Blue Eagle Development

MASTER UTILITY REPORT

E. COLFAX AVE. TO E. 26TH AVE.
CITY OF AURORA, COLORADO

Martin/Martin, Inc. Project No.: 22.1654

November 7, 2024

Approved For One Year From This Date	
Aurora Water – Utility Division	Date
Fire and Life Safety Department	Date

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SIGNATURE AND APPROVAL

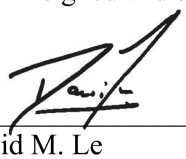
Signature of Preparer

This utility study ("Blue Eagle – Master Utility Report") was prepared under my direct supervision in accordance with the provisions of the Aurora Water 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.

David M. Le, P.E.
State of Colorado Registration No. 43827

FACSIMILE

This electronic plan is a facsimile of the signed and sealed PDF plan.



Date: 11/07/2024

David M. Le
P.E. (CO) #43827

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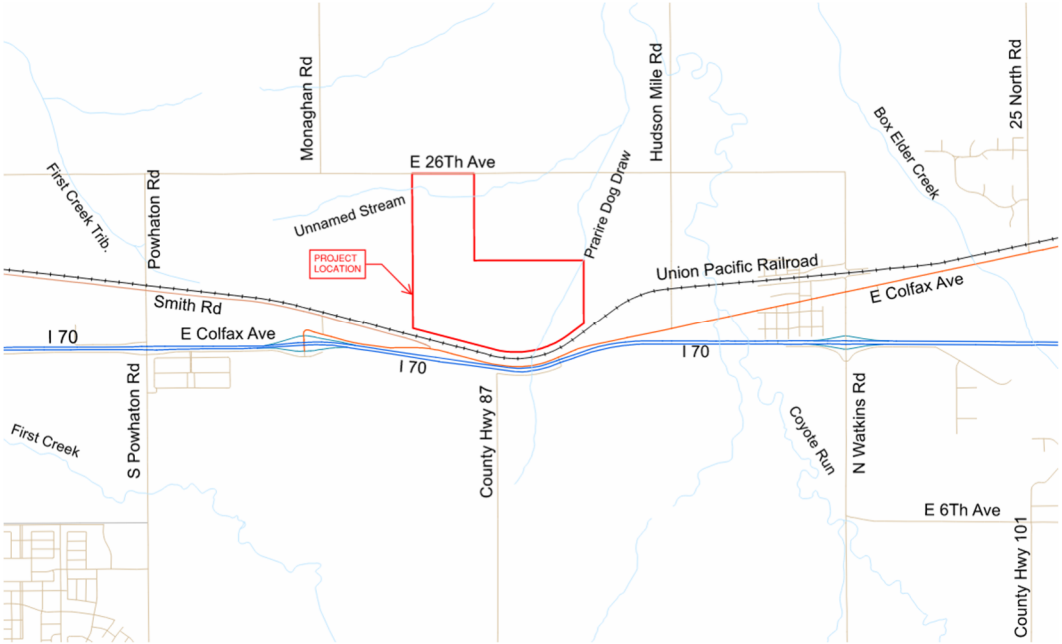
APPENDICES

I. INTRODUCTION

This report is prepared to provide the necessary analysis of the Blue Eagle overall water and sanitary systems and provide the anticipated proposed water and sanitary sewer demands. The operation of these on-site systems relies heavily upon neighboring developments and their associated master utility reports. As part of this report the capacity of each system has been analyzed in accordance with standard engineering practice and City of Aurora standards.

A. Location

The property is located in the East half of Section 34 and southwest quarter of Section 35, Township 3 South Range 65 West of the Sixth Principal Meridian, City of Aurora, Adams County, Colorado. The site is bounded to the south by Interstate 70 and E. Colfax Ave., to the north by E. 26th Ave., and by undeveloped agricultural land to the east and west. Current nearby operations include oil and gas along the westerly and easterly property boundaries, a gas well and booster station to the west and a water storage pond to the east. The vicinity map is included in Appendix A of this report.



B. Site Description

The property is currently zoned as Airport District throughout the property to take advantage of the nearby regional and national transportation hubs and infrastructure. The development will include 11 industrial buildings.

C. Phases

Phasing of the Blue Eagle site will more than likely be developed into smaller phases aligned with the planning areas outlined in Framework Development Plan and the Public Improvement Plan. Looped water to support public fire hydrants and private fire suppression systems are required with each phase of development. A sewer outfall must be constructed to serve any individual planning area. If the off-site sanitary sewer system infrastructure has not yet been installed, the developing planning area will be responsible for building the necessary off-site sanitary sewer required to support the planning area. The planning area shall work with the City of Aurora to determine the best option for connecting to the city's existing sanitary sewer system. At the time of this report, it is known that the phases shall consist of PA-1 through PA-5, as well as open space and drainage channel improvements. Additional information pertaining to the required improvements associated with each planning area can be found within the Public Improvement Plan exhibits and narrative. The actual sequential development of this project shall more than likely be determined by market demands. Furthermore, dependent upon market needs, and associated infrastructure improvement costs, identified planning areas may be combined or partially skipped as needed. This report is focused on the anticipated master water and sanitary sewer infrastructure that would be needed to support the full buildout of the development.

II. SANITARY SEWER SYSTEM

A. Existing Off-site Sanitary Sewer System

If the off-site sanitary sewer system infrastructure has not yet been installed, the developing planning area will be responsible for building the necessary off-site sanitary sewer required to support the planning area. City of Aurora stated in the pre-application meeting that due to the distance of the Blue Eagle site from their existing sanitary sewer collection system as well as that system's current capacity, the City will not be able to provide wastewater service for the Blue Eagle site for the initial phases of development. As such, the developing planning area is assessing options for providing on-site wastewater treatment for initial phases of development.

B. Proposed Sanitary Sewer Design Criteria

Updated criteria was provided by the City of Aurora. The updated criteria simplified the recommended sewer loading rates for different types of developments. A copy of the updated City of Aurora Master Utility Design Criteria for Water and Sanitary Sewer dated January 2023 has been included in Appendix A of this report for reference.

Analysis of the updated proposed sanitary flows consists of calculating the acreage for each planning area and applying demands based on types of land usage. The land usage and associated size of each planning area was provided by Powers Brown Architecture in the Blue Eagle Framework Development Plan Land Use Map, which is included in Appendix D of this report.

C. Pipe Sizing Criteria and Sanitary Sewer Routing

Analysis of the hydraulic capacity and characteristics of the pipe assumed open channel flow (not pressurized) and was completed using Manning's Equation. Bentley Flow Master was utilized for computations. Based on Aurora Water's Requirements, a minimum slope of 0.40% was used for the basis of design and a Manning's n value of 0.011 was used for PVC pipe unless specified differently. The depth of flow in the pipes shall not exceed 75% of capacity for pipes 12 inches or smaller and 80% for pipes larger than 12 inches. Peak factors were calculated by using the equation:

$$\text{Peaking Factor} = 5 \div p^{0.167}$$

where p = population in thousands. A minimum peaking factor of 1.7 and a maximum peaking factor of 4 was used for the calculations. Infiltration and inflow was calculated at 10% of average day flows and added to the peaked flows.

As stated above, City of Aurora stated in the pre-application meeting that their existing sanitary sewer collection system has interceptors that are not sized to handle flows from the Blue Eagle development to provide wastewater service to the site. As such, the City has stated that they would support on-site wastewater treatment in the interim until the City can provide service to the Blue Eagle development.

Since total wastewater generation is expected to be greater than 2,000 gpd, permitting through CDPHE will be required rather than County OWTS permitting. For sites with this level of wastewater generation, CDPHE requires meeting water reuse, surface water discharge, or groundwater discharge effluent limits and these limits are not achievable using a typical septic tank and STA OWTS. A mechanical packaged wastewater treatment facility (WWTF) would be required. This WWTF could be constructed in phases as needed to adequately treat and dispose (or reuse) wastewater generated from the phased development.

While the WWTF could be phased, a 500,000 gpd WWTF designed to service the projected full build-out of the proposed development is anticipated to require 5 acres and could cost approximately $10 million. The WWTF should be located near the low point of the development so that wastewater can flow by gravity towards the WWTF. CDPHE permitting coordination will need to be completed with the design of the WWTF.

FlowMaster software was used to calculate the pipe velocities and pipe sizes for each segment of pipe between the design nodes. In general, the Blue Eagle property needs pipe sizes verifying from 6" through 15" to meet proposed demands, increased pipe size based on the COA comments, etc. The calculated demands, routing assumptions, peak flows, and pipe cross sections are provided in Appendix B.

III. WATER SUPPLY SYSTEM

A. Existing Off-Site Water System

The following documents were used to determine existing conditions, previous design assumptions, and potential offsite flows for the Blue Eagle project. The Eastern Utility Extension project is located to the north and is associated with the Construction Documents dated 05/01/2023, herein referred to as the EASTERN UTILITY EXTENSION CDS (Ref. No. 1).

Per the EASTERN UTILITY EXTENSION CDS, a 30" water main runs west to east along E. 26th Avenue to the north of the Blue Eagle development.

B. Proposed Water Distribution Design Criteria

Updated criteria was provided by the City of Aurora. The updated criteria simplified the water demand per zoning classification for different types of developments. Water demands for residential water use are based on a criteria of 2.77 people per unit and an average day per capita flow of 101 gallon per day. Non-residential demands were generated using the criteria in the table below:

Land Use	Ave Day (gpd/acre)	Max Day (gpd/acre)	Peak Hour (gpd/acre)
Commercial	1,500	4,200	6,750
Industrial	1,200	3,360	5,400
Parks and Greenbelts	1,800	5,040	N/A

Water mains in the system were analyzed in the model and were compared to the following City of Aurora Criteria for pipe size, velocity, and head loss:

Pipe Diameter (in)	Max Velocity (fps)	Max Head Loss (ft/1,000 ft)
6	2.5	5
8 to 12	3	5
16-24	4.5	5
Over 24	7.8	4

According to City of Aurora Criteria, the system was analyzed to meet the maximum day plus fire flow demand (as determined by ISO criteria) with a residual pressure of no less than 20 psi at any point in the water distribution system. The fire flow demands by land use type used for the system modeling are summarized in the table below:

Use Classification	Fire Flow Demand
Residential	1500 gpm for 2 hours
Commercial/Multifamily	2500 gpm for 2 hours
Industrial	4000 gpm for 3 hours

A copy of the updated City of Aurora Master Utility Design Criteria for Water and Sanitary Sewer dated January 2023 has been included in Appendix A of this report for reference.

C. Proposed On-Site Water System

The Blue Eagle site is located within Zone 3 of the City of Aurora water network. Pressure Reducing Valves (PRVs) will need to be located within the site at connection points where a pressure zone change occurs. The location of the PRVs is shown on the Overall Utility Water Plan MUS-W located in Appendix D On-site water pressures range from 69 psi to 105 psi across the site in the built-out condition. Individual building PRVs may be necessary to reduce supplied water pressure and will need to be further evaluated with each site plan process.

The proposed development within Blue Eagle will provide a proposed on-site water line within the site. Specifically, included with proposed Blue Eagle development are proposed 12-inch diameter PVC (C900) water lines which will loop the system for each planning area. Refer to the Overall Utility Water Plan MUS-W, in Appendix D for the water line locations and sizes.

D. Proposed Water System Analysis

WaterCAD software was used to analyze the proposed water system for build-out supply. The water model and output calculations for the average day demand (ADD), maximum day demand (MDD), maximum hour demand (MHD), and maximum day demand plus the fire flow (MDD+FF) modeled at each node based on the domestic and fire demand for each corresponding development zoning classification are provided within the Appendix C. The updated City criteria yields ADD, MDD, MHD, and MDD+FF demands in gallons per day per acre. These values were then converted to gallons per minute and then applied to the corresponding node that was nearest the planning area.

The table below summarizes the results from the water model analysis:

WATER MODEL RESULTS SUMMARY	
Maximum Pressure	105 psi (Junction 64, Avg. Daily Demand)
Minimum Residual Pressure	69 psi (Junction J-3, Max Day Demand plus Fire flow of 4000gpm)
Maximum Pipe Velocity	1.54 ft/sec (Pipe P-51, P-53(2), Max Hour Demand)
Maximum Fire Flow Velocity	5.74 ft/sec (Pipe P-51, Max Day Demand plus Fire flow of 4000gpm)

The results of the different demand scenarios and additional water model results for the pipes and junction nodes are included in Appendix C.

IV. CONCLUSION

The proposed water system is designed to provide adequate fire protection and the domestic demands of each type of use classification. The proposed sanitary sewer system has been designed to accommodate the anticipated flows for the planning areas and assumptions outlined in this report.

REFERENCES

1. Eastern Utility Extension Construction Documents, (2023). Aurora, Colorado, HDR.

APPENDICES

APPENDIX A
SANITARY SEWER DEMAND AND CAPACITY CALCUATIONS

BLUE EAGLE DEVELOPMENT
SANITARY SEWER AVERAGE FLOWS AND POPULATION

Planning Area	Area (Ac)	Type of Development	Avg. Daily Flow/Ac (gpd/ac)	Avg. Daily Flow (MGD)	Avg. Daily Flow (CFS)	Equivalent Population /Ac	Population
PA-1	30.06	MU-COMM	1500	0.045	**0.070**	22	661
PA-2	52.65	MU-IND	1200	0.063	**0.098**	18	948
PA-3	28.57	MU-IND	1200	0.034	**0.053**	18	514
PA-4	244.74	MU-IND	1200	0.294	**0.454**	18	4,405
PA-5	23.56	DETENTION / OPEN SPACE	SANITARY DEMANDS NOT APPLICABLE TO PARKS, OPEN SPACE, DRAINAGE CHANNEL, OR LAND ACQUISITION AREAS				
PA-6	25.95	DETENTION / OPEN SPACE	SANITARY DEMANDS NOT APPLICABLE TO PARKS, OPEN SPACE, DRAINAGE CHANNEL, OR LAND ACQUISITION AREAS				

BLUE EAGLE DEVELOPMENT SANITARY
SANITARY SEWER PEAK FLOW CALCULATIONS

Node	Basins Added to System	Total Avg. Daily Flow @ Node (MGD)	Total Upstream Population	Peaking Factor = 5/p^0.167	Peak Flow (MGD)	Infiltration (MGD)	Peak Flow + Infiltration (MGD)	Peak Flow + Infiltration (cfs)
A	PA-04 (57%)	0.17	2511	4.00	0.670	0.017	0.686	1.062
B	PA-04 (43%)	0.294	4405	3.90	1.146	0.029	1.176	1.819
C	PA-02 (100%) + PA-03 (100%)	0.391	5867	3.72	1.455	0.039	1.495	2.312
D	PA-01 (100%)	0.436	6529	3.66	1.594	0.044	1.638	2.534

FROM Node	TO Node	Peak Flow + Infiltration (MGD)	Peak Flow + Infiltration (cfs)	Required Pipe Size (in)	Pipe Percent Full (%)
A	B	0.686	1.062	10	58.6
B	C	1.176	1.819	12	57.9
C	D	1.495	2.312	12	71.7
D	CONNECTION	1.638	2.534	12	76.1

BLUE EAGLE DEVELOPMENT
SANITARY SEWER ROUTING CALCULATIONS

From Node:	To Node:	Basins Added to System	Total Flow Flow (cfs)	Velocity (ft/s)	Minimum Pipe Size (in)	Minimum Slope* (%)	Maximum Slope* (%)	Percentage Full (%)
						(see note below)		
A	B	PA-04 (57%)	1.062	3.17	10	0.40	4.44	58.6
B	C	PA-04 (43%)	1.819	3.62	12	0.40	3.48	57.9
C	D	PA-02 (100%) + PA-03 (100%)	2.312	3.80	12	0.40	3.48	71.7
D	CONNECTION	PA-01 (100%)	2.534	3.85	12	0.40	3.48	76.1

* Note:

achieve a minimum velocity of 2.0 ft/sec and a maximum percent full capacity of 75% for pipes 12" and smaller or 80% for pipes larger than 12".

POPULATION DENSITY		
Multi-Family	2.77	People per Unit
Single-Family	2.77	People per Unit
Age Restricted	2.77	People per Unit
Average Flow Generation	68	gpcpd

COMMERCIAL / SCHOOLS / INDISTRIAL			
	Commercial	**Schools / Industrial**	
Average Flo	1,500	1,200	gpd/acre
Equivalent Population	22	18	capita

			COMMERCIAL / SCHOOLS / INDUSTRIAL							CUMMULATIVE TOTALS								PIPE PARAMETERS				
Design Point	**Planning Area**	**Flow Split**	**Land Use**	**Total Acres**	**Population Density**	**Equivalent Population**	**Average Flow Generation (gpd/acre)**	**Average Day Flow (mgd)**	**Average Day Flow (gpm)**	**Total Acres**	**Total Average Flow (mgd)**	**Infil. @ 10% (mgd)**	**Cumulative Population**	**Peak Factor**	**Peak Flow (mgd)**	**Peak Flow + Infil. (mgd)**	**Peak Flow + Infil. (gpm)**	**Estimated Pipe Slope (%)**	**Estimated Size at Given Slope (Inches)**	**Pipe Name**	**Velocity (ft/sec)**	**Percent Full at Given Slope**
Sub Regional Basin such as Murphy Creek, Sand Creek, etc.																						
A	PA-04	PA-04 (57%)	INDUSTRIAL	139.5	18	2,511	1,200	0.167	116.25	-	-	-	-	-	-	-	-	-	-	-	-	-
	On-Site Total		-	**139.5**	-	**2,511**	-	**0.167**	**116.25**	-	-	-	-	-	-	-	-	-	-	-	-	-
	Design Point Total		-	**139.5**	-	**2,511**	-	**0.167**	**116.25**	**139.5**	**0.17**	**0.017**	**2,511**	**4.00**	**0.67**	**0.69**	**476.63**	**0.4**	**10**	**AB**	**3.17**	**58.6**
B	PA-04	PA-04 (43%)	INDUSTRIAL	105.2	18	1,894	1,200	0.126	87.70	-	-	-	-	-	-	-	-	-	-	-	-	-
	On-Site Total		-	**105.2**	-	**1,894**	-	**0.126**	**87.70**	-	-	-	-	-	-	-	-	-	-	-	-	-
	Design Point Total		-	**244.7**	-	**4,405**	-	**0.294**	**203.95**	**244.7**	**0.29**	**0.029**	**4,405**	**3.90**	**1.15**	**1.18**	**816.46**	**0.4**	**12**	**BC**	**3.62**	**57.9**
C	PA-02		INDUSTRIAL	52.7	18	948	1,200	0.063	43.9	-	-	-	-	-	-	-	-	-	-	-	-	-
	PA-03		INDUSTRIAL	28.6	18	514	1,200	0.034	23.8	-	-	-	-	-	-	-	-	-	-	-	-	-
	On-Site Total		-	**81.2**	-	**1,462**	-	**0.097**	**67.7**	-	-	-	-	-	-	-	-	-	-	-	-	-
	Design Point Total		-	**326.0**	-	**5,867**	-	**0.391**	**271.6**	**326.0**	**0.391**	**0.039**	**5,867**	**3.72**	**1.46**	**1.49**	**1,037.87**	**0.4**	**12**	**CD**	**3.80**	**71.7**
D	PA-01		COMMERCIAL	30.1	22	661	1,500	0.045	31.3	-	-	-	-	-	-	-	-	-	-	-	-	-
	On-Site Total		-	**30.1**	-	**661**	-	**0.045**	**31.3**	-	-	-	-	-	-	-	-	-	-	-	-	-
	Design Point Total		-	**356.0**	-	**6,529**	-	**0.436**	**302.9**	**356.0**	**0.436**	**0.044**	**6,529**	**3.66**	**1.59**	**1.64**	**1,137.58**	**0.4**	**12**	**N/A**	**3.85**	**76.1**

Worksheet for Node A - B 10" pipe

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	10.0 in
Discharge	1.06 cfs

Results	
Normal Depth	5.9 in
Flow Area	0.3 ft²
Wetted Perimeter	1.5 ft
Hydraulic Radius	2.7 in
Top Width	0.82 ft
Critical Depth	5.5 in
Percent Full	58.6 %
Critical Slope	0.005 ft/ft
Velocity	3.19 ft/s
Velocity Head	0.16 ft
Specific Energy	0.65 ft
Froude Number	0.885
Maximum Discharge	1.76 cfs
Discharge Full	1.64 cfs
Slope Full	0.002 ft/ft
Flow Type	Subcritical

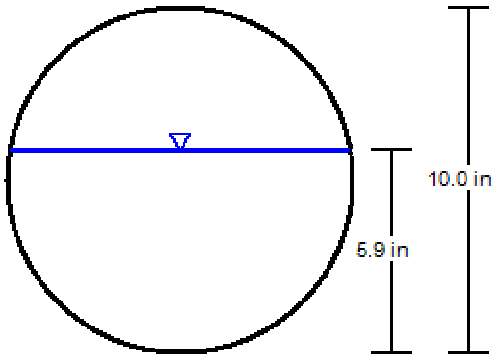
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	30.7 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	5.9 in
Critical Depth	5.5 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft

Cross Section for Node A - B 10" pipe

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Normal Depth	5.9 in
Diameter	10.0 in
Discharge	1.06 cfs



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Worksheet for Node B - C 12" pipe

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	12.0 in
Discharge	1.82 cfs

Results	
Normal Depth	7.3 in
Flow Area	0.5 ft²
Wetted Perimeter	1.8 ft
Hydraulic Radius	3.3 in
Top Width	0.98 ft
Critical Depth	6.9 in
Percent Full	60.7 %
Critical Slope	0.005 ft/ft
Velocity	3.65 ft/s
Velocity Head	0.21 ft
Specific Energy	0.81 ft
Froude Number	0.901
Maximum Discharge	2.86 cfs
Discharge Full	2.66 cfs
Slope Full	0.002 ft/ft
Flow Type	Subcritical

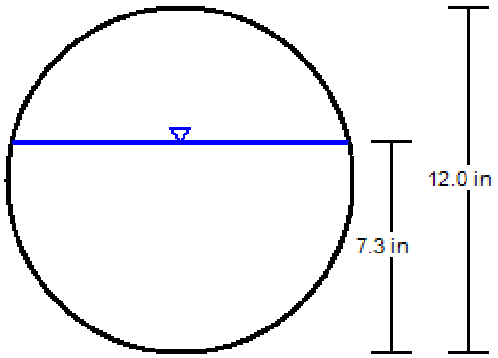
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	44.6 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	7.3 in
Critical Depth	6.9 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft

Cross Section for Node B - C 12" pipe

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Normal Depth	7.3 in
Diameter	12.0 in
Discharge	1.82 cfs



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Worksheet for Node C - D 12" pipe

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data		
Roughness Coefficient	0.011	
Channel Slope	0.004	ft/ft
Diameter	12.0	in
Discharge	2.31	cfs

Results		
Normal Depth	8.6	in
Flow Area	0.6	ft^2
Wetted Perimeter	2.0	ft
Hydraulic Radius	3.6	in
Top Width	0.90	ft
Critical Depth	7.8	in
Percent Full	72.0	%
Critical Slope	0.005	ft/ft
Velocity	3.82	ft/s
Velocity Head	0.23	ft
Specific Energy	0.95	ft
Froude Number	0.820	
Maximum Discharge	2.86	cfs
Discharge Full	2.66	cfs
Slope Full	0.003	ft/ft
Flow Type	Subcritical	

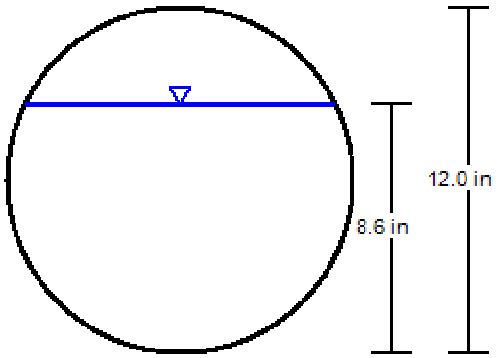
GVF Input Data		
Downstream Depth	0.0	in
Length	0.0	ft
Number Of Steps	0	

GVF Output Data		
Upstream Depth	0.0	in
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.0	%
Normal Depth Over Rise	58.9	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	8.6	in
Critical Depth	7.8	in
Channel Slope	0.004	ft/ft
Critical Slope	0.005	ft/ft

Cross Section for Node C - D 12" pipe

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Normal Depth	8.6 in
Diameter	12.0 in
Discharge	2.31 cfs



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Worksheet for Node D - CONNECTION 12" pipe

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	12.0 in
Discharge	2.53 cfs

Results	
Normal Depth	9.4 in
Flow Area	0.7 ft²
Wetted Perimeter	2.2 ft
Hydraulic Radius	3.6 in
Top Width	0.83 ft
Critical Depth	8.2 in
Percent Full	77.9 %
Critical Slope	0.006 ft/ft
Velocity	3.86 ft/s
Velocity Head	0.23 ft
Specific Energy	1.01 ft
Froude Number	0.765
Maximum Discharge	2.86 cfs
Discharge Full	2.66 cfs
Slope Full	0.004 ft/ft
Flow Type	Subcritical

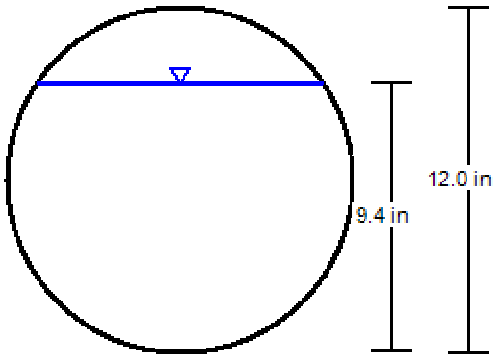
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	36.8 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	9.4 in
Critical Depth	8.2 in
Channel Slope	0.004 ft/ft
Critical Slope	0.006 ft/ft

Cross Section for Node D - CONNECTION 12" pipe

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Normal Depth	9.4 in
Diameter	12.0 in
Discharge	2.53 cfs



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APPENDIX B
WATER DEMAND AND CAPACITY CALCUATIONS

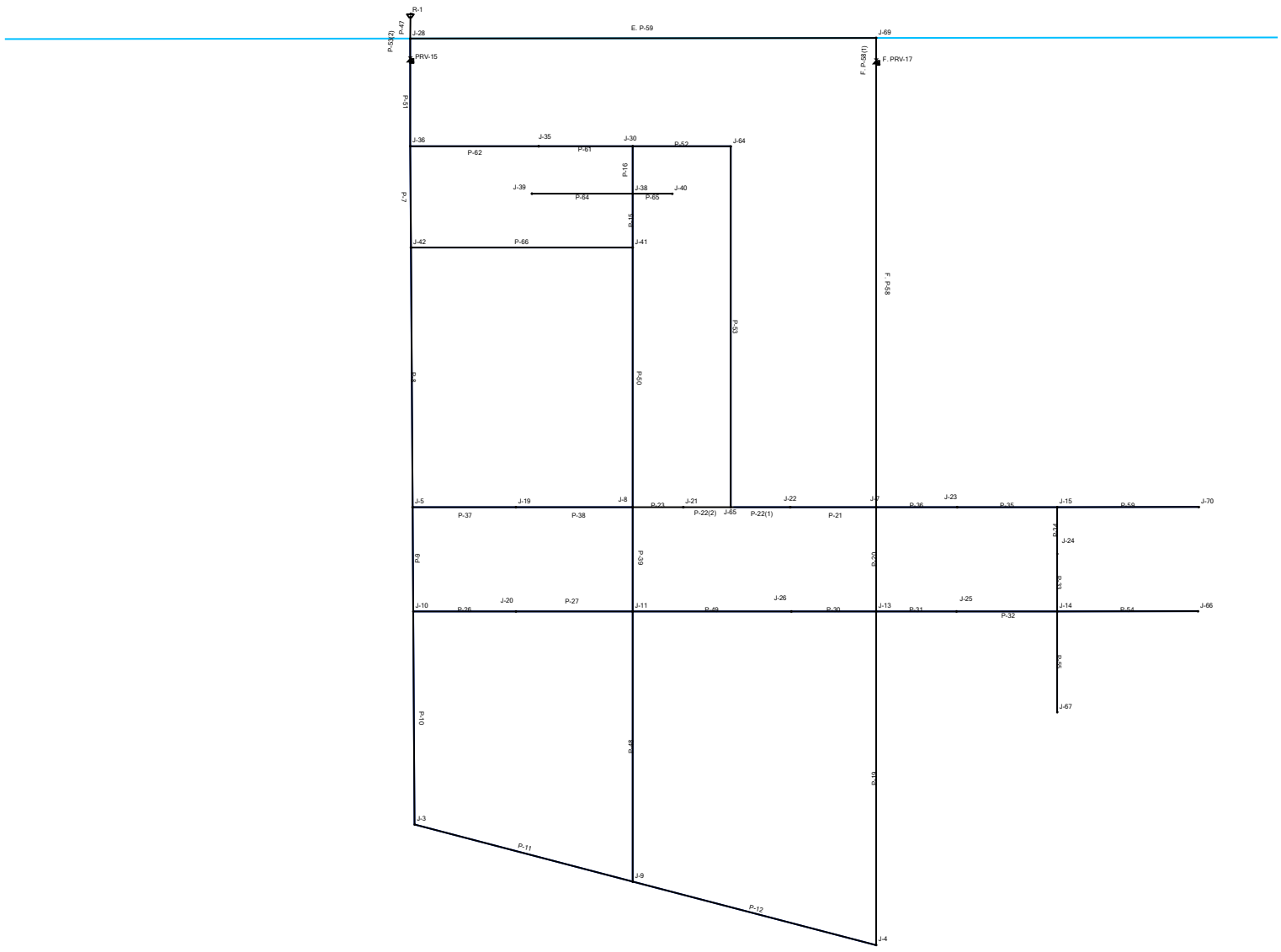
BLUE EAGLE MUS

WATER CALCULATIONS

Average & Maximum Demand Calculation

Type of Development	Planning Area	Water Model Node for Applied Demand	Total Acres	AVG DAY DEMAND (GPD/AC) Based On Land Use	AVG DAY DEMAND (GPD)	AVG DAY DEMAND (GPM)	MAX DAY DEMAND (GPD/AC) Based On Land Use	MAX DAY DEMAND (GPD)	MAX DAY DEMAND (GPM)	MAX HOUR DEMAND (GPD/AC) Based On Land Use	MAX HOUR DEMAND (GPD)	MAX HOUR DEMAND (GPM))	REQUIRED FIRE FLOW (GPM)	MAX DAY DEMAND + FIRE FLOW (GPM)
MU-COMMERICAL	PA-1		30.06	1,500	45,090	31	4,200	126,252	88	6,750	202,905	141	2500	2,588
MU-INDUSTRIAL	PA-2		52.65	1,200	63,180	44	3,360	176,904	123	5,400	284,310	197	3500	3,623
MU-INDUSTRIAL	PA-3		28.57	1,200	34,284	24	3,360	95,995	67	5,400	154,278	107	3500	3,567
MU-INDUSTRIAL	PA-4		244.74	1,200	293,688	204	3,360	822,326	571	5,400	1,321,596	918	3500	4,071
DETENTION	PA-5		23.56	WATER DEMANDS NOT APPLICABLE TO DRAINAGE CHANNEL OR LAND ACQUISITION AREAS										
OPEN SPACE	PA-6		25.95	WATER DEMANDS NOT APPLICABLE TO DRAINAGE CHANNEL OR LAND ACQUISITION AREAS										

BLUE EAGLE WATERCAD.wtg
Active Scenario: STATIC
Scenario: STATIC



BLUE EAGLE WATERCAD.wtg
Active Scenario: STATIC
FlexTable: Pipe Table

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-59	820	J-15	J-70	12.0	PVC	150.0	0	0.00
P-64	584	J-38	J-39	6.0	PVC	150.0	0	0.00
P-53(2)	118	J-28	PRV-15	16.0	PVC	150.0	0	0.00
P-35	580	J-15	J-23	12.0	PVC	150.0	0	0.00
P-36	469	J-23	J-7	12.0	PVC	150.0	0	0.00
P-51	505	PRV-15	J-36	16.0	PVC	150.0	0	0.00
P-47	134	R-1	J-28	30.0	Steel	140.0	0	0.00
P-54	816	J-14	J-66	12.0	PVC	150.0	0	0.00
P-7	588	J-36	J-42	16.0	PVC	150.0	0	0.00
P-34	271	J-24	J-15	12.0	PVC	150.0	0	0.00
P-32	584	J-25	J-14	12.0	PVC	150.0	0	0.00
P-31	465	J-13	J-25	12.0	PVC	150.0	0	0.00
P-33	334	J-14	J-24	12.0	PVC	150.0	0	0.00
P-21	498	J-7	J-22	12.0	PVC	150.0	0	0.00
P-22(1)	344	J-22	J-65	12.0	PVC	150.0	0	0.00
P-62	744	J-35	J-36	12.0	PVC	150.0	0	0.00
P-61	545	J-30	J-35	12.0	PVC	150.0	0	0.00
P-8	1,504	J-42	J-5	16.0	PVC	150.0	0	0.00
P-30	491	J-26	J-13	12.0	PVC	150.0	0	0.00
P-49	919	J-11	J-26	12.0	PVC	150.0	0	0.00
P-22(2)	276	J-65	J-21	12.0	PVC	150.0	0	0.00
P-19	1,933	J-4	J-13	12.0	PVC	150.0	0	0.00
P-66	1,285	J-41	J-42	12.0	PVC	150.0	0	0.00
P-23	293	J-21	J-8	12.0	PVC	150.0	0	0.00
P-50	1,504	J-41	J-8	12.0	PVC	150.0	0	0.00
P-53	2,091	J-64	J-65	12.0	PVC	150.0	0	0.00
P-9	604	J-5	J-10	16.0	PVC	150.0	0	0.00
P-52	568	J-30	J-64	12.0	PVC	150.0	0	0.00
P-37	598	J-5	J-19	12.0	PVC	150.0	0	0.00
P-20	604	J-13	J-7	12.0	PVC	150.0	0	0.00
P-27	676	J-20	J-11	12.0	PVC	150.0	0	0.00
P-38	677	J-19	J-8	12.0	PVC	150.0	0	0.00
P-26	595	J-10	J-20	12.0	PVC	150.0	0	0.00
P-39	604	J-8	J-11	12.0	PVC	150.0	0	0.00
P-11	1,306	J-3	J-9	16.0	PVC	150.0	0	0.00
P-12	1,458	J-9	J-4	16.0	PVC	150.0	0	0.00
F. P-58	2,586	F. PRV-17	J-7	12.0	PVC	150.0	0	0.00
P-10	1,235	J-10	J-3	16.0	PVC	150.0	0	0.00
P-16	275	J-38	J-30	12.0	PVC	150.0	0	0.00
E. P-59	2,699	J-28	J-69	30.0	Steel	140.0	0	0.00
P-15	312	J-41	J-38	12.0	PVC	150.0	0	0.00
P-48	1,564	J-9	J-11	12.0	PVC	150.0	0	0.00
P-65	229	J-38	J-40	6.0	PVC	150.0	0	0.00
P-55	583	J-14	J-67	12.0	PVC	150.0	0	0.00
F. P-58(1)	133	J-69	F. PRV-17	12.0	PVC	150.0	0	0.00

BLUE EAGLE WATERCAD.wtg
Active Scenario: STATIC
FlexTable: Junction Table

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-69	5,496.71	0	5,850.00	153
J-28	5,529.79	0	5,850.00	139
J-64	5,507.83	0	5,750.00	105
J-30	5,515.39	0	5,750.00	102
J-35	5,519.02	0	5,750.00	100
J-41	5,519.11	0	5,750.00	100
J-70	5,521.71	0	5,750.00	99
J-36	5,522.76	0	5,750.00	98
J-66	5,523.38	0	5,750.00	98
J-38	5,524.23	0	5,750.00	98
J-39	5,524.23	0	5,750.00	98
J-40	5,524.33	0	5,750.00	98
J-42	5,530.90	0	5,750.00	95
J-21	5,531.26	0	5,750.00	95
J-8	5,532.02	0	5,750.00	94
J-15	5,532.04	0	5,750.00	94
J-23	5,533.52	0	5,750.00	94
J-7	5,535.83	0	5,750.00	93
J-24	5,536.43	0	5,750.00	92
J-65	5,537.68	0	5,750.00	92
J-11	5,538.34	0	5,750.00	92
J-14	5,539.24	0	5,750.00	91
J-22	5,539.50	0	5,750.00	91
J-19	5,541.10	0	5,750.00	90
J-67	5,541.31	0	5,750.00	90
J-25	5,542.50	0	5,750.00	90
J-5	5,543.38	0	5,750.00	89
J-13	5,545.13	0	5,750.00	89
J-26	5,549.10	0	5,750.00	87
J-20	5,553.35	0	5,750.00	85
J-10	5,561.00	0	5,750.00	82
J-4	5,573.31	0	5,750.00	76
J-9	5,574.18	0	5,750.00	76
J-3	5,581.99	0	5,750.00	73

BLUE EAGLE WATERCAD.wtg
Active Scenario: STATIC
FlexTable: Reservoir Table

ID	Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
240	R-1	5,850.00	<None>	0	5,850.00

BLUE EAGLE WATERCAD.wtg
Active Scenario: AVG DAY DEMAND
FlexTable: Pipe Table

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-53(2)	118	J-28	PRV-15	16.0	PVC	150.0	218	0.35
P-51	505	PRV-15	J-36	16.0	PVC	150.0	218	0.35
P-7	588	J-36	J-42	16.0	PVC	150.0	140	0.22
P-62	744	J-35	J-36	12.0	PVC	150.0	-78	0.22
F. P-58(1)	133	J-69	F. PRV-17	12.0	PVC	150.0	66	0.19
F. P-58	2,586	F. PRV-17	J-7	12.0	PVC	150.0	66	0.19
P-66	1,285	J-41	J-42	12.0	PVC	150.0	-51	0.15
P-8	1,504	J-42	J-5	16.0	PVC	150.0	88	0.14
P-47	134	R-1	J-28	30.0	Steel	140.0	284	0.13
P-61	545	J-30	J-35	12.0	PVC	150.0	-43	0.12
P-36	469	J-23	J-7	12.0	PVC	150.0	-37	0.10
P-37	598	J-5	J-19	12.0	PVC	150.0	36	0.10
P-31	465	J-13	J-25	12.0	PVC	150.0	31	0.09
P-9	604	J-5	J-10	16.0	PVC	150.0	52	0.08
P-26	595	J-10	J-20	12.0	PVC	150.0	29	0.08
P-15	312	J-41	J-38	12.0	PVC	150.0	-27	0.08
P-16	275	J-38	J-30	12.0	PVC	150.0	-27	0.08
P-20	604	J-13	J-7	12.0	PVC	150.0	-20	0.06
P-49	919	J-11	J-26	12.0	PVC	150.0	20	0.06
P-23	293	J-21	J-8	12.0	PVC	150.0	-20	0.06
P-52	568	J-30	J-64	12.0	PVC	150.0	16	0.05
P-53	2,091	J-64	J-65	12.0	PVC	150.0	16	0.05
P-19	1,933	J-4	J-13	12.0	PVC	150.0	14	0.04
P-35	580	J-15	J-23	12.0	PVC	150.0	-14	0.04
P-34	271	J-24	J-15	12.0	PVC	150.0	-14	0.04
P-11	1,306	J-3	J-9	16.0	PVC	150.0	24	0.04
P-10	1,235	J-10	J-3	16.0	PVC	150.0	24	0.04
P-38	677	J-19	J-8	12.0	PVC	150.0	13	0.04
P-22(1)	344	J-22	J-65	12.0	PVC	150.0	-13	0.04
P-50	1,504	J-41	J-8	12.0	PVC	150.0	11	0.03
E. P-59	2,699	J-28	J-69	30.0	Steel	140.0	66	0.03
P-21	498	J-7	J-22	12.0	PVC	150.0	10	0.03
P-48	1,564	J-9	J-11	12.0	PVC	150.0	9	0.03
P-33	334	J-14	J-24	12.0	PVC	150.0	9	0.02
P-32	584	J-25	J-14	12.0	PVC	150.0	9	0.02
P-12	1,458	J-9	J-4	16.0	PVC	150.0	14	0.02
P-27	676	J-20	J-11	12.0	PVC	150.0	6	0.02
P-39	604	J-8	J-11	12.0	PVC	150.0	4	0.01
P-22(2)	276	J-65	J-21	12.0	PVC	150.0	3	0.01
P-30	491	J-26	J-13	12.0	PVC	150.0	-3	0.01
P-54	816	J-14	J-66	12.0	PVC	150.0	0	0.00
P-59	820	J-15	J-70	12.0	PVC	150.0	0	0.00
P-55	583	J-14	J-67	12.0	PVC	150.0	0	0.00
P-65	229	J-38	J-40	6.0	PVC	150.0	0	0.00
P-64	584	J-38	J-39	6.0	PVC	150.0	0	0.00

BLUE EAGLE WATERCAD.wtg
Active Scenario: AVG DAY DEMAND
FlexTable: Junction Table

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-69	5,496.71	0	5,850.00	153
J-28	5,529.79	0	5,850.00	139
J-64	5,507.83	0	5,749.97	105
J-30	5,515.39	0	5,749.97	101
J-35	5,519.02	35	5,749.97	100
J-41	5,519.11	68	5,749.97	100
J-70	5,521.71	0	5,749.96	99
J-36	5,522.76	0	5,749.99	98
J-66	5,523.38	0	5,749.96	98
J-38	5,524.23	0	5,749.97	98
J-39	5,524.23	0	5,749.97	98
J-40	5,524.33	0	5,749.97	98
J-42	5,530.90	0	5,749.98	95
J-21	5,531.26	23	5,749.97	95
J-8	5,532.02	0	5,749.97	94
J-15	5,532.04	0	5,749.96	94
J-23	5,533.52	23	5,749.97	94
J-7	5,535.83	0	5,749.97	93
J-24	5,536.43	23	5,749.96	92
J-65	5,537.68	0	5,749.97	92
J-11	5,538.34	0	5,749.97	92
J-14	5,539.24	0	5,749.96	91
J-22	5,539.50	23	5,749.97	91
J-19	5,541.10	23	5,749.97	90
J-67	5,541.31	0	5,749.96	90
J-25	5,542.50	23	5,749.96	90
J-5	5,543.38	0	5,749.97	89
J-13	5,545.13	0	5,749.97	89
J-26	5,549.10	23	5,749.97	87
J-20	5,553.35	23	5,749.97	85
J-10	5,561.00	0	5,749.97	82
J-4	5,573.31	0	5,749.97	76
J-9	5,574.18	0	5,749.97	76
J-3	5,581.99	0	5,749.97	73

BLUE EAGLE WATERCAD.wtg
Active Scenario: AVG DAY DEMAND
FlexTable: Reservoir Table

ID	Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
240	R-1	5,850.00	<None>	284	5,850.00

BLUE EAGLE WATERCAD.wtg
Active Scenario: MAX DAY DEMAND
FlexTable: Pipe Table

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-51	505	PRV-15	J-36	16.0	PVC	150.0	602	0.96
P-53(2)	118	J-28	PRV-15	16.0	PVC	150.0	602	0.96
P-7	588	J-36	J-42	16.0	PVC	150.0	388	0.62
P-62	744	J-35	J-36	12.0	PVC	150.0	-214	0.61
F. P-58(1)	133	J-69	F. PRV-17	12.0	PVC	150.0	184	0.52
F. P-58	2,586	F. PRV-17	J-7	12.0	PVC	150.0	184	0.52
P-66	1,285	J-41	J-42	12.0	PVC	150.0	-142	0.40
P-8	1,504	J-42	J-5	16.0	PVC	150.0	245	0.39
P-61	545	J-30	J-35	12.0	PVC	150.0	-126	0.36
P-47	134	R-1	J-28	30.0	Steel	140.0	786	0.36
P-36	469	J-23	J-7	12.0	PVC	150.0	-102	0.29
P-37	598	J-5	J-19	12.0	PVC	150.0	100	0.28
P-31	465	J-13	J-25	12.0	PVC	150.0	88	0.25
P-9	604	J-5	J-10	16.0	PVC	150.0	146	0.23
P-26	595	J-10	J-20	12.0	PVC	150.0	80	0.23
P-16	275	J-38	J-30	12.0	PVC	150.0	-79	0.22
P-15	312	J-41	J-38	12.0	PVC	150.0	-79	0.22
P-20	604	J-13	J-7	12.0	PVC	150.0	-56	0.16
P-49	919	J-11	J-26	12.0	PVC	150.0	55	0.16
P-23	293	J-21	J-8	12.0	PVC	150.0	-55	0.15
P-52	568	J-30	J-64	12.0	PVC	150.0	47	0.13
P-53	2,091	J-64	J-65	12.0	PVC	150.0	47	0.13
P-19	1,933	J-4	J-13	12.0	PVC	150.0	40	0.11
P-35	580	J-15	J-23	12.0	PVC	150.0	-39	0.11
P-34	271	J-24	J-15	12.0	PVC	150.0	-39	0.11
P-22(1)	344	J-22	J-65	12.0	PVC	150.0	-38	0.11
P-11	1,306	J-3	J-9	16.0	PVC	150.0	66	0.11
P-10	1,235	J-10	J-3	16.0	PVC	150.0	66	0.11
P-38	677	J-19	J-8	12.0	PVC	150.0	36	0.10
P-50	1,504	J-41	J-8	12.0	PVC	150.0	32	0.09
E. P-59	2,699	J-28	J-69	30.0	Steel	140.0	184	0.08
P-48	1,564	J-9	J-11	12.0	PVC	150.0	26	0.07
P-21	498	J-7	J-22	12.0	PVC	150.0	26	0.07
P-32	584	J-25	J-14	12.0	PVC	150.0	24	0.07
P-33	334	J-14	J-24	12.0	PVC	150.0	24	0.07
P-12	1,458	J-9	J-4	16.0	PVC	150.0	40	0.06
P-27	676	J-20	J-11	12.0	PVC	150.0	16	0.05
P-39	604	J-8	J-11	12.0	PVC	150.0	13	0.04
P-22(2)	276	J-65	J-21	12.0	PVC	150.0	9	0.03
P-30	491	J-26	J-13	12.0	PVC	150.0	-8	0.02
P-64	584	J-38	J-39	6.0	PVC	150.0	0	0.00
P-65	229	J-38	J-40	6.0	PVC	150.0	0	0.00
P-55	583	J-14	J-67	12.0	PVC	150.0	0	0.00
P-54	816	J-14	J-66	12.0	PVC	150.0	0	0.00
P-59	820	J-15	J-70	12.0	PVC	150.0	0	0.00

BLUE EAGLE WATERCAD.wtg
Active Scenario: MAX DAY DEMAND
FlexTable: Junction Table

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-69	5,496.71	0	5,850.00	153
J-28	5,529.79	0	5,850.00	139
J-64	5,507.83	0	5,749.80	105
J-30	5,515.39	0	5,749.80	101
J-35	5,519.02	88	5,749.82	100
J-41	5,519.11	190	5,749.79	100
J-70	5,521.71	0	5,749.77	99
J-36	5,522.76	0	5,749.91	98
J-66	5,523.38	0	5,749.76	98
J-38	5,524.23	0	5,749.79	98
J-39	5,524.23	0	5,749.79	98
J-40	5,524.33	0	5,749.79	98
J-42	5,530.90	0	5,749.86	95
J-21	5,531.26	63	5,749.78	95
J-8	5,532.02	0	5,749.78	94
J-15	5,532.04	0	5,749.77	94
J-23	5,533.52	63	5,749.77	94
J-7	5,535.83	0	5,749.78	93
J-24	5,536.43	63	5,749.76	92
J-65	5,537.68	0	5,749.78	92
J-11	5,538.34	0	5,749.78	91
J-14	5,539.24	0	5,749.76	91
J-22	5,539.50	63	5,749.78	91
J-19	5,541.10	63	5,749.79	90
J-67	5,541.31	0	5,749.76	90
J-25	5,542.50	63	5,749.77	90
J-5	5,543.38	0	5,749.80	89
J-13	5,545.13	0	5,749.78	89
J-26	5,549.10	63	5,749.78	87
J-20	5,553.35	63	5,749.79	85
J-10	5,561.00	0	5,749.80	82
J-4	5,573.31	0	5,749.79	76
J-9	5,574.18	0	5,749.79	76
J-3	5,581.99	0	5,749.79	73

BLUE EAGLE WATERCAD.wtg
Active Scenario: MAX DAY DEMAND
FlexTable: Reservoir Table

ID	Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
240	R-1	5,850.00	<None>	786	5,850.00

BLUE EAGLE WATERCAD.wtg
Active Scenario: MAX HOUR DEMAND
FlexTable: Pipe Table

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-53(2)	118	J-28	PRV-15	16.0	PVC	150.0	966	1.54
P-51	505	PRV-15	J-36	16.0	PVC	150.0	966	1.54
P-7	588	J-36	J-42	16.0	PVC	150.0	622	0.99
P-62	744	J-35	J-36	12.0	PVC	150.0	-343	0.97
F. P-58(1)	133	J-69	F. PRV-17	12.0	PVC	150.0	295	0.84
F. P-58	2,586	F. PRV-17	J-7	12.0	PVC	150.0	295	0.84
P-66	1,285	J-41	J-42	12.0	PVC	150.0	-228	0.65
P-8	1,504	J-42	J-5	16.0	PVC	150.0	394	0.63
P-61	545	J-30	J-35	12.0	PVC	150.0	-202	0.57
P-47	134	R-1	J-28	30.0	Steel	140.0	1,261	0.57
P-36	469	J-23	J-7	12.0	PVC	150.0	-165	0.47
P-37	598	J-5	J-19	12.0	PVC	150.0	160	0.45
P-31	465	J-13	J-25	12.0	PVC	150.0	141	0.40
P-9	604	J-5	J-10	16.0	PVC	150.0	234	0.37
P-26	595	J-10	J-20	12.0	PVC	150.0	128	0.36
P-16	275	J-38	J-30	12.0	PVC	150.0	-127	0.36
P-15	312	J-41	J-38	12.0	PVC	150.0	-127	0.36
P-20	604	J-13	J-7	12.0	PVC	150.0	-90	0.25
P-49	919	J-11	J-26	12.0	PVC	150.0	89	0.25
P-23	293	J-21	J-8	12.0	PVC	150.0	-88	0.25
P-52	568	J-30	J-64	12.0	PVC	150.0	75	0.21
P-53	2,091	J-64	J-65	12.0	PVC	150.0	75	0.21
P-19	1,933	J-4	J-13	12.0	PVC	150.0	65	0.18
P-34	271	J-24	J-15	12.0	PVC	150.0	-63	0.18
P-35	580	J-15	J-23	12.0	PVC	150.0	-63	0.18
P-22(1)	344	J-22	J-65	12.0	PVC	150.0	-61	0.17
P-11	1,306	J-3	J-9	16.0	PVC	150.0	106	0.17
P-10	1,235	J-10	J-3	16.0	PVC	150.0	106	0.17
P-38	677	J-19	J-8	12.0	PVC	150.0	58	0.16
P-50	1,504	J-41	J-8	12.0	PVC	150.0	51	0.15
E. P-59	2,699	J-28	J-69	30.0	Steel	140.0	295	0.13
P-48	1,564	J-9	J-11	12.0	PVC	150.0	41	0.12
P-21	498	J-7	J-22	12.0	PVC	150.0	41	0.12
P-32	584	J-25	J-14	12.0	PVC	150.0	39	0.11
P-33	334	J-14	J-24	12.0	PVC	150.0	39	0.11
P-12	1,458	J-9	J-4	16.0	PVC	150.0	65	0.10
P-27	676	J-20	J-11	12.0	PVC	150.0	26	0.07
P-39	604	J-8	J-11	12.0	PVC	150.0	22	0.06
P-22(2)	276	J-65	J-21	12.0	PVC	150.0	14	0.04
P-30	491	J-26	J-13	12.0	PVC	150.0	-13	0.04
P-54	816	J-14	J-66	12.0	PVC	150.0	0	0.00
P-55	583	J-14	J-67	12.0	PVC	150.0	0	0.00
P-65	229	J-38	J-40	6.0	PVC	150.0	0	0.00
P-59	820	J-15	J-70	12.0	PVC	150.0	0	0.00
P-64	584	J-38	J-39	6.0	PVC	150.0	0	0.00

BLUE EAGLE WATERCAD.wtg
Active Scenario: MAX HOUR DEMAND
FlexTable: Junction Table

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-69	5,496.71	0	5,849.99	153
J-28	5,529.79	0	5,850.00	139
J-64	5,507.83	0	5,749.51	105
J-30	5,515.39	0	5,749.52	101
J-35	5,519.02	141	5,749.57	100
J-41	5,519.11	304	5,749.49	100
J-70	5,521.71	0	5,749.44	99
J-36	5,522.76	0	5,749.77	98
J-66	5,523.38	0	5,749.43	98
J-38	5,524.23	0	5,749.51	97
J-39	5,524.23	0	5,749.51	97
J-40	5,524.33	0	5,749.51	97
J-42	5,530.90	0	5,749.66	95
J-21	5,531.26	102	5,749.48	94
J-8	5,532.02	0	5,749.48	94
J-15	5,532.04	0	5,749.44	94
J-23	5,533.52	102	5,749.44	93
J-7	5,535.83	0	5,749.48	92
J-24	5,536.43	102	5,749.43	92
J-65	5,537.68	0	5,749.48	92
J-11	5,538.34	0	5,749.48	91
J-14	5,539.24	0	5,749.43	91
J-22	5,539.50	102	5,749.47	91
J-19	5,541.10	102	5,749.49	90
J-67	5,541.31	0	5,749.43	90
J-25	5,542.50	102	5,749.44	90
J-5	5,543.38	0	5,749.53	89
J-13	5,545.13	0	5,749.46	88
J-26	5,549.10	102	5,749.46	87
J-20	5,553.35	102	5,749.48	85
J-10	5,561.00	0	5,749.51	82
J-4	5,573.31	0	5,749.49	76
J-9	5,574.18	0	5,749.49	76
J-3	5,581.99	0	5,749.50	72

BLUE EAGLE WATERCAD.wtg
Active Scenario: MAX HOUR DEMAND
FlexTable: Reservoir Table

ID	Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
240	R-1	5,850.00	<None>	1,261	5,850.00

BLUE EAGLE WATERCAD.wtg
Active Scenario: MAX DAY DEMAND + FIRE FLOW
FlexTable: Pipe Table

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-51	505	PRV-15	J-36	16.0	PVC	150.0	3,594	5.74
P-53(2)	118	J-28	PRV-15	16.0	PVC	150.0	3,594	5.73
P-12	1,458	J-9	J-4	16.0	PVC	150.0	2,610	4.17
P-7	588	J-36	J-42	16.0	PVC	150.0	2,584	4.12
P-19	1,933	J-4	J-13	12.0	PVC	150.0	-1,390	3.94
F. P-58(1)	133	J-69	F. PRV-17	12.0	PVC	150.0	1,192	3.38
F. P-58	2,586	F. PRV-17	J-7	12.0	PVC	150.0	1,192	3.38
P-8	1,504	J-42	J-5	16.0	PVC	150.0	2,001	3.19
P-9	604	J-5	J-10	16.0	PVC	150.0	1,898	3.03
P-62	744	J-35	J-36	12.0	PVC	150.0	-1,010	2.87
P-48	1,564	J-9	J-11	12.0	PVC	150.0	-971	2.75
P-39	604	J-8	J-11	12.0	PVC	150.0	958	2.72
P-20	604	J-13	J-7	12.0	PVC	150.0	-948	2.69
P-61	545	J-30	J-35	12.0	PVC	150.0	-922	2.62
P-11	1,306	J-3	J-9	16.0	PVC	150.0	1,639	2.62
P-10	1,235	J-10	J-3	16.0	PVC	150.0	1,639	2.62
P-47	134	R-1	J-28	30.0	Steel	140.0	4,786	2.17
P-50	1,504	J-41	J-8	12.0	PVC	150.0	747	2.12
P-66	1,285	J-41	J-42	12.0	PVC	150.0	-583	1.65
P-52	568	J-30	J-64	12.0	PVC	150.0	568	1.61
P-53	2,091	J-64	J-65	12.0	PVC	150.0	568	1.61
P-36	469	J-23	J-7	12.0	PVC	150.0	-514	1.46
P-35	580	J-15	J-23	12.0	PVC	150.0	-451	1.28
P-34	271	J-24	J-15	12.0	PVC	150.0	-451	1.28
P-32	584	J-25	J-14	12.0	PVC	150.0	-387	1.10
P-33	334	J-14	J-24	12.0	PVC	150.0	-387	1.10
P-16	275	J-38	J-30	12.0	PVC	150.0	-354	1.00
P-15	312	J-41	J-38	12.0	PVC	150.0	-354	1.00
P-22(1)	344	J-22	J-65	12.0	PVC	150.0	-334	0.95
P-31	465	J-13	J-25	12.0	PVC	150.0	-324	0.92
P-21	498	J-7	J-22	12.0	PVC	150.0	-270	0.77
P-26	595	J-10	J-20	12.0	PVC	150.0	258	0.73
P-22(2)	276	J-65	J-21	12.0	PVC	150.0	234	0.66
P-27	676	J-20	J-11	12.0	PVC	150.0	195	0.55
E. P-59	2,699	J-28	J-69	30.0	Steel	140.0	1,192	0.54
P-49	919	J-11	J-26	12.0	PVC	150.0	182	0.52
P-23	293	J-21	J-8	12.0	PVC	150.0	171	0.48
P-30	491	J-26	J-13	12.0	PVC	150.0	118	0.34
P-37	598	J-5	J-19	12.0	PVC	150.0	103	0.29
P-38	677	J-19	J-8	12.0	PVC	150.0	40	0.11
P-54	816	J-14	J-66	12.0	PVC	150.0	0	0.00
P-59	820	J-15	J-70	12.0	PVC	150.0	0	0.00
P-55	583	J-14	J-67	12.0	PVC	150.0	0	0.00
P-64	584	J-38	J-39	6.0	PVC	150.0	0	0.00
P-65	229	J-38	J-40	6.0	PVC	150.0	0	0.00

BLUE EAGLE WATERCAD.wtg
Active Scenario: MAX DAY DEMAND + FIRE FLOW
FlexTable: Junction Table

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-69	5,496.71	0	5,849.90	153
J-28	5,529.79	0	5,850.00	139
J-64	5,507.83	0	5,744.64	102
J-30	5,515.39	0	5,745.03	99
J-35	5,519.02	88	5,745.94	98
J-41	5,519.11	190	5,744.87	98
J-36	5,522.76	0	5,747.42	97
J-70	5,521.71	0	5,742.52	96
J-38	5,524.23	0	5,744.95	95
J-39	5,524.23	0	5,744.95	95
J-40	5,524.33	0	5,744.95	95
J-66	5,523.38	0	5,742.29	95
J-42	5,530.90	0	5,745.78	93
J-21	5,531.26	63	5,743.18	92
J-8	5,532.02	0	5,743.16	91
J-15	5,532.04	0	5,742.52	91
J-23	5,533.52	63	5,742.78	91
J-7	5,535.83	0	5,743.04	90
J-24	5,536.43	63	5,742.40	89
J-65	5,537.68	0	5,743.22	89
J-11	5,538.34	0	5,742.08	88
J-22	5,539.50	63	5,743.13	88
J-14	5,539.24	0	5,742.29	88
J-19	5,541.10	63	5,743.16	87
J-67	5,541.31	0	5,742.29	87
J-5	5,543.38	0	5,743.18	86
J-25	5,542.50	63	5,742.09	86
J-13	5,545.13	0	5,741.98	85
J-26	5,549.10	63	5,742.00	83
J-20	5,553.35	63	5,742.14	82
J-10	5,561.00	0	5,742.23	78
J-9	5,574.18	0	5,739.19	71
J-4	5,573.31	4,000	5,735.07	70
J-3	5,581.99	0	5,740.76	69

BLUE EAGLE WATERCAD.wtg

Active Scenario: MAX DAY DEMAND + FIRE FLOW

FlexTable: Reservoir Table

ID	Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
240	R-1	5,850.00	<None>	4,786	5,850.00

Blue Eagle Development

MASTER UTILITY REPORT

E. COLFAX AVE. TO E. 26TH AVE.
CITY OF AURORA, COLORADO

Martin/Martin, Inc. Project No.: 22.1654

August 26, 2024

Approved For One Year From This Date	
Aurora Water – Utility Division	Date
Fire and Life Safety Department	Date

Prepared For: Blue Eagle Metropolitan District No. 1
9155 East Nichols Avenue, Suite 360
Centennial, CO 80112
Attn: Christopher Fellows
720.341.7052

Prepared By: Martin/Martin, Inc.
12499 West Colfax Avenue
Lakewood, Colorado 80215
303.431.6100

Principal-in-Charge: David Le, PE
Project Manager: Ryan D. Byrne, PE
Project Engineer: Josh Dickerson, PE
Design Engineer: Evan Bednar, EIT

SIGNATURE AND APPROVAL

Signature of Preparer

This utility study ("Blue Eagle – Master Utility Report") was prepared under my direct supervision in accordance with the provisions of the Aurora Water 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.

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Ryan D. Byrne, P.E.
State of Colorado Registration No. 45903

TABLE OF CONTENTS

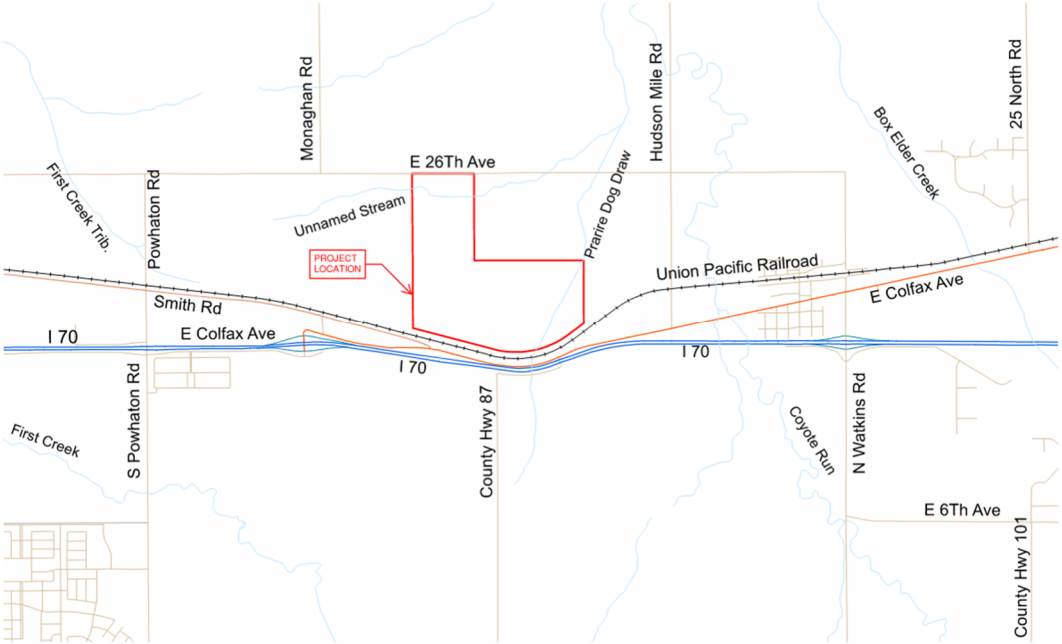
APPENDICES

I. INTRODUCTION

This report is prepared to provide the necessary analysis of the Blue Eagle overall water and sanitary systems and provide the anticipated proposed water and sanitary sewer demands. The operation of these on-site systems relies heavily upon neighboring developments and their associated master utility reports. As part of this report the capacity of each system has been analyzed in accordance with standard engineering practice and City of Aurora standards.

A. Location

The property is located in the East half of Section 34 and southwest quarter of Section 35, Township 3 South Range 65 West of the Sixth Principal Meridian, City of Aurora, Adams County, Colorado. The site is bounded to the south by Interstate 70 and E. Colfax Ave., to the north by E. 26th Ave., and by undeveloped agricultural land to the east and west. Current nearby operations include oil and gas along the westerly and easterly property boundaries, a gas well and booster station to the west and a water storage pond to the east. The vicinity map is included in Appendix A of this report.



B. Site Description

The property is currently zoned as Airport District throughout the property to take advantage of the nearby regional and national transportation hubs and infrastructure. The development will include 11 industrial buildings.

C. Phases

Phasing of the Blue Eagle site will more than likely be developed into smaller phases aligned with the planning areas outlined in Framework Development Plan and the Public Improvement Plan. Looped water to support public fire hydrants and private fire suppression systems are required with each phase of development. A sewer outfall must be constructed to serve any individual planning area. If the off-site sanitary sewer system infrastructure has not yet been installed, the developing planning area will be responsible for building the necessary off-site sanitary sewer required to support the planning area. The planning area shall work with the City of Aurora to determine the best option for connecting to the city's existing sanitary sewer system. At the time of this report, it is known that the phases shall consist of PA-1 through PA-5, as well as open space and drainage channel improvements. Additional information pertaining to the required improvements associated with each planning area can be found within the Public Improvement Plan exhibits and narrative. The actual sequential development of this project shall more than likely be determined by market demands. Furthermore, dependent upon market needs, and associated infrastructure improvement costs, identified planning areas may be combined or partially skipped as needed. This report is focused on the anticipated master water and sanitary sewer infrastructure that would be needed to support the full buildout of the development.

II. SANITARY SEWER SYSTEM

A. Existing Off-site Sanitary Sewer System

If the off-site sanitary sewer system infrastructure has not yet been installed, the developing planning area will be responsible for building the necessary off-site sanitary sewer required to support the planning area. City of Aurora stated in the pre-application meeting that due to the distance of the Blue Eagle site from their existing sanitary sewer collection system as well as that system's current capacity, the City will not be able to provide wastewater service for the Blue Eagle site for the initial phases of development. As such, the developing planning area is assessing options for providing on-site wastewater treatment for initial phases of development.

B. Proposed Sanitary Sewer Design Criteria

Updated criteria was provided by the City of Aurora. The updated criteria simplified the recommended sewer loading rates for different types of developments. A copy of the updated City of Aurora Master Utility Design Criteria for Water and Sanitary Sewer dated January 2023 has been included in Appendix A of this report for reference.

Analysis of the updated proposed sanitary flows consists of calculating the acreage for each planning area and applying demands based on types of land usage. The land usage and associated size of each planning area was provided by Powers Brown Architecture in the Blue Eagle Framework Development Plan Land Use Map, which is included in Appendix D of this report.

C. Pipe Sizing Criteria and Sanitary Sewer Routing

Analysis of the hydraulic capacity and characteristics of the pipe assumed open channel flow (not pressurized) and was completed using Manning's Equation. Bentley Flow Master was utilized for computations. Based on Aurora Water's Requirements, a minimum slope of 0.40% was used for the basis of design and a Manning's n value of 0.011 was used for PVC pipe unless specified differently. The depth of flow in the pipes shall not exceed 75% of capacity for pipes 12 inches or smaller and 80% for pipes larger than 12 inches. Peak factors were calculated by using the equation:

Peaking Factor = $5 \div p^{0.167}$

where p = population in thousands. A minimum peaking factor of 1.7 and a maximum peaking factor of 4 was used for the calculations. Infiltration and inflow was calculated at 10% of average day flows and added to the peaked flows.

As stated above, City of Aurora stated in the pre-application meeting that their existing sanitary sewer collection system is too far from the Blue Eagle development to provide wastewater service to the site. As such, the City has stated that they would support on-site wastewater treatment in the interim until the City can provide se development.

Needs to be re-worded. It isn't that it is too far, it is a different sewer basins with interceptors that are not sized to handle flows from other basins. Aurora Water is working on a solution for the Box Elder basin but in the meantime a private on site facility is acceptable as is a temporary private lift station back into the Second Creek basin.

Since total wastewater generation is expected to be greater than through CDPHE will be required rather than County OWTS permit level of wastewater generation, CDPHE requires meeting water re discharge, or groundwater discharge effluent limits and these lim a typical septic tank and STA OWTS. A mechanical packaged wast (WWTF) would be required. This WWTF could be constructed in p adequately treat and dispose (or reuse) wastewater generated fr development.

While the WWTF could be phased, a 500,000 gpd WWTF designed to service the projected full build-out of the proposed development is anticipated to require 5 approximately $10 million. The WWTF should be located near the low point of the development so that wastewater can flow by gravity towards the WWTF. CDPHE permitting coordination will need to be completed with the design of the WWTF.

NARRATIVE UPDATED

FlowMaster software was used to calculate the pipe velocities and pipe sizes for each segment of pipe between the design nodes. In general, the Blue Eagle property needs pipe sizes verifying from 6" through 15" to meet proposed demands, increased pipe size based on the COA comments, other offsite COA tributary flows, etc. The calculated demands, routing assumptions, peak flows, and pipe cross sections are provided in Appendix B.

Not seeing any flows on the table or the exhibit from an offsite basin.

LANGUAGE REMOVED FROM REPORT

III. WATER SUPPLY SYSTEM

A. Existing Off-Site Water System

The following documents were used to determine existing conditions, previous design assumptions, and potential offsite flows for the Blue Eagle project. The Eastern Utility Extension project is located to the north and is associated with the Construction Documents dated 05/01/2023, herein referred to as the EASTERN UTILITY EXTENSION CDS (Ref. No. 1).

Per the EASTERN UTILITY EXTENSION CDS, a 30" water main runs west to east along E. 26th Avenue to the north of the Blue Eagle development.

B. Proposed Water Distribution Design Criteria

Updated criteria was provided by the City of Aurora. The updated criteria simplified the water demand per zoning classification for different types of developments. Water demands for residential water use are based on a criteria of 2.77 people per unit and an average day per capita flow of 101 gallon per day. Non-residential demands were generated using the criteria in the table below:

Land Use	Ave Day (gpd/acre)	Max Day (gpd/acre)	Peak Hour (gpd/acre)
Commercial	1,500	4,200	6,750
Industrial	1,200	3,360	5,400
Parks and Greenbelts	1,800	5,040	N/A

Water mains in the system were analyzed in the model and were compared to the following City of Aurora Criteria for pipe size, velocity, and head loss:

Pipe Diameter (in)	Max Velocity (fps)	Max Head Loss (ft/1,000 ft)
6	2.5	5
8 to 12	3	5
16-24	4.5	5
Over 24	7.8	4

According to City of Aurora Criteria, the system was analyzed to meet the maximum day plus fire flow demand (as determined by ISO criteria) with a residual pressure of no less than 20 psi at any point in the water distribution system. The fire flow demands by land use type used for the system modeling are summarized in the table below:

Use Classification	Fire Flow Demand
Residential	1500 gpm for 2 hours
Commercial/Multifamily	2500 gpm for 2 hours
Industrial	3500 gpm for 3 hours

Update to 4,000 gpm

A copy of the update ity Design Criteria for Water and Sanitary Sewer dated January 2023 has been in ndix A of this report for reference.

UPDATED

C. Proposed On-Site Water System

The Blue Eagle site is located within Zone 4 of the City of Aurora water network. Pressure Reducing Valves (PRVs) will need to be located within the site at connection points where a pressure zone change occurs. The location of the PRVs is shown on the Overall Utility Water Plan MUS-W located in Appendix D On-site water pressures range from 68 psi to 105 psi across the site in the built-out condition. Individual building PRVs may be necessary to reduce supplied water pressure and will d with each site plan process.

Double check zones. This size is within Zone 3, the large diameter water main within 26th is in Zone 4 and will require a PRV to downgrade to Zone 3.

The proposed development within Blue Eagle will provid ine within the site. Specifically, included with proposed Blue Eagle developr iameter PVC (C900) water lines which will loop the system for each planning tility Water Plan MUS-W, in Appendix D for the water line locations and sizes.

D. Proposed Water System Analysis

PER CALL WITH CASEY BALLARD (COA) ON OCTOBER 22ND, 2024, ZONE UPDATED TO ZONE 3

WaterCAD software was used to analyze the pr e water model and output calculations for the average day der aximum hour demand (MHD), and maximum day demand plus the fire flow (MDD+FF) modeled at each node based on the domestic and fire demand for each corresponding development zoning classification are provided within the Appendix C. The updated City criteria yields ADD, MDD, MHD, and MDD+FF demands in gallons per day per acre. These values were then converted to gallons per minute and then applied to the corresponding node that was nearest the planning area.

The table below summarizes the results from the water model analysis:

WATER MODEL RESULTS SUMMARY	
Maximum Pressure	105 psi (Junction J-33, J-34, Avg. Daily Demand)
Minimum Residual Pressure	68 psi (Junction J-3, Max Day Demand plus Fire flow of 3500gpm)
Maximum Pipe Velocity	1.71 ft/sec (Pipe P-53(1), P-53(2), Max Hour Demand)
Maximum Fire Flow Velocity	5.64 ft/sec (Pipe P-53(1),P-53(2), Max Day Demand plus Fire flow of 3500gpm)

The results of the different demand scenarios and additional water model results for the pipes and junction nodes are included in Appendix C.

Update to 4,000 gpm

UPDATED

IV. CONCLUSION

The proposed water system is designed to provide adequate fire protection and the domestic demands of each type of use classification. The proposed sanitary sewer system has been designed to accommodate the anticipated flows for the planning areas and assumptions outlined in this report.

REFERENCES

1. Eastern Utility Extension Construction Documents, (2023). Aurora, Colorado, HDR.

APPENDICES

APPENDIX A
SANITARY SEWER DEMAND AND CAPACITY CALCUATIONS

BLUE EAGLE DEVELOPMENT
SANITARY SEWER AVERAGE FLOWS AND POPULATION

Planning Area	Area (Ac)	Type of Development	Avg. Daily Flow/Ac (gpd/ac)	Avg. Daily Flow (MGD)	Avg. Daily Flow (CFS)	Equivalent Population /Ac	Population
PA-1	30.06	MU-COMM	**1500**	0.045	**0.070**	**22**	661
PA-2	52.65	MU-IND	**1200**	0.063	**0.098**	**18**	948
PA-3	28.57	MU-IND	**1200**	0.034	**0.053**	**18**	514
PA-4	244.74	MU-IND	**1200**	0.294	**0.454**	**18**	4,405
PA-5	23.56	DETENTION / OPEN SPACE	SANITARY DEMANDS NOT APPLICABLE TO PARKS, OPEN SPACE, DRAINAGE CHANNEL, OR LAND ACQUISITION AREAS				
PA-6	25.95	DETENTION / OPEN SPACE	SANITARY DEMANDS NOT APPLICABLE TO PARKS, OPEN SPACE, DRAINAGE CHANNEL, OR LAND ACQUISITION AREAS				

BLUE EAGLE DEVELOPMENT SANITARY
SANITARY SEWER PEAK FLOW CALCULATIONS

Node	Basins Added to System	Total Avg. Daily Flow @ Node (MGD)	Total Upstream Population	Peaking Factor = 5/p^0.167	Peak Flow (MGD)	Infiltration (MGD)	Peak Flow + Infiltration (MGD)	Peak Flow + Infiltration (cfs)
A	PA-04 (57%)	0.17	2511	4.00	0.670	0.017	0.686	1.062
B	PA-04 (43%)	0.294	4405	3.90	1.146	0.029	1.176	1.819
C	PA-02 (100%) + PA-03 (100%)	0.391	5867	3.72	1.455	0.039	1.495	2.312
D	PA-01 (100%)	0.436	6529	3.66	1.594	0.044	1.638	2.534

FROM Node	TO Node	Peak Flow + Infiltration (MGD)	Peak Flow + Infiltration (cfs)	Required Pipe Size (in)	Pipe Percent Full (%)
A	B	0.686	1.062	12	41.9
B	C	1.176	1.819	12	57.9
C	D	1.495	2.312	12	71.7
D	CONNECTION	1.638	2.534	12	76.1

When possible could we have a quick call to discuss the sanitary sewer routing table?

PER CALL WITH CASEY BALLARD (COA) ON OCTOBER 22ND, 2024, COA SANITARY ROUTING TABLE INCLUDED IN APPENDIX A

BLUE EAGLE DEVELOPMENT
SANITARY SEWER ROUTING CALCULATIONS

From Node:	To Node:	Basins Added to System	Total Flow Flow (cfs)	Velocity (ft/s)	Minimum	Minimum	Maximum Slope* (%)	Percentage Full (%)
A	B	PA-04 (57%)	1.062	3.17			3.48	41.9
B	C	PA-04 (43%)	1.819	3.62			3.48	57.9
C	D	PA-02 (100%) + PA-03 (100%)	2.312	3.80	12	0.40	3.48	71.7
D	CONNECTION	PA-01 (100%)	2.534	3.85	12	0.40	3.48	76.1

This main could be lowered to 10-inch.

COMMENT NOTED, THANK YOU.

* Note:

achieve a minimum velocity of 2.0 ft/sec and a maximum percent full capacity of 75% for pipes 12" and smaller or 80% for pipes larger than 12".

While this is a small site please include a sanitary sewer routing diagram.

SANITARY SEWER ROUTING DIAGRAM INCLUDED IN PLANS

Worksheet for Node A - B 12" pipe

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	12.0 in
Discharge	1.06 cfs

Results	
Normal Depth	5.3 in
Flow Area	0.3 ft²
Wetted Perimeter	1.4 ft
Hydraulic Radius	2.8 in
Top Width	0.99 ft
Critical Depth	5.2 in
Percent Full	43.9 %
Critical Slope	0.004 ft/ft
Velocity	3.20 ft/s
Velocity Head	0.16 ft
Specific Energy	0.60 ft
Froude Number	0.974
Maximum Discharge	2.86 cfs
Discharge Full	2.66 cfs
Slope Full	0.001 ft/ft
Flow Type	Subcritical

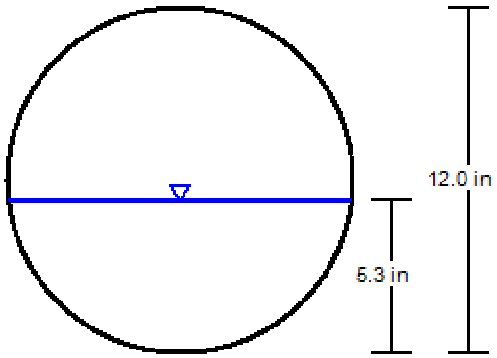
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	30.7 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	5.3 in
Critical Depth	5.2 in
Channel Slope	0.004 ft/ft
Critical Slope	0.004 ft/ft

Cross Section for Node A - B 12" pipe

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Normal Depth	5.3 in
Diameter	12.0 in
Discharge	1.06 cfs



Can this be a 10-inch main?

SANITARY PIPE UPDATED

V: 1
H: 1

Worksheet for Node B - C 12" pipe

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	12.0 in
Discharge	1.82 cfs

Results	
Normal Depth	7.3 in
Flow Area	0.5 ft²
Wetted Perimeter	1.8 ft
Hydraulic Radius	3.3 in
Top Width	0.98 ft
Critical Depth	6.9 in
Percent Full	60.7 %
Critical Slope	0.005 ft/ft
Velocity	3.65 ft/s
Velocity Head	0.21 ft
Specific Energy	0.81 ft
Froude Number	0.901
Maximum Discharge	2.86 cfs
Discharge Full	2.66 cfs
Slope Full	0.002 ft/ft
Flow Type	Subcritical

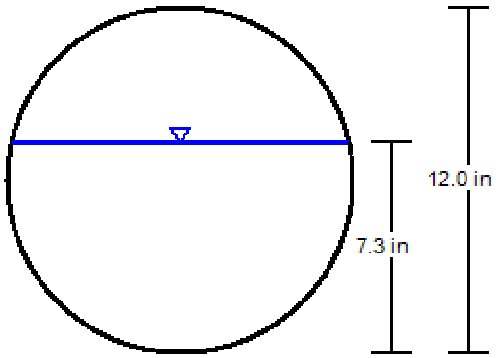
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	44.6 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	7.3 in
Critical Depth	6.9 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft

Cross Section for Node B - C 12" pipe

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Normal Depth	7.3 in
Diameter	12.0 in
Discharge	1.82 cfs



V: 1
H: 1

Worksheet for Node C - D 12" pipe

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	12.0 in
Discharge	2.31 cfs

Results	
Normal Depth	8.6 in
Flow Area	0.6 ft²
Wetted Perimeter	2.0 ft
Hydraulic Radius	3.6 in
Top Width	0.90 ft
Critical Depth	7.8 in
Percent Full	72.0 %
Critical Slope	0.005 ft/ft
Velocity	3.82 ft/s
Velocity Head	0.23 ft
Specific Energy	0.95 ft
Froude Number	0.820
Maximum Discharge	2.86 cfs
Discharge Full	2.66 cfs
Slope Full	0.003 ft/ft
Flow Type	Subcritical

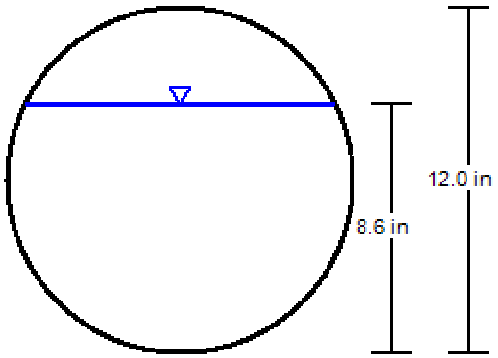
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	58.9 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	8.6 in
Critical Depth	7.8 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft

Cross Section for Node C - D 12" pipe

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Normal Depth	8.6 in
Diameter	12.0 in
Discharge	2.31 cfs



V: 1
H: 1

Worksheet for Node D - CONNECTION 12" pipe

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	12.0 in
Discharge	2.53 cfs

Results	
Normal Depth	9.4 in
Flow Area	0.7 ft²
Wetted Perimeter	2.2 ft
Hydraulic Radius	3.6 in
Top Width	0.83 ft
Critical Depth	8.2 in
Percent Full	77.9 %
Critical Slope	0.006 ft/ft
Velocity	3.86 ft/s
Velocity Head	0.23 ft
Specific Energy	1.01 ft
Froude Number	0.765
Maximum Discharge	2.86 cfs
Discharge Full	2.66 cfs
Slope Full	0.004 ft/ft
Flow Type	Subcritical

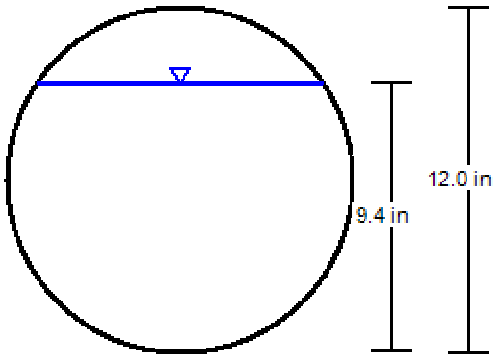
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	36.8 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	9.4 in
Critical Depth	8.2 in
Channel Slope	0.004 ft/ft
Critical Slope	0.006 ft/ft

Cross Section for Node D - CONNECTION 12" pipe

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Normal Depth	9.4 in
Diameter	12.0 in
Discharge	2.53 cfs



V: 1
H: 1

APPENDIX B
WATER DEMAND AND CAPACITY CALCUATIONS

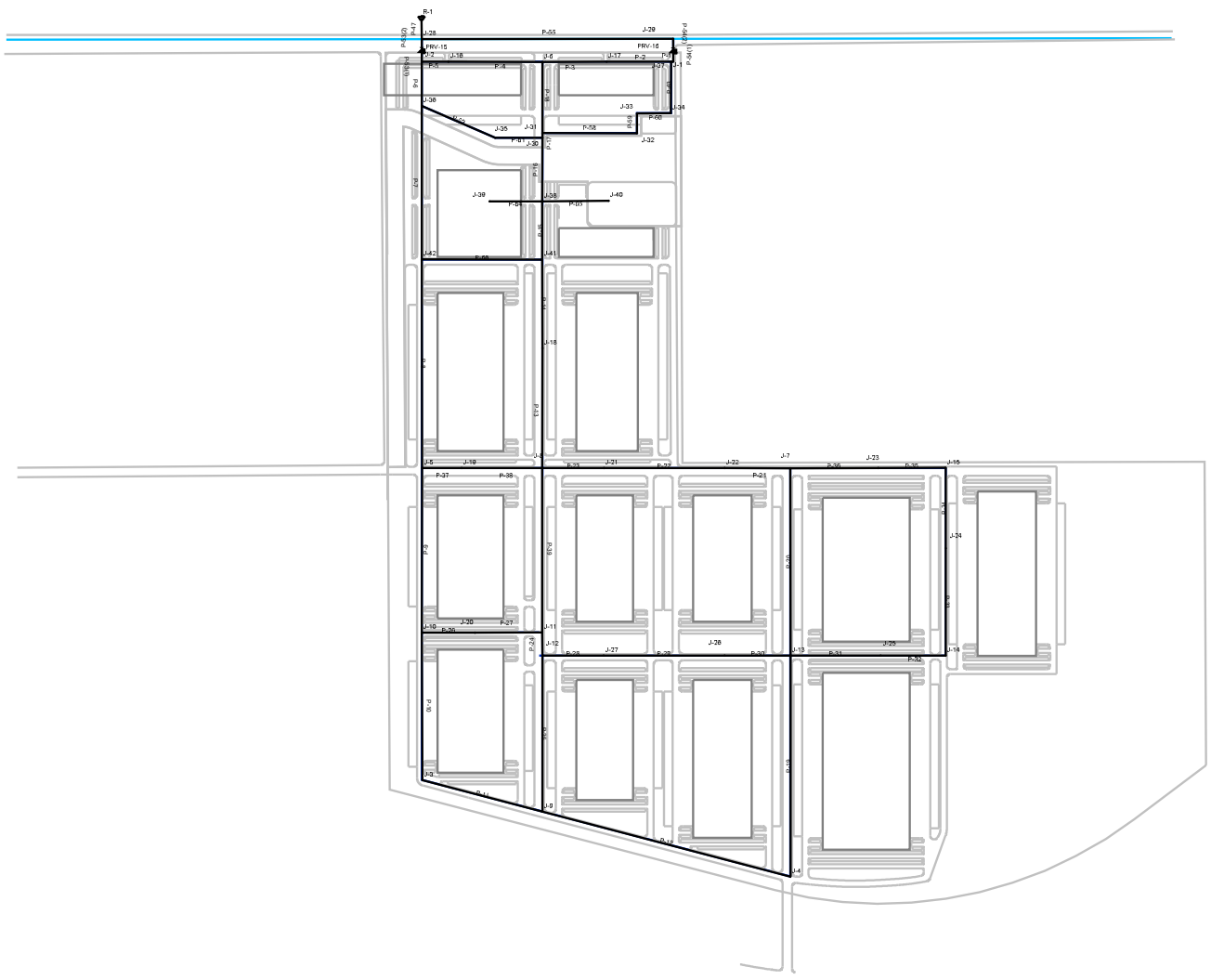
BLUE EAGLE MUS

WATER CALCULATIONS

Average & Maximum Demand Calculation

Type of Development	Planning Area	Water Model Node for Applied Demand	Total Acres	AVG DAY DEMAND (GPD/AC) Based On Land Use	AVG DAY DEMAND (GPD)	AVG DAY DEMAND (GPM)	MAX DAY DEMAND (GPD/AC) Based On Land Use	MAX DAY DEMAND (GPD)	MAX DAY DEMAND (GPM)	MAX HOUR DEMAND (GPD/AC) Based On Land Use	MAX HOUR DEMAND (GPD)	MAX HOUR DEMAND (GPM))	REQUIRED FIRE FLOW (GPM)	MAX DAY DEMAND + FIRE FLOW (GPM)
MU-COMMERICAL	PA-1		30.06	1,500	45,090	31	4,200	126,252	88	6,750	202,905	141	2500	2,588
MU-INDUSTRIAL	PA-2		52.65	1,200	63,180	44	3,360	176,904	123	5,400	284,310	197	3500	3,623
MU-INDUSTRIAL	PA-3		28.57	1,200	34,284	24	3,360	95,995	67	5,400	154,278	107	3500	3,567
MU-INDUSTRIAL	PA-4		244.74	1,200	293,688	204	3,360	822,326	571	5,400	1,321,596	918	3500	4,071
DETENTION	PA-5		23.56	WATER DEMANDS NOT APPLICABLE TO DRAINAGE CHANNEL OR LAND ACQUISITION AREAS										
OPEN SPACE	PA-6		25.95	WATER DEMANDS NOT APPLICABLE TO DRAINAGE CHANNEL OR LAND ACQUISITION AREAS										

BLUE EAGLE WATERCAD.wtg
Active Scenario: STATIC
Scenario: STATIC



BLUE EAGLE WATERCAD.wtg
Active Scenario: STATIC
FlexTable: Pipe Table

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-54(2)	70	PRV-16	J-29	12.0	PVC	150.0	0	0.00
P-66	761	J-41	J-42	6.0	Ductile Iron	130.0	0	0.00
P-55	1,592	J-28	J-29	30.0	Steel	140.0	0	0.00
P-59	126	J-32	J-33	6.0	Ductile Iron	130.0	0	0.00
P-62	505	J-35	J-36	6.0	Ductile Iron	130.0	0	0.00
P-60	215	J-33	J-34	6.0	Ductile Iron	130.0	0	0.00
P-54(1)	76	J-1	PRV-16	12.0	PVC	150.0	0	0.00
P-58	599	J-31	J-32	6.0	Ductile Iron	130.0	0	0.00
P-63	326	J-34	J-37	6.0	Ductile Iron	130.0	0	0.00
P-61	299	J-30	J-35	6.0	Ductile Iron	130.0	0	0.00
P-14	562	J-18	J-41	12.0	PVC	150.0	0	0.00
P-1	15	J-1	J-37	12.0	PVC	150.0	0	0.00
P-13	758	J-8	J-18	12.0	PVC	150.0	0	0.00
P-4	595	J-6	J-16	12.0	PVC	150.0	0	0.00
P-24	147	J-11	J-12	12.0	PVC	150.0	0	0.00
P-17	29	J-30	J-31	12.0	PVC	150.0	0	0.00
P-5	168	J-16	J-2	12.0	PVC	150.0	0	0.00
P-15	368	J-41	J-38	12.0	PVC	150.0	0	0.00
P-25	987	J-12	J-9	12.0	PVC	150.0	0	0.00
P-16	403	J-38	J-30	12.0	PVC	150.0	0	0.00
P-35	427	J-15	J-23	12.0	PVC	150.0	0	0.00
P-18	451	J-31	J-6	12.0	PVC	150.0	0	0.00
P-28	387	J-12	J-27	12.0	PVC	150.0	0	0.00
P-36	556	J-23	J-7	12.0	PVC	150.0	0	0.00
P-34	509	J-24	J-15	12.0	PVC	150.0	0	0.00
P-31	570	J-13	J-25	12.0	PVC	150.0	0	0.00
P-33	680	J-14	J-24	12.0	PVC	150.0	0	0.00
P-29	766	J-27	J-26	12.0	PVC	150.0	0	0.00
P-27	426	J-20	J-11	12.0	PVC	150.0	0	0.00
P-30	418	J-26	J-13	12.0	PVC	150.0	0	0.00
P-32	411	J-25	J-14	12.0	PVC	150.0	0	0.00
P-23	391	J-21	J-8	12.0	PVC	150.0	0	0.00
P-53(1)	77	PRV-15	J-2	16.0	PVC	150.0	0	0.00
P-39	1,041	J-8	J-11	12.0	PVC	150.0	0	0.00
P-3	406	J-17	J-6	12.0	PVC	150.0	0	0.00
P-53(2)	67	J-28	PRV-15	16.0	PVC	150.0	0	0.00
P-20	1,186	J-13	J-7	12.0	PVC	150.0	0	0.00
P-2	408	J-37	J-17	12.0	PVC	150.0	0	0.00
P-21	416	J-7	J-22	12.0	PVC	150.0	0	0.00
P-19	1,400	J-4	J-13	12.0	PVC	150.0	0	0.00
P-10	934	J-10	J-3	16.0	PVC	150.0	0	0.00
P-38	510	J-19	J-8	12.0	PVC	150.0	0	0.00
P-8	1,320	J-42	J-5	16.0	PVC	150.0	0	0.00
P-12	1,623	J-9	J-4	16.0	PVC	150.0	0	0.00
P-26	337	J-10	J-20	12.0	PVC	150.0	0	0.00
P-22	763	J-22	J-21	12.0	PVC	150.0	0	0.00
P-6	281	J-2	J-36	16.0	PVC	150.0	0	0.00
P-9	1,042	J-5	J-10	16.0	PVC	150.0	0	0.00
P-37	251	J-5	J-19	12.0	PVC	150.0	0	0.00
P-11	786	J-3	J-9	16.0	PVC	150.0	0	0.00
P-7	971	J-36	J-42	16.0	PVC	150.0	0	0.00
P-65	420	J-38	J-40	6.0	Ductile Iron	130.0	0	0.00
P-64	333	J-38	J-39	6.0	Ductile Iron	130.0	0	0.00
P-47	134	R-1	J-28	30.0	Steel	140.0	0	0.00

BLUE EAGLE WATERCAD.wtg
Active Scenario: STATIC
FlexTable: Junction Table

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-29	5,510.79	0	5,850.00	147
J-28	5,529.79	0	5,850.00	139
J-33	5,508.21	0	5,750.00	105
J-34	5,508.21	0	5,750.00	105
J-32	5,508.98	0	5,750.00	104
J-1	5,510.04	0	5,750.00	104
J-37	5,510.04	0	5,750.00	104
J-30	5,515.39	0	5,750.00	102
J-31	5,515.41	0	5,750.00	101
J-17	5,515.99	0	5,750.00	101
J-6	5,518.32	0	5,750.00	100
J-35	5,519.02	0	5,750.00	100
J-41	5,519.11	0	5,750.00	100
J-36	5,522.76	0	5,750.00	98
J-38	5,524.23	0	5,750.00	98
J-39	5,524.23	0	5,750.00	98
J-40	5,524.33	0	5,750.00	98
J-16	5,525.53	0	5,750.00	97
J-2	5,527.60	0	5,750.00	96
J-18	5,527.68	0	5,750.00	96
J-42	5,530.90	0	5,750.00	95
J-21	5,531.26	0	5,750.00	95
J-15	5,532.04	0	5,750.00	94
J-23	5,533.52	0	5,750.00	94
J-8	5,535.42	0	5,750.00	93
J-22	5,535.75	0	5,750.00	93
J-24	5,536.43	0	5,750.00	92
J-7	5,536.63	0	5,750.00	92
J-19	5,541.10	0	5,750.00	90
J-5	5,543.38	0	5,750.00	89
J-14	5,543.78	0	5,750.00	89
J-25	5,547.61	0	5,750.00	88
J-13	5,553.81	0	5,750.00	85
J-26	5,553.99	0	5,750.00	85
J-11	5,554.14	0	5,750.00	85
J-27	5,555.99	0	5,750.00	84
J-12	5,556.59	0	5,750.00	84
J-20	5,557.78	0	5,750.00	83
J-10	5,561.00	0	5,750.00	82
J-4	5,573.31	0	5,750.00	76
J-9	5,574.18	0	5,750.00	76
J-3	5,581.99	0	5,750.00	73

BLUE EAGLE WATERCAD.wtg
Active Scenario: STATIC
FlexTable: Reservoir Table

ID	Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
240	R-1	5,850.00	<None>	0	5,850.00

BLUE EAGLE WATERCAD.wtg
Active Scenario: AVG DAY DEMAND
FlexTable: Pipe Table

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-53(2)	67	J-28	PRV-15	16.0	PVC	150.0	238	0.38
P-53(1)	77	PRV-15	J-2	16.0	PVC	150.0	238	0.38
P-14	562	J-18	J-41	12.0	PVC	150.0	-106	0.30
P-6	281	J-2	J-36	16.0	PVC	150.0	182	0.29
P-7	971	J-36	J-42	16.0	PVC	150.0	174	0.28
P-15	368	J-41	J-38	12.0	PVC	150.0	-97	0.28
P-16	403	J-38	J-30	12.0	PVC	150.0	-97	0.28
P-8	1,320	J-42	J-5	16.0	PVC	150.0	165	0.26
P-17	29	J-30	J-31	12.0	PVC	150.0	-89	0.25
P-18	451	J-31	J-6	12.0	PVC	150.0	-81	0.23
P-37	251	J-5	J-19	12.0	PVC	150.0	72	0.20
P-23	391	J-21	J-8	12.0	PVC	150.0	-66	0.19
P-54(2)	70	PRV-16	J-29	12.0	PVC	150.0	-65	0.18
P-1	15	J-1	J-37	12.0	PVC	150.0	65	0.18
P-54(1)	76	J-1	PRV-16	12.0	PVC	150.0	-65	0.18
P-28	387	J-12	J-27	12.0	PVC	150.0	57	0.16
P-2	408	J-37	J-17	12.0	PVC	150.0	56	0.16
P-5	168	J-16	J-2	12.0	PVC	150.0	-55	0.16
P-9	1,042	J-5	J-10	16.0	PVC	150.0	94	0.15
P-38	510	J-19	J-8	12.0	PVC	150.0	49	0.14
P-47	134	R-1	J-28	30.0	Steel	140.0	303	0.14
P-26	337	J-10	J-20	12.0	PVC	150.0	45	0.13
P-24	147	J-11	J-12	12.0	PVC	150.0	44	0.12
P-22	763	J-22	J-21	12.0	PVC	150.0	-43	0.12
P-3	406	J-17	J-6	12.0	PVC	150.0	41	0.12
P-4	595	J-6	J-16	12.0	PVC	150.0	-40	0.11
P-13	758	J-8	J-18	12.0	PVC	150.0	-38	0.11
P-66	761	J-41	J-42	6.0	Ductile Iron	130.0	-9	0.10
P-19	1,400	J-4	J-13	12.0	PVC	150.0	36	0.10
P-31	570	J-13	J-25	12.0	PVC	150.0	35	0.10
P-58	599	J-31	J-32	6.0	Ductile Iron	130.0	-9	0.10
P-59	126	J-32	J-33	6.0	Ductile Iron	130.0	-9	0.10
P-60	215	J-33	J-34	6.0	Ductile Iron	130.0	-9	0.10
P-63	326	J-34	J-37	6.0	Ductile Iron	130.0	-9	0.10
P-29	766	J-27	J-26	12.0	PVC	150.0	34	0.10
P-36	556	J-23	J-7	12.0	PVC	150.0	-33	0.09
P-61	299	J-30	J-35	6.0	Ductile Iron	130.0	-8	0.09
P-62	505	J-35	J-36	6.0	Ductile Iron	130.0	-8	0.09
P-11	786	J-3	J-9	16.0	PVC	150.0	49	0.08
P-10	934	J-10	J-3	16.0	PVC	150.0	49	0.08
P-27	426	J-20	J-11	12.0	PVC	150.0	22	0.06
P-39	1,041	J-8	J-11	12.0	PVC	150.0	22	0.06
P-21	416	J-7	J-22	12.0	PVC	150.0	-21	0.06
P-12	1,623	J-9	J-4	16.0	PVC	150.0	36	0.06
P-25	987	J-12	J-9	12.0	PVC	150.0	-13	0.04
P-33	680	J-14	J-24	12.0	PVC	150.0	13	0.04
P-32	411	J-25	J-14	12.0	PVC	150.0	13	0.04
P-20	1,186	J-13	J-7	12.0	PVC	150.0	12	0.03
P-30	418	J-26	J-13	12.0	PVC	150.0	11	0.03
P-55	1,592	J-28	J-29	30.0	Steel	140.0	65	0.03
P-35	427	J-15	J-23	12.0	PVC	150.0	-10	0.03
P-34	509	J-24	J-15	12.0	PVC	150.0	-10	0.03
P-64	333	J-38	J-39	6.0	Ductile Iron	130.0	0	0.00
P-65	420	J-38	J-40	6.0	Ductile Iron	130.0	0	0.00

BLUE EAGLE WATERCAD.wtg
Active Scenario: AVG DAY DEMAND
FlexTable: Junction Table

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-29	5,510.79	0	5,850.00	147
J-28	5,529.79	0	5,850.00	139
J-34	5,508.21	0	5,750.00	105
J-33	5,508.21	0	5,749.99	105
J-32	5,508.98	0	5,749.99	104
J-1	5,510.04	0	5,750.00	104
J-37	5,510.04	0	5,750.00	104
J-30	5,515.39	0	5,749.98	101
J-31	5,515.41	0	5,749.98	101
J-17	5,515.99	16	5,750.00	101
J-6	5,518.32	0	5,749.99	100
J-35	5,519.02	0	5,749.99	100
J-41	5,519.11	0	5,749.96	100
J-36	5,522.76	0	5,749.99	98
J-38	5,524.23	0	5,749.97	98
J-39	5,524.23	0	5,749.97	98
J-40	5,524.33	0	5,749.97	98
J-16	5,525.53	16	5,750.00	97
J-2	5,527.60	0	5,750.00	96
J-18	5,527.68	68	5,749.95	96
J-42	5,530.90	0	5,749.97	95
J-21	5,531.26	23	5,749.94	95
J-15	5,532.04	0	5,749.93	94
J-23	5,533.52	23	5,749.93	94
J-8	5,535.42	0	5,749.94	93
J-22	5,535.75	23	5,749.93	93
J-24	5,536.43	23	5,749.93	92
J-7	5,536.63	0	5,749.93	92
J-19	5,541.10	23	5,749.95	90
J-5	5,543.38	0	5,749.95	89
J-14	5,543.78	0	5,749.93	89
J-25	5,547.61	23	5,749.93	88
J-13	5,553.81	0	5,749.93	85
J-26	5,553.99	23	5,749.93	85
J-11	5,554.14	0	5,749.94	85
J-27	5,555.99	23	5,749.94	84
J-12	5,556.59	0	5,749.94	84
J-20	5,557.78	23	5,749.94	83
J-10	5,561.00	0	5,749.94	82
J-4	5,573.31	0	5,749.94	76
J-9	5,574.18	0	5,749.94	76
J-3	5,581.99	0	5,749.94	73

BLUE EAGLE WATERCAD.wtg
Active Scenario: AVG DAY DEMAND
FlexTable: Reservoir Table

ID	Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
240	R-1	5,850.00	<None>	303	5,850.00

BLUE EAGLE WATERCAD.wtg
Active Scenario: MAX DAY DEMAND
FlexTable: Pipe Table

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-53(1)	77	PRV-15	J-2	16.0	PVC	150.0	666	1.06
P-53(2)	67	J-28	PRV-15	16.0	PVC	150.0	666	1.06
P-14	562	J-18	J-41	12.0	PVC	150.0	-297	0.84
P-6	281	J-2	J-36	16.0	PVC	150.0	511	0.82
P-7	971	J-36	J-42	16.0	PVC	150.0	489	0.78
P-16	403	J-38	J-30	12.0	PVC	150.0	-272	0.77
P-15	368	J-41	J-38	12.0	PVC	150.0	-272	0.77
P-8	1,320	J-42	J-5	16.0	PVC	150.0	463	0.74
P-17	29	J-30	J-31	12.0	PVC	150.0	-250	0.71
P-18	451	J-31	J-6	12.0	PVC	150.0	-226	0.64
P-37	251	J-5	J-19	12.0	PVC	150.0	200	0.57
P-23	391	J-21	J-8	12.0	PVC	150.0	-184	0.52
P-54(2)	70	PRV-16	J-29	12.0	PVC	150.0	-182	0.52
P-1	15	J-1	J-37	12.0	PVC	150.0	182	0.52
P-54(1)	76	J-1	PRV-16	12.0	PVC	150.0	-182	0.52
P-28	387	J-12	J-27	12.0	PVC	150.0	159	0.45
P-2	408	J-37	J-17	12.0	PVC	150.0	158	0.45
P-5	168	J-16	J-2	12.0	PVC	150.0	-155	0.44
P-9	1,042	J-5	J-10	16.0	PVC	150.0	263	0.42
P-38	510	J-19	J-8	12.0	PVC	150.0	137	0.39
P-47	134	R-1	J-28	30.0	Steel	140.0	848	0.39
P-26	337	J-10	J-20	12.0	PVC	150.0	126	0.36
P-24	147	J-11	J-12	12.0	PVC	150.0	123	0.35
P-22	763	J-22	J-21	12.0	PVC	150.0	-121	0.34
P-3	406	J-17	J-6	12.0	PVC	150.0	114	0.32
P-4	595	J-6	J-16	12.0	PVC	150.0	-111	0.32
P-13	758	J-8	J-18	12.0	PVC	150.0	-108	0.31
P-66	761	J-41	J-42	6.0	Ductile Iron	130.0	-25	0.29
P-19	1,400	J-4	J-13	12.0	PVC	150.0	101	0.29
P-31	570	J-13	J-25	12.0	PVC	150.0	99	0.28
P-58	599	J-31	J-32	6.0	Ductile Iron	130.0	-24	0.28
P-59	126	J-32	J-33	6.0	Ductile Iron	130.0	-24	0.28
P-60	215	J-33	J-34	6.0	Ductile Iron	130.0	-24	0.28
P-63	326	J-34	J-37	6.0	Ductile Iron	130.0	-24	0.28
P-29	766	J-27	J-26	12.0	PVC	150.0	96	0.27
P-36	556	J-23	J-7	12.0	PVC	150.0	-91	0.26
P-61	299	J-30	J-35	6.0	Ductile Iron	130.0	-22	0.25
P-62	505	J-35	J-36	6.0	Ductile Iron	130.0	-22	0.25
P-11	786	J-3	J-9	16.0	PVC	150.0	137	0.22
P-10	934	J-10	J-3	16.0	PVC	150.0	137	0.22
P-27	426	J-20	J-11	12.0	PVC	150.0	63	0.18
P-39	1,041	J-8	J-11	12.0	PVC	150.0	60	0.17
P-21	416	J-7	J-22	12.0	PVC	150.0	-58	0.16
P-12	1,623	J-9	J-4	16.0	PVC	150.0	101	0.16
P-25	987	J-12	J-9	12.0	PVC	150.0	-36	0.10
P-33	680	J-14	J-24	12.0	PVC	150.0	35	0.10
P-32	411	J-25	J-14	12.0	PVC	150.0	35	0.10
P-20	1,186	J-13	J-7	12.0	PVC	150.0	34	0.10
P-30	418	J-26	J-13	12.0	PVC	150.0	32	0.09
P-55	1,592	J-28	J-29	30.0	Steel	140.0	182	0.08
P-35	427	J-15	J-23	12.0	PVC	150.0	-28	0.08
P-34	509	J-24	J-15	12.0	PVC	150.0	-28	0.08
P-64	333	J-38	J-39	6.0	Ductile Iron	130.0	0	0.00
P-65	420	J-38	J-40	6.0	Ductile Iron	130.0	0	0.00

BLUE EAGLE WATERCAD.wtg
Active Scenario: MAX DAY DEMAND
FlexTable: Junction Table

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-29	5,510.79	0	5,850.00	147
J-28	5,529.79	0	5,850.00	139
J-34	5,508.21	0	5,749.97	105
J-33	5,508.21	0	5,749.95	105
J-32	5,508.98	0	5,749.94	104
J-1	5,510.04	0	5,749.99	104
J-37	5,510.04	0	5,749.99	104
J-30	5,515.39	0	5,749.89	101
J-31	5,515.41	0	5,749.90	101
J-17	5,515.99	44	5,749.97	101
J-6	5,518.32	0	5,749.95	100
J-35	5,519.02	0	5,749.91	100
J-41	5,519.11	0	5,749.76	100
J-36	5,522.76	0	5,749.94	98
J-38	5,524.23	0	5,749.82	98
J-39	5,524.23	0	5,749.82	98
J-40	5,524.33	0	5,749.82	98
J-16	5,525.53	44	5,749.97	97
J-2	5,527.60	0	5,749.98	96
J-18	5,527.68	190	5,749.64	96
J-42	5,530.90	0	5,749.82	95
J-21	5,531.26	63	5,749.59	94
J-15	5,532.04	0	5,749.54	94
J-23	5,533.52	63	5,749.54	93
J-8	5,535.42	0	5,749.62	93
J-22	5,535.75	63	5,749.56	93
J-24	5,536.43	63	5,749.54	92
J-7	5,536.63	0	5,749.55	92
J-19	5,541.10	63	5,749.64	90
J-5	5,543.38	0	5,749.67	89
J-14	5,543.78	0	5,749.54	89
J-25	5,547.61	63	5,749.54	87
J-13	5,553.81	0	5,749.56	85
J-26	5,553.99	63	5,749.56	85
J-11	5,554.14	0	5,749.61	85
J-27	5,555.99	63	5,749.58	84
J-12	5,556.59	0	5,749.60	84
J-20	5,557.78	63	5,749.61	83
J-10	5,561.00	0	5,749.63	82
J-4	5,573.31	0	5,749.59	76
J-9	5,574.18	0	5,749.61	76
J-3	5,581.99	0	5,749.62	73

BLUE EAGLE WATERCAD.wtg
Active Scenario: MAX DAY DEMAND
FlexTable: Reservoir Table

ID	Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
240	R-1	5,850.00	<None>	848	5,850.00

BLUE EAGLE WATERCAD.wtg
Active Scenario: MAX HOUR DEMAND
FlexTable: Pipe Table

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-53(1)	77	PRV-15	J-2	16.0	PVC	150.0	1,071	1.71
P-53(2)	67	J-28	PRV-15	16.0	PVC	150.0	1,071	1.71
P-14	562	J-18	J-41	12.0	PVC	150.0	-478	1.36
P-6	281	J-2	J-36	16.0	PVC	150.0	821	1.31
P-7	971	J-36	J-42	16.0	PVC	150.0	785	1.25
P-16	403	J-38	J-30	12.0	PVC	150.0	-437	1.24
P-15	368	J-41	J-38	12.0	PVC	150.0	-437	1.24
P-8	1,320	J-42	J-5	16.0	PVC	150.0	745	1.19
P-17	29	J-30	J-31	12.0	PVC	150.0	-401	1.14
P-18	451	J-31	J-6	12.0	PVC	150.0	-362	1.03
P-37	251	J-5	J-19	12.0	PVC	150.0	322	0.91
P-23	391	J-21	J-8	12.0	PVC	150.0	-296	0.84
P-1	15	J-1	J-37	12.0	PVC	150.0	293	0.83
P-54(1)	76	J-1	PRV-16	12.0	PVC	150.0	-293	0.83
P-54(2)	70	PRV-16	J-29	12.0	PVC	150.0	-293	0.83
P-28	387	J-12	J-27	12.0	PVC	150.0	256	0.73
P-2	408	J-37	J-17	12.0	PVC	150.0	254	0.72
P-5	168	J-16	J-2	12.0	PVC	150.0	-250	0.71
P-9	1,042	J-5	J-10	16.0	PVC	150.0	422	0.67
P-38	510	J-19	J-8	12.0	PVC	150.0	220	0.62
P-47	134	R-1	J-28	30.0	Steel	140.0	1,363	0.62
P-26	337	J-10	J-20	12.0	PVC	150.0	202	0.57
P-24	147	J-11	J-12	12.0	PVC	150.0	197	0.56
P-22	763	J-22	J-21	12.0	PVC	150.0	-195	0.55
P-3	406	J-17	J-6	12.0	PVC	150.0	183	0.52
P-4	595	J-6	J-16	12.0	PVC	150.0	-179	0.51
P-13	758	J-8	J-18	12.0	PVC	150.0	-173	0.49
P-66	761	J-41	J-42	6.0	Ductile Iron	130.0	-41	0.46
P-19	1,400	J-4	J-13	12.0	PVC	150.0	162	0.46
P-31	570	J-13	J-25	12.0	PVC	150.0	159	0.45
P-58	599	J-31	J-32	6.0	Ductile Iron	130.0	-39	0.44
P-59	126	J-32	J-33	6.0	Ductile Iron	130.0	-39	0.44
P-60	215	J-33	J-34	6.0	Ductile Iron	130.0	-39	0.44
P-63	326	J-34	J-37	6.0	Ductile Iron	130.0	-39	0.44
P-29	766	J-27	J-26	12.0	PVC	150.0	154	0.44
P-36	556	J-23	J-7	12.0	PVC	150.0	-147	0.42
P-61	299	J-30	J-35	6.0	Ductile Iron	130.0	-36	0.40
P-62	505	J-35	J-36	6.0	Ductile Iron	130.0	-36	0.40
P-11	786	J-3	J-9	16.0	PVC	150.0	220	0.35
P-10	934	J-10	J-3	16.0	PVC	150.0	220	0.35
P-27	426	J-20	J-11	12.0	PVC	150.0	100	0.28
P-39	1,041	J-8	J-11	12.0	PVC	150.0	97	0.27
P-21	416	J-7	J-22	12.0	PVC	150.0	-93	0.26
P-12	1,623	J-9	J-4	16.0	PVC	150.0	162	0.26
P-25	987	J-12	J-9	12.0	PVC	150.0	-58	0.17
P-33	680	J-14	J-24	12.0	PVC	150.0	57	0.16
P-32	411	J-25	J-14	12.0	PVC	150.0	57	0.16
P-20	1,186	J-13	J-7	12.0	PVC	150.0	54	0.15
P-30	418	J-26	J-13	12.0	PVC	150.0	52	0.15
P-55	1,592	J-28	J-29	30.0	Steel	140.0	293	0.13
P-35	427	J-15	J-23	12.0	PVC	150.0	-45	0.13
P-34	509	J-24	J-15	12.0	PVC	150.0	-45	0.13
P-64	333	J-38	J-39	6.0	Ductile Iron	130.0	0	0.00
P-65	420	J-38	J-40	6.0	Ductile Iron	130.0	0	0.00

BLUE EAGLE WATERCAD.wtg
Active Scenario: MAX HOUR DEMAND
FlexTable: Junction Table

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-29	5,510.79	0	5,850.00	147
J-28	5,529.79	0	5,850.00	139
J-34	5,508.21	0	5,749.92	105
J-33	5,508.21	0	5,749.88	105
J-32	5,508.98	0	5,749.86	104
J-1	5,510.04	0	5,749.98	104
J-37	5,510.04	0	5,749.98	104
J-30	5,515.39	0	5,749.74	101
J-31	5,515.41	0	5,749.75	101
J-17	5,515.99	70	5,749.92	101
J-6	5,518.32	0	5,749.89	100
J-35	5,519.02	0	5,749.79	100
J-41	5,519.11	0	5,749.42	100
J-36	5,522.76	0	5,749.87	98
J-38	5,524.23	0	5,749.57	97
J-39	5,524.23	0	5,749.57	97
J-40	5,524.33	0	5,749.57	97
J-16	5,525.53	70	5,749.93	97
J-2	5,527.60	0	5,749.96	96
J-18	5,527.68	305	5,749.14	96
J-42	5,530.90	0	5,749.57	95
J-21	5,531.26	102	5,749.00	94
J-15	5,532.04	0	5,748.89	94
J-23	5,533.52	102	5,748.89	93
J-8	5,535.42	0	5,749.08	92
J-22	5,535.75	102	5,748.93	92
J-24	5,536.43	102	5,748.88	92
J-7	5,536.63	0	5,748.92	92
J-19	5,541.10	102	5,749.14	90
J-5	5,543.38	0	5,749.20	89
J-14	5,543.78	0	5,748.89	89
J-25	5,547.61	102	5,748.89	87
J-13	5,553.81	0	5,748.93	84
J-26	5,553.99	102	5,748.93	84
J-11	5,554.14	0	5,749.05	84
J-27	5,555.99	102	5,748.98	83
J-12	5,556.59	0	5,749.04	83
J-20	5,557.78	102	5,749.07	83
J-10	5,561.00	0	5,749.10	81
J-4	5,573.31	0	5,749.02	76
J-9	5,574.18	0	5,749.05	76
J-3	5,581.99	0	5,749.07	72

BLUE EAGLE WATERCAD.wtg
Active Scenario: MAX HOUR DEMAND
FlexTable: Reservoir Table

ID	Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
240	R-1	5,850.00	<None>	1,363	5,850.00

BLUE EAGLE WATERCAD.wtg
Active Scenario: MAX DAY DEMAND + FIRE FLOW
FlexTable: Pipe Table

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-53(1)	77	PRV-15	J-2	16.0	PVC	150.0	3,535	5.64
P-53(2)	67	J-28	PRV-15	16.0	PVC	150.0	3,535	5.64
P-6	281	J-2	J-36	16.0	PVC	150.0	2,953	4.71
P-7	971	J-36	J-42	16.0	PVC	150.0	2,856	4.56
P-8	1,320	J-42	J-5	16.0	PVC	150.0	2,792	4.46
P-14	562	J-18	J-41	12.0	PVC	150.0	-1,468	4.16
P-16	403	J-38	J-30	12.0	PVC	150.0	-1,404	3.98
P-15	368	J-41	J-38	12.0	PVC	150.0	-1,404	3.98
P-24	147	J-11	J-12	12.0	PVC	150.0	1,359	3.86
P-17	29	J-30	J-31	12.0	PVC	150.0	-1,308	3.71
P-12	1,623	J-9	J-4	16.0	PVC	150.0	2,321	3.70
P-13	758	J-8	J-18	12.0	PVC	150.0	-1,279	3.63
P-18	451	J-31	J-6	12.0	PVC	150.0	-1,184	3.36
P-9	1,042	J-5	J-10	16.0	PVC	150.0	2,105	3.36
P-19	1,400	J-4	J-13	12.0	PVC	150.0	-1,179	3.35
P-23	391	J-21	J-8	12.0	PVC	150.0	-993	2.82
P-22	763	J-22	J-21	12.0	PVC	150.0	-929	2.64
P-39	1,041	J-8	J-11	12.0	PVC	150.0	910	2.58
P-11	786	J-3	J-9	16.0	PVC	150.0	1,592	2.54
P-10	934	J-10	J-3	16.0	PVC	150.0	1,592	2.54
P-21	416	J-7	J-22	12.0	PVC	150.0	-866	2.46
P-54(2)	70	PRV-16	J-29	12.0	PVC	150.0	-813	2.31
P-1	15	J-1	J-37	12.0	PVC	150.0	813	2.31
P-54(1)	76	J-1	PRV-16	12.0	PVC	150.0	-813	2.31
P-25	987	J-12	J-9	12.0	PVC	150.0	729	2.07
P-47	134	R-1	J-28	30.0	Steel	140.0	4,348	1.97
P-2	408	J-37	J-17	12.0	PVC	150.0	690	1.96
P-37	251	J-5	J-19	12.0	PVC	150.0	687	1.95
P-3	406	J-17	J-6	12.0	PVC	150.0	646	1.83
P-28	387	J-12	J-27	12.0	PVC	150.0	631	1.79
P-38	510	J-19	J-8	12.0	PVC	150.0	624	1.77
P-5	168	J-16	J-2	12.0	PVC	150.0	-582	1.65
P-29	766	J-27	J-26	12.0	PVC	150.0	567	1.61
P-4	595	J-6	J-16	12.0	PVC	150.0	-538	1.53
P-26	337	J-10	J-20	12.0	PVC	150.0	513	1.45
P-30	418	J-26	J-13	12.0	PVC	150.0	504	1.43
P-58	599	J-31	J-32	6.0	Ductile Iron	130.0	-123	1.40
P-59	126	J-32	J-33	6.0	Ductile Iron	130.0	-123	1.40
P-60	215	J-33	J-34	6.0	Ductile Iron	130.0	-123	1.40
P-63	326	J-34	J-37	6.0	Ductile Iron	130.0	-123	1.40
P-20	1,186	J-13	J-7	12.0	PVC	150.0	-487	1.38
P-27	426	J-20	J-11	12.0	PVC	150.0	449	1.27
P-61	299	J-30	J-35	6.0	Ductile Iron	130.0	-96	1.09
P-62	505	J-35	J-36	6.0	Ductile Iron	130.0	-96	1.09
P-36	556	J-23	J-7	12.0	PVC	150.0	-379	1.07
P-35	427	J-15	J-23	12.0	PVC	150.0	-315	0.89
P-34	509	J-24	J-15	12.0	PVC	150.0	-315	0.89
P-66	761	J-41	J-42	6.0	Ductile Iron	130.0	-64	0.72
P-33	680	J-14	J-24	12.0	PVC	150.0	-252	0.71
P-32	411	J-25	J-14	12.0	PVC	150.0	-252	0.71
P-31	570	J-13	J-25	12.0	PVC	150.0	-188	0.53
P-55	1,592	J-28	J-29	30.0	Steel	140.0	813	0.37
P-64	333	J-38	J-39	6.0	Ductile Iron	130.0	0	0.00
P-65	420	J-38	J-40	6.0	Ductile Iron	130.0	0	0.00

BLUE EAGLE WATERCAD.wtg
Active Scenario: MAX DAY DEMAND + FIRE FLOW
FlexTable: Junction Table

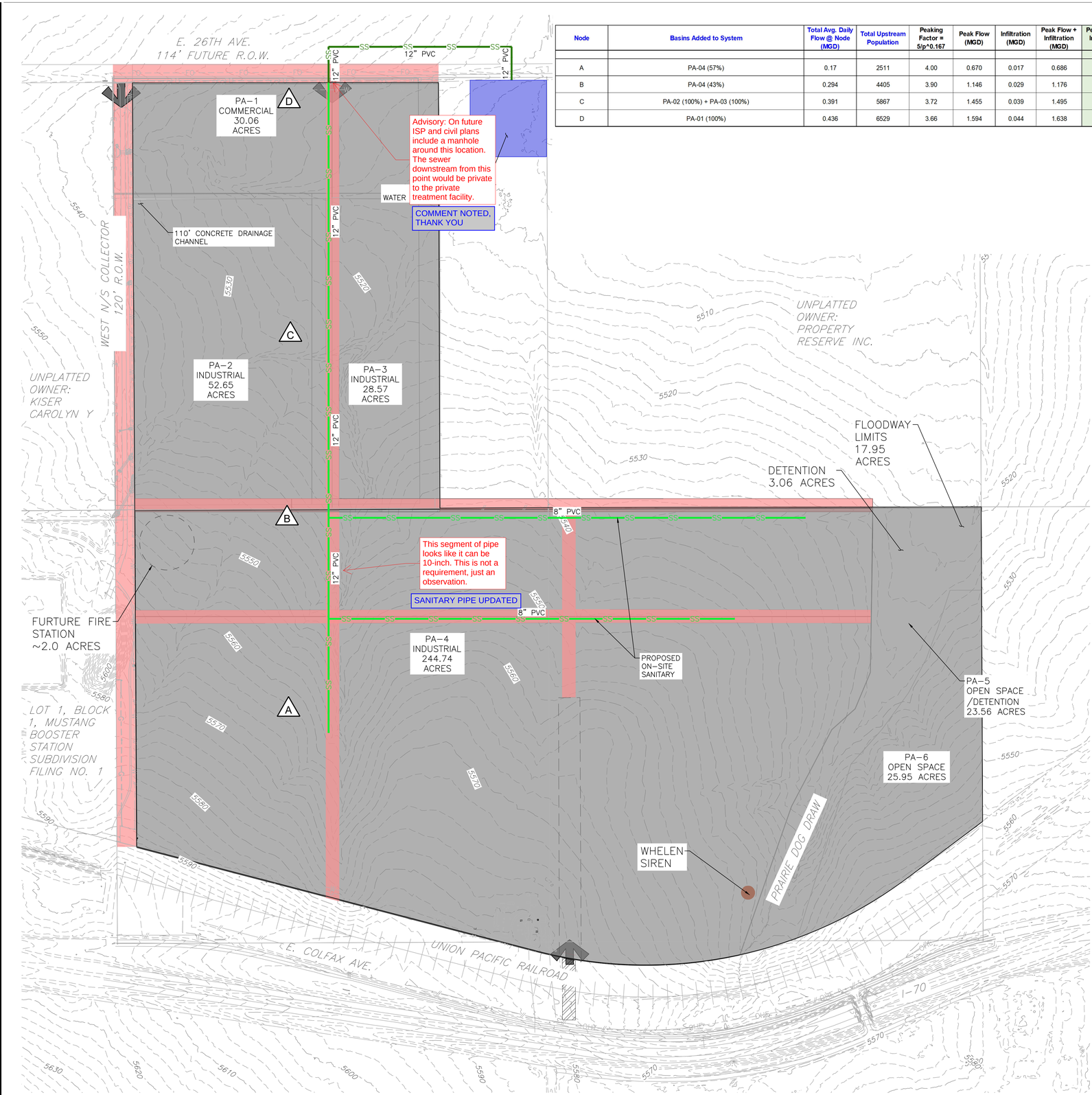
Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-29	5,510.79	0	5,849.97	147
J-28	5,529.79	0	5,850.00	139
J-34	5,508.21	0	5,749.38	104
J-33	5,508.21	0	5,749.05	104
J-32	5,508.98	0	5,748.85	104
J-1	5,510.04	0	5,749.90	104
J-37	5,510.04	0	5,749.88	104
J-17	5,515.99	44	5,749.48	101
J-31	5,515.41	0	5,747.93	101
J-30	5,515.39	0	5,747.84	101
J-6	5,518.32	0	5,749.13	100
J-35	5,519.02	0	5,748.13	99
J-41	5,519.11	0	5,745.03	98
J-36	5,522.76	0	5,748.62	98
J-16	5,525.53	44	5,749.50	97
J-38	5,524.23	0	5,746.37	96
J-39	5,524.23	0	5,746.37	96
J-40	5,524.33	0	5,746.37	96
J-2	5,527.60	0	5,749.62	96
J-18	5,527.68	190	5,742.80	93
J-42	5,530.90	0	5,745.37	93
J-21	5,531.26	63	5,739.73	90
J-15	5,532.04	0	5,737.54	89
J-8	5,535.42	0	5,740.48	89
J-23	5,533.52	63	5,737.63	88
J-22	5,535.75	63	5,738.43	88
J-7	5,536.63	0	5,737.81	87
J-24	5,536.43	63	5,737.42	87
J-19	5,541.10	63	5,740.89	86
J-5	5,543.38	0	5,741.14	86
J-14	5,543.78	0	5,737.32	84
J-25	5,547.61	63	5,737.25	82
J-11	5,554.14	0	5,738.78	80
J-26	5,553.99	63	5,737.43	79
J-13	5,553.81	0	5,737.20	79
J-27	5,555.99	63	5,737.95	79
J-12	5,556.59	0	5,738.27	79
J-20	5,557.78	63	5,738.97	78
J-10	5,561.00	0	5,739.16	77
J-9	5,574.18	0	5,737.21	71
J-4	5,573.31	3,500	5,733.51	69
J-3	5,581.99	0	5,738.10	68

BLUE EAGLE WATERCAD.wtg

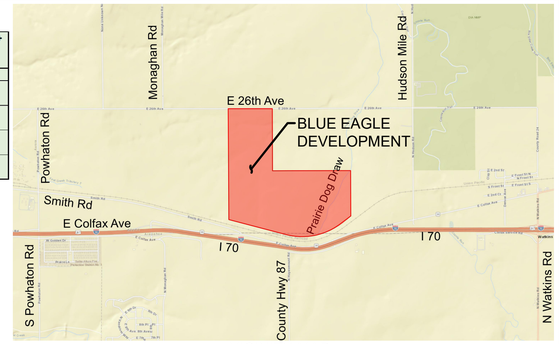
Active Scenario: MAX DAY DEMAND + FIRE FLOW

FlexTable: Reservoir Table

ID	Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
240	R-1	5,850.00	<None>	4,348	5,850.00



Node	Basins Added to System	Total Avg. Daily Flow @ Node (MGD)	Total Upstream Population	Peaking Factor = 5/p^0.167	Peak Flow (MGD)	Infiltration (MGD)	Peak Flow + Infiltration (MGD)	Peak Flow + Infiltration (cfs)
A	PA-04 (57%)	0.17	2511	4.00	0.670	0.017	0.686	1.062
B	PA-04 (43%)	0.294	4405	3.90	1.146	0.029	1.176	1.819
C	PA-02 (100%) + PA-03 (100%)	0.391	5867	3.72	1.455	0.039	1.495	2.312
D	PA-01 (100%)	0.436	6529	3.66	1.594	0.044	1.638	2.534



VICINITY MAP
1"=3000'

N

300 150 0 300 600
SCALE: 1"=300'
ALL LINEAL DIMENSIONS ARE IN U.S. SURVEY FEET

LEGEND * SYMBOLS MAY NOT BE TO SCALE FOR BETTER GRAPHICAL REPRESENTATION.

- PROPERTY LINE
- PLANNING AREA BOUNDARY LINE
- PROPOSED SANITARY SEWER
- PROPOSED OFF-SITE SANITARY SEWER
- EXISTING OFF-SITE SANITARY SEWER
- PROPOSED OPEN SPACE
- PROPOSED ROADWAY
- PROPOSED PLANNING AREA

NOTES:

1. CITY OF AURORA PLAN REVIEW IS ONLY FOR GENERAL CONFORMANCE WITH CITY OF AURORA DESIGN CRITERIA AND THE CITY CODE. THE CITY IS NOT RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE DESIGN, OF DIMENSIONS AND ELEVATIONS WHICH SHALL BE CONFIRMED AND CORRELATED AT THE JOB SITE. THE CITY OF AURORA, THROUGH THE APPROVAL OF THIS DOCUMENT, ASSUMES NO RESPONSIBILITY FOR THE COMPLETENESS AND/OR ACCURACY OF THIS DOCUMENT.
2. IF THE OFF-SITE SANITARY SEWER SYSTEM INFRASTRUCTURE HAS NOT YET BEEN INSTALLED, THE DEVELOPING PLANNING AREA MAY BE RESPONSIBLE FOR BUILDING THE NECESSARY OFF-SITE SANITARY SEWER REQUIRED TO SUPPORT THE PLANNING AREA. THE PLANNING AREA DEVELOPMENT SHALL WORK WITH THE CITY OF AURORA DURING THE CSP PROCESS TO DETERMINE THE BEST OPTION FOR CONNECTING TO THE CITY'S EXISTING SANITARY SEWER SYSTEM, BY EXTENDING THE EXISTING SANITARY SEWER SYSTEM, UPDATING THE ROUTING AND DESIGN POINTS DESCRIBED IN THIS REPORT, PERFORM SIGNIFICANT OVER LOT GRADING, UTILIZE LIFT STATIONS AND FORCES MAINS, ETC. THE PROPOSED SANITARY INFRASTRUCTURE MAY NEED TO BE EXTENDED INTO EACH PROPOSED BASIN TO ROUTE PROPOSED FLOWS FROM INDIVIDUAL PLANNING AREAS TO THE DESIGN POINTS DESCRIBED IN THIS REPORT. THIS REPORT, THE DESIGN POINT LOCATIONS, OR THE ROUTING CAN BE UPDATED OR AMENDED IF NECESSARY, TO SUPPORT THE SANITARY NEEDS FOR PLANNING AREAS DETERMINED IN THE FUTURE.

BENCHMARK

ELEVATIONS ARE BASED ON A CITY OF AURORA BM #4S6503NE001, A 3-1/4" ALUMINUM CAP ATOP A 5' LONG #6 REBAR IN A PVC PIPE WITH CAP LOCATED ON THE NORTHERLY SIDE OF RAILROAD TRACKS, ±1.7 MILES EAST ALONG RAILROAD TRACKS FROM POWHATON ROAD AND SMITH ROAD AND ±385' WEST OF CENTERLINE OF A PRIVATE DRIVE.

ELEVATION = 5584.78' (NAVD1988) DATUM.

BASIS OF BEARINGS

BEARINGS ARE BASED ON THE WESTERLY LINE OF THE SOUTHEAST QUARTER OF SECTION 34, TOWNSHIP 34 SOUTH, RANGE 65 WEST OF THE SIXTH PRINCIPAL MERIDIAN ASSUMED TO BEAR S00°18'58"E AND BEING MONUMENTED BY A FOUND 2-1/2" ALUMINUM CAP PLS #7361 AT THE CENTER QUARTER CORNER AND A FOUND 2-1/2" ALUMINUM CAP PLS #28656 IN RANGE BOX AT THE SOUTH QUARTER CORNER.

FROM Node	TO Node	Peak Flow + Infiltration (MGD)	Peak Flow + Infiltration (cfs)	Required Pipe Size (in)	Pipe Percent Full (%)
A	B	0.686	1.062	12	41.9
B	C	1.176	1.819	12	57.9
C	D	1.495	2.312	12	71.7
D	CONNECTION	1.638	2.534	12	76.1

APPROVED FOR ONE YEAR FROM THIS DATE

AURORA WATER – UTILITY DIVISION DATE

MARTIN/MARTIN
CONSULTING ENGINEERS
12499 WEST COLFAX AVENUE, LAKEWOOD, COLORADO 80215
303.431.6100 MARTINMARTIN.COM

NOT FOR CONSTRUCTION

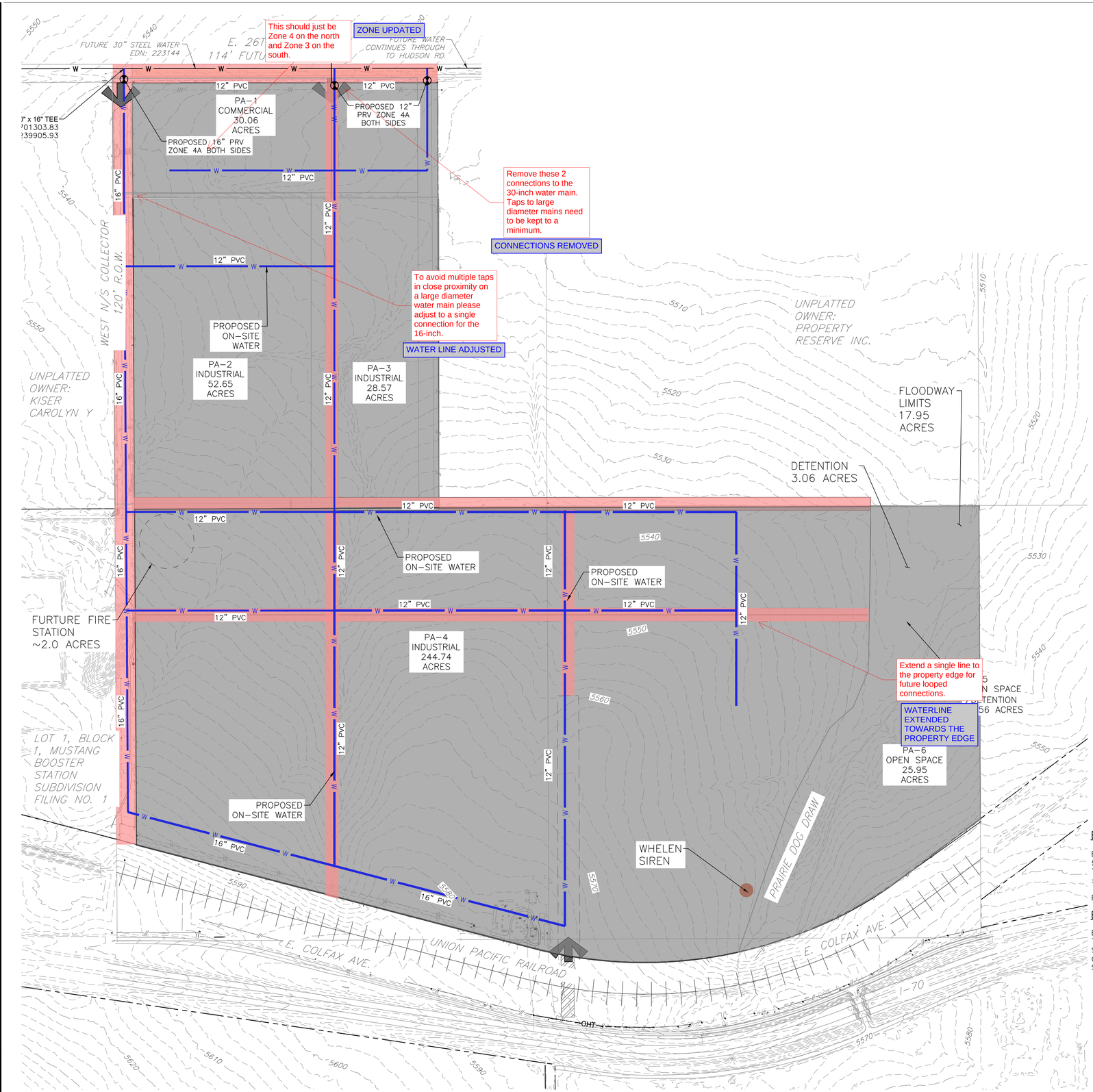
BLUE EAGLE - MASTER PLANNING
PUBLIC IMPROVEMENT PLAN
OVERALL SANITARY MAP

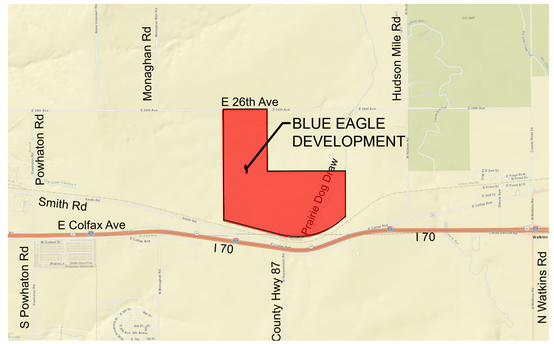
No.	Description of Revisions	Date	Name
1	1ST MDP SUBMITTAL	12/20/23	W/M
2	2ND MDP SUBMITTAL	08/30/24	W/M

Job Number 23.1060
Project Manager G.PROULX
Design By BAM/TJS
Drawn By JWR/DJB
Principal In Charge D.LE

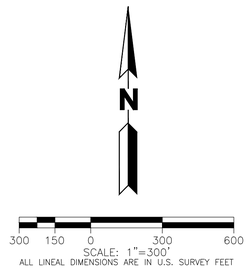
Sheet Number:
MUS-S
1 OF 1

PLOT DATE: Wednesday, August 28, 2024 10:26 AM LAST SAVED BY: TSTEENERSON
DRAWING LOCATION: G:\LE\22.1654-Blue Eagle - Master Planning\PLANS\UTILITY\SANITARY\BLUE-EAGLE-MUS-SANITARY.dwg





VICINITY MAP
1"=3000'



LEGEND * SYMBOLS MAY NOT BE TO SCALE FOR BETTER GRAPHICAL REPRESENTATION.

- PROPERTY LINE
- PLANNING AREA BOUNDARY LINE
- W — PROPOSED WATER
- W — EXISTING OFF–SITE WATER
- PROPOSED ROADWAY
- PROPOSED PLANNING AREA

NOTES:

1. LOOPED WATER TO SUPPORT PUBLIC FIRE HYDRANTS AND PRIVATE FIRE SUPPRESSION SYSTEMS ARE REQUIRED WITH EACH PHASE OF DEVELOPMENT.
2. ADDITIONAL PRVS MAY BE REQUIRED ON THE INTERNAL DEVELOPMENT WATER INFRASTRUCTURE TO SUPPORT CERTAIN PHASES OF DEVELOPMENT THAT ARE LOCATED ON OR NEAR THE WATER PRESSURE ZONE BOUNDARY.
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APPROVED FOR ONE YEAR FROM THIS DATE

AURORA WATER – UTILITY DIVISION — DATE

FIRE & LIFE SAFETY DEPARTMENT — DATE

MARTIN/MARTIN
CONSULTING ENGINEERS
12499 WEST COLFAX AVENUE, LAKEWOOD, COLORADO 80215
303.431.6100 MARTINMARTIN.COM

NOT FOR CONSTRUCTION

BLUE EAGLE - MASTER PLANNING
PUBLIC IMPROVEMENT PLAN
OVERALL WATER MAP

No.	Description of Revisions	Date	Name
1	1ST MDP SUBMITTAL	12/20/23	M/M
2	2ND MDP SUBMITTAL	08/30/24	M/M

Job Number 23.1060
Project Manager G.PROULX
Design By BAM/TJS
Drawn By JWR/DJB
Principal In Charge D.LE

Sheet Number:
MUS-W
1 OF 1

PLOT DATE: Wednesday, August 28, 2024 10:23 AM LAST SAVED BY: TSTEENERSON
DRAWING LOCATION: G:\LE\22.1654–Blue Eagle – Master Planning\PLANS\UTILITY\WATER\BLUE EAGLE MASTER DRAINAGE PLAN (WATER).dwg