



PHASE II DRAINAGE REPORT

PLUM CREEK SUBDIVISION

PROJECT NO. SDP23-0014

CASTLE ROCK, COLORADO

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Job No. 21.038

May 2023

August 2023

ENGINEER'S CERTIFICATION

I affirm that this report and plan for the Phase II drainage design of the development, Plum Creek Subdivision, was prepared by me (or under my direct supervision) in accordance with the provisions of the Town of Castle Rock Drainage Design and Technical Criteria for the owners thereof. I understand that the Town of Castle Rock does not and will not assume liability for drainage facilities designed by others.

Mitchell L. Shearer, PE
Colorado Registration No. 59277
For and on behalf of Point Consulting, LLC

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1. General Location and Project Description

a. Location

- i. See Appendix A for Vicinity Map
- ii. Legal Description: Tract B, Block 2, the Estate Above Plum Creek, Subdivision Filing No. 4, County of Douglas, State of Colorado.
- iii. The site is in the Town of Castle Rock, County of Douglas, State of Colorado. It is located South of Plum Creek Golf Course and West of Mount Royal Drive, Castle Rock, Colorado. To the north is Plum Creek Golf Course, to the west is Plum Creek Golf Course, to the east is single family homes, and to the south is single family homes.
- iv. No existing storm infrastructure is located on the proposed project's property. Existing drainage overland flows from east to southwest through native vegetation. Drainage ultimately enters Plum Creek.

b. Description of Property

- i. The site is 1.5 Acres.
- ii. Ground cover: The existing site consists of native grass and weeds. It slopes east to west at 0-14% and consists of primarily of Bresser-Truckton Sandy Loams, which is Hydraulic Group B. A small southwest portion of the site is Sandy wet alluvial land at 8 percent slopes, which is hydrologic soil group D. and a small northeast portion of the site is Blakeland Orsa association at 1-4 percent slopes, which is hydraulic soil group A. These sections are not located within the area of proposed construction. Therefore, the site will be designed as if the entire site is Bresser-Truckton Sandy Loams. See Appendix A for NRCS Soils Report.
- iii. The project is subdividing the current parcel into three single family home lots. Work to be done is adding the shared drive, grading in the building envelopes, and providing utilities to the site. The shared drive will enter the site from the northeast and branch off into each individual lot. Upon completion of the construction, the site will be restabilized with native vegetation until the lots are purchased and homes are built.
- iv. No drainageways, streams or lakes are located on the property. The site is not in a flood hazard zone as shown on the Flood Insurance Rate Map Community Panel Number 08035CO0303G, March 16, 2016; and can be found in Appendix A. There are no irrigation facilities location on-site.

2. Drainage Basins and Subbasins

a. Major Drainage Basins

- i. The subject property is part of a “The Estates Above Plum Creek Subdivision Filing No. 4” Drainage report.
- ii. The existing property has a ridge running through the middle of the site that divides the site into two drainage basins. One flows to the north and the other to the south. Both eventually end up in Plum Creek.
- iii. The proposed drainage design will have 4 basins. Two of which include areas that are being disturbed and two that are to remain undisturbed. The basins are designed to follow historical patterns.

b. Minor-Drainage Basins

- i. The existing drainage for the site is composed of two basins. They are described herein as Basin H-1 and Basin H-2.
 1. Basin H-1 is 0.96-acres and consists of vegetative cover that is a mixture of native grass and weeds. Drainage from this basin begins at the east side of the site and exits at two points, one at the north end of the site and the other at the west end. Both points of discharge flow through native vegetation before entering a grassed channel that takes the flows north. The channel then outfalls into East Plum Creek. The 5-year minor storm event is 0.10 cfs and the 100-year major storm event is 2.56 cfs, with an overall imperviousness of 5%.
 2. Basin H-2 is 0.55-acres and consists of vegetative cover that is a mixture of native grass and weeds. Drainage from this basin begins at the east side of the site and flows to the west. There are two points where stormwater exits the site, one at the south end in the middle of the basin and the other at the west end. Both points of discharge flow through native vegetation before entering East Plum Creek. The 5-year minor storm event is 0.05 cfs and the 100-year major storm event is 1.30 cfs, with an overall imperviousness of 5%.
- ii. For proposed drainage conditions, there are four sub-basins. They are referred to herein as Basin A-1, Basin B-1, Basin OS-1, and Basin OS-2.
- iii. Basin A-1 is 0.43-acres and is approximately 61% of the total disturbed area. This basin consists of paved asphalt and landscape. A portion of

this basin is designated as building envelope. It is assumed that 2/3 of the envelope will be developed into a home with 90% imperviousness. This basin was designed to match the historical flow patterns of Basin H-1. The storm water will begin as overland sheet flow on the east side of the project site then be diverted both north and south to outfall at the historical outfall points. The 5-year minor storm event is 0.58 cfs and the 100-year major storm event is 1.97 cfs, with an overall imperviousness of 41.6%.

- iv. Basin B-1 is 0.28-acres and is in the southern portion of the site. This basin consists of asphalt pavement and landscape. A portion of this basin is designated as building envelope. It is assumed that 2/3 of the envelope will be developed into a home with 90% imperviousness. This basin was designed to match the historical flow patterns of Basin H-2. The storm water will sheet flow to the south side of the site into Plum Creek as it historically does. The 5-year minor storm coefficient is 0.17 cfs and the 100-year major storm coefficient is 1.04 cfs, with an overall imperviousness of 21.5%.
- v. Basin OS-1 is on the north border of the site and will remain undisturbed. Flows from this basin will follow the historical flows from Basin H-1. The undisturbed area is approximately 0.36 acres and consists of naturally vegetated landscape. The 5-year minor storm event is 0.04 cfs and the 100-year major storm event is 1.07 cfs, with an overall imperviousness of 5%.
- vi. Basin OS-2 is on the north border of the site and will remain undisturbed. Flows from this basin will follow the historical flows from Basin H-2. The undisturbed area is approximately 0.43 acres and consists of naturally vegetated landscape. The 5-year minor storm event is 0.05 cfs and the 100-year major storm event is 1.16 cfs, with an overall imperviousness of 5%.
- vii. The total new total imperviousness for the site is 18.57% compared to the previous value of 5%.
- viii. This design is in general compliance with Town of Castle Rock Storm Drainage Design and Technical Criteria Manual and Mile High Flood District Criteria Manual.

c. Drainage Impacts

- i. Basin's A-1 and OS-1 make up a majority of the historical basin H-1. The additional stormwater flows added to this area for the 5-year minor storm event is 0.52 cfs and the 100-year major storm event is 0.48 cfs.

- ii. Basin's B-1 and OS-2 make up the historical basin H-2. The additional stormwater flows added to this area for the 5-year minor storm event is 0.17 cfs and the 100-year major storm event is 0.90 cfs.
- iii. The added flow from the proposed development is negligible and will not have an adverse impact on any of the surrounding properties.

3. Drainage Design Criteria

a. Regulations

- i. There are no deviations from the Mile High Flood District Criteria Volumes or the Town of Castle Rock Storm Drainage Design and Technical Criteria Manual.

b. Hydrology

i. Hydrological Criteria

- 1. Rainfall design was determined by Chapter 6, Table 6-1 of the Town of Castle Rock Storm Drainage Design and Technical Criteria Manual and Mile High Flood District Criteria Manual.
- 2. UD-Rational V2.00 was used to evaluate the time of concentration, runoff using the Rational Method, and weighted coefficients.
- 3. The 5-year rainfall event was used for the minor storm and the 100-year rainfall event was used for the major storm in associated calculations.

4. Stormwater Management Facility Design

a. Exemption

- i. Per the Phase 1 Drainage Report associated with the Planned Development Plans with this project, it has been determined that no form of stormwater management facility or water quality is required with this project. This was determined by the permanent water quality determination worksheet that can be found in Appendix A.

b. Geotechnical Investigation and Sub-surface Collection System Design Criteria

- i. Prior to the construction of the homes and driving surfaces, the developer must have a Geotechnical Investigation performed on the site to confirm proper road widths and footings.

5. Conclusions

a. Summary

- i. Overall, the proposed project will be in general conformance with the Town of Castle Rock Standards and Mile High Flood District Criteria

Manual. The proposed improvements will disturb less than 1-acre, with a total of 0.72 acres and the total added imperviousness for the site is 13.57% of the site. It is acknowledged that if site disturbance during this phase of work disturbs more than 1-acre, then full spectrum detention and water quality will be required for the full site. Overall, the proposed drainage impacts are minimal and will not have adverse impacts on surrounding properties.

6. References

- a. Town of Castle Rock Storm Drainage Design and Technical criteria Manual (June 2019).
- b. Soil Survey of Castle Rock, Colorado, United States Department of Agriculture, Washington, DC, 2006.
- c. Mile High Flood District, Denver, Colorado, *Urban Storm Drainage Criteria Manual, Volumes 1 (Revised March 2017), 2 (Revised September 2017) & 3 (updated November 2015)*.

7. Appendices

- a. Reference Material
- b. Hydrologic and Hydraulic Calculations
- c. Existing Conditions and Developed Conditions Drainage Maps

APPENDIX A
REFERENCE MATERIAL



Phase II Drainage Report Checklist

The Phase II Drainage Report must be in conformance with the latest Town of Castle Rock Storm Drainage Design and Technical Criteria Manual available on the Town's website.

The Phase II Drainage Report must be signed and sealed by a Professional Engineer licensed in the State of Colorado. The purpose of the Phase II Drainage Report is to identify and refine conceptual storm-water management solutions to the challenges that may be present or occur on-site and off-site.

The preparer should contact and work with the Town Stormwater Engineering Staff regarding any design, master planning and existing system questions (720-733-6000). The following outline sets forth the **required minimum** content to be provided in the Phase II Drainage Report that shall be submitted with the Planned Development Plan or Straight Zoning documents. A copy of this checklist must be submitted with the Phase II Drainage Report.

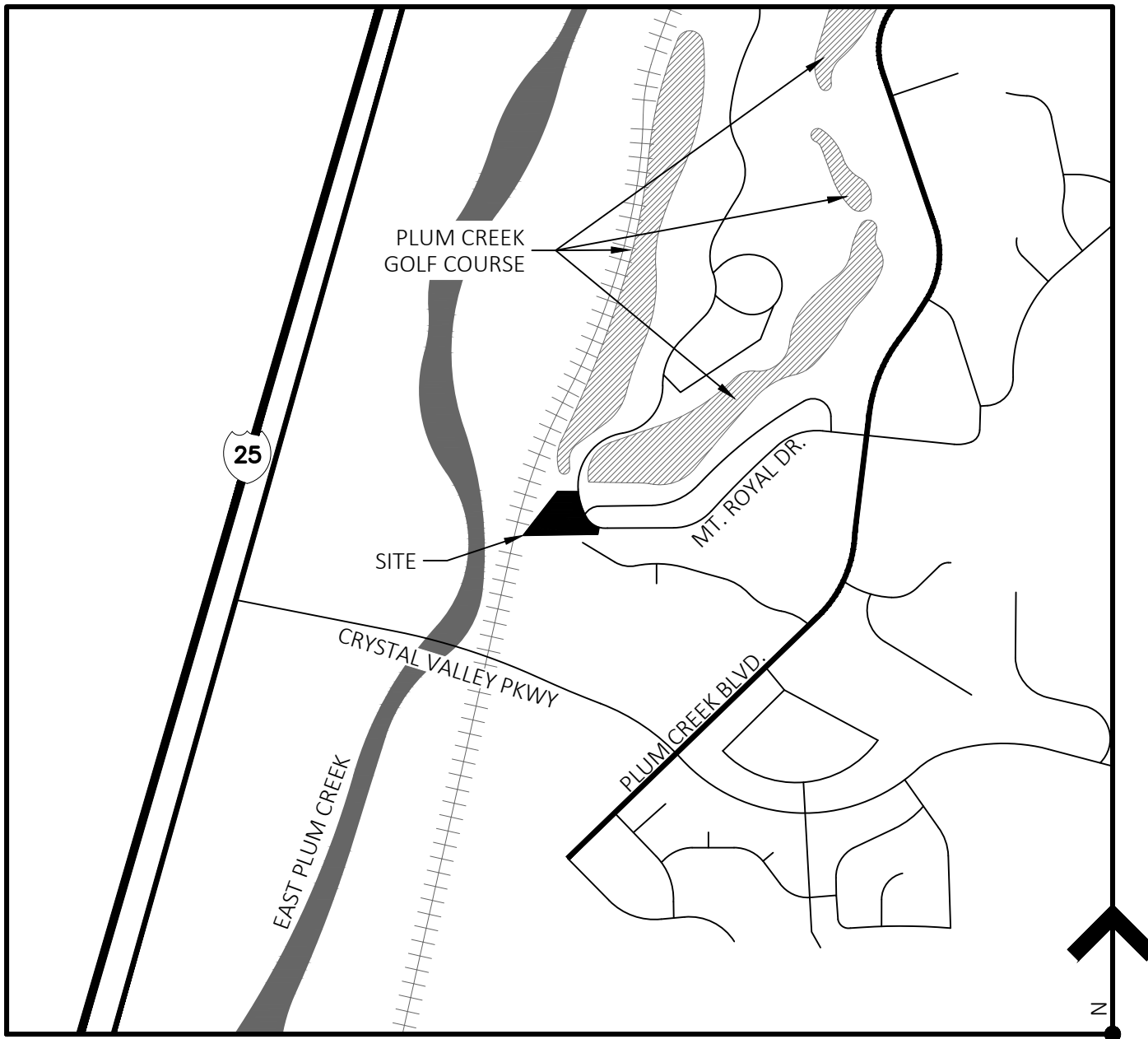
Please see Chapter 4 of the Town of Castle Rock Storm Drainage Design and Technical Criteria Manual for additional details and information. Please check off the following items to assure your report is complete. Appropriate notations shall be provided with the checklist. For example, if a specific item is not addressed or not applicable, an explanation needs to be provided.

Included	N/A	
X		I. COVER SHEET
X		A. Name of Project, including legal name of development
X		B. Address
X		C. Owner
X		D. Developer
X		E. Engineer
X		F. Submittal date and revision dates as applicable
X		II. GENERAL LOCATION AND DESCRIPTION
X		A. Site Location
X		B. Description of Property and Land Use
X		III. DRAINAGE BASIN AND SUB-BASINS
X		A. Major Drainage Basins
X		B. Minor Drainage Basins
X		IV. DRAINAGE DESIGN CRITERIA
X		A. Regulations
X		B. Drainage Studies, Master Plans, Site Constraints
X		C. Hydrology
X		D. Hydraulics
	X	E. Water Quality Enhancement

Phase II Drainage Report Checklist

Included	N/A	
	X	V. STORMWATER MANAGEMENT FACILITY DESIGN
	X	A. Stormwater Conveyance Facilities
	X	B. Stormwater Storage Facilities
	X	C. Water Quality Enhancement Best Management Practices
	X	D. Floodplain Modification
	X	E. Additional Permitting Requirements
	X	F. General
X		VI. CONCLUSIONS
X		A. Compliance with Standards
	X	B. Variances
X		C. Drainage Concept
X		VII. REFERENCES
X		VIII. APPENDICES
X		A. Hydrologic Computations
X		B. Hydraulic Computations (If known at this time—not required)
	X	C. Water Quality Enhancement Best Management Practices
X		D. Referenced Information
X		OVERALL DRAINAGE PLAN (IN POCKET)
X		DETAILED DRAINAGE PLANS (IN POCKET)

Notes/Comments:



VICINITY MAP

SCALE: 1" = 1000'

Permanent Water Quality Determination Worksheet (Taken from 2019 SDDTCM Sections 13.1.4 and 13.1.5)

Project:	Plum Creek Subdivision	Project#	SDP23-0014	Applicant: Michael Tollefson
Section	Questions	Response	Check those that apply	Instructions
1	Non-applicable Sites			
1.1	Will the project result in a temporary disturbance of greater than one acre?	No Yes	☒ ☐	Proceed to section 1.2. Proceed to section 2.
1.2	Is the project part of a larger common plan of development or sale where multiple separate and distinct construction activities may be taking place at different times on different schedules, but remain related and are within 1/4 mile of each other? (A common plan of development will generally be documented on a site development plan, master plan, or equivalent, for the property/project)	No Yes	☒ ☐	Proceed to section 1.3. Proceed to section 2.
1.3	Is the project within the Cherry Creek Watershed?	Yes No	☐ ☒	Permanent water quality control measures may be required. Refer to Water Quality Control Regulation 72.7 for details and allowable exclusions. Permanent water quality control measures are not required.
2	Applicable Site Types and Exclusions by Variance			
2.1	Does the project have more than 35% impervious area on the existing site?	No Yes	☐ ☐	Project is an applicable Development Site. Proceed to section 3. Proceed to 2.2.
2.2	Does the project have greater than 75% impervious area on the existing site?	No Yes	☐ ☐	Project is an applicable Redevelopment Site. Proceed to section 3. Project is an applicable Constrained Redevelopment Site. Proceed to 2.3.
2.3	Will 100% of the runoff from the existing and proposed site be captured and treated using one or more of the allowable design standards for permanent water quality?	Yes No	☐ ☐	No further action required. Proceed to 2.4.
2.4	Do any other water quality exclusions apply to the site?	No Yes	☐ ☐	Portions of the project are excluded. Proceed with design in accordance with Constrained Redevelopment standards and apply for variance for <u>Constrained Redevelopment Sites</u> . Proceed to section 3. Following approval of other exclusions, design remaining site in accordance with Constrained Redevelopment standards and apply for variance for <u>Constrained Redevelopment Sites</u> .
3	Applicable Sites with Other Exclusions by Variance			
3.1	Category 1: Roadways, bridges and trails only			
3.1.1	Is the project a bike or pedestrian trail?	Yes No	☐ ☐	Proceed to next line. Proceed to 3.1.2.
	Is the trail for a roadway?	Yes No	☐ ☐	Proceed to 3.1.2. Project is excluded. Submit variance for <u>Trails Excluded from Permanent Water Quality Requirements</u> .
3.1.2	Is the project primarily used for parking or access to parking?	Yes No	☐ ☐	This exclusion does not apply. Permanent water quality is required. Proceed to 3.1.3.
3.1.3	Does the project add impervious area?	No Yes	☐ ☐	Project is excluded. Submit variance for <u>Pavement Management Sites Excluded from Permanent Water Quality Requirements</u> . Proceed to 3.1.4.

Section	Questions	Response	Check those that apply	Instructions
3.1.4	Does the project add more than 8.25 feet of paved width at any location to the existing roadway?	No Yes	☐ ☐	Project is excluded. Submit variance for <u>Roadway Redevelopment Sites Excluded from Permanent Water Quality Requirements</u> . Proceed to next line.
	Does the project add more than one acre of paved area per mile to an existing roadway?	No Yes	☐ ☐	Project is excluded. Submit variance for <u>Roadway Redevelopment Sites Excluded from Permanent Water Quality Requirements</u> . Proceed to next line.
	Does the project increase the width by two times or more, on average, of the original roadway area?	No Yes	☐ ☐	Existing areas of site are excluded only. Submit variance for <u>Existing Roadway Surfaces Only Excluded from Permanent Water Quality Requirements</u> . This exclusion does not apply. Permanent water quality is required.
3.2	Category 2: Non-residential and non-commercial projects only			
3.2.1	Is the project associated with oil and gas exploration, production, processing, or treatment operations or transmission facilities, including activities necessary to prepare a site for drilling and the movement and placement of drilling equipment?	Yes No	☐ ☐	Project is excluded. Submit variance for <u>Oil and Gas Exploration Sites Excluded from Permanent Water Quality Requirements</u> . Proceed to 3.2.2.
3.2.2	Is the project for stream stabilization?	Yes No	☐ ☐	Project is excluded. Submit variance for <u>Stream Stabilization Sites Excluded from Permanent Water Quality Requirements</u> . Proceed to 3.2.3.
3.2.3	Is the project for installation or maintenance of aboveground or underground utilities or infrastructure that does not permanently alter the terrain, ground cover, or drainage patterns from those present prior to the construction activity including activities to install, replace or maintain utilities under roadways or other paved areas that return the surface to the same condition?	Yes No	☐ ☐	Project is excluded. Submit variance for <u>Aboveground and Underground Utilities Excluded from Permanent Water Quality Requirements</u> . Proceed to 3.2.4.
3.2.4	Is the project on undeveloped land (land with no human-made structures such as buildings or pavement) that will remain undeveloped after the project?	Yes No	☐ ☐	Project is excluded. Submit variance for <u>Sites with Land Disturbances to Undeveloped Land that will Remain Undeveloped Excluded from Permanent Water Quality Requirements</u> . Proceed to 3.2.5.
3.2.5	Will the post-project condition result in surface water discharge during the 80th percentile storm runoff event?	No Yes	☐ ☐	Project is excluded. Submit study along with variance for <u>Non-residential and Non-commercial Infiltration Conditions Excluded from Permanent Water Quality Requirements</u> . This exclusion does not apply. Permanent water quality is required.
3.3	Category 3: Residential, Agricultural and Commercial projects			
3.3.1	Is the project a single-family residential lot, or agricultural zoned lands, greater than or equal to 2.5 acres in size per dwelling unit?	Yes No	☐ ☐	Proceed to next line. Proceed to 3.3.2.
	Is the project site greater than 10% impervious?	No Yes	☐ ☐	Project is excluded. Submit variance for <u>Large Lot Single Family Sites Excluded from Permanent Water Quality Requirements</u> . Proceed to next line.
	Is the project site greater than 20% impervious?	Yes No	☐ ☐	This exclusion does not apply. Permanent water quality is required. Proceed to next line.
	Will the post-project condition result in surface water discharge during the 80th percentile storm runoff event?	No Yes	☐ ☐	Project is excluded. Submit study along with variance for <u>Large Lot Single Family Sites Excluded from Permanent Water Quality Requirements</u> . This exclusion does not apply. Permanent water quality is required.

Section	Questions	Response	Check those that apply	Instructions
3.3.2	Will 100% of the runoff from the residential or commercial site be captured?	Yes No	☐ ☐	This exclusion does not apply. Permanent water quality is required. Proceed to next line.
	Is all or a portion of the site undeveloped or will it remain undeveloped after construction?	Yes No	☐ ☐	This portion of the project is excluded. Submit variance for <u>Sites with Land Disturbance to Undeveloped Land that will Remain Undeveloped Excluded from Permanent Water Quality Requirements</u> . Proceed to next line. Proceed to next line.
	Is the remaining untreated impervious area greater than 20% of the site?	Yes No	☐ ☐	This exclusion does not apply. Permanent water quality is required. Proceed to next line.
	Is the remaining untreated impervious area greater than one acre?	Yes No	☐ ☐	This exclusion does not apply. Permanent water quality is required. Proceed to next line.
	Is it practicable to capture runoff from portions of the site that will not drain to a control measure?	No Yes	☐ ☐	Document justification demonstrating that it is not practicable to capture runoff from this portion of the site in the drainage report . No further action is needed. This exclusion does not apply. Permanent water quality is required.



Summary of Water Quality Conformance to MS4 Permit

The purpose of this worksheet is to document conformance with the Town of Castle Rock's MS4 permit with regard to permanent water quality on land disturbance projects.

Project Name Plum Creek Subdivision

Project Owner Douglas Group, LLC

Project Location Parcel No. 2505-232-07-003

ToCR Project Number SDP23-0014

Total Site Area 1.5 acres

Total Size of Common Plan of Development _____ acres

Check all that apply:

☒ **Project within Plum Creek Basin**

☐ **Project within Cherry Creek Basin**

Estimated construction completion date 12/12/23

1. The water quality control measure(s) for applicable development sites shall meet one of the following base design standards as per the SDDTCM Section 14.4. Please select all design standards that were applied to meet conformance with the MS4 on this site.

- ☐ WQCV standard
- ☐ Pollutant removal standard
- ☐ Runoff reduction standard
- ☐ Applicable site draining to regional WQVC control measure (accepts drainage prior to discharging to WOTS)
- ☐ Applicable site draining to regional WQVC control facility (with receiving pervious area control measure upstream of WOTS)
- ☐ Constrained redevelopment sites standard
 - Imperviousness of existing site _____/_____ (Imp. Ac/Site Ac) = ____%
 - Variance required TCV No. _____
- ☐ Existing control measure with WQCV per previous criteria standards
 - Reference Construction Permit No. _____
- ☐ Cherry Creek Basin only, choose one: Tier 1 Tier 2 Tier 3
- ☒ No control measures provided (See Permanent WQ Worksheet for applicability)

Summary of Water Quality Conformance to MS4 Permit

2. Was an exclusion to water quality applied as per SDDTCM Section 13.1.5? ☐ Yes ☒ No

i. If yes, please select all that apply, provide total excluded impervious area(s) and submit variance, as applicable: TCV No. _____

- ☐ Pavement management site
Excluded impervious area: _____ acres
- ☐ Excluded roadway redevelopment
Excluded impervious area: _____ acres
- ☐ Excluded existing roadway areas
Excluded impervious area: _____ acres
- ☐ Above ground and below ground utilities
- ☐ Large lot single family home
- ☐ Non-residential and non-commercial infiltration
Excluded impervious area: _____ acres
- ☐ Land disturbance for land to remain undeveloped
Excluded impervious area: _____ acres
- ☐ Stream Stabilization Sites
Excluded impervious area: _____ acres
- ☐ Trails
Excluded impervious area: _____ acres
- ☐ Oil and Gas Exploration

3. For Development and Redevelopment sites, following any exclusions claimed above, was any portion of the site excluded up to 20% of the site and not to exceed one acre? ☐ Yes ☐ No

If yes, complete the following:

Excluded area: _____ acres
Total Site area: _____ acres, _____ % site excluded

4. For Constrained sites, was any portion of the site excluded up to 50% of the site and not to exceed 50% of the impervious area? ☐ Yes ☐ No

If yes, complete the following:

Excluded area: _____ acres
Excluded impervious area: _____ acres
Total Site area: _____ acres, _____ % site excluded
Total Impervious area: _____ acres, _____ % impervious excluded



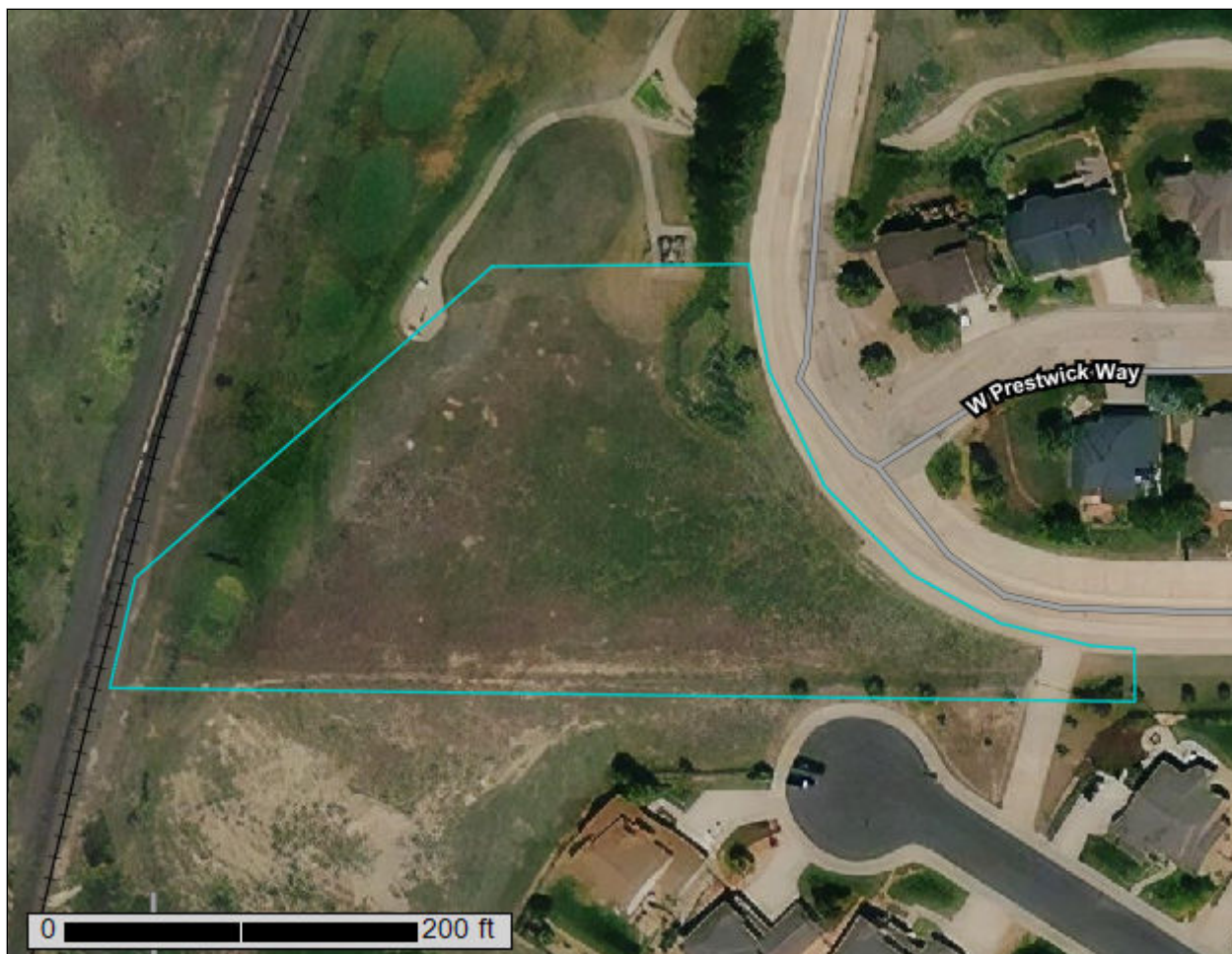
United States
Department of
Agriculture

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



March 1, 2022

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

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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.

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 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: Jul 4, 2010—Oct 16, 2017

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
Bo	Blakeland-Orsa association, 1 to 4 percent slopes	0.0	1.1%
BtE	Bresser-Truckton sandy loams, 5 to 25 percent slopes	1.6	80.1%
Se	Sandy wet alluvial land	0.4	18.7%
Totals for Area of Interest		2.0	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

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: Hills, alluvial fans
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)

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

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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

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

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

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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

Blakeland

Percent of map unit: 5 percent

Hydric soil rating: No

Newlin

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

Se—Sandy wet alluvial land

Map Unit Setting

National map unit symbol: jr04

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: Not prime farmland

Map Unit Composition

Sandy wet alluvial land: 80 percent

Minor components: 20 percent

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

Description of Sandy Wet Alluvial Land

Setting

Landform: Drainageways, flood plains

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Weathered alluvium derived from arkose

Typical profile

H1 - 0 to 6 inches: coarse sand

H2 - 6 to 60 inches: stratified coarse sand to sandy loam

Properties and qualities

Slope: 1 to 4 percent

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)

Depth to water table: About 0 to 24 inches

Available water supply, 0 to 60 inches: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8w

Hydrologic Soil Group: D

Hydric soil rating: No

Minor Components

Loamy wet alluvial land

Percent of map unit: 9 percent

Hydric soil rating: No

Sandy alluvial land

Percent of map unit: 9 percent

Hydric soil rating: No

Fluventic haplaquolls

Percent of map unit: 2 percent

Landform: Terraces

Hydric soil rating: Yes

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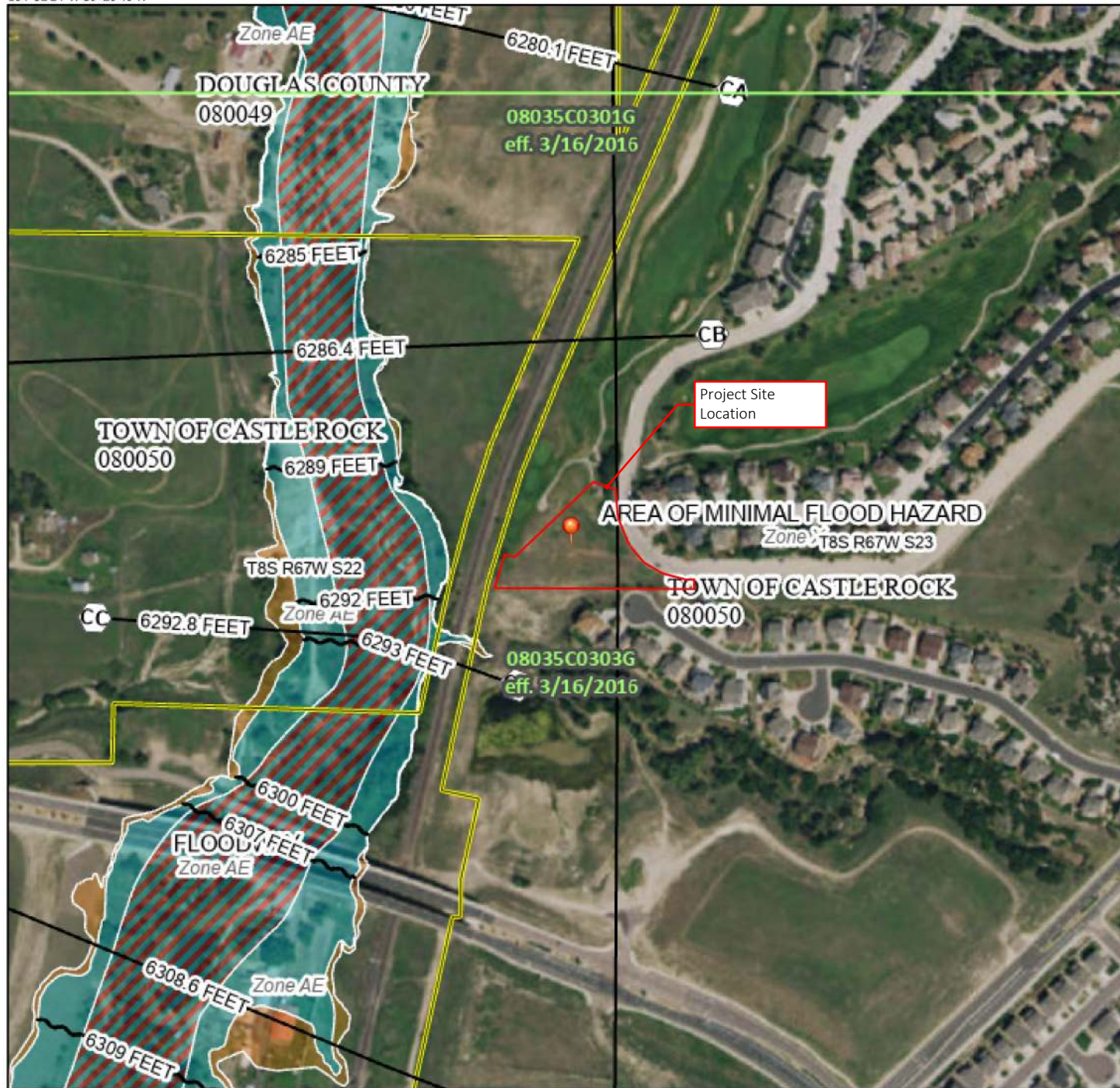
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National Flood Hazard Layer FIRMette



104°52'24"W 39°20'40"N



0 250 500 1,000 1,500 2,000 Feet 1:6,000

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

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
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
OTHER FEATURES		Levee, Dike, or Floodwall
		Cross Sections with 1% Annual Chance Water Surface Elevation
MAP PANELS		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
		Digital Data Available
		No Digital Data Available
		Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **3/1/2022 at 1:41 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

APPENDIX B

HYDROLOGIC AND HYDRAULIC CALCULATIONS

PROJECT: Plum Creek Subdivision
 PROJECT NO. 21.038
 DESIGN BY: MWT
 DATE: 5/8/2023

Proposed/Existing	Land Use	%Imp
	Roof	90
	Concrete Drive/Walk	95
	Landscaping	5
	Paved Streets	100
	Gravel	40

Soil Types: Nunn-Urban Land Complex

Hydrologic Grouping: Type B

Runoff Coefficients: $C_b(2\text{year}) = 0.84i^{0.169}$
 $C_b(5\text{year}) = 0.86i^{0.1088}$
 $C_b(10\text{year}) = 0.81i^{0.057}$
 $C_b(100\text{year}) = 0.47i^{0.426}$

Proposed Basins (proposed conditions)		Land Use (Acres)					Weighted Runoff Coefficient				
Basin	Total Area	Roof	Concrete Drive/Walk	Landscaping	Paved Streets	Gravel	C2	C5	C10	C100	%Imp
A-1	0.43	0.11	0.00	0.25	0.07	0.00	0.30	0.33	0.39	0.62	41.6
B-1	0.28	0.06	0.00	0.23	0.00	0.00	0.14	0.16	0.23	0.53	21.5
OS-1	0.36	0.00	0.00	0.36	0.00	0.00	0.03	0.03	0.10	0.45	5.0
OS-2	0.43	0.00	0.00	0.43	0.00	0.00	0.03	0.03	0.10	0.45	5.0

TOTAL AREA (ACRES): 1.50
 TOTAL IMPERVIOUSNESS (%): 18.57

Historic Basins (existing conditions)		Land Use (Acres)					Weighted Runoff Coefficient				
Basin	Total Area	Roof	Concrete Drive/Walk	Landscaping	Paved Streets	Gravel	C2	C5	C10	C100	%Imp
H-1	0.96	0.00	0.00	0.96	0.00	0.00	0.03	0.03	0.10	0.45	5.0
H-2	0.55	0.00	0.00	0.55	0.00	0.00	0.03	0.03	0.10	0.45	5.0

TOTAL AREA (ACRES): 1.51
 TOTAL IMPERVIOUSNESS (%): 5.00

Calculation of Peak Runoff using Rational Method	
Area (A)	1000000
Runoff Coefficient (C)	0.8
Intensity (I)	100
Time of Concentration (Tc)	10
Peak Runoff (Qp)	1000000

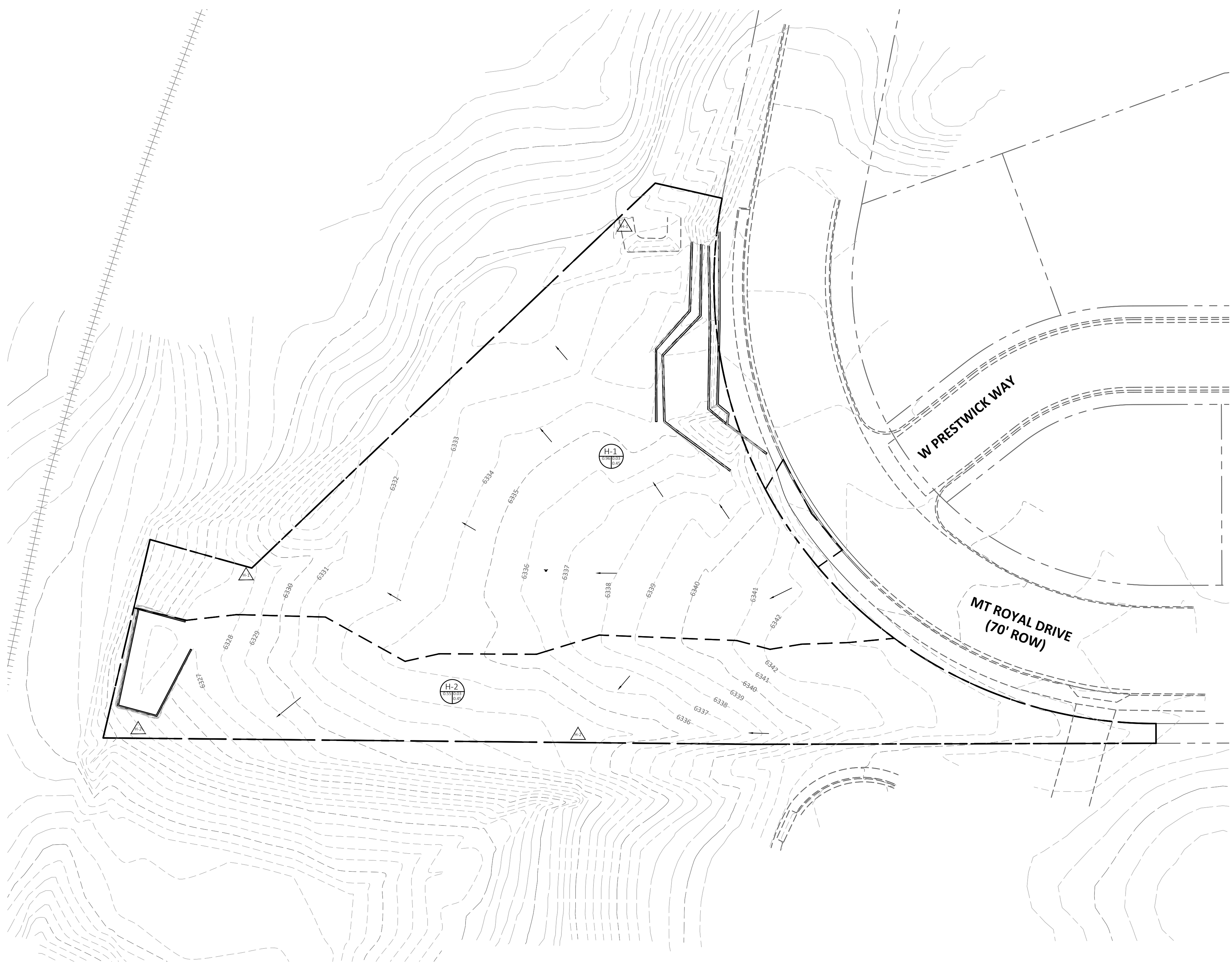
$Q(cfs) = CIA$

[illegible]

APPENDIX C
DRAINAGE MAPS

SITE DEVELOPMENT PLAN
PLUM CREEK SUBDIVISION

TRACT B, BLOCK 2, THE ESTATE ABOVE PLUM CREEK, SUBDIVISION FILING NO. 4 OF SECTIONS 22 AND 23,
TOWNSHIP 8 SOUTH, RANGE 67 WEST OF THE SIXTH PRINCIPAL MERIDIAN,
TOWN OF CASTLE ROCK, COUNTY OF DOUGLAS, STATE OF COLORADO



LEGEND

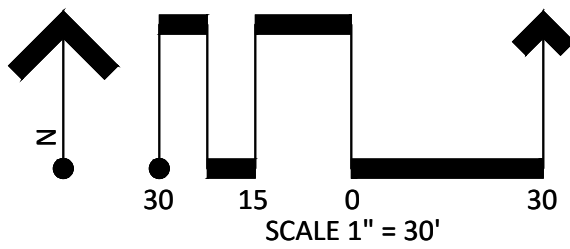
- PROPERTY LINE
- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER WITH 1-FOOT CATCH PAN
- PROPOSED ASPHALT EDGE WITH 1-FOOT SPILL PAN
- EXISTING CONTOUR
- PROPOSED CONTOUR
- BASIN BOUNDARY
- BASIN
- AREA IN ACRES
- 5-YEAR RUNOFF COEFFICIENT
- 100-YEAR RUNOFF COEFFICIENT

BENCHMARK

DOUGLAS COUNTY CONTROL MONUMENT STATION 3035020 BEING A 3.25" ALUMINUM CAP STAMPED "DOUGLAS COUNTY GIS SECONDARY CONTROL MONUMENT 3.035020" LOCATED ON THE WEST SIDE OF MOUNT ROYAL ROAD, 48 FEET NORTH OF THE INTERSECTION OF MOUNT ROYAL ROAD AND WEST PRESTWICK WAY, AND 10 FEET WEST OF THE CURB. ELEVATION = 6343.27' NAVD88

SUMMARY RUNOFF TABLE

BASIN	AREA (ACRES)	Q 5-YR (CFS)	Q 100-YR (CFS)
H-1	0.96	0.10	2.56
H-2	0.55	0.05	1.30



PLUM CREEK SITE DEVELOPMENT PLAN
TOWN OF CASTLE ROCK PROJECT NO. SDP23-0014

SITE DEVELOPMENT PLAN
PLUM CREEK SUBDIVISION

CASTLE ROCK, COLORADO

JOB NO. 21.038

DESCRIPTION
1ST TOWN SUBMITTAL
2ND TOWN SUBMITTAL
3RD TOWN SUBMITTAL

DATE
2023.05.19
2023.07.19
2023.08.10

EXISTING CONDITIONS DRAINAGE PLAN

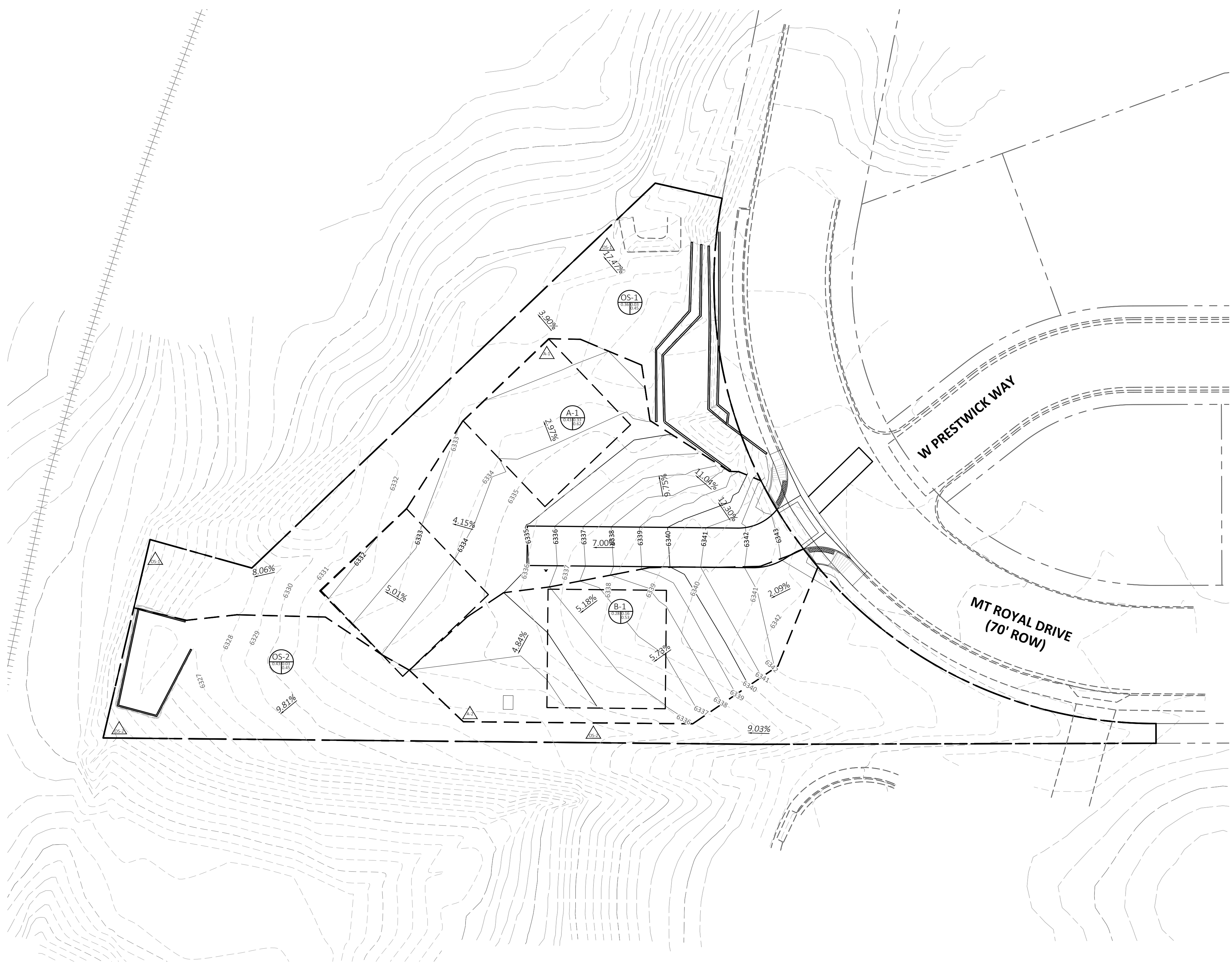
SHEET 1 OF 2

POINT

POINT CONSULTING, LLC
8460 W. KEN CARYL AVE #101
LITTLETON, CO 80128
720-258-6836
www.pnt-llc.com
PLANNING
CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
LAND SURVEYING

SITE DEVELOPMENT PLAN
PLUM CREEK SUBDIVISION

TRACT B, BLOCK 2, THE ESTATE ABOVE PLUM CREEK, SUBDIVISION FILING NO. 4 OF SECTIONS 22 AND 23,
TOWNSHIP 8 SOUTH, RANGE 67 WEST OF THE SIXTH PRINCIPAL MERIDIAN,
TOWN OF CASTLE ROCK, COUNTY OF DOUGLAS, STATE OF COLORADO



LEGEND

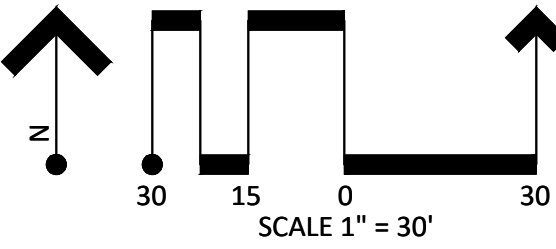
- PROPERTY LINE
- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER WITH 1-FOOT CATCH PAN
- PROPOSED ASPHALT EDGE WITH 1-FOOT SPILL PAN
- EXISTING CONTOUR
- PROPOSED CONTOUR
- BASIN BOUNDARY
- BASIN
- AREA IN ACRES
- 5-YEAR RUNOFF COEFFICIENT
- 100-YEAR RUNOFF COEFFICIENT

BENCHMARK

DOUGLAS COUNTY CONTROL MONUMENT STATION 3035020 BEING A 3.25" ALUMINUM CAP STAMPED "DOUGLAS COUNTY GIS SECONDARY CONTROL MONUMENT 3.035020" LOCATED ON THE WEST SIDE OF MOUNT ROYAL ROAD, 48 FEET NORTH OF THE INTERSECTION OF MOUNT ROYAL ROAD AND WEST PRESTWICK WAY, AND 10 FEET WEST OF THE CURB. ELEVATION = 6343.27' NAVD88

SUMMARY RUNOFF TABLE

BASIN	AREA (ACRES)	Q 5-YR (CFS)	Q 100-YR (CFS)
A-1	0.43	0.58	1.97
B-1	0.28	0.17	1.04
OS-1	0.36	0.04	1.07
OS-2	0.43	0.05	1.16



PLUM CREEK SITE DEVELOPMENT PLAN
TOWN OF CASTLE ROCK PROJECT NO. SDP23-0014

SITE DEVELOPMENT PLAN
PLUM CREEK SUBDIVISION

CASTLE ROCK, COLORADO

JOB NO. 21.038

DRAINAGE PLAN

SHEET 2 OF 2

DESCRIPTION

1ST TOWN SUBMITTAL
2ND TOWN SUBMITTAL
3RD TOWN SUBMITTAL

DATE

2023.05.19
2023.07.19
2023.08.10

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