PHASE II DRAINAGE REPORT

BELLCO – DAWSON TRAILS

DAWSON TRAILS BLVD.
CASTLE ROCK, CO 80109

October 26th 2026

Prepared For: Bellco Credit Union
7600 E Orchard Rd, Suite 400 N
Greenwood Village, CO 80111

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Farnsworth Group Job No. 02501356.003

ENGINEERS | ARCHITECTS | SURVEYORS | SCIENTISTS

I. GENERAL LOCATION AND DESCRIPTION

A. LOCATION

Located within the southwest quarter of Section 22, Township 8, Range 67 West of the Principal Meridian, the site is bounded on the north and west by Gambel Ridge Blvd and on the south by Quandary Peak Drive. The site will be bounded on the east by a proposed private drive shown in the *King Soopers Public Improvement Construction Plans, Town of Castle Rock Project Number CD25-0075* prepared by Galloway & Co dated June 24th, 2026. Reference the vicinity map below for general project location. Proposed land use to north and east included pad sites associated with the King Soopers development. Currently the parcels west and south of the site are undeveloped land. The property and surrounding developments are zoned PD – Planned Development.



Vicinity Map

B. DESCRIPTION OF PROPERTY

Comprising 1.20 acres of undeveloped native vegetation, the site generally slopes from west to east at slopes between 6% and 7%. According to the NRCS Web Soil Survey included in the appendix, soils on site are primarily hydrologic group B. According to the Castle Rock Stormwater Master plan, the site is wholly within the South Dawson Tributary Area, ultimately a part of the Plum Creek Watershed. The FEMA FIRMette included in the appendix shows the site is wholly located within an area of minimal

flood hazard. No significant irrigation canals, ditches, or geologic features are within or border the site. Proposed development of the site includes a Bellco Credit Union building with associated drive through, parking, and utilities.

II. DRAINAGE BASINS AND SUB-BASINS

A. MAJOR BASIN DESCRIPTION

Proposed flow patterns within the site will generally conform to the *King Soopers Phase III Drainage Report* prepared by Galloway and dated December 12, 2026, which itself complies with the *Crystal Valley Interchange Public Improvement Construction Plans* and therefore the Castle Rock Stormwater Master Plan. Offsite flow patterns and paths will remain comparable to existing under fully developed conditions.

B. SUB-BASIN DESCRIPTION

Within the *King Soopers Phase III Drainage Report* the Bellco site is listed as basin B1 with an assumed imperviousness of 75%. Historically flow within the basin sheet flows from west to east before being captured by inlets in the private drive east of the site. Proposed conditions would route flow onsite to proposed inlets via curb and gutter, then piped via the existing storm stub-out to the regional pond to the northeast. Planned public streets direct flow away from the proposed site improvements, preventing offsite flows onto the site.

III. DRAINAGE DESIGN CRITERIA

A. REGULATIONS

Drainage design onsite conforms to the Mile High Flood District's (MHFD's) Urban Storm Drainage Criteria Manual (USDCM) and the Castle Rock Water Department's Storm Drainage Design and Technical Criteria Manual.

B. DRAINAGE STUDIES, MASTER PLANS, SITE CONSTRAINTS

The *King Soopers Phase III Drainage Report* prepared by Galloway and dated December 12, 2026 includes this site as basin B1/Lot 8 contributing to offsite detention basin C1. Calculated imperviousness for the site was found to be 61.41% as compared to an assumed imperviousness of 69.5%. As the imperviousness is less than assumed, no additional stormwater quality or detention facilities are needed onsite.

C. HYDROLOGY

Runoff peak flows onsite were calculated using the Rational Method as presented in MHFD's USDCM. The 5-year storm event and the 100-year storm events were used as the minor and major storm respectively. Time of concentration was calculated using methods presented in the *Storm Drainage*

Design and Technical Criteria Manual, and a minimum time of concentration of 5 minutes was used for urbanized areas. See the hydrologic calculations included in the appendix.

D. HYDRAULICS

Inlet capacity for the minor and major storm events were assessed using MHFD's inlet capacity workbook. According to the *King Soopers Phase III Drainage Report,* Design Point B1 was designed to accommodate the project site at a runoff coefficient of 0.87; the actual runoff coefficient for the site was calculated to be 0.71, resulting in lower runoff than assumed. Per the *King Soopers Drainage Report*, the modelled HGL at the stub-out manhole is approximately 6403.75', or 6.55' below the rim elevation of the storm inlet on-site. As flow is less than was assumed in the model completed by Galloway, the hydraulic grade line elevation is expected to be equal to or below the modeled value.

IV. STORMWATER MANAGEMENT FACILITY DESIGN

A. STORMWATER CONVEYANCE FACILITIES

Runoff onsite will be directed from west to east along curbs and gutters, roof drains, pans, and sheet flow into one 10' Type R curb inlet along the eastern parking area onsite. Flow will then be conveyed via 18" RCP storm sewer into the regional stormwater system. The regional stormwater pond has been sized to accommodate flows from the site, and no modification to the pond is required.

V. CONCLUSIONS

Stormwater design for the Bellco Dawson Trails meets the criteria laid out in the Mile High Flood District's Urban Storm Drainage Criteria Manual and the Castle Rock Water Department's Storm Drainage Design and Technical Criteria Manual. Additionally, calculated imperviousness and runoff from the site are lower than assumed in the *King Soopers Phase III Drainage Report*, therefore demonstrating compliance with the overall storm water regional pond design.

Sincerely

Farnsworth Group,



Todd Krell

Engineering Manager

VI. REFERENCES

Urban Storm Drainage Criteria Manual, Mile High Flood District, March 2024 (with current revisions).

Storm Drainage Design and Technical Criteria Manual, Town of Castle Rock, February 18, 2025.

Crystal Valley Interchange Public Improvement Construction Plans (PICP), Town of Castle Rock Department of Public Works, April 19, 2024.

Phase III Drainage Report – King Soopers Store #165, Galloway & Company, December 12, 2025.

Flood Insurance Rate Map – Town of Castle Rock, Community Panel No. 08035C0284G, Effective March 16, 2016.

NRCS Web Soil Survey – Castle Rock Area, Colorado as available through the Natural Resources Conservation Service National Cooperative Soil Survey web site via Web Soil Survey 2.0.

VII. APPENDIX

Hydrologic Computations

- Rational Method with Imperviousness Calculations
- NRCS Soil Survey

Hydraulic Computations

- Storm Inlet Sizing

Referenced Information

Proposed Drainage Plan

APPENDIX

Calculation of Peak Runoff using Rational Method

Calculation of Peak Runoff using Rational Method

Designer:
Company:
Date: 10/12/2026
Project:
Location:

MHFD-Rational, Version 3.01 (August 2026)

Cells of this color are for required user-input
Cells of this color are for optional override values

When hovering over these red triangles, a pop-up box will display useful information.

$$t_i = \frac{0.395(1.1 - C_5)\sqrt{L_i}}{S_i^{0.33}}$$

$$t_t = \frac{L_t}{60K\sqrt{S_t}} = \frac{L_t}{60V_t}$$

Computed $t_c = t_i + t_t$

Regional $t_c = (26 - 17i) + \frac{L_t}{60(14i + 9)\sqrt{S_t}}$

$t_{c\ minimum} = 5$ (urban)
$t_{c\ minimum} = 10$ (non-urban)

Selected $t_c = \max\{t_{minimum}, \min(\text{Computed}$

Provide input for area, soil type, and imperviousness on the Runoff Coeffs worksheet.

Subcatchment Name	Area (ac)	NRCS Hydrologic Soil Group(s)	Imperviousness	Runoff Coefficient, C							Overland (Initial) Flow Time					Channelized (Travel) Flow Time						
				WQE & 2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr	Overland Flow Length L_i (ft)	U/S Elevation (ft) (Optional)	D/S Elevation (ft) (Optional)	Overland Flow Slope S_i (ft/ft)	Overland Flow Time t_i (min)	Channelized Flow Length L_t (ft)	U/S Elevation (ft) (Optional)	D/S Elevation (ft) (Optional)	Channelized Flow Slope S_t (ft/ft)	NRCS Conveyance Factor K	Channelized Flow Velocity V_t (ft/sec)	Channelized Flow Time t_t (min)
P-1	1.20	B	61.4%	0.49	0.51	0.55	0.63	0.67	0.71	0.76	57.00			0.228	2.85	250.00			0.021	20	2.88	1.44

Calculation of Peak Runoff using Rational Method

Designer:
Company:
Date:
Project:
Location:

Select MHFD location for NOAA Atlas 14 Rainfall Depths from the pulldown list OR enter your own depths obtained from the NOAA website (click this link)

	WQE	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
1-hour rainfall depth, P1 (in) =	0.60	1.06	1.43	1.66		2.26	2.60	

Rainfall values from Castle Rock drainage criteria

	a	b	c
Rainfall Intensity Equation Coefficients =	28.50	10.00	0.786

$$I(in/hr) = \frac{a * P_1}{(b + t_c)^c}$$

$$Q(cfs) = CIA$$

$\{t_c, \text{Regional } t_c)\}$

Subcatchment Name	Time of Concentration				Rainfall Intensity, I (in/hr)								Peak Flow, Q (cfs)							
	Computed t_c (min)	Regional t_c (min)	Selected t_c (min)	**(Optional)** Override t_c (min)	WQE	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr	WQE	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
P-1	4.29	17.20	5.00		2.04	3.60	4.85	5.63		7.67	8.82		1.20	2.12	3.00	3.74		6.18	7.54	

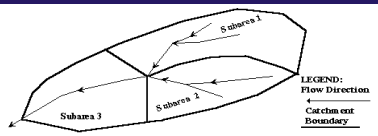
Determination of Runoff Coefficients for Rational Method

Designer:
Company:
Date: 10/12/2026
Project:
Location:

MHFD-Rational, Version 3.01 (August 2026)

Cells of this color are for required user-input
Cells of this color are for optional override values

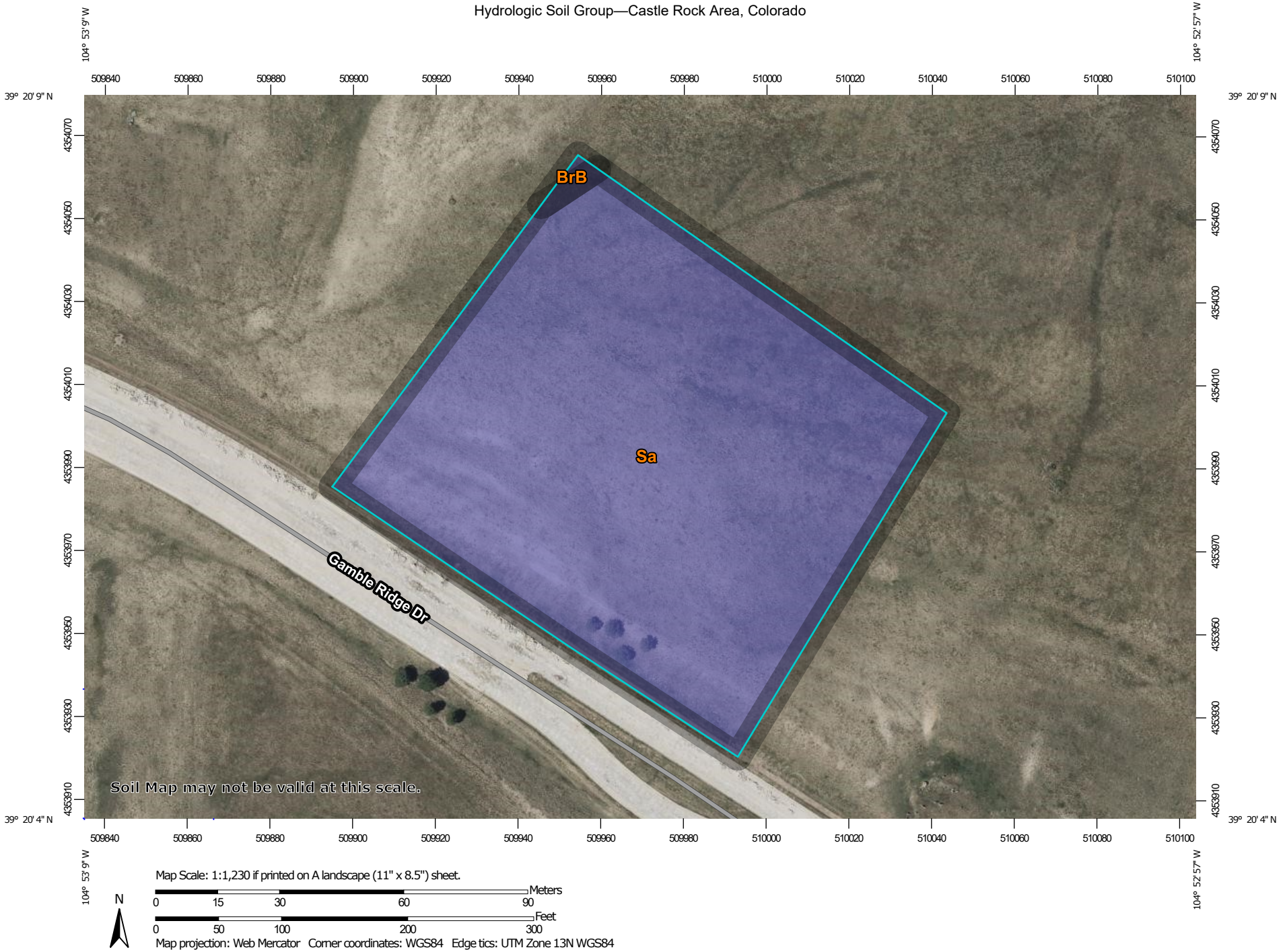
When hovering over these red triangles, a pop-up box will display useful information.



Provide subcatchment names on the Rational Calcs worksheet to open up the table below.

Subcatchment Name	# of Subareas	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness				Runoff Coefficient, C							(Optional) Override Runoff Coefficient, C						
				Imperviousness Source	Imperviousness Category	Calculated Imperviousness	(Optional) Override Imperviousness	WQE & 2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr	WQE & 2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
P-1	**2**	**1.20**	**B**			**61.4%**	**61.4%**	**0.49**	**0.51**	**0.55**	**0.63**	**0.67**	**0.71**	**0.76**	**0.49**	**0.51**	**0.55**	**0.63**	**0.67**	**0.71**	**0.76**
		0.54	B	Surface Type	Disturbed Soil	20%		0.13	0.15	0.22	0.37	0.44	0.52	0.61							
		0.66	B	Surface Type	Concrete Driveways and Walks	95%		0.79	0.81	0.82	0.85	0.86	0.87	0.88							

Comments



Map Scale: 1:1,230 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 15 30 60 90

Feet: 0 50 100 200 300

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

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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 19, Sep 1, 2026

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.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BrB	Bresser sandy loam, cool, 1 to 3 percent slopes	B	0.0	0.4%
Sa	Sampson loam	B	2.8	99.6%
Totals for Area of Interest			**2.8**	**100.0%**

Description

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

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

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

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

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

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

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

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

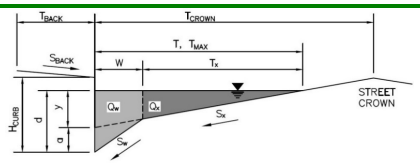
Tie-break Rule: Higher

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **Bellco - Dawson Trails**

Inlet ID: **Inlet 1**



Gutter Geometry:

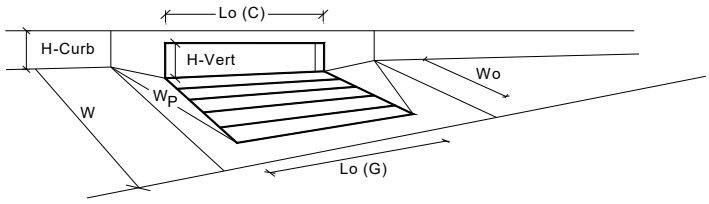
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =		ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =		ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =		
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	42.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.037	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	42.0	42.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	6.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition				
MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



Design Information (Input)		MINOR	MAJOR	
Type of Inlet (CDOT Type R Curb Opening)	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	2	2	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	6.0	inches
Grate Information		MINOR	MAJOR	☐ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.33	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	0.93	0.93	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**8.3**	**8.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	2.1	7.5	cfs

National Flood Hazard Layer FIRMette

FEMA

104°53'23"W 39°20'23"N



104°52'46"W 39°19'55"N

Feet

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

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

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

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 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 10/9/2026 at 5:18 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.

STANDARD FORM SF-2
TIME OF CONCENTRATION

Subdivision: Dawson Trails Filing No. 2, Amd 5
Location: CO, Castle Rock

Project Name: King Soopers Store #165
Project No.: KSS165.20
Calculated By: JKG
Checked By: JRR
Date: 5/5/26

SUB-BASIN DATA							INITIAL/OVERLAND (Sheet Flow) (T_i)			Shallow Concentrated Flows (T_t)					Tc CHECK		FINAL
BASIN ID	D.A. (AC)	Hydrologic Soils Group	Impervious (%)	C_{100}	C_5	C_2	L (FT)	S (%)	T_i (MIN)	L (FT)	S (%)	Cv	VEL. (FPS)	T_t (MIN)	COMP. T_c (MIN)	Regional T_c (MIN)	T_c (MIN)
A1	1.07	C	68.9	0.77	0.60	0.55	45	1.4	5.5	430	0.5	20.0	1.4	5.1	10.6	19.7	10.6
A2	0.48	C	69.0	0.77	0.60	0.55	45	1.2	5.8	70	2.2	20.0	2.9	0.4	6.2	14.7	6.2
A3	0.35	C	62.6	0.74	0.55	0.49	25	2.0	4.0	85	2.1	15.0	2.2	0.7	4.6	15.9	5.0
B1	1.13	C	69.5	0.77	0.60	0.55											5.0
B2a	1.28	C	69.5	0.77	0.60	0.55											5.0
B2b	1.10	C	69.5	0.77	0.60	0.55											5.0
B3	0.41	C	95.0	0.87	0.81	0.79	30	2.5	2.1	610	3.2	20.0	3.6	2.8	5.0	12.4	5.0
B4a	1.35	C	69.5	0.77	0.60	0.55											5.0
B4b	0.49	C	69.5	0.77	0.60	0.55											5.0
B4c	1.02	C	69.5	0.77	0.60	0.55											5.0
B5	0.23	C	95.0	0.87	0.81	0.79	14	2.0	1.6	500	0.8	20.0	1.8	4.7	6.2	14.0	6.2
B6	0.21	C	95.0	0.87	0.81	0.79	14	2.0	1.6	500	0.8	20.0	1.8	4.7	6.2	14.0	6.2
B7	1.45	C	88.9	0.85	0.76	0.73	220	1.7	7.8	250	2.6	20.0	3.2	1.3	9.1	12.1	9.1
B8	1.20	C	88.6	0.85	0.76	0.73	250	2.8	7.0	140	0.7	20.0	1.6	1.4	8.4	12.3	8.4
C1	1.04	C	65.3	0.75	0.57	0.52	65	2.2	6.0	260	0.7	20.0	1.6	2.7	8.7	17.9	8.7
C2	1.20	C	69.7	0.77	0.60	0.56	130	1.6	8.9	195	2.1	15.0	2.2	1.5	10.4	15.3	10.4
D1	2.30	C	95.0	0.87	0.81	0.79	280	2.0	7.1	370	1.0	20.0	2.0	3.1	10.1	12.6	10.1
D2	1.01	C	91.4	0.86	0.78	0.75	140	2.7	5.0	150	2.1	15.0	2.2	1.2	6.1	11.3	6.1
D3	0.25	C	20.0	0.57	0.20	0.14	30	23.0	3.2	300	2.3	20.0	3.0	1.6	4.8	25.4	5.0
D4a	0.73	C	69.5	0.77	0.60	0.55											5.0
D4b	0.61	C	69.5	0.77	0.60	0.55											5.0
D5	0.70	C	88.7	0.85	0.76	0.73	50	0.9	4.6	195	1.0	20.0	2.0	1.6	6.2	12.4	6.2
D6a	0.41	C	78.4	0.80	0.67	0.63	14	2.3	2.2	500	3.5	20.0	3.7	2.2	4.5	14.9	5.0
D6b	0.24	C	77.1	0.80	0.66	0.62	14	2.3	2.3	500	3.5	20.0	3.7	2.2	4.5	15.1	5.0
D7b	0.91	C	65.0	0.75	0.56	0.51											5.0
D7	0.14	C	20.0	0.57	0.20	0.14	16	5.0	3.9	115	1.0	20.0	2.0	1.0	4.8	24.2	5.0
E1	0.19	C	20.0	0.57	0.20	0.14	11	7.0	2.9	235	2.0	20.0	2.8	1.4	4.2	24.9	5.0
OS-1	1.51	C	83.0	0.82	0.71	0.68	40	2.0	3.6	880	2.0	20.0	2.8	5.2	8.8	16.9	8.8
OS-2	0.60	C	80.1	0.81	0.69	0.65	34	2.0	3.5	380	2.3	20.0	3.0	2.1	5.6	14.5	5.6
OS-3	1.94	C	82.1	0.82	0.70	0.67	40	2.0	3.7	870	2.5	20.0	3.2	4.6	8.3	16.5	8.3
OS-4	0.38	C	95.0	0.87	0.81	0.79	30	2.0	2.3	410	2.5	20.0	3.2	2.2	4.5	11.8	5.0
OS-5	0.94	C	74.7	0.79	0.64	0.60	30	2.0	3.7	760	2.5	20.0	3.2	4.0	7.7	17.4	7.7
OS-6	0.26	C	95.0	0.87	0.81	0.79	30	2.0	2.3	200	2.5	20.0	3.2	1.1	3.4	10.8	5.0

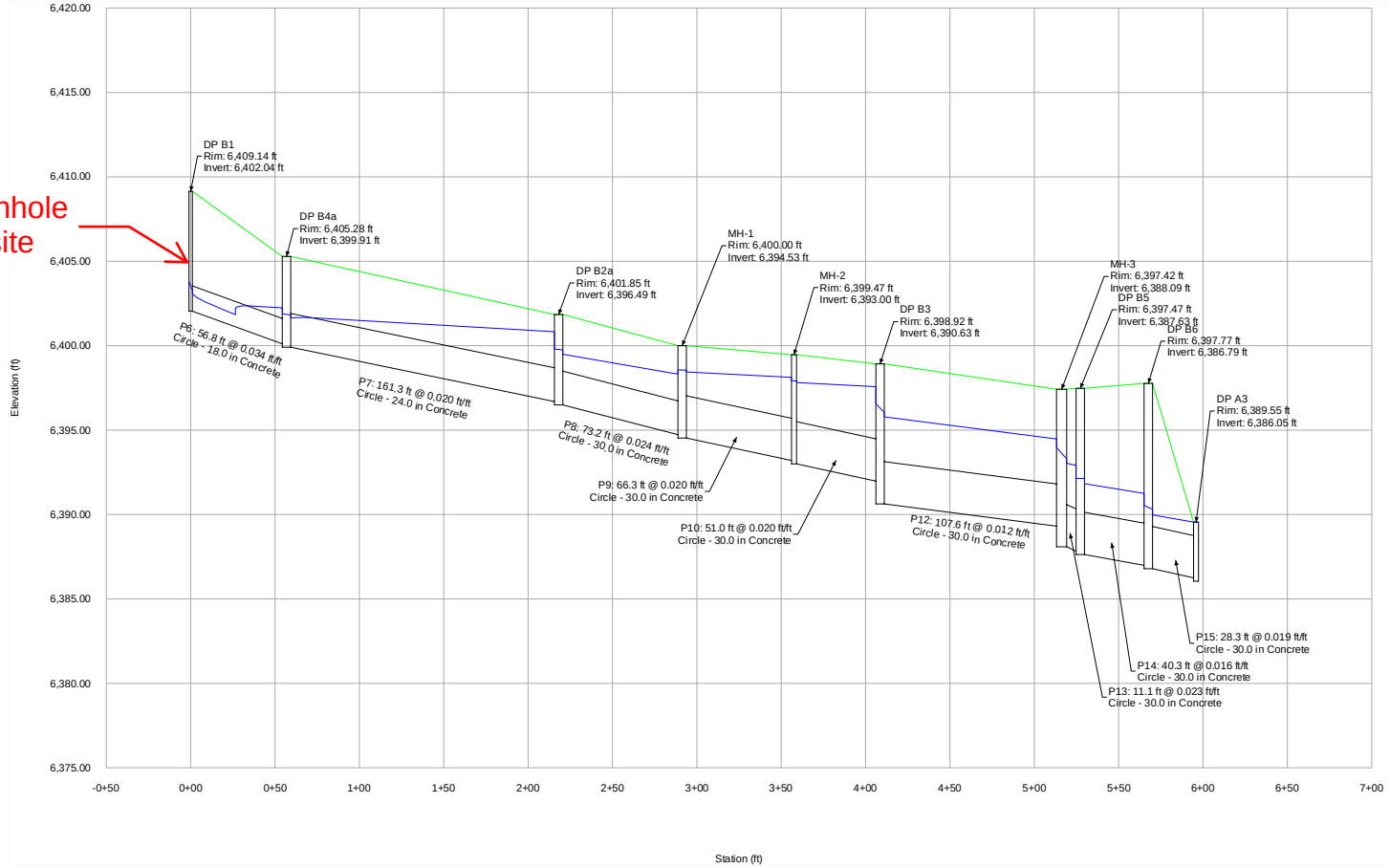
NOTES:
T_i = (0.395*(1.1 - C_5)*(L)^0.5)/((S)^0.33), S in ft/ft
T_t=L/60V (Velocity From Fig. 501)
Velocity V=Cv*S^0.5, S in ft/ft
Tc Regional = (26-17i)+(L/(60(14i+9)S^0.5)), S in ft/ft, i= Imperviousness expressed as decimal
For Urbanized basins a minimum T_c of 5.0 minutes is required.
For non-urbanized basins a minimum T_c of 10.0 minutes is required

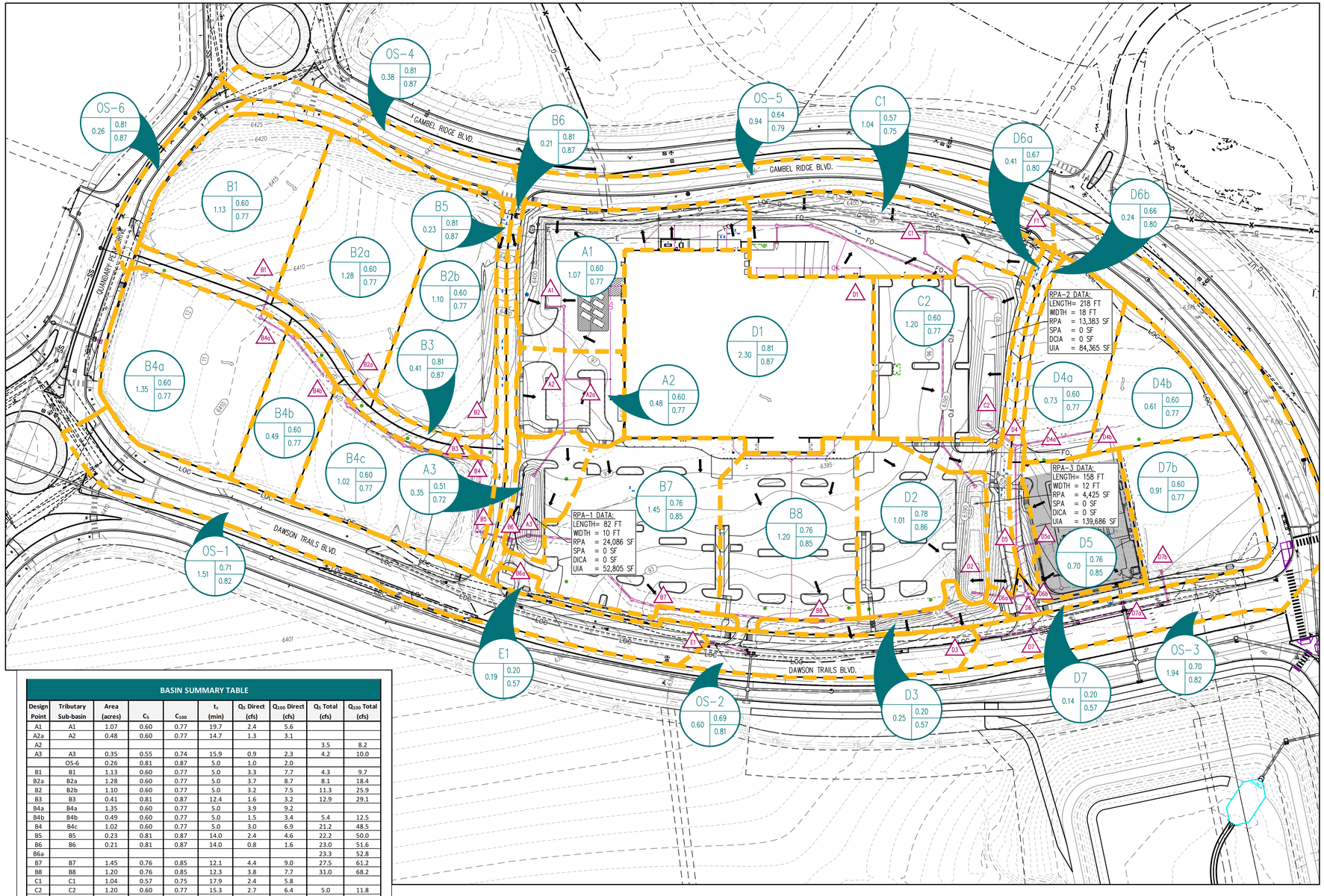
Galloway

Profile Report

Engineering Profile - Line B (KSS165_StormCAD.stsw)

Existing manhole stubbed to site





DRAINAGE LEGEND

- PROPERTY BOUNDARY LINE
- ADJACENT PROPERTY BOUNDARY LINE
- RIGHT OF WAY BOUNDARY LINE
- ROAD CENTERLINE
- EXISTING EASEMENT LINE
- PROPOSED EASEMENT LINE
- EXISTING STORM SEWER (LESS THAN 12"ø)
- EXISTING STORM SEWER (12"ø AND LARGER)
- PROPOSED STORM SEWER (LESS THAN 12"ø)
- PROPOSED STORM SEWER (12"ø AND LARGER)
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- MAJOR BASIN BOUNDARY LINE
- DESIGN POINT
- EXISTING FLOW ARROW
- PROPOSED FLOW ARROW
- BASIN DESIGNATION
- 5-YEAR RUNOFF COEFFICIENT
- 100-YEAR RUNOFF COEFFICIENT
- BASIN AREA IN ACRES

BASIN SUMMARY TABLE

Design Point	Tributary Sub-basin	Area (acres)	C_5	C_{100}	t_c (min)	Q_5 Direct (cfs)	Q_{100} Direct (cfs)	Q_5 Total (cfs)	Q_{100} Total (cfs)
A1	A1	1.07	0.60	0.77	19.7	2.4	5.6		
A2a	A2	0.48	0.60	0.77	14.7	1.3	3.1		
A2								3.5	8.2
A3	A3	0.35	0.55	0.74	15.9	0.9	2.3	4.2	10.0
	OS-6	0.26	0.81	0.87	5.0	1.0	2.0		
B1	B1	1.13	0.60	0.77	5.0	3.3	7.7	4.3	9.7
B2a	B2a	1.28	0.60	0.77	5.0	3.7	8.7	8.1	18.4
B2	B2b	1.10	0.60	0.77	5.0	3.2	7.5	11.3	25.9
B3	B3	0.41	0.81	0.87	12.4	1.6	3.2	12.9	29.1
B4a	B4a	1.35	0.60	0.77	5.0	3.9	9.2		
B4b	B4b	0.49	0.60	0.77	5.0	1.5	3.4	5.4	12.5
B4	B4c	1.02	0.60	0.77	5.0	3.0	6.9	21.2	48.5
B5	B5	0.23	0.81	0.87	14.0	2.4	4.6	22.2	50.0
B6	B6	0.21	0.81	0.87	14.0	0.8	1.6	23.0	51.6
B6a								23.3	52.8
B7	B7	1.45	0.76	0.85	12.1	4.4	9.0	27.5	61.2
B8	B8	1.20	0.76	0.85	12.3	3.8	7.7	31.0	68.2
C1	C1	1.04	0.57	0.75	17.9	2.4	5.8		
C2	C2	1.20	0.60	0.77	15.3	2.7	6.4	5.0	11.8
D1	D1	2.30	0.81	0.87	12.6	7.2	14.0		
D2	D2	1.01	0.78	0.86	11.3	3.6	7.2	10.2	20.1
	OS-2	0.60	0.69	0.81	14.5	2.0	4.2		
D3	D3	0.25	0.20	0.57	25.4	0.2	1.2	42.8	92.3
D4b	D4a	0.73	0.60	0.77	0.0	2.1	4.9		
D4								6.7	15.6
D5a	D5	0.70	0.76	0.85	12.4	2.5	5.0		
D5								8.7	19.8
D6a	D6a	0.41	0.67	0.80	14.9	1.4	2.9		
D6b	D6b	0.24	0.66	0.80	15.1	0.8	1.7		
D6								10.4	23.4
D7								55.1	120.3
	OS-3	1.94	0.70	0.82	16.5	5.7	12.0		
D7a	D7	0.14	0.20	0.57	24.2	0.1	0.7	60.3	131.8
	OS-1	1.51	0.71	0.82	16.9	4.4	9.2		
E1	E1	0.19	0.20	0.57	24.9	0.2	1.0	4.5	10.0
F1	OS-5	0.94	0.64	0.79	17.4	2.6	5.7		

SCALE: 1"=100'

Galloway
5500 Greenwood Plaza Blvd., Suite 200
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303.770.8884
GallowayUS.com

PRELIMINARY
NOT FOR BIDDING
NOT FOR CONSTRUCTION

CONSTRUCTION DOCUMENT
LOT 1, DAWSON TRAILS FILING No. 2, AMENDMENT 4

KING SOOPERS #165

CRYSTAL VALLEY PKWY & DAWSON TRAILS BLVD
CASTLE ROCK, COLORADO

#	Date	Issue / Description	Init.
A	12/29/25	1st CD Submittal	JRR
B	4/8/26	2nd CD Submittal	JRR
C	6/12/26	3rd CD Submittal	JRR

Project No:	KSS000165
Drawn By:	RDG
Checked By:	JRR
Date:	12/05/25

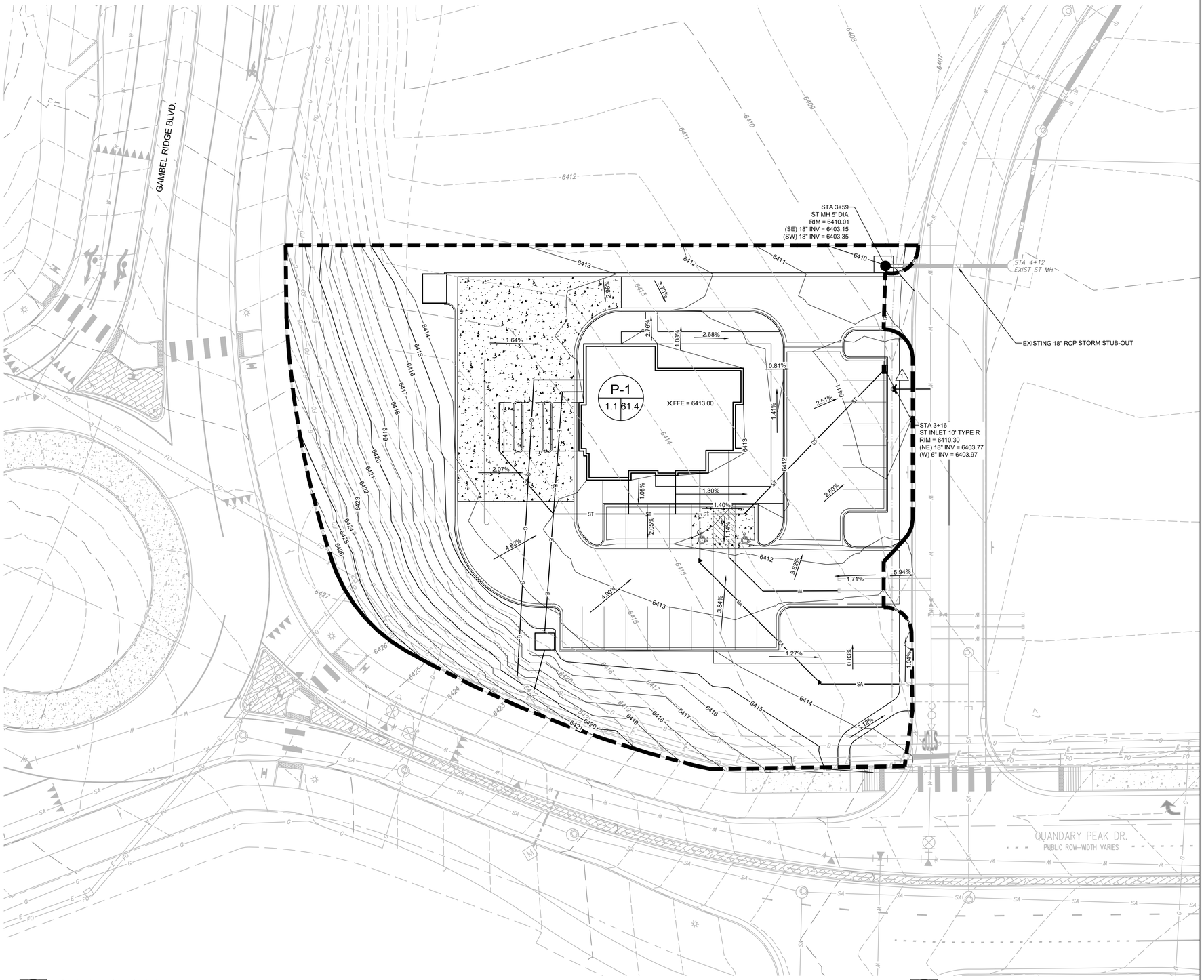
DRAINAGE MAP

1 OF 1

\\Galloway Dropbox - City Mirror\CO_Castle Rock - KSS000165 - Drawn - Text\CDs\Dwgs\Reports\Pond Drainage Maps\Drainage Basin Maps.dwg - Jessica Brownrigg - 6/12/2026

SITE DEVELOPMENT PLAN

LOT 8, DAWSON TRAILS FILING NO. 2 AMENDMENT 4
LOCATED IN THE SOUTHWEST 1/4 OF SECTION 22, TOWNSHIP 8S., RANGE 67W., OF THE 6TH PRINCIPLE MERIDIAN
TOWN OF CASTLE ROCK, COUNTY OF DOUGLAS, STATE OF COLORADO



1 **DRAINAGE PLAN**
SCALE: 1"=10'

0 10 20 40
U.S. SURVEY FEET

NORTH

LEGEND

- 5010 — EXISTING MAJOR CONTOUR
- 5011 — EXISTING MINOR CONTOUR
- 5010 — PROPOSED MAJOR CONTOUR
- 5011 — PROPOSED MINOR CONTOUR
- 5012.00 — EXISTING SPOT ELEVATION
- 5010.00 — PROPOSED SPOT ELEVATION
- 2.00% — PERCENT GRADE SLOPE
- DRAINAGE BASIN
- EXISTING STORM SEWER
- ST — PROPOSED STORM SEWER
- PROPOSED TYPE R STORM INLET
- PROPOSED STORM MANHOLE
- P-1 — SUB-BASIN ID
- 0.25 90 — PERCENT IMPERVIOUS (%)
- AREA (ACRES)
- 1 — DESIGN POINT

Farnsworth GROUP
5613 DTC PARKWAY, SUITE 1100
GREENWOOD VILLAGE, COLORADO 80111
(303) 692-8838 / info@f-w.com
www.f-w.com
Engineers | Architects | Surveyors | Scientists

ISSUE:

#	DATE:	DESCRIPTION:

Project Status
SITE DEVELOPMENT PLAN

PROJECT:
BELLCO CREDIT UNION

BELLCO CREDIT UNION - DAWSON TRAILS

LOT 8, DAWSON TRAILS FILING NO. 2 AMENDMENT NO. 4, CASTLE ROCK, CO 80109

DATE:	10/21/2026
DESIGNED:	ACS
DRAWN:	DJM
REVIEWED:	TWK
FIELD BOOK NO.:	

SHEET TITLE:
DRAINAGE PLAN

SHEET NUMBER:
D1.0

PROJECT NO.: 02501356.003