025.71	218.8	0.013	54	0.013	3.80	5.24	6029.00	6026.12	6029.18	6026.55	220.05
61	MH61	MH60	6,025.51	6022.39	312.0	0.010	54	0.013	3.70	4.81	6026.05	6022.82	6026.23	6023.18	196.64
62	MH60	MH59	6,022.19	6016.36	312.2	0.019	54	0.013	3.55	5.90	6022.72	6016.72	6022.90	6017.26	268.71
63	MH59	MH58	6,016.16	6015.03	56.3	0.020	54	0.013	3.45	6.00	6016.68	6015.38	6016.86	6015.94	278.58
70	MP-CC	FES-C2	6,019.53	6019.04	99.7	0.005	36	0.013	10.90	5.39	6020.58	6020.03	6020.96	6020.48	46.76
72	072	071	6,057.97	6045.44	334.3	0.038	24	0.013	1.66	6.69	6058.42	6046.28	6058.58	6046.31	43.81
73	073	072	6,077.47	6062.47	400.0	0.038	24	0.013	1.66	6.69	6077.92	6062.74	6078.07	6063.43	43.81
74	074	073	6,091.20	6081.97	341.8	0.027	24	0.013	1.66	5.96	6091.65	6082.26	6091.80	6082.81	37.17
75	075	074	6,096.70	6092.20	184.1	0.024	24	0.013	1.66	5.76	6097.15	6092.50	6097.30	6093.01	35.37
76	O51	075	6,098.50	6097.20	67.4	0.019	24	0.013	1.66	5.30	6098.95	6097.51	6099.10	6097.95	31.42
81	081	FB-D2	6,031.20	6031.00	26.2	0.008	30	0.013	7.64	5.80	6032.97	6032.97	6033.03	6033.02	35.83
82	082	081	6,033.04	6031.39	221.1	0.007	30	0.013	7.79	5.79	6033.97	6033.02	6034.31	6033.10	35.43
83	083	082	6,033.62	6033.24	51.1	0.007	30	0.013	7.82	5.79	6034.55	6034.42	6034.89	6034.60	35.37
83.1	D11	083	6,034.18	6033.82	19.2	0.019	30	0.013	6.49	7.62	6035.02	6034.95	6035.33	6035.09	56.01
83.2	D12	083	6,034.30	6033.82	22.3	0.022	18	0.013	1.49	5.52	6034.90	6034.95	6034.98	6034.97	15.41
84.1	D04	D05.1	6,057.05	6052.49	227.9	0.020	24	0.013	8.34	8.57	6058.08	6053.66	6058.49	6053.96	32.00
85	D05	D05.1	6,053.55	6053.02	26.8	0.020	18	0.013	4.11	7.16	6054.33	6053.59	6054.63	6054.29	14.77
85.1	D05.1	D06.1	6,051.99	6041.59	288.0	0.036	30	0.013	12.67	11.69	6053.19	6043.45	6053.65	6043.61	77.94
86	D06	D06.1	6,042.68	6042.09	29.5	0.020	24	0.013	4.81	7.33	6043.45	6043.45	6043.74	6043.52	31.99
86.1	D06.1	D07.1	6,041.39	6037.36	182.7	0.022	30	0.013	18.28	10.85	6042.84	6038.30	6043.44	6040.13	60.92
87.1	D07.1	D08.1	6,036.56	6033.78	230.6	0.012	36	0.013	18.55	8.64	6037.94	6035.75	6038.47	6035.97	73.23
88	D08	D08.1	6,035.72	6034.78	47.2	0.020	24	0.013	6.55	7.99	6036.63	6035.75	6036.97	6036.04	31.92
88.1	D08.1	FB-D7	6,033.78	6031.06	217.2	0.013	36	0.013	25.56	9.57	6035.41	6032.97	6036.07	6033.42	74.64
89	D15	FB-D1	6,031.73	6031.13	60.4	0.010	24	0.013	7.90	6.54	6032.91	6032.97	6033.17	6033.08	22.55
90	D13	D15	6,032.60	6032.23	37.5	0.010	18	0.013	3.68	5.39	6033.33	6032.85	6033.62	6033.29	10.43
91	091	FES-D1	5,995.19	5994.67	45.0	0.012	24	0.013	0.90	3.69	5995.52	5994.93	5995.63	5995.14	24.32
92	092	091	6,011.76	5997.25	241.8	0.060	24	0.013	0.90	6.56	6012.09	5997.43	6012.20	5998.10	55.41
93	E8	MH48	6,030.03	6028.37	83.2	0.020	18	0.013	3.51	6.88	6030.75	6029.13	6031.02	6029.37	14.84
93	093	092	6,021.55	6013.76	129.9	0.060	24	0.013	0.90	6.56	6021.88	6013.94	6021.99	6014.61	55.40
94	MH51	MH50	6,034.81	6034.05	40.4	0.019	18	0.013	4.19	7.06	6035.59	6035.23	6035.91	6035.36	14.41
94	MP-DD	093	6,026.15	6023.55	43.2	0.060	24	0.013	0.90	6.57	6026.48	6023.73	6026.59	6024.40	55.50
96	MH54	MH53	6,039.27	6035.60	162.9	0.023	24	0.013	7.20	8.58	6040.22	6036.55	6040.59	6036.92	33.95
97	MH50	MH49	6,033.05	6028.88	109.1	0.038	30	0.013	16.09	12.77	6034.40	6030.47	6034.95	6030.84	80.19
98	MH49	MH48	6,028.68	6027.37	43.6	0.030	30	0.013	18.93	12.25	6030.16	6029.13	6030.77	6029.54	71.09
101	C06	FB-C1	6,023.71	6023.00	141.5	0.005	42	0.013	46.24	7.88	6026.80	6026.57	6027.21	6026.93	71.26

Cielo Subdivision

5-year Pipe Summary

Label	Start Node	Stop Node	Invert (Start) (ft)	Invert (Stop) (ft)	Length (ft)	Slope (Calculated) (ft/ft)	Diameter (in)	Manning's n	Flow (cfs)	Velocity (ft/s)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Energy Grade Line (In) (ft)	Energy Grade Line (Out) (ft)	Capacity (Design) (cfs)
102	C04	C06	6,030.86	6030.64	44.3	0.005	42	0.013	45.44	7.82	6032.96	6032.68	6033.84	6033.63	70.90
103	C01	C04	6,037.01	6036.36	43.5	0.015	42	0.013	44.51	11.74	6039.09	6037.98	6039.96	6039.60	122.80
104	C03	C01	6,041.32	6040.12	43.5	0.027	24	0.013	11.43	10.49	6042.53	6040.93	6043.04	6042.36	37.51
104	E7	MH49	6,030.56	6029.68	30.8	0.029	18	0.013	2.99	7.46	6031.22	6030.47	6031.47	6030.63	17.75
106	E11	MH45	6,017.60	6017.38	21.7	0.010	30	0.013	6.06	6.01	6019.10	6019.10	6019.16	6019.15	41.30
120	E5	MH51	6,035.44	6035.01	21.5	0.020	18	0.013	4.19	7.23	6036.22	6035.59	6036.54	6036.27	14.85
121	MH53	MH50	6,035.10	6033.55	50.6	0.031	24	0.013	11.09	10.81	6036.29	6035.23	6036.79	6035.47	39.59
122	E3	MH53	6,036.03	6035.60	19.6	0.022	18	0.013	4.18	7.46	6036.81	6036.55	6037.12	6036.75	15.55
123	B3	MH42	6,042.30	6041.75	27.3	0.020	18	0.013	4.07	7.19	6043.07	6042.66	6043.38	6042.87	14.91
123	E4	MH52	6,037.21	6036.60	24.3	0.025	18	0.013	2.16	6.50	6037.76	6036.98	6037.97	6037.57	16.64
124	MH52	MH50	6,036.40	6034.05	90.8	0.026	18	0.013	2.15	6.56	6036.95	6035.23	6037.16	6035.27	16.90
125	E2	MH54	6,040.10	6039.77	23.7	0.014	18	0.013	7.21	7.28	6041.14	6040.63	6041.61	6041.37	12.41
126	MH47	MH46	6,024.45	6018.69	145.0	0.040	30	0.013	22.10	14.15	6026.05	6019.58	6026.74	6022.69	81.75
127	MH46	MH45	6,018.19	6016.38	138.0	0.013	42	0.013	24.13	9.47	6019.70	6019.10	6020.27	6019.24	115.22
128	E9	MH46	6,020.80	6020.19	48.4	0.013	18	0.013	2.30	5.17	6021.37	6020.64	6021.59	6021.06	11.79
133	O11	MH63	6,044.06	6043.90	7.9	0.020	18	0.013	3.08	6.66	6044.84	6044.90	6045.01	6045.00	14.95
134	MH63	MH62	6,043.90	6031.44	276.8	0.045	18	0.013	3.08	8.86	6044.57	6031.82	6044.82	6033.04	22.29
135	G1	G2	5,998.52	5997.75	42.3	0.018	24	0.013	1.18	4.69	5998.89	5998.23	5999.02	5998.29	30.52
136	G2	FES-G2	5,997.55	5996.56	66.5	0.015	24	0.013	2.91	5.71	5998.15	5997.00	5998.36	5997.50	27.60
137	G3	G4	5,996.02	5995.59	42.9	0.010	24	0.013	1.20	3.82	5996.40	5995.90	5996.53	5996.13	22.65
138	G4	FES-G1	5,995.39	5995.00	38.8	0.010	24	0.013	1.79	4.30	5995.85	5995.38	5996.02	5995.67	22.68
139	INL-05	MH62	6,029.17	6028.95	18.3	0.012	48	0.013	0.80	3.27	6029.43	6029.16	6029.51	6029.32	157.49
141	MH58	MH57	6,014.83	6006.83	400.0	0.020	54	0.013	3.43	5.98	6015.35	6007.18	6015.52	6007.74	278.09
142	MH57	MH56	6,006.63	6004.90	159.2	0.011	54	0.013	3.31	4.79	6007.14	6005.30	6007.31	6005.65	204.98
143	MH56	CULVERT-1	6,004.70	6001.94	265.5	0.010	54	0.013	3.26	4.69	6005.20	6002.34	6005.38	6002.68	200.49
143	C05	071	6,050.48	6049.55	22.1	0.042	18	0.013	2.99	8.56	6051.14	6049.96	6051.39	6050.90	21.50
144	MH48	MH47	6,027.17	6024.65	63.1	0.040	30	0.013	22.13	14.18	6028.77	6026.33	6029.46	6026.95	81.96
147	MH101	MH100	6,003.19	6000.88	98.3	0.023	30	0.013	0.80	4.42	6003.48	6001.08	6003.58	6001.38	62.87
148	MH100	HW-1	6,000.68	6000.09	59.2	0.010	30	0.013	0.80	3.28	6000.97	6000.33	6001.07	6000.50	40.95
149	MH103	MH102	6,007.45	6005.77	111.7	0.015	30	0.013	0.80	3.79	6007.74	6005.99	6007.84	6006.21	50.30
150	MH102	MH101	6,005.57	6003.35	111.1	0.020	30	0.013	0.80	4.18	6005.86	6003.56	6005.96	6003.83	57.98
152	MH30	FB-B1	6,012.23	6011.47	131.6	0.006	42	0.013	38.91	7.98	6014.17	6013.24	6014.96	6014.23	76.45
153	G5	G6	6,016.03	6016.30	51.2	-0.005	24	0.013	3.40	4.12	6016.94	6016.90	6017.18	6017.00	16.42
154	MH45	E10	6,015.88	6015.50	37.5	0.010	48	0.013	31.56	9.21	6018.87	6018.88	6019.02	6019.00	144.59
155	E10	FB-E1	6,015.30	6015.00	58.8	0.005	48	0.013	32.05	7.22	6018.83	6018.82	6018.95	6018.92	102.60
155	MP-BB	FES-B1	5,997.62	5997.00	124.5	0.005	30	0.013	0.80	2.57	5997.91	5997.29	5998.01	5997.39	28.94
157	HW-E1	E11	6,020.00	6019.28	23.9	0.030	18	0.013	3.07	7.67	6020.67	6019.72	6020.92	6020.50	18.23
158	MP-EE	MH103	6,011.09	6008.45	145.3	0.018	30	0.013	0.80	4.04	6011.38	6008.66	6011.48	6008.91	55.29
160	071	C03	6,045.24	6044.41	22.2	0.037	24	0.013	4.64	9.06	6046.00	6044.89	6046.28	6045.88	43.74
161	MH45	MH107	6,018.38	6019.48	106.4	-0.010	18	0.013	2.39	4.87	6020.07	6019.10	6020.28	6019.23	10.68
162	G7	MH107	6,021.65	6019.68	95.2	0.021	18	0.013	2.41	6.26	6022.24	6020.35	6022.46	6020.51	15.11

Cielo Subdivision

5-year Pipe Summary

Label	Start Node	Stop Node	Invert (Start) (ft)	Invert (Stop) (ft)	Length (ft)	Slope (Calculated) (ft/ft)	Diameter (in)	Manning's n	Flow (cfs)	Velocity (ft/s)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Energy Grade Line (In) (ft)	Energy Grade Line (Out) (ft)	Capacity (Design) (cfs)
180	G5	MH30	6,015.83	6013.92	380.6	0.005	24	0.013	4.19	4.29	6016.55	6014.97	6016.81	6015.07	16.02

Cielo Subdivision						
5-year Outfall Summary						
Label	Elevation (Invert) (ft)	Boundary Condition Type	Elevation (User Defined Tailwater) (ft)	Flow (Total Out) (cfs)	Depth (Node) (ft)	Hydraulic Grade (ft)
FB-C1	6023.00	User Defined Tailwater	6,026.57	45.9	3.57	6026.57
FES-C2	6019.04	Free Outfall		10.9	0.99	6020.03
FES-B1	5997.00	Free Outfall		0.8	0.29	5997.29
FB-B1	6011.47	User Defined Tailwater	6,013.11	38.8	1.77	6013.24
FES-G1	5995.00	Free Outfall		1.8	0.38	5995.38
HW-1	5996.80	Free Outfall		0.8	3.53	6000.33
FES-G2	5996.56	Free Outfall		2.9	0.44	5997.00
CULVERT-1	5998.44	Free Outfall		3.2	3.90	6002.34
FB-E1	6015.00	User Defined Tailwater	6,018.82	32.0	3.82	6018.82
FB-A1	6036.00	User Defined Tailwater	6,039.23	16.4	3.23	6039.23
FB-D1	6031.13	User Defined Tailwater	6,032.97	7.9	1.84	6032.97
FB-D7	6031.06	User Defined Tailwater	6,032.97	25.3	1.91	6032.97
FES-D1	5994.67	Free Outfall		0.9	0.26	5994.93
FB-D2	6031.00	User Defined Tailwater	6,032.97	7.6	1.97	6032.97
FB-A7	6037.00	User Defined Tailwater	6,039.23	44.3	2.23	6039.23

Cielo Subdivision												
5-year Inlet and Junction Summary												
Label	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Structure Type	Length (ft)	Width (ft)	Diameter (in)	Flow (Total Out) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Headloss Method	Headloss Coefficient (Standard)	Headloss (ft)
A03	6063.43	6056.63	Circular Structure			60	3.14	6057.35	6057.30	Standard	0.05	0.05
A06	6063.17	6056.63	Circular Structure			60	3.71	6057.42	6057.37	Standard	0.05	0.05
A08	6058.09	6049.72	Circular Structure			60	4.51	6050.59	6050.54	Standard	0.05	0.05
A10	6056.93	6046.96	Circular Structure			60	16.51	6048.38	6048.33	Standard	0.05	0.05
A13	6097.74	6085.80	Circular Structure			60	4.70	6086.61	6086.56	Standard	0.05	0.05
A14	6055.72	6037.43	Circular Structure			84	44.40	6039.25	6039.20	Standard	0.05	0.05
A14.1	6054.84	6047.29	Circular Structure			60	0.00	6047.34	6,047.29	Standard	0.05	0.05
B1	6052.13	6045.67	Circular Structure			60	3.60	6046.44	6,046.39	Standard	0.05	0.05
B3	6048.73	6042.30	Circular Structure			60	4.07	6043.12	6,043.07	Standard	0.05	0.05
B4	6047.66	6037.94	Circular Structure			60	10.12	6039.27	6039.08	Standard	0.40	0.19
B5	6044.01	6037.49	Circular Structure			60	5.11	6038.41	6,038.36	Standard	0.05	0.05
B6	6043.66	6037.26	Circular Structure			60	5.19	6038.19	6,038.14	Standard	0.05	0.05
B8	6038.66	6031.58	Circular Structure			60	12.91	6032.84	6,032.79	Standard	0.05	0.05
B9	6034.06	6027.34	Circular Structure			60	4.81	6028.16	6,028.11	Standard	0.00	0.05
B12	6030.46	6020.09	Circular Structure			60	6.96	6021.08	6,021.03	Standard	0.05	0.05
B14	6030.47	6017.50	Circular Structure			60	35.54	6019.42	6019.35	Standard	0.10	0.07
C01	6057.13	6037.01	Box Structure	11.33	2.92		44.51	6040.23	6039.09	Standard	1.32	1.14
C03	6057.04	6041.32	Circular Structure			60	11.43	6042.58	6042.53	Standard	0.05	0.05
C04	6055.53	6031.31	Box Structure	3.00	10.00		45.44	6033.01	6032.96	Standard	0.05	0.05
C05	6057.13	6050.48	Circular Structure			60	2.99	6051.19	6051.14	Standard	0.05	0.05
C06	6055.53	6023.71	Box Structure	3.00	10.00		46.24	6026.85	6026.80	Standard	0.05	0.05
D04	6068.18	6057.05	Circular Structure			60	8.34	6058.13	6058.08	Standard	0.05	0.05
D05	6060.15	6053.55	Circular Structure			60	4.11	6054.38	6054.33	Standard	0.05	0.05
D05.1	6059.00	6051.99	Circular Structure			60	12.67	6053.66	6053.19	Standard	1.02	0.47
D06	6049.95	6042.68	Circular Structure			60	4.81	6043.50	6043.45	Standard	0.05	0.05
D06.1	6050.00	6041.39	Circular Structure			60	18.28	6043.45	6042.84	Standard	1.02	0.61
D07.1	6045.82	6036.56	Circular Structure			60	18.55	6037.99	6037.94	Standard	0.10	0.05
D08	6040.76	6035.72	Circular Structure			60	6.55	6036.68	6036.63	Standard	0.05	0.05
D08.1	6040.97	6033.78	Circular Structure			60	25.56	6035.75	6035.41	Standard	0.52	0.34
D11	6037.73	6034.18	Circular Structure			60	6.49	6035.07	6035.02	Standard	0.05	0.05
D12	6037.73	6034.30	Circular Structure			60	1.49	6034.95	6034.90	Standard	0.05	0.05
D13	6036.44	6032.60	Circular Structure			60	3.68	6033.38	6033.33	Standard	0.05	0.05
D15	6036.44	6031.73	Circular Structure			60	7.90	6032.96	6032.91	Standard	0.05	0.05
E2	6048.12	6040.10	Circular Structure			60	7.21	6041.19	6041.14	Standard	0.05	0.05

Cielo Subdivision												
5-year Inlet and Junction Summary												
Label	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Structure Type	Length (ft)	Width (ft)	Diameter (in)	Flow (Total Out) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Headloss Method	Headloss Coefficient (Standard)	Headloss (ft)
E3	6041.82	6036.03	Circular Structure			60	4.18	6036.86	6036.81	Standard	0.05	0.05
E4	6045.24	6037.21	Circular Structure			60	2.16	6037.81	6037.76	Standard	0.05	0.05
E5	6041.92	6035.44	Circular Structure			60	4.19	6036.27	6036.22	Standard	0.05	0.05
E7	6036.52	6030.56	Circular Structure			60	2.99	6031.27	6031.22	Standard	0.05	0.05
E8	6039.31	6030.03	Circular Structure			60	3.51	6030.80	6030.75	Standard	0.05	0.05
E9	6026.16	6020.30	Circular Structure			60	2.30	6021.42	6021.37	Standard	0.05	0.05
E10	6023.30	6015.30	Box Structure	10.00	2.67		32.05	6018.88	6018.83	Standard	0.05	0.05
E11	6023.78	6017.60	Box Structure	15.00	2.67		6.06	6019.15	6019.10	Standard	0.10	0.05
FES-063	6081.98	6074.07	Circular Structure			60	3.97	6074.74	6074.69	Standard	0.05	0.05
G1	6006.61	5998.52	Box Structure	10.00	2.67		1.18	5998.94	5998.89	Standard	0.05	0.05
G2	6006.61	5997.55	Box Structure	15.00	2.67		2.91	5998.23	5998.15	Standard	0.40	0.09
G3	6001.27	5996.02	Circular Structure			60	1.20	5996.45	5996.40	Standard	0.05	0.05
G4	6001.28	5995.39	Circular Structure			60	1.79	5995.90	5995.85	Standard	0.05	0.05
G5	6020.26	6015.83	Box Structure	10.00	2.67		4.19	6016.90	6016.55	Standard	1.32	0.35
G6	6020.53	6016.30	Box Structure	15.00	2.67		3.40	6016.99	6016.94	Standard	0.05	0.05
G7	6026.93	6021.65	Box Structure	15.00	2.67		2.41	6022.29	6022.24	Standard	0.05	0.05
INL-05	6044.51	6029.17	Circular Structure			72	0.80	6029.48	6029.43	Standard	0.05	0.05
MP-BB	6013.08	5997.62	Circular Structure			60	0.80	5997.96	5997.91	Standard	0.05	0.05
MP-CC	6026.43	6019.53	Box Structure	2.92	5.67		10.90	6020.63	6020.58	Standard	0.05	0.05
MP-DD	6031.00	6026.15	Circular Structure			60	0.90	6026.53	6026.48	Standard	0.05	0.05
MP-EE	6014.73	6010.76	Circular Structure			60	0.80	6011.43	6011.38	Standard	0.05	0.05
O11	6054.18	6044.06	Circular Structure			60	3.08	6044.89	6044.84	Standard	0.05	0.05
O51	6104.56	6098.50	Box Structure	2.92	5.66		1.66	6099.00	6098.95	Standard	0.05	0.05
O71	6052.81	6045.98	Circular Structure			72	16.01	6047.13	6047.08	Standard	0.05	0.05
O72	6054.81	6045.14	Circular Structure			72	20.67	6046.45	6046.40	Standard	0.05	0.05
O72.1	6054.24	6048.93	Circular Structure			72	0.00	6048.98	6048.93	Standard	0.05	0.05
11	6056.20	6041.42	Circular Structure			60	16.50	6042.92	6042.72	Standard	0.40	0.20
13	6057.60	6047.87	Circular Structure			60	11.23	6049.11	6048.99	Standard	0.27	0.12
14	6059.30	6050.88	Circular Structure			60	6.77	6051.85	6051.80	Standard	0.10	0.05
15	6062.60	6054.39	Circular Structure			60	6.82	6055.79	6055.32	Standard	1.32	0.47
16	6063.40	6055.70	Circular Structure			60	6.84	6057.04	6056.63	Standard	1.16	0.41
18	6056.00	6045.53	Circular Structure			60	7.22	6046.84	6046.38	Standard	1.52	0.46
19	6056.70	6040.20	Circular Structure			84	40.14	6042.92	6041.97	Standard	1.46	0.95
22	6056.60	6047.17	Circular Structure			60	7.22	6048.49	6048.06	Standard	1.32	0.43

Cielo Subdivision												
5-year Inlet and Junction Summary												
Label	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Structure Type	Length (ft)	Width (ft)	Diameter (in)	Flow (Total Out) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Headloss Method	Headloss Coefficient (Standard)	Headloss (ft)
23	6066.40	6048.61	Circular Structure			60	7.22	6049.91	6049.86	Standard	0.05	0.05
25	6064.30	6051.34	Circular Structure			60	13.42	6052.50	6052.45	Standard	0.05	0.05
26	6079.20	6064.46	Circular Structure			60	13.51	6065.79	6065.58	Standard	0.52	0.21
27	6093.90	6078.23	Circular Structure			60	11.30	6079.50	6079.30	Standard	0.52	0.20
28	6093.50	6084.72	Circular Structure			60	6.70	6085.58	6085.53	Standard	0.05	0.05
71	6059.06	6045.24	Circular Structure			60	4.64	6046.28	6046.00	Standard	1.02	0.29
72	6072.71	6057.97	Circular Structure			60	1.66	6058.47	6058.42	Standard	0.05	0.05
73	6096.03	6077.47	Circular Structure			60	1.66	6077.97	6077.92	Standard	0.05	0.05
74	6100.00	6091.20	Circular Structure			60	1.66	6091.85	6091.65	Standard	1.32	0.21
75	6108.00	6096.70	Circular Structure			60	1.66	6097.25	6097.15	Standard	0.64	0.10
81	6037.50	6031.20	Circular Structure			60	7.64	6033.02	6032.97	Standard	0.64	0.05
82	6038.60	6033.04	Circular Structure			60	7.79	6034.42	6033.97	Standard	1.32	0.45
83	6038.20	6033.62	Circular Structure			60	7.82	6034.95	6034.55	Standard	1.16	0.40
91	6008.20	5995.25	Circular Structure			60	0.90	5995.67	5995.52	Standard	1.32	0.15
92	6037.70	6011.76	Circular Structure			60	0.90	6012.14	6012.09	Standard	0.40	0.05
93	6039.00	6021.55	Circular Structure			60	0.90	6022.03	6021.88	Standard	1.32	0.15
MH30	6023.20	6012.23	Circular Structure			60	38.91	6014.97	6014.17	Standard	1.02	0.80
MH31	6030.90	6017.93	Circular Structure			60	30.86	6020.33	6019.65	Standard	1.02	0.68
MH32	6030.90	6019.23	Circular Structure			60	24.67	6020.88	6020.83	Standard	0.05	0.05
MH33	6031.40	6020.35	Circular Structure			36	24.73	6022.00	6021.95	Standard	0.05	0.05
MH34	6033.90	6024.34	Circular Structure			60	24.96	6026.61	6025.95	Standard	1.02	0.66
MH35	6035.70	6026.62	Circular Structure			60	20.98	6028.14	6028.09	Standard	0.05	0.05
MH36	6036.10	6027.16	Circular Structure			60	21.03	6028.68	6028.63	Standard	0.05	0.05
MH37	6036.60	6027.76	Circular Structure			60	21.07	6029.29	6029.23	Standard	0.05	0.05
MH38	6037.00	6028.37	Circular Structure			60	21.12	6029.90	6029.85	Standard	0.05	0.05
MH39	6037.70	6029.09	Circular Structure			60	21.18	6030.62	6030.57	Standard	0.05	0.05
MH40	6039.10	6030.59	Circular Structure			60	21.31	6032.67	6032.07	Standard	1.02	0.59
MH41	6048.40	6039.70	Circular Structure			60	7.46	6040.82	6040.67	Standard	0.40	0.15
MH42	6049.00	6041.35	Circular Structure			60	7.49	6042.66	6042.41	Standard	0.52	0.25
MH43	6052.40	6044.93	Circular Structure			60	3.59	6045.77	6045.65	Standard	0.40	0.11
MH44	6043.70	6035.34	Circular Structure			60	9.79	6036.79	6036.38	Standard	1.02	0.40
MH45	6023.90	6015.88	Circular Structure			60	31.56	6019.10	6018.87	Standard	1.52	0.23
MH46	6025.80	6018.19	Circular Structure			60	24.13	6020.00	6019.70	Standard	0.52	0.30
MH47	6032.00	6024.45	Circular Structure			60	22.10	6026.33	6026.05	Standard	0.40	0.28

Cielo Subdivision												
5-year Inlet and Junction Summary												
Label	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Structure Type	Length (ft)	Width (ft)	Diameter (in)	Flow (Total Out) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Headloss Method	Headloss Coefficient (Standard)	Headloss (ft)
MH48	6035.40	6027.17	Circular Structure			60	22.13	6029.13	6028.77	Standard	0.52	0.36
MH49	6037.00	6028.68	Circular Structure			60	18.93	6030.47	6030.16	Standard	0.52	0.32
MH50	6041.35	6033.05	Circular Structure			60	16.09	6035.23	6034.40	Standard	1.52	0.83
MH51	6041.30	6034.81	Circular Structure			60	4.19	6035.72	6035.59	Standard	0.40	0.12
MH52	6041.35	6036.40	Circular Structure			60	2.15	6037.04	6036.95	Standard	0.40	0.08
MH53	6042.22	6035.10	Circular Structure			60	11.09	6036.55	6036.29	Standard	0.52	0.26
MH54	6048.10	6039.27	Circular Structure			60	7.20	6040.37	6040.22	Standard	0.40	0.15
MH56	6014.72	6004.70	Circular Structure			72	3.26	6005.27	6005.20	Standard	0.40	0.07
MH57	6018.39	6006.63	Circular Structure			72	3.31	6007.19	6007.14	Standard	0.05	0.05
MH58	6025.50	6014.83	Circular Structure			72	3.43	6015.42	6015.35	Standard	0.40	0.07
MH59	6028.80	6016.16	Circular Structure			72	3.45	6016.75	6016.68	Standard	0.40	0.07
MH60	6033.80	6022.19	Circular Structure			72	3.55	6022.77	6022.72	Standard	0.05	0.05
MH61	6038.70	6025.51	Circular Structure			72	3.70	6026.10	6026.05	Standard	0.05	0.05
MH62	6043.90	6028.45	Circular Structure			72	3.80	6029.09	6029.00	Standard	0.52	0.10
MH63	6054.40	6043.90	Circular Structure			60	3.08	6044.90	6044.57	Standard	1.32	0.34
MH100	6010.90	6000.68	Circular Structure			60	0.80	6001.03	6000.97	Standard	0.64	0.06
MH101	6011.35	6003.19	Circular Structure			60	0.80	6003.53	6003.48	Standard	0.10	0.05
MH102	6017.68	6005.57	Circular Structure			60	0.80	6005.91	6005.86	Standard	0.10	0.05
MH103	6019.48	6007.45	Circular Structure			60	0.80	6007.85	6007.74	Standard	1.16	0.11
MH107	6025.24	6019.48	Circular Structure			60	2.39	6020.35	6020.07	Standard	1.32	0.29
MP-AA	6037.36	6031.27	Circular Structure			72	0.80	6031.58	6031.53	Standard	0.05	0.05

Cielo Subdivision

100-year Pipe Summary

Label	Start Node	Stop Node	Invert (Start) (ft)	Invert (Stop) (ft)	Length (ft)	Slope (Calculated) (ft/ft)	Diameter (in)	Manning's n	Flow (cfs)	Velocity (ft/s)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Energy Grade Line (In) (ft)	Energy Grade Line (Out) (ft)	Capacity (Design) (cfs)
11	011	FB-A1	6,041.42	6036.00	216.9	0.025	36	0.013	50.18	14.73	6043.73	6042.69	6044.88	6043.47	105.43
12	A10	011	6,046.96	6045.92	26.1	0.040	30	0.013	50.21	17.52	6049.26	6047.68	6051.01	6050.56	81.87
13	013	A10	6,047.87	6047.57	22.6	0.013	30	0.013	34.29	10.49	6049.86	6049.30	6050.90	6050.69	47.26
13.1	A08	013	6,049.72	6048.86	40.3	0.021	18	0.013	13.73	9.82	6051.09	6050.01	6052.11	6051.39	15.34
14	014	013	6,050.88	6048.37	135.1	0.019	24	0.013	20.66	10.52	6052.51	6050.14	6053.39	6050.91	30.83
15	015	014	6,054.39	6051.08	220.1	0.015	24	0.013	20.77	9.69	6056.02	6052.37	6056.91	6053.83	27.74
16	016	015	6,055.70	6054.59	72.7	0.015	24	0.013	20.83	6.63	6057.81	6057.20	6058.50	6057.88	27.95
16.1	A03	016	6,056.63	6056.20	21.5	0.020	18	0.013	9.56	5.41	6058.78	6058.60	6059.24	6059.06	14.85
16.2	A06	016	6,056.63	6056.20	21.5	0.020	18	0.013	11.28	6.39	6058.85	6058.60	6059.49	6059.24	14.85
17	A14.1	018	6,047.29	6046.53	38.2	0.020	24	0.013	0.00	0.00	6053.36	6053.36	6053.36	6053.36	31.91
18	O72.1	018	6,048.93	6046.53	80.2	0.030	24	0.013	0.00	0.00	6053.36	6053.36	6053.36	6053.36	39.13
19	018	019	6,045.53	6044.52	100.5	0.010	36	0.013	37.41	5.29	6052.70	6052.39	6053.14	6052.82	66.86
20	019	A14	6,040.20	6040.00	39.2	0.005	60	0.013	339.90	17.31	6045.59	6044.79	6050.24	6049.58	186.02
21	A14	FB-A7	6,037.43	6037.00	84.5	0.005	72	0.013	347.82	12.30	6043.23	6042.69	6045.63	6045.14	302.10
22	022	018	6,047.17	6046.03	113.9	0.010	30	0.013	37.41	7.62	6054.31	6053.36	6055.21	6054.27	41.03
23	023	022	6,048.91	6047.67	124.1	0.010	24	0.013	37.41	11.91	6058.90	6055.50	6061.10	6057.71	22.61
24	O72	019	6,045.14	6042.71	81.2	0.030	60	0.013	148.93	7.59	6052.65	6052.39	6053.55	6053.28	450.52
24.1	O71	O72	6,045.98	6045.64	16.8	0.020	60	0.013	137.44	7.00	6052.75	6052.70	6053.51	6053.46	370.49
25	025	019	6,051.34	6044.22	315.5	0.023	42	0.013	167.12	17.37	6061.09	6052.39	6065.78	6057.07	151.13
26	026	025	6,064.46	6051.84	315.5	0.040	42	0.013	167.79	17.44	6070.10	6061.33	6074.83	6066.05	201.21
26.1	FES-063	026	6,074.07	6069.94	126.7	0.033	36	0.013	70.64	17.71	6076.74	6071.70	6078.50	6075.89	120.41
27	027	026	6,078.23	6068.96	370.8	0.025	36	0.013	100.64	16.98	6081.13	6072.56	6084.35	6075.71	105.45
27.1	A13	027	6,085.80	6083.73	151.2	0.014	24	0.013	8.80	7.57	6086.86	6084.52	6087.28	6085.42	26.47
28	028	027	6,084.72	6082.73	99.7	0.020	36	0.013	91.99	15.19	6087.58	6085.23	6090.30	6088.55	94.23
34	B5	MH44	6,037.49	6036.34	58.0	0.020	18	0.013	15.59	8.82	6039.65	6038.37	6040.86	6039.58	14.79
35	MH44	MH40	6,035.34	6031.09	424.9	0.010	30	0.013	29.80	9.11	6037.78	6035.55	6038.36	6036.12	41.02
36	MH40	MH39	6,030.59	6029.29	127.6	0.010	36	0.013	65.36	9.25	6034.19	6032.97	6035.52	6034.29	67.32
37	B6	MH44	6,037.26	6036.34	45.9	0.020	18	0.013	15.74	8.91	6039.40	6038.37	6040.63	6039.60	14.87
38	MH39	MH38	6,029.09	6028.57	55.3	0.009	36	0.013	64.99	9.19	6032.90	6032.37	6034.21	6033.69	64.67
42	MH38	MH37	6,028.37	6027.96	40.8	0.010	36	0.013	64.82	9.17	6032.31	6031.92	6033.62	6033.23	66.86
43	MH37	MH36	6,027.76	6027.36	41.2	0.010	36	0.013	64.70	9.15	6031.86	6031.47	6033.16	6032.77	65.72
44	MH36	MH35	6,027.16	6026.82	42.1	0.008	36	0.013	64.58	9.14	6031.41	6031.01	6032.70	6032.31	59.94
45	MH35	MH34	6,026.62	6024.54	158.1	0.013	36	0.013	64.45	9.12	6030.95	6029.47	6032.24	6030.76	76.50
46	MH34	MH33	6,024.34	6020.35	228.2	0.017	36	0.013	76.67	10.85	6027.61	6024.59	6029.43	6026.42	88.19
47	MH33	MH32	6,020.35	6019.43	54.4	0.017	36	0.013	75.97	10.75	6024.50	6023.79	6026.29	6025.59	86.73
48	MH32	MH31	6,019.23	6018.63	26.7	0.022	36	0.013	75.80	10.72	6023.71	6023.36	6025.49	6025.15	99.98
49	MH31	B14	6,017.93	6017.50	21.6	0.020	42	0.013	94.75	9.85	6021.82	6021.63	6023.33	6023.14	141.95
50	B14	MH30	6,017.50	6012.42	164.6	0.031	42	0.013	109.10	11.34	6021.43	6019.50	6023.43	6021.49	176.74

Cielo Subdivision

100-year Pipe Summary

Label	Start Node	Stop Node	Invert (Start) (ft)	Invert (Stop) (ft)	Length (ft)	Slope (Calculated) (ft/ft)	Diameter (in)	Manning's n	Flow (cfs)	Velocity (ft/s)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Energy Grade Line (In) (ft)	Energy Grade Line (Out) (ft)	Capacity (Design) (cfs)
51	B12	MH31	6,020.09	6019.88	15.9	0.013	24	0.013	21.22	6.76	6023.50	6023.36	6024.21	6024.07	26.00
52	B9	MH34	6,027.34	6025.34	45.7	0.044	24	0.013	14.58	4.64	6029.66	6029.47	6030.00	6029.81	47.32
53	B1	MH43	6,045.67	6045.13	27.1	0.020	18	0.013	10.94	6.19	6050.55	6050.26	6051.15	6050.85	14.83
54	MH42	MH41	6,041.35	6040.40	66.0	0.014	18	0.013	22.88	12.95	6045.03	6041.88	6047.63	6044.50	12.60
55	MH43	MH42	6,044.93	6041.55	337.7	0.010	18	0.013	10.91	6.17	6050.02	6046.38	6050.62	6046.97	10.51
56	MH41	B4	6,039.70	6038.14	56.8	0.027	24	0.013	22.83	12.52	6041.40	6040.46	6042.40	6041.28	37.49
57	B4	B8	6,037.94	6032.28	141.5	0.040	24	0.013	31.04	15.51	6039.82	6035.76	6041.41	6037.28	45.24
58	B8	MH40	6,031.58	6031.09	17.3	0.028	30	0.013	39.62	8.07	6035.71	6035.55	6036.72	6036.56	69.03
59	MP-AA	INL-05	6,031.27	6029.40	167.4	0.011	48	0.013	139.40	13.70	6034.78	6033.16	6036.99	6035.17	151.81
60	MH62	MH61	6,028.45	6025.71	218.8	0.013	54	0.013	145.05	14.78	6031.99	6028.44	6033.81	6031.64	220.05
61	MH61	MH60	6,025.51	6022.39	312.0	0.010	54	0.013	144.98	13.52	6029.05	6025.27	6030.86	6028.09	196.64
62	MH60	MH59	6,022.19	6016.36	312.2	0.019	54	0.013	144.87	17.21	6025.73	6020.42	6027.54	6021.85	268.71
63	MH59	MH58	6,016.16	6015.03	56.3	0.020	54	0.013	144.79	17.69	6019.69	6019.09	6021.51	6020.52	278.58
70	MP-CC	FES-C2	6,019.53	6019.04	99.7	0.005	36	0.013	66.20	9.37	6022.83	6021.64	6024.19	6023.25	46.76
72	072	071	6,057.97	6045.44	334.3	0.038	24	0.013	29.63	14.97	6059.83	6049.51	6061.30	6050.89	43.81
73	073	072	6,077.47	6062.47	400.0	0.038	24	0.013	29.63	14.97	6079.33	6063.68	6080.80	6067.16	43.81
74	074	073	6,091.20	6081.97	341.8	0.027	24	0.013	29.63	13.14	6093.06	6083.32	6094.53	6086.00	37.17
75	075	074	6,096.70	6092.20	184.1	0.024	24	0.013	29.63	12.61	6098.56	6095.00	6100.03	6096.39	35.37
76	O51	075	6,098.50	6097.20	67.4	0.019	24	0.013	29.63	9.43	6100.66	6099.50	6102.04	6100.88	31.42
81	081	FB-D2	6,031.20	6031.00	26.2	0.008	30	0.013	23.13	4.71	6035.25	6035.17	6035.60	6035.52	35.83
82	082	081	6,033.04	6031.39	221.1	0.007	30	0.013	23.67	4.82	6036.21	6035.47	6036.57	6035.84	35.43
83	083	082	6,033.62	6033.24	51.1	0.007	30	0.013	23.79	4.85	6036.86	6036.69	6037.22	6037.05	35.37
83.1	D11	083	6,034.18	6033.82	19.2	0.019	30	0.013	19.73	4.02	6037.33	6037.28	6037.58	6037.53	56.01
83.2	D12	083	6,034.30	6033.82	22.3	0.022	18	0.013	4.59	2.60	6037.33	6037.28	6037.43	6037.39	15.41
84.1	D04	D05.1	6,057.05	6052.49	227.9	0.020	24	0.013	32.88	10.46	6060.64	6055.82	6062.34	6057.52	32.00
85	D05	D05.1	6,053.55	6053.02	26.8	0.020	18	0.013	12.50	7.08	6056.20	6055.82	6056.98	6056.60	14.77
85.1	D05.1	D06.1	6,051.99	6041.59	288.0	0.036	30	0.013	46.50	16.57	6054.24	6049.31	6055.79	6050.70	77.94
86	D06	D06.1	6,042.68	6042.09	29.5	0.020	24	0.013	14.63	4.66	6049.43	6049.31	6049.77	6049.65	31.99
86.1	D06.1	D07.1	6,041.39	6037.36	182.7	0.022	30	0.013	63.57	12.95	6046.65	6042.26	6049.26	6044.87	60.92
87.1	D07.1	D08.1	6,036.56	6033.78	230.6	0.012	36	0.013	64.48	9.12	6042.13	6039.98	6043.43	6041.27	73.23
88	D08	D08.1	6,035.72	6034.78	47.2	0.020	24	0.013	19.96	6.35	6040.34	6039.98	6040.97	6040.60	31.92
88.1	D08.1	FB-D7	6,033.78	6031.06	217.2	0.013	36	0.013	86.00	12.17	6038.78	6035.17	6041.08	6037.47	74.64
89	D15	FB-D1	6,031.73	6031.13	60.4	0.010	24	0.013	24.06	7.66	6035.85	6035.17	6036.76	6036.08	22.55
90	D13	D15	6,032.60	6032.23	37.5	0.010	18	0.013	11.17	6.32	6036.33	6035.90	6036.95	6036.52	10.43
91	091	FES-D1	5,995.19	5994.67	45.0	0.012	24	0.013	26.50	8.44	5997.08	5996.47	5998.24	5997.70	24.32
92	092	091	6,011.76	5997.25	241.8	0.060	24	0.013	26.50	17.44	6013.56	5998.22	6014.79	6002.95	55.41
93	E8	MH48	6,030.03	6028.37	83.2	0.020	18	0.013	10.65	6.03	6033.64	6032.78	6034.20	6033.35	14.84
93	093	092	6,021.55	6013.76	129.9	0.060	24	0.013	26.50	17.43	6023.35	6014.75	6024.58	6019.32	55.40

Cielo Subdivision

100-year Pipe Summary

Label	Start Node	Stop Node	Invert (Start) (ft)	Invert (Stop) (ft)	Length (ft)	Slope (Calculated) (ft/ft)	Diameter (in)	Manning's n	Flow (cfs)	Velocity (ft/s)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Energy Grade Line (In) (ft)	Energy Grade Line (Out) (ft)	Capacity (Design) (cfs)
94	MH51	MH50	6,034.81	6034.05	40.4	0.019	18	0.013	12.67	7.17	6039.24	6038.65	6040.04	6039.45	14.41
94	MP-DD	093	6,026.15	6023.55	43.2	0.060	24	0.013	26.50	17.46	6027.95	6024.67	6029.18	6028.01	55.50
96	MH54	MH53	6,039.27	6035.60	162.9	0.023	24	0.013	21.95	6.99	6042.24	6040.71	6043.00	6041.47	33.95
97	MH50	MH49	6,033.05	6028.88	109.1	0.038	30	0.013	48.92	9.97	6036.30	6034.75	6037.85	6036.30	80.19
98	MH49	MH48	6,028.68	6027.37	43.6	0.030	30	0.013	57.58	11.73	6033.64	6032.78	6035.78	6034.92	71.09
101	C06	FB-C1	6,023.71	6023.00	141.5	0.005	42	0.013	141.59	14.72	6030.99	6028.19	6034.36	6031.56	71.26
102	C04	C06	6,030.86	6030.64	44.3	0.005	42	0.013	140.03	14.55	6034.94	6033.99	6038.23	6037.38	70.90
103	C01	C04	6,037.01	6036.36	43.5	0.015	42	0.013	138.29	14.37	6040.60	6039.71	6043.81	6043.02	122.80
104	C03	C01	6,041.32	6040.12	43.5	0.027	24	0.013	48.00	15.28	6046.79	6044.84	6050.42	6048.46	37.51
104	E7	MH49	6,030.56	6029.68	30.8	0.029	18	0.013	9.15	5.18	6034.99	6034.75	6035.40	6035.17	17.75
106	E11	MH45	6,017.60	6017.38	21.7	0.010	30	0.013	18.15	3.70	6023.35	6023.31	6023.57	6023.52	41.30
120	E5	MH51	6,035.44	6035.01	21.5	0.020	18	0.013	12.68	7.18	6039.87	6039.56	6040.67	6040.36	14.85
121	MH53	MH50	6,035.10	6033.55	50.6	0.031	24	0.013	33.73	10.74	6039.78	6038.65	6041.57	6040.44	39.59
122	E3	MH53	6,036.03	6035.60	19.6	0.022	18	0.013	12.69	7.18	6040.99	6040.71	6041.80	6041.51	15.55
123	B3	MH42	6,042.30	6041.75	27.3	0.020	18	0.013	12.42	7.03	6046.76	6046.38	6047.53	6047.15	14.91
123	E4	MH52	6,037.21	6036.60	24.3	0.025	18	0.013	6.59	3.73	6039.19	6039.09	6039.40	6039.31	16.64
124	MH52	MH50	6,036.40	6034.05	90.8	0.026	18	0.013	6.57	3.72	6039.01	6038.65	6039.22	6038.87	16.90
125	E2	MH54	6,040.10	6039.77	23.7	0.014	18	0.013	21.96	12.42	6043.58	6042.54	6045.98	6044.94	12.41
126	MH47	MH46	6,024.45	6018.69	145.0	0.040	30	0.013	67.16	13.68	6028.40	6024.52	6031.31	6027.42	81.75
127	MH46	MH45	6,018.19	6016.38	138.0	0.013	42	0.013	73.36	7.63	6024.04	6023.31	6024.95	6024.21	115.22
128	E9	MH46	6,020.80	6020.19	48.4	0.013	18	0.013	7.03	3.98	6024.73	6024.52	6024.98	6024.76	11.79
133	O11	MH63	6,044.06	6043.90	7.9	0.020	18	0.013	5.78	7.91	6045.34	6045.35	6045.54	6045.52	14.95
134	MH63	MH62	6,043.90	6031.44	276.8	0.045	18	0.013	5.77	10.59	6044.83	6032.93	6045.22	6033.10	22.29
135	G1	G2	5,998.52	5997.75	42.3	0.018	24	0.013	2.21	5.65	5999.04	5998.73	5999.22	5998.76	30.52
136	G2	FES-G2	5,997.55	5996.56	66.5	0.015	24	0.013	8.19	7.66	5998.57	5997.31	5998.97	5998.20	27.60
137	G3	G4	5,996.02	5995.59	42.9	0.010	24	0.013	2.25	4.60	5996.54	5996.02	5996.73	5996.35	22.65
138	G4	FES-G1	5,995.39	5995.00	38.8	0.010	24	0.013	3.39	5.19	5996.03	5995.52	5996.27	5995.94	22.68
139	INL-05	MH62	6,029.17	6028.95	18.3	0.012	48	0.013	139.40	14.15	6033.06	6032.93	6035.00	6034.85	157.49
141	MH58	MH57	6,014.83	6006.83	400.0	0.020	54	0.013	144.78	17.66	6018.36	6009.14	6020.18	6013.97	278.09
142	MH57	MH56	6,006.63	6004.90	159.2	0.011	54	0.013	144.68	13.97	6010.16	6008.96	6011.98	6010.38	204.98
143	MH56	CULVERT-1	6,004.70	6001.94	265.5	0.010	54	0.013	144.63	13.73	6008.23	6004.80	6010.04	6007.66	200.49
143	C05	071	6,050.48	6049.55	22.1	0.042	18	0.013	5.61	10.23	6051.39	6050.14	6051.78	6051.35	21.50
144	MH48	MH47	6,027.17	6024.65	63.1	0.040	30	0.013	67.27	13.70	6031.26	6029.57	6034.18	6032.48	81.96
147	MH101	MH100	6,003.19	6000.88	98.3	0.023	30	0.013	21.80	11.64	6004.78	6002.71	6005.46	6003.21	62.87
148	MH100	HW-1	6,000.68	6000.09	59.2	0.010	30	0.013	21.80	8.47	6002.27	6001.42	6002.95	6002.47	40.95
149	MH103	MH102	6,007.45	6005.77	111.7	0.015	30	0.013	21.80	9.88	6009.04	6006.93	6009.72	6008.41	50.30
150	MH102	MH101	6,005.57	6003.35	111.1	0.020	30	0.013	21.80	10.97	6007.16	6004.43	6007.84	6006.22	57.98
152	MH30	FB-B1	6,012.23	6011.47	131.6	0.006	42	0.013	111.80	11.62	6017.35	6015.73	6019.45	6017.83	76.45

Cielo Subdivision

100-year Pipe Summary

Label	Start Node	Stop Node	Invert (Start) (ft)	Invert (Stop) (ft)	Length (ft)	Slope (Calculated) (ft/ft)	Diameter (in)	Manning's n	Flow (cfs)	Velocity (ft/s)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Energy Grade Line (In) (ft)	Energy Grade Line (Out) (ft)	Capacity (Design) (cfs)
153	G5	G6	6,016.03	6016.30	51.2	-0.005	24	0.013	6.39	2.03	6020.14	6020.10	6020.20	6020.16	16.42
154	MH45	E10	6,015.88	6015.50	37.5	0.010	48	0.013	93.51	7.44	6022.00	6021.84	6022.86	6022.70	144.59
155	E10	FB-E1	6,015.30	6015.00	58.8	0.005	48	0.013	94.45	7.52	6021.79	6021.54	6022.67	6022.42	102.60
155	MP-BB	FES-B1	5,997.62	5997.00	124.5	0.005	30	0.013	7.90	5.02	5998.55	5997.89	5998.90	5998.28	28.94
157	HW-E1	E11	6,020.00	6019.28	23.9	0.030	18	0.013	11.23	6.35	6023.68	6023.40	6024.30	6024.03	18.23
158	MP-EE	MH103	6,011.09	6008.45	145.3	0.018	30	0.013	21.80	10.60	6012.68	6009.54	6013.36	6011.28	55.29
160	071	C03	6,045.24	6044.41	22.2	0.037	24	0.013	35.23	11.21	6047.51	6046.98	6049.47	6048.93	43.74
161	MH45	MH107	6,018.38	6019.48	106.4	-0.010	18	0.013	4.47	2.53	6023.50	6023.31	6023.60	6023.41	10.68
162	G7	MH107	6,021.65	6019.68	95.2	0.021	18	0.013	4.57	2.59	6023.81	6023.63	6023.92	6023.74	15.11
180	G5	MH30	6,015.83	6013.92	380.6	0.005	24	0.013	7.94	2.53	6019.96	6019.50	6020.06	6019.59	16.02

Cielo Subdivision						
100-year Outfall Summary						
Label	Elevation (Invert) (ft)	Boundary Condition Type	Elevation (User Defined Tailwater) (ft)	Flow (Total Out) (cfs)	Depth (Node) (ft)	Hydraulic Grade (ft)
FB-C1	6023.00	User Defined Tailwater	6,028.19	141.1	5.19	6028.19
FES-C2	6019.04	Free Outfall		66.2	2.60	6021.64
FES-B1	5997.00	Free Outfall		7.9	0.89	5997.89
FB-B1	6011.47	User Defined Tailwater	6,015.73	111.5	4.26	6015.73
FES-G1	5995.00	Free Outfall		3.4	0.52	5995.52
HW-1	5996.80	Free Outfall		21.8	4.62	6001.42
FES-G2	5996.56	Free Outfall		8.2	0.75	5997.31
CULVERT-1	5998.44	Free Outfall		144.6	6.36	6004.80
FB-E1	6015.00	User Defined Tailwater	6,021.54	94.2	6.54	6021.54
FB-A1	6036.00	User Defined Tailwater	6,042.69	49.9	6.69	6042.69
FB-D1	6031.13	User Defined Tailwater	6,035.17	24.0	4.04	6035.17
FB-D7	6031.06	User Defined Tailwater	6,035.17	85.3	4.11	6035.17
FES-D1	5994.67	Free Outfall		26.5	1.80	5996.47
FB-D2	6031.00	User Defined Tailwater	6,035.17	23.1	4.17	6035.17
FB-A7	6037.00	User Defined Tailwater	6,042.69	347.2	5.69	6042.69

Cielo Subdivision												
100-year Inlet and Junction Summary												
Label	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Structure Type	Length (ft)	Width (ft)	Diameter (in)	Flow (Total Out) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Headloss Method	Headloss Coefficient (Standard)	Headloss (ft)
A03	6063.43	6056.63	Circular Structure			60	9.56	6058.83	6058.78	Standard	0.05	0.05
A06	6063.17	6056.63	Circular Structure			60	11.28	6058.90	6058.85	Standard	0.05	0.05
A08	6058.09	6049.72	Circular Structure			60	13.73	6051.15	6051.09	Standard	0.05	0.05
A10	6056.93	6046.96	Circular Structure			60	50.21	6049.35	6049.26	Standard	0.05	0.09
A13	6097.74	6085.80	Circular Structure			60	8.80	6086.91	6086.86	Standard	0.05	0.05
A14	6055.72	6037.43	Circular Structure			84	347.82	6043.35	6043.23	Standard	0.05	0.12
A14.1	6054.84	6047.29	Circular Structure			60	0.00	6053.41	6,053.36	Standard	0.05	0.05
B1	6052.13	6045.67	Circular Structure			60	10.94	6050.60	6,050.55	Standard	0.05	0.05
B3	6048.73	6042.30	Circular Structure			60	12.42	6046.81	6,046.76	Standard	0.05	0.05
B4	6047.66	6037.94	Circular Structure			60	31.04	6040.46	6039.82	Standard	0.40	0.64
B5	6044.01	6037.49	Circular Structure			60	15.59	6039.71	6,039.65	Standard	0.05	0.06
B6	6043.66	6037.26	Circular Structure			60	15.74	6039.46	6,039.40	Standard	0.05	0.06
B8	6038.66	6031.58	Circular Structure			60	39.62	6035.76	6,035.71	Standard	0.05	0.05
B9	6034.06	6027.34	Circular Structure			60	14.58	6029.71	6,029.66	Standard	0.00	0.05
B12	6030.46	6020.09	Circular Structure			60	21.22	6023.55	6,023.50	Standard	0.05	0.05
B14	6030.47	6017.50	Circular Structure			60	109.10	6021.63	6021.43	Standard	0.10	0.20
C01	6057.13	6037.01	Box Structure	11.33	2.92		138.29	6044.84	6040.60	Standard	1.32	4.24
C03	6057.04	6041.32	Circular Structure			60	48.00	6046.98	6046.79	Standard	0.05	0.18
C04	6055.53	6031.31	Box Structure	3.00	10.00		140.03	6035.11	6034.94	Standard	0.05	0.16
C05	6057.13	6050.48	Circular Structure			60	5.61	6051.44	6051.39	Standard	0.05	0.05
C06	6055.53	6023.71	Box Structure	3.00	10.00		141.59	6031.16	6030.99	Standard	0.05	0.17
D04	6068.18	6057.05	Circular Structure			60	32.88	6060.72	6060.64	Standard	0.05	0.09
D05	6060.15	6053.55	Circular Structure			60	12.50	6056.25	6056.20	Standard	0.05	0.05
D05.1	6059.00	6051.99	Circular Structure			60	46.50	6055.82	6054.24	Standard	1.02	1.58
D06	6049.95	6042.68	Circular Structure			60	14.63	6049.48	6049.43	Standard	0.05	0.05
D06.1	6050.00	6041.39	Circular Structure			60	63.57	6049.31	6046.65	Standard	1.02	2.66
D07.1	6045.82	6036.56	Circular Structure			60	64.48	6042.26	6042.13	Standard	0.10	0.13
D08	6040.76	6035.72	Circular Structure			60	19.96	6040.39	6040.34	Standard	0.05	0.05
D08.1	6040.97	6033.78	Circular Structure			60	86.00	6039.98	6038.78	Standard	0.52	1.20
D11	6037.73	6034.18	Circular Structure			60	19.73	6037.38	6037.33	Standard	0.05	0.05
D12	6037.73	6034.30	Circular Structure			60	4.59	6037.38	6037.33	Standard	0.05	0.05
D13	6036.44	6032.60	Circular Structure			60	11.17	6036.38	6036.33	Standard	0.05	0.05
D15	6036.44	6031.73	Circular Structure			60	24.06	6035.90	6035.85	Standard	0.05	0.05
E2	6048.12	6040.10	Circular Structure			60	21.96	6043.70	6043.58	Standard	0.05	0.12

Cielo Subdivision												
100-year Inlet and Junction Summary												
Label	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Structure Type	Length (ft)	Width (ft)	Diameter (in)	Flow (Total Out) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Headloss Method	Headloss Coefficient (Standard)	Headloss (ft)
E3	6041.82	6036.03	Circular Structure			60	12.69	6041.04	6040.99	Standard	0.05	0.05
E4	6045.24	6037.21	Circular Structure			60	6.59	6039.24	6039.19	Standard	0.05	0.05
E5	6041.92	6035.44	Circular Structure			60	12.68	6039.92	6039.87	Standard	0.05	0.05
E7	6036.52	6030.56	Circular Structure			60	9.15	6035.04	6034.99	Standard	0.05	0.05
E8	6039.31	6030.03	Circular Structure			60	10.65	6033.69	6033.64	Standard	0.05	0.05
E9	6026.16	6020.30	Circular Structure			60	7.03	6024.78	6024.73	Standard	0.05	0.05
E10	6023.30	6015.30	Box Structure	10.00	2.67		94.45	6021.84	6021.79	Standard	0.05	0.05
E11	6023.78	6017.60	Box Structure	15.00	2.67		18.15	6023.40	6023.35	Standard	0.10	0.05
FES-063	6081.98	6074.07	Circular Structure			60	70.64	6076.82	6076.74	Standard	0.05	0.09
G1	6006.61	5998.52	Box Structure	10.00	2.67		2.21	5999.09	5999.04	Standard	0.05	0.05
G2	6006.61	5997.55	Box Structure	15.00	2.67		8.19	5998.73	5998.57	Standard	0.40	0.16
G3	6001.27	5996.02	Circular Structure			60	2.25	5996.59	5996.54	Standard	0.05	0.05
G4	6001.28	5995.39	Circular Structure			60	3.39	5996.08	5996.03	Standard	0.05	0.05
G5	6020.26	6015.83	Box Structure	10.00	2.67		7.94	6020.10	6019.96	Standard	1.32	0.13
G6	6020.53	6016.30	Box Structure	15.00	2.67		6.39	6020.19	6020.14	Standard	0.05	0.05
G7	6026.93	6021.65	Box Structure	15.00	2.67		4.57	6023.86	6023.81	Standard	0.05	0.05
INL-05	6044.51	6029.17	Circular Structure			72	139.40	6033.16	6033.06	Standard	0.05	0.10
MP-BB	6013.08	5997.62	Circular Structure			60	7.90	5998.60	5998.55	Standard	0.05	0.05
MP-CC	6026.43	6019.53	Box Structure	2.92	5.67		66.20	6022.90	6022.83	Standard	0.05	0.07
MP-DD	6031.00	6026.15	Circular Structure			60	26.50	6028.01	6027.95	Standard	0.05	0.06
MP-EE	6014.73	6010.76	Circular Structure			60	21.80	6012.73	6012.68	Standard	0.05	0.05
O11	6054.18	6044.06	Circular Structure			60	5.78	6045.39	6045.34	Standard	0.05	0.05
O51	6104.56	6098.50	Box Structure	2.92	5.66		29.63	6100.73	6100.66	Standard	0.05	0.07
O71	6052.81	6045.98	Circular Structure			72	137.44	6052.80	6052.75	Standard	0.05	0.05
O72	6054.81	6045.14	Circular Structure			72	148.93	6052.70	6052.65	Standard	0.05	0.05
O72.1	6054.24	6048.93	Circular Structure			72	0.00	6053.41	6053.36	Standard	0.05	0.05
11	6056.20	6041.42	Circular Structure			60	50.18	6044.19	6043.73	Standard	0.40	0.46
13	6057.60	6047.87	Circular Structure			60	34.29	6050.14	6049.86	Standard	0.27	0.28
14	6059.30	6050.88	Circular Structure			60	20.66	6052.60	6052.51	Standard	0.10	0.09
15	6062.60	6054.39	Circular Structure			60	20.77	6057.20	6056.02	Standard	1.32	1.17
16	6063.40	6055.70	Circular Structure			60	20.83	6058.60	6057.81	Standard	1.16	0.79
18	6056.00	6045.53	Circular Structure			60	37.41	6053.36	6052.70	Standard	1.52	0.66
19	6056.70	6040.20	Circular Structure			84	339.90	6052.39	6045.59	Standard	1.46	6.80
22	6056.60	6047.17	Circular Structure			60	37.41	6055.50	6054.31	Standard	1.32	1.19

Cielo Subdivision												
100-year Inlet and Junction Summary												
Label	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Structure Type	Length (ft)	Width (ft)	Diameter (in)	Flow (Total Out) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Headloss Method	Headloss Coefficient (Standard)	Headloss (ft)
23	6066.40	6048.61	Circular Structure			60	37.41	6059.01	6058.90	Standard	0.05	0.11
25	6064.30	6051.34	Circular Structure			60	167.12	6061.33	6061.09	Standard	0.05	0.23
26	6079.20	6064.46	Circular Structure			60	167.79	6072.56	6070.10	Standard	0.52	2.46
27	6093.90	6078.23	Circular Structure			60	100.64	6082.80	6081.13	Standard	0.52	1.67
28	6093.50	6084.72	Circular Structure			60	91.99	6087.71	6087.58	Standard	0.05	0.14
71	6059.06	6045.24	Circular Structure			60	35.23	6049.51	6047.51	Standard	1.02	1.99
72	6072.71	6057.97	Circular Structure			60	29.63	6059.90	6059.83	Standard	0.05	0.07
73	6096.03	6077.47	Circular Structure			60	29.63	6079.40	6079.33	Standard	0.05	0.07
74	6100.00	6091.20	Circular Structure			60	29.63	6095.00	6093.06	Standard	1.32	1.95
75	6108.00	6096.70	Circular Structure			60	29.63	6099.50	6098.56	Standard	0.64	0.94
81	6037.50	6031.20	Circular Structure			60	23.13	6035.47	6035.25	Standard	0.64	0.22
82	6038.60	6033.04	Circular Structure			60	23.67	6036.69	6036.21	Standard	1.32	0.48
83	6038.20	6033.62	Circular Structure			60	23.79	6037.28	6036.86	Standard	1.16	0.42
91	6008.20	5995.25	Circular Structure			60	26.50	5998.60	5997.08	Standard	1.32	1.52
92	6037.70	6011.76	Circular Structure			60	26.50	6014.05	6013.56	Standard	0.40	0.49
93	6039.00	6021.55	Circular Structure			60	26.50	6024.98	6023.35	Standard	1.32	1.63
MH30	6023.20	6012.23	Circular Structure			60	111.80	6019.50	6017.35	Standard	1.02	2.14
MH31	6030.90	6017.93	Circular Structure			60	94.75	6023.36	6021.82	Standard	1.02	1.54
MH32	6030.90	6019.23	Circular Structure			60	75.80	6023.79	6023.71	Standard	0.05	0.09
MH33	6031.40	6020.35	Circular Structure			36	75.97	6024.59	6024.50	Standard	0.05	0.09
MH34	6033.90	6024.34	Circular Structure			60	76.67	6029.47	6027.61	Standard	1.02	1.86
MH35	6035.70	6026.62	Circular Structure			60	64.45	6031.01	6030.95	Standard	0.05	0.06
MH36	6036.10	6027.16	Circular Structure			60	64.58	6031.47	6031.41	Standard	0.05	0.06
MH37	6036.60	6027.76	Circular Structure			60	64.70	6031.92	6031.86	Standard	0.05	0.07
MH38	6037.00	6028.37	Circular Structure			60	64.82	6032.37	6032.31	Standard	0.05	0.07
MH39	6037.70	6029.09	Circular Structure			60	64.99	6032.97	6032.90	Standard	0.05	0.07
MH40	6039.10	6030.59	Circular Structure			60	65.36	6035.55	6034.19	Standard	1.02	1.36
MH41	6048.40	6039.70	Circular Structure			60	22.83	6041.80	6041.40	Standard	0.40	0.40
MH42	6049.00	6041.35	Circular Structure			60	22.88	6046.38	6045.03	Standard	0.52	1.36
MH43	6052.40	6044.93	Circular Structure			60	10.91	6050.26	6050.02	Standard	0.40	0.24
MH44	6043.70	6035.34	Circular Structure			60	29.80	6038.37	6037.78	Standard	1.02	0.59
MH45	6023.90	6015.88	Circular Structure			60	93.51	6023.31	6022.00	Standard	1.52	1.31
MH46	6025.80	6018.19	Circular Structure			60	73.36	6024.52	6024.04	Standard	0.52	0.47
MH47	6032.00	6024.45	Circular Structure			60	67.16	6029.57	6028.40	Standard	0.40	1.16

Cielo Subdivision												
100-year Inlet and Junction Summary												
Label	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Structure Type	Length (ft)	Width (ft)	Diameter (in)	Flow (Total Out) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Headloss Method	Headloss Coefficient (Standard)	Headloss (ft)
MH48	6035.40	6027.17	Circular Structure			60	67.27	6032.78	6031.26	Standard	0.52	1.52
MH49	6037.00	6028.68	Circular Structure			60	57.58	6034.75	6033.64	Standard	0.52	1.11
MH50	6041.35	6033.05	Circular Structure			60	48.92	6038.65	6036.30	Standard	1.52	2.35
MH51	6041.30	6034.81	Circular Structure			60	12.67	6039.56	6039.24	Standard	0.40	0.32
MH52	6041.35	6036.40	Circular Structure			60	6.57	6039.09	6039.01	Standard	0.40	0.09
MH53	6042.22	6035.10	Circular Structure			60	33.73	6040.71	6039.78	Standard	0.52	0.93
MH54	6048.10	6039.27	Circular Structure			60	21.95	6042.54	6042.24	Standard	0.40	0.30
MH56	6014.72	6004.70	Circular Structure			72	144.63	6008.96	6008.23	Standard	0.40	0.72
MH57	6018.39	6006.63	Circular Structure			72	144.68	6010.25	6010.16	Standard	0.05	0.09
MH58	6025.50	6014.83	Circular Structure			72	144.78	6019.09	6018.36	Standard	0.40	0.73
MH59	6028.80	6016.16	Circular Structure			72	144.79	6020.42	6019.69	Standard	0.40	0.73
MH60	6033.80	6022.19	Circular Structure			72	144.87	6025.82	6025.73	Standard	0.05	0.09
MH61	6038.70	6025.51	Circular Structure			72	144.98	6029.14	6029.05	Standard	0.05	0.09
MH62	6043.90	6028.45	Circular Structure			72	145.05	6032.93	6031.99	Standard	0.52	0.95
MH63	6054.40	6043.90	Circular Structure			60	5.77	6045.35	6044.83	Standard	1.32	0.52
MH100	6010.90	6000.68	Circular Structure			60	21.80	6002.71	6002.27	Standard	0.64	0.44
MH101	6011.35	6003.19	Circular Structure			60	21.80	6004.85	6004.78	Standard	0.10	0.07
MH102	6017.68	6005.57	Circular Structure			60	21.80	6007.23	6007.16	Standard	0.10	0.07
MH103	6019.48	6007.45	Circular Structure			60	21.80	6009.83	6009.04	Standard	1.16	0.79
MH107	6025.24	6019.48	Circular Structure			60	4.47	6023.63	6023.50	Standard	1.32	0.13
MP-AA	6037.36	6031.27	Circular Structure			72	139.40	6034.89	6034.78	Standard	0.05	0.11

Swale A12 -100-yr

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.030	
Channel Slope	0.03600	ft/ft
Left Side Slope	5.00	ft/ft (H:V)
Right Side Slope	5.00	ft/ft (H:V)
Bottom Width	2.00	ft
Discharge	5.92	ft³/s

Results

Normal Depth	0.39	ft
Flow Area	1.55	ft²
Wetted Perimeter	6.00	ft
Hydraulic Radius	0.26	ft
Top Width	5.92	ft
Critical Depth	0.45	ft
Critical Slope	0.02006	ft/ft
Velocity	3.82	ft/s
Velocity Head	0.23	ft
Specific Energy	0.62	ft
Froude Number	1.31	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.39	ft
Critical Depth	0.45	ft
Channel Slope	0.03600	ft/ft

OUTFALL O51 RIPRAP APRON CALCULATIONS

Cielo Subdivision
Atwell, LLC
1/26/2017
Per USDCM Vol. 2, Ch. 9, S. 3.2

ROCK SIZE

Per USDCM Vol. 2, Ch. 9, S. 3.2.3

$D_{50} = (0.023Q)/(Y_t^{1.2}D_c^{0.3})$ Mean particle size; Equation 9-16

Q =	29.63	cfs	Outfall C 100-year discharge
FR=	0.78		Froude number in pipe
D_c =	2	ft	Diameter of outlet Pipe
Yn=	0.87	ft	Normal depth in outlet pipe
Da=	1.435	ft	Equation 9-18 for supercritical flow
Y_t =	0.87	ft	Tailwater Depth from Flowmaster
Yt/D=	0.435		Hydraulic jump downstream of outlet
Q/Da^1.5	17.2		
D_{50} =	**1.5**	**ft**	**Type H Riprap**
	18	in	

Type H Riprap **Thickness of Riprap Layer = $2D_{50}$ = 3 ft**

EXTENT OF PROTECTION

Per USDCM Vol. 2, Ch. 9, S. 3.2.1

$L_p = (1/2\tan\Theta)(A_t/Y_t - W)$ Lentgh of protection; Equation 9-11

W =	2	ft	Diameter of outlet Pipe
Y_t =	0.87	ft	Tailwater depth
A_t = Q/V		ft^2	Required area of flow at allowable velocity; Equation 9-12
Q =	29.63	cfs	Outfall C 100-year discharge
V =	12	ft/sec	Max velocity allowed by UDFCD for riprap lining
A_t =	2.47	ft^2	
$Q/D^{2.5}$ =	5.2		Froude Parameter
Y_t/D =	0.44		
D =	2	ft	Diameter of outlet pipe
1/2tanΘ =	6.7		Expansion factor; Figure 9-35
L_p =	**10**	**ft**	**(minimum length of protection)**

$T = 2(L_p\tan\Theta)+W$ Width of riprap at furthest downstream point; Equation 9-13

$\Theta = \tan^{-1}[1/(2*\text{Expansion Factor})]$ Equation 9-13

Θ = 0.07 °

T = 5 ft (minimum width at end of protection)

POND A OUTFALL RIPRAP APRON CALCULATIONS

Cielo Subdivision
Atwell, LLC
1/26/2017
Per USDCM Vol. 2, Ch. 9, S. 3.2

ROCK SIZE

Per USDCM Vol. 2, Ch. 9, S. 3.2.3

$D_{50} = (0.023Q)/(Y_t^{1.2}D_c^{0.3})$ Mean particle size; Equation 9-16

Q =	139.4	cfs	Outfall C 100-year discharge
FR=	0.6		Froude number in pipe
D_c =	4.5	ft	Diameter of outlet Pipe
Yn=	1.92	ft	Normal depth in outlet pipe
Da=	3.21	ft	Equation 9-18 for supercritical flow
Y_t =	1.92	ft	Tailwater Depth from Flowmaster
Yt/D=	0.4		Hydraulic jump downstream of outlet
Q/Da^1.5	24.2		
D_{50} =	**1.5**	**ft**	**Type VH Riprap**
	24	in	

Type VH Riprap **Thickness of Riprap Layer = $2D_{50}$ = 4 ft**

EXTENT OF PROTECTION

Per USDCM Vol. 2, Ch. 9, S. 3.2.1

$L_p = (1/2\tan\Theta)(A_t/Y_t - W)$ Lentgh of protection; Equation 9-11

W =	4.5	ft	Diameter of outlet Pipe
Y_t =	2.14	ft	Tailwater depth
A_t = Q/V		ft^2	Required area of flow at allowable velocity; Equation 9-12
Q =	139.4	cfs	Outfall C 100-year discharge
V =	5	ft/sec	Max velocity allowed by UDFCD for sandy soils
A_t =	27.88	ft^2	
$Q/D^{2.5}$ =	3.2		Froude Parameter
Y_t/D =	0.48		
D =	4.5	ft	Diameter of outlet pipe
1/2tanΘ =	4.8		Expansion factor; Figure 9-35
L_p =	**38**	**ft**	

$T = 2(L_p\tan\Theta)+W$ Width of riprap at furthest downstream point; Equation 9-13

$\Theta = \tan^{-1}[1/(2*\text{Expansion Factor})]$ Equation 9-13

Θ =	0.10	°
T =	**12**	**ft**

LOW TAILWATER BASIN POND D OUTFALL

Cielo Subdivision
Atwell, LLC
2/8/20018
Per USDCM Vol. 2, Ch. 9, S. 3.2

5994.67 Invert elevation of outlet Pipe

ROCK SIZE

Per USDCM Vol. 2, Ch. 9, S. 3.2.3

$D_{50} = (0.023Q)/(Y_t^{1.2}D_c^{0.3})$ Mean particle size; Equation 9-16

$Q =$ 26.5 cfs Outfalls B1 & B2 combined 5-year discharge
$D_c =$ 2 ft Diameter of outlet Pipe

$Y_t = D_c/3$ Low tailwater depth; Per USDCM Vol. 2, Ch. 9, S. 3.2.2
$Y_t =$ 0.67 ft

$D_{50} =$ 0.8 ft
10 in *** Use 6 inches**

Type VL Riprap Per UDFCD Specifications Section 31 37 00; Table 1

$T = 2D_{50}$ Thickness of Riprap Layer; Equation 9-15
T = 1.0 ft

DIMENSIONS OF LOW TAILWATER BASIN

Per USDCM Vol. 2, Ch. 9, S. 3.2.2

24 in Diameter of largest outlet Pipe (Outfall B1; Storm Run 2-A)

D = 1.5 ft Depth of basin; Figure 9-37
W = 6 ft Bottom width of basin; Figure 9-37
L = 20 ft Total length of basin; Figure 9-37

HEADWALL HEIGHT

Per USDCM Vol. 2, Ch. 9, S. 3.1.2

$B = 2D_{50}$ Height of headwall; Figure 9-30
B = 1.0 ft

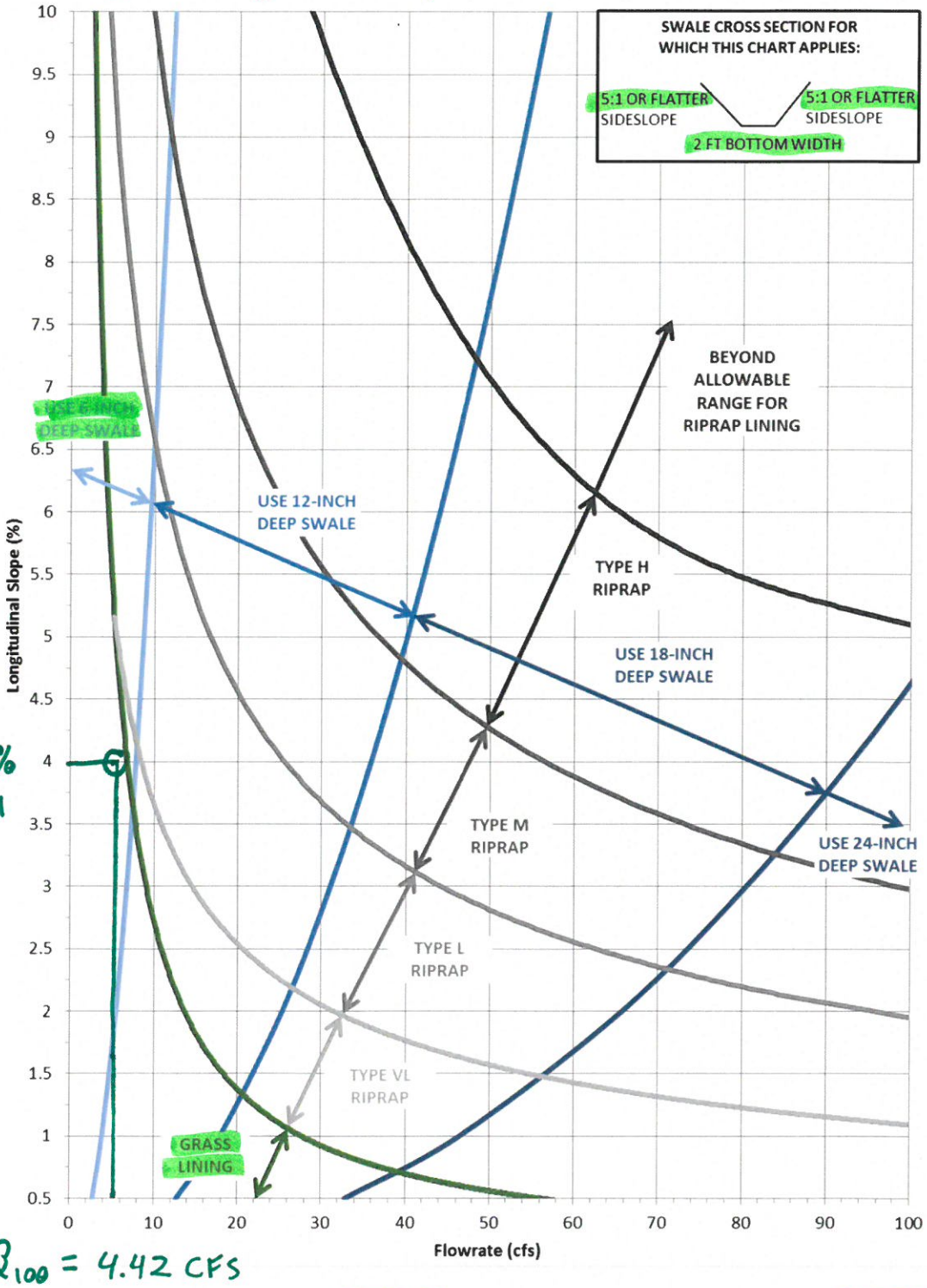
Swale A12 -100-yr

GVF Output Data

Critical Slope	0.02006	ft/ft

Tract Q Swale

Controlling Flow/Slope is Basin D6.1

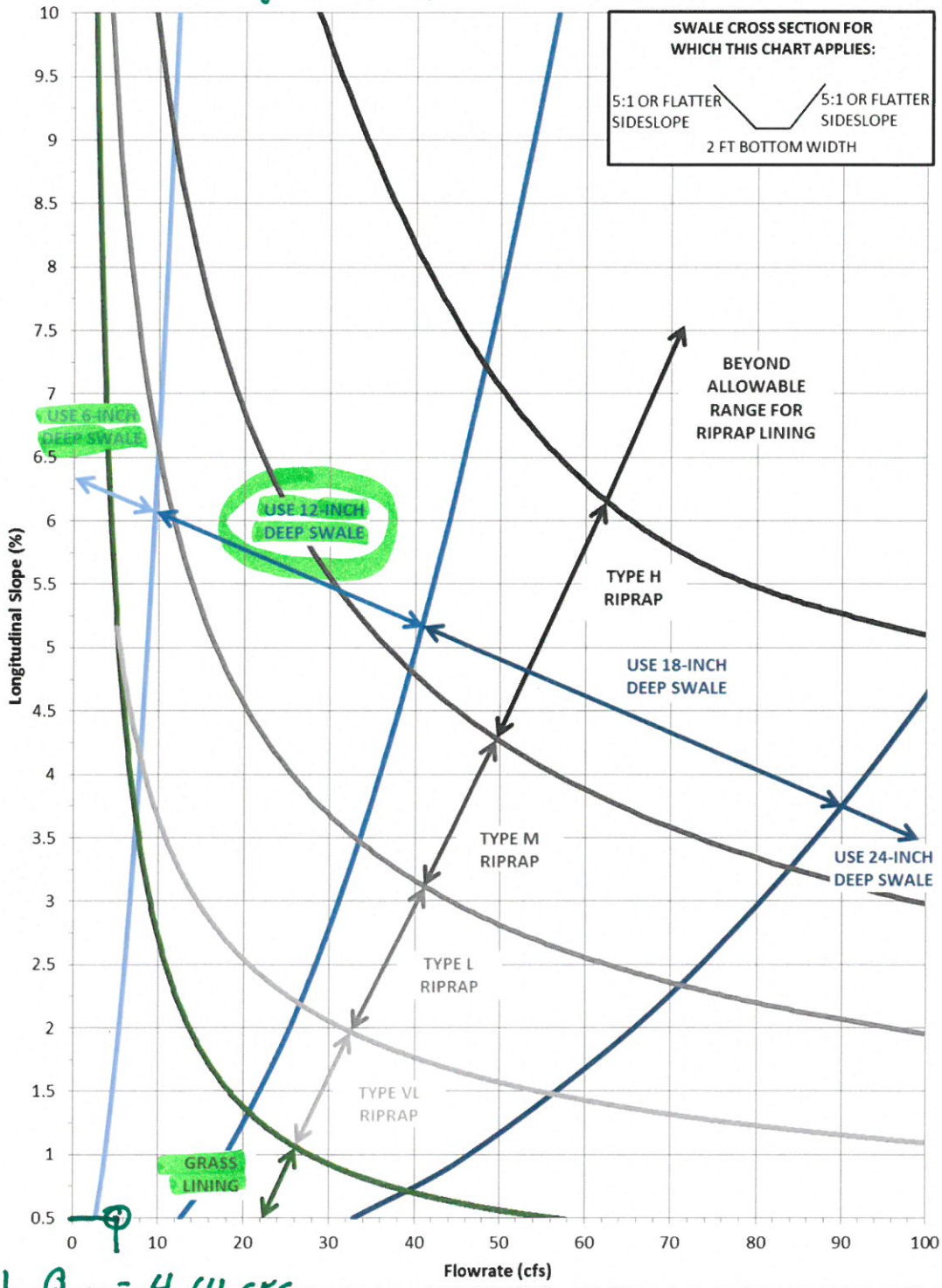


Swale Slope = 4.0% through Basin D6.1

Basin D6.1 Q_{100} = 4.42 CFS

Figure 8-22. Swale stability chart; 2- to 4-foot bottom width and side slopes between 5:1 and 10:1 (Note: Riprap classifications refer to gradation for riprap used in soil riprap or void-filled riprap. See Figure 8-34 for gradations.) (Source: Muller Engineering Company)

Controlling Flow/Slope is Basin D8.1



Basin D8.1 Q_{100} = 4.64 CFS

Figure 8-22. Swale stability chart; 2- to 4-foot bottom width and side slopes between 5:1 and 10:1 (Note: Riprap classifications refer to gradation for riprap used in soil riprap or void-filled riprap. See Figure 8-34 for gradations.) (Source: Muller Engineering Company)

Pond A Outfall Channel

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.035	
Channel Slope	0.00650	ft/ft
Left Side Slope	4.00	ft/ft (H:V)
Right Side Slope	4.00	ft/ft (H:V)
Bottom Width	10.00	ft
Discharge	139.40	ft³/s

Results

Normal Depth	1.92	ft
Flow Area	33.95	ft²
Wetted Perimeter	25.83	ft
Hydraulic Radius	1.31	ft
Top Width	25.36	ft
Critical Depth	1.48	ft
Critical Slope	0.01778	ft/ft
Velocity	4.11	ft/s
Velocity Head	0.26	ft
Specific Energy	2.18	ft
Froude Number	0.63	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	1.92	ft
Critical Depth	1.48	ft
Channel Slope	0.00650	ft/ft

Pond A Outfall Channel

GVF Output Data

Critical Slope	0.01778	ft/ft

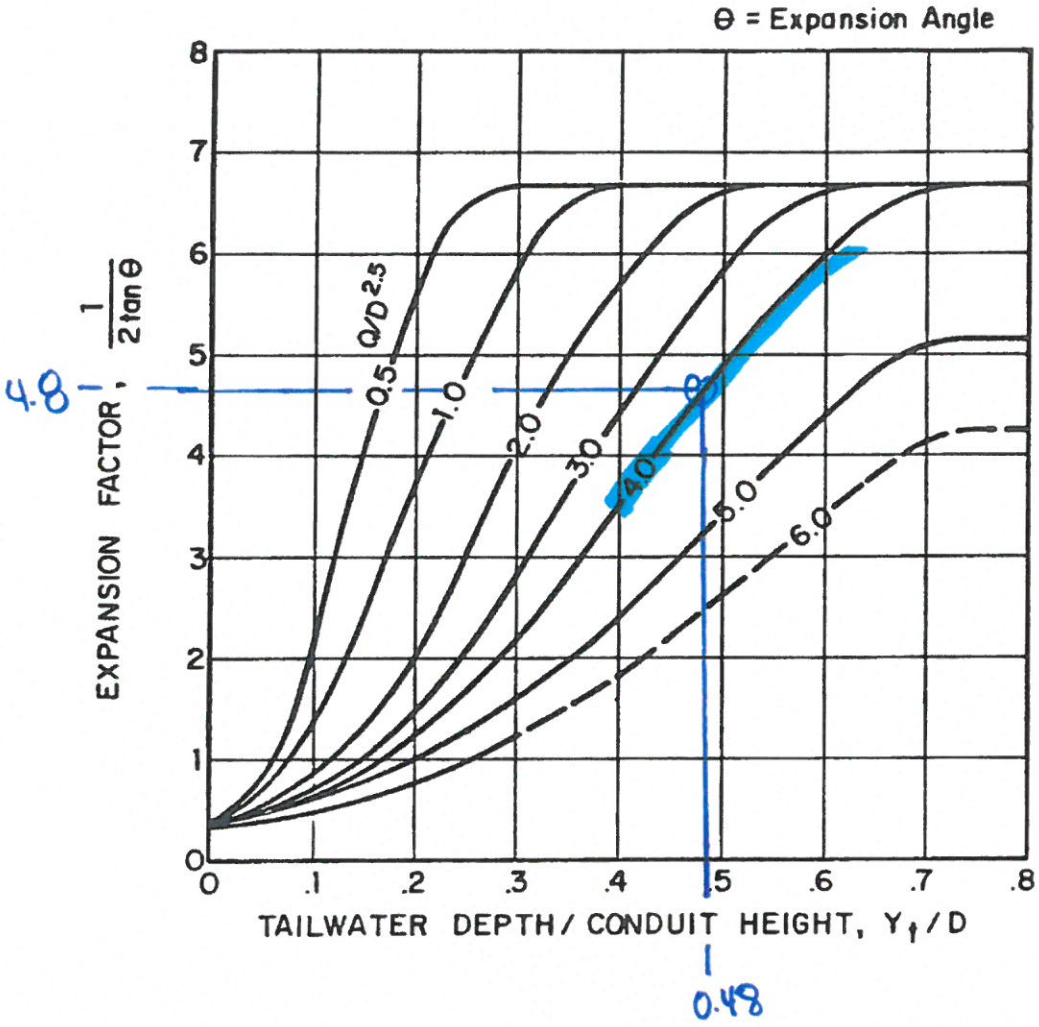


Figure 9-35. Expansion factor for circular conduits

$$H_a = \frac{(H + Y_n)}{2}$$ Equation 9-19

Where the maximum value of H_a shall not exceed H, and:

D_a = parameter to use in place of D in Figure 9-38 when flow is supercritical (ft)
D_c = diameter of circular culvert (ft)
H_a = parameter to use in place of H in Figure 9-39 when flow is supercritical (ft)
H = height of rectangular culvert (ft)
Y_n = normal depth of supercritical flow in the culvert (ft)

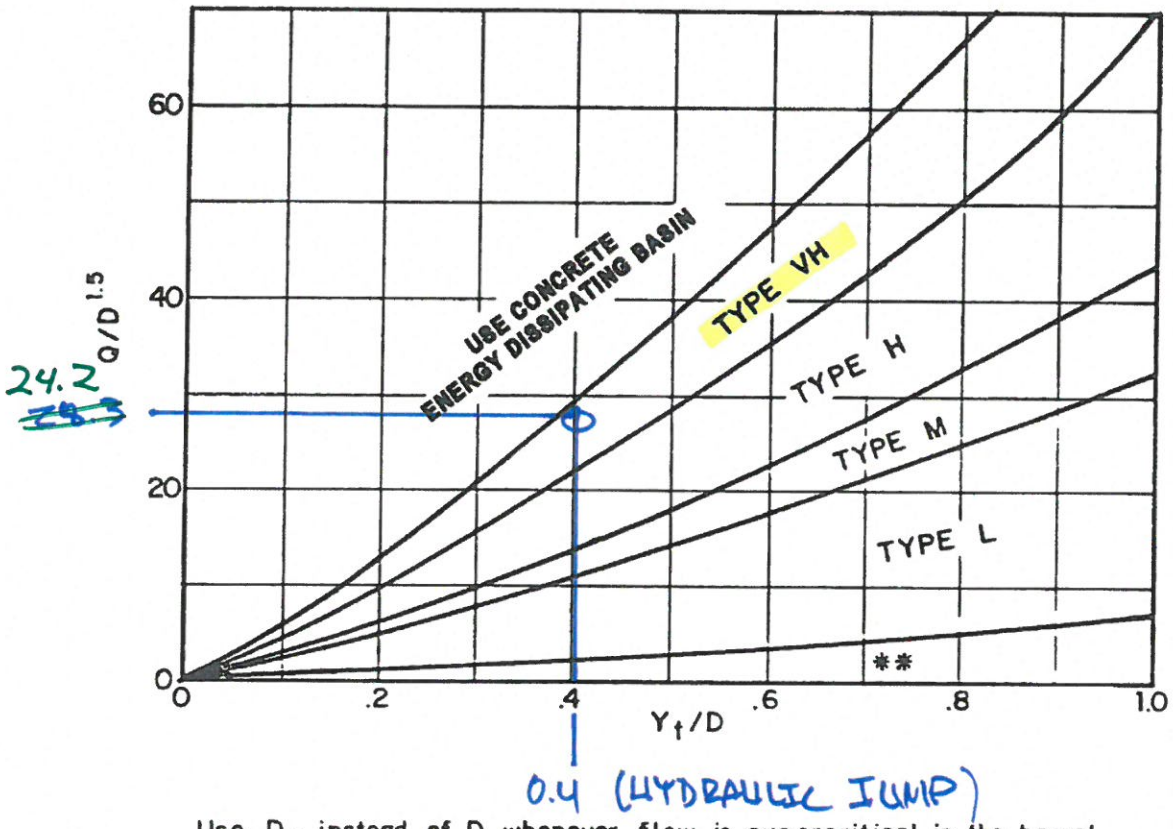


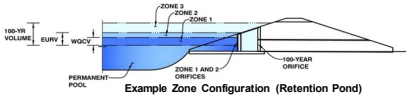
Figure 9-38. Riprap erosion protection at circular conduit outlet (valid for $Q/D_{2.5} \leq 6.0$)

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

UD-Detention, Version 3.07 (February 2017)

Project: Cielo Subdivision

Basin ID: Pond A - Bottom elev = 6033.77



Example Zone Configuration (Retention Pond)

Required Volume Calculation

Selected BMP Type =	EDB	
Watershed Area =	112.93	acres
Watershed Length =	3,000	ft
Watershed Slope =	0.027	ft/ft
Watershed Imperviousness =	20.80%	percent
Percentage Hydrologic Soil Group A =	0.0%	percent
Percentage Hydrologic Soil Group B =	50.0%	percent
Percentage Hydrologic Soil Groups C/D =	50.0%	percent
Desired WQCV Drain Time =	40.0	hours
Location for 1-hr Rainfall Depths =	User Input	
Water Quality Capture Volume (WQCV) =	1.119	acre-feet
Excess Urban Runoff Volume (EURV) =	2.206	acre-feet
2-yr Runoff Volume (P1 = 1.06 in.) =	1.600	acre-feet
5-yr Runoff Volume (P1 = 1.43 in.) =	2.829	acre-feet
10-yr Runoff Volume (P1 = 1.66 in.) =	4.596	acre-feet
25-yr Runoff Volume (P1 = 1.98 in.) =	8.805	acre-feet
50-yr Runoff Volume (P1 = 2.26 in.) =	11.640	acre-feet
100-yr Runoff Volume (P1 = 2.6 in.) =	15.545	acre-feet
500-yr Runoff Volume (P1 = 3.25 in.) =	22.560	acre-feet
Approximate 2-yr Detention Volume =	1.495	acre-feet
Approximate 5-yr Detention Volume =	2.667	acre-feet
Approximate 10-yr Detention Volume =	3.632	acre-feet
Approximate 25-yr Detention Volume =	4.523	acre-feet
Approximate 50-yr Detention Volume =	4.828	acre-feet
Approximate 100-yr Detention Volume =	6.216	acre-feet

Optional User Override 1-hr Precipitation	
1.06	inches
1.43	inches
1.66	inches
1.98	inches
2.26	inches
2.60	inches
3.25	inches

Stage-Storage Calculation

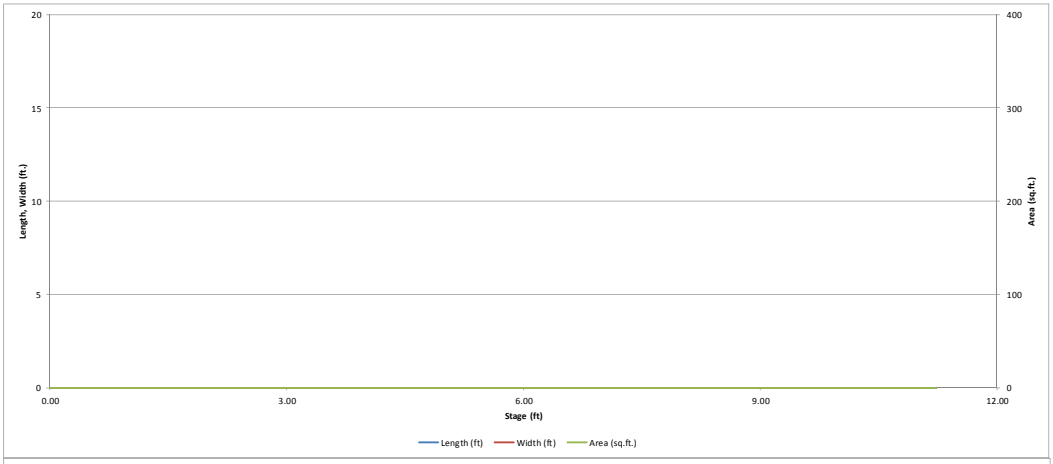
Zone 1 Volume (WQCV) =	1.119	acre-feet
Zone 2 Volume (EURV - Zone 1) =	1.087	acre-feet
Zone 3 Volume (100-year - Zones 1 & 2) =	4.010	acre-feet
Total Detention Basin Volume =	6.216	acre-feet
Initial Surcharge Volume (ISV) =	user	ft^3
Initial Surcharge Depth (ISD) =	user	ft
Total Available Detention Depth (H_{total}) =	user	ft
Depth of Trickle Channel (H_{TC}) =	user	ft
Slope of Trickle Channel (S_{TC}) =	user	ft/ft
Slopes of Main Basin Sides (S_{main}) =	user	H:V
Basin Length-to-Width Ratio ($R_{L/W}$) =	user	
Initial Surcharge Area (A_{ISV}) =	user	ft^2
Surcharge Volume Length (L_{ISV}) =	user	ft
Surcharge Volume Width (W_{ISV}) =	user	ft
Depth of Basin Floor (H_{FLOOR}) =	user	ft
Length of Basin Floor (L_{FLOOR}) =	user	ft
Width of Basin Floor (W_{FLOOR}) =	user	ft
Area of Basin Floor (A_{FLOOR}) =	user	ft^2
Volume of Basin Floor (V_{FLOOR}) =	user	ft^3
Depth of Main Basin (H_{MAIN}) =	user	ft
Length of Main Basin (L_{MAIN}) =	user	ft
Width of Main Basin (W_{MAIN}) =	user	ft
Area of Main Basin (A_{MAIN}) =	user	ft^2
Volume of Main Basin (V_{MAIN}) =	user	ft^3
Calculated Total Basin Volume (V_{total}) =	user	acre-feet

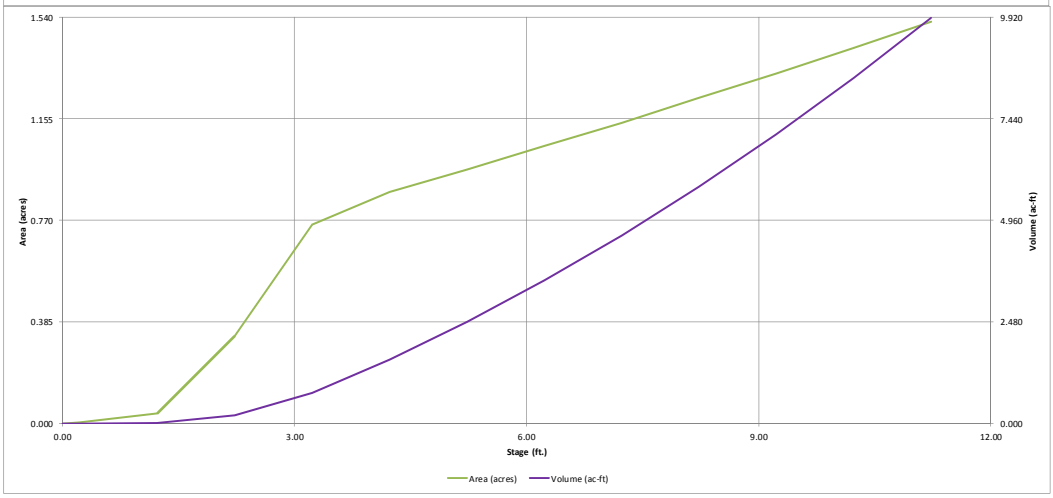
Depth Increment = ft

Stage - Storage Description	Stage (ft)	Optional Override Stage (ft)	Length (ft)	Width (ft)	Area (ft^2)	Optional Override Area (ft^2)	Area (acre)	Volume (ft^3)	Volume (ac-ft)
Top of Micropool	--	0.00	--	--	--	10	0.000		
6034	--	0.23	--	--	--	158	0.004	18	0.000
6035	--	1.23	--	--	--	1,727	0.040	945	0.022
6036	--	2.23	--	--	--	14,464	0.332	9,057	0.208
6037	--	3.23	--	--	--	32,805	0.753	32,692	0.750
6038	--	4.23	--	--	--	38,244	0.878	68,216	1.566
6039	--	5.23	--	--	--	41,935	0.963	108,306	2.486
6040	--	6.23	--	--	--	45,775	1.051	152,161	3.493
6041	--	7.23	--	--	--	49,643	1.140	199,870	4.588
6042	--	8.23	--	--	--	53,687	1.232	251,535	5.774
6043	--	9.23	--	--	--	57,751	1.326	307,254	7.054
6044	--	10.23	--	--	--	62,001	1.423	367,130	8.428
6045	--	11.23	--	--	--	66,286	1.522	431,273	9.901

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

UD-Detention, Version 3.07 (February 2017)



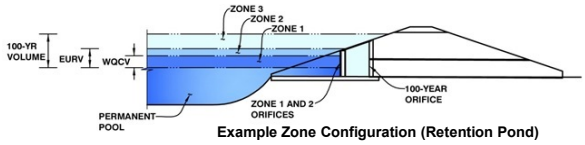


Detention Basin Outlet Structure Design

UD-Detention, Version 3.07 (February 2017)

Project: Cielo Subdivision

Basin ID: Pond A - Bottom elev. = 6033.77



Example Zone Configuration (Retention Pond)

	Stage (ft)	Zone Volume (ac-ft)	Outlet Type
Zone 1 (WQCV)	3.71	1.119	Orifice Plate
Zone 2 (EURV)	4.94	1.087	Orifice Plate
Zone 3 (100-year)	8.59	4.010	Weir&Pipe (Restrict)
		6.216	Total

User Input: Orifice at Underdrain Outlet (typically used to drain WQCV in a Filtration BMP)

Underdrain Orifice Invert Depth =	N/A	ft (distance below the filtration media surface)
Underdrain Orifice Diameter =	N/A	inches

Calculated Parameters for Underdrain

Underdrain Orifice Area =	N/A	ft^2
Underdrain Orifice Centroid =	N/A	feet

User Input: Orifice Plate with one or more orifices or Elliptical Slot Weir (typically used to drain WQCV and/or EURV in a sedimentation BMP)

Invert of Lowest Orifice =	0.00	ft (relative to basin bottom at Stage = 0 ft)
Depth at top of Zone using Orifice Plate =	5.00	ft (relative to basin bottom at Stage = 0 ft)
Orifice Plate: Orifice Vertical Spacing =	N/A	inches
Orifice Plate: Orifice Area per Row =	N/A	inches

Calculated Parameters for Plate

WQ Orifice Area per Row =	N/A	ft^2
Elliptical Half-Width =	N/A	feet
Elliptical Slot Centroid =	N/A	feet
Elliptical Slot Area =	N/A	ft^2

User Input: Stage and Total Area of Each Orifice Row (numbered from lowest to highest)

	Row 1 (required)	Row 2 (optional)	Row 3 (optional)	Row 4 (optional)	Row 5 (optional)	Row 6 (optional)	Row 7 (optional)	Row 8 (optional)
Stage of Orifice Centroid (ft)	0.00	1.73	3.48					
Orifice Area (sq. inches)	3.98	3.98	3.98					

	Row 9 (optional)	Row 10 (optional)	Row 11 (optional)	Row 12 (optional)	Row 13 (optional)	Row 14 (optional)	Row 15 (optional)	Row 16 (optional)
Stage of Orifice Centroid (ft)								
Orifice Area (sq. inches)								

User Input: Vertical Orifice (Circular or Rectangular)

	Not Selected	Not Selected	
Invert of Vertical Orifice =	N/A	N/A	ft (relative to basin bottom at Stage = 0 ft)
Depth at top of Zone using Vertical Orifice =	N/A	N/A	ft (relative to basin bottom at Stage = 0 ft)
Vertical Orifice Diameter =	N/A	N/A	inches

Calculated Parameters for Vertical Orifice

	Not Selected	Not Selected	
Vertical Orifice Area =	N/A	N/A	ft^2
Vertical Orifice Centroid =	N/A	N/A	feet

User Input: Overflow Weir (Dropbox) and Grate (Flat or Sloped)

	Zone 3 Weir	Not Selected	
Overflow Weir Front Edge Height, Ho =	6.23	N/A	ft (relative to basin bottom at Stage = 0 ft)
Overflow Weir Front Edge Length =	20.00	N/A	feet
Overflow Weir Slope =	0.00	N/A	H:V (enter zero for flat grate)
Horiz. Length of Weir Sides =	5.66	N/A	feet
Overflow Grate Open Area % =	70%	N/A	%, grate open area/total area
Debris Clogging % =	50%	N/A	%

Calculated Parameters for Overflow Weir

	Zone 3 Weir	Not Selected	
Height of Grate Upper Edge, H_t =	6.23	N/A	feet
Over Flow Weir Slope Length =	5.66	N/A	feet
Grate Open Area / 100-yr Orifice Area =	8.60	N/A	should be ≥ 4
Overflow Grate Open Area w/o Debris =	79.24	N/A	ft^2
Overflow Grate Open Area w/ Debris =	39.62	N/A	ft^2

User Input: Outlet Pipe w/ Flow Restriction Plate (Circular Orifice, Restrictor Plate, or Rectangular Orifice)

	Zone 3 Restrictor	Not Selected	
Depth to Invert of Outlet Pipe =	2.50	N/A	ft (distance below basin bottom at Stage = 0 ft)
Outlet Pipe Diameter =	48.00	N/A	inches
Restrictor Plate Height Above Pipe Invert =	33.00		inches

Calculated Parameters for Outlet Pipe w/ Flow Restriction Plate

	Zone 3 Restrictor	Not Selected	
Outlet Orifice Area =	9.21	N/A	ft^2
Outlet Orifice Centroid =	1.54	N/A	feet
Half-Central Angle of Restrictor Plate on Pipe =	1.96	N/A	radians

User Input: Emergency Spillway (Rectangular or Trapezoidal)

Spillway Invert Stage=	9.23	ft (relative to basin bottom at Stage = 0 ft)
Spillway Crest Length =	90.00	feet
Spillway End Slopes =	4.00	H:V
Freeboard above Max Water Surface =	1.00	feet

Calculated Parameters for Spillway

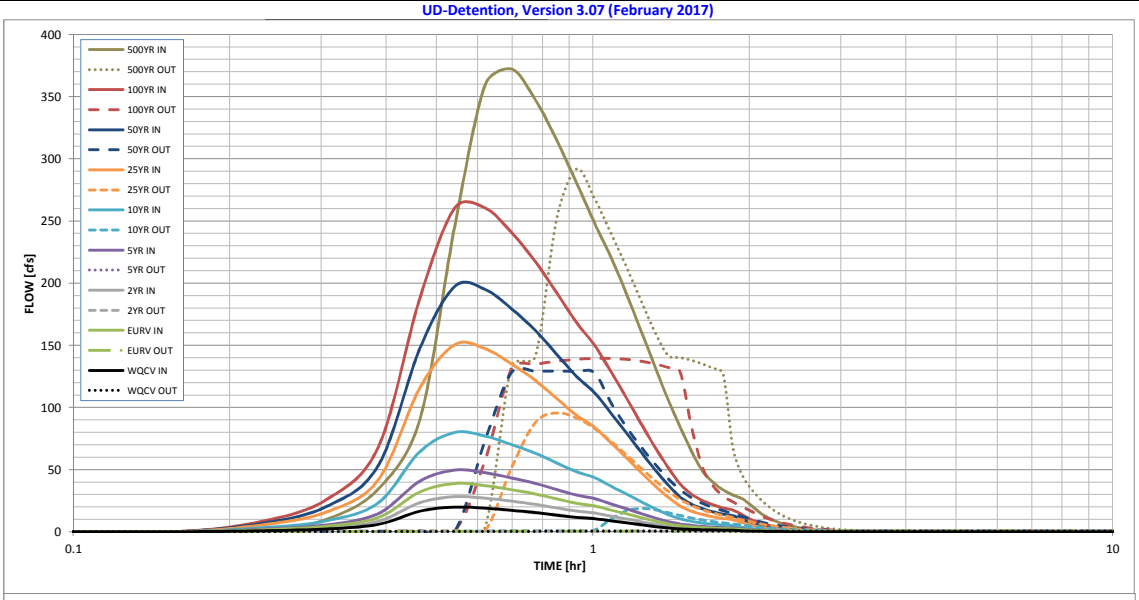
Spillway Design Flow Depth=	0.95	feet
Stage at Top of Freeboard =	11.18	feet
Basin Area at Top of Freeboard =	1.52	acres

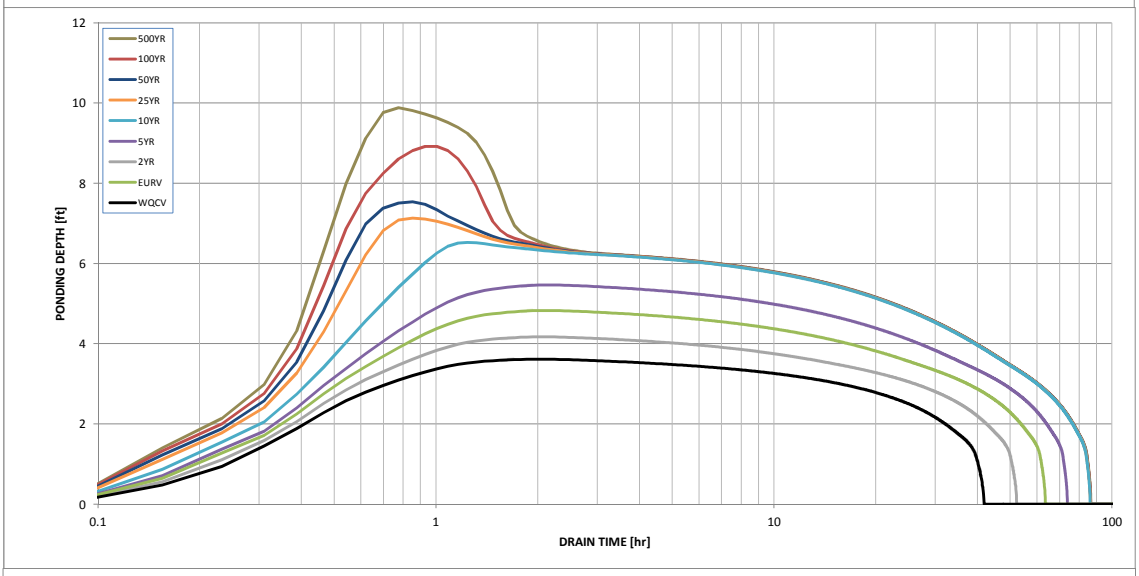
Routed Hydrograph Results

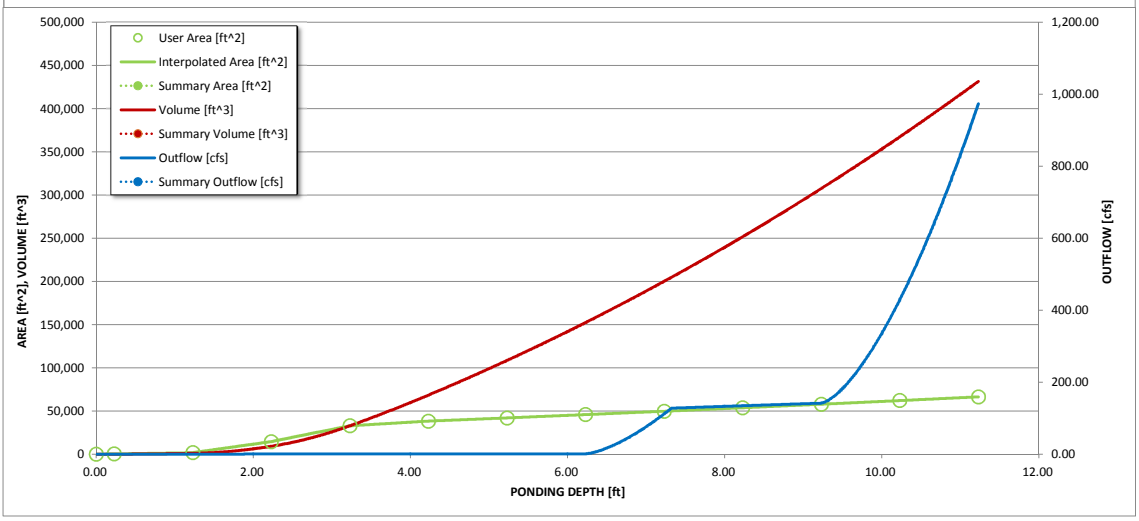
Design Storm Return Period =	WQCV	EURV	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year	500 Year
One-Hour Rainfall Depth (in) =	0.53	1.07	1.06	1.43	1.66	1.98	2.26	2.60	3.25
Calculated Runoff Volume (acre-ft) =	1.119	2.206	1.600	2.829	4.596	8.805	11.640	15.545	22.560
OPTIONAL Override Runoff Volume (acre-ft) =									
Inflow Hydrograph Volume (acre-ft) =	1.119	2.206	1.600	2.828	4.595	8.796	11.637	15.539	22.560
Predevelopment Unit Peak Flow, q (cfs/acre) =	0.00	0.00	0.01	0.08	0.28	0.78	1.07	1.45	2.12
Predevelopment Peak Q (cfs) =	0.0	0.0	1.5	8.5	31.8	88.3	120.8	163.7	239.7
Peak Inflow Q (cfs) =	19.8	38.8	28.3	49.6	79.9	150.4	197.3	260.6	372.2
Peak Outflow Q (cfs) =	0.5	0.7	0.6	0.8	18.8	95.6	129.3	139.4	291.7
Ratio Peak Outflow to Predevelopment Q =	N/A	N/A	N/A	0.1	0.6	1.1	1.1	0.9	1.2
Structure Controlling Flow =	Plate	Plate	Plate	Plate	Overflow Grate 1	Overflow Grate 1	Outlet Plate 1	Outlet Plate 1	Spillway
Max Velocity through Grate 1 (fps) =	N/A	N/A	N/A	N/A	0.2	1.2	1.6	1.7	1.8
Max Velocity through Grate 2 (fps) =	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Time to Drain 97% of Inflow Volume (hours) =	39	58	48	67	77	72	68	64	58
Time to Drain 99% of Inflow Volume (hours) =	**41**	61	51	71	82	79	78	76	73
Maximum Ponding Depth (ft) =	3.62	4.83	4.17	5.46	6.53	7.13	7.53	8.92	9.88
Area at Maximum Ponding Depth (acres) =	0.80	0.93	0.87	0.98	1.08	1.13	1.17	1.30	1.39
Maximum Volume Stored (acre-ft) =	1.046	2.099	1.514	2.710	3.802	4.475	4.934	6.634	7.936

Detention Basin Outlet Structure Design

UD-Detention, Version 3.07 (February 2017)







S-A-V-D Chart Axis Override	X-axis	Left Y-Axis	Right Y-Axis
minimum bound			
maximum bound			

Detention Basin Outlet Structure Design

Outflow Hydrograph Workbook Filename:

Storm Inflow Hydrographs **UD-Detention, Version 3.07 (February 2017)**

The user can override the calculated inflow hydrographs from this workbook with inflow hydrographs developed in a separate program.

Time Interval	SOURCE	WORKBOOK	WORKBOOK	WORKBOOK	WORKBOOK	WORKBOOK	WORKBOOK	WORKBOOK	WORKBOOK	WORKBOOK
	TIME	WQCV [cfs]	EURV [cfs]	2 Year [cfs]	5 Year [cfs]	10 Year [cfs]	25 Year [cfs]	50 Year [cfs]	100 Year [cfs]	500 Year [cfs]
4.65 min	0:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0:04:39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydrograph	0:09:18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	0:13:57	0.87	1.66	1.22	2.11	3.29	5.66	7.02	8.65	10.66
1.075	0:18:36	2.35	4.55	3.33	5.79	9.17	16.49	21.03	26.83	34.86
	0:23:15	6.04	11.68	8.55	14.86	23.54	42.36	54.04	69.03	90.47
	0:27:54	16.59	32.07	23.48	40.77	64.54	115.85	147.56	188.11	245.74
	0:32:33	19.85	38.81	28.26	49.58	79.89	150.44	197.26	260.39	358.93
	0:37:12	18.97	37.18	27.04	47.55	76.99	147.26	195.00	260.59	372.24
	0:41:51	17.27	33.84	24.61	43.27	70.17	135.05	179.43	240.76	347.56
	0:46:30	15.47	30.40	22.08	38.92	63.23	121.84	161.98	217.46	314.76
	0:51:09	13.40	26.45	19.17	33.94	55.35	107.18	142.81	192.17	281.00
	0:55:48	11.66	23.00	16.65	29.56	48.34	93.84	125.11	168.44	248.48
	1:00:27	10.57	20.84	15.10	26.75	43.61	84.17	111.91	150.19	220.40
	1:05:06	8.77	17.39	12.57	22.35	36.59	71.28	95.25	128.55	190.66
	1:09:45	7.19	14.35	10.35	18.48	30.33	59.28	79.30	107.14	161.00
	1:14:24	5.59	11.27	8.09	14.56	24.07	47.53	63.86	86.70	132.84
	1:19:03	4.21	8.60	6.13	11.17	18.62	37.06	49.94	68.03	106.84
	1:23:42	3.05	6.34	4.49	8.28	13.93	28.03	37.91	51.94	84.37
	1:28:21	2.35	4.81	3.42	6.25	10.43	20.76	27.95	38.46	64.54
	1:33:00	1.92	3.90	2.79	5.06	8.38	16.49	22.11	30.16	48.73
	1:37:39	1.63	3.29	2.36	4.26	7.05	13.82	18.50	25.12	39.60
	1:42:18	1.43	2.88	2.06	3.72	6.13	11.97	15.98	21.63	33.69
	1:46:57	1.28	2.58	1.85	3.33	5.48	10.66	14.22	19.20	29.60
	1:51:36	1.18	2.37	1.70	3.05	5.01	9.74	12.96	17.47	26.67
	1:56:15	0.87	1.75	1.25	2.26	3.75	7.44	10.03	13.73	21.48
	2:00:54	0.63	1.27	0.92	1.64	2.71	5.36	7.22	9.90	15.70
	2:05:33	0.47	0.94	0.67	1.21	2.01	3.98	5.37	7.33	11.45
	2:10:12	0.34	0.70	0.50	0.90	1.49	2.96	3.98	5.44	8.56
	2:14:51	0.25	0.50	0.36	0.66	1.09	2.18	2.95	4.03	6.40
	2:19:30	0.18	0.36	0.26	0.47	0.79	1.58	2.14	2.93	4.74
	2:24:09	0.13	0.26	0.19	0.34	0.57	1.14	1.54	2.12	3.46
	2:28:48	0.08	0.18	0.13	0.24	0.40	0.81	1.10	1.52	2.57
	2:33:27	0.05	0.11	0.08	0.15	0.26	0.54	0.73	1.02	1.82
	2:38:06	0.03	0.06	0.04	0.08	0.15	0.32	0.44	0.63	1.20
	2:42:45	0.01	0.03	0.02	0.04	0.07	0.16	0.22	0.32	0.71
	2:47:24	0.00	0.01	0.00	0.01	0.02	0.05	0.07	0.12	0.35
	2:52:03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.11
	2:56:42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:01:21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:06:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:10:39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:15:18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:19:57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:24:36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:29:15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:33:54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:38:33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:43:12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:47:51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:52:30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:57:09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:01:48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:06:27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:11:06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:15:45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:20:24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:25:03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:29:42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:34:21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:39:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:43:39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:48:18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:52:57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:57:36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:02:15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:06:54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:11:33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:16:12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:20:51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:25:30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:30:09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:34:48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Detention Basin Outlet Structure Design

UD-Detention, Version 3.07 (February 2017)

Summary Stage-Area-Volume-Discharge Relationships

The user can create a summary S-A-V-D by entering the desired stage increments and the remainder of the table will populate automatically.

The user should graphically compare the summary S-A-V-D table to the full S-A-V-D table in the chart to confirm it captures all key transition points.

Stage - Storage Description	Stage [ft]	Area [ft^2]	Area [acres]	Volume [ft^3]	Volume [ac-ft]	Total Outflow [cfs]

Stormwater Detention and Infiltration Design Data Sheet

Workbook Protected Worksheet Protected

Stormwater Facility Name: Cielo Subdivision

Facility Location & Jurisdiction: Pond A

User Input: Watershed Characteristics

Watershed Slope =	0.027	ft/ft
Watershed Length =	3000	ft
Watershed Area =	112.93	acres
Watershed Imperviousness =	20.8%	percent
Percentage Hydrologic Soil Group A =	0.0%	percent
Percentage Hydrologic Soil Group B =	50.0%	percent
Percentage Hydrologic Soil Groups C/D =	50.0%	percent

Location for 1-hr Rainfall Depths (use dropdown):

User Input

WQCV Treatment Method = Extended Detention

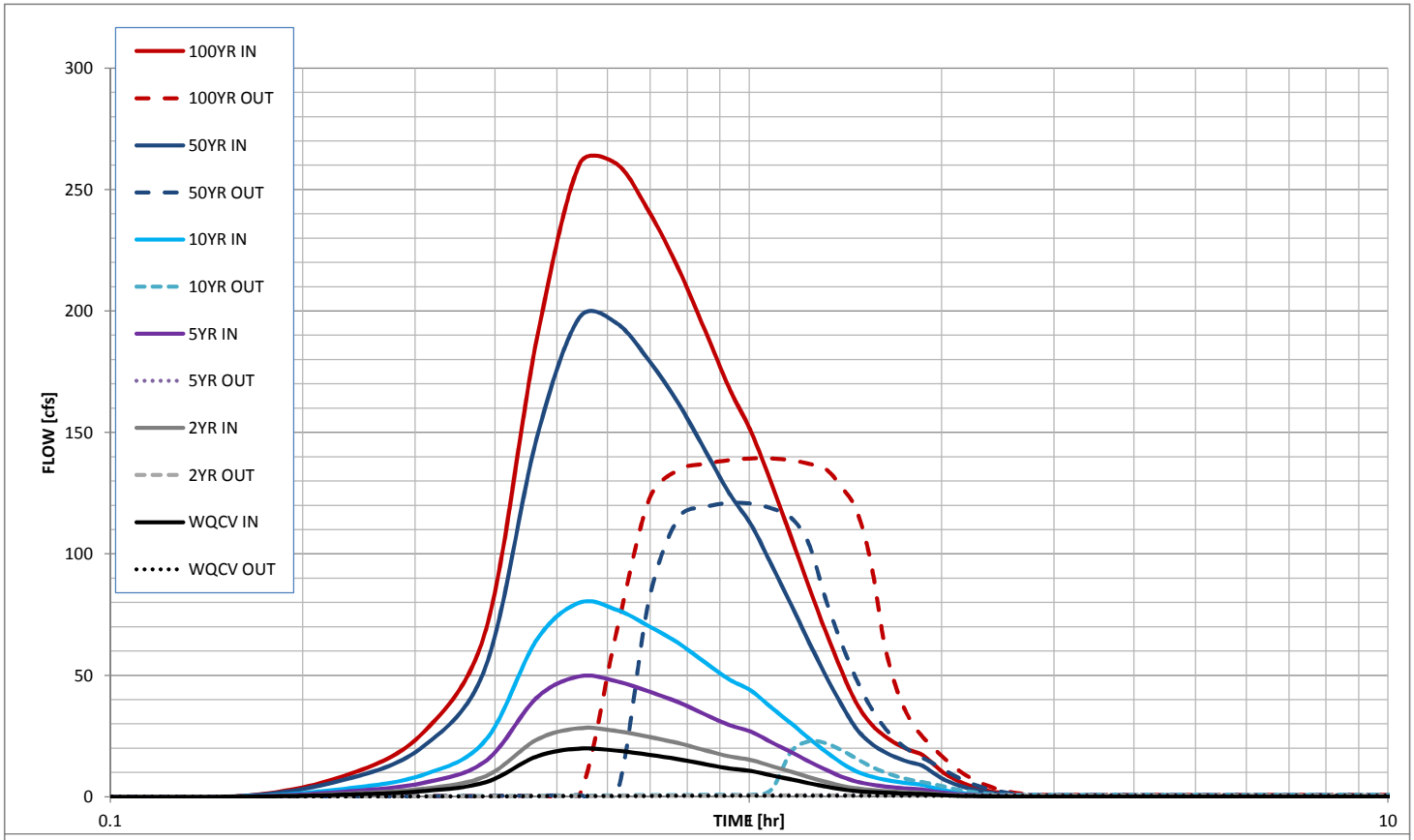
User Defined Stage [ft]	User Defined Area [ft^2]	User Defined Stage [ft]	User Defined Discharge [cfs]
0.00	10	0.00	0.00
0.23	158	0.23	0.06
1.23	1,727	1.23	0.15
2.23	14,464	2.23	0.29
3.23	32,805	3.23	0.40
4.23	38,244	4.23	0.60
5.23	41,935	5.23	0.73
6.23	45,775	6.23	0.84
7.23	49,643	7.23	111.58
8.23	53,687	8.23	134.46
9.23	57,751	9.23	141.59
10.23	62,001	10.23	427.97
11.23	66,286	11.23	972.84

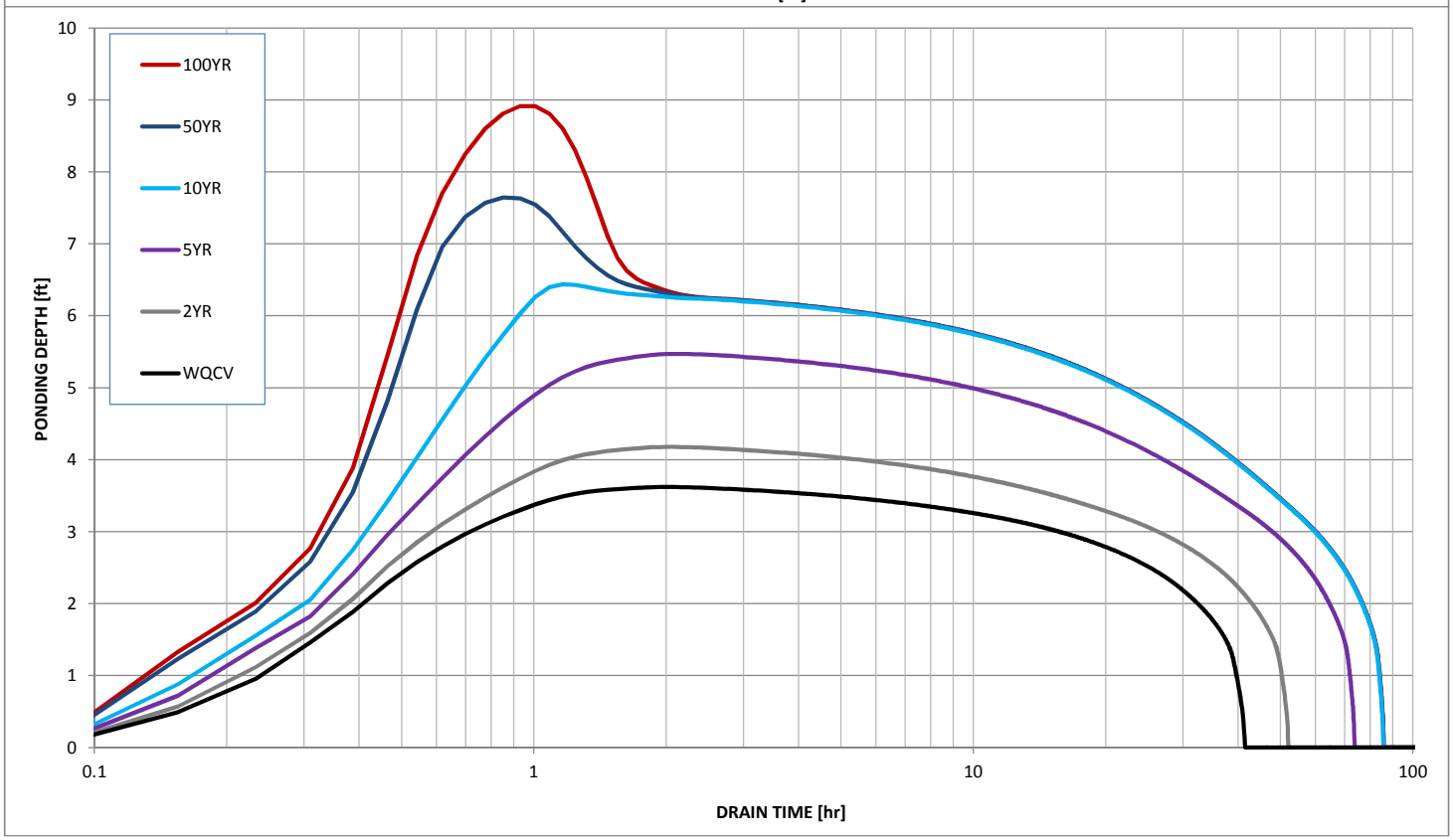
After completing and printing this worksheet to a pdf, go to:
https://maperture.digitaldataservices.com/gvh/?viewer=cswdif
create a new stormwater facility, and
attach the pdf of this worksheet to that record.

Routed Hydrograph Results

Design Storm Return Period =	WQCV	2 Year	5 Year	10 Year	50 Year	100 Year	
One-Hour Rainfall Depth =	0.53	1.06	1.43	1.66	2.26	2.60	in
Calculated Runoff Volume =	1.119	1.600	2.829	4.596	11.640	15.545	acre-ft
OPTIONAL Override Runoff Volume =							acre-ft
Inflow Hydrograph Volume =	1.119	1.600	2.828	4.595	11.638	15.539	acre-ft
Time to Drain 97% of Inflow Volume =	38.2	47.9	**67.3**	76.6	68.2	64.1	hours
Time to Drain 99% of Inflow Volume =	40.0	50.1	70.8	81.5	77.8	**76.0**	hours
Maximum Ponding Depth =	3.62	4.18	5.47	6.44	7.64	8.91	ft
Maximum Ponded Area =	0.80	0.87	0.98	1.07	1.18	**1.30**	acres
Maximum Volume Stored =	1.043	1.507	2.707	3.699	5.053	6.629	acre-ft

Stormwater Detention and Infiltration Design Data Sheet



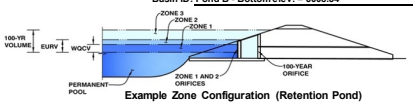


DETENTION BASIN STAGE-STORAGE TABLE BUILDER

UD-Detention, Version 3.07 (February 2017)

Project: Cielo Subdivision

Basin ID: Pond B - Bottom elev. = 6008.54



Example Zone Configuration (Retention Pond)

Required Volume Calculation

Selected BMP Type =	EDB	
Watershed Area =	34.37	acres
Watershed Length =	1,700	ft
Watershed Slope =	0.030	ft/ft
Watershed Imperviousness =	48.70%	percent
Percentage Hydrologic Soil Group A =	0.0%	percent
Percentage Hydrologic Soil Group B =	80.0%	percent
Percentage Hydrologic Soil Groups C/D =	20.0%	percent
Desired WQCV Drain Time =	40.0	hours
Location for 1-hr Rainfall Depths =	User Input	
Water Quality Capture Volume (WQCV) =	0.581	acre-feet
Excess Urban Runoff Volume (EURV) =	1.745	acre-feet
2-yr Runoff Volume (P1 = 1.06 in.) =	1.288	acre-feet
5-yr Runoff Volume (P1 = 1.43 in.) =	1.921	acre-feet
10-yr Runoff Volume (P1 = 1.66 in.) =	2.571	acre-feet
25-yr Runoff Volume (P1 = 1.98 in.) =	3.756	acre-feet
50-yr Runoff Volume (P1 = 2.26 in.) =	4.576	acre-feet
100-yr Runoff Volume (P1 = 2.6 in.) =	5.721	acre-feet
500-yr Runoff Volume (P1 = 3.25 in.) =	7.824	acre-feet
Approximate 2-yr Detention Volume =	1.206	acre-feet
Approximate 5-yr Detention Volume =	1.806	acre-feet
Approximate 10-yr Detention Volume =	2.315	acre-feet
Approximate 25-yr Detention Volume =	2.644	acre-feet
Approximate 50-yr Detention Volume =	2.801	acre-feet
Approximate 100-yr Detention Volume =	3.233	acre-feet

Optional User Override 1-hr Precipitation	
1.06	inches
1.43	inches
1.66	inches
1.98	inches
2.26	inches
2.60	inches
3.25	inches

Stage-Storage Calculation

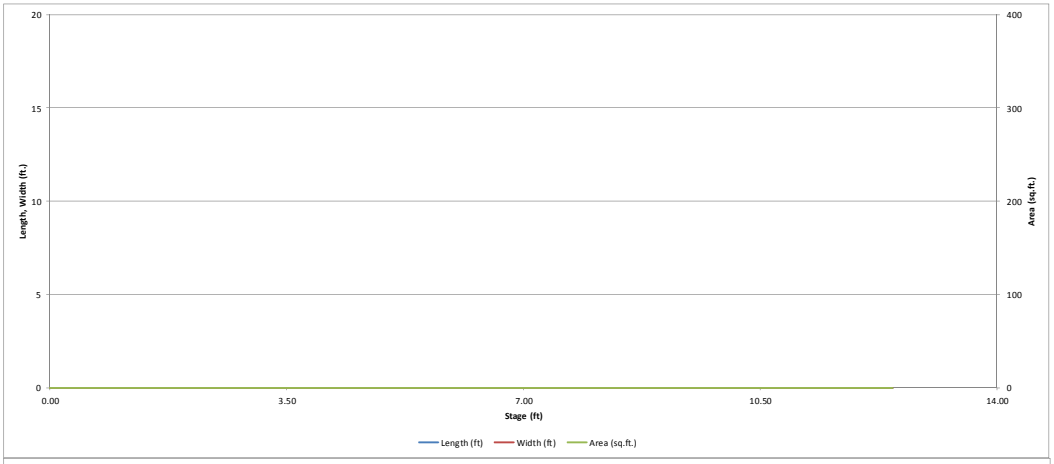
Zone 1 Volume (WQCV) =	0.581	acre-feet
Zone 2 Volume (EURV - Zone 1) =	1.164	acre-feet
Zone 3 Volume (100-year - Zones 1 & 2) =	1.489	acre-feet
Total Detention Basin Volume =	3.233	acre-feet
Initial Surcharge Volume (ISV) =	user	ft^3
Initial Surcharge Depth (ISD) =	user	ft
Total Available Detention Depth (H_{total}) =	user	ft
Depth of Trickle Channel (H_{TC}) =	user	ft
Slope of Trickle Channel (S_{TC}) =	user	ft/ft
Slopes of Main Basin Sides (S_{main}) =	user	H:V
Basin Length-to-Width Ratio ($R_{L/W}$) =	user	
Initial Surcharge Area (A_{ISV}) =	user	ft^2
Surcharge Volume Length (L_{ISV}) =	user	ft
Surcharge Volume Width (W_{ISV}) =	user	ft
Depth of Basin Floor (H_{FLOOR}) =	user	ft
Length of Basin Floor (L_{FLOOR}) =	user	ft
Width of Basin Floor (W_{FLOOR}) =	user	ft
Area of Basin Floor (A_{FLOOR}) =	user	ft^2
Volume of Basin Floor (V_{FLOOR}) =	user	ft^3
Depth of Main Basin (H_{MAIN}) =	user	ft
Length of Main Basin (L_{MAIN}) =	user	ft
Width of Main Basin (W_{MAIN}) =	user	ft
Area of Main Basin (A_{MAIN}) =	user	ft^2
Volume of Main Basin (V_{MAIN}) =	user	ft^3
Calculated Total Basin Volume (V_{total}) =	user	acre-feet

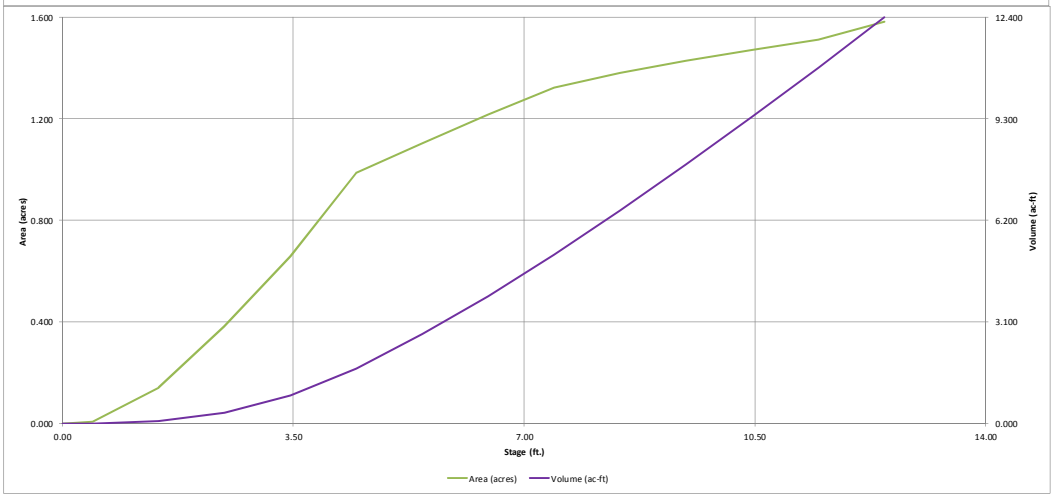
Depth Increment = ft

Stage - Storage Description	Stage (ft)	Optional Override Stage (ft)	Length (ft)	Width (ft)	Area (ft^2)	Optional Override Area (ft^2)	Area (acre)	Volume (ft^3)	Volume (ac-ft)
Top of Micropool	--	0.00	--	--	--	10	0.000		
6009	--	0.46	--	--	--	351	0.008	80	0.002
6010	--	1.46	--	--	--	6,145	0.141	3,270	0.075
6011	--	2.46	--	--	--	16,683	0.383	14,745	0.338
6012	--	3.46	--	--	--	28,674	0.658	37,423	0.859
6013	--	4.46	--	--	--	42,964	0.986	73,242	1.681
6014	--	5.46	--	--	--	47,986	1.102	118,717	2.725
6015	--	6.46	--	--	--	53,003	1.217	169,212	3.885
6016	--	7.46	--	--	--	57,574	1.322	224,500	5.154
6017	--	8.46	--	--	--	60,148	1.381	283,361	6.505
6018	--	9.46	--	--	--	62,187	1.428	344,529	7.909
6019	--	10.46	--	--	--	64,042	1.470	407,643	9.358
6020	--	11.46	--	--	--	65,858	1.512	472,593	10.849
6021	--	12.46	--	--	--	68,889	1.581	539,967	12.396

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

UD-Detention, Version 3.07 (February 2017)



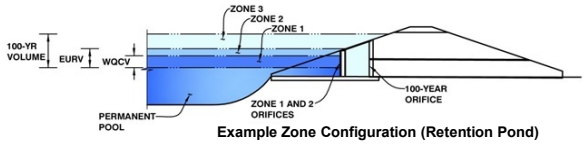


Detention Basin Outlet Structure Design

UD-Detention, Version 3.07 (February 2017)

Project: Cielo Subdivision

Basin ID: Pond B - Bottom elev. = 6008.54



Example Zone Configuration (Retention Pond)

	Stage (ft)	Zone Volume (ac-ft)	Outlet Type
Zone 1 (WQCV)	3.00	0.581	Orifice Plate
Zone 2 (EURV)	4.53	1.164	Orifice Plate
Zone 3 (100-year)	5.92	1.489	Weir&Pipe (Restrict)
		3.233	Total

User Input: Orifice at Underdrain Outlet (typically used to drain WQCV in a Filtration BMP)

Underdrain Orifice Invert Depth =	N/A	ft (distance below the filtration media surface)	
Underdrain Orifice Diameter =	N/A	inches	

Calculated Parameters for Underdrain

Underdrain Orifice Area =	N/A	ft^2
Underdrain Orifice Centroid =	N/A	feet

User Input: Orifice Plate with one or more orifices or Elliptical Slot Weir (typically used to drain WQCV and/or EURV in a sedimentation BMP)

Invert of Lowest Orifice =	0.00	ft (relative to basin bottom at Stage = 0 ft)
Depth at top of Zone using Orifice Plate =	4.53	ft (relative to basin bottom at Stage = 0 ft)
Orifice Plate: Orifice Vertical Spacing =	N/A	inches
Orifice Plate: Orifice Area per Row =	N/A	inches

Calculated Parameters for Plate

WQ Orifice Area per Row =	N/A	ft^2
Elliptical Half-Width =	N/A	feet
Elliptical Slot Centroid =	N/A	feet
Elliptical Slot Area =	N/A	ft^2

User Input: Stage and Total Area of Each Orifice Row (numbered from lowest to highest)

	Row 1 (required)	Row 2 (optional)	Row 3 (optional)	Row 4 (optional)	Row 5 (optional)	Row 6 (optional)	Row 7 (optional)	Row 8 (optional)
Stage of Orifice Centroid (ft)	0.00	1.46	2.96					
Orifice Area (sq. inches)	2.41	2.41	12.57					

	Row 9 (optional)	Row 10 (optional)	Row 11 (optional)	Row 12 (optional)	Row 13 (optional)	Row 14 (optional)	Row 15 (optional)	Row 16 (optional)
Stage of Orifice Centroid (ft)								
Orifice Area (sq. inches)								

User Input: Vertical Orifice (Circular or Rectangular)

	Not Selected	Not Selected	
Invert of Vertical Orifice =	N/A	N/A	ft (relative to basin bottom at Stage = 0 ft)
Depth at top of Zone using Vertical Orifice =	N/A	N/A	ft (relative to basin bottom at Stage = 0 ft)
Vertical Orifice Diameter =	N/A	N/A	inches

Calculated Parameters for Vertical Orifice

	Not Selected	Not Selected	
Vertical Orifice Area =	N/A	N/A	ft^2
Vertical Orifice Centroid =	N/A	N/A	feet

User Input: Overflow Weir (Dropbox) and Grate (Flat or Sloped)

	Zone 3 Weir	Not Selected	
Overflow Weir Front Edge Height, Ho =	4.54	N/A	ft (relative to basin bottom at Stage = 0 ft)
Overflow Weir Front Edge Length =	22.66	N/A	feet
Overflow Weir Slope =	0.00	N/A	H:V (enter zero for flat grate)
Horiz. Length of Weir Sides =	2.92	N/A	feet
Overflow Grate Open Area % =	70%	N/A	%, grate open area/total area
Debris Clogging % =	50%	N/A	%

Calculated Parameters for Overflow Weir

	Zone 3 Weir	Not Selected	
Height of Grate Upper Edge, H_t =	4.54	N/A	feet
Over Flow Weir Slope Length =	2.92	N/A	feet
Grate Open Area / 100-yr Orifice Area =	119.04	N/A	should be ≥ 4
Overflow Grate Open Area w/o Debris =	46.32	N/A	ft^2
Overflow Grate Open Area w/ Debris =	23.16	N/A	ft^2

User Input: Outlet Pipe w/ Flow Restriction Plate (Circular Orifice, Restrictor Plate, or Rectangular Orifice)

	Zone 3 Restrictor	Not Selected	
Depth to Invert of Outlet Pipe =	10.92	N/A	ft (distance below basin bottom at Stage = 0 ft)
Outlet Pipe Diameter =	30.00	N/A	inches
Restrictor Plate Height Above Pipe Invert =	4.00		inches

Calculated Parameters for Outlet Pipe w/ Flow Restriction Plate

	Zone 3 Restrictor	Not Selected	
Outlet Orifice Area =	0.39	N/A	ft^2
Outlet Orifice Centroid =	0.20	N/A	feet
Half-Central Angle of Restrictor Plate on Pipe =	0.75	N/A	radians

User Input: Emergency Spillway (Rectangular or Trapezoidal)

Spillway Invert Stage=	11.46	ft (relative to basin bottom at Stage = 0 ft)
Spillway Crest Length =	75.00	feet
Spillway End Slopes =	4.00	H:V
Freeboard above Max Water Surface =	1.00	feet

Calculated Parameters for Spillway

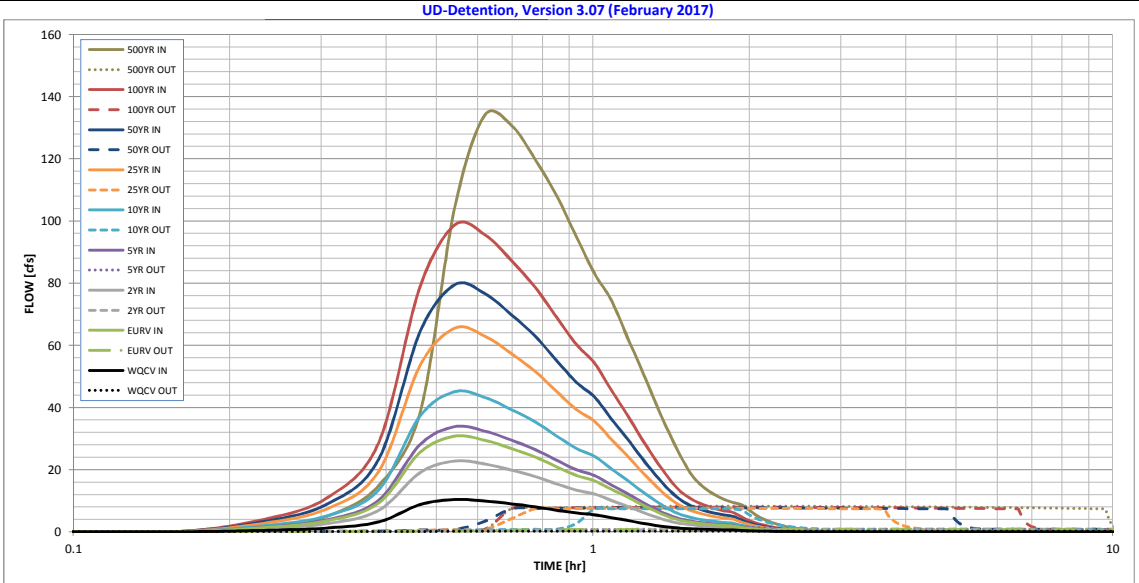
Spillway Design Flow Depth=	0.54	feet
Stage at Top of Freeboard =	13.00	feet
Basin Area at Top of Freeboard =	1.58	acres

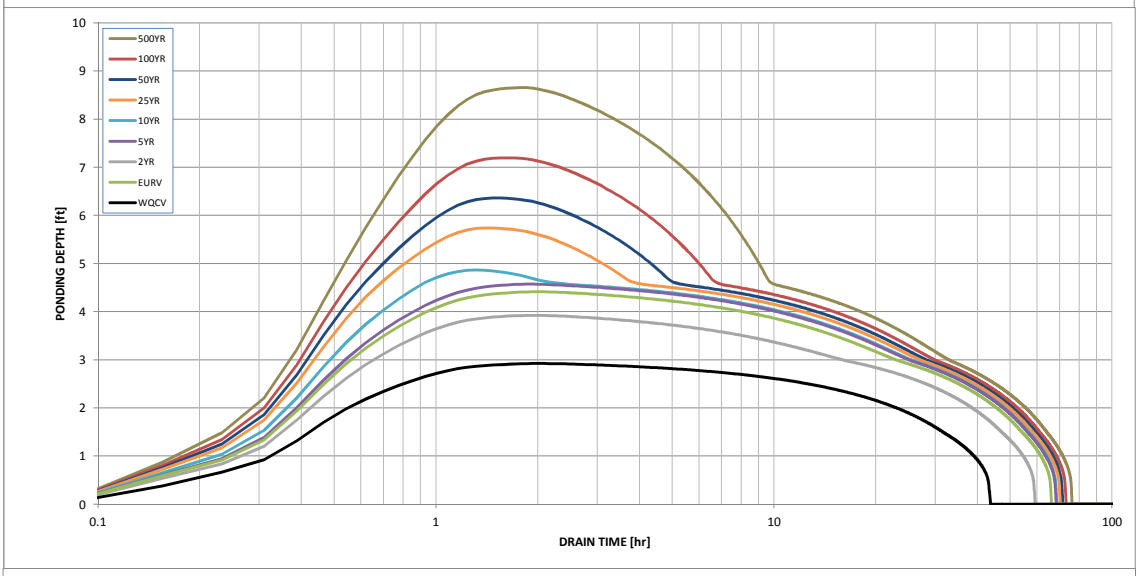
Routed Hydrograph Results

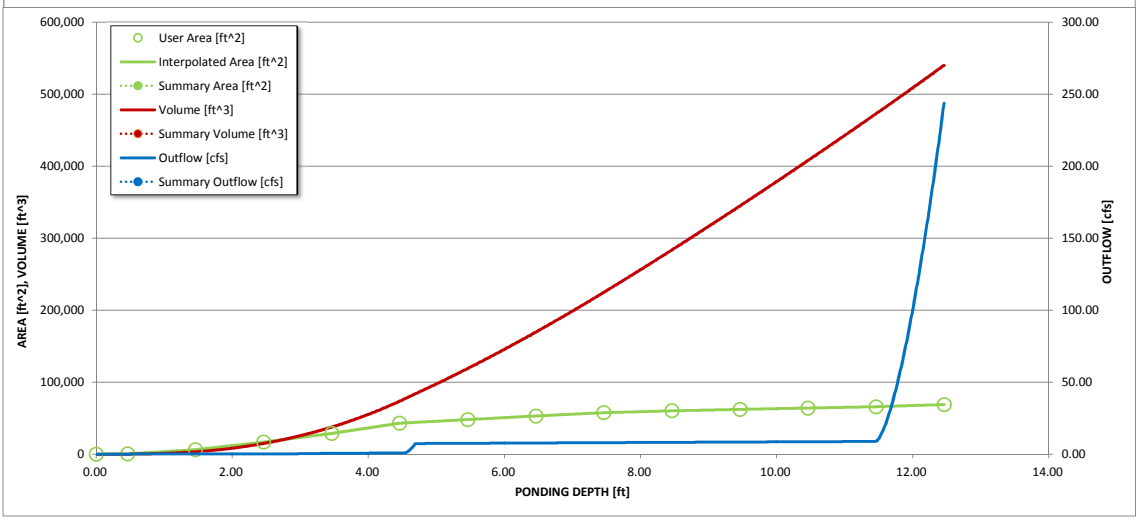
Design Storm Return Period =	WQCV	EURV	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year	500 Year
One-Hour Rainfall Depth (in) =	0.53	1.07	1.06	1.43	1.66	1.98	2.26	2.60	3.25
Calculated Runoff Volume (acre-ft) =	0.581	1.745	1.288	1.921	2.571	3.756	4.576	5.721	7.824
OPTIONAL Override Runoff Volume (acre-ft) =									
Inflow Hydrograph Volume (acre-ft) =	0.580	1.742	1.287	1.919	2.568	3.753	4.572	5.707	7.813
Predevelopment Unit Peak Flow, q (cfs/acre) =	0.00	0.00	0.01	0.04	0.24	0.74	1.03	1.41	2.08
Predevelopment Peak Q (cfs) =	0.0	0.0	0.4	1.5	8.2	25.5	35.4	48.4	71.4
Peak Inflow Q (cfs) =	10.4	30.8	22.8	33.8	45.1	65.5	79.5	98.7	134.1
Peak Outflow Q (cfs) =	0.2	0.8	0.7	1.5	7.4	7.6	7.7	7.9	8.2
Ratio Peak Outflow to Predevelopment Q =	N/A	N/A	N/A	1.0	0.9	0.3	0.2	0.2	0.1
Structure Controlling Flow =	Plate	Plate	Plate	Overflow Grate 1	Outlet Plate 1	Outlet Plate 1	Outlet Plate 1	Outlet Plate 1	Outlet Plate 1
Max Velocity through Grate 1 (fps) =	N/A	N/A	N/A	0.0	0.1	0.1	0.1	0.1	0.1
Max Velocity through Grate 2 (fps) =	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Time to Drain 97% of Inflow Volume (hours) =	40	58	53	59	57	55	55	54	53
Time to Drain 99% of Inflow Volume (hours) =	**42**	63	57	65	64	64	64	64	65
Maximum Ponding Depth (ft) =	2.92	4.41	3.92	4.57	4.87	5.74	6.36	7.19	8.66
Area at Maximum Ponding Depth (acres) =	0.51	0.97	0.81	1.00	1.03	1.13	1.20	1.29	1.39
Maximum Volume Stored (acre-ft) =	0.544	1.633	1.197	1.791	2.085	3.027	3.751	4.801	6.768

Detention Basin Outlet Structure Design

UD-Detention, Version 3.07 (February 2017)







S-A-V-D Chart Axis Override	X-axis	Left Y-Axis	Right Y-Axis
minimum bound			
maximum bound			

Detention Basin Outlet Structure Design

Outflow Hydrograph Workbook Filename:

Storm Inflow Hydrographs **UD-Detention, Version 3.07 (February 2017)**

The user can override the calculated inflow hydrographs from this workbook with inflow hydrographs developed in a separate program.

Time Interval	SOURCE	WORKBOOK	WORKBOOK	WORKBOOK	WORKBOOK	WORKBOOK	WORKBOOK	WORKBOOK	WORKBOOK	WORKBOOK
	TIME	WQCV [cfs]	EURV [cfs]	2 Year [cfs]	5 Year [cfs]	10 Year [cfs]	25 Year [cfs]	50 Year [cfs]	100 Year [cfs]	500 Year [cfs]
4.65 min	0:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0:04:39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydrograph	0:09:18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	0:13:57	0.46	1.33	0.99	1.46	1.92	2.74	3.27	3.97	5.15
1.074	0:18:36	1.24	3.62	2.69	3.97	5.27	7.59	9.13	11.19	14.85
	0:23:15	3.18	9.29	6.92	10.21	13.53	19.48	23.43	28.74	38.14
	0:27:54	8.74	25.52	19.01	28.02	37.14	53.41	64.23	78.73	104.36
	0:32:33	10.36	30.75	22.79	33.83	45.08	65.51	79.49	98.73	134.07
	0:37:12	9.89	29.44	21.79	32.39	43.21	62.95	76.60	95.55	130.78
	0:41:51	9.00	26.79	19.84	29.48	39.33	57.29	69.82	87.24	119.78
	0:46:30	8.03	24.04	17.78	26.46	35.36	51.60	62.91	78.64	108.04
	0:51:09	6.93	20.88	15.41	23.00	30.81	45.11	55.07	68.95	94.95
	0:55:48	6.04	18.14	13.40	19.98	26.82	39.36	48.10	60.28	83.10
	1:00:27	5.47	16.45	12.15	18.12	24.28	35.55	43.38	54.28	74.63
	1:05:06	4.51	13.70	10.09	15.10	20.27	29.77	36.40	45.67	63.08
	1:09:45	3.68	11.29	8.29	12.45	16.75	24.65	30.18	37.90	52.43
	1:14:24	2.83	8.83	6.46	9.76	13.18	19.50	23.95	30.18	41.95
	1:19:03	2.10	6.71	4.88	7.43	10.10	15.04	18.52	23.41	32.67
	1:23:42	1.53	4.92	3.55	5.46	7.47	11.21	13.86	17.59	24.66
	1:28:21	1.18	3.75	2.72	4.15	5.64	8.42	10.38	13.12	18.30
	1:33:00	0.97	3.05	2.23	3.38	4.57	6.78	8.33	10.50	14.57
	1:37:39	0.83	2.58	1.88	2.85	3.86	5.71	7.01	8.82	12.22
	1:42:18	0.73	2.26	1.65	2.49	3.36	4.97	6.09	7.66	10.59
	1:46:57	0.65	2.02	1.48	2.24	3.01	4.45	5.45	6.84	9.44
	1:51:36	0.60	1.86	1.36	2.05	2.77	4.08	4.99	6.26	8.62
	1:56:15	0.44	1.37	1.00	1.51	2.05	3.03	3.73	4.71	6.56
	2:00:54	0.32	1.00	0.73	1.10	1.49	2.20	2.70	3.40	4.73
	2:05:33	0.24	0.74	0.54	0.81	1.10	1.62	1.99	2.52	3.51
	2:10:12	0.17	0.54	0.40	0.60	0.81	1.21	1.48	1.87	2.61
	2:14:51	0.12	0.39	0.29	0.44	0.59	0.88	1.09	1.38	1.92
	2:19:30	0.09	0.28	0.20	0.31	0.42	0.63	0.78	0.99	1.39
	2:24:09	0.06	0.20	0.15	0.23	0.31	0.46	0.57	0.72	1.01
	2:28:48	0.04	0.14	0.10	0.15	0.21	0.32	0.40	0.51	0.71
	2:33:27	0.02	0.09	0.06	0.10	0.13	0.21	0.26	0.33	0.47
	2:38:06	0.01	0.05	0.03	0.05	0.07	0.12	0.15	0.19	0.28
	2:42:45	0.00	0.02	0.01	0.02	0.03	0.05	0.07	0.09	0.13
	2:47:24	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.03	0.04
	2:52:03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2:56:42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:01:21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:06:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:10:39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:15:18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:19:57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:24:36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:29:15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:33:54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:38:33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:43:12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:47:51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:52:30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:57:09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:01:48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:06:27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:11:06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:15:45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:20:24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:25:03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:29:42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:34:21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:39:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:43:39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:48:18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:52:57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:57:36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:02:15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:06:54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:11:33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:16:12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:20:51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:25:30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:30:09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:34:48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Detention Basin Outlet Structure Design

UD-Detention, Version 3.07 (February 2017)

Summary Stage-Area-Volume-Discharge Relationships

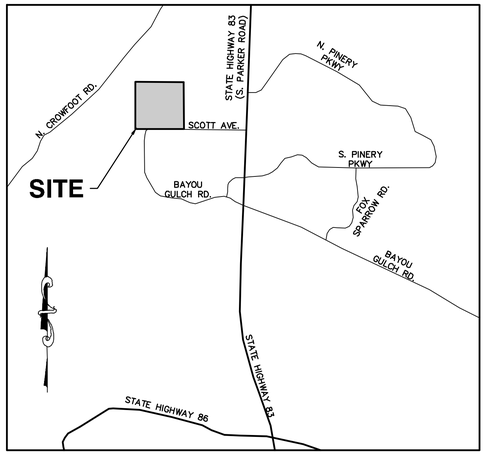
The user can create a summary S-A-V-D by entering the desired stage increments and the remainder of the table will populate automatically.

The user should graphically compare the summary S-A-V-D table to the full S-A-V-D table in the chart to confirm it captures all key transition points.

Stage - Storage Description	Stage [ft]	Area [ft^2]	Area [acres]	Volume [ft^3]	Volume [ac-ft]	Total Outflow [cfs]

CIELO SUBDIVISION
PHASE III DRAINAGE PLANS

A PART OF THE SOUTHEAST QUARTER OF SECTION 9, TOWNSHIP 7 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, COUNTY OF DOUGLAS, STATE OF COLORADO



VICINITY MAP
1"=5000'

SHEET INDEX	
SHEET NUMBER	SHEET TITLE
1	COVER SHEET
2	HISTORIC DRAINAGE MAP
3	OVERALL PLAN
4	DRAINAGE PLAN
5	DRAINAGE PLAN
6	DRAINAGE PLAN
7	DRAINAGE PLAN

LEGEND

- PROPERTY BOUNDARY
- PROPERTY LINE
- PROPOSED CURB & GUTTER
- PROPOSED SIDEWALK
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- EXISTING RIGHT OF WAY
- PROPOSED EASEMENT
- EXISTING EASEMENT

A = SUB BASIN DESIGNATION
B = AREA IN ACRES
C = 5 YR RUNOFF COEFFICIENT
D = 100 YR RUNOFF COEFFICIENT

A = MAJOR BASIN DESIGNATION
B = AREA IN ACRES
C = 5 YR RUNOFF COEFFICIENT
D = 100 YR RUNOFF COEFFICIENT

- C5 — DESIGN POINT
- DRAINAGE BASIN BOUNDARY
- MAJOR DRAINAGE BASIN BOUNDARY
- EXISTING STORM SEWER
- PROPOSED STORM SEWER INLET
- PROPOSED STORM SEWER
- PROPOSED UTILITY EASEMENT
- 6500 — PROPOSED GRADE CONTOUR
- 6500 — EXISTING CONTOUR
- FLOW DIRECTION
- PROPOSED TRICKLE PAN
- PROPOSED 6' CROSSPAN

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SITE BENCHMARK:

DOUGLAS COUNTY CONTROL POINT "CDOT55" LOCATED NEAR THE EAST R.O.W. LINE OF SOUTH PARKER ROAD (HIGHWAY 83) APPROXIMATELY 265 FEET NORTH OF THE NORTH LINE OF SECTION 15 T.7S, R.66W, 6TH P.M.

PUBLISHED ORTHOMETRIC HEIGHT: 1843.49M (NAVD 88 ELEVATION 6049.18 US SURVEY FEET)

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

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(310) 460-6324 PHONE
MICHAEL SANDERS

CLIENT

CIELO SUBDIVISION
DOUGLAS COUNTY, COLORADO
CHAMBERS ROAD
CONSTRUCTION PLANS
COVER SHEET

DATE 5/24/2016

REVISIONS

COLORADO REGISTERED PROFESSIONAL ENGINEER
32615
01/15/19
PROFESSIONAL ENGINEER

DR. -- CH. --
P.M. JJF
BOOK --
JOB 16000498
SHEET NO. 1

CAD FILE: 16000498-DRAINAGE-COVER.DWG

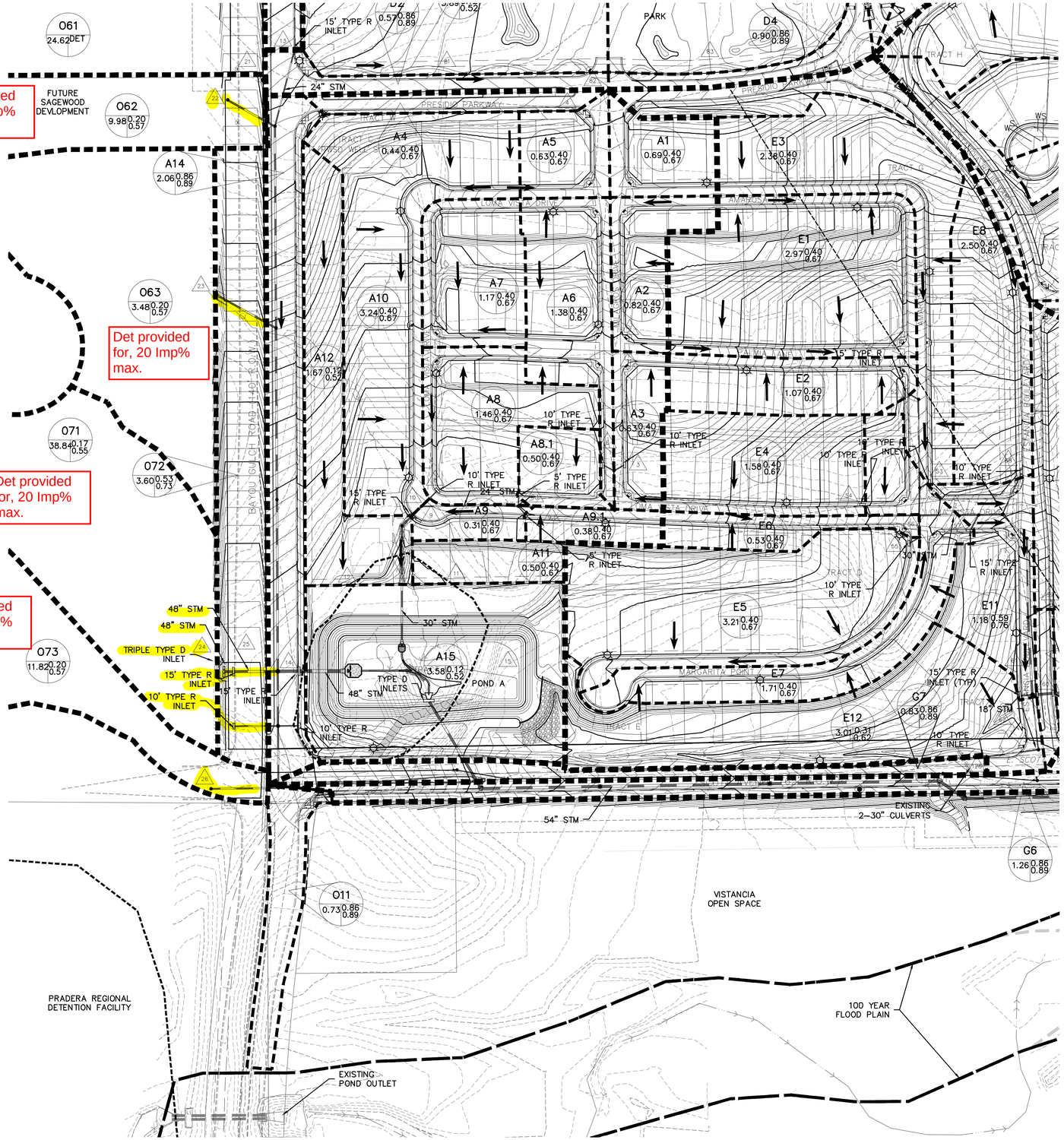
\\WDSWEB\projects\16000498\DRAINAGE\WORKING DRAINAGE\16000498-DRAINAGE-COVER.dwg 1/21/2019 1:51 PM DAVID TRUDO

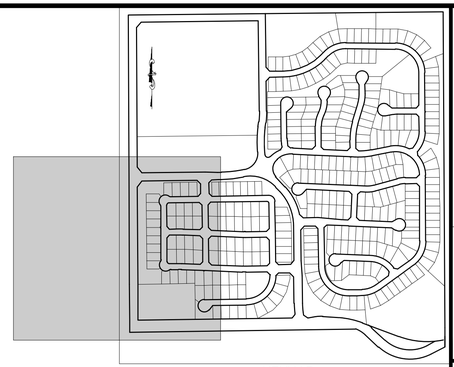
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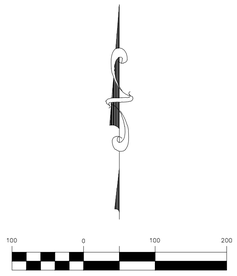
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KEYMAP
1" = 600'



(IN FEET)
1 inch = 100 ft.

NOTES:

1. DETENTION POND A IS LOCATED IN AN OFFSITE PARCEL AND IS INTENDED TO PROVIDE DETENTION AND WATER QUALITY FOR CIELO PA-1 AND THE 85 TRIBUTARY ACRES OF THE SAGEWOOD SITE DIRECTLY WEST OF BAYOU GULCH ROAD.

SITE BENCHMARK:

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CONSTRUCTION PLANS
DRAINAGE PLAN

DATE
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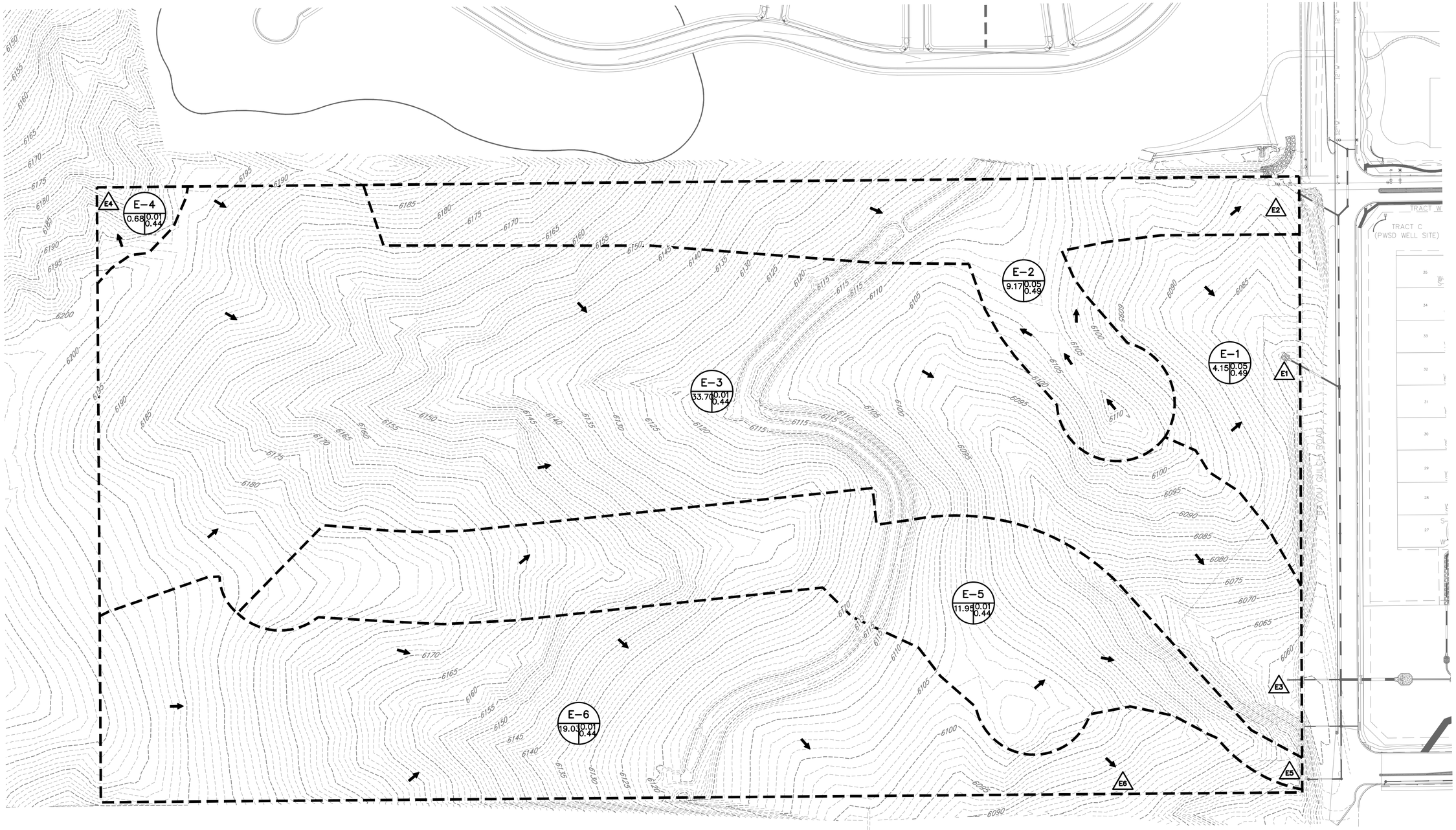
COLORADO REGISTERED PROFESSIONAL ENGINEER
32615
07/19/16

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BOOK --
JOB 16000498
SHEET NO.
4

CAD FILE: I:\16000498-DRAINAGE PLAN.DWG

APPENDIX F

DRAINAGE MAPS



LEGEND

PROPERTY BOUNDARY	A = BASIN DESIGNATION
EXISTING LOT LINE	B = AREA IN ACRES
PROPOSED CURB & GUTTER	C = 5 YR RUNOFF COEFFICIENT
EXISTING CURB & GUTTER	D = 100 YR RUNOFF COEFFICIENT
PROPOSED SIDEWALK	DESIGN POINT
PROPOSED CONCRETE PAVEMENT	DRAINAGE BASIN BOUNDARY
SECTION LINE	DRAINAGE FLOW ARROW
PROPOSED EASEMENT	HIGH OR LOW POINT
EXISTING EASEMENT	
PROPOSED 1' CONTOURS	
EXISTING 1' CONTOURS	

100 0 100 200
(IN FEET)
1 inch = 100 ft.

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BROOMFIELD, CO 80020
(303) 246-6799
CAYD BADER

CLIENT

XXXXXXXX
BLOOM SUBDIVISION
DOUGLAS COUNTY, COLORADO

EXISTING DRAINAGE MAP

DATE --

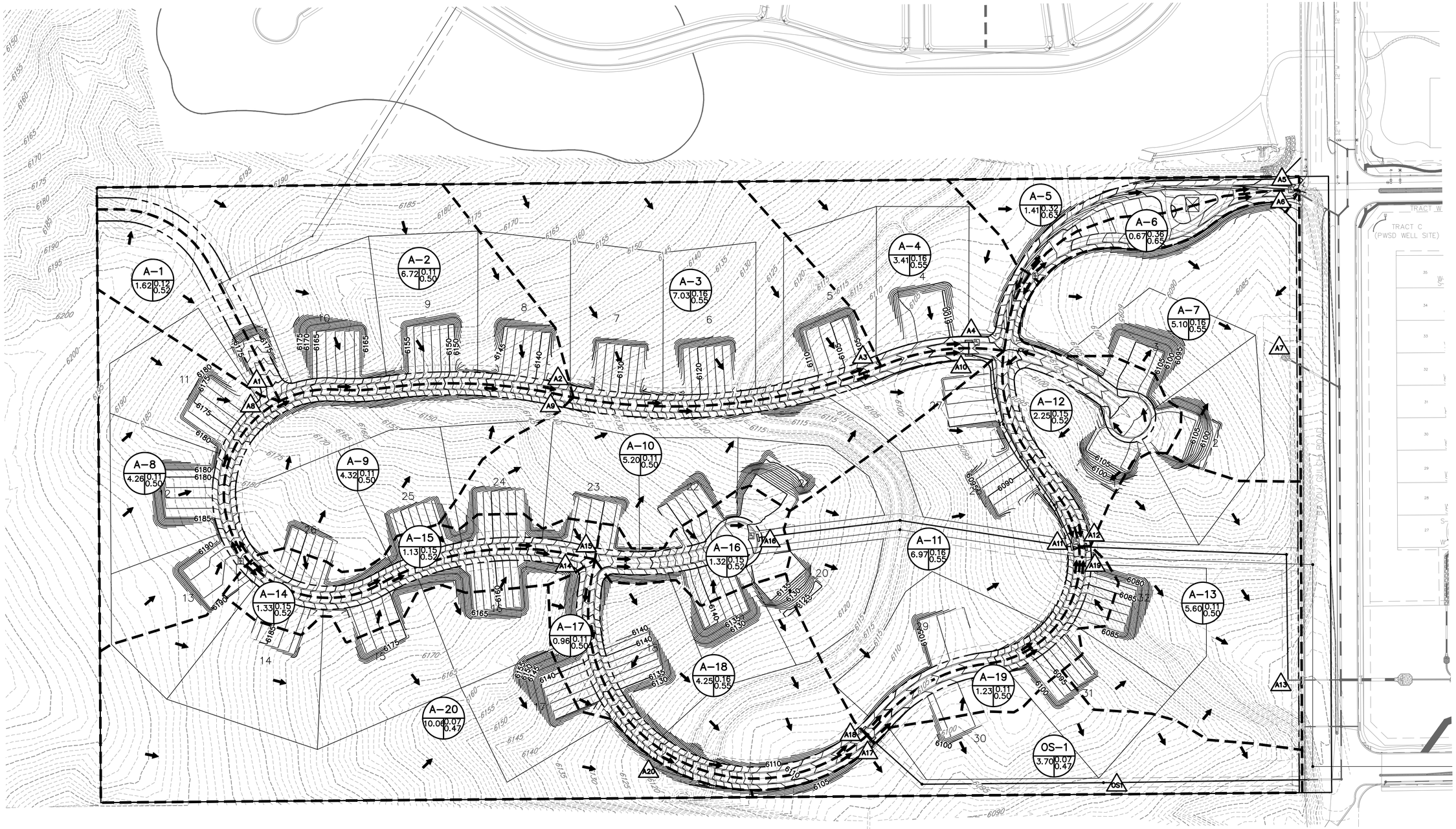
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P.M. DEB
JOB 20003952
SHEET NO. 1

CAD FILE: 2203148-DRAINAGE MAP EXISTING.DWG

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DIRECT PROPOSED RUNOFF SUMMARY TABLE									
BASIN	DESIGN POINT	AREA (AC.)	5 YEAR Q (CFS)	100 YEAR Q (CFS)	BASIN	DESIGN POINT	AREA (AC.)	5 YEAR Q (CFS)	100 YEAR Q (CFS)
A-1	A1	1.62	0.45	4.27	A-12	A12	2.25	0.86	6.26
A-2	A2	6.72	1.73	16.47	A-13	A13	5.6	1.52	14.44
A-3	A3	7.03	2.73	19.82	A-14	A14	1.33	0.51	3.69
A-4	A4	3.41	1.47	10.68	A-15	A15	1.13	0.44	3.21
A-5	A5	1.41	1.06%	4.33	A-16	A16	1.32	0.59	4.32
A-6	A6	0.67	0.81	3.05	A-17	A17	0.96	0.26	2.52
A-7	A7	5.1	1.79	12.96	A-18	A18	4.25	1.78	12.88
A-8	A8	4.26	0.99	9.43	A-19	A19	1.23	0.34	3.27
A-9	A9	4.32	0.87	8.25	A-20	A20	10.06	1.34	18.98
A-10	A10	5.2	1.34	12.79	OS-1	OS1	3.7	0.63	8.86
A-11	A11	6.97	2.72	19.74					

LEGEND

- PROPERTY BOUNDARY
- EXISTING LOT LINE
- PROPOSED CURB & GUTTER
- EXISTING CURB & GUTTER
- PROPOSED SIDEWALK
- PROPOSED CONCRETE PAVEMENT
- SECTION LINE
- PROPOSED EASEMENT
- EXISTING EASEMENT
- PROPOSED 1' CONTOURS
- EXISTING 1' CONTOURS

A = BASIN DESIGNATION
B = AREA IN ACRES
C = 5 YR RUNOFF COEFFICIENT
D = 100 YR RUNOFF COEFFICIENT

DESIGN POINT

DRAINAGE BASIN BOUNDARY

DRAINAGE FLOW ARROW

HP LP HIGH OR LOW POINT

100 0 100 200
(IN FEET)
1 inch = 100 ft.

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PROPOSED DRAINAGE MAP

DATE --

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CAD FILE: 22003148-DRAINAGE MAP PROPOSED.DWG

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9.2 Preliminary Geotech

CTL | THOMPSON INCORPORATED

DUE DILIGENCE PRELIMINARY GEOTECHNICAL INVESTIGATION BAYOU GULCH ROAD & PRESIDO PARKWAY PARCEL PARCEL #: 2349-090-00-002 & 2349-093-00-001 DOUGLAS COUNTY, COLORADO

Prepared For:

AFFINITY HOLDINGS, LLC
4155 East Jewell Avenue, Suite 500
Denver, Colorado 80222

Attention: Cayd Bader

Project No. DN51,524-115-R1

May 20, 2022

1971 West 12th Avenue | Denver, Colorado 80204 | Phone: 303-825-0777 | Fax: 303-825-4252

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FIGS. 1A AND 1B – LOCATIONS OF EXPLORATORY BORINGS

FIG. 2 – SURFACE DIAGRAM OF BEDROCK

FIG. 3 – GROUNDWATER SURFACE DIAGRAM

FIG. 4 – PRELIMINARY RISK ASSESSMENT FOR EXPANSIVE SOILS AND BEDROCK

FIG. 5 – BENCH FILL DETAIL

FIG. 6 – SEWER UNDERDRAIN DETAIL

FIG. 7 – UNDERDRAIN CUTOFF WALL DETAIL

FIG. 8 – CONCEPTUAL UNDERDRAIN PROFILE

FIG. 9 – DRAINAGE SUB-DRAIN

APPENDIX A – SUMMARY LOGS OF EXPLORATORY BORING LOGS

APPENDIX B – LABORATORY TEST RESULTS AND TABLE B-I

APPENDIX C – GUIDELINE SITE GRADING SPECIFICATIONS

SCOPE

This report presents the results of our Due Diligence Preliminary Geotechnical Investigation for the Bayou Gulch Road and Presido Parkway Parcel (Parcel #: 2349-090-00-002 & 2349-093-00-001) in Douglas County, Colorado (Fig. 1). The purpose of our investigation was to evaluate the subsurface conditions to assist in due diligence planning of site development and residential construction. The report includes descriptions of soil and bedrock conditions and groundwater levels found in our exploratory borings, and discussions of site development and construction as influenced by geotechnical considerations. The scope of service was described in our Proposal (DN 22-0116) dated March 17, 2022.

This report is based on published geology maps, subsurface conditions found in our exploratory borings, results of field and laboratory tests, engineering analysis of field and laboratory data, and our experience with similar projects. It is also based on a Concept Plan prepared by pcs group, inc., dated January 28, 2022.

The report contains descriptions of the site conditions and proposed construction, our field investigation and laboratory test methods, subsurface conditions encountered in the borings and laboratory tests, measured groundwater levels, preliminary discussions of geologic conditions and hazards, recommendations for site development and earthwork, preliminary estimates for pavement section ranges and materials, potential foundation and floor support alternatives, and surface and subsurface drainage. The preliminary discussions of foundation and floor system alternatives are intended for planning purposes only and should not be used to design foundations. Additional investigation is recommended to plan mitigation of expansive soils. Site (lot) specific investigations will be necessary to design residences. A summary of our conclusions and recommendations follows, with more detailed discussion in the report.

SUMMARY OF CONCLUSIONS

1. The primary geotechnical concerns that we believe will influence development and building performance is the presence of expansive clay and claystone. We believe this concern can be mitigated with proper planning, engineering, design, construction and monitoring for settlement. There are no geotechnical constraints that preclude development.

2. Strata encountered in our borings generally consisted of sandy to very sandy, silty clay and/or clayey sand alluvium. Bedrock of the Dawson formation was encountered in all six borings at depths of 1 to 12 feet. The clay and claystone are expansive. We judge the sand and sandstone to be low swelling or non-expansive.

3. Groundwater depths were checked after drilling on April 14, 2022. Water was measured in five borings at depths of 21½ to 31 feet. Groundwater levels will likely fluctuate seasonally and may rise in response to precipitation and landscape irrigation and changes in the level of the adjacent canals and Cherry Creek tributary.

4. Based on the swell-consolidation test results and our experience, we estimate potential heave may range up to about 4 inches at the existing ground surface based on a 24-foot depth of wetting. Changes to site grades will affect these estimates. We recommend drilling additional borings once grading plans have been finalized, or site grading is completed, to further delineate areas that may merit sub-excavation.

5. Footing foundations and slab-on-grade basement floors may be considered where the underlying soil is low swelling or non-expansive, or where sub-excavation is performed. Drilled pier foundations can be considered in lieu of sub-excavation. Without sub-excavation, we anticipate low to moderate risk of poor slab-on-grade performance in basements.

6. Preliminary data suggests that the residential streets will require at least 4 inches of asphalt and 6 inches of aggregate base course. Sub-excavation of pavement subgrade to a depth of 3.5 feet will likely be necessary for most of the site. A design-level subgrade investigation and pavement design should be done prior to paving.

7. Control of surface and subsurface drainage will be critical to the performance of foundations, slabs-on-grade and pavements. Overall surface drainage should be designed to provide rapid run-off of surface water away from structures, and off of pavements and flatwork.

SITE CONDITIONS

The Bayou Gulch Road and Presido Parkway Parcel, Parcel #2349-090-00-002 and 2349-093-00-001, is located southwest of Bayou Gulch Road and Presido Parkway in Douglas, Colorado (Photo 1 and Fig. 1). Aerial photographs imply the parcels have been primarily used for cattle ranching. Residential development is on-going to the north and east of the parcels. Existing residences are present to the south and west. A remnant section of the Arapahoe Canal runs south/north through the center of the site. A drainage gully transverses west to east through the middle of the site and leads to the old Arapahoe Canal. A Cherry Creek tributary canal is 600 feet to the south and Lemon Gulch is about 0.6-mile northwest of the parcels. The southeast corner of the site is bordered by the 100-year floodplain as shown in Photo 2.



Photo 1. Google Earth© Aerial Site Photo 6/2021

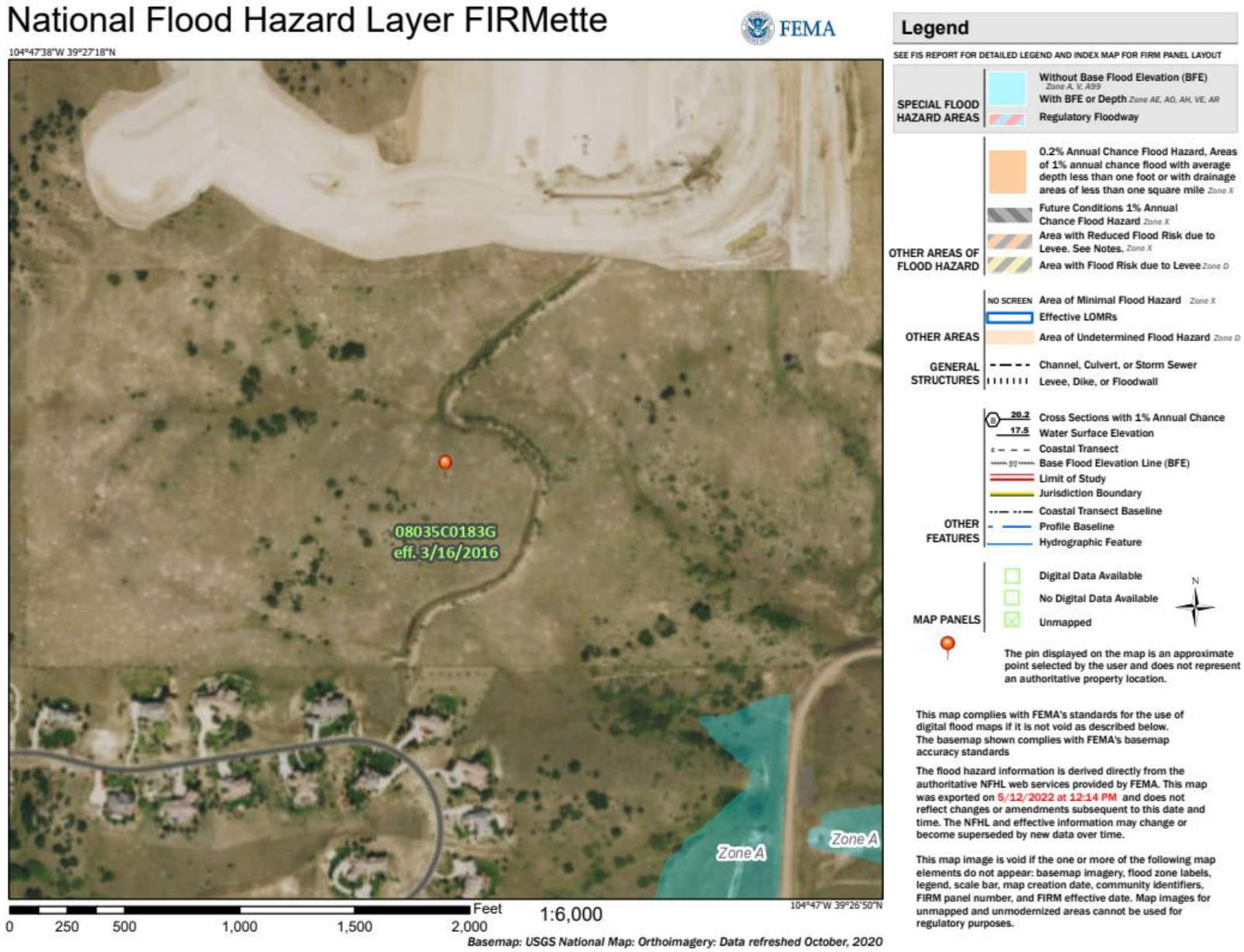


Photo 2: FEMA National Flood Hazard Layer FIRMette
Solid Blue 'Zone A' – 100-year Floodplain



Photo 3: Google Earth© Aerial Site Photo 12/1937

We reviewed historical Google Earth imagery dating back to 1937 (Photo 3). Site use has remained generally unchanged. What appears to be a cattle water station is located at the west end of the site. These stations are usually accompanied by an adjacent well. An auxiliary structure is present just north of this station. The ground is covered in grass, weeds and scattered shrubs and trees. The site slopes to the east and has a maximum vertical relief of about 140 feet.

SITE GEOLOGY

The geology and existence of geologic hazards on this site were evaluated through review of subsurface data and available literature. According to the Geologic Map of the Castle Rock North Quadrangle, Douglas County, Colorado (Thorson, Jon P.: Colorado Geological Survey Open File Report 05-2, 2005), the site is predominantly underlain by alluvium deposits of late Pleistocene age over claystone and sandstone bedrock of the Dawson Formation. An excerpt from the geologic map is presented as Photo 4.

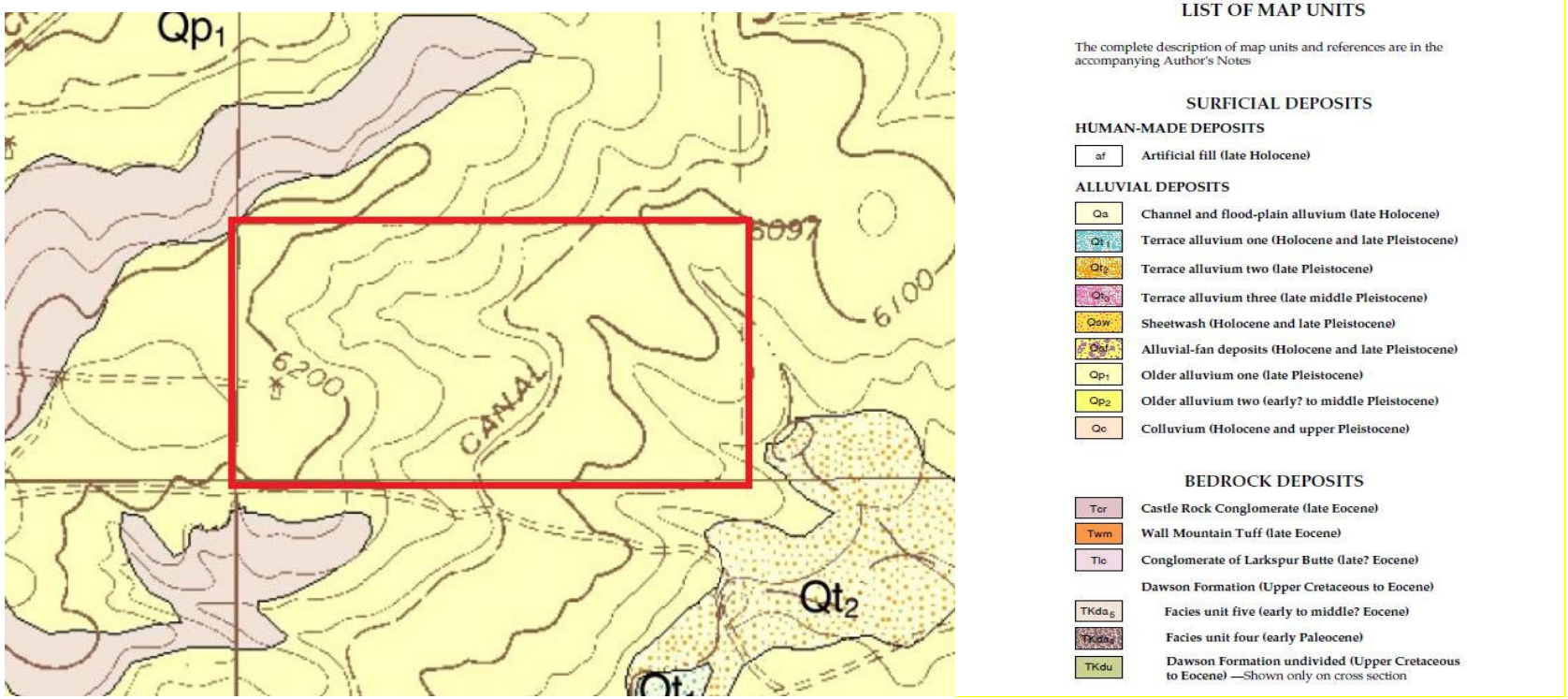


Photo 4: Excerpt from Geologic Map of the Castle Rock North Quadrangle, Douglas County, Colorado (Thorson, Jon P. Colorado Geological Survey, Open File Report 05-2, 2005)

PROPOSED DEVELOPMENT

We understand plans for future development are in the early conceptual phase. According to a Concept Plan created by pcs group inc. (dated January 28, 2022) the site may be developed for 36 single-family custom residences. We anticipate the residences will be one or two-story, wood-framed structures with basements and/or crawl spaces and attached multi-car garages. Basements may be full depth, walkout, or garden-level. Paved streets will provide access throughout the development. Grading plans were not available at the time of our investigation.

INVESTIGATION

We investigated subsurface conditions by drilling 6 widely-spaced exploratory borings at the approximate locations shown on Figs. 1A and 1B. The boring locations and elevations are approximate and were determined by a representative of our firm using a Leica GS18 GPS unit referencing the North American Datum of 1983 (NAD 83). Prior to drilling, we contacted the Utility Notification Center of Colorado and local sewer and water districts to clear boring locations for conflicts with buried utilities. The borings were advanced to depths of 25 to 35 feet using a solid stem, continuous-flight auger and a truck-mounted CME-45B drill rig.

Samples of the soil and bedrock were obtained at 5-foot intervals using 2.5-inch diameter (O.D.) modified California barrel samplers driven by an automatic 140-pound hammer falling 30 inches. A representative of CTL|Thompson, Inc. was present during drilling to observe drilling operations, log the soil and bedrock, and obtain samples. Summary logs of the exploratory borings with results of field penetration resistance tests and a portion of the laboratory data are presented in Appendix A.

Samples were returned to our laboratory where they were examined and assigned testing. Laboratory tests included dry density, moisture content, percent silt and clay-sized particles (passing the No. 200 sieve), Atterberg limits, gradation,

swell-consolidation, total suction, and water-soluble sulfate concentration. Swell-consolidation tests were performed by wetting the samples under existing overburden pressures (the weight of the overlying soil). Load-back analysis was performed on select samples to help estimate swelling pressures. Results of laboratory tests are presented in Appendix B and are summarized in Table B-I.

SUBSURFACE CONDITIONS

Strata encountered in our borings consisted of about 1 to 12 feet of alluvial clay and sand underlain by claystone and/or sandstone bedrock. Bedrock was encountered in all six borings at depths of roughly 1 to 12 feet below existing ground surface. Some pertinent engineering characteristics of the soil and bedrock are presented in the following paragraphs.

Alluvium - Sand and Clay

About 1 to 11½ feet of sandy to very sandy, silty clay and nil to 5 feet of clayey sand was encountered above the bedrock in our borings. The clay was generally very stiff to hard and one sample of sand was medium dense based on field penetration resistance testing. Four samples of clay swelled 0.9 to 6.3 percent when wetted, with an average swell of 3.8 percent. Two clay samples contained 55 and 73 percent fines (passing the No. 200 sieve) and exhibited moderate and high plasticity, respectively. One sand sample contained 30 percent fines and exhibited moderate plasticity. We judge the sand to be low swelling or non-expansive. Tests indicate the clay is variably expansive.

Bedrock – Dawson Formation

Claystone and/or sandstone bedrock was encountered below the native soils in each boring at depths of 1 to 12 feet, approximate elevations 6085 to 6171 feet, as shown on Fig. 2. The bedding of claystone and sandstone is known to be variably

erratic. In other words, the presence of claystone and the thickness of claystone can change significantly over relatively short horizontal distances. The claystone is weathered or hard to very hard and the sandstone is hard to very hard. Nine claystone samples swelled 0.2 to 4.3 percent when wetted, with an average swell of 1.5 percent. Four claystone samples had total soil suction values of 3.45 to 3.96 pF and developed load-back swelling pressures of approximately 4,600 to 13,200 psf. One claystone sample contained 67 percent fines and exhibited moderate plasticity. One sandstone sample compressed 0.3 percent when wetted and had a total soil suction value of 4.02 pF. Six sandstone samples contained 9 to 28 percent fines, three of which also contained 1 to 13 percent gravel content. We judge the sandstone to be non-expansive or perhaps low swelling. Tests indicates the claystone is variably expansive.

Groundwater

Groundwater was encountered in TH-6 during drilling at a depth of about 23½ feet. When the borings were checked after drilling on April 14, 2022, water was measured in five borings at depths of 21½ to 31 feet, approximate elevations 6073½ to 6157½, as shown on Figure 3. We recommend providing at least 3 feet, and preferably 5 feet, of separation between basements and groundwater. Groundwater may be encountered during deep utility installation, depending on final grading plans. Groundwater levels will likely fluctuate seasonally and may rise in response to precipitation and landscape irrigation and changes in the level of adjacent canals and the Cherry Creek tributary.

GEOLOGIC HAZARDS AND GEOTECHNICAL CONCERNS

Geologic hazards at the site include expansive soil and bedrock, erosion associated with the alluvium, and the regional geologic hazards of seismicity and naturally occurring radioactive materials. Potential flooding of the Cherry Creek tributary canal is also a natural hazard. No geologic hazards that would preclude the proposed

development were identified. We believe potential hazards and concerns can be mitigated with proper engineering, design, and construction practices, as discussed in this report.

Expansive Clay and Claystone

Tests indicates the clay and claystone encountered in our borings are expansive. There is risk that ground heave will damage pavements, slabs-on-grade and foundations. Engineered design of grading, pavements, foundations, slabs-on-grade, and surface drainage can mitigate, but not eliminate, the effects of expansive soil. Additional borings and laboratory tests can help delineate areas where sub-excavation may be merited to allow for footing foundations and enhanced slab-on-grade performance in basements and garages.

We used the results of swell tests to evaluate potential heave of the soils underling the site. The analysis involves dividing the soil profile into layers and modeling the heave of each layer from representative swell tests. We chose two methods to evaluate potential ground heave, the Thompson method and the partial-wetting technique by Houston et al.[1]. The latter study theorizes that the highest degree of wetting occurs near-surface with a gradually decreasing degree of wetting with depth. The Thompson method does not account for partial wetting and assigns a constant 30 percent reduced wetting factor to each layer; this typically results in higher estimates at greater depths. Houston, Stauffer, West, Bradford, and Houston's 2017 publication indicated about 80 to 90 percent of the laboratory measured swell actually occurred on a site in the area in the upper 30 to 40 percent of the depth of wetting, decreasing parabolically from that point to the maximum depth of wetting, i.e., about 50 percent of the laboratory measure swell occurs in the field at 70 percent of the depth of wetting and 10 percent occurs at 90 percent of the depth of wetting. We chose to report

[1] Houston, S.L., Stauffer, P.A., West, M.W., Bradford, E.L., Houston, W.N. (2017) "*Use of the Net Partial Wetting Factor (NPWF) Method of Computation of Remaining Heave: A Forensic Study*", Journal of Geotechnical and Geoenvironmental Engineering, American Society of Civil Engineers.

estimated potential heave by averaging the results of the Thompson method and partial-wetting technique. Based on the swell-consolidation test results and our experience, we estimate potential heave may range up to about 4 inches based on a 24-foot depth of wetting. Changes to site grades will affect these estimates. This estimate neglects potential compression of non-expansive soils due to wetting. Our estimates are summarized in Table I. Fig. 4 presents the risk due to heave at each boring location.

TABLE I:
ESTIMATED POTENTIAL GROUND HEAVE AT THE EXISTING GROUND SURFACE BASED ON 24-FOOT DEPTH OF WETTING

Boring	Estimated Potential Ground Heave (in)
TH-1	3
TH-2	1½
TH-3	3½
TH-4	2½
TH-5	2½
TH-6	4

Flooding

The site plan shows that the southeastern portion of the site is bordered by the 100-year floodplain of a Cherry Creek tributary. Increased development in the area may lead to a rise in flow and subsequentially push the 100-year floodplain into the site. This will also most likely impact groundwater and raise the water table locally. The presence of this floodplain indicates the likely existence of compressible soils. Grading should be designed by the Civil Engineer to mitigate potential flooding.

Existing Fill

Although not encountered in our borings, there may be some existing fill present on-site at the west end of the site relating to the cattle water station and nearby structure. Existing fill soils are considered unsuitable to support improvements and

should be removed and replaced as moisture-conditioned, compacted fill. Portions of fill that do not contain deleterious material, trash, organics, or other debris can be re-used as engineered fill.

Seismicity

Based on available mapping, we found no active faults within or near the site. The soil and bedrock units are not expected to respond unusually to seismic activity. Based on methods described in Chapter 16 of the 2018 International Residential Code (IRC), we judge the Seismic Site Classification ranges between C and D.

Radioactivity

It is normal in the Front Range of Colorado and nearby eastern plains area to measure radon gas in poorly ventilated spaces (e.g., full depth residential basements) in contact with soil or bedrock. Radon 222 gas is considered a health hazard and is just one of several radioactive products in the chain of the natural decay of uranium into lead. Radioactive nuclides are common in the soil and bedrock underlying the subject site. Because these sources exist or will exist on most sites in the area, there is a potential for radon gas accumulation in poorly ventilated spaces. The concentration of radon that can develop is a function of many factors, including the radionuclide activity of the soil and bedrock, construction methods and materials, soil gas pathways, and accumulation areas. The only reliable method to determine if a hazard exists is to perform radon testing of completed residential structures to determine the level of radon gas accumulation. Typical mitigation methods consist of sealing soil gas entry areas, ventilation of below-grade spaces, and gas venting from foundation drain systems. Radon rarely accumulates to significant levels in above-grade living spaces. We recommend provision for ventilation of foundation drain systems if a radon problem is discovered.

Erosion

Erosion potential on the site is considered low to moderate based on the sub-surface materials. Uncontrolled and concentrated surface runoff has the potential to create damaging erosion. Erosion potential will increase during construction, but should return to pre-construction rates or less if proper grading practices, surface drainage design, and re-vegetation efforts are implemented

Other Considerations

We did not identify significant economically recoverable, high-quality aggregate in our borings. We believe there are no economic aggregate or energy resources on the property.

SITE DEVELOPMENT

The primary geotechnical concern that we believe will influence development and building performance is the presence of expansive clay and claystone. This concern can be mitigated with proper planning, engineering, design and construction. We believe there are no geologic or geotechnical constraints that would preclude development. The following sections provide site development recommendations.

Existing Fill

Although not encountered in our borings, existing fill may be present adjacent to existing structures and is not suitable to support new improvements. Existing fill (if encountered) should be removed and replaced as moisture-conditioned, compacted fill as discussed in the next section.

Site Grading

The on-site soils are suitable for use as site grading fill provided they are substantially free of debris, organics, and other deleterious materials. The ground surface in areas to be filled should be stripped of vegetation, scarified, and moisture conditioned to between 1 and 4 percent above optimum moisture content for clay and claystone and within 2 percent of optimum for sand and sandstone, and compacted to at least 95 percent of standard Proctor maximum dry density (ASTM D 698). We anticipate stripping may require cuts of 3 to 6 inches for the majority of the site.

The properties of fill will affect the performance of foundations, slabs-on-grade, utilities, pavements, flatwork and other improvements. If imported soil is needed to achieve site grades, it should ideally contain between 30 to 55 percent fines (passing the No. 200 sieve) and exhibit a liquid limit less than 40 and a plasticity index less than 20. The material should be tested and approved by our firm prior to importing to the site.

Fill should be placed in thin loose lifts, moisture conditioned and compacted prior to placement of the next lift using the criteria presented in the previous paragraphs. The placement and compaction of site grading fill should be observed and density tested by our representative during construction. Guideline grading specifications are presented in Appendix C. If 20 feet or more of fill is required to meet proposed grades, we recommend special compaction and moisture content specifications. Fill deeper than 20 feet should be moisture conditioned to between 2 percent below and 1 percent above optimum and compacted to 98 percent standard Proctor maximum dry density, regardless of composition.

Fill placed on slopes of 20 percent or steeper the slopes should be benched prior to placing fill (Fig. 5). Depending on proposed grading there may be non-uniform depths of fill below residence sites. Where depth varies more than about 5 feet across a residence footprint, sub-excavation or benching of existing slopes should be

considered to create a more uniform fill depth. We recommend additional review of these conditions as grading and sub-excavation plans are formalized.

Our experience indicates fill and backfill can settle, even if properly compacted to criteria provide above. Factors that influence the amount of settlement are depth of fill, material type, degree of compaction, amount of wetting and time. Most of this settlement usually occurs during and soon after construction; for clayey fill, it may continue for longer. The degree of compression of fill under its own weight will likely range from low for granular soils (½ percent or less), to moderate for clay/sand mixtures (1 to 2 percent), to high for highly plastic clay (2 percent or more). Heave or additional settlement may occur after development in response to wetting.

Excavation

We believe the soils penetrated by our exploratory borings can be excavated with typical heavy-duty equipment. We recommend the owner and the contractor become familiar with applicable local, state and federal safety regulations, including the current Occupational Safety and Health Administration (OSHA) Excavation and Trench Safety Standards. Based on our investigation and OSHA standards, we anticipate the clay and bedrock will classify as Type B and sand as Type C soil. Type B requires 1:1 and Type C requires 1½:1 for temporary excavations in dry conditions. Excavation slopes specified by OSHA are dependent upon soil types and groundwater conditions encountered. The contractor's "competent person" is required to identify the soils encountered in the excavations and refer to OSHA standards to determine appropriate slopes. Stockpiles of soils and equipment should not be placed within a horizontal distance equal to one-half the excavation depth from the edge of the excavation. A professional engineer should design excavations deeper than 20 feet.

Preliminary Sub-Excavation Considerations

Expansive clay and claystone were encountered in our borings. We estimate potential ground heave up to 4 inches is possible at existing ground surface. Many builders and developers elect to perform sub-excavation to mitigate expansive soil and bedrock and allow use of shallow foundations and slab-on-grade basement floors. Based on our experience in the area, we anticipate sub-excavation depths may be on the order of 10 feet below lowest foundation element across most of the site to allow use of footing foundations and to enhance the performance slab-on-grade floors in basements and garages. There may be areas where shallower or no sub-excavation is merited. Since these lots will likely be developed for custom homes, we understand that wide-spread sub-excavation will not be done as part of the site development. Sub-excavation would likely occur on a lot-by-lot basis by the builder's earthwork contractor. We recommend drilling additional borings within the residence footprint after the completion of site grading to identify lots that may merit sub-excavation for footing use.

Sub-excavation is also commonly employed to mitigate potential heave of pavements and need for swell mitigation as part of pavement design and construction. If highly plastic soils are found as pavement subgrade, they could be excavated and replaced with the on-site sands to reduce pavement section thickness and to provide more reliable performance of pavement systems.

Sub-excavation has been employed in the Denver area with satisfactory performance for the large majority of the sites where this ground modification method has been completed. We have seen isolated instances where differential settlement of the sub-excavation fill has led to damage to buildings supported on footings. In most cases, the settlement was caused by wetting associated with poor surface drainage or seepage, and/or poorly compacted fill placed at the horizontal limits of excavation. Wetting of the fill may cause softening and settlement.

Slopes

We recommend permanent cut and fill slopes be designed with a maximum slope of 3:1 (horizontal to vertical); use of 4:1 would be better to control erosion. If site constraints (property boundaries and streets) do not permit construction with recommended slopes, we should be contacted to evaluate the subsurface soils and steeper slopes. Slopes higher than 20 feet should be evaluated by our office on a case-by-case basis. Concentrated surface drainage should not be allowed to sheet flow across slopes or pond near the crest of slopes. All slopes should be re-vegetated soon after grading to reduce erosion.

Utilities

Water and sewer lines are usually constructed beneath paved roads. Compaction of trench backfill can have a significant effect on the life and serviceability of pavements. Trench backfill should be placed in thin (8 inches or less) loose lifts and moisture conditioned to between optimum and 4 percent above optimum moisture content for clay and claystone, and compacted to at least 95 percent of maximum dry density (ASTM D 698). Sand fill should be moisture conditioned to within 2 percent of optimum moisture content and compacted to at least 100 percent of maximum dry density. The placement and compaction of utility trench backfill should be observed and tested by a representative of our firm during construction.

Our experience indicates use of a self-propelled compactor results in more reliable performance compared to backfill “compacted” by a sheepsfoot wheel attachment on a backhoe or trackhoe. The upper portion of the trenches should be made wide enough to allow the use of a self-propelled compactor. Special attention should be paid to backfill placed adjacent to manholes as we have seen instances where settlement in excess of 2 percent has occurred. Any improvements placed over backfill should be designed to accommodate movement.

Underdrains

With long term development and subsequent irrigation, groundwater may develop and rise. Our firm typically advocates an underdrain system (if permitted) below sanitary sewer mains and services to control groundwater that may accumulate in response to development and provide a gravity outlet for foundation drains. If a gravity outfall for the underdrain system is not possible, an alternative would be to outfall underdrains to a wet well where water can be removed with a pump; maintenance should be expected with this option. It may not be practical to install underdrains at this site if a gravity discharge is not available. If an underdrain system is not installed, individual house foundation drains would discharge into sumps with pumps. Sump discharge can result in ponding and recycling if slopes between lots are not adequately graded and well-drained. Problems with chronic ice or algae formation on sidewalks have also developed from sump discharge.

The underdrain should consist of ¾ to 1½-inch clean, free-draining gravel surrounding rigid PVC pipe (Fig. 6). The pipe should be sized for anticipated flow by the civil engineer and may consist of 4 or 6-inch lines. The PVC pipe should be placed at a grade of at least 0.5 percent. A concrete cutoff should be constructed around the sewer pipe and underdrain pipe immediately downstream of the point where the underdrain pipe exits the sewer trench and transitions to the outlet (Fig. 7). The underdrains should be designed to discharge to a gravity outfall and be provided with a permanent concrete headwall and trash rack. If the underdrain discharges into a detention pond, the risk of flood water backflow through the underdrain into basements should be evaluated. A check valve or backflow preventer can be considered. Where feasible, the underdrain services should be installed deep enough so that the lowest point of the basement foundation drain can be connected to the underdrain service as a gravity outlet (Fig. 8). Underdrain services can be 3-inch to avoid confusion with the 4 or 6-inch main line.

Sub-Fill Drain

A sub-fill drain is recommended along the bottom of the existing drainages where more than about 15 feet of site grading fill is planned. The drain should slope with the grade of the existing drainages and have a minimum slope of 0.5 percent. A typical sub-fill drain detail is provided as Fig. 9. A perforated pipe should be connected to the end of the drain and protected with a concrete headwall. The alignment and profile of the sub-fill drain should be shown in the development plans. We recommend re-routing the drainages to avoid installation of sub-fill drains below proposed building/structure footprints.

Preliminary Pavement Considerations

Pavement subgrade may consist of non-expansive or low swelling sand or sandstone, expansive clay, or fill of similar composition. Douglas County requires mitigation of expansive subgrade soil (swell of 2 percent or more when wetted under a confining pressure of 200 psf). The data indicates that pavement subgrade should be sub-excavated to a depth of at least 3.5 feet below bottom of pavement. Our experience is that most fill made from clayey soils and moisture conditioned to above optimum may swell more than 2 percent under these criteria. For this reason, Douglas County requires mitigation of potential heave damage beyond sub-excavation for clayey soils. This can consist of replacement with soils with swell less than 2 percent such as clean sand, silty sand, or possibly clayey sand; another option is chemical stabilization using cement, lime, fly-ash, or mixtures thereof. Replacement of the upper foot of the sub-excavation with CDOT Class 6 Aggregate Road Base is a common alternative.

The table below presents the minimum pavement sections as outlined in Table 5.7 in the Douglas County Roadway Design and Technical Criteria Manual. The sections below do not include potential swelling soil mitigation that may consist of chemical amendment or additional road base. Douglas County does not allow asphalt

placed direction on soil subgrade; i.e., no aggregate base course. These estimates are for preliminary planning purposes. A design-level subgrade investigation and pavement design should be performed prior to paving.

TABLE II:
DOUGLAS COUNTY
PRELIMINARY PLANNING DESIGN PAVEMENT SECTIONS

Roadway Classification	Hot Mix Asphalt Concrete (HMAC) + Aggregate Base Course (ABC)	Portland Cement Concrete (PCC)
Local Residential	4” HMAC + 6” ABC	6” PCC

BUILDING CONSTRUCTION CONSIDERATIONS

The following discussions are preliminary and are not intended for design or construction. After grading is completed, design-level investigations should be performed on a lot-specific basis.

Foundations

Our investigation indicates expansive clay and claystone are present at depths likely to influence the performance of shallow foundations and surface flatwork. Footing foundations can likely be used provided non-expansive or low swelling conditions are present, or where sub-excavation of expansive material is performed (if merited). Drilled piers can be considered instead of sub-excavation. We recommend additional borings to further delineate areas that may or may not merit sub-excavation. Additional investigation of each lot should be conducted after grading and sub-excavation are completed.

Slab-On-Grade Construction

Structurally supported floors are required in first floor living areas. Slab-on-grade basement floors may be considered on low and some moderate swell sites

where potential heave is acceptable to builders and home buyers. Structurally supported basement floors should be used on all sites with high or very high risk of poor basement slab performance. Sub-excavation should reduce potential heave to about 2 inches or less on lots where high swell soils are sub-excavated and should allow wider use of slab-on-grade floors.

The performance of garage floors, driveways, sidewalks, and other surface flatwork will likely be poor where high swell materials are shallow, unless sub-excavation is performed. The following precautions will be required to reduce the potential for damage due to movement of slabs-on-grade for this site.

1. Isolation of the slabs from foundation walls, columns and other slab penetrations;

2. Voiding of interior partition walls to allow for slab movement without transferring movement to the structure;

3. Flexible water and gas connections to allow for slab movement. A flexible plenum above furnaces will be required; and

4. Proper surface grading and foundation drain installation to reduce water availability to sub-slab and foundation soils

Below-Grade Areas

Surface water can penetrate relatively permeable loose backfill soils located adjacent to residences and collect at the bottom of relatively impermeable basement excavations causing wet or moist conditions. Basement foundation walls should be designed for lateral earth pressures. Foundation drains should be constructed around the lowest excavation levels and ideally should be connected to an underdrain system (if permitted) to provide a gravity outlet. The drains can be connected to a sump pit where water can be removed by pumping if an underdrain is not provided.

Surface Drainage

The performance of improvements will be influenced by surface drainage. When developing an overall drainage scheme, consideration should be given to drainage around each residence. The ground surface around the residences should be sloped to provide positive drainage away from the foundations. We recommend a slope of at least 10 percent for the first 10 feet surrounding each residence, where practical. If the distance between houses is less than 20 feet, the slope in this area should be 10 percent to the swale between houses. Where possible, drainage swales should slope at least 2 percent. Variation from these criteria is acceptable in some areas. For examples, for lots graded to direct drainage from the rear yard to the front, it is difficult to achieve the recommended slope at the high point behind a house. We believe it is acceptable to use a slope of about 6 inches in the first 10 feet (5 percent) in this instance and others when achieving 10 percent is not practical. Roof downspouts and other water collection systems should discharge beyond the limits of all backfill around structures.

Proper control of surface runoff is also important to control the erosion of surface soils. Sheet flow should not be directed over unprotected slopes. Water should not be allowed to pond at the crest of slopes. Permanent slopes should be prepared in such a way to reduce erosion.

Attention should be paid to compact the soils behind curb and gutter adjacent to streets and in utility trenches during the development. If surface drainage between preliminary development and construction phases is neglected, performance of the roadways, flatwork and foundations may be poor.

Concrete

Concrete in contact with soil can be subject to sulfate attack. We measured water-soluble sulfate concentrations in two samples from this site. Concentrations

were measured at less than 0.01 and 0.05 percent. For this level of sulfate concentration, ACI 332-20 *Code Requirements for Residential Concrete* indicates there are no special requirements for sulfate resistance. Superficial damage may occur to the above grade exposed surfaces of concrete walls and grade beams in contact with soils, even though sulfate levels are relatively low. To control this risk and to resist freeze-thaw deterioration, the water-to-cementitious materials ratio should not exceed 0.50 for concrete in contact with soils that are likely to stay moist due to surface drainage or high water tables. Concrete should have a total air content of 6 percent +/- 1.5 percent. We advocate all foundation walls and grade beams in contact with the subsoils (including the inside and outside faces of garage and crawl space grade beams) be damp-proofed.

RECOMMENDED FUTURE INVESTIGATIONS

We recommend the following investigations and services:

1. Additional investigation to evaluate potential sub-excavation extent and depths once site use and grading plans have been finalized, or site grading has been completed;
2. Construction testing and observation during site development, grading, and pavement construction;
3. Subgrade investigation and pavement design(s) after grading;
4. Design-level Soils and Foundation Investigation(s) after grading or sub-excavation is completed; and
5. Foundation installation observations.

CONSTRUCTION OBSERVATIONS

We recommend that CTL|Thompson, Inc. provide construction observation services to allow us the opportunity to verify whether soil conditions are consistent with those found during this investigation. If others perform these observations, they

must accept responsibility to judge whether the recommendations in this report remain appropriate.

GEOTECHNICAL RISK

The concept of risk is an important aspect with any geotechnical evaluation primarily because the methods used to develop geotechnical recommendations do not comprise an exact science. We never have complete knowledge of subsurface conditions. Our analysis must be tempered with engineering judgment and experience. Therefore, the recommendations presented in any geotechnical evaluation should not be considered risk-free. Our recommendations represent our judgment of those measures that are necessary to increase the chances that the structures will perform satisfactorily. It is critical that all recommendations in this report are followed during construction.

LIMITATIONS

This report has been prepared for the exclusive use of Affinity Holdings, LLC and your design and construction team to provide geotechnical design and construction criteria for development of the subject site. The information, conclusions, and recommendations presented herein are based upon consideration of many factors including, but not limited to, the type of structures proposed, the geologic setting, and the subsurface conditions encountered. The conclusions and recommendations contained in the report are not valid for use by others. Standards of practice evolve in the area of geotechnical engineering. The recommendations provided are appropriate for about three years. If the proposed residences are not constructed within about three years, we should be contacted to determine if we should update this report.

Our borings were widely spaced to provide a general picture of subsurface conditions for preliminary planning of development and residence construction. Variations in the subsoil conditions not indicated by our borings are likely. A representative

of our firm should observe the foundation excavations to verify the exposed subsoils are as anticipated. We believe this investigation was conducted in a manner consistent with that level of care and skill ordinarily used by geotechnical engineers practicing in this area at this time. No warranty, express or implied, is made.

If we can be of further service in discussing either the contents of this report or the analysis of the influence of subsurface conditions on the design of the proposed development, please call.

CTL | THOMPSON, INC.

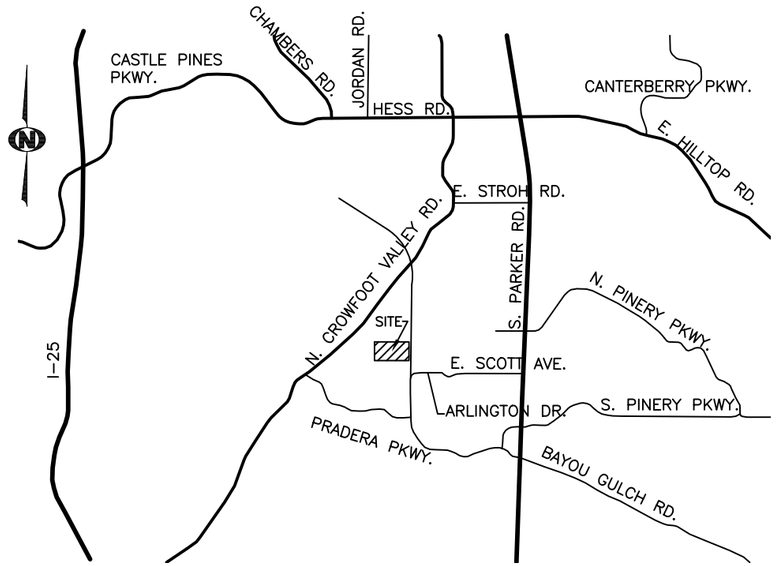
Robert J. Brown,
Staff Geologist

Reviewed by:

Matthew D. Monteith, P.E.
Senior Geotechnical Engineer, Associate

Via e-mail: caydb@affinholdings.com

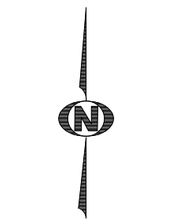




VICINITY MAP
NOT TO SCALE

LEGEND:

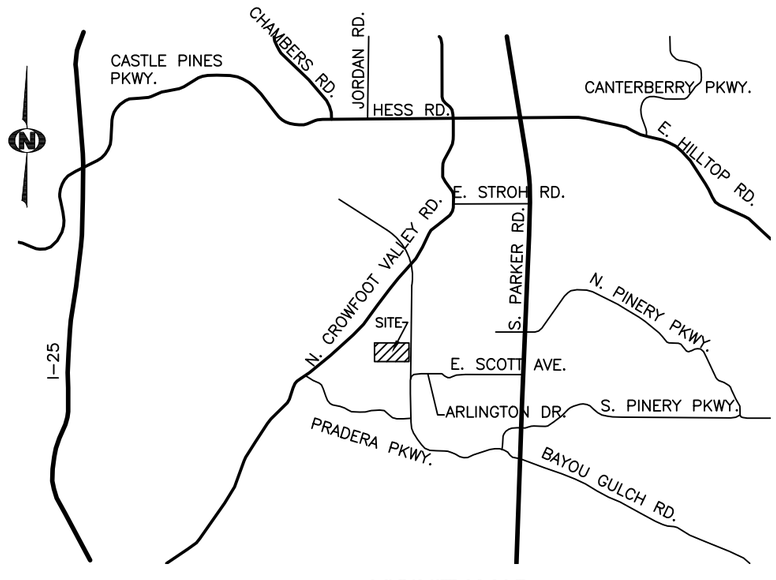
TH–1 APPROXIMATE LOCATION OF EXPLORATORY BORING



0 150 300
SCALE: 1" = 300'

Locations of Exploratory Borings (Aerial Image) Fig. 1A



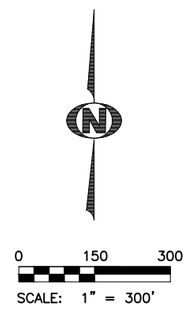


VICINITY MAP
NOT TO SCALE

LEGEND:

TH-1 APPROXIMATE LOCATION OF EXPLORATORY BORING

TOPOGRAPHIC CONTOURS PROVIDED ON SITE PLAN



Locations of Exploratory Borings (Site Plan)

Fig. 1B



LEGEND:

TH–1 ●	APPROXIMATE LOCATION OF EXPLORATORY BORING
(8)	ESTIMATED DEPTH TO BEDROCK SURFACE (FEET)
[6171]	APPROXIMATE BEDROCK SURFACE ELEVATION (FEET)

NOTE: THIS ESTIMATE WAS BASED UPON A SUBJECTIVE ANALYSIS OF DRILL HOLE DATA AND MAY NOT REFLECT LOCAL VARIATIONS.

N

0 150 300

SCALE: 1" = 300'

Surface Diagram of Bedrock

Fig. 2

AFFINITY HOLDINGS, LLC
BAYOU GULCH ROAD AND PRESIDO PARKWAY PARCEL
CTLT Project No. DN51,524-115-R1



LEGEND:

TH–1 ●	APPROXIMATE LOCATION OF EXPLORATORY BORING
(21.5)	MEASURED DEPTH OF GROUNDWATER SURFACE ON APRIL 14, 2022 (FEET)
[6157.5]	APPROXIMATE ELEVATION OF GROUNDWATER SURFACE ON APRIL 14, 2022 (FEET)
GNE	GROUNDWATER NOT ENCOUNTERED

NOTE: THIS ESTIMATE WAS BASED UPON A SUBJECTIVE ANALYSIS OF DRILL HOLE DATA AND MAY NOT REFLECT LOCAL VARIATIONS AND SEASONAL FLUCTUATIONS.

N

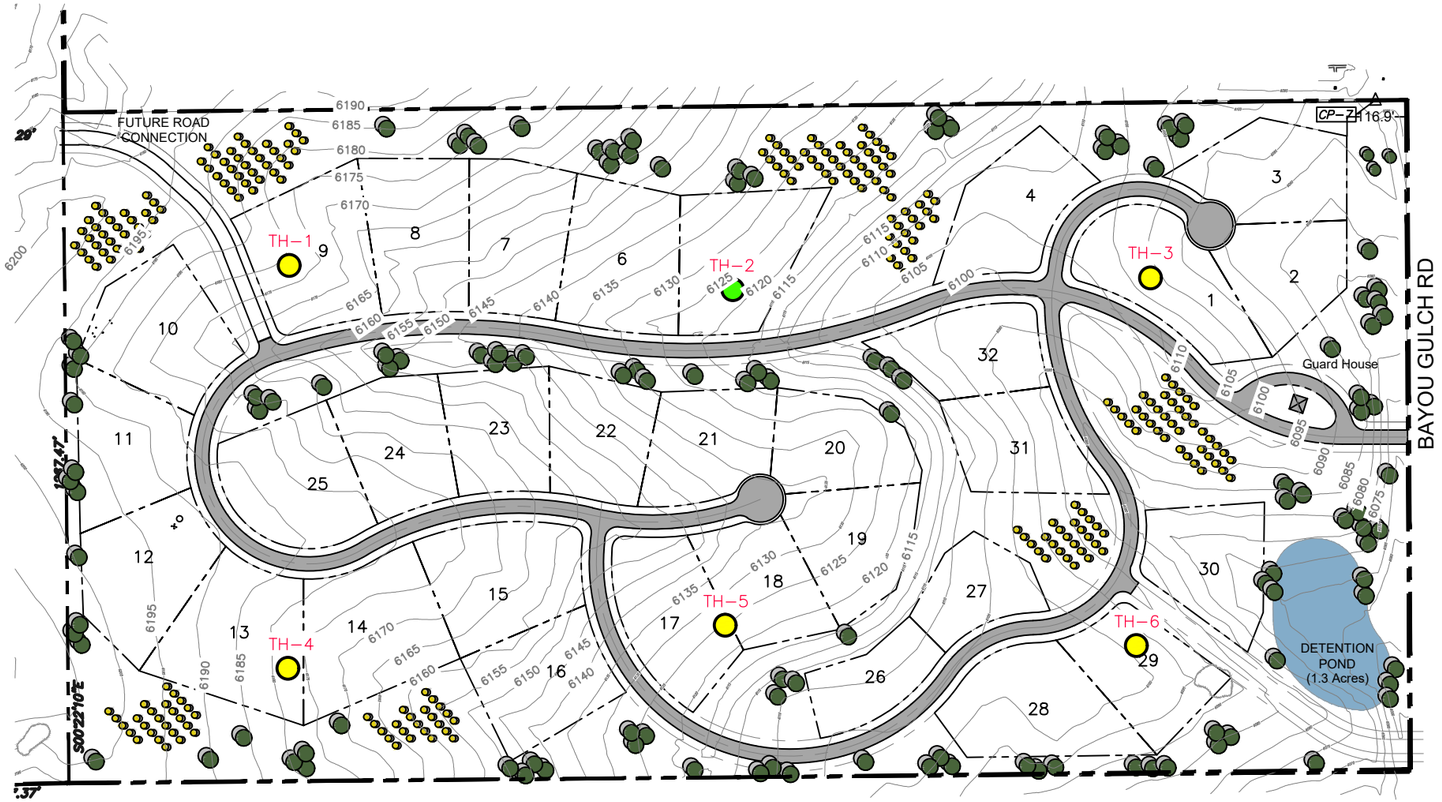
0 150 300

SCALE: 1" = 300'

Groundwater Surface Diagram

Fig. 3

AFFINITY HOLDINGS, LLC
BAYOU GULCH ROAD AND PRESIDO PARKWAY PARCEL
CTLT Project No. DN51,524-115-R1



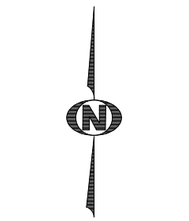
LEGEND:

TH-1 ● APPROXIMATE LOCATION OF EXPLORATORY BORING

● LOW RISK

● MODERATE RISK

NOTE: THIS ESTIMATE WAS BASED UPON A SUBJECTIVE ANALYSIS OF LABORATORY TEST RESULTS AND DRILL HOLE DATA.



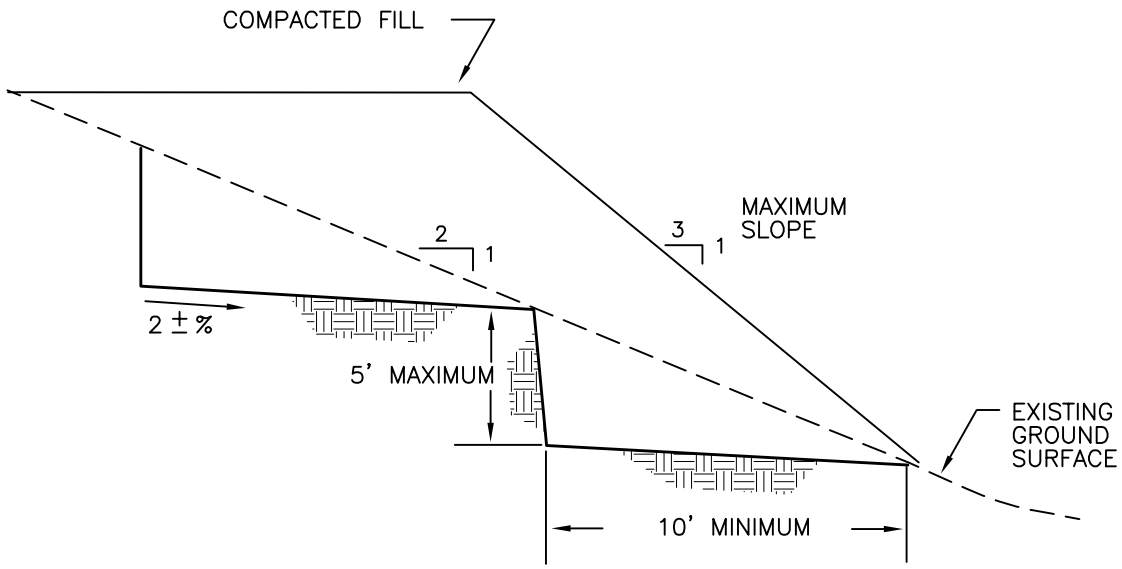
0 150 300

SCALE: 1" = 300'

Preliminary Risk Assessment For Expansive Soils and Bedrock

Fig. 4

60-BENCHED-FILL_01



NOTES:

1) NATURAL SLOPES OF 20 PERCENT OR STEEPER ARE TO BE BENCHED PRIOR TO FILL PLACEMENT.

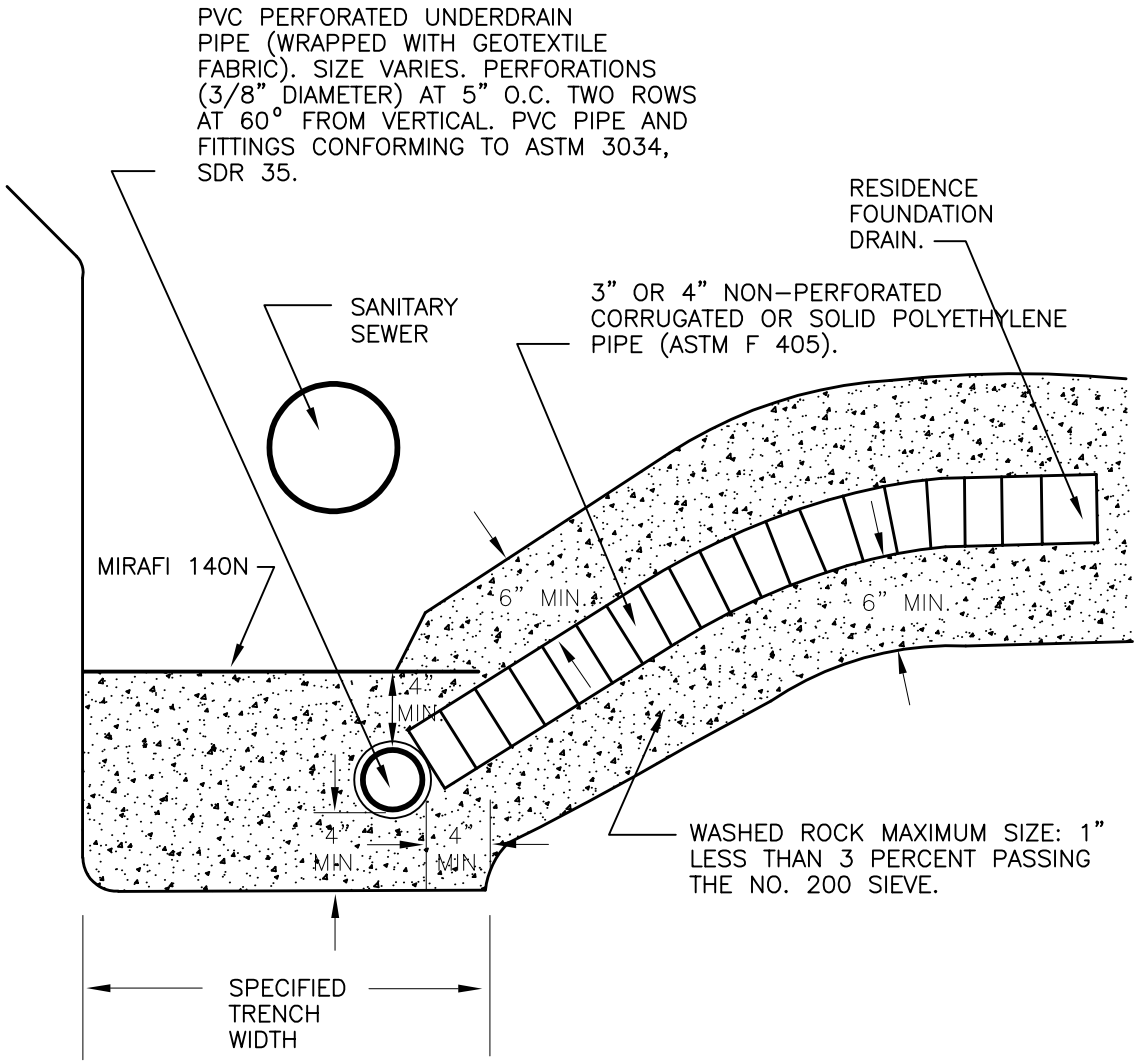
2) SLOPE BENCHES TO OUTSLOPE AT 2± PERCENT.

NOT TO SCALE

Benched Fill Detail

Fig. 5 1119

50-UNDERDRAIN_02



NOTE: NOT TO SCALE.

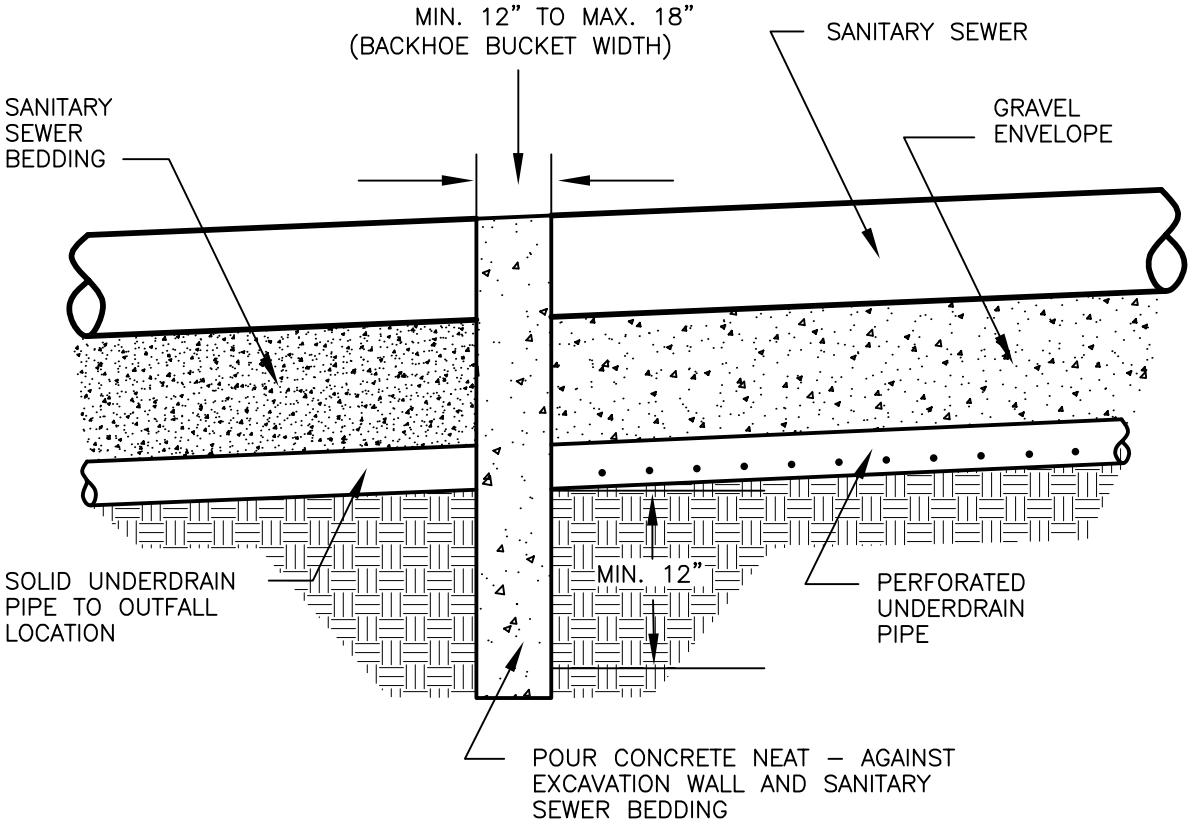
Sewer Underdrain Detail

Fig. 6

1120

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50-UNDERDRAIN_05

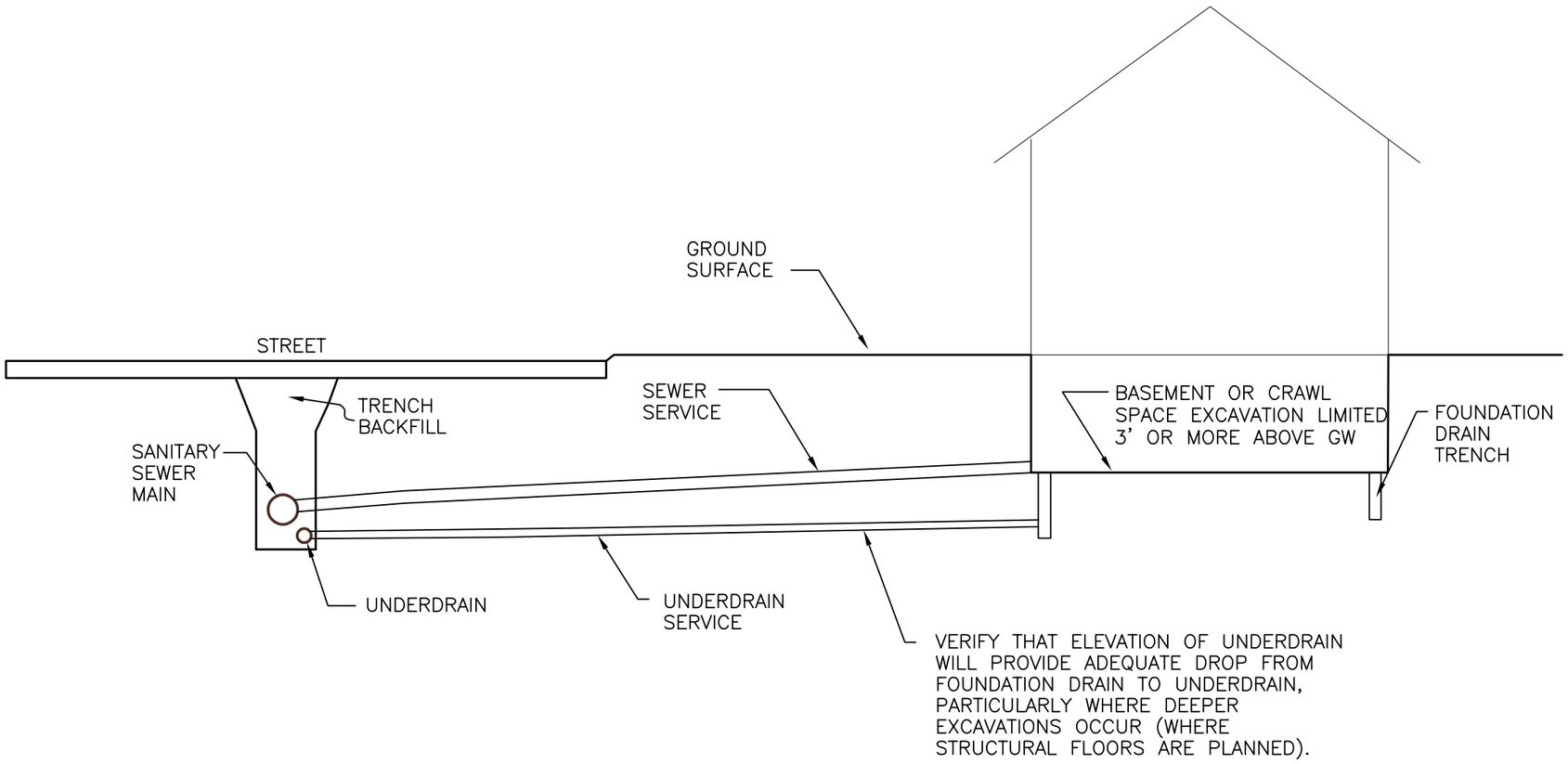


NOTE:
THE CONCRETE CUTOFF WALL SHOULD EXTEND INTO THE UNDISTURBED SOILS OUTSIDE THE UNDERDRAIN AND SANITARY SEWER TRENCH A MINIMUM DISTANCE OF 12 INCHES.

Underdrain Cutoff Wall Detail

Fig. 7

1121



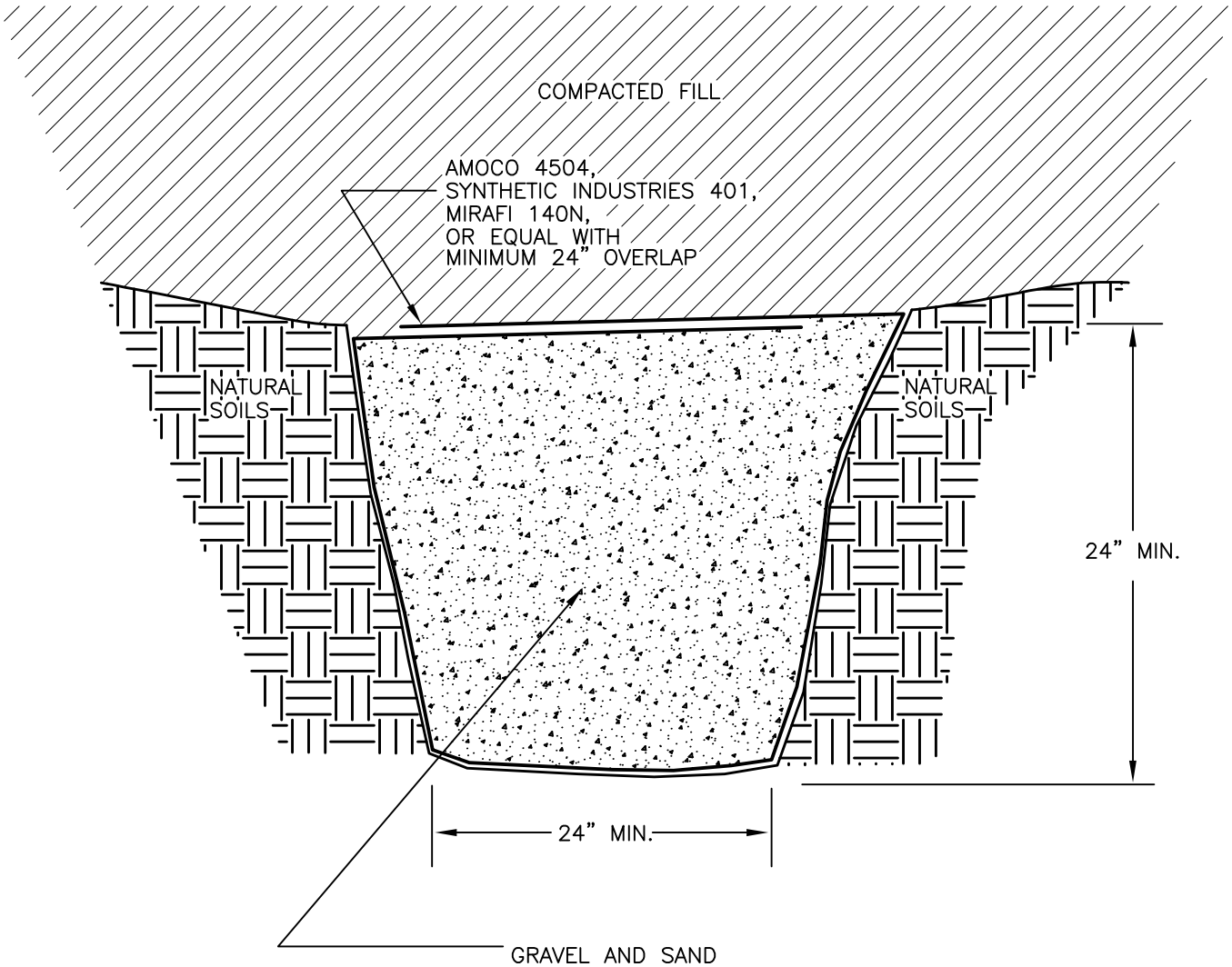
NOT TO SCALE

AFFINITY HOLDINGS, LLC
BAYOU GULCH ROAD AND PRESIDO PARKWAY PARCEL
CTL Project No. DN51,524-115-R1

Conceptual Underdrain Profile

Fig. 8

40-SUBDRAIN_01



SIEVE SIZE	% PASSING
1 1/2"	100
3/4"	82–100
3/8"	64–80
#4	46–64
#8	34–52
#16	25–42
#30	12–30
#50	5–15
#100	1–3
#200	0–1

NOTE:
THE SAND AND GRAVEL GRADATION CAN BE MET BY MIXING COURSE CONCRETE AGGREGATE NO. 57 AND FINE CONCRETE AGGREGATE NO. 67 IN EQUAL PARTS BY WEIGHT.

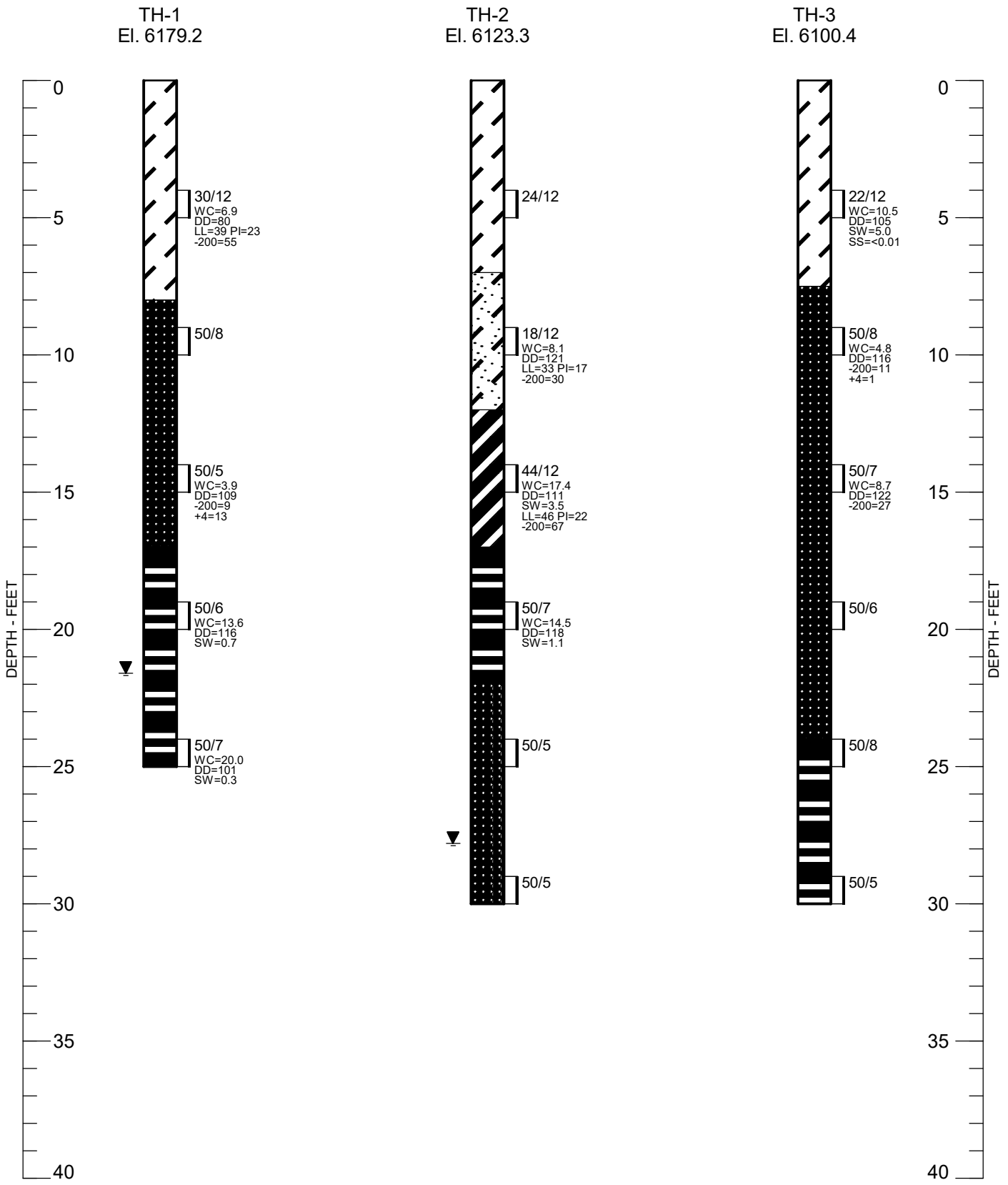
AFFINITY HOLDINGS, LLC
BAYOU GULCH ROAD AND PRESIDO PARKWAY PARCEL
CTLT Project No. DN51,524-115-R1

Drainage Sub-Drain

Fig. 9

1123

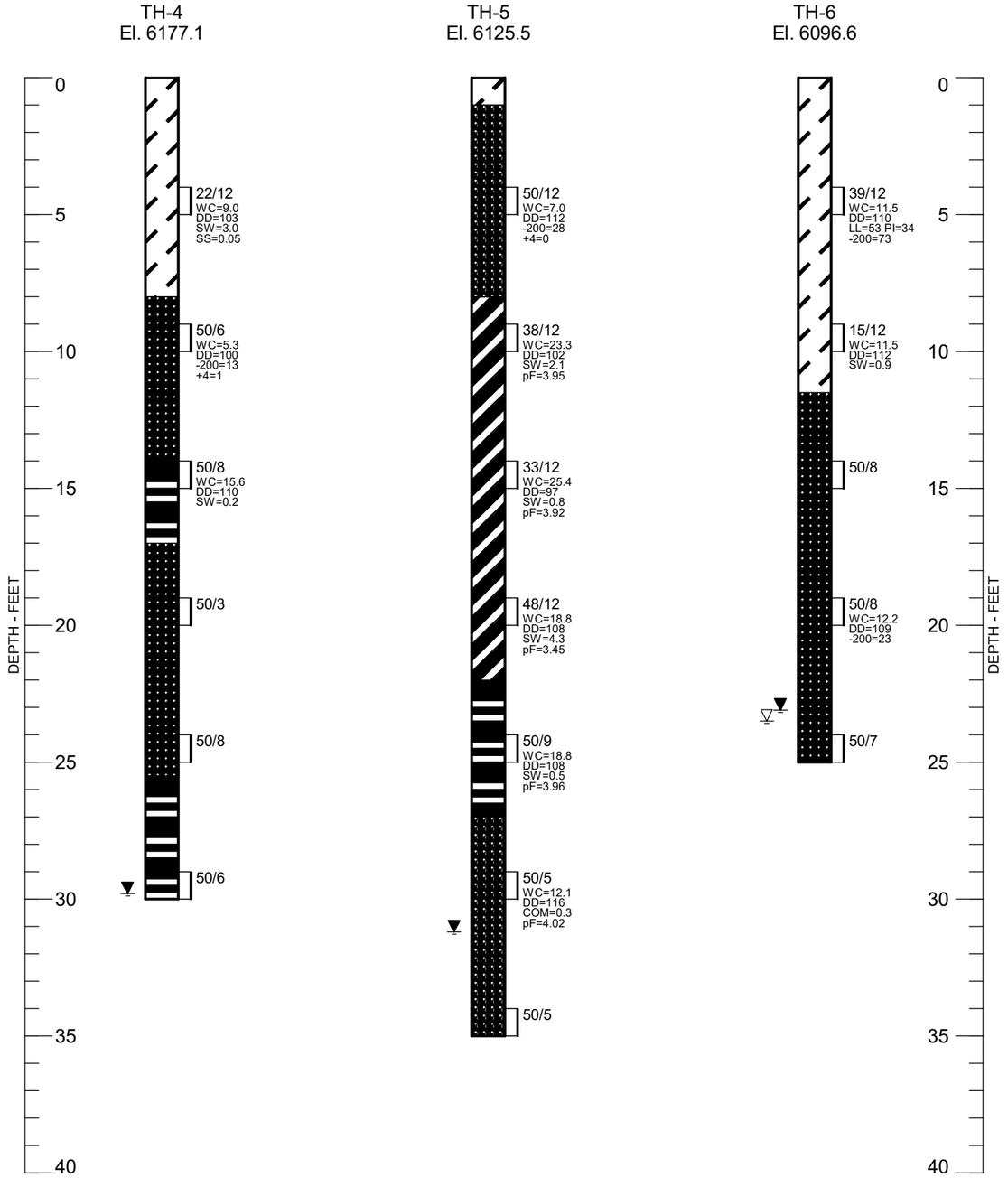
APPENDIX A
SUMMARY LOGS OF EXPLORATORY BORINGS



SUMMARY LOGS OF EXPLORATORY BORINGS

AFFINITY HOLDINGS, LLC
BAYOU GULCH ROAD AND PRESIDO PARKWAY PARCEL
CTL|T PROJECT NO. DN51,524-115-R1

FIG. A- 1



SUMMARY LOGS OF EXPLORATORY BORINGS

LEGEND:

CLAY, SANDY TO VERY SANDY, SILTY, VERY STIFF TO HARD, SLIGHTLY MOIST, BROWN, WHITE, GRAY, OLIVE (CL, CH).

SAND, CLAYEY, MEDIUM DENSE, SLIGHTLY MOIST, BROWN, WHITE, GRAY, OLIVE (SC).

WEATHERED CLAYSTONE, SANDY AT TIMES, SLIGHTLY MOIST, OLIVE, BROWN, RUST, GRAY (CL).

BEDROCK, SANDSTONE, SLIGHTLY SILTY TO SILTY, VARIABLE GRAVEL CONTENT, HARD TO VERY HARD, SLIGHTLY MOIST TO MOIST, TAN, WHITE, GRAY, PINK, RUST (SM, SC, SP-SC, SP-SM).

BEDROCK, CLAYSTONE, SANDY AT TIMES, MEDIUM HARD TO VERY HARD, SLIGHTLY MOIST, GRAY, RUST, TAN, OLIVE, WHITE (CL).

DRIVE SAMPLE. THE SYMBOL 30/12 INDICATES 30 BLOWS OF A 140-POUND HAMMER FALLING 30 INCHES WERE REQUIRED TO DRIVE A 2.5-INCH O.D. SAMPLER 12 INCHES.

WATER LEVEL MEASURED AT TIME OF DRILLING.

WATER LEVEL MEASURED AFTER DRILLING ON APRIL 14, 2022.

NOTES:

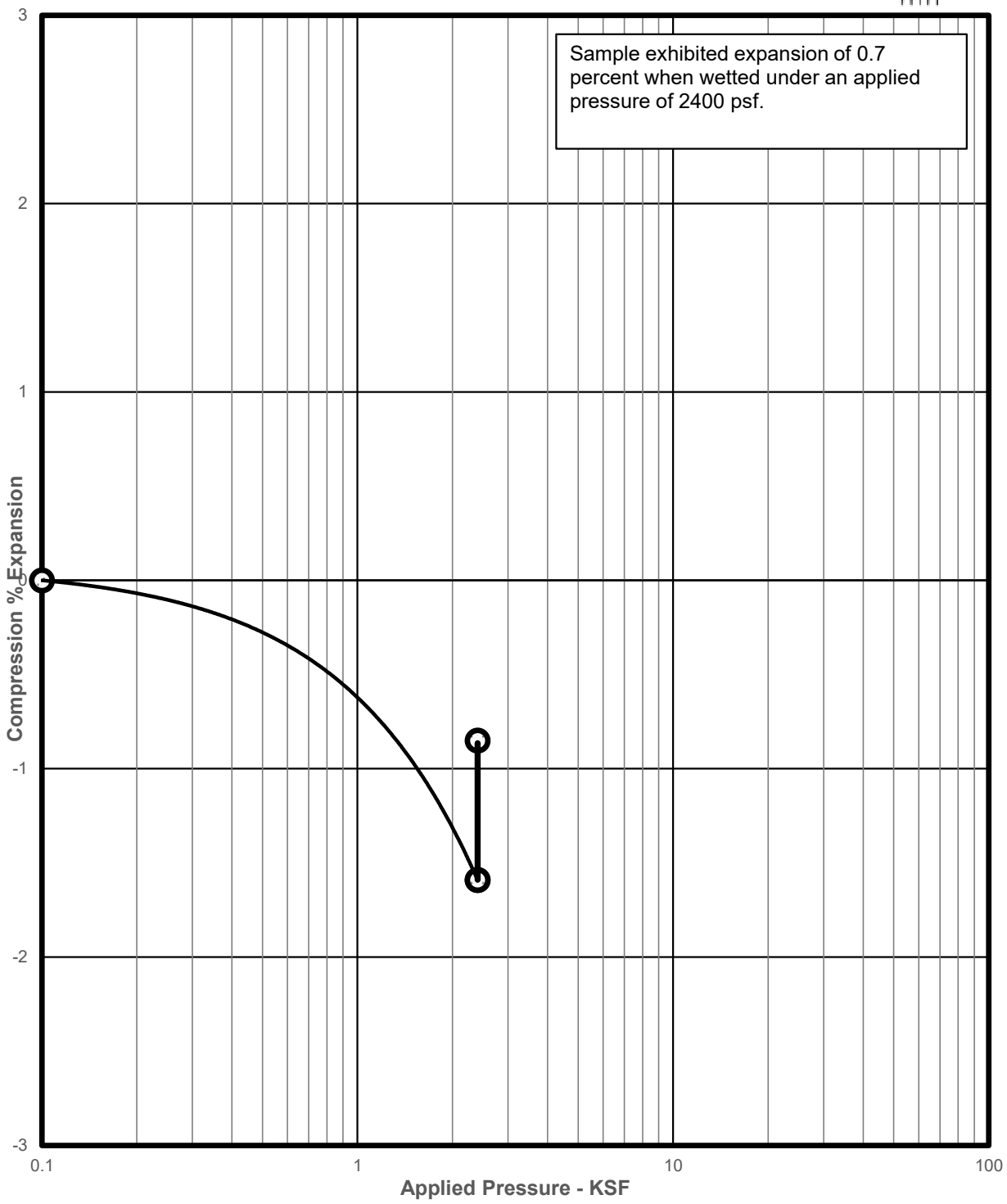
1. THE BORINGS WERE DRILLED ON APRIL 12, 2022 USING 4-INCH DIAMETER, CONTINUOUS-FLIGHT SOLID-STEM AUGER AND TRUCK-MOUNTED CME-45 DRILL RIG.
2. BORING LOCATIONS AND ELEVATIONS ARE APPROXIMATE AND WERE DETERMINED BY A REPRESENTATIVE OF OUR FIRM USING A LEICA GS18 GPS UNIT REFERENCING THE NORTH AMERICAN DATUM OF 1983 (NAD 83).
3. WC - INDICATES MOISTURE CONTENT (%).
   DD - INDICATES DRY DENSITY (PCF).
   SW - INDICATES SWELL WHEN WETTED UNDER APPROXIMATE OVERBURDEN PRESSURE (%).
   COM - INDICATES COMPRESSION WHEN WETTED UNDER APPROXIMATE OVERBURDEN PRESSURE (%).
   LL - INDICATES LIQUID LIMIT.
   PI - INDICATES PLASTICITY INDEX.
   -200 - INDICATES PASSING NO. 200 SIEVE (%).
   SS - INDICATES WATER-SOLUBLE SULFATE CONTENT (%).
   pF - INDICATES SOIL SUCTION VALUE (pF).
4. THESE LOGS ARE SUBJECT TO THE EXPLANATIONS, LIMITATIONS AND CONCLUSIONS CONTAINED IN THIS REPORT.

AFFINITY HOLDINGS, LLC
BAYOU GULCH ROAD AND PRESIDO PARKWAY PARCEL
CTL|T PROJECT NO. DN51,524-115-R1

FIG. A- 2

APPENDIX B

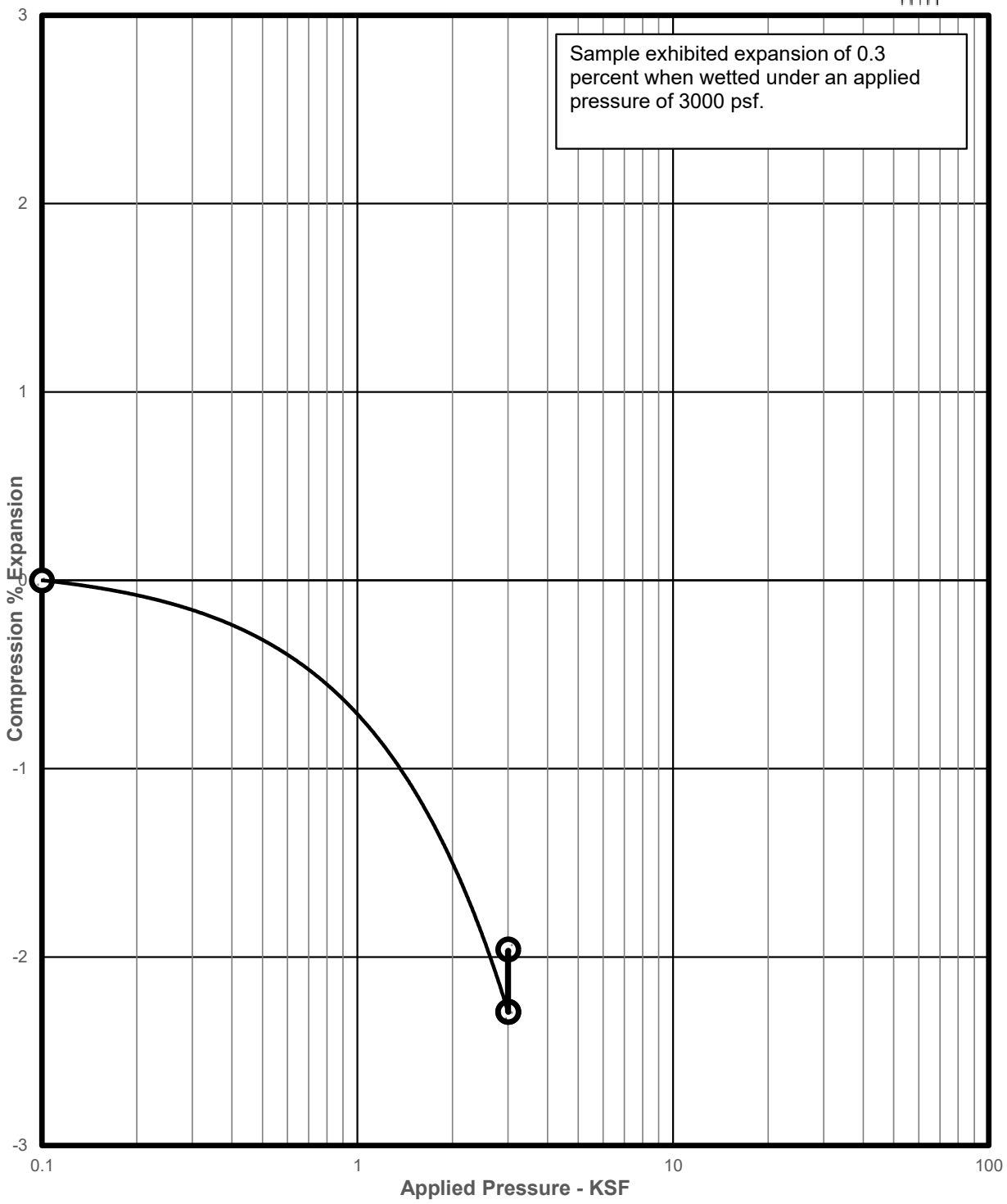
LABORATORY TEST RESULTS AND TABLE B-I



SAMPLE OF: CLAYSTONE DRY UNIT WEIGHT: 116 pcf
FROM: TH-1 AT 19 FEET MOISTURE CONTENT: 13.6 %

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CTL|T PROJECT NO. DN51,524-115-R1

Swell Consolidation Test Results FIG. B- 1

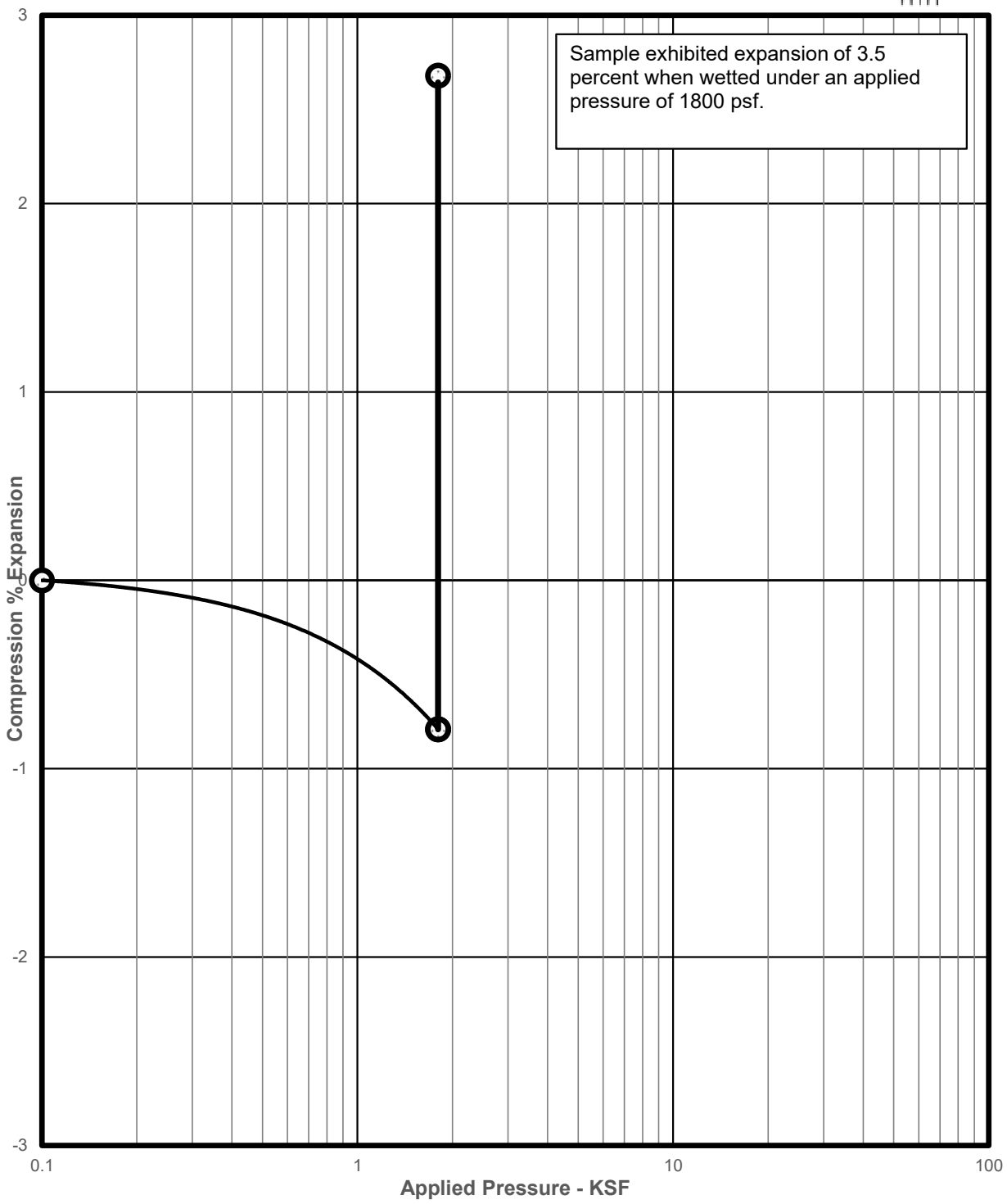


SAMPLE OF: CLAYSTONE
FROM: TH-1 AT 24 FEET

DRY UNIT WEIGHT: 101 pcf
MOISTURE CONTENT: 20.0 %

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CTL|T PROJECT NO. DN51,524-115-R1

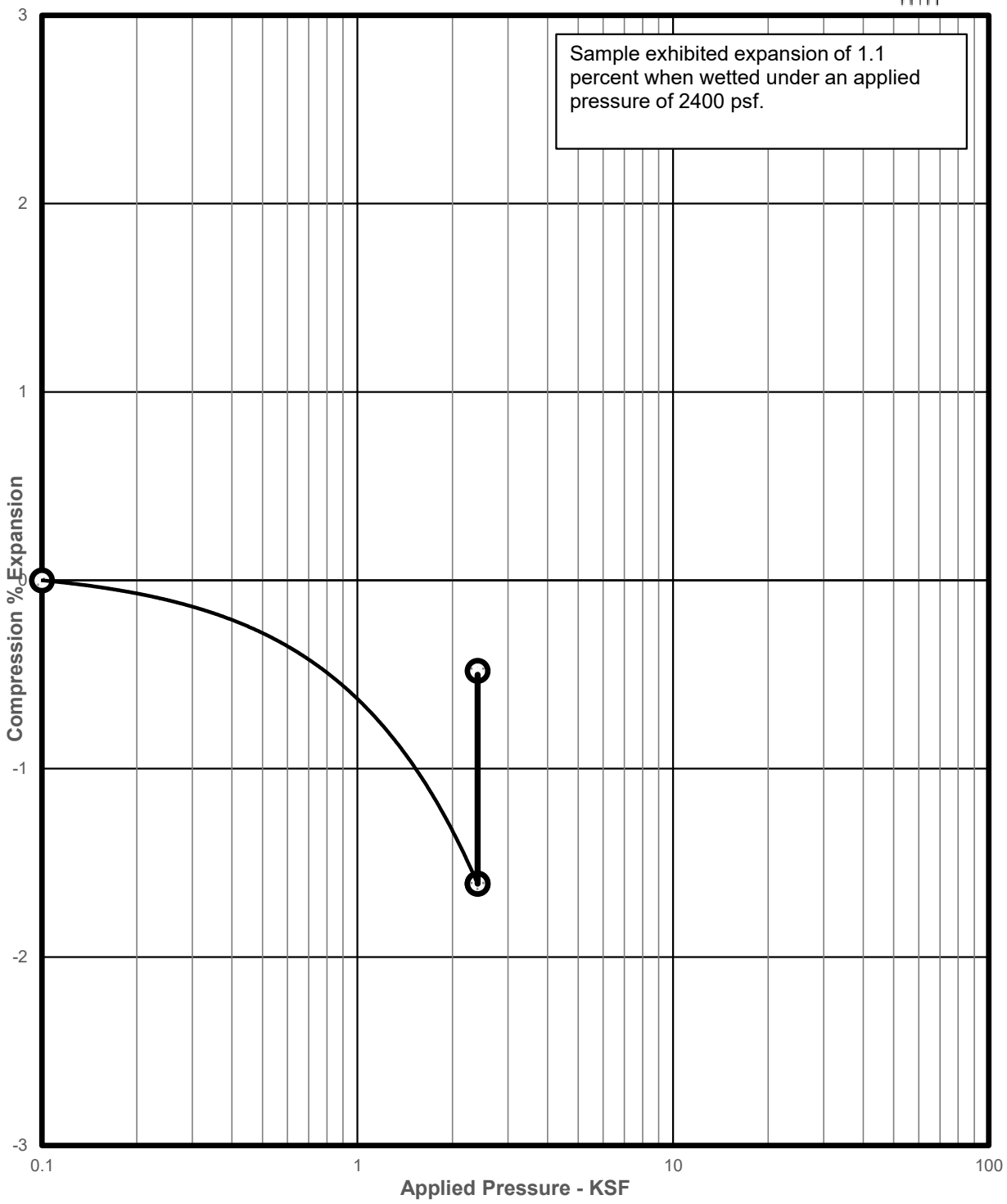
Swell Consolidation Test Results FIG. B- 2



SAMPLE OF: CLAYSTONE DRY UNIT WEIGHT: 111 pcf
FROM: TH-2 AT 14 FEET MOISTURE CONTENT: 17.4 %

AFFINITY HOLDINGS, LLC
BAYOU GULCH ROAD AND PRESIDO PARKWAY PARCEL
CTL|T PROJECT NO. DN51,524-115-R1

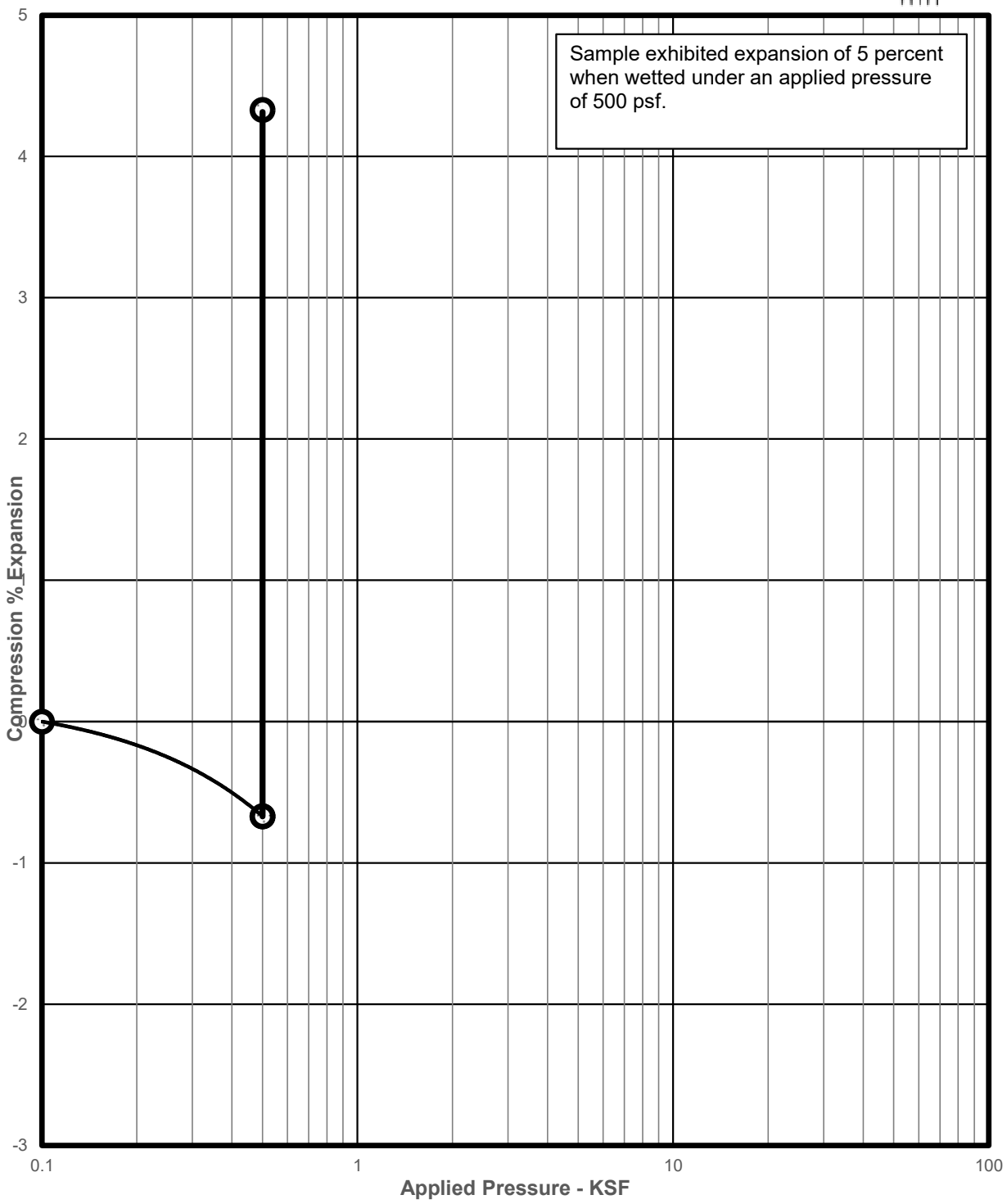
Swell Consolidation Test Results FIG. B- 3



SAMPLE OF: CLAYSTONE DRY UNIT WEIGHT: 118 pcf
FROM: TH-2 AT 19 FEET MOISTURE CONTENT: 14.5 %

AFFINITY HOLDINGS, LLC
BAYOU GULCH ROAD AND PRESIDO PARKWAY PARCEL
CTL|T PROJECT NO. DN51,524-115-R1

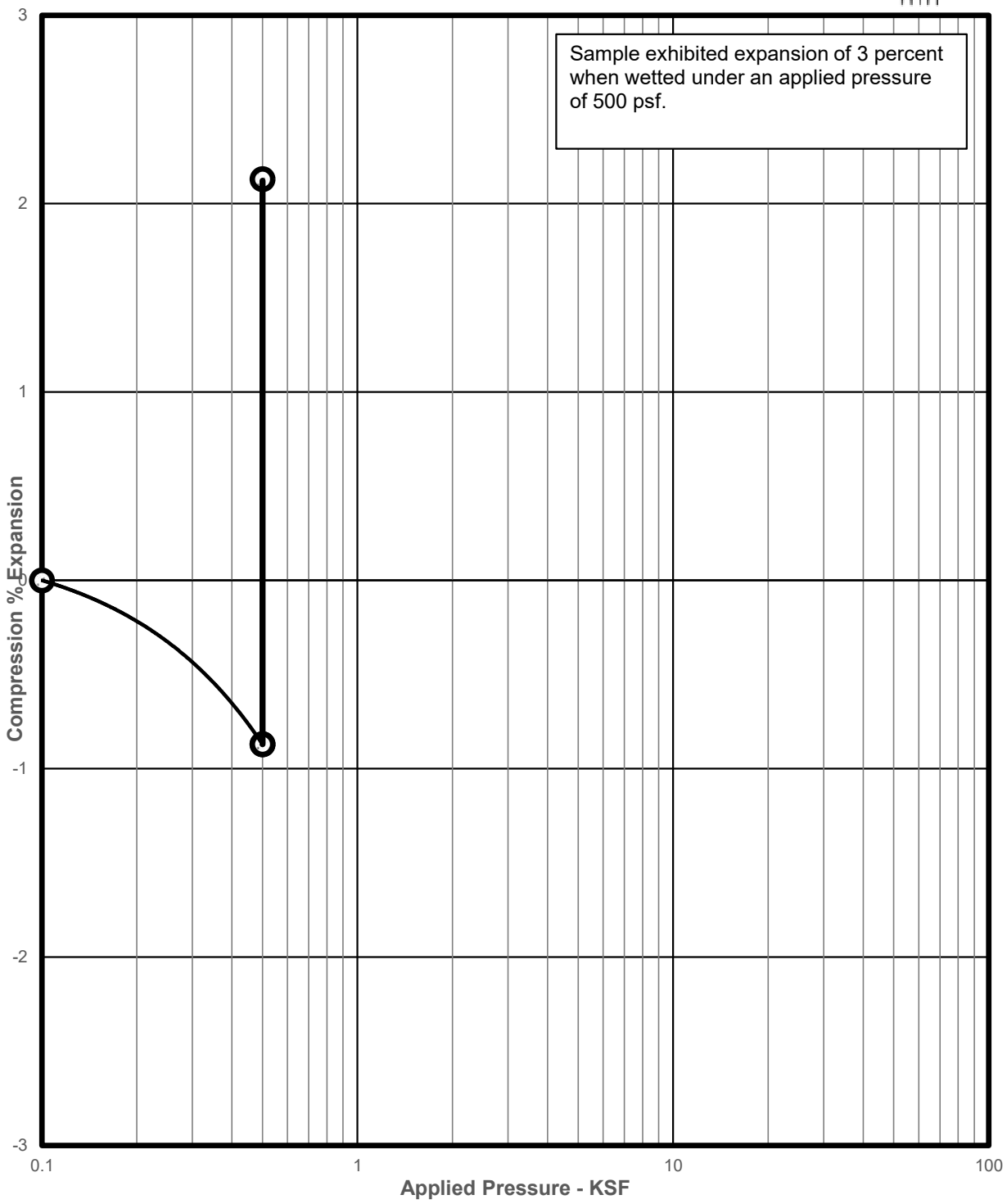
Swell Consolidation Test Results FIG. B- 4



SAMPLE OF: CLAY, SANDY (CL) DRY UNIT WEIGHT: 105 pcf
FROM: TH-3 AT 4 FEET MOISTURE CONTENT: 10.5 %

AFFINITY HOLDINGS, LLC
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CTL|T PROJECT NO. DN51,524-115-R1

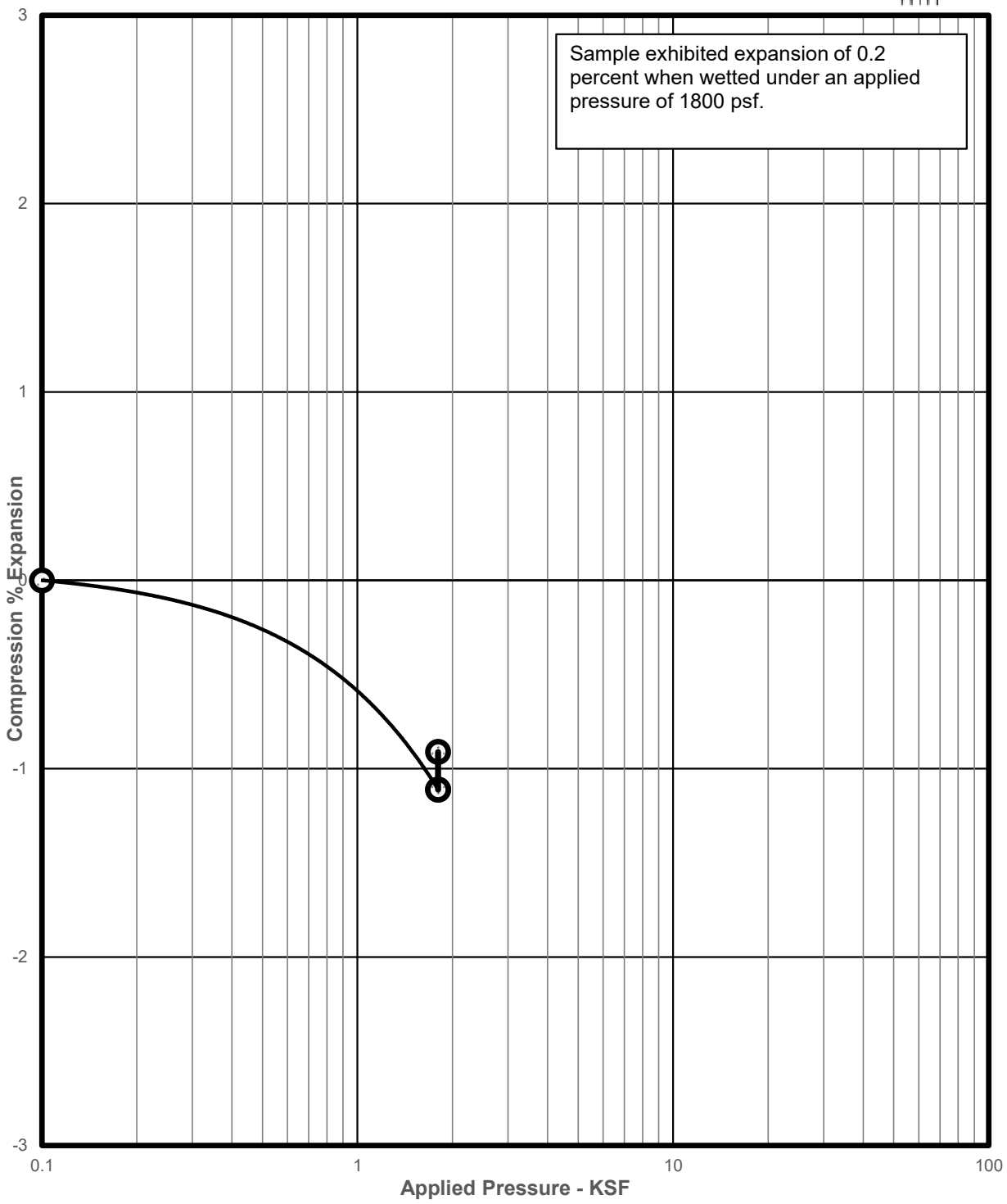
Swell Consolidation Test Results FIG. B- 5



SAMPLE OF: CLAY, SANDY (CL) DRY UNIT WEIGHT: 103 pcf
FROM: TH-4 AT 4 FEET MOISTURE CONTENT: 9.0 %

AFFINITY HOLDINGS, LLC
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CTL|T PROJECT NO. DN51,524-115-R1

Swell Consolidation Test Results FIG. B- 6

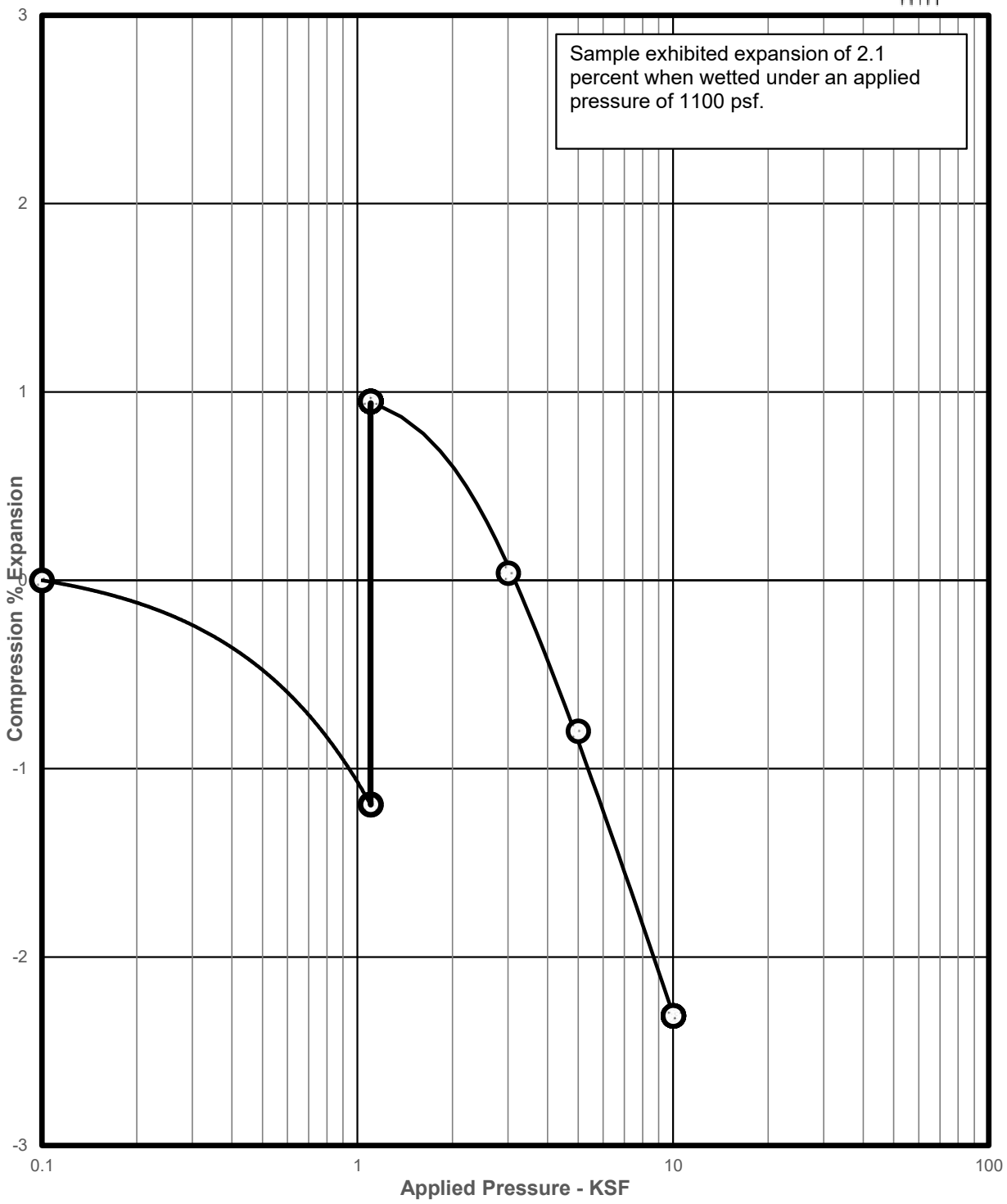


SAMPLE OF: CLAYSTONE
FROM: TH-4 AT 14 FEET

DRY UNIT WEIGHT: 110 pcf
MOISTURE CONTENT: 15.6 %

AFFINITY HOLDINGS, LLC
BAYOU GULCH ROAD AND PRESIDO PARKWAY PARCEL
CTL|T PROJECT NO. DN51,524-115-R1

Swell Consolidation Test Results FIG. B- 7

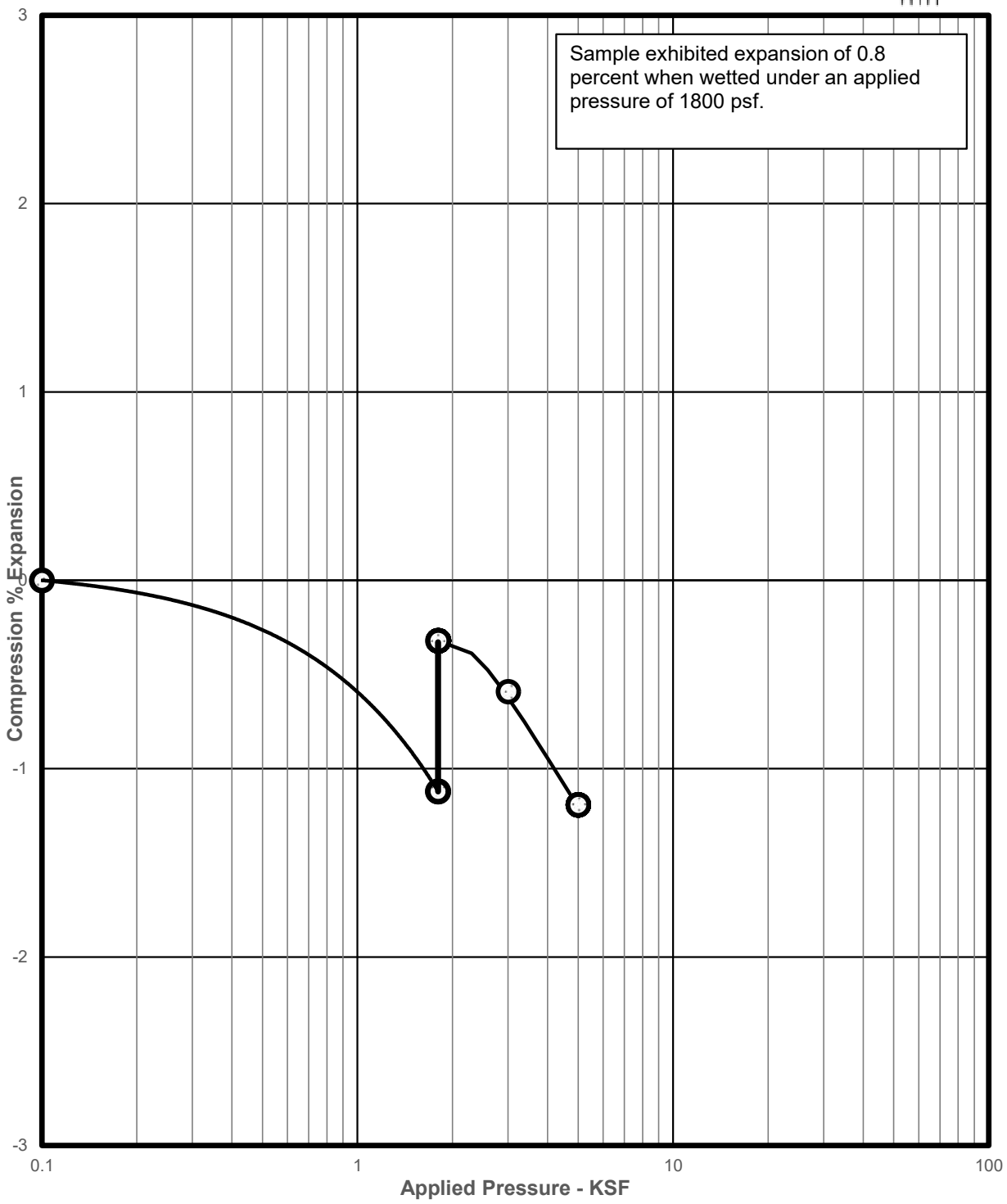


SAMPLE OF: CLAYSTONE
FROM: TH-5 AT 9 FEET

DRY UNIT WEIGHT: 102 pcf
MOISTURE CONTENT: 23.3 %

AFFINITY HOLDINGS, LLC
BAYOU GULCH ROAD AND PRESIDO PARKWAY PARCEL
CTL|T PROJECT NO. DN51,524-115-R1

Swell Consolidation Test Results FIG. B- 8

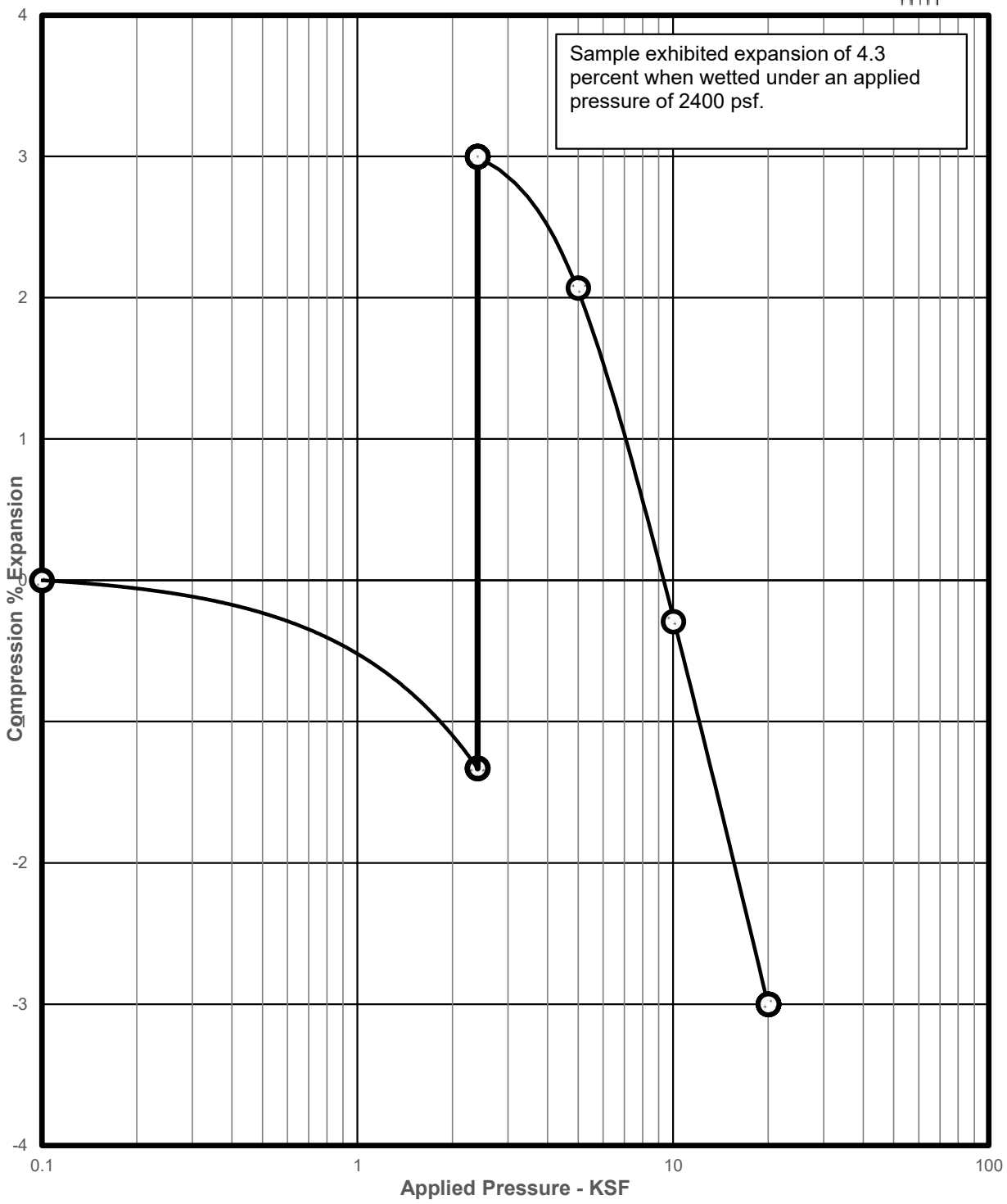


SAMPLE OF: CLAYSTONE
FROM: TH-5 AT 14 FEET

DRY UNIT WEIGHT: 97 pcf
MOISTURE CONTENT: 25.4 %

AFFINITY HOLDINGS, LLC
BAYOU GULCH ROAD AND PRESIDO PARKWAY PARCEL
CTL|T PROJECT NO. DN51,524-115-R1

Swell Consolidation Test Results FIG. B- 9

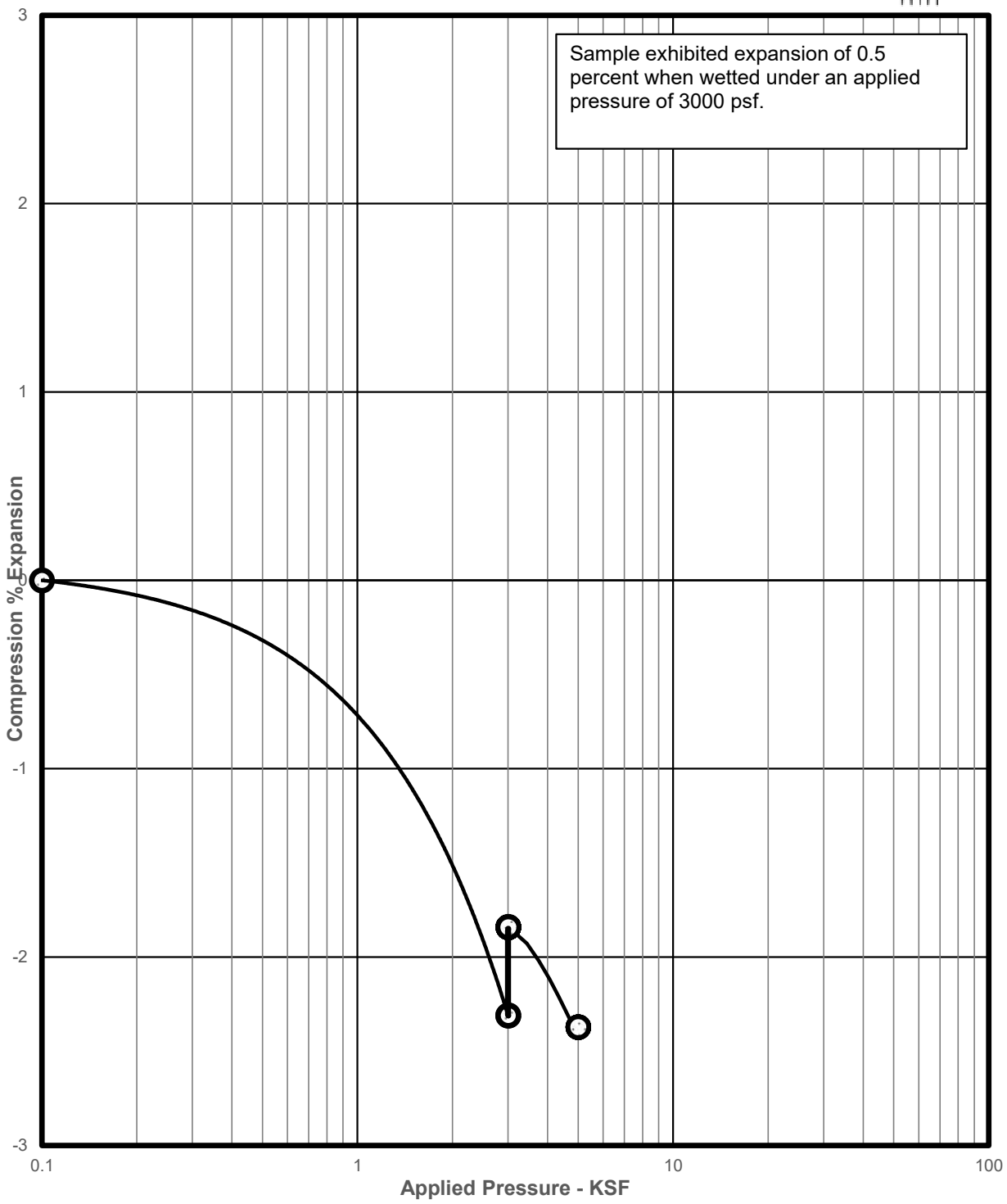


SAMPLE OF: CLAYSTONE
FROM: TH-5 AT 19 FEET

DRY UNIT WEIGHT: 108 pcf
MOISTURE CONTENT: 18.8 %

AFFINITY HOLDINGS, LLC
BAYOU GULCH ROAD AND PRESIDO PARKWAY PARCEL
CTL|T PROJECT NO. DN51,524-115-R1

Swell Consolidation Test Results FIG. B- 10

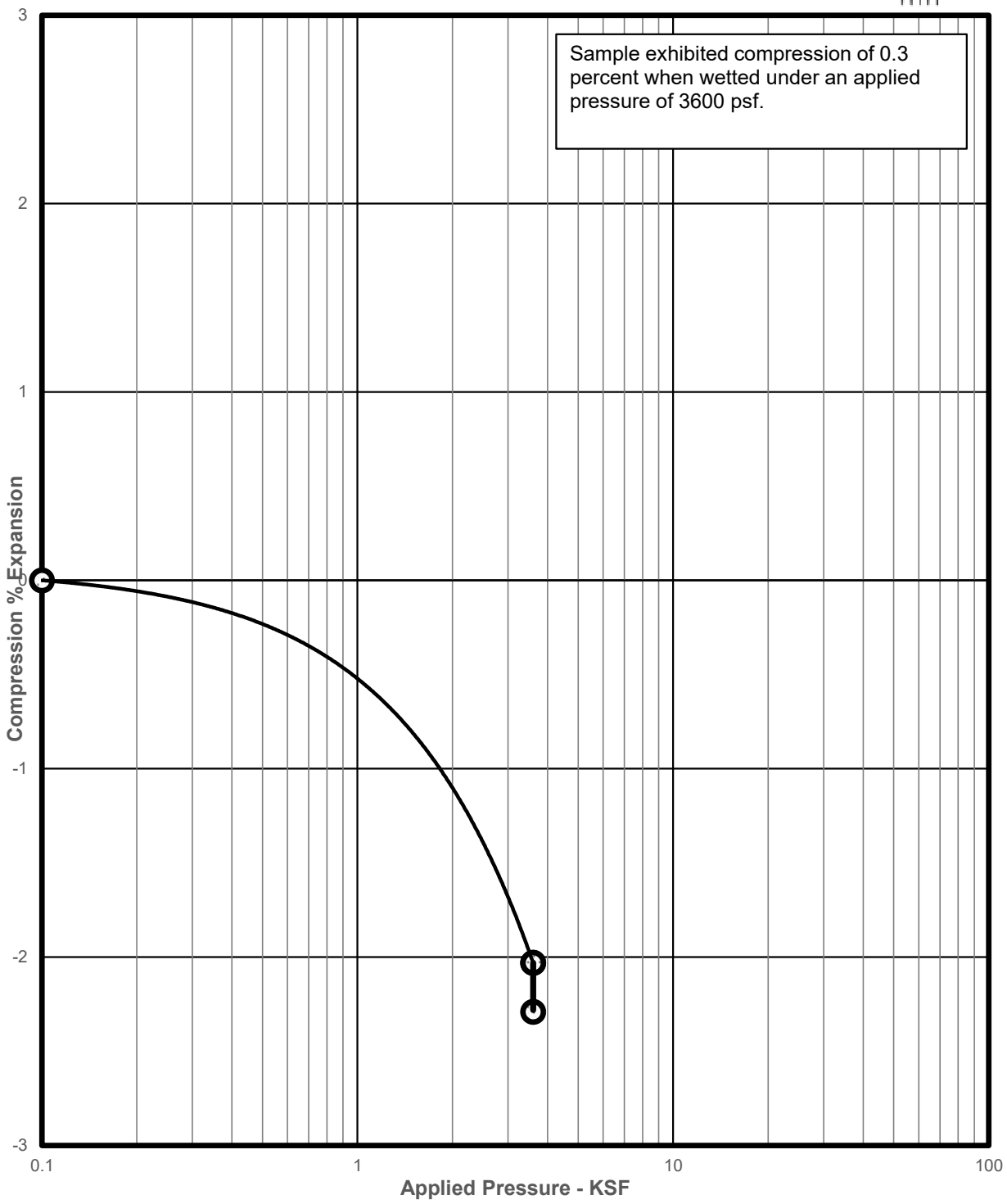


SAMPLE OF: CLAYSTONE
FROM: TH-5 AT 24 FEET

DRY UNIT WEIGHT: 108 pcf
MOISTURE CONTENT: 18.8 %

AFFINITY HOLDINGS, LLC
BAYOU GULCH ROAD AND PRESIDO PARKWAY PARCEL
CTL|T PROJECT NO. DN51,524-115-R1

Swell Consolidation Test Results FIG. B- 11

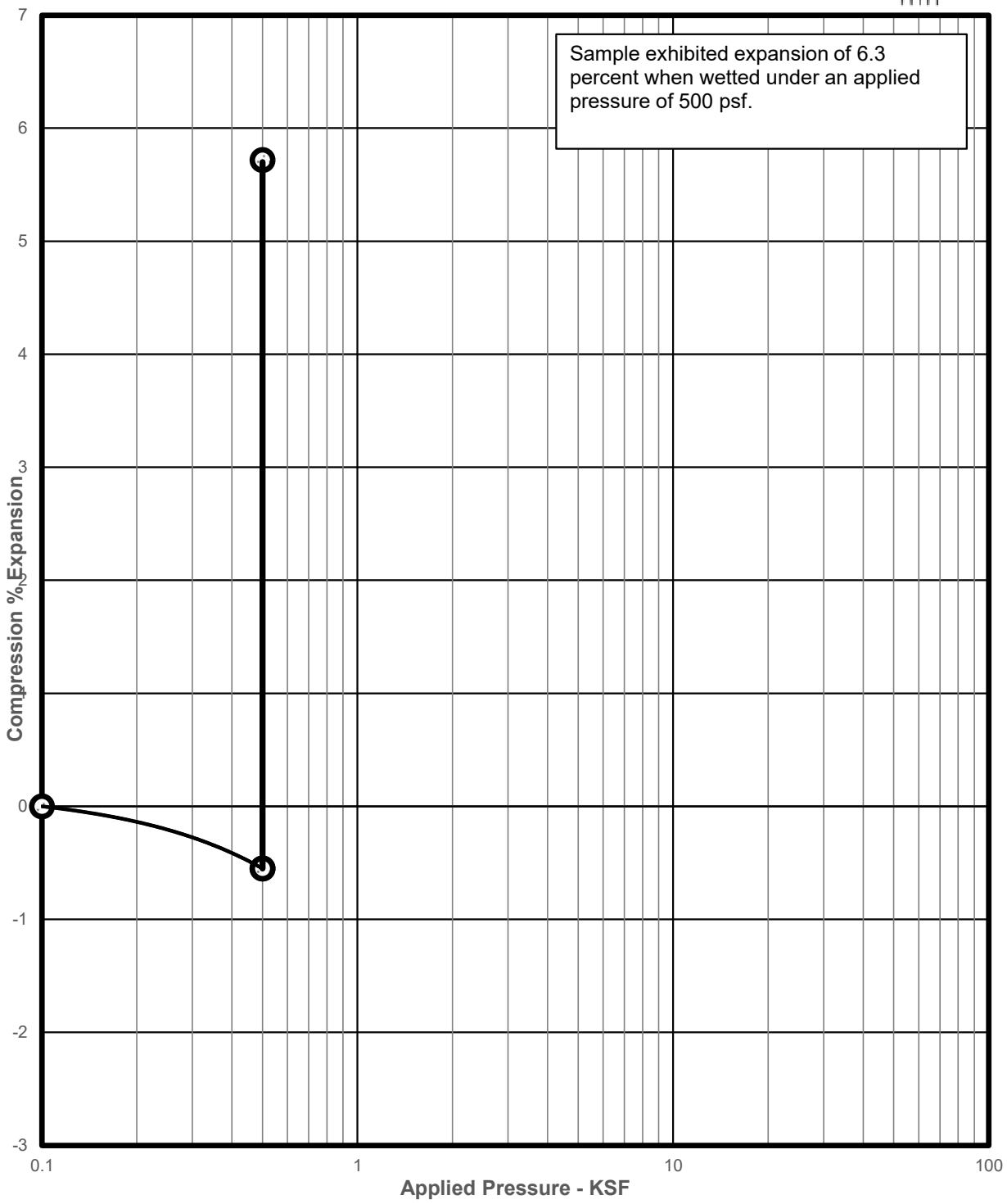


SAMPLE OF: SANDSTONE
FROM: TH-5 AT 29 FEET

DRY UNIT WEIGHT: 116 pcf
MOISTURE CONTENT: 12.1 %

AFFINITY HOLDINGS, LLC
BAYOU GULCH ROAD AND PRESIDO PARKWAY PARCEL
CTL|T PROJECT NO. DN51,524-115-R1

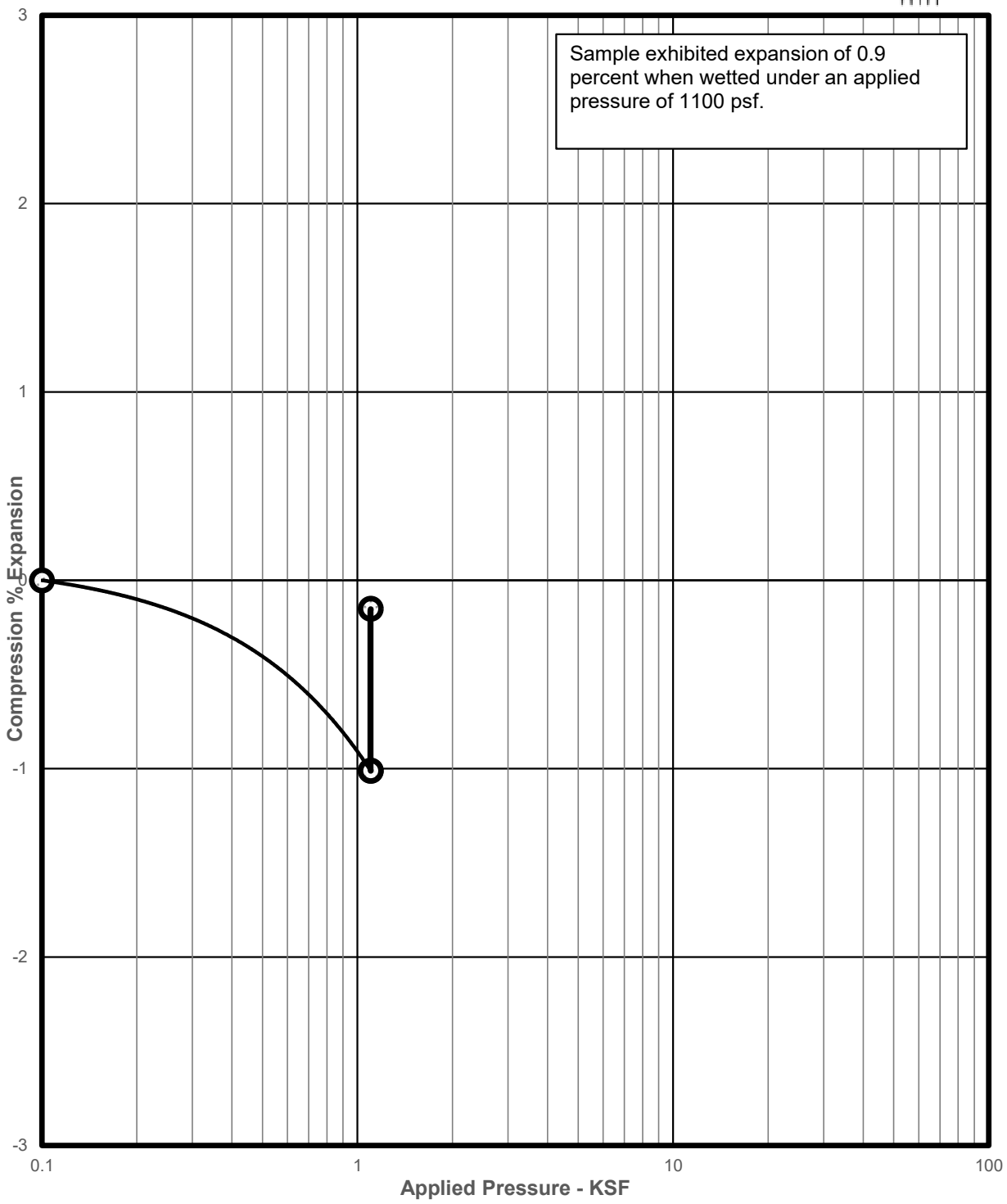
Swell Consolidation Test Results FIG. B- 12



SAMPLE OF: CLAY, SANDY (CL) DRY UNIT WEIGHT: 110 pcf
FROM: TH-6 AT 4 FEET MOISTURE CONTENT: 11.5 %

AFFINITY HOLDINGS, LLC
BAYOU GULCH ROAD AND PRESIDO PARKWAY PARCEL
CTL|T PROJECT NO. DN51,524-115-R1

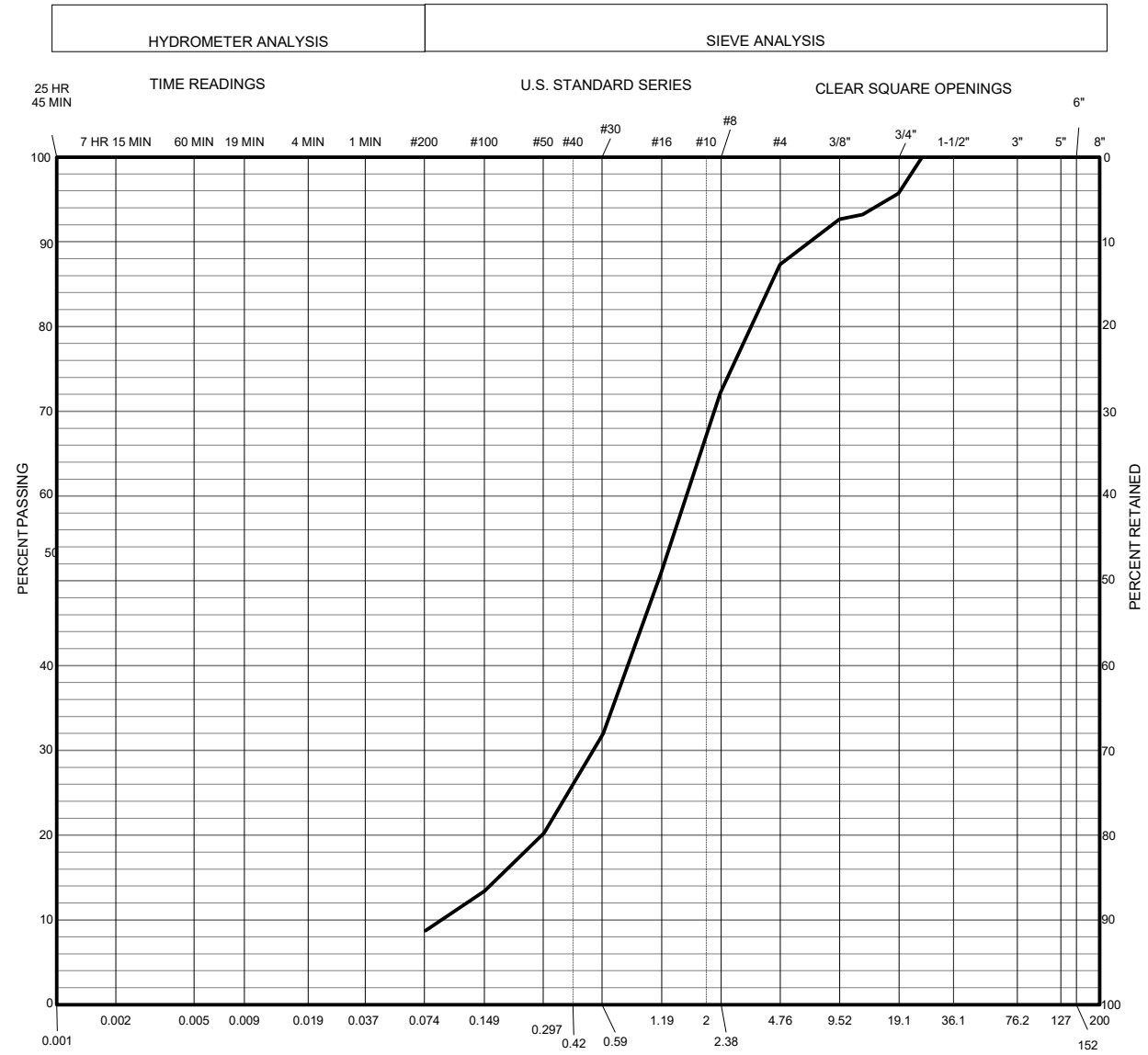
Swell Consolidation Test Results FIG. B- 13



SAMPLE OF: CLAY, SANDY (CL) DRY UNIT WEIGHT: 112 pcf
FROM: TH-6 AT 9 FEET MOISTURE CONTENT: 11.5 %

AFFINITY HOLDINGS, LLC
BAYOU GULCH ROAD AND PRESIDO PARKWAY PARCEL
CTL|T PROJECT NO. DN51,524-115-R1

Swell Consolidation Test Results FIG. B- 14



SAMPLE OF: SANDSTONE
FROM: TH-1 AT 14 FEET

GRAVEL: 12.7%
SILT & CLAY: 8.7%
PLASTIC INDEX: -

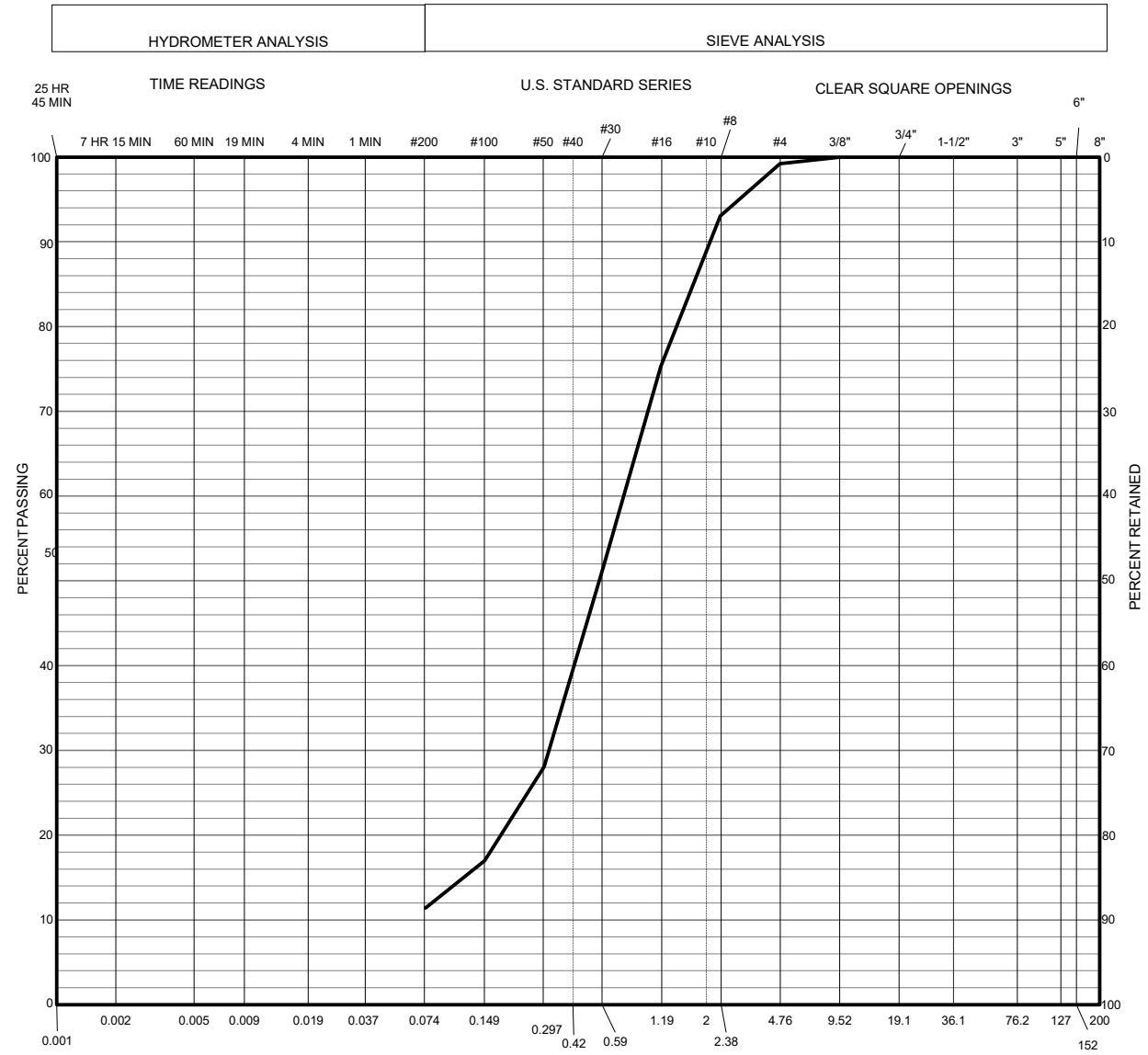
SAND: 78.6%
LIQUID LIMIT: -

D10 0.095 D30 0.550 D60: 1.687 CU: 17.7 CC: 1.9

Size (mm)	-	-	25.0	19.0	12.5	9.5	4.8	2.4	1.2	0.6	0.3	0.2	0.1	-	-	-	-	-	-
% Passing	-	-	100.0	95.7	93.2	92.6	87.3	72.1	50.9	32.0	20.2	13.4	8.7	-	-	-	-	-	-

AFFINITY HOLDINGS, LLC
BAYOU GULCH ROAD AND PRESIDO PARKWAY PARCEL
CTL|T PROJECT NO. DN51,524-115-R1

Gradation Test Results FIG. B- 15



Size (mm)	-	-	-	-	-	9.5	4.8	2.4	1.2	0.6	0.3	0.2	0.1	-	-	-	-	-	-
% Passing	-	-	-	-	-	100.0	99.2	93.0	75.3	51.6	28.0	17.0	11.4	-	-	-	-	-	-

SAMPLE OF: SANDSTONE
FROM: TH-3 AT 9 FEET

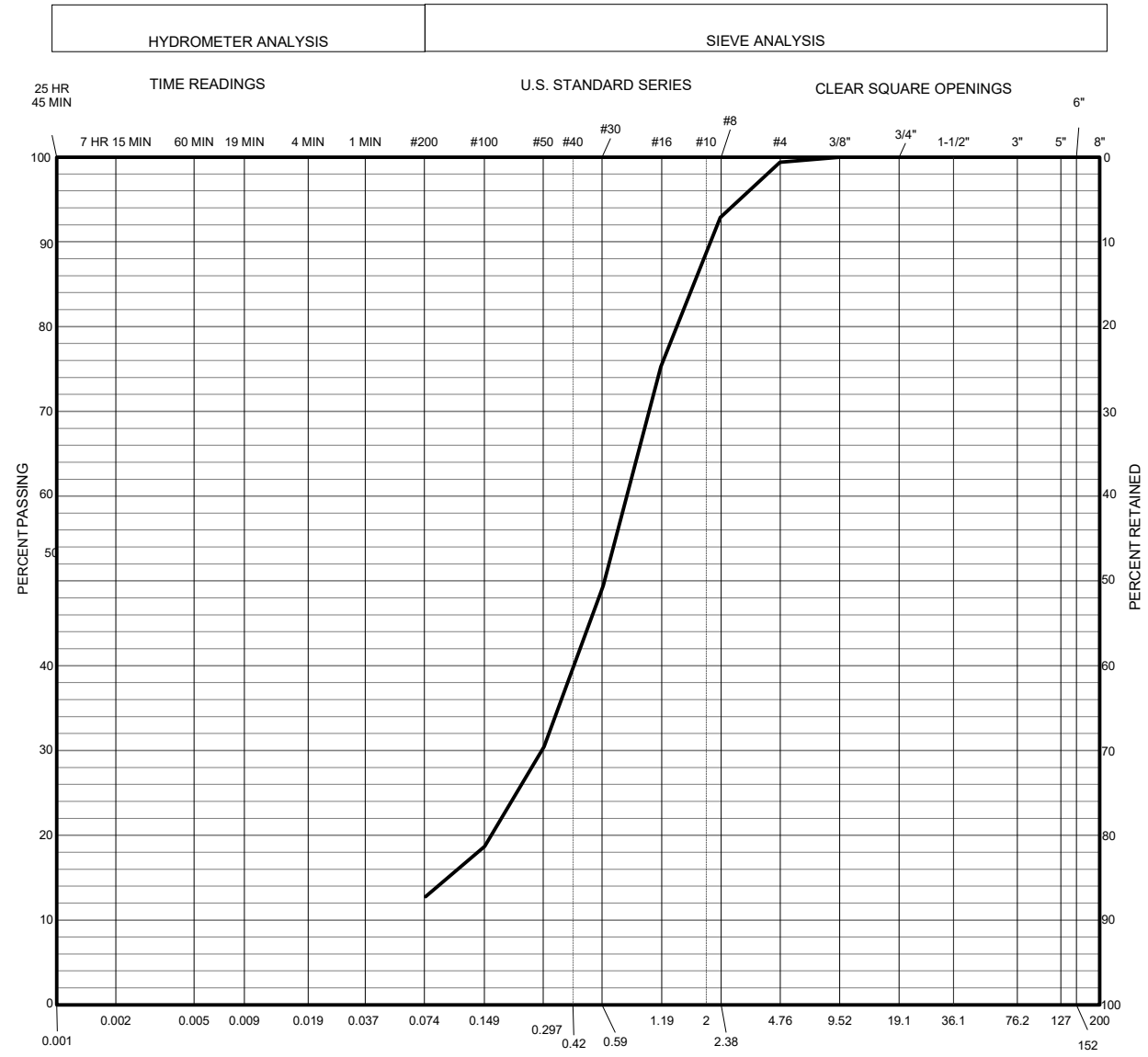
GRAVEL: 0.8%
SILT & CLAY: 11.4%
PLASTIC INDEX: -

SAND: 87.8%
LIQUID LIMIT: -

D10 -- D30 0.325 D60: 0.806 CU: -- CC: --

AFFINITY HOLDINGS, LLC
BAYOU GULCH ROAD AND PRESIDO PARKWAY PARCEL
CTL|T PROJECT NO. DN51,524-115-R1

Gradation Test Results FIG. B- 16



Size (mm)	-	-	-	-	-	9.5	4.8	2.4	1.2	0.6	0.3	0.2	0.1	-	-	-	-	-	-
% Passing	-	-	-	-	-	100.0	99.4	92.9	75.3	49.4	30.5	18.7	12.8	-	-	-	-	-	-

SAMPLE OF: SANDSTONE
FROM: TH-4 AT 9 FEET

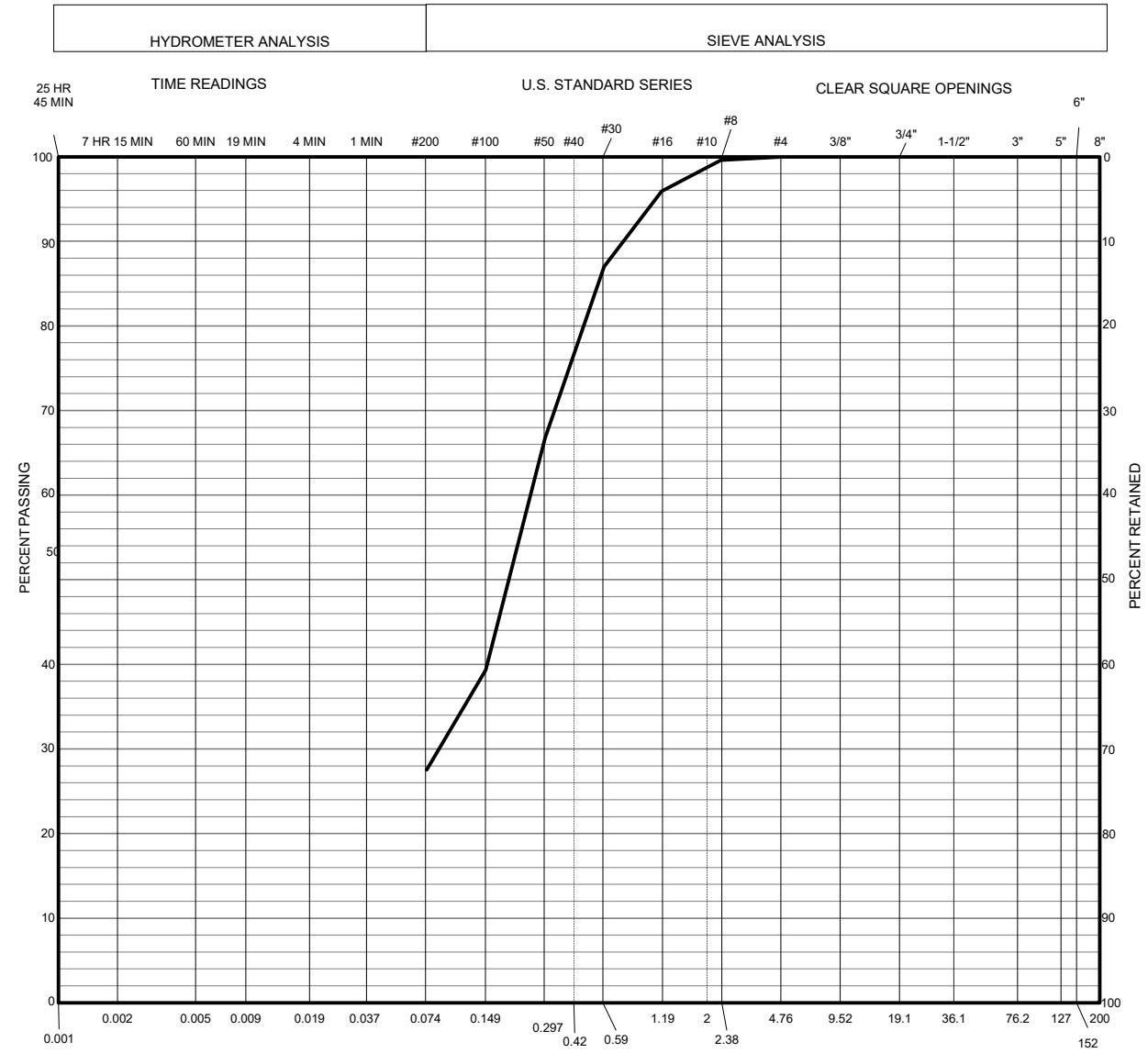
GRAVEL: 0.6%
SILT & CLAY: 12.8%
PLASTIC INDEX: -

SAND: 86.6%
LIQUID LIMIT: -

D10 -- D30 0.294 D60: 0.837 CU: -- CC: --

AFFINITY HOLDINGS, LLC
BAYOU GULCH ROAD AND PRESIDO PARKWAY PARCEL
CTL|T PROJECT NO. DN51,524-115-R1

Gradation Test Results FIG. B- 17



SAMPLE OF:	SANDSTONE	GRAVEL:	0.0%	SAND:	72.4%
FROM:	TH-5 AT 4 FEET	SILT & CLAY:	27.6%	LIQUID LIMIT:	-
		PLASTIC INDEX:	-		

D10 -- D30 0.091 D60: 0.263 CU: -- CC: --

Size (mm)	-	-	-	-	-	-	4.8	2.4	1.2	0.6	0.3	0.2	0.1	-	-	-	-	-	-
% Passing	-	-	-	-	-	-	100.0	99.6	95.9	87.0	66.7	39.3	27.6	-	-	-	-	-	-

AFFINITY HOLDINGS, LLC
BAYOU GULCH ROAD AND PRESIDO PARKWAY PARCEL
CTL|T PROJECT NO. DN51,524-115-R1

Gradation Test Results FIG. B- 18

TABLE B - I

SUMMARY OF LABORATORY TEST RESULTS

BORING	DEPTH (ft)	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	SWELL TEST DATA				SOIL SUCTION VALUE (pF)	ATTERBERG LIMITS		SOLUBLE SULFATE CONTENT (%)	RETAINED NO. 4 SIEVE (%)	PASSING NO. 200 SIEVE (%)	SOIL TYPE
				SWELL (%)	COMPRESSION (%)	APPLIED PRESSURE (psf)	SWELL PRESSURE (psf)		LIQUID LIMIT	PLASTICITY INDEX				
TH-1	4	6.9	80						39	23			55	CLAY, VERY SANDY (CL)
TH-1	14	3.9	109									13	9	SANDSTONE
TH-1	19	13.6	116	0.7		2,400								CLAYSTONE
TH-1	24	20.0	101	0.3		3,000								CLAYSTONE
TH-2	9	8.1	121						33	17			30	SAND, CLAYEY (SC)
TH-2	14	17.4	111	3.5		1,800			46	22			67	CLAYSTONE
TH-2	19	14.5	118	1.1		2,400								CLAYSTONE
TH-3	4	10.5	105	5.0		500					<0.01			CLAY, SANDY (CL)
TH-3	9	4.8	116									1	11	SANDSTONE
TH-3	14	8.7	122										27	SANDSTONE
TH-4	4	9.0	103	3.0		500					0.05			CLAY, SANDY (CL)
TH-4	9	5.3	100									1	13	SANDSTONE
TH-4	14	15.6	110	0.2		1,800								CLAYSTONE
TH-5	4	7.0	112									0	28	SANDSTONE
TH-5	9	23.3	102	2.1		1,100	5,800	3.95						CLAYSTONE
TH-5	14	25.4	97	0.8		1,800	4,700	3.92						CLAYSTONE
TH-5	19	18.8	108	4.3		2,400	13,200	3.45						CLAYSTONE
TH-5	24	18.8	108	0.5		3,000	4,600	3.96						CLAYSTONE
TH-5	29	12.1	116		0.3	3,600		4.02						SANDSTONE
TH-6	4	11.5	110	6.3		500			53	34			73	CLAY, SANDY (CL)
TH-6	9	11.5	112	0.9		1,100								CLAY, SANDY (CL)
TH-6	19	12.2	109										23	SANDSTONE

AFFINITY HOLDINGS, LLC
BAYOU GULCH ROAD AND PRESIDO PARKWAY PARCEL
CTL|T PROJECT NO. DN51,524-115-R1

APPENDIX C

GUIDELINE SITE GRADING SPECIFICATIONS

GUIDELINE SITE GRADING SPECIFICATIONS

Bayou Gulch Road and Presido Parkway Parcel
Douglas County, Colorado

1. DESCRIPTION

This item shall consist of the excavation, transportation, placement and compaction of materials from locations indicated on the plans, or staked by the Engineer, as necessary to achieve preliminary street and overlot elevations. These specifications shall also apply to compaction of excess cut materials that may be placed outside of the subdivision and/or filing boundaries.

2. GENERAL

The Soils Representative shall be the Owner's representative. The Soils Representative shall approve fill materials, method of placement, moisture contents and percent compaction, and shall give written approval of the completed fill.

3. CLEARING JOB SITE

The Contractor shall remove all vegetation, trees, brush and rubbish before excavation or fill placement begins. The Contractor shall dispose of the cleared material to provide the Owner with a clean, neat appearing job site. Cleared material shall not be placed in areas to receive fill or where the material will support structures of any kind.

4. SCARIFYING AREA TO BE FILLED

Topsoil and vegetable matter shall be substantially removed from the ground surface upon which fill is to be placed. The surface shall then be plowed or scarified to a depth of 8 inches, moisture treated to above optimum moisture content, and compacted until the surface is free from ruts, hummocks or other uneven features, which would prevent uniform compaction by the equipment to be used.

5. COMPACTING AREA TO BE FILLED

After the foundation for the fill has been cleared and scarified, it shall be disked or bladed until it is free from large clods to a depth of 8 to 12 inches, brought to the proper moisture content (between 1 and 4 percent above optimum for clay and within 2 percent of optimum for sand) and compacted to not less than 95 percent of maximum density as determined in accordance with ASTM D 698. The foundation materials shall be worked, stabilized, or removed and replaced if necessary in accordance with the soils representative’s recommendations in preparation for fill.

6. FILL MATERIALS

Fill soils shall be substantially free from vegetable matter or other deleterious substances, and shall not contain rocks having a diameter greater than six (6) inches and

claystone pieces larger than three (3) inches. Fill materials shall be obtained from cut areas shown on the plans or staked in the field by the Engineer.

On-site materials classifying as CL, CH, SC, SM, SW, SP, GP, GC and GM are acceptable. Concrete, asphalt, organic matter and other deleterious materials or debris shall not be used as fill.

7. MOISTURE CONTENT

For fill material classifying as CH, CL or SC, the fill shall be moisture treated to between 1 and 4 percent above optimum moisture content. Soils classifying as SM, SW, SP, GP, GC and GM shall be moisture treated to within 2 percent of optimum moisture content as determined from Proctor compaction tests. Fill placed deeper than 20 feet below proposed grade should be moisture treated to between 2 percent below and 1 percent above optimum, regardless of composition. Sufficient laboratory compaction tests shall be made to determine the optimum moisture content for the various soils encountered in borrow areas.

The Contractor may be required to add moisture to the excavation materials in the borrow area if, in the opinion of the Soils Representative, it is not possible to obtain uniform moisture content by adding water on the fill surface. The Contractor may be required to rake or disc the fill soils to provide uniform moisture content through the soils.

The application of water to embankment materials shall be made with any type of watering equipment approved by the Soils Representative, which will give the desired results. Water jets from the spreader shall not be directed at the embankment with such force that fill materials are washed out.

Should too much water be added to any part of the fill, such that the material is too wet to permit the desired compaction from being obtained, rolling and all work on that section of the fill shall be delayed until the material has been allowed to dry to the required moisture content. The Contractor will be permitted to rework wet material in an approved manner to hasten its drying.

8. COMPACTION OF FILL AREAS

Selected fill material shall be placed and mixed in evenly spread layers. After each fill layer has been placed, it shall be uniformly compacted to not less than the specified percentage of maximum density. Fill shall be compacted to at least 95 percent of the maximum dry density as determined in accordance with ASTM D 698. Fill placed deeper than 20 feet below proposed grade should be compacted to 98 percent of the maximum dry density. Fill materials shall be placed such that the thickness of loose materials does not exceed 8 inches and the compacted lift thickness does not exceed 6 inches.

Compaction as specified above shall be obtained by the use of sheepsfoot rollers, multiple-wheel pneumatic-tired rollers, or other equipment approved for soils classifying as CL, CH, or SC. Granular fill shall be compacted using vibratory equipment or other approved equipment. Compaction shall be accomplished while the fill material

is at the specified moisture content. Compaction of each layer shall be continuous over the entire area. Compaction equipment shall make sufficient passes to ensure that the required density is obtained.

9. COMPACTION OF SLOPES

Fill slopes shall be compacted by means of sheepsfoot rollers or other suitable equipment. Compaction operations shall be continued until slopes are stable, but not too dense for planting, and there is not an appreciable amount of loose soils on the slopes. Compaction of slopes may be done progressively in increments of three to five feet (3' to 5') in height or after the fill is brought to its total height. Permanent fill slopes shall not exceed 3:1 (horizontal to vertical).

10. PLACEMENT OF FILL ON NATURAL SLOPES

Where natural slopes are steeper than 20 percent in grade and the placement of fill is required, cut benches shall be provided at the rate of one bench for each 5 feet in height (minimum of two benches). Benches shall be at least 10 feet in width. Larger bench widths may be required by the Engineer. Fill shall be placed on completed benches as outlined within this specification.

11. DENSITY TESTS

Field density tests shall be made by the Soils Representative at locations and depths of his choosing. Where sheepsfoot rollers are used, the soil may be disturbed to a depth of several inches. Density tests shall be taken in compacted material below the disturbed surface. When density tests indicate that the density or moisture content of any layer of fill or portion thereof is below that required, the particular layer or portion shall be reworked until the required density or moisture content has been achieved.

12. SEASONAL LIMITS

No fill material shall be placed, spread or rolled while it is frozen, thawing, or during unfavorable weather conditions. When work is interrupted by heavy precipitation, fill operations shall not be resumed until the Soils Representative indicates that the moisture content and density of previously placed materials are as specified.

13. NOTICE REGARDING START OF GRADING

The Contractor shall submit notification to the Soils Representative and Owner advising them of the start of grading operations at least three (3) days in advance of the starting date. Notification shall also be submitted at least 3 days in advance of any resumption dates when grading operations have been stopped for any reason other than adverse weather conditions.

14. REPORTING OF FIELD DENSITY TESTS

Density tests made by the Soils Representative, as specified under "Density Tests" above, shall be submitted progressively to the Owner. Dry density, moisture content, and percentage compaction shall be reported for each test taken.

15. DECLARATION REGARDING COMPLETED FILL

The Soils Engineer shall provide a written declaration stating that the site was filled with acceptable materials, and was placed in general accordance with the specifications.

LSC TRANSPORTATION CONSULTANTS, INC.

1889 York Street
Denver, CO 80206
(303) 333-1105
FAX (303) 333-1107
E-mail: lscdenver@lsctrans.com

February 12, 2026

Mr. Ben Satterwhite, PE
Atwell, LLC
143 Union Boulevard, Suite 700
Lakewood, CO 80228

Re: Bloom Update
Douglas County, CO
LSC #210011

Dear Mr. Satterwhite:

In response to your request, LSC Transportation Consultants, Inc. has prepared this updated traffic impact analysis for the proposed Bloom residential development in Douglas County, Colorado, to address County comments. As shown on Figure 1, the site is located west of Bayou Gulch Road and south of Presidio Parkway. The site was previously studied in the July 18, 2022 *Bayou Gulch Road & Presidio Parkway Traffic Impact Analysis* by LSC.

REPORT CONTENTS

The report contains the following: the existing roadway and traffic conditions in the vicinity of the site including the lane geometries, traffic controls, posted speed limits, etc.; the existing weekday peak-hour traffic volumes; the existing daily traffic volumes in the area; the typical weekday site-generated traffic volume projections for the site; the assignment of the projected traffic volumes to the area roadways; the projected short-term and long-term background and resulting total traffic volumes on the area roadways; the site's projected traffic impacts; and any recommended roadway improvements to mitigate the site's traffic impacts.

LAND USE AND ACCESS

The site is proposed to include 32 single-family detached estate residential dwelling units. Full movement access is proposed to Bayou Gulch Road aligning with existing Presidio Parkway as shown in the conceptual site plan in Figure 2.

ROADWAY AND TRAFFIC CONDITIONS

Area Roadways

The major roadways in the site's vicinity are shown on Figure 1 and are described below.

- **Bayou Gulch Road** is a north-south, two-lane arterial roadway east of the site. The intersection with Presidio Parkway is stop-sign controlled. It is planned to be widened to four

lanes by others by 2045. The posted speed limit in the vicinity of the site is 35 mph. Bayou Gulch Road provides access north to Crowfoot Valley Road and Chambers Road and south to Scott Avenue.

- **Presidio Parkway** is an east-west, two-lane collector roadway east of the site. The intersections with Bayou Gulch Road is stop-sign controlled. No speed limit is posted in the vicinity of the site.

- **Scott Avenue** is an east-west, two-lane collector roadway south of the site. The intersection with Bayou Gulch Road is stop-sign controlled. The posted speed limit in the vicinity of the site is 30 mph. Scott Avenue provides access east to Parker Road (SH 83).

Existing Traffic Conditions

Figure 3 shows the existing lane geometries, traffic controls, and traffic volumes in the site's vicinity on a typical weekday. The weekday peak-hour traffic volumes and daily traffic counts are from the attached traffic counts conducted by Counter Measures in February, 2025.

2028 and 2045 Background Traffic

Figure 4 shows the estimated 2028 background traffic, lane geometry, and traffic control, assuming three years of growth at an annual rate of five percent plus half buildout of the Leman Academy to the northeast.

Figure 5 shows the estimated 2045 background traffic, lane geometry, and traffic control based on the projections in the 2023 *Leman Academy TIS* (2023 TIA) by LSC which assumed a total traffic volume of 21,700 vpd on Bayou Gulch Road adjacent to the site. Figure 9a from the 2023 TIA is attached for reference.

Existing, 2028, and 2045 Background Levels of Service

Level of service (LOS) is a quantitative measure of the level of congestion or delay at an intersection. Level of service is indicated on a scale from "A" to "F." LOS A is indicative of little congestion or delay and LOS F is indicative of a high level of congestion or delay. Attached are specific level of service definitions for signalized and unsignalized intersections.

The intersections in Figures 3 through 5 were analyzed as appropriate to determine the existing, 2028, and 2045 background levels of service using Synchro. Table 1 shows the level of service analysis results. The level of service reports are attached.

1. **Bayou Gulch Road/Presidio Parkway:** All movements at this unsignalized intersection currently operate at LOS "B" or better during both morning and afternoon peak-hours and are expected to operate at LOS "D" or better through 2045.

2. **Bayou Gulch Road/Scott Avenue:** All movements at this unsignalized intersection currently operate at LOS "B" or better during both morning and afternoon peak-hours and are expected to operate at LOS "B" or better through 2028. By 2045, the intersection is

expected to be signalized by others and operate at an overall LOS "B" during both peak-hours.

TRIP GENERATION

Table 2 shows the estimated average weekday, morning peak-hour, and afternoon peak-hour trip generation for the proposed site based on the rates from *Trip Generation, 11th Edition, 2021* by the Institute of Transportation Engineers (ITE) for the proposed land use.

The site is projected to generate about 302 vehicle-trips on the average weekday, with about half entering and half exiting during a 24-hour period. During the morning peak-hour, which generally occurs for one hour between 6:30 and 8:30 a.m., about 6 vehicles would enter and about 17 vehicles would exit the site. During the afternoon peak-hour, which generally occurs for one hour between 4:00 and 6:00 p.m., about 19 vehicles would enter and about 11 vehicles would exit.

TRIP DISTRIBUTION

Figure 6 shows the estimated directional distribution of the site-generated traffic volumes on the area roadways. The estimates were based on the location of the site with respect to the regional population, employment, and activity centers; and the site's proposed land use.

TRIP ASSIGNMENT

Figure 7 shows the estimated site-generated traffic volumes based on the directional distribution percentages (from Figure 6) and the trip generation estimate (from Table 2).

2028 AND 2045 TOTAL TRAFFIC

Figure 8 shows the 2028 total traffic which is the sum of the 2028 background traffic volumes (from Figure 4) and the 2028 site-generated traffic volumes (from Figure 7). Figure 8 also shows the recommended 2028 lane geometry and traffic control. Figure 8 includes the recommended improvements by the Applicant.

Figure 9 shows the 2045 total traffic which is the sum of 2045 background traffic volumes (from Figure 5) and the 2045 site-generated traffic volumes (from Figure 7). Figure 9 also shows the recommended 2045 lane geometry and traffic control.

PROJECTED LEVELS OF SERVICE

The intersections in Figures 8 and 9 were analyzed to determine the 2028 and 2045 total levels of service. Table 1 shows the level of service analysis results. The level of service reports are attached.

1. **Bayou Gulch Road/Presidio Parkway/Site Access:** All movements at this unsignalized intersection are expected to operate at LOS "D" or better during both morning and afternoon peak-hours through 2045.

2. **Bayou Gulch Road/Scott Avenue:** All movements at this unsignalized intersection are expected to operate at LOS "B" or better during both morning and afternoon peak-hours through 2028. By 2045, the intersection is expected to be signalized by others and operate at an overall LOS "B" during both peak-hours.

TRAFFIC SIGNAL COST CONTRIBUTION

The County has indicated the project will be required to participate in funding two future traffic signals - one at Intersection #1 and another at Intersection #2. The calculations on Figures 7 and 9 show the applicant's contribution at Intersection #1 should be 6.95 percent and at Intersection #2 should be 0.43 percent.

CONCLUSIONS AND RECOMMENDATIONS

Trip Generation

1. The site is projected to generate about 302 vehicle-trips on the average weekday, with about half entering and half exiting during a 24-hour period. During the morning peak-hour, about 6 vehicles would enter and 17 vehicles would exit the site. During the afternoon peak-hour, about 19 vehicles would enter and about 11 vehicles would exit.

Projected Levels of Service

2. All movements at the intersections analyzed are expected to operate at acceptable levels of service during both morning and afternoon peak-hours through 2045.

Conclusions

3. The impact of the Bloom residential development can be accommodated by the existing and planned roadway network with the recommendations shown in Figure 8. It would also be appropriate for the applicant to make a 6.95 percent traffic signal contribution at Intersection #1 and 0.43 percent at Intersection #2.

* * * * *

We trust our findings will assist you in gaining approval of the proposed Bloom residential development. Please contact me if you have any questions or need further assistance.

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

By _____

Christopher S. McGranahan, PE
Principal/President

CSM/wc

Enclosures: Tables 1 and 2
Figures 1 - 9
Traffic Count Reports
Level of Service Definitions
Level of Service Reports

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Table 1
Intersection Levels of Service Analysis
Bloom Update
Douglas County, CO
LSC #210011; February, 2026

Intersection No. & Location	Traffic Control	Existing Traffic Level of Service AM	Existing Traffic Level of Service PM	2028 Background Traffic Level of Service AM	2028 Background Traffic Level of Service PM	2028 Total Traffic Level of Service AM	2028 Total Traffic Level of Service PM	2045 Background Traffic Level of Service AM	2045 Background Traffic Level of Service PM	2045 Total Traffic [1] Level of Service AM	2045 Total Traffic [1] Level of Service PM
1) Bayou Gulch Road/Presidio Parkway/ Site Access	TWSC										
NB Left		--	--	--	--	A	A	--	--	A	A
EB Left/Through		--	--	--	--	C	B	--	--	D	B
EB Right		--	--	--	--	A	A	--	--	A	A
WB Left		B	B	B	B	B	B	C	D	B	B
WB Through/Right		A	A	B	A	B	A	C	B	C	B
SB Left		A	A	A	A	A	A	A	A	A	A
Critical Movement Delay		10.6	10.6	11.7	11.1	17.4	14.2	20.1	25.2	30.2	14.7
2) Bayou Gulch Road/Scott Road	TWSC										
WB Left		B	A	B	B	B	B	--	--	--	--
WB Right		A	A	A	A	A	A	--	--	--	--
SB Left		A	A	A	A	A	A	--	--	--	--
Critical Movement Delay		10.2	9.9	10.9	10.5	10.9	10.5	--	--	--	--
	Signalized										
WB Left		--	--	--	--	--	--	D	C	D	C
WB Right		--	--	--	--	--	--	D	D	D	D
NB Through		--	--	--	--	--	--	A	B	A	B
NB Right		--	--	--	--	--	--	A	A	A	A
SB Left		--	--	--	--	--	--	A	A	A	A
SB Through		--	--	--	--	--	--	A	A	A	A
Entire Intersection Delay (sec /veh)		--	--	--	--	--	--	14.3	16.6	14.3	16.7
Entire Intersection LOS		--	--	--	--	--	--	B	B	B	B

[1] The intersection of Bayou Gulch Road/N. Pinery Parkway (future traffic signal) was included in the modeling to show the effects of gaps created by it and the future traffic signal at Intersection #2 to the south.

Table 2
ESTIMATED TRAFFIC GENERATION
Bloom Update
Douglas County, CO
LSC #210011; February, 2026

		Trip Generation Rates[1]					Vehicle - Trips Generated				
		Average	AM Peak Hour		PM Peak Hour		Average	AM Peak Hour		PM Peak - Hour	
Trip Generating Category	Quantity	Weekday	In	Out	In	Out	Weekday	In	Out	In	Out
Currently Proposed Land Use											
Single-Family Detached Housing [2]	32 DU [3]	9.43	0.182	0.518	0.592	0.348	302	6	17	19	11

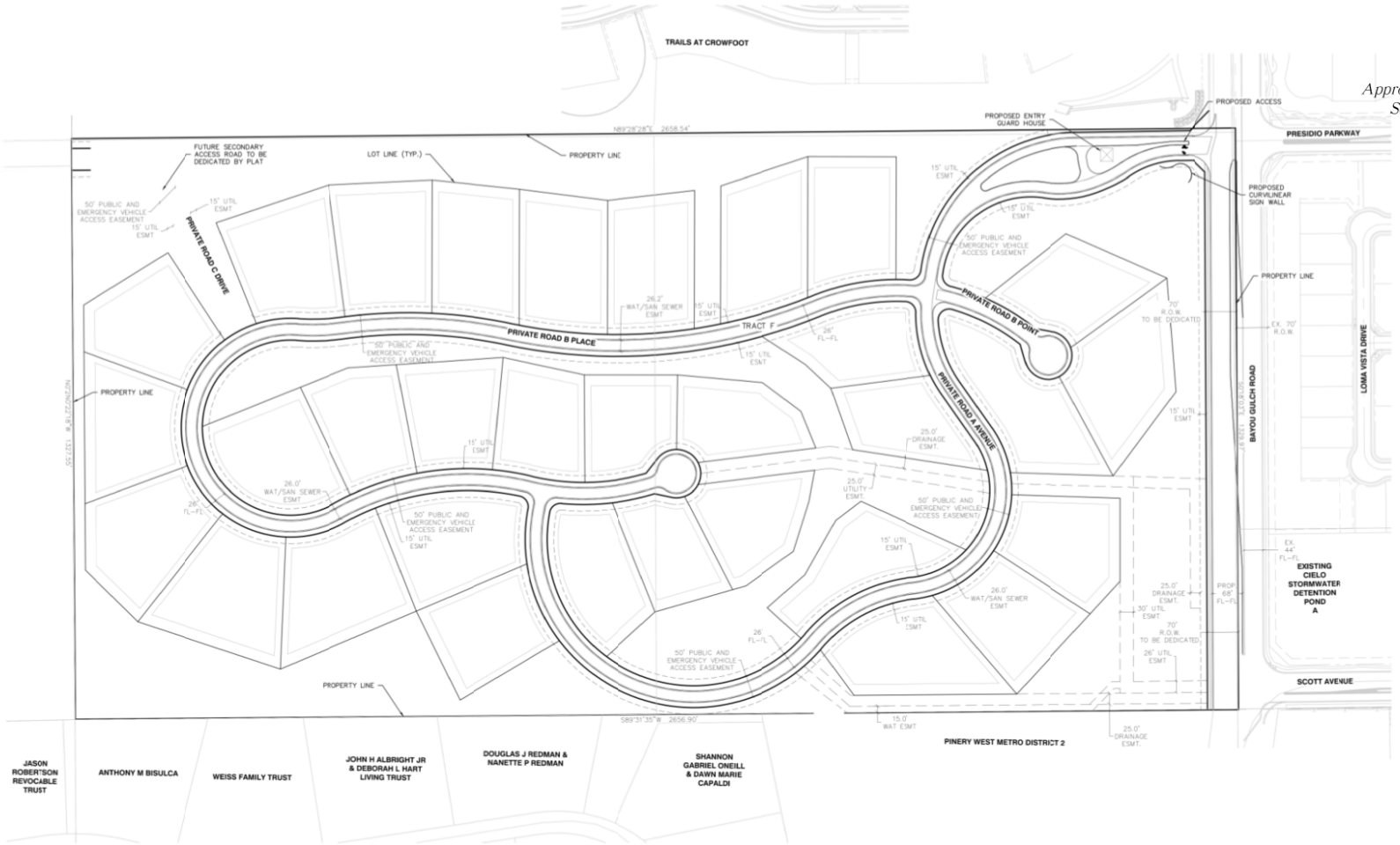
Notes:
(1) Source: *Trip Generation*, Institute of Transportation Engineers, 11th Edition, 2021
(2) ITE Land Use No. 210 - Single-Family Detached Housing
(3) DU = Dwelling Units



Figure 1

Vicinity Map

Bloom Update (LSC #210011)



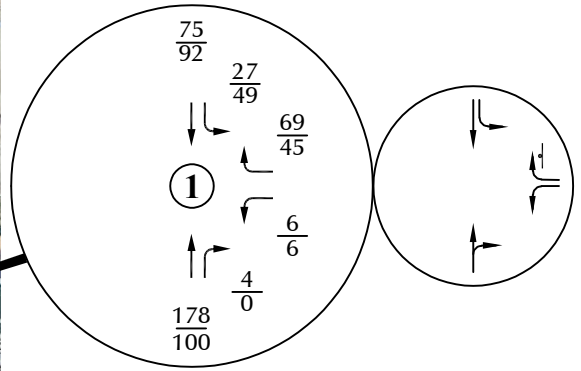
Approximate Scale
Scale: NTS

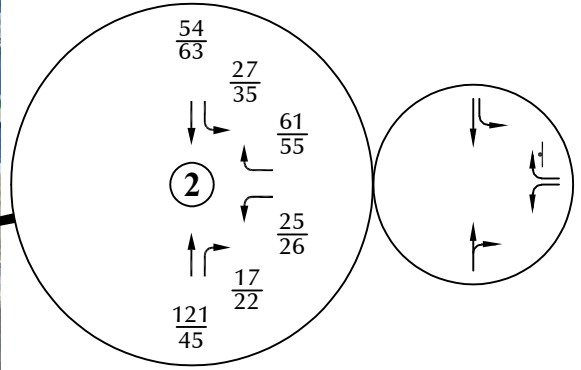
Figure 2

Site Plan

Bloom Update (LSC #210011)









Approximate Scale
Scale: 1"=400'

LEGEND:

= Stop Sign

= Speed Limit

$\frac{26}{35}$ = $\frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$

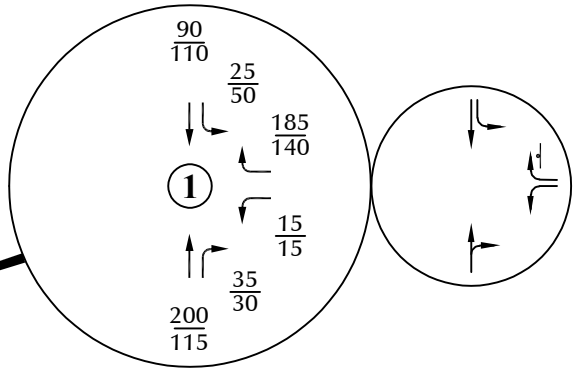
1,000 = Average Daily Traffic

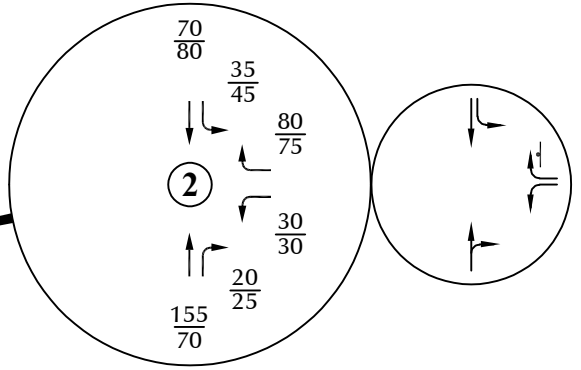
Figure 3

Existing Traffic, Lane Geometry and Traffic Control

Bloom Update (LSC #210011)









Approximate Scale
Scale: 1"=400'

LEGEND:

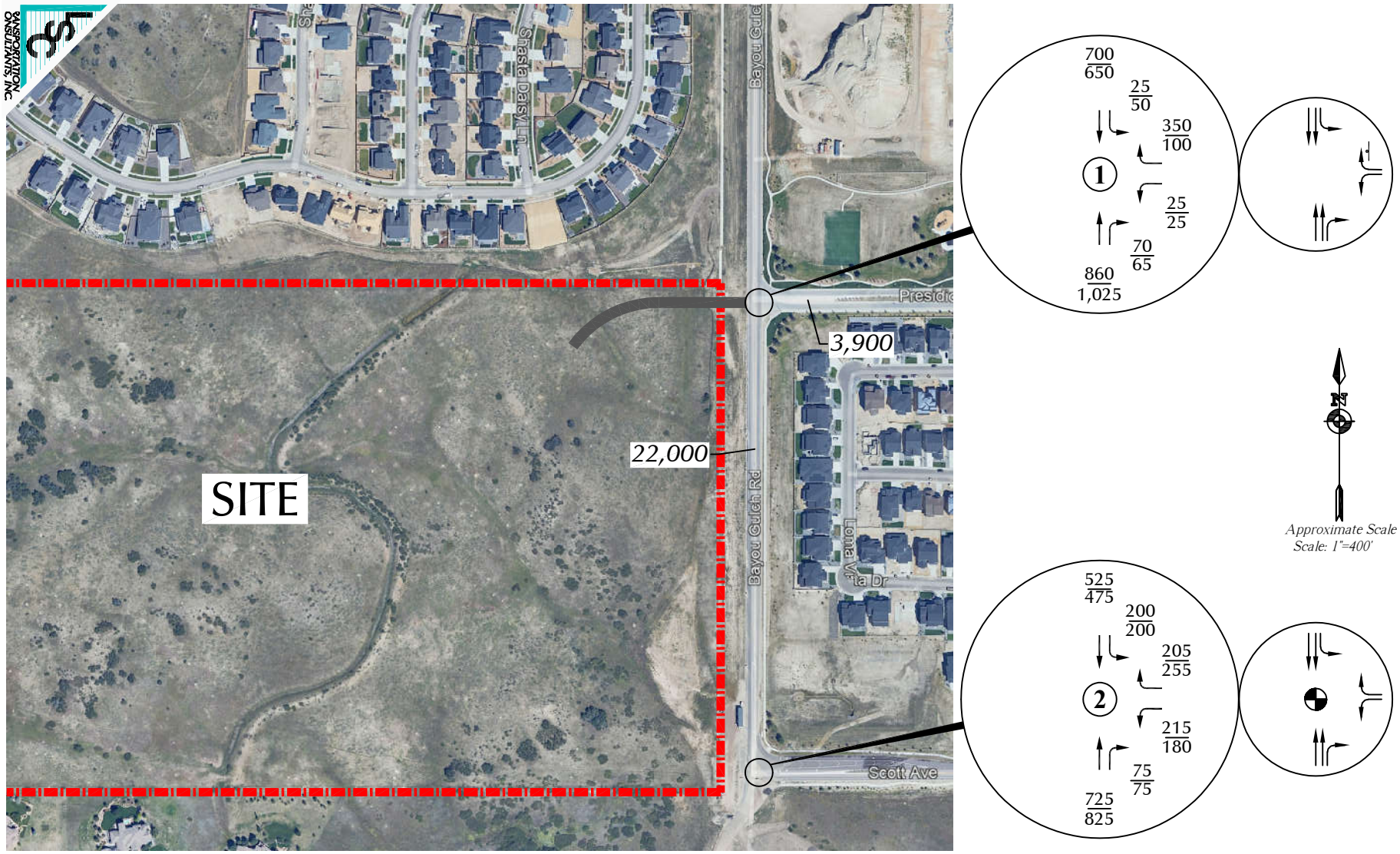
⊦	= Stop Sign
26/35	= AM Peak Hour Traffic / PM Peak Hour Traffic
1,000	= Average Daily Traffic

Note: Assumes three years of growth at an annual rate of five percent plus half buildout of the Leman Academy to the northeast.

Figure 4

Year 2028 Background Traffic, Lane Geometry and Traffic Control

Bloom Update (LSC #210011)



LEGEND:

- = Stop Sign
- = Traffic Signal
- 26/35 = AM Peak Hour Traffic / PM Peak Hour Traffic
- 1,000 = Average Daily Traffic

Note: Based on the 2023 Lemon Academy TIS by LSC.

Figure 5

Year 2045 Background Traffic, Lane Geometry and Traffic Control

Bloom Update (LSC #210011)



Approximate Scale
Scale: 1"=1,200'

LEGEND:
65% = Percent Directional Distribution

Figure 6

Directional Distribution of Site-Generated Traffic

Bloom Update (LSC #210011)



LEGEND:

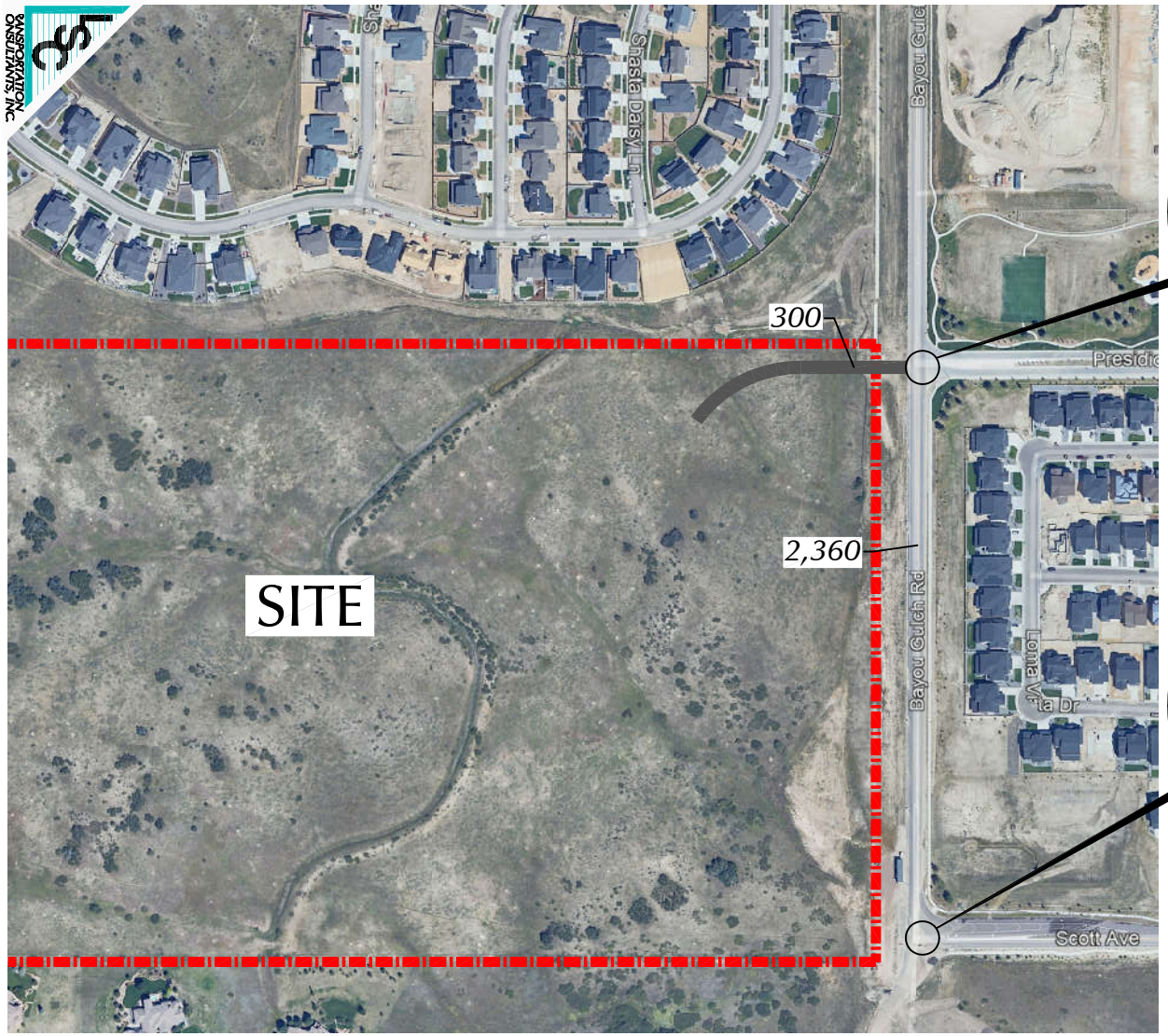
$\frac{26}{35}$ = $\frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$

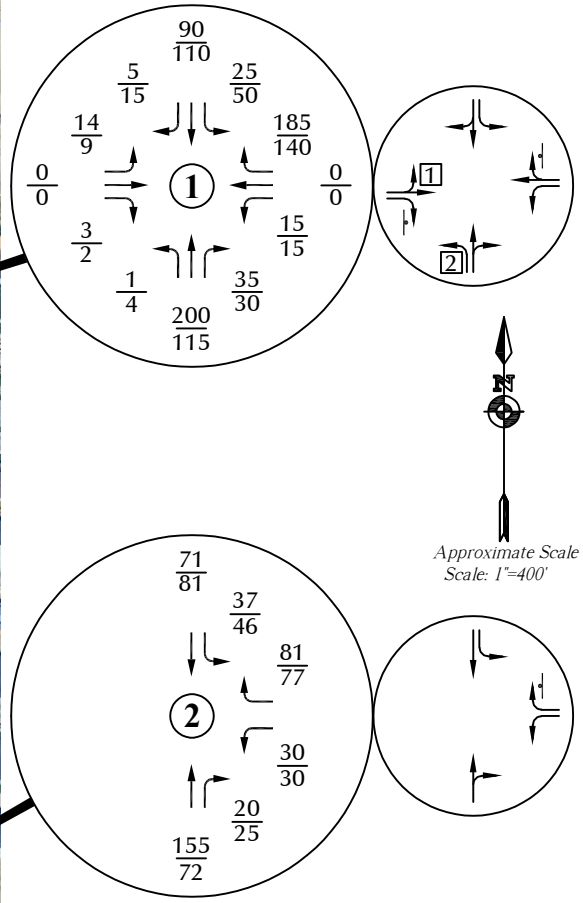
1,000 = Average Daily Traffic

Figure 7

Assignment of Site-Generated Traffic

Bloom Update (LSC #210011)





Recommended Improvements by Applicant:
[1] Construct west leg of Intersection with 100-foot EB RT.
[2] NB LT = Construct Lane - 200 feet + 10:1 transition taper - this improvement can likely be made by modifying the existing pavement marking's.

LEGEND:

$\frac{\dagger}{}$ = Stop Sign

$\frac{26}{35}$ = $\frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$

1,000 = Average Daily Traffic

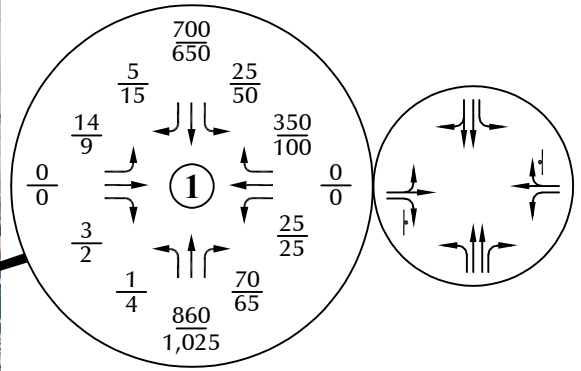
Note: These volumes are the sum of the volumes in Figures 4 and 7.

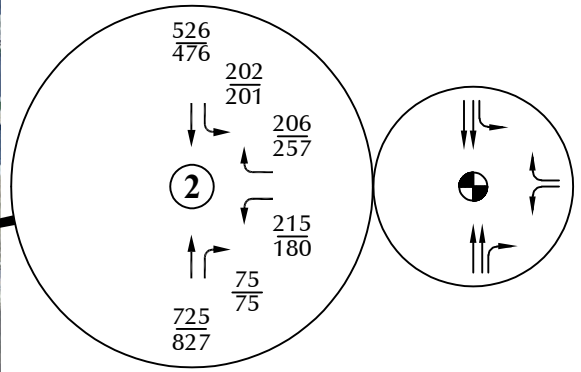
Figure 8

Year 2028 Total Traffic, Lane Geometry and Traffic Control

Bloom Update (LSC #210011)







Approximate Scale
Scale: 1"=400'

LEGEND:

= Stop Sign

= Traffic Signal

26/35 = AM Peak Hour Traffic / PM Peak Hour Traffic

1,000 = Average Daily Traffic

Note: These volumes are the sum of the volumes in Figures 5 and 7.

Figure 9

Year 2045 Total Traffic, Lane Geometry and Traffic Control

Bloom Update (LSC #210011)

COUNTER MEASURES INC

1889 YORK ST
DENVER COLORADO
303-333-7409

N/S STREET: BAYOU GULCH RD
E/W STREET: PRESIDIO PKWY
CITY: PARKER
COUNTY: DOUGLAS

File Name : BAYOU GULCH RD PRESIDIO PKWY
Site Code : 00000008
Start Date : 2/26/2025
Page No : 1

Groups Printed- Bank 2

	BAYOU GULCH RD SOUTHBOUND				PRESIDIO PKWY WESTBOUND				BAYOU GULCH RD NORTHBOUND				NO ACCESS EASTBOUND				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
06:30 AM	4	13	0	0	0	0	11	0	0	12	0	0	0	0	0	0	40
06:45 AM	10	19	0	0	0	0	4	0	0	29	0	0	0	0	0	0	62
Total	14	32	0	0	0	0	15	0	0	41	0	0	0	0	0	0	102
07:00 AM	6	17	0	0	1	0	16	0	0	33	0	1	0	0	0	0	74
07:15 AM	8	18	0	0	1	0	17	0	0	51	2	0	0	0	0	0	97
07:30 AM	5	20	0	0	2	0	16	0	0	48	0	0	0	0	0	0	91
07:45 AM	8	20	0	0	2	0	20	0	0	46	2	0	0	0	0	0	98
Total	27	75	0	0	6	0	69	0	0	178	4	1	0	0	0	0	360
08:00 AM	8	11	0	0	1	0	19	0	0	20	1	0	0	0	0	0	60
08:15 AM	11	14	0	0	1	0	16	0	0	25	0	0	0	0	0	0	67
Total	19	25	0	0	2	0	35	0	0	45	1	0	0	0	0	0	127
04:00 PM	12	20	0	0	1	0	12	0	0	31	0	0	0	0	0	0	76
04:15 PM	17	27	0	0	3	0	10	0	0	19	0	0	0	0	0	0	76
04:30 PM	7	24	0	0	0	0	7	0	0	16	0	0	0	0	0	0	54
04:45 PM	13	21	0	0	2	0	16	0	0	24	0	0	0	0	0	0	76
Total	49	92	0	0	6	0	45	0	0	90	0	0	0	0	0	0	282
05:00 PM	11	18	0	0	1	0	12	0	0	20	0	0	0	0	0	0	62
05:15 PM	19	19	0	0	2	0	11	0	0	18	1	0	0	0	0	0	70
05:30 PM	10	27	0	0	1	0	5	0	0	15	0	0	0	0	0	0	58
05:45 PM	15	22	0	0	1	0	2	0	0	10	0	0	0	0	0	0	50
Total	55	86	0	0	5	0	30	0	0	63	1	0	0	0	0	0	240
Grand Total	164	310	0	0	19	0	194	0	0	417	6	1	0	0	0	0	1111
Apprch %	34.6	65.4	0	0	8.9	0	91.1	0	0	98.3	1.4	0.2	0	0	0	0	
Total %	14.8	27.9	0	0	1.7	0	17.5	0	0	37.5	0.5	0.1	0	0	0	0	

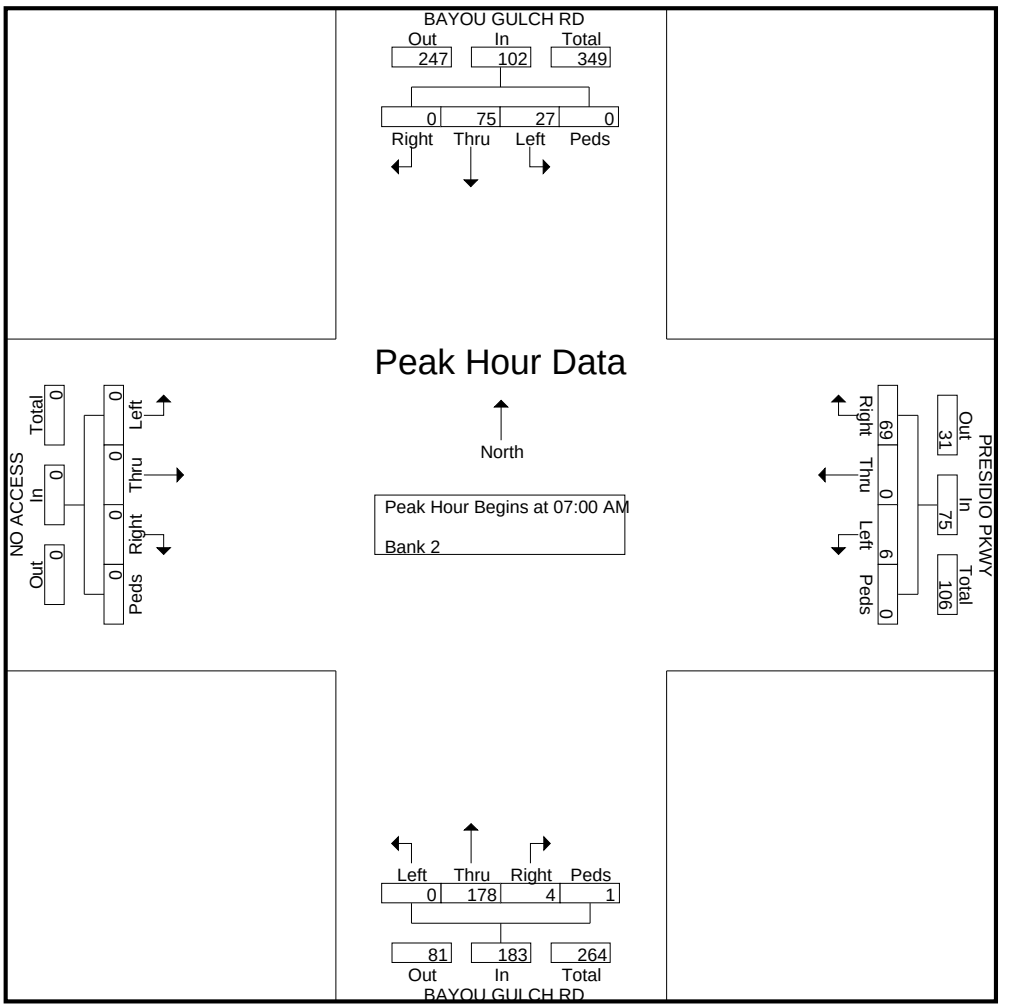
COUNTER MEASURES INC

1889 YORK ST
DENVER COLORADO
303-333-7409

N/S STREET: BAYOU GULCH RD
E/W STREET: PRESIDIO PKWY
CITY: PARKER
COUNTY: DOUGLAS

File Name : BAYOU GULCH RD PRESIDIO PKWY
Site Code : 00000008
Start Date : 2/26/2025
Page No : 2

	BAYOU GULCH RD SOUTHBOUND					PRESIDIO PKWY WESTBOUND					BAYOU GULCH RD NORTHBOUND					NO ACCESS EASTBOUND					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	6	17	0	0	23	1	0	16	0	17	0	33	0	**1**	34	0	0	0	0	0	74
07:15 AM	**8**	18	0	0	26	1	0	17	0	18	0	**51**	**2**	0	**53**	0	0	0	0	0	97
07:30 AM	5	**20**	0	0	25	**2**	0	16	0	18	0	48	0	0	48	0	0	0	0	0	91
07:45 AM	8	20	0	0	**28**	2	0	**20**	0	**22**	0	46	2	0	48	0	0	0	0	0	**98**
Total Volume	27	75	0	0	102	6	0	69	0	75	0	178	4	1	183	0	0	0	0	0	360
% App. Total	26.5	73.5	0	0		8	0	92	0		0	97.3	2.2	0.5		0	0	0	0		
PHF	.844	.938	.000	.000	.911	.750	.000	.863	.000	.852	.000	.873	.500	.250	.863	.000	.000	.000	.000	.000	.918



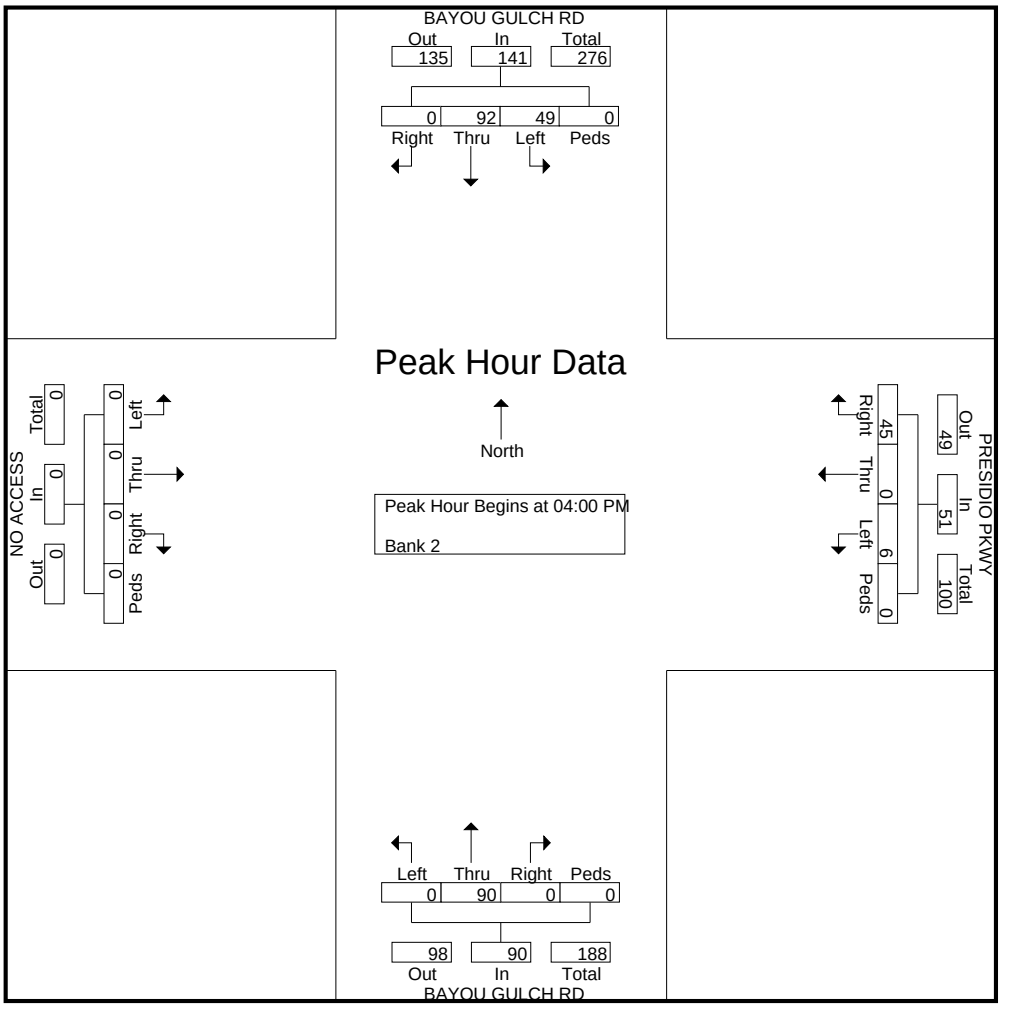
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N/S STREET: BAYOU GULCH RD
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File Name : BAYOU GULCH RD PRESIDIO PKWY
Site Code : 00000008
Start Date : 2/26/2025
Page No : 3

	BAYOU GULCH RD SOUTHBOUND					PRESIDIO PKWY WESTBOUND					BAYOU GULCH RD NORTHBOUND					NO ACCESS EASTBOUND					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	12	20	0	0	32	1	0	12	0	13	0	**31**	0	0	**31**	0	0	0	0	0	**76**
04:15 PM	**17**	**27**	0	0	**44**	**3**	0	10	0	13	0	19	0	0	19	0	0	0	0	0	76
04:30 PM	7	24	0	0	31	0	0	7	0	7	0	16	0	0	16	0	0	0	0	0	54
04:45 PM	13	21	0	0	34	2	0	**16**	0	**18**	0	24	0	0	24	0	0	0	0	0	76
Total Volume	49	92	0	0	141	6	0	45	0	51	0	90	0	0	90	0	0	0	0	0	282
% App. Total	34.8	65.2	0	0		11.8	0	88.2	0		0	100	0	0		0	0	0	0		
PHF	.721	.852	.000	.000	.801	.500	.000	.703	.000	.708	.000	.726	.000	.000	.726	.000	.000	.000	.000	.000	.928



COUNTER MEASURES INC

1889 YORK ST
DENVER COLORADO
303-333-7409

N/S STREET: BAYOU GULCH RD
E/W STREET: SCOTT AVE
CITY: PARKER
COUNTY: DOUGLAS

File Name : BAYOU GULCH RD SCOTT AVE
Site Code : 00000008
Start Date : 2/26/2025
Page No : 1

Groups Printed- Unshifted

	BAYOU GULCH RD SOUTHBOUND				SCOTT AVE WESTBOUND				BAYOU GULCH RD NORTHBOUND				NO ACCESS EASTBOUND				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
06:30 AM	0	14	0	0	4	0	7	0	0	6	4	0	0	0	0	0	35
06:45 AM	9	10	0	0	1	0	7	0	0	21	5	0	0	0	0	0	53
Total	9	24	0	0	5	0	14	0	0	27	9	0	0	0	0	0	88
07:00 AM	4	14	0	0	9	0	8	0	0	26	3	1	0	0	0	0	65
07:15 AM	6	10	0	0	6	0	14	0	0	34	6	0	0	0	0	0	76
07:30 AM	7	12	0	0	5	0	18	0	0	31	6	0	0	0	0	0	79
07:45 AM	8	14	0	0	5	0	19	0	0	27	2	0	0	0	0	0	75
Total	25	50	0	0	25	0	59	0	0	118	17	1	0	0	0	0	295
08:00 AM	6	6	0	0	4	0	9	0	0	13	3	0	0	0	0	0	41
08:15 AM	7	7	0	0	0	0	8	0	0	17	3	0	0	0	0	0	42
Total	13	13	0	0	4	0	17	0	0	30	6	0	0	0	0	0	83
04:00 PM	7	15	0	0	9	0	19	0	0	14	4	0	0	0	0	0	68
04:15 PM	11	15	0	0	6	0	10	0	0	12	8	0	0	0	0	0	62
04:30 PM	9	18	0	0	8	0	11	1	0	8	3	0	0	0	0	0	58
04:45 PM	8	15	0	0	3	0	15	0	0	11	7	0	0	0	0	0	59
Total	35	63	0	0	26	0	55	1	0	45	22	0	0	0	0	0	247
05:00 PM	11	7	0	0	5	0	10	0	0	13	10	0	0	0	0	0	56
05:15 PM	12	6	0	0	8	0	11	0	0	9	2	0	0	0	0	0	48
05:30 PM	14	17	0	0	10	0	13	0	0	5	5	0	0	0	0	0	64
05:45 PM	10	19	0	0	10	0	8	0	0	4	3	0	0	0	0	0	54
Total	47	49	0	0	33	0	42	0	0	31	20	0	0	0	0	0	222
Grand Total	129	199	0	0	93	0	187	1	0	251	74	1	0	0	0	0	935
Apprch %	39.3	60.7	0	0	33.1	0	66.5	0.4	0	77	22.7	0.3	0	0	0	0	
Total %	13.8	21.3	0	0	9.9	0	20	0.1	0	26.8	7.9	0.1	0	0	0	0	

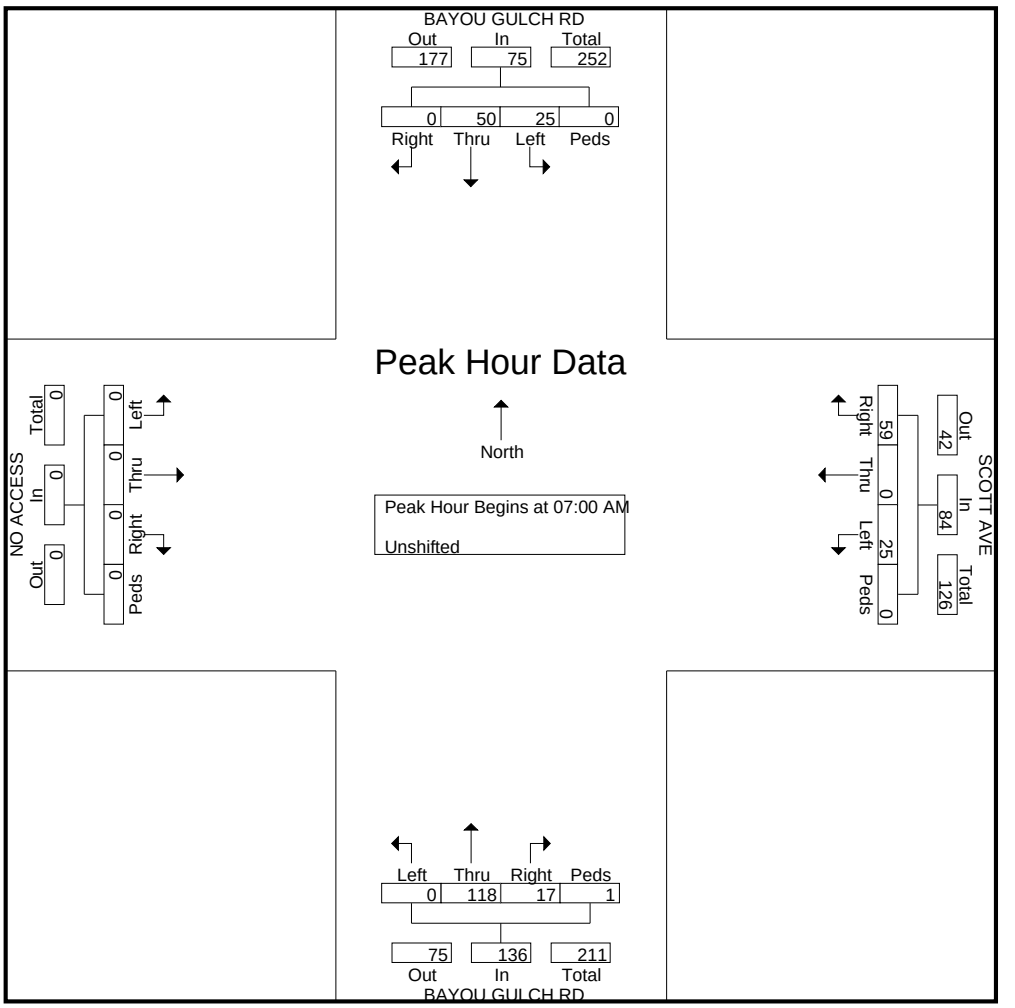
COUNTER MEASURES INC

1889 YORK ST
DENVER COLORADO
303-333-7409

N/S STREET: BAYOU GULCH RD
E/W STREET: SCOTT AVE
CITY: PARKER
COUNTY: DOUGLAS

File Name : BAYOU GULCH RD SCOTT AVE
Site Code : 00000008
Start Date : 2/26/2025
Page No : 2

	BAYOU GULCH RD SOUTHBOUND					SCOTT AVE WESTBOUND					BAYOU GULCH RD NORTHBOUND					NO ACCESS EASTBOUND					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	4	**14**	0	0	18	**9**	0	8	0	17	0	26	3	**1**	30	0	0	0	0	0	65
07:15 AM	6	10	0	0	16	6	0	14	0	20	0	**34**	**6**	0	**40**	0	0	0	0	0	76
07:30 AM	7	12	0	0	19	5	0	18	0	23	0	31	6	0	37	0	0	0	0	0	**79**
07:45 AM	**8**	14	0	0	**22**	5	0	**19**	0	**24**	0	27	2	0	29	0	0	0	0	0	75
Total Volume	25	50	0	0	75	25	0	59	0	84	0	118	17	1	136	0	0	0	0	0	295
% App. Total	33.3	66.7	0	0		29.8	0	70.2	0		0	86.8	12.5	0.7		0	0	0	0		
PHF	.781	.893	.000	.000	.852	.694	.000	.776	.000	.875	.000	.868	.708	.250	.850	.000	.000	.000	.000	.000	.934



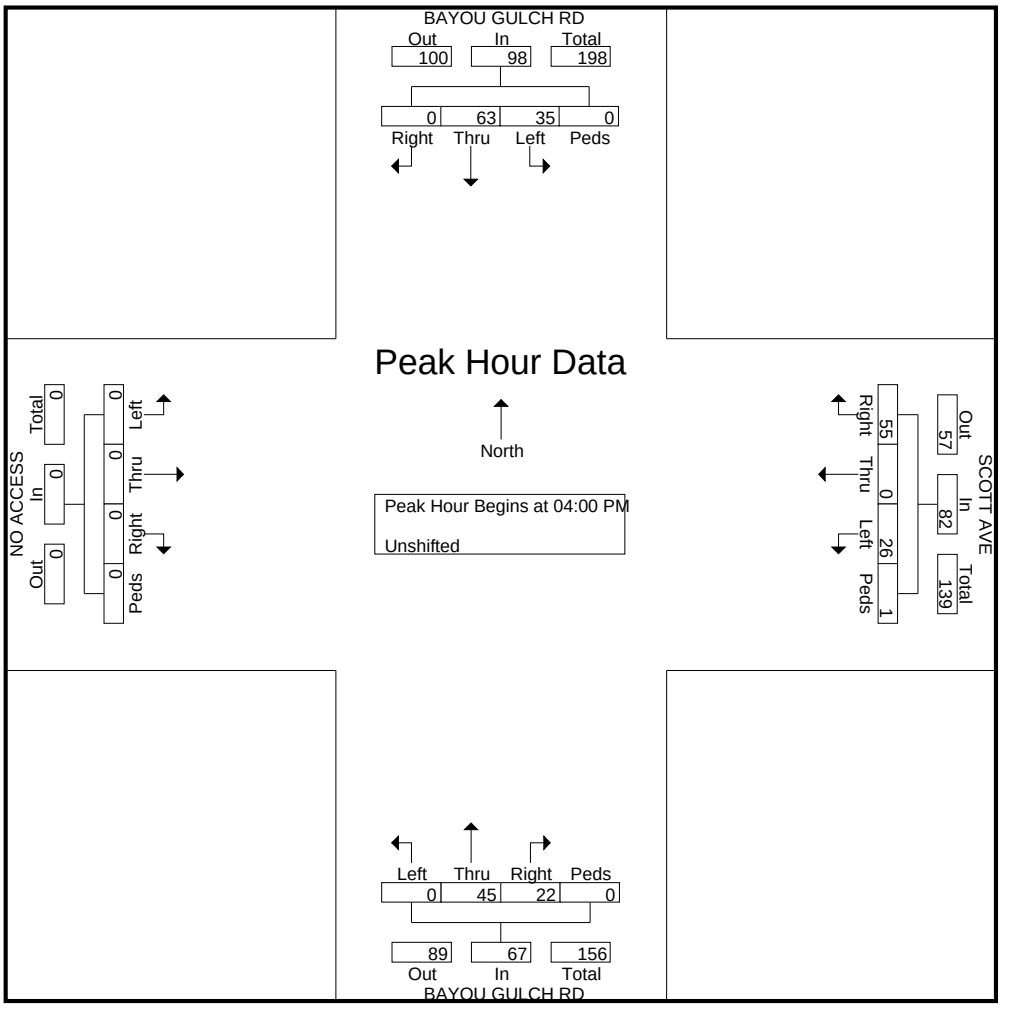
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	BAYOU GULCH RD SOUTHBOUND					SCOTT AVE WESTBOUND					BAYOU GULCH RD NORTHBOUND					NO ACCESS EASTBOUND					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	7	15	0	0	22	**9**	0	**19**	0	**28**	0	**14**	4	0	18	0	0	0	0	0	**68**
04:15 PM	**11**	15	0	0	26	6	0	10	0	16	0	12	**8**	0	**20**	0	0	0	0	0	62
04:30 PM	9	**18**	0	0	**27**	8	0	11	**1**	20	0	8	3	0	11	0	0	0	0	0	58
04:45 PM	8	15	0	0	23	3	0	15	0	18	0	11	7	0	18	0	0	0	0	0	59
Total Volume	35	63	0	0	98	26	0	55	1	82	0	45	22	0	67	0	0	0	0	0	247
% App. Total	35.7	64.3	0	0		31.7	0	67.1	1.2		0	67.2	32.8	0		0	0	0	0		
PHF	.795	.875	.000	.000	.907	.722	.000	.724	.250	.732	.000	.804	.688	.000	.838	.000	.000	.000	.000	.000	.908



LEVEL OF SERVICE DEFINITIONS

From *Highway Capacity Manual*, Transportation Research Board

SIGNALIZED INTERSECTION LEVEL OF SERVICE (LOS)

LOS	Average Vehicle Delay sec/vehicle	Operational Characteristics
A	<10 seconds	Describes operations with low control delay, up to 10 sec/veh. This LOS occurs when progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.
B	10 to 20 seconds	Describes operations with control delay greater than 10 seconds and up to 20 sec/veh. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.
C	20 to 35 seconds	Describes operations with control delay greater than 20 and up to 35 sec/veh. These higher delays may result from only fair progression, longer cycle length, or both. Individual cycle failures may begin to appear at this level. Cycle failure occurs when a given green phase does not serve queued vehicles, and overflows occur. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.
D	35 to 55 seconds	Describes operations with control delay greater than 35 and up to 55 sec/veh. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, and high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	55 to 80 seconds	Describes operations with control delay greater than 55 and up to 80 sec/veh. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent.
F	>80 seconds	Describes operations with control delay in excess of 80 sec/veh. This level, considered unacceptable to most drivers, often occurs with over-saturation, that is, when arrival flow rates exceed the capacity of lane groups. It may also occur at high v/c ratios with many individual cycle failures. Poor progression and long cycle lengths may also contribute significantly to high delay levels.

LEVEL OF SERVICE DEFINITIONS

From *Highway Capacity Manual*, Transportation Research Board

UNSIGNALIZED INTERSECTION LEVEL OF SERVICE (LOS)

Applicable to Two-Way Stop Control, All-Way Stop Control, and Roundabouts

LOS	Average Vehicle Control Delay	Operational Characteristics
A	<10 seconds	Normally, vehicles on the stop-controlled approach only have to wait up to 10 seconds before being able to clear the intersection. Left-turning vehicles on the uncontrolled street do not have to wait to make their turn.
B	10 to 15 seconds	Vehicles on the stop-controlled approach will experience delays before being able to clear the intersection. The delay could be up to 15 seconds. Left-turning vehicles on the uncontrolled street may have to wait to make their turn.
C	15 to 25 seconds	Vehicles on the stop-controlled approach can expect delays in the range of 15 to 25 seconds before clearing the intersection. Motorists may begin to take chances due to the long delays, thereby posing a safety risk to through traffic. Left-turning vehicles on the uncontrolled street will now be required to wait to make their turn causing a queue to be created in the turn lane.
D	25 to 35 seconds	This is the point at which a traffic signal may be warranted for this intersection. The delays for the stop-controlled intersection are not considered to be excessive. The length of the queue may begin to block other public and private access points.
E	35 to 50 seconds	The delays for all critical traffic movements are considered to be unacceptable. The length of the queues for the stop-controlled approaches as well as the left-turn movements are extremely long. There is a high probability that this intersection will meet traffic signal warrants. The ability to install a traffic signal is affected by the location of other existing traffic signals. Consideration may be given to restricting the accesses by eliminating the left-turn movements from and to the stop-controlled approach.
F	>50 seconds	The delay for the critical traffic movements are probably in excess of 100 seconds. The length of the queues are extremely long. Motorists are selecting alternative routes due to the long delays. The only remedy for these long delays is installing a traffic signal or restricting the accesses. The potential for accidents at this intersection are extremely high due to motorist taking more risky chances. If the median permits, motorists begin making two-stage left-turns.

Intersection	
Int Delay, s/veh	2.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	69	178	4	27	75
Future Vol, veh/h	6	69	178	4	27	75
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	150	0	-	-	205	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	75	193	4	29	82

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	335	195	0	0	197	0
Stage 1	195	-	-	-	-	-
Stage 2	140	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	660	846	-	-	1376	-
Stage 1	838	-	-	-	-	-
Stage 2	887	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	646	846	-	-	1376	-
Mov Cap-2 Maneuver	646	-	-	-	-	-
Stage 1	838	-	-	-	-	-
Stage 2	868	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.8	0	2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	646	846	1376	-
HCM Lane V/C Ratio	-	-	0.01	0.089	0.021	-
HCM Control Delay (s)	-	-	10.6	9.7	7.7	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0	0.3	0.1	-

Intersection	
Int Delay, s/veh	3.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	61	121	17	27	54
Future Vol, veh/h	25	61	121	17	27	54
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	400	-	-	230	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	66	132	18	29	59

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	258	141	0	0	150	0
Stage 1	141	-	-	-	-	-
Stage 2	117	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	731	907	-	-	1431	-
Stage 1	886	-	-	-	-	-
Stage 2	908	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	716	907	-	-	1431	-
Mov Cap-2 Maneuver	716	-	-	-	-	-
Stage 1	886	-	-	-	-	-
Stage 2	890	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	2.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	716	907	1431	-
HCM Lane V/C Ratio	-	-	0.038	0.073	0.021	-
HCM Control Delay (s)	-	-	10.2	9.3	7.6	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0.2	0.1	-

Intersection	
Int Delay, s/veh	2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	45	100	0	49	92
Future Vol, veh/h	6	45	100	0	49	92
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	150	0	-	-	205	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	49	109	0	53	100

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	315	109	0	0	109	0
Stage 1	109	-	-	-	-	-
Stage 2	206	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	678	945	-	-	1481	-
Stage 1	916	-	-	-	-	-
Stage 2	829	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	654	945	-	-	1481	-
Mov Cap-2 Maneuver	654	-	-	-	-	-
Stage 1	916	-	-	-	-	-
Stage 2	799	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	2.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	654	945	1481	-
HCM Lane V/C Ratio	-	-	0.01	0.052	0.036	-
HCM Control Delay (s)	-	-	10.6	9	7.5	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0	0.2	0.1	-

Intersection	
Int Delay, s/veh	4.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	26	55	45	22	35	63
Future Vol, veh/h	26	55	45	22	35	63
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	400	-	-	230	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	60	49	24	38	68

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	205	61	0	0	73	0
Stage 1	61	-	-	-	-	-
Stage 2	144	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	783	1004	-	-	1527	-
Stage 1	962	-	-	-	-	-
Stage 2	883	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	763	1004	-	-	1527	-
Mov Cap-2 Maneuver	763	-	-	-	-	-
Stage 1	962	-	-	-	-	-
Stage 2	861	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	2.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	763	1004	1527	-
HCM Lane V/C Ratio	-	-	0.037	0.06	0.025	-
HCM Control Delay (s)	-	-	9.9	8.8	7.4	-
HCM Lane LOS	-	-	A	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0.2	0.1	-

Intersection	
Int Delay, s/veh	5.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	185	200	35	25	90
Future Vol, veh/h	15	185	200	35	25	90
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	150	0	-	-	205	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	70	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	264	217	38	27	98

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	388	236	0	0	255	0
Stage 1	236	-	-	-	-	-
Stage 2	152	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	616	803	-	-	1310	-
Stage 1	803	-	-	-	-	-
Stage 2	876	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	603	803	-	-	1310	-
Mov Cap-2 Maneuver	603	-	-	-	-	-
Stage 1	803	-	-	-	-	-
Stage 2	858	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.7	0	1.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	603	803	1310	-
HCM Lane V/C Ratio	-	-	0.027	0.329	0.021	-
HCM Control Delay (s)	-	-	11.1	11.7	7.8	-
HCM Lane LOS	-	-	B	B	A	-
HCM 95th %tile Q(veh)	-	-	0.1	1.4	0.1	-

Intersection	
Int Delay, s/veh	3.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	80	155	20	35	70
Future Vol, veh/h	30	80	155	20	35	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	400	-	-	230	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	87	168	22	38	76

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	331	179	0	0	190	0
Stage 1	179	-	-	-	-	-
Stage 2	152	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	664	864	-	-	1384	-
Stage 1	852	-	-	-	-	-
Stage 2	876	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	646	864	-	-	1384	-
Mov Cap-2 Maneuver	646	-	-	-	-	-
Stage 1	852	-	-	-	-	-
Stage 2	852	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10	0	2.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	646	864	1384	-
HCM Lane V/C Ratio	-	-	0.05	0.101	0.027	-
HCM Control Delay (s)	-	-	10.9	9.6	7.7	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0.3	0.1	-

Intersection	
Int Delay, s/veh	4.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	140	115	30	50	110
Future Vol, veh/h	15	140	115	30	50	110
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	150	0	-	-	205	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	85	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	165	125	33	54	120

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	370	142	0	0	158	0
Stage 1	142	-	-	-	-	-
Stage 2	228	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	630	906	-	-	1422	-
Stage 1	885	-	-	-	-	-
Stage 2	810	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	606	906	-	-	1422	-
Mov Cap-2 Maneuver	606	-	-	-	-	-
Stage 1	885	-	-	-	-	-
Stage 2	779	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10	0	2.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	606	906	1422	-
HCM Lane V/C Ratio	-	-	0.027	0.182	0.038	-
HCM Control Delay (s)	-	-	11.1	9.9	7.6	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0.7	0.1	-

Intersection	
Int Delay, s/veh	4.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	75	70	25	45	80
Future Vol, veh/h	30	75	70	25	45	80
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	400	-	-	230	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	82	76	27	49	87

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	275	90	0	0	103	0
Stage 1	90	-	-	-	-	-
Stage 2	185	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	715	968	-	-	1489	-
Stage 1	934	-	-	-	-	-
Stage 2	847	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	691	968	-	-	1489	-
Mov Cap-2 Maneuver	691	-	-	-	-	-
Stage 1	934	-	-	-	-	-
Stage 2	819	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	2.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	691	968	1489	-
HCM Lane V/C Ratio	-	-	0.047	0.084	0.033	-
HCM Control Delay (s)	-	-	10.5	9.1	7.5	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0.3	0.1	-

Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	0	3	15	0	185	1	200	35	25	90	5
Future Vol, veh/h	14	0	3	15	0	185	1	200	35	25	90	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	150	-	-	200	-	-	205	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	70	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	0	3	16	0	264	1	217	38	27	98	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	525	412	101	394	395	236	103	0	0	255	0	0
Stage 1	155	155	-	238	238	-	-	-	-	-	-	-
Stage 2	370	257	-	156	157	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	463	530	954	566	542	803	1489	-	-	1310	-	-
Stage 1	847	769	-	765	708	-	-	-	-	-	-	-
Stage 2	650	695	-	846	768	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	306	518	954	555	530	803	1489	-	-	1310	-	-
Mov Cap-2 Maneuver	306	518	-	555	530	-	-	-	-	-	-	-
Stage 1	846	753	-	764	707	-	-	-	-	-	-	-
Stage 2	436	694	-	826	752	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.9	11.7	0	1.6
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1489	-	-	306	954	555	803	1310	-	-
HCM Lane V/C Ratio	0.001	-	-	0.05	0.003	0.029	0.329	0.021	-	-
HCM Control Delay (s)	7.4	-	-	17.4	8.8	11.7	11.7	7.8	-	-
HCM Lane LOS	A	-	-	C	A	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0	0.1	1.4	0.1	-	-

Intersection	
Int Delay, s/veh	3.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	81	155	20	37	71
Future Vol, veh/h	30	81	155	20	37	71
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	400	-	-	230	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	88	168	22	40	77

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	336	179	0	0	190	0
Stage 1	179	-	-	-	-	-
Stage 2	157	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	659	864	-	-	1384	-
Stage 1	852	-	-	-	-	-
Stage 2	871	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	640	864	-	-	1384	-
Mov Cap-2 Maneuver	640	-	-	-	-	-
Stage 1	852	-	-	-	-	-
Stage 2	846	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10	0	2.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	640	864	1384	-
HCM Lane V/C Ratio	-	-	0.051	0.102	0.029	-
HCM Control Delay (s)	-	-	10.9	9.6	7.7	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0.3	0.1	-

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	0	2	15	0	140	4	115	30	50	110	15
Future Vol, veh/h	9	0	2	15	0	140	4	115	30	50	110	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	150	-	-	200	-	-	205	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	85	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	0	2	16	0	165	4	125	33	54	120	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	468	402	128	387	394	142	136	0	0	158	0	0
Stage 1	236	236	-	150	150	-	-	-	-	-	-	-
Stage 2	232	166	-	237	244	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	505	537	922	572	542	906	1448	-	-	1422	-	-
Stage 1	767	710	-	853	773	-	-	-	-	-	-	-
Stage 2	771	761	-	766	704	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	400	515	922	553	520	906	1448	-	-	1422	-	-
Mov Cap-2 Maneuver	400	515	-	553	520	-	-	-	-	-	-	-
Stage 1	765	683	-	850	771	-	-	-	-	-	-	-
Stage 2	629	759	-	735	677	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.2	10.1	0.2	2.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1448	-	-	400	922	553	906	1422	-	-
HCM Lane V/C Ratio	0.003	-	-	0.024	0.002	0.029	0.182	0.038	-	-
HCM Control Delay (s)	7.5	-	-	14.2	8.9	11.7	9.9	7.6	-	-
HCM Lane LOS	A	-	-	B	A	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0.1	0.7	0.1	-	-

Intersection	
Int Delay, s/veh	4.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	77	72	25	46	81
Future Vol, veh/h	30	77	72	25	46	81
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	400	-	-	230	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	84	78	27	50	88

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	280	92	0	0	105	0
Stage 1	92	-	-	-	-	-
Stage 2	188	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	710	965	-	-	1486	-
Stage 1	932	-	-	-	-	-
Stage 2	844	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	686	965	-	-	1486	-
Mov Cap-2 Maneuver	686	-	-	-	-	-
Stage 1	932	-	-	-	-	-
Stage 2	815	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	2.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	686	965	1486	-
HCM Lane V/C Ratio	-	-	0.048	0.087	0.034	-
HCM Control Delay (s)	-	-	10.5	9.1	7.5	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0.3	0.1	-

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	25	0	350	0	860	70	25	700	0
Future Vol, veh/h	0	0	0	25	0	350	0	860	70	25	700	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	150	-	0	-	-	-	205	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	75	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	27	0	467	0	935	76	27	761	0

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	1408	-	506	-	0	0	1011	0	0
Stage 1	973	-	-	-	-	-	-	-	-
Stage 2	435	-	-	-	-	-	-	-	-
Critical Hdwy	6.84	-	6.94	-	-	-	4.14	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	-	3.32	-	-	-	2.22	-	-
Pot Cap-1 Maneuver	273	0	*733	0	-	-	1043	-	0
Stage 1	689	0	-	0	-	-	-	-	0
Stage 2	620	0	-	0	-	-	-	-	0
Platoon blocked, %	1		1		-	-	1	-	
Mov Cap-1 Maneuver	266	0	*733	-	-	-	1043	-	-
Mov Cap-2 Maneuver	266	0	-	-	-	-	-	-	-
Stage 1	689	0	-	-	-	-	-	-	-
Stage 2	604	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.2	0	0.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	266	733	1043	-
HCM Lane V/C Ratio	-	-	0.102	0.637	0.026	-
HCM Control Delay (s)	-	-	20.1	18.1	8.5	-
HCM Lane LOS	-	-	C	C	A	-
HCM 95th %tile Q(veh)	-	-	0.3	4.6	0.1	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	215	205	725	75	200	525
Future Volume (veh/h)	215	205	725	75	200	525
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	234	223	788	82	217	571
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	305	271	2183	974	516	2590
Arrive On Green	0.17	0.17	0.61	0.61	0.06	0.73
Sat Flow, veh/h	1781	1585	3647	1585	1781	3647
Grp Volume(v), veh/h	234	223	788	82	217	571
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1585	1781	1777
Q Serve(g_s), s	11.3	12.2	9.9	1.9	3.7	4.7
Cycle Q Clear(g_c), s	11.3	12.2	9.9	1.9	3.7	4.7
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	305	271	2183	974	516	2590
V/C Ratio(X)	0.77	0.82	0.36	0.08	0.42	0.22
Avail Cap(c_a), veh/h	505	449	2183	974	550	2590
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.6	36.0	8.6	7.1	5.8	3.9
Incr Delay (d2), s/veh	4.1	6.2	0.5	0.2	0.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	5.1	3.5	0.6	1.1	1.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	39.7	42.2	9.1	7.2	6.3	4.1
LnGrp LOS	D	D	A	A	A	A
Approach Vol, veh/h	457		870			788
Approach Delay, s/veh	40.9		8.9			4.7
Approach LOS	D		A			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	10.3	59.8			70.1	19.9
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	7.5	43.5			55.5	25.5
Max Q Clear Time (g_c+I1), s	5.7	11.9			6.7	14.2
Green Ext Time (p_c), s	0.1	6.3			4.3	1.2

Intersection Summary	
HCM 6th Ctrl Delay	14.3
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	25	0	100	0	1025	65	50	650	0
Future Vol, veh/h	0	0	0	25	0	100	0	1025	65	50	650	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	150	-	0	-	-	-	205	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	27	0	109	0	1114	71	54	707	0

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	1612	-	593	-	0	0	1185	0	0
Stage 1	1150	-	-	-	-	-	-	-	-
Stage 2	462	-	-	-	-	-	-	-	-
Critical Hdwy	6.84	-	6.94	-	-	-	4.14	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	-	3.32	-	-	-	2.22	-	-
Pot Cap-1 Maneuver	*217	0	*664	0	-	-	961	-	0
Stage 1	*627	0	-	0	-	-	-	-	0
Stage 2	*601	0	-	0	-	-	-	-	0
Platoon blocked, %	1		1		-	-	1	-	
Mov Cap-1 Maneuver	*205	0	*664	-	-	-	961	-	-
Mov Cap-2 Maneuver	*205	0	-	-	-	-	-	-	-
Stage 1	*627	0	-	-	-	-	-	-	-
Stage 2	*567	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.2	0	0.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	205	664	961	-
HCM Lane V/C Ratio	-	-	0.133	0.164	0.057	-
HCM Control Delay (s)	-	-	25.2	11.5	9	-
HCM Lane LOS	-	-	D	B	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0.6	0.2	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	180	255	825	75	200	475
Future Volume (veh/h)	180	255	825	75	200	475
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	196	277	897	82	217	516
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	361	321	1991	888	442	2439
Arrive On Green	0.20	0.20	0.56	0.56	0.07	0.69
Sat Flow, veh/h	1781	1585	3647	1585	1781	3647
Grp Volume(v), veh/h	196	277	897	82	217	516
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1585	1781	1777
Q Serve(g_s), s	8.9	15.2	13.4	2.2	4.3	4.8
Cycle Q Clear(g_c), s	8.9	15.2	13.4	2.2	4.3	4.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	361	321	1991	888	442	2439
V/C Ratio(X)	0.54	0.86	0.45	0.09	0.49	0.21
Avail Cap(c_a), veh/h	495	440	1991	888	455	2439
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.2	34.7	11.6	9.2	8.3	5.2
Incr Delay (d2), s/veh	1.3	12.3	0.7	0.2	0.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	6.8	4.9	0.7	1.5	1.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	33.4	47.0	12.4	9.4	9.1	5.4
LnGrp LOS	C	D	B	A	A	A
Approach Vol, veh/h	473		979			733
Approach Delay, s/veh	41.4		12.1			6.5
Approach LOS	D		B			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	11.3	55.4			66.8	23.2
Change Period (Y+Rc), s	5.0	5.0			* 5	5.0
Max Green Setting (Gmax), s	7.0	43.0			* 56	25.0
Max Q Clear Time (g_c+I1), s	6.3	15.4			6.8	17.2
Green Ext Time (p_c), s	0.0	7.2			3.8	1.0

Intersection Summary	
HCM 6th Ctrl Delay	16.6
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	0	3	25	0	350	1	860	70	25	700	5
Future Vol, veh/h	14	0	3	25	0	350	1	860	70	25	700	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	150	-	-	200	-	-	205	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	75	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	0	3	27	0	467	1	935	76	27	761	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1288	1831	383	1410	1795	506	766	0	0	1011	0	0
Stage 1	818	818	-	975	975	-	-	-	-	-	-	-
Stage 2	470	1013	-	435	820	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	*445	261	*801	*445	290	*733	*1198	-	-	1043	-	-
Stage 1	*708	631	-	*686	602	-	-	-	-	-	-	-
Stage 2	*691	570	-	*755	629	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1	1	1	-	-	1	-	-
Mov Cap-1 Maneuver	*158	254	*801	*434	283	*733	*1198	-	-	1043	-	-
Mov Cap-2 Maneuver	*158	254	-	*434	283	-	-	-	-	-	-	-
Stage 1	*708	614	-	*685	601	-	-	-	-	-	-	-
Stage 2	*251	569	-	*733	613	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	26.5	17.9	0	0.3
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	* 1198	-	-	158	801	434	733	1043	-	-
HCM Lane V/C Ratio	0.001	-	-	0.096	0.004	0.063	0.637	0.026	-	-
HCM Control Delay (s)	8	-	-	30.2	9.5	13.8	18.1	8.5	-	-
HCM Lane LOS	A	-	-	D	A	B	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0	0.2	4.6	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	215	206	725	75	202	526
Future Volume (veh/h)	215	206	725	75	202	526
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	234	224	788	82	220	572
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	306	272	2178	972	516	2588
Arrive On Green	0.17	0.17	0.61	0.61	0.07	0.73
Sat Flow, veh/h	1781	1585	3647	1585	1781	3647
Grp Volume(v), veh/h	234	224	788	82	220	572
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1585	1781	1777
Q Serve(g_s), s	11.3	12.3	9.9	1.9	3.8	4.7
Cycle Q Clear(g_c), s	11.3	12.3	9.9	1.9	3.8	4.7
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	306	272	2178	972	516	2588
V/C Ratio(X)	0.77	0.82	0.36	0.08	0.43	0.22
Avail Cap(c_a), veh/h	505	449	2178	972	548	2588
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.5	36.0	8.7	7.1	5.8	4.0
Incr Delay (d2), s/veh	4.0	6.2	0.5	0.2	0.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	5.1	3.5	0.6	1.2	1.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	39.5	42.1	9.1	7.3	6.4	4.2
LnGrp LOS	D	D	A	A	A	A
Approach Vol, veh/h	458		870			792
Approach Delay, s/veh	40.8		9.0			4.8
Approach LOS	D		A			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	10.4	59.7			70.1	19.9
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	7.5	43.5			55.5	25.5
Max Q Clear Time (g_c+I1), s	5.8	11.9			6.7	14.3
Green Ext Time (p_c), s	0.1	6.3			4.3	1.2

Intersection Summary	
HCM 6th Ctrl Delay	14.3
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	0	2	25	0	100	4	1025	65	50	650	15
Future Vol, veh/h	9	0	2	25	0	100	4	1025	65	50	650	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	150	-	-	200	-	-	205	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	0	2	27	0	109	4	1114	71	54	707	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1388	2016	362	1620	1989	593	723	0	0	1185	0	0
Stage 1	823	823	-	1158	1158	-	-	-	-	-	-	-
Stage 2	565	1193	-	462	831	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	*477	130	*835	*445	*141	*664	1202	-	-	961	-	-
Stage 1	*623	580	-	*626	*549	-	-	-	-	-	-	-
Stage 2	*626	521	-	*787	*574	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1	1	1	-	-	1	-	-
Mov Cap-1 Maneuver	*380	123	*835	*423	*133	*664	1202	-	-	961	-	-
Mov Cap-2 Maneuver	*380	123	-	*423	*133	-	-	-	-	-	-	-
Stage 1	*621	547	-	*624	*547	-	-	-	-	-	-	-
Stage 2	*522	520	-	*741	*542	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.7	12	0	0.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1202	-	-	380	835	423	664	961	-	-
HCM Lane V/C Ratio	0.004	-	-	0.026	0.003	0.064	0.164	0.057	-	-
HCM Control Delay (s)	8	-	-	14.7	9.3	14.1	11.5	9	-	-
HCM Lane LOS	A	-	-	B	A	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0.2	0.6	0.2	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	180	257	827	75	201	476
Future Volume (veh/h)	180	257	827	75	201	476
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	196	279	899	82	218	517
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	357	318	2064	921	454	2486
Arrive On Green	0.20	0.20	0.58	0.58	0.07	0.70
Sat Flow, veh/h	1781	1585	3647	1585	1781	3647
Grp Volume(v), veh/h	196	279	899	82	218	517
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1585	1781	1777
Q Serve(g_s), s	8.9	15.4	12.8	2.1	4.1	4.6
Cycle Q Clear(g_c), s	8.9	15.4	12.8	2.1	4.1	4.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	357	318	2064	921	454	2486
V/C Ratio(X)	0.55	0.88	0.44	0.09	0.48	0.21
Avail Cap(c_a), veh/h	426	379	2064	921	480	2486
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.3	34.9	10.6	8.3	7.5	4.8
Incr Delay (d2), s/veh	1.3	18.0	0.7	0.2	0.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	7.4	4.6	0.7	1.4	1.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	33.6	52.9	11.3	8.5	8.3	4.9
LnGrp LOS	C	D	B	A	A	A
Approach Vol, veh/h	475		981			735
Approach Delay, s/veh	44.9		11.0			5.9
Approach LOS	D		B			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	10.7	56.8			67.4	22.6
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	7.5	47.5			59.5	21.5
Max Q Clear Time (g_c+I1), s	6.1	14.8			6.6	17.4
Green Ext Time (p_c), s	0.1	7.5			3.8	0.7

Intersection Summary	
HCM 6th Ctrl Delay	16.7
HCM 6th LOS	B

November 19, 2025

Affinity At Crowfoot
Attn: Cayd Bader
P.O. Box 1143
Broomfield, Co 80020

RE: Will Serve Letter – Douglas County, State of Colorado.
Conditional Will Serve Letter – Parker Water & Sanitation District to provide Water and Sanitation Services to **Bloom Development.**

Account #:R0135626
State Parcel #:2349-090-00-002
SW1/4SW1/4 9-7-66 40.00 AM/L

Account #:R0480779
State Parcel #:2349-093-00-001
SE1/4SW1/4 9-7-66 40 AM/L

Dear Sirs:

The Parker Water & Sanitation District (PWSD) acknowledges its willingness and ability to serve the **"Bloom Development"** described above. The parcel is identified as future build out and will be part of PWSD upon successful completion of inclusion. And that Sanitary Sewer services may be provided to the development through an Inter-Governmental Agreement (IGA) between PWSD and the Pinery Water & Wastewater (Pinery) District.

COMMITMENT TO SERVE

PWSD is committed to providing service to all future developments within its service area, based on the water supply sources available within the PWSD's water rights portfolio. Such commitment to provide service is conditioned upon compliance with all successful inclusion into the District, PWSD Rules and Regulations, Standard and Specifications, and/or conditions specific to the property; including payment of the appropriate fees and any charges related to water and/or sanitation service, as established from time to time by PWSD Directors.

DISTRICT WATER DEMAND

The current PWSD water demand is approximately 7,700 acre-feet per year (AF/yr), while at build out, the total of 23,500 AF/yr. The proposed development of **"Bloom Development"** will be included in our future projections.

PROPOSED BLOOM DEMAND (1805A)

The projected Bloom demand based on PWSD Section 3, Rules and Regulations, Landscape/Irrigation worksheet is equivalent to 46.2 Acre feet/yr; which equates to 32 single-family equivalent taps (SFEs), with additional needs of approximately 10 single-family equivalents (SFE) for landscape irrigation. The districts demand calculation of 1.1 Acre Feet/yr. Per SFE plus additional irrigation requirements require a higher standard than the Douglas County's 1805A of 0.75 Acre Feet/Yr per residence.

DISTRICT WATER SUPPLY

PWSD has an extensive water rights portfolio of adjudicated Denver Basin aquifer groundwater rights, both junior and senior tributary water rights, storage rights in Rueter-Hess Reservoir of 71,920 AF, return flows from effluent and lawn irrigation for use in the PWSD augmentation plan.

The attached Table 1 summarizes PWSD's adjudicated first-use rights, which indicates a total of 41,134 AF/yr (the anticipated yield of these rights in both an average and dry year (Section 1805A.01.2(2)b. of the DCZR). Not included in Table 1 are the rights associated with storage in Rueter-Hess Reservoir or any of PWSD's reuse rights, which will provide significant additional supplies to PWSD.

In summary, with the estimated buildout demand of 23,500 AF/yr, and PWSD's 41,134 AF/yr of adjudicated first-use water rights and the Denver Basin groundwater that **"Bloom Development"** will dedicate with successful inclusion, PWSD has significant excess water supplies which can serve **"Bloom Development"**, and all future planned buildout within PWSD.

PROPOSED USES

The Bloom Development proposed uses correspond to the allowed uses of the District's Water Rights.

WATERQUALITY

PWSD is in compliance with the Colorado Department of Public Health and Environment testing and quality requirements and provides a high-quality water supply to all customers.

SANITARY SERVICE

PWSD shall provide sanitary service for all taps requested for Bloom Development upon successful inclusion to the District.

FEASIBILITY OF SERVICE

It is physically and economically feasible for PWSD to provide service to the proposed development of **"Bloom Development."**

If you have any questions regarding any of the information provided or PWSD's ability to provide service to the proposed development, please do not hesitate to call us.

Sincerely,
Parker Water & Sanitation District

Heather Justus
Water Resource Manager

Attachments and Links:

Exhibit Plan
Table 1 Summary of PWSD Water Rights
Map of the existing PWSD's service area (Section 1805A.01.2(2)f. of the DCZR)
2022 Evidence of potability of PWSD's water supply for the subdivision (Section 1805A.01.2(3) of the DCZR). 2022 https://www.pwsd.org/DocumentCenter/View/3584/2022-Consumer- Confidence-Report-PDF?bidId=
2023 Consumer Confidence Report https://www.pwsd.org/DocumentCenter/View/3763/2023- PWSD-Consumer-Confidence-Report-PDF

TABLE 1
SUMMARY OF PWSD WATER RIGHTS

DECREED WATER AVAILABLE FOR PWSD USE

SOURCE	Volume (ac-ft/yr) Decreed in Case No.												
	83CW348(A)	95CW039	87CW104(A) [2]	87CW104(B) [2]	95CW089 [2]	99CW006 [2]	06CW179 [2]	02CW227 [3]	94CW042 [4]	03CW258, et al[5]	82CW434 [6]	85CW448, 04CW348 [7]	TOTAL
Cherry Creek alluvium [1]	726.7	132.3										24,130	859.0
Lower Dawson-NT			742.6	631.8	391.8	430.2	868.6	30.6	178.3	821.0	364.0		4,458.9
Lower Dawson-NNT			219.4	0.0	79.5	380.8	807.6						1,487.3
Denver-NT			430.1	908.6	272.6	611.9	235.6	94.4	104.0	1258.0	422.0		4,337.2
Denver-NNT			1016.2	9.0	377.9	616.1	1980.6						3,999.8
Arapahoe-NT			1161.7	627.0	698.3	1945.7	2447.1	64.5	547.3	2954.0	487.0		10,932.6
Laramie-Fox Hills-NT			1044.1	625.3	419.2	700.8	1350.0	49.4	16.0	980.0	310.0		5,494.8
												TOTAL[8] =	31,569.6

DENVER BASIN WATER DEEDED AS PART OF INCLUSION (NOT CURRENTLY PART OF PWSD WELL FIELDS)

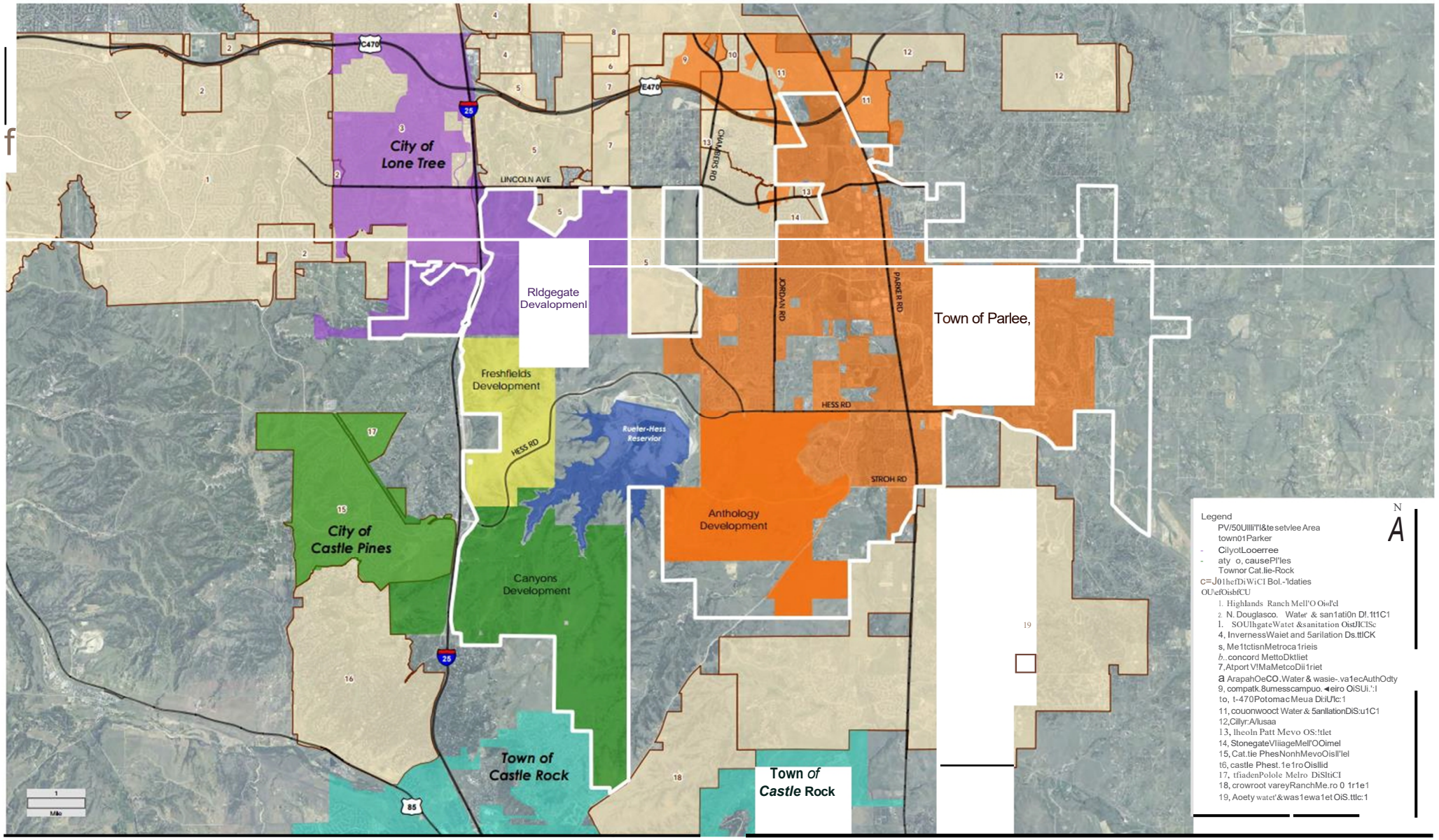
SOURCE	Annual Volume (ac-ft) Dedicated as Part of PWSD Inclusion[9]												
	Carousel Farms	Cielo	Developmental Pathways	Dransfeldt Place	Gregg East	Harvie Park	Hess Ranch	Hess Road Gailen Buck	Hess Road Town of Parker	Meadowlark	Miller Creek	Parker Parcel	Parker Homestead Parcel A
Upper Dawson - NNT		13.8				4.1	38.4						
Lower Dawson-NT		41.8	0.4	1.7	1.7	20.0	457.6	6.0	4.7	19.4	5.7	14.5	
Lower Dawson-NNT	11.2												51.0
Denver-NT		73.4			3.1	24.6	655.0	7.5	6.1	89.1	7.9	20.4	
Denver-NNT	18.1		0.5	9.1			164.6						71.0
Arapahoe-NT	17.6	75.2	0.5	8.1	3.1	0.0	780.7	8.3	6.6	108.4	7.0	21.4	75.3
Laramie-Fox Hills-NT	11.3	47.4	0.3	6.3	2.3	22.6	474.7	5.1	4.0	65.0	5.7	14.2	45.9

SOURCE	Annual Volume (ac-ft) Dedicated as Part of PWSD Inclusion[9]										
	Parker Point	Public Service CO Sec 20	Public Service CO Sec 21	Public Service CO Sec 22	Reata Ridge Parcel	Salisbury Heights	Sierra Ridge	Steven's Ranch	Stroh Ranch Parcel	Twenty Mile Town Center II	TOTAL
Upper Dawson - NNT								43.8			100.1
Lower Dawson-NT	4.2		3.7		15.4	4.1		442.8	595.9	0.9	1640.5
Lower Dawson-NNT		4.4		6.4			77.9				150.9
Denver-NT	5.8			10.4	21.4	5.1		318.4	855.7	1.3	2105.1
Denver-NNT		6.6	4.8				132.5	387.2			794.4
Arapahoe-NT	7.4	6.6	4.9	9.4	26.4	5.4	143.1	724.0	920.3	1.2	2960.8
Laramie-Fox Hills-NT	4.6	4.0	3.2	7.3	16.5	3.5	89.6	431.5	546.7	0.9	1812.6
										TOTAL =	9,564.4

GRAND TOTAL (DENVER BASIN AND CHERRY CREEK WATER RIGHTS)[10] =	41,134.0

1) Water rights changed to municipal use. All of this water is fully consumable and reusable.
2) PWSD well field decree.
3) Hover parcel.
4) Well field established between PWSD and Stroh Ranch for full Stroh Ranch water supply, but water availability limited to volume of water deeded to PWSD from Stroh Ranch.
5) Rights also include water decreed in 82CW116, W-8033, 81CW403, 83CW333, and 98CW459. Water deeded to PWSD from RidgeGate property but not part of the PWSD well fields.
6) Water deeded to PWSD from Freshfields property but not part of the PWSD well fields.
7) Combined RHR and Lake Gulch storage rights - RHR as alternate place of storage, not included in totals
8) Total potential yield of these rights
9) All wellfield inclusion volumes are preliminary and subject to change
10) Updated March, 2019

PWSD Service Area



March 25, 2026

Cayd Bader, CEO
Affinity Holdings, LLC
303-246-6799

Re: District Inclusion Deferral Request for the Bloom Preliminary Plan
Project No. SB2025-017

Dear Mr. Bader:

Thank you for submitting your request for a deferral of the requirement to submit evidence of inclusion of the Bloom Preliminary Plan property into the Parker Water and Sanitation District. It is our understanding that the inclusion process is underway and will be completed prior to consideration by the Board of County Commissioners (Board) of a final plat for the project. It is also our understanding that waiting for completion of the property's inclusion into the Parker Water and Sanitation District prior to approval of the preliminary plan could result in delays for the project.

Pursuant to Section 406.07, the requested deferral of the submittal requirement for evidence of inclusion of the Bloom Preliminary Plan property into the Parker Water and Sanitation District is granted, on the condition that such evidence must be submitted prior to consideration of the first final plat associated with the Bloom Preliminary Plan by the Board.

Best regards,

Katherine E. Carter

Kati Carter, AICP
Director of Community Development

Mike Pesicka, Principal Planner
Jeanette Bare, AICP, Planning Manager
Steven E. Koster, AICP, Deputy Director of Community Development

BLOOM PRELIMINARY PLAN

SITUATED IN SECTION 9, TOWNSHIP 7 SOUTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN
COUNTY OF DOUGLAS, STATE OF COLORADO
81.07 ACRES, 32 RESIDENTIAL LOTS, 6 TRACTS, SB2025-017

LEGAL DESCRIPTION:

THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER, AND THE SOUTHEAST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 9, TOWNSHIP 7 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, COUNTY OF DOUGLAS, STATE OF COLORADO.

BASIS OF BEARINGS:

BEARINGS ARE BASED ON THE WEST LINE OF THE SOUTHWEST QUARTER OF SECTION 9, TOWNSHIP 7 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, MONUMENTED AT THE NORTH END BY A 3-1/4" ALUMINUM CAP STAMPED "ARCHER & ASSOC 1986 PLS 6935" AND AT THE SOUTH END BY A 3-1/4" ALUMINUM CAP STAMPED "1989 PLS 13213". SAID WEST LINE BEARS SOUTH 00°23'24" EAST.

GENERAL NOTES:

1. LAND TITLE GUARANTEE COMPANY ORDER NO. ABC70686281-6, EFFECTIVE DATE 07/20/2022. WAS RELIED UPON FOR RECORD INFORMATION REGARDING RIGHTS-OF-WAY, EASEMENTS AND ENCUMBRANCES. THIS SURVEY DOES NOT REPRESENT A TITLE SEARCH BY ATWELL, LLC. TO DETERMINE OWNERSHIP, RIGHTS-OF-WAY, EASEMENTS OR OTHER MATTERS OF PUBLIC RECORD.

2. DISTANCES ON THIS PLAN ARE GROUND DISTANCES EXPRESSED IN U.S. SURVEY FEET AND DECIMALS THEREOF. A U.S. SURVEY FOOT IS DEFINED AS EXACTLY 1200/3937 METERS.

3. STORM SEWER DRAINAGE EASEMENTS WILL BE GRANTED TO DOUGLAS COUNTY AT THE TIME OF FINAL PLAT TO ACCOMMODATE DRAINAGE INFRASTRUCTURE WITHIN TRACTS A AND C FOR THE PURPOSES OF ACCESSING, MAINTAINING, AND REPAIRING STORM WATER MANAGEMENT IMPROVEMENTS, INCLUDING, BUT NOT LIMITED TO, INLETS, PIPES, CULVERTS, HYDRAULIC STRUCTURES (COLLECTIVELY, THE "STORM FACILITIES").

4. THE MAINTENANCE AND REPAIR OF THE STORM FACILITIES LOCATED IN THE SUBDIVISION WILL BE ACCEPTED BY DOUGLAS COUNTY AT THE TIME OF FINAL PLAT AND WILL BE THE RESPONSIBILITY OF THE SYSTEM OWNER. IN THE EVENT SUCH MAINTENANCE AND REPAIRS ARE NOT PERFORMED BY THE SYSTEM OWNER TO THE SATISFACTION OF DOUGLAS COUNTY, THEN DOUGLAS COUNTY WILL HAVE THE RIGHT, BUT NOT THE OBLIGATION, TO ENTER SAID SUBDIVISION AFTER TEN (10) DAYS PRIOR WRITTEN NOTICE TO THE SYSTEM OWNER, UNLESS THERE IS AN EMERGENCY, IN WHICH CASE DOUGLAS COUNTY WILL GIVE NOTICE AS SOON AS PRACTICABLE, TO PERFORM ALL NECESSARY WORK, THE COST OF WHICH WILL BE PAID BY THE SYSTEM OWNER UPON BILLING. IN THE EVENT THE SYSTEM OWNER FAILS TO REIMBURSE DOUGLAS COUNTY WITHIN THIRTY (30) DAYS AFTER SUBMISSION OF THE BILL FOR THE COSTS INCURRED, DOUGLAS COUNTY WILL HAVE THE RIGHT TO ENFORCE SUCH OBLIGATION BY APPROPRIATE LEGAL ACTION. IT IS THE SYSTEM OWNER'S RESPONSIBILITY TO CONSTRUCT, MAINTAIN AND REPAIR THE FACILITIES IN A MANNER CONSISTENT WITH ALL APPLICABLE PLANS APPROVED OR ACCEPTED BY DOUGLAS COUNTY.

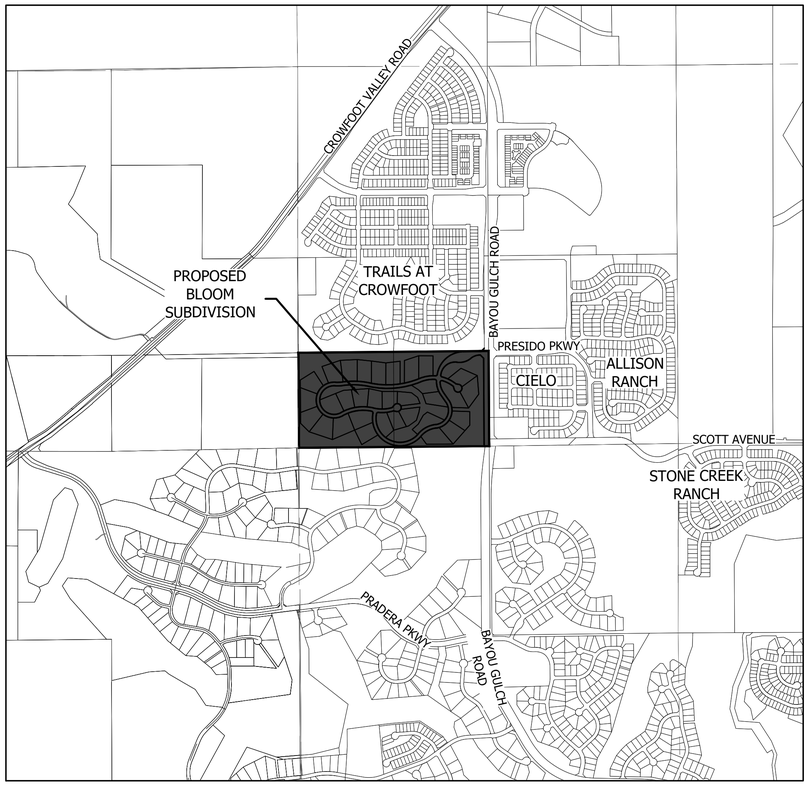
5. THE ONSITE WATER & SANITARY SEWER EASEMENT WILL BE DEDICATED TO PARKER WATER AND SANITATION DISTRICT FOR SANITARY SEWER AND WATER MAINS SERVICING THE SUBDIVISION.

6. TRACTS A, B AND C WILL BE OWNED AND MAINTAINED BY THE BLOOM METRO DISTRICT, FOR THE PURPOSE OF DRAINAGE, OPEN SPACE, LANDSCAPING, PUBLIC ACCESS, AND UTILITIES.

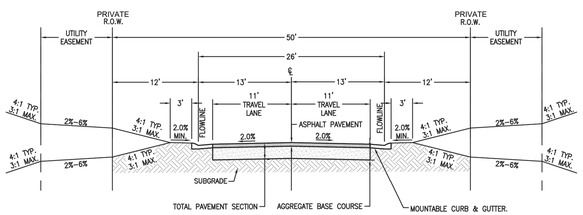
7. PRIVATE ROADS TO BE DEDICATED TO THE HOA OR BLOOM METRO DISTRICT TO PROVIDE PUBLIC AND EMERGENCY VEHICLE ACCESS TO THE COMMUNITY.

8. THE FOLLOWING EASEMENTS SHOWN ON SHEET 2 ARE SPECIFIED AS FOLLOWS:
   - THE 31' UTILITY EASEMENT IN TRACT A IS FOR SANITARY SEWER AND WATER MAIN TO BE DEDICATED TO PARKER WATER AND SANITATION DISTRICT VIA FINAL PLAT.
   - THE 30" UTILITY EASEMENT IS FOR SANITARY SEWER INSTALLATION WITHIN TRACT A.
   - THE 26' WATER AND SAN SEWER EASEMENT WITHIN THE PRIVATE ROADS IS GRANTED TO PARKER WATER AND SANITATION DISTRICT VIA FINAL PLAT.
   - THE 20' DRAINAGE EASEMENTS ARE FOR STORM SEWER INFRASTRUCTURE AND SHALL BE GRANTED TO DOUGLAS COUNTY VIA FINAL PLAT.
   - THE 15' WATER EASEMENT ON THE SOUTH SIDE OF TRACT C IS FOR A WATER LINE EXTENSION TO SCOTT AVENUE. THIS WATER EASEMENT WILL BE DEDICATED TO PARKER WATER AND SANITATION DISTRICT VIA FINAL PLAT.
   - THE 15' DRY UTILITY EASEMENT ALONG EACH SIDE OF THE ROADS WITHIN BLOOM SUBDIVISION ARE FOR DRY UTILITY INSTILLATION, WHICH INCLUDES GAS, ELECTRIC AND TELECOMMUNICATIONS.

9. THE UTILITY EASEMENTS ARE DEDICATED TO THE COUNTY OF DOUGLAS FOR THE BENEFIT OF THE APPLICABLE UTILITY PROVIDERS FOR THE INSTALLATION, MAINTENANCE, AND REPLACEMENT OF ELECTRIC, GAS, TELEVISION, CABLE, AND TELECOMMUNICATIONS FACILITIES (DRY UTILITIES). UTILITY EASEMENTS SHALL ALSO BE GRANTED WITHIN ANY ACCESS EASEMENTS AND PRIVATE STREETS IN THE SUBDIVISION. PERMANENT STRUCTURES, IMPROVEMENTS, OBJECTS, BUILDINGS, WELLS, WATER METERS AND OTHER OBJECTS THAT MAY INTERFERE WITH THE UTILITY FACILITIES OR USE THEREOF (INTERFERING OBJECTS) SHALL NOT BE PERMITTED WITHIN SAID UTILITY EASEMENTS AND THE UTILITY PROVIDERS, AS GRANTEES, MAY REMOVE ANY INTERFERING OBJECTS AT NO COST TO SUCH GRANTEES, INCLUDING, WITHOUT LIMITATION, VEGETATION. PUBLIC SERVICE COMPANY OF COLORADO (PSCO) AND ITS SUCCESSORS RESERVE THE RIGHT TO REQUIRE ADDITIONAL EASEMENTS AND TO REQUIRE THE PROPERTY OWNER TO GRANT PSCO AN EASEMENT ON ITS STANDARD FORM.



1 MILE VICINITY MAP
SCALE 1"=1000'



PROPOSED PRIVATE ROAD SECTION
N.T.S

Sheet List Table	
SHEET NUMBER	SHEET TITLE
1	COVER SHEET
2	PRELIMINARY SITE PLAN
3	PRELIMINARY UTILITY PLAN
4	PRELIMINARY GRADING AND SLOPE ANALYSIS PLAN

DEVELOPER:
AFFINITY AT CROWFOOT, LLC
P.O. BOX 1143
BROOMFIELD, CO 80020
(303) 246-6799
CONTACT: CAYD BADER

CIVIL ENGINEER:
ATWELL, LLC
6200 SOUTH SYRACUSE WAY
SUITE 125
GREENWOOD VILLAGE, CO 80111
(303) 332-5370
CONTACT: JEFF FRENCH

SURVEYOR:
ATWELL, LLC
143 UNION BLVD.
SUITE 700
LAKEWOOD, CO 80228
(303) 928-6724
CONTACT: JOSH BREEDLOVE

LANDSCAPE ARCHITECT/PLANNER:
PCS GROUP, INC
200 KALAMATH STREET
DENVER, COLORADO 80223
(303) 531-4905
CONTACT: PAUL SHOUKAS

ABBREVIATIONS LEGEND

AC	ACREAGE
ADE	ACCESS & DRAINAGE EASEMENT
ESMT	EASEMENT
EX	EXISTING
FH	FIRE HYDRANT
FL	FLOW LINE
FT	FEET
M	METER
MH	MANHOLE
PVC	POLY VINYL CHORIDE
P.U.E	PUBLIC UTILITY EASEMENT
R.O.W	RIGHT-OF-WAY
RCP	REINFORCED CONCRETE PIPE
SAN	SANITARY SEWER
S.F	SQUARE FEET
STM	STORM
TYP	TYPICAL
UTIL ESMT	UTILITY EASEMENT
WAT	WATER
W.E	WATER EASEMENT
W/L	WATER LINE
W.S.E	WATER & SANTIARY EASEMENT

LEGEND

- PROPERTY BOUNDARY
- PROPOSED RIGHT-OF-WAY
- EXISTING RIGHT-OF-WAY
- PROPOSED LOT LINE
- EXISTING LOT LINE
- PROPOSED CURB & GUTTER
- EXISTING CURB & GUTTER
- PROPOSED SIDEWALK
- EXISTING SIDEWALK
- EXISTING SECTION LINE
- PROPOSED EASEMENT
- EXISTING EASEMENT
- PROPOSED CONTOURS
- EXISTING CONTOURS
- PROPOSED SANITARY
- EXISTING SANITARY
- PROPOSED STORM
- EXISTING STORM
- PROPOSED WATER
- EXISTING WATER
- EXISTING ELECTRIC
- EXISTING IRRAGATION
- EXISTING GAS
- EXISTING OVERHEAD ELECTRIC
- EXISTING COMMUNICATION
- PROPOSED HYDRANT
- EXISTING HYDRANT
- PROPOSED WATER VALVE
- EXISTING WATER VALVE

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

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ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, SUITE 125
GREENWOOD VILLAGE, CO 80111
303.825.7100

OWNER/DEVELOPER
AFFINITY AT CROWFOOT, LLC
P.O. BOX 1143
BROOMFIELD, CO 80020
(303) 246-6799
CAYD BADER

BLOOM SUBDIVISION
DOUGLAS COUNTY, COLORADO
PRELIMINARY PLAN
COVER SHEET

DATE 4/15/2025

A	1st SUBMITTAL TO JURISDICTION 04/15/2025 - DEB
B	2nd SUBMITTAL TO JURISDICTION 10/17/2025 - BKS
C	3rd SUBMITTAL TO JURISDICTION 12/05/2025 - BKS
D	4th SUBMITTAL TO JURISDICTION 01/30/2026 - BKS
E	5th SUBMITTAL TO JURISDICTION 03/24/2026 - BKS

REVISIONS

DR. KDB | CH. DM
P.M. DEB
JOB 20003952
SHEET NO.
1 OF 4

CAD FILE: 22003148 - SITE PLAN COVER.DWG

DOCUMENT SHOWING REVISIONS - SEE DATA SHEET OR TRANSMITTAL FOR ADDITIONAL INFO

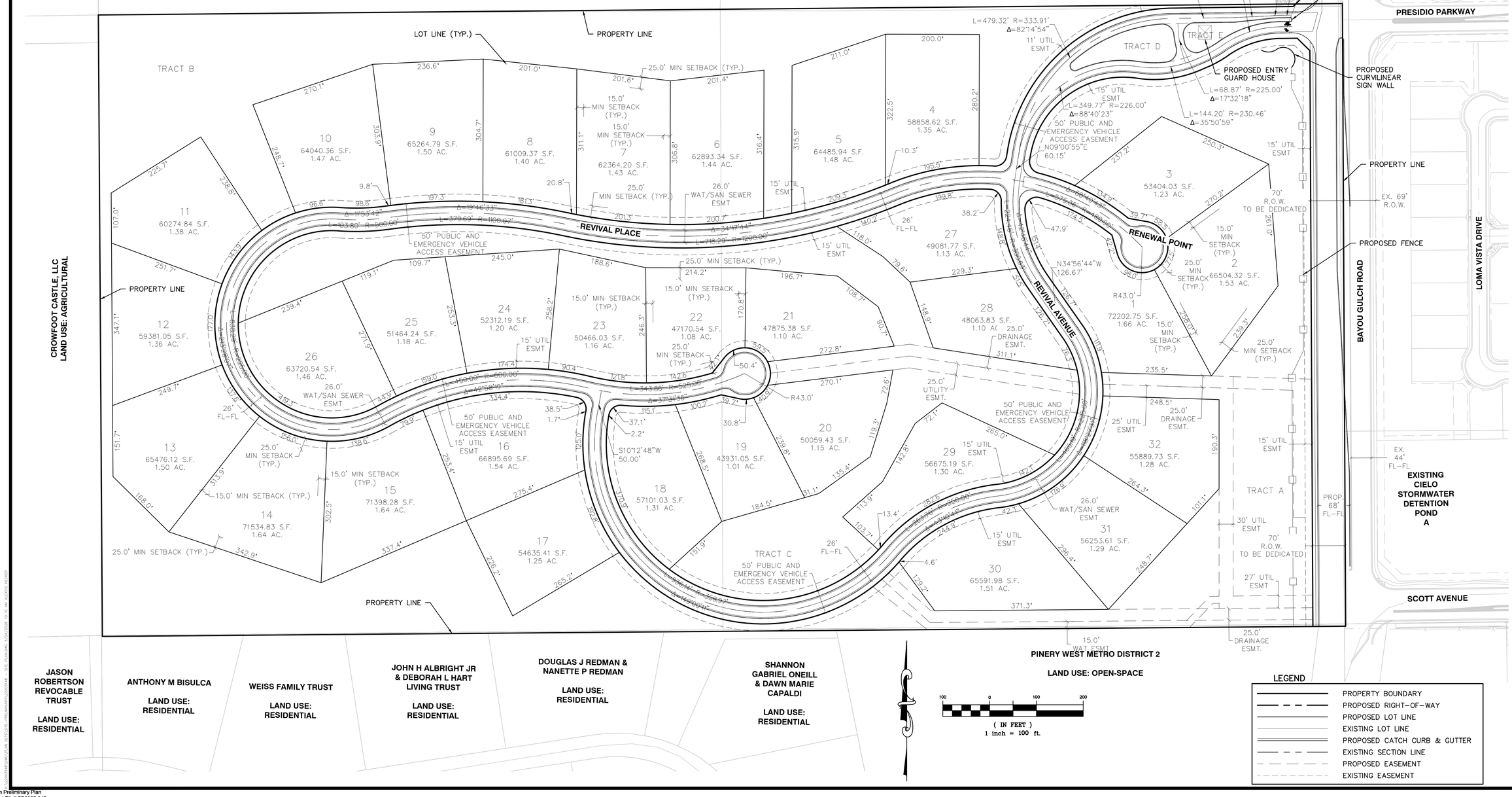
NOTES:
1. WATER AND SANITARY EASEMENTS WILL BE GRANTED TO PARKER WATER AND SANITATION DISTRICT (PWSD). PWSD WILL OWN AND MAINTAIN THE WATER AND SANITARY INFRASTRUCTURE WITHIN THESE EASEMENTS.
2. PUBLIC AND EMERGENCY ACCESS EASEMENTS WILL BE GRANTED TO THE PUBLIC. THE BLOOM METRO DISTRICT WILL OWN AND MAINTAIN ROADWAYS WITHIN THESE EASEMENTS.

BLOOM PRELIMINARY PLAN

SITUATED IN SECTION 9, TOWNSHIP 7 SOUTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN
COUNTY OF DOUGLAS, STATE OF COLORADO
81.07 ACRES, 32 RESIDENTIAL LOTS, 6 TRACTS, SB2025-017

LAND USE TABLE				
GROSS AREA	81.0709 AC		SMALLEST RESIDENTIAL LOT	43,931.05 SF / 1.01 AC
NET AREA (EXCLUDING PUBLIC AND PRIVATE RIGHT-OF-WAY)	70.64 AC	87.13%	LARGEST RESIDENTIAL LOT	72,202.75 SF / 1.66 AC
TOTAL NUMBER OF LOTS	32		AVERAGE RESIDENTIAL LOT	58,726.69 SF / 1.35 AC
AREA OF LOTS	43.14 AC	36.93%	DENSITY (GROSS)	0.39 DU/AC
TOTAL NUMBER OF TRACTS	6		ZONING - RESIDENTIAL	ER
OPEN SPACE / DRAINAGE / PUBLIC UTILITIES (TRACTS A, B, C, D, E)	27.50 AC	33.27%		
AREA OF PRIVATE ROADS (TRACT F)	8.22 AC	9.86%		
AREA OF BAYOU GULCH ROAD DEDICATION	2.21 AC	2.73%		

TRACT AREA				
TRACT ID	OWNERSHIP / MAINTENANCE	TRACT USE	SQUARE FOOT	ACRE
A	BLOOM METRO DISTRICT	OPEN SPACE, DRAINAGE, PUBLIC UTILITIES	629,138.90	14.4430
B	BLOOM METRO DISTRICT	OPEN SPACE, DRAINAGE, PUBLIC UTILITIES	284,657.89	6.5348
C	BLOOM METRO DISTRICT	OPEN SPACE, DRAINAGE, PUBLIC UTILITIES	261,007.64	5.9919
D	BLOOM METRO DISTRICT	OPEN SPACE	12,418.60	0.2850
E	BLOOM METRO DISTRICT	OPERATIONS	6,098.73	0.1401
F	BLOOM METRO DISTRICT	PRIVATE ACCESS & UTILITIES	358,102.69	8.2209



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NOTICE:
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P.O. BOX 1143
BROOMFIELD, CO 80020
(303) 246-6799
CAYD BADER

BLOOM SUBDIVISION
DOUGLAS COUNTY, COLORADO
PRELIMINARY PLAN
PRELIMINARY SITE PLAN

DATE 4/15/2025

REVISIONS

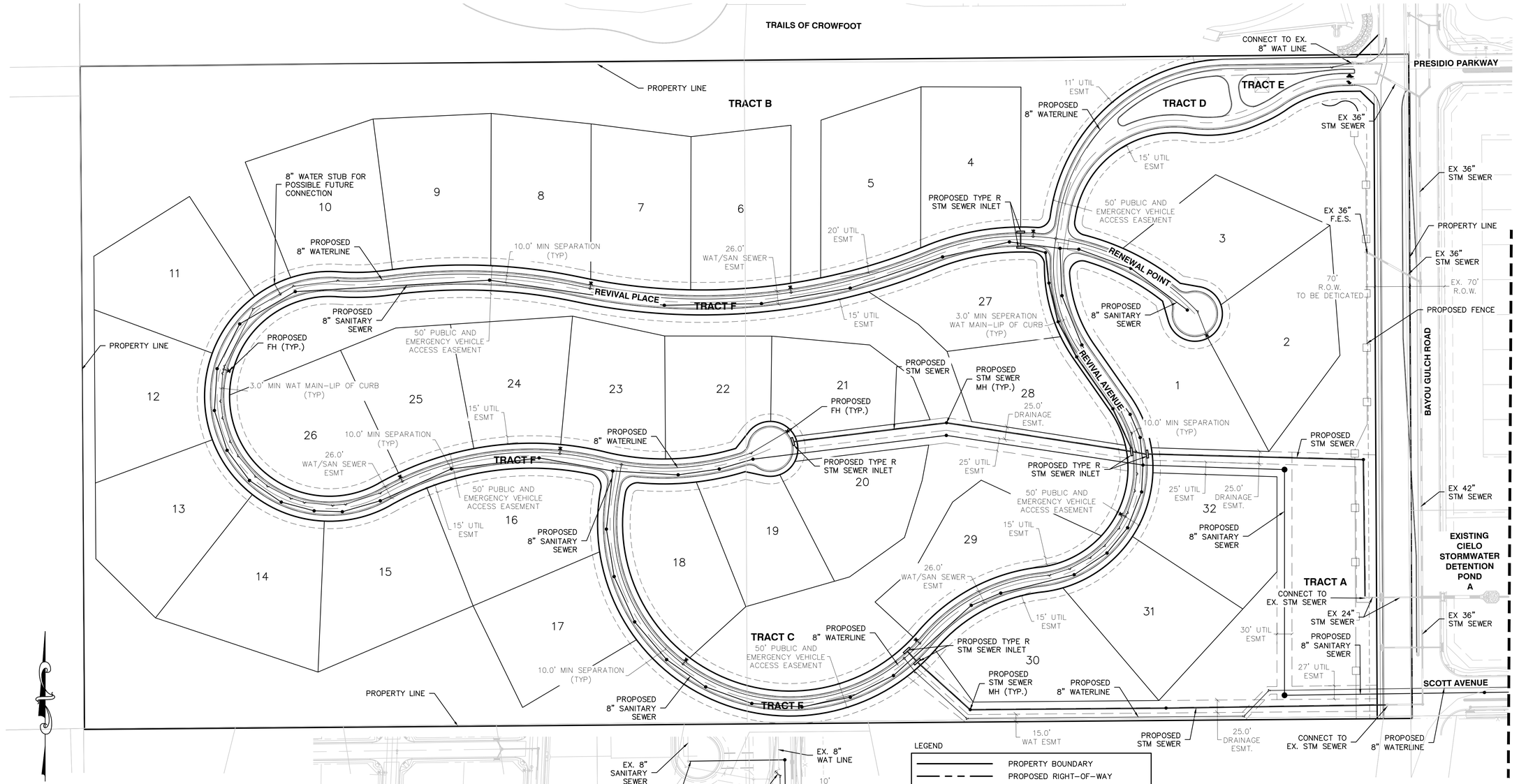
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B	2nd SUBMITTAL TO JURISDICTION 10/17/2025 – BCS
C	3rd SUBMITTAL TO JURISDICTION 12/15/2025 – BCS
D	4th SUBMITTAL TO JURISDICTION 01/29/2026 – BCS
E	5th SUBMITTAL TO JURISDICTION 03/24/2026 – BCS

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P.M. DEB
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SHEET NO. 2 OF 4

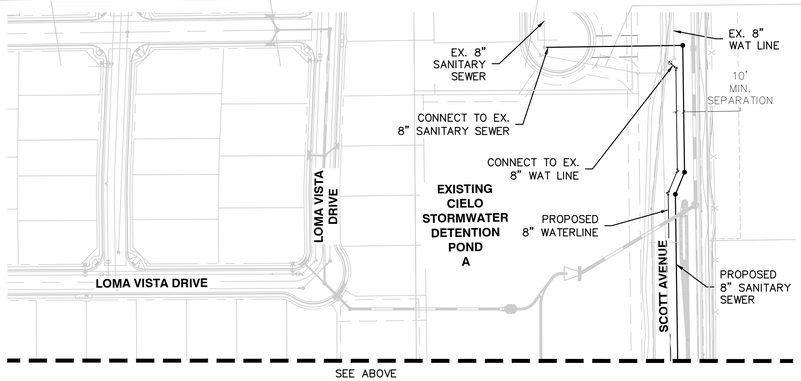
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BLOOM PRELIMINARY PLAN

SITUATED IN SECTION 9, TOWNSHIP 7 SOUTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN
COUNTY OF DOUGLAS, STATE OF COLORADO
81.07 ACRES, 32 RESIDENTIAL LOTS, 6 TRACTS, SB2025-017



(IN FEET)
1 inch = 100 ft.



(IN FEET)
1 inch = 100 ft.

LEGEND

- PROPERTY BOUNDARY
- PROPOSED RIGHT-OF-WAY
- EXISTING RIGHT-OF-WAY
- PROPOSED LOT LINE
- EXISTING LOT LINE
- PROPOSED CATCH CURB & GUTTER
- EXISTING SECTION LINE
- PROPOSED EASEMENT
- EXISTING EASEMENT
- PROPOSED SANITARY SEWER
- EXISTING SANITARY SEWER
- PROPOSED STORM
- EXISTING STORM
- PROPOSED WATER
- EXISTING WATER
- PROPOSED HYDRANT
- EXISTING HYDRANT
- PROPOSED WATER VALVE
- EXISTING WATER VALVE

NOTES:
1. WATER AND SANITARY EASEMENTS WILL BE GRANTED TO PARKER WATER AND SANITATION DISTRICT (PWSD). PWSD WILL OWN AND MAINTAIN THE WATER AND SANITARY INFRASTRUCTURE WITHIN THESE EASEMENTS.
2. PUBLIC AND EMERGENCY ACCESS EASEMENTS WILL BE GRANTED TO THE PUBLIC. THE BLOOM METRO DISTRICT WILL OWN AND MAINTAIN ROADWAYS WITHIN THESE EASEMENTS.

811 Know what's below. Call before you dig.

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CAYD BADER

BLOOM SUBDIVISION
DOUGLAS COUNTY, COLORADO
PRELIMINARY PLAN
PRELIMINARY UTILITY PLAN

DATE 4/15/2025

A	1st SUBMITTAL TO JURISDICTION 04/15/2025 – DEB
B	2nd SUBMITTAL TO JURISDICTION 10/17/2025 – BKS
C	3rd SUBMITTAL TO JURISDICTION 12/15/2025 – BKS
D	4th SUBMITTAL TO JURISDICTION 01/30/2026 – BKS
E	5th SUBMITTAL TO JURISDICTION 03/24/2026 – BKS

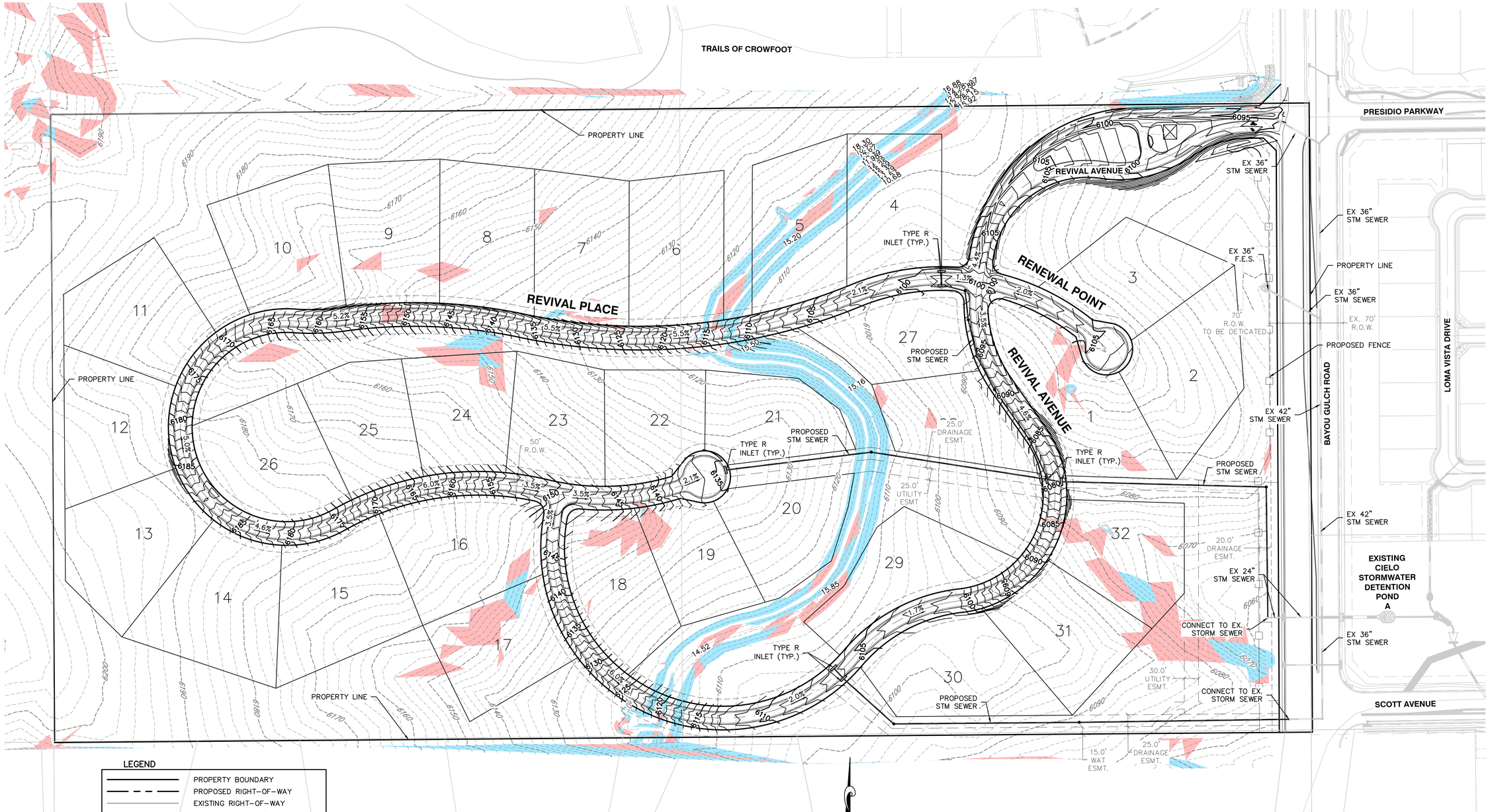
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SHEET NO. 3 OF 4

CAD FILE: 22003148 – UTILITY PLANDWG

BLOOM PRELIMINARY PLAN

SITUATED IN SECTION 9, TOWNSHIP 7 SOUTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN
COUNTY OF DOUGLAS, STATE OF COLORADO
81.07 ACRES, 32 RESIDENTIAL LOTS, 6 TRACTS, SB2025-017



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BLOOM SUBDIVISION
DOUGLAS COUNTY, COLORADO

PRELIMINARY PLAN
PRELIMINARY GRADING AND SLOPE ANALYSIS PLAN

DATE 4/15/2025

A	1st SUBMITTAL TO JURISDICTION 04/15/2025 – DEB
B	2nd SUBMITTAL TO JURISDICTION 10/17/2025 – BKS
C	3rd SUBMITTAL TO JURISDICTION 12/05/2025 – BKS
D	4th SUBMITTAL TO JURISDICTION 01/30/2026 – BKS
E	5th SUBMITTAL TO JURISDICTION 03/24/2026 – BKS

REVISIONS

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SHEET NO. 4 OF 4

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