# COTTONWOOD CREEK – FILING 1

## UTILITY CONFORMANCE LETTER

**AURORA, COLORADO**

Prepared for:

Cottonwood Creek Investors, LLC
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Phone: (303) 920-9400

Prepared by:

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Email: Tom.Odle@westwoodps.com

Preparation Date:
June 2024

**APPROVED ON THIS DATE**

_____ _____
Water Department Date

_____ _____
Fire Department Date

ENGINEER'S STATEMENT:

This utility study "Cottonwood Creek - Master Utility Report" was prepared under my direct supervision in accordance with the provisions of the City of Aurora Standards and Specifications Regarding Water, Sanitary Sewer and Storm Drainage Infrastructure. I understand that the City of Aurora does not and will not assume liability for facilities designed by others.

_____ _____

Thomas Odle, CO P.E. No. 52802 Date
Westwood Professional Services

**FACSIMILE**
This electronic plan is a facsimile of the signed and sealed pdf set

06/27/2024

CO Professional Engineer Date
Thomas J. Odle, CO P.E. No. 52802

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# INTRODUCTION

## GENERAL DESCRIPTION

The Cottonwood Creek Development is a mix use development consisting of approximately 1142 acres. This project is primarily residential development which is to include up to 3,768 units that will consist of single family detached homes and single family attached homes product types. Approximately thirteen (13) acres are reserved for commercial development. This project includes three (3) existing oil and gas sites. The remaining improved areas will include roadways, detention ponds, drainage channels, parks, and open space located throughout the development. First Creek intersects the eastern side the property and the Yamaha Draw cuts through the southern part of the property.

Cottonwood Creek Filing 1 contains a total of approximately 331 acres. It is primarily residential with development to include 845 detached single-family units (SFD), a commercial pad, a school site, and future townhome pad.

## SCOPE OF WORK

The purpose of this Utility Conformance Letter is to show the proposed Cottonwood Creek Filing 1 improvements is conformance with the approved Cottonwood Creek Master Utility Report. The proposed water and sanitary sewer system must meet the criteria set forth by the guidelines for the ***Standards and Specifications Regarding Water, Sanitary Sewer and Storm Drainage Infrastructure*** prepared by the City of Aurora (COA). Westwood Professional Services, will work in conjunction with the client and the COA to ensure that the water distribution and sanitary sewer systems are compatible with existing facilities and planned development. The water distribution and sanitary sewer systems have been designed in accordance with the approved Harmony Master Utility Report (216069MU1) and the Eastern Hills Framework Development Plan (468737).

## PROJECT LOCATION

Cottonwood Creek is located within a parcel of land located in the Sections 23, 26, 27, and 28, Township 4 South, Range 65 West of the Sixth Principal Meridian, City of Aurora, County of Arapahoe. The project is bounded on the north by Mississippi Avenue and Jewell Avenue, on the south by Yale Avenue, on the east by Hayesmount Road and Hudson Road, and on the west by Monaghan Road. To the west of this project is Coal Creek Reserve. Northwest of the project site is the Parklands/Eastern Hills development. Figure 1 depicts the project in context to the surrounding roadways and known developments.

Currently there are no existing developments bounding the proposed site. There are no current plans for the land immediately in the area. Figure-1 clearly depicts the project in context to the surrounding roadways and known developments.



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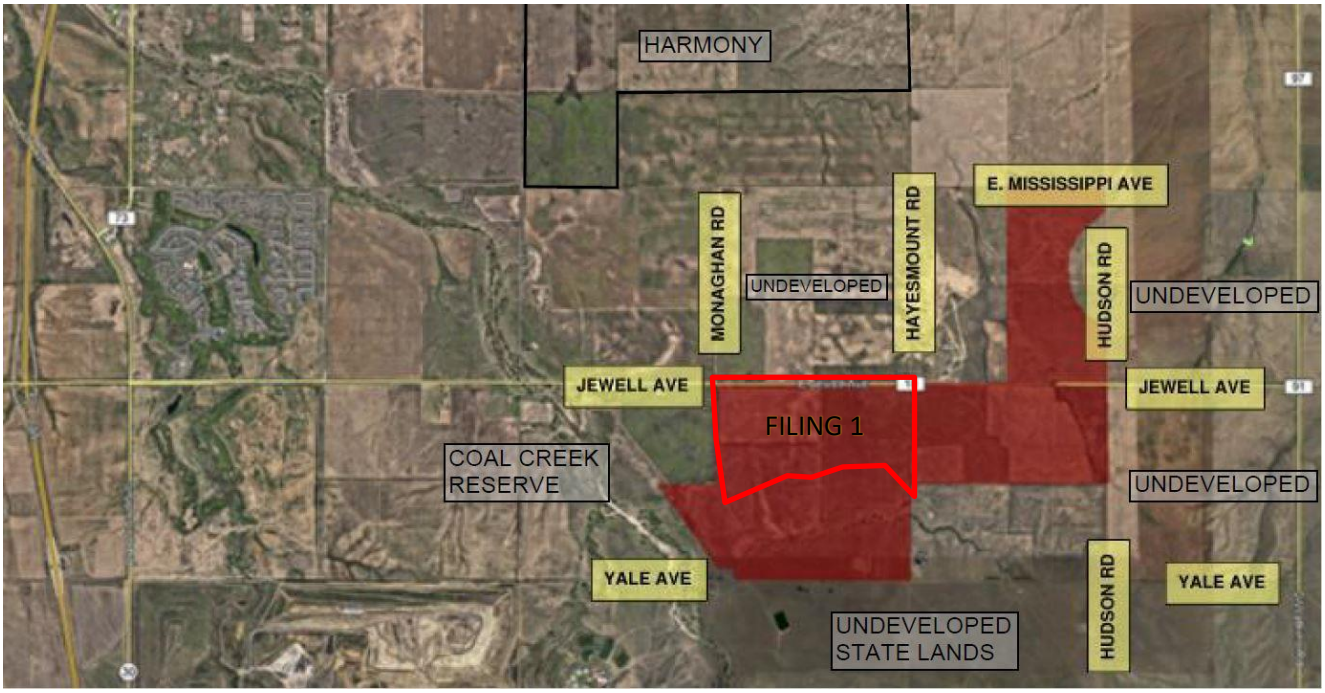


**Figure 1**
**Location Map**

Cottonwood Creek Filing 1 is generally located south of I-70, in a part or the north 1/2 of Section 27, Township 4 South, Range 65 West of the 6th Principal Meridian, City of Aurora, County Arapahoe, Colorado. To the north, Cottonwood Creek Filing 1 is bordered by Jewell Ave. To the west it is bordered by Monaghan Road. To the south it is bordered by E Iliff Ave. Additionally, to the east of it is bordered by Haysemount Road.

## TOPOGRAPHIC CONDITIONS

The proposed site encompasses approximately 1,263 acres of currently undeveloped land. The western portion of the site slopes from east to west and drains to Yamaha Draw. The remainder of the site slopes from the south to the northwest and drains to First Creek. The total elevation change over the western portion of the site is 130 feet. Elevations range from 5790 feet at the center of the site and drops down to 5660 feet at the western border. The total elevation change over the eastern portion of the site is 120 feet. Elevations range from 5845 feet at the southern border and drop to 5725 feet at the northern border. Two Pressure Reducing Valves (PRVs) will be needed at the western portion of the site where the waterline crosses from Zone 5 to Zone 4.

**Table 1 – City of Aurora Pressure Zones**

| Zone | Static Hydraulic Grade Line, (ft) | Service Elevation Range, (ft) | Static Pressure Range, (psig) |
|---|---|---|---|
| Zone 4 | 5850 | 5589-5711 | 60-113 |
| Zone 5 | 5950 | 5710-5811 | 60-104 |

From the ***City of Aurora Wastewater Utility Plan – Volume I: Report*** (Ref. 4) the proposed development falls within the service area Subarea 2 – Environs/Eastern Prairie Developing Area and part of the First Creek drainage basin.

# WATER DISTRIBUTION SYSTEM

The Cottonwood Creek development lies primarily in pressure Zone 5, except for the portion of DA-1C west of Monaghan Rd which lies in Zone 4.

## DEMANDS

The following is a list of criteria used to develop the water demands for the proposed site:

- Residential Average Day Demand= 0.07gpm/capita
- School Average Day Demand = 1,200 gpd/acre
- Commercial Average Day Demand = 1,500 gpd/acre
- Residential Max Day Factor = 2.8 x average day demand
- Residential Peak Hour Factor = 4.5 x average day demand
- School Max Day Factor = 2.8 x average day demand
- School Peak Hour Factor = 4.5 x average day demand
- Commercial Max Day Factor = 2.8 x average day demand
- Commercial Peak Hour Factor = 4.5 x average day demand

All potable water will be supplied by the City of Aurora's water distribution system. An existing thirty (30) inch diameter water main has been constructed along Jewell Avenue and the future alignment of Powhaton Road to the west of the project site. This development is proposing to connect to the water line within Zone 5. The 30 inch line will be in close proximity to 60 inch critical infrastructure (Prairie Waters Pipeline), 5 feet of vertical clearance will be required.

## WATER DEMANDS

Cottonwood Creek Filing 1 now has 14 more proposed single-family homes than the original approved Cottonwood Creek Master Utility Report estimated for this planning area. The summary of current water demands calculated for the proposed water distribution system for Cottonwood Creek Filing 1 is presented in Table 2. The summary of previous water demands calculated for the proposed water distribution system for Cottonwood Creek is presented in Table 3. As stated previously within this report, the demands were determined using assumptions and requirements outlined in the ***Standards and Specifications Regarding Water, Sanitary Sewer and Storm Drainage Infrastructure*** (Ref. 2). The residential populations were based on 2.77 persons per single family detached dwelling unit. Average day demands were calculated average water demand rate. Maximum day and peak hour demands were calculated using peaking factors shown above. Although the new calculated demands have been found to be higher than the demands from the master utility report, these new demands are able still able to function with the previously approved Master Utility Report pipe sizes without exceeding any design requirements. The updated model calculations are included in Appendix B


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## Table 2 – New Calculated Water Demand for Filing 1

| Planning Area | Residence Type | Residences/Acreage | Population (Persons/SFD) | Demand (gpd) | Max Population | Average Day Demand (gpm) | Max Day + Fire Flow Demand (gpm) | Max Hour Demand (gpm) |
|---|---|---|---|---|---|---|---|---|
| Filing 1 | SFD | 845 Res | 2.77 | 101 | 2341 | 163.93 | 1959.00 | 737.69 |
| Filing 1 | SFA-TH | 255 Res | 2.77 | 101 | 707 | 49.47 | 1638.52 | 222.62 |
| Filing 1 | Comm | 13.9 AC | | 1500 | -- | 14.46 | 2565.05 | 65.05 |
| Filing 1 | School | 16.7 AC | | 1200 | -- | 13.92 | 1538.97 | 62.62 |
| Filing 1 | Park | 12.6 AC | | 1800 | -- | 15.75 | -- | 70.88 |
| Filing 1 Total | | | | | 3048 | 257.53 | | 1158.86 |

## Table 3 Previously Calculated Water Demand for Cottonwood Creek

| Planning Area | Residence Type | Residences/ Acreages | Demand (gpd) | Max Population | Average Day Demand (gpm) | Max Day Demand (gpm) | Max Hour Demand (gpm) |
|---|---|---|---|---|---|---|---|
| 1A | SFD | 534 Res | 101 | 1424 | 103.60 | 290.07 | 466.18 |
| 1A | COMM | 9.5 AC | 1500 | | 9.88 | 27.66 | 44.46 |
| 1A | PARK | 0.8 AC | 1800 | | 1 | 2.8 | 4.5 |
| 1B | SFD | 552 Res | 101 | 1493 | 107.09 | 299.85 | 481.90 |
| 1B | COMM | 4.4 AC | 1500 | | 4.58 | 12.81 | 20.59 |
| 1B | PARK | 11.80 AC | 1800 | | 14.75 | 41.30 | 66.38 |
| 1B | SCHOOL | 16.7 AC | 1200 | | 13.92 | 38.97 | 62.62 |
| Total | | | | 2917 | 254.82 | 713.46 | 1146.63 |



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# SANITARY SEWER SYSTEM

## SANITARY SYSTEM AND FLOWS

Cottonwood Creek Filing 1 now has 14 more proposed single-family homes than the original approved Cottonwood Creek Master Utility Report estimated for this planning area. The summary of current sanitary sewer demands calculated for the proposed water sanitary sewer system for Cottonwood Creek Filing 1 is presented in Table 4. The summary of previous water demands calculated for the proposed sanitary sewer system for Cottonwood Creek is presented in Table 5. Cottonwood Creek Filing 1 has a total of 845 residences, all detached single-family units. The flows from these residences will be carried by PVC pipes to existing Senac Interceptor 30" line located north of Jewell Avenue and west of S Powhaton rd. Population estimates are based on 2.77 capita per dwelling unit for single-family units. Although the new calculated demands have been found to be higher than the demands from the master utility report, these new demands are still able to be conveyed throughout the system using the approved Master Utility Report pipe sizes. The updated model calculations are included in Appendix C.

## WASTEWATER DESIGN CRITERIA

This section describes the design criteria incorporated in developing the wastewater collection system for Harmony. These design criteria were adopted from the ***Standards and Specifications Regarding Water, Sanitary Sewer and Storm Drainage Infrastructure*** (Ref. 2):

- Residential Average Day Loading =68 gallons per capita per day
- Residential Population = 2.77 people per unit
- Commercial Average Day loading = 1,500 gallons per day per acre
- Commercial Equivalent Population per acre = 22
- Peaking Factor (PF): $PF = 5 \div P^{0.167}$, where p=population in thousands and PF is no greater than 3.5 and no less than 2.6.
- Infiltration = 10% of the average flow (not peaked)
- The flow velocity shall not exceed ten (10) feet per second flowing full or ½ full using Mannings Formula (n=0.011 for PVC or n=0.013 for RCP).
- Minimum slope shall be 0.4 percent with a minimum velocity of two (2) feet per second at least once per day.
- Depth of flow in pipes should not exceed 75 percent capacity for pipes 12 inches or smaller and 80 percent for pipes larger than 12 inches.
- Minimum drop through a manhole from inlet to outlet or same diameter pipe shall be:
    - 0.2 feet on straight through run
    - 0.3 feet on deflected bends greater than forty-five degrees. Pipe laid through a manhole shall be at a slope of the same grade as the downstream pipe slope.
    - For pipes of differing diameters, match HGL's or crowns of pipes.
- Minimum of 4-inch diameter pipe for service lines


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## Table 4 - New Calculated Sanitary Sewer Demand for Filing 1

| Residence Type | Demand (gpd /cap) | Demand (GPD/Acre) | Residences | Occupancy | Population (Thousands of People) | Average Day Flow (gpd) | Peaking Factor $4>5\div p^{0.167}>1.7$ | Max Day Flow (gpd) |
|---|---|---|---|---|---|---|---|---|
| SFD | 68 | | 1100 | 2.77 | 3.047 | 207,196 | 4 | 828,784 |
| COMM | | 1500 | 0 | 22 | 0.250 | 17,100 | 4 | 68,400 |
| SCHOOL | | 1200 | 0 | 18 | 0.300 | 20,040 | 4 | 80,160 |
| Total | | | 1100 | | 3.597 | 244,336 | | 977,344 |

## Table 5 – Previously Calculated Sanitary Sewer Demand

| Planning Area | Residence Type | Demand (gpd/cap) | Demand (GPD/Acre) | Resid-ences | Occup-ancy | Population (Thousands of People) | Average Day Flow (gpd) | Peaking Factor $4>5\div p^{0.167}>1.7$ | Max Day Flow (gpd) |
|---|---|---|---|---|---|---|---|---|---|
| 1A | SFD | 68 | | 534 | 2.77 | 1.479 | 100,584 | 4 | 402,337 |
| 1B | SFD | 68 | | 552 | 2.77 | 1.529 | 103,975 | 4 | 415,899 |
| 1A/B | COMM | | 1500 | 0 | 22 | 0.250 | 17,100 | 4 | 68,400 |
| 1B | SCHOOL | | 1200 | 0 | 18 | 0.300 | 20,040 | 4 | 80,160 |
| | Total | | | 1086 | | 3.558 | 241,699 | | 966,796 |


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# CONCLUSION

The water distribution system will connect to the existing Zone 5 water system at two (2) off-site points. The first connection at Jewell Avenue and Powhaton Road and once demand requires a second connection will be made at Quincy Avenue and Powhaton Rd based on the latest Aurora Water Integrated Water Master Plans. The results of the system analysis indicate that the proposed water system conforms to the ***Standards and Specifications Regarding Water, Sanitary Sewer and Storm Drainage Infrastructure.*** Although the new calculated demands have been found to be higher than the demands from the master utility report, these new demands do not upsize any pipes or add enough load that it is a concern to the system. Any subsequent changes to the proposed water distribution system as described within this report will require a reanalysis of the system. As Aurora Water updates its City-wide Water Master Plans, the applicant acknowledges modifications to the approved Master Utility Study may be required to meet service level demands and water quality standards. Appendix B contains the WaterGEMS results and layout exhibit.

The sanitary sewer system will connect to the existing thirty (30) inch sanitary sewer interceptor west of the project site and to the existing 24 inch sanitary sewer along East 6$^{th}$ Ave north of the site. Although the new calculated demands have been found to be higher than the demands from the master utility report, these new demands do not upsize any pipes or add enough load that it is a concern to the system. The results of the system analysis indicate that the proposed sanitary sewer system conforms to the ***Standards and Specifications Regarding Water, Sanitary Sewer and Storm Drainage Infrastructure.*** Appendix C contains the anticipated sewer flow results and layout exhibit.



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# REFERENCES

1. **Master Utility Report,** Westwood Professional Services, inc, April 20, 2022.

2. **Standards and Specifications Regarding Water, Sanitary Sewer and Storm Drainage Infrastructure,** City of Aurora, January 2012.

3. **Treated Water Distribution System 2025 Capital Improvement Plan,** City of Aurora, February 2009.

4. **City of Aurora Wastewater Utility Plan – Volume I: Report,** Camp Dresser & McKee, Inc., January 15, 2003.



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# APPENDIX A
# PUBLIC IMPROVEMENT PLAN & PHASING PLAN



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EX 30" SS
EX 24" SS
EX 24" SS
PROP 24" SS
EAST 6TH AVENUE
PROP. OFF-SITE SANITARY CONTINUES ~9,350 LF TO POWHATON & EAST 6TH CONNECTION
21" SS
18" SS
EXPOSITION AVENUE
APPROXIMATE PRESSURE ZONE LIMITS
800' 400' 0 800' 1600'
SCALE: 1" = 800'
POWHATON ROAD
ZONE 4 WATER
ZONE 5 WATER
PROP. OFF-SITE SANITARY
15" SS
HAYESMOUNT MILE ROAD
LANEWOOD ST
2 lane Collector 80' R.O.W.
HUDSON ROAD
FULL
POND K - FULL SPECTRUM
PROP 16" WL
PROP 8" SS
MISSISSIPPI AVENUE
4 lane Arterial
114' R.O.W. - raised median
POND J - FULL SPECTRUM
15" SS
OFF-SITE DRAINAGE BY OTHERS
PROP 12" WL
PROP 15" SS
DA-3A
122.0 AC
PROP 12" WL
POND H - FLOOD CONTROL
POND H1 - EURV
FULL
FLORIDA AVE
2 lane Collector 80' R.O.W.
PROP 12" WL
PROP 12" SS
POND H2 - EURV
FLORIDA GULCH
POND G2 - EURV
DA-3B
140.0 AC
POND G - FLOOD CONTROL
POND G1 - EURV
FIRST CREEK
PROP 12" WL
PROP 15" SS
POND E - FULL SPECTRUM
PROP 24" WL
PROP 8" SS
POND F1 - EURV
PROP 24" WL
PROP 12" SS
PROP 12" WL
JEWELL AVENUE
4 lane Arterial
114' R.O.W. - raised median
FULL
POND F3 - EURV
DA-2B
160.8 AC
POND F2 - EURV
FULL
EAST ILIFF AVE
2 lane Collector
80' R.O.W.
WATKINS RD
COAL CREEK BASIN
AURORA SENAC CREEK WASTE WATER INTERCEPTOR PLANS DATED MAY 2023.
EXISTING 30" WL - ZONE 4
PRO 24" WL - ZONE 5
JEWELL AVENUE
6 lane Arterial
144' R.O.W. - raised median
West of Monaghan
CONNECT TO PROPOSED SENAC CREEK SANITARY INTERCEPTOR
ZONE 5 WATER
ZONE 4 WATER
27" SS (BY OTHERS)
15" SS
YALE INTERIM
POND C - FLOOD CONTROL
POND C2 - EURV
POND A - FULL SPECTRUM
PROP 12" WL
PROP 12" SS
PROP OFF-SITE SANITARY
EXISTING 30" WL - ZONE 5
MONAGHAN RD
4 lane Arterial 114' R.O.W.
UNNAMED ROADWAY (STREET A)
2 lane Collector 80' R.O.W.
HAYESMOUNT RD
2 lane Collector 80' R.O.W.
FIRST CREEK BASIN
COAL CREEK BASIN
114' R.O.W. - raised median
East of Monaghan
POND C1 - EURV
PROP 10" SS
RYE GRASS CHANNEL
POND C3 - FULL SPECTRUM
PROP 24" WL
PROP 8" SS
TEMPORARY FIRE STATION
PA-77
2.5 AC
FIRE STATION (PERMANENT)
DA-1A
178.8 AC
DA-1B
149.1 AC
O&G
DA-2A
160.6 AC
FILING 1
PROP 12" WL
PROP 8" SS
PROP 12" WL
PROP 8" SS
PROP 12" WL
PROP 8" SS
FULL
DA-1C
76.9 AC
PROP 8" SS
POND B5 - EURV
DA-1D
162.6 AC
POND YAM - FLOOD CONTROL
PROP 10" SS
POND B3 - EURV
YAMAHA CREEK
POND B6 - EURV
PROP DUAL PRV SYSTEM DA-1C HGL = 5850
PROP 12" WL
PROP 8" SS
O&G
POND B1 - EURV
POND B4 - EURV
YALE AVE
4 lane Arterial - 114' ROW - painted median
PROP 16" WL
PROP 8" SS
POND B - FLOOD CONTROL
POND B2 - EURV
PROP 24" WL
ZONE 5 WATER
LANEWOOD ST
2 lane Collector 80' R.O.W.
HUDSON RD
2 lane Collector 80' R.O.W.
MONAGHAN RD
4 lane Arterial 114' R.O.W.
PRO 12" WL (COA CIP)
HAYESMOUNT RD
2 lane Collector 80' R.O.W.
PRO 24" WL (COA CIP)
QUINCY AVENUE

## LEGEND

- SECTION LINE
- PROPOSED STORM CULVERT
- EXISTING STORM CULVERT
- *PROPOSED DRAINAGE CHANNEL IMPROVEMENTS (SEE NOTE 7)
- WATER QUALITY POND
- FILING BOUNDARY
- MAJOR DRAINAGE BASIN
- WATER ZONE DELINEATION
- SS PROPOSED SAN SEWER
- SS EXISTING SAN SEWER
- W PROPOSED WATER LINE
- W EXISTING WATER LINE
- PRAIRIE WATERS PIPELINE
- DEVELOPMENT AREA 1A
- DEVELOPMENT AREA 1B
- DEVELOPMENT AREA 1C
- DEVELOPMENT AREA 1D
- DEVELOPMENT AREA 2A
- DEVELOPMENT AREA 2B
- DEVELOPMENT AREA 3A
- DEVELOPMENT AREA 3B
- OIL & GAS (O&G)
- PROPOSED ROAD
- EXISTING ROAD (PAVED)
- EXISTING ROAD (GRAVEL)
- PROPOSED OPEN SPACE
- ROADWAY LIMITS PER PARCEL
- ANTICIPATED TO BE SIGNALIZED INTERSECTION IN THE FUTURE
- FULL — FULL TURNING MOVEMENTS
- RI/RO — RIGHT IN - RIGHT OUT TURNING MOVEMENTS

NOTES:

1. ZONE 5 HGL ELEVATION IS 5950 - APPROXIMATE PRESSURES AVAILABLE ~54PSI-125PSI.
2. THE CITY HAS INDICATED THAT SERVING THE ZONE 4 PORTION OF COTTONWOOD CREEK VIA THE ZONE 5 SYSTEM THROUGH PRVS IS A POSSIBILITY. IN THAT CASE, THE ZONE 4 WATER MAINS WOULD NOT BE CONSTRUCTED. TWO PRVS WOULD BE ADDED.
3. INFRASTRUCTURE WILL BE CONSTRUCTED INCREMENTALLY AS DEVELOPMENT PROGRESSES THROUGHOUT THE PROJECT AND ADDITIONAL INTERIOR INFRASTRUCTURE WILL BE CONSTRUCTED IN A MANNER TO ENSURE 2 POINTS OF ACCESS TO MEET TRAFFIC OR LIFE SAFETY NEEDS.
4. SURROUNDING DEVELOPMENTS WILL CONSTRUCT HALF STREET IMPROVEMENTS FRONTING THESE RESPECTIVE PROPERTIES.
5. PROPOSED ROADWAY SECTIONS, EITHER HALF OR FULL, WILL REQUIRE WET UTILITIES TO BE INSTALLED PRIOR TO PAVING.
6. SEE SHEET P11 FOR ROAD SECTIONS.
7. REFER TO COTTONWOOD CREEK FIRST CREEK AND COAL CREEK MASTER DRAINAGE REPORT FOR CHANNEL STREAM MANAGEMENT CORRIDOR SECTIONS.
8. THIS PROJECT WILL ADHERE TO THE CITY OF AURORA'S TRAFFIC SIGNAL ESCROW ORDINANCE.
9. REFER TO SHEET P11 FOR ROADWAY CLASSIFICATION REFERENCE TABLE.
10. PERMANENT FIRE STATION REQUIREMENTS: THE AURORA FIRE DEPARTMENT MAY REQUIRE THAT A PERMANENT STATION BE OPENED WHEN, AS A RESULT OF THE DEPARTMENT'S RISK ANALYSIS, SUCH PERMANENT STATION IS DEEMED NECESSARY BY ANY ONE OF THE FOLLOWING BENCHMARK CRITERIA. CRITERIA INCLUDE, BUT MAY NOT BE LIMITED TO, THE FOLLOWING: - THE NUMBER OF TOTAL RESPONSES IN THE FIRST DUE AREA, FOR THE PROJECTED FIRE STATION, EXCEEDS AN ANNUAL RATE OF 400 PER YEAR. - THE TOTAL RESPONSE TIME OF THE FIRST DUE COMPANY EXCEEDS 8 MINUTES 90% OF THE TIME, AND THE RESPONSE TIME OF THE NEXT DUE ENGINE COMPANY, TRUCK COMPANY AND BATTALION CHIEF EXCEEDS 12 MINUTES 90% OF THE TIME. - THE NUMBER OF SINGLE FAMILY UNITS EXCEEDS 500, OR THE AMOUNT OF COMMERCIAL/INDUSTRIAL SQUARE FOOTAGE EXCEEDS 4 MILLION SQUARE FEET.
11. THE EXISTING ROADS AND UTILITIES WITHIN THE PROJECT AREA SHALL BE CORED TO VERIFY EXISTING PAVEMENT NEEDS TO CURRENT STANDARDS AND RECONSTRUCTED AS NECESSARY.
12. THE 48" WATER MAIN IS A CITY OF AURORA WATER CAPITAL IMPROVEMENT PROJECT AS SHOWN IN CIP MAPS.

APPROVED ON THIS DATE

PUBLIC WORKS _____ DATE _____

WATER _____ DATE _____

| No. | Revisions | Date | Init. | Apprv. | Date |
|---|---|---|---|---|---|
| | | | | | |


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COTTONWOOD CREEK
PUBLIC IMPROVEMENT PLAN - FINAL BUILD OUT

SCALE: AS SHOWN
FILE NO: R00311139.00
DRAWN BY: TMB
CHECKED BY: TJD
DATE: SEPT 2023
SHEET NUMBER: P1

N:\PROJECTS\COTTONWOOD CREEK\CAD\ENGINEERING\EXHIBITS\MASTER UTILITY STUDY\PIP COTTONWOOD CREEK_UTILITY REPORT2.DWG, MSDAVIS, 6/25/24

NOTES:

1. ZONE 5 HGL ELEVATION IS 5950 - APPROXIMATE PRESSURES AVAILABLE ~54PSI-125PSI.
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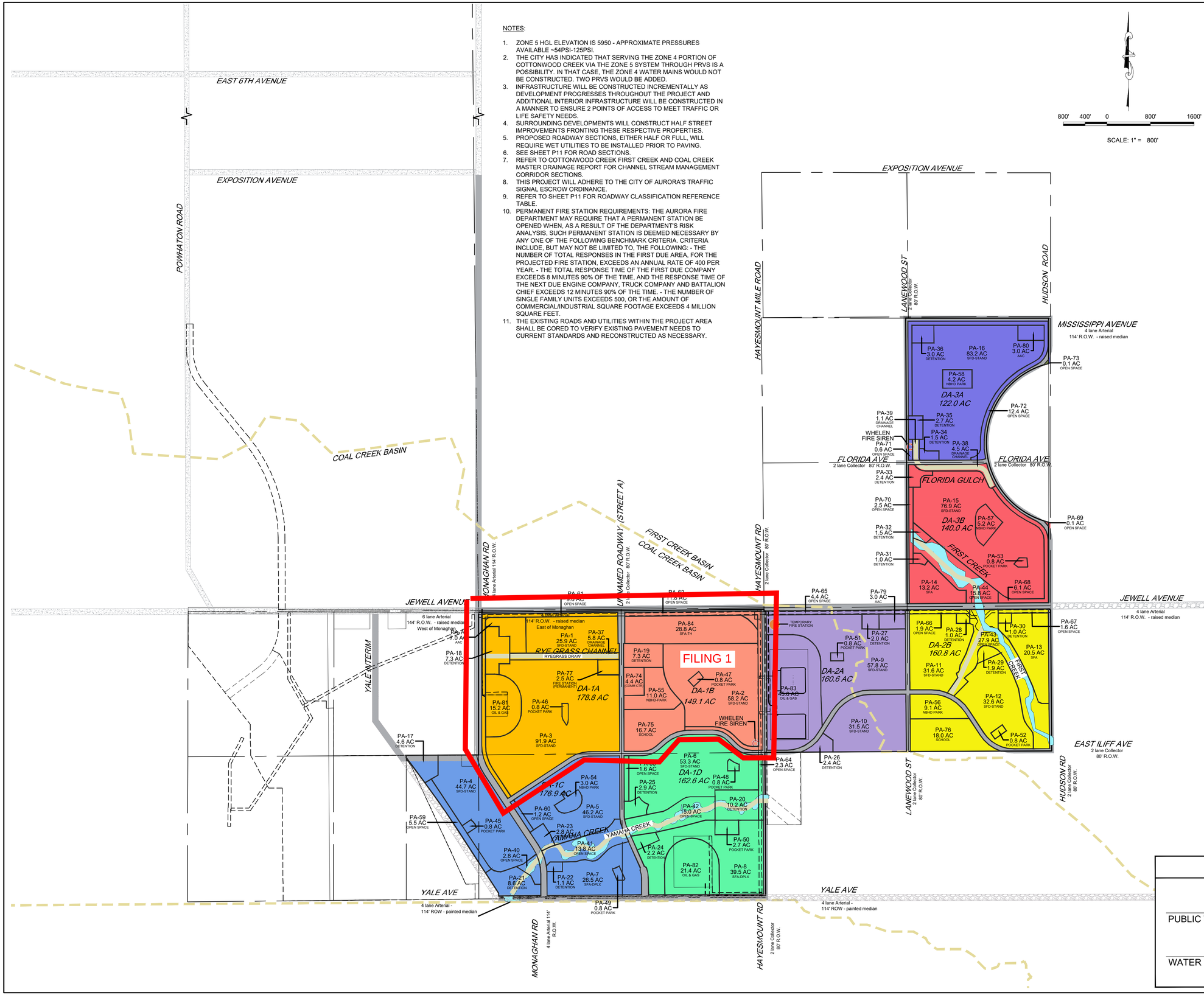
8. THIS PROJECT WILL ADHERE TO THE CITY OF AURORA'S TRAFFIC SIGNAL ESCROW ORDINANCE.
9. REFER TO SHEET P11 FOR ROADWAY CLASSIFICATION REFERENCE TABLE.
10. PERMANENT FIRE STATION REQUIREMENTS: THE AURORA FIRE DEPARTMENT MAY REQUIRE THAT A PERMANENT STATION BE OPENED WHEN, AS A RESULT OF THE DEPARTMENT'S RISK ANALYSIS, SUCH PERMANENT STATION IS DEEMED NECESSARY BY ANY ONE OF THE FOLLOWING BENCHMARK CRITERIA. CRITERIA INCLUDE, BUT MAY NOT BE LIMITED TO, THE FOLLOWING: - THE NUMBER OF TOTAL RESPONSES IN THE FIRST DUE AREA, FOR THE PROJECTED FIRE STATION, EXCEEDS AN ANNUAL RATE OF 400 PER YEAR. - THE TOTAL RESPONSE TIME OF THE FIRST DUE COMPANY EXCEEDS 8 MINUTES 90% OF THE TIME, AND THE RESPONSE TIME OF THE NEXT DUE ENGINE COMPANY, TRUCK COMPANY AND BATTALION CHIEF EXCEEDS 12 MINUTES 90% OF THE TIME. - THE NUMBER OF SINGLE FAMILY UNITS EXCEEDS 500, OR THE AMOUNT OF COMMERCIAL/INDUSTRIAL SQUARE FOOTAGE EXCEEDS 4 MILLION SQUARE FEET.
11. THE EXISTING ROADS AND UTILITIES WITHIN THE PROJECT AREA SHALL BE CORED TO VERIFY EXISTING PAVEMENT NEEDS TO CURRENT STANDARDS AND RECONSTRUCTED AS NECESSARY.

800' 400' 0 800' 1600'

SCALE: 1" = 800'




## LEGEND

- SECTION LINE
- PROPOSED STORM CULVERT
- EXISTING STORM CULVERT
- *PROPOSED DRAINAGE CHANNEL IMPROVEMENTS (SEE NOTE 7)
- WATER QUALITY POND
- FILING BOUNDARY
- MAJOR DRAINAGE BASIN
- WATER ZONE DELINEATION
- PROPOSED SAN SEWER
- EXISTING SAN SEWER
- PROPOSED WATER LINE
- EXISTING WATER LINE
- PRAIRIE WATERS PIPELINE
- DEVELOPMENT AREA 1A
- DEVELOPMENT AREA 1B
- DEVELOPMENT AREA 1C
- DEVELOPMENT AREA 1D
- DEVELOPMENT AREA 2A
- DEVELOPMENT AREA 2B
- DEVELOPMENT AREA 3A
- DEVELOPMENT AREA 3B
- OIL & GAS (O&G)
- PROPOSED ROAD
- EXISTING ROAD (PAVED)
- EXISTING ROAD (GRAVEL)
- PROPOSED OPEN SPACE
- ROADWAY LIMITS PER PARCEL
- ANTICIPATED TO BE SIGNALIZED INTERSECTION IN THE FUTURE
- FULL — FULL TURNING MOVEMENTS
- RI/RO — RIGHT IN - RIGHT OUT TURNING MOVEMENTS

APPROVED ON THIS DATE

PUBLIC WORKS _____ DATE _____

WATER _____ DATE _____

| No. | Revisions | Date | Init. | Apprr. | Date |
|---|---|---|---|---|---|
| | | | | | |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COTTONWOOD CREEK
PUBLIC IMPROVEMENT PLAN - PA OVERLAY

| SCALE: | DRAWN BY: | CHECKED BY: | DATE: |
|---|---|---|---|
| AS SHOWN | TMB | TJD | SEPT 2023 |

FILE NO: R00311139.00

SHEET NUMBER P2

N:\PROJECTS\COTTONWOOD CREEK\CAD\ENGINEERING\EXHIBITS\MASTER UTILITY STUDY\PIP COTTONWOOD CREEK_UTILITY REPORT2.DWG, MSDAVIS, 6/25/24

EX 30" SS
EX 24" SS
EX 24" SS
EAST 6TH AVENUE
PROP 24" SS
21" SS
PROP. OFF-SITE SANITARY CONTINUES ~9,350 LF TO POWHATON & EAST 6TH CONNECTION
6TH AVENUE INTERCEPTOR
18" SS
APPROXIMATE PRESSURE ZONE LIMITS
EXPOSITION AVENUE
POWHATON ROAD
ZONE 4 WATER
ZONE 5 WATER
HAYESMOUNT MILE ROAD
PROP. OFF-SITE SANITARY
15" SS
LANEWOOD ST
2 lane Collector
80' R.O.W.
PROP 16" WL
PROP 8" SS
HUDSON ROAD
MISSISSIPPI AVENUE
4 lane Arterial
114' R.O.W. - raised median
PHASE 4
DA-3A
122.0 AC
PROP 12" WL
PROP 15" SS
15" SS
FULL BUILD-OUT
PROP 12" WL
PROP 12" SS
FLORIDA AVE
2 lane Collector 80' R.O.W.
DA-3B
140.0 AC
COAL CREEK BASIN
60" PRAIRIE WATERS PIPELINE
AURORA SENAC CREEK WASTE WATER INTERCEPTOR PLANS DATED MAY 2023.
FILE IN EXISTING 60" WL
MONAGHAN RD
4 lane Arterial 114' R.O.W.
STREET A
2 lane Collector 80' R.O.W.
FIRST CREEK BASIN
COAL CREEK BASIN
HAYESMOUNT RD
2 lane Collector 80' R.O.W.
PROP 24" WL
PROP 8" SS
PROP 24" WL
PROP 12" SS
PROP 12" WL
JEWELL AVENUE
4 lane Arterial
114' R.O.W. - raised median
EXISTING 30" WL - ZONE 4
PRO 24" WL - ZONE 5
JEWELL AVENUE
6 lane Arterial
144' R.O.W. - raised median
4 lane Arterial
114' R.O.W. - raised median
PROP 10" SS
PHASE 1
(FILING 1)
DA-1A
178.8 AC
PROP 8" SS
PHASE 3
DA-2A
160.6 AC
PHASE 5
DA-2B
160.8 AC
CONNECT TO SENAC CREEK SANITARY INTERCEPTOR
ZONE 5 WATER
ZONE 4 WATER
27" SS (BY OTHERS)
15" SS
PROP 8" SS
PROP 12" WL
PROP 10" SS
PROP 12" SS
PROP. OFF-SITE SANITARY
PROP 12" WL
PROP 8" SS
PROP 12" WL
PROP 8" SS
PROP 12" WL
PROP 12" SS
PROP 12" WL
PROP 8" SS
DA-1B
149.1 AC
PROP 12" WL
PROP 8" SS
DA-1D
162.6 AC
EAST ILIFF AVE
2 lane Collector
80' R.O.W.
LANEWOOD ST
2 lane Collector
80' R.O.W.
HUDSON RD
2 lane Collector
80' R.O.W.
PROP 10" SS
DA-1C
176.9 AC
PHASE 2
PROP 12" WL
PROP 8" SS
PROP 24" WL
PROP 8" SS
EXISTING 30" WL - ZONE 5
PROP. DUAL PRV SYSTEM DA-1C HGL = 5850
PROP 16" WL
PROP 8" SS
YALE AVE
4 lane Arterial -
114' ROW - painted median
YALE AVE
4 lane Arterial -
114' ROW - painted median
ZONE 5 WATER
MONAGHAN RD
4 lane Arterial 114' R.O.W.
PRO 12" WL
(Zone 5)
QUINCY AVENUE
HAYESMOUNT RD
2 lane Collector
80' R.O.W.
PRO 24" WL
COA CIP

## LEGEND

- SECTION LINE
- FILING BOUNDARY
- MAJOR DRAINAGE BASIN
- WATER ZONE DELINEATION
- SS — PROPOSED SAN SEWER
- SS — EXISTING SAN SEWER
- W — PROPOSED WATER LINE
- W — EXISTING WATER LINE
- PRAIRIE WATERS PIPELINE
- OPEN SPACE & DETENTION POND
- PHASE 1
- PHASE 2
- PHASE 3
- PHASE 4
- PHASE 5
- PROPOSED ROAD
- EXISTING ROAD

NOTES:

1. ZONE 5 HGL ELEVATION IS 5950 - APPROXIMATE PRESSURES AVAILABLE ~54PSI-125PSI.
2. THE CITY HAS INDICATED THAT SERVING THE ZONE 4 PORTION OF COTTONWOOD CREEK VIA THE ZONE 5 SYSTEM THROUGH PRVS IS A POSSIBILITY. IN THAT CASE, THE ZONE 4 WATER MAINS WOULD NOT BE CONSTRUCTED. TWO PRVS WOULD BE ADDED.
3. INFRASTRUCTURE WILL BE CONSTRUCTED INCREMENTALLY AS DEVELOPMENT PROGRESSES THROUGHOUT THE PROJECT AND ADDITIONAL INTERIOR INFRASTRUCTURE WILL BE CONSTRUCTED IN A MANNER TO ENSURE 2 POINTS OF ACCESS.
4. SURROUNDING DEVELOPMENTS WILL CONSTRUCT HALF STREET IMPROVEMENTS FRONTING THESE RESPECTIVE PROPERTIES.
5. PROPOSED ROADWAY SECTIONS, EITHER HALF OR FULL, WILL REQUIRE WET UTILITIES TO BE INSTALLED PRIOR TO PAVING.
6. SEE SHEET P11 FOR ROAD SECTIONS.

800' 400' 0 800' 1600'

SCALE: 1" = 800'

APPROVED ON THIS DATE

FIRE DEPARTMENT DATE

WATER DATE

| No. | Revisions | Date |
|---|---|---|
| | | Int. |
| | | Apprv. |
| | | Date |

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COTTONWOOD CREEK

PHASING PLAN

SCALE: AS SHOWN
FILE NO: R00311139.00
DRAWN BY: MSD
CHECKED BY: TJD
DATE: JUNE 2024

SHEET NUMBER P3

N:\PROJECTS\COTTONWOOD CREEK\CAD\ENGINEERING\EXHIBITS\MASTER UTILITY STUDY\PIP_UTILITY REPORT_PHASING PLAN.DWG, MSDAVIS, 6/25/24

EX 30" SS | EX 24" SS | EX 24" SS

EAST 6TH AVENUE

POWHATON ROAD

APPROXIMATE PRESSURE ZONE LIMITS

ZONE 4 WATER

ZONE 5 WATER

COAL CREEK BASIN

60" PRAIRIE WATERS PIPELINE

AURORA SENAC CREEK WASTE WATER INTERCEPTOR PLANS DATED MAY 2023.

FILE NO EXISTING 30" WL

EXISTING 30" WL - ZONE 4

PRO 24" WL - ZONE 5

JEWELL AVENUE

6 lane Arterial
144' R.O.W. - raised median

MONAGHAN RD
4 lane Arterial 114' R.O.W.

PROP 24" WL

STREET A
2 lane Collector 80' R.O.W.

FIRST CREEK BASIN
COAL CREEK BASIN

HAYESMOUNT RD
2 lane Collector 80' R.O.W.

PROP 24" WL

4 lane Arterial
114' R.O.W. - raised median

PROP 10" SS

PROP 8" SS

PHASE 1
(FILING 1)

DA-1A
178.8 AC

DA-1B
149.1 AC

PROP 8" SS

PROP 24" WL
PROP 8" SS

PROP 12" WL
PROP 8" SS

PROP 12" WL
PROP 10" SS

PROP 12" WL
PROP 8" SS

PROP 12" WL

PROP 12" WL
PROP 8" SS

PROP 12" WL
PROP 8" SS

CONNECT TO SENAC CREEK SANITARY INTERCEPTOR

ZONE 5 WATER

ZONE 4 WATER

27" SS (BY OTHERS)

15" SS

PROP. OFF-SITE SANITARY

EXISTING 30" WL - ZONE 5

YALE AVE

4 lane Arterial -
114' ROW - painted median

MONAGHAN RD
4 lane Arterial 114' R.O.W.

HAYESMOUNT RD
2 lane Collector 80' R.O.W.

ZONE 5 WATER

YALE AVE

4 lane Arterial -
114' ROW - painted median

JEWELL AVENUE

4 lane Arterial
114' R.O.W. - raised median

800' 400' 0 800' 1600'

SCALE: 1" = 800'

## LEGEND

- SECTION LINE
- FILING BOUNDARY
- MAJOR DRAINAGE BASIN
- WATER ZONE DELINEATION
- SS — PROPOSED SAN SEWER
- SS — EXISTING SAN SEWER
- W — PROPOSED WATER LINE
- W — EXISTING WATER LINE
- PRAIRIE WATERS PIPELINE
- OPEN SPACE & DETENTION POND
- PHASE 1
- PHASE 2
- PHASE 3
- PHASE 4
- PHASE 5
- PROPOSED ROAD
- EXISTING ROAD

NOTES:

1. ZONE 5 HGL ELEVATION IS 5950 - APPROXIMATE PRESSURES AVAILABLE ~54PSI-125PSI.
2. THE CITY HAS INDICATED THAT SERVING THE ZONE 4 PORTION OF COTTONWOOD CREEK VIA THE ZONE 5 SYSTEM THROUGH PRVS IS A POSSIBILITY. IN THAT CASE, THE ZONE 4 WATER MAINS WOULD NOT BE CONSTRUCTED. TWO PRVS WOULD BE ADDED.
3. INFRASTRUCTURE WILL BE CONSTRUCTED INCREMENTALLY AS DEVELOPMENT PROGRESSES THROUGHOUT THE PROJECT AND ADDITIONAL INTERIOR INFRASTRUCTURE WILL BE CONSTRUCTED IN A MANNER TO ENSURE 2 POINTS OF ACCESS.
4. SURROUNDING DEVELOPMENTS WILL CONSTRUCT HALF STREET IMPROVEMENTS FRONTING THESE RESPECTIVE PROPERTIES.
5. PROPOSED ROADWAY SECTIONS, EITHER HALF OR FULL, WILL REQUIRE WET UTILITIES TO BE INSTALLED PRIOR TO PAVING.
6. SEE SHEET P11 FOR ROAD SECTIONS.

APPROVED ON THIS DATE

FIRE DEPARTMENT DATE

WATER DATE

| No. | Revisions | Date | Init. | Apprv. | Date |
|---|---|---|---|---|---|


Westwood
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COTTONWOOD CREEK

PHASING PLAN

SCALE: AS SHOWN
FILE NO: R0031139.00
DRAWN BY: MSD
CHECKED BY: TJD
DATE: JUNE 2024

SHEET NUMBER P4

N:\PROJECTS\COTTONWOOD CREEK\CAD\ENGINEERING\EXHIBITS\MASTER UTILITY STUDY\PHASING PLAN_PHASE 1.DWG, MSDAVIS, 6/25/24

EX 30" SS
EX 24" SS
EX 24" SS
EAST 6TH AVENUE
POWHATON ROAD
ZONE 4 WATER
ZONE 5 WATER
APPROXIMATE PRESSURE ZONE LIMITS
COAL CREEK BASIN
60" PRAIRIE WATERS PIPELINE
AURORA SENAC CREEK WASTE WATER INTERCEPTOR PLANS DATED MAY 2023.
FILE INTO EXISTING 30" WL
MONAGHAN RD
4 lane Arterial 114' R.O.W.
STREET A
2 lane Collector 80' R.O.W.
HAYESMOUNT RD
2 lane Collector 80' R.O.W.
FIRST CREEK BASIN
COAL CREEK BASIN
PROP 24" WL
PROP 8" SS
EXISTING 30" WL - ZONE 4
PRO 24" WL - ZONE 5
JEWELL AVENUE
6 lane Arterial
144' R.O.W. - raised median
4 lane Arterial
114' R.O.W. - raised median
CONNECT TO SENAC CREEK SANITARY INTERCEPTOR
27" SS (BY OTHERS)
15" SS
PROP. OFF-SITE SANITARY
PROP 12" WL
PROP 10" SS
PROP 8" SS
PROP 10" SS
PHASE 1
(FILING 1)
DA-1A
178.8 AC
DA-1B
149.1 AC
DA-1D
162.6 AC
DA-1C
176.9 AC
PHASE 2
PROP 12" WL
PROP 8" SS
PROP 24" WL
PROP 8" SS
PROP 16" WL
PROP 8" SS
PROP. DUAL PRV SYSTEM DA-1C HGL = 5850
EXISTING 30" WL - ZONE 5
YALE AVE
4 lane Arterial -
114' ROW - painted median
PRO 12" WL
(Zone 5)
PRO 24" WL
COA CIP
ZONE 5 WATER

## LEGEND

- SECTION LINE
- FILING BOUNDARY
- MAJOR DRAINAGE BASIN
- WATER ZONE DELINEATION
- SS — PROPOSED SAN SEWER
- SS — EXISTING SAN SEWER
- W — PROPOSED WATER LINE
- W — EXISTING WATER LINE
- PRAIRIE WATERS PIPELINE
- OPEN SPACE & DETENTION POND
- PHASE 1
- PHASE 2
- PHASE 3
- PHASE 4
- PHASE 5
- PROPOSED ROAD
- EXISTING ROAD

NOTES:

1. ZONE 5 HGL ELEVATION IS 5950 - APPROXIMATE PRESSURES AVAILABLE ~54PSI-125PSI.
2. THE CITY HAS INDICATED THAT SERVING THE ZONE 4 PORTION OF COTTONWOOD CREEK VIA THE ZONE 5 SYSTEM THROUGH PRVS IS A POSSIBILITY. IN THAT CASE, THE ZONE 4 WATER MAINS WOULD NOT BE CONSTRUCTED. TWO PRVS WOULD BE ADDED.
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4. SURROUNDING DEVELOPMENTS WILL CONSTRUCT HALF STREET IMPROVEMENTS FRONTING THESE RESPECTIVE PROPERTIES.
5. PROPOSED ROADWAY SECTIONS, EITHER HALF OR FULL, WILL REQUIRE WET UTILITIES TO BE INSTALLED PRIOR TO PAVING.
6. SEE SHEET P11 FOR ROAD SECTIONS.

800' 400' 0 800' 1600'

SCALE: 1" = 800'

APPROVED ON THIS DATE

FIRE DEPARTMENT DATE

WATER DATE

| No. | Revisions | Date | Init. | Apprv. | Date |
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| | | | | | |


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COTTONWOOD CREEK

PHASING PLAN

SCALE: AS SHOWN
FILE NO: R0031139.00
DRAWN BY: MSD
CHECKED BY: TJO
DATE: JUNE 2024
SHEET NUMBER: P5

N:\PROJECTS\COTTONWOOD CREEK\CAD\ENGINEERING\EXHIBITS\MASTER UTILITY STUDY\PHASING PLAN_PHASE 2.DWG, MSDAVIS, 6/25/24

EX 30" SS | EX 24" SS | EX 24" SS

EAST 6TH AVENUE

POWHATON ROAD

APPROXIMATE PRESSURE ZONE LIMITS

ZONE 4 WATER

ZONE 5 WATER

COAL CREEK BASIN

60" PRAIRIE WATERS PIPELINE

AURORA SENAC CREEK WASTE WATER INTERCEPTOR PLANS DATED MAY 2023.

FILE NO EXISTING 30" WL

EXISTING 30" WL - ZONE 4

PRO 24" WL - ZONE 5

JEWELL AVENUE

6 lane Arterial
144' R.O.W. - raised median

MONAGHAN RD
4 lane Arterial 114' R.O.W.

PROP 24" WL

STREET A
2 lane Collector 80' R.O.W.

FIRST CREEK BASIN

COAL CREEK BASIN

HAYESMOUNT RD
2 lane Collector 80' R.O.W.

PROP 24" WL
PROP 8" SS

JEWELL AVENUE
4 lane Arterial
114' R.O.W. - raised median

4 lane Arterial
114' R.O.W. - raised median

CONNECT TO SENAC CREEK SANITARY INTERCEPTOR

ZONE 5 WATER

ZONE 4 WATER

27" SS (BY OTHERS)

15" SS

PROP. OFF-SITE SANITARY

PROP 10" SS

PROP 12" WL
PROP 10" SS

PROP 12" SS

PROP 8" SS

PROP 12" WL
PROP 8" SS

PROP 10" SS

PHASE 1
(FILING 1)

DA-1A
178.8 AC

DA-1B
149.1 AC

PROP 24" WL

PHASE 3

DA-2A
160.6 AC

PROP 12" WL
PROP 8" SS

PROP 12" WL
PROP 8" SS

DA-1D
162.6 AC

PHASE 2

DA-1C
176.9 AC

PROP 12" WL
PROP 8" SS

PROP 24" WL
PROP 8" SS

PROP. DUAL PRV SYSTEM DA-1C HGL = 5850

EXISTING 30" WL - ZONE 5

YALE AVE

4 lane Arterial -
114' ROW - painted median

PROP 16" WL

PROP 16" WL
PROP 8" SS

YALE AVE

4 lane Arterial -
114' ROW - painted median

ZONE 5 WATER

MONAGHAN RD
4 lane Arterial 114' R.O.W.

PRO 12" WL
(Zone 5)

HAYESMOUNT RD
2 lane Collector
80' R.O.W.

PRO 24" WL
COA CIP

## LEGEND

- SECTION LINE
- FILING BOUNDARY
- MAJOR DRAINAGE BASIN
- WATER ZONE DELINEATION
- PROPOSED SAN SEWER
- EXISTING SAN SEWER
- PROPOSED WATER LINE
- EXISTING WATER LINE
- PRAIRIE WATERS PIPELINE
- OPEN SPACE & DETENTION POND
- PHASE 1
- PHASE 2
- PHASE 3
- PHASE 4
- PHASE 5
- PROPOSED ROAD
- EXISTING ROAD

NOTES:

1. ZONE 5 HGL ELEVATION IS 5950 - APPROXIMATE PRESSURES AVAILABLE ~54PSI-125PSI.
2. THE CITY HAS INDICATED THAT SERVING THE ZONE 4 PORTION OF COTTONWOOD CREEK VIA THE ZONE 5 SYSTEM THROUGH PRVS IS A POSSIBILITY. IN THAT CASE, THE ZONE 4 WATER MAINS WOULD NOT BE CONSTRUCTED. TWO PRVS WOULD BE ADDED.
3. INFRASTRUCTURE WILL BE CONSTRUCTED INCREMENTALLY AS DEVELOPMENT PROGRESSES THROUGHOUT THE PROJECT AND ADDITIONAL INTERIOR INFRASTRUCTURE WILL BE CONSTRUCTED IN A MANNER TO ENSURE 2 POINTS OF ACCESS.
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5. PROPOSED ROADWAY SECTIONS, EITHER HALF OR FULL, WILL REQUIRE WET UTILITIES TO BE INSTALLED PRIOR TO PAVING.
6. SEE SHEET P11 FOR ROAD SECTIONS.

800' 400' 0 800' 1600'

SCALE: 1" = 800'

APPROVED ON THIS DATE

FIRE DEPARTMENT DATE

WATER DATE

| No. | Revisions | Date | Init. | Apprv. | Date |
|---|---|---|---|---|---|
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COTTONWOOD CREEK

PHASING PLAN

SCALE: AS SHOWN
FILE NO: R0031139.00
DRAWN BY: MSD
CHECKED BY: TJO
DATE: JUNE 2024
SHEET NUMBER: P6

N:\PROJECTS\COTTONWOOD CREEK\CAD\ENGINEERING\EXHIBITS\MASTER UTILITY STUDY\PHASING PLAN_PHASE 3.DWG, MSDAVIS, 6/25/24

EX 30" SS
EX 24" SS
EX 24" SS
EAST 6TH AVENUE
PROP 24" SS
PROP. OFF-SITE SANITARY CONTINUES ~9,350 LF TO POWHATON & EAST 6TH CONNECTION
6TH AVENUE INTERCEPTOR
21" SS
18" SS
APPROXIMATE PRESSURE ZONE LIMITS
EXPOSITION AVENUE
POWHATON ROAD
PROP. OFF-SITE SANITARY
15" SS
HAYESMOUNT MILE ROAD
LANEWOOD ST
2 lane Collector 80' R.O.W.
HUDSON ROAD
PROP 16" WL
PROP 8" SS
MISSISSIPPI AVENUE
4 lane Arterial
114' R.O.W. - raised median
PHASE 4
DA-3A
122.0 AC
DA-3B
140.0 AC
PROP 12" WL
PROP 15" SS
PROP 12" WL
PROP 12" WL
PROP 12" WL
PROP 12" SS
FLORIDA AVE
2 lane Collector 80' R.O.W.
FLORIDA AVE
2 lane Collector 80' R.O.W.
ZONE 4 WATER
ZONE 5 WATER
COAL CREEK BASIN
60" PRAIRIE WATERS PIPELINE
AURORA SENAC CREEK WASTE WATER INTERCEPTOR PLANS DATED MAY 2023.
FILE IN EXISTING 60" WL
MONAGHAN RD
4 lane Arterial 114' R.O.W.
STREET A
2 lane Collector 80' R.O.W.
FIRST CREEK BASIN
COAL CREEK BASIN
HAYESMOUNT RD
2 lane Collector 80' R.O.W.
PROP 24" WL
PROP 8" SS
PROP 24" WL
PROP 8" SS
PROP 24" WL
PROP 8" SS
PROP 12" WL
PROP 15" SS
PROP 24" WL
PROP 12" SS
PROP 12" WL
JEWELL AVENUE
6 lane Arterial
144' R.O.W. - raised median
JEWELL AVENUE
4 lane Arterial
114' R.O.W. - raised median
EXISTING 30" WL - ZONE 4
PRO 24" WL - ZONE 5
CONNECT TO SENAC CREEK SANITARY INTERCEPTOR
ZONE 5 WATER
ZONE 4 WATER
27" SS (BY OTHERS)
15" SS
PROP. OFF-SITE SANITARY
PROP 12" WL
PROP 10" SS
PROP 10" SS
PHASE 1
DA-1A
178.8 AC
(FILING 1)
DA-1B
149.1 AC
PROP 8" SS
PHASE 3
DA-2A
160.6 AC
EAST ILIFF AVE
2 lane Collector
80' R.O.W.
PROP 24" WL
PROP 8" SS
PROP 12" WL
PROP 8" SS
PROP 12" WL
PROP 8" SS
PROP 12" WL
PROP 8" SS
PROP 12" WL
PROP 8" SS
PROP 8" SS
PROP 10" SS
PROP 12" WL
PROP 8" SS
DA-1C
176.9 AC
PHASE 2
DA-1D
162.6 AC
PROP 24" WL
PROP. DUAL PRV SYSTEM DA-1C HGL = 5850
PROP 16" WL
PROP 16" WL
PROP 8" SS
EXISTING 30" WL - ZONE 5
YALE AVE
4 lane Arterial -
114' ROW - painted median
YALE AVE
4 lane Arterial -
114' ROW - painted median
ZONE 5 WATER
MONAGHAN RD
4 lane Arterial 114' R.O.W.
PRO 12" WL
(Zone 5)
HAYESMOUNT RD
2 lane Collector
80' R.O.W.
PRO 24" WL
COA CIP

## LEGEND

- SECTION LINE
- FILING BOUNDARY
- MAJOR DRAINAGE BASIN
- WATER ZONE DELINEATION
- SS — PROPOSED SAN SEWER
- SS — EXISTING SAN SEWER
- W — PROPOSED WATER LINE
- W — EXISTING WATER LINE
- PRAIRIE WATERS PIPELINE
- OPEN SPACE & DETENTION POND
- PHASE 1
- PHASE 2
- PHASE 3
- PHASE 4
- PHASE 5
- PROPOSED ROAD
- EXISTING ROAD

NOTES:

1. ZONE 5 HGL ELEVATION IS 5950 - APPROXIMATE PRESSURES AVAILABLE ~54PSI-125PSI.
2. THE CITY HAS INDICATED THAT SERVING THE ZONE 4 PORTION OF COTTONWOOD CREEK VIA THE ZONE 5 SYSTEM THROUGH PRVS IS A POSSIBILITY. IN THAT CASE, THE ZONE 4 WATER MAINS WOULD NOT BE CONSTRUCTED. TWO PRVS WOULD BE ADDED.
3. INFRASTRUCTURE WILL BE CONSTRUCTED INCREMENTALLY AS DEVELOPMENT PROGRESSES THROUGHOUT THE PROJECT AND ADDITIONAL INTERIOR INFRASTRUCTURE WILL BE CONSTRUCTED IN A MANNER TO ENSURE 2 POINTS OF ACCESS.
4. SURROUNDING DEVELOPMENTS WILL CONSTRUCT HALF STREET IMPROVEMENTS FRONTING THESE RESPECTIVE PROPERTIES.
5. PROPOSED ROADWAY SECTIONS, EITHER HALF OR FULL, WILL REQUIRE WET UTILITIES TO BE INSTALLED PRIOR TO PAVING.
6. SEE SHEET P11 FOR ROAD SECTIONS.

800' 400' 0 800' 1600'

SCALE: 1" = 800'

APPROVED ON THIS DATE

FIRE DEPARTMENT DATE

WATER DATE

| No. | Revisions | Date | Int. | Apprv. | Date |
|---|---|---|---|---|---|
| | | | | | |


Westwood
10333 E DRY CREEK RD, SUITE 240
ENGLEWOOD, CO 80112
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Westwood Professional Services, Inc.


COTTONWOOD CREEK INVESTORS, LLC
C/O Marathon Land Company
9750 W. Cambridge Place
Littleton, CO 80127
Tel: (303) 920-9400 Fax: (303) 920-9440

COTTONWOOD CREEK

PHASING PLAN

SCALE: AS SHOWN
FILE NO: R00311139.00
DRAWN BY: MSD
CHECKED BY: TJD
DATE: JUNE 2024

SHEET NUMBER P7

N:\PROJECTS\COTTONWOOD CREEK\CAD\ENGINEERING\EXHIBITS\MASTER UTILITY STUDY\PHASING PLAN_PHASE 4.DWG, MSDAVIS, 6/25/24

EX 30" SS
EX 24" SS
EX 24" SS
EAST 6TH AVENUE
PROP 24" SS
21" SS
PROP. OFF-SITE SANITARY CONTINUES ~9,350 LF TO POWHATON & EAST 6TH CONNECTION
6TH AVENUE INTERCEPTOR
18" SS
APPROXIMATE PRESSURE ZONE LIMITS
EXPOSITION AVENUE
POWHATON ROAD
PROP. OFF-SITE SANITARY
15" SS
HAYESMOUNT MILE ROAD
LANEWOOD ST
2 lane Collector
80' R.O.W.
HUDSON ROAD
PROP 16" WL
PROP 8" SS
MISSISSIPPI AVENUE
4 lane Arterial
114' R.O.W. - raised median
PHASE 4
DA-3A
122.0 AC
PROP 12" WL
PROP 15" SS
PROP 12" WL
PROP 12" WL
PROP 12" SS
FLORIDA AVE
2 lane Collector 80' R.O.W.
PROP 12" WL
PROP 12" SS
FLORIDA AVE
2 lane Collector 80' R.O.W.
DA-3B
140.0 AC
ZONE 4 WATER
ZONE 5 WATER
COAL CREEK BASIN
60" PRAIRIE WATERS PIPELINE
AURORA SENAC CREEK WASTE WATER INTERCEPTOR PLANS DATED MAY 2023.
TIE INTO EXISTING 60" WL
MONAGHAN RD
4 lane Arterial 114' R.O.W.
STREET A
2 lane Collector 80' R.O.W.
FIRST CREEK BASIN
COAL CREEK BASIN
HAYESMOUNT RD
2 lane Collector 80' R.O.W.
PROP 24" WL
PROP 24" WL
PROP 24" WL
PROP 8" SS
PROP 12" WL
PROP 15" SS
PROP 24" WL
PROP 12" SS
PROP 12" WL
JEWELL AVENUE
6 lane Arterial
144' R.O.W. - raised median
PRO 24" WL - ZONE 5
JEWELL AVENUE
4 lane Arterial
114' R.O.W. - raised median
EXISTING 30" WL - ZONE 4
CONNECT TO SENAC CREEK SANITARY INTERCEPTOR
ZONE 5 WATER
ZONE 4 WATER
27" SS (BY OTHERS)
15" SS
PROP. OFF-SITE SANITARY
PROP 10" SS
PROP 12" WL
PROP 10" SS
PROP 8" SS
PHASE 1
DA-1A
178.8 AC
(FILING 1)
DA-1B
149.1 AC
PHASE 3
DA-2A
160.6 AC
PHASE 5
DA-2B
160.8 AC
PROP 24" WL
PROP 8" SS
PROP 12" WL
PROP 8" SS
PROP 12" WL
PROP 12" SS
PROP 12" WL
PROP 12" WL
PROP 8" SS
PROP 12" WL
PROP 8" SS
PROP 12" WL
PROP 8" SS
PROP 8" SS
PROP 10" SS
PROP. DUAL PRV SYSTEM DA-1C HGL = 5850
DA-1C
176.9 AC
PHASE 2
DA-1D
162.6 AC
PROP 12" WL
PROP 8" SS
PROP 12" WL
PROP 8" SS
PROP 24" WL
PROP 16" WL
PROP 16" WL
PROP 8" SS
EAST ILIFF AVE
2 lane Collector
80' R.O.W.
LANEWOOD ST
2 lane Collector
80' R.O.W.
HUDSON RD
2 lane Collector
80' R.O.W.
ZONE 5 WATER
EXISTING 30" WL - ZONE 5
YALE AVE
4 lane Arterial -
114' ROW - painted median
YALE AVE
4 lane Arterial -
114' ROW - painted median
MONAGHAN RD
4 lane Arterial 114' R.O.W.
PRO 12" WL
(Zone 5)
HAYESMOUNT RD
2 lane Collector
80' R.O.W.
PRO 24" WL
COA CIP

## LEGEND

- SECTION LINE
- FILING BOUNDARY
- MAJOR DRAINAGE BASIN
- WATER ZONE DELINEATION
- SS — PROPOSED SAN SEWER
- SS — EXISTING SAN SEWER
- W — PROPOSED WATER LINE
- W — EXISTING WATER LINE
- PRAIRIE WATERS PIPELINE
- OPEN SPACE & DETENTION POND
- PHASE 1
- PHASE 2
- PHASE 3
- PHASE 4
- PHASE 5
- PROPOSED ROAD
- EXISTING ROAD

NOTES:

1. ZONE 5 HGL ELEVATION IS 5950 - APPROXIMATE PRESSURES AVAILABLE ~54PSI-125PSI.
2. THE CITY HAS INDICATED THAT SERVING THE ZONE 4 PORTION OF COTTONWOOD CREEK VIA THE ZONE 5 SYSTEM THROUGH PRVS IS A POSSIBILITY. IN THAT CASE, THE ZONE 4 WATER MAINS WOULD NOT BE CONSTRUCTED. TWO PRVS WOULD BE ADDED.
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5. PROPOSED ROADWAY SECTIONS, EITHER HALF OR FULL, WILL REQUIRE WET UTILITIES TO BE INSTALLED PRIOR TO PAVING.
6. SEE SHEET P11 FOR ROAD SECTIONS.

800' 400' 0 800' 1600'

SCALE: 1" = 800'

APPROVED ON THIS DATE

FIRE DEPARTMENT DATE

WATER DATE

| No. | Revisions | Date | Int. | Appr. | Date |
|---|---|---|---|---|---|
| | | | | | |


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COTTONWOOD CREEK

PHASING PLAN

| SCALE: | AS SHOWN | FILE NO: | R00311139.00 |
|---|---|---|---|
| DRAWN BY: | MSD | CHECKED BY: | TJD |
| DATE: | JUNE 2024 | | |

SHEET NUMBER P8

N:\PROJECTS\COTTONWOOD CREEK\CAD\ENGINEERING\EXHIBITS\MASTER UTILITY STUDY\PHASING PLAN_PHASE 5.DWG, MSDAVIS, 6/25/24

# APPENDIX B
# WATER DEMANDS, CALCULATIONS, AND LAYOUT



Westwood
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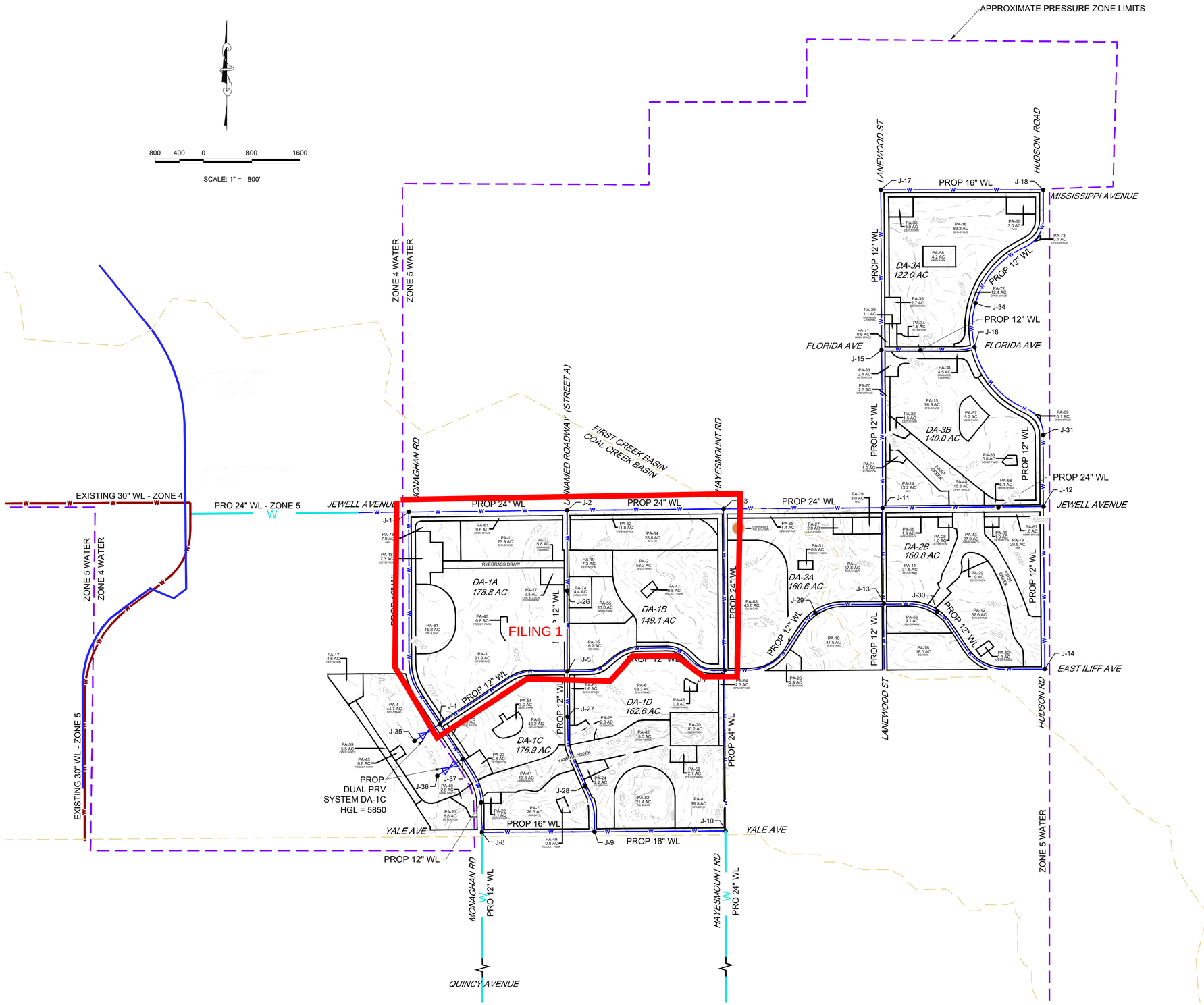


| No. | Revisions | Date | Init. | Apprv. | Date |
|---|---|---|---|---|---|
| | | | | | |


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**COTTONWOOD CREEK**

WATER EXHIBIT

| SCALE: | AS SHOWN | FILE NO: | R00311139.00 |
|---|---|---|---|
| DRAWN BY: | MSD | CHECKED BY: | TJO |
| DATE: | JUNE 2024 | | |

SHEET NUMBER **W1**

APPROVED ON THIS DATE

FIRE DEPARTMENT _____ DATE _____

WATER _____ DATE _____

N:\PROJECTS\COTTONWOOD CREEK\CAD\ENGINEERING\EXHIBITS\MASTER UTILITY STUDY\WATER EXHIBIT_MUS.DWG, MSDAVIS, 6/25/24

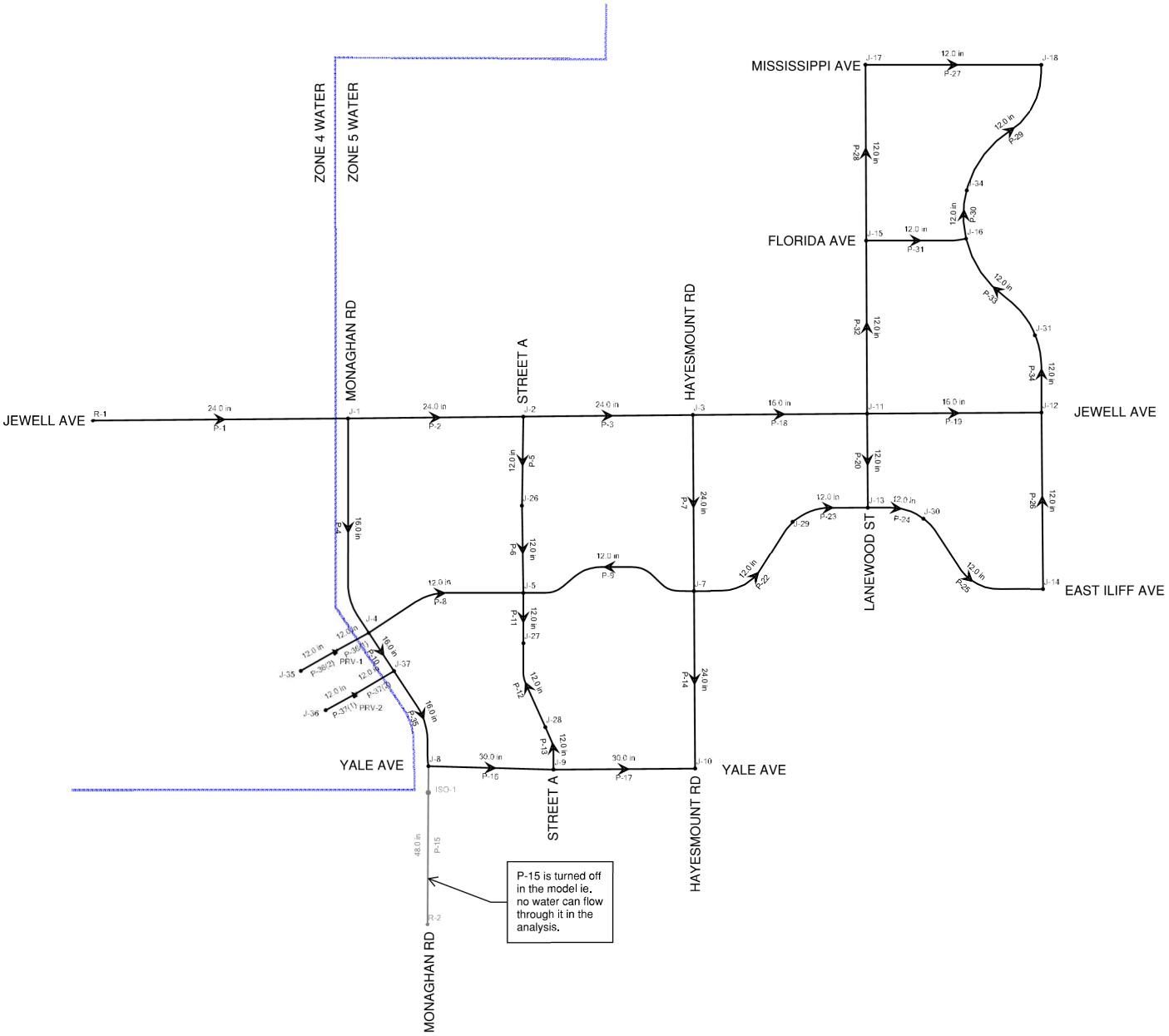
## Water Demands

| | Land Use | | | | Commercial/Industrial | | | | Residential | | | | School | | | | Irrigation | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Development Area | Use | Acerage | Units/Acre | Residential Units | Average Day (gpm) | Max Day (gpm) | Max Hour (gpm) | Max Day + Fire Flow (gpm) | Average Day (gpm) | Max Day (gpm) | Max Hour (gpm) | Max Day + Fire Flow (gpm) | Average Day (gpm) | Max Day (gpm) | Max Hour (gpm) | Max Day + Fire Flow (gpm) | Average Day (gpm) | Max Day (gpm) | Max Hour (gpm) |
| 1A | Residential | 117.80 | 4.7 | 548 | - - | - - | - - | - - | 106.31 | 297.67 | 478.40 | 1797.67 | - - | - - | - - | - - | - - | - - | - - |
| 1A | Commercial (PA-77) | 2.50 | - - | - - | 2.60 | 7.28 | 11.70 | 2507.28 | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - |
| 1A | Commercial (PA-78) | 7.00 | - - | - - | 7.28 | 20.38 | 32.76 | 2520.38 | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - |
| 1A | Park | 0.80 | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | 1 | 2.8 | 0.00 |
| 1B | Residential | 86.30 | 6.4 | 552 | - - | - - | - - | - - | 107.09 | 299.85 | 481.90 | 1799.85 | - - | - - | - - | - - | - - | - - | - - |
| 1B | Commercial | 4.40 | - - | - - | 4.58 | 12.81 | 20.59 | 2512.81 | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - |
| 1B | Park | 11.80 | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | 14.75 | 41.30 | 0.00 |
| 1B | School | 16.70 | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | 13.92 | 38.97 | 62.62 | 1538.97 | - - | - - | - - |
| 1C | Residential | 117.40 | 4.6 | 541 | - - | - - | - - | - - | 104.95 | 293.87 | 472.29 | 1793.87 | - - | - - | - - | - - | - - | - - | - - |
| 1C | Park | 4.60 | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | 5.75 | 16.10 | 0.00 |
| 1D | Residential | 92.80 | 5.8 | 536 | - - | - - | - - | - - | 103.98 | 291.16 | 467.93 | 1791.16 | - - | - - | - - | - - | - - | - - | - - |
| 1D | Park | 3.50 | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | 4.38 | 12.25 | 0.00 |
| 2A | Residential | 89.30 | 4.3 | 388 | - - | - - | - - | - - | 75.27 | 210.76 | 338.72 | 1710.76 | - - | - - | - - | - - | - - | - - | - - |
| 2A | Park | 0.80 | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | 1.00 | 2.80 | 0.00 |
| 2A | Commercial | 3.00 | - - | - - | 3.12 | 8.74 | 14.04 | 2508.74 | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - |
| 2B | School | 18.00 | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | 15.00 | 42.00 | 67.50 | 1542.00 | - - | - - | - - |
| 2B | Residential | 84.70 | 5.1 | 428 | - - | - - | - - | - - | 83.03 | 232.49 | 373.64 | 1732.49 | - - | - - | - - | - - | - - | - - | - - |
| 2B | Park | 9.90 | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | 12.38 | 34.65 | 0.00 |
| 3A | Residential | 83.20 | 4.5 | 371 | - - | - - | - - | - - | 71.97 | 201.53 | 323.88 | 1701.53 | - - | - - | - - | - - | - - | - - | - - |
| 3A | Park | 4.20 | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | 5.25 | 14.70 | 0.00 |
| 3A | Commercial | 3.00 | - - | - - | 3.12 | 8.74 | 14.04 | 2508.74 | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - |
| 3B | Residential | 90.10 | 5.0 | 451 | - - | - - | - - | - - | 87.49 | 244.9832 | 393.723 | 1744.98 | - - | - - | - - | - - | - - | - - | - - |
| 3B | Park | 6.20 | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | 7.75 | 21.70 | 0.00 |
| **Total Demands** | | | | | **20.70** | **57.95** | **93.13** | **2557.95** | **740.11** | **2072.31** | **3330.50** | **3572.31** | **28.92** | **80.97** | **130.12** | **1580.97** | **52.25** | **146.30** | **0.00** |

1. Residential demands based on 101 gpcd and 2.77 people per unit.
2. Commercial demands based on 1,500 gpd per acre
3. School demand based on 1,200 gpd/acre.
4. Irrigation demands based on 1,800 gpd/acre.
5. Max day factor= 2.8 times average daily flow.
6. Max hour factor= 4.5 times average daily flow.

| Demand Allocation Table | | | | | | | |
|---|---|---|---|---|---|---|---|
| Development Area | Residential+Irrigation Total Flow | Residential+Irrigation Junction | Flow Added to Junction | Commercial Junction | Commercial Flow Added | School Junction | School Flow Added |
| 1A | 107.31 | J-1 | 26.83 | J-26 | 2.60 | | |
| | | J-2 | 26.83 | J-1 | 7.28 | | |
| | | J-4 | 26.83 | | | | |
| | | J-5 | 26.83 | | | | |
| 1B | 121.84 | J-2 | 30.46 | J-26 | 4.58 | J-5 | 13.92 |
| | | J-3 | 30.46 | | | | |
| | | J-5 | 30.46 | | | | |
| | | J-7 | 30.46 | | | | |
| 1C | 110.70 | J-4 | 18.45 | | | | |
| | | J-5 | 18.45 | | | | |
| | | J-8 | 18.45 | | | | |
| | | J-9 | 18.45 | | | | |
| | | J-35 | 18.45 | | | | |
| | | J-36 | 18.45 | | | | |
| 1D | 108.36 | J-5 | 27.09 | | | | |
| | | J-7 | 27.09 | | | | |
| | | J-9 | 27.09 | | | | |
| | | J-10 | 27.09 | | | | |
| 2A | 76.27 | J-3 | 19.07 | J-11 | 3.12 | | |
| | | J-11 | 19.07 | | | | |
| | | J-13 | 19.07 | | | | |
| | | J-29 | 19.07 | | | | |
| 2B | 95.41 | J-11 | 19.08 | | | J-30 | 15.00 |
| | | J-12 | 19.08 | | | | |
| | | J-13 | 19.08 | | | | |
| | | J-14 | 19.08 | | | | |
| | | J-30 | 19.08 | | | | |
| 3A | 77.22 | J-15 | 19.31 | J-18 | 3.12 | | |
| | | J-16 | 19.31 | | | | |
| | | J-17 | 19.31 | | | | |
| | | J-18 | 19.31 | | | | |
| 3B | 95.24 | J-11 | 23.81 | | | | |
| | | J-12 | 23.81 | | | | |
| | | J-15 | 23.81 | | | | |
| | | J-16 | 23.81 | | | | |

# Scenario: AVERAGE DAY - ALL PHASES
# Active Scenario: AVERAGE DAY - ALL PHASES



# FlexTable: Junction Table

## Active Scenario: AVERAGE DAY - ALL PHASES

| Label | Elevation (ft) | Demand (gpm) | Hydraulic Grade (ft) | Pressure (psi) |
|---|---|---|---|---|
| J-1 | 5,701.30 | 34 | 5,949.76 | 107 |
| J-2 | 5,740.50 | 57 | 5,949.65 | 90 |
| J-3 | 5,778.20 | 50 | 5,949.58 | 74 |
| J-4 | 5,689.70 | 45 | 5,949.57 | 112 |
| J-5 | 5,737.20 | 117 | 5,949.56 | 92 |
| J-7 | 5,771.30 | 58 | 5,949.57 | 77 |
| J-8 | 5,680.50 | 18 | 5,949.56 | 116 |
| J-9 | 5,722.50 | 46 | 5,949.56 | 98 |
| J-10 | 5,801.50 | 27 | 5,949.57 | 64 |
| J-11 | 5,784.40 | 65 | 5,949.55 | 71 |
| J-12 | 5,792.50 | 43 | 5,949.55 | 68 |
| J-13 | 5,810.90 | 38 | 5,949.54 | 60 |
| J-14 | 5,816.70 | 19 | 5,949.54 | 57 |
| J-15 | 5,738.50 | 43 | 5,949.51 | 91 |
| J-16 | 5,765.00 | 43 | 5,949.51 | 80 |
| J-17 | 5,725.50 | 19 | 5,949.50 | 97 |
| J-18 | 5,732.00 | 22 | 5,949.50 | 94 |
| J-26 | 5,737.22 | 7 | 5,949.60 | 92 |
| J-27 | 5,732.20 | 0 | 5,949.56 | 94 |
| J-28 | 5,721.50 | 0 | 5,949.56 | 99 |
| J-29 | 5,822.00 | 19 | 5,949.55 | 55 |
| J-30 | 5,796.40 | 34 | 5,949.54 | 66 |
| J-31 | 5,775.00 | 0 | 5,949.53 | 76 |
| J-34 | 5,772.50 | 0 | 5,949.51 | 77 |
| J-35 | 5,684.20 | 18 | 5,850.06 | 72 |
| J-36 | 5,681.70 | 18 | 5,850.06 | 73 |
| J-37 | 5,690.70 | 0 | 5,949.57 | 112 |

# FlexTable: Pipe Table

## Active Scenario: AVERAGE DAY - ALL PHASES

| Label | Start Node | Stop Node | Length (ft) | Diameter (in) | Flow (gpm) | Velocity (ft/s) | Headloss Gradient (ft/ft) | Hazen-Williams C | Material |
|---|---|---|---|---|---|---|---|---|---|
| P-1 | R-1 | J-1 | 3,850 | 24.0 | 842 | 0.60 | 0.000 | 130.0 | PVC |
| P-2 | J-1 | J-2 | 2,644 | 24.0 | 680 | 0.48 | 0.000 | 130.0 | PVC |
| P-3 | J-2 | J-3 | 2,560 | 24.0 | 528 | 0.37 | 0.000 | 130.0 | PVC |
| P-4 | J-4 | J-1 | 3,313 | 12.0 | -128 | 0.36 | 0.000 | 130.0 | PVC |
| P-5 | J-26 | J-2 | 1,343 | 12.0 | -95 | 0.27 | 0.000 | 130.0 | PVC |
| P-6 | J-5 | J-26 | 1,317 | 12.0 | -88 | 0.25 | 0.000 | 130.0 | PVC |
| P-7 | J-7 | J-3 | 2,659 | 24.0 | -181 | 0.13 | 0.000 | 130.0 | PVC |
| P-8 | J-5 | J-4 | 2,497 | 12.0 | -24 | 0.07 | 0.000 | 130.0 | PVC |
| P-9 | J-7 | J-5 | 2,801 | 12.0 | 14 | 0.04 | 0.000 | 130.0 | PVC |
| P-10 | J-37 | J-4 | 690 | 12.0 | -40 | 0.11 | 0.000 | 130.0 | PVC |
| P-11 | J-5 | J-27 | 758 | 12.0 | 9 | 0.03 | 0.000 | 130.0 | PVC |
| P-12 | J-27 | J-28 | 1,336 | 12.0 | 9 | 0.03 | 0.000 | 130.0 | PVC |
| P-13 | J-28 | J-9 | 662 | 12.0 | 9 | 0.03 | 0.000 | 130.0 | PVC |
| P-14 | J-10 | J-7 | 2,677 | 24.0 | -61 | 0.04 | 0.000 | 130.0 | PVC |
| P-15 | J-8 | R-2 | 2,389 | 12.0 | (N/A) | (N/A) | (N/A) | 130.0 | PVC |
| P-16 | J-9 | J-8 | 1,887 | 16.0 | -3 | 0.00 | 0.000 | 130.0 | PVC |
| P-17 | J-9 | J-10 | 2,137 | 16.0 | -34 | 0.05 | 0.000 | 130.0 | PVC |
| P-18 | J-3 | J-11 | 2,629 | 24.0 | 298 | 0.21 | 0.000 | 130.0 | PVC |
| P-19 | J-11 | J-12 | 2,630 | 24.0 | 126 | 0.09 | 0.000 | 130.0 | PVC |
| P-20 | J-13 | J-11 | 1,418 | 12.0 | -38 | 0.11 | 0.000 | 130.0 | PVC |
| P-22 | J-29 | J-7 | 1,987 | 12.0 | -49 | 0.14 | 0.000 | 130.0 | PVC |
| P-23 | J-13 | J-29 | 1,185 | 12.0 | -29 | 0.08 | 0.000 | 130.0 | PVC |
| P-24 | J-30 | J-13 | 876 | 12.0 | -30 | 0.08 | 0.000 | 130.0 | PVC |
| P-25 | J-14 | J-30 | 2,296 | 12.0 | 5 | 0.01 | 0.000 | 130.0 | PVC |
| P-26 | J-12 | J-14 | 2,665 | 12.0 | 24 | 0.07 | 0.000 | 130.0 | PVC |
| P-27 | J-17 | J-18 | 2,653 | 16.0 | 2 | 0.00 | 0.000 | 130.0 | PVC |
| P-28 | J-15 | J-17 | 2,653 | 12.0 | 22 | 0.06 | 0.000 | 130.0 | PVC |
| P-29 | J-18 | J-34 | 2,298 | 12.0 | -20 | 0.06 | 0.000 | 130.0 | PVC |
| P-30 | J-34 | J-16 | 734 | 12.0 | -20 | 0.06 | 0.000 | 130.0 | PVC |
| P-31 | J-15 | J-16 | 1,509 | 12.0 | 3 | 0.01 | 0.000 | 130.0 | PVC |
| P-32 | J-11 | J-15 | 2,612 | 12.0 | 68 | 0.19 | 0.000 | 130.0 | PVC |
| P-33 | J-16 | J-31 | 1,824 | 12.0 | -60 | 0.17 | 0.000 | 130.0 | PVC |
| P-34 | J-31 | J-12 | 1,179 | 12.0 | -60 | 0.17 | 0.000 | 130.0 | PVC |
| P-35 | J-8 | J-37 | 1,572 | 12.0 | -21 | 0.06 | 0.000 | 130.0 | PVC |
| P-36(1) | J-4 | PRV-1 | 100 | 12.0 | 18 | 0.05 | 0.000 | 130.0 | PVC |
| P-36(2) | PRV-1 | J-35 | 100 | 12.0 | 18 | 0.05 | 0.000 | 130.0 | PVC |
| P-37(1) | J-36 | PRV-2 | 100 | 12.0 | -18 | 0.05 | 0.000 | 130.0 | PVC |
| P-37(2) | PRV-2 | J-37 | 100 | 12.0 | -18 | 0.05 | 0.000 | 130.0 | PVC |

# FlexTable: Junction Table

## Active Scenario: MAX DAY - ALL PHASES

| Label | Elevation (ft) | Demand (gpm) | Hydraulic Grade (ft) | Pressure (psi) |
|---|---|---|---|---|
| J-1 | 5,701.30 | 96 | 5,948.37 | 107 |
| J-2 | 5,740.50 | 160 | 5,947.61 | 90 |
| J-3 | 5,778.20 | 139 | 5,947.16 | 73 |
| J-4 | 5,689.70 | 127 | 5,947.12 | 111 |
| J-5 | 5,737.20 | 327 | 5,947.07 | 91 |
| J-7 | 5,771.30 | 161 | 5,947.09 | 76 |
| J-8 | 5,680.50 | 52 | 5,947.06 | 115 |
| J-9 | 5,722.50 | 128 | 5,947.06 | 97 |
| J-10 | 5,801.50 | 76 | 5,947.08 | 63 |
| J-11 | 5,784.40 | 182 | 5,946.99 | 70 |
| J-12 | 5,792.50 | 120 | 5,946.96 | 67 |
| J-13 | 5,810.90 | 107 | 5,946.94 | 59 |
| J-14 | 5,816.70 | 53 | 5,946.92 | 56 |
| J-15 | 5,738.50 | 121 | 5,946.68 | 90 |
| J-16 | 5,765.00 | 121 | 5,946.68 | 79 |
| J-17 | 5,725.50 | 54 | 5,946.65 | 96 |
| J-18 | 5,732.00 | 63 | 5,946.65 | 93 |
| J-26 | 5,737.22 | 20 | 5,947.32 | 91 |
| J-27 | 5,732.20 | 0 | 5,947.07 | 93 |
| J-28 | 5,721.50 | 0 | 5,947.07 | 98 |
| J-29 | 5,822.00 | 53 | 5,946.97 | 54 |
| J-30 | 5,796.40 | 95 | 5,946.91 | 65 |
| J-31 | 5,775.00 | 0 | 5,946.85 | 74 |
| J-34 | 5,772.50 | 0 | 5,946.67 | 75 |
| J-35 | 5,684.20 | 52 | 5,850.06 | 72 |
| J-36 | 5,681.70 | 52 | 5,850.06 | 73 |
| J-37 | 5,690.70 | 0 | 5,947.09 | 111 |

# FlexTable: Pipe Table

## Active Scenario: MAX DAY - ALL PHASES

| Label | Start Node | Stop Node | Length (ft) | Diameter (in) | Flow (gpm) | Velocity (ft/s) | Headloss Gradient (ft/ft) | Hazen-Williams C | Material |
|---|---|---|---|---|---|---|---|---|---|
| P-1 | R-1 | J-1 | 3,850 | 24.0 | 2,358 | 1.67 | 0.000 | 130.0 | PVC |
| P-2 | J-1 | J-2 | 2,644 | 24.0 | 1,904 | 1.35 | 0.000 | 130.0 | PVC |
| P-3 | J-2 | J-3 | 2,560 | 24.0 | 1,478 | 1.05 | 0.000 | 130.0 | PVC |
| P-4 | J-4 | J-1 | 3,313 | 12.0 | -358 | 1.01 | 0.000 | 130.0 | PVC |
| P-5 | J-26 | J-2 | 1,343 | 12.0 | -266 | 0.75 | 0.000 | 130.0 | PVC |
| P-6 | J-5 | J-26 | 1,317 | 12.0 | -246 | 0.70 | 0.000 | 130.0 | PVC |
| P-7 | J-7 | J-3 | 2,659 | 24.0 | -506 | 0.36 | 0.000 | 130.0 | PVC |
| P-8 | J-5 | J-4 | 2,497 | 12.0 | -68 | 0.19 | 0.000 | 130.0 | PVC |
| P-9 | J-7 | J-5 | 2,801 | 12.0 | 39 | 0.11 | 0.000 | 130.0 | PVC |
| P-10 | J-37 | J-4 | 690 | 12.0 | -111 | 0.32 | 0.000 | 130.0 | PVC |
| P-11 | J-5 | J-27 | 758 | 12.0 | 26 | 0.07 | 0.000 | 130.0 | PVC |
| P-12 | J-27 | J-28 | 1,336 | 12.0 | 26 | 0.07 | 0.000 | 130.0 | PVC |
| P-13 | J-28 | J-9 | 662 | 12.0 | 26 | 0.07 | 0.000 | 130.0 | PVC |
| P-14 | J-10 | J-7 | 2,677 | 24.0 | -170 | 0.12 | 0.000 | 130.0 | PVC |
| P-15 | J-8 | R-2 | 2,389 | 12.0 | (N/A) | (N/A) | (N/A) | 130.0 | PVC |
| P-16 | J-9 | J-8 | 1,887 | 16.0 | -8 | 0.01 | 0.000 | 130.0 | PVC |
| P-17 | J-9 | J-10 | 2,137 | 16.0 | -94 | 0.15 | 0.000 | 130.0 | PVC |
| P-18 | J-3 | J-11 | 2,629 | 24.0 | 834 | 0.59 | 0.000 | 130.0 | PVC |
| P-19 | J-11 | J-12 | 2,630 | 24.0 | 353 | 0.25 | 0.000 | 130.0 | PVC |
| P-20 | J-13 | J-11 | 1,418 | 12.0 | -107 | 0.30 | 0.000 | 130.0 | PVC |
| P-22 | J-29 | J-7 | 1,987 | 12.0 | -136 | 0.39 | 0.000 | 130.0 | PVC |
| P-23 | J-13 | J-29 | 1,185 | 12.0 | -83 | 0.23 | 0.000 | 130.0 | PVC |
| P-24 | J-30 | J-13 | 876 | 12.0 | -83 | 0.23 | 0.000 | 130.0 | PVC |
| P-25 | J-14 | J-30 | 2,296 | 12.0 | 13 | 0.04 | 0.000 | 130.0 | PVC |
| P-26 | J-12 | J-14 | 2,665 | 12.0 | 66 | 0.19 | 0.000 | 130.0 | PVC |
| P-27 | J-17 | J-18 | 2,653 | 16.0 | 7 | 0.01 | 0.000 | 130.0 | PVC |
| P-28 | J-15 | J-17 | 2,653 | 12.0 | 61 | 0.17 | 0.000 | 130.0 | PVC |
| P-29 | J-18 | J-34 | 2,298 | 12.0 | -56 | 0.16 | 0.000 | 130.0 | PVC |
| P-30 | J-34 | J-16 | 734 | 12.0 | -56 | 0.16 | 0.000 | 130.0 | PVC |
| P-31 | J-15 | J-16 | 1,509 | 12.0 | 10 | 0.03 | 0.000 | 130.0 | PVC |
| P-32 | J-11 | J-15 | 2,612 | 12.0 | 191 | 0.54 | 0.000 | 130.0 | PVC |
| P-33 | J-16 | J-31 | 1,824 | 12.0 | -167 | 0.47 | 0.000 | 130.0 | PVC |
| P-34 | J-31 | J-12 | 1,179 | 12.0 | -167 | 0.47 | 0.000 | 130.0 | PVC |
| P-35 | J-8 | J-37 | 1,572 | 12.0 | -60 | 0.17 | 0.000 | 130.0 | PVC |
| P-36(1) | J-4 | PRV-1 | 100 | 12.0 | 52 | 0.15 | 0.000 | 130.0 | PVC |
| P-36(2) | PRV-1 | J-35 | 100 | 12.0 | 52 | 0.15 | 0.000 | 130.0 | PVC |
| P-37(1) | J-36 | PRV-2 | 100 | 12.0 | -52 | 0.15 | 0.000 | 130.0 | PVC |
| P-37(2) | PRV-2 | J-37 | 100 | 12.0 | -52 | 0.15 | 0.000 | 130.0 | PVC |

# FlexTable: Junction Table

## Active Scenario: MAX HR - ALL PHASES

| Label | Elevation (ft) | Demand (gpm) | Hydraulic Grade (ft) | Pressure (psi) |
|---|---|---|---|---|
| J-1 | 5,701.30 | 153 | 5,946.07 | 106 |
| J-2 | 5,740.50 | 258 | 5,944.25 | 88 |
| J-3 | 5,778.20 | 223 | 5,943.15 | 71 |
| J-4 | 5,689.70 | 204 | 5,943.06 | 110 |
| J-5 | 5,737.20 | 525 | 5,942.95 | 89 |
| J-7 | 5,771.30 | 259 | 5,942.99 | 74 |
| J-8 | 5,680.50 | 83 | 5,942.93 | 114 |
| J-9 | 5,722.50 | 205 | 5,942.93 | 95 |
| J-10 | 5,801.50 | 122 | 5,942.97 | 61 |
| J-11 | 5,784.40 | 293 | 5,942.76 | 69 |
| J-12 | 5,792.50 | 193 | 5,942.68 | 65 |
| J-13 | 5,810.90 | 172 | 5,942.62 | 57 |
| J-14 | 5,816.70 | 86 | 5,942.57 | 54 |
| J-15 | 5,738.50 | 194 | 5,942.01 | 88 |
| J-16 | 5,765.00 | 194 | 5,942.01 | 77 |
| J-17 | 5,725.50 | 87 | 5,941.92 | 94 |
| J-18 | 5,732.00 | 101 | 5,941.92 | 91 |
| J-26 | 5,737.22 | 32 | 5,943.55 | 89 |
| J-27 | 5,732.20 | 0 | 5,942.95 | 91 |
| J-28 | 5,721.50 | 0 | 5,942.94 | 96 |
| J-29 | 5,822.00 | 86 | 5,942.69 | 52 |
| J-30 | 5,796.40 | 153 | 5,942.57 | 63 |
| J-31 | 5,775.00 | 0 | 5,942.42 | 72 |
| J-34 | 5,772.50 | 0 | 5,941.99 | 73 |
| J-35 | 5,684.20 | 83 | 5,850.06 | 72 |
| J-36 | 5,681.70 | 83 | 5,850.06 | 73 |
| J-37 | 5,690.70 | 0 | 5,942.98 | 109 |

# FlexTable: Pipe Table

## Active Scenario: MAX HR - ALL PHASES

| Label | Start Node | Stop Node | Length (ft) | Diameter (in) | Flow (gpm) | Velocity (ft/s) | Headloss Gradient (ft/ft) | Hazen-Williams C | Material |
|---|---|---|---|---|---|---|---|---|---|
| P-1 | R-1 | J-1 | 3,850 | 24.0 | 3,789 | 2.69 | 0.001 | 130.0 | PVC |
| P-2 | J-1 | J-2 | 2,644 | 24.0 | 3,061 | 2.17 | 0.001 | 130.0 | PVC |
| P-3 | J-2 | J-3 | 2,560 | 24.0 | 2,376 | 1.68 | 0.000 | 130.0 | PVC |
| P-4 | J-4 | J-1 | 3,313 | 12.0 | -575 | 1.63 | 0.001 | 130.0 | PVC |
| P-5 | J-26 | J-2 | 1,343 | 12.0 | -427 | 1.21 | 0.001 | 130.0 | PVC |
| P-6 | J-5 | J-26 | 1,317 | 12.0 | -395 | 1.12 | 0.000 | 130.0 | PVC |
| P-7 | J-7 | J-3 | 2,659 | 24.0 | -813 | 0.58 | 0.000 | 130.0 | PVC |
| P-8 | J-5 | J-4 | 2,497 | 12.0 | -109 | 0.31 | 0.000 | 130.0 | PVC |
| P-9 | J-7 | J-5 | 2,801 | 12.0 | 63 | 0.18 | 0.000 | 130.0 | PVC |
| P-10 | J-37 | J-4 | 690 | 12.0 | -179 | 0.51 | 0.000 | 130.0 | PVC |
| P-11 | J-5 | J-27 | 758 | 12.0 | 41 | 0.12 | 0.000 | 130.0 | PVC |
| P-12 | J-27 | J-28 | 1,336 | 12.0 | 41 | 0.12 | 0.000 | 130.0 | PVC |
| P-13 | J-28 | J-9 | 662 | 12.0 | 41 | 0.12 | 0.000 | 130.0 | PVC |
| P-14 | J-10 | J-7 | 2,677 | 24.0 | -273 | 0.19 | 0.000 | 130.0 | PVC |
| P-15 | J-8 | R-2 | 2,389 | 12.0 | (N/A) | (N/A) | (N/A) | 130.0 | PVC |
| P-16 | J-9 | J-8 | 1,887 | 16.0 | -13 | 0.02 | 0.000 | 130.0 | PVC |
| P-17 | J-9 | J-10 | 2,137 | 16.0 | -151 | 0.24 | 0.000 | 130.0 | PVC |
| P-18 | J-3 | J-11 | 2,629 | 24.0 | 1,340 | 0.95 | 0.000 | 130.0 | PVC |
| P-19 | J-11 | J-12 | 2,630 | 24.0 | 568 | 0.40 | 0.000 | 130.0 | PVC |
| P-20 | J-13 | J-11 | 1,418 | 12.0 | -172 | 0.49 | 0.000 | 130.0 | PVC |
| P-22 | J-29 | J-7 | 1,987 | 12.0 | -218 | 0.62 | 0.000 | 130.0 | PVC |
| P-23 | J-13 | J-29 | 1,185 | 12.0 | -133 | 0.38 | 0.000 | 130.0 | PVC |
| P-24 | J-30 | J-13 | 876 | 12.0 | -133 | 0.38 | 0.000 | 130.0 | PVC |
| P-25 | J-14 | J-30 | 2,296 | 12.0 | 21 | 0.06 | 0.000 | 130.0 | PVC |
| P-26 | J-12 | J-14 | 2,665 | 12.0 | 106 | 0.30 | 0.000 | 130.0 | PVC |
| P-27 | J-17 | J-18 | 2,653 | 16.0 | 11 | 0.02 | 0.000 | 130.0 | PVC |
| P-28 | J-15 | J-17 | 2,653 | 12.0 | 98 | 0.28 | 0.000 | 130.0 | PVC |
| P-29 | J-18 | J-34 | 2,298 | 12.0 | -90 | 0.26 | 0.000 | 130.0 | PVC |
| P-30 | J-34 | J-16 | 734 | 12.0 | -90 | 0.26 | 0.000 | 130.0 | PVC |
| P-31 | J-15 | J-16 | 1,509 | 12.0 | 16 | 0.04 | 0.000 | 130.0 | PVC |
| P-32 | J-11 | J-15 | 2,612 | 12.0 | 307 | 0.87 | 0.000 | 130.0 | PVC |
| P-33 | J-16 | J-31 | 1,824 | 12.0 | -269 | 0.76 | 0.000 | 130.0 | PVC |
| P-34 | J-31 | J-12 | 1,179 | 12.0 | -269 | 0.76 | 0.000 | 130.0 | PVC |
| P-35 | J-8 | J-37 | 1,572 | 12.0 | -96 | 0.27 | 0.000 | 130.0 | PVC |
| P-36(1) | J-4 | PRV-1 | 100 | 12.0 | 83 | 0.24 | 0.000 | 130.0 | PVC |
| P-36(2) | PRV-1 | J-35 | 100 | 12.0 | 83 | 0.24 | 0.000 | 130.0 | PVC |
| P-37(1) | J-36 | PRV-2 | 100 | 12.0 | -83 | 0.24 | 0.000 | 130.0 | PVC |
| P-37(2) | PRV-2 | J-37 | 100 | 12.0 | -83 | 0.24 | 0.000 | 130.0 | PVC |

# Fire Flow Node FlexTable: Fire Flow Results Table

## Active Scenario: MAX DAY + FIRE FLOW - ALL PHASES

| Label | Fire Flow Iterations | Satisfies Fire Flow Constraints ? | Fire Flow (Needed) (gpm) | Fire Flow (Available) (gpm) | Flow (Total Needed) (gpm) | Flow (Total Available) (gpm) | Pressure (Calculated Residual) (psi) | Junction w/ Minimum Pressure (Zone) | Pressure (Calculated Zone Lower Limit) (psi) | Junction w/ Minimum Pressure (System) | Is Fire Flow Run Balanced? | Velocity of Maximum Pipe (ft/s) | Pipe w/ Maximum Velocity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J-1 | 2 | True | 2,500 | 3,500 | 2,596 | 3,596 | 104 | J-29 | 51 | J-29 | True | 4.15 | P-1 |
| J-2 | 2 | True | 1,500 | 3,500 | 1,660 | 3,660 | 85 | J-29 | 49 | J-29 | True | 4.15 | P-1 |
| J-3 | 2 | True | 2,500 | 3,500 | 2,639 | 3,639 | 67 | J-29 | 48 | J-29 | True | 4.15 | P-1 |
| J-11 | 2 | True | 2,500 | 3,500 | 2,682 | 3,682 | 63 | J-29 | 48 | J-29 | True | 4.15 | P-1 |
| J-12 | 2 | True | 1,500 | 3,500 | 1,620 | 3,620 | 59 | J-29 | 48 | J-29 | True | 4.15 | P-1 |
| J-14 | 2 | True | 1,500 | 3,500 | 1,553 | 3,553 | 39 | J-29 | 47 | J-29 | True | 5.49 | P-26 |
| J-13 | 2 | True | 1,500 | 3,500 | 1,607 | 3,607 | 48 | J-29 | 45 | J-29 | True | 4.90 | P-20 |
| J-15 | 2 | True | 1,500 | 3,500 | 1,621 | 3,621 | 72 | J-29 | 48 | J-29 | True | 5.99 | P-32 |
| J-17 | 2 | True | 1,500 | 3,500 | 1,554 | 3,554 | 68 | J-29 | 48 | J-29 | True | 5.72 | P-32 |
| J-18 | 2 | True | 2,500 | 3,500 | 2,563 | 3,563 | 65 | J-29 | 48 | J-29 | True | 5.72 | P-32 |
| J-16 | 2 | True | 1,500 | 3,500 | 1,621 | 3,621 | 60 | J-29 | 48 | J-29 | True | 5.54 | P-34 |
| J-7 | 2 | True | 1,500 | 3,500 | 1,661 | 3,661 | 70 | J-29 | 48 | J-29 | True | 4.15 | P-1 |
| J-5 | 2 | True | 1,500 | 3,500 | 1,827 | 3,827 | 82 | J-29 | 49 | J-29 | True | 4.15 | P-1 |
| J-4 | 2 | True | 1,500 | 3,500 | 1,627 | 3,627 | 101 | J-29 | 49 | J-29 | True | 4.16 | P-4 |
| J-8 | 2 | True | 1,500 | 3,500 | 1,552 | 3,552 | 105 | J-29 | 48 | J-29 | True | 4.15 | P-1 |
| J-9 | 2 | True | 1,500 | 3,500 | 1,628 | 3,627 | 89 | J-29 | 48 | J-29 | True | 4.15 | P-1 |
| J-10 | 2 | True | 1,500 | 3,500 | 1,576 | 3,576 | 56 | J-29 | 48 | J-29 | True | 4.15 | P-1 |
| J-26 | 2 | True | 1,500 | 3,500 | 1,520 | 3,520 | 81 | J-29 | 49 | J-29 | True | 5.69 | P-5 |
| J-27 | 2 | True | 1,500 | 3,500 | 1,500 | 3,500 | 82 | J-29 | 49 | J-29 | True | 5.96 | P-11 |
| J-28 | 2 | True | 1,500 | 3,500 | 1,500 | 3,500 | 87 | J-29 | 48 | J-29 | True | 6.11 | P-13 |
| J-29 | 2 | True | 1,500 | 3,500 | 1,553 | 3,553 | 42 | J-14 | 49 | J-14 | True | 5.18 | P-22 |
| J-30 | 2 | True | 1,500 | 3,500 | 1,595 | 3,595 | 50 | J-14 | 45 | J-14 | True | 6.83 | P-24 |
| J-31 | 2 | True | 1,500 | 3,500 | 1,500 | 3,500 | 60 | J-29 | 48 | J-29 | True | 7.19 | P-34 |
| J-34 | 2 | True | 1,500 | 3,500 | 1,500 | 3,500 | 53 | J-29 | 48 | J-29 | True | 7.35 | P-30 |
| J-35 | 2 | True | 0 | 1 | 52 | 53 | 72 | J-29 | 54 | J-29 | True | 1.67 | P-1 |
| J-36 | 2 | True | 0 | 1 | 52 | 53 | 73 | J-29 | 54 | J-29 | True | 1.67 | P-1 |
| J-37 | 2 | True | 1,500 | 3,500 | 1,500 | 3,500 | 99 | J-29 | 49 | J-29 | True | 5.80 | P-10 |

# APPENDIX C
# SANITARY SEWER DEMANDS, CALCULATIONS, AND LAYOUT



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Westwoodps.com
Westwood Professional Services, Inc.

## COTTONWOOD CREEK

CITY OF AURORA

SANITARY SEWER ROUTING CALCUATIONS

| Routing Design Point | Development Area Added to System | Included Upstream Routing DP's | Average Day Flow (gpm) | Average Day Flow (cfs) | Ave Day Cumulative Flow (cfs) | Population (Thousands) | Cumulative Population (Thousands) | Calculated Peak Factor | Peak Factor | Peak Flow (cfs) | Infiltration 10% of Avg Day Flow (cfs) | Peak Day Flow with Infiltration (cfs) | Pipe Diameter (in) | Min Slope (%) | Max Slope (%) | Min Velocity (ft/s) | Percent Full (%) @Min Slope |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **A** | | | | | | | | | | | | | | | | | |
| A1 | 25% DA-2A* | - | 7.16 | 0.02 | 0.02 | 0.15 | 0.15 | 6.851 | 4.00 | 0.06 | 0.00 | 0.07 | 8 | 0.40 | 85.00 | 1.53 | 18.8 |
| A2 | 50% DA-2A* & 25% DA-1B | A1 | 37.00 | 0.08 | 0.10 | 0.78 | 0.94 | 5.055 | 4.00 | 0.39 | 0.01 | 0.40 | 8 | 0.40 | 18.80 | 2.51 | 46.6 |
| A3 | 25% DA-2A* | - | 7.16 | 0.02 | 0.02 | 0.15 | 0.15 | 6.851 | 4.00 | 0.06 | 0.00 | 0.07 | 8 | 0.40 | 85.00 | 1.53 | 18.8 |
| A4 | 10% DA-1B | A3 | 9.07 | 0.02 | 0.04 | 0.19 | 1.28 | 4.798 | 4.00 | 0.14 | 0.00 | 0.15 | 8 | 0.40 | 43.60 | 1.91 | 27.6 |
| A5 | 65% DA-1B | A1-A4 | 58.96 | 0.13 | 0.27 | 1.25 | 2.53 | 4.281 | 4.00 | 1.06 | 0.03 | 1.09 | 10 | 0.40 | 8.86 | 3.21 | 59.6 |
| A6 | 40% DA-1A | A1-A5 | 32.63 | 0.07 | 0.34 | 0.69 | 3.22 | 4.112 | 4.00 | 1.35 | 0.03 | 1.39 | 10 | 0.40 | 7.29 | 3.37 | 70.8 |
| A7 | 20% DA-1A | - | 16.32 | 0.04 | 0.04 | 0.35 | 0.35 | 5.971 | 4.00 | 0.15 | 0.00 | 0.15 | 8 | 0.40 | 43.61 | 2.82 | 63.5 |
| A8 | A1-A7 | A1-A7 | - | 0.00 | 0.37 | 0.00 | 3.57 | 4.043 | 4.00 | 1.50 | 0.04 | 1.54 | 12 | 0.40 | 7.09 | 3.51 | 54.3 |
| A9 | 50% DA-1D | - | 35.06 | 0.08 | 0.08 | 0.74 | 0.74 | 5.255 | 4.00 | 0.31 | 0.01 | 0.32 | 8 | 0.40 | 22.83 | 2.37 | 41.1 |
| A10 | 50% DA-1D | A9 | 35.06 | 0.08 | 0.16 | 0.74 | 1.48 | 4.681 | 4.00 | 0.62 | 0.02 | 0.64 | 8 | 0.40 | 12.73 | 2.81 | 62.2 |
| A11 | 50% DA-1C | - | 35.38 | 0.08 | 0.08 | 0.75 | 0.75 | 5.247 | 4.00 | 0.32 | 0.01 | 0.32 | 8 | 0.40 | 22.83 | 2.37 | 41.1 |
| A12 | 40% DA-1C | A9-A11 | 28.31 | 0.06 | 0.30 | 0.60 | 2.83 | 4.202 | 4.00 | 1.19 | 0.03 | 1.22 | 10 | 0.40 | 8.11 | 3.29 | 64.3 |
| A13 | 40% DA-1A & 10% DA-1C | - | 39.71 | 0.09 | 0.09 | 0.84 | 0.84 | 5.147 | 4.00 | 0.35 | 0.01 | 0.36 | 8 | 0.40 | 20.67 | 2.44 | 43.9 |
| A14 | A1-A8, A13 | A1-A8, A13 | - | 0.00 | 0.46 | 0.00 | 4.41 | 3.903 | 3.90 | 1.81 | 0.05 | 1.86 | 12 | 0.40 | 6.08 | 3.67 | 61.6 |
| A15 | A1-A14 | A1-A14 | - | 0.00 | 0.76 | 0.00 | 7.24 | 3.592 | 3.59 | 2.74 | 0.08 | 2.81 | 15 | 0.40 | 4.62 | 4.08 | 54.8 |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| **B** | | | | | | | | | | | | | | | | | |
| OS-B1 | 50% OS1 | - | 77.83 | 0.17 | 0.17 | 1.65 | 1.65 | 4.600 | 4.00 | 0.69 | 0.02 | 0.71 | 12 | 0.40 | 13.00 | 2.87 | 35.3 |
| B1 | 50% DA-2A** | - | 12.62 | 0.03 | 0.03 | 0.27 | 0.27 | 6.233 | 4.00 | 0.11 | 0.00 | 0.12 | 8 | 0.40 | 53.00 | 1.80 | 24.6 |
| B2 | 50% DA-2B | OS-B1 | 35.49 | 0.08 | 0.25 | 0.75 | 2.40 | 4.319 | 4.00 | 1.01 | 0.03 | 1.04 | 12 | 0.40 | 9.70 | 3.18 | 43.4 |
| B3 | B1-B2 | B1-B3, OS-B1 | - | 0.28 | 0.28 | | 2.67 | 4.244 | 4.00 | 1.12 | 0.03 | 1.15 | 12 | 0.40 | 9.00 | 3.27 | 45.9 |
| OS-B2 | 50% OS1 | - | 77.83 | 0.17 | 0.17 | 1.65 | 1.65 | 4.600 | 4.00 | 0.69 | 0.02 | 0.71 | 12 | 0.40 | 13.00 | 2.87 | 35.3 |
| B4 | 50% DA-2A** | - | 12.62 | 0.03 | 0.03 | 0.27 | 0.27 | 6.233 | 4.00 | 0.11 | 0.00 | 0.12 | 8 | 0.40 | 53.00 | 1.80 | 24.6 |
| B5 | 50% DA-2B & 50% DA3B | OS-B2 | 64.99 | 0.14 | 0.32 | 1.38 | 3.03 | 4.156 | 4.00 | 1.27 | 0.03 | 1.30 | 12 | 0.40 | 8.10 | 3.37 | 49.3 |
| B6 | B4-B5 | B1-B5, OS-B1, OS-B2 | - | 0.63 | 0.63 | | 5.96 | 3.711 | 3.71 | 2.33 | 0.06 | 2.39 | 15 | 0.40 | 5.20 | 3.93 | 49.7 |
| B7 | 50% DA-3A & 50% DA-3B | - | 55.32 | 0.12 | 0.12 | 1.17 | 1.17 | 4.870 | 4.00 | 0.49 | 0.01 | 0.51 | 12 | 0.40 | 17.00 | 2.61 | 29.7 |
| B8 | B6-B7 | B1-B7, OS-B1, OS-B2 | - | 0.75 | 0.75 | | 7.14 | 3.601 | 3.60 | 2.70 | 0.08 | 2.78 | 15 | 0.40 | 4.60 | 4.07 | 54.4 |
| | | | | | | | | | | | | | | | | | |
| **C** | | | | | | | | | | | | | | | | | |
| C1 | 50% DA-3A | -- | 25.83 | 0.06 | 0.06 | 0.55 | 0.55 | 5.530 | 4.00 | 0.23 | 0.01 | 0.24 | 8 | 0.40 | 29.00 | 2.19 | 35.2 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **OFFSITE** | | | | | | | | | | | | | | | | | |
| 1 | DA-2A**, DA-2B, DA-3B, OS1, OS3 | B8 | 524.08 | 1.17 | 1.17 | 11.10 | 11.10 | 3.345 | 3.34 | 3.91 | 0.12 | 4.02 | 15 | 0.40 | 3.50 | 4.40 | 69.7 |
| 2 | DA-3A | C1, 1 | 51.65 | 0.12 | 1.28 | 1.09 | 12.20 | 3.293 | 3.29 | 4.22 | 0.13 | 4.35 | 18 | 0.40 | 3.40 | 4.56 | 53.2 |
| 3 | OS2 | 1-2 | 105.30 | 0.23 | 1.52 | 2.23 | 14.43 | 3.202 | 3.20 | 4.86 | 0.15 | 5.01 | 18 | 0.40 | 3.00 | 4.71 | 58.0 |
| 4 | PA-15, 16, PARK F-1 | 1-3 | 447.72 | 1.00 | 2.52 | 8.07 | 22.50 | 2.973 | 2.97 | 7.48 | 0.25 | 7.73 | 21 | 0.40 | 2.30 | 5.25 | 58.9 |
| 5 | PA-3, 12, 13, 14, PARK F-7 | 1-4 | 475.81 | 1.06 | 3.58 | 8.57 | 31.06 | 2.817 | 2.82 | 10.07 | 0.36 | 10.43 | 24 | 0.40 | 1.80 | 5.66 | 56.8 |
| 6 | PA-17, SM OFF-1 | 1-5 | 112.64 | 0.25 | 3.83 | 2.03 | 33.09 | 2.787 | 2.79 | 10.66 | 0.38 | 11.05 | 24 | 0.40 | 1.70 | 5.74 | 58.9 |
| 7 | PA-21, 22, 23, 26 | 1-6 | 140.51 | 0.31 | 4.14 | 2.53 | 35.62 | 2.753 | 2.75 | 11.40 | 0.41 | 11.81 | 24 | 0.40 | 1.60 | 5.82 | 61.6 |
| 8 | SM PA 1, 4, 9, 12, SM OFF-2 | 1-7 | 195.64 | 0.44 | 4.58 | 4.40 | 40.02 | 2.700 | 2.70 | 12.35 | 0.46 | 12.81 | 24 | 0.40 | 1.50 | 5.92 | 65.1 |

Notes:

1.Peaking factor based on cumulative population values.

2.Maximum Slope is based on a maximum velocity of 10 ft/s.

# COTTONWOOD CREEK

CITY OF AURORA

SANITARY SEWER DEMAND CALCUATIONS

SANITARY SEWER DEMANDS ROUTED TO COAL CREEK/SENAC INTERCEPTOR

| Development Area | Parcel No. | Description | Area (AC) | Units | Maximum Density (DU/AC) | Occupancy (Persons/DU) | Occupancy (Persons/acre) | Avg Day Flow (GPD/CAP) | Avg Day Flow (GPD/acre) | Avg Day Flow (GPD) | Population (Thousands) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1A | PA-1 | SFD-STAND | 25.9 | 112 | 4.3 | 2.77 | - | 68 | - | 21,096.3 | 0.31 |
| 1A | PA-3 | SFD-STAND | 91.9 | 436 | 4.7 | 2.77 | - | 68 | - | 82,125.0 | 1.21 |
| 1A | PA-78 | AAC | 7 | - | - | - | 22 | - | 1500 | 10,500.0 | 0.15 |
| 1A | PA-77 | MUNICIPAL | 2.5 | - | - | - | 22 | - | 1500 | 3,750.0 | 0.06 |
| 1B | PA-2 | SFD-STAND | 58.2 | 297 | 5.1 | 2.77 | - | 68 | - | 55,942.9 | 0.82 |
| 1B | PA-84 | SFA-TH | 28.8 | 255 | 8.9 | 2.77 | - | 68 | - | 48,031.8 | 0.71 |
| 1B | PA-74 | COMM CTR | 4.4 | - | - | - | 22 | - | 1500 | 6,600.0 | 0.10 |
| 1B | PA-75 | SCHOOL | 16.7 | - | - | - | 18 | - | 1200 | 20,040.0 | 0.30 |
| 1C | PA-4 | SFD-STAND | 44.7 | 145 | 3.2 | 2.77 | - | 68 | - | 27,312.2 | 0.40 |
| 1C | PA-5 | SFD-STAND | 46.2 | 194 | 4.2 | 2.77 | - | 68 | - | 36,541.8 | 0.54 |
| 1C | PA-7 | SFA-DUPLEX | 26.5 | 202 | 7.6 | 2.77 | - | 68 | - | 38,048.7 | 0.56 |
| 1D | PA-6 | SFD-STAND | 53.3 | 228 | 4.3 | 2.77 | - | 68 | - | 42,946.1 | 0.63 |
| 1D | PA-8 | SFA-DUPLEX | 39.5 | 308 | 7.8 | 2.77 | - | 68 | - | 58,014.9 | 0.85 |
| 2A* | 57% of PA-9 | SFD-STAND | 32.9 | 145 | 4.4 | 2.77 | - | 68 | - | 27,312.2 | 0.40 |
| 2A* | 55% of PA-10 | SFD-STAND | 17.3 | 74 | 4.3 | 2.77 | - | 68 | - | 13,938.6 | 0.20 |
| TOTAL | | | | | | | | | | 492,200.6 | 7.24 |

SANITARY SEWER DEMANDS ROUTED TO 6TH AVENUE INTERCEPTOR

| Development Area | Parcel No. | Description | Area (AC) | Units | Maximum Density (DU/AC) | Occupancy (Persons/DU) | Occupancy (Persons/acre) | Avg Day Flow (GPD/CAP) | Avg Day Flow (GPD/acre) | Avg Day Flow (GPD) | Population (Thousands) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2A** | 43% of PA-9 | SFD-STAND | 24.9 | 109 | 4.4 | 2.77 | - | 68 | - | 20,531.2 | 0.30 |
| 2A** | 45% of PA-10 | SFD-STAND | 14.2 | 60 | 4.2 | 2.77 | - | 68 | - | 11,301.6 | 0.17 |
| 2A** | PA-79 | AAC | 3 | - | - | - | 22 | - | 1500 | 4,500.0 | 0.07 |
| 2B | PA-11 | SFD-STAND | 31.6 | 132 | 4.2 | 2.77 | - | 68 | - | 24,863.5 | 0.37 |
| 2B | PA-12 | SFD-STAND | 32.6 | 141 | 4.3 | 2.77 | - | 68 | - | 26,558.8 | 0.39 |
| 2B | PA-13 | SFA-DUPLEX | 20.5 | 155 | 7.6 | 2.77 | - | 68 | - | 29,195.8 | 0.43 |
| 2B | PA-76 | SCHOOL | 18 | - | - | - | 18 | - | 1200 | 21,600.0 | 0.32 |
| 3A | PA-16 | SFD-STAND | 83.2 | 371 | 4.5 | 2.77 | - | 68 | - | 69,881.6 | 1.03 |
| 3A | PA-80 | AAC | 3 | - | - | - | 22 | - | 1500 | 4,500.0 | 0.07 |
| 3B | PA-15 | SFD-STAND | 76.9 | 353 | 4.6 | 2.77 | - | 68 | - | 66,491.1 | 0.98 |
| 3B | PA-14 | SFA-DUPLEX | 13.2 | 98 | 7.4 | 2.77 | - | 68 | - | 18,459.3 | 0.27 |
| TOTAL | | | | | | | | | | 297,882.8 | 4.39 |

OFFSITE BASINS

| Development Area | Parcel No. | Description | Area (AC) | Units | Maximum Density (DU/AC) | Occupancy (Persons/DU) | Occupancy (Persons/acre) | Avg Day Flow (GPD/CAP) | Avg Day Flow (GPD/acre) | Avg Day Flow (GPD) | Population (Thousands) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OS1 | - | - | 238 | 1190 | 5.0 | 2.77 | - | 68 | - | 224,148.4 | 3.30 |
| OS2 | - | - | 161 | 805 | 5.0 | 2.77 | - | 68 | - | 151,629.8 | 2.23 |
| OS3 | - | - | 326 | 1630 | 5.0 | 2.77 | - | 68 | - | 307,026.8 | 4.52 |
| TOTAL | | | | | | | | | | 682,805.0 | 10.04 |

1. Offsite development areas assumed to be at a max potential density of 5 DU/AC. Please see sewer exhibits for location.
2. AAC(Admistrative Activity Center), MUNICIPAL, and COMM CTR land use types are considered commercial for this analysis. Equivalent population per acre for commercial use assumed to be 22.
3. Equivalent population per acre for school use assumed to be 18.

4. The First Creek/Coal Creek Basin divide line splits development area 2A into 2A* and 2A**. DA-2A* goes to Coal Creek Basin, and DA-2A** goes to First Creek Basin.

# Circular Pipe (Cottonwood Sanitary Sewer Routing Model - WITH OFFSITE_RS.fm8)

| Label | Roughness Coefficient | Channel Slope (ft/ft) | Normal Depth (in) | Diameter (in) | Discharge (cfs) | Percent Full (%) | Velocity (ft/s) | Maximum Discharge (cfs) | Flow Type |
|---|---|---|---|---|---|---|---|---|---|
| DESIGN POINT A1 | 0.011 | 0.004 | 1.5 | 8.0 | 0.07 | 18.8 | 1.53 | 0.97 | Subcritical |
| DESIGN POINT A2 | 0.011 | 0.004 | 3.7 | 8.0 | 0.40 | 46.6 | 2.51 | 0.97 | Subcritical |
| DESIGN POINT A3 | 0.011 | 0.004 | 1.5 | 8.0 | 0.07 | 18.8 | 1.53 | 0.97 | Subcritical |
| DESIGN POINT A4 | 0.011 | 0.004 | 2.2 | 8.0 | 0.15 | 27.6 | 1.91 | 0.97 | Subcritical |
| DESIGN POINT A5 | 0.011 | 0.004 | 6.0 | 10.0 | 1.09 | 59.6 | 3.21 | 1.76 | Subcritical |
| DESIGN POINT A6 | 0.011 | 0.004 | 7.1 | 10.0 | 1.39 | 70.8 | 3.37 | 1.76 | Subcritical |
| DESIGN POINT A7 | 0.011 | 0.004 | 2.2 | 8.0 | 0.15 | 27.6 | 1.91 | 0.97 | Subcritical |
| DESIGN POINT A8 | 0.011 | 0.004 | 6.5 | 12.0 | 1.53 | 54.3 | 3.51 | 2.86 | Subcritical |
| DESIGN POINT A9 | 0.011 | 0.004 | 3.3 | 8.0 | 0.32 | 41.1 | 2.37 | 0.97 | Subcritical |
| DESIGN POINT A10 | 0.011 | 0.004 | 5.0 | 8.0 | 0.64 | 62.2 | 2.81 | 0.97 | Subcritical |
| DESIGN POINT A11 | 0.011 | 0.004 | 3.3 | 8.0 | 0.32 | 41.1 | 2.37 | 0.97 | Subcritical |
| DESIGN POINT A12 | 0.011 | 0.004 | 6.4 | 10.0 | 1.22 | 64.3 | 3.29 | 1.76 | Subcritical |
| DESGIN POINT A13 | 0.011 | 0.004 | 3.5 | 8.0 | 0.36 | 43.9 | 2.44 | 0.97 | Subcritical |
| DESIGN POINT A14 | 0.011 | 0.004 | 7.4 | 12.0 | 1.86 | 61.6 | 3.67 | 2.86 | Subcritical |
| DESIGN POINT A15 | 0.011 | 0.004 | 8.2 | 15.0 | 2.81 | 54.8 | 4.08 | 5.19 | Subcritical |
| DESIGN POINT B1 | 0.011 | 0.004 | 2.0 | 8.0 | 0.12 | 24.6 | 1.80 | 0.97 | Subcritical |
| DESIGN POINT B2 | 0.011 | 0.004 | 5.2 | 12.0 | 1.04 | 43.4 | 3.18 | 2.86 | Subcritical |
| DESIGN POINT B3 | 0.011 | 0.004 | 5.5 | 12.0 | 1.15 | 45.9 | 3.27 | 2.86 | Subcritical |
| DESIGN POINT B4 | 0.011 | 0.004 | 2.0 | 8.0 | 0.12 | 24.6 | 1.80 | 0.97 | Subcritical |
| DESIGN POINT B5 | 0.011 | 0.004 | 5.9 | 12.0 | 1.30 | 49.3 | 3.37 | 2.86 | Subcritical |
| DESIGN POINT B6 | 0.011 | 0.004 | 7.5 | 15.0 | 2.39 | 49.7 | 3.93 | 5.19 | Subcritical |
| DESIGN POINT B7 | 0.011 | 0.004 | 3.6 | 12.0 | 0.51 | 29.7 | 2.61 | 2.86 | Subcritical |
| DESIGN POINT B8 | 0.011 | 0.004 | 8.2 | 15.0 | 2.78 | 54.4 | 4.07 | 5.19 | Subcritical |
| DESIGN POINT C1 | 0.011 | 0.004 | 2.8 | 8.0 | 0.24 | 35.2 | 2.19 | 0.97 | Subcritical |
| DESIGN POINT OS-B1 | 0.011 | 0.004 | 4.2 | 12.0 | 0.71 | 35.3 | 2.87 | 2.86 | Subcritical |
| DESIGN POINT OS-B2 | 0.011 | 0.004 | 4.2 | 12.0 | 0.71 | 35.3 | 2.87 | 2.86 | Subcritical |
| DESIGN POINT 1 | 0.011 | 0.004 | 10.5 | 15.0 | 4.02 | 69.7 | 4.40 | 5.19 | Subcritical |
| DESIGN POINT 2 | 0.011 | 0.004 | 9.6 | 18.0 | 4.35 | 53.2 | 4.56 | 8.45 | Supercritical |
| DESIGN POINT 3 | 0.011 | 0.004 | 10.4 | 18.0 | 5.01 | 58.0 | 4.71 | 8.45 | Subcritical |
| DESIGN POINT 4 | 0.011 | 0.004 | 12.4 | 21.0 | 7.73 | 58.9 | 5.25 | 12.74 | Subcritical |

# Circular Pipe (Cottonwood Sanitary Sewer Routing Model - WITH OFFSITE_RS.fm8)

| Label | Roughness Coefficient | Channel Slope (ft/ft) | Normal Depth (in) | Diameter (in) | Discharge (cfs) | Percent Full (%) | Velocity (ft/s) | Maximum Discharge (cfs) | Flow Type |
|---|---|---|---|---|---|---|---|---|---|
| DESIGN POINT 5 | 0.011 | 0.004 | 13.6 | 24.0 | 10.43 | 56.8 | 5.66 | 18.19 | Supercritical |
| DESIGN POINT 6 | 0.011 | 0.004 | 14.1 | 24.0 | 11.05 | 58.9 | 5.74 | 18.19 | Supercritical |
| DESIGN POINT 7 | 0.011 | 0.004 | 14.8 | 24.0 | 11.81 | 61.6 | 5.82 | 18.19 | Supercritical |
| DESIGN POINT 8 | 0.011 | 0.004 | 15.6 | 24.0 | 12.81 | 65.1 | 5.92 | 18.19 | Subcritical |

EX 24" SS

EX 24" SS

EAST 6TH AVENUE

PROP 24" SS

PROP. OFF-SITE SANITARY

LANEWOOD ST

HUDSON ROAD

DP C

PROP 8" SS

MISSISSIPPI AVENUE

SEE '6TH AVENUE INTERCEPTOR PARCELS SANITARY SEWER EXHIBIT' ON THE NEXT SHEET FOR OFFSITE DESIGN POINTS

DP C1 (50% DA-3A)

PROP 15" SS

DA-3A

DP B

DP B7 (50% DA-3A) (50% DA-3B)

DP B8

FLORIDA AVE

PROP 12" SS

DA-3B

FIRST CREEK BASIN

COAL CREEK BASIN

HAYESMOUNT RD

MONAGHAN RD

STREET A

DP A4 (10% DA-1B)

DP A3 (25% DA-2A*)

DP B4 (50% DA-2A**)

DP B5 (50% DA-2B) (50% DA-3B)

DP OS-B2 (50% OS1)

JEWELL AVENUE

JEWELL AVENUE

DP A

CONNECT TO PROPOSED SENAC CREEK WASTEWATER INTERCEPTOR

EXIST. 27" SS

DP A6 (40% DA-1A) (DA-1A COM)

PROP 8" SS

PROP 8" SS

DP B6

PROP 12" SS

PROP 10" SS

DA-1A

DP A5 (65% DA-1B)

DA-2A

DP B1 (50% DA-2A**)

DA-2B

OS1
238 AC

BOUNDARY FROM CITY OF AURORA STORM BASIN GIS 6/15/2021.

DP A8

DP A7 (20% DA-1A)

DA-1B

DP A1 (25% DA-2A*)

PROP 10" SS

PROP 8" SS

PROP 8" SS

PROP 8" SS

PROP 12" SS

PROP. OFF-SITE SANITARY

DP A2 (50% DA-2A*) (25% DA-1B)

DP B3

DP B2 (50% DA-2B)

15" SS

DP A15

PROP 12" SS

DP A13 (40% DA-1A) (10% DA-1C)

PROP 8" SS

DP OS-B1 (50% OS1)

EAST ILIFF AVE

DP A14

PROP 8" SS

EAST ILIFF AVE

LANEWOOD ST

HUDSON RD

DP A12 (40% DA-1C)

PROP 8" SS

DA-1C

DA-1D

PROP 10" SS

DP A10 (50% DA-1D)

PROP 8" SS

PROP 8" SS

YALE AVE

YALE AVE

DP A11 (50% DA-1C)

PROP 8" SS

DP A9 (50% DA-1D)

MONAGHAN RD

HAYESMOUNT RD

APPROVED ON THIS DATE

FIRE DEPARTMENT DATE

WATER DATE

| No. | Revisions | Date | Init. | Apprv. | Date |
|---|---|---|---|---|---|


Westwood

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ENGLEWOOD, CO 80112
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Westwood Professional Services, Inc.


COTTONWOOD CREEK INVESTORS, LLC
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Littleton, CO 80127
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COTTONWOOD CREEK

SANITARY SEWER DESIGN POINTS

SCALE: AS SHOWN

FILE NO: R0031139.00

DRAWN BY: MSD

CHECKED BY: TJD

DATE: JUNE 2024

SHEET NUMBER S1

N:\PROJECTS\COTTONWOOD CREEK\CAD\ENGINEERING\EXHIBITS\MASTER UTILITY STUDY\SEWER DESIGN POINTS_2021-12-17.DWG, MSDAVIS, 6/25/24