Preliminary Utility Report SDP25-0002

Castleton Heights

3161 North Castleton Court
Castle Rock, Colorado 80109

Prepared for:

TWG Development

1301 East Washington Street, Suite 100

Indianapolis, Indiana 46202

Prepared by:

Kimley-Horn and Associates, Inc.

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Basalt, Colorado 81621

KH Project No.: 196273005

Prepared: April 2025
Revised: August 2025
Revised: September 2025

Kimley»Horn

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Castleton Heights

PRELIMINARY UTILITY REPORT
SDP25-0002

3161 NORTH CASTLETON COURT
CASTLE ROCK, COLORADO 80109

PREPARED FOR:
TWG DEVELOPMENT
1301 EAST WASHINGTON STREET, SUITE 100
INDIANAPOLIS, INDIANA 46202

AUGUST 2025

Prepared By:

Kimley»Horn

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ENGINEER'S STATEMENT

The enclosed utility report, and exhibits, were prepared by me or under my direct supervision and is correct to the best of my knowledge and belief. Said utility report has been prepared in accordance with applicable Town of Castle Rock criteria and is in conformance with the master utility plans for the affected area. I accept responsibility for any liability caused by negligent acts, errors, or omissions on my part in preparing this report.

Bryce Christensen, P.E.

Registered Professional Engineer

State of Colorado No. 47935

Owner/Developer's Statement:

As Owner/Developer of Land(s) identified within this report; I agree to proceed, implement and comply with all recommendations and requirements outlined herein.

_____

Name of Developer

_____

Authorized Signature

GENERAL LOCATION AND DESCRIPTION

The purpose of this report is to outline the utility design of the proposed Castleton Heights project ("the Project") located at 3161 North Castleton Court in Castle Rock, Colorado (the "Site").

SITE LOCATION

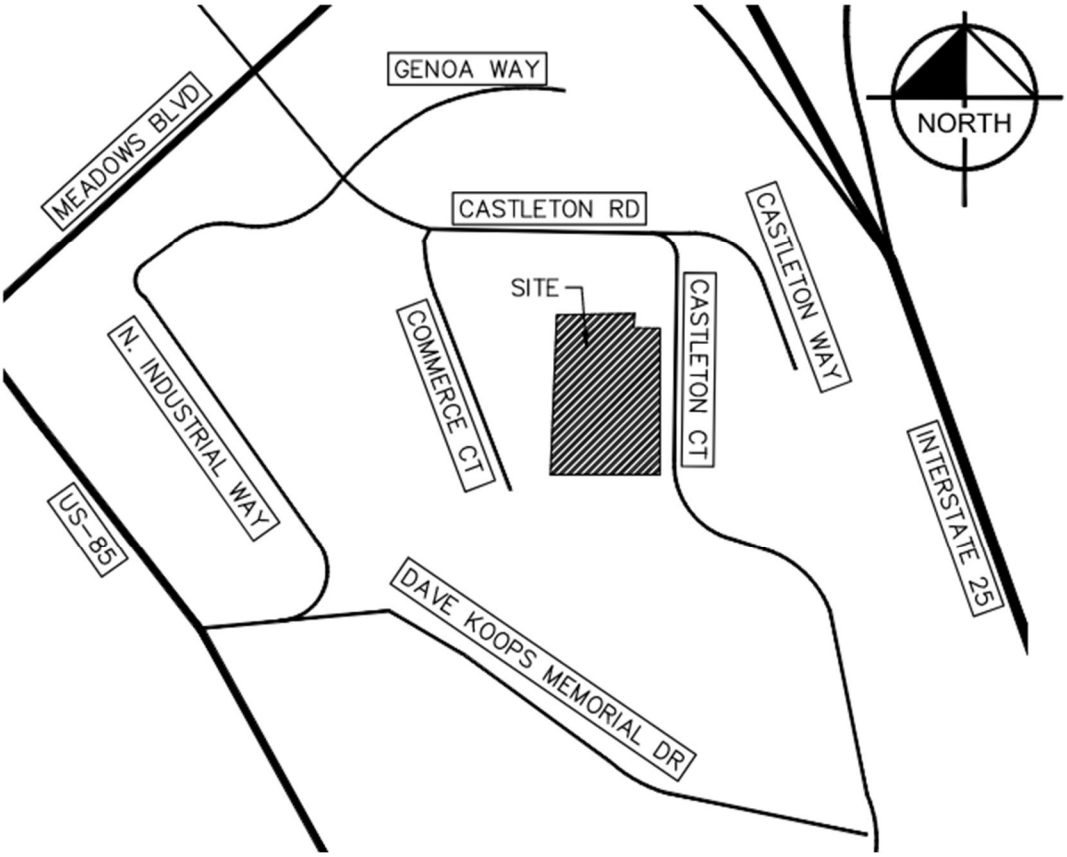
The Site is located in the southeast quarter of Section 27, Township 7 South, Range 67 West of the 6th P.M in the Town of Castle Rock, County of Douglas, State of Colorado.

The Site is generally bounded by the following:

North: Existing office building at 900 Castleton Road
South: Existing well site at 3093 North Castleton Court
East: North Castleton Court
West: Existing parking lot and industrial building at 3130 Commerce Court

There are no known existing residential areas or lakes located within or adjacent to the Site. No drainageways run through the site.

A vicinity map is provided below for reference:



DESCRIPTION OF PROPERTY

The Site consists of approximately 3.10± acres of undeveloped land. The Site is currently zoned as Commercial. No rezoning will be required. The majority of the 3.10 acres will be redeveloped as part of the project.

The Project is anticipated to consist of an 80-unit multifamily housing building with the required parking lot, utility infrastructure, and amenity areas to support the building. Onsite detention will be provided. Irrigation will be provided for 1.12 AC of landscaping. A retaining wall is anticipated on the north, south, and west sides of the property. All construction will be completed in a single phase. The building footprint is 20,424 SF and will have 4 floors. At 0.65 SFE/dwelling unit and 9.38 SFE/irrigated acre, the total SFE is 62.51.

The Site is currently undeveloped. Existing ground cover consists of native grasses, small trees, and a revegetated soil stockpile. The existing Site varies in elevation from a low of 6115' in the southwest corner to a high of 6157' along the eastern property line. The existing topography generally slopes from east to west.

Town of Castle Rock municipal water infrastructure exists in N. Castleton Court adjacent to the site. This 16" transmission line will supply an onsite main extension. The main will be looped through the site and an easement will be dedicated to Castle Rock Water. Castleton Water and Sanitation District (CWSD) has a sanitary sewer stub on the west side of the site that will be used to serve the site's sanitary sewer service. The Utility Maps are provided in **Appendix F**.

The water designs presented herein will focus on the demands associated with development of the Project. A Utility Plan is provided in **Appendix F.**

Any future development of the existing water and wastewater infrastructure needed to serve the site is the responsibility of the developer.

CALCULATED WATER DEMANDS

Applicable criteria utilized in the design and analysis of the proposed water system consists of the Town of Castle Rock Water System Design Criteria.

DOMESTIC WATER DEMANDS

A summary of the demands based on land use rates per criteria section 4.4.1 of the Town of Castle Rock water system design criteria are summarized below. Calculations reflect 80 dwelling units and 1.12 acres of irrigated landscape.

Average Day Demand (Sec. 4.4.1 of TCR Water System Design 2018 Criteria Manual)					
Land Type	ADD (GPD/Unit)	ADD (GPD)	ADD (GPM)	Irrigated Land (GPD/acre)	Irrigated Land (GPD)
Multi-Family Residential	260	20,800	14.4	3,750	4,200
Maximum Day Demand (Sec. 4.4.1 of TCR Water System Design 2018 Criteria Manual)					
Land Type	MDD* (GPD/Unit)	MDD* (GPD)	MDD* (GPM)	Irrigated Land (GPD/acre)	Irrigated Land (GPD)
Multi-Family Residential	650	52,000	36	N/A	N/A
Peak Hour Demand (Sec. 4.4.1 of TCR Water System Design 2018 Criteria Manual)					
Land Type	PHD** (GPD/Unit)	PHD** (GPD)	PHD** (GPM)	Irrigated Land (GPD/acre)	Irrigated Land (GPD)
Multi-Family Residential	1,430	114,400	79.2	N/A	N/A

The Max Day Demand (MDD) was calculated using demand factors from the Town of Castle Rock Water System Design 2018 Criteria Manual. No Max Day Demand's are provided for the irrigated land as peaking factors are not applied to irrigation.

*Max Day Demand (MDD/ADD) = 2.5(ADD) + Irrigated Land = 2.5(20,800) + 4,200 = **56,200 GPD**.

The Peak Hour Demand (PHD) was calculated using demand factors from the Town of Castle Rock Water System Design 2018 Criteria Manual. No Peak Hour Demand's are provided for the irrigated land as peaking factors are not applied to irrigation.

Peak Hour Demand (PHD/ADD) = 5.5(ADD) + Irrigated Land = 5.5(20,800) + 4,200 = **118,600 GPD.

EXISTING WATER SYSTEM

There is no existing water system onsite. There is an existing 16" transmission main within N. Castleton Court that will serve the development by looping a main through the proposed development. A Utility Plan is provided in **Appendix F**. The development site is located within the Meadows Yellow pressure zone and will be served by Tanks No. 12A and 12B. The required storage volume for the development is 326,200 gallons. Calculations for the required storage are provided in **Appendix B.**

PROPOSED WATER SYSTEM

The proposed water system will be looped through the development by tapping the existing 16" main within N. Castleton Court. The tapping mechanism will be per the Town of Castle Rock System Design, 2018 Criteria Manual. The proposed 8" main will be enveloped in a proposed easement per the Criteria Manual. Calculations for the proposed water system can be found in **Appendices A-B** and a corresponding Utility Plan in **Appendix F.** The domestic meter size will be based on water supply fixture units at the time of building permit.

PROPOSED WATER SYSTEM ANALYSIS AND MODELING

The proposed water system has been modeled with WaterCAD. Anticipated distribution lines and connections to the existing system are represented within the model as shown in **Appendix C.** Nodes modeled within the distribution system were set at anticipated design pipe elevations with a minimum depth of cover of 5 feet. All pipes within the model were calculated using Hazen-Williams coefficients of 120. In the sections below are discussion of all modeled scenarios as well the modeling results as compared to the required hydraulic design criteria set forth in Chapter 4 of the Town of Castle Rock Water System Design Criteria.

STATIC DEVELOPMENT SCENARIO

Static development pressures with zero demands with the supplying storage tank at 20% and 100% full are included within this report in **Appendix C.** The tank level HGLs (Hydraulic Grade Line) for the Castle Rock Water yellow pressure zone utilized for these scenarios were 6334' for the tank 20% full static condition and 6352' for the tank 100% full static condition. As seen in **Appendix C**, the static pressure throughout the system is between 43 and 125 psi (pounds per square inch) during both tank stages satisfying Castle Rock's design criteria. The HGL of 6334' for the tank 20% stage was further utilized to evaluate all remaining scenarios in the dynamic conditions.

MAX DAY DEMAND PLUS FIRE FLOW SCENARIO

In the MDD scenario, all calculated demands can be provided with 8" pipes throughout the development distribution system connecting to the existing 16" transmission line in N. Castleton Court. The southern connection within the development loop was closed during this scenario. As seen in **Appendix C**, in the MDD scenario, all pressures are within the required range of 43-125 psi and velocities within pipes do not exceed 5 ft/s (feet per second) compliant with Castle Rock's design criteria. In the MDD plus Fire Flow scenario, all nodes within the development system can provide 1,500 gpm of available fire flow at 20 psi residual pressure per the 2018 International Fire Code. Additionally, no pipes exceed Castle Rock's criteria's maximum velocity requirement of 15 ft/s for the MDD plus Fire flow scenario. Fire flow results tables are included within **Appendix C**. Fire Flow confirmation from Castle Rock Fire and Rescue will be obtained to verify fire flow results during construction document review.

PEAK HOUR DEMAND SCENARIO

In PHD scenario, all calculated demands can be provided with 8" pipes similar to the MDD scenario. Additionally, all pressures within the distribution system are within Castle Rock's required range of 43-125 psi and velocities within pipes do not exceed 10 ft/s satisfying Castle Rock's design criteria for the PHD scenario. Model results for this scenario can be seen in **Appendix C**.

CONCLUSION

COMPLIANCE WITH STANDARDS

Proposed water designs associated with the Castleton Heights project have been designed in substantial accordance with applicable Town of Castle Rock criteria and are not anticipated to adversely affect the existing facilities to which they connect.

REFERENCES

Town of Castle Rock Water System Design Criteria Manual, Castle Rock, CO.; September 2018, with latest revisions.

Flowmaster, Version V8i, Software licensed by Bentley Systems, Incorporated.

WaterCAD, Version V8i, Software licensed by Bentley Systems, Incorporated.

APPENDIX

APPENDIX A – WATER DEMANDS

Water Demand Calculations

TWG Castle Rock

Client: TWG Development
KHA No.: 196273004
Project: Castleton Heights
Date: 12/10/2024

Development Information	
Multi-Family Residential Units	80
Acres of Irrigated Land	1.12

Town of Castle Rock Standards		
Multi-Family Residential ADD Unit Demand[1]	260	gpd/DU
Irrigated Land Demand[1]	3750	gpd/irrigated acre
MDD Peaking Factor (MDD/ADD)[1]	2.5	
PHD Peaking Factor (PHD/ADD)[1]	5.5	

1: Per Town Of Castle Rock Water System Design 2018 Criteria Manual

Calculated Development Water Demands	
ADD (gallons per day)	25,000
ADD (gallons per minute)	17
ADD (acre-feet per year)	28
MDD (gallons per day)	56,200
MDD (gallons per minute)	39
PHD (gallons per day)	118,600
PHD (gallons per minute)	82

APPENDIX B – WATER STORAGE

Water Storage Calculations

TWG Castle Rock

Client: TWG Development **Date:** 1/13/2024

KHA No.: 196273004

Project: Castleton Heights

Development Information	
Multi-Family Residential Units	80
Acres of Irrigated Land	1.12
IFC Building Construction Type[1]	1B
Building Square Footage	84,000
Required Fire Flow[1]	1,500
Fire Flow Duration (Hours)[1]	3

1: Per 2024 International Fire Code Appendix B

Town of Castle Rock Standards		
Multi-Family Residential ADD Unit Demand[2]	260	gpd/DU
Irrigated Land Demand[2]	3750	gpd/irrigated acre
MDD Peaking Factor (MDD/ADD)[2]	2.5	

2: Per Town Of Castle Rock Water System Design 2018 Criteria Manual

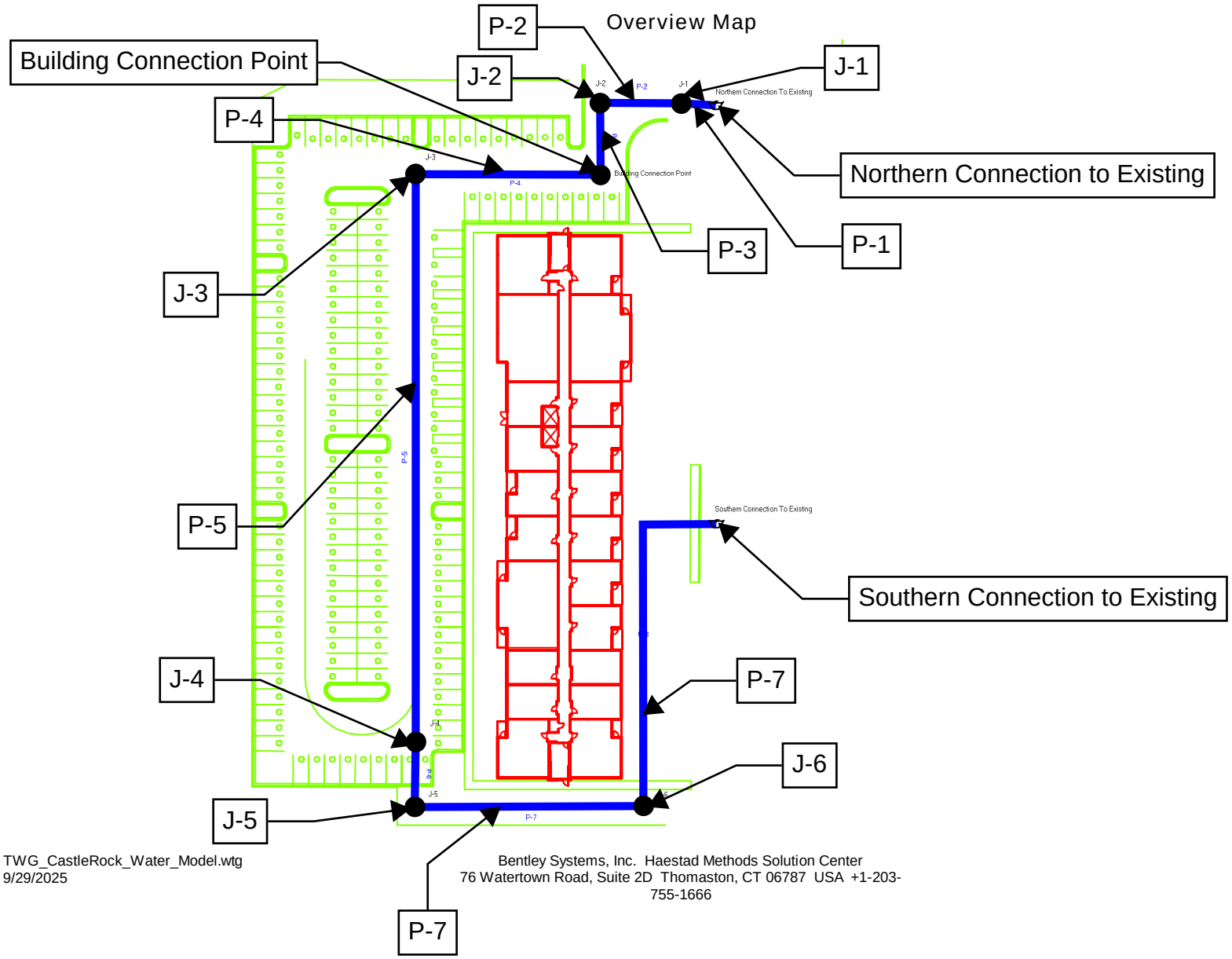
Calculated Water Demands		
ADD	25,000	gpd
ADD	17	gpm
MDD	56,200	gpd
MDD	39	gpm

Calculated Storage Required		
Storage Volume	326,200	Gallons
Storage Volume	0.33	Million-Gallons

APPENDIX C – WATER HYDRAULIC ANALYSIS AND MODELING

TWG Castle Rock

Overview Map



TWG Castle Rock Water Hydraulic Modeling Outputs

TWG Castle Rock - Active Scenario: Static Condition 100% Full

Junction Table - Time: 0.00 hours

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Velocity of Maximum Pipe (ft/s)	Flow (Total Available) (gpm)
J-3	6,135.82	0	94	(N/A)	(N/A)
J-2	6,145.74	0	89	(N/A)	(N/A)
Building Connection Point	6,144.00	0	90	(N/A)	(N/A)
J-1	6,149.22	0	88	(N/A)	(N/A)
J-5	6,134.69	0	94	(N/A)	(N/A)
J-4	6,134.78	0	94	(N/A)	(N/A)
J-6	6,147.53	0	88	(N/A)	(N/A)

TWG Castle Rock Water Hydraulic Modeling Outputs

TWG Castle Rock - Active Scenario: Static Condition 100% Full

Pipe Table - Time: 0.00 hours

Label	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Length (ft)	Flow (Absolute) (gpm)	Velocity (ft/s)	Headloss (ft)
P-1	Northern Connection To Existing	J-1	16.0	PVC	120.0	20	0	0.00	0.00
P-2	J-1	J-2	8.0	PVC	120.0	47	0	0.00	0.00
P-3	J-2	Building Connection Point	8.0	PVC	120.0	42	0	0.00	0.00
P-4	J-3	Building Connection Point	8.0	PVC	120.0	107	0	0.00	0.00
P-7	J-6	J-5	8.0	PVC	120.0	133	0	0.00	0.00
P-8	Southern Connection To Existing	J-6	16.0	PVC	120.0	206	0	0.00	0.00

TWG Castle Rock Water Hydraulic Modeling Outputs

TWG Castle Rock - Active Scenario: Static Condition 100% Full

Reservoir Table - Time: 0.00 hours

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
Northern Connection To Existing	6,352.00	0	6,352.00
Southern Connection To Existing	6,352.00	0	6,352.00

TWG Castle Rock Water Hydraulic Modeling Outputs

TWG Castle Rock - Active Scenario: Static Condition 20% Full

Junction Table - Time: 0.00 hours

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Velocity of Maximum Pipe (ft/s)	Flow (Total Available) (gpm)
J-3	6,135.82	0	86	(N/A)	(N/A)
J-2	6,145.74	0	81	(N/A)	(N/A)
Building Connection Point	6,144.00	0	82	(N/A)	(N/A)
J-1	6,149.22	0	80	(N/A)	(N/A)
J-5	6,134.69	0	86	(N/A)	(N/A)
J-4	6,134.78	0	86	(N/A)	(N/A)
J-6	6,147.53	0	81	(N/A)	(N/A)

TWG Castle Rock Water Hydraulic Modeling Outputs

TWG Castle Rock - Active Scenario: Static Condition 20% Full

Pipe Table - Time: 0.00 hours

Label	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Length (ft)	Flow (Absolute) (gpm)	Velocity (ft/s)	Headloss (ft)
P-1	Northern Connection To Existing	J-1	16.0	PVC	120.0	20	0	0.00	0.00
P-2	J-1	J-2	8.0	PVC	120.0	47	0	0.00	0.00
P-3	J-2	Building Connection Point	8.0	PVC	120.0	42	0	0.00	0.00
P-4	J-3	Building Connection Point	8.0	PVC	120.0	107	0	0.00	0.00
P-7	J-6	J-5	8.0	PVC	120.0	133	0	0.00	0.00
P-8	Southern Connection To Existing	J-6	16.0	PVC	120.0	206	0	0.00	0.00

Reservoir Table - Time: 0.00 hours

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
Northern Connection To Existing	6,334.00	0	6,334.00
Southern Connection To Existing	6,334.00	0	6,334.00

TWG Castle Rock Water Hydraulic Modeling Outputs

TWG Castle Rock - Active Scenario: Max Day Demand

Junction Table - Time: 0.00 hours

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Velocity of Maximum Pipe (ft/s)	Flow (Total Available) (gpm)
J-3	6,135.82	0	86	(N/A)	(N/A)
J-2	6,145.74	0	81	(N/A)	(N/A)
Building Connection Point	6,144.00	39	82	(N/A)	(N/A)
J-1	6,149.22	0	80	(N/A)	(N/A)
J-5	6,134.69	0	86	(N/A)	(N/A)
J-4	6,134.78	0	86	(N/A)	(N/A)
J-6	6,147.53	0	81	(N/A)	(N/A)

TWG Castle Rock Water Hydraulic Modeling Outputs

TWG Castle Rock - Active Scenario: Max Day Demand

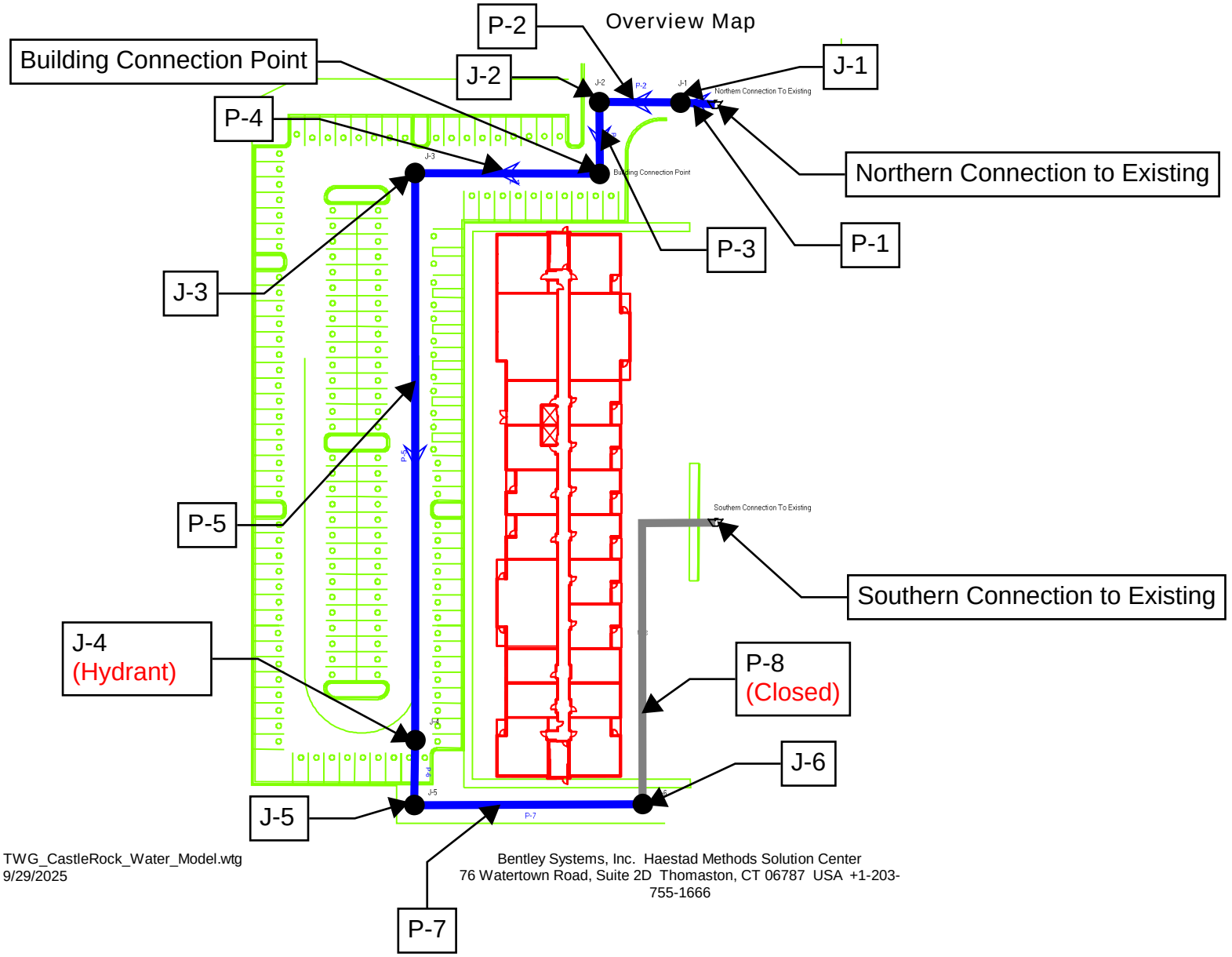
Pipe Table - Time: 0.00 hours

Label	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Length (ft)	Flow (Absolute) (gpm)	Velocity (ft/s)	Headloss (ft)
P-1	Northern Connection To Existing	J-1	16.0	PVC	120.0	20	29	0.05	0.00
P-2	J-1	J-2	8.0	PVC	120.0	47	29	0.19	0.00
P-3	J-2	Building Connection Point	8.0	PVC	120.0	42	29	0.19	0.00
P-4	J-3	Building Connection Point	8.0	PVC	120.0	107	10	0.06	0.00
P-7	J-6	J-5	8.0	PVC	120.0	133	10	0.06	0.00
P-8	Southern Connection To Existing	J-6	16.0	PVC	120.0	206	10	0.02	0.00

Reservoir Table - Time: 0.00 hours

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
Northern Connection To Existing	6,334.00	29	6,334.00
Southern Connection To Existing	6,334.00	10	6,334.00

Overview Map



TWG Castle Rock Water Hydraulic Modeling Outputs

TWG Castle Rock - Active Scenario: Max Day Demand + Fire Flow @ Fire Hydrant

Overview Map

Junction Table - Time: 0.00 hours

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Velocity of Maximum Pipe (ft/s)	Flow (Total Available) (gpm)
J-3	6,135.82	0	82	(N/A)	(N/A)
J-2	6,145.74	0	80	(N/A)	(N/A)
Building Connection Point	6,144.00	39	80	(N/A)	(N/A)
J-1	6,149.22	0	80	(N/A)	(N/A)
J-5	6,134.69	0	76	(N/A)	(N/A)
J-4	6,134.78	1,500	76	9.83	1,501
J-6	6,147.53	0	70	(N/A)	(N/A)

TWG Castle Rock Water Hydraulic Modeling Outputs

TWG Castle Rock - Active Scenario: Max Day Demand + Fire Flow @ Fire Hydrant

Pipe Table - Time: 0.00 hours

Label	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Length (ft)	Flow (Absolute) (gpm)	Velocity (ft/s)	Headloss (ft)
P-1	Northern Connection To Existing	J-1	16.0	PVC	120.0	20	1,539	2.46	0.03
P-2	J-1	J-2	8.0	PVC	120.0	47	1,539	9.82	2.22
P-3	J-2	Building Connection Point	8.0	PVC	120.0	42	1,539	9.82	1.97
P-4	J-3	Building Connection Point	8.0	PVC	120.0	107	1,500	9.57	4.82
P-7	J-6	J-5	8.0	PVC	120.0	133	0	0.00	0.00
P-8	Southern Connection To Existing	J-6	16.0	PVC	120.0	206	(N/A)	(N/A)	(N/A)

TWG Castle Rock Water Hydraulic Modeling Outputs

TWG Castle Rock - Active Scenario: Max Day Demand + Fire Flow @ Fire Hydrant

Reservoir Table - Time: 0.00 hours

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
Northern Connection To Existing	6,334.00	1,539	6,334.00
Southern Connection To Existing	6,334.00	0	6,334.00

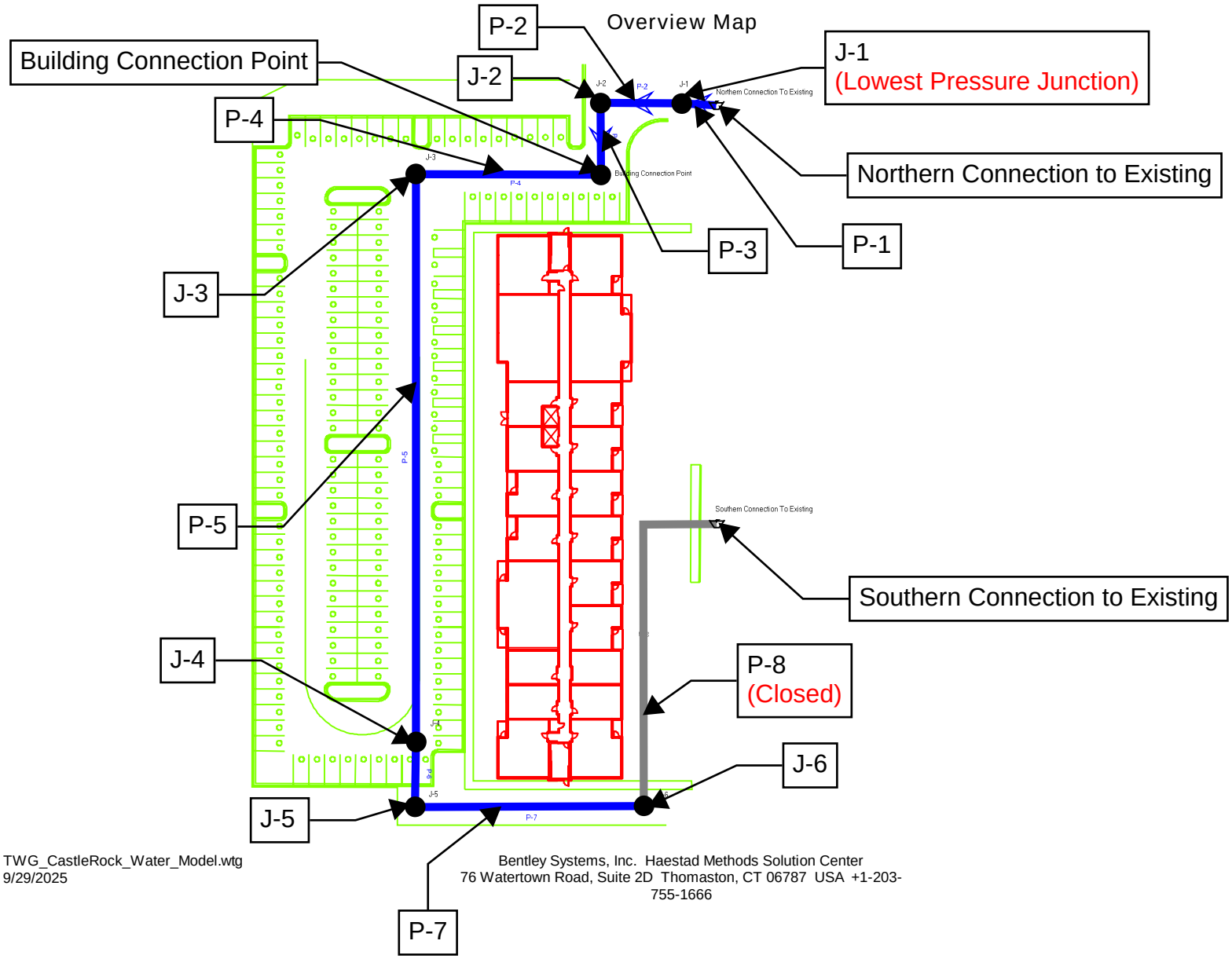
TWG Castle Rock Water Hydraulic Modeling Outputs

TWG Castle Rock - Active Scenario: Max Day Demand + Fire Flow @ Fire Hydrant

Fire Flow Results Table - Time: 0.00 hours

Label	Satisfies Fire Flow Constraints ?	Velocity (Upper Limit) (ft/s)	Fire Flow Status	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Velocity of Maximum Pipe (ft/s)	Pipe w/ Maximum Velocity	Pressure (psi)
J-6	(N/A)	15.00	(N/A)	1,500	(N/A)	(N/A)	(N/A)	20	(N/A)	(N/A)	(N/A)	70
J-5	(N/A)	15.00	(N/A)	1,500	(N/A)	(N/A)	(N/A)	20	(N/A)	(N/A)	(N/A)	76
J-3	(N/A)	15.00	(N/A)	1,500	(N/A)	(N/A)	(N/A)	20	(N/A)	(N/A)	(N/A)	82
Building Connection Point	(N/A)	15.00	(N/A)	1,500	(N/A)	(N/A)	(N/A)	20	(N/A)	(N/A)	(N/A)	80
J-2	(N/A)	15.00	(N/A)	1,500	(N/A)	(N/A)	(N/A)	20	(N/A)	(N/A)	(N/A)	80
J-1	(N/A)	15.00	(N/A)	1,500	(N/A)	(N/A)	(N/A)	20	(N/A)	(N/A)	(N/A)	80
J-4	True	15.00	Passed	1,500	1,501	1,500	1,501	20	76	9.83	P-2	76

Overview Map



Overview Map

Junction Table - Time: 0.00 hours

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Velocity of Maximum Pipe (ft/s)	Flow (Total Available) (gpm)
J-3	6,135.82	0	86	(N/A)	(N/A)
J-2	6,145.74	0	81	(N/A)	(N/A)
Building Connection Point	6,144.00	39	82	(N/A)	(N/A)
J-1	6,149.22	1,500	80	2.46	1,501
J-5	6,134.69	0	86	(N/A)	(N/A)
J-4	6,134.78	0	86	(N/A)	(N/A)
J-6	6,147.53	0	81	(N/A)	(N/A)

TWG Castle Rock Water Hydraulic Modeling Outputs

TWG Castle Rock - Active Scenario: Max Day Demand + Fire Flow @ Lowest Pressure Node

Pipe Table - Time: 0.00 hours

Label	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Length (ft)	Flow (Absolute) (gpm)	Velocity (ft/s)	Headloss (ft)
P-1	Northern Connection To Existing	J-1	16.0	PVC	120.0	20	1,539	2.46	0.03
P-2	J-1	J-2	8.0	PVC	120.0	47	39	0.25	0.00
P-3	J-2	Building Connection Point	8.0	PVC	120.0	42	39	0.25	0.00
P-4	J-3	Building Connection Point	8.0	PVC	120.0	107	0	0.00	0.00
P-7	J-6	J-5	8.0	PVC	120.0	133	0	0.00	0.00
P-8	Southern Connection To Existing	J-6	16.0	PVC	120.0	206	(N/A)	(N/A)	(N/A)

Reservoir Table - Time: 0.00 hours

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
Northern Connection To Existing	6,334.00	1,539	6,334.00
Southern Connection To Existing	6,334.00	0	6,334.00

TWG Castle Rock Water Hydraulic Modeling Outputs

TWG Castle Rock - Active Scenario: Max Day Demand + Fire Flow @ Lowest Pressure Node

Fire Flow Results Table - Time: 0.00 hours

Label	Satisfies Fire Flow Constraints ?	Velocity (Upper Limit) (ft/s)	Fire Flow Status	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Velocity of Maximum Pipe (ft/s)	Pipe w/ Maximum Velocity	Pressure (psi)
J-6	(N/A)	15.00	(N/A)	1,500	(N/A)	(N/A)	(N/A)	20	(N/A)	(N/A)	(N/A)	81
J-5	(N/A)	15.00	(N/A)	1,500	(N/A)	(N/A)	(N/A)	20	(N/A)	(N/A)	(N/A)	86
J-3	(N/A)	15.00	(N/A)	1,500	(N/A)	(N/A)	(N/A)	20	(N/A)	(N/A)	(N/A)	86
Building Connection Point	(N/A)	15.00	(N/A)	1,500	(N/A)	(N/A)	(N/A)	20	(N/A)	(N/A)	(N/A)	82
J-2	(N/A)	15.00	(N/A)	1,500	(N/A)	(N/A)	(N/A)	20	(N/A)	(N/A)	(N/A)	81
J-4	(N/A)	15.00	(N/A)	1,500	(N/A)	(N/A)	(N/A)	20	(N/A)	(N/A)	(N/A)	86
J-1	True	15.00	Passed	1,500	1,501	1,500	1,501	20	80	2.46	P-1	80

TWG Castle Rock Water Hydraulic Modeling Outputs

TWG Castle Rock - Active Scenario: Peak Hour Demand

Junction Table - Time: 0.00 hours

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Velocity of Maximum Pipe (ft/s)	Flow (Total Available) (gpm)
J-3	6,135.82	0	86	(N/A)	(N/A)
J-2	6,145.74	0	81	(N/A)	(N/A)
Building Connection Point	6,144.00	82	82	(N/A)	(N/A)
J-1	6,149.22	0	80	(N/A)	(N/A)
J-5	6,134.69	0	86	(N/A)	(N/A)
J-4	6,134.78	0	86	(N/A)	(N/A)
J-6	6,147.53	0	81	(N/A)	(N/A)

TWG Castle Rock Water Hydraulic Modeling Outputs

TWG Castle Rock - Active Scenario: Peak Hour Demand

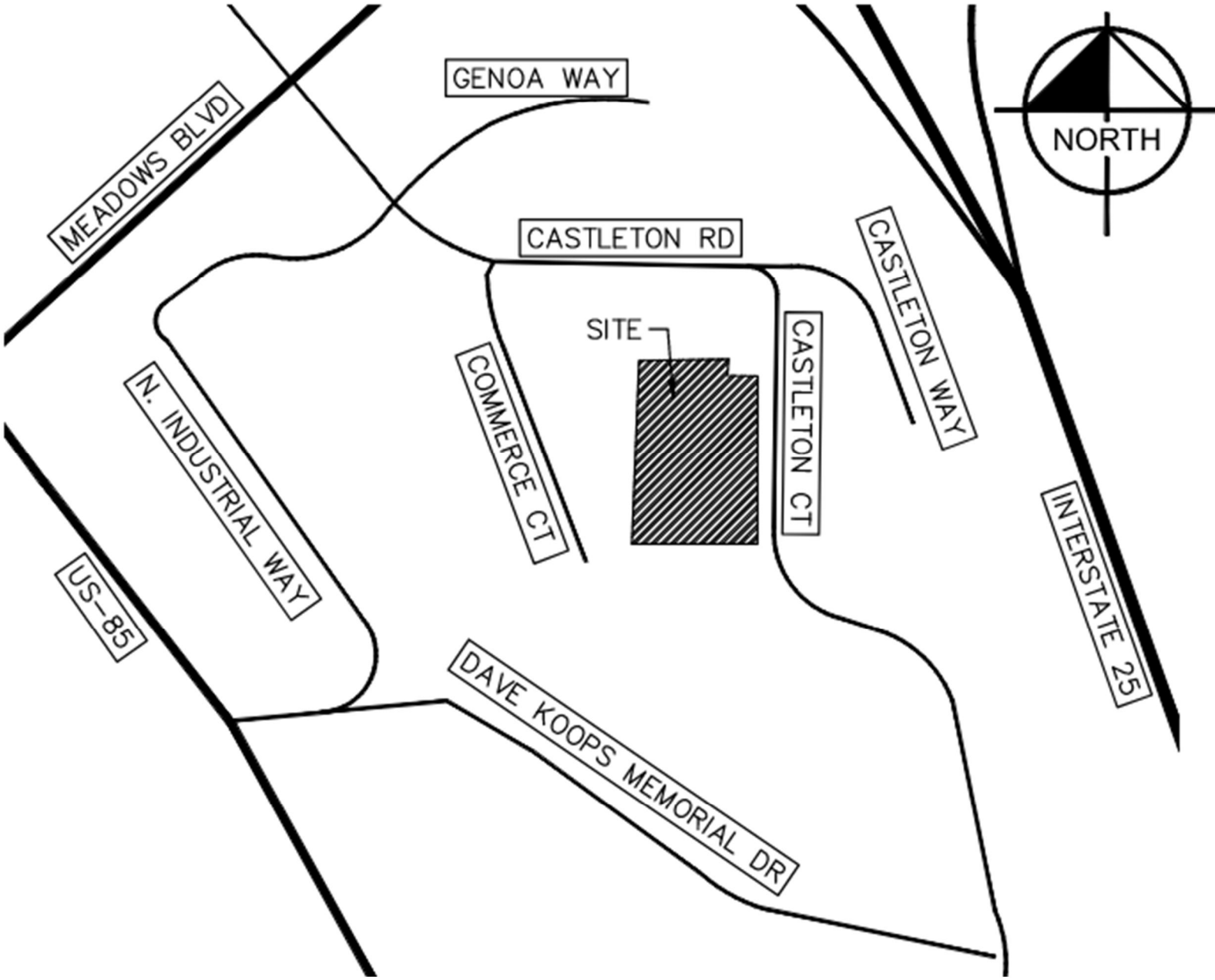
Pipe Table - Time: 0.00 hours

Label	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Length (ft)	Flow (Absolute) (gpm)	Velocity (ft/s)	Headloss (ft)
P-1	Northern Connection To Existing	J-1	16.0	PVC	120.0	20	62	0.10	0.00
P-2	J-1	J-2	8.0	PVC	120.0	47	62	0.39	0.01
P-3	J-2	Building Connection Point	8.0	PVC	120.0	42	62	0.39	0.00
P-4	J-3	Building Connection Point	8.0	PVC	120.0	107	20	0.13	0.00
P-7	J-6	J-5	8.0	PVC	120.0	133	20	0.13	0.00
P-8	Southern Connection To Existing	J-6	16.0	PVC	120.0	206	20	0.03	0.00

Reservoir Table - Time: 0.00 hours

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
Northern Connection To Existing	6,334.00	62	6,334.00
Southern Connection To Existing	6,334.00	20	6,334.00

APPENDIX F – MAPS AND PLANS – VICINITY MAP


GENOA WAY
MEADOWS BLVD
CASTLETON RD
CASTLETON WAY
NORTH
SITE
COMMERCE CT
CASTLETON CT
N. INDUSTRIAL WAY
US-85
INTERSTATE 25
DAVE KOOPS MEMORIAL DR

APPENDIX F – UTILITY MAP PROVIDED BY THE UTILITIES DEPT.

CASTLE ROCK Qwater
Securing our future drop by drop

0 50 100 200 300 Feet

1 inch = 100 feet

Date: 1/1/2024

Disclaimer: The data presented has been compiled from various sources, each of which introduces varying degrees of inaccuracies or inconsistencies. Such discrepancies in data are inherent and in supplying this product the Town of Castle Rock assumes no liability for it's use or accuracy. Questions or comments regarding the cartographic composition of this map including, but not limited to, errors, omissions, corrections, and/or updates, should be directed to the Utilities Department, Town of Castle Rock, (720) 733-6000. Copyright 2023, Town of Castle Rock Utilities Mapping.

Document Path: J:\GIS\Standard Maps\10.6\11x17 LndScp.mxd

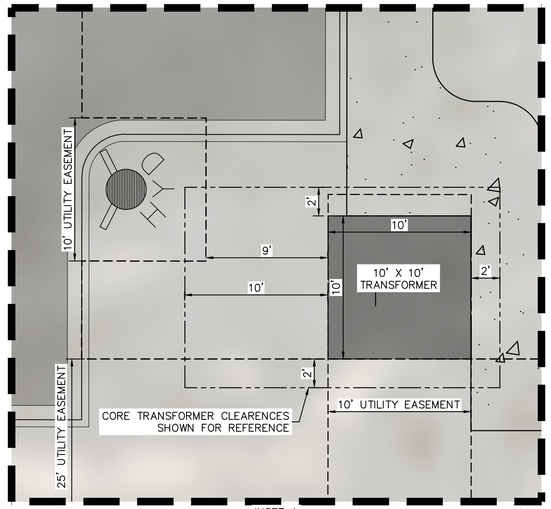
CASTLE ROCK UTILITIES MAP (INTERNAL USE ONLY)

APPENDIX F – SITE DEVELOPMENT PLAN

SITE DEVELOPMENT PLAN
CASTLETON HEIGHTS
LOT 3A, CASTLETON CENTER FILING NO. 2, AMENDMENT NO. 2

PER LOT LINE VACATION APPROVAL CERTIFICATE #01112674

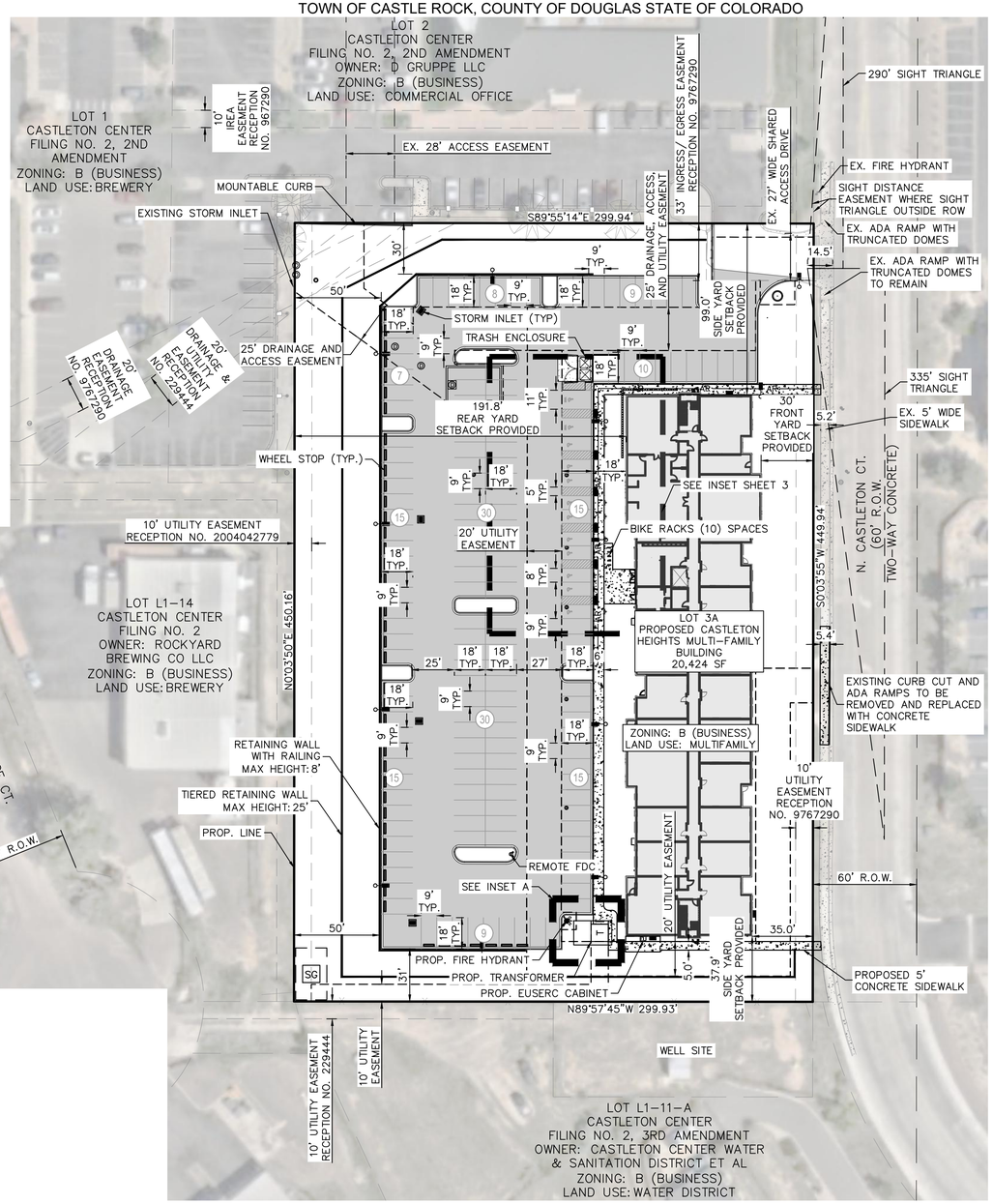
LOCATED IN THE SOUTHEAST QUARTER OF SECTION 27, TOWNSHIP 7 SOUTH, RANGE 67 WEST OF THE 6TH P.M.
TOWN OF CASTLE ROCK, COUNTY OF DOUGLAS STATE OF COLORADO



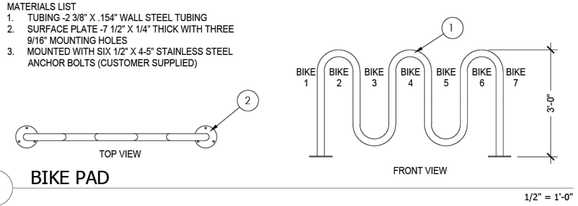
INSET A

GRAPHIC SCALE IN FEET
0 2.5 5 10

NORTH



MATERIALS LIST
1. TUBING -2 3/8" X .154" WALL STEEL TUBING
2. SURFACE PLATE -7 1/2" X 1/4" THICK WITH THREE 9/16" MOUNTING HOLES
3. MOUNTED WITH SIX 1/2" X 4-5" STAINLESS STEEL ANCHOR BOLTS (CUSTOMER SUPPLIED)



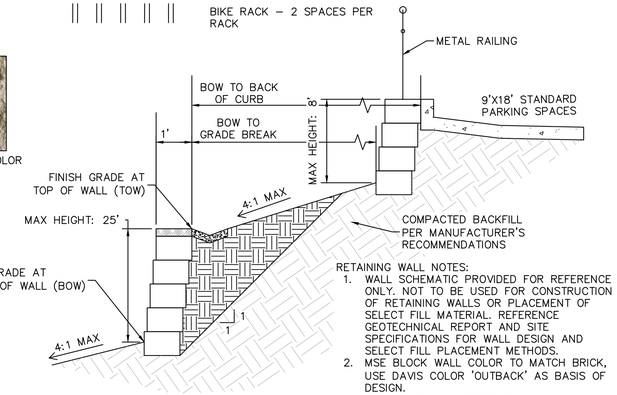
2 BIKE PAD

1/2" = 1'-0"

LEGEND:

- PROPERTY LINE
- EXISTING EASEMENT
- PROPOSED EASEMENT
- R.O.W.
- PROPOSED CURB AND GUTTER
- PROPOSED PARKING STRIPING
- # OF PROPOSED PARKING SPACES
- PROPOSED CONCRETE PAVEMENT
- PROPOSED LANDSCAPE AREA
- PROPOSED ASPHALT
- PROPOSED RETAINING WALL
- STORM INLET
- STORM MANHOLE
- SEWER MANHOLE
- FDC
- HYDRANT
- BIKE RACK - 2 SPACES PER RACK

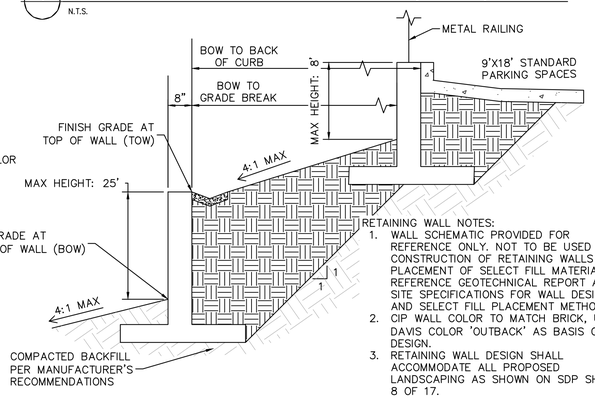
DAVIS 'OUTBACK' COLOR



RETAINING WALL NOTES:
1. WALL SCHEMATIC PROVIDED FOR REFERENCE ONLY. NOT TO BE USED FOR CONSTRUCTION OF RETAINING WALLS OR PLACEMENT OF SELECT FILL MATERIAL. REFERENCE GEOTECHNICAL REPORT AND SITE SPECIFICATIONS FOR WALL DESIGN AND SELECT FILL PLACEMENT METHODS.
2. MSE BLOCK WALL COLOR TO MATCH BRICK, USE DAVIS COLOR 'OUTBACK' AS BASIS OF DESIGN.
3. RETAINING WALL DESIGN SHALL ACCOMMODATE ALL PROPOSED LANDSCAPING AS SHOWN ON SDP SHEET 8 OF 17.

1 MSE RETAINING WALL DETAIL (N.T.S.)
N.T.S.

DAVIS 'OUTBACK' COLOR



RETAINING WALL NOTES:
1. WALL SCHEMATIC PROVIDED FOR REFERENCE ONLY. NOT TO BE USED FOR CONSTRUCTION OF RETAINING WALLS OR PLACEMENT OF SELECT FILL MATERIAL. REFERENCE GEOTECHNICAL REPORT AND SITE SPECIFICATIONS FOR WALL DESIGN AND SELECT FILL PLACEMENT METHODS.
2. CIP WALL COLOR TO MATCH BRICK, USE DAVIS COLOR 'OUTBACK' AS BASIS OF DESIGN.
3. RETAINING WALL DESIGN SHALL ACCOMMODATE ALL PROPOSED LANDSCAPING AS SHOWN ON SDP SHEET 8 OF 17.

2 CIP RETAINING WALL DETAIL (N.T.S.)
N.T.S.

GRAPHIC SCALE IN FEET
0 20 40 80

NORTH

OWNER | TWG Development, LLC
1301 E. Washington Street, Suite 100
Indianapolis, IN 46202

CONSULTANT | STUDIO | Architect Designer
3575 Ringsby Court 300A - Denver, CO - 80216

CONSULTANT | KIMLEY-HORN | Civil Engineer
6200 South Syracuse Way, Suite 300 - Greenwood Village, CO - 80111

3161 N Castleton CT, Castle Rock CO 80104
CASTLETON HEIGHTS 10/06/2025

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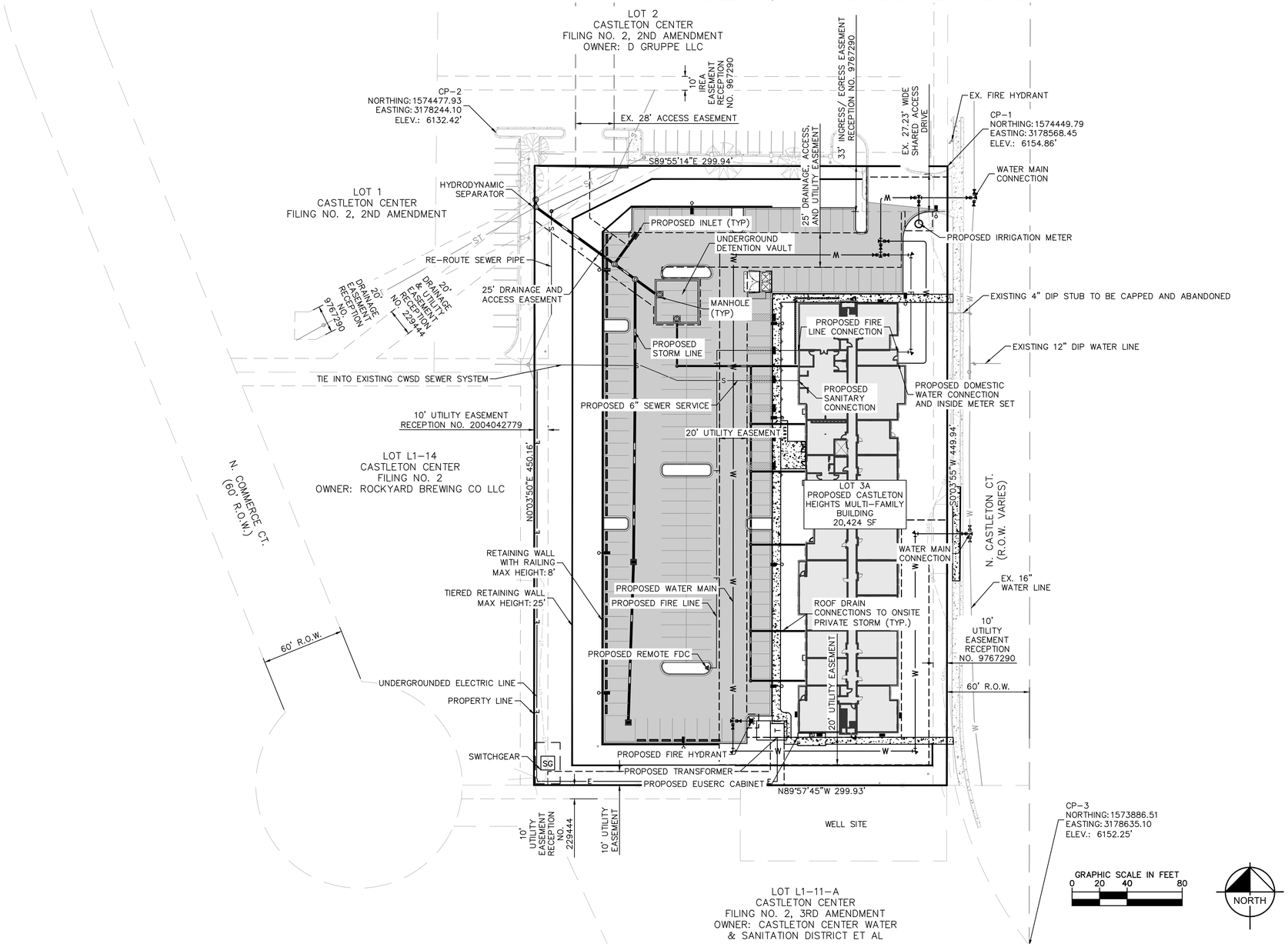
SITE DEVELOPMENT PLAN
CASTLETON HEIGHTS
LOT 3A, CASTLETON CENTER FILING NO. 2, AMENDMENT NO. 2

PER LOT LINE VACATION APPROVAL CERTIFICATE #01112674

LOCATED IN THE SOUTHEAST QUARTER OF SECTION 27, TOWNSHIP 7 SOUTH, RANGE 67 WEST OF THE 6TH P.M.
TOWN OF CASTLE ROCK, COUNTY OF DOUGLAS STATE OF COLORADO



LEGEND:

- PROPERTY LINE
- EXISTING EASEMENT
- PROPOSED EASEMENT
- R.O.W.
- PROPOSED RETAINING WALL
- EXISTING GAS LINE
- EXISTING WATER LINE
- EXISTING UNDERGROUND ELECTRIC LINE
- EXISTING OVERHEAD ELECTRIC LINE
- EXISTING STORM LINE
- EXISTING SITE LIGHT
- EXISTING OVERHEAD POWER POLE
- EXISTING FIRE HYDRANT
- EXISTING WATER VALVE
- EXISTING SANITARY SEWER MANHOLE
- EXISTING STORM MANHOLE
- PROPOSED WATER LINE
- PROPOSED SEWER
- PROPOSED FIRE LINE
- PROPOSED STORM
- PROPOSED FDC
- PROPOSED FIRE HYDRANT
- PROPOSED TEE
- PROPOSED BEND
- PROPOSED GATE VALVE

TOWN SDP GENERAL NOTES (UTILITY NOTES)

1. THIS SITE IS LOCATED WITHIN THE TOWN OF CASTLE ROCK YELLOW WATER PRESSURE ZONE.
2. ALL PROPOSED EASEMENTS MUST BE RECORDED PRIOR TO ISSUANCE OF CONSTRUCTION PERMITS.
3. ALL UTILITY EASEMENTS FOR WATER AND WASTEWATER LINES SHALL BE FOR THE EXCLUSIVE USE OF THE TOWN SO THAT ACCESS AND MAINTENANCE MAY BE PERFORMED.
4. THE MINIMUM SEPARATION BETWEEN WATERLINES, SANITARY SEWER AND STORM SEWER LINES IS 10 FEET.
5. THE MINIMUM SEPARATION BETWEEN WATER SERVICE LINES IS 5 FEET.
6. ANY TIE–IN, CROSSING OR LOWERING OF TOWN CRITICAL INFRASTRUCTURE WILL REQUIRE A TIME AND MATERIALS PERMIT (TMU) WITH FEES REQUIRED PRIOR TO CONSTRUCTION.

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS & DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF & IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION & ADAPTATION BY NFOU & KIMLEY–HORN & ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO NFOU & KIMLEY–HORN & ASSOCIATES, INC.

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CASTLETON HEIGHTS 10/06/2025
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1301 E. Washington Street, Suite 100
Indianapolis, IN 46202

CONSULTANT | STUDIO | Architect Designer
3575 Ringsby Court 300A - Denver, CO - 80216

CONSULTANT | KIMLEY-HORN | Civil Engineer
6200 South Syracuse Way, Suite 300 - Greenwood Village, CO - 80111

GENERAL UTILITIES PLAN
5 OF 17
SDP25-0002

APPENDIX G – UTILITY REPORT CHECKLIST

Castle Rock Water
175 Kellogg Court, Castle Rock CO 80109
720-733-6000

Preliminary Utility Report Checklist

The Preliminary Utility Report must be in conformance with the latest Town of Castle Rock Water and Wastewater System Design Criteria Manuals, available on the Town's website.

For the Preliminary Utility Report, information contained in the Concept Utility Letter shall be updated to reflect the latest projections for land use and densities. Hydraulic modeling shall only be required for the site proposed in the Site Development Plan (SDP). This modeling may be waived on a case-by-case basis at the discretion of the Utilities Department if it is adequately demonstrated that the SDP is already consistent with the Town's Water/Wastewater Master Plans and that the existing adjacent water/wastewater infrastructure is adequate to support the development without modifications or if the SDP is for a commercial structure on a single lot. The modeling shall accurately reflect the sizes and locations of all proposed water mains associated with the SDP layout. In addition to providing updated land use and density information, the following items shall be specifically addressed:

- Further analysis of any concerns raised in the Concept Utility Letter regarding the Town's ability to serve the development.
- Updated discussion of appurtenant water/wastewater facilities other than distribution mains that will be necessary to serve the development, and the principal design parameters that will be utilized in the final design of such facilities.
- Status of any variances that have been obtained, or will be pursued.
- Updated discussion of maintenance access and any associated concerns.
- Updated status of permitting requirements.
- Updated appendices.

The following outline sets forth the **required minimum** content to be provided in the Preliminary Utility Report that shall be submitted with the SDP. This report must be prepared by, or the report preparation supervised by a registered Professional Engineer licensed in Colorado. A copy of this checklist must be submitted with the Preliminary Utility Report.

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	
		TITLE SHEET
X		A. Name of Project, including legal name of development
X		B. Address
	X	C. Owner — Please see owner acknowledgement letter submitted with SDP
X		D. Developer
X		E. Engineer
X		F. Submittal date and revision dates as applicable

Preliminary Utility Report – Formatting Checklist

Included	N/A	
X		**APPROVAL BLOCK SHEET** (Available on Town's website)
X		**TABLE OF CONTENTS**
		PROJECT LOCATION AND DESCRIPTION
X		A. Site Location
X		B. Description of Property and Land Use
		CALCULATED WATER DEMANDS
X		A. Average Day Demands (ADD)
X		B. Max Day Demands (MDD)
X		C. Peak Hour Demands (PHD)
		EXISTING WATER SYSTEM
X		A. Existing Distribution System
X		B. Existing Supply Facilities
		PROPOSED WATER SYSTEM
X		A. Proposed Distribution System
X		B. Proposed Supply Facilities
X		C. Land Dedication Requirements
		PROPOSED WATER SYSTEM ANALYSIS AND MODELING
X		A. Hydraulic Models
X		B. Hydraulic Modeling Scenarios
X		C. Hydraulic Modeling Output and Required Schematics
		CALCULATED WASTEWATER FLOWS
	X	A. Average Day Wastewater Flows (ADF)
	X	B. Peaking Factor
	X	C. Peak Design Flows (PDF)
		EXISTING WASTEWATER SYSTEM
	X	A. Existing Collection System
		PROPOSED WASTEWATER SYSTEM
	X	A. Proposed Collection System
	X	B. Proposed Wastewater Facilities
	X	C. Land Dedication Requirements
		PROPOSED WASTEWATER SYSTEM ANALYSIS AND MODELING
	X	A. Hydraulic Models
	X	B. Hydraulic Modeling Scenarios
	X	C. Hydraulic Modeling Output and Required Schematics

Preliminary Utility Report – Formatting Checklist

Included	N/A	
	X	**POTENTIAL PERMITTING REQUIREMENTS**
X		**REFERENCES**
		APPENDICES
X		Appendix A — Water Demands
X		Appendix B — Water Storage
X		Appendix C — Water Hydraulic Analysis and Modeling
	X	Appendix D — Wastewater Flows
	X	Appendix E — Wastewater Hydraulic Modeling
X		Appendix F — Maps and Plans
X		A. Vicinity Map
X		B. Utility Map(s) provided by the Utilities Department
X		C. Site Development Plan
X		D. Water/Wastewater Utility Plan(s)

Notes/Comments: