

**FINAL UTILITY REPORT  
FOR  
MILLER'S LANDING AND NE PARCEL CASTLE MEADOWS  
CASTLE ROCK, CO  
PROJECT No. CDXX-XXXX**

**DEVELOPER:**

CCD Miller's Landing, LLC  
115 Wilcox St., #1624  
Castle Rock, CO 80104  
Phone: (847) 323-5277  
Contact: Scott Springer

**PREPARED BY:**



CORE CONSULTANTS, INC.  
3473 S BROADWAY  
ENGLEWOOD, CO 80113  
PHONE: 303-703-4444  
CONTACT: ROB HANSEN, PE  
CORE PROJECT NUMBER: 17-069

March 16, 2023

**APPROVAL BLOCKS**

**I. ENGINEER'S STATEMENT:**

The enclosed utility report, and exhibits, were prepared by me, or under my direct supervision, and are correct to the best of my knowledge and belief. Said preliminary 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, or any liability caused by negligent acts, errors, or omissions on my part in preparing this report.

\_\_\_\_\_  
Robert D. Hansen, PE, CFM  
Colorado Professional Engineer  
License #50417

**II. 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.

\_\_\_\_\_  
CCD MILLER'S LANDING, LLC

**III. TOWN OF CASTLE ROCK APPROVALS:**

\_\_\_\_\_  
UTILITIES DEPARTMENT

\_\_\_\_\_  
DATE

\_\_\_\_\_  
DEVELOPMENT SERVICES

\_\_\_\_\_  
DATE

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Vicinity Map

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Overall Utility Plan

Phasing Plan

Final Utility Report Checklist

# **I. PROJECT LOCATION AND DESCRIPTION**

The Miller's Landing and NE Parcel Castle Meadows project is located north of Plum Creek Parkway approximately 1,300 ft west of Interstate 25 (I-25) in Castle Rock, Colorado. The site is primarily within the Northeast Quarter (NE ¼) of Section 10 with a small portion in the Southeast Quarter (SE ¼) of Section 10 in Township 8 South, Range 67 West of the 6th P.M. in Douglas County, Colorado. The project is bounded to the north by an existing drainageway known as the Industrial Tributary. The Phillip S. Miller Park is located southwest of the project site and an existing industrial development is located to the north and northeast. Undeveloped land is located to the south of Plum Creek Parkway known as the Castle Meadow Planned Development. The project site that is being analyzed in this report are the Miller's Landing development (Lots 1-7) and the NE Parcel of Castle Meadows (Lot 8). A vicinity map for the site can be found in Appendix A. The existing land use onsite is undeveloped land, and the proposed land use is a mix of retail, commercial, office, multifamily, and two hotels, with associated landscaping, sidewalks, access roads, and parking lots.

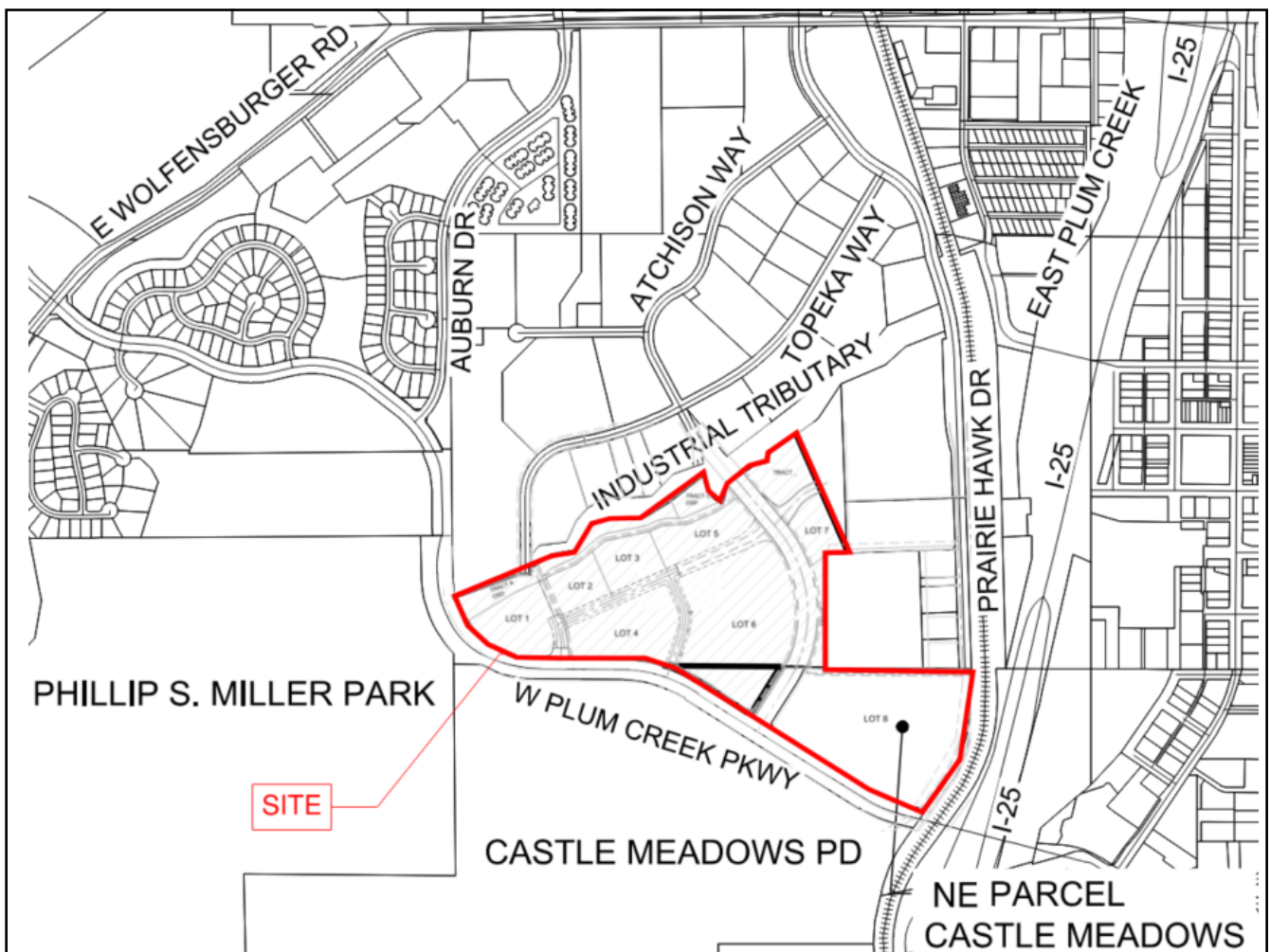


Figure 1: Vicinity Map (NTS)



## **II. CALCULATED WATER DEMANDS**

Water Demand Calculations can be found in Appendix A. Land use assumptions reflected assumed full build out conditions. Future final utility reports will be required with on lot vertical development.

## **III. EXISTING WATER SYSTEM**

There is an existing 16" water line in Plum Creek Parkway and a 12" water line in Topeka Way. These will be the connection points for the proposed system. Based on the proposed elevations within the site, this site will be served off water mains connected to the Blue Zone West. The Blue Zone serves a top elevation of 6399 and a low elevation of 6236. A maximum static hydraulic grade line (HGL) of 6523 is provided in the system. Elevations in the Miller's Landing and NE Parcel Castle Meadows area will vary between 6271 and 6361, with the higher elevations on the southern portion of the site.

The site is served by the Blue Zone West Tank 8 located at 1420 Coachline with a combined capacity of 3.13 MG.

The required storage needed for the Miller's Landing and NE Parcel Castle Meadows is based on the proposed demand and is calculated as follows:

| USE                           | TYP<br>ADD/UNIT<br>(GPD) | QUANTITY | UNITS | PEAKING<br>FACTOR | STORAGE<br>VOLUME<br>(GALLONS) |
|-------------------------------|--------------------------|----------|-------|-------------------|--------------------------------|
| Hotel                         | 75                       | 370      | ROOM  | 2.5               | 69,375                         |
| Retail/Office                 | 0.2                      | 616,467  | SF    | 2.5               | 308,234                        |
| Restaurant                    | 3                        | 62,534   | SF    | 2.5               | 469,005                        |
| Multifamily                   | 260                      | 960      | DU    | 2.5               | 624,000                        |
| Fire Flow                     | n/a                      | 2,000    | GPM   | 2 hours           | 240,000                        |
| <b>Total Storage Volume =</b> |                          |          |       |                   | <b>1,710,614</b>               |

## **IV. PROPOSED WATER SYSTEM**

The proposed water system will connect to the existing 16" main once in Plum Creek Parkway and to the existing 12" main in Topeka Way near FH2838. A 12" loop will also be added from the connection of the 16" line in Plum Creek Pkwy and will run north of the Industrial Tributary Channel and connect to the 12" main being installed in Topeka Way.

Easements will be provided for utilities which lie outside of the public right-of-way. These will be dedicated on the final plat. The site will not need any additional pump stations, etc. as part of the site development. The proposed water line will be accessible within the site, predominantly within the proposed roadways.

Fire Demand Criteria is based upon IFC 2018. For the purposes of this analysis, a fire flow of 2,000 gpm was used. Specific details of the future buildings is

unknown. Final utility reports will be required with vertical development of the proposed site.

#### **V. PROPOSED WATER SYSTEM ANALYSIS AND MODELING**

The Town of Castle Rock criteria requires the water distribution pipe system to deliver Maximum Day plus fire flows demand with a minimum dynamic pressure of 20 psi with one critical loop out of service and a maximum velocity of 15 fps, with a critical loop out of service. The Town also requires the system to deliver Peak Hour demands with a minimum residual pressure of 35 psi with one connecting loop out of service, and a maximum velocity of 10 fps under the same conditions. In addition, the minimum static pressure criteria (minimum storage tank level – 20% Full) is 43 psi and the maximum static pressure criteria (maximum storage tank level – 100% Full) is 125 psi.

The water system analysis was performed using version 2022 of the WaterCAD computer program developed by Bentley Systems, Inc. Water lines are sized to transport water during Average Day, Maximum Day, Maximum Day plus Fire Flow, and Peak Hour demand conditions in accordance with Town specifications.

Simulations of different flow models were completed and compared to the corresponding Town criteria. The simulations consisted of: Average Day, Maximum Day plus Fire with one loop out of service, and Peak Hour demands with one loop out of service. Minimum pressure requirements of 20 psi and 35 psi, and maximum velocity criteria of 15 fps and 10 fps were checked against the Maximum Day plus Fire and Peak Hour demands, respectively.

The configuration of the water distribution pipe system meets all Town of Castle Rock criteria based on the proposed development. It delivers Maximum Day plus fire flows demand with a minimum dynamic pressure of 20 psi, and Peak Hour demands with a minimum residual pressure of 35 psi. The full results of all scenarios can be found in Appendix C.

Each simulation contains two outputs: (1) Junction Report, which is used to check the water pressure in the model against the Town's criteria, and (2) Pipe Report, which is used to check velocities and head loss in the model against the Town's criteria.

**VI. CALCULATED WASTEWATER FLOWS**

No wastewater system is currently proposed for this area. For the existing sanitary line that serves the site, please refer to the Miller's Landing Overall Utility Report, CD19-0019.

**VII. PROPOSED WASTEWATER SYSTEM**

No wastewater system is currently proposed for this area. For the existing sanitary line that serves the site, please refer to the Miller's Landing Overall Utility Report, CD19-0019.

**VIII. PROPOSED WASTEWATER SYSTEM ANALYSIS AND MODELING**

No wastewater system is currently proposed for this area. For the existing sanitary line that serves the site, please refer to the Miller's Landing Overall Utility Report, CD19-0019.

**IX. POTENTIAL PERMITTING REQUIREMENTS**

Permits for the proposed development will be applied for through the Town of Castle Rock and the State of Colorado, where applicable. Permits will be in place prior to the start of construction.

**REFERENCES**

- A. Town of Castle Rock Water System Design Criteria Manual, December 4, 2018.
- B. Town of Castle Rock Wastewater Collection System Design Criteria Manual, December 4, 2018.
- C. Town of Castle Rock, 2010 Wastewater Master Plan Update, Town of Castle Rock, 2011.
- D. Town of Castle Rock, 2010 Water Master Plan Update, Town of Castle Rock, 2011.
- E. Miller's Landing Final Water and Wastewater Utility Report, CORE Consultants, CD19-0019, 2022.

## Computer Modeling Programs:

- A. WaterCAD by Bentley Systems, Inc., Version 2022.

## **APPENDIX A**

### **WATER DEMANDS**

#### WATER DEMAND CALCULATIONS

## WATER DEMAND CALCULATIONS

PROJECT NAME: Prairie Hawk Roadway Improvements Phases 1-3 and NE Parcel Castle Meadows  
 PROJECT NUMBER: 17-069  
 LOCATION: Castle Rock, CO  
 DATE: 1/27/2023  
 PREPARE BY: Jessica Kordziel

### AVERAGE DAY WATER USE

|             |     |          |
|-------------|-----|----------|
| MULTIFAMILY | 260 | GPD/DU   |
| OFFICE      | 0.2 | GPD/SF   |
| HOTEL       | 75  | GPD/ROOM |
| RESTAURANT  | 3   | GPD/SF   |
| RETAIL      | 0.2 | GPD/SF   |

### PEAKING FACTOR

|                      |     |
|----------------------|-----|
| MAX DAY : AVG. DAY   | 2.5 |
| PEAK HOUR : AVG. DAY | 5.5 |

### RESIDENTIAL DENSITY

|                                  |                   |
|----------------------------------|-------------------|
| SINGLE-FAMILY POPULATION DENSITY | 2.77 PERSONS/UNIT |
| MULTI-FAMILY POPULATION DENSITY  | 2.77 PERSONS/UNIT |

### FIRE FLOW

|                                     |                    |
|-------------------------------------|--------------------|
| RESIDENTIAL FIRE FLOW               | 2000 GPM FOR 2 HRS |
| COMMERCIAL / MULTI-FAMILY FIRE FLOW | 2000 GPM FOR 2 HRS |
| INDUSTRIAL (SCHOOL) FIRE FLOW       | 2000 GPM FOR 3 HRS |

| BASIN<br>(PLANNING<br>AREA) | LAND USE PER MASTER<br>PLAN | SF     | NUMBER OF<br>ROOMS OR<br>MF UNITS | AVERAGE<br>DAY WATER<br>USE | UNIT     | AVG. DAY<br>DEMAND<br>(GPD) | AVG. DAY<br>DEMAND<br>(GPM) | MAX DAY<br>DEMAND<br>(GPM) | PEAK HOUR<br>DEMAND<br>(GPM) | REQUIRED<br>FIRE FLOW<br>(GPM) | MAX DAY +<br>FIRE FLOW<br>DEMAND<br>(GPM) | WATERCAD<br>JUNCTION |
|-----------------------------|-----------------------------|--------|-----------------------------------|-----------------------------|----------|-----------------------------|-----------------------------|----------------------------|------------------------------|--------------------------------|-------------------------------------------|----------------------|
| Lot 1                       | HOTEL                       | NA     | 250                               | 75                          | GPD/ROOM | 18,750.0                    | 13.0                        | 32.6                       | 71.6                         | 2000.0                         | 2,032.6                                   |                      |
| Lot 1                       | OFFICE                      | 15000  | NA                                | 0.2                         | GPD/SF   | 3,000.0                     | 2.1                         | 5.2                        | 11.5                         | 0.0                            | 5.2                                       |                      |
| Lot 1                       | RETAIL                      | 5000   | NA                                | 0.2                         | GPD/SF   | 1,000.0                     | 0.7                         | 1.7                        | 3.8                          | 0.0                            | 1.7                                       |                      |
| <b>LOT 1 TOTAL</b>          |                             |        |                                   |                             |          | 22,750.0                    | 15.8                        | 39.5                       | 86.9                         | 2000.0                         | 2,039.5                                   | J-19                 |
| Lot 2                       | OFFICE                      | 90000  | NA                                | 0.2                         | GPD/SF   | 18,000.0                    | 12.5                        | 31.3                       | 68.8                         | 2000.0                         | 2,031.3                                   |                      |
| Lot 2                       | RETAIL                      | 14000  | NA                                | 0.2                         | GPD/SF   | 2,800.0                     | 1.9                         | 4.9                        | 10.7                         | 0.0                            | 4.9                                       |                      |
| <b>LOT 2 TOTAL</b>          |                             |        |                                   |                             |          | 20,800.0                    | 14.4                        | 36.1                       | 79.4                         | 2000.0                         | 2,036.1                                   | J-67                 |
| Lot 3                       | OFFICE                      | 80000  | NA                                | 0.2                         | GPD/SF   | 16,000.0                    | 11.1                        | 27.8                       | 61.1                         | 2000.0                         | 2,027.8                                   |                      |
| Lot 3                       | RETAIL                      | 12000  | NA                                | 0.2                         | GPD/SF   | 2,400.0                     | 1.7                         | 4.2                        | 9.2                          | 0.0                            | 4.2                                       |                      |
| <b>LOT 3 TOTAL</b>          |                             |        |                                   |                             |          | 18,400.0                    | 12.8                        | 31.9                       | 70.3                         | 2000.0                         | 2031.9                                    | J-13                 |
| Lot 4                       | RETAIL                      | 51600  | NA                                | 0.2                         | GPD/SF   | 10,320.0                    | 7.2                         | 17.9                       | 39.4                         | 2000.0                         | 2,017.9                                   |                      |
| Lot 4                       | RESTAURANT                  | 25800  | NA                                | 3                           | GPD/SF   | 77,400.0                    | 53.8                        | 134.4                      | 295.6                        | 0.0                            | 134.4                                     |                      |
| <b>LOT 4 TOTAL</b>          |                             |        |                                   |                             |          | 87,720.0                    | 60.9                        | 152.3                      | 335.0                        | 2000.0                         | 2,152.3                                   | J-15                 |
| Lot 5                       | OFFICE                      | 160000 | NA                                | 0.2                         | GPD/SF   | 32,000.0                    | 22.2                        | 55.6                       | 122.2                        | 2000.0                         | 2,055.6                                   |                      |
| Lot 5                       | RETAIL                      | 20200  | NA                                | 0.2                         | GPD/SF   | 4,040.0                     | 2.8                         | 7.0                        | 15.4                         | 0.0                            | 7.0                                       |                      |
| <b>LOT 5 TOTAL</b>          |                             |        |                                   |                             |          | 36,040.0                    | 25.0                        | 62.6                       | 137.7                        | 2000.0                         | 2,062.6                                   | J-17                 |
| Lot 6                       | RETAIL                      | 73467  | NA                                | 0.2                         | GPD/SF   | 14,693.3                    | 10.2                        | 25.5                       | 56.1                         | 2000.0                         | 2,025.5                                   |                      |
| Lot 6                       | RESTAURANT                  | 36733  | NA                                | 3                           | GPD/SF   | 110,200.0                   | 76.5                        | 191.3                      | 420.9                        | 0.0                            | 191.3                                     |                      |
| <b>LOT 6 TOTAL</b>          |                             |        |                                   |                             |          | 124,893.3                   | 86.7                        | 216.8                      | 477.0                        | 2000.0                         | 2,216.8                                   | J-16                 |
| Lot 7                       | HOTEL                       | NA     | 120                               | 75                          | GPD/ROOM | 9,000.0                     | 6.3                         | 15.6                       | 34.4                         | 2000.0                         | 2,015.6                                   |                      |
| <b>LOT 7 TOTAL</b>          |                             |        |                                   |                             |          | 9,000.0                     | 6.3                         | 15.6                       | 34.4                         | 2000.0                         | 2,015.6                                   | J-65                 |
| Lot 8 CM                    | MULTIFAMILY                 | NA     | 960                               | 260                         | GPD/DU   | 249,600.0                   | 173.3                       | 433.3                      | 953.3                        | 2000.0                         | 2,433.3                                   |                      |
| Lot 8 CM                    | OFFICE                      | 35000  | NA                                | 0.2                         | GPD/SF   | 7,000.0                     | 4.9                         | 12.2                       | 26.7                         | 0.0                            | 12.2                                      |                      |
| Lot 8 CM                    | RETAIL                      | 60200  | NA                                | 0.2                         | GPD/SF   | 12,040.0                    | 8.4                         | 20.9                       | 46.0                         | 0.0                            | 20.9                                      |                      |
| <b>LOT 8 CM TOTAL</b>       |                             |        |                                   |                             |          | 268,640.0                   | 186.6                       | 466.4                      | 1026.1                       | 2000.0                         | 2,466.4                                   | J-68                 |
| <b>OVERALL TOTAL</b>        |                             |        |                                   |                             |          | 588,243.3                   | 409                         | 1,021                      | 2,247                        |                                |                                           |                      |



July 22, 2019

Town of Castle Rock Fire Department  
300 Perry Street  
Castle Rock, CO 80104

**RE: Fire Flow Memo – Miller's Landing Phase 1**

To whom it may concern,

The intent of this letter is to inform the Town of Castle Rock Fire Department that Phase 1 (lots 1-4) of Miller's Landing has been proposed to be developed. Phase 1 consist of roadway and infrastructure only, no vertical construction will take place at this time. The system has been looped by tying into an existing 16" waterline located in Plum Creek Parkway and an existing 12" waterline located in Topeka Way near FH2838. Lot 1 is planned to be a future hotel and conference center. Per 2012 IFC with fire sprinkler suppression system it is our understanding that the maximum fire flow is 4,000 gpm. The utility report for Phase 1 accounts for a 4,000 gpm fire flow. All future development of the site will be required to meet the fire flows required by the 2012 International Fire Code and submit a separate fire memo for review.

Sincerely,

**CORE Consultants Inc.**

Robert Hansen, PE  
Project Manager

Maximum Flow Required:  
8,000 gpm for 4-hours @ 20 psi  
Minimum flow with maximum Type V-B  
building, fire sprinkler protected: 2,000  
gpm for 2-hours @ 20 psi

CASTLE ROCK FIRE AND RESCUE DEPARTMENT APPROVAL BLOCK

REQUIRED FIRE FLOW: Min. 2,000 gpm @ 20 psi

REQUIRED DURATION: Min. 2-hours

CASTLE ROCK FIRE AND RESCUE DEPARTMENT SIGNATURE: \_\_\_\_\_

A handwritten signature in blue ink, appearing to read 'Brian D. Arnold', is written over a horizontal line.

### 4.4.1.1 Water System Average Daily Demands (ADD)

Notes: (1) All tabulated ADD rates include irrigation demands with exception of car washes and schools. (2) Irrigation demands shall be in accordance with the Irrigation Plan approved by the Utilities Department and hours of irrigation shall comply with the latest edition of the Town's Water Use Management Plan. Irrigation demands in this Table are for planning purposes only. Peak irrigation rates for 'Irrigated Land' and 'School Irrigation' categories tabulated above shall be in accordance with the approved Irrigation Plan, and shall not be based on the peaking factors identified in the Section below. (3) The "Irrigated Land" rate identified above may be higher for active sports fields (e.g., irrigated fields within parks) as determined by the approved Irrigation Plan. (4) School sizes in this Table are for planning purposes per Douglas County School District. Regarding design flows for schools, planned school sizes shall be confirmed with the Douglas County School District and documented in the Utility Report. The tabulated rates shown above shall be applied as appropriate, depending on the information provided by the School District. (5) Reasonable engineering judgment shall be used in determining the estimated ADD for commercial, industrial and institutional sites. Individual evaluation and justification, including fixture unit counts, shall be provided when the proposed use is not specifically represented in the table above, or when the proposed demands will be inconsistent with the tabulated values. For example, each car wash's unique operating plan, including recycling of wash water, shall be considered. Justification of all non-residential demands shall be addressed in the Utility Report.

### 4.4.1.2 Demand Factors

Once the ADD has been computed in accordance with the Demand Rates tabulated above, Maximum Day Demands (MDD) and Peak Hour Demands (PHD) shall be computed by multiplying the ADD by the following factors:

|                                        |     |         |
|----------------------------------------|-----|---------|
| Maximum Day Demand/Average Day Demand: | 2.5 | MDD/ADD |
| Peak Hour Demand/Average Day Demand:   | 5.5 | PHD/ADD |

Peaking factors are not applied to irrigation ADD demands. Peak Hour Demand is calculated by multiplying the ADD demand by the Peak Hour Demand factor. If the site's irrigation demands are calculated using Table 4.4.1.1, the irrigation ADD is added to the calculated PHD computed as follows:

$$\text{PHD} = \text{Domestic ADD} \times \text{Peak Hour Factor} + \text{Irrigation ADD}$$

### 4.4.1.3 Fire Flows

Fire flows shall conform to the latest edition of the International Fire Code (IFC). A 50% reduction in required fire flow may be allowed for approved residential sprinkler systems, and a 75% reduction may be allowed for approved commercial sprinkler systems at the discretion of the Town of Castle Rock Fire Chief.



## **APPENDIX B**

### **WATER STORAGE**

#### STORAGE CALCULATIONS – DOMESTIC

MILLER'S LANDING  
STORAGE CALCULTATIONS

CORE # 17-069  
01/25/2023  
JNK

| USE           | TYP<br>ADD/UNIT<br>(GPD) | QUANTITY                      | UNITS | PEAKING<br>FACTOR | STORAGE<br>VOLUME<br>(GALLONS) |
|---------------|--------------------------|-------------------------------|-------|-------------------|--------------------------------|
| Hotel         | 75                       | 370                           | ROOMS | 2.5               | 69,375                         |
| Retail/Office | 0.2                      | 616,467                       | SF    | 2.5               | 308,234                        |
| Restaurant    | 3                        | 62,534                        | SF    | 2.5               | 469,005                        |
| Multifamily   | 260                      | 960                           | DU    | 2.5               | 624,000                        |
| Fire Flow     | n/a                      | 2,000                         | GPM   | 2 hours           | 240,000                        |
|               |                          | <b>Total Storage Volume =</b> |       |                   | 1,710,614                      |

## **APPENDIX C**

### **WATER HYDRAULIC ANALYSIS AND MODELING**

STATIC CONDITIONS ANALYSIS

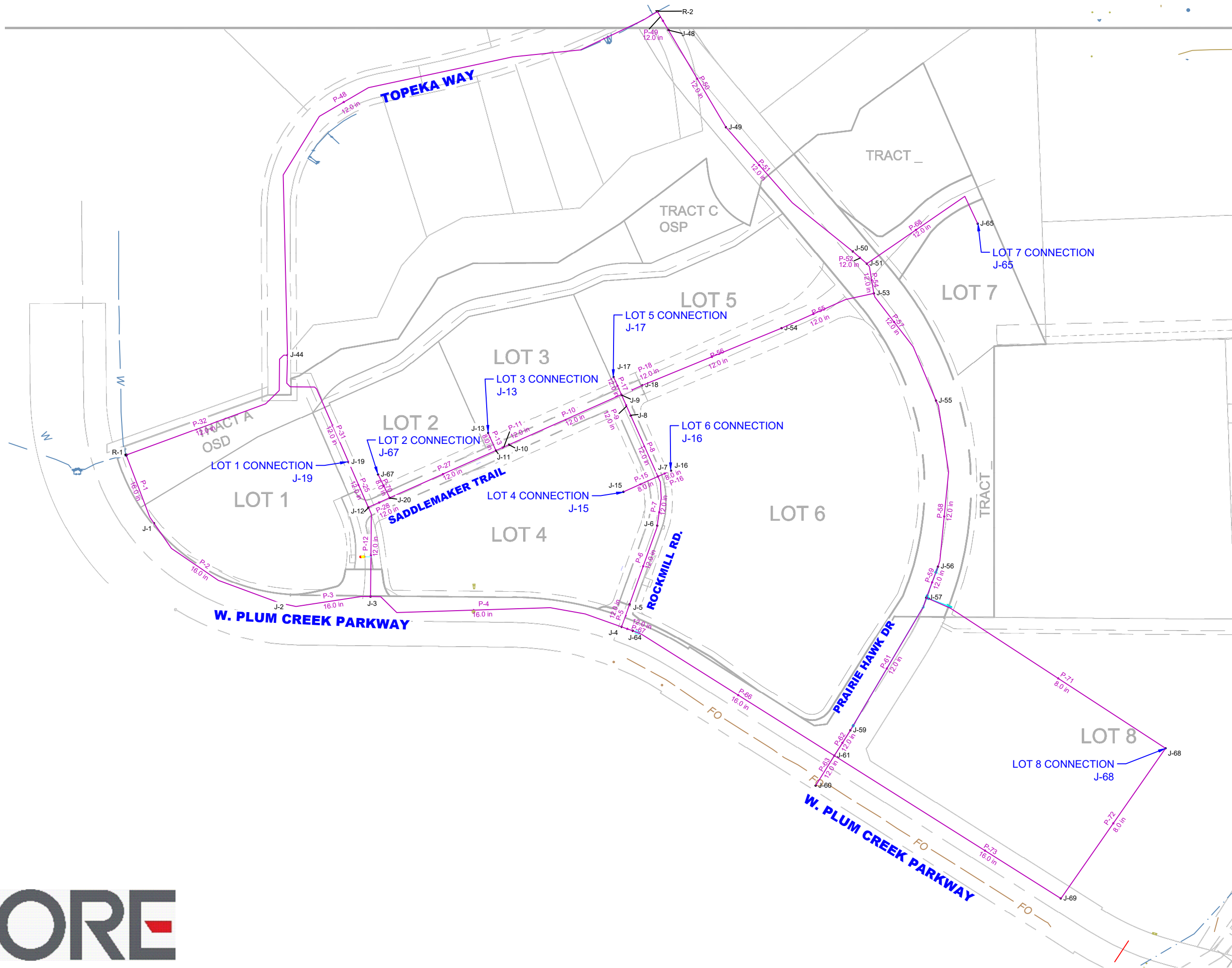
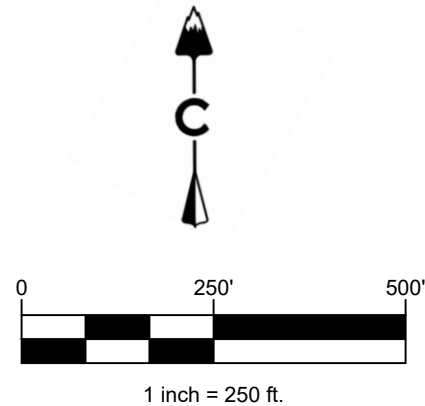
AVERAGE DAY ANALYSIS

MAX DAY ANALYSIS

PEAK HOUR ANALYSIS

MAX DAY PLUS FIRE FLOW ANALYSIS W/ LOOP CLOSED

PEAK HOUR ANALYSIS W/ ONE LOOP CLOSED



**WATERCAD  
OVERALL  
LAYOUT  
MAP**

All Scenarios  
RESERVOIR TABLE

| ID | Label | Elevation<br>(ft) | Zone   | Flow (Out net)<br>(gpm) | Hydraulic Grade<br>(ft) |
|----|-------|-------------------|--------|-------------------------|-------------------------|
| 74 | R-1   | 6,504.00          | <None> | 262                     | 6,504.00                |
| 89 | R-2   | 6,504.00          | <None> | 146                     | 6,504.00                |

100% STATIC

Junction Table - Time: 0.00 hours

| Label | Elevation<br>(ft) | Demand<br>(gpm) | Hydraulic Grade<br>(ft) | Pressure<br>(psi) | Pressure Head<br>(ft) |
|-------|-------------------|-----------------|-------------------------|-------------------|-----------------------|
| J-1   | 6,351.51          | 0               | 6,523.00                | 74                | 171.49                |
| J-2   | 6,347.42          | 0               | 6,523.00                | 76                | 175.58                |
| J-3   | 6,342.16          | 0               | 6,523.00                | 78                | 180.84                |
| J-19  | 6,337.95          | 0               | 6,523.00                | 80                | 185.05                |
| J-67  | 6,337.00          | 0               | 6,523.00                | 80                | 186.00                |
| J-12  | 6,335.65          | 0               | 6,523.00                | 81                | 187.35                |
| J-20  | 6,335.03          | 0               | 6,523.00                | 81                | 187.97                |
| J-11  | 6,332.02          | 0               | 6,523.00                | 83                | 190.98                |
| J-44  | 6,328.22          | 0               | 6,523.00                | 84                | 194.78                |
| J-13  | 6,322.84          | 0               | 6,523.00                | 87                | 200.16                |
| J-6   | 6,321.71          | 0               | 6,523.00                | 87                | 201.29                |
| J-8   | 6,321.71          | 0               | 6,523.00                | 87                | 201.29                |
| J-10  | 6,321.71          | 0               | 6,523.00                | 87                | 201.29                |
| J-15  | 6,315.06          | 0               | 6,523.00                | 90                | 207.94                |
| J-7   | 6,313.84          | 0               | 6,523.00                | 90                | 209.16                |
| J-68  | 6,291.32          | 0               | 6,523.00                | 100               | 231.68                |
| J-16  | 6,311.71          | 0               | 6,523.00                | 91                | 211.29                |
| J-5   | 6,310.34          | 0               | 6,523.00                | 92                | 212.66                |
| J-4   | 6,310.14          | 0               | 6,523.00                | 92                | 212.86                |
| J-9   | 6,310.75          | 0               | 6,523.00                | 92                | 212.25                |
| J-17  | 6,310.57          | 0               | 6,523.00                | 92                | 212.43                |
| J-18  | 6,310.07          | 0               | 6,523.00                | 92                | 212.93                |
| J-64  | 6,304.57          | 0               | 6,523.00                | 95                | 218.43                |
| J-55  | 6,300.76          | 0               | 6,523.00                | 96                | 222.24                |
| J-54  | 6,293.16          | 0               | 6,523.00                | 99                | 229.84                |
| J-56  | 6,290.72          | 0               | 6,523.00                | 100               | 232.28                |
| J-53  | 6,291.63          | 0               | 6,523.00                | 100               | 231.37                |
| J-51  | 6,289.42          | 0               | 6,523.00                | 101               | 233.58                |
| J-57  | 6,286.62          | 0               | 6,523.00                | 102               | 236.38                |
| J-50  | 6,288.27          | 0               | 6,523.00                | 102               | 234.73                |
| J-65  | 6,286.46          | 0               | 6,523.00                | 102               | 236.54                |
| J-59  | 6,283.50          | 0               | 6,523.00                | 104               | 239.50                |
| J-60  | 6,282.30          | 0               | 6,523.00                | 104               | 240.70                |
| J-61  | 6,281.71          | 0               | 6,523.00                | 104               | 241.29                |
| J-48  | 6,274.80          | 0               | 6,523.00                | 107               | 248.20                |
| J-69  | 6,254.25          | 0               | 6,523.00                | 116               | 268.75                |
| J-49  | 6,259.12          | 0               | 6,523.00                | 114               | 263.88                |

100% STATIC

Pipe Table - Time: 0.00 hours

| Label | Start Node | Stop Node | Diameter<br>(in) | Material | Hazen-Williams C | Flow<br>(gpm) | Velocity<br>(ft/s) | Headloss<br>(ft) | Is Open? | Pressure (Start)<br>(psi) | Pressure (Stop)<br>(psi) |
|-------|------------|-----------|------------------|----------|------------------|---------------|--------------------|------------------|----------|---------------------------|--------------------------|
| P-1   | R-1        | J-1       | 16.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 0                         | 74                       |
| P-2   | J-1        | J-2       | 16.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 74                        | 76                       |
| P-3   | J-2        | J-3       | 16.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 76                        | 78                       |
| P-4   | J-3        | J-4       | 16.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 78                        | 92                       |
| P-5   | J-4        | J-5       | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 92                        | 92                       |
| P-6   | J-5        | J-6       | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 92                        | 87                       |
| P-7   | J-6        | J-7       | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 87                        | 90                       |
| P-8   | J-7        | J-8       | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 90                        | 87                       |
| P-9   | J-8        | J-9       | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 87                        | 92                       |
| P-10  | J-9        | J-10      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 92                        | 87                       |
| P-11  | J-10       | J-11      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 87                        | 83                       |
| P-12  | J-12       | J-3       | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 81                        | 78                       |
| P-13  | J-11       | J-13      | 8.0              | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 83                        | 87                       |
| P-15  | J-15       | J-7       | 8.0              | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 90                        | 90                       |
| P-16  | J-7        | J-16      | 8.0              | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 90                        | 91                       |
| P-17  | J-17       | J-9       | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 92                        | 92                       |
| P-18  | J-9        | J-18      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 92                        | 92                       |
| P-25  | J-12       | J-19      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 81                        | 80                       |
| P-27  | J-11       | J-20      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 83                        | 81                       |
| P-28  | J-20       | J-12      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 81                        | 81                       |
| P-31  | J-44       | J-19      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 84                        | 80                       |
| P-32  | R-1        | J-44      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 0                         | 84                       |
| P-48  | J-44       | R-2       | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 84                        | 0                        |
| P-49  | R-2        | J-48      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 0                         | 107                      |
| P-50  | J-48       | J-49      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 107                       | 114                      |
| P-51  | J-49       | J-50      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 114                       | 102                      |
| P-52  | J-50       | J-51      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 102                       | 101                      |
| P-54  | J-51       | J-53      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 101                       | 100                      |
| P-55  | J-53       | J-54      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 100                       | 99                       |
| P-56  | J-54       | J-18      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 99                        | 92                       |
| P-57  | J-53       | J-55      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 100                       | 96                       |
| P-58  | J-55       | J-56      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 96                        | 100                      |
| P-59  | J-56       | J-57      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 100                       | 102                      |
| P-61  | J-57       | J-59      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 102                       | 104                      |
| P-62  | J-59       | J-61      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 104                       | 104                      |
| P-63  | J-61       | J-60      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 104                       | 104                      |
| P-66  | J-61       | J-64      | 16.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 104                       | 95                       |
| P-67  | J-64       | J-4       | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 95                        | 92                       |
| P-68  | J-51       | J-65      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 101                       | 102                      |
| P-70  | J-20       | J-67      | 8.0              | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 81                        | 80                       |
| P-71  | J-57       | J-68      | 8.0              | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 102                       | 100                      |
| P-72  | J-68       | J-69      | 8.0              | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 100                       | 116                      |
| P-73  | J-69       | J-61      | 16.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 116                       | 104                      |

20% STATIC

Junction Table - Time: 0.00 hours

| Label | Elevation<br>(ft) | Demand<br>(gpm) | Hydraulic Grade<br>(ft) | Pressure<br>(psi) | Pressure Head<br>(ft) |
|-------|-------------------|-----------------|-------------------------|-------------------|-----------------------|
| J-1   | 6,351.51          | 0               | 6,504.00                | 66                | 152.49                |
| J-2   | 6,347.42          | 0               | 6,504.00                | 68                | 156.58                |
| J-3   | 6,342.16          | 0               | 6,504.00                | 70                | 161.84                |
| J-19  | 6,337.95          | 0               | 6,504.00                | 72                | 166.05                |
| J-67  | 6,337.00          | 0               | 6,504.00                | 72                | 167.00                |
| J-12  | 6,335.65          | 0               | 6,504.00                | 73                | 168.35                |
| J-20  | 6,335.03          | 0               | 6,504.00                | 73                | 168.97                |
| J-11  | 6,332.02          | 0               | 6,504.00                | 74                | 171.98                |
| J-44  | 6,328.22          | 0               | 6,504.00                | 76                | 175.78                |
| J-13  | 6,322.84          | 0               | 6,504.00                | 78                | 181.16                |
| J-6   | 6,321.71          | 0               | 6,504.00                | 79                | 182.29                |
| J-8   | 6,321.71          | 0               | 6,504.00                | 79                | 182.29                |
| J-10  | 6,321.71          | 0               | 6,504.00                | 79                | 182.29                |
| J-15  | 6,315.06          | 0               | 6,504.00                | 82                | 188.94                |
| J-7   | 6,313.84          | 0               | 6,504.00                | 82                | 190.16                |
| J-68  | 6,291.32          | 0               | 6,504.00                | 92                | 212.68                |
| J-16  | 6,311.71          | 0               | 6,504.00                | 83                | 192.29                |
| J-5   | 6,310.34          | 0               | 6,504.00                | 84                | 193.66                |
| J-4   | 6,310.14          | 0               | 6,504.00                | 84                | 193.86                |
| J-9   | 6,310.75          | 0               | 6,504.00                | 84                | 193.25                |
| J-17  | 6,310.57          | 0               | 6,504.00                | 84                | 193.43                |
| J-18  | 6,310.07          | 0               | 6,504.00                | 84                | 193.93                |
| J-64  | 6,304.57          | 0               | 6,504.00                | 86                | 199.43                |
| J-55  | 6,300.76          | 0               | 6,504.00                | 88                | 203.24                |
| J-54  | 6,293.16          | 0               | 6,504.00                | 91                | 210.84                |
| J-56  | 6,290.72          | 0               | 6,504.00                | 92                | 213.28                |
| J-53  | 6,291.63          | 0               | 6,504.00                | 92                | 212.37                |
| J-51  | 6,289.42          | 0               | 6,504.00                | 93                | 214.58                |
| J-57  | 6,286.62          | 0               | 6,504.00                | 94                | 217.38                |
| J-50  | 6,288.27          | 0               | 6,504.00                | 93                | 215.73                |
| J-65  | 6,286.46          | 0               | 6,504.00                | 94                | 217.54                |
| J-59  | 6,283.50          | 0               | 6,504.00                | 95                | 220.50                |
| J-60  | 6,282.30          | 0               | 6,504.00                | 96                | 221.70                |
| J-61  | 6,281.71          | 0               | 6,504.00                | 96                | 222.29                |
| J-48  | 6,274.80          | 0               | 6,504.00                | 99                | 229.20                |
| J-69  | 6,254.25          | 0               | 6,504.00                | 108               | 249.75                |
| J-49  | 6,259.12          | 0               | 6,504.00                | 106               | 244.88                |



20% STATIC

Pipe Table - Time: 0.00 hours

| Label | Start Node | Stop Node | Diameter<br>(in) | Material | Hazen-Williams C | Flow<br>(gpm) | Velocity<br>(ft/s) | Headloss<br>(ft) | Is Open? | Pressure (Start)<br>(psi) | Pressure (Stop)<br>(psi) |
|-------|------------|-----------|------------------|----------|------------------|---------------|--------------------|------------------|----------|---------------------------|--------------------------|
| P-1   | R-1        | J-1       | 16.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 0                         | 66                       |
| P-2   | J-1        | J-2       | 16.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 66                        | 68                       |
| P-3   | J-2        | J-3       | 16.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 68                        | 70                       |
| P-4   | J-3        | J-4       | 16.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 70                        | 84                       |
| P-5   | J-4        | J-5       | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 84                        | 84                       |
| P-6   | J-5        | J-6       | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 84                        | 79                       |
| P-7   | J-6        | J-7       | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 79                        | 82                       |
| P-8   | J-7        | J-8       | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 82                        | 79                       |
| P-9   | J-8        | J-9       | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 79                        | 84                       |
| P-10  | J-9        | J-10      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 84                        | 79                       |
| P-11  | J-10       | J-11      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 79                        | 74                       |
| P-12  | J-12       | J-3       | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 73                        | 70                       |
| P-13  | J-11       | J-13      | 8.0              | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 74                        | 78                       |
| P-15  | J-15       | J-7       | 8.0              | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 82                        | 82                       |
| P-16  | J-7        | J-16      | 8.0              | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 82                        | 83                       |
| P-17  | J-17       | J-9       | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 84                        | 84                       |
| P-18  | J-9        | J-18      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 84                        | 84                       |
| P-25  | J-12       | J-19      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 73                        | 72                       |
| P-27  | J-11       | J-20      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 74                        | 73                       |
| P-28  | J-20       | J-12      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 73                        | 73                       |
| P-31  | J-44       | J-19      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 76                        | 72                       |
| P-32  | R-1        | J-44      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 0                         | 76                       |
| P-48  | J-44       | R-2       | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 76                        | 0                        |
| P-49  | R-2        | J-48      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 0                         | 99                       |
| P-50  | J-48       | J-49      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 99                        | 106                      |
| P-51  | J-49       | J-50      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 106                       | 93                       |
| P-52  | J-50       | J-51      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 93                        | 93                       |
| P-54  | J-51       | J-53      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 93                        | 92                       |
| P-55  | J-53       | J-54      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 92                        | 91                       |
| P-56  | J-54       | J-18      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 91                        | 84                       |
| P-57  | J-53       | J-55      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 92                        | 88                       |
| P-58  | J-55       | J-56      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 88                        | 92                       |
| P-59  | J-56       | J-57      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 92                        | 94                       |
| P-61  | J-57       | J-59      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 94                        | 95                       |
| P-62  | J-59       | J-61      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 95                        | 96                       |
| P-63  | J-61       | J-60      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 96                        | 96                       |
| P-66  | J-61       | J-64      | 16.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 96                        | 86                       |
| P-67  | J-64       | J-4       | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 86                        | 84                       |
| P-68  | J-51       | J-65      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 93                        | 94                       |
| P-70  | J-20       | J-67      | 8.0              | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 73                        | 72                       |
| P-71  | J-57       | J-68      | 8.0              | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 94                        | 92                       |
| P-72  | J-68       | J-69      | 8.0              | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 92                        | 108                      |
| P-73  | J-69       | J-61      | 16.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 108                       | 96                       |

20% ADD

Junction Table - Time: 0.00 hours

| Label | Elevation<br>(ft) | Demand<br>(gpm) | Hydraulic Grade<br>(ft) | Pressure<br>(psi) | Pressure Head<br>(ft) |
|-------|-------------------|-----------------|-------------------------|-------------------|-----------------------|
| J-1   | 6,351.51          | 0               | 6,503.99                | 66                | 152.48                |
| J-2   | 6,347.42          | 0               | 6,503.98                | 68                | 156.56                |
| J-3   | 6,342.16          | 0               | 6,503.97                | 70                | 161.81                |
| J-19  | 6,337.95          | 16              | 6,503.97                | 72                | 166.02                |
| J-67  | 6,337.00          | 14              | 6,503.97                | 72                | 166.97                |
| J-12  | 6,335.65          | 0               | 6,503.97                | 73                | 168.32                |
| J-20  | 6,335.03          | 0               | 6,503.97                | 73                | 168.94                |
| J-11  | 6,332.02          | 0               | 6,503.96                | 74                | 171.94                |
| J-44  | 6,328.22          | 0               | 6,503.99                | 76                | 175.77                |
| J-13  | 6,322.84          | 13              | 6,503.96                | 78                | 181.12                |
| J-6   | 6,321.71          | 0               | 6,503.94                | 79                | 182.23                |
| J-8   | 6,321.71          | 0               | 6,503.95                | 79                | 182.24                |
| J-10  | 6,321.71          | 0               | 6,503.96                | 79                | 182.25                |
| J-15  | 6,315.06          | 61              | 6,503.93                | 82                | 188.87                |
| J-7   | 6,313.84          | 0               | 6,503.94                | 82                | 190.10                |
| J-68  | 6,291.32          | 187             | 6,503.77                | 92                | 212.45                |
| J-16  | 6,311.71          | 87              | 6,503.93                | 83                | 192.22                |
| J-5   | 6,310.34          | 0               | 6,503.95                | 84                | 193.61                |
| J-4   | 6,310.14          | 0               | 6,503.95                | 84                | 193.81                |
| J-9   | 6,310.75          | 0               | 6,503.95                | 84                | 193.20                |
| J-17  | 6,310.57          | 25              | 6,503.95                | 84                | 193.38                |
| J-18  | 6,310.07          | 0               | 6,503.95                | 84                | 193.88                |
| J-64  | 6,304.57          | 0               | 6,503.95                | 86                | 199.38                |
| J-55  | 6,300.76          | 0               | 6,503.95                | 88                | 203.19                |
| J-54  | 6,293.16          | 0               | 6,503.95                | 91                | 210.79                |
| J-56  | 6,290.72          | 0               | 6,503.94                | 92                | 213.22                |
| J-53  | 6,291.63          | 0               | 6,503.95                | 92                | 212.32                |
| J-51  | 6,289.42          | 0               | 6,503.96                | 93                | 214.54                |
| J-57  | 6,286.62          | 0               | 6,503.94                | 94                | 217.32                |
| J-50  | 6,288.27          | 0               | 6,503.96                | 93                | 215.69                |
| J-65  | 6,286.46          | 6               | 6,503.96                | 94                | 217.50                |
| J-59  | 6,283.50          | 0               | 6,503.94                | 95                | 220.44                |
| J-60  | 6,282.30          | 0               | 6,503.94                | 96                | 221.64                |
| J-61  | 6,281.71          | 0               | 6,503.94                | 96                | 222.23                |
| J-48  | 6,274.80          | 0               | 6,504.00                | 99                | 229.20                |
| J-69  | 6,254.25          | 0               | 6,503.93                | 108               | 249.68                |
| J-49  | 6,259.12          | 0               | 6,503.98                | 106               | 244.86                |

20% ADD

Pipe Table - Time: 0.00 hours

| Label | Start Node | Stop Node | Diameter<br>(in) | Material | Hazen-Williams C | Flow<br>(gpm) | Velocity<br>(ft/s) | Headloss<br>(ft) | Is Open? | Pressure (Start)<br>(psi) | Pressure (Stop)<br>(psi) |
|-------|------------|-----------|------------------|----------|------------------|---------------|--------------------|------------------|----------|---------------------------|--------------------------|
| P-1   | R-1        | J-1       | 16.0             | PVC      | 120.0            | 197           | 0.31               | 0.01             | True     | 0                         | 66                       |
| P-2   | J-1        | J-2       | 16.0             | PVC      | 120.0            | 197           | 0.31               | 0.02             | True     | 66                        | 68                       |
| P-3   | J-2        | J-3       | 16.0             | PVC      | 120.0            | 197           | 0.31               | 0.01             | True     | 68                        | 70                       |
| P-4   | J-3        | J-4       | 16.0             | PVC      | 120.0            | 183           | 0.29               | 0.02             | True     | 70                        | 84                       |
| P-5   | J-4        | J-5       | 12.0             | PVC      | 120.0            | 62            | 0.18               | 0.00             | True     | 84                        | 84                       |
| P-6   | J-5        | J-6       | 12.0             | PVC      | 120.0            | 62            | 0.18               | 0.00             | True     | 84                        | 79                       |
| P-7   | J-6        | J-7       | 12.0             | PVC      | 120.0            | 62            | 0.18               | 0.00             | True     | 79                        | 82                       |
| P-8   | J-7        | J-8       | 12.0             | PVC      | 120.0            | -86           | 0.24               | 0.01             | True     | 82                        | 79                       |
| P-9   | J-8        | J-9       | 12.0             | PVC      | 120.0            | -86           | 0.24               | 0.00             | True     | 79                        | 84                       |
| P-10  | J-9        | J-10      | 12.0             | PVC      | 120.0            | -74           | 0.21               | 0.01             | True     | 84                        | 79                       |
| P-11  | J-10       | J-11      | 12.0             | PVC      | 120.0            | -74           | 0.21               | 0.00             | True     | 79                        | 74                       |
| P-12  | J-12       | J-3       | 12.0             | PVC      | 120.0            | -15           | 0.04               | 0.00             | True     | 73                        | 70                       |
| P-13  | J-11       | J-13      | 8.0              | PVC      | 120.0            | 13            | 0.08               | 0.00             | True     | 74                        | 78                       |
| P-15  | J-15       | J-7       | 8.0              | PVC      | 120.0            | -61           | 0.39               | 0.01             | True     | 82                        | 82                       |
| P-16  | J-7        | J-16      | 8.0              | PVC      | 120.0            | 87            | 0.56               | 0.01             | True     | 82                        | 83                       |
| P-17  | J-17       | J-9       | 12.0             | PVC      | 120.0            | -25           | 0.07               | 0.00             | True     | 84                        | 84                       |
| P-18  | J-9        | J-18      | 12.0             | PVC      | 120.0            | -37           | 0.11               | 0.00             | True     | 84                        | 84                       |
| P-25  | J-12       | J-19      | 12.0             | PVC      | 120.0            | -86           | 0.24               | 0.00             | True     | 73                        | 72                       |
| P-27  | J-11       | J-20      | 12.0             | PVC      | 120.0            | -86           | 0.25               | 0.01             | True     | 74                        | 73                       |
| P-28  | J-20       | J-12      | 12.0             | PVC      | 120.0            | -101          | 0.29               | 0.00             | True     | 73                        | 73                       |
| P-31  | J-44       | J-19      | 12.0             | PVC      | 120.0            | 102           | 0.29               | 0.02             | True     | 76                        | 72                       |
| P-32  | R-1        | J-44      | 12.0             | PVC      | 120.0            | 65            | 0.19               | 0.01             | True     | 0                         | 76                       |
| P-48  | J-44       | R-2       | 12.0             | PVC      | 120.0            | -37           | 0.10               | 0.01             | True     | 76                        | 0                        |
| P-49  | R-2        | J-48      | 12.0             | PVC      | 120.0            | 110           | 0.31               | 0.00             | True     | 0                         | 99                       |
| P-50  | J-48       | J-49      | 12.0             | PVC      | 120.0            | 110           | 0.31               | 0.01             | True     | 99                        | 106                      |
| P-51  | J-49       | J-50      | 12.0             | PVC      | 120.0            | 110           | 0.31               | 0.02             | True     | 106                       | 93                       |
| P-52  | J-50       | J-51      | 12.0             | PVC      | 120.0            | 110           | 0.31               | 0.00             | True     | 93                        | 93                       |
| P-54  | J-51       | J-53      | 12.0             | PVC      | 120.0            | 103           | 0.29               | 0.00             | True     | 93                        | 92                       |
| P-55  | J-53       | J-54      | 12.0             | PVC      | 120.0            | 37            | 0.11               | 0.00             | True     | 92                        | 91                       |
| P-56  | J-54       | J-18      | 12.0             | PVC      | 120.0            | 37            | 0.11               | 0.00             | True     | 91                        | 84                       |
| P-57  | J-53       | J-55      | 12.0             | PVC      | 120.0            | 66            | 0.19               | 0.01             | True     | 92                        | 88                       |
| P-58  | J-55       | J-56      | 12.0             | PVC      | 120.0            | 66            | 0.19               | 0.01             | True     | 88                        | 92                       |
| P-59  | J-56       | J-57      | 12.0             | PVC      | 120.0            | 66            | 0.19               | 0.00             | True     | 92                        | 94                       |
| P-61  | J-57       | J-59      | 12.0             | PVC      | 120.0            | -17           | 0.05               | 0.00             | True     | 94                        | 95                       |
| P-62  | J-59       | J-61      | 12.0             | PVC      | 120.0            | -17           | 0.05               | 0.00             | True     | 95                        | 96                       |
| P-63  | J-61       | J-60      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 96                        | 96                       |
| P-66  | J-61       | J-64      | 16.0             | PVC      | 120.0            | -120          | 0.19               | 0.01             | True     | 96                        | 86                       |
| P-67  | J-64       | J-4       | 12.0             | PVC      | 120.0            | -120          | 0.34               | 0.00             | True     | 86                        | 84                       |
| P-68  | J-51       | J-65      | 12.0             | PVC      | 120.0            | 6             | 0.02               | 0.00             | True     | 93                        | 94                       |
| P-70  | J-20       | J-67      | 8.0              | PVC      | 120.0            | 14            | 0.09               | 0.00             | True     | 73                        | 72                       |
| P-71  | J-57       | J-68      | 8.0              | PVC      | 120.0            | 84            | 0.53               | 0.16             | True     | 94                        | 92                       |
| P-72  | J-68       | J-69      | 8.0              | PVC      | 120.0            | -103          | 0.66               | 0.15             | True     | 92                        | 108                      |
| P-73  | J-69       | J-61      | 16.0             | PVC      | 120.0            | -103          | 0.16               | 0.01             | True     | 108                       | 96                       |

20% MDD

Junction Table - Time: 0.00 hours

| Label | Elevation<br>(ft) | Demand<br>(gpm) | Hydraulic Grade<br>(ft) | Pressure<br>(psi) | Pressure Head<br>(ft) |
|-------|-------------------|-----------------|-------------------------|-------------------|-----------------------|
| J-1   | 6,351.51          | 0               | 6,503.96                | 66                | 152.45                |
| J-2   | 6,347.42          | 0               | 6,503.88                | 68                | 156.46                |
| J-3   | 6,342.16          | 0               | 6,503.83                | 70                | 161.67                |
| J-19  | 6,337.95          | 40              | 6,503.85                | 72                | 165.90                |
| J-67  | 6,337.00          | 36              | 6,503.81                | 72                | 166.81                |
| J-12  | 6,335.65          | 0               | 6,503.83                | 73                | 168.18                |
| J-20  | 6,335.03          | 0               | 6,503.82                | 73                | 168.79                |
| J-11  | 6,332.02          | 0               | 6,503.76                | 74                | 171.74                |
| J-44  | 6,328.22          | 0               | 6,503.94                | 76                | 175.72                |
| J-13  | 6,322.84          | 32              | 6,503.76                | 78                | 180.92                |
| J-6   | 6,321.71          | 0               | 6,503.69                | 79                | 181.98                |
| J-8   | 6,321.71          | 0               | 6,503.71                | 79                | 182.00                |
| J-10  | 6,321.71          | 0               | 6,503.76                | 79                | 182.05                |
| J-15  | 6,315.06          | 152             | 6,503.61                | 82                | 188.55                |
| J-7   | 6,313.84          | 0               | 6,503.68                | 82                | 189.84                |
| J-68  | 6,291.32          | 466             | 6,502.77                | 91                | 211.45                |
| J-16  | 6,311.71          | 217             | 6,503.63                | 83                | 191.92                |
| J-5   | 6,310.34          | 0               | 6,503.71                | 84                | 193.37                |
| J-4   | 6,310.14          | 0               | 6,503.72                | 84                | 193.58                |
| J-9   | 6,310.75          | 0               | 6,503.72                | 83                | 192.97                |
| J-17  | 6,310.57          | 63              | 6,503.72                | 84                | 193.15                |
| J-18  | 6,310.07          | 0               | 6,503.72                | 84                | 193.65                |
| J-64  | 6,304.57          | 0               | 6,503.71                | 86                | 199.14                |
| J-55  | 6,300.76          | 0               | 6,503.71                | 88                | 202.95                |
| J-54  | 6,293.16          | 0               | 6,503.73                | 91                | 210.57                |
| J-56  | 6,290.72          | 0               | 6,503.66                | 92                | 212.94                |
| J-53  | 6,291.63          | 0               | 6,503.74                | 92                | 212.11                |
| J-51  | 6,289.42          | 0               | 6,503.76                | 93                | 214.34                |
| J-57  | 6,286.62          | 0               | 6,503.65                | 94                | 217.03                |
| J-50  | 6,288.27          | 0               | 6,503.78                | 93                | 215.51                |
| J-65  | 6,286.46          | 16              | 6,503.76                | 94                | 217.30                |
| J-59  | 6,283.50          | 0               | 6,503.66                | 95                | 220.16                |
| J-60  | 6,282.30          | 0               | 6,503.66                | 96                | 221.36                |
| J-61  | 6,281.71          | 0               | 6,503.66                | 96                | 221.95                |
| J-48  | 6,274.80          | 0               | 6,503.98                | 99                | 229.18                |
| J-69  | 6,254.25          | 0               | 6,503.61                | 108               | 249.36                |
| J-49  | 6,259.12          | 0               | 6,503.90                | 106               | 244.78                |

20% MDD

Pipe Table - Time: 0.00 hours

| Label | Start Node | Stop Node | Diameter<br>(in) | Material | Hazen-Williams C | Flow<br>(gpm) | Velocity<br>(ft/s) | Headloss<br>(ft) | Is Open? | Pressure (Start)<br>(psi) | Pressure (Stop)<br>(psi) |
|-------|------------|-----------|------------------|----------|------------------|---------------|--------------------|------------------|----------|---------------------------|--------------------------|
| P-1   | R-1        | J-1       | 16.0             | PVC      | 120.0            | 492           | 0.79               | 0.04             | True     | 0                         | 66                       |
| P-2   | J-1        | J-2       | 16.0             | PVC      | 120.0            | 492           | 0.79               | 0.08             | True     | 66                        | 68                       |
| P-3   | J-2        | J-3       | 16.0             | PVC      | 120.0            | 492           | 0.79               | 0.05             | True     | 68                        | 70                       |
| P-4   | J-3        | J-4       | 16.0             | PVC      | 120.0            | 456           | 0.73               | 0.12             | True     | 70                        | 84                       |
| P-5   | J-4        | J-5       | 12.0             | PVC      | 120.0            | 155           | 0.44               | 0.01             | True     | 84                        | 84                       |
| P-6   | J-5        | J-6       | 12.0             | PVC      | 120.0            | 155           | 0.44               | 0.02             | True     | 84                        | 79                       |
| P-7   | J-6        | J-7       | 12.0             | PVC      | 120.0            | 155           | 0.44               | 0.01             | True     | 79                        | 82                       |
| P-8   | J-7        | J-8       | 12.0             | PVC      | 120.0            | -214          | 0.61               | 0.03             | True     | 82                        | 79                       |
| P-9   | J-8        | J-9       | 12.0             | PVC      | 120.0            | -214          | 0.61               | 0.01             | True     | 79                        | 83                       |
| P-10  | J-9        | J-10      | 12.0             | PVC      | 120.0            | -184          | 0.52               | 0.04             | True     | 83                        | 79                       |
| P-11  | J-10       | J-11      | 12.0             | PVC      | 120.0            | -184          | 0.52               | 0.00             | True     | 79                        | 74                       |
| P-12  | J-12       | J-3       | 12.0             | PVC      | 120.0            | -36           | 0.10               | 0.00             | True     | 73                        | 70                       |
| P-13  | J-11       | J-13      | 8.0              | PVC      | 120.0            | 32            | 0.20               | 0.00             | True     | 74                        | 78                       |
| P-15  | J-15       | J-7       | 8.0              | PVC      | 120.0            | -152          | 0.97               | 0.07             | True     | 82                        | 82                       |
| P-16  | J-7        | J-16      | 8.0              | PVC      | 120.0            | 217           | 1.39               | 0.05             | True     | 82                        | 83                       |
| P-17  | J-17       | J-9       | 12.0             | PVC      | 120.0            | -63           | 0.18               | 0.00             | True     | 84                        | 83                       |
| P-18  | J-9        | J-18      | 12.0             | PVC      | 120.0            | -93           | 0.26               | 0.00             | True     | 83                        | 84                       |
| P-25  | J-12       | J-19      | 12.0             | PVC      | 120.0            | -216          | 0.61               | 0.02             | True     | 73                        | 72                       |
| P-27  | J-11       | J-20      | 12.0             | PVC      | 120.0            | -216          | 0.61               | 0.05             | True     | 74                        | 73                       |
| P-28  | J-20       | J-12      | 12.0             | PVC      | 120.0            | -252          | 0.72               | 0.01             | True     | 73                        | 73                       |
| P-31  | J-44       | J-19      | 12.0             | PVC      | 120.0            | 255           | 0.72               | 0.09             | True     | 76                        | 72                       |
| P-32  | R-1        | J-44      | 12.0             | PVC      | 120.0            | 163           | 0.46               | 0.06             | True     | 0                         | 76                       |
| P-48  | J-44       | R-2       | 12.0             | PVC      | 120.0            | -92           | 0.26               | 0.06             | True     | 76                        | 0                        |
| P-49  | R-2        | J-48      | 12.0             | PVC      | 120.0            | 274           | 0.78               | 0.02             | True     | 0                         | 99                       |
| P-50  | J-48       | J-49      | 12.0             | PVC      | 120.0            | 274           | 0.78               | 0.08             | True     | 99                        | 106                      |
| P-51  | J-49       | J-50      | 12.0             | PVC      | 120.0            | 274           | 0.78               | 0.13             | True     | 106                       | 93                       |
| P-52  | J-50       | J-51      | 12.0             | PVC      | 120.0            | 274           | 0.78               | 0.01             | True     | 93                        | 93                       |
| P-54  | J-51       | J-53      | 12.0             | PVC      | 120.0            | 258           | 0.73               | 0.02             | True     | 93                        | 92                       |
| P-55  | J-53       | J-54      | 12.0             | PVC      | 120.0            | 93            | 0.26               | 0.01             | True     | 92                        | 91                       |
| P-56  | J-54       | J-18      | 12.0             | PVC      | 120.0            | 93            | 0.26               | 0.01             | True     | 91                        | 84                       |
| P-57  | J-53       | J-55      | 12.0             | PVC      | 120.0            | 165           | 0.47               | 0.04             | True     | 92                        | 88                       |
| P-58  | J-55       | J-56      | 12.0             | PVC      | 120.0            | 165           | 0.47               | 0.05             | True     | 88                        | 92                       |
| P-59  | J-56       | J-57      | 12.0             | PVC      | 120.0            | 165           | 0.47               | 0.01             | True     | 92                        | 94                       |
| P-61  | J-57       | J-59      | 12.0             | PVC      | 120.0            | -43           | 0.12               | 0.00             | True     | 94                        | 95                       |
| P-62  | J-59       | J-61      | 12.0             | PVC      | 120.0            | -43           | 0.12               | 0.00             | True     | 95                        | 96                       |
| P-63  | J-61       | J-60      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 96                        | 96                       |
| P-66  | J-61       | J-64      | 16.0             | PVC      | 120.0            | -301          | 0.48               | 0.05             | True     | 96                        | 86                       |
| P-67  | J-64       | J-4       | 12.0             | PVC      | 120.0            | -301          | 0.85               | 0.01             | True     | 86                        | 84                       |
| P-68  | J-51       | J-65      | 12.0             | PVC      | 120.0            | 16            | 0.04               | 0.00             | True     | 93                        | 94                       |
| P-70  | J-20       | J-67      | 8.0              | PVC      | 120.0            | 36            | 0.23               | 0.00             | True     | 73                        | 72                       |
| P-71  | J-57       | J-68      | 8.0              | PVC      | 120.0            | 209           | 1.33               | 0.88             | True     | 94                        | 91                       |
| P-72  | J-68       | J-69      | 8.0              | PVC      | 120.0            | -258          | 1.64               | 0.84             | True     | 91                        | 108                      |
| P-73  | J-69       | J-61      | 16.0             | PVC      | 120.0            | -258          | 0.41               | 0.04             | True     | 108                       | 96                       |

20% PHD

Junction Table - Time: 0.00 hours

| Label | Elevation<br>(ft) | Demand<br>(gpm) | Hydraulic Grade<br>(ft) | Pressure<br>(psi) | Pressure Head<br>(ft) |
|-------|-------------------|-----------------|-------------------------|-------------------|-----------------------|
| J-1   | 6,351.51          | 0               | 6,503.83                | 66                | 152.32                |
| J-2   | 6,347.42          | 0               | 6,503.49                | 68                | 156.07                |
| J-3   | 6,342.16          | 0               | 6,503.28                | 70                | 161.12                |
| J-19  | 6,337.95          | 87              | 6,503.37                | 72                | 165.42                |
| J-67  | 6,337.00          | 79              | 6,503.20                | 72                | 166.20                |
| J-12  | 6,335.65          | 0               | 6,503.28                | 73                | 167.63                |
| J-20  | 6,335.03          | 0               | 6,503.22                | 73                | 168.19                |
| J-11  | 6,332.02          | 0               | 6,502.98                | 74                | 170.96                |
| J-44  | 6,328.22          | 0               | 6,503.75                | 76                | 175.53                |
| J-13  | 6,322.84          | 70              | 6,502.98                | 78                | 180.14                |
| J-6   | 6,321.71          | 0               | 6,502.66                | 78                | 180.95                |
| J-8   | 6,321.71          | 0               | 6,502.74                | 78                | 181.03                |
| J-10  | 6,321.71          | 0               | 6,502.96                | 78                | 181.25                |
| J-15  | 6,315.06          | 335             | 6,502.32                | 81                | 187.26                |
| J-7   | 6,313.84          | 0               | 6,502.61                | 82                | 188.77                |
| J-68  | 6,291.32          | 1,026           | 6,498.70                | 90                | 207.38                |
| J-16  | 6,311.71          | 477             | 6,502.40                | 83                | 190.69                |
| J-5   | 6,310.34          | 0               | 6,502.75                | 83                | 192.41                |
| J-4   | 6,310.14          | 0               | 6,502.78                | 83                | 192.64                |
| J-9   | 6,310.75          | 0               | 6,502.78                | 83                | 192.03                |
| J-17  | 6,310.57          | 138             | 6,502.78                | 83                | 192.21                |
| J-18  | 6,310.07          | 0               | 6,502.79                | 83                | 192.72                |
| J-64  | 6,304.57          | 0               | 6,502.73                | 86                | 198.16                |
| J-55  | 6,300.76          | 0               | 6,502.74                | 87                | 201.98                |
| J-54  | 6,293.16          | 0               | 6,502.85                | 91                | 209.69                |
| J-56  | 6,290.72          | 0               | 6,502.54                | 92                | 211.82                |
| J-53  | 6,291.63          | 0               | 6,502.89                | 91                | 211.26                |
| J-51  | 6,289.42          | 0               | 6,502.98                | 92                | 213.56                |
| J-57  | 6,286.62          | 0               | 6,502.50                | 93                | 215.88                |
| J-50  | 6,288.27          | 0               | 6,503.04                | 93                | 214.77                |
| J-65  | 6,286.46          | 34              | 6,502.98                | 94                | 216.52                |
| J-59  | 6,283.50          | 0               | 6,502.51                | 95                | 219.01                |
| J-60  | 6,282.30          | 0               | 6,502.52                | 95                | 220.22                |
| J-61  | 6,281.71          | 0               | 6,502.52                | 96                | 220.81                |
| J-48  | 6,274.80          | 0               | 6,503.93                | 99                | 229.13                |
| J-69  | 6,254.25          | 0               | 6,502.34                | 107               | 248.09                |
| J-49  | 6,259.12          | 0               | 6,503.59                | 106               | 244.47                |



20% PHD

Pipe Table - Time: 0.00 hours

| Label | Start Node | Stop Node | Diameter<br>(in) | Material | Hazen-Williams C | Flow<br>(gpm) | Velocity<br>(ft/s) | Headloss<br>(ft) | Is Open? | Pressure (Start)<br>(psi) | Pressure (Stop)<br>(psi) |
|-------|------------|-----------|------------------|----------|------------------|---------------|--------------------|------------------|----------|---------------------------|--------------------------|
| P-1   | R-1        | J-1       | 16.0             | PVC      | 120.0            | 1,083         | 1.73               | 0.17             | True     | 0                         | 66                       |
| P-2   | J-1        | J-2       | 16.0             | PVC      | 120.0            | 1,083         | 1.73               | 0.34             | True     | 66                        | 68                       |
| P-3   | J-2        | J-3       | 16.0             | PVC      | 120.0            | 1,083         | 1.73               | 0.21             | True     | 68                        | 70                       |
| P-4   | J-3        | J-4       | 16.0             | PVC      | 120.0            | 1,003         | 1.60               | 0.51             | True     | 70                        | 83                       |
| P-5   | J-4        | J-5       | 12.0             | PVC      | 120.0            | 341           | 0.97               | 0.03             | True     | 83                        | 83                       |
| P-6   | J-5        | J-6       | 12.0             | PVC      | 120.0            | 341           | 0.97               | 0.09             | True     | 83                        | 78                       |
| P-7   | J-6        | J-7       | 12.0             | PVC      | 120.0            | 341           | 0.97               | 0.05             | True     | 78                        | 82                       |
| P-8   | J-7        | J-8       | 12.0             | PVC      | 120.0            | -471          | 1.34               | 0.13             | True     | 82                        | 78                       |
| P-9   | J-8        | J-9       | 12.0             | PVC      | 120.0            | -471          | 1.34               | 0.04             | True     | 78                        | 83                       |
| P-10  | J-9        | J-10      | 12.0             | PVC      | 120.0            | -405          | 1.15               | 0.18             | True     | 83                        | 78                       |
| P-11  | J-10       | J-11      | 12.0             | PVC      | 120.0            | -405          | 1.15               | 0.02             | True     | 78                        | 74                       |
| P-12  | J-12       | J-3       | 12.0             | PVC      | 120.0            | -80           | 0.23               | 0.01             | True     | 73                        | 70                       |
| P-13  | J-11       | J-13      | 8.0              | PVC      | 120.0            | 70            | 0.45               | 0.01             | True     | 74                        | 78                       |
| P-15  | J-15       | J-7       | 8.0              | PVC      | 120.0            | -335          | 2.14               | 0.28             | True     | 81                        | 82                       |
| P-16  | J-7        | J-16      | 8.0              | PVC      | 120.0            | 477           | 3.04               | 0.21             | True     | 82                        | 83                       |
| P-17  | J-17       | J-9       | 12.0             | PVC      | 120.0            | -138          | 0.39               | 0.00             | True     | 83                        | 83                       |
| P-18  | J-9        | J-18      | 12.0             | PVC      | 120.0            | -204          | 0.58               | 0.01             | True     | 83                        | 83                       |
| P-25  | J-12       | J-19      | 12.0             | PVC      | 120.0            | -474          | 1.35               | 0.10             | True     | 73                        | 72                       |
| P-27  | J-11       | J-20      | 12.0             | PVC      | 120.0            | -475          | 1.35               | 0.23             | True     | 74                        | 73                       |
| P-28  | J-20       | J-12      | 12.0             | PVC      | 120.0            | -555          | 1.57               | 0.06             | True     | 73                        | 73                       |
| P-31  | J-44       | J-19      | 12.0             | PVC      | 120.0            | 561           | 1.59               | 0.38             | True     | 76                        | 72                       |
| P-32  | R-1        | J-44      | 12.0             | PVC      | 120.0            | 360           | 1.02               | 0.25             | True     | 0                         | 76                       |
| P-48  | J-44       | R-2       | 12.0             | PVC      | 120.0            | -202          | 0.57               | 0.25             | True     | 76                        | 0                        |
| P-49  | R-2        | J-48      | 12.0             | PVC      | 120.0            | 602           | 1.71               | 0.07             | True     | 0                         | 99                       |
| P-50  | J-48       | J-49      | 12.0             | PVC      | 120.0            | 602           | 1.71               | 0.35             | True     | 99                        | 106                      |
| P-51  | J-49       | J-50      | 12.0             | PVC      | 120.0            | 602           | 1.71               | 0.55             | True     | 106                       | 93                       |
| P-52  | J-50       | J-51      | 12.0             | PVC      | 120.0            | 602           | 1.71               | 0.06             | True     | 93                        | 92                       |
| P-54  | J-51       | J-53      | 12.0             | PVC      | 120.0            | 568           | 1.61               | 0.09             | True     | 92                        | 91                       |
| P-55  | J-53       | J-54      | 12.0             | PVC      | 120.0            | 204           | 0.58               | 0.04             | True     | 91                        | 91                       |
| P-56  | J-54       | J-18      | 12.0             | PVC      | 120.0            | 204           | 0.58               | 0.06             | True     | 91                        | 83                       |
| P-57  | J-53       | J-55      | 12.0             | PVC      | 120.0            | 364           | 1.03               | 0.15             | True     | 91                        | 87                       |
| P-58  | J-55       | J-56      | 12.0             | PVC      | 120.0            | 364           | 1.03               | 0.20             | True     | 87                        | 92                       |
| P-59  | J-56       | J-57      | 12.0             | PVC      | 120.0            | 364           | 1.03               | 0.04             | True     | 92                        | 93                       |
| P-61  | J-57       | J-59      | 12.0             | PVC      | 120.0            | -95           | 0.27               | 0.02             | True     | 93                        | 95                       |
| P-62  | J-59       | J-61      | 12.0             | PVC      | 120.0            | -95           | 0.27               | 0.00             | True     | 95                        | 96                       |
| P-63  | J-61       | J-60      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 96                        | 95                       |
| P-66  | J-61       | J-64      | 16.0             | PVC      | 120.0            | -662          | 1.06               | 0.21             | True     | 96                        | 86                       |
| P-67  | J-64       | J-4       | 12.0             | PVC      | 120.0            | -662          | 1.88               | 0.04             | True     | 86                        | 83                       |
| P-68  | J-51       | J-65      | 12.0             | PVC      | 120.0            | 34            | 0.10               | 0.00             | True     | 92                        | 94                       |
| P-70  | J-20       | J-67      | 8.0              | PVC      | 120.0            | 79            | 0.51               | 0.01             | True     | 73                        | 72                       |
| P-71  | J-57       | J-68      | 8.0              | PVC      | 120.0            | 459           | 2.93               | 3.80             | True     | 93                        | 90                       |
| P-72  | J-68       | J-69      | 8.0              | PVC      | 120.0            | -567          | 3.62               | 3.64             | True     | 90                        | 107                      |
| P-73  | J-69       | J-61      | 16.0             | PVC      | 120.0            | -567          | 0.90               | 0.18             | True     | 107                       | 96                       |

20% PHD, P12 CLOSED

Junction Table - Time: 0.00 hours

| Label | Elevation<br>(ft) | Demand<br>(gpm) | Hydraulic Grade<br>(ft) | Pressure<br>(psi) | Pressure Head<br>(ft) |
|-------|-------------------|-----------------|-------------------------|-------------------|-----------------------|
| J-1   | 6,351.51          | 0               | 6,500.54                | 64                | 149.03                |
| J-2   | 6,347.42          | 0               | 6,500.54                | 66                | 153.12                |
| J-3   | 6,342.16          | 0               | 6,500.54                | 69                | 158.38                |
| J-19  | 6,337.95          | 87              | 6,501.37                | 71                | 163.42                |
| J-67  | 6,337.00          | 79              | 6,500.82                | 71                | 163.82                |
| J-12  | 6,335.65          | 0               | 6,500.88                | 71                | 165.23                |
| J-20  | 6,335.03          | 0               | 6,500.83                | 72                | 165.80                |
| J-11  | 6,332.02          | 0               | 6,500.67                | 73                | 168.65                |
| J-44  | 6,328.22          | 0               | 6,502.96                | 76                | 174.74                |
| J-13  | 6,322.84          | 70              | 6,500.67                | 77                | 177.83                |
| J-6   | 6,321.71          | 0               | 6,500.27                | 77                | 178.56                |
| J-8   | 6,321.71          | 0               | 6,500.47                | 77                | 178.76                |
| J-10  | 6,321.71          | 0               | 6,500.66                | 77                | 178.95                |
| J-15  | 6,315.06          | 335             | 6,499.97                | 80                | 184.91                |
| J-7   | 6,313.84          | 0               | 6,500.25                | 81                | 186.41                |
| J-68  | 6,291.32          | 1,026           | 6,496.36                | 89                | 205.04                |
| J-16  | 6,311.71          | 477             | 6,500.04                | 81                | 188.33                |
| J-5   | 6,310.34          | 0               | 6,500.30                | 82                | 189.96                |
| J-4   | 6,310.14          | 0               | 6,500.30                | 82                | 190.16                |
| J-9   | 6,310.75          | 0               | 6,500.54                | 82                | 189.79                |
| J-17  | 6,310.57          | 138             | 6,500.54                | 82                | 189.97                |
| J-18  | 6,310.07          | 0               | 6,500.58                | 82                | 190.51                |
| J-64  | 6,304.57          | 0               | 6,500.28                | 85                | 195.71                |
| J-55  | 6,300.76          | 0               | 6,500.70                | 87                | 199.94                |
| J-54  | 6,293.16          | 0               | 6,500.85                | 90                | 207.69                |
| J-56  | 6,290.72          | 0               | 6,500.26                | 91                | 209.54                |
| J-53  | 6,291.63          | 0               | 6,501.02                | 91                | 209.39                |
| J-51  | 6,289.42          | 0               | 6,501.26                | 92                | 211.84                |
| J-57  | 6,286.62          | 0               | 6,500.18                | 92                | 213.56                |
| J-50  | 6,288.27          | 0               | 6,501.42                | 92                | 213.15                |
| J-65  | 6,286.46          | 34              | 6,501.26                | 93                | 214.80                |
| J-59  | 6,283.50          | 0               | 6,500.17                | 94                | 216.67                |
| J-60  | 6,282.30          | 0               | 6,500.16                | 94                | 217.86                |
| J-61  | 6,281.71          | 0               | 6,500.16                | 95                | 218.45                |
| J-48  | 6,274.80          | 0               | 6,503.82                | 99                | 229.02                |
| J-69  | 6,254.25          | 0               | 6,499.98                | 106               | 245.73                |
| J-49  | 6,259.12          | 0               | 6,502.89                | 105               | 243.77                |



**20% PHD, P12 CLOSED**  
**Pipe Table - Time: 0.00 hours**

| Label | Start Node | Stop Node | Diameter<br>(in) | Material | Hazen-Williams C | Flow<br>(gpm) | Velocity<br>(ft/s) | Headloss<br>(ft) | Is Open? | Pressure (Start)<br>(psi) | Pressure (Stop)<br>(psi) |
|-------|------------|-----------|------------------|----------|------------------|---------------|--------------------|------------------|----------|---------------------------|--------------------------|
| P-1   | R-1        | J-1       | 16.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | False    | 0                         | 64                       |
| P-2   | J-1        | J-2       | 16.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 64                        | 66                       |
| P-3   | J-2        | J-3       | 16.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 66                        | 69                       |
| P-4   | J-3        | J-4       | 16.0             | PVC      | 120.0            | 666           | 1.06               | 0.24             | True     | 69                        | 82                       |
| P-5   | J-4        | J-5       | 12.0             | PVC      | 120.0            | 188           | 0.53               | 0.01             | True     | 82                        | 82                       |
| P-6   | J-5        | J-6       | 12.0             | PVC      | 120.0            | 188           | 0.53               | 0.03             | True     | 82                        | 77                       |
| P-7   | J-6        | J-7       | 12.0             | PVC      | 120.0            | 188           | 0.53               | 0.02             | True     | 77                        | 81                       |
| P-8   | J-7        | J-8       | 12.0             | PVC      | 120.0            | -624          | 1.77               | 0.22             | True     | 81                        | 77                       |
| P-9   | J-8        | J-9       | 12.0             | PVC      | 120.0            | -624          | 1.77               | 0.08             | True     | 77                        | 82                       |
| P-10  | J-9        | J-10      | 12.0             | PVC      | 120.0            | -318          | 0.90               | 0.12             | True     | 82                        | 77                       |
| P-11  | J-10       | J-11      | 12.0             | PVC      | 120.0            | -318          | 0.90               | 0.01             | True     | 77                        | 73                       |
| P-12  | J-12       | J-3       | 12.0             | PVC      | 120.0            | 666           | 1.89               | 0.33             | True     | 71                        | 69                       |
| P-13  | J-11       | J-13      | 8.0              | PVC      | 120.0            | 70            | 0.45               | 0.01             | True     | 73                        | 77                       |
| P-15  | J-15       | J-7       | 8.0              | PVC      | 120.0            | -335          | 2.14               | 0.28             | True     | 80                        | 81                       |
| P-16  | J-7        | J-16      | 8.0              | PVC      | 120.0            | 477           | 3.04               | 0.21             | True     | 81                        | 81                       |
| P-17  | J-17       | J-9       | 12.0             | PVC      | 120.0            | -138          | 0.39               | 0.00             | True     | 82                        | 82                       |
| P-18  | J-9        | J-18      | 12.0             | PVC      | 120.0            | -444          | 1.26               | 0.04             | True     | 82                        | 82                       |
| P-25  | J-12       | J-19      | 12.0             | PVC      | 120.0            | -1,133        | 3.22               | 0.49             | True     | 71                        | 71                       |
| P-27  | J-11       | J-20      | 12.0             | PVC      | 120.0            | -388          | 1.10               | 0.16             | True     | 73                        | 72                       |
| P-28  | J-20       | J-12      | 12.0             | PVC      | 120.0            | -467          | 1.33               | 0.04             | True     | 72                        | 71                       |
| P-31  | J-44       | J-19      | 12.0             | PVC      | 120.0            | 1,220         | 3.46               | 1.59             | True     | 76                        | 71                       |
| P-32  | R-1        | J-44      | 12.0             | PVC      | 120.0            | 782           | 2.22               | 1.04             | True     | 0                         | 76                       |
| P-48  | J-44       | R-2       | 12.0             | PVC      | 120.0            | -439          | 1.24               | 1.04             | True     | 76                        | 0                        |
| P-49  | R-2        | J-48      | 12.0             | PVC      | 120.0            | 1,026         | 2.91               | 0.18             | True     | 0                         | 99                       |
| P-50  | J-48       | J-49      | 12.0             | PVC      | 120.0            | 1,026         | 2.91               | 0.93             | True     | 99                        | 105                      |
| P-51  | J-49       | J-50      | 12.0             | PVC      | 120.0            | 1,026         | 2.91               | 1.47             | True     | 105                       | 92                       |
| P-52  | J-50       | J-51      | 12.0             | PVC      | 120.0            | 1,026         | 2.91               | 0.15             | True     | 92                        | 92                       |
| P-54  | J-51       | J-53      | 12.0             | PVC      | 120.0            | 992           | 2.81               | 0.24             | True     | 92                        | 91                       |
| P-55  | J-53       | J-54      | 12.0             | PVC      | 120.0            | 444           | 1.26               | 0.17             | True     | 91                        | 90                       |
| P-56  | J-54       | J-18      | 12.0             | PVC      | 120.0            | 444           | 1.26               | 0.26             | True     | 90                        | 82                       |
| P-57  | J-53       | J-55      | 12.0             | PVC      | 120.0            | 548           | 1.55               | 0.32             | True     | 91                        | 87                       |
| P-58  | J-55       | J-56      | 12.0             | PVC      | 120.0            | 548           | 1.55               | 0.43             | True     | 87                        | 91                       |
| P-59  | J-56       | J-57      | 12.0             | PVC      | 120.0            | 548           | 1.55               | 0.09             | True     | 91                        | 92                       |
| P-61  | J-57       | J-59      | 12.0             | PVC      | 120.0            | 87            | 0.25               | 0.01             | True     | 92                        | 94                       |
| P-62  | J-59       | J-61      | 12.0             | PVC      | 120.0            | 87            | 0.25               | 0.00             | True     | 94                        | 95                       |
| P-63  | J-61       | J-60      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 95                        | 94                       |
| P-66  | J-61       | J-64      | 16.0             | PVC      | 120.0            | -478          | 0.76               | 0.12             | True     | 95                        | 85                       |
| P-67  | J-64       | J-4       | 12.0             | PVC      | 120.0            | -478          | 1.36               | 0.02             | True     | 85                        | 82                       |
| P-68  | J-51       | J-65      | 12.0             | PVC      | 120.0            | 34            | 0.10               | 0.00             | True     | 92                        | 93                       |
| P-70  | J-20       | J-67      | 8.0              | PVC      | 120.0            | 79            | 0.51               | 0.01             | True     | 72                        | 71                       |
| P-71  | J-57       | J-68      | 8.0              | PVC      | 120.0            | 461           | 2.94               | 3.82             | True     | 92                        | 89                       |
| P-72  | J-68       | J-69      | 8.0              | PVC      | 120.0            | -566          | 3.61               | 3.62             | True     | 89                        | 106                      |
| P-73  | J-69       | J-61      | 16.0             | PVC      | 120.0            | -566          | 0.90               | 0.18             | True     | 106                       | 95                       |

20% MDD + FF @ J-1, P-1 CLOSED

Junction Table - Time: 0.00 hours

| Label | Elevation<br>(ft) | Demand<br>(gpm) | Hydraulic Grade<br>(ft) | Pressure<br>(psi) | Pressure Head<br>(ft) |
|-------|-------------------|-----------------|-------------------------|-------------------|-----------------------|
| J-1   | 6,351.51          | 2,000           | 6,495.40                | 62                | 143.89                |
| J-2   | 6,347.42          | 0               | 6,496.48                | 64                | 149.06                |
| J-3   | 6,342.16          | 0               | 6,497.12                | 67                | 154.96                |
| J-19  | 6,337.95          | 40              | 6,499.27                | 70                | 161.32                |
| J-67  | 6,337.00          | 36              | 6,498.28                | 70                | 161.28                |
| J-12  | 6,335.65          | 0               | 6,498.31                | 70                | 162.66                |
| J-20  | 6,335.03          | 0               | 6,498.29                | 71                | 163.26                |
| J-11  | 6,332.02          | 0               | 6,498.20                | 72                | 166.18                |
| J-44  | 6,328.22          | 0               | 6,502.13                | 75                | 173.91                |
| J-13  | 6,322.84          | 32              | 6,498.20                | 76                | 175.36                |
| J-6   | 6,321.71          | 0               | 6,497.55                | 76                | 175.84                |
| J-8   | 6,321.71          | 0               | 6,498.00                | 76                | 176.29                |
| J-10  | 6,321.71          | 0               | 6,498.19                | 76                | 176.48                |
| J-15  | 6,315.06          | 152             | 6,497.57                | 79                | 182.51                |
| J-7   | 6,313.84          | 0               | 6,497.64                | 80                | 183.80                |
| J-68  | 6,291.32          | 466             | 6,496.66                | 89                | 205.34                |
| J-16  | 6,311.71          | 217             | 6,497.59                | 80                | 185.88                |
| J-5   | 6,310.34          | 0               | 6,497.40                | 81                | 187.06                |
| J-4   | 6,310.14          | 0               | 6,497.36                | 81                | 187.22                |
| J-9   | 6,310.75          | 0               | 6,498.12                | 81                | 187.37                |
| J-17  | 6,310.57          | 63              | 6,498.12                | 81                | 187.55                |
| J-18  | 6,310.07          | 0               | 6,498.20                | 81                | 188.13                |
| J-64  | 6,304.57          | 0               | 6,497.37                | 83                | 192.80                |
| J-55  | 6,300.76          | 0               | 6,498.55                | 86                | 197.79                |
| J-54  | 6,293.16          | 0               | 6,498.71                | 89                | 205.55                |
| J-56  | 6,290.72          | 0               | 6,497.88                | 90                | 207.16                |
| J-53  | 6,291.63          | 0               | 6,499.05                | 90                | 207.42                |
| J-51  | 6,289.42          | 0               | 6,499.47                | 91                | 210.05                |
| J-57  | 6,286.62          | 0               | 6,497.74                | 91                | 211.12                |
| J-50  | 6,288.27          | 0               | 6,499.72                | 91                | 211.45                |
| J-65  | 6,286.46          | 16              | 6,499.47                | 92                | 213.01                |
| J-59  | 6,283.50          | 0               | 6,497.45                | 93                | 213.95                |
| J-60  | 6,282.30          | 0               | 6,497.40                | 93                | 215.10                |
| J-61  | 6,281.71          | 0               | 6,497.40                | 93                | 215.69                |
| J-48  | 6,274.80          | 0               | 6,503.71                | 99                | 228.91                |
| J-69  | 6,254.25          | 0               | 6,497.36                | 105               | 243.11                |
| J-49  | 6,259.12          | 0               | 6,502.16                | 105               | 243.04                |

**20% MDD + FF @ J-1, P-1 CLOSED**  
**Pipe Table - Time: 0.00 hours**

| Label | Start Node | Stop Node | Diameter<br>(in) | Material | Hazen-Williams C | Flow<br>(gpm) | Velocity<br>(ft/s) | Headloss<br>(ft) | Is Open? | Pressure (Start)<br>(psi) | Pressure (Stop)<br>(psi) |
|-------|------------|-----------|------------------|----------|------------------|---------------|--------------------|------------------|----------|---------------------------|--------------------------|
| P-1   | R-1        | J-1       | 16.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | False    | 0                         | 62                       |
| P-2   | J-1        | J-2       | 16.0             | PVC      | 120.0            | -2,000        | 3.19               | 1.07             | True     | 62                        | 64                       |
| P-3   | J-2        | J-3       | 16.0             | PVC      | 120.0            | -2,000        | 3.19               | 0.64             | True     | 64                        | 67                       |
| P-4   | J-3        | J-4       | 16.0             | PVC      | 120.0            | -676          | 1.08               | 0.24             | True     | 67                        | 81                       |
| P-5   | J-4        | J-5       | 12.0             | PVC      | 120.0            | -447          | 1.27               | 0.04             | True     | 81                        | 81                       |
| P-6   | J-5        | J-6       | 12.0             | PVC      | 120.0            | -447          | 1.27               | 0.15             | True     | 81                        | 76                       |
| P-7   | J-6        | J-7       | 12.0             | PVC      | 120.0            | -447          | 1.27               | 0.09             | True     | 76                        | 80                       |
| P-8   | J-7        | J-8       | 12.0             | PVC      | 120.0            | -816          | 2.32               | 0.36             | True     | 80                        | 76                       |
| P-9   | J-8        | J-9       | 12.0             | PVC      | 120.0            | -816          | 2.32               | 0.12             | True     | 76                        | 81                       |
| P-10  | J-9        | J-10      | 12.0             | PVC      | 120.0            | -242          | 0.69               | 0.07             | True     | 81                        | 76                       |
| P-11  | J-10       | J-11      | 12.0             | PVC      | 120.0            | -242          | 0.69               | 0.01             | True     | 76                        | 72                       |
| P-12  | J-12       | J-3       | 12.0             | PVC      | 120.0            | 1,324         | 3.76               | 1.19             | True     | 70                        | 67                       |
| P-13  | J-11       | J-13      | 8.0              | PVC      | 120.0            | 32            | 0.20               | 0.00             | True     | 72                        | 76                       |
| P-15  | J-15       | J-7       | 8.0              | PVC      | 120.0            | -152          | 0.97               | 0.07             | True     | 79                        | 80                       |
| P-16  | J-7        | J-16      | 8.0              | PVC      | 120.0            | 217           | 1.39               | 0.05             | True     | 80                        | 80                       |
| P-17  | J-17       | J-9       | 12.0             | PVC      | 120.0            | -63           | 0.18               | 0.00             | True     | 81                        | 81                       |
| P-18  | J-9        | J-18      | 12.0             | PVC      | 120.0            | -636          | 1.81               | 0.08             | True     | 81                        | 81                       |
| P-25  | J-12       | J-19      | 12.0             | PVC      | 120.0            | -1,634        | 4.64               | 0.96             | True     | 70                        | 70                       |
| P-27  | J-11       | J-20      | 12.0             | PVC      | 120.0            | -274          | 0.78               | 0.08             | True     | 72                        | 71                       |
| P-28  | J-20       | J-12      | 12.0             | PVC      | 120.0            | -310          | 0.88               | 0.02             | True     | 71                        | 70                       |
| P-31  | J-44       | J-19      | 12.0             | PVC      | 120.0            | 1,674         | 4.75               | 2.86             | True     | 75                        | 70                       |
| P-32  | R-1        | J-44      | 12.0             | PVC      | 120.0            | 1,072         | 3.04               | 1.87             | True     | 0                         | 75                       |
| P-48  | J-44       | R-2       | 12.0             | PVC      | 120.0            | -602          | 1.71               | 1.87             | True     | 75                        | 0                        |
| P-49  | R-2        | J-48      | 12.0             | PVC      | 120.0            | 1,347         | 3.82               | 0.29             | True     | 0                         | 99                       |
| P-50  | J-48       | J-49      | 12.0             | PVC      | 120.0            | 1,347         | 3.82               | 1.55             | True     | 99                        | 105                      |
| P-51  | J-49       | J-50      | 12.0             | PVC      | 120.0            | 1,347         | 3.82               | 2.44             | True     | 105                       | 91                       |
| P-52  | J-50       | J-51      | 12.0             | PVC      | 120.0            | 1,347         | 3.82               | 0.25             | True     | 91                        | 91                       |
| P-54  | J-51       | J-53      | 12.0             | PVC      | 120.0            | 1,332         | 3.78               | 0.42             | True     | 91                        | 90                       |
| P-55  | J-53       | J-54      | 12.0             | PVC      | 120.0            | 636           | 1.81               | 0.34             | True     | 90                        | 89                       |
| P-56  | J-54       | J-18      | 12.0             | PVC      | 120.0            | 636           | 1.81               | 0.51             | True     | 89                        | 81                       |
| P-57  | J-53       | J-55      | 12.0             | PVC      | 120.0            | 695           | 1.97               | 0.50             | True     | 90                        | 86                       |
| P-58  | J-55       | J-56      | 12.0             | PVC      | 120.0            | 695           | 1.97               | 0.68             | True     | 86                        | 90                       |
| P-59  | J-56       | J-57      | 12.0             | PVC      | 120.0            | 695           | 1.97               | 0.13             | True     | 90                        | 91                       |
| P-61  | J-57       | J-59      | 12.0             | PVC      | 120.0            | 462           | 1.31               | 0.29             | True     | 91                        | 93                       |
| P-62  | J-59       | J-61      | 12.0             | PVC      | 120.0            | 462           | 1.31               | 0.06             | True     | 93                        | 93                       |
| P-63  | J-61       | J-60      | 12.0             | PVC      | 120.0            | 0             | 0.00               | 0.00             | True     | 93                        | 93                       |
| P-66  | J-61       | J-64      | 16.0             | PVC      | 120.0            | 229           | 0.37               | 0.03             | True     | 93                        | 83                       |
| P-67  | J-64       | J-4       | 12.0             | PVC      | 120.0            | 229           | 0.65               | 0.01             | True     | 83                        | 81                       |
| P-68  | J-51       | J-65      | 12.0             | PVC      | 120.0            | 16            | 0.04               | 0.00             | True     | 91                        | 92                       |
| P-70  | J-20       | J-67      | 8.0              | PVC      | 120.0            | 36            | 0.23               | 0.00             | True     | 71                        | 70                       |
| P-71  | J-57       | J-68      | 8.0              | PVC      | 120.0            | 233           | 1.49               | 1.08             | True     | 91                        | 89                       |
| P-72  | J-68       | J-69      | 8.0              | PVC      | 120.0            | -233          | 1.49               | 0.70             | True     | 89                        | 105                      |
| P-73  | J-69       | J-61      | 16.0             | PVC      | 120.0            | -233          | 0.37               | 0.04             | True     | 105                       | 93                       |

20% MDD + FF @ J-68, P-59 CLOSED

Junction Table - Time: 0.00 hours

| Label | Elevation<br>(ft) | Demand<br>(gpm) | Hydraulic Grade<br>(ft) | Pressure<br>(psi) | Pressure Head<br>(ft) |
|-------|-------------------|-----------------|-------------------------|-------------------|-----------------------|
| J-1   | 6,351.51          | 0               | 6,503.70                | 66                | 152.19                |
| J-2   | 6,347.42          | 0               | 6,503.09                | 67                | 155.67                |
| J-3   | 6,342.16          | 0               | 6,502.73                | 69                | 160.57                |
| J-19  | 6,337.95          | 0               | 6,503.02                | 71                | 165.07                |
| J-67  | 6,337.00          | 36              | 6,502.77                | 72                | 165.77                |
| J-12  | 6,335.65          | 0               | 6,502.81                | 72                | 167.16                |
| J-20  | 6,335.03          | 0               | 6,502.77                | 73                | 167.74                |
| J-11  | 6,332.02          | 0               | 6,502.62                | 74                | 170.60                |
| J-44  | 6,328.22          | 0               | 6,503.61                | 76                | 175.39                |
| J-13  | 6,322.84          | 0               | 6,502.62                | 78                | 179.78                |
| J-6   | 6,321.71          | 0               | 6,501.67                | 78                | 179.96                |
| J-8   | 6,321.71          | 0               | 6,502.30                | 78                | 180.59                |
| J-10  | 6,321.71          | 0               | 6,502.60                | 78                | 180.89                |
| J-15  | 6,315.06          | 0               | 6,501.86                | 81                | 186.80                |
| J-68  | 6,291.32          | 2,467           | 6,478.22                | 81                | 186.90                |
| J-7   | 6,313.84          | 0               | 6,501.86                | 81                | 188.02                |
| J-16  | 6,311.71          | 217             | 6,501.82                | 82                | 190.11                |
| J-5   | 6,310.34          | 0               | 6,501.35                | 83                | 191.01                |
| J-4   | 6,310.14          | 0               | 6,501.25                | 83                | 191.11                |
| J-9   | 6,310.75          | 0               | 6,502.44                | 83                | 191.69                |
| J-17  | 6,310.57          | 0               | 6,502.44                | 83                | 191.87                |
| J-18  | 6,310.07          | 0               | 6,502.50                | 83                | 192.43                |
| J-64  | 6,304.57          | 0               | 6,500.75                | 85                | 196.18                |
| J-55  | 6,300.76          | 0               | 6,503.09                | 88                | 202.33                |
| J-54  | 6,293.16          | 0               | 6,502.86                | 91                | 209.70                |
| J-57  | 6,286.62          | 0               | 6,496.65                | 91                | 210.03                |
| J-53  | 6,291.63          | 0               | 6,503.09                | 91                | 211.46                |
| J-56  | 6,290.72          | 0               | 6,503.09                | 92                | 212.37                |
| J-51  | 6,289.42          | 0               | 6,503.17                | 92                | 213.75                |
| J-59  | 6,283.50          | 0               | 6,498.03                | 93                | 214.53                |
| J-50  | 6,288.27          | 0               | 6,503.21                | 93                | 214.94                |
| J-60  | 6,282.30          | 0               | 6,498.30                | 93                | 216.00                |
| J-61  | 6,281.71          | 0               | 6,498.30                | 94                | 216.59                |
| J-65  | 6,286.46          | 16              | 6,503.17                | 94                | 216.71                |
| J-48  | 6,274.80          | 0               | 6,503.95                | 99                | 229.15                |
| J-69  | 6,254.25          | 0               | 6,497.35                | 105               | 243.10                |
| J-49  | 6,259.12          | 0               | 6,503.66                | 106               | 244.54                |

**20% MDD + FF @ J-68, P-59 CLOSED**  
**Pipe Table - Time: 0.00 hours**

| Label | Start Node | Stop Node | Diameter<br>(in) | Material | Hazen-Williams<br>C | Flow<br>(gpm) | Velocity<br>(ft/s) | Headloss<br>(ft) | Is Open? | Pressure (Start)<br>(psi) | Pressure (Stop)<br>(psi) |
|-------|------------|-----------|------------------|----------|---------------------|---------------|--------------------|------------------|----------|---------------------------|--------------------------|
| P-1   | R-1        | J-1       | 16.0             | PVC      | 120.0               | 1,478         | 2.36               | 0.30             | True     | 0                         | 66                       |
| P-2   | J-1        | J-2       | 16.0             | PVC      | 120.0               | 1,478         | 2.36               | 0.61             | True     | 66                        | 67                       |
| P-3   | J-2        | J-3       | 16.0             | PVC      | 120.0               | 1,478         | 2.36               | 0.37             | True     | 67                        | 69                       |
| P-4   | J-3        | J-4       | 16.0             | PVC      | 120.0               | 1,784         | 2.85               | 1.47             | True     | 69                        | 83                       |
| P-5   | J-4        | J-5       | 12.0             | PVC      | 120.0               | -683          | 1.94               | 0.09             | True     | 83                        | 83                       |
| P-6   | J-5        | J-6       | 12.0             | PVC      | 120.0               | -683          | 1.94               | 0.32             | True     | 83                        | 78                       |
| P-7   | J-6        | J-7       | 12.0             | PVC      | 120.0               | -683          | 1.94               | 0.19             | True     | 78                        | 81                       |
| P-8   | J-7        | J-8       | 12.0             | PVC      | 120.0               | -900          | 2.55               | 0.43             | True     | 81                        | 78                       |
| P-9   | J-8        | J-9       | 12.0             | PVC      | 120.0               | -900          | 2.55               | 0.15             | True     | 78                        | 83                       |
| P-10  | J-9        | J-10      | 12.0             | PVC      | 120.0               | -376          | 1.07               | 0.16             | True     | 83                        | 78                       |
| P-11  | J-10       | J-11      | 12.0             | PVC      | 120.0               | -376          | 1.07               | 0.02             | True     | 78                        | 74                       |
| P-12  | J-12       | J-3       | 12.0             | PVC      | 120.0               | 306           | 0.87               | 0.08             | True     | 72                        | 69                       |
| P-13  | J-11       | J-13      | 8.0              | PVC      | 120.0               | 0             | 0.00               | 0.00             | True     | 74                        | 78                       |
| P-15  | J-15       | J-7       | 8.0              | PVC      | 120.0               | 0             | 0.00               | 0.00             | True     | 81                        | 81                       |
| P-16  | J-7        | J-16      | 8.0              | PVC      | 120.0               | 217           | 1.39               | 0.05             | True     | 81                        | 82                       |
| P-17  | J-17       | J-9       | 12.0             | PVC      | 120.0               | 0             | 0.00               | 0.00             | True     | 83                        | 83                       |
| P-18  | J-9        | J-18      | 12.0             | PVC      | 120.0               | -524          | 1.49               | 0.05             | True     | 83                        | 83                       |
| P-25  | J-12       | J-19      | 12.0             | PVC      | 120.0               | -717          | 2.04               | 0.21             | True     | 72                        | 71                       |
| P-27  | J-11       | J-20      | 12.0             | PVC      | 120.0               | -376          | 1.07               | 0.15             | True     | 74                        | 73                       |
| P-28  | J-20       | J-12      | 12.0             | PVC      | 120.0               | -412          | 1.17               | 0.04             | True     | 73                        | 72                       |
| P-31  | J-44       | J-19      | 12.0             | PVC      | 120.0               | 717           | 2.04               | 0.60             | True     | 76                        | 71                       |
| P-32  | R-1        | J-44      | 12.0             | PVC      | 120.0               | 460           | 1.30               | 0.39             | True     | 0                         | 76                       |
| P-48  | J-44       | R-2       | 12.0             | PVC      | 120.0               | -258          | 0.73               | 0.39             | True     | 76                        | 0                        |
| P-49  | R-2        | J-48      | 12.0             | PVC      | 120.0               | 540           | 1.53               | 0.05             | True     | 0                         | 99                       |
| P-50  | J-48       | J-49      | 12.0             | PVC      | 120.0               | 540           | 1.53               | 0.28             | True     | 99                        | 106                      |
| P-51  | J-49       | J-50      | 12.0             | PVC      | 120.0               | 540           | 1.53               | 0.45             | True     | 106                       | 93                       |
| P-52  | J-50       | J-51      | 12.0             | PVC      | 120.0               | 540           | 1.53               | 0.05             | True     | 93                        | 92                       |
| P-54  | J-51       | J-53      | 12.0             | PVC      | 120.0               | 524           | 1.49               | 0.07             | True     | 92                        | 91                       |
| P-55  | J-53       | J-54      | 12.0             | PVC      | 120.0               | 524           | 1.49               | 0.24             | True     | 91                        | 91                       |
| P-56  | J-54       | J-18      | 12.0             | PVC      | 120.0               | 524           | 1.49               | 0.36             | True     | 91                        | 83                       |
| P-57  | J-53       | J-55      | 12.0             | PVC      | 120.0               | 0             | 0.00               | 0.00             | True     | 91                        | 88                       |
| P-58  | J-55       | J-56      | 12.0             | PVC      | 120.0               | 0             | 0.00               | 0.00             | True     | 88                        | 92                       |
| P-59  | J-56       | J-57      | 12.0             | PVC      | 120.0               | 0             | 0.00               | 0.00             | False    | 92                        | 91                       |
| P-61  | J-57       | J-59      | 12.0             | PVC      | 120.0               | -1,077        | 3.06               | 1.38             | True     | 91                        | 93                       |
| P-62  | J-59       | J-61      | 12.0             | PVC      | 120.0               | -1,077        | 3.06               | 0.27             | True     | 93                        | 94                       |
| P-63  | J-61       | J-60      | 12.0             | PVC      | 120.0               | 0             | 0.00               | 0.00             | True     | 94                        | 93                       |
| P-66  | J-61       | J-64      | 16.0             | PVC      | 120.0               | -2,467        | 3.94               | 2.45             | True     | 94                        | 85                       |
| P-67  | J-64       | J-4       | 12.0             | PVC      | 120.0               | -2,467        | 7.00               | 0.50             | True     | 85                        | 83                       |
| P-68  | J-51       | J-65      | 12.0             | PVC      | 120.0               | 16            | 0.04               | 0.00             | True     | 92                        | 94                       |
| P-70  | J-20       | J-67      | 8.0              | PVC      | 120.0               | 36            | 0.23               | 0.00             | True     | 73                        | 72                       |
| P-71  | J-57       | J-68      | 8.0              | PVC      | 120.0               | 1,077         | 6.88               | 18.43            | True     | 91                        | 81                       |
| P-72  | J-68       | J-69      | 8.0              | PVC      | 120.0               | -1,389        | 8.87               | 19.13            | True     | 81                        | 105                      |
| P-73  | J-69       | J-61      | 16.0             | PVC      | 120.0               | -1,389        | 2.22               | 0.95             | True     | 105                       | 94                       |

## APPENDIX D

### WASTEWATER FLOWS

WASTEWATER FLOW CALCULATIONS

NOT USED

## **APPENDIX E**

### **WASTEWATER HYDRAULIC MODELING**

SSA OUTPUT FILES

NOT USED

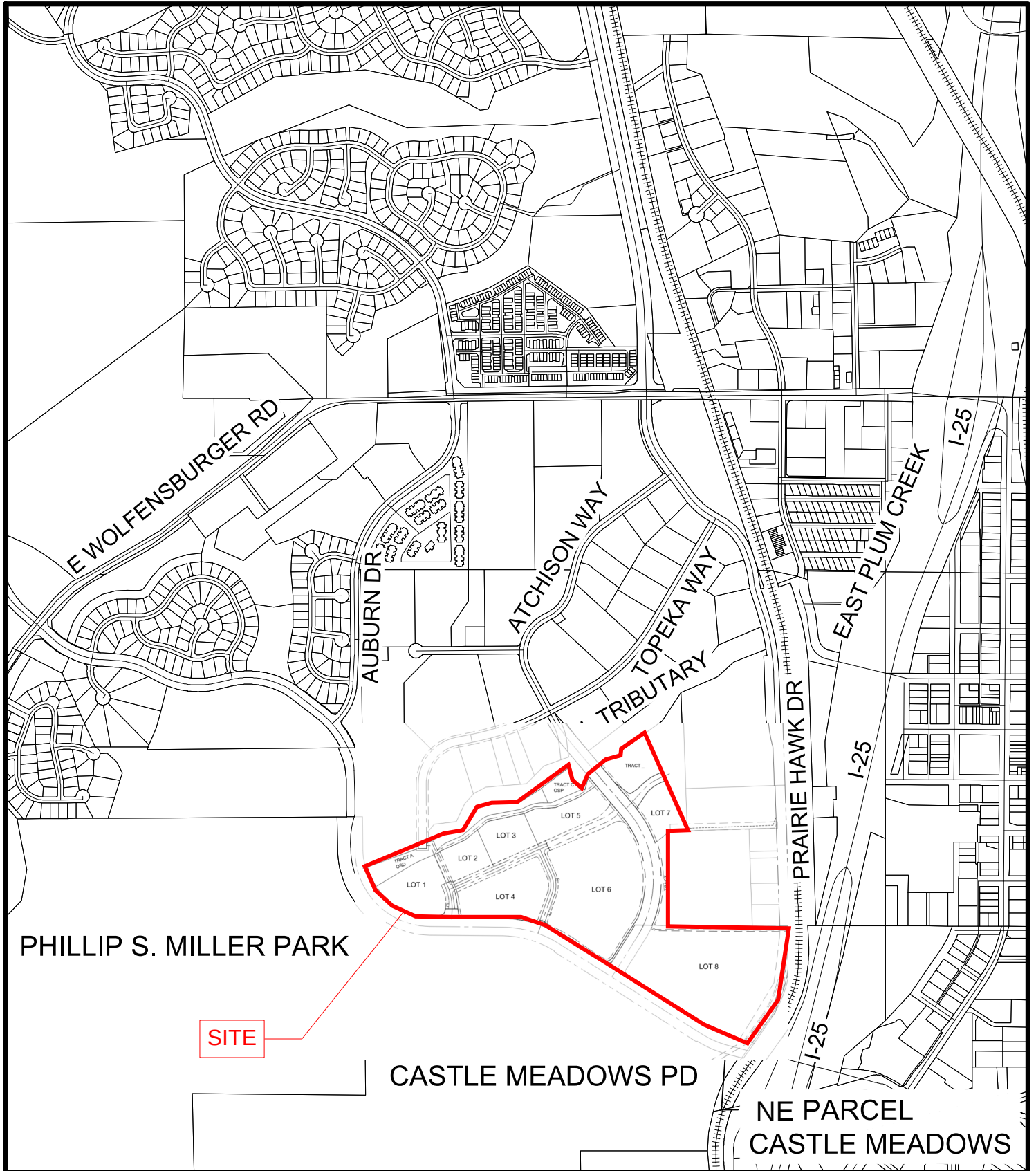


## **APPENDIX F**

### **MAPS AND PLANS**

VICINITY MAP  
TOWN OF CASTLE ROCK UTILITY MAP  
OVERALL UTILITY PLAN  
PHASING PLAN  
FINAL UTILITY PLAN CHECKLIST  
REFERENCES





## MILLER'S LANDING VICINITY MAP

PREPARED FOR: CASTLE ROCK, COLORADO

SHEET NUMBER

1

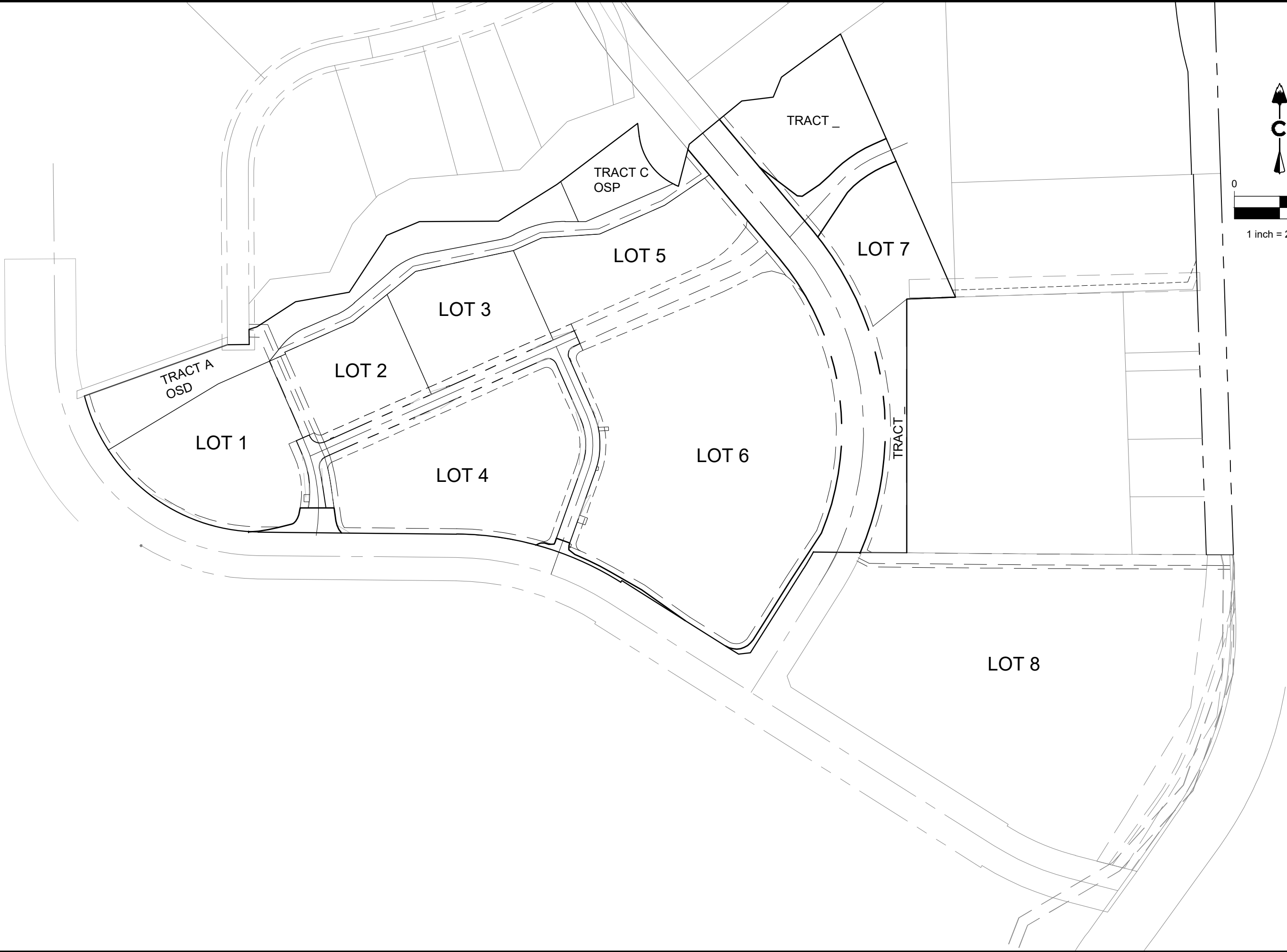
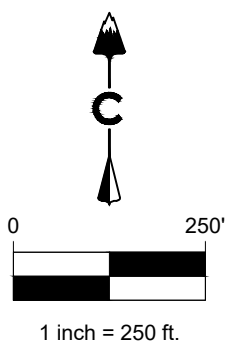
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JOB NUMBER  
17-069







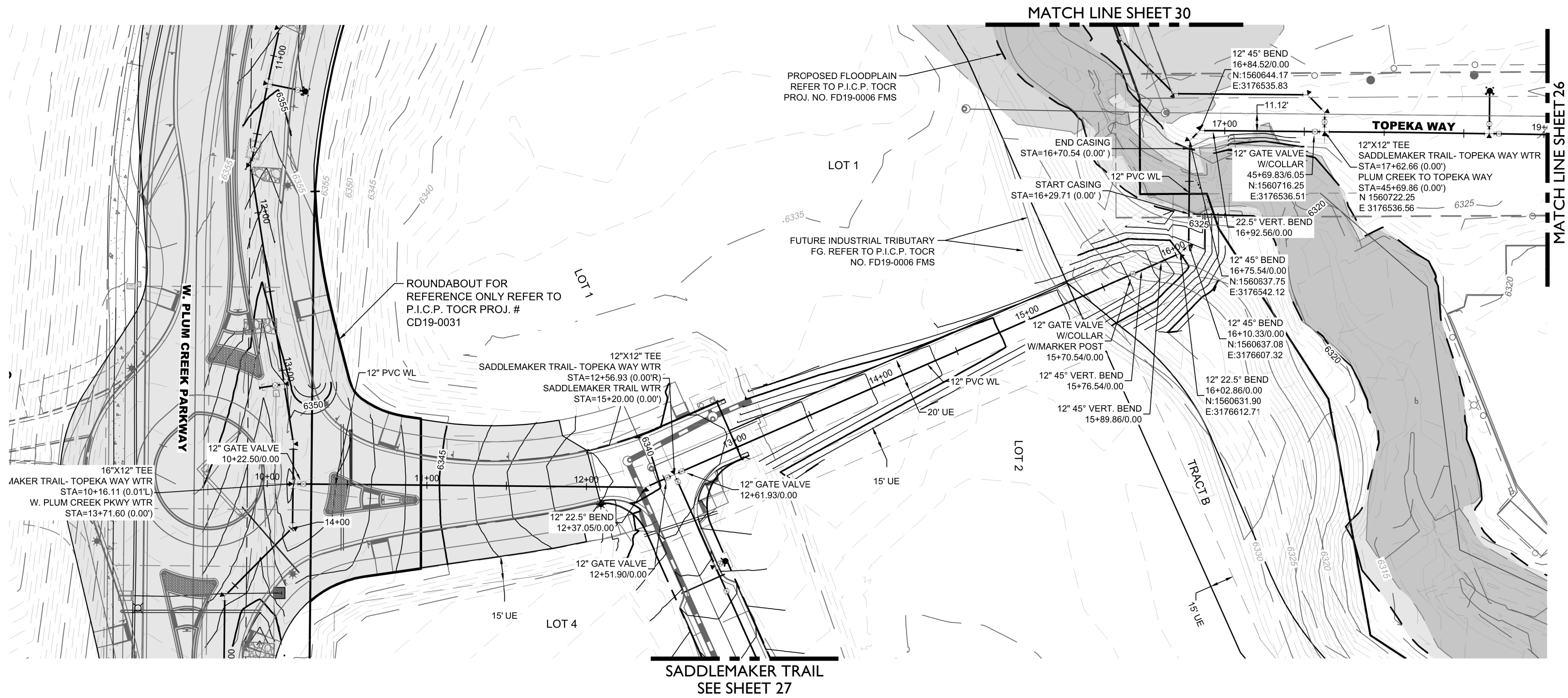




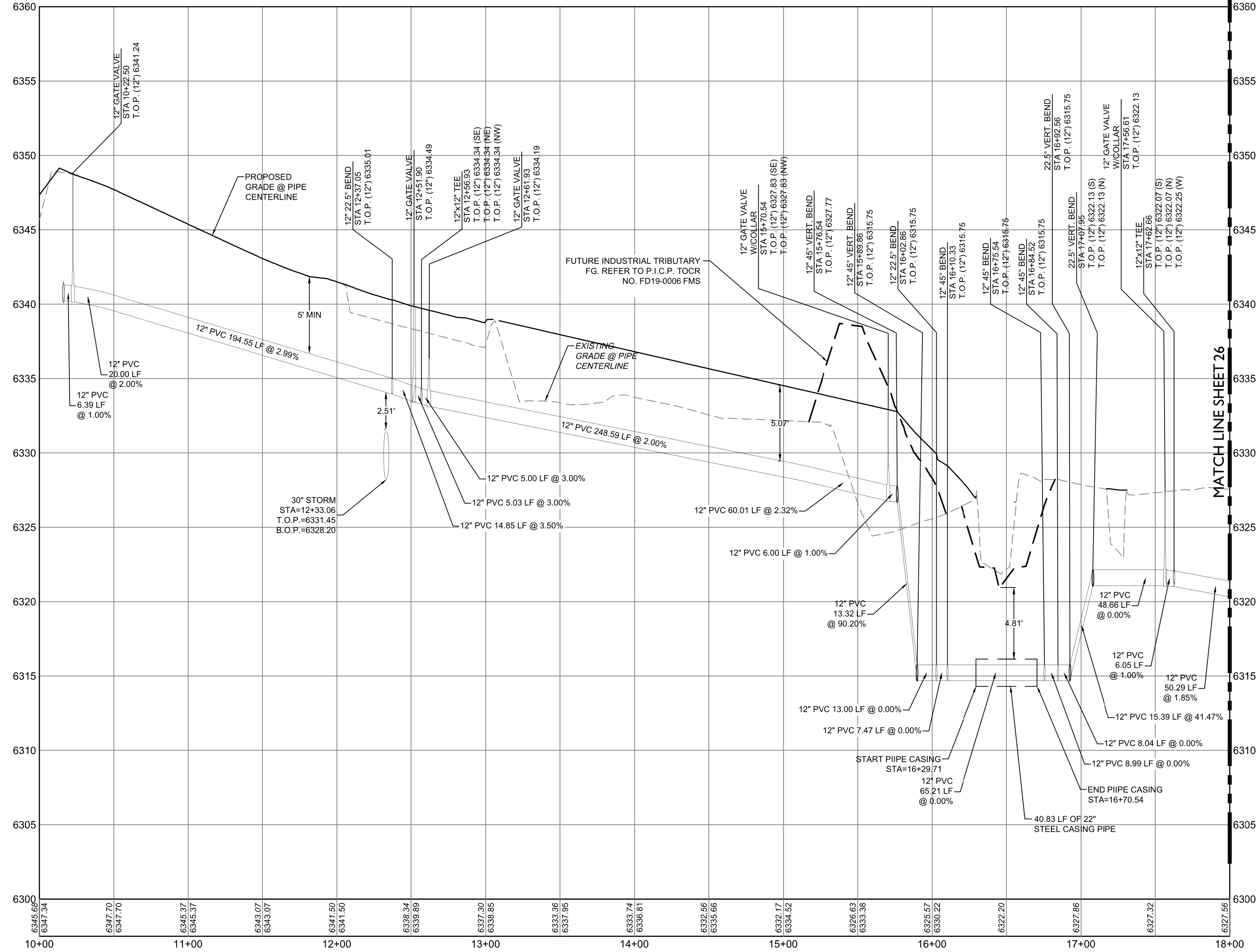
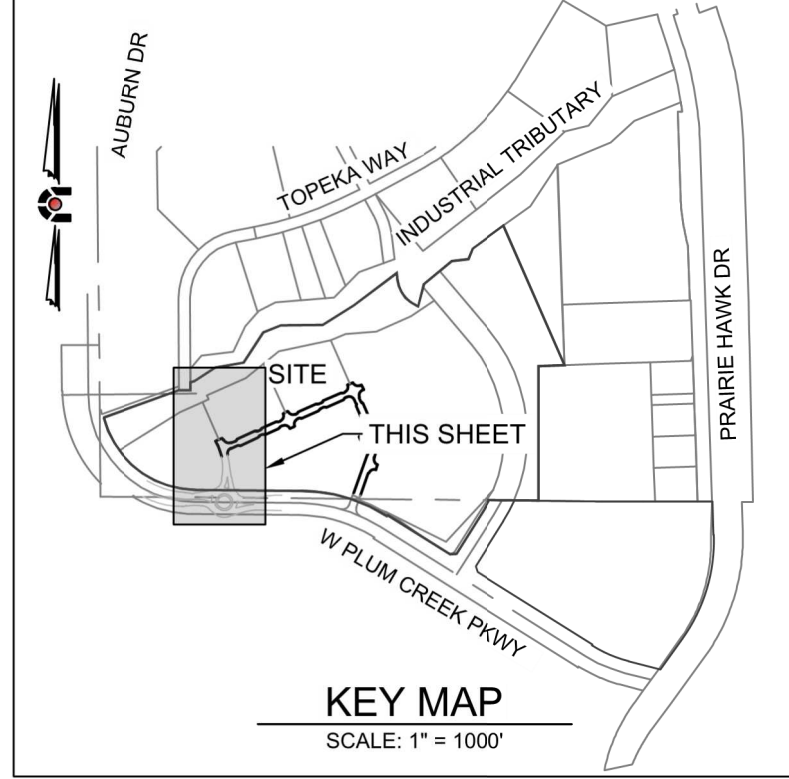
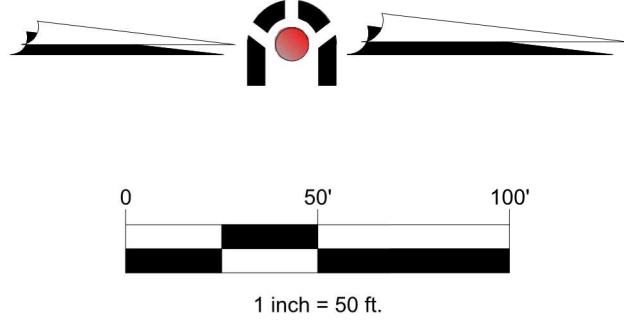




7/15/2022 2:21 PM: X:\17-069 MILLER LANDING\CD\PLAN\PLNG 1\CDSDS-29 WATER P&P.DWG.



## SADDLEMAKER TRAIL- TOPEKA WAY WTR (10+00-18+00)



PROFILE  
HORIZ: 1" = 50'  
VERT: 1" = 5'

### LEGEND

- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED CENTER LINE
- PROPOSED PROPERTY BOUNDARY
- SEWER WITH MANHOLE & PLUG
- PROPOSED SANITARY SERVICE
- PROPOSED WATER SERVICE
- EX. / PR. WATER VALVE
- EX. FIRE HYDRANT ASSEMBLY
- PR. FIRE HYDRANT ASSEMBLY
- WATERLINE REDUCER
- BEND AND THRUST BLOCK
- EX. PLUG W/ BLOW-OFF ASSEMBLY
- AIR RELEASE VALVE (ARV) & VAULT AND VENT
- EX. AIR/VACUUM RELEASE VALVE (ARV) & VAULT AND VENT
- CAP WITH BLOW OFF
- HIGH POINT / LOW POINT
- STORM SEWER
- TOP OF PIPE
- B.O.P.
- BOTTOM OF PIPE

### NOTE:

- THE MINIMUM VERTICAL CLEARANCE BETWEEN A STORM SEWER AND WATER MAIN SHALL BE 18 INCHES. ALL JOINTS SHALL BE LOCATED AS FAR FROM THE CROSSING AS POSSIBLE. EACH JOINT OF A STORM SEWER LOCATED WITHIN THE TRENCH WIDTH OF A WATER MAIN SHALL BE ENCASED IN A CONCRETE COLLAR AT LEAST 6 INCHES THICK AND EXTENDING 6 INCHES TO THE EACH SIDE OF THE STORM SEWER JOINT.

### BASIS OF BEARINGS:

THE BEARINGS FOR THIS DESCRIPTION ARE BASED ON THE NORTH LINE OF THE SOUTHEAST QUARTER OF SECTION 10, TOWNSHIP 8 SOUTH, RANGE 67 WEST OF THE SIXTH P.M., BEARING N 89°27'26" W AS SHOWN ON THE MILLER'S LANDING FILING NO. 1 PLAN.

### BENCHMARK:

BENCHMARK (TABLE A#5): #5 REBAR WITH RED PLASTIC CAP PLS 22561, LOCATED AT THE INTERSECTION OF THE SOUTH LINE OF THE NORTHEAST ONE QUARTER LINE OF SECTION 10 AND THE WESTERLY RIGHT OF WAY LINE OF WEST PLUM CREEK PARKWAY, ELEVATION = 6360.72' (NAVD 88 DATUM).

I HEREBY AFFIRM THAT THESE FINAL CONSTRUCTION PLANS WERE PREPARED UNDER MY DIRECT SUPERVISION, IN ACCORDANCE WITH ALL APPLICABLE TOWN OF CASTLE ROCK AND STATE OF COLORADO STANDARDS AND STATUTES, RESPECTIVELY; AND THAT I AM FULLY RESPONSIBLE FOR ALL DESIGN AND REVISIONS RELATIVE TO SAID PLANS.

ROBERT D. HANSEN, P.E. DATE  
STATE OF COLORADO # 50417

TOWN OF CASTLE ROCK APPROVAL  
PLANS ARE HEREBY APPROVED FOR ONE YEAR FROM DATE OF DEVELOPMENT SERVICES APPROVAL.

APPROVED BY:

DEVELOPMENT SERVICES DATE

CIVIL ENGINEERING  
DEVELOPMENT CONSULTING  
NATURAL RESOURCES CONSULTING  
LAND SURVEYING  
303.703.4444  
1950 W. Litchton Blvd., Ste. 109  
Litchton, CO 80120

CORE  
CONSULTANTS



CALL 2 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND UTILITY LINES.  
CORE ASSUMES NO RESPONSIBILITY FOR EXISTING UTILITY LOCATIONS SHOWN ON THIS DRAWING HAVE BEEN RATTED FROM THE BEST AVAILABLE INFORMATION. IT IS HOWEVER, THE LOCATION OF ALL UTILITIES PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION ACTIVITY.

| # | REVISION DESCRIPTION | DATE     | BY |
|---|----------------------|----------|----|
| 1 | APPROVED PLANS       | 07/15/22 | RH |

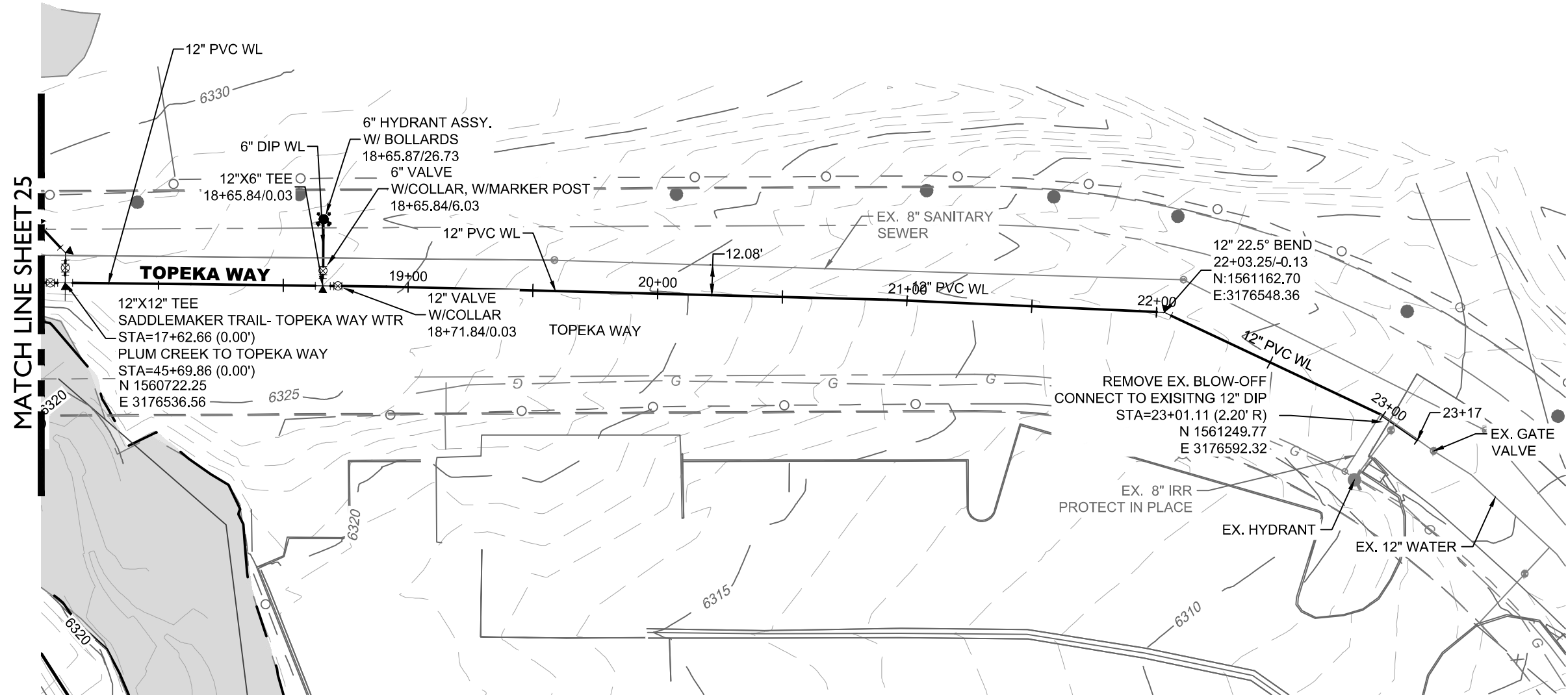
MILLER'S LANDING PHASE I  
CASTLE ROCK, COLORADO  
CONSTRUCTION DOCUMENTS  
WATER P&P

DESIGNED BY: LMK  
DRAWN BY: LMK  
CHECKED BY: RH

JOB NO.  
17-069-001  
SHEET  
25 OF 56

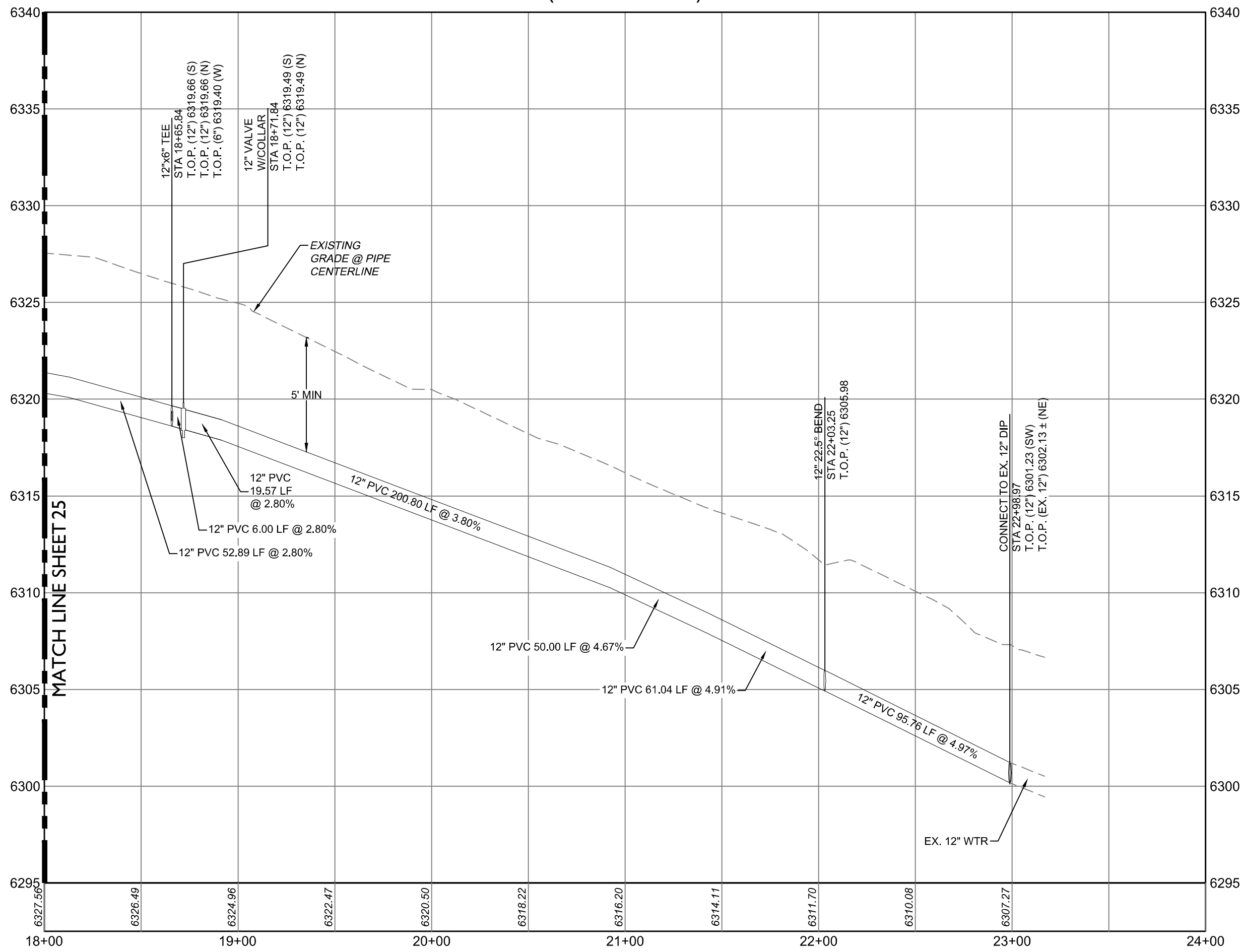
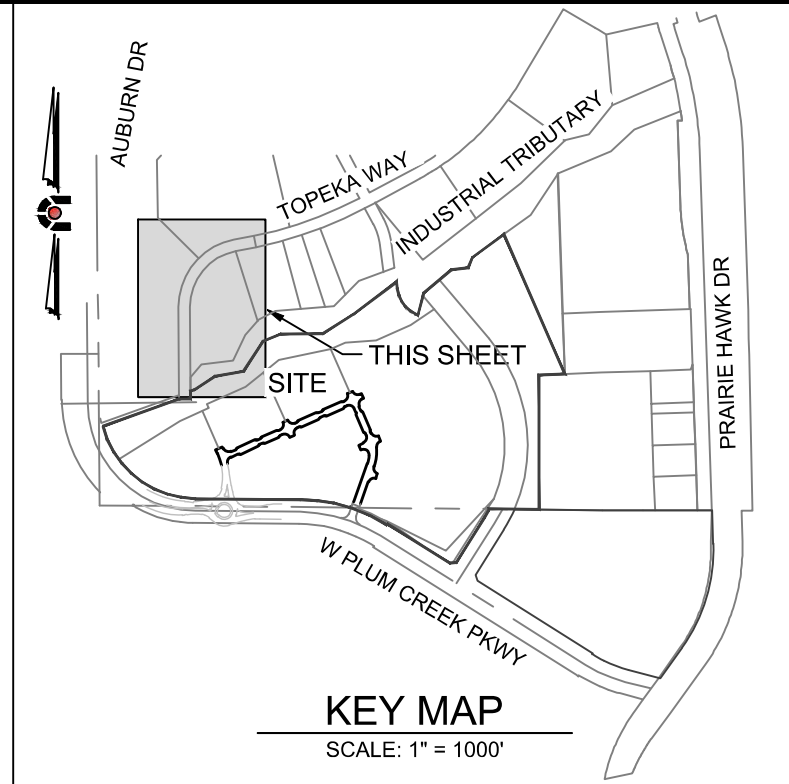
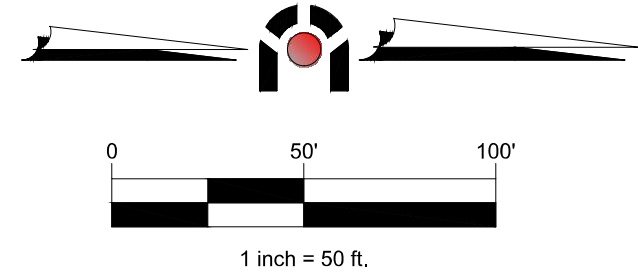
TOCR PROJ. NO. CD19-2019





## SADDLEMAKER TRAIL- TOPEKA WAY WTR

(18+00-24+00)



PROFILE  
HORIZ: 1" = 50'  
VERT: 1" = 5'

### LEGEND

|     |                                                     |
|-----|-----------------------------------------------------|
| --- | PROPOSED EASEMENT                                   |
| --- | PROPOSED R.O.W.                                     |
| --- | PROPOSED CENTER LINE                                |
| --- | PROPOSED PROPERTY BOUNDARY                          |
| --- | SEWER WITH MANHOLE & PLUG                           |
| --- | PROPOSED SANITARY SERVICE                           |
| --- | PROPOSED WATER SERVICE                              |
| --- | EX. / PR. WATER VALVE                               |
| --- | EX. FIRE HYDRANT ASSEMBLY                           |
| --- | PR. FIRE HYDRANT ASSEMBLY                           |
| --- | WATERLINE REDUCER                                   |
| --- | BEND AND THRUST BLOCK                               |
| --- | EX. PLUG W/ BLOW-OFF ASSEMBLY                       |
| --- | AIR RELEASE VALVE (ARV) & VAULT AND VENT            |
| --- | EX. AIR/VACUUM RELEASE VALVE (ARV) & VAULT AND VENT |
| --- | CAP WITH BLOW OFF                                   |
| --- | HP / LP                                             |
| --- | STORM SEWER                                         |
| --- | TOP OF PIPE                                         |
| --- | B.O.P.                                              |
| --- | BOTTOM OF PIPE                                      |

- THE MINIMUM VERTICAL CLEARANCE BETWEEN A STORM SEWER AND WATER MAIN SHALL BE 18 INCHES. ALL JOINTS SHALL BE LOCATED AS FAR FROM THE CROSSING AS POSSIBLE. EACH JOINT OF A STORM SEWER LOCATED WITHIN THE TRENCH WIDTH OF A WATER MAIN SHALL BE ENCASED IN A CONCRETE COLLAR AT LEAST 6 INCHES THICK AND EXTENDING 6 INCHES TO EACH SIDE OF THE STORM SEWER JOINT.
- CONTRACTOR SHALL PROVIDE A MINIMUM SEVENTY TWO (72) HOURS NOTICE TO THE ON-SITE TCR CONSTRUCTION INSPECTOR, (720) 733-2200, PRIOR TO MAKING ANY CONNECTIONS OR TIE-INS TO EXISTING WATER, SANITARY SEWER, AND/OR STORM SEWER SYSTEMS PROVIDED THAT THE UTILITY TIE-IN DOES NOT DISRUPT SERVICE TO EXISTING OR WATER CUSTOMERS. IF THE TIE-IN WILL DISRUPT UTILITY SERVICE, THEN CONTRACTOR SHALL PROVIDE A MINIMUM OF THREE (3) WEEKS NOTICE TO THE TCR CONSTRUCTION INSPECTOR TO ALLOW TIME FOR CR WATER TO PROVIDE WRITTEN NOTIFICATION TO EXISTING CUSTOMERS AFFECTED BY THE TIE-IN. ALL TOWN UTILITY TIE-INS MUST BE APPROVED BY CR WATER PRIOR TO COMMENCING WORK.

### BASIS OF BEARINGS:

THE BEARINGS FOR THIS DESCRIPTION ARE BASED ON THE NORTH LINE OF THE SOUTHEAST QUARTER OF SECTION 10, TOWNSHIP 8 SOUTH, RANGE 67 WEST OF THE SIXTH P.M., BEARING N 89°27'26" W AS SHOWN ON THE MILLER'S LANDING FILING NO. 1 PLAN.

### BENCHMARK:

BENCHMARK (TABLE A#5): #5 REBAR WITH RED PLASTIC CAP PLS 22561, LOCATED AT THE INTERSECTION OF THE SOUTH LINE OF THE NORTHEAST ONE QUARTER LINE OF SECTION 10 AND THE WESTERLY RIGHT OF WAY LINE OF WEST PLUM CREEK PARKWAY, ELEVATION = 6360.72' (NAVD 88 DATUM).

I HEREBY AFFIRM THAT THESE FINAL CONSTRUCTION PLANS WERE PREPARED UNDER MY DIRECT SUPERVISION, IN ACCORDANCE WITH ALL APPLICABLE TOWN OF CASTLE ROCK AND STATE OF COLORADO STANDARDS AND STATUTES, RESPECTIVELY; AND THAT I AM FULLY RESPONSIBLE FOR ALL DESIGN AND REVISIONS RELATIVE TO SAID PLANS.

ROBERT D. HANSEN, P.E. DATE  
STATE OF COLORADO # 50417

TOWN OF CASTLE ROCK APPROVAL  
PLANS ARE HEREBY APPROVED FOR ONE YEAR FROM DATE OF DEVELOPMENT SERVICES APPROVAL.

APPROVED BY: \_\_\_\_\_

DEVELOPMENT SERVICES DATE

CIVIL ENGINEERING  
DEVELOPMENT CONSULTING  
NATURAL RESOURCES CONSULTING  
LAND SURVEYING  
303.703.4444  
1950 W. Littleton Blvd., Ste. 109  
Littleton, CO 80120



CALL 2 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND UTILITY LINES.  
CORE ASSUMES NO RESPONSIBILITY FOR EXISTING UTILITY LINES SHOWN ON THIS DRAWING HAVE BEEN LOCATED FROM THE BEST AVAILABLE INFORMATION. IT IS HOWEVER, THE LOCATION OF ALL UTILITIES PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION ACTIVITY.

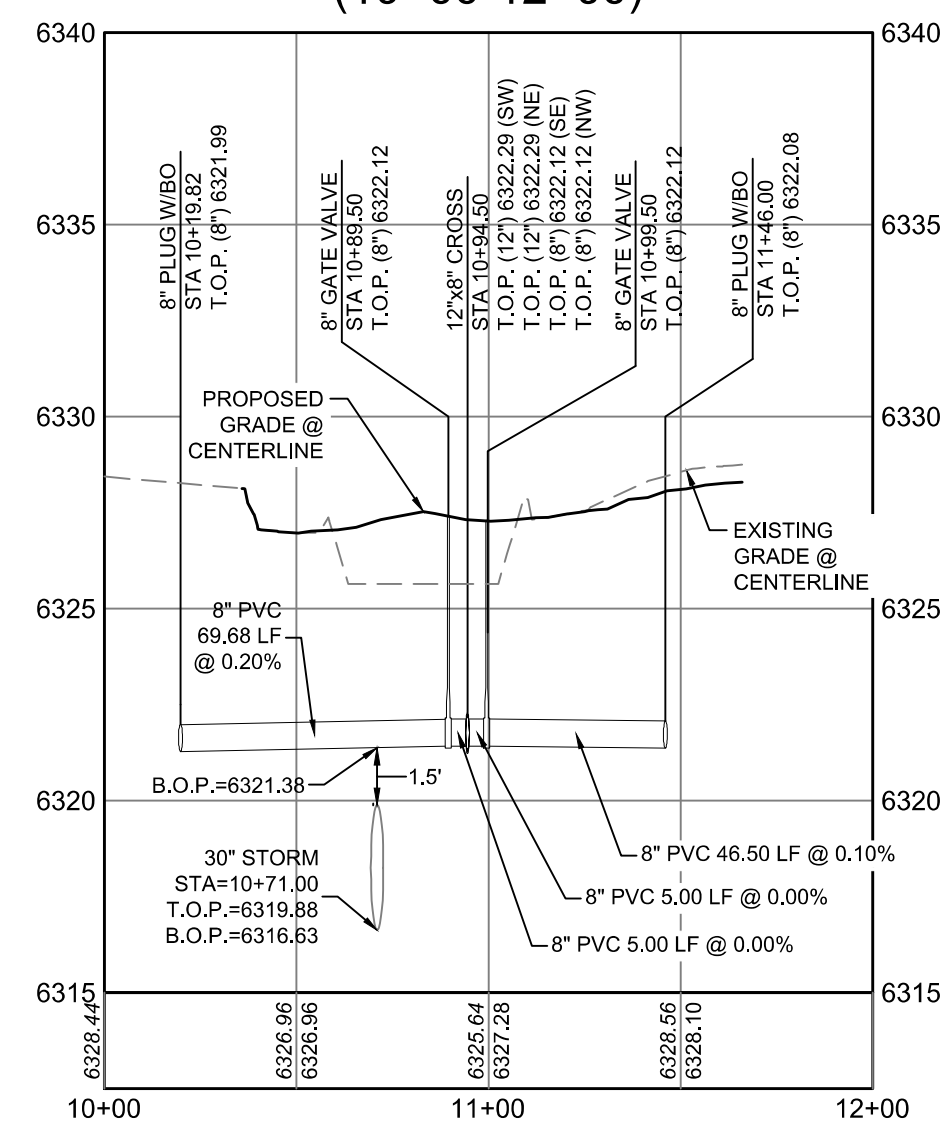
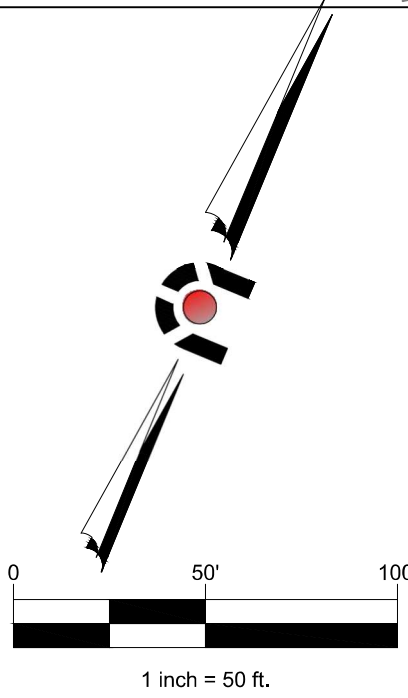
| # | REVISION DESCRIPTION | DATE     | BY |
|---|----------------------|----------|----|
| 1 | APPROVED PLANS       | 07/15/22 | RH |

MILLER'S LANDING PHASE I  
CASTLE ROCK, COLORADO  
CONSTRUCTION DOCUMENTS  
WATER P&P

DESIGNED BY: LMK  
DRAWN BY: LMK  
CHECKED BY: RH

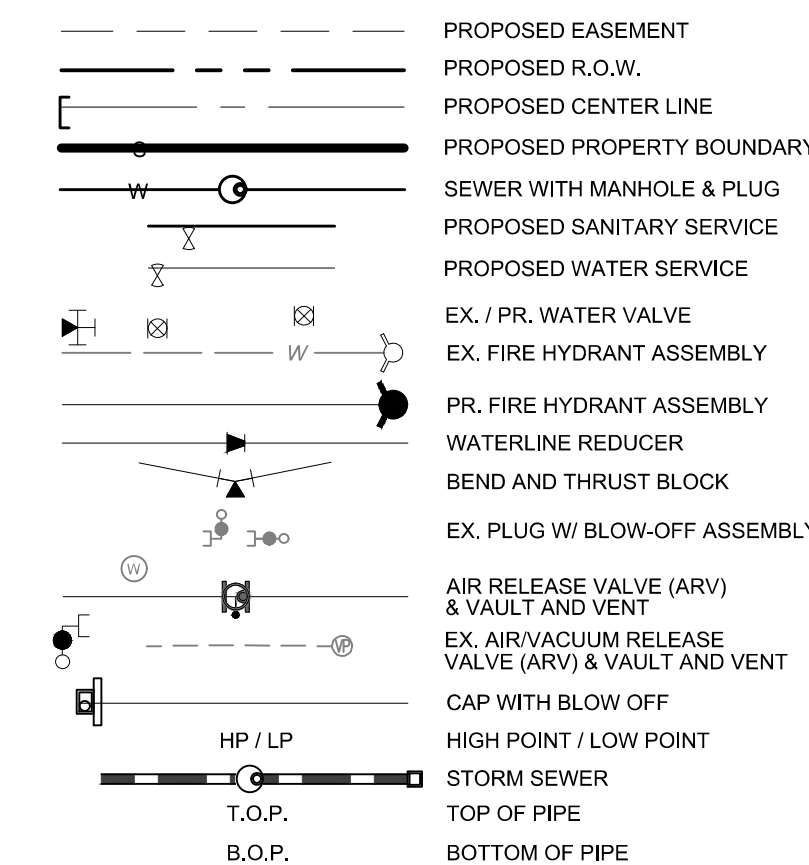
JOB NO.  
17-069-001  
SHEET  
26 OF 56





PROFILE  
HORIZ: 1" = 50'  
VERT: 1" = 5'

## LEGEND



NOTE:

1. THE MINIMUM VERTICAL CLEARANCE BETWEEN A STORM SEWER AND WATER MAIN SHALL BE 18 INCHES. ALL JOINTS SHALL BE LOCATED AS FAR FROM THE CROSSING AS POSSIBLE. EACH JOINT OF A STORM SEWER LOCATED WITHIN THE TRENCH WIDTH OF A WATER MAIN SHALL BE ENCASED IN A CONCRETE COLLAR AT LEAST 6 INCHES THICK AN EXTENDING 6 INCHES TO THE EACH SIDE OF THE STORM SEWER JOINT.
2. ALL STUB OUTS AND TEMPORARY BLOW OFFS ARE TO BE FULLY RESTRAINED BACK TO THE TEE.

BASIS OF BEARINGS:

THE BEARINGS FOR THIS DESCRIPTION ARE BASED ON THE NORTH LINE OF THE SOUTHEAST QUARTER OF SECTION 10, TOWNSHIP 8 SOUTH, RANGE 67 WEST OF THE SIXTH P.M., BEARING N 89°27'26" W AS SHOWN ON THE MILLER'S LANDING FILING NO. 1 PLAT.

## BENCHMARK

BENCHMARK (TABLE A#5): #5 REBAR WITH RED PLASTIC CAP PLS 2256' LOCATED AT THE INTERSECTION OF THE SOUTH LINE OF THE NORTHEAST ONE QUARTER LINE OF SECTION 10 AND THE WESTERLY RIGHT OF WAY LINE OF WEST PLUM CREEK PARKWAY, ELEVATION = 6360.72' (NAVD 88 DATUM).

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|                           |      |
|---------------------------|------|
| ROBERT D. HANSEN, P.E.    | DATE |
| STATE OF COLORADO # 50417 |      |

TOWN OF CASTLE ROCK APPROVAL  
PLANS ARE HEREBY APPROVED FOR ONE YEAR FROM  
DATE OF DEVELOPMENT SERVICES APPROVAL.

APPROVED BY: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

| DEVELOPMENT SERVICES | DATE |
|----------------------|------|
|----------------------|------|

CIVIL ENGINEERING  
DEVELOPMENT CONSULTING  
NATURAL RESOURCES CONSULTING  
LAND SURVEYING  
**303.703.4444**  
1950 W. Littleton Blvd., Ste. 109  
Littleton, CO 80120

**CORE**  
CONSULTANTS



CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

Know what's below.  
Call before you dig.

| # | REVISION DESCRIPTION | DATE BY     |
|---|----------------------|-------------|
| 1 | APPROVED PLANS       | 07/15/22 RH |
|   |                      |             |
|   |                      |             |
|   |                      |             |

**OWNER'S LANDING PHASE I**  
CASTLE ROCK, COLORADO

**CONSTRUCTION DOCUMENTS**  
WATER P&P

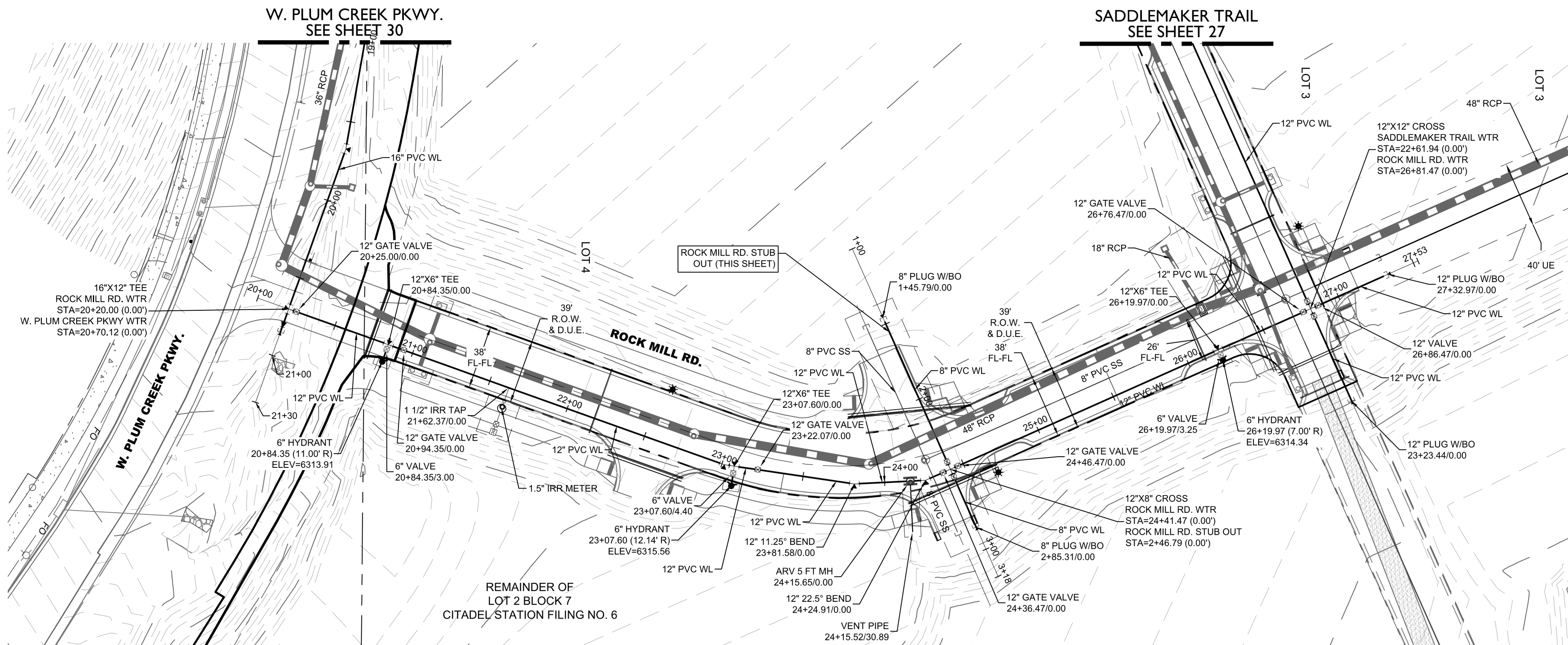
DESIGNED BY: LMK  
DRAWN BY: LMK  
CHECKED BY: RH

|                       |
|-----------------------|
| JOB NO.<br>17-069-001 |
| SHEET<br>27 OF 56     |

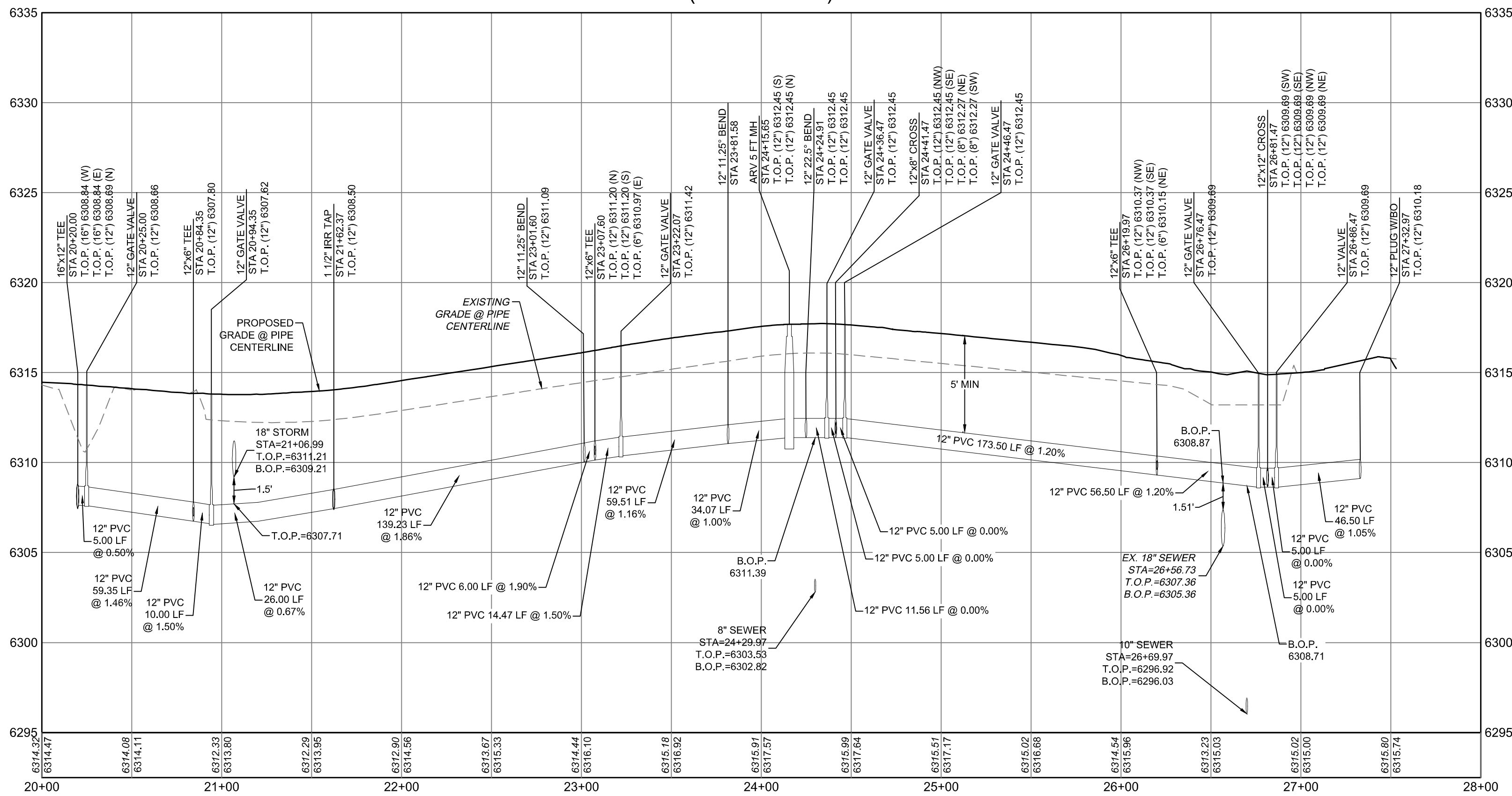
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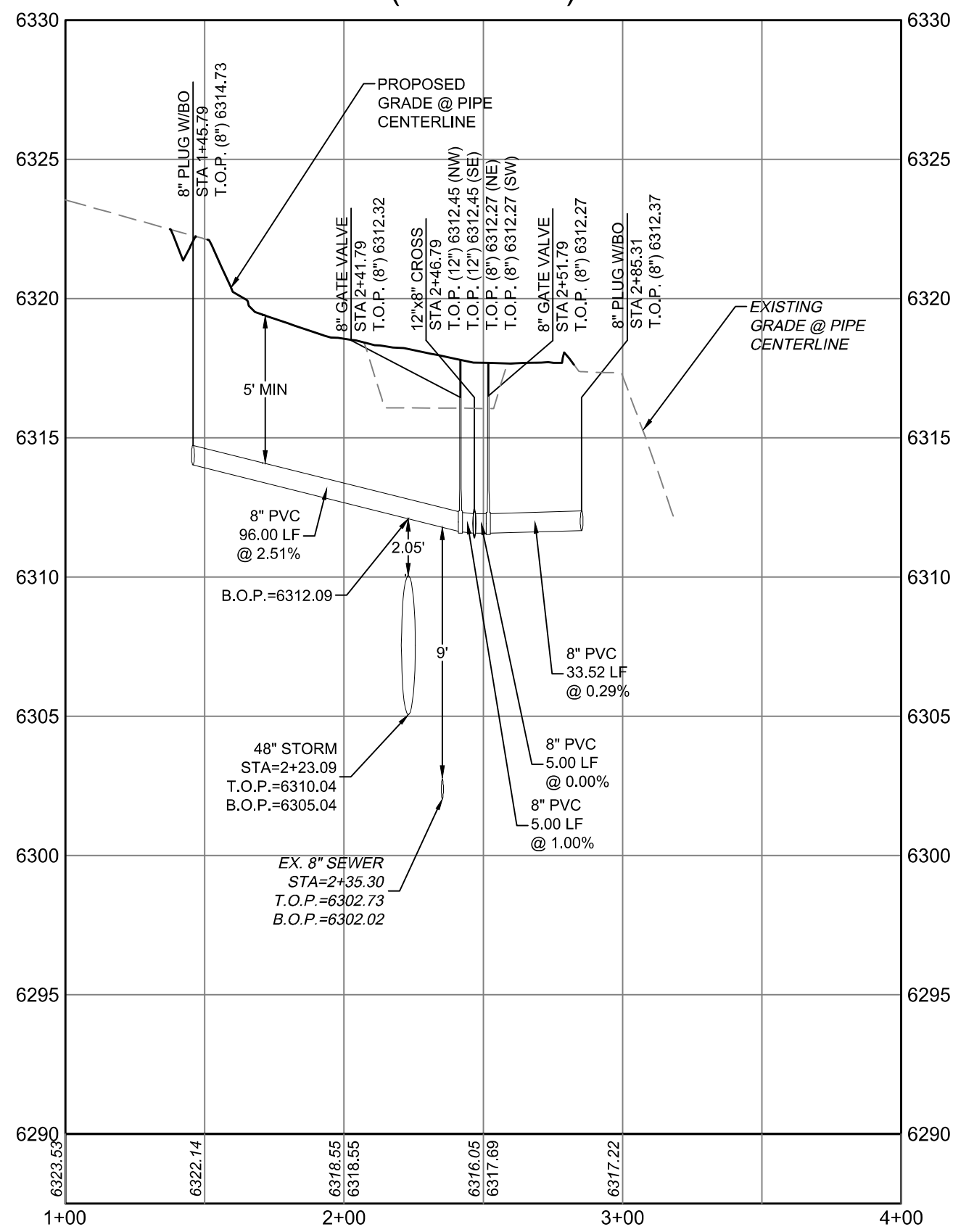
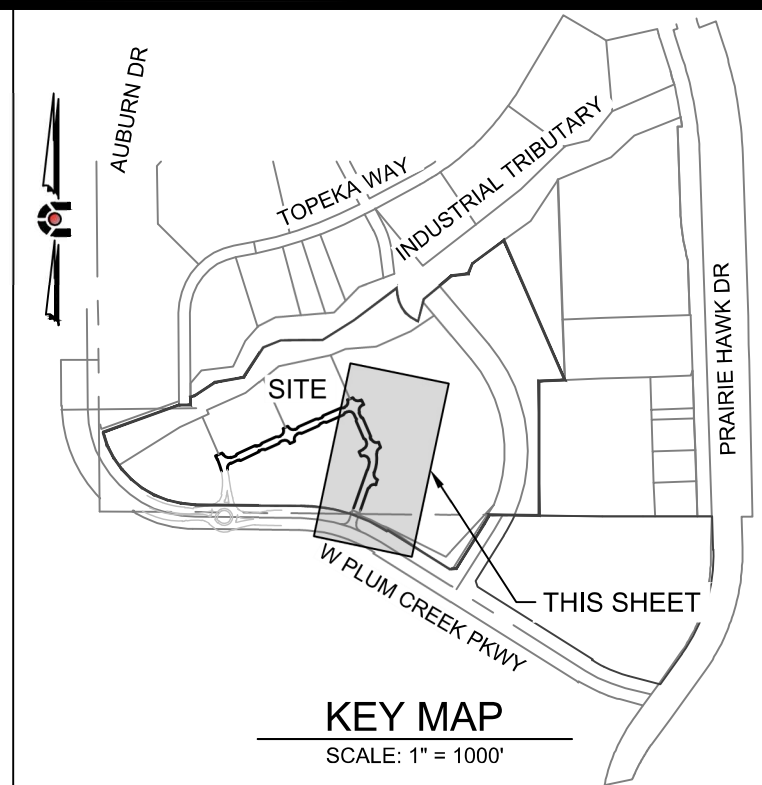
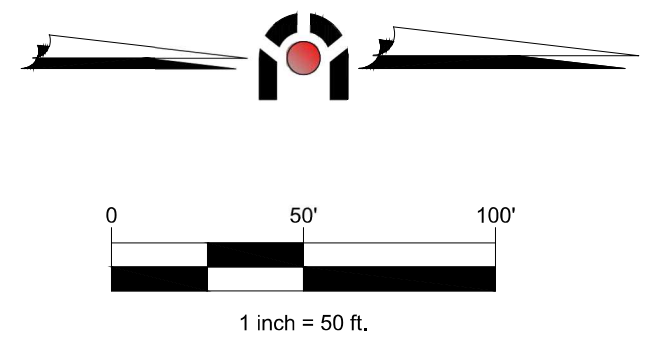
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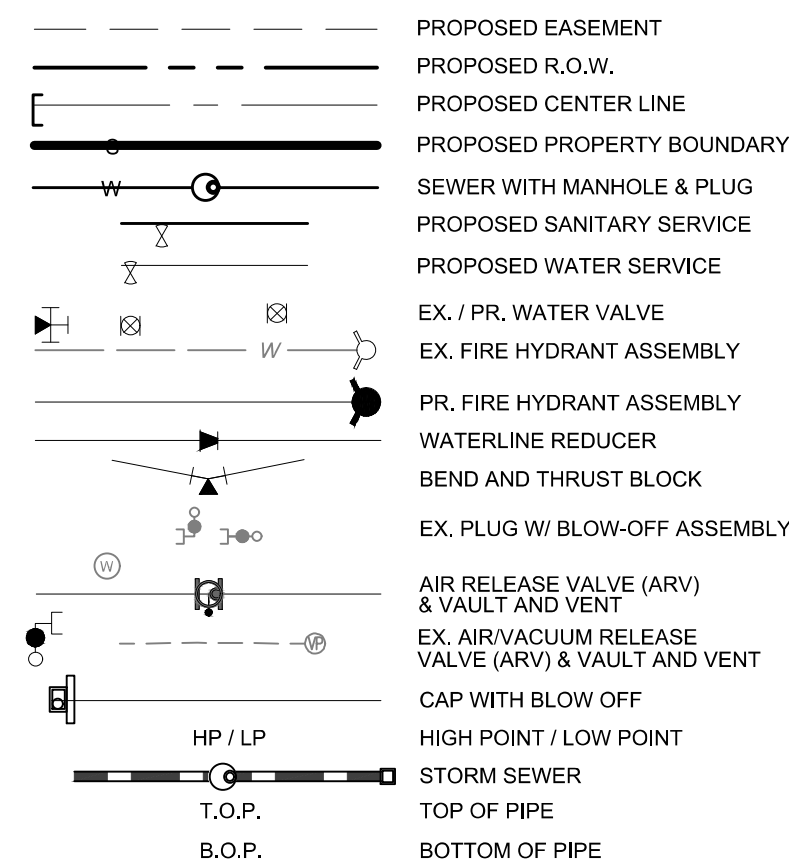
## ROCK MILL RD. WTR (20+00-28+00)



## ROCK MILL RD. STUB OUT (1+00-4+00)



### LEGEND



### NOTE:

1. THE MINIMUM VERTICAL CLEARANCE BETWEEN A STORM SEWER AND WATER MAIN SHALL BE 18 INCHES. ALL JOINTS SHALL BE LOCATED AS FAR FROM THE CROSSING AS POSSIBLE. EACH JOINT OF A STORM SEWER LOCATED WITHIN THE TRENCH WIDTH OF A WATER MAIN SHALL BE ENCASED IN A CONCRETE COLLAR AT LEAST 6 INCHES THICK AND EXTENDING 6 INCHES TO THE EACH SIDE OF THE STORM SEWER JOINT.
2. ALL STUB OUTS AND TEMPORARY BLOW OFFS ARE TO BE FULLY RESTRAINED BACK TO THE TEE.

### BASIS OF BEARINGS:

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### BENCHMARK:

BENCHMARK (TABLE A#5): #5 REBAR WITH RED PLASTIC CAP PLS 22561, LOCATED AT THE INTERSECTION OF THE SOUTH LINE OF THE NORTHEAST ONE QUARTER LINE OF SECTION 10 AND THE WESTERLY RIGHT OF WAY LINE OF WEST PLUM CREEK PARKWAY, ELEVATION = 6360.72' (NAVD 88 DATUM).

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|                                                                                                                    |      |
|--------------------------------------------------------------------------------------------------------------------|------|
| ROBERT D. HANSEN, P.E.<br>STATE OF COLORADO # 60417                                                                | DATE |
| TOWN OF CASTLE ROCK APPROVAL<br>PLANS ARE HEREBY APPROVED FOR ONE YEAR FROM DATE OF DEVELOPMENT SERVICES APPROVAL. |      |
| APPROVED BY:                                                                                                       |      |
| DEVELOPMENT SERVICES                                                                                               | DATE |

CIVIL ENGINEERING  
DEVELOPMENT CONSULTING  
NATURAL RESOURCES CONSULTING  
LAND SURVEYING  
303.703.4444  
1950 W. Litchton Blvd., Ste. 109  
Litchton, CO 80120



CALL 2 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND UTILITY LINES.  
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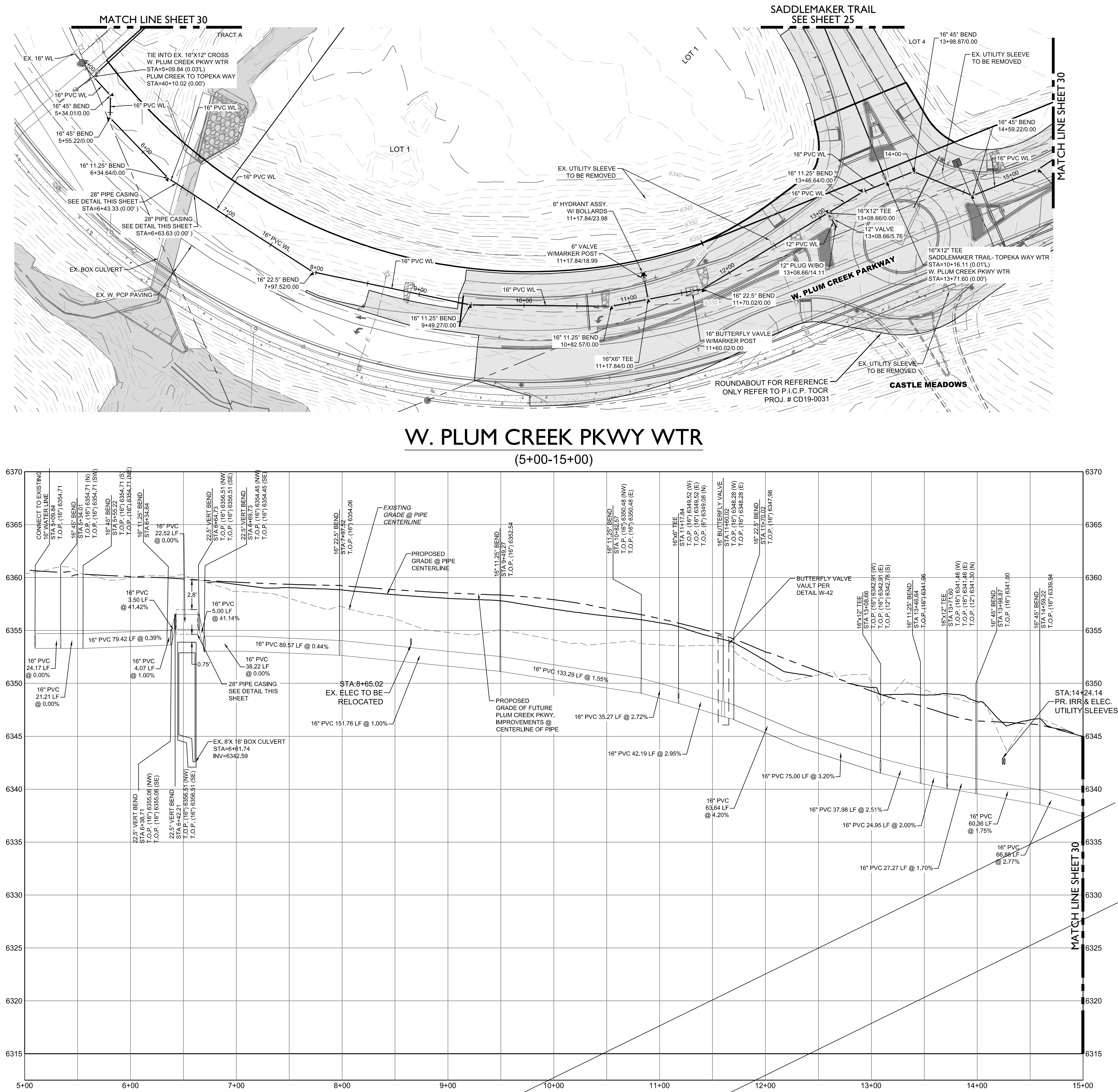
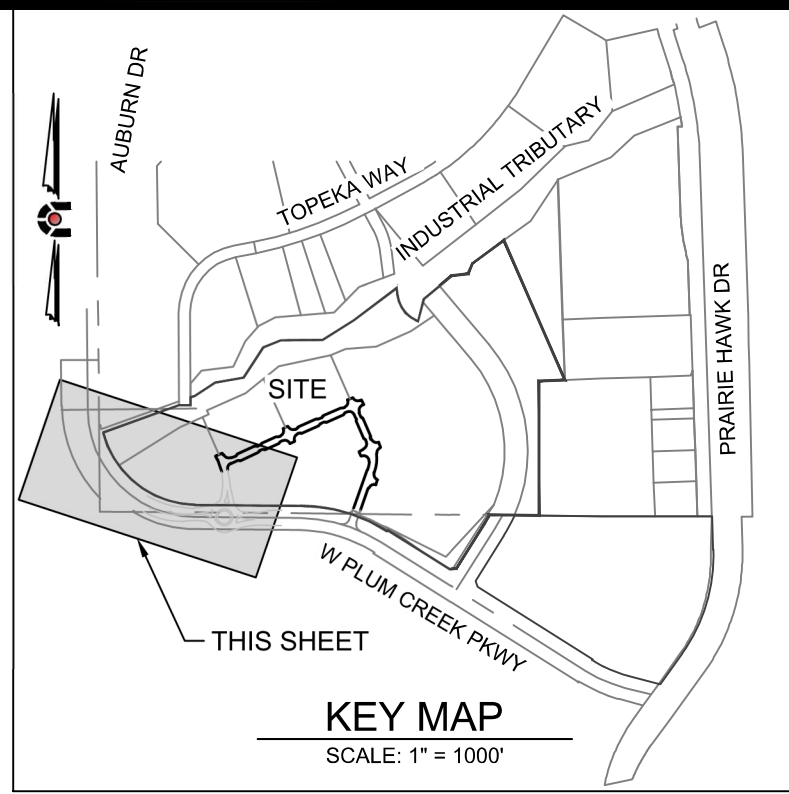
| # | REVISION DESCRIPTION | DATE BY     |
|---|----------------------|-------------|
| 1 | APPROVED PLANS       | 07/15/22 RH |
|   |                      |             |
|   |                      |             |
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**MILLER'S LANDING PHASE I**  
CASTLE ROCK, COLORADO  
CONSTRUCTION DOCUMENTS  
WATER P&P

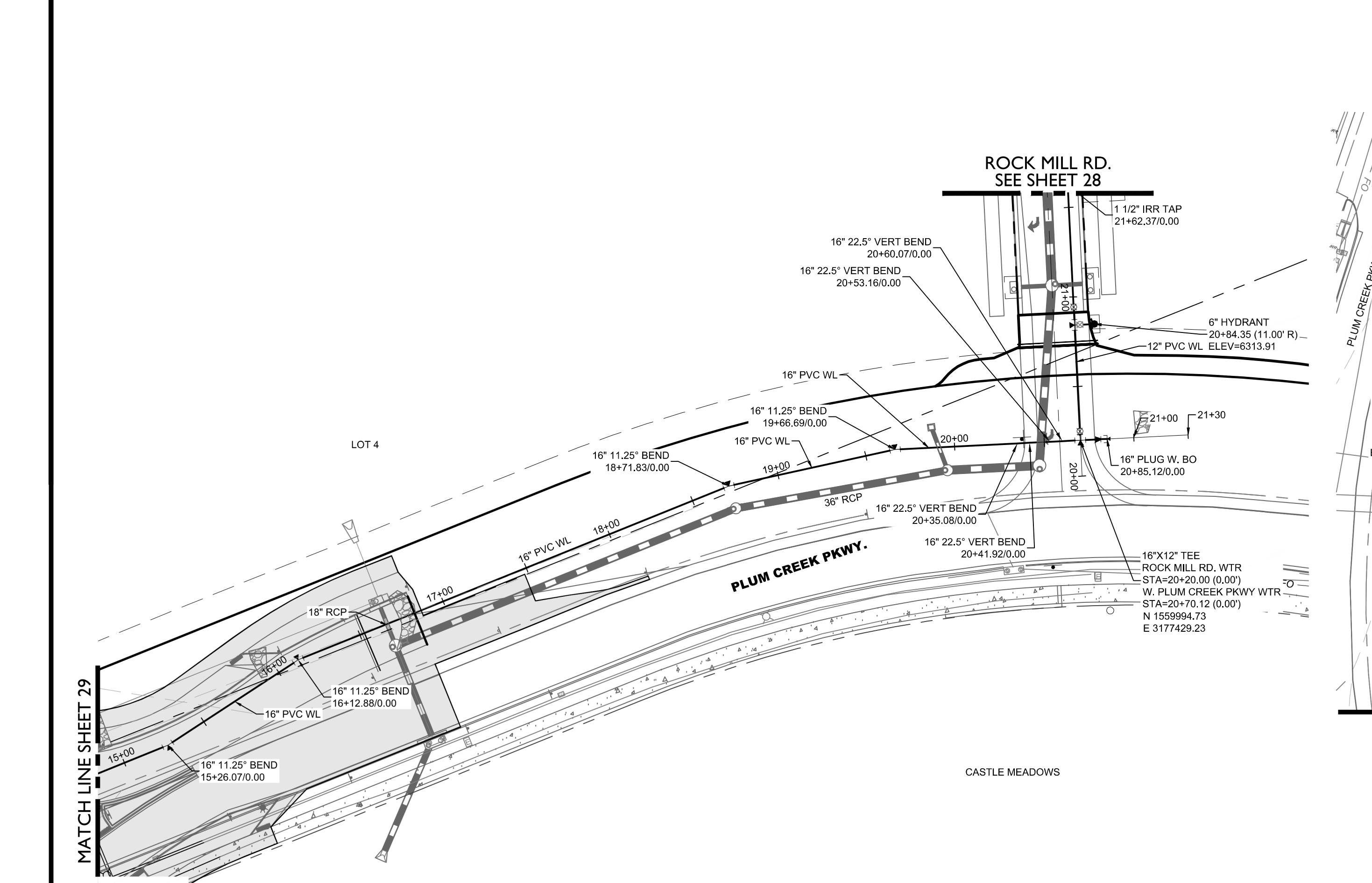
DESIGNED BY: LMK  
DRAWN BY: LMK  
CHECKED BY: RH  
JOB NO.  
17-069-001  
SHEET  
28 OF 56

LOCK PROJ. NO. CDP19-2019

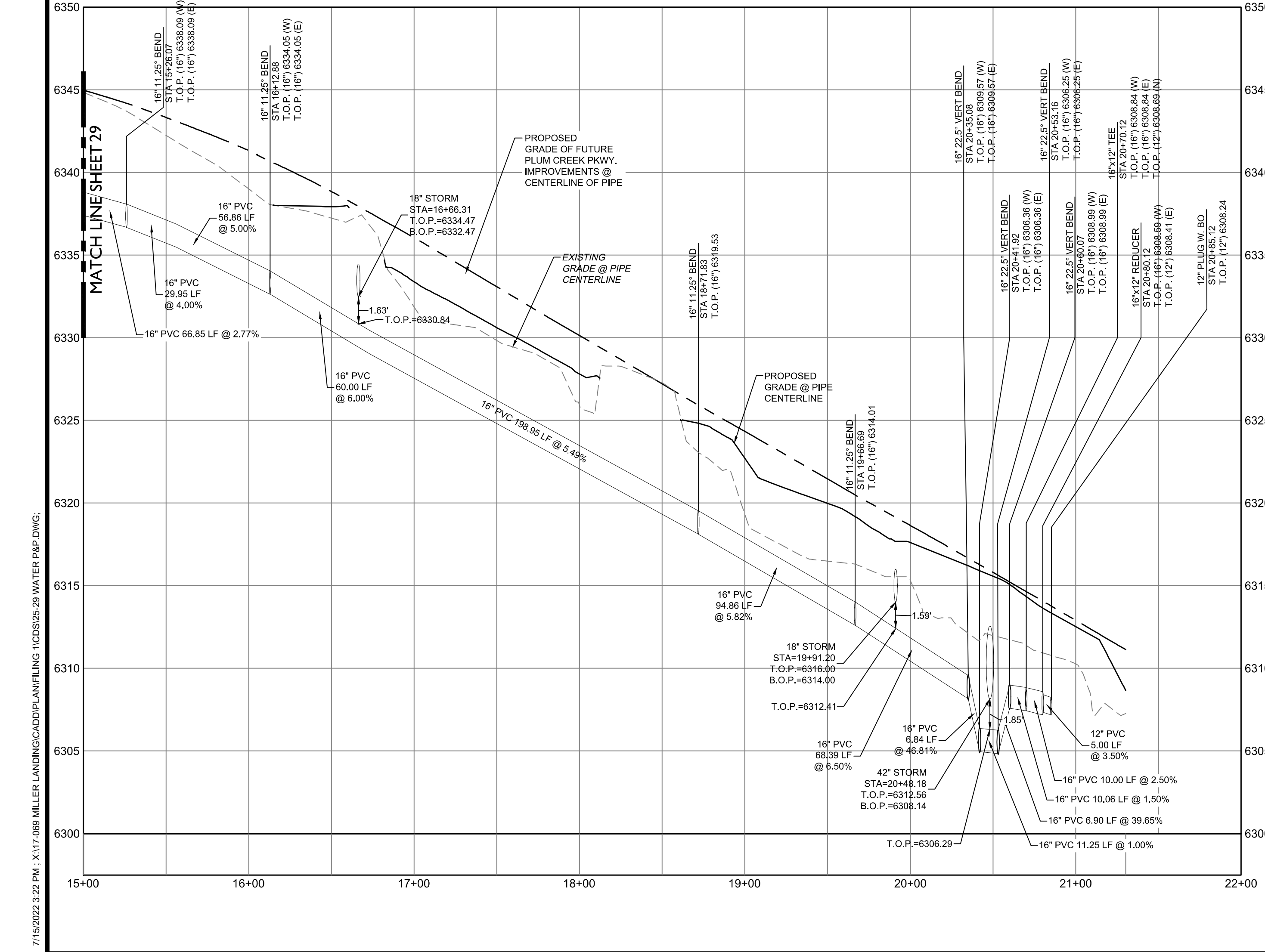
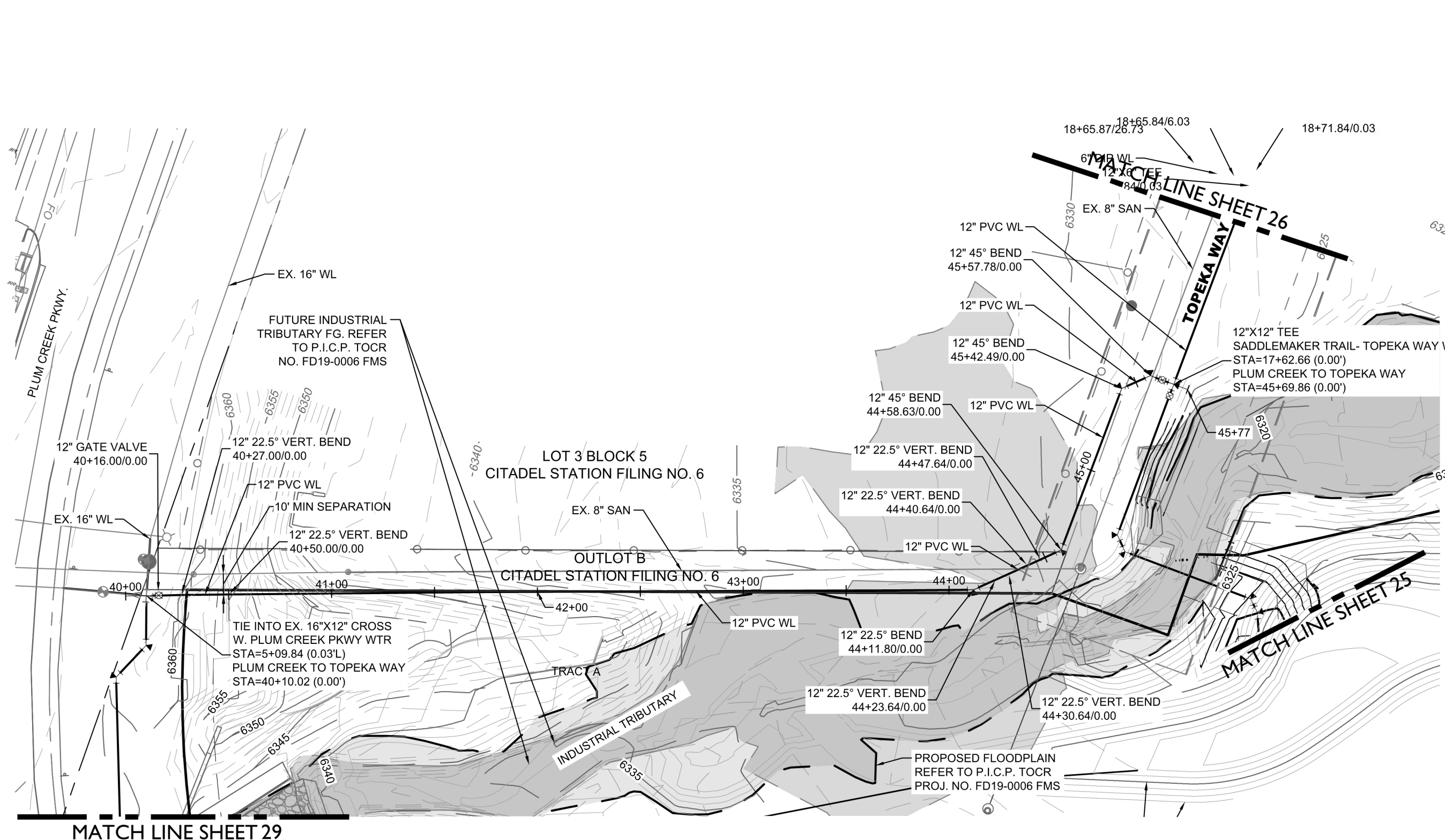




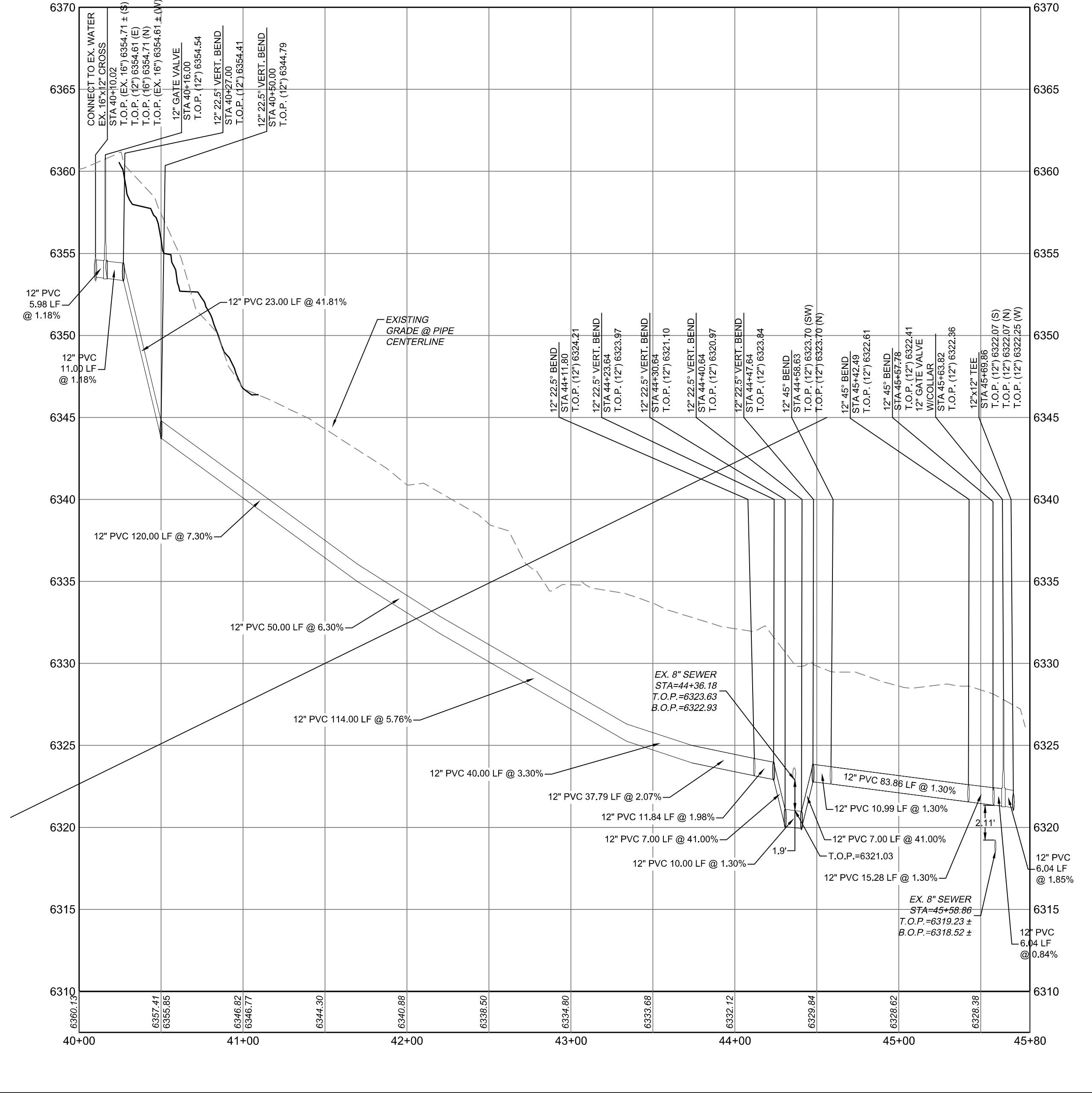




W. PLUM CREEK PKWY WTR  
(15+00-22+00)



PLUM CREEK TO TOPEKA WAY  
(40+00-45+80)



**KEY MAP**  
SCALE: 1" = 100'

**LEGEND**

- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED CENTER LINE
- PROPOSED PROPERTY BOUNDARY
- SEWER WITH MANHOLE & PLUG
- PROPOSED SANITARY SERVICE
- PROPOSED WATER SERVICE
- EX. / PR. WATER VALVE
- EX. FIRE HYDRANT ASSEMBLY
- PR. FIRE HYDRANT ASSEMBLY
- WATERLINE REDUCER
- BEND AND THRUST BLOCK
- EX. PLUG W/ BLOW-OFF ASSEMBLY
- AIR RELEASE VALVE (ARV) & VAULT AND VENT
- EX. AIR/VACUUM RELEASE VALVE (ARV) & VAULT AND VENT
- CAP WITH BLOW OFF
- HIGH POINT / LOW POINT
- STORM SEWER
- TOP OF PIPE
- B.O.P.
- BOTTOM OF PIPE

**1.** THE MINIMUM VERTICAL CLEARANCE BETWEEN A STORM SEWER AND WATER MAIN SHALL BE 18 INCHES. ALL JOINTS SHALL BE LOCATED AS FAR FROM THE CROSSING AS POSSIBLE. EACH JOINT OF A STORM SEWER LOCATED WITHIN THE TRENCH WIDTH OF A WATER MAIN SHALL BE ENCASED IN A CONCRETE COLLAR AT LEAST 6 INCHES THICK AND EXTENDING 6 INCHES TO THE EACH SIDE OF THE STORM SEWER JOINT.

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ROBERT D. HANSEN, P.E.  
STATE OF COLORADO # 50417

DATE

TOWN OF CASTLE ROCK APPROVAL  
PLANS ARE HEREBY APPROVED FOR ONE YEAR FROM DATE OF DEVELOPMENT SERVICES APPROVAL.

APPROVED BY:

DEVELOPMENT SERVICES

DATE

CIVIL ENGINEERING  
DEVELOPMENT CONSULTING  
NATURAL RESOURCES CONSULTING  
LAND SURVEYING  
303.703.4444  
1950 W. Litchton Blvd., Ste. 109  
Litchton, CO 80120

**CORE**  
CONSULTANTS

CALL 3 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND UTILITY LINES.

Know what's below.  
Call before you dig.  
**811**

DATE BY: 07/15/22 RH

# REVISION DESCRIPTION

| # | REVISION DESCRIPTION |
|---|----------------------|
| 1 | APPROVED PLANS       |

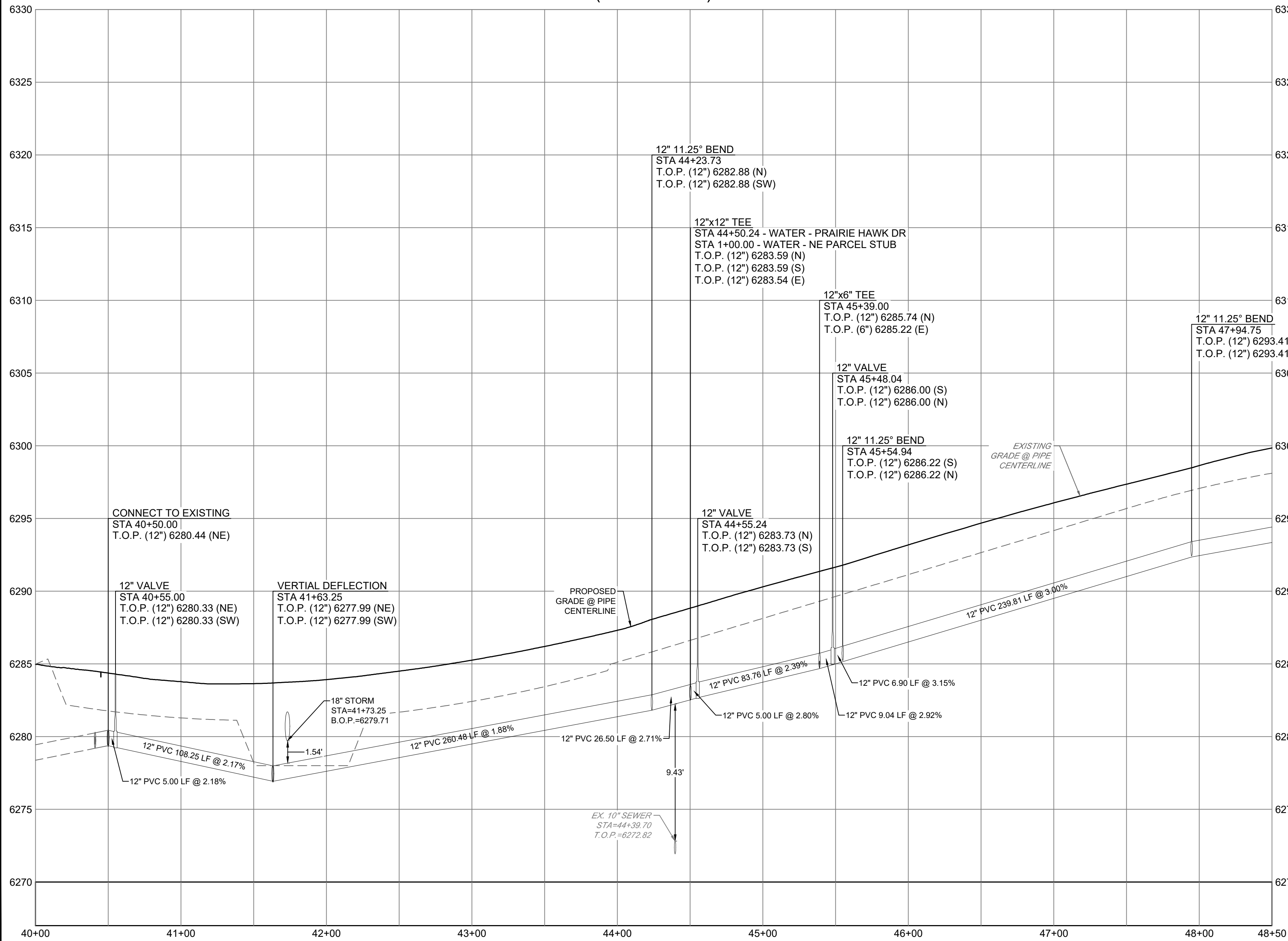
**MILLER'S LANDING PHASE I**  
CASTLE ROCK, COLORADO  
CONSTRUCTION DOCUMENTS  
WATER P&P

DESIGNED BY: LMK  
DRAWN BY: LMK  
CHECKED BY: RH

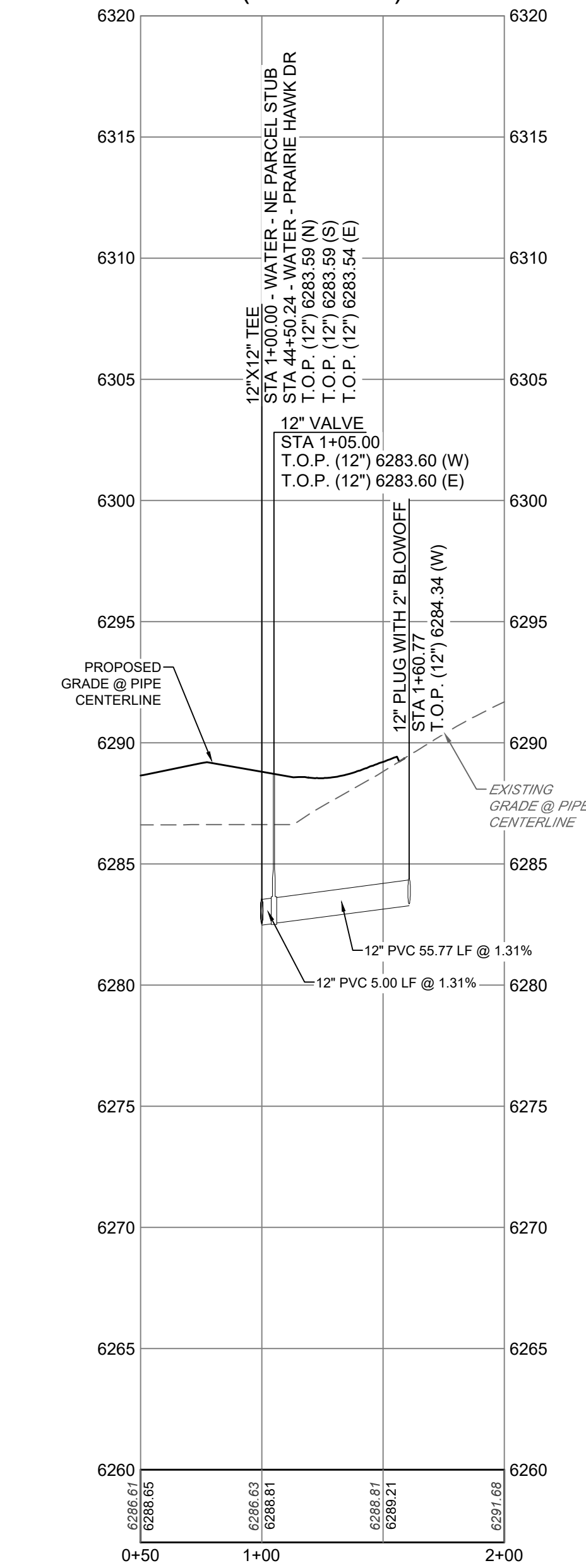
JOB NO. 17-069-001  
SHEET 30 OF 56

PROJECT NO. CDR-2019

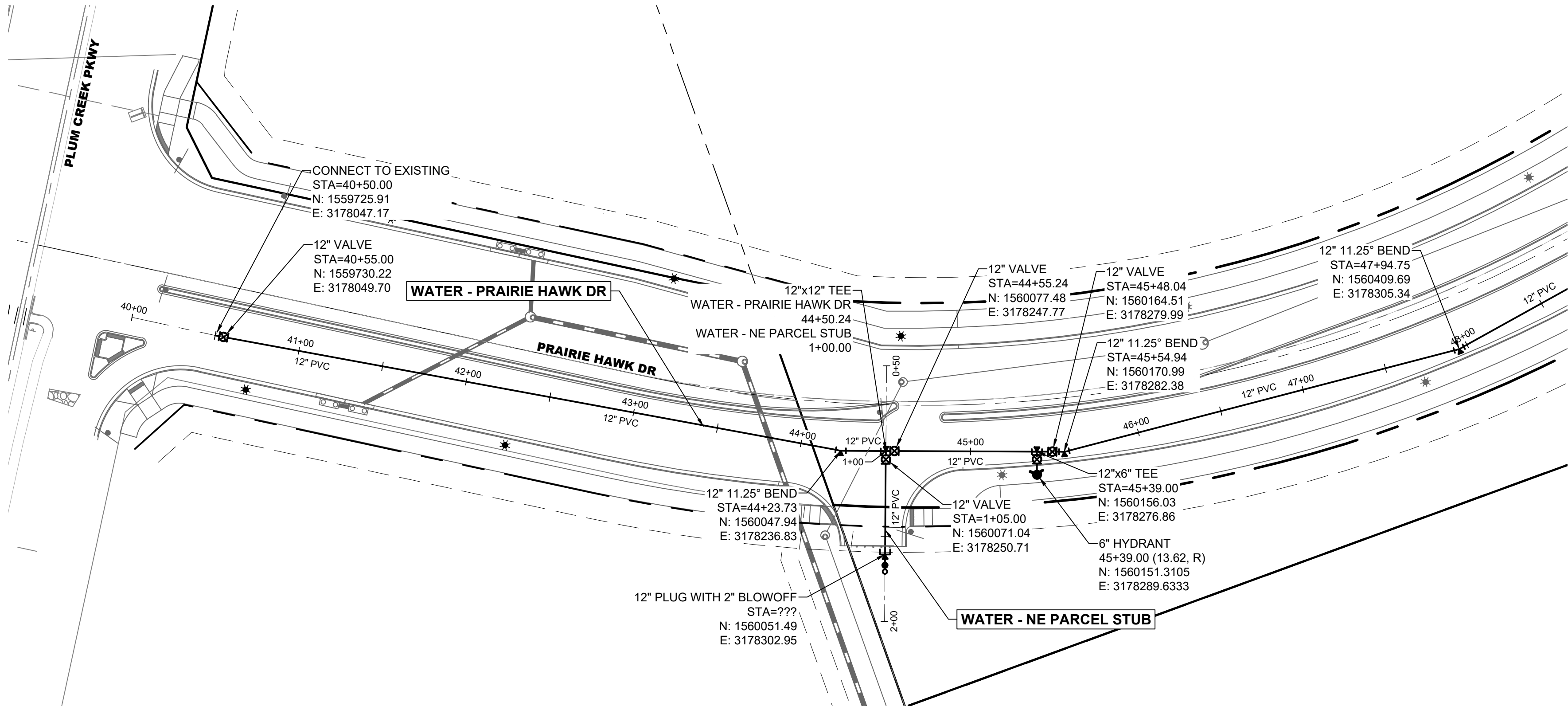
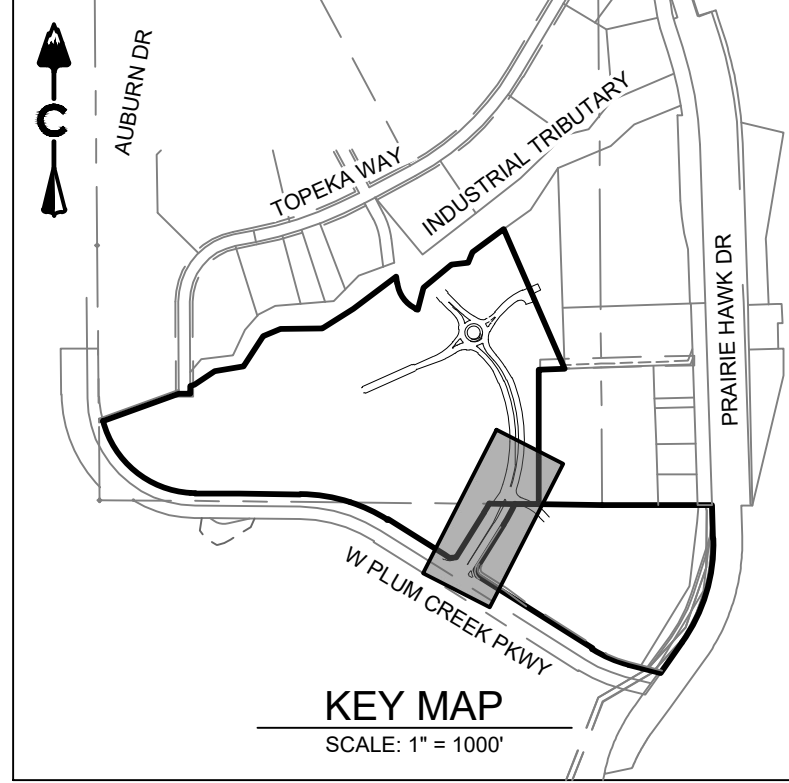
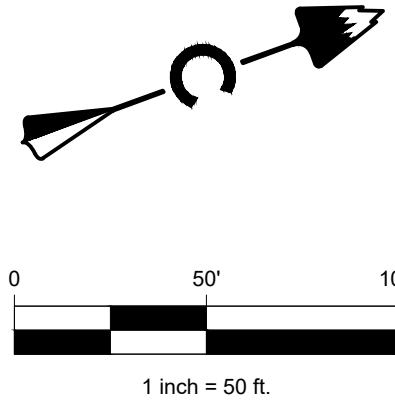




WATER - PRAIRIE HAWK DR  
(40+00-48+50)



WATER - NE PARCEL STUB  
(0+50-2+00)



PROFILE  
HORIZ: 1" = 50'  
VERT: 1" = 5'

LEGEND

- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED CENTER LINE
- PROPOSED PROPERTY BOUNDARY
- SEWER WITH MANHOLE & PLUG
- PROPOSED SANITARY SERVICE
- PROPOSED WATER SERVICE
- EX/PR WATER VALVE
- FIRE HYDRANT ASSEMBLY
- WATERLINE REDUCER
- BEND AND THRUST BLOCK
- EX. PLUG W/ BLOW-OFF ASSEMBLY
- AIR RELEASE VALVE (ARV) & VAULT AND VENT
- EXIST. AIR/VACUUM RELEASE VALVE (ARV) & VAULT AND VENT
- CAP WITH BLOW OFF
- HIGH POINT / LOW POINT
- STORM SYSTEM

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JEFFREY M. KILLINGSWORTH, P.E.  
STATE OF COLORADO # 41217

TOWN OF CASTLE ROCK APPROVAL  
PLANS ARE HEREBY APPROVED FOR ONE YEAR FROM DATE OF DEVELOPMENT SERVICES APPROVAL.

APPROVED BY:

DEVELOPMENT SERVICES

Know what's below.  
Call before you dig.



| # | REVISION DESCRIPTION               | DATE     | BY  |
|---|------------------------------------|----------|-----|
| 1 | CONSTRUCTION DOCUMENTS SUBMITTAL 1 | 03/16/23 | JNK |

PRAIRIE HAWK DRIVE PHASE 1  
CASTLE ROCK, CO  
CONSTRUCTION DOCUMENTS  
WATER P&P (1 OF 4)

NOT FOR  
CONSTRUCTION

DESIGNED BY: JNK  
DRAWN BY: DTG  
CHECKED BY: JMK

JOB NO.  
17-069

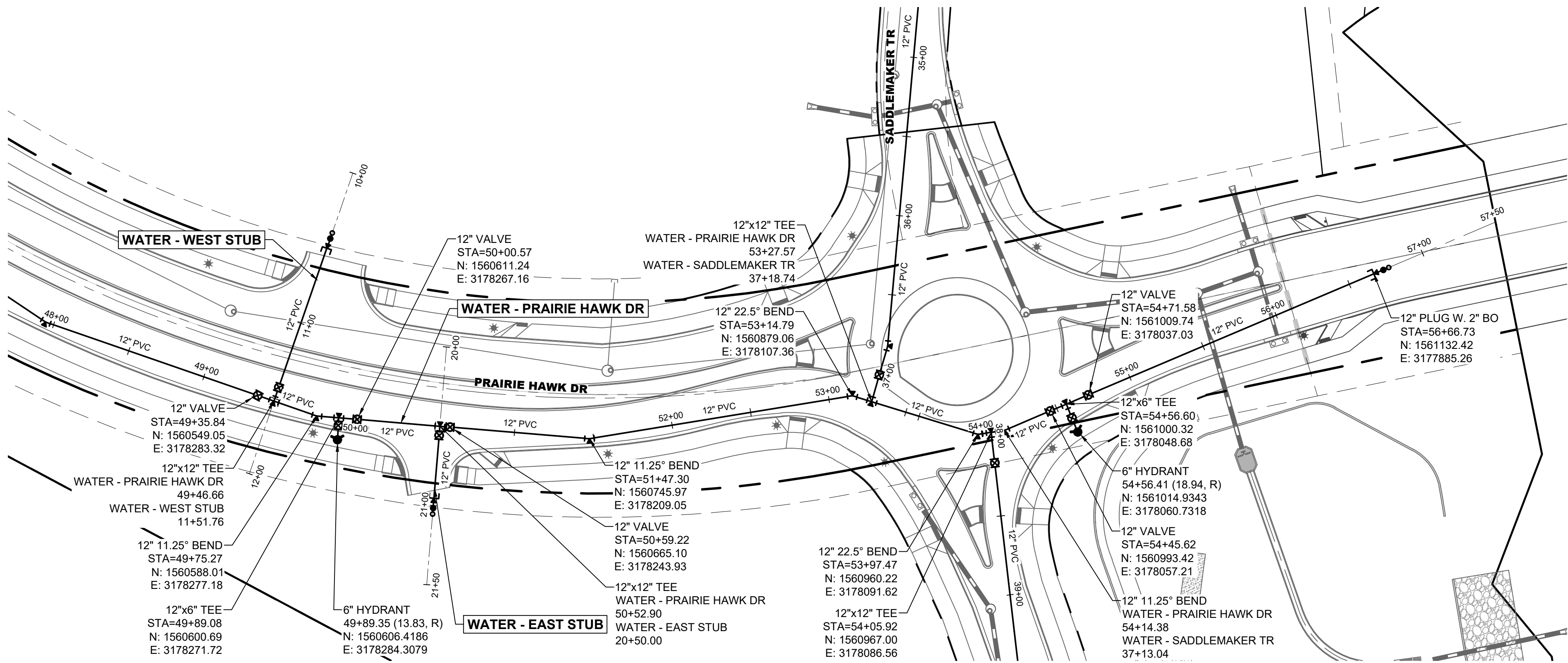
SHEET  
24 OF 58

CORE CONSULTANTS, INC.  
3473 S. ROADWAY  
DENVER, CO 80113  
303.703.4444  
LIVEYOURCORE.COM

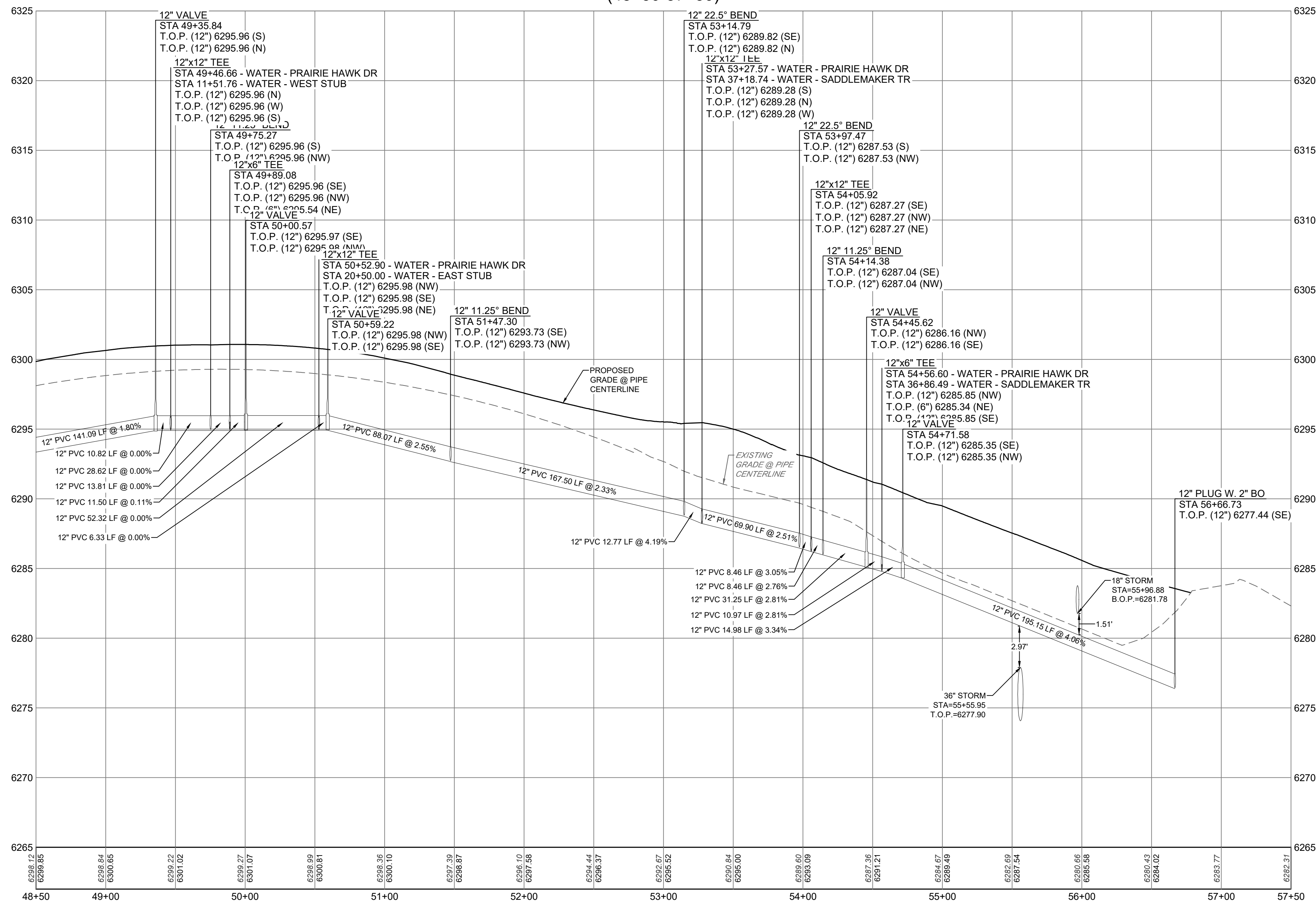
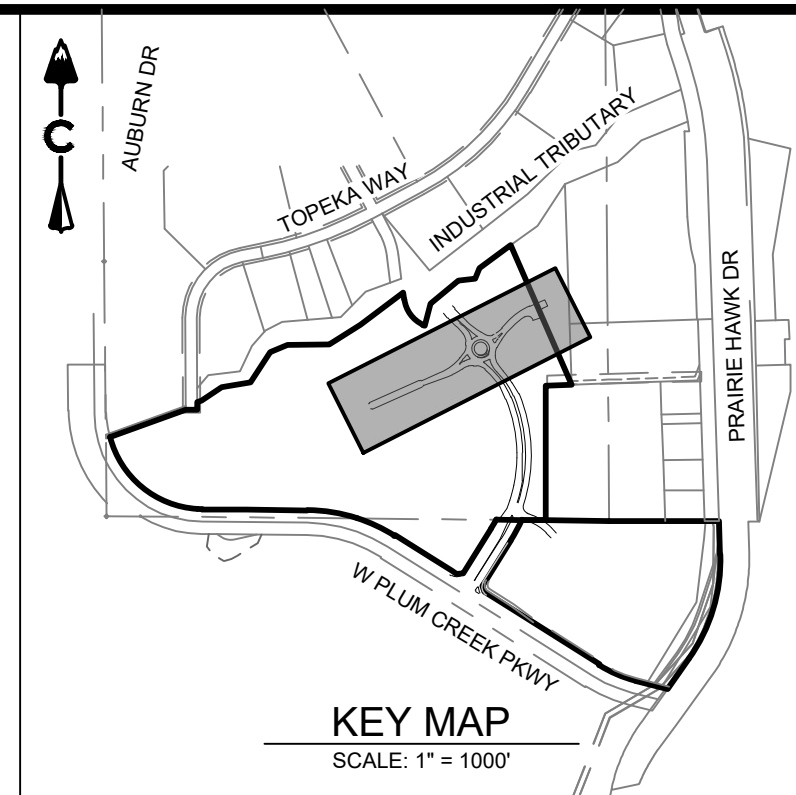
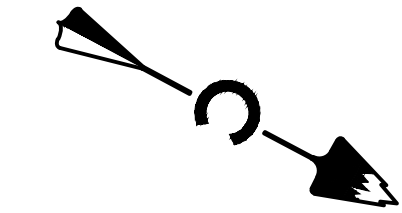
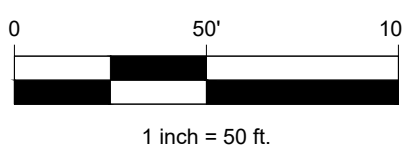
CORE

LAND DEVELOPMENT  
ENERGY  
PUBLIC INFRASTRUCTURE



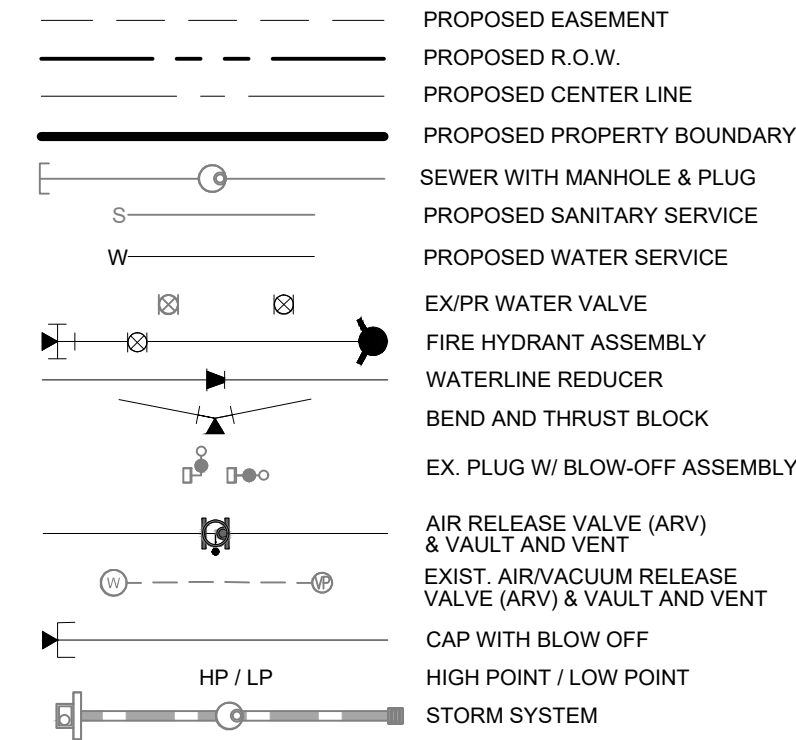


## WATER - PRAIRIE HAWK DR (48+50-57+50)



PROFILE  
HORIZ: 1" = 50'  
VERT: 1" = 5'

### LEGEND



I HEREBY AFFIRM THAT THESE FINAL CONSTRUCTION PLANS WERE PREPARED UNDER MY DIRECT SUPERVISION, IN ACCORDANCE WITH ALL APPLICABLE TOWN OF CASTLE ROCK AND STATE OF COLORADO STANDARDS AND STATUTES, RESPECTIVELY; AND THAT I AM FULLY RESPONSIBLE FOR ALL DESIGN AND REVISIONS RELATIVE TO SAID PLANS.

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STATE OF COLORADO # 41217

TOWN OF CASTLE ROCK APPROVAL  
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APPROVED BY:

DEVELOPMENT SERVICES

LAND DEVELOPMENT  
ENERGY  
PUBLIC INFRASTRUCTURE

CORE CONSULTANTS, INC.  
3473 S. BROADWAY  
DENVER, CO 80113  
303.703.4444  
LIVEYOURCORE.COM

CORE

Know what's below.  
Call before you dig.  
811

| # | REVISION DESCRIPTION               | DATE     | BY  |
|---|------------------------------------|----------|-----|
| 1 | CONSTRUCTION DOCUMENTS SUBMITTAL 1 | 03/16/23 | JMK |

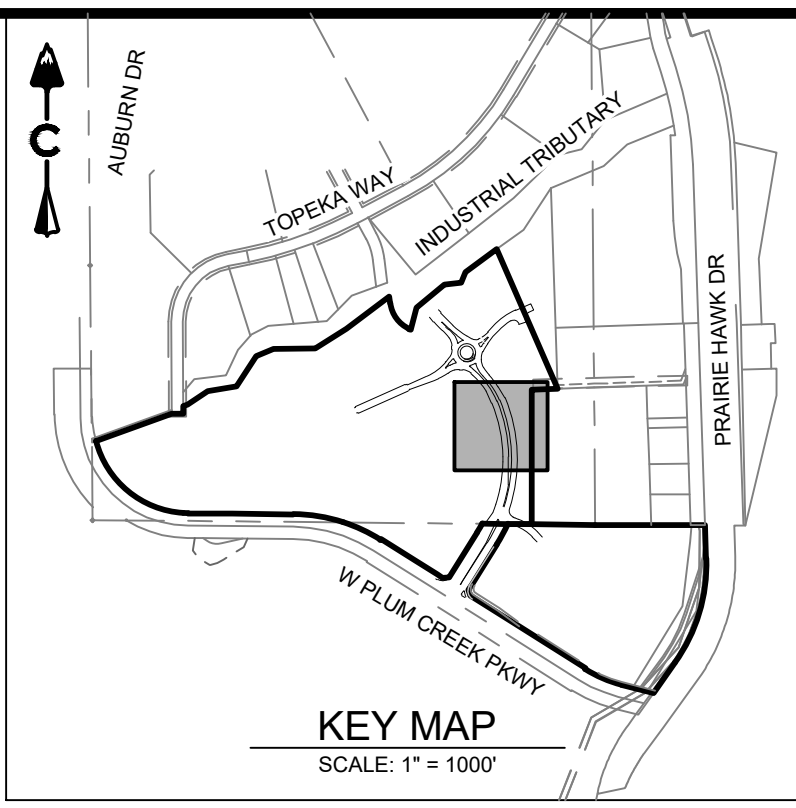
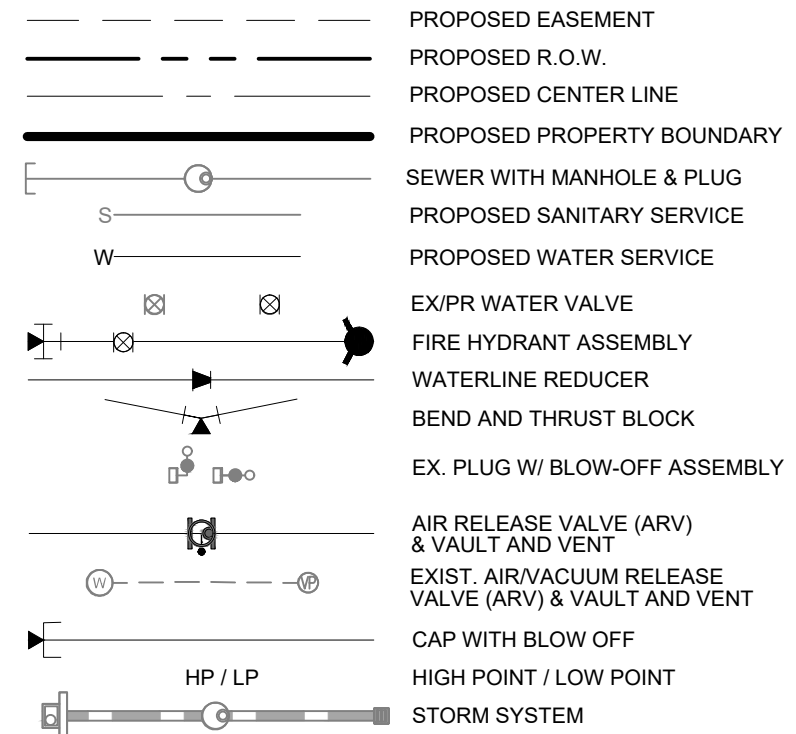
PRAIRIE HAWK DRIVE PHASE 1  
CASTLE ROCK, CO  
CONSTRUCTION DOCUMENTS  
WATER P&P (2 OF 4)

NOT FOR  
CONSTRUCTION

DESIGNED BY: JMK  
DRAWN BY: DTG  
CHECKED BY: JMK

JOB NO.  
17-069  
SHEET  
25 OF 38





This profile view illustrates the vertical alignment of a sewer line. The horizontal axis represents stationing from 30+00 to 42+00, and the vertical axis shows elevations from 6265 to 6320 feet. The main sewer line is depicted as a solid black line, while existing ground is shown as a dashed line. Key features include several vertical bends, manholes, and pipe segments with specific lengths and slopes. Notable structures include a 12" valve at station 30+50.00, a 36" storm sewer at station 35+33.42, and a 24" water line at station 40+17.10. The profile also shows the proposed grade at the pipe centerline and existing ground at the centerline.

**Key Features and Data Points:**

- 12" VALVE:** STA 30+50.00, T.O.P. (12") 6307.04 (E), T.O.P. (12") 6307.04 (W)
- 12" PLUG W. 2" BO:** STA 30+50.00, T.O.P. (12") 6307.83 (E)
- 12"x6" TEE:** STA 34+50.87, T.O.P. (12") 6287.51 (W), T.O.P. (12") 6287.51 (NE), T.O.P. (6") 6287.00 (N)
- 12"x11 25" BEND:** STA 36+82.07, T.O.P. (12") 6288.84 (SW), T.O.P. (12") 6288.84 (E)
- 12" VALVE WITH BLOW OFF:** STA 37+01.27, T.O.P. (12") 6289.28 (E), T.O.P. (12") 6289.28 (W)
- 12"x12" TEE:** STA 37+18.74 - WATER - SADDLEMAKER TR, STA 53+27.57 - WATER - PRAIRIE HAWK DR, T.O.P. (12") 6289.28 (S), T.O.P. (12") 6289.28 (N), T.O.P. (12") 6289.28
- 12" 22.5" BEND:** STA 37+88.64, T.O.P. (12") 6287.53 (S), T.O.P. (12") 6287.53 (NW)
- 12"x12" TEE:** STA 37+97.10 - WATER - SADDLEMAKER TR, STA 54+05.92 - WATER - PRAIRIE HAWK DR, T.O.P. (12") 6287.27 (SE), T.O.P. (12") 6287.27 (NW), T.O.P. (12") 6287.27 (NE)
- 12" VALVE WITH BLOW OFF:** STA 38+16.49, T.O.P. (12") 6286.94 (SW), T.O.P. (12") 6286.94 (NE)
- 12" PLUG W. 2" BO:** STA 41+38.79, T.O.P. (12") 6273.86 (SW)
- 24" WATER:** STA=40+17.10, B.O.P.=6281.62
- 36" STORM:** STA=35+33.42, B.O.P.=6285.30
- Vertical Bends:** STA 35+17.28, STA 35+24.35, STA 35+47.76, STA 35+54.40, STA 35+96.81
- Pipe Segments:**
  - 12" PVC 15.64 LF @ 5.07%
  - 12" PVC 305.23 LF @ 5.07%
  - 12" PVC 66.41 LF @ 1.25%
  - 12" PVC 7.07 LF @ 40.08%
  - 12" PVC 23.41 LF @ 0.00%
  - 12" PVC 42.40 LF @ 0.67%
  - 12" PVC 6.64 LF @ 42.56%
  - 12" PVC 85.26 LF @ 2.19%
  - 12" PVC 69.90 LF @ 2.51%
  - 12" PVC 17.47 LF @ 0.01%
  - 12" PVC 19.21 LF @ 2.28%
  - 12" PVC 8.46 LF @ 3.05%
  - 12" PVC 19.40 LF @ 1.69%
  - 12" PVC 106.72 LF @ 1.94%
  - 12" PVC 215.59 LF @ 5.11%

I HEREBY AFFIRM THAT THESE FINAL CONSTRUCTION PLANS WERE PREPARED UNDER MY DIRECT SUPERVISION, IN ACCORDANCE WITH ALL APPLICABLE TOWN OF CASTLE ROCK AND STATE OF COLORADO STANDARDS AND STATUTES, RESPECTIVELY; AND THAT I AM FULLY RESPONSIBLE FOR ALL DESIGN AND REVISIONS RELATIVE TO SAID PLANS.

JEFFREY M. KILLINGSWORTH, P.E.  
STATE OF COLORADO # 41217

TOWN OF CASTLE ROCK APPROVAL  
PLANS ARE HEREBY APPROVED FOR ONE YEAR FROM  
DATE OF DEVELOPMENT SERVICES APPROVAL.

APPROVED BY:

DEVELOPMENT SERVICES

Know what's below.

| # | REVISION DESCRIPTION                | DATE     | BY  |
|---|-------------------------------------|----------|-----|
| 1 | CONSTRUCTION DOCUMENT'S SUBMITTAL 1 | 03/16/23 | JNK |
|   |                                     |          |     |
|   |                                     |          |     |
|   |                                     |          |     |

**PRAIRIE HAWK DRIVE PHASE 1**  
CASTLE ROCK, CO  
CONSTRUCTION DOCUMENTS  
WATER P&P (3 OF 4)

NOT FOR  
CONSTRUCTION

DESIGNED BY: JNK  
DRAWN BY: DTG  
CHECKED BY: JMK

JOB NO.  
17-069

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SHEET  
26 OF 38





**Final Utility Report Checklist**

The Final 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 Final Utility Report, the Preliminary Utility Report and associated hydraulic modeling shall be thoroughly updated to reflect the final design and layout of all water/wastewater system facilities and mains since the approval of the Site Development Plan (SDP), and as now shown on the Construction Drawings (CDs). The Final Utility Report shall describe adherence to the Preliminary Utility Report or describe deviations, and shall resolve any outstanding issues regarding the Town's ability to serve the development. As applicable, hydraulic modeling shall be provided for both the initial phase of development represented on the CDs, and for full build-out of the overall site. The Final Utility Report shall include a discussion of applicable SCADA requirements.

The following outline sets forth the **required minimum** content to be provided in the Final Utility Report that shall be submitted with the CDs. 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 Final 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 |                                                           |
|----------|-----|-----------------------------------------------------------|
| ✓        |     | <b>TITLE SHEET</b>                                        |
| ✓        |     | A. Name of Project, including legal name of development   |
| ✓        |     | B. Address                                                |
| ✓        |     | C. Owner                                                  |
| ✓        |     | D. Developer                                              |
| ✓        |     | E. Engineer                                               |
| ✓        |     | F. Submittal date and revision dates as applicable        |
| ✓        |     | <b>APPROVAL BLOCK SHEET</b> (Available on Town's website) |
| ✓        |     | <b>TABLE OF CONTENTS</b>                                  |
| ✓        |     | <b>PROJECT LOCATION AND DESCRIPTION</b>                   |
| ✓        |     | A. Site Location                                          |
| ✓        |     | B. Description of Property and Land Use                   |
| ✓        |     | <b>CALCULATED WATER DEMANDS</b>                           |
| ✓        |     | A. Average Day Demands (ADD)                              |
| ✓        |     | B. Max Day Demands (MDD)                                  |



## Final Utility Report – Formatting Checklist

| Included | N/A |                                                                 |
|----------|-----|-----------------------------------------------------------------|
|          |     | <b>CALCULATED WATER DEMANDS (CONT.)</b>                         |
| ✓        |     | C. Peak Hour Demands (PHD)                                      |
|          | ✓   | D. Irrigation Demands                                           |
| ✓        |     | <b>EXISTING WATER SYSTEM</b>                                    |
| ✓        |     | A. Existing Distribution System                                 |
| ✓        |     | B. Existing Supply Facilities                                   |
| ✓        |     | <b>PROPOSED WATER SYSTEM</b>                                    |
| ✓        |     | A. Proposed Distribution System                                 |
| ✓        |     | B. Proposed Supply Facilities                                   |
| ✓        |     | C. Required Fire Flows                                          |
| ✓        |     | D. Land Dedication Requirements                                 |
| ✓        |     | <b>PROPOSED WATER SYSTEM ANALYSIS AND MODELING</b>              |
| ✓        |     | A. Hydraulic Models                                             |
| ✓        |     | B. Hydraulic Modeling Scenarios                                 |
| ✓        |     | C. Hydraulic Modeling Output and Required Schematics            |
| ✓        |     | D. Fire Flow Test Results                                       |
|          | X   | <b>CALCULATED WASTEWATER FLOWS</b>                              |
|          | X   | A. Average Day Wastewater Flows (ADF)                           |
|          | X   | B. Peaking Factor (PF)                                          |
|          | X   | C. Peak Design Flows (PDF)                                      |
|          | X   | <b>EXISTING WASTEWATER SYSTEM</b>                               |
|          | X   | A. Existing Collection System                                   |
|          | X   | <b>PROPOSED WASTEWATER SYSTEM</b>                               |
|          | X   | A. Proposed Collection System                                   |
|          | X   | B. Proposed Wastewater Facilities                               |
|          | X   | C. Land Dedication Requirements                                 |
|          | X   | <b>PROPOSED WASTEWATER SYSTEM ANALYSIS AND MODELING</b>         |
|          | X   | A. Hydraulic Models                                             |
|          | X   | B. Hydraulic Modeling Scenarios                                 |
|          | X   | C. Hydraulic Modeling Output and Required Schematics            |
| ✓        |     | <b>POTENTIAL SUBDIVISION IMPROVEMENTS AGREEMENT (SIA) ITEMS</b> |
| ✓        |     | <b>POTENTIAL PERMITTING REQUIREMENTS</b>                        |
| ✓        |     | <b>REFERENCES</b>                                               |

## Final Utility Report – Formatting Checklist

| Included | N/A |                                                             |
|----------|-----|-------------------------------------------------------------|
|          |     | <b>APPENDICES</b>                                           |
| ✓        |     | Appendix A — Water Demands                                  |
|          | ✓   | Water Fixture Unit Counts and Tap/Meter Sizing Calculations |
|          | ✓   | Irrigation Demands                                          |
|          | ✓   | Hydraulic Worksheet(s) and Irrigation Chart(s)              |
| ✓        |     | Appendix B — Water Storage                                  |
| ✓        |     | Confirmation Memo for Required Fire Flow                    |
| ✓        |     | Appendix C — Water Hydraulic Analysis and Modeling          |
| ✓        |     | Fire Flow Test Results                                      |
|          | ✓   | Appendix D — Wastewater Flows                               |
|          | ✓   | Appendix E — Wastewater Hydraulic Modeling                  |
| ✓        |     | Appendix F — Maps and Plans                                 |
| ✓        |     | A. Vicinity Map                                             |
| ✓        |     | B. Utility Map(s) provided by the Utilities Department      |
| ✓        |     | C. Overall Utility Plan from the CDs                        |
|          | ✓   | D. Water/Wastewater Utility Plan(s)                         |

**Notes/Comments:**