OPTIMUS
CIVIL DESIGN GROUP

MASTER CONCEPT WATER REPORT

For

LEGACY COMMUNITY MASTER PLAN

ZON 25-00891

NEC of Williams Field Road and Ellsworth Road
Mesa, AZ

Optimus Project #251461
August 2026

Prepared for:

Vestar
2415 E. Camelback Road, Suite 100
Phoenix, Arizona 85016

Prepared by:

Optimus Civil Design Group
4650 E. Cotton Center Blvd., Suite 100
Phoenix, Arizona 85040

Table of Contents

1.0 Scope

The objectives of this sewer master report are:

1. To research and identify the current water infrastructure in the vicinity of the project.

2. To determine the water demand flows that are anticipated in this project.

3. To provide guidance on sizing throughout the site.

4. This report will not discuss any water demands related to areas contained within the park.

2.0 Site Location

The project site is located on the northeast corner of Williamsfield Road and Ellsworth Road in the City of Mesa, Arizona (see Exhibit A).

More specifically, the project site is located within a portion of the Southwest and Northwest Quarter of Section 27, Township 1 South, Range 7 East of the Gila and Salt River Base and Meridian, Maricopa County, Arizona.

3.0 Description and Proposed Development

The site is currently on an approximately 210-acre parcel that resides at the northeast corner of Williams Field Road and Ellsworth Road. The improvements will consist of multi-family residential, mixed-use development, general office space, and hotel. The site is currently undeveloped desert and slopes from east to west at approximately 0.4% and drains into a set of box culverts at Ellsworth Road that connects to the Ellsworth Channel on the west side of the street.

The project is planned to have a core phase that will be built out immediately, and the rest of the site has a general use plan, as identified by the Legacy Park Community Plan, that does not yet have a determined site use and will be built out by separate developers at a later time. For these later developments, the most likely land use, as identified in the Community Plan, will be used for water demand.

To the south, the site is bound by the Legacy Sports Complex and future Gateway Crossing. The northern and eastern sides of the site are bound by Arizona State Route 24. The west side is bounded by the future Gateway East, a 273-acre development used for manufacturing, industrial, retail, office, and hotel space.

4.0 Existing Infrastructure

There currently exists a 24” water main that runs along Williams Field Road, and a 16” and 20” water main that runs along Ellsworth Road. The 24” and 16” pipes, as well as all new pipes to be installed with the project, are in the Desert Wells water pressure zone and will be interconnected. The 20” waterline in Ellsworth is in the Falcon Field pressure zone and will not be connected to as part of this development.

The Gateway Crossing project to the south will construct a 12” water line along a portion of Williams Field Road that is expected to be in place when the Legacy Park project construction commences.

A flow test was completed by EJ Flow Tests, LLC on November 21, 2024 on two hydrants along Williams Field Road. The results of the data with a 10% safety factor

showed a static pressure of 73.8 psi, residual pressure of 61.8 psi, flow of 4,179 gpm and 9,395 gpm at 20 psi.

5.0 Proposed Demand

Due to the nature of the proposed project, the City of Mesa accepted revised demand use values prepared by Optimus Civil Design Group in a report dated 11/06/2025 to be incorporated on both Legacy Parkway and Gateway Crossing, a project directly south of the project across Williams Field Road. These are shown in the table below:

Use	Demand Factor	Unit
Retail	0.10	gpd/sf
Restaurant	0.22	gpd/sf
Office	0.09	gpd/sf
Hotel	200.00	gpd/room
Multi-Family	225.00	gpd/unit

A summary of the daily demand that is anticipated for the project can be found below. These are broken out into the Core Phase 1 and the remainder of the Legacy Park Project (Phase 2). The Max Day is 2 times the ADD and the peak hour is 3 times the ADD per section 311.3 City of Mesa Engineering Standards. A detailed breakout of the calculations can be found in the Appendix.

Development	Average Day GPD	Max Day GPD	Peak Hour GPD
Legacy Park – Phase 1	345,600.40	691,200.80	1,036,801.20
Legacy Park – Remainder	698,721.90	1,397,443.80	2,096,165.70
Grand Total	*1,044,322.30*	*2,088,644.60*	*3,132,966.90*

6.0 Proposed Design

A 12” water main is to be extended west along Williams Field Road from the connection point that is built by the Gateway Crossing project and connect into the 16” water main on Ellsworth Road. Lateral ties will be made to the existing 24” line on Williams Field Road where they currently exist.

A 12” water main is expected to be looped throughout the proposed development along every stretch of public street but reduced down to an 8”, where applicable. Exact sizing and modeling is not in the scope of this Master Water Plan and will be completed during the submission of the Final Water Report accompanying construction documents at a later date, (see Exhibit C).

It is assumed that construction will be V-B, and therefore a fire flow of 8,000 gpm at 20 psi residual pressure is required per Table B105.1(2) in Appendix B of the International Fire Code. All buildings will have an automatic sprinkler system; therefore, the value can be cut in half to 4,000 gpm.

Per Table C102.1 of the International Fire Code, the average spacing between hydrants shall be 350’ and the maximum distance from any point on street or road frontage to a hydrant shall be 210’.

Preliminary modeling was completed and shown in Appendix C using the flow test previously mentioned from November of 2024. The results concluded that the Peak Hour flow would remain above 40 psi and not exceed 5 fps and the Max Day + Fire Flow (4,000 gpm) stayed above 20 psi and did not exceed 10 fps. More detailed modeling with an updated hydrant flow test will be conducted at the time of site plan submittal.

In conclusion, the existing 12” and 16” water mains that exist along Williams Field Road and Ellsworth Road will have sufficient capacity to serve the future Legacy Park Development. All final sizing of water lines within the Legacy Park Development will be completed in the final report at the time of Construction Document submission.

7.0 References

1. City of Mesa Engineering & Design Standards, August 2025.

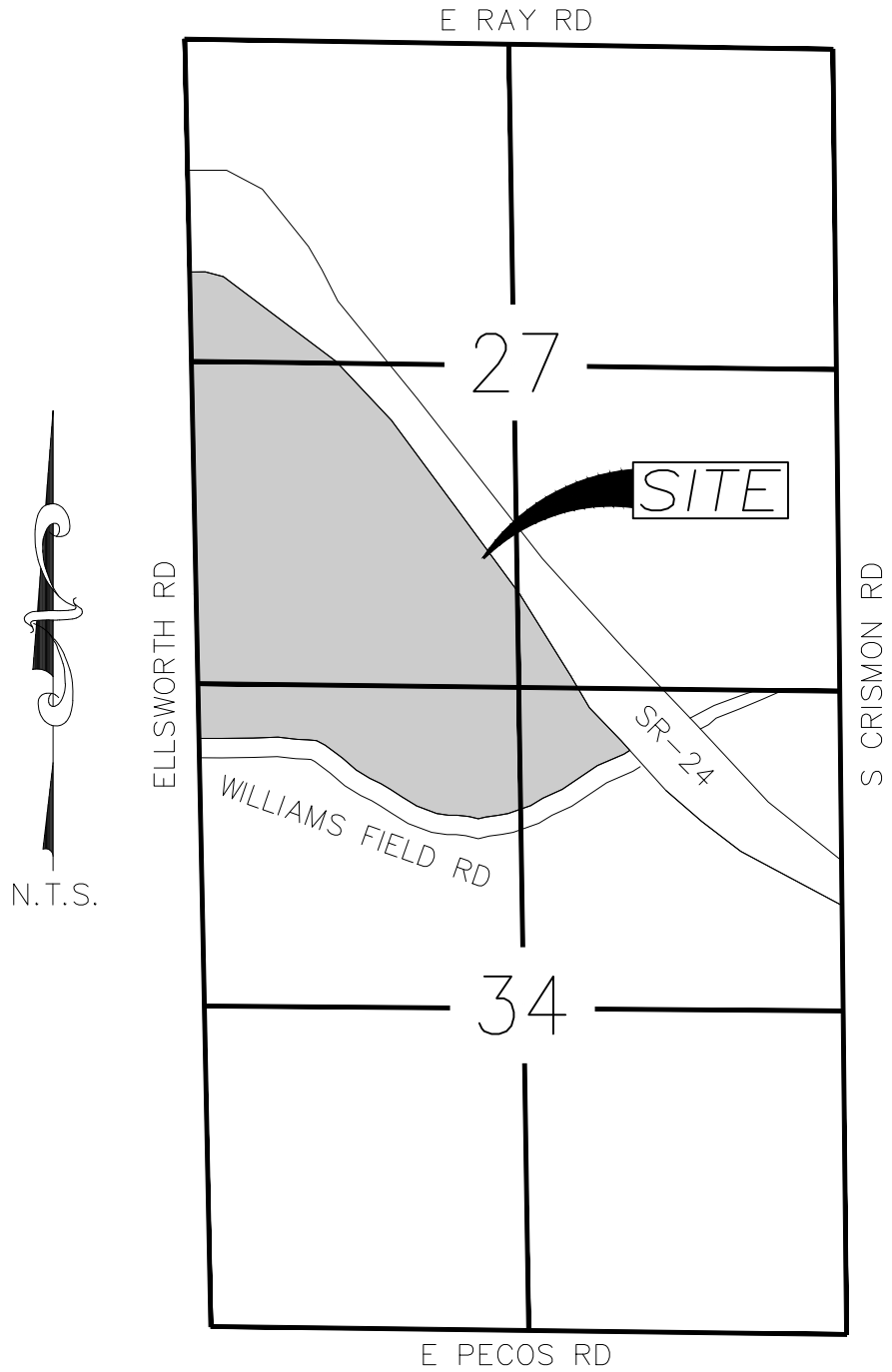
2. ADEQ Bulletin No. 11

3. WaterCAD Modeling Results

EXHIBITS

Subject: LEGACY PARK

Job No.: 251461



VICINITY MAP

SECTION 27, T. 1 S, R. 7 E.
SECTION 34, T. 1 S, R. 7 E.

EXHIBIT A

VICINITY MAP

OPTIMUS
CIVIL DESIGN GROUP
4650 E. COTTON CENTER BLVD.
SUITE 140
PHOENIX, AZ 85040
PH: (602) 286-9300 FAX: (602) 286-9400

Prepared By: TJM **Date:** 1/26 **Checked By:** TJM **Sheet No.:** 1 **Of** 1

Subject: LEGACY PARK

Job No.: 251461

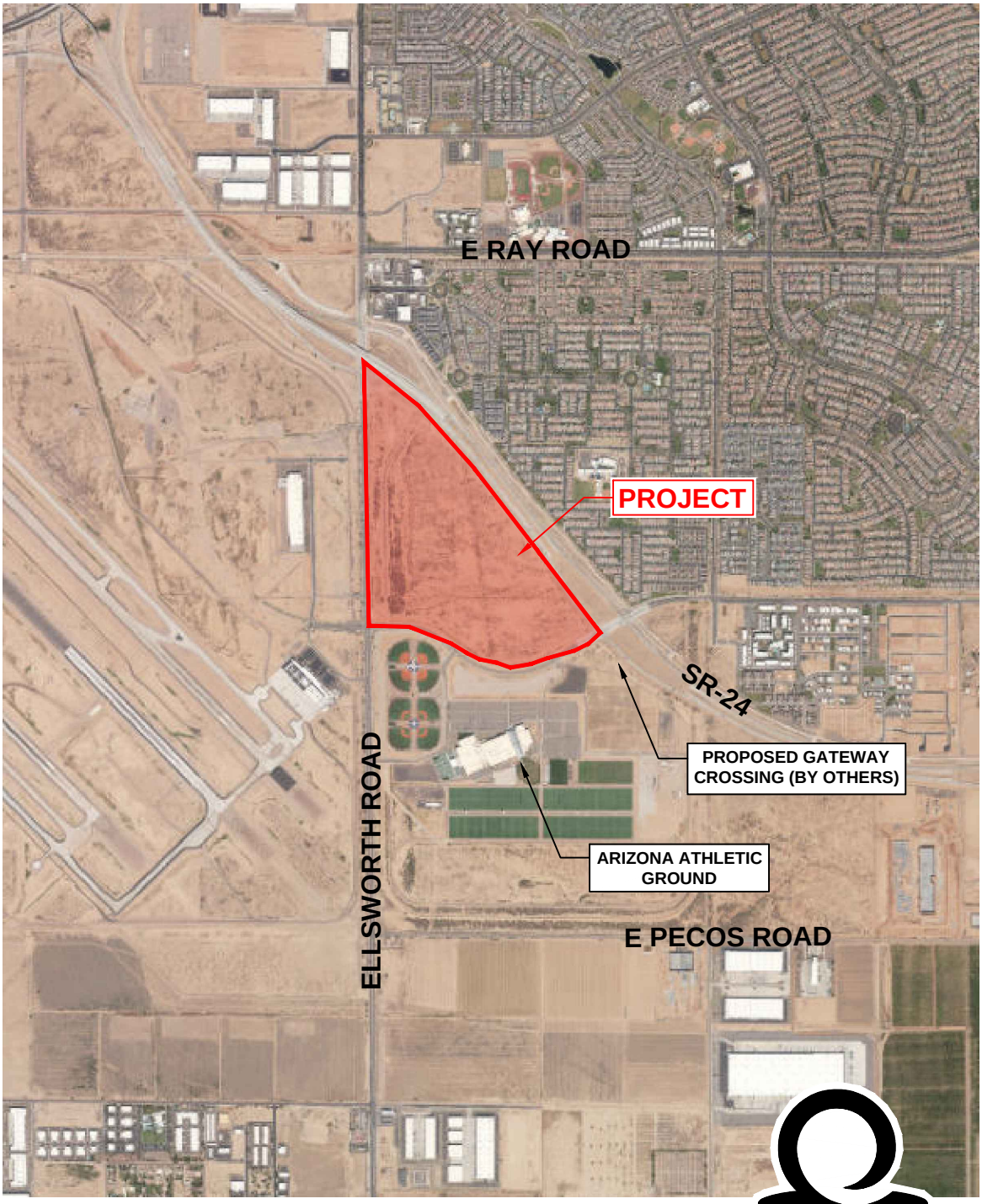
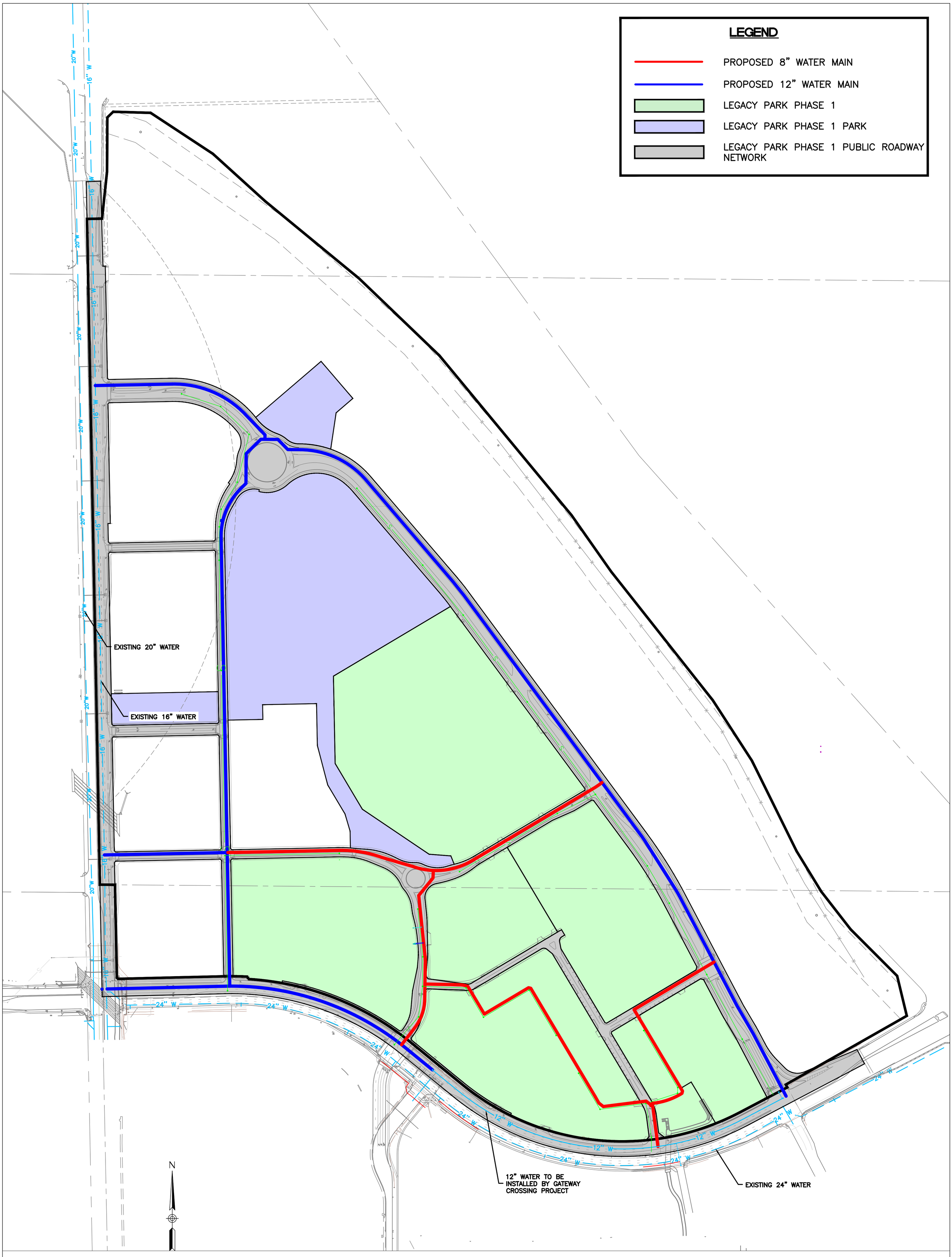


EXHIBIT B
AERIAL MAP

OPTIMUS
CIVIL DESIGN GROUP
4650 E. COTTON CENTER BLVD.
SUITE 140
PHOENIX, AZ 85040
PH: (602) 286-9300 FAX: (602) 286-9400

Prepared By: TJM **Date:** 1/26 **Checked By:** TJM **Sheet No.:** 1 **Of** 1



Contact Arizona 811 at least two full working days before you begin excavation

Call 811 or click Arizona811.com

180 90 0 90 180 360

SCALE IN FEET: 1"=180'

DRAWING NO

EXH. C

1 OF 1

DESIGNED:	TJM
DRAWN:	TJM
CHECKED:	JDB
DATE:	07/2026
JOB NO.:	251461

OPTIMUS
CIVIL DESIGN GROUP
4650 E. COTTON CENTER BLVD.
SUITE 140
PHOENIX, AZ 85040
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LEGACY PARK

PRELIMINARY WATER EXHIBIT

MESA, AZ

Vestar

NO.	REVISION	DATE

Flow Test Summary

Project Name:	EJFT 24416 - Legacy Complex
Project Address:	S Ellsworth Rd & E Williams Field Rd, Mesa, AZ 85212
Date of Flow Test:	2024-11-21
Time of Flow Test:	7:30 AM
Data Reliable Until:	2025-05-21
Conducted By:	Simon R & Alonzo M (EJ Flow Tests) 602.999.7637
Witnessed By:	Phil Martell (City of Mesa) 480.262.4460
City Forces Contacted:	City of Mesa (480.262.4460)
Permit Number:	ROW24-07123

Raw Flow Test Data

Static Pressure:	82.0 PSI
Residual Pressure:	70.0 PSI
Flowing GPM:	4,179
GPM @ 20 PSI:	10,143

Data with a 10 % Safety Factor

Static Pressure:	73.8 PSI
Residual Pressure:	61.8 PSI
Flowing GPM:	4,179
GPM @ 20 PSI:	9,395

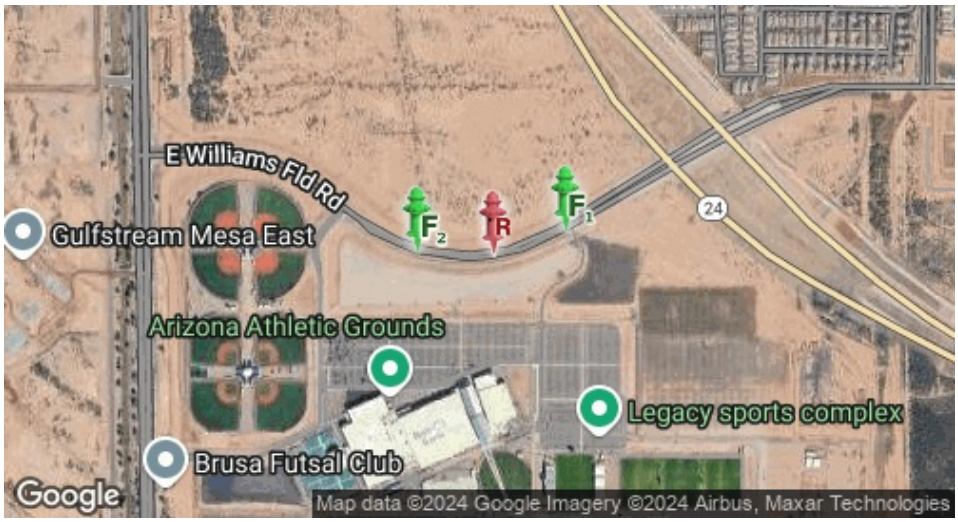
Hydrant F_1

Pitot Pressure (1):	40	PSI
Coefficient of Discharge (1):	0.9	
Hydrant Orifice Diameter (1):	2.5	inches
Pitot Pressure (2):	36	PSI
Coefficient of Discharge (2):	0.9	
Hydrant Orifice Diameter (2):	2.5	inches

Hydrant F_2

Pitot Pressure (1):	35	PSI
Coefficient of Discharge (1):	0.9	
Hydrant Orifice Diameter (1):	4	inches

Additional Coefficient 0.83 on orifice #1



Static-Residual Hydrant

Flow Hydrant

Distance Between F_1 and R
525 ft (measured linearly)

Static-Residual Elevation
1391 ft (above sea level)

Flow Hydrant (F_1) Elevation
1392 ft (above sea level)

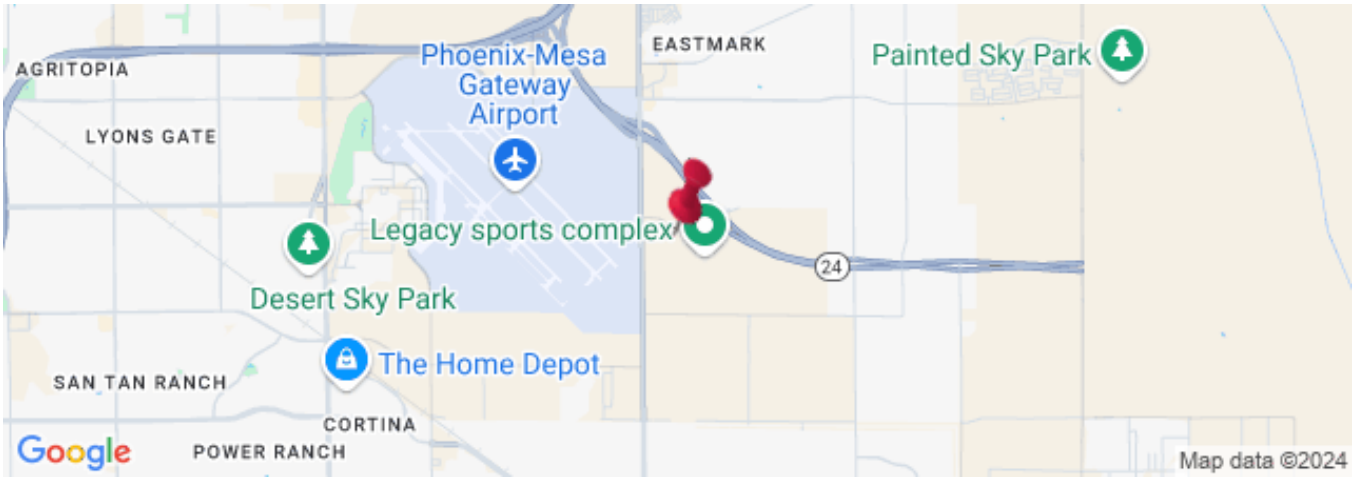
Elevation & distance values are approximate

Flow Test Summary

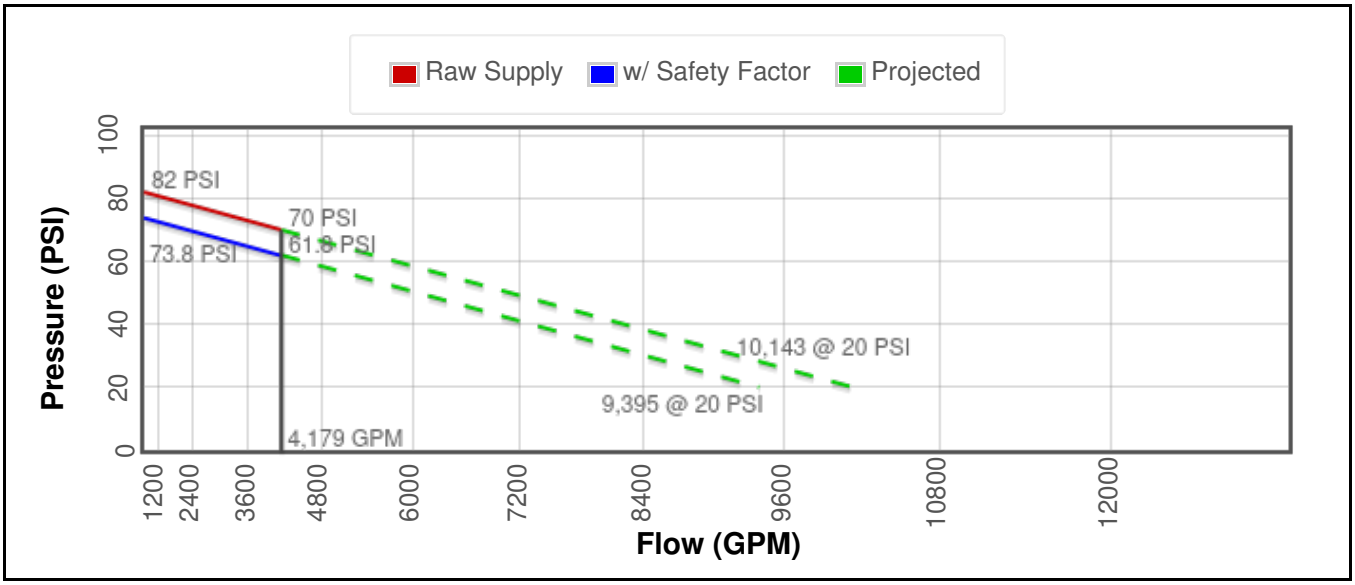
Static-Residual Hydrant

Flow Hydrant (only hydrant F1 shown for clarity)

Approximate Project Site



Water Supply Curve $N^{1.85}$ Graph



APPENDIX A

Water and Sewer Modified Use Rates

Legacy Park - 200 +/- Acre Mixed Use Development

NEC Ellsworth Rd and Williams Field Rd

Valley Cities Comparison Charts

11/6/2025

Demand Factors - Water					
	Retail (gpd/sf)	Restaurant (gpd/sf)	Office (gpd/sf)	Hotel (gpd/room)	MF (gpd/unit)
Mesa[1]	0.2	1.5	0.4	350	154
Phoenix[2]	0.125	0.125	0.115	200	240
Peoria[3]	0.03	0.03	0.03	200	200
Buckeye[4]	0.13	0.5	0.13	200	235

[1] *Engineering & Design Standards, 2023, City of Mesa - Table 3.1*

[2] *Design Standards Manual for Water and Wastewater, City of Phoenix, 2021 - Table 8*

[3] *City of Peoria Engineering Standads, 2025 - Table 8-3*

[4] *Water Distribution and Transmission, City of Buckeye, 2025 - Table 2*

Demand Factors - Wastewater					
	Retail (gpd/sf)	Restaurant (gpd/sf)	Office (gpd/sf)	Hotel (gpd/room)	MF (gpd/unit)
Mesa[1]	0.5	1.2	0.4	380	136
Phoenix[2]	0.075	0.075	0.09	150	180
Peoria[3]	0.02	0.02	0.02	120	120
Buckeye[4]	0.5	0.5	0.1	130	200
ADEQ[5,6]	0.1	1.24	0.1	45	200

[1] *Engineering & Design Standards, 2023, City of Mesa - Table 4.1*

[2] *Design Standards Manual for Water and Wastewater, City of Phoenix, 2021 - Table 8*

[3] *City of Peoria Engineering Standards, 2025 - Table 9-1*

[4] *Gravity Sewer Engineering Design Standards, City of Buckeye, 2025 - Table 1*

[5] *AAC Title 18, Chapter 9, 2025 - Table 1*

[6] *Estimation of capita per sf from City North/Tempe Marketplace/oast industry experience*

Retail: 0.0025 person/sf

Office: 1 person/200sf

Residential: 2.5 persons/unit

Hotel: 1.5 persons/unit

Restaurant: 0.01 employees/sf; 750 customers/day

Legacy Park - 200 +/- Acre Mixed Use Development

NEC Ellsworth Rd and Williams Field Rd

Valley Cities Comparison Charts

11/6/2025

Peaking Factors	
	Peaking Factor
Mesa[1]	2.5
Phoenix[2]	1.63
Peoria[3]	3.2
Buckeye[4]	2
ADEQ[5]	1.70

[1] *Engineering & Design Standards, 2023, City of Mesa - Table 4.3*

[2] *Design Standards Manual for Water and Wastewater, City of Phoenix, 2021 - E.3 page19 - based on population*

[3] *City of Peoria Engineering Standards, 2025 - Table 8-2*

[4] *Gravity Sewer Engineering Design Standards, City of Buckeye, 2025 - Table 2*

[5] *AAC Title 18, Chapter 9, 2025 - D.1.b.i, page 70 - based on population*

Water to Wastewater Factor					
	Retail	Restaurant	Office	Hotel	MF
Mesa	250.00%	80.00%	100.00%	108.57%	88.31%
Phoenix	60.00%	60.00%	78.26%	75.00%	75.00%
Peoria	66.67%	66.67%	66.67%	60.00%	60.00%
Buckeye	384.62%	100.00%	76.92%	65.00%	85.11%
ADEQ	N/A	N/A	N/A	N/A	N/A

Legacy Park - 200 +/- Acre Mixed Use Development

NEC Ellsworth Rd and Williams Field Rd

Valley Cities Comparison Analysis

11/6/2025

Factor Comparison (including Mesa)			
	Min	**Max**	**Average**
Water			
Retail	0.03	0.2	0.12
Restaurant	0.03	1.5	0.54
Office	0.03	0.4	0.17
Hotel	200	350	237.50
MF	154	240	207.25
Wastewater[1]			
Retail	0.02	0.5	0.24
Restaurant	0.02	1.24	0.61
Office	0.02	0.4	0.14
Hotel	45	380	165.00
MF	120	200	167.20
W to WW Factor			
Retail	60.00%	384.62%	190.00%
Restaurant	60.00%	100.00%	77.00%
Office	66.67%	100.00%	80.00%
Hotel	60.00%	108.57%	77.00%
MF	60.00%	88.31%	77.00%
Peaking Factor			
Value	1.63	3.20	2.2

[1] These values all contain data from ADEQ for a common average. The W to WW Factor % does not incorporate ADEQ, however, since there are no published water demand numbers.

Factor Comparison (exluding Mesa)			
	Min	**Max**	**Average**
Water			
Retail	0.03	0.13	**0.10**
Restaurant	0.03	0.5	**0.22**
Office	0.03	0.13	**0.09**
Hotel	200	200	**200.00**
MF	200	200	**225.00**
Wastewater[1]			
Retail	0.02	0.5	0.17
Restaurant	0.02	1.24	0.46
Office	0.02	0.1	0.08
Hotel	45	150	111.25
MF	120	200	175.00
W to WW Factor			
Retail	60.00%	384.62%	170.00%
Restaurant	60.00%	100.00%	76.00%
Office	66.67%	78.26%	74.00%
Hotel	60.00%	75.00%	67.00%
MF	60.00%	85.11%	73.00%
Peaking Factor			
Value	1.63	3.20	**2.13**

[1] These values all contain data from ADEQ for a common average. The W to WW Factor % does not incorporate ADEQ, however, since there are no published water demand numbers.

Proposed Water and Wastewater Demand Factors						
	Retail (gpd/sf)	**Restaurant (gpd/sf)**	**Office (gpd/sf)**	**Hotel (gpd/sf)**	**MF (gpd/sf)**	**Peaking Factor**
Water	0.10	0.22	0.09	200.00	225.00	-
Wastewater	0.10	0.17	0.07	134.00	164.25	2.13

**Values determined from the "Factor Comparison (excluding Mesa)" table for average water flows. Wastewater flows were then reduced by the W to WW Factor % average value. The only exception is retail, which was manually reduced to 100%.*

Legacy Park - 200 +/- Acre Mixed Use Development

NEC Ellsworth Rd and Williams Field Rd

Use by Area

11/6/2025

Legacy Park

	Use by Area/Units					
Parcel	**Retail (sf)**	**Restaurant (sf)**	**Office (sf)**	**Hotel (rooms)**	**MF (units)**	**Population[1]**
1			721,354			3,607
2			637,283			3,186
3			467,834			2,339
4			271,706			1,359
5			290,763			1,454
6			257,004			1,285
7			276,062			1,380
8			246,114			1,231
9			346,847			1,734
10	4,760	2,040			74	238
11	61,530	26,370			696	2,421
12	151,690	65,010				1,679
13				600		900
14				150		225
15	100,000					250
16	17,500	7,500			337	1,036
17					334	835
18					411	1,028
19					469	1,173
						27,360

Gateway Crossing - 75 Acre +/- Commercial Development - SEC Ellsworth Rd and Williams Field Rd

	Use by Area/Units					
Parcel	**Retail (sf)**	**Restaurant (sf)**	**Office (sf)**	**Hotel (rooms)**	**MF (units)**	**Population[1]**
GC	177,350	29,150		212		1,344
						1,344

[1] *Estimation of capita per sf from City North/Tempe Marketplace/past industry experience*

Population Uses		
Use	**Factor**	**Unit**
Retail	0.0025	persons/sf
Restaurant	0.02	persons/sf
Office	0.005	persons/sf
Hotel	1.5	persons/room
MF	2.5	persons/unit

Legacy Park - 200 +/- Acre Mixed Use Development

NEC Ellsworth Rd and Williams Field Rd

Potable Water Demands

11/6/2025

Legacy Park - Phase 1

	Uses by square foot / units					Flow (GPD)						
Parcel	Retail	Restaurant	Office	Hotel Rms	MF Units	Retail	Restaurant	Office	Hotel	MF	ADD (GPD)	ADD (Ac-Ft/Yr)
10	4,760	2,040	0	0	74	476.00	448.80	0.00	0.00	16,650.00	17,574.80	19.69
11	61,530	26,370	0	0	696	6,153.00	5,801.40	0.00	0.00	156,600.00	168,554.40	188.82
12	151,690	65,010	0	0	0	15,169.00	14,302.20	0.00	0.00	0.00	29,471.20	33.01
13	0	0	0	600	0	0.00	0.00	0.00	120,000.00	0.00	120,000.00	134.43
15	100,000	0	0	0	0	10,000.00	0.00	0.00	0.00	0.00	10,000.00	11.2
											345,600.40	**387.15**

Legacy Park - Phase 2

	Uses by square foot / units					Flow (GPD)						
Parcel	Retail	Restaurant	Office	Hotel Rms	MF Units	Retail	Restaurant	Office	Hotel	MF	ADD (GPD)	ADD (Ac-Ft/Yr)
1	0	0	721,354	0	0	0.00	0.00	64,921.86	0.00	0.00	64,921.86	72.73
2	0	0	637,283	0	0	0.00	0.00	57,355.47	0.00	0.00	57,355.47	64.25
3	0	0	467,834	0	0	0.00	0.00	42,105.06	0.00	0.00	42,105.06	47.17
4	0	0	271,706	0	0	0.00	0.00	24,453.50	0.00	0.00	24,453.50	27.39
5	0	0	290,763	0	0	0.00	0.00	26,168.67	0.00	0.00	26,168.67	29.31
6	0	0	257,004	0	0	0.00	0.00	23,130.36	0.00	0.00	23,130.36	25.91
7	0	0	276,062	0	0	0.00	0.00	24,845.54	0.00	0.00	24,845.54	27.83
8	0	0	246,114	0	0	0.00	0.00	22,150.26	0.00	0.00	22,150.26	24.81
9	0	0	346,847	0	0	0.00	0.00	31,216.19	0.00	0.00	31,216.19	34.97
14	0	0	0	150	0	0.00	0.00	0.00	30,000.00	0.00	30,000.00	33.61
16	17,500	7,500	0	0	337	1,750.00	1,650.00	0.00	0.00	75,825.00	79,225.00	88.75
17	0	0	0	0	334	0.00	0.00	0.00	0.00	75,150.00	75,150.00	84.18
18	0	0	0	0	411	0.00	0.00	0.00	0.00	92,475.00	92,475.00	103.59
19	0	0	0	0	469	0.00	0.00	0.00	0.00	105,525.00	105,525.00	118.21
											698,721.90	**782.71**

Gateway Crossing (not a part of Legacy Park - retail center by Vestar south of Williams Field Road)

	Uses by square foot / units					Flow (GPD)						
Parcel	Retail	Restaurant	Office	Hotel Rms	MF Units	Retail	Restaurant	Office	Hotel	MF	ADD (GPD)	ADD (Ac-Ft/Yr)
GC	177,350	29,150	0	212	0	17,735.00	6,413.00	0.00	42,400.00	0.00	66,548.00	74.55
											66,548.00	**74.55**

Legacy Park Subtotal:	1,169.86
Gateway Crossing Subtotal:	74.55
Grand Total	**1,244.41**

Legacy Park - 200 +/- Acre Mixed Use Development

NEC Ellsworth Rd and Williams Field Rd

Wastewater Use Analysis

11/6/2025

Legacy Park - Phase 1

	Uses by square foot / units					Flow (GPD)						
Parcel	Retail	Restaurant	Office	Hotel Rms	MF Units	Retail	Restaurant	Office	Hotel	MF	Total (GPD)	Peak (GPD)
10	4,760	2,040	0	0	74	476.00	346.80	0.00	0.00	12,154.50	12,977.30	27,641.65
11	61,530	26,370	0	0	696	6,153.00	4,482.90	0.00	0.00	114,318.00	124,953.90	266,151.81
12	151,690	65,010	0	0	0	15,169.00	11,051.70	0.00	0.00	0.00	26,220.70	55,850.09
13	0	0	0	600	0	0.00	0.00	0.00	80,400.00	0.00	80,400.00	171,252.00
15	100,000	0	0	0	0	10,000.00	0.00	0.00	0.00	0.00	10,000.00	21,300.00
											254,551.90	**542,195.55**

Legacy Park - Phase 2

	Uses by square foot / units					Flow (GPD)						
Parcel	Retail	Restaurant	Office	Hotel Rms	MF Units	Retail	Restaurant	Office	Hotel	MF	Total (GPD)	Peak (GPD)
1	0	0	721,354	0	0	0.00	0.00	50,494.78	0.00	0.00	50,494.78	107,553.88
2	0	0	637,283	0	0	0.00	0.00	44,609.81	0.00	0.00	44,609.81	95,018.90
3	0	0	467,834	0	0	0.00	0.00	32,748.38	0.00	0.00	32,748.38	69,754.05
4	0	0	271,706	0	0	0.00	0.00	19,019.39	0.00	0.00	19,019.39	40,511.29
5	0	0	290,763	0	0	0.00	0.00	20,353.41	0.00	0.00	20,353.41	43,352.76
6	0	0	257,004	0	0	0.00	0.00	17,990.28	0.00	0.00	17,990.28	38,319.30
7	0	0	276,062	0	0	0.00	0.00	19,324.31	0.00	0.00	19,324.31	41,160.77
8	0	0	246,114	0	0	0.00	0.00	17,227.98	0.00	0.00	17,227.98	36,695.60
9	0	0	346,847	0	0	0.00	0.00	24,279.26	0.00	0.00	24,279.26	51,714.81
14	0	0	0	150	0	0.00	0.00	0.00	20,100.00	0.00	20,100.00	42,813.00
16	17,500	7,500	0	0	337	1,750.00	1,275.00	0.00	0.00	55,352.25	58,377.25	124,343.54
17	0	0	0	0	334	0.00	0.00	0.00	0.00	54,859.50	54,859.50	116,850.74
18	0	0	0	0	411	0.00	0.00	0.00	0.00	67,506.75	67,506.75	143,789.38
19	0	0	0	0	469	0.00	0.00	0.00	0.00	77,033.25	77,033.25	164,080.82
											523,924.34	**1,115,958.83**

Gateway Crossing (not a part of Legacy Park - retail center by Vestar south of Williams Field Road)

	Uses by square foot / units					Flow (GPD)						
Parcel	Retail	Restaurant	Office	Hotel Rms	MF Units	Retail	Restaurant	Office	Hotel	MF	Total (GPD)	Peak (GPD)
GC	177,350	29,150	0	212	0	17,735.00	4,955.50	0.00	28,408.00	0.00	51,098.50	108,839.81
											51,098.50	**108,839.81**

Legacy Park Subtotal:	1,658,154.38
Gateway Crossing Subtotal:	108,839.81
Grand Total	**1,766,994.19**

Legacy Park - 200 +/- Acre Mixed Use Development

NEC Ellsworth Rd and Williams Field Rd

Wastewater Use Analysis - ADEQ Only

11/6/2025

Legacy Park - Phase 1

	Uses by square foot / units					Flow (GPD)						
Parcel	Retail	Restaurant	Office	Hotel Rms	MF Units	Retail	Restaurant	Office	Hotel	MF	Total (GPD)	Peak (GPD)
10	4,760	2,040	0	0	74	476.00	2,529.60	0.00	0.00	14,800.00	17,805.60	30,258.59
11	61,530	26,370	0	0	696	6,153.00	32,698.80	0.00	0.00	139,200.00	178,051.80	302,578.73
12	151,690	65,010	0	0	0	15,169.00	80,612.40	0.00	0.00	0.00	95,781.40	162,769.56
13	0	0	0	600	0	0.00	0.00	0.00	27,000.00	0.00	27,000.00	45,883.42
15	100,000	0	0	0	0	10,000.00	0.00	0.00	0.00	0.00	10,000.00	16,993.86
											328,638.80	**558,484.16**

Legacy Park - Phase 2

	Uses by square foot / units					Flow (GPD)						
Parcel	Retail	Restaurant	Office	Hotel Rms	MF Units	Retail	Restaurant	Office	Hotel	MF	Total (GPD)	Peak (GPD)
1	0	0	721,354	0	0	0.00	0.00	72,135.40	0.00	0.00	72,135.40	122,585.88
2	0	0	637,283	0	0	0.00	0.00	63,728.30	0.00	0.00	63,728.30	108,298.98
3	0	0	467,834	0	0	0.00	0.00	46,783.40	0.00	0.00	46,783.40	79,503.05
4	0	0	271,706	0	0	0.00	0.00	27,170.55	0.00	0.00	27,170.55	46,173.25
5	0	0	290,763	0	0	0.00	0.00	29,076.30	0.00	0.00	29,076.30	49,411.86
6	0	0	257,004	0	0	0.00	0.00	25,700.40	0.00	0.00	25,700.40	43,674.90
7	0	0	276,062	0	0	0.00	0.00	27,606.15	0.00	0.00	27,606.15	46,913.50
8	0	0	246,114	0	0	0.00	0.00	24,611.40	0.00	0.00	24,611.40	41,824.27
9	0	0	346,847	0	0	0.00	0.00	34,684.65	0.00	0.00	34,684.65	58,942.61
14	0	0	0	150	0	0.00	0.00	0.00	6,750.00	0.00	6,750.00	11,470.86
16	17,500	7,500	0	0	337	1,750.00	9,300.00	0.00	0.00	67,400.00	78,450.00	133,316.83
17	0	0	0	0	334	0.00	0.00	0.00	0.00	66,800.00	66,800.00	113,518.98
18	0	0	0	0	411	0.00	0.00	0.00	0.00	82,200.00	82,200.00	139,689.52
19	0	0	0	0	469	0.00	0.00	0.00	0.00	93,800.00	93,800.00	159,402.40
											679,496.55	**1,154,726.89**

Gateway Crossing (not a part of Legacy Park - retail center by Vestar south of Williams Field Road)

	Uses by square foot / units					Flow (GPD)						
Parcel	Retail	Restaurant	Office	Hotel Rms	MF Units	Retail	Restaurant	Office	Hotel	MF	Total (GPD)	Peak (GPD)
GC	177,350	29,150	0	212	0	17,735.00	36,146.00	0.00	9,540.00	0.00	63,421.00	107,776.76
											63,421.00	**107,776.76**

Legacy Park Subtotal:	1,713,211.05
Gateway Crossing Subtotal:	107,776.76
Grand Total	**1,820,987.81**

APPENDIX B

Parks and Rec Liner Material

Western Environmental Liner

Aqua 30

30mil Reinforced Polyethylene

DATA SHEET

Heavyweight fabric incorporating a special weave pattern to enhance thickness, flatness, and tear properties. The coating recipe is designed to improve abrasion resistance. For use in geomembrane applications such as soil remediation, pond lining, canal lining, landfill covers, etc.

FABRIC SPECIFICATIONS

WEAVE	Woven black HDPE scrim
COATING	3.0 mil average each side
COLOR	Black
WEIGHT	13.4 oz/yd^2 (454 g/m^2) +/- 5%
THICKNESS	Nominal 30 mil (0.75 mm) +/- 10% ASTM D1777

GRAB TENSILE	Warp 375 lb	Weft 315 lb	ASTM D751
TOUNGE TEAR	Warp 55 lb	Weft 55 lb	ASTM D751
TRAPEZOIDAL TEAR	Warp 100 lb	Weft 90 lb	ASTM D4533-04
MULLEN BURST	720 psi		ASTM D751
HYDROSTATIC RESISTANCE	610 psi		ASTM D751-00
PERMEABILITY	<1.3 x 10^{-9} cm/sec		ASTM D4491-99a
PUNCTURE RESISTANCE INDEX	225 lb		ASTM D4833-00
ACCELERATED UV WEATHERING[1]	>90% strength retention after 2000 hours exposure @0.77 W/m2/nm or 1200 hours exposure @ 1.35 W/m2/nm		ASTM G150-00 ASTM G154-04

[1]Q.U.V [A-340 Lamps]: 8 hrs UV @ 60°C; 4 hrs condensation @ 50°C

These values are typical data and are not intended as limiting specifications.

APPENDIX C

Hydraulic Modeling

Peak Hour

Label	Associated Element	Demand (Base) (gpm)
CU-1	J-17	135.25
CU-2	J-18	119.49
CU-3	J-20	87.72
CU-4	J-21	50.95
CU-5	J-23	54.52
CU-6	J-26	48.19
CU-7	J-29	51.76
CU-8	J-30	46.15
CU-9	J-32	65.03
CU-10	J-35	36.61
CU-11	J-36	351.15
CU-12	J-40	61.40
CU-13	J-25	250.00
CU-14	J-51	62.50
CU-15	J-43	20.83
CU-16	J-45	165.05
CU-17	J-49	156.56
CU-18	J-48	192.66
CU-19	J-46	219.84

Peak Hour

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-1	93.90	0	273.13	77.5
J-2	93.60	0	273.13	77.7
J-3	91.90	0	273.05	78.4
J-4	91.90	0	273.04	78.4
J-5	90.00	0	273.00	79.2
J-6	89.60	0	272.99	79.3
J-7	88.60	0	272.96	79.8
J-8	89.00	0	272.93	79.6
J-9	88.70	0	272.91	79.7
J-10	87.30	0	272.89	80.3
J-11	85.30	0	272.86	81.1
J-12	84.00	0	272.83	81.7
J-13	84.00	0	272.82	81.7
J-14	84.00	0	272.82	81.7
J-15	85.40	0	272.66	81.0
J-16	86.40	0	272.40	80.5
J-17	84.00	135	272.30	81.5
J-18	87.90	119	272.24	79.8
J-19	93.30	0	272.20	77.4
J-20	91.70	88	272.19	78.1
J-21	92.40	51	272.19	77.8
J-22	95.00	0	272.20	76.7
J-23	93.70	55	272.20	77.2
J-24	94.00	0	272.20	77.1
J-25	95.10	250	272.22	76.6
J-26	94.70	48	272.24	76.8
J-27	94.50	0	272.25	76.9
J-28	94.00	0	272.38	77.2
J-29	92.60	52	272.47	77.8
J-30	92.10	46	272.60	78.1
J-31	92.80	0	272.76	77.9
J-32	92.10	65	272.87	78.2
J-33	94.00	0	273.04	77.5
J-34	93.90	0	273.06	77.5
J-35	93.20	37	273.02	77.8
J-36	92.10	351	273.00	78.3
J-37	91.90	0	273.01	78.4
J-38	91.80	0	272.99	78.4
J-39	90.00	0	272.96	79.2
J-40	88.40	61	272.92	79.8
J-41	89.00	0	272.91	79.6
J-42	88.60	0	272.86	79.7
J-43	87.40	21	272.80	80.2
J-44	85.40	0	272.74	81.1
J-45	84.50	165	272.75	81.4
J-46	92.30	220	272.19	77.8
J-47	87.80	0	272.20	79.8
J-48	89.50	193	272.22	79.1
J-49	89.40	157	272.43	79.2
J-50	87.00	0	272.60	80.3
J-51	87.30	62	272.59	80.2
J-52	90.60	0	272.60	78.7

Peak Hour

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-53	92.60	0	272.61	77.9
J-54	90.30	0	272.79	79.0
J-55	91.80	0	272.79	78.3
J-56	91.90	0	272.81	78.3
J-57	91.50	0	272.83	78.5
J-58	90.40	0	272.94	79.0
J-59	92.60	0	272.45	77.8

Peak Hour

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
P-1	29	R-1	PMP-1	120.0	130.0	2,176	0.06	0.000
P-2	25	PMP-1	J-2	120.0	130.0	2,176	0.06	0.000
P-3	26	J-2	Flow Hydrant	6.0	130.0	0	0.00	0.000
P-4	15	J-4	Residual Hydrant	6.0	130.0	0	0.00	0.000
P-5	101	J-13	J-12	24.0	130.0	-885	0.63	0.000
P-6	443	J-12	J-11	24.0	130.0	-885	0.63	0.000
P-7	452	J-11	J-10	24.0	130.0	-885	0.63	0.000
P-8	321	J-10	J-9	24.0	130.0	-885	0.63	0.000
P-9	163	J-9	J-8	24.0	130.0	-885	0.63	0.000
P-10	298	J-8	J-7	24.0	130.0	-1,106	0.78	0.000
P-11	306	J-7	J-6	24.0	130.0	-1,106	0.78	0.000
P-12	122	J-6	J-5	24.0	130.0	-1,106	0.78	0.000
P-13	392	J-5	J-4	24.0	130.0	-1,106	0.78	0.000
P-14	69	J-4	J-3	24.0	130.0	-1,106	0.78	0.000
P-15	443	J-3	J-2	24.0	130.0	-1,530	1.09	0.000
P-16	59	J-2	J-1	24.0	130.0	645	0.46	0.000
P-17	14	J-13	J-14	16.0	130.0	885	1.41	0.000
P-18	576	J-14	J-15	16.0	130.0	631	1.01	0.000
P-19	2,021	J-15	J-16	16.0	130.0	432	0.69	0.000
P-20	76	J-8	J-41	12.0	130.0	221	0.63	0.000
P-21	82	J-3	J-37	12.0	130.0	424	1.20	0.001
P-22	67	J-1	J-34	12.0	130.0	645	1.83	0.001
P-23	336	J-14	J-45	12.0	130.0	254	0.72	0.000
P-24	199	J-45	J-44	12.0	130.0	89	0.25	0.000
P-25	464	J-44	J-43	12.0	130.0	-202	0.57	0.000
P-26	332	J-43	J-42	12.0	130.0	-223	0.63	0.000
P-27	186	J-42	J-41	12.0	130.0	-321	0.91	0.000
P-28	282	J-41	J-40	12.0	130.0	-100	0.28	0.000
P-29	409	J-40	J-39	12.0	130.0	-162	0.46	0.000
P-30	346	J-39	J-38	12.0	130.0	-162	0.46	0.000
P-31	81	J-38	J-37	12.0	130.0	-267	0.76	0.000
P-32	90	J-37	J-36	12.0	130.0	157	0.45	0.000
P-33	194	J-36	J-35	12.0	130.0	-194	0.55	0.000
P-34	198	J-35	J-34	12.0	130.0	-231	0.65	0.000
P-35	33	J-34	J-33	12.0	130.0	415	1.18	0.000
P-36	336	J-33	J-32	12.0	130.0	415	1.18	0.000
P-37	322	J-32	J-31	12.0	130.0	350	0.99	0.000
P-38	314	J-31	J-30	12.0	130.0	418	1.19	0.001
P-39	306	J-30	J-29	12.0	130.0	372	1.06	0.000
P-40	292	J-29	J-28	12.0	130.0	321	0.91	0.000
P-41	257	J-28	J-27	12.0	130.0	420	1.19	0.001
P-42	29	J-27	J-26	12.0	130.0	420	1.19	0.001
P-43	58	J-26	J-25	12.0	130.0	372	1.05	0.000
P-44	264	J-25	J-24	12.0	130.0	122	0.35	0.000
P-45	43	J-24	J-23	12.0	130.0	122	0.35	0.000
P-46	307	J-23	J-22	12.0	130.0	67	0.19	0.000
P-47	296	J-22	J-21	12.0	130.0	67	0.19	0.000
P-48	397	J-21	J-20	12.0	130.0	16	0.05	0.000
P-49	487	J-20	J-19	12.0	130.0	-71	0.20	0.000
P-50	388	J-19	J-18	12.0	130.0	-177	0.50	0.000

Peak Hour

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
P-51	215	J-18	J-17	12.0	130.0	-297	0.84	0.000
P-52	187	J-17	J-16	12.0	130.0	-432	1.23	0.001
P-53	532	J-15	J-50	12.0	130.0	199	0.56	0.000
P-54	575	J-44	J-50	12.0	130.0	291	0.83	0.000
P-55	266	J-50	J-49	12.0	130.0	463	1.31	0.001
P-56	751	J-49	J-48	12.0	130.0	307	0.87	0.000
P-57	411	J-48	J-47	12.0	130.0	114	0.32	0.000
P-58	208	J-47	J-46	12.0	130.0	114	0.32	0.000
P-59	182	J-46	J-19	12.0	130.0	-106	0.30	0.000
P-60	274	J-50	J-51	8.0	130.0	27	0.17	0.000
P-61	280	J-51	J-52	8.0	130.0	-35	0.23	0.000
P-62	324	J-52	J-53	8.0	130.0	-35	0.23	0.000
P-63	392	J-53	J-54	8.0	130.0	-135	0.86	0.000
P-64	281	J-54	J-42	8.0	130.0	-98	0.63	0.000
P-65	639	J-53	J-59	8.0	130.0	99	0.63	0.000
P-66	254	J-59	J-28	8.0	130.0	99	0.63	0.000
P-67	210	J-54	J-55	8.0	130.0	-36	0.23	0.000
P-68	405	J-55	J-56	8.0	130.0	-36	0.23	0.000
P-69	440	J-56	J-57	8.0	130.0	-36	0.23	0.000
P-70	407	J-57	J-58	8.0	130.0	-105	0.67	0.000
P-71	164	J-58	J-38	8.0	130.0	-105	0.67	0.000
P-72	550	J-57	J-31	8.0	130.0	69	0.44	0.000

Max Day + Fire Flow

Label	Associated Element	Demand (Base) (gpm)
CU-1	J-17	90.17
CU-2	J-18	79.66
CU-3	J-20	58.48
CU-4	J-21	33.96
CU-5	J-23	36.35
CU-6	J-26	32.13
CU-7	J-29	34.51
CU-8	J-30	30.76
CU-9	J-32	43.36
CU-10	J-35	24.41
CU-11	J-36	234.10
CU-12	J-40	40.93
CU-13	J-25	166.67
CU-14	J-51	41.67
CU-15	J-43	13.89
CU-16	J-45	110.03
CU-17	J-49	104.38
CU-18	J-48	128.44
CU-19	J-46	146.56

Max Day + Fire Flow

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-1	93.90	0	236.07	61.5
J-2	93.60	0	236.09	61.6
J-3	91.90	0	235.67	62.2
J-4	91.90	0	235.63	62.2
J-5	90.00	0	235.40	62.9
J-6	89.60	0	235.33	63.1
J-7	88.60	0	235.16	63.4
J-8	89.00	0	234.99	63.2
J-9	88.70	0	234.93	63.3
J-10	87.30	0	234.80	63.8
J-11	85.30	0	234.63	64.6
J-12	84.00	0	234.47	65.1
J-13	84.00	0	234.43	65.1
J-14	84.00	0	234.39	65.1
J-15	85.40	0	233.43	64.0
J-16	86.40	0	231.72	62.9
J-17	84.00	90	231.07	63.6
J-18	87.90	80	230.44	61.7
J-19	93.30	0	229.44	58.9
J-20	91.70	58	226.30	58.2
J-21	92.40	34	223.90	56.9
J-22	95.00	1,000	222.19	55.0
J-23	93.70	36	221.92	55.5
J-24	94.00	1,000	221.88	55.3
J-25	95.10	167	222.05	54.9
J-26	94.70	32	222.12	55.1
J-27	94.50	1,000	222.15	55.2
J-28	94.00	0	223.84	56.2
J-29	92.60	35	226.21	57.8
J-30	92.10	31	228.79	59.1
J-31	92.80	0	231.51	60.0
J-32	92.10	43	233.35	61.1
J-33	94.00	0	235.37	61.2
J-34	93.90	0	235.56	61.3
J-35	93.20	24	235.53	61.6
J-36	92.10	234	235.51	62.0
J-37	91.90	0	235.51	62.1
J-38	91.80	0	235.37	62.1
J-39	90.00	0	235.21	62.8
J-40	88.40	41	235.02	63.4
J-41	89.00	0	234.92	63.1
J-42	88.60	0	234.51	63.1
J-43	87.40	14	234.32	63.6
J-44	85.40	0	234.06	64.3
J-45	84.50	110	234.15	64.7
J-46	92.30	147	229.64	59.4
J-47	87.80	0	229.99	61.5
J-48	89.50	128	230.67	61.1
J-49	89.40	104	232.31	61.8
J-50	87.00	0	233.02	63.2
J-51	87.30	42	232.36	62.8
J-52	90.60	0	231.83	61.1

Max Day + Fire Flow

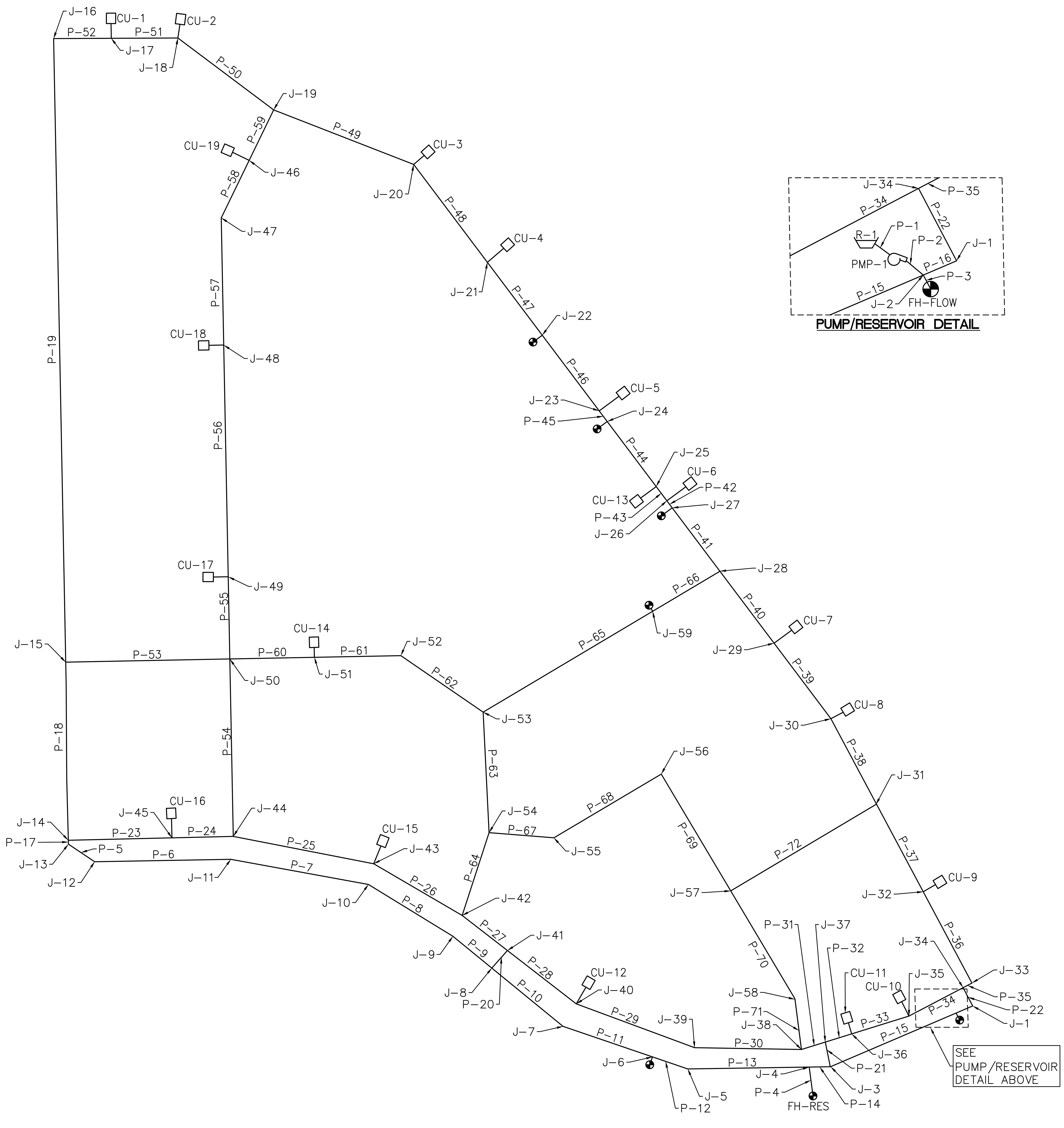
Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-53	92.60	0	231.23	60.0
J-54	90.30	0	233.23	61.8
J-55	91.80	0	233.24	61.2
J-56	91.90	0	233.25	61.2
J-57	91.50	0	233.26	61.3
J-58	90.40	0	234.76	62.5
J-59	92.60	1,000	223.59	56.7

Max Day + Fire Flow

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
P-1	29	R-1	PMP-1	120.0	130.0	5,450	0.15	0.000
P-2	25	PMP-1	J-2	120.0	130.0	5,450	0.15	0.000
P-3	26	J-2	Flow Hydrant	6.0	130.0	0	0.00	0.000
P-4	15	J-4	Residual Hydrant	6.0	130.0	0	0.00	0.000
P-5	101	J-13	J-12	24.0	130.0	-2,209	1.57	0.000
P-6	443	J-12	J-11	24.0	130.0	-2,209	1.57	0.000
P-7	452	J-11	J-10	24.0	130.0	-2,209	1.57	0.000
P-8	321	J-10	J-9	24.0	130.0	-2,209	1.57	0.000
P-9	163	J-9	J-8	24.0	130.0	-2,209	1.57	0.000
P-10	298	J-8	J-7	24.0	130.0	-2,778	1.97	0.001
P-11	306	J-7	J-6	24.0	130.0	-2,778	1.97	0.001
P-12	122	J-6	J-5	24.0	130.0	-2,778	1.97	0.001
P-13	392	J-5	J-4	24.0	130.0	-2,778	1.97	0.001
P-14	69	J-4	J-3	24.0	130.0	-2,778	1.97	0.001
P-15	443	J-3	J-2	24.0	130.0	-3,638	2.58	0.001
P-16	59	J-2	J-1	24.0	130.0	1,812	1.29	0.000
P-17	14	J-13	J-14	16.0	130.0	2,209	3.53	0.003
P-18	576	J-14	J-15	16.0	130.0	1,704	2.72	0.002
P-19	2,021	J-15	J-16	16.0	130.0	1,178	1.88	0.001
P-20	76	J-8	J-41	12.0	130.0	569	1.61	0.001
P-21	82	J-3	J-37	12.0	130.0	860	2.44	0.002
P-22	67	J-1	J-34	12.0	130.0	1,812	5.14	0.008
P-23	336	J-14	J-45	12.0	130.0	506	1.43	0.001
P-24	199	J-45	J-44	12.0	130.0	395	1.12	0.000
P-25	464	J-44	J-43	12.0	130.0	-440	1.25	0.001
P-26	332	J-43	J-42	12.0	130.0	-454	1.29	0.001
P-27	186	J-42	J-41	12.0	130.0	-925	2.62	0.002
P-28	282	J-41	J-40	12.0	130.0	-356	1.01	0.000
P-29	409	J-40	J-39	12.0	130.0	-397	1.13	0.000
P-30	346	J-39	J-38	12.0	130.0	-397	1.13	0.000
P-31	81	J-38	J-37	12.0	130.0	-818	2.32	0.002
P-32	90	J-37	J-36	12.0	130.0	41	0.12	0.000
P-33	194	J-36	J-35	12.0	130.0	-193	0.55	0.000
P-34	198	J-35	J-34	12.0	130.0	-217	0.62	0.000
P-35	33	J-34	J-33	12.0	130.0	1,595	4.53	0.006
P-36	336	J-33	J-32	12.0	130.0	1,595	4.53	0.006
P-37	322	J-32	J-31	12.0	130.0	1,552	4.40	0.006
P-38	314	J-31	J-30	12.0	130.0	1,942	5.51	0.009
P-39	306	J-30	J-29	12.0	130.0	1,911	5.42	0.008
P-40	292	J-29	J-28	12.0	130.0	1,877	5.32	0.008
P-41	257	J-28	J-27	12.0	130.0	1,672	4.74	0.007
P-42	29	J-27	J-26	12.0	130.0	672	1.91	0.001
P-43	58	J-26	J-25	12.0	130.0	640	1.81	0.001
P-44	264	J-25	J-24	12.0	130.0	473	1.34	0.001
P-45	43	J-24	J-23	12.0	130.0	-527	1.49	0.001
P-46	307	J-23	J-22	12.0	130.0	-563	1.60	0.001
P-47	296	J-22	J-21	12.0	130.0	-1,563	4.43	0.006
P-48	397	J-21	J-20	12.0	130.0	-1,597	4.53	0.006
P-49	487	J-20	J-19	12.0	130.0	-1,656	4.70	0.006
P-50	388	J-19	J-18	12.0	130.0	-1,008	2.86	0.003

Max Day + Fire Flow

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
P-51	215	J-18	J-17	12.0	130.0	-1,088	3.09	0.003
P-52	187	J-17	J-16	12.0	130.0	-1,178	3.34	0.003
P-53	532	J-15	J-50	12.0	130.0	526	1.49	0.001
P-54	575	J-44	J-50	12.0	130.0	835	2.37	0.002
P-55	266	J-50	J-49	12.0	130.0	1,027	2.91	0.003
P-56	751	J-49	J-48	12.0	130.0	923	2.62	0.002
P-57	411	J-48	J-47	12.0	130.0	794	2.25	0.002
P-58	208	J-47	J-46	12.0	130.0	794	2.25	0.002
P-59	182	J-46	J-19	12.0	130.0	648	1.84	0.001
P-60	274	J-50	J-51	8.0	130.0	334	2.13	0.002
P-61	280	J-51	J-52	8.0	130.0	292	1.87	0.002
P-62	324	J-52	J-53	8.0	130.0	292	1.87	0.002
P-63	392	J-53	J-54	8.0	130.0	-503	3.21	0.005
P-64	281	J-54	J-42	8.0	130.0	-472	3.01	0.005
P-65	639	J-53	J-59	8.0	130.0	795	5.08	0.012
P-66	254	J-59	J-28	8.0	130.0	-205	1.31	0.001
P-67	210	J-54	J-55	8.0	130.0	-31	0.20	0.000
P-68	405	J-55	J-56	8.0	130.0	-31	0.20	0.000
P-69	440	J-56	J-57	8.0	130.0	-31	0.20	0.000
P-70	407	J-57	J-58	8.0	130.0	-421	2.69	0.004
P-71	164	J-58	J-38	8.0	130.0	-421	2.69	0.004
P-72	550	J-57	J-31	8.0	130.0	390	2.49	0.003


PUMP/RESERVOIR DETAIL
SEE PUMP/RESERVOIR DETAIL ABOVE
R-1
PMP-1
FH-FLOW
FH-RES
CU-1
CU-2
CU-3
CU-4
CU-5
CU-6
CU-7
CU-8
CU-9
CU-10
CU-11
CU-12
CU-13
CU-14
CU-15
CU-16
CU-17
CU-18
CU-19

Max Day + Fire Flow

Label	Associated Element	Demand (Base) (gpm)
CU-1	J-17	90.17
CU-2	J-18	79.66
CU-3	J-20	58.48
CU-4	J-21	33.96
CU-5	J-23	36.35
CU-6	J-26	32.13
CU-7	J-29	34.51
CU-8	J-30	30.76
CU-9	J-32	43.36
CU-10	J-35	24.41
CU-11	J-36	234.10
CU-12	J-40	40.93
CU-13	J-25	166.67
CU-14	J-51	41.67
CU-15	J-43	13.89
CU-16	J-45	110.03
CU-17	J-49	104.38
CU-18	J-48	128.44
CU-19	J-46	146.56

Max Day + Fire Flow

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-1	93.90	0	236.07	61.5
J-2	93.60	0	236.09	61.6
J-3	91.90	0	235.67	62.2
J-4	91.90	0	235.63	62.2
J-5	90.00	0	235.40	62.9
J-6	89.60	0	235.33	63.1
J-7	88.60	0	235.16	63.4
J-8	89.00	0	234.99	63.2
J-9	88.70	0	234.93	63.3
J-10	87.30	0	234.80	63.8
J-11	85.30	0	234.63	64.6
J-12	84.00	0	234.47	65.1
J-13	84.00	0	234.43	65.1
J-14	84.00	0	234.39	65.1
J-15	85.40	0	233.43	64.0
J-16	86.40	0	231.72	62.9
J-17	84.00	90	231.07	63.6
J-18	87.90	80	230.44	61.7
J-19	93.30	0	229.44	58.9
J-20	91.70	58	226.30	58.2
J-21	92.40	34	223.90	56.9
J-22	95.00	1,000	222.19	55.0
J-23	93.70	36	221.92	55.5
J-24	94.00	1,000	221.88	55.3
J-25	95.10	167	222.05	54.9
J-26	94.70	32	222.12	55.1
J-27	94.50	1,000	222.15	55.2
J-28	94.00	0	223.84	56.2
J-29	92.60	35	226.21	57.8
J-30	92.10	31	228.79	59.1
J-31	92.80	0	231.51	60.0
J-32	92.10	43	233.35	61.1
J-33	94.00	0	235.37	61.2
J-34	93.90	0	235.56	61.3
J-35	93.20	24	235.53	61.6
J-36	92.10	234	235.51	62.0
J-37	91.90	0	235.51	62.1
J-38	91.80	0	235.37	62.1
J-39	90.00	0	235.21	62.8
J-40	88.40	41	235.02	63.4
J-41	89.00	0	234.92	63.1
J-42	88.60	0	234.51	63.1
J-43	87.40	14	234.32	63.6
J-44	85.40	0	234.06	64.3
J-45	84.50	110	234.15	64.7
J-46	92.30	147	229.64	59.4
J-47	87.80	0	229.99	61.5
J-48	89.50	128	230.67	61.1
J-49	89.40	104	232.31	61.8
J-50	87.00	0	233.02	63.2
J-51	87.30	42	232.36	62.8
J-52	90.60	0	231.83	61.1

Max Day + Fire Flow

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-53	92.60	0	231.23	60.0
J-54	90.30	0	233.23	61.8
J-55	91.80	0	233.24	61.2
J-56	91.90	0	233.25	61.2
J-57	91.50	0	233.26	61.3
J-58	90.40	0	234.76	62.5
J-59	92.60	1,000	223.59	56.7

Max Day + Fire Flow

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
P-1	29	R-1	PMP-1	120.0	130.0	5,450	0.15	0.000
P-2	25	PMP-1	J-2	120.0	130.0	5,450	0.15	0.000
P-3	26	J-2	Flow Hydrant	6.0	130.0	0	0.00	0.000
P-4	15	J-4	Residual Hydrant	6.0	130.0	0	0.00	0.000
P-5	101	J-13	J-12	24.0	130.0	-2,209	1.57	0.000
P-6	443	J-12	J-11	24.0	130.0	-2,209	1.57	0.000
P-7	452	J-11	J-10	24.0	130.0	-2,209	1.57	0.000
P-8	321	J-10	J-9	24.0	130.0	-2,209	1.57	0.000
P-9	163	J-9	J-8	24.0	130.0	-2,209	1.57	0.000
P-10	298	J-8	J-7	24.0	130.0	-2,778	1.97	0.001
P-11	306	J-7	J-6	24.0	130.0	-2,778	1.97	0.001
P-12	122	J-6	J-5	24.0	130.0	-2,778	1.97	0.001
P-13	392	J-5	J-4	24.0	130.0	-2,778	1.97	0.001
P-14	69	J-4	J-3	24.0	130.0	-2,778	1.97	0.001
P-15	443	J-3	J-2	24.0	130.0	-3,638	2.58	0.001
P-16	59	J-2	J-1	24.0	130.0	1,812	1.29	0.000
P-17	14	J-13	J-14	16.0	130.0	2,209	3.53	0.003
P-18	576	J-14	J-15	16.0	130.0	1,704	2.72	0.002
P-19	2,021	J-15	J-16	16.0	130.0	1,178	1.88	0.001
P-20	76	J-8	J-41	12.0	130.0	569	1.61	0.001
P-21	82	J-3	J-37	12.0	130.0	860	2.44	0.002
P-22	67	J-1	J-34	12.0	130.0	1,812	5.14	0.008
P-23	336	J-14	J-45	12.0	130.0	506	1.43	0.001
P-24	199	J-45	J-44	12.0	130.0	395	1.12	0.000
P-25	464	J-44	J-43	12.0	130.0	-440	1.25	0.001
P-26	332	J-43	J-42	12.0	130.0	-454	1.29	0.001
P-27	186	J-42	J-41	12.0	130.0	-925	2.62	0.002
P-28	282	J-41	J-40	12.0	130.0	-356	1.01	0.000
P-29	409	J-40	J-39	12.0	130.0	-397	1.13	0.000
P-30	346	J-39	J-38	12.0	130.0	-397	1.13	0.000
P-31	81	J-38	J-37	12.0	130.0	-818	2.32	0.002
P-32	90	J-37	J-36	12.0	130.0	41	0.12	0.000
P-33	194	J-36	J-35	12.0	130.0	-193	0.55	0.000
P-34	198	J-35	J-34	12.0	130.0	-217	0.62	0.000
P-35	33	J-34	J-33	12.0	130.0	1,595	4.53	0.006
P-36	336	J-33	J-32	12.0	130.0	1,595	4.53	0.006
P-37	322	J-32	J-31	12.0	130.0	1,552	4.40	0.006
P-38	314	J-31	J-30	12.0	130.0	1,942	5.51	0.009
P-39	306	J-30	J-29	12.0	130.0	1,911	5.42	0.008
P-40	292	J-29	J-28	12.0	130.0	1,877	5.32	0.008
P-41	257	J-28	J-27	12.0	130.0	1,672	4.74	0.007
P-42	29	J-27	J-26	12.0	130.0	672	1.91	0.001
P-43	58	J-26	J-25	12.0	130.0	640	1.81	0.001
P-44	264	J-25	J-24	12.0	130.0	473	1.34	0.001
P-45	43	J-24	J-23	12.0	130.0	-527	1.49	0.001
P-46	307	J-23	J-22	12.0	130.0	-563	1.60	0.001
P-47	296	J-22	J-21	12.0	130.0	-1,563	4.43	0.006
P-48	397	J-21	J-20	12.0	130.0	-1,597	4.53	0.006
P-49	487	J-20	J-19	12.0	130.0	-1,656	4.70	0.006
P-50	388	J-19	J-18	12.0	130.0	-1,008	2.86	0.003

Max Day + Fire Flow

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
P-51	215	J-18	J-17	12.0	130.0	-1,088	3.09	0.003
P-52	187	J-17	J-16	12.0	130.0	-1,178	3.34	0.003
P-53	532	J-15	J-50	12.0	130.0	526	1.49	0.001
P-54	575	J-44	J-50	12.0	130.0	835	2.37	0.002
P-55	266	J-50	J-49	12.0	130.0	1,027	2.91	0.003
P-56	751	J-49	J-48	12.0	130.0	923	2.62	0.002
P-57	411	J-48	J-47	12.0	130.0	794	2.25	0.002
P-58	208	J-47	J-46	12.0	130.0	794	2.25	0.002
P-59	182	J-46	J-19	12.0	130.0	648	1.84	0.001
P-60	274	J-50	J-51	8.0	130.0	334	2.13	0.002
P-61	280	J-51	J-52	8.0	130.0	292	1.87	0.002
P-62	324	J-52	J-53	8.0	130.0	292	1.87	0.002
P-63	392	J-53	J-54	8.0	130.0	-503	3.21	0.005
P-64	281	J-54	J-42	8.0	130.0	-472	3.01	0.005
P-65	639	J-53	J-59	8.0	130.0	795	5.08	0.012
P-66	254	J-59	J-28	8.0	130.0	-205	1.31	0.001
P-67	210	J-54	J-55	8.0	130.0	-31	0.20	0.000
P-68	405	J-55	J-56	8.0	130.0	-31	0.20	0.000
P-69	440	J-56	J-57	8.0	130.0	-31	0.20	0.000
P-70	407	J-57	J-58	8.0	130.0	-421	2.69	0.004
P-71	164	J-58	J-38	8.0	130.0	-421	2.69	0.004
P-72	550	J-57	J-31	8.0	130.0	390	2.49	0.003