CITY OF SCOTTSDALE

Abbreviated Water and Sewer Needs

WOOD PATEL

WATER DISTRIBUTION SYSTEM
BASIS OF DESIGN REPORT
FOR
7th DAY ADVENTIST – SCOTTSDALE & SUTTON

May 20, 2020
WP# 194966

PRELIMINARY Basis of Design Report

- ☐ **ACCEPTED**
- ☐ **ACCEPTED AS NOTED**
- ☑ **REVISE AND RESUBMIT**

CITY OF SCOTTSDALE
SCOTTSDALE WATER
9379 E San Salvador Dr.
Scottsdale, AZ 85258

Disclaimer: If accepted; the preliminary approval is granted under the condition that a final basis of design report will also be submitted for city review and approval (typically during the DR or PP case). The final report shall incorporate further water or sewer design and analysis requirements as defined in the city design standards and policy manual and address those items noted in the preliminary review comments (both separate and included herein). The final report shall be submitted and approved prior to the plan review submission.
For questions or clarifications contact the Water Resources Planning and Engineering Department at 480-312-5685.

BY rsacks **DATE** 6/3/2020

For zoning approval, please include the proposed residential in this report.

Not sure some of the input data into the modeling is correct.

EXPIRES 06-30-22

WOOD PATEL

2051 W Northern Ave #100
Phoenix AZ 85021
P: 602.335.8500
F: 602.335.8580
www.woodpatel.com

Darrel E. Wood, PE, RLS
Ashok C. Patel, PE, RLS, CFM
Michael T. Young, PE, LEED AP
James S. Campbell, PE, LEED GA
Thomas R. Gettings, RLS
Darin L. Moore, PE, LEED GA
Jeffrey R. Minch, PE, CFM
Robert D. Gofonia, PE, RLS
Nicholas E. Brown, PE

May 20, 2020

City of Scottsdale
Planning and Development
7447 East Indian School Road
Scottsdale, Arizona 85257

480.312.5319

Re: **7th Day Adventist – Scottsdale & Sutton**
Water Distribution System Basis of Design Report
WP# 194966

To Whom It May Concern:

This Water Distribution System Basis of Design Report is prepared for the Arizona Conference of Seventh-day Adventists and submitted to the City of Scottsdale (City). The 7th Day Adventist – Scottsdale & Sutton project (Site) consists of portions of two (2) adjacent parcels totaling an area of approximately 2,148,604 square-feet, or 49.3± acres, located at the northeast corner of North Scottsdale Road and Sutton Road in Scottsdale, Arizona. More specifically, the Site is located in a portion of Section 11, Township 3 North, Range 4 East and a portion of the north half of Section 14, Township 3 North, Range 4 East of the Gila and Salt River Base and Meridian. The Site is located within Assessor Parcel Number 215-56-333A and a portion of 175-04-002A. Refer to the *Vicinity Map* at the back of this report. The Site is bound by Thunderbird Road/Redfield Road to the north, East Sutton Drive on the south, North Miller Road on the east and North Scottsdale Road on the west.

For calculating flow demands, these square footages are OK but not for fire flows. PLZ state largest building size.

The project will include the potential construction of airport hangars, industrial buildings, office buildings, residential townhomes, and single family homes. Proposed improvements include associated landscape, hardscape, paving and utility services. The airport hangars will include 76,250 square-feet of hangar space. The industrial will include 184,450 square-feet. The office buildings will include 508,000 square-feet. The residential townhomes will include 12 multi-family dwelling units and 6 single family dwelling units. We understand the City may allow up to 240 additional residential units in the future.

This should be included in the analysis.

The project proposes an 8-inch DIP public waterline contained within a 20 foot wide water facilities easement through the Site to provide water services and fire flow. The proposed waterline will connect to the existing water infrastructure at four (4) locations. One connection to the 12-inch waterline north of the site in Redfield Road will require a Pressure Reducing Valve (PRV) since it resides within the City's Pressure Zone 3. The other three connections are within the City's Pressure Zone 2. Two (2) connections to the 6-inch waterline south of the Site in Sutton Drive will require an upsize to 8-inch diameter. The fourth connection will be to the 8-inch waterline east of the Site in Miller Road. A total of 18 proposed fire hydrants will be installed onsite for fire protection. Refer to the attached *Water Exhibit* for a depiction of the proposed waterline.

Both the Redfield and Sutton waterlines are AC and will require using DIP within 6-feet of any fitting or joint.

The Miller Rd. line is DIP.

The design criteria used to estimate potable water demands and evaluate system hydraulics are based on Wood, Patel & Associates, Inc.'s (WOODPATEL) understanding of the requirements listed in the City of Scottsdale's *Design Standards and Policies Manual,* 2018. The following is a summary of the primary design criteria utilized:

Office space at 508,000 sq. ft. requires 4000 gpm with reduction.

Actually it is 1.44

- Average Day Water Demand, Office ..... 8.33E-04 gpm/sf
- Average Day Water Demand, Industrial ..... 1.88 gpm/acre
- Average Day Water Demand, Multi-Family Residential ..... 0.27 gpm/DU
- Fire Flow Requirements ..... 2,875 gpm (with 50% sprinkler reduction)
- Maximum Day Demand ..... 2.0 x ADD
- Peak Hour Demand ..... 3.5 x ADD
- Minimum Residual Pressure, Peak Hour ..... 50 psi
- Minimum Residual Pressure, Maximum Day + Fire Flow ..... 30 psi
- Maximum System Pressure ..... 120 psi
- Maximum Pipe Head Loss, Maximum day Demand 8ft/1000ft
- Maximum Pipe Head Loss, Peak Hour Demand 10ft/1000ft
- Minimum Pipe Diameter, Public Water Line ..... 8 inches

Abbreviations: gpd = gallons per day; sf = square feet; ADD = average day demand; psi = pounds per square inch; gpm = gallons per minute

WaterCAD V8i, by Haestad Methods, was utilized to analyze the existing City water distribution system and proposed onsite improvements. Proposed onsite water service and fire flow will be provided by a looped 8-inch DIP waterline with multiple hydrants spaced throughout the Site. As a result of this analysis, the existing 6-inch Sutton Drive public waterline must also be upsized to an 8-inch waterline between Scottsdale Road and 74th Street. Please refer to the attached summary Table 1 and Table 2, complete hydraulic modeling results and exhibit for detailed information.

Flow test results provided by Arizona Flow Testing LLC (refer to attached) were reduced and utilized to simulate the City of Scottsdale's water supply for Pressure Zone 2 and 3 within the model. Separate pressure head sources were modeled for Pressure Zone 2 (low) and Pressure Zone 3 (high). Per the City's attached "Pressure Zone Schematic of Southern Service Zones 2008", it was determined Site 32 and Pump 32 provide pressure to Zone 2. Similarly, Tank-55, Pump 83A and Tank-114 provide pressure to Zone 3. Pressure reduction valves were set to 60 psi according to the lowest quoted value provided by the City (refer to May 18, 2020 email attached). Static and Residual modeling results from this calibration are representative of the existing system. Maximum flow modeling results differed slightly from the actual flow test. It is assumed this is due to additional pump capacity for high flow scenarios within the existing system that did not trigger during the actual flow test.

The average day water demand for the proposed Site is projected to be 433 gpm. Maximum day demands and peak hour demands are projected to be 866 gpm and 1515.6 gpm, respectively. The hydraulic modeling results indicate the proposed system is capable of delivering peak hour demands totaling 1515.6 gpm to the proposed Site with pressures ranging from 56 to 74 psi.

The greatest minimum fire flow for this analysis is 2,875 gpm based on a proposed 100,000 square foot (sf) commercial building. This assumes a Building Type IV or V-A with no fire walls and a 50% reduction due to fire sprinklers. Various fire flow scenarios were modeled for the hydrant(s) adjacent to a proposed 100,000 square-foot building, including flow to a single hydrant as well as split between multiple hydrants. The maximum allowable velocity of 10 feet per second (fps) was only slightly exceeded in the system when the entire flow was modeled at one hydrant. Residual pressures exceeded 30 psi during in all modeled scenarios.

Thank you for your review of the Water Distribution System Basis of Design Report provided for 7th Day Adventist - Scottsdale & Sutton project. Please contact our office if you have any further comments.

Sincerely,

Is this the largest office building?

Wood, Patel & Associates, Inc.

What about the industrial buildings - fire flow?

Darin L. Moore, PE
Vice President

EXPIRES 06-30-22

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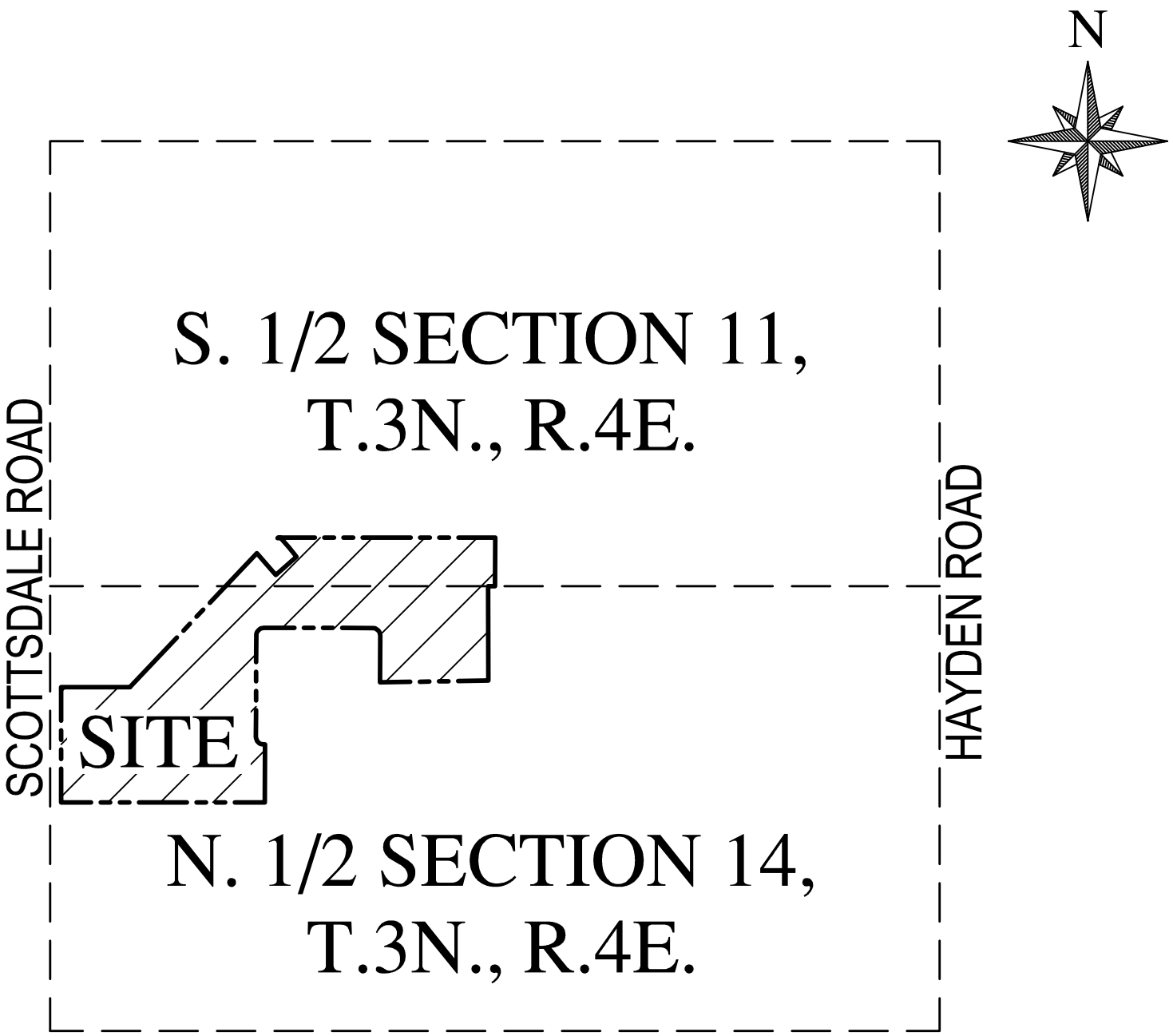
Y:\WP\Reports\Commercial\194966 7th Day Adventist - Scottsdale Sutton Water BOD..docx

VICINITY MAP



VICINITY MAP

N.T.S.

NOT
FOR
CONSTRUCTION
OR RECORDING

WOOD PATEL

7th DAY ADVENTIST - SCOTTSDALE & SUTTON

VICINITY MAP EXHIBIT

DATE	05/20/2020	SCALE	N.T.S.	SHEET	## OF ##
JOB NO.	194966	DESIGN	TB	CHECK	LB
		DRAWN	JO	RFI #	

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HYDRAULIC CALCULATIONS

WOOD/PATEL
MISSION: CLIENT SERVICE®

CIVIL ENGINEERS * HYDROLOGISTS * LAND SURVEYORS * CONSTRUCTION MANAGERS

TABLE 1 - WATER DESIGN CRITERIA

Project: Seventh-Day Adventists
Location: Scottsdale, Arizona
References: City of Scottsdale Design Standards & Policies Manual (2018)

Project Number: 194966
Project Engineer: Darin L. Moore, P.E.

RESIDENTIAL WATER DEMANDS			
LAND USE	AVERAGE DAILY DEMAND (ADD)		NOTES
	VALUE	UNITS	
< 2 dwelling DU/ac	0.69	gpm/unit	Note 1
2-2.9 dwelling DU/ac	0.66	gpm/unit	Note 1
3-7.9 dwelling DU/ac	0.36	gpm/unit	Note 1
8-11.9 dwelling DU/ac	0.33	gpm/unit	Note 1
12-22 2 dwelling DU/ac	0.33	gpm/unit	Note 1
High Density Condominium (condo)	0.27	gpm/unit	Note 1
Resort Hotel (includes site amenities)	0.63	gpm/room	Note 1

NON-RESIDENTIAL WATER DEMANDS			
LAND USE	AVERAGE DAILY DEMAND (ADD)		NOTES
	VALUE	UNITS	
Restaurant	0.00181	gpm/sf	Note 1
Commercial/Retail	0.00111	gpm/sf	Note 1
Commercial High Rise	0.000834	gpm/sf	Note 1
Office	0.000834	gpm/sf	Note 1
Institutional	1.88	gpm/acre	Note 1
Industrial	1.44	gpm/acre	Note 1
Research and Development	1.79	gpm/acre	Note 1

LANDSCAPE WATER DEMANDS			
LAND USE	AVERAGE DAILY DEMAND (ADD)		NOTES
	VALUE	UNITS	
Natural Area Open Space	0.00	gpm/acre	Note 1
Developed Open Space - Parks	2.49	gpm/acre	Note 1
Developed Open Space - Golf Course	5.96	gpm/acre	Note 1

HYDRAULIC MODELING CRITERIA			
DESCRIPTION	VALUE	UNITS	NOTES
MAX DAY FLOW			
Max Day Flow = Peaking Factor (PF) x ADD	2 x ADD	gpm	Note 1
PEAK HOUR FLOW			
Peak Hour Flow = Peaking Factor (PF) x ADD	3.5 x ADD	gpm	Note 1
MODELED FIRE HYDRANT FLOW (MINIMUM)			
☐ Residential, 0 - 3,600 sf fire-flow calculation area	1,000	gpm	Note 3
☐ Residential, 3,601 - 4,800 sf fire-flow calculation area	1,750	gpm	Note 4
☐ Residential, 4,801 - 6,200 sf fire-flow calculation area	2,000	gpm	Note 4
☐ Residential, 6,201 - 7,700 sf fire-flow calculation area	2,250	gpm	Note 4
☐ Residential, 7,701 - 9,400 sf fire-flow calculation area	2,500	gpm	Note 4
☐ Residential, 9,401 - 11,300 sf fire-flow calculation area	2,750	gpm	Note 4
☐ Multi-Family Residential	-	gpm	Note 2
☑ Commercial	2,875	gpm	Note 2
Industrial????			
HYDRAULICS			
Residual Pressure Range, Peak Hour	50-150	psi	Note 1
Minimum Residual Pressure, Max Day + Fire Flow (Hydrant TEE)	30	psi	Note 1
Minimum Residual Pressure, Max Day + Fire Flow (Domestic Service)	15	psi	Note 1
Minimum Pipe Diameter, Looped System	6	in	Note 1
Hazen-Williams C-value	120	-	Note 1

Notes:

1. Per City of Scottsdale Design Standards & Policies Manual (2018)
2. Per 2015 International Fire Code as adopted by the City of Scottsdale. Utilizes construction type IV or V-A, 100,000 sf area (largest office builing), 50% reduction applied.
3. Residential limited to one- and two-family dwellings, assumes Type V-B construction, and has a 1-hour fire duration
4. Residential limited to one- and two-family dwellings, assumes Type V-B construction, and has a 2-hour fire duration

Please state building sq footages

WOOD/PATEL
MISSION: CLIENT SERVICE®

CIVIL ENGINEERS * HYDROLOGISTS * LAND SURVEYORS * CONSTRUCTION MANAGERS

TABLE 2 - WATER DEMAND DESIGN FLOWS

Project: Seventh-Day Adventists
Location: Scottsdale, Arizona
References: City of Scottsdale Design Standards & Policies Manual (2018)

Project Number: 194966
Project Engineer: Darin L. Moore, P.E.

Water Demand Calculations

HYDRAULIC MODEL NODE	ELEVATION (ft)	PRESSURE ZONE	LAND USE	APPLICABLE UNIT	NUMBER OF UNITS	ADD/APPLICABLE UNIT	GPM/APPLICABLE UNIT[1]	AVERAGE DAILY DEMAND			MAX DAY DEMAND		PEAK HOUR DEMAND		Fire Flow
								(gpd)	(gpm)	Total (gpm)	(gpm)	Total (gpm)	(gpm)	Total (gpm)	(gpm)
EX J-15	1,430.6	2	Office	gpd/sf	508,100	0.6	0.00083	304,860	421.7	421.7	843.4	843.4	1,476.0	1,476.0	2875
EX J-5	1,430.6	2	Industrial	gpd/ac	3.38	1,353.6	1.88	4,575	6.4	428.1	12.8	856.2	22.4	1,498.4	
EX J-41	1,430.6	2	Multi-Family Residential	gpd/DU	18.00	1941	0.27	3,499	4.9	433.0	9.8	866.0	17.2	1,515.6	
								312934.0	**433.0**	**433.0**	**866.0**	**866.0**	**1515.6**	**1515.6**	**2875.0**

Notes:
1. GPM values are based on a 12-hour active water used period per 24-hour day per the City of Scottsdale Design Standards and Policy Manual.

Please include 240 future residential demand in this analysis.

1027

4.23

It would help if pump curve included to 20 psi

What happened to the industrial area and proposed residential area?

194966 Seventh-Day Adventists

FlexTable: Junction Table

Active Scenario: Calibration - Static

Label	Zone	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1	Zone - 2	1,426.18	0.0	64	1,574.73
EX FH-2	Zone - 2	1,416.00	0.0	69	1,574.73
EX FH-3	Zone - 2	1,417.00	0.0	68	1,574.73
EX FH-5	Zone - 2	1,420.00	0.0	67	1,574.73
EX FH-FLOW A-1	Zone - 2	1,418.00	0.0	68	1,574.73
EX FH-FLOW A-2	Zone - 3	1,432.00	0.0	73	1,600.52
EX FH-FLOW B-1	Zone - 2	1,422.00	0.0	66	1,574.73
EX FH-FLOW B-2	Zone - 3	1,437.00	0.0	71	1,600.52
EX FH-TEST-1	Zone - 2	1,418.00	0.0	68	1,574.73
EX FH-TEST-2	Zone - 3	1,434.00	0.0	72	1,600.52
EX J-5	Zone - 2	1,425.67	0.0	64	1,574.73
EX J-7	Zone - 2	1,418.00	0.0	68	1,574.73
EX J-10	Zone - 2	1,417.00	0.0	68	1,574.73
EX J-15	Zone - 2	1,416.00	0.0	69	1,574.73
EX J-20	Zone - 2	1,417.00	0.0	68	1,574.73
EX J-30	Zone - 3	1,430.55	0.0	74	1,600.52
EX J-41	Zone - 2	1,417.00	0.0	68	1,574.73
EX J-65	Zone - 3	1,425.89	0.0	76	1,600.52
EX J-205	Zone - 2	1,409.00	0.0	72	1,574.73
EX J-215	Zone - 2	1,409.00	0.0	72	1,574.73
EX J-225	Zone - 2	1,409.00	0.0	72	1,574.73
EX J-235	Zone - 2	1,409.00	0.0	72	1,574.73
EX J-245	Zone - 2	1,418.00	0.0	68	1,574.73
EX J-255	Zone - 2	1,428.00	0.0	63	1,574.73
EX J-265	Zone - 2	1,432.00	0.0	62	1,574.73

Per City GIS:
FH A-1 1420.82
FH B-2 1418.25
FH Test 1 1416.49

Hydrant flow test static shows 70 psi

194966 Seventh-Day Adventists

FlexTable: Junction Table

Active Scenario: Calibration - Residual

Label	Zone	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1	Zone - 2	1,426.18	0.0	57	1,557.62
EX FH-2	Zone - 2	1,416.00	0.0	58	1,549.38
EX FH-3	Zone - 2	1,417.00	0.0	57	1,548.90
EX FH-5	Zone - 2	1,420.00	0.0	58	1,553.78
EX FH-FLOW A-1	Zone - 2	1,418.00	1,303.0	56	1,548.50
EX FH-FLOW A-2	Zone - 3	1,432.00	0.0	68	1,588.67
EX FH-FLOW B-1	Zone - 2	1,422.00	1,969.0	44	1,524.47
EX FH-FLOW B-2	Zone - 3	1,437.00	0.0	66	1,588.47
EX FH-TEST-1	Zone - 2	1,418.00	0.0	58	1,552.09
EX FH-TEST-2	Zone - 3	1,434.00	0.0	67	1,589.44
EX J-5	Zone - 2	1,425.67	0.0	57	1,557.17
EX J-7	Zone - 2	1,418.00	0.0	58	1,551.45
EX J-10	Zone - 2	1,417.00	0.0	58	1,551.46
EX J-15	Zone - 2	1,416.00	0.0	58	1,549.43
EX J-20	Zone - 2	1,417.00	0.0	57	1,548.81
EX J-30	Zone - 3	1,430.55	0.0	68	1,587.74
EX J-41	Zone - 2	1,417.00	0.0	58	1,551.22
EX J-65	Zone - 3	1,425.89	0.0	69	1,585.04
EX J-205	Zone - 2	1,409.00	0.0	61	1,549.05
EX J-215	Zone - 2	1,409.00	0.0	61	1,549.28
EX J-225	Zone - 2	1,409.00	0.0	61	1,549.28
EX J-235	Zone - 2	1,409.00	0.0	61	1,549.32
EX J-245	Zone - 2	1,418.00	0.0	57	1,549.56
EX J-255	Zone - 2	1,428.00	0.0	57	1,558.66
EX J-265	Zone - 2	1,432.00	0.0	61	1,574.02

Where did these pressures come from?

194966 Seventh-Day Adventists

FlexTable: Junction Table

Active Scenario: Calibration - Max

Label	Zone	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1	Zone - 2	1,426.18	0.0	50	1,541.82
EX FH-2	Zone - 2	1,416.00	0.0	47	1,525.76
EX FH-3	Zone - 2	1,417.00	0.0	47	1,524.53
EX FH-5	Zone - 2	1,420.00	0.0	50	1,535.70
EX FH-FLOW A-1	Zone - 2	1,418.00	2,086.0	46	1,523.45
EX FH-FLOW A-2	Zone - 3	1,432.00	0.0	62	1,575.38
EX FH-FLOW B-1	Zone - 2	1,422.00	3,151.0	19	1,466.56
EX FH-FLOW B-2	Zone - 3	1,437.00	0.0	60	1,575.48
EX FH-TEST-1	Zone - 2	1,418.00	0.0	50	1,532.78
EX FH-TEST-2	Zone - 3	1,434.00	0.0	62	1,577.16
EX J-5	Zone - 2	1,425.67	0.0	50	1,541.04
EX J-7	Zone - 2	1,418.00	0.0	49	1,531.05
EX J-10	Zone - 2	1,417.00	0.0	49	1,531.16
EX J-15	Zone - 2	1,416.00	0.0	48	1,525.90
EX J-20	Zone - 2	1,417.00	0.0	46	1,524.30
EX J-30	Zone - 3	1,430.55	0.0	62	1,573.23
EX J-41	Zone - 2	1,417.00	0.0	49	1,530.52
EX J-65	Zone - 3	1,425.89	0.0	61	1,566.97
EX J-205	Zone - 2	1,409.00	0.0	50	1,525.00
EX J-215	Zone - 2	1,409.00	0.0	50	1,525.68
EX J-225	Zone - 2	1,409.00	0.0	50	1,525.68
EX J-235	Zone - 2	1,409.00	0.0	51	1,525.78
EX J-245	Zone - 2	1,418.00	0.0	47	1,526.49
EX J-255	Zone - 2	1,428.00	0.0	50	1,543.65
EX J-265	Zone - 2	1,432.00	0.0	60	1,570.48

Where did these come from

194966 Seventh-Day Adventists

FlexTable: Junction Table

Active Scenario: Average Day Demand

Label	Zone	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1	Zone - 2	1,426.18	0.0	60	1,564.84
EX FH-2	Zone - 2	1,416.00	0.0	63	1,562.47
EX FH-3	Zone - 2	1,417.00	0.0	63	1,562.53
EX FH-5	Zone - 2	1,420.00	0.0	62	1,562.54
EX FH-FLOW A-1	Zone - 2	1,418.00	0.0	63	1,562.54
EX FH-FLOW A-2	Zone - 3	1,432.00	0.0	73	1,599.69
EX FH-FLOW B-1	Zone - 2	1,422.00	0.0	61	1,563.52
EX FH-FLOW B-2	Zone - 3	1,437.00	0.0	70	1,599.20
EX FH-TEST-1	Zone - 2	1,418.00	0.0	63	1,563.52
EX FH-TEST-2	Zone - 3	1,434.00	0.0	72	1,599.69
EX J-5	Zone - 2	1,425.67	6.4	60	1,564.61
EX J-7	Zone - 2	1,418.00	0.0	63	1,563.53
EX J-10	Zone - 2	1,417.00	0.0	63	1,562.95
EX J-15	Zone - 2	1,416.00	421.7	63	1,562.46
EX J-20	Zone - 2	1,417.00	0.0	63	1,562.54
EX J-30	Zone - 3	1,430.55	0.0	73	1,599.69
EX J-41	Zone - 2	1,417.00	4.9	63	1,562.89
EX J-65	Zone - 3	1,425.89	0.0	75	1,599.69
EX J-205	Zone - 2	1,409.00	0.0	67	1,562.85
EX J-215	Zone - 2	1,409.00	0.0	67	1,563.16
EX J-225	Zone - 2	1,409.00	0.0	67	1,563.16
EX J-235	Zone - 2	1,409.00	0.0	67	1,563.20
EX J-245	Zone - 2	1,418.00	0.0	63	1,563.52
EX J-255	Zone - 2	1,428.00	0.0	59	1,565.37
EX J-265	Zone - 2	1,432.00	0.0	62	1,574.37
FH-1	Zone - 2	1,417.74	0.0	63	1,562.56
FH-2	Zone - 2	1,420.79	0.0	61	1,562.61
FH-3	Zone - 2	1,419.33	0.0	62	1,562.68
FH-4	Zone - 2	1,422.56	0.0	61	1,562.76
FH-5	Zone - 2	1,422.90	0.0	61	1,562.79
FH-6	Zone - 2	1,421.53	0.0	61	1,562.74
FH-7	Zone - 2	1,419.13	0.0	62	1,562.67
FH-9	Zone - 2	1,422.12	0.0	61	1,562.74
FH-10	Zone - 2	1,416.88	0.0	63	1,562.57
FH-12	Zone - 2	1,427.09	0.0	59	1,563.16
FH-13	Zone - 2	1,428.34	0.0	58	1,563.38
FH-14	Zone - 2	1,428.77	0.0	58	1,563.53
FH-15	Zone - 2	1,427.51	0.0	59	1,563.76
FH-16	Zone - 2	1,428.92	0.0	58	1,563.95
FH-17	Zone - 2	1,429.43	0.0	58	1,564.22
FH-18	Zone - 2	1,426.57	0.0	60	1,564.52
J-3	Zone - 2	1,416.56	0.0	63	1,562.52
J-8	Zone - 2	1,423.28	0.0	60	1,562.80
J-35	Zone - 2	1,428.39	0.0	58	1,563.40
J-42	Zone - 2	1,422.00	0.0	61	1,562.89
J-45	Zone - 2	1,423.09	0.0	60	1,562.83

Shouldn't this be 52 psi?

194966 Seventh-Day Adventists

FlexTable: Junction Table

Active Scenario: Average Day Demand

Label	Zone	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
J-46	Zone - 2	1,426.00	0.0	59	1,563.05
J-47	Zone - 2	1,426.59	0.0	59	1,563.12

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FlexTable: Pipe Table

Active Scenario: Average Day Demand

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
EX P-5	EX FH-TEST-2	EX FH-FLOW B-2	1,194	12.0	Asbestos Cement	140.0	404.2	1.15
EX P-10	EX FH-FLOW A-2	EX FH-TEST-2	311	12.0	Asbestos Cement	140.0	0.0	0.00
EX P-15	EX J-30	EX FH-FLOW A-2	377	12.0	Asbestos Cement	140.0	0.0	0.00
EX P-20	EX J-65	EX J-30	1,094	12.0	Asbestos Cement	140.0	0.0	0.00
EX P-25	EX PRV-1	EX FH-5	335	8.0	Asbestos Cement	140.0	0.0	0.00
EX P-27	EX J-65	EX PRV-1	423	8.0	Asbestos Cement	140.0	0.0	0.00
EX P-30	EX FH-FLOW A-1	EX FH-5	297	8.0	Asbestos Cement	140.0	0.0	0.00
EX P-35	EX J-20	EX FH-FLOW A-1	274	8.0	Asbestos Cement	140.0	0.0	0.00
EX P-40	EX FH-3	EX J-20	44	8.0	Ductile Iron	130.0	-102.7	0.66
EX P-45	EX FH-2	EX FH-3	238	8.0	Ductile Iron	130.0	-102.7	0.66
EX P-50	EX J-15	EX FH-2	27	8.0	Ductile Iron	130.0	-102.7	0.66
EX P-50	EX J-41	EX J-15	891	8.0	Ductile Iron	130.0	140.7	0.90
EX P-55	EX J-10	EX J-41	123	8.0	Ductile Iron	130.0	145.6	0.93
EX P-60	EX FH-TEST-1	EX J-10	1,268	8.0	Asbestos Cement	140.0	145.6	0.93
EX P-62	EX J-7	EX FH-TEST-1	20	8.0	Asbestos Cement	140.0	116.8	0.75
EX P-64	EX J-5	EX J-7	981	8.0	Ductile Iron	130.0	219.4	1.40
EX P-65	EX FH-1	EX J-5	77	8.0	Asbestos Cement	140.0	404.2	2.58
EX P-67	EX J-7	EX J-245	31	8.0	Asbestos Cement	140.0	102.7	0.66
EX P-69	EX J-245	EX FH-FLOW B-1	449	8.0	Asbestos Cement	140.0	0.0	0.00
EX P-200	EX J-20	EX J-205	1,322	8.0	Asbestos Cement	140.0	-102.7	0.66
EX P-210	EX J-205	EX J-215	1,300	8.0	Asbestos Cement	140.0	-102.7	0.66
EX P-220	EX J-215	EX J-225	47	12.0	Asbestos Cement	140.0	-102.7	0.29
EX P-230	EX J-225	EX J-235	1,341	12.0	Asbestos Cement	140.0	-102.7	0.29
EX P-240	EX J-235	EX J-245	1,349	8.0	Asbestos Cement	140.0	-102.7	0.66
EX P-250	EX FH-1	EX J-255	179	8.0	Asbestos Cement	140.0	-404.2	2.58
EX P-260	EX J-255	EX J-265	2,637	8.0	Ductile Iron	130.0	-404.2	2.58
EX P-270	EX PRV-2	EX J-265	872	12.0	Asbestos Cement	140.0	404.2	1.15
EX P-280	EX FH-FLOW B-2	EX PRV-2	2,664	12.0	Asbestos Cement	140.0	404.2	1.15
P-5	EX J-15	J-3	84	8.0	Ductile Iron	130.0	-178.3	1.14
P-10	J-3	FH-1	168	8.0	Ductile Iron	130.0	-86.9	0.55

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FlexTable: Pipe Table

Active Scenario: Average Day Demand

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-15	FH-1	FH-2	263	8.0	Ductile Iron	130.0	-86.9	0.55
P-20	FH-2	FH-3	346	8.0	Ductile Iron	130.0	-86.9	0.55
P-25	FH-3	FH-9	315	8.0	Ductile Iron	130.0	-86.9	0.55
P-27	FH-9	FH-4	96	8.0	Ductile Iron	130.0	-86.9	0.55
P-30	FH-4	J-45	340	8.0	Ductile Iron	130.0	-86.9	0.55
P-32	J-45	J-8	120	8.0	Ductile Iron	130.0	91.5	0.58
P-35	J-8	FH-5	29	8.0	Ductile Iron	130.0	91.5	0.58
P-40	FH-5	FH-6	240	8.0	Ductile Iron	130.0	91.5	0.58
P-45	FH-6	FH-7	342	8.0	Ductile Iron	130.0	91.5	0.58
P-53	J-47	FH-12	52	8.0	Ductile Iron	130.0	-178.3	1.14
P-55	FH-10	FH-7	436	8.0	Ductile Iron	130.0	-91.5	0.58
P-57	J-45	J-46	299	8.0	Ductile Iron	130.0	-178.3	1.14
P-58	J-46	J-47	93	8.0	Ductile Iron	130.0	-178.3	1.14
P-62	EX J-30	PRV-16	102	8.0	Ductile Iron	130.0	0.0	0.00
P-63	PRV-16	J-35	222	8.0	Ductile Iron	130.0	0.0	0.00
P-65	FH-10	J-3	221	8.0	Ductile Iron	130.0	91.5	0.58
P-80	FH-12	FH-13	297	8.0	Ductile Iron	130.0	-178.3	1.14
P-85	FH-13	J-35	23	8.0	Ductile Iron	130.0	-178.3	1.14
P-90	J-35	FH-14	182	8.0	Ductile Iron	130.0	-178.3	1.14
P-95	FH-14	FH-15	304	8.0	Ductile Iron	130.0	-178.3	1.14
P-100	FH-15	FH-16	254	8.0	Ductile Iron	130.0	-178.3	1.14
P-105	FH-16	FH-17	362	8.0	Ductile Iron	130.0	-178.3	1.14
P-110	FH-17	FH-18	393	8.0	Ductile Iron	130.0	-178.3	1.14
P-115	FH-18	EX J-5	120	8.0	Ductile Iron	130.0	-178.3	1.14
P-120	EX J-41	J-42	719	8.0	Ductile Iron	130.0	0.0	0.00
P-PMP-1	PMP-1	EX FH-TEST-1	1	48.0	Ductile Iron	130.0	28.8	0.01
P-PMP-2	PMP-2	EX FH-TEST-2	1	48.0	Ductile Iron	130.0	404.2	0.07
P-R-1	R-1	PMP-1	1	48.0	Ductile Iron	130.0	28.8	0.01
P-R-2	R-2	PMP-2	1	48.0	Ductile Iron	130.0	404.2	0.07

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FlexTable: Junction Table

Active Scenario: Max Day Demand

Label	Zone	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1	Zone - 2	1,426.18	0.0	59	1,563.69
EX FH-2	Zone - 2	1,416.00	0.0	62	1,559.01
EX FH-3	Zone - 2	1,417.00	0.0	62	1,559.46
EX FH-5	Zone - 2	1,420.00	0.0	60	1,559.66
EX FH-FLOW A-1	Zone - 2	1,418.00	0.0	61	1,559.60
EX FH-FLOW A-2	Zone - 3	1,432.00	0.0	72	1,599.17
EX FH-FLOW B-1	Zone - 2	1,422.00	0.0	61	1,562.87
EX FH-FLOW B-2	Zone - 3	1,437.00	0.0	70	1,598.63
EX FH-TEST-1	Zone - 2	1,418.00	0.0	63	1,562.89
EX FH-TEST-2	Zone - 3	1,434.00	0.0	71	1,599.18
EX J-5	Zone - 2	1,425.67	12.8	60	1,563.43
EX J-7	Zone - 2	1,418.00	0.0	63	1,562.89
EX J-10	Zone - 2	1,417.00	0.0	62	1,560.79
EX J-15	Zone - 2	1,416.00	843.4	62	1,558.96
EX J-20	Zone - 2	1,417.00	0.0	62	1,559.55
EX J-30	Zone - 3	1,430.55	0.0	73	1,599.16
EX J-41	Zone - 2	1,417.00	9.8	62	1,560.56
EX J-65	Zone - 3	1,425.89	0.0	75	1,599.13
EX J-205	Zone - 2	1,409.00	0.0	66	1,560.60
EX J-215	Zone - 2	1,409.00	0.0	66	1,561.64
EX J-225	Zone - 2	1,409.00	0.0	66	1,561.64
EX J-235	Zone - 2	1,409.00	0.0	66	1,561.79
EX J-245	Zone - 2	1,418.00	0.0	63	1,562.87
EX J-255	Zone - 2	1,428.00	0.0	59	1,564.29
EX J-265	Zone - 2	1,432.00	0.0	62	1,574.33
FH-1	Zone - 2	1,417.74	0.0	61	1,559.16
FH-2	Zone - 2	1,420.79	0.0	60	1,559.27
FH-3	Zone - 2	1,419.33	0.0	61	1,559.41
FH-4	Zone - 2	1,422.56	0.0	59	1,559.58
FH-5	Zone - 2	1,422.90	0.0	59	1,559.66
FH-6	Zone - 2	1,421.53	0.0	60	1,559.55
FH-7	Zone - 2	1,419.13	0.0	61	1,559.39
FH-9	Zone - 2	1,422.12	0.0	59	1,559.54
FH-10	Zone - 2	1,416.88	0.0	62	1,559.19
FH-12	Zone - 2	1,427.09	0.0	58	1,560.42
FH-13	Zone - 2	1,428.34	0.0	57	1,560.88
FH-14	Zone - 2	1,428.77	0.0	57	1,561.20
FH-15	Zone - 2	1,427.51	0.0	58	1,561.67
FH-16	Zone - 2	1,428.92	0.0	58	1,562.07
FH-17	Zone - 2	1,429.43	0.0	58	1,562.63
FH-18	Zone - 2	1,426.57	0.0	59	1,563.25
J-3	Zone - 2	1,416.56	0.0	62	1,559.09
J-8	Zone - 2	1,423.28	0.0	59	1,559.67
J-35	Zone - 2	1,428.39	0.0	57	1,560.92
J-42	Zone - 2	1,422.00	0.0	60	1,560.56
J-45	Zone - 2	1,423.09	0.0	59	1,559.72

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FlexTable: Junction Table
Active Scenario: Max Day Demand

Label	Zone	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
J-46	Zone - 2	1,426.00	0.0	58	1,560.19
J-47	Zone - 2	1,426.59	0.0	58	1,560.33

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FlexTable: Pipe Table

Active Scenario: Max Day Demand

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
EX P-5	EX FH-TEST-2	EX FH-FLOW B-2	1,194	12.0	Asbestos Cement	140.0	428.9	1.22
EX P-10	EX FH-FLOW A-2	EX FH-TEST-2	311	12.0	Asbestos Cement	140.0	-94.8	0.27
EX P-15	EX J-30	EX FH-FLOW A-2	377	12.0	Asbestos Cement	140.0	-94.8	0.27
EX P-20	EX J-65	EX J-30	1,094	12.0	Asbestos Cement	140.0	-94.8	0.27
EX P-25	EX PRV-1	EX FH-5	335	8.0	Asbestos Cement	140.0	94.8	0.61
EX P-27	EX J-65	EX PRV-1	423	8.0	Asbestos Cement	140.0	94.8	0.61
EX P-30	EX FH-FLOW A-1	EX FH-5	297	8.0	Asbestos Cement	140.0	-94.8	0.61
EX P-35	EX J-20	EX FH-FLOW A-1	274	8.0	Asbestos Cement	140.0	-94.8	0.61
EX P-40	EX FH-3	EX J-20	44	8.0	Ductile Iron	130.0	-293.5	1.87
EX P-45	EX FH-2	EX FH-3	238	8.0	Ductile Iron	130.0	-293.5	1.87
EX P-50	EX J-15	EX FH-2	27	8.0	Ductile Iron	130.0	-293.5	1.87
EX P-50	EX J-41	EX J-15	891	8.0	Ductile Iron	130.0	285.1	1.82
EX P-55	EX J-10	EX J-41	123	8.0	Ductile Iron	130.0	294.9	1.88
EX P-60	EX FH-TEST-1	EX J-10	1,268	8.0	Asbestos Cement	140.0	294.9	1.88
EX P-62	EX J-7	EX FH-TEST-1	20	8.0	Asbestos Cement	140.0	-47.4	0.30
EX P-64	EX J-5	EX J-7	981	8.0	Ductile Iron	130.0	151.2	0.97
EX P-65	EX FH-1	EX J-5	77	8.0	Asbestos Cement	140.0	428.9	2.74
EX P-67	EX J-7	EX J-245	31	8.0	Asbestos Cement	140.0	198.6	1.27
EX P-69	EX J-245	EX FH-FLOW B-1	449	8.0	Asbestos Cement	140.0	0.0	0.00
EX P-200	EX J-20	EX J-205	1,322	8.0	Asbestos Cement	140.0	-198.6	1.27
EX P-210	EX J-205	EX J-215	1,300	8.0	Asbestos Cement	140.0	-198.6	1.27
EX P-220	EX J-215	EX J-225	47	12.0	Asbestos Cement	140.0	-198.6	0.56
EX P-230	EX J-225	EX J-235	1,341	12.0	Asbestos Cement	140.0	-198.6	0.56
EX P-240	EX J-235	EX J-245	1,349	8.0	Asbestos Cement	140.0	-198.6	1.27
EX P-250	EX FH-1	EX J-255	179	8.0	Asbestos Cement	140.0	-428.9	2.74
EX P-260	EX J-255	EX J-265	2,637	8.0	Ductile Iron	130.0	-428.9	2.74
EX P-270	EX PRV-2	EX J-265	872	12.0	Asbestos Cement	140.0	428.9	1.22
EX P-280	EX FH-FLOW B-2	EX PRV-2	2,664	12.0	Asbestos Cement	140.0	428.9	1.22
P-5	EX J-15	J-3	84	8.0	Ductile Iron	130.0	-264.9	1.69
P-10	J-3	FH-1	168	8.0	Ductile Iron	130.0	-129.0	0.82

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FlexTable: Pipe Table

Active Scenario: Max Day Demand

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-15	FH-1	FH-2	263	8.0	Ductile Iron	130.0	-129.0	0.82
P-20	FH-2	FH-3	346	8.0	Ductile Iron	130.0	-129.0	0.82
P-25	FH-3	FH-9	315	8.0	Ductile Iron	130.0	-129.0	0.82
P-27	FH-9	FH-4	96	8.0	Ductile Iron	130.0	-129.0	0.82
P-30	FH-4	J-45	340	8.0	Ductile Iron	130.0	-129.0	0.82
P-32	J-45	J-8	120	8.0	Ductile Iron	130.0	135.9	0.87
P-35	J-8	FH-5	29	8.0	Ductile Iron	130.0	135.9	0.87
P-40	FH-5	FH-6	240	8.0	Ductile Iron	130.0	135.9	0.87
P-45	FH-6	FH-7	342	8.0	Ductile Iron	130.0	135.9	0.87
P-53	J-47	FH-12	52	8.0	Ductile Iron	130.0	-264.9	1.69
P-55	FH-10	FH-7	436	8.0	Ductile Iron	130.0	-135.9	0.87
P-57	J-45	J-46	299	8.0	Ductile Iron	130.0	-264.9	1.69
P-58	J-46	J-47	93	8.0	Ductile Iron	130.0	-264.9	1.69
P-62	EX J-30	PRV-16	102	8.0	Ductile Iron	130.0	0.0	0.00
P-63	PRV-16	J-35	222	8.0	Ductile Iron	130.0	0.0	0.00
P-65	FH-10	J-3	221	8.0	Ductile Iron	130.0	135.9	0.87
P-80	FH-12	FH-13	297	8.0	Ductile Iron	130.0	-264.9	1.69
P-85	FH-13	J-35	23	8.0	Ductile Iron	130.0	-264.9	1.69
P-90	J-35	FH-14	182	8.0	Ductile Iron	130.0	-264.9	1.69
P-95	FH-14	FH-15	304	8.0	Ductile Iron	130.0	-264.9	1.69
P-100	FH-15	FH-16	254	8.0	Ductile Iron	130.0	-264.9	1.69
P-105	FH-16	FH-17	362	8.0	Ductile Iron	130.0	-264.9	1.69
P-110	FH-17	FH-18	393	8.0	Ductile Iron	130.0	-264.9	1.69
P-115	FH-18	EX J-5	120	8.0	Ductile Iron	130.0	-264.9	1.69
P-120	EX J-41	J-42	719	8.0	Ductile Iron	130.0	0.0	0.00
P-PMP-1	PMP-1	EX FH-TEST-1	1	48.0	Ductile Iron	130.0	342.3	0.06
P-PMP-2	PMP-2	EX FH-TEST-2	1	48.0	Ductile Iron	130.0	523.7	0.09
P-R-1	R-1	PMP-1	1	48.0	Ductile Iron	130.0	342.3	0.06
P-R-2	R-2	PMP-2	1	48.0	Ductile Iron	130.0	523.7	0.09

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FlexTable: Junction Table

Active Scenario: Peak Hour Demand

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1	1,426.18	0.0	59	1,562.09
EX FH-2	1,416.00	0.0	60	1,553.92
EX FH-3	1,417.00	0.0	60	1,556.12
EX FH-5	1,420.00	0.0	60	1,558.55
EX FH-FLOW A-1	1,418.00	0.0	60	1,557.50
EX FH-FLOW A-2	1,432.00	0.0	71	1,596.69
EX FH-FLOW B-1	1,422.00	0.0	60	1,561.62
EX FH-FLOW B-2	1,437.00	0.0	69	1,596.21
EX FH-TEST-1	1,418.00	0.0	62	1,561.67
EX FH-TEST-2	1,434.00	0.0	70	1,596.84
EX J-5	1,425.67	22.4	59	1,561.80
EX J-7	1,418.00	0.0	62	1,561.66
EX J-10	1,417.00	0.0	61	1,557.37
EX J-15	1,416.00	1,475.9	60	1,553.67
EX J-20	1,417.00	0.0	60	1,556.53
EX J-30	1,430.55	0.0	72	1,596.51
EX J-41	1,417.00	17.1	61	1,556.89
EX J-65	1,425.89	0.0	74	1,595.97
EX J-205	1,409.00	0.0	65	1,558.15
EX J-215	1,409.00	0.0	65	1,559.74
EX J-225	1,409.00	0.0	65	1,559.74
EX J-235	1,409.00	0.0	65	1,559.97
EX J-245	1,418.00	0.0	62	1,561.62
EX J-255	1,428.00	0.0	58	1,562.77
EX J-265	1,432.00	0.0	62	1,574.27
FH-1	1,417.74	0.0	59	1,554.03
FH-2	1,420.79	0.0	58	1,554.23
FH-3	1,419.33	0.0	58	1,554.49
FH-4	1,422.56	0.0	57	1,554.80
FH-5	1,422.90	0.0	57	1,554.93
FH-6	1,421.53	0.0	58	1,554.73
FH-7	1,419.13	0.0	59	1,554.45
FH-9	1,422.12	0.0	57	1,554.73
FH-10	1,416.88	0.0	59	1,554.09
FH-12	1,427.09	0.0	56	1,556.31
FH-13	1,428.34	0.0	56	1,557.15
FH-14	1,428.77	0.0	56	1,557.73
FH-15	1,427.51	0.0	57	1,558.60
FH-16	1,428.92	0.0	56	1,559.32
FH-17	1,429.43	0.0	57	1,560.35
FH-18	1,426.57	0.0	58	1,561.46
J-3	1,416.56	0.0	59	1,553.91
J-8	1,423.28	0.0	57	1,554.95
J-35	1,428.39	0.0	56	1,557.22
J-42	1,422.00	0.0	58	1,556.89
J-45	1,423.09	0.0	57	1,555.05

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FlexTable: Junction Table
Active Scenario: Peak Hour Demand

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
J-46	1,426.00	0.0	56	1,555.90
J-47	1,426.59	0.0	56	1,556.16

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FlexTable: Pipe Table

Active Scenario: Peak Hour Demand

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
EX P-5	EX FH-TEST-2	EX FH-FLOW B-2	1,194	12.0	Asbestos Cement	140.0	461.4	1.31
EX P-10	EX FH-FLOW A-2	EX FH-TEST-2	311	12.0	Asbestos Cement	140.0	-443.3	1.26
EX P-15	EX J-30	EX FH-FLOW A-2	377	12.0	Asbestos Cement	140.0	-443.3	1.26
EX P-20	EX J-65	EX J-30	1,094	12.0	Asbestos Cement	140.0	-443.3	1.26
EX P-25	EX PRV-1	EX FH-5	335	8.0	Asbestos Cement	140.0	443.3	2.83
EX P-27	EX J-65	EX PRV-1	423	8.0	Asbestos Cement	140.0	443.3	2.83
EX P-30	EX FH-FLOW A-1	EX FH-5	297	8.0	Asbestos Cement	140.0	-443.3	2.83
EX P-35	EX J-20	EX FH-FLOW A-1	274	8.0	Asbestos Cement	140.0	-443.3	2.83
EX P-40	EX FH-3	EX J-20	44	8.0	Ductile Iron	130.0	-693.3	4.43
EX P-45	EX FH-2	EX FH-3	238	8.0	Ductile Iron	130.0	-693.3	4.43
EX P-50	EX J-15	EX FH-2	27	8.0	Ductile Iron	130.0	-693.3	4.43
EX P-50	EX J-41	EX J-15	891	8.0	Ductile Iron	130.0	416.8	2.66
EX P-55	EX J-10	EX J-41	123	8.0	Ductile Iron	130.0	434.0	2.77
EX P-60	EX FH-TEST-1	EX J-10	1,268	8.0	Asbestos Cement	140.0	434.0	2.77
EX P-62	EX J-7	EX FH-TEST-1	20	8.0	Asbestos Cement	140.0	-176.9	1.13
EX P-64	EX J-5	EX J-7	981	8.0	Ductile Iron	130.0	73.2	0.47
EX P-65	EX FH-1	EX J-5	77	8.0	Asbestos Cement	140.0	461.4	2.94
EX P-67	EX J-7	EX J-245	31	8.0	Asbestos Cement	140.0	250.0	1.60
EX P-69	EX J-245	EX FH-FLOW B-1	449	8.0	Asbestos Cement	140.0	0.0	0.00
EX P-200	EX J-20	EX J-205	1,322	8.0	Asbestos Cement	140.0	-250.0	1.60
EX P-210	EX J-205	EX J-215	1,300	8.0	Asbestos Cement	140.0	-250.0	1.60
EX P-220	EX J-215	EX J-225	47	12.0	Asbestos Cement	140.0	-250.0	0.71
EX P-230	EX J-225	EX J-235	1,341	12.0	Asbestos Cement	140.0	-250.0	0.71
EX P-240	EX J-235	EX J-245	1,349	8.0	Asbestos Cement	140.0	-250.0	1.60
EX P-250	EX FH-1	EX J-255	179	8.0	Asbestos Cement	140.0	-461.4	2.94
EX P-260	EX J-255	EX J-265	2,637	8.0	Ductile Iron	130.0	-461.4	2.94
EX P-270	EX PRV-2	EX J-265	872	12.0	Asbestos Cement	140.0	461.4	1.31
EX P-280	EX FH-FLOW B-2	EX PRV-2	2,664	12.0	Asbestos Cement	140.0	461.4	1.31
P-5	EX J-15	J-3	84	8.0	Ductile Iron	130.0	-365.8	2.33
P-10	J-3	FH-1	168	8.0	Ductile Iron	130.0	-178.2	1.14

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FlexTable: Pipe Table

Active Scenario: Peak Hour Demand

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-15	FH-1	FH-2	263	8.0	Ductile Iron	130.0	-178.2	1.14
P-20	FH-2	FH-3	346	8.0	Ductile Iron	130.0	-178.2	1.14
P-25	FH-3	FH-9	315	8.0	Ductile Iron	130.0	-178.2	1.14
P-27	FH-9	FH-4	96	8.0	Ductile Iron	130.0	-178.2	1.14
P-30	FH-4	J-45	340	8.0	Ductile Iron	130.0	-178.2	1.14
P-32	J-45	J-8	120	8.0	Ductile Iron	130.0	187.6	1.20
P-35	J-8	FH-5	29	8.0	Ductile Iron	130.0	187.6	1.20
P-40	FH-5	FH-6	240	8.0	Ductile Iron	130.0	187.6	1.20
P-45	FH-6	FH-7	342	8.0	Ductile Iron	130.0	187.6	1.20
P-53	J-47	FH-12	52	8.0	Ductile Iron	130.0	-365.8	2.33
P-55	FH-10	FH-7	436	8.0	Ductile Iron	130.0	-187.6	1.20
P-57	J-45	J-46	299	8.0	Ductile Iron	130.0	-365.8	2.33
P-58	J-46	J-47	93	8.0	Ductile Iron	130.0	-365.8	2.33
P-62	EX J-30	PRV-16	102	8.0	Ductile Iron	130.0	0.0	0.00
P-63	PRV-16	J-35	222	8.0	Ductile Iron	130.0	0.0	0.00
P-65	FH-10	J-3	221	8.0	Ductile Iron	130.0	187.6	1.20
P-80	FH-12	FH-13	297	8.0	Ductile Iron	130.0	-365.8	2.33
P-85	FH-13	J-35	23	8.0	Ductile Iron	130.0	-365.8	2.33
P-90	J-35	FH-14	182	8.0	Ductile Iron	130.0	-365.8	2.33
P-95	FH-14	FH-15	304	8.0	Ductile Iron	130.0	-365.8	2.33
P-100	FH-15	FH-16	254	8.0	Ductile Iron	130.0	-365.8	2.33
P-105	FH-16	FH-17	362	8.0	Ductile Iron	130.0	-365.8	2.33
P-110	FH-17	FH-18	393	8.0	Ductile Iron	130.0	-365.8	2.33
P-115	FH-18	EX J-5	120	8.0	Ductile Iron	130.0	-365.8	2.33
P-120	EX J-41	J-42	719	8.0	Ductile Iron	130.0	0.0	0.00
P-PMP-1	PMP-1	EX FH-TEST-1	1	48.0	Ductile Iron	130.0	610.8	0.11
P-PMP-2	PMP-2	EX FH-TEST-2	1	48.0	Ductile Iron	130.0	904.7	0.16
P-R-1	R-1	PMP-1	1	48.0	Ductile Iron	130.0	610.8	0.11
P-R-2	R-2	PMP-2	1	48.0	Ductile Iron	130.0	904.7	0.16
P-R-3	R-3	EX FH-TEST-2	1	48.0	Ductile Iron	130.0	(N/A)	(N/A)

Industrial area FF?

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FlexTable: Junction Table

Active Scenario: Max Day + Fire Flow FH-4

Label	Zone	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1	Zone - 2	1,426.18	0.0	57	1,557.99
EX FH-2	Zone - 2	1,416.00	0.0	51	1,532.84
EX FH-3	Zone - 2	1,417.00	0.0	54	1,541.74
EX FH-5	Zone - 2	1,420.00	0.0	58	1,553.20
EX FH-FLOW A-1	Zone - 2	1,418.00	0.0	56	1,548.09
EX FH-FLOW A-2	Zone - 3	1,432.00	0.0	61	1,572.10
EX FH-FLOW B-1	Zone - 2	1,422.00	0.0	59	1,557.36
EX FH-FLOW B-2	Zone - 3	1,437.00	0.0	59	1,574.08
EX FH-TEST-1	Zone - 2	1,418.00	0.0	60	1,557.51
EX FH-TEST-2	Zone - 3	1,434.00	0.0	61	1,574.80
EX J-5	Zone - 2	1,425.67	12.8	57	1,557.65
EX J-7	Zone - 2	1,418.00	0.0	60	1,557.47
EX J-10	Zone - 2	1,417.00	0.0	55	1,543.99
EX J-15	Zone - 2	1,416.00	843.4	50	1,531.82
EX J-20	Zone - 2	1,417.00	0.0	55	1,543.38
EX J-30	Zone - 3	1,430.55	0.0	60	1,568.84
EX J-41	Zone - 2	1,417.00	9.8	54	1,542.48
EX J-65	Zone - 3	1,425.89	0.0	61	1,566.23
EX J-205	Zone - 2	1,409.00	0.0	60	1,547.82
EX J-215	Zone - 2	1,409.00	0.0	62	1,552.18
EX J-225	Zone - 2	1,409.00	0.0	62	1,552.21
EX J-235	Zone - 2	1,409.00	0.0	62	1,552.83
EX J-245	Zone - 2	1,418.00	0.0	60	1,557.36
EX J-255	Zone - 2	1,428.00	0.0	57	1,558.77
EX J-265	Zone - 2	1,432.00	0.0	61	1,571.94
FH-1	Zone - 2	1,417.74	0.0	47	1,525.54
FH-2	Zone - 2	1,420.79	0.0	43	1,520.37
FH-3	Zone - 2	1,419.33	0.0	41	1,513.54
FH-4	Zone - 2	1,422.56	2,875.0	36	1,505.45
FH-5	Zone - 2	1,422.90	0.0	44	1,525.01
FH-6	Zone - 2	1,421.53	0.0	45	1,525.75
FH-7	Zone - 2	1,419.13	0.0	47	1,526.81
FH-9	Zone - 2	1,422.12	0.0	37	1,507.34
FH-10	Zone - 2	1,416.88	0.0	48	1,528.16
FH-12	Zone - 2	1,427.09	0.0	49	1,540.66
FH-13	Zone - 2	1,428.34	0.0	53	1,551.44
FH-14	Zone - 2	1,428.77	0.0	54	1,552.89
FH-15	Zone - 2	1,427.51	0.0	55	1,553.90
FH-16	Zone - 2	1,428.92	0.0	54	1,554.74
FH-17	Zone - 2	1,429.43	0.0	55	1,555.95
FH-18	Zone - 2	1,426.57	0.0	57	1,557.26
J-3	Zone - 2	1,416.56	0.0	49	1,528.85
J-8	Zone - 2	1,423.28	0.0	44	1,524.92
J-35	Zone - 2	1,428.39	0.0	54	1,552.28
J-42	Zone - 2	1,422.00	0.0	52	1,542.48
J-45	Zone - 2	1,423.09	0.0	44	1,524.54

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FlexTable: Junction Table

Active Scenario: Max Day + Fire Flow FH-4

Label	Zone	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
J-46	Zone - 2	1,426.00	0.0	47	1,535.38
J-47	Zone - 2	1,426.59	0.0	49	1,538.77

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FlexTable: Pipe Table

Active Scenario: Max Day + Fire Flow FH-4

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
EX P-5	EX FH-TEST-2	EX FH-FLOW B-2	1,194	12.0	Asbestos Cement	140.0	496.5	1.41
EX P-10	EX FH-FLOW A-2	EX FH-TEST-2	311	12.0	Asbestos Cement	140.0	-2,091.8	5.93
EX P-15	EX J-30	EX FH-FLOW A-2	377	12.0	Asbestos Cement	140.0	-2,091.8	5.93
EX P-20	EX J-65	EX J-30	1,094	12.0	Asbestos Cement	140.0	-1,042.1	2.96
EX P-25	EX PRV-1	EX FH-5	335	8.0	Asbestos Cement	140.0	1,042.1	6.65
EX P-27	EX J-65	EX PRV-1	423	8.0	Asbestos Cement	140.0	1,042.1	6.65
EX P-30	EX FH-FLOW A-1	EX FH-5	297	8.0	Asbestos Cement	140.0	-1,042.1	6.65
EX P-35	EX J-20	EX FH-FLOW A-1	274	8.0	Asbestos Cement	140.0	-1,042.1	6.65
EX P-40	EX FH-3	EX J-20	44	8.0	Ductile Iron	130.0	-1,473.6	9.41
EX P-45	EX FH-2	EX FH-3	238	8.0	Ductile Iron	130.0	-1,473.6	9.41
EX P-50	EX J-15	EX FH-2	27	8.0	Ductile Iron	130.0	-1,473.6	9.41
EX P-50	EX J-41	EX J-15	891	8.0	Ductile Iron	130.0	795.6	5.08
EX P-55	EX J-10	EX J-41	123	8.0	Ductile Iron	130.0	805.4	5.14
EX P-60	EX FH-TEST-1	EX J-10	1,268	8.0	Asbestos Cement	140.0	805.4	5.14
EX P-62	EX J-7	EX FH-TEST-1	20	8.0	Asbestos Cement	140.0	-346.5	2.21
EX P-64	EX J-5	EX J-7	981	8.0	Ductile Iron	130.0	85.0	0.54
EX P-65	EX FH-1	EX J-5	77	8.0	Asbestos Cement	140.0	496.5	3.17
EX P-67	EX J-7	EX J-245	31	8.0	Asbestos Cement	140.0	431.6	2.75
EX P-69	EX J-245	EX FH-FLOW B-1	449	8.0	Asbestos Cement	140.0	0.0	0.00
EX P-200	EX J-20	EX J-205	1,322	8.0	Asbestos Cement	140.0	-431.6	2.75
EX P-210	EX J-205	EX J-215	1,300	8.0	Asbestos Cement	140.0	-431.6	2.75
EX P-220	EX J-215	EX J-225	47	12.0	Asbestos Cement	140.0	-431.6	1.22
EX P-230	EX J-225	EX J-235	1,341	12.0	Asbestos Cement	140.0	-431.6	1.22
EX P-240	EX J-235	EX J-245	1,349	8.0	Asbestos Cement	140.0	-431.6	2.75
EX P-250	EX FH-1	EX J-255	179	8.0	Asbestos Cement	140.0	-496.5	3.17
EX P-260	EX J-255	EX J-265	2,637	8.0	Ductile Iron	130.0	-496.5	3.17
EX P-270	EX PRV-2	EX J-265	872	12.0	Asbestos Cement	140.0	496.5	1.41
EX P-280	EX FH-FLOW B-2	EX PRV-2	2,664	12.0	Asbestos Cement	140.0	496.5	1.41
P-5	EX J-15	J-3	84	8.0	Ductile Iron	130.0	1,425.9	9.10
P-10	J-3	FH-1	168	8.0	Ductile Iron	130.0	1,041.9	6.65

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FlexTable: Pipe Table

Active Scenario: Max Day + Fire Flow FH-4

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-15	FH-1	FH-2	263	8.0	Ductile Iron	130.0	1,041.9	6.65
P-20	FH-2	FH-3	346	8.0	Ductile Iron	130.0	1,041.9	6.65
P-25	FH-3	FH-9	315	8.0	Ductile Iron	130.0	1,041.9	6.65
P-27	FH-9	FH-4	96	8.0	Ductile Iron	130.0	1,041.9	6.65
P-30	FH-4	J-45	340	8.0	Ductile Iron	130.0	-1,833.1	11.70
P-32	J-45	J-8	120	8.0	Ductile Iron	130.0	-383.9	2.45
P-35	J-8	FH-5	29	8.0	Ductile Iron	130.0	-383.9	2.45
P-40	FH-5	FH-6	240	8.0	Ductile Iron	130.0	-383.9	2.45
P-45	FH-6	FH-7	342	8.0	Ductile Iron	130.0	-383.9	2.45
P-53	J-47	FH-12	52	8.0	Ductile Iron	130.0	-1,449.1	9.25
P-55	FH-10	FH-7	436	8.0	Ductile Iron	130.0	383.9	2.45
P-57	J-45	J-46	299	8.0	Ductile Iron	130.0	-1,449.1	9.25
P-58	J-46	J-47	93	8.0	Ductile Iron	130.0	-1,449.1	9.25
P-62	EX J-30	PRV-16	102	8.0	Ductile Iron	130.0	1,049.7	6.70
P-63	PRV-16	J-35	222	8.0	Ductile Iron	130.0	1,050.4	6.70
P-65	FH-10	J-3	221	8.0	Ductile Iron	130.0	-383.9	2.45
P-80	FH-12	FH-13	297	8.0	Ductile Iron	130.0	-1,449.1	9.25
P-85	FH-13	J-35	23	8.0	Ductile Iron	130.0	-1,449.1	9.25
P-90	J-35	FH-14	182	8.0	Ductile Iron	130.0	-398.7	2.54
P-95	FH-14	FH-15	304	8.0	Ductile Iron	130.0	-398.7	2.54
P-100	FH-15	FH-16	254	8.0	Ductile Iron	130.0	-398.7	2.54
P-105	FH-16	FH-17	362	8.0	Ductile Iron	130.0	-398.7	2.54
P-110	FH-17	FH-18	393	8.0	Ductile Iron	130.0	-398.7	2.54
P-115	FH-18	EX J-5	120	8.0	Ductile Iron	130.0	-398.7	2.54
P-120	EX J-41	J-42	719	8.0	Ductile Iron	130.0	0.0	0.00
P-PMP-1	PMP-1	EX FH-TEST-1	1	48.0	Ductile Iron	130.0	1,152.0	0.20
P-PMP-2	PMP-2	EX FH-TEST-2	1	48.0	Ductile Iron	130.0	2,588.4	0.46
P-R-1	R-1	PMP-1	1	48.0	Ductile Iron	130.0	1,152.0	0.20
P-R-2	R-2	PMP-2	1	48.0	Ductile Iron	130.0	2,588.4	0.46

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FlexTable: Junction Table

Active Scenario: Max Day + Fire Flow FH-5

Label	Zone	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1	Zone - 2	1,426.18	0.0	57	1,558.03
EX FH-2	Zone - 2	1,416.00	0.0	51	1,533.97
EX FH-3	Zone - 2	1,417.00	0.0	54	1,542.51
EX FH-5	Zone - 2	1,420.00	0.0	58	1,553.52
EX FH-FLOW A-1	Zone - 2	1,418.00	0.0	57	1,548.62
EX FH-FLOW A-2	Zone - 3	1,432.00	0.0	61	1,571.86
EX FH-FLOW B-1	Zone - 2	1,422.00	0.0	59	1,557.47
EX FH-FLOW B-2	Zone - 3	1,437.00	0.0	59	1,573.88
EX FH-TEST-1	Zone - 2	1,418.00	0.0	60	1,557.62
EX FH-TEST-2	Zone - 3	1,434.00	0.0	61	1,574.60
EX J-5	Zone - 2	1,425.67	12.8	57	1,557.70
EX J-7	Zone - 2	1,418.00	0.0	60	1,557.57
EX J-10	Zone - 2	1,417.00	0.0	55	1,544.65
EX J-15	Zone - 2	1,416.00	843.4	51	1,532.99
EX J-20	Zone - 2	1,417.00	0.0	55	1,544.09
EX J-30	Zone - 3	1,430.55	0.0	60	1,568.55
EX J-41	Zone - 2	1,417.00	9.8	55	1,543.20
EX J-65	Zone - 3	1,425.89	0.0	61	1,566.05
EX J-205	Zone - 2	1,409.00	0.0	60	1,548.34
EX J-215	Zone - 2	1,409.00	0.0	62	1,552.51
EX J-225	Zone - 2	1,409.00	0.0	62	1,552.54
EX J-235	Zone - 2	1,409.00	0.0	62	1,553.13
EX J-245	Zone - 2	1,418.00	0.0	60	1,557.47
EX J-255	Zone - 2	1,428.00	0.0	57	1,558.80
EX J-265	Zone - 2	1,432.00	0.0	60	1,571.78
FH-1	Zone - 2	1,417.74	0.0	48	1,529.36
FH-2	Zone - 2	1,420.79	0.0	46	1,528.02
FH-3	Zone - 2	1,419.33	0.0	46	1,526.26
FH-4	Zone - 2	1,422.56	0.0	44	1,524.17
FH-5	Zone - 2	1,422.90	2,875.0	39	1,512.57
FH-6	Zone - 2	1,421.53	0.0	41	1,515.99
FH-7	Zone - 2	1,419.13	0.0	44	1,520.86
FH-9	Zone - 2	1,422.12	0.0	44	1,524.66
FH-10	Zone - 2	1,416.88	0.0	48	1,527.06
FH-12	Zone - 2	1,427.09	0.0	49	1,539.61
FH-13	Zone - 2	1,428.34	0.0	53	1,551.09
FH-14	Zone - 2	1,428.77	0.0	54	1,552.63
FH-15	Zone - 2	1,427.51	0.0	55	1,553.71
FH-16	Zone - 2	1,428.92	0.0	54	1,554.60
FH-17	Zone - 2	1,429.43	0.0	55	1,555.88
FH-18	Zone - 2	1,426.57	0.0	57	1,557.27
J-3	Zone - 2	1,416.56	0.0	49	1,530.21
J-8	Zone - 2	1,423.28	0.0	39	1,514.50
J-35	Zone - 2	1,428.39	0.0	53	1,551.99
J-42	Zone - 2	1,422.00	0.0	52	1,543.20
J-45	Zone - 2	1,423.09	0.0	43	1,522.44

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FlexTable: Junction Table

Active Scenario: Max Day + Fire Flow FH-5

Label	Zone	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
J-46	Zone - 2	1,426.00	0.0	47	1,533.99
J-47	Zone - 2	1,426.59	0.0	48	1,537.60

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FlexTable: Pipe Table

Active Scenario: Max Day + Fire Flow FH-5

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
EX P-5	EX FH-TEST-2	EX FH-FLOW B-2	1,194	12.0	Asbestos Cement	140.0	492.7	1.40
EX P-10	EX FH-FLOW A-2	EX FH-TEST-2	311	12.0	Asbestos Cement	140.0	-2,106.8	5.98
EX P-15	EX J-30	EX FH-FLOW A-2	377	12.0	Asbestos Cement	140.0	-2,106.8	5.98
EX P-20	EX J-65	EX J-30	1,094	12.0	Asbestos Cement	140.0	-1,020.0	2.89
EX P-25	EX PRV-1	EX FH-5	335	8.0	Asbestos Cement	140.0	1,020.0	6.51
EX P-27	EX J-65	EX PRV-1	423	8.0	Asbestos Cement	140.0	1,020.0	6.51
EX P-30	EX FH-FLOW A-1	EX FH-5	297	8.0	Asbestos Cement	140.0	-1,020.0	6.51
EX P-35	EX J-20	EX FH-FLOW A-1	274	8.0	Asbestos Cement	140.0	-1,020.0	6.51
EX P-40	EX FH-3	EX J-20	44	8.0	Ductile Iron	130.0	-1,441.5	9.20
EX P-45	EX FH-2	EX FH-3	238	8.0	Ductile Iron	130.0	-1,441.5	9.20
EX P-50	EX J-15	EX FH-2	27	8.0	Ductile Iron	130.0	-1,441.5	9.20
EX P-50	EX J-41	EX J-15	891	8.0	Ductile Iron	130.0	777.6	4.96
EX P-55	EX J-10	EX J-41	123	8.0	Ductile Iron	130.0	787.4	5.03
EX P-60	EX FH-TEST-1	EX J-10	1,268	8.0	Asbestos Cement	140.0	787.4	5.03
EX P-62	EX J-7	EX FH-TEST-1	20	8.0	Asbestos Cement	140.0	-353.6	2.26
EX P-64	EX J-5	EX J-7	981	8.0	Ductile Iron	130.0	67.9	0.43
EX P-65	EX FH-1	EX J-5	77	8.0	Asbestos Cement	140.0	492.7	3.14
EX P-67	EX J-7	EX J-245	31	8.0	Asbestos Cement	140.0	421.5	2.69
EX P-69	EX J-245	EX FH-FLOW B-1	449	8.0	Asbestos Cement	140.0	0.0	0.00
EX P-200	EX J-20	EX J-205	1,322	8.0	Asbestos Cement	140.0	-421.5	2.69
EX P-210	EX J-205	EX J-215	1,300	8.0	Asbestos Cement	140.0	-421.5	2.69
EX P-220	EX J-215	EX J-225	47	12.0	Asbestos Cement	140.0	-421.5	1.20
EX P-230	EX J-225	EX J-235	1,341	12.0	Asbestos Cement	140.0	-421.5	1.20
EX P-240	EX J-235	EX J-245	1,349	8.0	Asbestos Cement	140.0	-421.5	2.69
EX P-250	EX FH-1	EX J-255	179	8.0	Asbestos Cement	140.0	-492.7	3.14
EX P-260	EX J-255	EX J-265	2,637	8.0	Ductile Iron	130.0	-492.7	3.14
EX P-270	EX PRV-2	EX J-265	872	12.0	Asbestos Cement	140.0	492.7	1.40
EX P-280	EX FH-FLOW B-2	EX PRV-2	2,664	12.0	Asbestos Cement	140.0	492.7	1.40
P-5	EX J-15	J-3	84	8.0	Ductile Iron	130.0	1,375.7	8.78
P-10	J-3	FH-1	168	8.0	Ductile Iron	130.0	501.4	3.20

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FlexTable: Pipe Table

Active Scenario: Max Day + Fire Flow FH-5

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-15	FH-1	FH-2	263	8.0	Ductile Iron	130.0	501.4	3.20
P-20	FH-2	FH-3	346	8.0	Ductile Iron	130.0	501.4	3.20
P-25	FH-3	FH-9	315	8.0	Ductile Iron	130.0	501.4	3.20
P-27	FH-9	FH-4	96	8.0	Ductile Iron	130.0	501.4	3.20
P-30	FH-4	J-45	340	8.0	Ductile Iron	130.0	501.4	3.20
P-32	J-45	J-8	120	8.0	Ductile Iron	130.0	2,000.8	12.77
P-35	J-8	FH-5	29	8.0	Ductile Iron	130.0	2,000.8	12.77
P-40	FH-5	FH-6	240	8.0	Ductile Iron	130.0	-874.2	5.58
P-45	FH-6	FH-7	342	8.0	Ductile Iron	130.0	-874.2	5.58
P-53	J-47	FH-12	52	8.0	Ductile Iron	130.0	-1,499.3	9.57
P-55	FH-10	FH-7	436	8.0	Ductile Iron	130.0	874.2	5.58
P-57	J-45	J-46	299	8.0	Ductile Iron	130.0	-1,499.3	9.57
P-58	J-46	J-47	93	8.0	Ductile Iron	130.0	-1,499.3	9.57
P-62	EX J-30	PRV-16	102	8.0	Ductile Iron	130.0	1,086.8	6.94
P-63	PRV-16	J-35	222	8.0	Ductile Iron	130.0	1,087.4	6.94
P-65	FH-10	J-3	221	8.0	Ductile Iron	130.0	-874.2	5.58
P-80	FH-12	FH-13	297	8.0	Ductile Iron	130.0	-1,499.3	9.57
P-85	FH-13	J-35	23	8.0	Ductile Iron	130.0	-1,499.3	9.57
P-90	J-35	FH-14	182	8.0	Ductile Iron	130.0	-412.0	2.63
P-95	FH-14	FH-15	304	8.0	Ductile Iron	130.0	-412.0	2.63
P-100	FH-15	FH-16	254	8.0	Ductile Iron	130.0	-412.0	2.63
P-105	FH-16	FH-17	362	8.0	Ductile Iron	130.0	-412.0	2.63
P-110	FH-17	FH-18	393	8.0	Ductile Iron	130.0	-412.0	2.63
P-115	FH-18	EX J-5	120	8.0	Ductile Iron	130.0	-412.0	2.63
P-120	EX J-41	J-42	719	8.0	Ductile Iron	130.0	0.0	0.00
P-PMP-1	PMP-1	EX FH-TEST-1	1	48.0	Ductile Iron	130.0	1,140.9	0.20
P-PMP-2	PMP-2	EX FH-TEST-2	1	48.0	Ductile Iron	130.0	2,599.5	0.46
P-R-1	R-1	PMP-1	1	48.0	Ductile Iron	130.0	1,140.9	0.20
P-R-2	R-2	PMP-2	1	48.0	Ductile Iron	130.0	2,599.5	0.46

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FlexTable: Junction Table

Active Scenario: Max Day + Fire Flow FH-6

Label	Zone	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1	Zone - 2	1,426.18	0.0	57	1,557.98
EX FH-2	Zone - 2	1,416.00	0.0	50	1,532.46
EX FH-3	Zone - 2	1,417.00	0.0	54	1,541.48
EX FH-5	Zone - 2	1,420.00	0.0	58	1,553.09
EX FH-FLOW A-1	Zone - 2	1,418.00	0.0	56	1,547.92
EX FH-FLOW A-2	Zone - 3	1,432.00	0.0	61	1,572.18
EX FH-FLOW B-1	Zone - 2	1,422.00	0.0	59	1,557.33
EX FH-FLOW B-2	Zone - 3	1,437.00	0.0	59	1,574.14
EX FH-TEST-1	Zone - 2	1,418.00	0.0	60	1,557.48
EX FH-TEST-2	Zone - 3	1,434.00	0.0	61	1,574.87
EX J-5	Zone - 2	1,425.67	12.8	57	1,557.64
EX J-7	Zone - 2	1,418.00	0.0	60	1,557.43
EX J-10	Zone - 2	1,417.00	0.0	55	1,543.76
EX J-15	Zone - 2	1,416.00	843.4	50	1,531.42
EX J-20	Zone - 2	1,417.00	0.0	55	1,543.14
EX J-30	Zone - 3	1,430.55	0.0	60	1,568.93
EX J-41	Zone - 2	1,417.00	9.8	54	1,542.23
EX J-65	Zone - 3	1,425.89	0.0	61	1,566.29
EX J-205	Zone - 2	1,409.00	0.0	60	1,547.64
EX J-215	Zone - 2	1,409.00	0.0	62	1,552.07
EX J-225	Zone - 2	1,409.00	0.0	62	1,552.10
EX J-235	Zone - 2	1,409.00	0.0	62	1,552.73
EX J-245	Zone - 2	1,418.00	0.0	60	1,557.33
EX J-255	Zone - 2	1,428.00	0.0	57	1,558.76
EX J-265	Zone - 2	1,432.00	0.0	61	1,572.00
FH-1	Zone - 2	1,417.74	0.0	48	1,528.04
FH-2	Zone - 2	1,420.79	0.0	46	1,527.50
FH-3	Zone - 2	1,419.33	0.0	46	1,526.78
FH-4	Zone - 2	1,422.56	0.0	45	1,525.93
FH-5	Zone - 2	1,422.90	0.0	41	1,517.60
FH-6	Zone - 2	1,421.53	2,875.0	36	1,505.36
FH-7	Zone - 2	1,419.13	0.0	41	1,513.24
FH-9	Zone - 2	1,422.12	0.0	45	1,526.13
FH-10	Zone - 2	1,416.88	0.0	46	1,523.30
FH-12	Zone - 2	1,427.09	0.0	49	1,541.00
FH-13	Zone - 2	1,428.34	0.0	53	1,551.55
FH-14	Zone - 2	1,428.77	0.0	54	1,552.97
FH-15	Zone - 2	1,427.51	0.0	55	1,553.96
FH-16	Zone - 2	1,428.92	0.0	54	1,554.79
FH-17	Zone - 2	1,429.43	0.0	55	1,555.97
FH-18	Zone - 2	1,426.57	0.0	57	1,557.25
J-3	Zone - 2	1,416.56	0.0	48	1,528.39
J-8	Zone - 2	1,423.28	0.0	41	1,519.09
J-35	Zone - 2	1,428.39	0.0	54	1,552.38
J-42	Zone - 2	1,422.00	0.0	52	1,542.23
J-45	Zone - 2	1,423.09	0.0	44	1,525.23

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FlexTable: Junction Table

Active Scenario: Max Day + Fire Flow FH-6

Label	Zone	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
J-46	Zone - 2	1,426.00	0.0	48	1,535.84
J-47	Zone - 2	1,426.59	0.0	49	1,539.16

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FlexTable: Pipe Table

Active Scenario: Max Day + Fire Flow FH-6

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
EX P-5	EX FH-TEST-2	EX FH-FLOW B-2	1,194	12.0	Asbestos Cement	140.0	497.8	1.41
EX P-10	EX FH-FLOW A-2	EX FH-TEST-2	311	12.0	Asbestos Cement	140.0	-2,086.8	5.92
EX P-15	EX J-30	EX FH-FLOW A-2	377	12.0	Asbestos Cement	140.0	-2,086.8	5.92
EX P-20	EX J-65	EX J-30	1,094	12.0	Asbestos Cement	140.0	-1,049.5	2.98
EX P-25	EX PRV-1	EX FH-5	335	8.0	Asbestos Cement	140.0	1,049.5	6.70
EX P-27	EX J-65	EX PRV-1	423	8.0	Asbestos Cement	140.0	1,049.5	6.70
EX P-30	EX FH-FLOW A-1	EX FH-5	297	8.0	Asbestos Cement	140.0	-1,049.5	6.70
EX P-35	EX J-20	EX FH-FLOW A-1	274	8.0	Asbestos Cement	140.0	-1,049.5	6.70
EX P-40	EX FH-3	EX J-20	44	8.0	Ductile Iron	130.0	-1,484.4	9.47
EX P-45	EX FH-2	EX FH-3	238	8.0	Ductile Iron	130.0	-1,484.4	9.47
EX P-50	EX J-15	EX FH-2	27	8.0	Ductile Iron	130.0	-1,484.4	9.47
EX P-50	EX J-41	EX J-15	891	8.0	Ductile Iron	130.0	801.7	5.12
EX P-55	EX J-10	EX J-41	123	8.0	Ductile Iron	130.0	811.5	5.18
EX P-60	EX FH-TEST-1	EX J-10	1,268	8.0	Asbestos Cement	140.0	811.5	5.18
EX P-62	EX J-7	EX FH-TEST-1	20	8.0	Asbestos Cement	140.0	-344.2	2.20
EX P-64	EX J-5	EX J-7	981	8.0	Ductile Iron	130.0	90.7	0.58
EX P-65	EX FH-1	EX J-5	77	8.0	Asbestos Cement	140.0	497.8	3.18
EX P-67	EX J-7	EX J-245	31	8.0	Asbestos Cement	140.0	434.9	2.78
EX P-69	EX J-245	EX FH-FLOW B-1	449	8.0	Asbestos Cement	140.0	0.0	0.00
EX P-200	EX J-20	EX J-205	1,322	8.0	Asbestos Cement	140.0	-434.9	2.78
EX P-210	EX J-205	EX J-215	1,300	8.0	Asbestos Cement	140.0	-434.9	2.78
EX P-220	EX J-215	EX J-225	47	12.0	Asbestos Cement	140.0	-434.9	1.23
EX P-230	EX J-225	EX J-235	1,341	12.0	Asbestos Cement	140.0	-434.9	1.23
EX P-240	EX J-235	EX J-245	1,349	8.0	Asbestos Cement	140.0	-434.9	2.78
EX P-250	EX FH-1	EX J-255	179	8.0	Asbestos Cement	140.0	-497.8	3.18
EX P-260	EX J-255	EX J-265	2,637	8.0	Ductile Iron	130.0	-497.8	3.18
EX P-270	EX PRV-2	EX J-265	872	12.0	Asbestos Cement	140.0	497.8	1.41
EX P-280	EX FH-FLOW B-2	EX PRV-2	2,664	12.0	Asbestos Cement	140.0	497.8	1.41
P-5	EX J-15	J-3	84	8.0	Ductile Iron	130.0	1,442.6	9.21
P-10	J-3	FH-1	168	8.0	Ductile Iron	130.0	308.5	1.97

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FlexTable: Pipe Table

Active Scenario: Max Day + Fire Flow FH-6

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-15	FH-1	FH-2	263	8.0	Ductile Iron	130.0	308.5	1.97
P-20	FH-2	FH-3	346	8.0	Ductile Iron	130.0	308.5	1.97
P-25	FH-3	FH-9	315	8.0	Ductile Iron	130.0	308.5	1.97
P-27	FH-9	FH-4	96	8.0	Ductile Iron	130.0	308.5	1.97
P-30	FH-4	J-45	340	8.0	Ductile Iron	130.0	308.5	1.97
P-32	J-45	J-8	120	8.0	Ductile Iron	130.0	1,740.9	11.11
P-35	J-8	FH-5	29	8.0	Ductile Iron	130.0	1,740.9	11.11
P-40	FH-5	FH-6	240	8.0	Ductile Iron	130.0	1,740.9	11.11
P-45	FH-6	FH-7	342	8.0	Ductile Iron	130.0	-1,134.1	7.24
P-53	J-47	FH-12	52	8.0	Ductile Iron	130.0	-1,432.4	9.14
P-55	FH-10	FH-7	436	8.0	Ductile Iron	130.0	1,134.1	7.24
P-57	J-45	J-46	299	8.0	Ductile Iron	130.0	-1,432.4	9.14
P-58	J-46	J-47	93	8.0	Ductile Iron	130.0	-1,432.4	9.14
P-62	EX J-30	PRV-16	102	8.0	Ductile Iron	130.0	1,037.3	6.62
P-63	PRV-16	J-35	222	8.0	Ductile Iron	130.0	1,038.0	6.63
P-65	FH-10	J-3	221	8.0	Ductile Iron	130.0	-1,134.1	7.24
P-80	FH-12	FH-13	297	8.0	Ductile Iron	130.0	-1,432.4	9.14
P-85	FH-13	J-35	23	8.0	Ductile Iron	130.0	-1,432.4	9.14
P-90	J-35	FH-14	182	8.0	Ductile Iron	130.0	-394.3	2.52
P-95	FH-14	FH-15	304	8.0	Ductile Iron	130.0	-394.3	2.52
P-100	FH-15	FH-16	254	8.0	Ductile Iron	130.0	-394.3	2.52
P-105	FH-16	FH-17	362	8.0	Ductile Iron	130.0	-394.3	2.52
P-110	FH-17	FH-18	393	8.0	Ductile Iron	130.0	-394.3	2.52
P-115	FH-18	EX J-5	120	8.0	Ductile Iron	130.0	-394.3	2.52
P-120	EX J-41	J-42	719	8.0	Ductile Iron	130.0	0.0	0.00
P-PMP-1	PMP-1	EX FH-TEST-1	1	48.0	Ductile Iron	130.0	1,155.7	0.20
P-PMP-2	PMP-2	EX FH-TEST-2	1	48.0	Ductile Iron	130.0	2,584.6	0.46
P-R-1	R-1	PMP-1	1	48.0	Ductile Iron	130.0	1,155.7	0.20
P-R-2	R-2	PMP-2	1	48.0	Ductile Iron	130.0	2,584.6	0.46

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FlexTable: Junction Table

Active Scenario: Max Day + Fire Flow FH-4+5

Label	Zone	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1	Zone - 2	1,426.18	0.0	57	1,558.03
EX FH-2	Zone - 2	1,416.00	0.0	51	1,534.16
EX FH-3	Zone - 2	1,417.00	0.0	54	1,542.64
EX FH-5	Zone - 2	1,420.00	0.0	58	1,553.58
EX FH-FLOW A-1	Zone - 2	1,418.00	0.0	57	1,548.71
EX FH-FLOW A-2	Zone - 3	1,432.00	0.0	60	1,571.82
EX FH-FLOW B-1	Zone - 2	1,422.00	0.0	59	1,557.49
EX FH-FLOW B-2	Zone - 3	1,437.00	0.0	59	1,573.85
EX FH-TEST-1	Zone - 2	1,418.00	0.0	60	1,557.64
EX FH-TEST-2	Zone - 3	1,434.00	0.0	61	1,574.56
EX J-5	Zone - 2	1,425.67	12.8	57	1,557.70
EX J-7	Zone - 2	1,418.00	0.0	60	1,557.59
EX J-10	Zone - 2	1,417.00	0.0	55	1,544.76
EX J-15	Zone - 2	1,416.00	843.4	51	1,533.19
EX J-20	Zone - 2	1,417.00	0.0	55	1,544.21
EX J-30	Zone - 3	1,430.55	0.0	60	1,568.50
EX J-41	Zone - 2	1,417.00	9.8	55	1,543.33
EX J-65	Zone - 3	1,425.89	0.0	61	1,566.01
EX J-205	Zone - 2	1,409.00	0.0	60	1,548.43
EX J-215	Zone - 2	1,409.00	0.0	62	1,552.57
EX J-225	Zone - 2	1,409.00	0.0	62	1,552.59
EX J-235	Zone - 2	1,409.00	0.0	62	1,553.19
EX J-245	Zone - 2	1,418.00	0.0	60	1,557.49
EX J-255	Zone - 2	1,428.00	0.0	57	1,558.80
EX J-265	Zone - 2	1,432.00	0.0	60	1,571.75
FH-1	Zone - 2	1,417.74	0.0	48	1,528.78
FH-2	Zone - 2	1,420.79	0.0	46	1,526.18
FH-3	Zone - 2	1,419.33	0.0	45	1,522.75
FH-4	Zone - 2	1,422.56	1,437.5	42	1,518.69
FH-5	Zone - 2	1,422.90	1,437.5	42	1,520.30
FH-6	Zone - 2	1,421.53	0.0	44	1,522.27
FH-7	Zone - 2	1,419.13	0.0	46	1,525.07
FH-9	Zone - 2	1,422.12	0.0	42	1,519.64
FH-10	Zone - 2	1,416.88	0.0	48	1,528.64
FH-12	Zone - 2	1,427.09	0.0	49	1,539.42
FH-13	Zone - 2	1,428.34	0.0	53	1,551.03
FH-14	Zone - 2	1,428.77	0.0	54	1,552.58
FH-15	Zone - 2	1,427.51	0.0	55	1,553.67
FH-16	Zone - 2	1,428.92	0.0	54	1,554.58
FH-17	Zone - 2	1,429.43	0.0	55	1,555.87
FH-18	Zone - 2	1,426.57	0.0	57	1,557.28
J-3	Zone - 2	1,416.56	0.0	49	1,530.44
J-8	Zone - 2	1,423.28	0.0	42	1,520.65
J-35	Zone - 2	1,428.39	0.0	53	1,551.94
J-42	Zone - 2	1,422.00	0.0	52	1,543.33
J-45	Zone - 2	1,423.09	0.0	43	1,522.07

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FlexTable: Junction Table

Active Scenario: Max Day + Fire Flow FH-4+5

Label	Zone	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
J-46	Zone - 2	1,426.00	0.0	47	1,533.74
J-47	Zone - 2	1,426.59	0.0	48	1,537.39

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FlexTable: Pipe Table

Active Scenario: Max Day + Fire Flow FH-4+5

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
EX P-5	EX FH-TEST-2	EX FH-FLOW B-2	1,194	12.0	Asbestos Cement	140.0	492.0	1.40
EX P-10	EX FH-FLOW A-2	EX FH-TEST-2	311	12.0	Asbestos Cement	140.0	-2,109.4	5.98
EX P-15	EX J-30	EX FH-FLOW A-2	377	12.0	Asbestos Cement	140.0	-2,109.4	5.98
EX P-20	EX J-65	EX J-30	1,094	12.0	Asbestos Cement	140.0	-1,016.1	2.88
EX P-25	EX PRV-1	EX FH-5	335	8.0	Asbestos Cement	140.0	1,016.1	6.49
EX P-27	EX J-65	EX PRV-1	423	8.0	Asbestos Cement	140.0	1,016.1	6.49
EX P-30	EX FH-FLOW A-1	EX FH-5	297	8.0	Asbestos Cement	140.0	-1,016.1	6.49
EX P-35	EX J-20	EX FH-FLOW A-1	274	8.0	Asbestos Cement	140.0	-1,016.1	6.49
EX P-40	EX FH-3	EX J-20	44	8.0	Ductile Iron	130.0	-1,435.9	9.16
EX P-45	EX FH-2	EX FH-3	238	8.0	Ductile Iron	130.0	-1,435.9	9.16
EX P-50	EX J-15	EX FH-2	27	8.0	Ductile Iron	130.0	-1,435.9	9.16
EX P-50	EX J-41	EX J-15	891	8.0	Ductile Iron	130.0	774.4	4.94
EX P-55	EX J-10	EX J-41	123	8.0	Ductile Iron	130.0	784.2	5.01
EX P-60	EX FH-TEST-1	EX J-10	1,268	8.0	Asbestos Cement	140.0	784.2	5.01
EX P-62	EX J-7	EX FH-TEST-1	20	8.0	Asbestos Cement	140.0	-354.9	2.26
EX P-64	EX J-5	EX J-7	981	8.0	Ductile Iron	130.0	64.9	0.41
EX P-65	EX FH-1	EX J-5	77	8.0	Asbestos Cement	140.0	492.0	3.14
EX P-67	EX J-7	EX J-245	31	8.0	Asbestos Cement	140.0	419.7	2.68
EX P-69	EX J-245	EX FH-FLOW B-1	449	8.0	Asbestos Cement	140.0	0.0	0.00
EX P-200	EX J-20	EX J-205	1,322	8.0	Asbestos Cement	140.0	-419.7	2.68
EX P-210	EX J-205	EX J-215	1,300	8.0	Asbestos Cement	140.0	-419.7	2.68
EX P-220	EX J-215	EX J-225	47	12.0	Asbestos Cement	140.0	-419.7	1.19
EX P-230	EX J-225	EX J-235	1,341	12.0	Asbestos Cement	140.0	-419.7	1.19
EX P-240	EX J-235	EX J-245	1,349	8.0	Asbestos Cement	140.0	-419.7	2.68
EX P-250	EX FH-1	EX J-255	179	8.0	Asbestos Cement	140.0	-492.0	3.14
EX P-260	EX J-255	EX J-265	2,637	8.0	Ductile Iron	130.0	-492.0	3.14
EX P-270	EX PRV-2	EX J-265	872	12.0	Asbestos Cement	140.0	492.0	1.40
EX P-280	EX FH-FLOW B-2	EX PRV-2	2,664	12.0	Asbestos Cement	140.0	492.0	1.40
P-5	EX J-15	J-3	84	8.0	Ductile Iron	130.0	1,366.8	8.72
P-10	J-3	FH-1	168	8.0	Ductile Iron	130.0	718.5	4.59

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FlexTable: Pipe Table

Active Scenario: Max Day + Fire Flow FH-4+5

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-15	FH-1	FH-2	263	8.0	Ductile Iron	130.0	718.5	4.59
P-20	FH-2	FH-3	346	8.0	Ductile Iron	130.0	718.5	4.59
P-25	FH-3	FH-9	315	8.0	Ductile Iron	130.0	718.5	4.59
P-27	FH-9	FH-4	96	8.0	Ductile Iron	130.0	718.5	4.59
P-30	FH-4	J-45	340	8.0	Ductile Iron	130.0	-719.0	4.59
P-32	J-45	J-8	120	8.0	Ductile Iron	130.0	789.1	5.04
P-35	J-8	FH-5	29	8.0	Ductile Iron	130.0	789.1	5.04
P-40	FH-5	FH-6	240	8.0	Ductile Iron	130.0	-648.4	4.14
P-45	FH-6	FH-7	342	8.0	Ductile Iron	130.0	-648.4	4.14
P-53	J-47	FH-12	52	8.0	Ductile Iron	130.0	-1,508.2	9.63
P-55	FH-10	FH-7	436	8.0	Ductile Iron	130.0	648.4	4.14
P-57	J-45	J-46	299	8.0	Ductile Iron	130.0	-1,508.2	9.63
P-58	J-46	J-47	93	8.0	Ductile Iron	130.0	-1,508.2	9.63
P-62	EX J-30	PRV-16	102	8.0	Ductile Iron	130.0	1,093.3	6.98
P-63	PRV-16	J-35	222	8.0	Ductile Iron	130.0	1,093.9	6.98
P-65	FH-10	J-3	221	8.0	Ductile Iron	130.0	-648.4	4.14
P-80	FH-12	FH-13	297	8.0	Ductile Iron	130.0	-1,508.2	9.63
P-85	FH-13	J-35	23	8.0	Ductile Iron	130.0	-1,508.2	9.63
P-90	J-35	FH-14	182	8.0	Ductile Iron	130.0	-414.3	2.64
P-95	FH-14	FH-15	304	8.0	Ductile Iron	130.0	-414.3	2.64
P-100	FH-15	FH-16	254	8.0	Ductile Iron	130.0	-414.3	2.64
P-105	FH-16	FH-17	362	8.0	Ductile Iron	130.0	-414.3	2.64
P-110	FH-17	FH-18	393	8.0	Ductile Iron	130.0	-414.3	2.64
P-115	FH-18	EX J-5	120	8.0	Ductile Iron	130.0	-414.3	2.64
P-120	EX J-41	J-42	719	8.0	Ductile Iron	130.0	0.0	0.00
P-PMP-1	PMP-1	EX FH-TEST-1	1	48.0	Ductile Iron	130.0	1,139.0	0.20
P-PMP-2	PMP-2	EX FH-TEST-2	1	48.0	Ductile Iron	130.0	2,601.4	0.46
P-R-1	R-1	PMP-1	1	48.0	Ductile Iron	130.0	1,139.0	0.20
P-R-2	R-2	PMP-2	1	48.0	Ductile Iron	130.0	2,601.4	0.46

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FlexTable: Junction Table

Active Scenario: Max Day + Fire Flow FH-4+6

Label	Zone	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1	Zone - 2	1,426.18	0.0	57	1,558.01
EX FH-2	Zone - 2	1,416.00	0.0	51	1,533.52
EX FH-3	Zone - 2	1,417.00	0.0	54	1,542.21
EX FH-5	Zone - 2	1,420.00	0.0	58	1,553.40
EX FH-FLOW A-1	Zone - 2	1,418.00	0.0	56	1,548.41
EX FH-FLOW A-2	Zone - 3	1,432.00	0.0	61	1,571.96
EX FH-FLOW B-1	Zone - 2	1,422.00	0.0	59	1,557.43
EX FH-FLOW B-2	Zone - 3	1,437.00	0.0	59	1,573.96
EX FH-TEST-1	Zone - 2	1,418.00	0.0	60	1,557.58
EX FH-TEST-2	Zone - 3	1,434.00	0.0	61	1,574.68
EX J-5	Zone - 2	1,425.67	12.8	57	1,557.68
EX J-7	Zone - 2	1,418.00	0.0	60	1,557.53
EX J-10	Zone - 2	1,417.00	0.0	55	1,544.39
EX J-15	Zone - 2	1,416.00	843.4	50	1,532.53
EX J-20	Zone - 2	1,417.00	0.0	55	1,543.81
EX J-30	Zone - 3	1,430.55	0.0	60	1,568.67
EX J-41	Zone - 2	1,417.00	9.8	54	1,542.92
EX J-65	Zone - 3	1,425.89	0.0	61	1,566.12
EX J-205	Zone - 2	1,409.00	0.0	60	1,548.13
EX J-215	Zone - 2	1,409.00	0.0	62	1,552.39
EX J-225	Zone - 2	1,409.00	0.0	62	1,552.41
EX J-235	Zone - 2	1,409.00	0.0	62	1,553.02
EX J-245	Zone - 2	1,418.00	0.0	60	1,557.43
EX J-255	Zone - 2	1,428.00	0.0	57	1,558.79
EX J-265	Zone - 2	1,432.00	0.0	61	1,571.84
FH-1	Zone - 2	1,417.74	0.0	48	1,528.23
FH-2	Zone - 2	1,420.79	0.0	46	1,525.96
FH-3	Zone - 2	1,419.33	0.0	45	1,522.98
FH-4	Zone - 2	1,422.56	1,437.5	42	1,519.44
FH-5	Zone - 2	1,422.90	0.0	43	1,521.84
FH-6	Zone - 2	1,421.53	1,437.5	42	1,519.52
FH-7	Zone - 2	1,419.13	0.0	45	1,522.99
FH-9	Zone - 2	1,422.12	0.0	42	1,520.27
FH-10	Zone - 2	1,416.88	0.0	48	1,527.43
FH-12	Zone - 2	1,427.09	0.0	49	1,540.03
FH-13	Zone - 2	1,428.34	0.0	53	1,551.23
FH-14	Zone - 2	1,428.77	0.0	54	1,552.73
FH-15	Zone - 2	1,427.51	0.0	55	1,553.78
FH-16	Zone - 2	1,428.92	0.0	54	1,554.66
FH-17	Zone - 2	1,429.43	0.0	55	1,555.91
FH-18	Zone - 2	1,426.57	0.0	57	1,557.27
J-3	Zone - 2	1,416.56	0.0	49	1,529.67
J-8	Zone - 2	1,423.28	0.0	43	1,522.12
J-35	Zone - 2	1,428.39	0.0	54	1,552.11
J-42	Zone - 2	1,422.00	0.0	52	1,542.92
J-45	Zone - 2	1,423.09	0.0	43	1,523.28

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FlexTable: Junction Table

Active Scenario: Max Day + Fire Flow FH-4+6

Label	Zone	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
J-46	Zone - 2	1,426.00	0.0	47	1,534.54
J-47	Zone - 2	1,426.59	0.0	48	1,538.07

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FlexTable: Pipe Table

Active Scenario: Max Day + Fire Flow FH-4+6

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
EX P-5	EX FH-TEST-2	EX FH-FLOW B-2	1,194	12.0	Asbestos Cement	140.0	494.2	1.40
EX P-10	EX FH-FLOW A-2	EX FH-TEST-2	311	12.0	Asbestos Cement	140.0	-2,100.9	5.96
EX P-15	EX J-30	EX FH-FLOW A-2	377	12.0	Asbestos Cement	140.0	-2,100.9	5.96
EX P-20	EX J-65	EX J-30	1,094	12.0	Asbestos Cement	140.0	-1,028.7	2.92
EX P-25	EX PRV-1	EX FH-5	335	8.0	Asbestos Cement	140.0	1,028.7	6.57
EX P-27	EX J-65	EX PRV-1	423	8.0	Asbestos Cement	140.0	1,028.7	6.57
EX P-30	EX FH-FLOW A-1	EX FH-5	297	8.0	Asbestos Cement	140.0	-1,028.7	6.57
EX P-35	EX J-20	EX FH-FLOW A-1	274	8.0	Asbestos Cement	140.0	-1,028.7	6.57
EX P-40	EX FH-3	EX J-20	44	8.0	Ductile Iron	130.0	-1,454.2	9.28
EX P-45	EX FH-2	EX FH-3	238	8.0	Ductile Iron	130.0	-1,454.2	9.28
EX P-50	EX J-15	EX FH-2	27	8.0	Ductile Iron	130.0	-1,454.2	9.28
EX P-50	EX J-41	EX J-15	891	8.0	Ductile Iron	130.0	784.7	5.01
EX P-55	EX J-10	EX J-41	123	8.0	Ductile Iron	130.0	794.5	5.07
EX P-60	EX FH-TEST-1	EX J-10	1,268	8.0	Asbestos Cement	140.0	794.5	5.07
EX P-62	EX J-7	EX FH-TEST-1	20	8.0	Asbestos Cement	140.0	-350.8	2.24
EX P-64	EX J-5	EX J-7	981	8.0	Ductile Iron	130.0	74.7	0.48
EX P-65	EX FH-1	EX J-5	77	8.0	Asbestos Cement	140.0	494.2	3.15
EX P-67	EX J-7	EX J-245	31	8.0	Asbestos Cement	140.0	425.5	2.72
EX P-69	EX J-245	EX FH-FLOW B-1	449	8.0	Asbestos Cement	140.0	0.0	0.00
EX P-200	EX J-20	EX J-205	1,322	8.0	Asbestos Cement	140.0	-425.5	2.72
EX P-210	EX J-205	EX J-215	1,300	8.0	Asbestos Cement	140.0	-425.5	2.72
EX P-220	EX J-215	EX J-225	47	12.0	Asbestos Cement	140.0	-425.5	1.21
EX P-230	EX J-225	EX J-235	1,341	12.0	Asbestos Cement	140.0	-425.5	1.21
EX P-240	EX J-235	EX J-245	1,349	8.0	Asbestos Cement	140.0	-425.5	2.72
EX P-250	EX FH-1	EX J-255	179	8.0	Asbestos Cement	140.0	-494.2	3.15
EX P-260	EX J-255	EX J-265	2,637	8.0	Ductile Iron	130.0	-494.2	3.15
EX P-270	EX PRV-2	EX J-265	872	12.0	Asbestos Cement	140.0	494.2	1.40
EX P-280	EX FH-FLOW B-2	EX PRV-2	2,664	12.0	Asbestos Cement	140.0	494.2	1.40
P-5	EX J-15	J-3	84	8.0	Ductile Iron	130.0	1,395.5	8.91
P-10	J-3	FH-1	168	8.0	Ductile Iron	130.0	666.7	4.26

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FlexTable: Pipe Table

Active Scenario: Max Day + Fire Flow FH-4+6

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-15	FH-1	FH-2	263	8.0	Ductile Iron	130.0	666.7	4.26
P-20	FH-2	FH-3	346	8.0	Ductile Iron	130.0	666.7	4.26
P-25	FH-3	FH-9	315	8.0	Ductile Iron	130.0	666.7	4.26
P-27	FH-9	FH-4	96	8.0	Ductile Iron	130.0	666.7	4.26
P-30	FH-4	J-45	340	8.0	Ductile Iron	130.0	-770.8	4.92
P-32	J-45	J-8	120	8.0	Ductile Iron	130.0	708.6	4.52
P-35	J-8	FH-5	29	8.0	Ductile Iron	130.0	708.6	4.52
P-40	FH-5	FH-6	240	8.0	Ductile Iron	130.0	708.6	4.52
P-45	FH-6	FH-7	342	8.0	Ductile Iron	130.0	-728.9	4.65
P-53	J-47	FH-12	52	8.0	Ductile Iron	130.0	-1,479.5	9.44
P-55	FH-10	FH-7	436	8.0	Ductile Iron	130.0	728.9	4.65
P-57	J-45	J-46	299	8.0	Ductile Iron	130.0	-1,479.5	9.44
P-58	J-46	J-47	93	8.0	Ductile Iron	130.0	-1,479.5	9.44
P-62	EX J-30	PRV-16	102	8.0	Ductile Iron	130.0	1,072.2	6.84
P-63	PRV-16	J-35	222	8.0	Ductile Iron	130.0	1,072.8	6.85
P-65	FH-10	J-3	221	8.0	Ductile Iron	130.0	-728.9	4.65
P-80	FH-12	FH-13	297	8.0	Ductile Iron	130.0	-1,479.5	9.44
P-85	FH-13	J-35	23	8.0	Ductile Iron	130.0	-1,479.5	9.44
P-90	J-35	FH-14	182	8.0	Ductile Iron	130.0	-406.7	2.60
P-95	FH-14	FH-15	304	8.0	Ductile Iron	130.0	-406.7	2.60
P-100	FH-15	FH-16	254	8.0	Ductile Iron	130.0	-406.7	2.60
P-105	FH-16	FH-17	362	8.0	Ductile Iron	130.0	-406.7	2.60
P-110	FH-17	FH-18	393	8.0	Ductile Iron	130.0	-406.7	2.60
P-115	FH-18	EX J-5	120	8.0	Ductile Iron	130.0	-406.7	2.60
P-120	EX J-41	J-42	719	8.0	Ductile Iron	130.0	0.0	0.00
P-PMP-1	PMP-1	EX FH-TEST-1	1	48.0	Ductile Iron	130.0	1,145.3	0.20
P-PMP-2	PMP-2	EX FH-TEST-2	1	48.0	Ductile Iron	130.0	2,595.1	0.46
P-R-1	R-1	PMP-1	1	48.0	Ductile Iron	130.0	1,145.3	0.20
P-R-2	R-2	PMP-2	1	48.0	Ductile Iron	130.0	2,595.1	0.46

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FlexTable: Junction Table

Active Scenario: Max Day + Fire Flow FH-5+6

Label	Zone	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1	Zone - 2	1,426.18	0.0	57	1,558.01
EX FH-2	Zone - 2	1,416.00	0.0	51	1,533.48
EX FH-3	Zone - 2	1,417.00	0.0	54	1,542.18
EX FH-5	Zone - 2	1,420.00	0.0	58	1,553.38
EX FH-FLOW A-1	Zone - 2	1,418.00	0.0	56	1,548.39
EX FH-FLOW A-2	Zone - 3	1,432.00	0.0	61	1,571.96
EX FH-FLOW B-1	Zone - 2	1,422.00	0.0	59	1,557.43
EX FH-FLOW B-2	Zone - 3	1,437.00	0.0	59	1,573.97
EX FH-TEST-1	Zone - 2	1,418.00	0.0	60	1,557.57
EX FH-TEST-2	Zone - 3	1,434.00	0.0	61	1,574.68
EX J-5	Zone - 2	1,425.67	12.8	57	1,557.68
EX J-7	Zone - 2	1,418.00	0.0	60	1,557.53
EX J-10	Zone - 2	1,417.00	0.0	55	1,544.36
EX J-15	Zone - 2	1,416.00	843.4	50	1,532.49
EX J-20	Zone - 2	1,417.00	0.0	55	1,543.78
EX J-30	Zone - 3	1,430.55	0.0	60	1,568.68
EX J-41	Zone - 2	1,417.00	9.8	54	1,542.89
EX J-65	Zone - 3	1,425.89	0.0	61	1,566.12
EX J-205	Zone - 2	1,409.00	0.0	60	1,548.11
EX J-215	Zone - 2	1,409.00	0.0	62	1,552.37
EX J-225	Zone - 2	1,409.00	0.0	62	1,552.39
EX J-235	Zone - 2	1,409.00	0.0	62	1,553.00
EX J-245	Zone - 2	1,418.00	0.0	60	1,557.43
EX J-255	Zone - 2	1,428.00	0.0	57	1,558.78
EX J-265	Zone - 2	1,432.00	0.0	61	1,571.85
FH-1	Zone - 2	1,417.74	0.0	48	1,528.94
FH-2	Zone - 2	1,420.79	0.0	46	1,527.86
FH-3	Zone - 2	1,419.33	0.0	46	1,526.44
FH-4	Zone - 2	1,422.56	0.0	44	1,524.75
FH-5	Zone - 2	1,422.90	1,437.5	39	1,514.17
FH-6	Zone - 2	1,421.53	1,437.5	40	1,513.02
FH-7	Zone - 2	1,419.13	0.0	43	1,518.70
FH-9	Zone - 2	1,422.12	0.0	45	1,525.14
FH-10	Zone - 2	1,416.88	0.0	47	1,525.95
FH-12	Zone - 2	1,427.09	0.0	49	1,540.06
FH-13	Zone - 2	1,428.34	0.0	53	1,551.24
FH-14	Zone - 2	1,428.77	0.0	54	1,552.74
FH-15	Zone - 2	1,427.51	0.0	55	1,553.79
FH-16	Zone - 2	1,428.92	0.0	54	1,554.66
FH-17	Zone - 2	1,429.43	0.0	55	1,555.91
FH-18	Zone - 2	1,426.57	0.0	57	1,557.27
J-3	Zone - 2	1,416.56	0.0	49	1,529.62
J-8	Zone - 2	1,423.28	0.0	40	1,515.97
J-35	Zone - 2	1,428.39	0.0	54	1,552.12
J-42	Zone - 2	1,422.00	0.0	52	1,542.89
J-45	Zone - 2	1,423.09	0.0	43	1,523.35

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FlexTable: Junction Table

Active Scenario: Max Day + Fire Flow FH-5+6

Label	Zone	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
J-46	Zone - 2	1,426.00	0.0	47	1,534.59
J-47	Zone - 2	1,426.59	0.0	48	1,538.11

194966 Seventh-Day Adventists

FlexTable: Pipe Table

Active Scenario: Max Day + Fire Flow FH-5+6

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
EX P-5	EX FH-TEST-2	EX FH-FLOW B-2	1,194	12.0	Asbestos Cement	140.0	494.4	1.40
EX P-10	EX FH-FLOW A-2	EX FH-TEST-2	311	12.0	Asbestos Cement	140.0	-2,100.4	5.96
EX P-15	EX J-30	EX FH-FLOW A-2	377	12.0	Asbestos Cement	140.0	-2,100.4	5.96
EX P-20	EX J-65	EX J-30	1,094	12.0	Asbestos Cement	140.0	-1,029.5	2.92
EX P-25	EX PRV-1	EX FH-5	335	8.0	Asbestos Cement	140.0	1,029.5	6.57
EX P-27	EX J-65	EX PRV-1	423	8.0	Asbestos Cement	140.0	1,029.5	6.57
EX P-30	EX FH-FLOW A-1	EX FH-5	297	8.0	Asbestos Cement	140.0	-1,029.5	6.57
EX P-35	EX J-20	EX FH-FLOW A-1	274	8.0	Asbestos Cement	140.0	-1,029.5	6.57
EX P-40	EX FH-3	EX J-20	44	8.0	Ductile Iron	130.0	-1,455.4	9.29
EX P-45	EX FH-2	EX FH-3	238	8.0	Ductile Iron	130.0	-1,455.4	9.29
EX P-50	EX J-15	EX FH-2	27	8.0	Ductile Iron	130.0	-1,455.4	9.29
EX P-50	EX J-41	EX J-15	891	8.0	Ductile Iron	130.0	785.4	5.01
EX P-55	EX J-10	EX J-41	123	8.0	Ductile Iron	130.0	795.2	5.08
EX P-60	EX FH-TEST-1	EX J-10	1,268	8.0	Asbestos Cement	140.0	795.2	5.08
EX P-62	EX J-7	EX FH-TEST-1	20	8.0	Asbestos Cement	140.0	-350.5	2.24
EX P-64	EX J-5	EX J-7	981	8.0	Ductile Iron	130.0	75.3	0.48
EX P-65	EX FH-1	EX J-5	77	8.0	Asbestos Cement	140.0	494.4	3.16
EX P-67	EX J-7	EX J-245	31	8.0	Asbestos Cement	140.0	425.8	2.72
EX P-69	EX J-245	EX FH-FLOW B-1	449	8.0	Asbestos Cement	140.0	0.0	0.00
EX P-200	EX J-20	EX J-205	1,322	8.0	Asbestos Cement	140.0	-425.8	2.72
EX P-210	EX J-205	EX J-215	1,300	8.0	Asbestos Cement	140.0	-425.8	2.72
EX P-220	EX J-215	EX J-225	47	12.0	Asbestos Cement	140.0	-425.8	1.21
EX P-230	EX J-225	EX J-235	1,341	12.0	Asbestos Cement	140.0	-425.8	1.21
EX P-240	EX J-235	EX J-245	1,349	8.0	Asbestos Cement	140.0	-425.8	2.72
EX P-250	EX FH-1	EX J-255	179	8.0	Asbestos Cement	140.0	-494.4	3.16
EX P-260	EX J-255	EX J-265	2,637	8.0	Ductile Iron	130.0	-494.4	3.16
EX P-270	EX PRV-2	EX J-265	872	12.0	Asbestos Cement	140.0	494.4	1.40
EX P-280	EX FH-FLOW B-2	EX PRV-2	2,664	12.0	Asbestos Cement	140.0	494.4	1.40
P-5	EX J-15	J-3	84	8.0	Ductile Iron	130.0	1,397.3	8.92
P-10	J-3	FH-1	168	8.0	Ductile Iron	130.0	446.7	2.85

194966 Seventh-Day Adventists

FlexTable: Pipe Table

Active Scenario: Max Day + Fire Flow FH-5+6

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-15	FH-1	FH-2	263	8.0	Ductile Iron	130.0	446.7	2.85
P-20	FH-2	FH-3	346	8.0	Ductile Iron	130.0	446.7	2.85
P-25	FH-3	FH-9	315	8.0	Ductile Iron	130.0	446.7	2.85
P-27	FH-9	FH-4	96	8.0	Ductile Iron	130.0	446.7	2.85
P-30	FH-4	J-45	340	8.0	Ductile Iron	130.0	446.7	2.85
P-32	J-45	J-8	120	8.0	Ductile Iron	130.0	1,924.3	12.28
P-35	J-8	FH-5	29	8.0	Ductile Iron	130.0	1,924.3	12.28
P-40	FH-5	FH-6	240	8.0	Ductile Iron	130.0	486.8	3.11
P-45	FH-6	FH-7	342	8.0	Ductile Iron	130.0	-950.7	6.07
P-53	J-47	FH-12	52	8.0	Ductile Iron	130.0	-1,477.7	9.43
P-55	FH-10	FH-7	436	8.0	Ductile Iron	130.0	950.7	6.07
P-57	J-45	J-46	299	8.0	Ductile Iron	130.0	-1,477.7	9.43
P-58	J-46	J-47	93	8.0	Ductile Iron	130.0	-1,477.7	9.43
P-62	EX J-30	PRV-16	102	8.0	Ductile Iron	130.0	1,070.8	6.83
P-63	PRV-16	J-35	222	8.0	Ductile Iron	130.0	1,071.5	6.84
P-65	FH-10	J-3	221	8.0	Ductile Iron	130.0	-950.7	6.07
P-80	FH-12	FH-13	297	8.0	Ductile Iron	130.0	-1,477.7	9.43
P-85	FH-13	J-35	23	8.0	Ductile Iron	130.0	-1,477.7	9.43
P-90	J-35	FH-14	182	8.0	Ductile Iron	130.0	-406.2	2.59
P-95	FH-14	FH-15	304	8.0	Ductile Iron	130.0	-406.2	2.59
P-100	FH-15	FH-16	254	8.0	Ductile Iron	130.0	-406.2	2.59
P-105	FH-16	FH-17	362	8.0	Ductile Iron	130.0	-406.2	2.59
P-110	FH-17	FH-18	393	8.0	Ductile Iron	130.0	-406.2	2.59
P-115	FH-18	EX J-5	120	8.0	Ductile Iron	130.0	-406.2	2.59
P-120	EX J-41	J-42	719	8.0	Ductile Iron	130.0	0.0	0.00
P-PMP-1	PMP-1	EX FH-TEST-1	1	48.0	Ductile Iron	130.0	1,145.7	0.20
P-PMP-2	PMP-2	EX FH-TEST-2	1	48.0	Ductile Iron	130.0	2,594.7	0.46
P-R-1	R-1	PMP-1	1	48.0	Ductile Iron	130.0	1,145.7	0.20
P-R-2	R-2	PMP-2	1	48.0	Ductile Iron	130.0	2,594.7	0.46

194966 Seventh-Day Adventists

FlexTable: Junction Table

Active Scenario: Max Day + Fire Flow FH-4,5+6

Label	Zone	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1	Zone - 2	1,426.18	0.0	57	1,558.03
EX FH-2	Zone - 2	1,416.00	0.0	51	1,533.91
EX FH-3	Zone - 2	1,417.00	0.0	54	1,542.47
EX FH-5	Zone - 2	1,420.00	0.0	58	1,553.51
EX FH-FLOW A-1	Zone - 2	1,418.00	0.0	56	1,548.59
EX FH-FLOW A-2	Zone - 3	1,432.00	0.0	61	1,571.87
EX FH-FLOW B-1	Zone - 2	1,422.00	0.0	59	1,557.47
EX FH-FLOW B-2	Zone - 3	1,437.00	0.0	59	1,573.89
EX FH-TEST-1	Zone - 2	1,418.00	0.0	60	1,557.61
EX FH-TEST-2	Zone - 3	1,434.00	0.0	61	1,574.61
EX J-5	Zone - 2	1,425.67	12.8	57	1,557.69
EX J-7	Zone - 2	1,418.00	0.0	60	1,557.57
EX J-10	Zone - 2	1,417.00	0.0	55	1,544.62
EX J-15	Zone - 2	1,416.00	843.4	51	1,532.93
EX J-20	Zone - 2	1,417.00	0.0	55	1,544.05
EX J-30	Zone - 3	1,430.55	0.0	60	1,568.57
EX J-41	Zone - 2	1,417.00	9.8	55	1,543.17
EX J-65	Zone - 3	1,425.89	0.0	61	1,566.05
EX J-205	Zone - 2	1,409.00	0.0	60	1,548.31
EX J-215	Zone - 2	1,409.00	0.0	62	1,552.50
EX J-225	Zone - 2	1,409.00	0.0	62	1,552.52
EX J-235	Zone - 2	1,409.00	0.0	62	1,553.12
EX J-245	Zone - 2	1,418.00	0.0	60	1,557.47
EX J-255	Zone - 2	1,428.00	0.0	57	1,558.79
EX J-265	Zone - 2	1,432.00	0.0	60	1,571.79
FH-1	Zone - 2	1,417.74	0.0	48	1,528.92
FH-2	Zone - 2	1,420.79	0.0	46	1,526.99
FH-3	Zone - 2	1,419.33	0.0	45	1,524.46
FH-4	Zone - 2	1,422.56	1,000.0	43	1,521.46
FH-5	Zone - 2	1,422.90	875.0	42	1,519.25
FH-6	Zone - 2	1,421.53	1,000.0	42	1,518.96
FH-7	Zone - 2	1,419.13	0.0	45	1,522.78
FH-9	Zone - 2	1,422.12	0.0	43	1,522.16
FH-10	Zone - 2	1,416.88	0.0	48	1,527.67
FH-12	Zone - 2	1,427.09	0.0	49	1,539.66
FH-13	Zone - 2	1,428.34	0.0	53	1,551.11
FH-14	Zone - 2	1,428.77	0.0	54	1,552.64
FH-15	Zone - 2	1,427.51	0.0	55	1,553.72
FH-16	Zone - 2	1,428.92	0.0	54	1,554.61
FH-17	Zone - 2	1,429.43	0.0	55	1,555.89
FH-18	Zone - 2	1,426.57	0.0	57	1,557.27
J-3	Zone - 2	1,416.56	0.0	49	1,530.14
J-8	Zone - 2	1,423.28	0.0	42	1,519.89
J-35	Zone - 2	1,428.39	0.0	53	1,552.00
J-42	Zone - 2	1,422.00	0.0	52	1,543.17
J-45	Zone - 2	1,423.09	0.0	43	1,522.55

194966 Seventh-Day Adventists

FlexTable: Junction Table

Active Scenario: Max Day + Fire Flow FH-4,5+6

Label	Zone	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
J-46	Zone - 2	1,426.00	0.0	47	1,534.06
J-47	Zone - 2	1,426.59	0.0	48	1,537.66

194966 Seventh-Day Adventists

FlexTable: Pipe Table

Active Scenario: Max Day + Fire Flow FH-4,5+6

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
EX P-5	EX FH-TEST-2	EX FH-FLOW B-2	1,194	12.0	Asbestos Cement	140.0	492.9	1.40
EX P-10	EX FH-FLOW A-2	EX FH-TEST-2	311	12.0	Asbestos Cement	140.0	-2,106.1	5.97
EX P-15	EX J-30	EX FH-FLOW A-2	377	12.0	Asbestos Cement	140.0	-2,106.1	5.97
EX P-20	EX J-65	EX J-30	1,094	12.0	Asbestos Cement	140.0	-1,021.1	2.90
EX P-25	EX PRV-1	EX FH-5	335	8.0	Asbestos Cement	140.0	1,021.1	6.52
EX P-27	EX J-65	EX PRV-1	423	8.0	Asbestos Cement	140.0	1,021.1	6.52
EX P-30	EX FH-FLOW A-1	EX FH-5	297	8.0	Asbestos Cement	140.0	-1,021.1	6.52
EX P-35	EX J-20	EX FH-FLOW A-1	274	8.0	Asbestos Cement	140.0	-1,021.1	6.52
EX P-40	EX FH-3	EX J-20	44	8.0	Ductile Iron	130.0	-1,443.1	9.21
EX P-45	EX FH-2	EX FH-3	238	8.0	Ductile Iron	130.0	-1,443.1	9.21
EX P-50	EX J-15	EX FH-2	27	8.0	Ductile Iron	130.0	-1,443.1	9.21
EX P-50	EX J-41	EX J-15	891	8.0	Ductile Iron	130.0	778.5	4.97
EX P-55	EX J-10	EX J-41	123	8.0	Ductile Iron	130.0	788.3	5.03
EX P-60	EX FH-TEST-1	EX J-10	1,268	8.0	Asbestos Cement	140.0	788.3	5.03
EX P-62	EX J-7	EX FH-TEST-1	20	8.0	Asbestos Cement	140.0	-353.2	2.25
EX P-64	EX J-5	EX J-7	981	8.0	Ductile Iron	130.0	68.8	0.44
EX P-65	EX FH-1	EX J-5	77	8.0	Asbestos Cement	140.0	492.9	3.15
EX P-67	EX J-7	EX J-245	31	8.0	Asbestos Cement	140.0	422.0	2.69
EX P-69	EX J-245	EX FH-FLOW B-1	449	8.0	Asbestos Cement	140.0	0.0	0.00
EX P-200	EX J-20	EX J-205	1,322	8.0	Asbestos Cement	140.0	-422.0	2.69
EX P-210	EX J-205	EX J-215	1,300	8.0	Asbestos Cement	140.0	-422.0	2.69
EX P-220	EX J-215	EX J-225	47	12.0	Asbestos Cement	140.0	-422.0	1.20
EX P-230	EX J-225	EX J-235	1,341	12.0	Asbestos Cement	140.0	-422.0	1.20
EX P-240	EX J-235	EX J-245	1,349	8.0	Asbestos Cement	140.0	-422.0	2.69
EX P-250	EX FH-1	EX J-255	179	8.0	Asbestos Cement	140.0	-492.9	3.15
EX P-260	EX J-255	EX J-265	2,637	8.0	Ductile Iron	130.0	-492.9	3.15
EX P-270	EX PRV-2	EX J-265	872	12.0	Asbestos Cement	140.0	492.9	1.40
EX P-280	EX FH-FLOW B-2	EX PRV-2	2,664	12.0	Asbestos Cement	140.0	492.9	1.40
P-5	EX J-15	J-3	84	8.0	Ductile Iron	130.0	1,378.1	8.80
P-10	J-3	FH-1	168	8.0	Ductile Iron	130.0	610.1	3.89

194966 Seventh-Day Adventists

FlexTable: Pipe Table

Active Scenario: Max Day + Fire Flow FH-4,5+6

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-15	FH-1	FH-2	263	8.0	Ductile Iron	130.0	610.1	3.89
P-20	FH-2	FH-3	346	8.0	Ductile Iron	130.0	610.1	3.89
P-25	FH-3	FH-9	315	8.0	Ductile Iron	130.0	610.1	3.89
P-27	FH-9	FH-4	96	8.0	Ductile Iron	130.0	610.1	3.89
P-30	FH-4	J-45	340	8.0	Ductile Iron	130.0	-389.9	2.49
P-32	J-45	J-8	120	8.0	Ductile Iron	130.0	1,107.0	7.07
P-35	J-8	FH-5	29	8.0	Ductile Iron	130.0	1,107.0	7.07
P-40	FH-5	FH-6	240	8.0	Ductile Iron	130.0	232.0	1.48
P-45	FH-6	FH-7	342	8.0	Ductile Iron	130.0	-768.0	4.90
P-53	J-47	FH-12	52	8.0	Ductile Iron	130.0	-1,496.9	9.55
P-55	FH-10	FH-7	436	8.0	Ductile Iron	130.0	768.0	4.90
P-57	J-45	J-46	299	8.0	Ductile Iron	130.0	-1,496.9	9.55
P-58	J-46	J-47	93	8.0	Ductile Iron	130.0	-1,496.9	9.55
P-62	EX J-30	PRV-16	102	8.0	Ductile Iron	130.0	1,085.0	6.93
P-63	PRV-16	J-35	222	8.0	Ductile Iron	130.0	1,085.6	6.93
P-65	FH-10	J-3	221	8.0	Ductile Iron	130.0	-768.0	4.90
P-80	FH-12	FH-13	297	8.0	Ductile Iron	130.0	-1,496.9	9.55
P-85	FH-13	J-35	23	8.0	Ductile Iron	130.0	-1,496.9	9.55
P-90	J-35	FH-14	182	8.0	Ductile Iron	130.0	-411.3	2.63
P-95	FH-14	FH-15	304	8.0	Ductile Iron	130.0	-411.3	2.63
P-100	FH-15	FH-16	254	8.0	Ductile Iron	130.0	-411.3	2.63
P-105	FH-16	FH-17	362	8.0	Ductile Iron	130.0	-411.3	2.63
P-110	FH-17	FH-18	393	8.0	Ductile Iron	130.0	-411.3	2.63
P-115	FH-18	EX J-5	120	8.0	Ductile Iron	130.0	-411.3	2.63
P-120	EX J-41	J-42	719	8.0	Ductile Iron	130.0	0.0	0.00
P-PMP-1	PMP-1	EX FH-TEST-1	1	48.0	Ductile Iron	130.0	1,141.5	0.20
P-PMP-2	PMP-2	EX FH-TEST-2	1	48.0	Ductile Iron	130.0	2,598.9	0.46
P-R-1	R-1	PMP-1	1	48.0	Ductile Iron	130.0	1,141.5	0.20
P-R-2	R-2	PMP-2	1	48.0	Ductile Iron	130.0	2,598.9	0.46

FIRE FLOW TEST RESULTS

Arizona Flow Testing LLC

HYDRANT FLOW TEST REPORT

Project Name:	7th Day Adventist
Project Address:	Scottsdale Road and Sutton Drive, Scottsdale, Arizona, 85254
Client Project No.:	194966
Arizona Flow Testing Project No.:	20167
Flow Test Permit No.:	C62100
Date and time flow test conducted:	May 8, 2020 at 9:35 AM
Data is current and reliable until:	November 8, 2020
Conducted by:	F. Vaughan & L. Hirlemann-Az Flow Testing, LLC (480-250-8154)
Witnessed by:	Henry Hursky –City of Scottsdale-Inspector (602-757-2607)

Raw Test Data

Static Pressure: **70.0 PSI**
(Measured in pounds per square inch)

Residual Pressure: **52.0 PSI**
(Measured in pounds per square inch)

Pitot Pressure: **12.0 PSI Hyd A**
21.0 PSI Hyd B
(Measured in pounds per square inch)
+

Diffuser Orifice Diameter: One 4-inch Hose Monster
(Measured in inches) One 4-inch Pollard Diffuser

Coefficient of Diffuser: .7875 and 0.9

Flowing GPM: **3,272 GPM**
(Measured in gallons per minute)
1,303 GPM +1,969 GPM = 3,272 GPM

GPM @ 20 PSI: **5,682 GPM**

Data with 10% Safety Factor

Static Pressure: **63.0 PSI**
(Measured in pounds per square inch)

Residual Pressure: **45.0 PSI**
(Measured in pounds per square inch)

Distance between hydrants: See Below

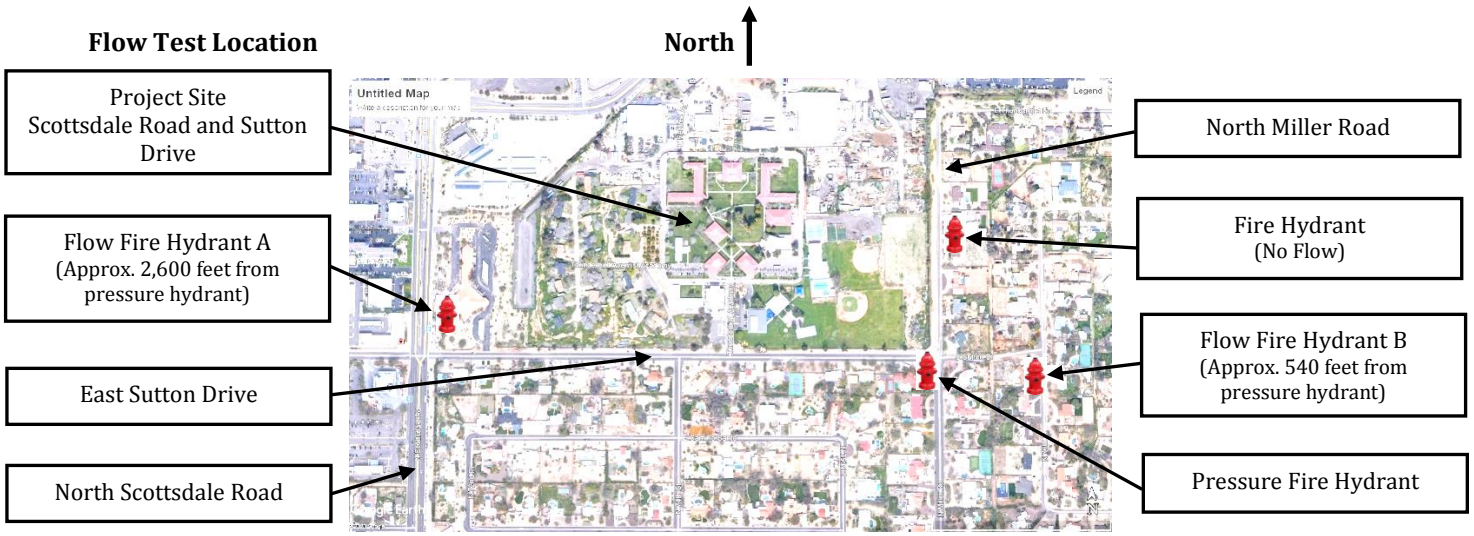
Main size: Not Provided

Flowing GPM: **3,272 GPM**

GPM @ 20 PSI**:** **5,237 GPM**

Flow Test Location

North



Arizona Flow Testing LLC

HYDRANT FLOW TEST REPORT

Project Name:	7th Day Adventist
Project Address:	Scottsdale Road & Sutton Drive, Scottsdale, Arizona, 85254
Client Project No.:	194966
Arizona Flow Testing Project No.:	19272
Flow Test Permit No.:	C58918
Date and time flow test conducted:	July 18, 2019 at 7:00 AM
Data is current and reliable until:	January 18, 2020
Conducted by:	F. Vaughan & T. Atherton – Az. Flow Testing, LLC (480-250-8154)
Coordinated by:	Jared Berry – City of Scottsdale-Inspector (602-541-4942)

Raw Test Data

Static Pressure: **94.0 PSI**
(Measured in pounds per square inch)

Residual Pressure: **66.0 PSI**
(Measured in pounds per square inch)

Pitot Pressure: **36.0 PSI Hyd A**
20.0 PSI Hyd B
(Measured in pounds per square inch)

Diffuser Orifice Diameter: One 4-inch Hose Monster (B)
(Measured in inches) One 4 inch Pollard Diffuser (A)

Coefficient of Diffuser: 0.7875/(B) and 0.9/(A)

Flowing GPM: **4,260 GPM**
(Measured in gallons per minute)
2,578 GPM + 1,682 GPM = 4,260 GPM

GPM @ 20 PSI: **7,201 GPM**

Data with 22 PSI Safety Factor

Static Pressure: **72.0 PSI**
(Measured in pounds per square inch)

Residual Pressure: **44.0 PSI**
(Measured in pounds per square inch)

Scottsdale requires a maximum Static Pressure of 72 PSI for AFES Design.

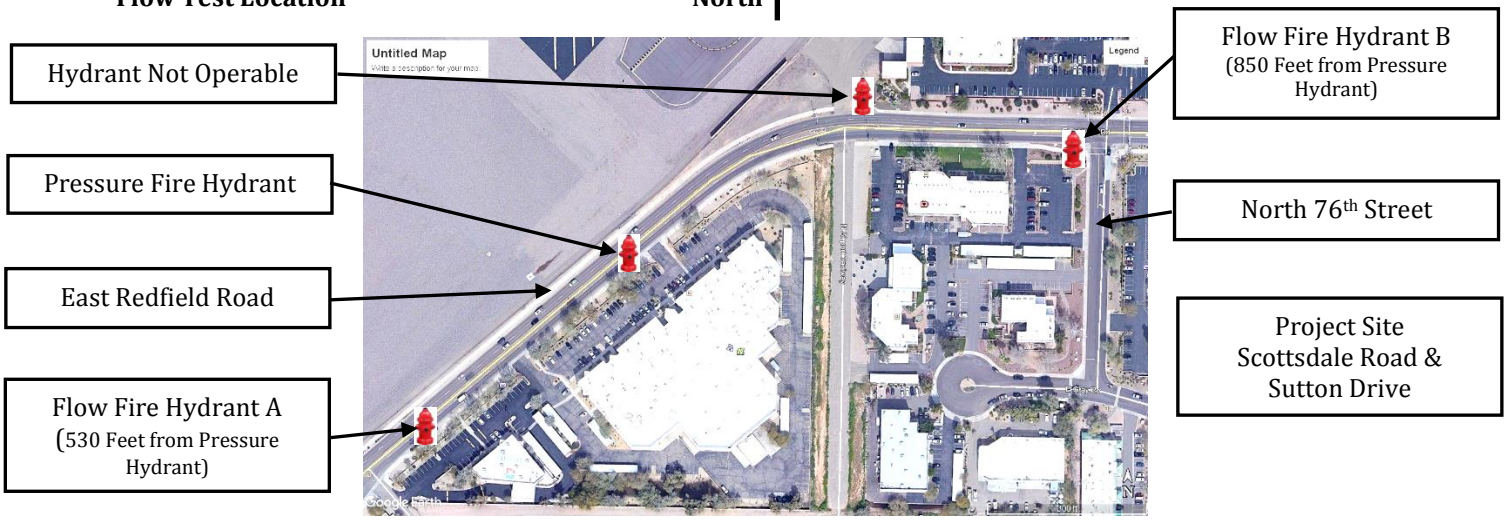
Distance between hydrants: See Below

Main size: Not Provided

Flowing GPM: **4,260 GPM**

GPM @ 20 PSI**:** **5,952 GPM**

Flow Test Location **North**



CITY OF SCOTTSDALE REFERENCE DOCUMENTS

Darin Moore

From: Sacks, Richard [mailto:RSacks@ScottsdaleAz.Gov]
Sent: Monday, May 18, 2020 8:47 AM
To: Darin Moore
Cc: Kurt A. Jones
Subject: RE: Sewer Flow Monitoring along Thunderbird - water flow test

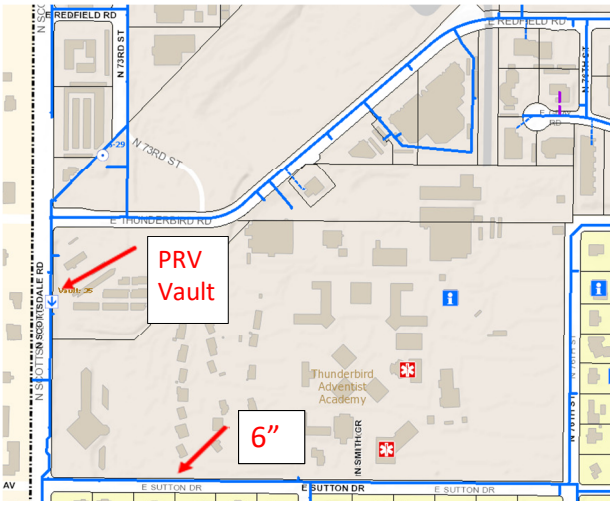
Darin

We'll set the PRV. The HGL for zone two ranges from 1263 to 1643.

The PRV south of Thunderbird on Scottsdale Rd. ranges from 90 psi to 60 psi. There is another PRV located at Sweetwater and the 101. It's range is from 90 to 70 psi.

The critical number is the required fire flow. Suggest verifying with Fire what is that flow.

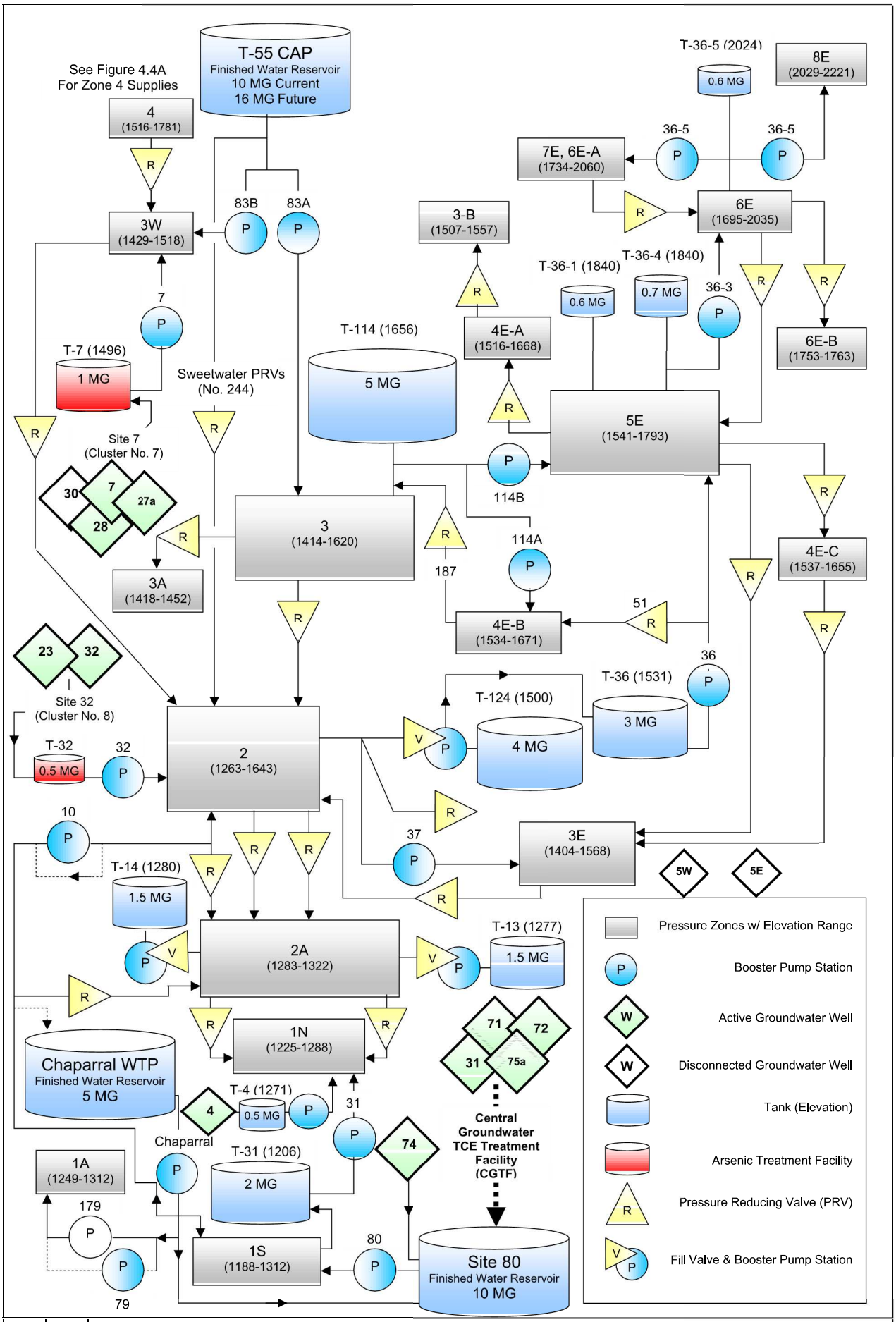
The picture below show the system layout without valves except the PRV.



Richard Sacks, P.E.
Senior Water Resources Engineer
City of Scottsdale
9379 E. San Salvador
Scottsdale, AZ 85258
480-312-5673
rsacks@scottsdaleaz.gov

Sending me an attachment over 5MB? Please use the link below:
https://securemail.scottsdaleaz.gov/filedrop/rsacks@scottsdaleaz.gov

SCOTTSDALE WATER
"Water Sustainability through Stewardship, Innovation and People"



Page 4-29 | Figure 4.4B

PRESSURE ZONE SCHEMATIC OF SOUTHERN SERVICE ZONES

2008 Scottsdale Integrated Water Master Plan

pw:/Client/AZ/Scottsdale/7265A00/Deliverables/Integrated Water Master Plan/Fig 4_4AB_doc.doc

WATER EXHIBIT

PIPE DIAMETER | EXISTING | PROPOSED

6-INCH WATER PIPE

8-INCH WATER PIPE

12-INCH WATER PIPE

WATER SERVICES AND HYDRANT LINES

PROPERTY LINE

N

0 200 400

Horz. 1 in. = 200 ft.

N. SCOTTSDALE RD

E. REDFIELD RD

E. THUNDERBIRD RD

N. MILLER RD

E. SUTTON DR

OFFICE/INDUSTRIAL

AVIATION

INDUSTRIAL

OFFICE

OFFICE/ PARKING

EXISTING PARK & RIDE (NOT A PART)

EXISTING SEVENTH DAY ADVENTIST CAMPUS (NOT A PART)

719 L.F.

FH FLOW TEST

EX P-10

EX-FH FLOW A-2

EX P-15

EX-J-30

P-62

PRV-16

P-63

P-90

P-80

P-95

P-100

P-105

P-110

P-115

FH-11

FH-12

FH-13

FH-14

FH-15

FH-16

FH-17

FH-18

J-53

J-47

J-46

P-58

P-57

P-32

J-8

P-35

P-40

P-45

P-27

P-25

P-30

P-20

FH-4

FH-3

FH-2

FH-9

J-45

FH-5

FH-6

FH-1

J-3

P-10

P-65

FH-10

FH-7

P-55

P-5

EX J-65

EX P-20

EX P-27

EX PRV-1

EX P-25

EX FH-5

EX P-30

EX FH-FLOW A-1

EX P-35

EX J-20

EX P-40

EX FH-3

EX P-45

EX FH-2

EX J-15

EX P-50

EX P-50

EX J-41

EX J-10

EX P-55

EX J-255

EX P-250

EX FH-1

EX P-65

EX J-5

EX P-64

PROPERTY LINE

PROPERTY LINE

PROPERTY LINE

PROPERTY LINE

NOT FOR CONSTRUCTION OR RECORDING

WOOD PATEL

7th DAY ADVENTIST - SCOTTSDALE & SUTTON

WATER EXHIBIT

DATE	05/20/2020	SCALE	1" = 200'	SHEET	1 OF 1
JOB NO.	194966	DESIGN	DM	DRAWN	JRS

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WOOD PATEL

WASTEWATER COLLECTION SYSTEM
BASIS OF DESIGN REPORT
FOR
7th DAY ADVENTIST – SCOTTSDALE & SUTTON

May 20, 2020
WP# 194966

PRELIMINARY Basis of Design Report

- ☐ **ACCEPTED**
- ☑ **ACCEPTED AS NOTED**
- ☐ **REVISE AND RESUBMIT**

CITY OF SCOTTSDALE
SCOTTSDALE WATER
9379 E San Salvador Dr.
Scottsdale, AZ 85258

Disclaimer: If accepted; the preliminary approval is granted under the condition that a final basis of design report will also be submitted for city review and approval (typically during the DR or PP case). The final report shall incorporate further water or sewer design and analysis requirements as defined in the city design standards and policy manual and address those items noted in the preliminary review comments (both separate and included herein). The final report shall be submitted and approved prior to the plan review submission.
For questions or clarifications contact the Water Resources Planning and Engineering Department at 480-312-5685.

BY rsacks **DATE** 6/3/2020

Published 2020

Sewer flow monitoring will be required as part of the DR submittal.

Registered Professional Engineer (Civil)
CERTIFICATE NO.
36382
DARIN L.
MOORE
Date Signed 5/20/20
ARIZONA, U.S.A.

EXPIRES 06-30-22

WOOD PATEL

2051 W Northern Ave #100
Phoenix AZ 85021
P: 602.335.8500
F: 602.335.8580
www.woodpatel.com

Darrel E. Wood, PE, RLS
Ashok C. Patel, PE, RLS, CFM
Michael T. Young, PE, LEED AP
James S. Campbell, PE, LEED GA
Thomas R. Gettings, RLS
Darin L. Moore, PE, LEED GA
Jeffrey R. Minch, PE, CFM
Robert D. Gofonia, PE, RLS
Nicholas E. Brown, PE

May 20, 2020

City of Scottsdale
Planning and Development
7447 East Indian School Road
Scottsdale, Arizona 85257

480.312.5319

Re: **7th Day Adventist – Scottsdale & Sutton**
Wastewater Collection System Basis of Design Report
WP# 194966

To Whom It May Concern:

This Wastewater Collection System Basis of Design Report is prepared for the Arizona Conference of Seventh-day Adventists and submitted to the City of Scottsdale (City). The 7th Day Adventist – Scottsdale & Sutton project (Site) consists of portions of two (2) adjacent parcels totaling an area of approximately 2,148,604 square-feet, or 49.3± acres, located at the northeast corner of North Scottsdale Road and Sutton Road in Scottsdale, Arizona. More specifically, the Site is located in a portion of Section 11, Township 3 North, Range 4 East and a portion of the north half of Section 14, Township 3 North, Range 4 East of the Gila and Salt River Meridian. The Site is located within Assessor Parcel Number 215-56-333A and a portion of 175-04-002A. Refer to the *Vicinity Map* at the back of this report. The Site is bound by existing Thunderbird Road/Redfield Road to the north, East Sutton Drive on the south, North Miller Road on the east and North Scottsdale Road on the west.

The project will include the potential construction of airport hangars, industrial buildings, office buildings, residential townhomes, and single family homes. Proposed improvements include associated landscape, hardscape, paving and utility services. The airport hangars will include 76,250 square-feet of hangar space. The industrial will include 184,450 square-feet. The office buildings will include 508,000 square-feet. The residential townhomes will include 12 multi-family dwelling units and 6 single family dwelling units. We understand the City may allow up to 240 additional residential units in the future.

Wastewater flowing from the proposed Site will discharge at two (2) locations to the existing 8-inch VCP sewer line on Sutton Drive and at one (1) location to the existing 12-inch VCP sewer line in Thunderbird Road/Redfield Road. Both offsite sewer lines slope to the west to discharge to the 24-inch VCP sewer line in Scottsdale Road. Refer to the attached Wastewater Exhibit for a depiction of the proposed sewerline.

The design criteria used to estimate wastewater flows and evaluate system hydraulics are based on Wood, Patel & Associates, Inc.'s (WOODPATEL) understanding of the requirements listed in the City of Scottsdale's *Design Standards and Policies Manual,* 2018. The following is a summary of the primary design criteria utilized:

- Average Day Wastewater Demand, Office: ..... 0.4 gpd/sf
- Average Day Wastewater Demand, Commercial (Industrial, Airport) ..... 0.5 gpd/sf
- Average Day Wastewater Demand, Multi-Family Residential ..... 140 gpd/DU
- Average Day Wastewater Demand, Single Family Residential ..... 100 gpd/DU
- Peaking Factor ..... [1+12/(4+P1/2)] X ADD
- Maximum d/D Ratio at Peak Flow ..... (12" dia. or less): 0.65
- Minimum Mean Full Flow Velocity ..... 2.50 fps
- Maximum Peak Full Flow Velocity ..... 10.0 fps
- Minimum Pipe Diameter, Public Wastewater Line ..... 8 inches

Abbreviations: gpd = gallons per day; sf = square feet; ADD = average day demand; fps = feet per second; DU = dwelling unit; P = population

It is assumed the infiltration and inflow from wet weather has been accounted for in the published design flow rates for the development and the maximum d/D. Therefore, those flows have not been added into the calculations.

Based on the above design criteria, the projected average day demand for the proposed Site is approximately 335,830 gallons per day (gpd) and the total peak flow is projected to be 1,010,610 gpd. The anticipated discharge to the existing 12-inch sewer on Redfield Road is 125,550 gpd with the remaining 210,280 gpd discharging to the existing 6-inch sewer on Sutton Drive.

This analysis of the proposed sanitary sewer collection system confirms adequate capacity to convey the developed peak flow of 1,010,610 gpd. Refer to Table 1, 2, and 3 for detailed calculations and results regarding projected flows and pipe flow capacities.

Thank you for your review of the Wastewater Collection System Basis of Design Report provided for 7th Day Adventist - Scottsdale & Sutton. Please contact our office if you have any further comments.

Sincerely,

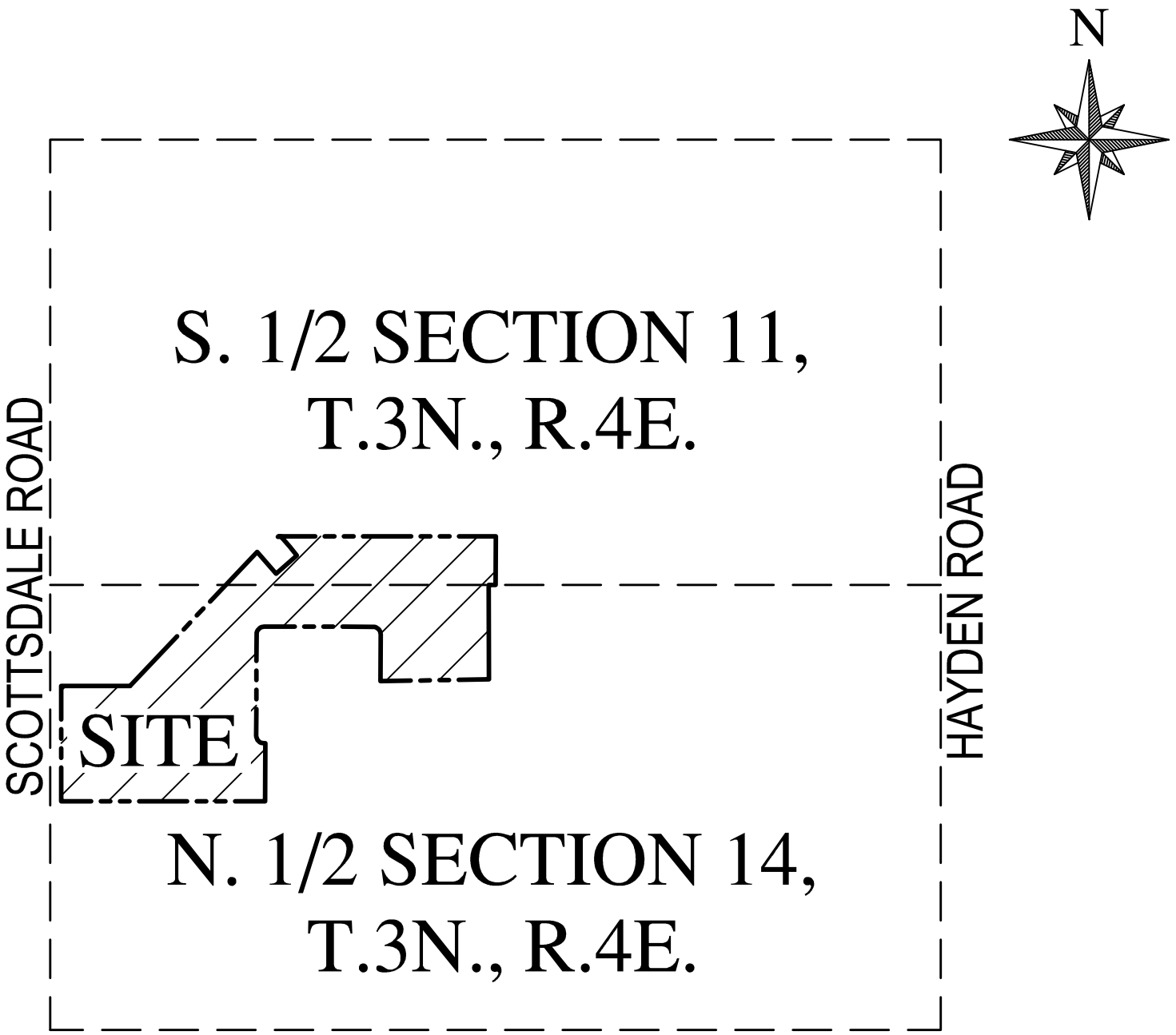
Wood, Patel & Associates, Inc.

Darin L. Moore, PE
Vice President

EXPIRES 06-30-22

se
Y:\WP\Reports\Commercial\194966 7th Day Adventist - Scottsdale Sutton Wastewater BOD..docx

VICINITY MAP



VICINITY MAP

N.T.S.

NOT
FOR
CONSTRUCTION
OR RECORDING

WOOD PATEL

7th DAY ADVENTIST - SCOTTSDALE & SUTTON

VICINITY MAP EXHIBIT

DATE	05/20/2020	SCALE	N.T.S.	SHEET	## OF ##
JOB NO.	194966	DESIGN	TB	CHECK	LB
		DRAWN	JO	RFI #	

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HYDRAULIC CALCULATIONS

WOOD/PATEL
MISSION: CLIENT SERVICE®

CIVIL ENGINEERS * HYDROLOGISTS * LAND SURVEYORS * CONSTRUCTION MANAGERS

TABLE 1 - WASTEWATER DESIGN CRITERIA

Project: 7th Day Adventist
Location: Scottsdale , Arizona
References: City of Scottsdale Design Standards and Policies Manual
Arizona Administrative Code, Title 18, Chapter 9

Project Number: 194966
Project Engineer: D Moore

RESIDENTIAL WASTEWATER DEMANDS		
LAND USE	AVERAGE DAY DEMAND (ADD)	
	VALUE	UNITS
Single Family Residential	100	gpd/DU
Multi-Family Residential	140	gpd/DU
NON-RESIDENTIAL WASTEWATER DEMANDS		
LAND USE	AVERAGE DAY DEMAND (ADD)	
	VALUE	UNITS
Industrial/Airport	0.50	gpd/sf
Office	0.40	gpd/sf

HYDRAULIC MODELING CRITERIA	
DESCRIPTION	VALUE[2]
PEAK FLOW	
Peak Flow = Peaking Factor (PF) x ADD	$[1+14/(4+P^{1/2})]$ x ADD
(PF is based on upstream population, P = Population/1,000)	
HYDRAULICS	
Minimum Pipe Diameter (in)	8
Manning's "n" value	0.013
Maximum d/D ratio at peak flow	0.65

PIPE SIZE	MEAN VELOCITY[1]		DESIGN SLOPE[1]	
(in)	Minimum (ft/sec)	Maximum (ft/sec)	Minimum (%)	Maximum (%)
8	2.1	10.0	0.380	6.980
10	2.2	10.0	0.306	5.121
12	2.3	10.0	0.256	3.919
15	2.4	10.0	0.205	2.880

Notes:
1. Per Arizona Administrative Code, Title 18, Chapter 9
2. Per City of Scottsdale Design Standards and Policies Manual

WOOD/PATEL
MISSION: CLIENT SERVICE®

CIVIL ENGINEERS * HYDROLOGISTS * LAND SURVEYORS * CONSTRUCTION MANAGERS

TABLE 2 - WASTEWATER DEMANDS

Project: 7th Day
Location: Scottsdale , Arizona
References: City of Scottsdale Design Standards and Policies Manual
Arizona Administrative Code, Title 18, Chapter 9

Project Number: 194966
Project Engineer: Darin L Moore PE

UPSTREAM NODE	DOWNSTREAM NODE	BUILDING USE	SQUARE FEET	ADF PER SQUARE FOOT	ADD PER BUILDING USE (GPD)	PEAKING FACTOR	TOTAL PEAK FLOW (GPD)
PROP MH 1	PROP MH 2	Industrial	174,850	0.50	87,425	3.00	262,275
PROP MH 1	PROP MH 2	Airport	76,250	0.50	38,125	3.00	114,375
PROP MH 1	PROP MH 2	Office	--	0.40	--	3.00	--
Total Outfall #1					**125,550**		**376,650**
PROP MH 3	PROP MH 4	Office	488000	0.40	195,200	3.00	585,600
Total Outfall #2							**585,600**
PROP MH 5	PROP MH 6	High Density	12	140.00	1,680	4.50	7,560
PROP MH 5	PROP MH 6	Single Family	6	100.00	600	4.00	2,400
PROP MH 5	PROP MH 6	Office	20000	0.40	8,000	3.00	24,000
PROP MH 5	PROP MH 6	Industrial	9600	0.50	4,800	3.00	14,400
Total Outfall #3					**15,080**		**48,360**
				Total:	**335,830**	**Total:**	**1,010,610**

Notes:
1. Square footage per building and building use based on Preliminary Site Plan provided by client.

WOOD/PATEL
MISSION: CLIENT SERVICE®

CIVIL ENGINEERS * HYDROLOGISTS * LAND SURVEYORS * CONSTRUCTION MANAGERS

TABLE3 - CALCULATED PIPE CAPACITIES

Project: 7th Day Adventist
Location: Scottsdale , Arizona
References: City of Scottsdale Design Standards and Policies Manual
ADEQ Bulletin No. 11

Project Number: 194966
Project Engineer: D Moore

						PEAK FLOW RESULTS					
FROM NODE	TO NODE	PIPE SIZE	MODELED PIPE SLOPE	PIPE CAPACITY		PEAK FLOW	PEAK FLOW	d/D	VELOCITY	SURPLUS CAPACITY	PERCENT OF CAPACITY
		(in)	(ft/ft)	(gpd)	(gpm)	(gpd)	(gpm)		(ft/sec)	(gpd)	(%)
PROP MH 1	PROP MH 2	12	0.0073	1,979,877	1,375	376,650.00	261.56	.30	3.10	1,603,227	19.0%
Outfall #2 - South											
PROP MH 3	PROP MH 4	8	0.0152	970,260	674	585,600.00	406.67	.56	4.50	384,660	60.4%
Outfall #3 - East											
PROP MH 5	PROP MH 6	8	0.0205	1,128,210	783	48,360.00	33.58	.14	2.50	1,079,850	4.3%

WASTEWATER EXHIBIT

LEGEND

- EXISTING SEWER PIPE
- PROPOSED SEWER PIPE
- EXISTING SEWER MANHOLE
- PROPOSED SEWER MANHOLE
- PROPERTY LINE

N

0 200 400

Horz. 1 in. = 200 ft.

N. SCOTTSDALE RD

E. REDFIELD RD

E. THUNDERBIRD RD

E. SUTTON DR

N. MILLER RD

PROP. MH 2
INV 12.60

PROPERTY LINE

PROP. MH
INV 14.33

PROP. MH
INV 18.00

AVIATION

PROP. MH
INV 21.54

PROP. 12" SEWER
S=0.70%

PROP. MH 1
INV 23.08

EX. 12" SEWER

OFFICE/INDUSTRIAL

PROP. 12" SEWER
S=0.73%

INDUSTRIAL

PROP. 8" SEWER
S=0.50%

EXISTING
PARK & RIDE
(NOT A PART)

EXISTING SEVENTH
DAY ADVENTIST
CAMPUS
(NOT A PART)

PROP. MH
INV 23.60

PROPERTY LINE

PROP. MH
INV 21.15

PROPERTY LINE

PROP. MH
INV 18.18

PROP. MH 3
INV 21.50

PROP. MH 5
INV 22.90

PROP. MH
INV 18.53

PROPERTY LINE

OFFICE

EX. 24" SEWER

PROP. 8" SEWER
S=1.52%

OFFICE/
PARKING

PROP. 8" SEWER
S=2.05%

PROP. MH
INV 12.19

PROP. MH
INV 12.92

PROP. MH
INV 7.70

PROP. MH
INV 9.97

PROP. MH 4
INV 6.06

EX. 8" SEWER

EX. 8" SEWER

PROP. MH 6
INV 8.26

NOT
FOR
CONSTRUCTION
OR RECORDING

WOOD PATEL

7th DAY ADVENTIST - SCOTTSDALE & SUTTON

WASTEWATER EXHIBIT

DATE	05/20/2020	SCALE	1" = 200'	SHEET	1 OF 1
JOB NO.	194966	DESIGN	DM	DRAWN	JRS

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WOOD PATEL

WATER DISTRIBUTION SYSTEM
BASIS OF DESIGN REPORT
FOR
7th DAY ADVENTIST – SCOTTSDALE & SUTTON

July 1, 2020
WP# 194966

FINAL Basis of Design Report

☑ **APPROVED**

☐ **APPROVED AS NOTED**

☐ **REVISE AND RESUBMIT**

CITY OF SCOTTSDALE

SCOTTSDALE WATER

9379 E San Salvador Dr.
Scottsdale, AZ 85258

Disclaimer: If approved; the approval is granted under the condition that the final construction documents submitted for city review will match the information herein. Any subsequent changes in the water or sewer design that materially impact design criteria or standards will require re-analysis, re-submittal, and approval of a revised basis of design report prior to the plan review submission.; this approval is not a guarantee of construction document acceptance.
For questions or clarifications contact the Water Resources Planning and Engineering Department at 480-312-5685.

07/07/2020

BY rsacks **DATE** 7/7/2020

Registered Professional Engineer (Civil)
CERTIFICATE NO.
36382
DARIN L.
MOORE
Date Signed 7/1/20
ARIZONA, U.S.A.

EXPIRES 06-30-22

WOOD PATEL

2051 W Northern Ave #100
Phoenix AZ 85021
P: 602.335.8500
F: 602.335.8580
www.woodpatel.com

Darrel E. Wood, PE, RLS
Ashok C. Patel, PE, RLS, CFM
Michael T. Young, PE, LEED AP
James S. Campbell, PE, LEED GA
Thomas R. Gettings, RLS
Darin L. Moore, PE, LEED GA
Jeffrey R. Minch, PE, CFM
Robert D. Gofonia, PE, RLS
Nicholas E. Brown, PE

July 1, 2020

City of Scottsdale
Planning and Development
7447 East Indian School Road
Scottsdale, Arizona 85257

480.312.5319

Re: **7th Day Adventist – Scottsdale & Sutton**
Water Distribution System Basis of Design Report
WP# 194966

To Whom It May Concern:

This Water Distribution System Basis of Design Report is prepared for the Arizona Conference of Seventh-Day Adventists and submitted to the City of Scottsdale (City). The 7th Day Adventist – Scottsdale & Sutton project (Site) consists of portions of two (2) adjacent parcels totaling an area of approximately 2,148,604 square-feet, or 49.3± acres. It is located in a portion of Section 11, Township 3 North, Range 4 East and a portion of the north half of Section 14, Township 3 North, Range 4 East of the Gila and Salt River Base and Meridian. More specifically, the Site is located at the northeast corner of North Scottsdale Road and Sutton Road in Scottsdale, Arizona on Assessor Parcel Number 215-56-333A and 175-04-002A. Refer to the *Vicinity Map* at the back of this report. The Site is bound by Thunderbird Road/Redfield Road to the north, East Sutton Drive on the south, North Miller Road on the east and North Scottsdale Road on the west.

This project includes the potential construction of airport hangars, industrial buildings, office buildings, residential townhomes and single family homes. Proposed improvements include associated landscape, hardscape, paving and utility services. The airport hangars will include 76,250 square-feet of total space. The industrial buildings will include 184,450 square-feet of space. The office buildings will include 508,000 square-feet of space. The maximum number of residential units will be 258.

An 8-inch DIP public waterline will loop through the Site for domestic service and fire protection within a 20 foot water facilities easement. The proposed loop will tie into existing City water infrastructure at four (4) locations. Connection to the 12-inch waterline north of the site in Redfield Road will require a Pressure Reducing Valve (PRV) since it resides within the City's Pressure Zone 3. The Site and its three other connections all reside within the City's Pressure Zone 2. The 6-inch Sutton Drive waterline south of the Site will require an upsize to 8 inches in diameter. The loop will also connect into the existing 8-inch waterline east of the Site in Miller Road. A total of 18 proposed fire hydrants will be installed onsite for fire protection. Refer to the attached *Water Exhibit* for a depiction of the water system.

The following design criteria was utilized by Wood, Patel & Associates, Inc.'s (WOODPATEL) to estimate potable water demands and evaluate system hydraulics based on our understanding of the City of Scottsdale's 2018 *Design Standards and Policies Manual*:

- Average Day Water Demand, Office ..... 8.33E-04 gpm/sf
- Average Day Water Demand, Industrial ..... 1.44 gpm/acre
- Average Day Water Demand, Multi-Family Residential ..... 0.27 gpm/DU
- Fire Flow Requirements (Office) ..... 2,875 gpm (with 50% sprinkler reduction)
- Fire Flow Requirements (Industrial) ..... 1,750 gpm (with 50% sprinkler reduction)
- Fire Flow Requirements (Multi-Family) ..... 1,500 gpm
- Maximum Day Demand ..... 2.0 x ADD
- Peak Hour Demand ..... 3.5 x ADD
- Minimum Residual Pressure, Peak Hour ..... 50 psi
- Minimum Residual Pressure, Maximum Day + Fire Flow ..... 30 psi
- Maximum System Pressure ..... 120 psi
- Maximum Pipe Head Loss, Maximum day Demand 8ft/1000ft
- Maximum Pipe Head Loss, Peak Hour Demand 10ft/1000ft
- Minimum Pipe Diameter, Public Water Line ..... 8 inches

Abbreviations: gpd = gallons per day; sf = square feet; ADD = average day demand; psi = pounds per square inch; gpm = gallons per minute

WaterCAD V10i, by Haestad Methods, was utilized to analyze the existing City water distribution system and proposed improvements. The WaterCAD model was calibrated using two (2) fire hydrant flow tests provided by Arizona Flow Testing LLC (refer to attached). The first test (Zone 2 Test) was conducted on May 8, 2020 within Pressure zone 2. The second test (Zone 3 Test) was conducted on June 22, 2020 within Pressure Zone 3. The Zone 2 Test was used to calibrate the PRVs in the model. The raw Zone 3 Test results were used to calibrate the pump in the model.

As mentioned above, the Site connects to the public water system in both Zones 2 and 3. Both Zones were modeled to create a more accurate representation of the existing infrastructure around the Site, including two (2) existing PRVs. PRV modeling within WaterCAD restricts flow to only one direction, from higher to lower pressure zones. Therefore, this model was calibrated using a pump at the Zone 3 pressure hydrant to take advantage of existing water infrastructure in both Zones 2 and 3.

Calibration of the water model was completed using four (4) scenarios:

- Calibration - Static - Zone 3
- Calibration - Residual - Zone 3
- Calibration - Max - Zone 3
- Calibration - Residual - Zone 2

The modeling results for all Zone 3 calibrations were identical to the actual results from the Zone 3 Test. Additionally, the static pressure at the Zone 2 pressure hydrant was identical to the actual results from the Zone 2 Test, indicating the model's PRVs were calibrated correctly.

During the "Calibration - Residual - Zone 2" scenario, the residual flows from the Zone 2 Test were applied to the Zone 2 flow hydrants while using the pump in Zone 3. During this scenario, the modeled residual pressure at the Zone 2 pressure hydrant was lower than the actual Zone 2 Test results. It is believed the lower modeled Zone 2 pressure hydrant residual pressure is due to other Zone 2 water sources in place in addition to the modeled Zone 3 source. This appears to agree with the City's attached "Pressure Zone Schematic of Southern Service Zones 2008" which indicates Site 32 and Pump 32 also provide pressure to Zone 2. Based on the results described below, we believe this model is conservatively calibrated using the Zone 3 raw test data. Please also refer to the attached summary Table 1 and Table 2, complete hydraulic modeling results and exhibit for detailed information.

The average day water demand for the proposed Site is projected to be 497.5 gpm. Maximum day demands and peak hour demands are projected to be 995 gpm and 1741.1 gpm, respectively. The hydraulic modeling results indicate the proposed system is capable of delivering peak hour demands totaling 1741.1 gpm to the proposed Site with pressures ranging from 63 to 91 psi.

The greatest required fire flow in this analysis is 2,875 gpm for a 100,000 square foot (sf) office building. This assumes a Building Type V-A with no fire walls and a 50% reduction due to fire sprinklers. Fire flow scenarios were also modeled for the largest industrial building (17,600 sf) and the multi-family building (3,000 sf). Residual pressures exceeded the 30 psi minimum all fire flow scenarios. Refer to the attached Hydraulic Calculations for detailed information.

Thank you for your review of the Water Distribution System Basis of Design Report provided for 7th Day Adventist - Scottsdale & Sutton project. Please contact our office if you have any further comments.

Sincerely,

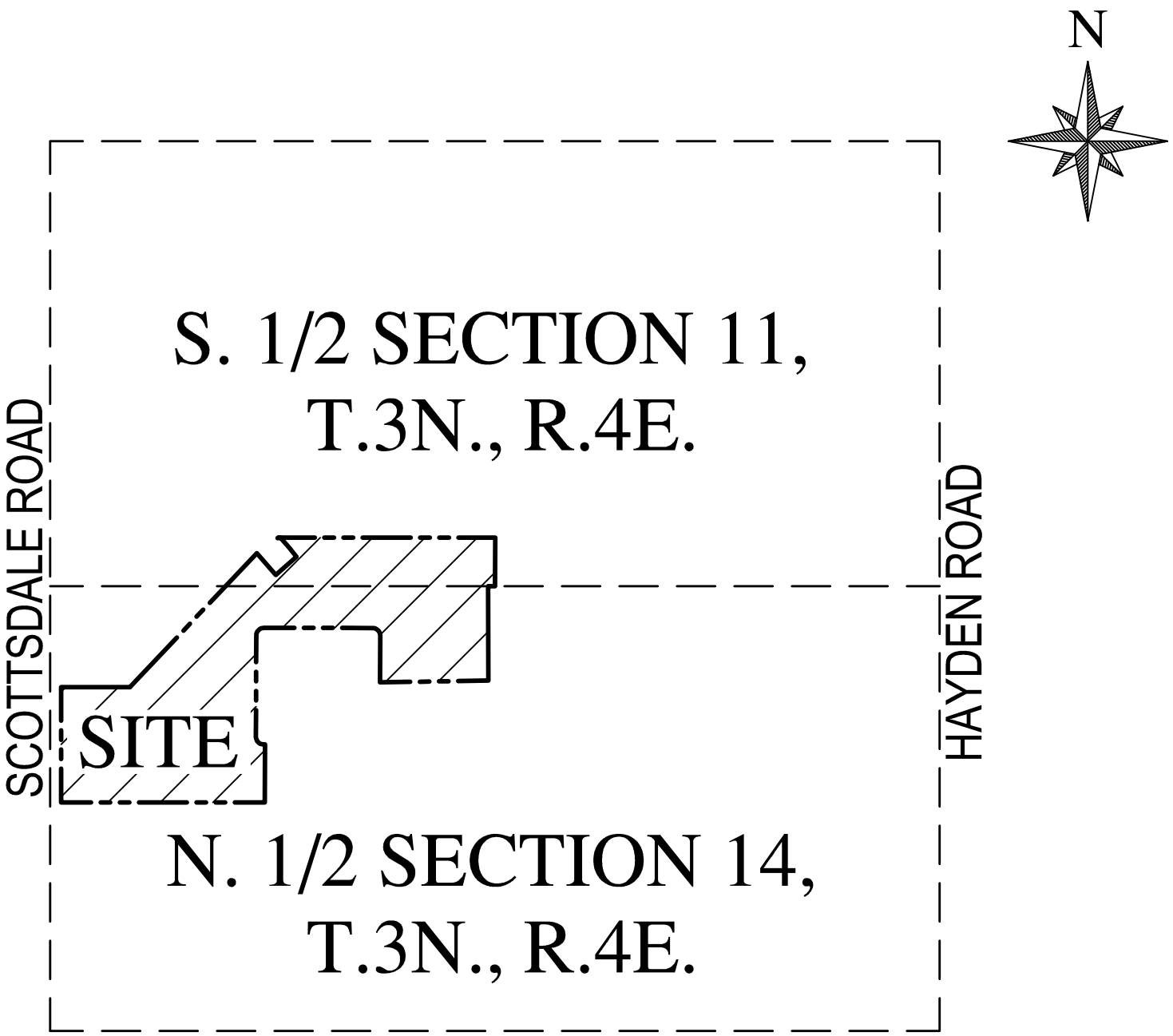
Wood, Patel & Associates, Inc.

Darin L. Moore, PE
Vice President

EXPIRES 06-30-22

se
Y:\WP\Reports\Commercial\194966 7th Day Adventist - Scottsdale Sutton Water BOD..docx

VICINITY MAP



VICINITY MAP

N.T.S.

NOT
FOR
CONSTRUCTION
OR RECORDING

WOOD PATEL

7th DAY ADVENTIST - SCOTTSDALE & SUTTON

VICINITY MAP EXHIBIT

DATE	05/20/2020	SCALE	N.T.S.	SHEET	## OF ##
JOB NO.	194966	DESIGN	TB	CHECK	LB
		DRAWN	JO	RFI #	

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HYDRAULIC CALCULATIONS

WOOD/PATEL
MISSION: CLIENT SERVICE®

CIVIL ENGINEERS * HYDROLOGISTS * LAND SURVEYORS * CONSTRUCTION MANAGERS

TABLE 1 - WATER DESIGN CRITERIA

Project: Seventh-Day Adventists
Location: Scottsdale, Arizona
References: City of Scottsdale Design Standards & Policies Manual (2018)

Project Number: 194966
Project Engineer: Darin L. Moore, P.E.

RESIDENTIAL WATER DEMANDS			
LAND USE	AVERAGE DAILY DEMAND (ADD)		NOTES
	VALUE	UNITS	
< 2 dwelling DU/ac	0.69	gpm/unit	Note 1
2-2.9 dwelling DU/ac	0.66	gpm/unit	Note 1
3-7.9 dwelling DU/ac	0.36	gpm/unit	Note 1
8-11.9 dwelling DU/ac	0.33	gpm/unit	Note 1
12-22 2 dwelling DU/ac	0.33	gpm/unit	Note 1
High Density Condominium (condo)	0.27	gpm/unit	Note 1
Resort Hotel (includes site amenities)	0.63	gpm/room	Note 1

NON-RESIDENTIAL WATER DEMANDS			
LAND USE	AVERAGE DAILY DEMAND (ADD)		NOTES
	VALUE	UNITS	
Restaurant	0.00181	gpm/sf	Note 1
Commercial/Retail	0.00111	gpm/sf	Note 1
Commercial High Rise	0.000834	gpm/sf	Note 1
Office	0.000834	gpm/sf	Note 1
Institutional	1.88	gpm/acre	Note 1
Industrial	1.44	gpm/acre	Note 1
Research and Development	1.79	gpm/acre	Note 1

LANDSCAPE WATER DEMANDS			
LAND USE	AVERAGE DAILY DEMAND (ADD)		NOTES
	VALUE	UNITS	
Natural Area Open Space	0.00	gpm/acre	Note 1
Developed Open Space - Parks	2.49	gpm/acre	Note 1
Developed Open Space - Golf Course	5.96	gpm/acre	Note 1

HYDRAULIC MODELING CRITERIA			
DESCRIPTION	VALUE	UNITS	NOTES
MAX DAY FLOW			
Max Day Flow = Peaking Factor (PF) x ADD	2 x ADD	gpm	Note 1
PEAK HOUR FLOW			
Peak Hour Flow = Peaking Factor (PF) x ADD	3.5 x ADD	gpm	Note 1
MODELED FIRE HYDRANT FLOW (MINIMUM)			
☐ Residential, 0 - 3,600 sf fire-flow calculation area	1,000	gpm	Note 3
☐ Residential, 3,601 - 4,800 sf fire-flow calculation area	1,750	gpm	Note 4
☐ Residential, 4,801 - 6,200 sf fire-flow calculation area	2,000	gpm	Note 4
☐ Residential, 6,201 - 7,700 sf fire-flow calculation area	2,250	gpm	Note 4
☐ Residential, 7,701 - 9,400 sf fire-flow calculation area	2,500	gpm	Note 4
☐ Residential, 9,401 - 11,300 sf fire-flow calculation area	2,750	gpm	Note 4
☑ Multi-Family Residential	1,500	gpm	Note 2
☑ Industrial	1,750	gpm	Note 2
☑ Commercial	2,875	gpm	Note 2
HYDRAULICS			
Residual Pressure Range, Peak Hour	50-150	psi	Note 1
Minimum Residual Pressure, Max Day + Fire Flow (Hydrant TEE)	30	psi	Note 1
Minimum Residual Pressure, Max Day + Fire Flow (Domestic Service)	15	psi	Note 1
Minimum Pipe Diameter, Looped System	6	in	Note 1
Hazen-Williams C-value	120	-	Note 1

Notes:

1. Per City of Scottsdale Design Standards & Policies Manual (2018)
2. Per City of Scottsdale Design Standards & Policies Manual (2018):
Office: Utilizes construction type V-A, the area of the largest office building (100,000 sf), 50% reduction applied.
Industrial: Utilizes construction type V-B, the area of the largest industrial building (17,600 sf), 50% reduction applied.
Multi-Family: Utilizes construction type V-B, the area of the largest multi-family building (3,000 sf), 50% reduction not applied.
3. Residential limited to one- and two-family dwellings, assumes Type V-B construction, and has a 1-hour fire duration
4. Residential limited to one- and two-family dwellings, assumes Type V-B construction, and has a 2-hour fire duration

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TABLE 2 - WATER DEMAND DESIGN FLOWS

Project: Seventh-Day Adventists
Location: Scottsdale, Arizona
References: City of Scottsdale Design Standards & Policies Manual (2018)

Project Number: 194966
Project Engineer: Darin L. Moore, P.E.

Water Demand Calculations

HYDRAULIC MODEL NODE	ELEVATION (ft)	PRESSURE ZONE	LAND USE	APPLICABLE UNIT	NUMBER OF UNITS	GPM/APPLICABLE UNIT[1]	AVERAGE DAILY DEMAND		MAX DAY DEMAND		PEAK HOUR DEMAND		Fire Flow
							(gpm)	Total (gpm)	(gpm)	Total (gpm)	(gpm)	Total (gpm)	(gpm)
EX J-15	1,430.6	2	Office	gpm/sf	508,100	0.00083	421.7	421.7	843.4	843.4	1,475.9	1,475.9	2,875
EX J-5	1,430.6	2	Industrial	gpm/ac	4.23	1.44	6.1	427.8	12.2	855.6	21.2	1,497.1	1,750
EX J-41	1,430.6	2	Multi-Family Residential	gpm/DU	258.00	0.27	69.7	497.5	139.4	995.0	244.0	1,741.1	1,500
							497.5	**497.5**	**995.0**	**995.0**	**1741.1**	**1741.1**	

Notes:
1. GPM values are based on a 12-hour active water used period per 24-hour day per the City of Scottsdale Design Standards and Policy Manual.

194966 Seventh-Day Adventists

FlexTable: Junction Table

Active Scenario: Calibration - Static - Zone 3

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1	1,426.18	0.0	66	1,578.23
EX FH-2	1,416.00	0.0	70	1,578.23
EX FH-3	1,418.25	0.0	69	1,578.23
EX FH-5	1,420.00	0.0	68	1,578.23
EX FH-FLOW A-Zone 2	1,418.25	0.0	69	1,578.23
EX FH-FLOW A-Zone 3	1,432.00	0.0	95	1,651.34
EX FH-FLOW B-Zone 2	1,420.82	0.0	68	1,578.23
EX FH-FLOW B-Zone 3	1,437.00	0.0	93	1,651.34
EX FH-TEST-Zone 2	1,416.49	0.0	70	1,578.23
EX FH-TEST-Zone 3	1,434.00	0.0	94	1,651.34
EX J-5	1,425.67	0.0	66	1,578.23
EX J-7	1,416.00	0.0	70	1,578.23
EX J-10	1,417.00	0.0	70	1,578.23
EX J-15	1,416.00	0.0	70	1,578.23
EX J-20	1,418.00	0.0	69	1,578.23
EX J-30	1,430.55	0.0	96	1,651.34
EX J-41	1,417.00	0.0	70	1,578.23
EX J-65	1,425.89	0.0	98	1,651.34
EX J-205	1,409.00	0.0	73	1,578.23
EX J-215	1,409.00	0.0	73	1,578.23
EX J-225	1,409.00	0.0	73	1,578.23
EX J-235	1,409.00	0.0	73	1,578.23
EX J-245	1,416.00	0.0	70	1,578.23
EX J-255	1,428.00	0.0	65	1,578.23
EX J-265	1,432.00	0.0	63	1,578.23

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FlexTable: Junction Table

Active Scenario: Calibration - Residual - Zone 3

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1	1,426.18	0.0	66	1,578.23
EX FH-2	1,416.00	0.0	70	1,578.23
EX FH-3	1,418.25	0.0	69	1,578.23
EX FH-5	1,420.00	0.0	68	1,578.23
EX FH-FLOW A-Zone 2	1,418.25	0.0	69	1,578.23
EX FH-FLOW A-Zone 3	1,432.00	2,431.0	68	1,590.03
EX FH-FLOW B-Zone 2	1,420.82	0.0	68	1,578.23
EX FH-FLOW B-Zone 3	1,437.00	1,764.0	64	1,586.04
EX FH-TEST-Zone 2	1,416.49	0.0	70	1,578.23
EX FH-TEST-Zone 3	1,434.00	0.0	69	1,593.59
EX J-5	1,425.67	0.0	66	1,578.23
EX J-7	1,416.00	0.0	70	1,578.23
EX J-10	1,417.00	0.0	70	1,578.23
EX J-15	1,416.00	0.0	70	1,578.23
EX J-20	1,418.00	0.0	69	1,578.23
EX J-30	1,430.55	0.0	69	1,590.03
EX J-41	1,417.00	0.0	70	1,578.23
EX J-65	1,425.89	0.0	71	1,590.03
EX J-205	1,409.00	0.0	73	1,578.23
EX J-215	1,409.00	0.0	73	1,578.23
EX J-225	1,409.00	0.0	73	1,578.23
EX J-235	1,409.00	0.0	73	1,578.23
EX J-245	1,416.00	0.0	70	1,578.23
EX J-255	1,428.00	0.0	65	1,578.23
EX J-265	1,432.00	0.0	63	1,578.23

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FlexTable: Junction Table

Active Scenario: Calibration - Residual - Zone 2

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1	1,426.18	0.0	41	1,520.09
EX FH-2	1,416.00	0.0	43	1,515.64
EX FH-3	1,418.25	0.0	43	1,518.78
EX FH-5	1,420.00	0.0	54	1,544.09
EX FH-FLOW A-Zone 2	1,418.25	1,303.0	45	1,523.16
EX FH-FLOW A-Zone 3	1,432.00	0.0	78	1,611.85
EX FH-FLOW B-Zone 2	1,420.82	1,969.0	23	1,473.43
EX FH-FLOW B-Zone 3	1,437.00	0.0	76	1,612.06
EX FH-TEST-Zone 2	1,416.49	0.0	36	1,499.54
EX FH-TEST-Zone 3	1,434.00	0.0	78	1,614.90
EX J-5	1,425.67	0.0	40	1,518.77
EX J-7	1,416.00	0.0	36	1,499.49
EX J-10	1,417.00	0.0	37	1,503.14
EX J-15	1,416.00	0.0	43	1,515.28
EX J-20	1,418.00	0.0	44	1,519.35
EX J-30	1,430.55	0.0	77	1,608.17
EX J-41	1,417.00	0.0	37	1,503.54
EX J-65	1,425.89	0.0	74	1,597.48
EX J-205	1,409.00	0.0	45	1,512.74
EX J-215	1,409.00	0.0	42	1,506.23
EX J-225	1,409.00	0.0	42	1,506.20
EX J-235	1,409.00	0.0	42	1,505.27
EX J-245	1,416.00	0.0	36	1,498.52
EX J-255	1,428.00	0.0	41	1,523.16
EX J-265	1,432.00	0.0	62	1,574.97

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FlexTable: Junction Table

Active Scenario: Calibration - Max - Zone 3

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1	1,426.18	0.0	19	1,469.85
EX FH-2	1,416.00	0.0	23	1,469.85
EX FH-3	1,418.25	0.0	22	1,469.85
EX FH-5	1,420.00	0.0	22	1,469.85
EX FH-FLOW A-Zone 2	1,418.25	0.0	22	1,469.85
EX FH-FLOW A-Zone 3	1,432.00	4,368.0	16	1,469.85
EX FH-FLOW B-Zone 2	1,420.82	0.0	21	1,469.85
EX FH-FLOW B-Zone 3	1,437.00	3,169.0	9	1,458.06
EX FH-TEST-Zone 2	1,416.49	0.0	23	1,469.85
EX FH-TEST-Zone 3	1,434.00	0.0	20	1,480.40
EX J-5	1,425.67	0.0	19	1,469.85
EX J-7	1,416.00	0.0	23	1,469.85
EX J-10	1,417.00	0.0	23	1,469.85
EX J-15	1,416.00	0.0	23	1,469.85
EX J-20	1,418.00	0.0	22	1,469.85
EX J-30	1,430.55	0.0	17	1,469.85
EX J-41	1,417.00	0.0	23	1,469.85
EX J-65	1,425.89	0.0	19	1,469.85
EX J-205	1,409.00	0.0	26	1,469.85
EX J-215	1,409.00	0.0	26	1,469.85
EX J-225	1,409.00	0.0	26	1,469.85
EX J-235	1,409.00	0.0	26	1,469.85
EX J-245	1,416.00	0.0	23	1,469.85
EX J-255	1,428.00	0.0	18	1,469.85
EX J-265	1,432.00	0.0	16	1,469.85

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FlexTable: Junction Table

Active Scenario: Average Day Demand

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1	1,426.18	0.0	65	1,577.04
EX FH-2	1,416.00	0.0	69	1,576.61
EX FH-3	1,418.25	0.0	69	1,576.92
EX FH-5	1,420.00	0.0	68	1,577.77
EX FH-FLOW A-Zone 2	1,418.00	0.0	69	1,577.36
EX FH-FLOW A-Zone 3	1,432.00	0.0	94	1,650.04
EX FH-FLOW B-Zone 2	1,420.82	0.0	68	1,576.90
EX FH-FLOW B-Zone 3	1,437.00	0.0	92	1,650.23
EX FH-TEST-Zone 2	1,416.49	0.0	69	1,576.90
EX FH-TEST-Zone 3	1,434.00	0.0	94	1,650.23
EX J-5	1,425.67	6.1	65	1,577.04
EX J-7	1,416.00	0.0	70	1,576.90
EX J-10	1,417.00	0.0	69	1,576.63
EX J-15	1,416.00	421.7	69	1,576.57
EX J-20	1,418.00	0.0	69	1,576.98
EX J-30	1,430.55	0.0	95	1,649.82
EX J-41	1,417.00	69.7	69	1,576.60
EX J-65	1,425.89	0.0	97	1,649.61
EX J-205	1,409.00	0.0	73	1,576.95
EX J-215	1,409.00	0.0	73	1,576.93
EX J-225	1,409.00	0.0	73	1,576.93
EX J-235	1,409.00	0.0	73	1,576.93
EX J-245	1,416.00	0.0	70	1,576.90
EX J-255	1,428.00	0.0	64	1,577.04
EX J-265	1,432.00	0.0	63	1,577.04
FH-1	1,417.74	0.0	69	1,576.65
FH-2	1,420.79	0.0	67	1,576.69
FH-3	1,419.33	0.0	68	1,576.74
FH-4	1,422.56	0.0	67	1,576.80
FH-5	1,422.90	0.0	67	1,576.82
FH-6	1,421.53	0.0	67	1,576.78
FH-7	1,419.13	0.0	68	1,576.73
FH-9	1,422.12	0.0	67	1,576.78
FH-10	1,416.88	0.0	69	1,576.66
FH-12	1,427.09	0.0	65	1,577.10
FH-13	1,428.34	0.0	64	1,577.27
FH-14	1,428.77	0.0	64	1,577.25
FH-15	1,427.51	0.0	65	1,577.21
FH-16	1,428.92	0.0	64	1,577.17
FH-17	1,429.43	0.0	64	1,577.12
FH-18	1,426.57	0.0	65	1,577.06
FH-19	1,417.86	0.0	69	1,576.60
FH-20	1,419.34	0.0	68	1,576.60
J-3	1,416.56	0.0	69	1,576.62
J-8	1,423.28	0.0	66	1,576.83
J-35	1,428.39	0.0	64	1,577.28

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FlexTable: Junction Table

Active Scenario: Average Day Demand

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
J-42	1,422.00	0.0	67	1,576.60
J-45	1,423.09	0.0	67	1,576.85
J-46	1,426.00	0.0	65	1,577.02
J-47	1,426.59	0.0	65	1,577.07

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FlexTable: Pipe Table

Active Scenario: Average Day Demand

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
EX P-5	EX FH-TEST-Zone 3	EX FH-FLOW B-Zone 3	1,194	12.0	Asbestos Cement	140.0	3.9	0.01
EX P-10	EX FH-FLOW A-Zone 3	EX FH-TEST-Zone 3	311	12.0	Asbestos Cement	140.0	-493.6	1.40
EX P-15	EX J-30	EX FH-FLOW A-Zone 3	377	12.0	Asbestos Cement	140.0	-493.6	1.40
EX P-20	EX J-65	EX J-30	1,094	12.0	Asbestos Cement	140.0	-266.7	0.76
EX P-25	EX PRV-1	EX FH-5	335	8.0	Asbestos Cement	140.0	266.7	1.70
EX P-27	EX J-65	EX PRV-1	423	8.0	Asbestos Cement	140.0	266.7	1.70
EX P-30	EX FH-FLOW A-Zone 2	EX FH-5	297	8.0	Asbestos Cement	140.0	-266.7	1.70
EX P-35	EX J-20	EX FH-FLOW A-Zone 2	274	8.0	Asbestos Cement	140.0	-266.7	1.70
EX P-40	EX FH-3	EX J-20	44	8.0	Ductile Iron	130.0	-241.0	1.54
EX P-45	EX FH-2	EX FH-3	238	8.0	Ductile Iron	130.0	-241.0	1.54
EX P-50	EX J-15	EX FH-2	27	8.0	Ductile Iron	130.0	-241.0	1.54
EX P-53	EX J-41	EX J-15	891	8.0	Ductile Iron	130.0	28.0	0.18
EX P-55	EX J-10	EX J-41	123	8.0	Ductile Iron	130.0	97.7	0.62
EX P-60	EX FH-TEST-Zone 2	EX J-10	1,268	8.0	Asbestos Cement	140.0	97.7	0.62
EX P-62	EX J-7	EX FH-TEST-Zone 2	20	8.0	Asbestos Cement	140.0	97.7	0.62
EX P-64	EX J-5	EX J-7	981	8.0	Ductile Iron	130.0	72.0	0.46
EX P-65	EX FH-1	EX J-5	77	8.0	Asbestos Cement	140.0	3.9	0.02
EX P-67	EX J-7	EX J-245	31	8.0	Asbestos Cement	140.0	-25.7	0.16
EX P-69	EX J-245	EX FH-FLOW B-Zone 2	449	8.0	Asbestos Cement	140.0	0.0	0.00
EX P-200	EX J-20	EX J-205	1,322	8.0	Asbestos Cement	140.0	25.7	0.16
EX P-210	EX J-205	EX J-215	1,300	8.0	Asbestos Cement	140.0	25.7	0.16
EX P-220	EX J-215	EX J-225	47	12.0	Asbestos Cement	140.0	25.7	0.07
EX P-230	EX J-225	EX J-235	1,341	12.0	Asbestos Cement	140.0	25.7	0.07
EX P-240	EX J-235	EX J-245	1,349	8.0	Asbestos Cement	140.0	25.7	0.16
EX P-250	EX FH-1	EX J-255	179	8.0	Asbestos Cement	140.0	-3.9	0.02
EX P-260	EX J-255	EX J-265	2,637	8.0	Ductile Iron	130.0	-3.9	0.02
EX P-270	EX PRV-2	EX J-265	872	12.0	Asbestos Cement	140.0	3.9	0.01
EX P-280	EX FH-FLOW B-Zone 3	EX PRV-2	2,664	12.0	Asbestos Cement	140.0	3.9	0.01
P-5	EX J-15	J-3	84	8.0	Ductile Iron	130.0	-152.7	0.97
P-10	J-3	FH-1	168	8.0	Ductile Iron	130.0	-74.4	0.47

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FlexTable: Pipe Table

Active Scenario: Average Day Demand

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-15	FH-1	FH-2	263	8.0	Ductile Iron	130.0	-74.4	0.47
P-20	FH-2	FH-3	346	8.0	Ductile Iron	130.0	-74.4	0.47
P-25	FH-3	FH-9	315	8.0	Ductile Iron	130.0	-74.4	0.47
P-27	FH-9	FH-4	96	8.0	Ductile Iron	130.0	-74.4	0.47
P-30	FH-4	J-45	340	8.0	Ductile Iron	130.0	-74.4	0.47
P-32	J-45	J-8	120	8.0	Ductile Iron	130.0	78.3	0.50
P-35	J-8	FH-5	29	8.0	Ductile Iron	130.0	78.3	0.50
P-40	FH-5	FH-6	240	8.0	Ductile Iron	130.0	78.3	0.50
P-45	FH-6	FH-7	342	8.0	Ductile Iron	130.0	78.3	0.50
P-55	FH-10	FH-7	436	8.0	Ductile Iron	130.0	-78.3	0.50
P-57	J-45	J-46	299	8.0	Ductile Iron	130.0	-152.7	0.97
P-58	J-46	J-47	93	8.0	Ductile Iron	130.0	-152.7	0.97
P-59	J-47	FH-12	52	8.0	Ductile Iron	130.0	-152.7	0.97
P-62	EX J-30	PRV-16	102	8.0	Ductile Iron	130.0	226.9	1.45
P-63	PRV-16	J-35	222	8.0	Ductile Iron	130.0	226.9	1.45
P-65	FH-10	J-3	221	8.0	Ductile Iron	130.0	78.3	0.50
P-80	FH-12	FH-13	297	8.0	Ductile Iron	130.0	-152.7	0.97
P-85	FH-13	J-35	23	8.0	Ductile Iron	130.0	-152.7	0.97
P-90	J-35	FH-14	182	8.0	Ductile Iron	130.0	74.2	0.47
P-95	FH-14	FH-15	304	8.0	Ductile Iron	130.0	74.2	0.47
P-100	FH-15	FH-16	254	8.0	Ductile Iron	130.0	74.2	0.47
P-105	FH-16	FH-17	362	8.0	Ductile Iron	130.0	74.2	0.47
P-110	FH-17	FH-18	393	8.0	Ductile Iron	130.0	74.2	0.47
P-115	FH-18	EX J-5	120	8.0	Ductile Iron	130.0	74.2	0.47
P-120	EX J-41	FH-19	124	8.0	Ductile Iron	130.0	0.0	0.00
P-130	FH-19	FH-20	213	8.0	Ductile Iron	130.0	0.0	0.00
P-140	FH-20	J-42	382	8.0	Ductile Iron	130.0	0.0	0.00
P-PMP-Zone 3	PMP-Zone 3	EX FH-TEST-Zone 3	1	48.0	Ductile Iron	130.0	497.5	0.09
P-R-Zone 3	R-Zone 3	PMP-Zone 3	1	48.0	Ductile Iron	130.0	497.5	0.09

194966 Seventh-Day Adventists

FlexTable: Junction Table

Active Scenario: Max Day Demand

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1	1,426.18	0.0	65	1,576.13
EX FH-2	1,416.00	0.0	68	1,573.88
EX FH-3	1,418.25	0.0	68	1,574.87
EX FH-5	1,420.00	0.0	68	1,577.05
EX FH-FLOW A-Zone 2	1,418.00	0.0	68	1,576.01
EX FH-FLOW A-Zone 3	1,432.00	0.0	93	1,646.77
EX FH-FLOW B-Zone 2	1,420.82	0.0	67	1,575.07
EX FH-FLOW B-Zone 3	1,437.00	0.0	91	1,647.27
EX FH-TEST-Zone 2	1,416.49	0.0	69	1,575.05
EX FH-TEST-Zone 3	1,434.00	0.0	92	1,647.32
EX J-5	1,425.67	12.2	65	1,576.11
EX J-7	1,416.00	0.0	69	1,575.07
EX J-10	1,417.00	0.0	68	1,573.98
EX J-15	1,416.00	843.4	68	1,573.76
EX J-20	1,418.00	0.0	68	1,575.05
EX J-30	1,430.55	0.0	93	1,646.11
EX J-41	1,417.00	139.4	68	1,573.87
EX J-65	1,425.89	0.0	95	1,645.58
EX J-205	1,409.00	0.0	72	1,575.06
EX J-215	1,409.00	0.0	72	1,575.06
EX J-225	1,409.00	0.0	72	1,575.06
EX J-235	1,409.00	0.0	72	1,575.06
EX J-245	1,416.00	0.0	69	1,575.07
EX J-255	1,428.00	0.0	64	1,576.18
EX J-265	1,432.00	0.0	63	1,577.01
FH-1	1,417.74	0.0	68	1,574.06
FH-2	1,420.79	0.0	66	1,574.22
FH-3	1,419.33	0.0	67	1,574.43
FH-4	1,422.56	0.0	66	1,574.68
FH-5	1,422.90	0.0	66	1,574.78
FH-6	1,421.53	0.0	66	1,574.62
FH-7	1,419.13	0.0	67	1,574.40
FH-9	1,422.12	0.0	66	1,574.62
FH-10	1,416.88	0.0	68	1,574.10
FH-12	1,427.09	0.0	64	1,575.91
FH-13	1,428.34	0.0	64	1,576.59
FH-14	1,428.77	0.0	64	1,576.58
FH-15	1,427.51	0.0	64	1,576.48
FH-16	1,428.92	0.0	64	1,576.40
FH-17	1,429.43	0.0	64	1,576.28
FH-18	1,426.57	0.0	65	1,576.15
FH-19	1,417.86	0.0	67	1,573.87
FH-20	1,419.34	0.0	67	1,573.87
J-3	1,416.56	0.0	68	1,573.96
J-8	1,423.28	0.0	66	1,574.80
J-35	1,428.39	0.0	64	1,576.64

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FlexTable: Junction Table

Active Scenario: Max Day Demand

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
J-42	1,422.00	0.0	66	1,573.87
J-45	1,423.09	0.0	66	1,574.88
J-46	1,426.00	0.0	65	1,575.57
J-47	1,426.59	0.0	65	1,575.79

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FlexTable: Pipe Table

Active Scenario: Max Day Demand

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
EX P-5	EX FH-TEST-Zone 3	EX FH-FLOW B-Zone 3	1,194	12.0	Asbestos Cement	140.0	111.8	0.32
EX P-10	EX FH-FLOW A-Zone 3	EX FH-TEST-Zone 3	311	12.0	Asbestos Cement	140.0	-883.2	2.51
EX P-15	EX J-30	EX FH-FLOW A-Zone 3	377	12.0	Asbestos Cement	140.0	-883.2	2.51
EX P-20	EX J-65	EX J-30	1,094	12.0	Asbestos Cement	140.0	-441.3	1.25
EX P-25	EX PRV-1	EX FH-5	335	8.0	Asbestos Cement	140.0	441.3	2.82
EX P-27	EX J-65	EX PRV-1	423	8.0	Asbestos Cement	140.0	441.3	2.82
EX P-30	EX FH-FLOW A-Zone 2	EX FH-5	297	8.0	Asbestos Cement	140.0	-441.3	2.82
EX P-35	EX J-20	EX FH-FLOW A-Zone 2	274	8.0	Asbestos Cement	140.0	-441.3	2.82
EX P-40	EX FH-3	EX J-20	44	8.0	Ductile Iron	130.0	-451.5	2.88
EX P-45	EX FH-2	EX FH-3	238	8.0	Ductile Iron	130.0	-451.5	2.88
EX P-50	EX J-15	EX FH-2	27	8.0	Ductile Iron	130.0	-451.5	2.88
EX P-53	EX J-41	EX J-15	891	8.0	Ductile Iron	130.0	65.1	0.42
EX P-55	EX J-10	EX J-41	123	8.0	Ductile Iron	130.0	204.5	1.30
EX P-60	EX FH-TEST-Zone 2	EX J-10	1,268	8.0	Asbestos Cement	140.0	204.5	1.30
EX P-62	EX J-7	EX FH-TEST-Zone 2	20	8.0	Asbestos Cement	140.0	204.5	1.30
EX P-64	EX J-5	EX J-7	981	8.0	Ductile Iron	130.0	214.7	1.37
EX P-65	EX FH-1	EX J-5	77	8.0	Asbestos Cement	140.0	111.8	0.71
EX P-67	EX J-7	EX J-245	31	8.0	Asbestos Cement	140.0	10.2	0.07
EX P-69	EX J-245	EX FH-FLOW B-Zone 2	449	8.0	Asbestos Cement	140.0	0.0	0.00
EX P-200	EX J-20	EX J-205	1,322	8.0	Asbestos Cement	140.0	-10.2	0.07
EX P-210	EX J-205	EX J-215	1,300	8.0	Asbestos Cement	140.0	-10.2	0.07
EX P-220	EX J-215	EX J-225	47	12.0	Asbestos Cement	140.0	-10.2	0.03
EX P-230	EX J-225	EX J-235	1,341	12.0	Asbestos Cement	140.0	-10.2	0.03
EX P-240	EX J-235	EX J-245	1,349	8.0	Asbestos Cement	140.0	-10.2	0.07
EX P-250	EX FH-1	EX J-255	179	8.0	Asbestos Cement	140.0	-111.8	0.71
EX P-260	EX J-255	EX J-265	2,637	8.0	Ductile Iron	130.0	-111.8	0.71
EX P-270	EX PRV-2	EX J-265	872	12.0	Asbestos Cement	140.0	111.8	0.32
EX P-280	EX FH-FLOW B-Zone 3	EX PRV-2	2,664	12.0	Asbestos Cement	140.0	111.8	0.32
P-5	EX J-15	J-3	84	8.0	Ductile Iron	130.0	-326.9	2.09
P-10	J-3	FH-1	168	8.0	Ductile Iron	130.0	-159.2	1.02

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FlexTable: Pipe Table

Active Scenario: Max Day Demand

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-15	FH-1	FH-2	263	8.0	Ductile Iron	130.0	-159.2	1.02
P-20	FH-2	FH-3	346	8.0	Ductile Iron	130.0	-159.2	1.02
P-25	FH-3	FH-9	315	8.0	Ductile Iron	130.0	-159.2	1.02
P-27	FH-9	FH-4	96	8.0	Ductile Iron	130.0	-159.2	1.02
P-30	FH-4	J-45	340	8.0	Ductile Iron	130.0	-159.2	1.02
P-32	J-45	J-8	120	8.0	Ductile Iron	130.0	167.6	1.07
P-35	J-8	FH-5	29	8.0	Ductile Iron	130.0	167.6	1.07
P-40	FH-5	FH-6	240	8.0	Ductile Iron	130.0	167.6	1.07
P-45	FH-6	FH-7	342	8.0	Ductile Iron	130.0	167.6	1.07
P-55	FH-10	FH-7	436	8.0	Ductile Iron	130.0	-167.6	1.07
P-57	J-45	J-46	299	8.0	Ductile Iron	130.0	-326.9	2.09
P-58	J-46	J-47	93	8.0	Ductile Iron	130.0	-326.9	2.09
P-59	J-47	FH-12	52	8.0	Ductile Iron	130.0	-326.9	2.09
P-62	EX J-30	PRV-16	102	8.0	Ductile Iron	130.0	442.0	2.82
P-63	PRV-16	J-35	222	8.0	Ductile Iron	130.0	442.0	2.82
P-65	FH-10	J-3	221	8.0	Ductile Iron	130.0	167.6	1.07
P-80	FH-12	FH-13	297	8.0	Ductile Iron	130.0	-326.9	2.09
P-85	FH-13	J-35	23	8.0	Ductile Iron	130.0	-326.9	2.09
P-90	J-35	FH-14	182	8.0	Ductile Iron	130.0	115.1	0.73
P-95	FH-14	FH-15	304	8.0	Ductile Iron	130.0	115.1	0.73
P-100	FH-15	FH-16	254	8.0	Ductile Iron	130.0	115.1	0.73
P-105	FH-16	FH-17	362	8.0	Ductile Iron	130.0	115.1	0.73
P-110	FH-17	FH-18	393	8.0	Ductile Iron	130.0	115.1	0.73
P-115	FH-18	EX J-5	120	8.0	Ductile Iron	130.0	115.1	0.73
P-120	EX J-41	FH-19	124	8.0	Ductile Iron	130.0	0.0	0.00
P-130	FH-19	FH-20	213	8.0	Ductile Iron	130.0	0.0	0.00
P-140	FH-20	J-42	382	8.0	Ductile Iron	130.0	0.0	0.00
P-PMP-Zone 3	PMP-Zone 3	EX FH-TEST-Zone 3	1	48.0	Ductile Iron	130.0	995.0	0.18
P-R-Zone 3	R-Zone 3	PMP-Zone 3	1	48.0	Ductile Iron	130.0	995.0	0.18

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FlexTable: Junction Table

Active Scenario: Peak Hour Demand

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1	1,426.18	0.0	64	1,573.63
EX FH-2	1,416.00	0.0	65	1,566.85
EX FH-3	1,418.25	0.0	65	1,569.57
EX FH-5	1,420.00	0.0	67	1,575.21
EX FH-FLOW A-Zone 2	1,418.00	0.0	67	1,572.54
EX FH-FLOW A-Zone 3	1,432.00	0.0	89	1,638.53
EX FH-FLOW B-Zone 2	1,420.82	0.0	65	1,570.25
EX FH-FLOW B-Zone 3	1,437.00	0.0	88	1,639.84
EX FH-TEST-Zone 2	1,416.49	0.0	67	1,570.21
EX FH-TEST-Zone 3	1,434.00	0.0	89	1,640.01
EX J-5	1,425.67	21.3	64	1,573.55
EX J-7	1,416.00	0.0	67	1,570.26
EX J-10	1,417.00	0.0	65	1,567.18
EX J-15	1,416.00	1,475.9	65	1,566.54
EX J-20	1,418.00	0.0	66	1,570.07
EX J-30	1,430.55	0.0	89	1,636.73
EX J-41	1,417.00	244.0	65	1,566.84
EX J-65	1,425.89	0.0	91	1,635.37
EX J-205	1,409.00	0.0	70	1,570.13
EX J-215	1,409.00	0.0	70	1,570.19
EX J-225	1,409.00	0.0	70	1,570.19
EX J-235	1,409.00	0.0	70	1,570.19
EX J-245	1,416.00	0.0	67	1,570.25
EX J-255	1,428.00	0.0	63	1,573.82
EX J-265	1,432.00	0.0	63	1,576.92
FH-1	1,417.74	0.0	65	1,567.41
FH-2	1,420.79	0.0	64	1,567.88
FH-3	1,419.33	0.0	65	1,568.49
FH-4	1,422.56	0.0	63	1,569.22
FH-5	1,422.90	0.0	63	1,569.54
FH-6	1,421.53	0.0	64	1,569.06
FH-7	1,419.13	0.0	65	1,568.40
FH-9	1,422.12	0.0	64	1,569.05
FH-10	1,416.88	0.0	65	1,567.54
FH-12	1,427.09	0.0	63	1,572.82
FH-13	1,428.34	0.0	63	1,574.83
FH-14	1,428.77	0.0	63	1,574.82
FH-15	1,427.51	0.0	64	1,574.55
FH-16	1,428.92	0.0	63	1,574.33
FH-17	1,429.43	0.0	63	1,574.01
FH-18	1,426.57	0.0	64	1,573.66
FH-19	1,417.86	0.0	64	1,566.84
FH-20	1,419.34	0.0	64	1,566.84
J-3	1,416.56	0.0	65	1,567.11
J-8	1,423.28	0.0	63	1,569.59
J-35	1,428.39	0.0	63	1,574.98

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FlexTable: Junction Table

Active Scenario: Peak Hour Demand

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
J-42	1,422.00	0.0	63	1,566.84
J-45	1,423.09	0.0	63	1,569.83
J-46	1,426.00	0.0	63	1,571.84
J-47	1,426.59	0.0	63	1,572.47

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FlexTable: Pipe Table

Active Scenario: Peak Hour Demand

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
EX P-5	EX FH-TEST-Zone 3	EX FH-FLOW B-Zone 3	1,194	12.0	Asbestos Cement	140.0	227.4	0.65
EX P-10	EX FH-FLOW A-Zone 3	EX FH-TEST-Zone 3	311	12.0	Asbestos Cement	140.0	-1,513.9	4.29
EX P-15	EX J-30	EX FH-FLOW A-Zone 3	377	12.0	Asbestos Cement	140.0	-1,513.9	4.29
EX P-20	EX J-65	EX J-30	1,094	12.0	Asbestos Cement	140.0	-734.9	2.08
EX P-25	EX PRV-1	EX FH-5	335	8.0	Asbestos Cement	140.0	734.9	4.69
EX P-27	EX J-65	EX PRV-1	423	8.0	Asbestos Cement	140.0	734.9	4.69
EX P-30	EX FH-FLOW A-Zone 2	EX FH-5	297	8.0	Asbestos Cement	140.0	-734.9	4.69
EX P-35	EX J-20	EX FH-FLOW A-Zone 2	274	8.0	Asbestos Cement	140.0	-734.9	4.69
EX P-40	EX FH-3	EX J-20	44	8.0	Ductile Iron	130.0	-776.6	4.96
EX P-45	EX FH-2	EX FH-3	238	8.0	Ductile Iron	130.0	-776.6	4.96
EX P-50	EX J-15	EX FH-2	27	8.0	Ductile Iron	130.0	-776.6	4.96
EX P-53	EX J-41	EX J-15	891	8.0	Ductile Iron	130.0	115.3	0.74
EX P-55	EX J-10	EX J-41	123	8.0	Ductile Iron	130.0	359.3	2.29
EX P-60	EX FH-TEST-Zone 2	EX J-10	1,268	8.0	Asbestos Cement	140.0	359.3	2.29
EX P-62	EX J-7	EX FH-TEST-Zone 2	20	8.0	Asbestos Cement	140.0	359.3	2.29
EX P-64	EX J-5	EX J-7	981	8.0	Ductile Iron	130.0	401.0	2.56
EX P-65	EX FH-1	EX J-5	77	8.0	Asbestos Cement	140.0	227.4	1.45
EX P-67	EX J-7	EX J-245	31	8.0	Asbestos Cement	140.0	41.7	0.27
EX P-69	EX J-245	EX FH-FLOW B-Zone 2	449	8.0	Asbestos Cement	140.0	0.0	0.00
EX P-200	EX J-20	EX J-205	1,322	8.0	Asbestos Cement	140.0	-41.7	0.27
EX P-210	EX J-205	EX J-215	1,300	8.0	Asbestos Cement	140.0	-41.7	0.27
EX P-220	EX J-215	EX J-225	47	12.0	Asbestos Cement	140.0	-41.7	0.12
EX P-230	EX J-225	EX J-235	1,341	12.0	Asbestos Cement	140.0	-41.7	0.12
EX P-240	EX J-235	EX J-245	1,349	8.0	Asbestos Cement	140.0	-41.7	0.27
EX P-250	EX FH-1	EX J-255	179	8.0	Asbestos Cement	140.0	-227.4	1.45
EX P-260	EX J-255	EX J-265	2,637	8.0	Ductile Iron	130.0	-227.4	1.45
EX P-270	EX PRV-2	EX J-265	872	12.0	Asbestos Cement	140.0	227.4	0.65
EX P-280	EX FH-FLOW B-Zone 3	EX PRV-2	2,664	12.0	Asbestos Cement	140.0	227.4	0.65
P-5	EX J-15	J-3	84	8.0	Ductile Iron	130.0	-584.0	3.73
P-10	J-3	FH-1	168	8.0	Ductile Iron	130.0	-284.5	1.82

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FlexTable: Pipe Table

Active Scenario: Peak Hour Demand

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-15	FH-1	FH-2	263	8.0	Ductile Iron	130.0	-284.5	1.82
P-20	FH-2	FH-3	346	8.0	Ductile Iron	130.0	-284.5	1.82
P-25	FH-3	FH-9	315	8.0	Ductile Iron	130.0	-284.5	1.82
P-27	FH-9	FH-4	96	8.0	Ductile Iron	130.0	-284.5	1.82
P-30	FH-4	J-45	340	8.0	Ductile Iron	130.0	-284.5	1.82
P-32	J-45	J-8	120	8.0	Ductile Iron	130.0	299.5	1.91
P-35	J-8	FH-5	29	8.0	Ductile Iron	130.0	299.5	1.91
P-40	FH-5	FH-6	240	8.0	Ductile Iron	130.0	299.5	1.91
P-45	FH-6	FH-7	342	8.0	Ductile Iron	130.0	299.5	1.91
P-55	FH-10	FH-7	436	8.0	Ductile Iron	130.0	-299.5	1.91
P-57	J-45	J-46	299	8.0	Ductile Iron	130.0	-584.0	3.73
P-58	J-46	J-47	93	8.0	Ductile Iron	130.0	-584.0	3.73
P-59	J-47	FH-12	52	8.0	Ductile Iron	130.0	-584.0	3.73
P-62	EX J-30	PRV-16	102	8.0	Ductile Iron	130.0	779.0	4.97
P-63	PRV-16	J-35	222	8.0	Ductile Iron	130.0	779.0	4.97
P-65	FH-10	J-3	221	8.0	Ductile Iron	130.0	299.5	1.91
P-80	FH-12	FH-13	297	8.0	Ductile Iron	130.0	-584.0	3.73
P-85	FH-13	J-35	23	8.0	Ductile Iron	130.0	-584.0	3.73
P-90	J-35	FH-14	182	8.0	Ductile Iron	130.0	195.0	1.24
P-95	FH-14	FH-15	304	8.0	Ductile Iron	130.0	195.0	1.24
P-100	FH-15	FH-16	254	8.0	Ductile Iron	130.0	195.0	1.24
P-105	FH-16	FH-17	362	8.0	Ductile Iron	130.0	195.0	1.24
P-110	FH-17	FH-18	393	8.0	Ductile Iron	130.0	195.0	1.24
P-115	FH-18	EX J-5	120	8.0	Ductile Iron	130.0	195.0	1.24
P-120	EX J-41	FH-19	124	8.0	Ductile Iron	130.0	0.0	0.00
P-130	FH-19	FH-20	213	8.0	Ductile Iron	130.0	0.0	0.00
P-140	FH-20	J-42	382	8.0	Ductile Iron	130.0	0.0	0.00
P-PMP-Zone 3	PMP-Zone 3	EX FH-TEST-Zone 3	1	48.0	Ductile Iron	130.0	1,741.3	0.31
P-R-Zone 3	R-Zone 3	PMP-Zone 3	1	48.0	Ductile Iron	130.0	1,741.3	0.31

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FlexTable: Junction Table

Active Scenario: Max Day + Fire Flow (Office FH-4)

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1	1,426.18	0.0	58	1,560.48
EX FH-2	1,416.00	0.0	51	1,533.20
EX FH-3	1,418.25	0.0	54	1,542.98
EX FH-5	1,420.00	0.0	61	1,561.25
EX FH-FLOW A-Zone 2	1,418.00	0.0	58	1,552.68
EX FH-FLOW A-Zone 3	1,432.00	0.0	71	1,595.22
EX FH-FLOW B-Zone 2	1,420.82	0.0	55	1,547.36
EX FH-FLOW B-Zone 3	1,437.00	0.0	71	1,600.80
EX FH-TEST-Zone 2	1,416.49	0.0	57	1,547.23
EX FH-TEST-Zone 3	1,434.00	0.0	73	1,601.62
EX J-5	1,425.67	12.2	58	1,560.09
EX J-7	1,416.00	0.0	57	1,547.38
EX J-10	1,417.00	0.0	52	1,537.93
EX J-15	1,416.00	843.4	50	1,532.08
EX J-20	1,418.00	0.0	55	1,544.78
EX J-30	1,430.55	0.0	68	1,587.47
EX J-41	1,417.00	139.4	52	1,536.90
EX J-65	1,425.89	0.0	68	1,583.10
EX J-205	1,409.00	0.0	59	1,545.60
EX J-215	1,409.00	0.0	59	1,546.40
EX J-225	1,409.00	0.0	59	1,546.41
EX J-235	1,409.00	0.0	59	1,546.52
EX J-245	1,416.00	0.0	57	1,547.36
EX J-255	1,428.00	0.0	58	1,561.37
EX J-265	1,432.00	0.0	62	1,576.44
FH-1	1,417.74	0.0	47	1,526.78
FH-2	1,420.79	0.0	44	1,522.00
FH-3	1,419.33	0.0	42	1,515.71
FH-4	1,422.56	2,875.0	37	1,508.24
FH-5	1,422.90	0.0	46	1,528.37
FH-6	1,421.53	0.0	46	1,528.65
FH-7	1,419.13	0.0	48	1,529.06
FH-9	1,422.12	0.0	38	1,509.98
FH-10	1,416.88	0.0	49	1,529.57
FH-12	1,427.09	0.0	53	1,548.67
FH-13	1,428.34	0.0	58	1,562.37
FH-14	1,428.77	0.0	58	1,563.07
FH-15	1,427.51	0.0	58	1,562.43
FH-16	1,428.92	0.0	58	1,561.91
FH-17	1,429.43	0.0	57	1,561.15
FH-18	1,426.57	0.0	58	1,560.34
FH-19	1,417.86	0.0	52	1,536.90
FH-20	1,419.34	0.0	51	1,536.90
J-3	1,416.56	0.0	49	1,529.83
J-8	1,423.28	0.0	45	1,528.33
J-35	1,428.39	0.0	58	1,563.44

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FlexTable: Junction Table

Active Scenario: Max Day + Fire Flow (Office FH-4)

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
J-42	1,422.00	0.0	50	1,536.90
J-45	1,423.09	0.0	45	1,528.19
J-46	1,426.00	0.0	50	1,541.97
J-47	1,426.59	0.0	52	1,546.28

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FlexTable: Pipe Table

Active Scenario: Max Day + Fire Flow (Office FH-4)

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
EX P-5	EX FH-TEST-Zone 3	EX FH-FLOW B-Zone 3	1,194	12.0	Asbestos Cement	140.0	533.8	1.51
EX P-10	EX FH-FLOW A-Zone 3	EX FH-TEST-Zone 3	311	12.0	Asbestos Cement	140.0	-3,335.4	9.46
EX P-15	EX J-30	EX FH-FLOW A-Zone 3	377	12.0	Asbestos Cement	140.0	-3,335.4	9.46
EX P-20	EX J-65	EX J-30	1,094	12.0	Asbestos Cement	140.0	-1,377.6	3.91
EX P-25	EX PRV-1	EX FH-5	335	8.0	Asbestos Cement	140.0	1,377.6	8.79
EX P-27	EX J-65	EX PRV-1	423	8.0	Asbestos Cement	140.0	1,377.6	8.79
EX P-30	EX FH-FLOW A-Zone 2	EX FH-5	297	8.0	Asbestos Cement	140.0	-1,377.6	8.79
EX P-35	EX J-20	EX FH-FLOW A-Zone 2	274	8.0	Asbestos Cement	140.0	-1,377.6	8.79
EX P-40	EX FH-3	EX J-20	44	8.0	Ductile Iron	130.0	-1,550.7	9.90
EX P-45	EX FH-2	EX FH-3	238	8.0	Ductile Iron	130.0	-1,550.7	9.90
EX P-50	EX J-15	EX FH-2	27	8.0	Ductile Iron	130.0	-1,550.7	9.90
EX P-53	EX J-41	EX J-15	891	8.0	Ductile Iron	130.0	518.4	3.31
EX P-55	EX J-10	EX J-41	123	8.0	Ductile Iron	130.0	657.8	4.20
EX P-60	EX FH-TEST-Zone 2	EX J-10	1,268	8.0	Asbestos Cement	140.0	657.8	4.20
EX P-62	EX J-7	EX FH-TEST-Zone 2	20	8.0	Asbestos Cement	140.0	657.8	4.20
EX P-64	EX J-5	EX J-7	981	8.0	Ductile Iron	130.0	830.9	5.30
EX P-65	EX FH-1	EX J-5	77	8.0	Asbestos Cement	140.0	534.0	3.41
EX P-67	EX J-7	EX J-245	31	8.0	Asbestos Cement	140.0	173.1	1.10
EX P-69	EX J-245	EX FH-FLOW B-Zone 2	449	8.0	Asbestos Cement	140.0	0.0	0.00
EX P-200	EX J-20	EX J-205	1,322	8.0	Asbestos Cement	140.0	-173.1	1.10
EX P-210	EX J-205	EX J-215	1,300	8.0	Asbestos Cement	140.0	-173.1	1.10
EX P-220	EX J-215	EX J-225	47	12.0	Asbestos Cement	140.0	-173.1	0.49
EX P-230	EX J-225	EX J-235	1,341	12.0	Asbestos Cement	140.0	-173.1	0.49
EX P-240	EX J-235	EX J-245	1,349	8.0	Asbestos Cement	140.0	-173.1	1.10
EX P-250	EX FH-1	EX J-255	179	8.0	Asbestos Cement	140.0	-534.0	3.41
EX P-260	EX J-255	EX J-265	2,637	8.0	Ductile Iron	130.0	-534.0	3.41
EX P-270	EX PRV-2	EX J-265	872	12.0	Asbestos Cement	140.0	534.0	1.51
EX P-280	EX FH-FLOW B-Zone 3	EX PRV-2	2,664	12.0	Asbestos Cement	140.0	533.8	1.51
P-5	EX J-15	J-3	84	8.0	Ductile Iron	130.0	1,225.7	7.82
P-10	J-3	FH-1	168	8.0	Ductile Iron	130.0	997.7	6.37

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FlexTable: Pipe Table

Active Scenario: Max Day + Fire Flow (Office FH-4)

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-15	FH-1	FH-2	263	8.0	Ductile Iron	130.0	997.7	6.37
P-20	FH-2	FH-3	346	8.0	Ductile Iron	130.0	997.7	6.37
P-25	FH-3	FH-9	315	8.0	Ductile Iron	130.0	997.7	6.37
P-27	FH-9	FH-4	96	8.0	Ductile Iron	130.0	997.7	6.37
P-30	FH-4	J-45	340	8.0	Ductile Iron	130.0	-1,877.3	11.98
P-32	J-45	J-8	120	8.0	Ductile Iron	130.0	-228.0	1.46
P-35	J-8	FH-5	29	8.0	Ductile Iron	130.0	-228.0	1.46
P-40	FH-5	FH-6	240	8.0	Ductile Iron	130.0	-228.0	1.46
P-45	FH-6	FH-7	342	8.0	Ductile Iron	130.0	-228.0	1.46
P-55	FH-10	FH-7	436	8.0	Ductile Iron	130.0	228.0	1.46
P-57	J-45	J-46	299	8.0	Ductile Iron	130.0	-1,649.3	10.53
P-58	J-46	J-47	93	8.0	Ductile Iron	130.0	-1,649.3	10.53
P-59	J-47	FH-12	52	8.0	Ductile Iron	130.0	-1,649.3	10.53
P-62	EX J-30	PRV-16	102	8.0	Ductile Iron	130.0	1,957.8	12.50
P-63	PRV-16	J-35	222	8.0	Ductile Iron	130.0	1,958.4	12.50
P-65	FH-10	J-3	221	8.0	Ductile Iron	130.0	-228.0	1.46
P-80	FH-12	FH-13	297	8.0	Ductile Iron	130.0	-1,649.3	10.53
P-85	FH-13	J-35	23	8.0	Ductile Iron	130.0	-1,649.3	10.53
P-90	J-35	FH-14	182	8.0	Ductile Iron	130.0	309.1	1.97
P-95	FH-14	FH-15	304	8.0	Ductile Iron	130.0	309.1	1.97
P-100	FH-15	FH-16	254	8.0	Ductile Iron	130.0	309.1	1.97
P-105	FH-16	FH-17	362	8.0	Ductile Iron	130.0	309.1	1.97
P-110	FH-17	FH-18	393	8.0	Ductile Iron	130.0	309.1	1.97
P-115	FH-18	EX J-5	120	8.0	Ductile Iron	130.0	309.1	1.97
P-120	EX J-41	FH-19	124	8.0	Ductile Iron	130.0	0.0	0.00
P-130	FH-19	FH-20	213	8.0	Ductile Iron	130.0	0.0	0.00
P-140	FH-20	J-42	382	8.0	Ductile Iron	130.0	0.0	0.00
P-PMP-Zone 3	PMP-Zone 3	EX FH-TEST-Zone 3	1	48.0	Ductile Iron	130.0	3,869.2	0.69
P-R-Zone 3	R-Zone 3	PMP-Zone 3	1	48.0	Ductile Iron	130.0	3,869.2	0.69

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FlexTable: Junction Table

Active Scenario: Max Day + Fire Flow (Industrial FH-18)

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1	1,426.18	0.0	57	1,557.84
EX FH-2	1,416.00	0.0	64	1,564.37
EX FH-3	1,418.25	0.0	64	1,566.24
EX FH-5	1,420.00	0.0	67	1,573.93
EX FH-FLOW A-Zone 2	1,418.00	0.0	66	1,570.11
EX FH-FLOW A-Zone 3	1,432.00	0.0	82	1,622.13
EX FH-FLOW B-Zone 2	1,420.82	0.0	61	1,561.28
EX FH-FLOW B-Zone 3	1,437.00	0.0	81	1,624.05
EX FH-TEST-Zone 2	1,416.49	0.0	63	1,561.25
EX FH-TEST-Zone 3	1,434.00	0.0	83	1,625.01
EX J-5	1,425.67	12.2	57	1,557.39
EX J-7	1,416.00	0.0	63	1,561.24
EX J-10	1,417.00	0.0	63	1,562.10
EX J-15	1,416.00	843.4	64	1,564.16
EX J-20	1,418.00	0.0	64	1,566.59
EX J-30	1,430.55	0.0	81	1,618.65
EX J-41	1,417.00	139.4	63	1,562.19
EX J-65	1,425.89	0.0	83	1,616.70
EX J-205	1,409.00	0.0	67	1,564.90
EX J-215	1,409.00	0.0	67	1,563.24
EX J-225	1,409.00	0.0	67	1,563.24
EX J-235	1,409.00	0.0	67	1,563.00
EX J-245	1,416.00	0.0	63	1,561.28
EX J-255	1,428.00	0.0	57	1,558.87
EX J-265	1,432.00	0.0	62	1,576.34
FH-1	1,417.74	0.0	64	1,564.88
FH-2	1,420.79	0.0	63	1,565.26
FH-3	1,419.33	0.0	63	1,565.78
FH-4	1,422.56	0.0	62	1,566.38
FH-5	1,422.90	0.0	62	1,566.64
FH-6	1,421.53	0.0	63	1,566.25
FH-7	1,419.13	0.0	63	1,565.70
FH-9	1,422.12	0.0	62	1,566.24
FH-10	1,416.88	0.0	64	1,564.99
FH-12	1,427.09	0.0	62	1,569.37
FH-13	1,428.34	0.0	62	1,571.03
FH-14	1,428.77	0.0	61	1,569.22
FH-15	1,427.51	0.0	60	1,565.97
FH-16	1,428.92	0.0	58	1,563.26
FH-17	1,429.43	0.0	56	1,559.40
FH-18	1,426.57	1,750.0	56	1,555.20
FH-19	1,417.86	0.0	62	1,562.19
FH-20	1,419.34	0.0	62	1,562.19
J-3	1,416.56	0.0	64	1,564.63
J-8	1,423.28	0.0	62	1,566.69
J-35	1,428.39	0.0	62	1,571.16

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FlexTable: Junction Table

Active Scenario: Max Day + Fire Flow (Industrial FH-18)

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
J-42	1,422.00	0.0	61	1,562.19
J-45	1,423.09	0.0	62	1,566.88
J-46	1,426.00	0.0	62	1,568.56
J-47	1,426.59	0.0	62	1,569.08

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FlexTable: Pipe Table

Active Scenario: Max Day + Fire Flow (Industrial FH-18)

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
EX P-5	EX FH-TEST-Zone 3	EX FH-FLOW B-Zone 3	1,194	12.0	Asbestos Cement	140.0	578.3	1.64
EX P-10	EX FH-FLOW A-Zone 3	EX FH-TEST-Zone 3	311	12.0	Asbestos Cement	140.0	-2,166.7	6.15
EX P-15	EX J-30	EX FH-FLOW A-Zone 3	377	12.0	Asbestos Cement	140.0	-2,166.7	6.15
EX P-20	EX J-65	EX J-30	1,094	12.0	Asbestos Cement	140.0	-890.5	2.53
EX P-25	EX PRV-1	EX FH-5	335	8.0	Asbestos Cement	140.0	890.5	5.68
EX P-27	EX J-65	EX PRV-1	423	8.0	Asbestos Cement	140.0	890.5	5.68
EX P-30	EX FH-FLOW A-Zone 2	EX FH-5	297	8.0	Asbestos Cement	140.0	-890.5	5.68
EX P-35	EX J-20	EX FH-FLOW A-Zone 2	274	8.0	Asbestos Cement	140.0	-890.5	5.68
EX P-40	EX FH-3	EX J-20	44	8.0	Ductile Iron	130.0	-634.8	4.05
EX P-45	EX FH-2	EX FH-3	238	8.0	Ductile Iron	130.0	-634.8	4.05
EX P-50	EX J-15	EX FH-2	27	8.0	Ductile Iron	130.0	-634.8	4.05
EX P-53	EX J-41	EX J-15	891	8.0	Ductile Iron	130.0	-319.4	2.04
EX P-55	EX J-10	EX J-41	123	8.0	Ductile Iron	130.0	-180.0	1.15
EX P-60	EX FH-TEST-Zone 2	EX J-10	1,268	8.0	Asbestos Cement	140.0	-180.0	1.15
EX P-62	EX J-7	EX FH-TEST-Zone 2	20	8.0	Asbestos Cement	140.0	-180.0	1.15
EX P-64	EX J-5	EX J-7	981	8.0	Ductile Iron	130.0	-435.7	2.78
EX P-65	EX FH-1	EX J-5	77	8.0	Asbestos Cement	140.0	578.3	3.69
EX P-67	EX J-7	EX J-245	31	8.0	Asbestos Cement	140.0	-255.7	1.63
EX P-69	EX J-245	EX FH-FLOW B-Zone 2	449	8.0	Asbestos Cement	140.0	0.0	0.00
EX P-200	EX J-20	EX J-205	1,322	8.0	Asbestos Cement	140.0	255.7	1.63
EX P-210	EX J-205	EX J-215	1,300	8.0	Asbestos Cement	140.0	255.7	1.63
EX P-220	EX J-215	EX J-225	47	12.0	Asbestos Cement	140.0	255.7	0.73
EX P-230	EX J-225	EX J-235	1,341	12.0	Asbestos Cement	140.0	255.7	0.73
EX P-240	EX J-235	EX J-245	1,349	8.0	Asbestos Cement	140.0	255.7	1.63
EX P-250	EX FH-1	EX J-255	179	8.0	Asbestos Cement	140.0	-578.3	3.69
EX P-260	EX J-255	EX J-265	2,637	8.0	Ductile Iron	130.0	-578.3	3.69
EX P-270	EX PRV-2	EX J-265	872	12.0	Asbestos Cement	140.0	578.3	1.64
EX P-280	EX FH-FLOW B-Zone 3	EX PRV-2	2,664	12.0	Asbestos Cement	140.0	578.3	1.64
P-5	EX J-15	J-3	84	8.0	Ductile Iron	130.0	-528.0	3.37
P-10	J-3	FH-1	168	8.0	Ductile Iron	130.0	-257.2	1.64

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FlexTable: Pipe Table

Active Scenario: Max Day + Fire Flow (Industrial FH-18)

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-15	FH-1	FH-2	263	8.0	Ductile Iron	130.0	-257.2	1.64
P-20	FH-2	FH-3	346	8.0	Ductile Iron	130.0	-257.2	1.64
P-25	FH-3	FH-9	315	8.0	Ductile Iron	130.0	-257.2	1.64
P-27	FH-9	FH-4	96	8.0	Ductile Iron	130.0	-257.2	1.64
P-30	FH-4	J-45	340	8.0	Ductile Iron	130.0	-257.2	1.64
P-32	J-45	J-8	120	8.0	Ductile Iron	130.0	270.8	1.73
P-35	J-8	FH-5	29	8.0	Ductile Iron	130.0	270.8	1.73
P-40	FH-5	FH-6	240	8.0	Ductile Iron	130.0	270.8	1.73
P-45	FH-6	FH-7	342	8.0	Ductile Iron	130.0	270.8	1.73
P-55	FH-10	FH-7	436	8.0	Ductile Iron	130.0	-270.8	1.73
P-57	J-45	J-46	299	8.0	Ductile Iron	130.0	-528.0	3.37
P-58	J-46	J-47	93	8.0	Ductile Iron	130.0	-528.0	3.37
P-59	J-47	FH-12	52	8.0	Ductile Iron	130.0	-528.0	3.37
P-62	EX J-30	PRV-16	102	8.0	Ductile Iron	130.0	1,276.2	8.15
P-63	PRV-16	J-35	222	8.0	Ductile Iron	130.0	1,276.2	8.15
P-65	FH-10	J-3	221	8.0	Ductile Iron	130.0	270.8	1.73
P-80	FH-12	FH-13	297	8.0	Ductile Iron	130.0	-528.0	3.37
P-85	FH-13	J-35	23	8.0	Ductile Iron	130.0	-528.0	3.37
P-90	J-35	FH-14	182	8.0	Ductile Iron	130.0	748.2	4.78
P-95	FH-14	FH-15	304	8.0	Ductile Iron	130.0	748.2	4.78
P-100	FH-15	FH-16	254	8.0	Ductile Iron	130.0	748.2	4.78
P-105	FH-16	FH-17	362	8.0	Ductile Iron	130.0	748.2	4.78
P-110	FH-17	FH-18	393	8.0	Ductile Iron	130.0	748.2	4.78
P-115	FH-18	EX J-5	120	8.0	Ductile Iron	130.0	-1,001.8	6.39
P-120	EX J-41	FH-19	124	8.0	Ductile Iron	130.0	0.0	0.00
P-130	FH-19	FH-20	213	8.0	Ductile Iron	130.0	0.0	0.00
P-140	FH-20	J-42	382	8.0	Ductile Iron	130.0	0.0	0.00
P-PMP-Zone 3	PMP-Zone 3	EX FH-TEST-Zone 3	1	48.0	Ductile Iron	130.0	2,745.0	0.49
P-R-Zone 3	R-Zone 3	PMP-Zone 3	1	48.0	Ductile Iron	130.0	2,745.0	0.49

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FlexTable: Junction Table

Active Scenario: Max Day + Fire Flow (Multi-Family FH-20)

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1	1,426.18	0.0	62	1,569.37
EX FH-2	1,416.00	0.0	62	1,558.45
EX FH-3	1,418.25	0.0	62	1,562.03
EX FH-5	1,420.00	0.0	66	1,572.49
EX FH-FLOW A-Zone 2	1,418.00	0.0	65	1,567.40
EX FH-FLOW A-Zone 3	1,432.00	0.0	84	1,626.46
EX FH-FLOW B-Zone 2	1,420.82	0.0	61	1,560.99
EX FH-FLOW B-Zone 3	1,437.00	0.0	83	1,628.90
EX FH-TEST-Zone 2	1,416.49	0.0	62	1,560.78
EX FH-TEST-Zone 3	1,434.00	0.0	84	1,629.28
EX J-5	1,425.67	12.2	62	1,569.19
EX J-7	1,416.00	0.0	63	1,560.98
EX J-10	1,417.00	0.0	57	1,547.59
EX J-15	1,416.00	843.4	61	1,558.04
EX J-20	1,418.00	0.0	63	1,562.70
EX J-30	1,430.55	0.0	83	1,623.05
EX J-41	1,417.00	139.4	56	1,546.12
EX J-65	1,425.89	0.0	84	1,620.44
EX J-205	1,409.00	0.0	66	1,562.16
EX J-215	1,409.00	0.0	66	1,561.62
EX J-225	1,409.00	0.0	66	1,561.62
EX J-235	1,409.00	0.0	66	1,561.55
EX J-245	1,416.00	0.0	63	1,560.99
EX J-255	1,428.00	0.0	61	1,569.78
EX J-265	1,432.00	0.0	63	1,576.76
FH-1	1,417.74	0.0	61	1,559.54
FH-2	1,420.79	0.0	60	1,560.35
FH-3	1,419.33	0.0	61	1,561.42
FH-4	1,422.56	0.0	61	1,562.69
FH-5	1,422.90	0.0	61	1,563.23
FH-6	1,421.53	0.0	61	1,562.42
FH-7	1,419.13	0.0	61	1,561.25
FH-9	1,422.12	0.0	61	1,562.39
FH-10	1,416.88	0.0	62	1,559.77
FH-12	1,427.09	0.0	61	1,568.93
FH-13	1,428.34	0.0	62	1,572.41
FH-14	1,428.77	0.0	62	1,572.29
FH-15	1,427.51	0.0	62	1,571.63
FH-16	1,428.92	0.0	62	1,571.08
FH-17	1,429.43	0.0	61	1,570.30
FH-18	1,426.57	0.0	62	1,569.45
FH-19	1,417.86	0.0	53	1,541.33
FH-20	1,419.34	1,500.0	49	1,533.07
J-3	1,416.56	0.0	62	1,559.02
J-8	1,423.28	0.0	61	1,563.33
J-35	1,428.39	0.0	62	1,572.68

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FlexTable: Junction Table

Active Scenario: Max Day + Fire Flow (Multi-Family FH-20)

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
J-42	1,422.00	0.0	48	1,533.07
J-45	1,423.09	0.0	61	1,563.74
J-46	1,426.00	0.0	61	1,567.23
J-47	1,426.59	0.0	61	1,568.32

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FlexTable: Pipe Table

Active Scenario: Max Day + Fire Flow (Multi-Family FH-20)

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
EX P-5	EX FH-TEST-Zone 3	EX FH-FLOW B-Zone 3	1,194	12.0	Asbestos Cement	140.0	352.4	1.00
EX P-10	EX FH-FLOW A-Zone 3	EX FH-TEST-Zone 3	311	12.0	Asbestos Cement	140.0	-2,142.6	6.08
EX P-15	EX J-30	EX FH-FLOW A-Zone 3	377	12.0	Asbestos Cement	140.0	-2,142.6	6.08
EX P-20	EX J-65	EX J-30	1,094	12.0	Asbestos Cement	140.0	-1,040.5	2.95
EX P-25	EX PRV-1	EX FH-5	335	8.0	Asbestos Cement	140.0	1,040.5	6.64
EX P-27	EX J-65	EX PRV-1	423	8.0	Asbestos Cement	140.0	1,040.5	6.64
EX P-30	EX FH-FLOW A-Zone 2	EX FH-5	297	8.0	Asbestos Cement	140.0	-1,040.5	6.64
EX P-35	EX J-20	EX FH-FLOW A-Zone 2	274	8.0	Asbestos Cement	140.0	-1,040.5	6.64
EX P-40	EX FH-3	EX J-20	44	8.0	Ductile Iron	130.0	-902.2	5.76
EX P-45	EX FH-2	EX FH-3	238	8.0	Ductile Iron	130.0	-902.2	5.76
EX P-50	EX J-15	EX FH-2	27	8.0	Ductile Iron	130.0	-902.2	5.76
EX P-53	EX J-41	EX J-15	891	8.0	Ductile Iron	130.0	-845.0	5.39
EX P-55	EX J-10	EX J-41	123	8.0	Ductile Iron	130.0	794.4	5.07
EX P-60	EX FH-TEST-Zone 2	EX J-10	1,268	8.0	Asbestos Cement	140.0	794.4	5.07
EX P-62	EX J-7	EX FH-TEST-Zone 2	20	8.0	Asbestos Cement	140.0	794.4	5.07
EX P-64	EX J-5	EX J-7	981	8.0	Ductile Iron	130.0	656.0	4.19
EX P-65	EX FH-1	EX J-5	77	8.0	Asbestos Cement	140.0	352.4	2.25
EX P-67	EX J-7	EX J-245	31	8.0	Asbestos Cement	140.0	-138.4	0.88
EX P-69	EX J-245	EX FH-FLOW B-Zone 2	449	8.0	Asbestos Cement	140.0	0.0	0.00
EX P-200	EX J-20	EX J-205	1,322	8.0	Asbestos Cement	140.0	138.4	0.88
EX P-210	EX J-205	EX J-215	1,300	8.0	Asbestos Cement	140.0	138.4	0.88
EX P-220	EX J-215	EX J-225	47	12.0	Asbestos Cement	140.0	138.4	0.39
EX P-230	EX J-225	EX J-235	1,341	12.0	Asbestos Cement	140.0	138.4	0.39
EX P-240	EX J-235	EX J-245	1,349	8.0	Asbestos Cement	140.0	138.4	0.88
EX P-250	EX FH-1	EX J-255	179	8.0	Asbestos Cement	140.0	-352.4	2.25
EX P-260	EX J-255	EX J-265	2,637	8.0	Ductile Iron	130.0	-352.4	2.25
EX P-270	EX PRV-2	EX J-265	872	12.0	Asbestos Cement	140.0	352.4	1.00
EX P-280	EX FH-FLOW B-Zone 3	EX PRV-2	2,664	12.0	Asbestos Cement	140.0	352.4	1.00
P-5	EX J-15	J-3	84	8.0	Ductile Iron	130.0	-786.2	5.02
P-10	J-3	FH-1	168	8.0	Ductile Iron	130.0	-383.0	2.44

194966 Seventh-Day Adventists

FlexTable: Pipe Table

Active Scenario: Max Day + Fire Flow (Multi-Family FH-20)

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-15	FH-1	FH-2	263	8.0	Ductile Iron	130.0	-383.0	2.44
P-20	FH-2	FH-3	346	8.0	Ductile Iron	130.0	-383.0	2.44
P-25	FH-3	FH-9	315	8.0	Ductile Iron	130.0	-383.0	2.44
P-27	FH-9	FH-4	96	8.0	Ductile Iron	130.0	-383.0	2.44
P-30	FH-4	J-45	340	8.0	Ductile Iron	130.0	-383.0	2.44
P-32	J-45	J-8	120	8.0	Ductile Iron	130.0	403.3	2.57
P-35	J-8	FH-5	29	8.0	Ductile Iron	130.0	403.3	2.57
P-40	FH-5	FH-6	240	8.0	Ductile Iron	130.0	403.3	2.57
P-45	FH-6	FH-7	342	8.0	Ductile Iron	130.0	403.3	2.57
P-55	FH-10	FH-7	436	8.0	Ductile Iron	130.0	-403.3	2.57
P-57	J-45	J-46	299	8.0	Ductile Iron	130.0	-786.2	5.02
P-58	J-46	J-47	93	8.0	Ductile Iron	130.0	-786.2	5.02
P-59	J-47	FH-12	52	8.0	Ductile Iron	130.0	-786.2	5.02
P-62	EX J-30	PRV-16	102	8.0	Ductile Iron	130.0	1,102.0	7.03
P-63	PRV-16	J-35	222	8.0	Ductile Iron	130.0	1,102.0	7.03
P-65	FH-10	J-3	221	8.0	Ductile Iron	130.0	403.3	2.57
P-80	FH-12	FH-13	297	8.0	Ductile Iron	130.0	-786.2	5.02
P-85	FH-13	J-35	23	8.0	Ductile Iron	130.0	-786.2	5.02
P-90	J-35	FH-14	182	8.0	Ductile Iron	130.0	315.8	2.02
P-95	FH-14	FH-15	304	8.0	Ductile Iron	130.0	315.8	2.02
P-100	FH-15	FH-16	254	8.0	Ductile Iron	130.0	315.8	2.02
P-105	FH-16	FH-17	362	8.0	Ductile Iron	130.0	315.8	2.02
P-110	FH-17	FH-18	393	8.0	Ductile Iron	130.0	315.8	2.02
P-115	FH-18	EX J-5	120	8.0	Ductile Iron	130.0	315.8	2.02
P-120	EX J-41	FH-19	124	8.0	Ductile Iron	130.0	1,500.0	9.57
P-130	FH-19	FH-20	213	8.0	Ductile Iron	130.0	1,500.0	9.57
P-140	FH-20	J-42	382	8.0	Ductile Iron	130.0	0.0	0.00
P-PMP-Zone 3	PMP-Zone 3	EX FH-TEST-Zone 3	1	48.0	Ductile Iron	130.0	2,495.0	0.44
P-R-Zone 3	R-Zone 3	PMP-Zone 3	1	48.0	Ductile Iron	130.0	2,495.0	0.44

FIRE FLOW TEST RESULTS

Arizona Flow Testing LLC

HYDRANT FLOW TEST REPORT

Project Name:	7th Day Adventist
Project Address:	Scottsdale Road and Sutton Drive, Scottsdale, Arizona, 85254
Client Project No.:	194966
Arizona Flow Testing Project No.:	20167
Flow Test Permit No.:	C62100
Date and time flow test conducted:	May 8, 2020 at 9:35 AM
Data is current and reliable until:	November 8, 2020
Conducted by:	F. Vaughan & L. Hirlemann-Az Flow Testing, LLC (480-250-8154)
Witnessed by:	Henry Hursky –City of Scottsdale-Inspector (602-757-2607)

Raw Test Data

Static Pressure: **70.0 PSI**
(Measured in pounds per square inch)

Residual Pressure: **52.0 PSI**
(Measured in pounds per square inch)

Pitot Pressure: **12.0 PSI Hyd A**
21.0 PSI Hyd B
(Measured in pounds per square inch)
+

Diffuser Orifice Diameter: One 4-inch Hose Monster
(Measured in inches) One 4-inch Pollard Diffuser

Coefficient of Diffuser: .7875 and 0.9

Flowing GPM: **3,272 GPM**
(Measured in gallons per minute)
1,303 GPM +1,969 GPM = 3,272 GPM

GPM @ 20 PSI: **5,682 GPM**

Data with 10% Safety Factor

Static Pressure: **63.0 PSI**
(Measured in pounds per square inch)

Residual Pressure: **45.0 PSI**
(Measured in pounds per square inch)

Distance between hydrants: See Below

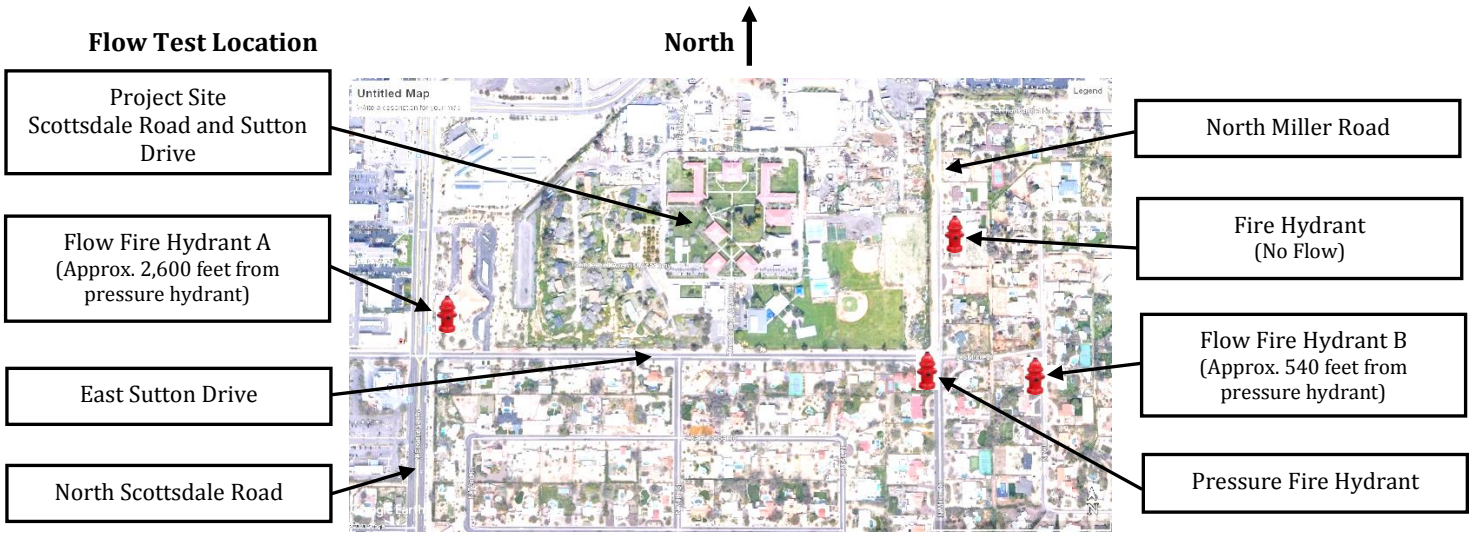
Main size: Not Provided

Flowing GPM: **3,272 GPM**

GPM @ 20 PSI**:** **5,237 GPM**

Flow Test Location

North



Arizona Flow Testing LLC

HYDRANT FLOW TEST REPORT

Project Name:	7th Day Adventist
Project Address:	Scottsdale Road & Sutton Drive, Scottsdale, Arizona, 85254
Client Project No.:	194966.02
Arizona Flow Testing Project No.:	20225
Flow Test Permit No.:	C62389
Date and time flow test conducted:	June 22, 2020 at 7:00 AM
Data is current and reliable until:	December 22, 2020
Conducted by:	F. Vaughan & S. Ballard – Az. Flow Testing, LLC (480-250-8154)
Coordinated by:	Jared Berry – City of Scottsdale-Inspector (602-541-4942)

Raw Test Data

Static Pressure: **94.0 PSI**
(Measured in pounds per square inch)

Residual Pressure: **69.0 PSI**
(Measured in pounds per square inch)

Pitot Pressure: **32.0 PSI Hyd A**
22.0 PSI Hyd B
(Measured in pounds per square inch)

Diffuser Orifice Diameter: One 4-inch Hose Monster (B)
(Measured in inches) One 4 inch Pollard Diffuser (A)

Coefficient of Diffuser: 0.7875/(B) and 0.9/(A)

Flowing GPM: **4,195 GPM**
(Measured in gallons per minute)
2,431 GPM + 1,764 GPM = 4,195 GPM

GPM @ 20 PSI: **7,537 GPM**

Data with 22 PSI Safety Factor

Static Pressure: **72.0 PSI**
(Measured in pounds per square inch)

Residual Pressure: **47.0 PSI**
(Measured in pounds per square inch)

Scottsdale requires a maximum Static Pressure of 72 PSI for AFES Design.

Distance between hydrants: See Below

Main size: Not Provided

Flowing GPM: **4,195 GPM**

GPM @ 20 PSI**:** **6,230 GPM**

Flow Test Location **North**

Pressure Fire Hydrant

East Redfield Road

Flow Fire Hydrant A
(530 Feet from Pressure Hydrant)

Flow Fire Hydrant B
(850 Feet from Pressure Hydrant)

North 76th Street

Project Site
Scottsdale Road &
Sutton Drive

CITY OF SCOTTSDALE REFERENCE DOCUMENTS

Darin Moore

From: Sacks, Richard [mailto:RSacks@ScottsdaleAz.Gov]
Sent: Monday, May 18, 2020 8:47 AM
To: Darin Moore
Cc: Kurt A. Jones
Subject: RE: Sewer Flow Monitoring along Thunderbird - water flow test

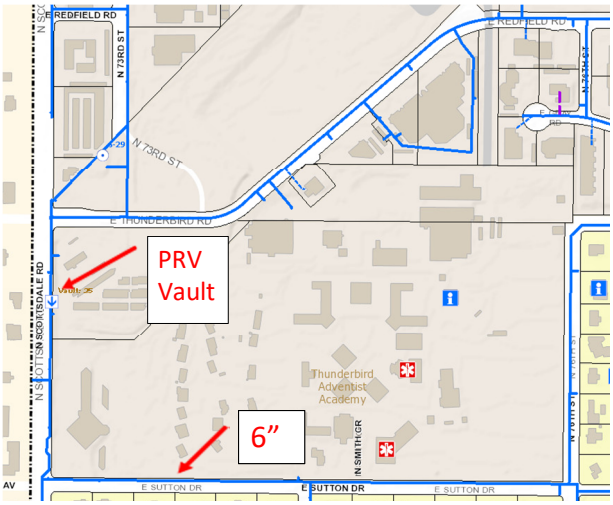
Darin

We'll set the PRV. The HGL for zone two ranges from 1263 to 1643.

The PRV south of Thunderbird on Scottsdale Rd. ranges from 90 psi to 60 psi. There is another PRV located at Sweetwater and the 101. It's range is from 90 to 70 psi.

The critical number is the required fire flow. Suggest verifying with Fire what is that flow.

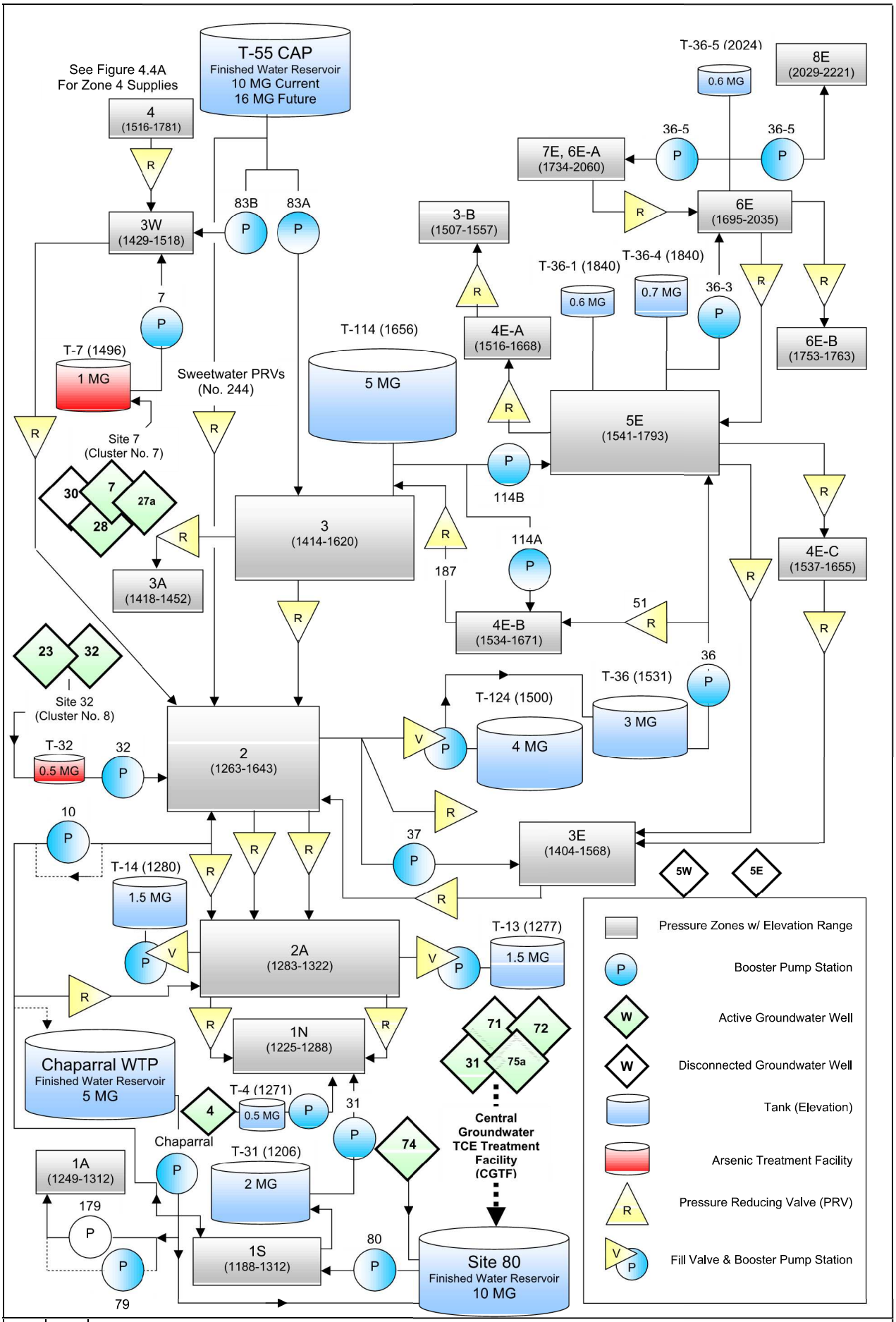
The picture below show the system layout without valves except the PRV.



Richard Sacks, P.E.
Senior Water Resources Engineer
City of Scottsdale
9379 E. San Salvador
Scottsdale, AZ 85258
480-312-5673
rsacks@scottsdaleaz.gov

Sending me an attachment over 5MB? Please use the link below:
https://securemail.scottsdaleaz.gov/filedrop/rsacks@scottsdaleaz.gov

SCOTTSDALE WATER
"Water Sustainability through Stewardship, Innovation and People"



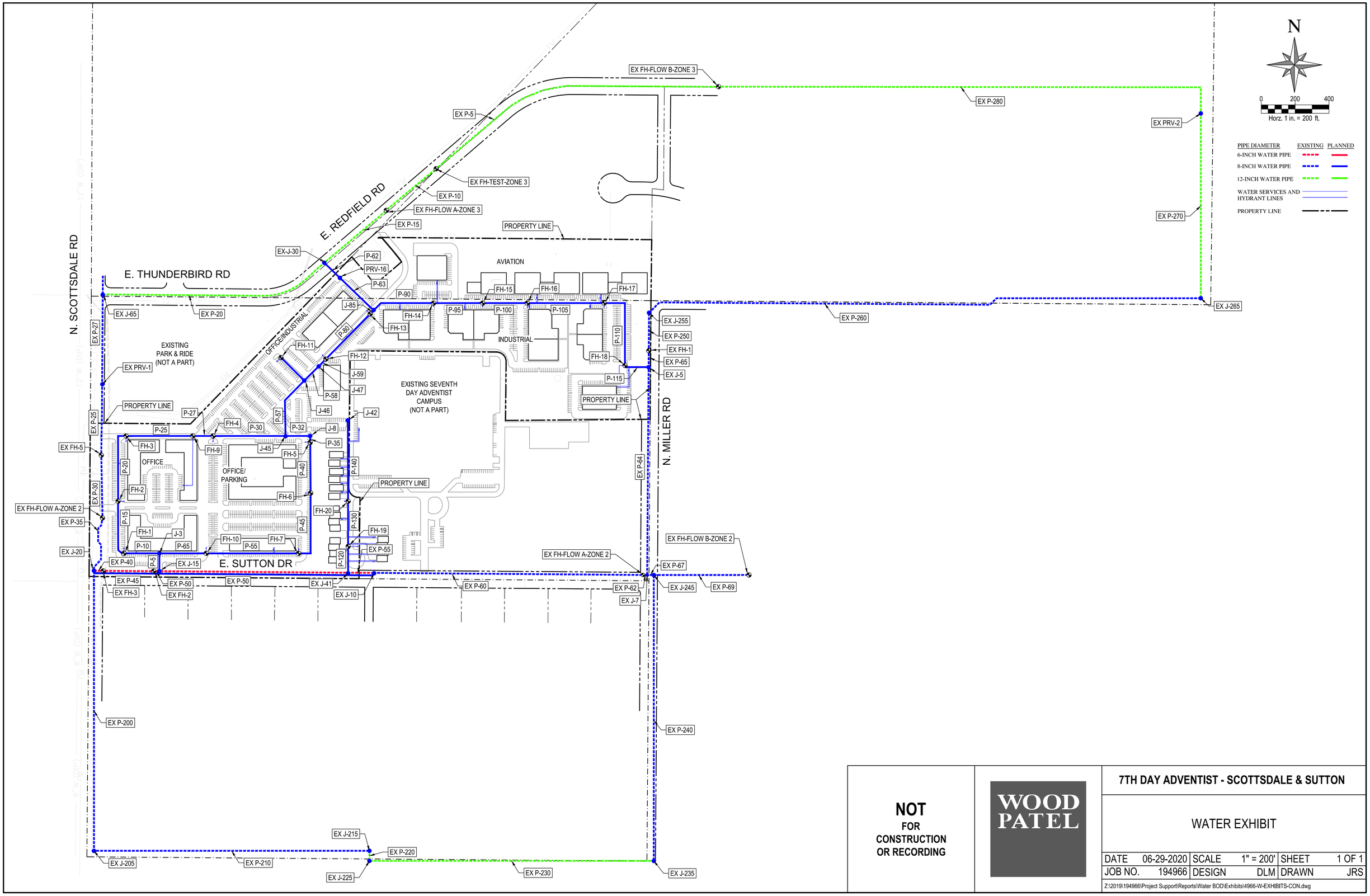
Page 4-29 | Figure 4.4B

PRESSURE ZONE SCHEMATIC OF SOUTHERN SERVICE ZONES

2008 Scottsdale Integrated Water Master Plan

pw:/Client/AZ/Scottsdale/7265A00/Deliverables/Integrated Water Master Plan/Fig 4_4AB_doc.doc

WATER EXHIBIT



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WOOD PATEL

7TH DAY ADVENTIST - SCOTTSDALE & SUTTON

WATER EXHIBIT

DATE	06-29-2020	SCALE	1" = 200'	SHEET	1 OF 1
JOB NO.	194966	DESIGN	DLM	DRAWN	JRS

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WOOD PATEL

WATER DISTRIBUTION SYSTEM
BASIS OF DESIGN REPORT
FOR
7th DAY ADVENTIST – SCOTTSDALE & SUTTON

July 1, 2020
WP# 194966

FINAL Basis of Design Report

☑ **APPROVED**

☐ **APPROVED AS NOTED**

☐ **REVISE AND RESUBMIT**

CITY OF SCOTTSDALE

SCOTTSDALE WATER

9379 E San Salvador Dr.
Scottsdale, AZ 85258

Disclaimer: If approved; the approval is granted under the condition that the final construction documents submitted for city review will match the information herein. Any subsequent changes in the water or sewer design that materially impact design criteria or standards will require re-analysis, re-submittal, and approval of a revised basis of design report prior to the plan review submission.; this approval is not a guarantee of construction document acceptance.
For questions or clarifications contact the Water Resources Planning and Engineering Department at 480-312-5685.

07/07/2020

BY rsacks **DATE** 7/7/2020

Registered Professional Engineer (Civil)
CERTIFICATE NO.
36382
DARIN L.
MOORE
Date Signed 7/1/20
ARIZONA, U.S.A.

EXPIRES 06-30-22

WOOD PATEL

2051 W Northern Ave #100
Phoenix AZ 85021
P: 602.335.8500
F: 602.335.8580
www.woodpatel.com

Darrel E. Wood, PE, RLS
Ashok C. Patel, PE, RLS, CFM
Michael T. Young, PE, LEED AP
James S. Campbell, PE, LEED GA
Thomas R. Gettings, RLS
Darin L. Moore, PE, LEED GA
Jeffrey R. Minch, PE, CFM
Robert D. Gofonia, PE, RLS
Nicholas E. Brown, PE

July 1, 2020

City of Scottsdale
Planning and Development
7447 East Indian School Road
Scottsdale, Arizona 85257

480.312.5319

Re: **7th Day Adventist – Scottsdale & Sutton**
Water Distribution System Basis of Design Report
WP# 194966

To Whom It May Concern:

This Water Distribution System Basis of Design Report is prepared for the Arizona Conference of Seventh-Day Adventists and submitted to the City of Scottsdale (City). The 7th Day Adventist – Scottsdale & Sutton project (Site) consists of portions of two (2) adjacent parcels totaling an area of approximately 2,148,604 square-feet, or 49.3± acres. It is located in a portion of Section 11, Township 3 North, Range 4 East and a portion of the north half of Section 14, Township 3 North, Range 4 East of the Gila and Salt River Base and Meridian. More specifically, the Site is located at the northeast corner of North Scottsdale Road and Sutton Road in Scottsdale, Arizona on Assessor Parcel Number 215-56-333A and 175-04-002A. Refer to the *Vicinity Map* at the back of this report. The Site is bound by Thunderbird Road/Redfield Road to the north, East Sutton Drive on the south, North Miller Road on the east and North Scottsdale Road on the west.

This project includes the potential construction of airport hangars, industrial buildings, office buildings, residential townhomes and single family homes. Proposed improvements include associated landscape, hardscape, paving and utility services. The airport hangars will include 76,250 square-feet of total space. The industrial buildings will include 184,450 square-feet of space. The office buildings will include 508,000 square-feet of space. The maximum number of residential units will be 258.

An 8-inch DIP public waterline will loop through the Site for domestic service and fire protection within a 20 foot water facilities easement. The proposed loop will tie into existing City water infrastructure at four (4) locations. Connection to the 12-inch waterline north of the site in Redfield Road will require a Pressure Reducing Valve (PRV) since it resides within the City's Pressure Zone 3. The Site and its three other connections all reside within the City's Pressure Zone 2. The 6-inch Sutton Drive waterline south of the Site will require an upsize to 8 inches in diameter. The loop will also connect into the existing 8-inch waterline east of the Site in Miller Road. A total of 18 proposed fire hydrants will be installed onsite for fire protection. Refer to the attached *Water Exhibit* for a depiction of the water system.

The following design criteria was utilized by Wood, Patel & Associates, Inc.'s (WOODPATEL) to estimate potable water demands and evaluate system hydraulics based on our understanding of the City of Scottsdale's 2018 *Design Standards and Policies Manual*:

- Average Day Water Demand, Office ..... 8.33E-04 gpm/sf
- Average Day Water Demand, Industrial ..... 1.44 gpm/acre
- Average Day Water Demand, Multi-Family Residential ..... 0.27 gpm/DU
- Fire Flow Requirements (Office) ..... 2,875 gpm (with 50% sprinkler reduction)
- Fire Flow Requirements (Industrial) ..... 1,750 gpm (with 50% sprinkler reduction)
- Fire Flow Requirements (Multi-Family) ..... 1,500 gpm
- Maximum Day Demand ..... 2.0 x ADD
- Peak Hour Demand ..... 3.5 x ADD
- Minimum Residual Pressure, Peak Hour ..... 50 psi
- Minimum Residual Pressure, Maximum Day + Fire Flow ..... 30 psi
- Maximum System Pressure ..... 120 psi
- Maximum Pipe Head Loss, Maximum day Demand 8ft/1000ft
- Maximum Pipe Head Loss, Peak Hour Demand 10ft/1000ft
- Minimum Pipe Diameter, Public Water Line ..... 8 inches

Abbreviations: gpd = gallons per day; sf = square feet; ADD = average day demand; psi = pounds per square inch; gpm = gallons per minute

WaterCAD V10i, by Haestad Methods, was utilized to analyze the existing City water distribution system and proposed improvements. The WaterCAD model was calibrated using two (2) fire hydrant flow tests provided by Arizona Flow Testing LLC (refer to attached). The first test (Zone 2 Test) was conducted on May 8, 2020 within Pressure zone 2. The second test (Zone 3 Test) was conducted on June 22, 2020 within Pressure Zone 3. The Zone 2 Test was used to calibrate the PRVs in the model. The raw Zone 3 Test results were used to calibrate the pump in the model.

As mentioned above, the Site connects to the public water system in both Zones 2 and 3. Both Zones were modeled to create a more accurate representation of the existing infrastructure around the Site, including two (2) existing PRVs. PRV modeling within WaterCAD restricts flow to only one direction, from higher to lower pressure zones. Therefore, this model was calibrated using a pump at the Zone 3 pressure hydrant to take advantage of existing water infrastructure in both Zones 2 and 3.

Calibration of the water model was completed using four (4) scenarios:

- Calibration - Static - Zone 3
- Calibration - Residual - Zone 3
- Calibration - Max - Zone 3
- Calibration - Residual - Zone 2

The modeling results for all Zone 3 calibrations were identical to the actual results from the Zone 3 Test. Additionally, the static pressure at the Zone 2 pressure hydrant was identical to the actual results from the Zone 2 Test, indicating the model's PRVs were calibrated correctly.

During the "Calibration - Residual - Zone 2" scenario, the residual flows from the Zone 2 Test were applied to the Zone 2 flow hydrants while using the pump in Zone 3. During this scenario, the modeled residual pressure at the Zone 2 pressure hydrant was lower than the actual Zone 2 Test results. It is believed the lower modeled Zone 2 pressure hydrant residual pressure is due to other Zone 2 water sources in place in addition to the modeled Zone 3 source. This appears to agree with the City's attached "Pressure Zone Schematic of Southern Service Zones 2008" which indicates Site 32 and Pump 32 also provide pressure to Zone 2. Based on the results described below, we believe this model is conservatively calibrated using the Zone 3 raw test data. Please also refer to the attached summary Table 1 and Table 2, complete hydraulic modeling results and exhibit for detailed information.

The average day water demand for the proposed Site is projected to be 497.5 gpm. Maximum day demands and peak hour demands are projected to be 995 gpm and 1741.1 gpm, respectively. The hydraulic modeling results indicate the proposed system is capable of delivering peak hour demands totaling 1741.1 gpm to the proposed Site with pressures ranging from 63 to 91 psi.

The greatest required fire flow in this analysis is 2,875 gpm for a 100,000 square foot (sf) office building. This assumes a Building Type V-A with no fire walls and a 50% reduction due to fire sprinklers. Fire flow scenarios were also modeled for the largest industrial building (17,600 sf) and the multi-family building (3,000 sf). Residual pressures exceeded the 30 psi minimum all fire flow scenarios. Refer to the attached Hydraulic Calculations for detailed information.

Thank you for your review of the Water Distribution System Basis of Design Report provided for 7th Day Adventist - Scottsdale & Sutton project. Please contact our office if you have any further comments.

Sincerely,

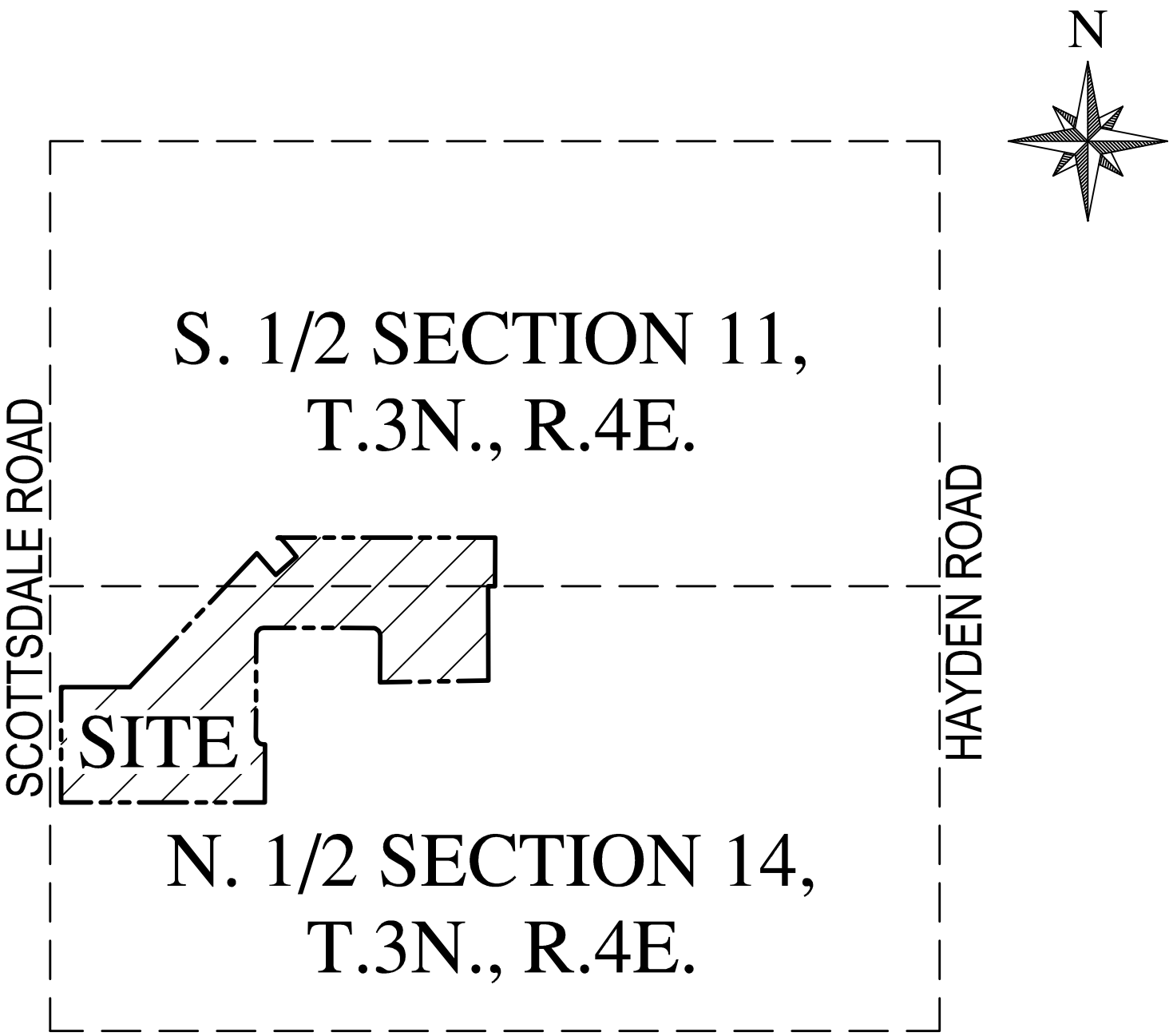
Wood, Patel & Associates, Inc.

Darin L. Moore, PE
Vice President

EXPIRES 06-30-22

se
Y:\WP\Reports\Commercial\194966 7th Day Adventist - Scottsdale Sutton Water BOD..docx

VICINITY MAP



VICINITY MAP

N.T.S.

NOT
FOR
CONSTRUCTION
OR RECORDING

WOOD PATEL

7th DAY ADVENTIST - SCOTTSDALE & SUTTON

VICINITY MAP EXHIBIT

DATE	05/20/2020	SCALE	N.T.S.	SHEET	## OF ##
JOB NO.	194966	DESIGN	TB	CHECK	LB
		DRAWN	JO	RFI #	

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HYDRAULIC CALCULATIONS

WOOD/PATEL
MISSION: CLIENT SERVICE®

CIVIL ENGINEERS * HYDROLOGISTS * LAND SURVEYORS * CONSTRUCTION MANAGERS

TABLE 1 - WATER DESIGN CRITERIA

Project: Seventh-Day Adventists
Location: Scottsdale, Arizona
References: City of Scottsdale Design Standards & Policies Manual (2018)

Project Number: 194966
Project Engineer: Darin L. Moore, P.E.

RESIDENTIAL WATER DEMANDS			
LAND USE	AVERAGE DAILY DEMAND (ADD)		NOTES
	VALUE	UNITS	
< 2 dwelling DU/ac	0.69	gpm/unit	Note 1
2-2.9 dwelling DU/ac	0.66	gpm/unit	Note 1
3-7.9 dwelling DU/ac	0.36	gpm/unit	Note 1
8-11.9 dwelling DU/ac	0.33	gpm/unit	Note 1
12-22 2 dwelling DU/ac	0.33	gpm/unit	Note 1
High Density Condominium (condo)	0.27	gpm/unit	Note 1
Resort Hotel (includes site amenities)	0.63	gpm/room	Note 1

NON-RESIDENTIAL WATER DEMANDS			
LAND USE	AVERAGE DAILY DEMAND (ADD)		NOTES
	VALUE	UNITS	
Restaurant	0.00181	gpm/sf	Note 1
Commercial/Retail	0.00111	gpm/sf	Note 1
Commercial High Rise	0.000834	gpm/sf	Note 1
Office	0.000834	gpm/sf	Note 1
Institutional	1.88	gpm/acre	Note 1
Industrial	1.44	gpm/acre	Note 1
Research and Development	1.79	gpm/acre	Note 1

LANDSCAPE WATER DEMANDS			
LAND USE	AVERAGE DAILY DEMAND (ADD)		NOTES
	VALUE	UNITS	
Natural Area Open Space	0.00	gpm/acre	Note 1
Developed Open Space - Parks	2.49	gpm/acre	Note 1
Developed Open Space - Golf Course	5.96	gpm/acre	Note 1

HYDRAULIC MODELING CRITERIA			
DESCRIPTION	VALUE	UNITS	NOTES
MAX DAY FLOW			
Max Day Flow = Peaking Factor (PF) x ADD	2 x ADD	gpm	Note 1
PEAK HOUR FLOW			
Peak Hour Flow = Peaking Factor (PF) x ADD	3.5 x ADD	gpm	Note 1
MODELED FIRE HYDRANT FLOW (MINIMUM)			
☐ Residential, 0 - 3,600 sf fire-flow calculation area	1,000	gpm	Note 3
☐ Residential, 3,601 - 4,800 sf fire-flow calculation area	1,750	gpm	Note 4
☐ Residential, 4,801 - 6,200 sf fire-flow calculation area	2,000	gpm	Note 4
☐ Residential, 6,201 - 7,700 sf fire-flow calculation area	2,250	gpm	Note 4
☐ Residential, 7,701 - 9,400 sf fire-flow calculation area	2,500	gpm	Note 4
☐ Residential, 9,401 - 11,300 sf fire-flow calculation area	2,750	gpm	Note 4
☑ Multi-Family Residential	1,500	gpm	Note 2
☑ Industrial	1,750	gpm	Note 2
☑ Commercial	2,875	gpm	Note 2
HYDRAULICS			
Residual Pressure Range, Peak Hour	50-150	psi	Note 1
Minimum Residual Pressure, Max Day + Fire Flow (Hydrant TEE)	30	psi	Note 1
Minimum Residual Pressure, Max Day + Fire Flow (Domestic Service)	15	psi	Note 1
Minimum Pipe Diameter, Looped System	6	in	Note 1
Hazen-Williams C-value	120	-	Note 1

Notes:

1. Per City of Scottsdale Design Standards & Policies Manual (2018)
2. Per City of Scottsdale Design Standards & Policies Manual (2018):
Office: Utilizes construction type V-A, the area of the largest office building (100,000 sf), 50% reduction applied.
Industrial: Utilizes construction type V-B, the area of the largest industrial building (17,600 sf), 50% reduction applied.
Multi-Family: Utilizes construction type V-B, the area of the largest multi-family building (3,000 sf), 50% reduction not applied.
3. Residential limited to one- and two-family dwellings, assumes Type V-B construction, and has a 1-hour fire duration
4. Residential limited to one- and two-family dwellings, assumes Type V-B construction, and has a 2-hour fire duration

WOOD/PATEL
MISSION: CLIENT SERVICE®

CIVIL ENGINEERS * HYDROLOGISTS * LAND SURVEYORS * CONSTRUCTION MANAGERS

TABLE 2 - WATER DEMAND DESIGN FLOWS

Project: Seventh-Day Adventists
Location: Scottsdale, Arizona
References: City of Scottsdale Design Standards & Policies Manual (2018)

Project Number: 194966
Project Engineer: Darin L. Moore, P.E.

Water Demand Calculations

HYDRAULIC MODEL NODE	ELEVATION (ft)	PRESSURE ZONE	LAND USE	APPLICABLE UNIT	NUMBER OF UNITS	GPM/APPLICABLE UNIT[1]	AVERAGE DAILY DEMAND		MAX DAY DEMAND		PEAK HOUR DEMAND		Fire Flow
							(gpm)	Total (gpm)	(gpm)	Total (gpm)	(gpm)	Total (gpm)	(gpm)
EX J-15	1,430.6	2	Office	gpm/sf	508,100	0.00083	421.7	421.7	843.4	843.4	1,475.9	1,475.9	2,875
EX J-5	1,430.6	2	Industrial	gpm/ac	4.23	1.44	6.1	427.8	12.2	855.6	21.2	1,497.1	1,750
EX J-41	1,430.6	2	Multi-Family Residential	gpm/DU	258.00	0.27	69.7	497.5	139.4	995.0	244.0	1,741.1	1,500
							497.5	**497.5**	**995.0**	**995.0**	**1741.1**	**1741.1**	

Notes:
1. GPM values are based on a 12-hour active water used period per 24-hour day per the City of Scottsdale Design Standards and Policy Manual.

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FlexTable: Junction Table

Active Scenario: Calibration - Static - Zone 3

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1	1,426.18	0.0	66	1,578.23
EX FH-2	1,416.00	0.0	70	1,578.23
EX FH-3	1,418.25	0.0	69	1,578.23
EX FH-5	1,420.00	0.0	68	1,578.23
EX FH-FLOW A-Zone 2	1,418.25	0.0	69	1,578.23
EX FH-FLOW A-Zone 3	1,432.00	0.0	95	1,651.34
EX FH-FLOW B-Zone 2	1,420.82	0.0	68	1,578.23
EX FH-FLOW B-Zone 3	1,437.00	0.0	93	1,651.34
EX FH-TEST-Zone 2	1,416.49	0.0	70	1,578.23
EX FH-TEST-Zone 3	1,434.00	0.0	94	1,651.34
EX J-5	1,425.67	0.0	66	1,578.23
EX J-7	1,416.00	0.0	70	1,578.23
EX J-10	1,417.00	0.0	70	1,578.23
EX J-15	1,416.00	0.0	70	1,578.23
EX J-20	1,418.00	0.0	69	1,578.23
EX J-30	1,430.55	0.0	96	1,651.34
EX J-41	1,417.00	0.0	70	1,578.23
EX J-65	1,425.89	0.0	98	1,651.34
EX J-205	1,409.00	0.0	73	1,578.23
EX J-215	1,409.00	0.0	73	1,578.23
EX J-225	1,409.00	0.0	73	1,578.23
EX J-235	1,409.00	0.0	73	1,578.23
EX J-245	1,416.00	0.0	70	1,578.23
EX J-255	1,428.00	0.0	65	1,578.23
EX J-265	1,432.00	0.0	63	1,578.23

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FlexTable: Junction Table

Active Scenario: Calibration - Residual - Zone 3

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1	1,426.18	0.0	66	1,578.23
EX FH-2	1,416.00	0.0	70	1,578.23
EX FH-3	1,418.25	0.0	69	1,578.23
EX FH-5	1,420.00	0.0	68	1,578.23
EX FH-FLOW A-Zone 2	1,418.25	0.0	69	1,578.23
EX FH-FLOW A-Zone 3	1,432.00	2,431.0	68	1,590.03
EX FH-FLOW B-Zone 2	1,420.82	0.0	68	1,578.23
EX FH-FLOW B-Zone 3	1,437.00	1,764.0	64	1,586.04
EX FH-TEST-Zone 2	1,416.49	0.0	70	1,578.23
EX FH-TEST-Zone 3	1,434.00	0.0	69	1,593.59
EX J-5	1,425.67	0.0	66	1,578.23
EX J-7	1,416.00	0.0	70	1,578.23
EX J-10	1,417.00	0.0	70	1,578.23
EX J-15	1,416.00	0.0	70	1,578.23
EX J-20	1,418.00	0.0	69	1,578.23
EX J-30	1,430.55	0.0	69	1,590.03
EX J-41	1,417.00	0.0	70	1,578.23
EX J-65	1,425.89	0.0	71	1,590.03
EX J-205	1,409.00	0.0	73	1,578.23
EX J-215	1,409.00	0.0	73	1,578.23
EX J-225	1,409.00	0.0	73	1,578.23
EX J-235	1,409.00	0.0	73	1,578.23
EX J-245	1,416.00	0.0	70	1,578.23
EX J-255	1,428.00	0.0	65	1,578.23
EX J-265	1,432.00	0.0	63	1,578.23

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FlexTable: Junction Table

Active Scenario: Calibration - Residual - Zone 2

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1	1,426.18	0.0	41	1,520.09
EX FH-2	1,416.00	0.0	43	1,515.64
EX FH-3	1,418.25	0.0	43	1,518.78
EX FH-5	1,420.00	0.0	54	1,544.09
EX FH-FLOW A-Zone 2	1,418.25	1,303.0	45	1,523.16
EX FH-FLOW A-Zone 3	1,432.00	0.0	78	1,611.85
EX FH-FLOW B-Zone 2	1,420.82	1,969.0	23	1,473.43
EX FH-FLOW B-Zone 3	1,437.00	0.0	76	1,612.06
EX FH-TEST-Zone 2	1,416.49	0.0	36	1,499.54
EX FH-TEST-Zone 3	1,434.00	0.0	78	1,614.90
EX J-5	1,425.67	0.0	40	1,518.77
EX J-7	1,416.00	0.0	36	1,499.49
EX J-10	1,417.00	0.0	37	1,503.14
EX J-15	1,416.00	0.0	43	1,515.28
EX J-20	1,418.00	0.0	44	1,519.35
EX J-30	1,430.55	0.0	77	1,608.17
EX J-41	1,417.00	0.0	37	1,503.54
EX J-65	1,425.89	0.0	74	1,597.48
EX J-205	1,409.00	0.0	45	1,512.74
EX J-215	1,409.00	0.0	42	1,506.23
EX J-225	1,409.00	0.0	42	1,506.20
EX J-235	1,409.00	0.0	42	1,505.27
EX J-245	1,416.00	0.0	36	1,498.52
EX J-255	1,428.00	0.0	41	1,523.16
EX J-265	1,432.00	0.0	62	1,574.97

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FlexTable: Junction Table

Active Scenario: Calibration - Max - Zone 3

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1	1,426.18	0.0	19	1,469.85
EX FH-2	1,416.00	0.0	23	1,469.85
EX FH-3	1,418.25	0.0	22	1,469.85
EX FH-5	1,420.00	0.0	22	1,469.85
EX FH-FLOW A-Zone 2	1,418.25	0.0	22	1,469.85
EX FH-FLOW A-Zone 3	1,432.00	4,368.0	16	1,469.85
EX FH-FLOW B-Zone 2	1,420.82	0.0	21	1,469.85
EX FH-FLOW B-Zone 3	1,437.00	3,169.0	9	1,458.06
EX FH-TEST-Zone 2	1,416.49	0.0	23	1,469.85
EX FH-TEST-Zone 3	1,434.00	0.0	20	1,480.40
EX J-5	1,425.67	0.0	19	1,469.85
EX J-7	1,416.00	0.0	23	1,469.85
EX J-10	1,417.00	0.0	23	1,469.85
EX J-15	1,416.00	0.0	23	1,469.85
EX J-20	1,418.00	0.0	22	1,469.85
EX J-30	1,430.55	0.0	17	1,469.85
EX J-41	1,417.00	0.0	23	1,469.85
EX J-65	1,425.89	0.0	19	1,469.85
EX J-205	1,409.00	0.0	26	1,469.85
EX J-215	1,409.00	0.0	26	1,469.85
EX J-225	1,409.00	0.0	26	1,469.85
EX J-235	1,409.00	0.0	26	1,469.85
EX J-245	1,416.00	0.0	23	1,469.85
EX J-255	1,428.00	0.0	18	1,469.85
EX J-265	1,432.00	0.0	16	1,469.85

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FlexTable: Junction Table

Active Scenario: Average Day Demand

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1	1,426.18	0.0	65	1,577.04
EX FH-2	1,416.00	0.0	69	1,576.61
EX FH-3	1,418.25	0.0	69	1,576.92
EX FH-5	1,420.00	0.0	68	1,577.77
EX FH-FLOW A-Zone 2	1,418.00	0.0	69	1,577.36
EX FH-FLOW A-Zone 3	1,432.00	0.0	94	1,650.04
EX FH-FLOW B-Zone 2	1,420.82	0.0	68	1,576.90
EX FH-FLOW B-Zone 3	1,437.00	0.0	92	1,650.23
EX FH-TEST-Zone 2	1,416.49	0.0	69	1,576.90
EX FH-TEST-Zone 3	1,434.00	0.0	94	1,650.23
EX J-5	1,425.67	6.1	65	1,577.04
EX J-7	1,416.00	0.0	70	1,576.90
EX J-10	1,417.00	0.0	69	1,576.63
EX J-15	1,416.00	421.7	69	1,576.57
EX J-20	1,418.00	0.0	69	1,576.98
EX J-30	1,430.55	0.0	95	1,649.82
EX J-41	1,417.00	69.7	69	1,576.60
EX J-65	1,425.89	0.0	97	1,649.61
EX J-205	1,409.00	0.0	73	1,576.95
EX J-215	1,409.00	0.0	73	1,576.93
EX J-225	1,409.00	0.0	73	1,576.93
EX J-235	1,409.00	0.0	73	1,576.93
EX J-245	1,416.00	0.0	70	1,576.90
EX J-255	1,428.00	0.0	64	1,577.04
EX J-265	1,432.00	0.0	63	1,577.04
FH-1	1,417.74	0.0	69	1,576.65
FH-2	1,420.79	0.0	67	1,576.69
FH-3	1,419.33	0.0	68	1,576.74
FH-4	1,422.56	0.0	67	1,576.80
FH-5	1,422.90	0.0	67	1,576.82
FH-6	1,421.53	0.0	67	1,576.78
FH-7	1,419.13	0.0	68	1,576.73
FH-9	1,422.12	0.0	67	1,576.78
FH-10	1,416.88	0.0	69	1,576.66
FH-12	1,427.09	0.0	65	1,577.10
FH-13	1,428.34	0.0	64	1,577.27
FH-14	1,428.77	0.0	64	1,577.25
FH-15	1,427.51	0.0	65	1,577.21
FH-16	1,428.92	0.0	64	1,577.17
FH-17	1,429.43	0.0	64	1,577.12
FH-18	1,426.57	0.0	65	1,577.06
FH-19	1,417.86	0.0	69	1,576.60
FH-20	1,419.34	0.0	68	1,576.60
J-3	1,416.56	0.0	69	1,576.62
J-8	1,423.28	0.0	66	1,576.83
J-35	1,428.39	0.0	64	1,577.28

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FlexTable: Junction Table

Active Scenario: Average Day Demand

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
J-42	1,422.00	0.0	67	1,576.60
J-45	1,423.09	0.0	67	1,576.85
J-46	1,426.00	0.0	65	1,577.02
J-47	1,426.59	0.0	65	1,577.07

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FlexTable: Pipe Table

Active Scenario: Average Day Demand

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
EX P-5	EX FH-TEST-Zone 3	EX FH-FLOW B-Zone 3	1,194	12.0	Asbestos Cement	140.0	3.9	0.01
EX P-10	EX FH-FLOW A-Zone 3	EX FH-TEST-Zone 3	311	12.0	Asbestos Cement	140.0	-493.6	1.40
EX P-15	EX J-30	EX FH-FLOW A-Zone 3	377	12.0	Asbestos Cement	140.0	-493.6	1.40
EX P-20	EX J-65	EX J-30	1,094	12.0	Asbestos Cement	140.0	-266.7	0.76
EX P-25	EX PRV-1	EX FH-5	335	8.0	Asbestos Cement	140.0	266.7	1.70
EX P-27	EX J-65	EX PRV-1	423	8.0	Asbestos Cement	140.0	266.7	1.70
EX P-30	EX FH-FLOW A-Zone 2	EX FH-5	297	8.0	Asbestos Cement	140.0	-266.7	1.70
EX P-35	EX J-20	EX FH-FLOW A-Zone 2	274	8.0	Asbestos Cement	140.0	-266.7	1.70
EX P-40	EX FH-3	EX J-20	44	8.0	Ductile Iron	130.0	-241.0	1.54
EX P-45	EX FH-2	EX FH-3	238	8.0	Ductile Iron	130.0	-241.0	1.54
EX P-50	EX J-15	EX FH-2	27	8.0	Ductile Iron	130.0	-241.0	1.54
EX P-53	EX J-41	EX J-15	891	8.0	Ductile Iron	130.0	28.0	0.18
EX P-55	EX J-10	EX J-41	123	8.0	Ductile Iron	130.0	97.7	0.62
EX P-60	EX FH-TEST-Zone 2	EX J-10	1,268	8.0	Asbestos Cement	140.0	97.7	0.62
EX P-62	EX J-7	EX FH-TEST-Zone 2	20	8.0	Asbestos Cement	140.0	97.7	0.62
EX P-64	EX J-5	EX J-7	981	8.0	Ductile Iron	130.0	72.0	0.46
EX P-65	EX FH-1	EX J-5	77	8.0	Asbestos Cement	140.0	3.9	0.02
EX P-67	EX J-7	EX J-245	31	8.0	Asbestos Cement	140.0	-25.7	0.16
EX P-69	EX J-245	EX FH-FLOW B-Zone 2	449	8.0	Asbestos Cement	140.0	0.0	0.00
EX P-200	EX J-20	EX J-205	1,322	8.0	Asbestos Cement	140.0	25.7	0.16
EX P-210	EX J-205	EX J-215	1,300	8.0	Asbestos Cement	140.0	25.7	0.16
EX P-220	EX J-215	EX J-225	47	12.0	Asbestos Cement	140.0	25.7	0.07
EX P-230	EX J-225	EX J-235	1,341	12.0	Asbestos Cement	140.0	25.7	0.07
EX P-240	EX J-235	EX J-245	1,349	8.0	Asbestos Cement	140.0	25.7	0.16
EX P-250	EX FH-1	EX J-255	179	8.0	Asbestos Cement	140.0	-3.9	0.02
EX P-260	EX J-255	EX J-265	2,637	8.0	Ductile Iron	130.0	-3.9	0.02
EX P-270	EX PRV-2	EX J-265	872	12.0	Asbestos Cement	140.0	3.9	0.01
EX P-280	EX FH-FLOW B-Zone 3	EX PRV-2	2,664	12.0	Asbestos Cement	140.0	3.9	0.01
P-5	EX J-15	J-3	84	8.0	Ductile Iron	130.0	-152.7	0.97
P-10	J-3	FH-1	168	8.0	Ductile Iron	130.0	-74.4	0.47

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FlexTable: Pipe Table

Active Scenario: Average Day Demand

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-15	FH-1	FH-2	263	8.0	Ductile Iron	130.0	-74.4	0.47
P-20	FH-2	FH-3	346	8.0	Ductile Iron	130.0	-74.4	0.47
P-25	FH-3	FH-9	315	8.0	Ductile Iron	130.0	-74.4	0.47
P-27	FH-9	FH-4	96	8.0	Ductile Iron	130.0	-74.4	0.47
P-30	FH-4	J-45	340	8.0	Ductile Iron	130.0	-74.4	0.47
P-32	J-45	J-8	120	8.0	Ductile Iron	130.0	78.3	0.50
P-35	J-8	FH-5	29	8.0	Ductile Iron	130.0	78.3	0.50
P-40	FH-5	FH-6	240	8.0	Ductile Iron	130.0	78.3	0.50
P-45	FH-6	FH-7	342	8.0	Ductile Iron	130.0	78.3	0.50
P-55	FH-10	FH-7	436	8.0	Ductile Iron	130.0	-78.3	0.50
P-57	J-45	J-46	299	8.0	Ductile Iron	130.0	-152.7	0.97
P-58	J-46	J-47	93	8.0	Ductile Iron	130.0	-152.7	0.97
P-59	J-47	FH-12	52	8.0	Ductile Iron	130.0	-152.7	0.97
P-62	EX J-30	PRV-16	102	8.0	Ductile Iron	130.0	226.9	1.45
P-63	PRV-16	J-35	222	8.0	Ductile Iron	130.0	226.9	1.45
P-65	FH-10	J-3	221	8.0	Ductile Iron	130.0	78.3	0.50
P-80	FH-12	FH-13	297	8.0	Ductile Iron	130.0	-152.7	0.97
P-85	FH-13	J-35	23	8.0	Ductile Iron	130.0	-152.7	0.97
P-90	J-35	FH-14	182	8.0	Ductile Iron	130.0	74.2	0.47
P-95	FH-14	FH-15	304	8.0	Ductile Iron	130.0	74.2	0.47
P-100	FH-15	FH-16	254	8.0	Ductile Iron	130.0	74.2	0.47
P-105	FH-16	FH-17	362	8.0	Ductile Iron	130.0	74.2	0.47
P-110	FH-17	FH-18	393	8.0	Ductile Iron	130.0	74.2	0.47
P-115	FH-18	EX J-5	120	8.0	Ductile Iron	130.0	74.2	0.47
P-120	EX J-41	FH-19	124	8.0	Ductile Iron	130.0	0.0	0.00
P-130	FH-19	FH-20	213	8.0	Ductile Iron	130.0	0.0	0.00
P-140	FH-20	J-42	382	8.0	Ductile Iron	130.0	0.0	0.00
P-PMP-Zone 3	PMP-Zone 3	EX FH-TEST-Zone 3	1	48.0	Ductile Iron	130.0	497.5	0.09
P-R-Zone 3	R-Zone 3	PMP-Zone 3	1	48.0	Ductile Iron	130.0	497.5	0.09

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FlexTable: Junction Table

Active Scenario: Max Day Demand

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1	1,426.18	0.0	65	1,576.13
EX FH-2	1,416.00	0.0	68	1,573.88
EX FH-3	1,418.25	0.0	68	1,574.87
EX FH-5	1,420.00	0.0	68	1,577.05
EX FH-FLOW A-Zone 2	1,418.00	0.0	68	1,576.01
EX FH-FLOW A-Zone 3	1,432.00	0.0	93	1,646.77
EX FH-FLOW B-Zone 2	1,420.82	0.0	67	1,575.07
EX FH-FLOW B-Zone 3	1,437.00	0.0	91	1,647.27
EX FH-TEST-Zone 2	1,416.49	0.0	69	1,575.05
EX FH-TEST-Zone 3	1,434.00	0.0	92	1,647.32
EX J-5	1,425.67	12.2	65	1,576.11
EX J-7	1,416.00	0.0	69	1,575.07
EX J-10	1,417.00	0.0	68	1,573.98
EX J-15	1,416.00	843.4	68	1,573.76
EX J-20	1,418.00	0.0	68	1,575.05
EX J-30	1,430.55	0.0	93	1,646.11
EX J-41	1,417.00	139.4	68	1,573.87
EX J-65	1,425.89	0.0	95	1,645.58
EX J-205	1,409.00	0.0	72	1,575.06
EX J-215	1,409.00	0.0	72	1,575.06
EX J-225	1,409.00	0.0	72	1,575.06
EX J-235	1,409.00	0.0	72	1,575.06
EX J-245	1,416.00	0.0	69	1,575.07
EX J-255	1,428.00	0.0	64	1,576.18
EX J-265	1,432.00	0.0	63	1,577.01
FH-1	1,417.74	0.0	68	1,574.06
FH-2	1,420.79	0.0	66	1,574.22
FH-3	1,419.33	0.0	67	1,574.43
FH-4	1,422.56	0.0	66	1,574.68
FH-5	1,422.90	0.0	66	1,574.78
FH-6	1,421.53	0.0	66	1,574.62
FH-7	1,419.13	0.0	67	1,574.40
FH-9	1,422.12	0.0	66	1,574.62
FH-10	1,416.88	0.0	68	1,574.10
FH-12	1,427.09	0.0	64	1,575.91
FH-13	1,428.34	0.0	64	1,576.59
FH-14	1,428.77	0.0	64	1,576.58
FH-15	1,427.51	0.0	64	1,576.48
FH-16	1,428.92	0.0	64	1,576.40
FH-17	1,429.43	0.0	64	1,576.28
FH-18	1,426.57	0.0	65	1,576.15
FH-19	1,417.86	0.0	67	1,573.87
FH-20	1,419.34	0.0	67	1,573.87
J-3	1,416.56	0.0	68	1,573.96
J-8	1,423.28	0.0	66	1,574.80
J-35	1,428.39	0.0	64	1,576.64

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FlexTable: Junction Table

Active Scenario: Max Day Demand

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
J-42	1,422.00	0.0	66	1,573.87
J-45	1,423.09	0.0	66	1,574.88
J-46	1,426.00	0.0	65	1,575.57
J-47	1,426.59	0.0	65	1,575.79

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FlexTable: Pipe Table

Active Scenario: Max Day Demand

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
EX P-5	EX FH-TEST-Zone 3	EX FH-FLOW B-Zone 3	1,194	12.0	Asbestos Cement	140.0	111.8	0.32
EX P-10	EX FH-FLOW A-Zone 3	EX FH-TEST-Zone 3	311	12.0	Asbestos Cement	140.0	-883.2	2.51
EX P-15	EX J-30	EX FH-FLOW A-Zone 3	377	12.0	Asbestos Cement	140.0	-883.2	2.51
EX P-20	EX J-65	EX J-30	1,094	12.0	Asbestos Cement	140.0	-441.3	1.25
EX P-25	EX PRV-1	EX FH-5	335	8.0	Asbestos Cement	140.0	441.3	2.82
EX P-27	EX J-65	EX PRV-1	423	8.0	Asbestos Cement	140.0	441.3	2.82
EX P-30	EX FH-FLOW A-Zone 2	EX FH-5	297	8.0	Asbestos Cement	140.0	-441.3	2.82
EX P-35	EX J-20	EX FH-FLOW A-Zone 2	274	8.0	Asbestos Cement	140.0	-441.3	2.82
EX P-40	EX FH-3	EX J-20	44	8.0	Ductile Iron	130.0	-451.5	2.88
EX P-45	EX FH-2	EX FH-3	238	8.0	Ductile Iron	130.0	-451.5	2.88
EX P-50	EX J-15	EX FH-2	27	8.0	Ductile Iron	130.0	-451.5	2.88
EX P-53	EX J-41	EX J-15	891	8.0	Ductile Iron	130.0	65.1	0.42
EX P-55	EX J-10	EX J-41	123	8.0	Ductile Iron	130.0	204.5	1.30
EX P-60	EX FH-TEST-Zone 2	EX J-10	1,268	8.0	Asbestos Cement	140.0	204.5	1.30
EX P-62	EX J-7	EX FH-TEST-Zone 2	20	8.0	Asbestos Cement	140.0	204.5	1.30
EX P-64	EX J-5	EX J-7	981	8.0	Ductile Iron	130.0	214.7	1.37
EX P-65	EX FH-1	EX J-5	77	8.0	Asbestos Cement	140.0	111.8	0.71
EX P-67	EX J-7	EX J-245	31	8.0	Asbestos Cement	140.0	10.2	0.07
EX P-69	EX J-245	EX FH-FLOW B-Zone 2	449	8.0	Asbestos Cement	140.0	0.0	0.00
EX P-200	EX J-20	EX J-205	1,322	8.0	Asbestos Cement	140.0	-10.2	0.07
EX P-210	EX J-205	EX J-215	1,300	8.0	Asbestos Cement	140.0	-10.2	0.07
EX P-220	EX J-215	EX J-225	47	12.0	Asbestos Cement	140.0	-10.2	0.03
EX P-230	EX J-225	EX J-235	1,341	12.0	Asbestos Cement	140.0	-10.2	0.03
EX P-240	EX J-235	EX J-245	1,349	8.0	Asbestos Cement	140.0	-10.2	0.07
EX P-250	EX FH-1	EX J-255	179	8.0	Asbestos Cement	140.0	-111.8	0.71
EX P-260	EX J-255	EX J-265	2,637	8.0	Ductile Iron	130.0	-111.8	0.71
EX P-270	EX PRV-2	EX J-265	872	12.0	Asbestos Cement	140.0	111.8	0.32
EX P-280	EX FH-FLOW B-Zone 3	EX PRV-2	2,664	12.0	Asbestos Cement	140.0	111.8	0.32
P-5	EX J-15	J-3	84	8.0	Ductile Iron	130.0	-326.9	2.09
P-10	J-3	FH-1	168	8.0	Ductile Iron	130.0	-159.2	1.02

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FlexTable: Pipe Table

Active Scenario: Max Day Demand

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-15	FH-1	FH-2	263	8.0	Ductile Iron	130.0	-159.2	1.02
P-20	FH-2	FH-3	346	8.0	Ductile Iron	130.0	-159.2	1.02
P-25	FH-3	FH-9	315	8.0	Ductile Iron	130.0	-159.2	1.02
P-27	FH-9	FH-4	96	8.0	Ductile Iron	130.0	-159.2	1.02
P-30	FH-4	J-45	340	8.0	Ductile Iron	130.0	-159.2	1.02
P-32	J-45	J-8	120	8.0	Ductile Iron	130.0	167.6	1.07
P-35	J-8	FH-5	29	8.0	Ductile Iron	130.0	167.6	1.07
P-40	FH-5	FH-6	240	8.0	Ductile Iron	130.0	167.6	1.07
P-45	FH-6	FH-7	342	8.0	Ductile Iron	130.0	167.6	1.07
P-55	FH-10	FH-7	436	8.0	Ductile Iron	130.0	-167.6	1.07
P-57	J-45	J-46	299	8.0	Ductile Iron	130.0	-326.9	2.09
P-58	J-46	J-47	93	8.0	Ductile Iron	130.0	-326.9	2.09
P-59	J-47	FH-12	52	8.0	Ductile Iron	130.0	-326.9	2.09
P-62	EX J-30	PRV-16	102	8.0	Ductile Iron	130.0	442.0	2.82
P-63	PRV-16	J-35	222	8.0	Ductile Iron	130.0	442.0	2.82
P-65	FH-10	J-3	221	8.0	Ductile Iron	130.0	167.6	1.07
P-80	FH-12	FH-13	297	8.0	Ductile Iron	130.0	-326.9	2.09
P-85	FH-13	J-35	23	8.0	Ductile Iron	130.0	-326.9	2.09
P-90	J-35	FH-14	182	8.0	Ductile Iron	130.0	115.1	0.73
P-95	FH-14	FH-15	304	8.0	Ductile Iron	130.0	115.1	0.73
P-100	FH-15	FH-16	254	8.0	Ductile Iron	130.0	115.1	0.73
P-105	FH-16	FH-17	362	8.0	Ductile Iron	130.0	115.1	0.73
P-110	FH-17	FH-18	393	8.0	Ductile Iron	130.0	115.1	0.73
P-115	FH-18	EX J-5	120	8.0	Ductile Iron	130.0	115.1	0.73
P-120	EX J-41	FH-19	124	8.0	Ductile Iron	130.0	0.0	0.00
P-130	FH-19	FH-20	213	8.0	Ductile Iron	130.0	0.0	0.00
P-140	FH-20	J-42	382	8.0	Ductile Iron	130.0	0.0	0.00
P-PMP-Zone 3	PMP-Zone 3	EX FH-TEST-Zone 3	1	48.0	Ductile Iron	130.0	995.0	0.18
P-R-Zone 3	R-Zone 3	PMP-Zone 3	1	48.0	Ductile Iron	130.0	995.0	0.18

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FlexTable: Junction Table

Active Scenario: Peak Hour Demand

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1	1,426.18	0.0	64	1,573.63
EX FH-2	1,416.00	0.0	65	1,566.85
EX FH-3	1,418.25	0.0	65	1,569.57
EX FH-5	1,420.00	0.0	67	1,575.21
EX FH-FLOW A-Zone 2	1,418.00	0.0	67	1,572.54
EX FH-FLOW A-Zone 3	1,432.00	0.0	89	1,638.53
EX FH-FLOW B-Zone 2	1,420.82	0.0	65	1,570.25
EX FH-FLOW B-Zone 3	1,437.00	0.0	88	1,639.84
EX FH-TEST-Zone 2	1,416.49	0.0	67	1,570.21
EX FH-TEST-Zone 3	1,434.00	0.0	89	1,640.01
EX J-5	1,425.67	21.3	64	1,573.55
EX J-7	1,416.00	0.0	67	1,570.26
EX J-10	1,417.00	0.0	65	1,567.18
EX J-15	1,416.00	1,475.9	65	1,566.54
EX J-20	1,418.00	0.0	66	1,570.07
EX J-30	1,430.55	0.0	89	1,636.73
EX J-41	1,417.00	244.0	65	1,566.84
EX J-65	1,425.89	0.0	91	1,635.37
EX J-205	1,409.00	0.0	70	1,570.13
EX J-215	1,409.00	0.0	70	1,570.19
EX J-225	1,409.00	0.0	70	1,570.19
EX J-235	1,409.00	0.0	70	1,570.19
EX J-245	1,416.00	0.0	67	1,570.25
EX J-255	1,428.00	0.0	63	1,573.82
EX J-265	1,432.00	0.0	63	1,576.92
FH-1	1,417.74	0.0	65	1,567.41
FH-2	1,420.79	0.0	64	1,567.88
FH-3	1,419.33	0.0	65	1,568.49
FH-4	1,422.56	0.0	63	1,569.22
FH-5	1,422.90	0.0	63	1,569.54
FH-6	1,421.53	0.0	64	1,569.06
FH-7	1,419.13	0.0	65	1,568.40
FH-9	1,422.12	0.0	64	1,569.05
FH-10	1,416.88	0.0	65	1,567.54
FH-12	1,427.09	0.0	63	1,572.82
FH-13	1,428.34	0.0	63	1,574.83
FH-14	1,428.77	0.0	63	1,574.82
FH-15	1,427.51	0.0	64	1,574.55
FH-16	1,428.92	0.0	63	1,574.33
FH-17	1,429.43	0.0	63	1,574.01
FH-18	1,426.57	0.0	64	1,573.66
FH-19	1,417.86	0.0	64	1,566.84
FH-20	1,419.34	0.0	64	1,566.84
J-3	1,416.56	0.0	65	1,567.11
J-8	1,423.28	0.0	63	1,569.59
J-35	1,428.39	0.0	63	1,574.98

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FlexTable: Junction Table

Active Scenario: Peak Hour Demand

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
J-42	1,422.00	0.0	63	1,566.84
J-45	1,423.09	0.0	63	1,569.83
J-46	1,426.00	0.0	63	1,571.84
J-47	1,426.59	0.0	63	1,572.47

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FlexTable: Pipe Table

Active Scenario: Peak Hour Demand

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
EX P-5	EX FH-TEST-Zone 3	EX FH-FLOW B-Zone 3	1,194	12.0	Asbestos Cement	140.0	227.4	0.65
EX P-10	EX FH-FLOW A-Zone 3	EX FH-TEST-Zone 3	311	12.0	Asbestos Cement	140.0	-1,513.9	4.29
EX P-15	EX J-30	EX FH-FLOW A-Zone 3	377	12.0	Asbestos Cement	140.0	-1,513.9	4.29
EX P-20	EX J-65	EX J-30	1,094	12.0	Asbestos Cement	140.0	-734.9	2.08
EX P-25	EX PRV-1	EX FH-5	335	8.0	Asbestos Cement	140.0	734.9	4.69
EX P-27	EX J-65	EX PRV-1	423	8.0	Asbestos Cement	140.0	734.9	4.69
EX P-30	EX FH-FLOW A-Zone 2	EX FH-5	297	8.0	Asbestos Cement	140.0	-734.9	4.69
EX P-35	EX J-20	EX FH-FLOW A-Zone 2	274	8.0	Asbestos Cement	140.0	-734.9	4.69
EX P-40	EX FH-3	EX J-20	44	8.0	Ductile Iron	130.0	-776.6	4.96
EX P-45	EX FH-2	EX FH-3	238	8.0	Ductile Iron	130.0	-776.6	4.96
EX P-50	EX J-15	EX FH-2	27	8.0	Ductile Iron	130.0	-776.6	4.96
EX P-53	EX J-41	EX J-15	891	8.0	Ductile Iron	130.0	115.3	0.74
EX P-55	EX J-10	EX J-41	123	8.0	Ductile Iron	130.0	359.3	2.29
EX P-60	EX FH-TEST-Zone 2	EX J-10	1,268	8.0	Asbestos Cement	140.0	359.3	2.29
EX P-62	EX J-7	EX FH-TEST-Zone 2	20	8.0	Asbestos Cement	140.0	359.3	2.29
EX P-64	EX J-5	EX J-7	981	8.0	Ductile Iron	130.0	401.0	2.56
EX P-65	EX FH-1	EX J-5	77	8.0	Asbestos Cement	140.0	227.4	1.45
EX P-67	EX J-7	EX J-245	31	8.0	Asbestos Cement	140.0	41.7	0.27
EX P-69	EX J-245	EX FH-FLOW B-Zone 2	449	8.0	Asbestos Cement	140.0	0.0	0.00
EX P-200	EX J-20	EX J-205	1,322	8.0	Asbestos Cement	140.0	-41.7	0.27
EX P-210	EX J-205	EX J-215	1,300	8.0	Asbestos Cement	140.0	-41.7	0.27
EX P-220	EX J-215	EX J-225	47	12.0	Asbestos Cement	140.0	-41.7	0.12
EX P-230	EX J-225	EX J-235	1,341	12.0	Asbestos Cement	140.0	-41.7	0.12
EX P-240	EX J-235	EX J-245	1,349	8.0	Asbestos Cement	140.0	-41.7	0.27
EX P-250	EX FH-1	EX J-255	179	8.0	Asbestos Cement	140.0	-227.4	1.45
EX P-260	EX J-255	EX J-265	2,637	8.0	Ductile Iron	130.0	-227.4	1.45
EX P-270	EX PRV-2	EX J-265	872	12.0	Asbestos Cement	140.0	227.4	0.65
EX P-280	EX FH-FLOW B-Zone 3	EX PRV-2	2,664	12.0	Asbestos Cement	140.0	227.4	0.65
P-5	EX J-15	J-3	84	8.0	Ductile Iron	130.0	-584.0	3.73
P-10	J-3	FH-1	168	8.0	Ductile Iron	130.0	-284.5	1.82

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FlexTable: Pipe Table

Active Scenario: Peak Hour Demand

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-15	FH-1	FH-2	263	8.0	Ductile Iron	130.0	-284.5	1.82
P-20	FH-2	FH-3	346	8.0	Ductile Iron	130.0	-284.5	1.82
P-25	FH-3	FH-9	315	8.0	Ductile Iron	130.0	-284.5	1.82
P-27	FH-9	FH-4	96	8.0	Ductile Iron	130.0	-284.5	1.82
P-30	FH-4	J-45	340	8.0	Ductile Iron	130.0	-284.5	1.82
P-32	J-45	J-8	120	8.0	Ductile Iron	130.0	299.5	1.91
P-35	J-8	FH-5	29	8.0	Ductile Iron	130.0	299.5	1.91
P-40	FH-5	FH-6	240	8.0	Ductile Iron	130.0	299.5	1.91
P-45	FH-6	FH-7	342	8.0	Ductile Iron	130.0	299.5	1.91
P-55	FH-10	FH-7	436	8.0	Ductile Iron	130.0	-299.5	1.91
P-57	J-45	J-46	299	8.0	Ductile Iron	130.0	-584.0	3.73
P-58	J-46	J-47	93	8.0	Ductile Iron	130.0	-584.0	3.73
P-59	J-47	FH-12	52	8.0	Ductile Iron	130.0	-584.0	3.73
P-62	EX J-30	PRV-16	102	8.0	Ductile Iron	130.0	779.0	4.97
P-63	PRV-16	J-35	222	8.0	Ductile Iron	130.0	779.0	4.97
P-65	FH-10	J-3	221	8.0	Ductile Iron	130.0	299.5	1.91
P-80	FH-12	FH-13	297	8.0	Ductile Iron	130.0	-584.0	3.73
P-85	FH-13	J-35	23	8.0	Ductile Iron	130.0	-584.0	3.73
P-90	J-35	FH-14	182	8.0	Ductile Iron	130.0	195.0	1.24
P-95	FH-14	FH-15	304	8.0	Ductile Iron	130.0	195.0	1.24
P-100	FH-15	FH-16	254	8.0	Ductile Iron	130.0	195.0	1.24
P-105	FH-16	FH-17	362	8.0	Ductile Iron	130.0	195.0	1.24
P-110	FH-17	FH-18	393	8.0	Ductile Iron	130.0	195.0	1.24
P-115	FH-18	EX J-5	120	8.0	Ductile Iron	130.0	195.0	1.24
P-120	EX J-41	FH-19	124	8.0	Ductile Iron	130.0	0.0	0.00
P-130	FH-19	FH-20	213	8.0	Ductile Iron	130.0	0.0	0.00
P-140	FH-20	J-42	382	8.0	Ductile Iron	130.0	0.0	0.00
P-PMP-Zone 3	PMP-Zone 3	EX FH-TEST-Zone 3	1	48.0	Ductile Iron	130.0	1,741.3	0.31
P-R-Zone 3	R-Zone 3	PMP-Zone 3	1	48.0	Ductile Iron	130.0	1,741.3	0.31

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FlexTable: Junction Table

Active Scenario: Max Day + Fire Flow (Office FH-4)

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1	1,426.18	0.0	58	1,560.48
EX FH-2	1,416.00	0.0	51	1,533.20
EX FH-3	1,418.25	0.0	54	1,542.98
EX FH-5	1,420.00	0.0	61	1,561.25
EX FH-FLOW A-Zone 2	1,418.00	0.0	58	1,552.68
EX FH-FLOW A-Zone 3	1,432.00	0.0	71	1,595.22
EX FH-FLOW B-Zone 2	1,420.82	0.0	55	1,547.36
EX FH-FLOW B-Zone 3	1,437.00	0.0	71	1,600.80
EX FH-TEST-Zone 2	1,416.49	0.0	57	1,547.23
EX FH-TEST-Zone 3	1,434.00	0.0	73	1,601.62
EX J-5	1,425.67	12.2	58	1,560.09
EX J-7	1,416.00	0.0	57	1,547.38
EX J-10	1,417.00	0.0	52	1,537.93
EX J-15	1,416.00	843.4	50	1,532.08
EX J-20	1,418.00	0.0	55	1,544.78
EX J-30	1,430.55	0.0	68	1,587.47
EX J-41	1,417.00	139.4	52	1,536.90
EX J-65	1,425.89	0.0	68	1,583.10
EX J-205	1,409.00	0.0	59	1,545.60
EX J-215	1,409.00	0.0	59	1,546.40
EX J-225	1,409.00	0.0	59	1,546.41
EX J-235	1,409.00	0.0	59	1,546.52
EX J-245	1,416.00	0.0	57	1,547.36
EX J-255	1,428.00	0.0	58	1,561.37
EX J-265	1,432.00	0.0	62	1,576.44
FH-1	1,417.74	0.0	47	1,526.78
FH-2	1,420.79	0.0	44	1,522.00
FH-3	1,419.33	0.0	42	1,515.71
FH-4	1,422.56	2,875.0	37	1,508.24
FH-5	1,422.90	0.0	46	1,528.37
FH-6	1,421.53	0.0	46	1,528.65
FH-7	1,419.13	0.0	48	1,529.06
FH-9	1,422.12	0.0	38	1,509.98
FH-10	1,416.88	0.0	49	1,529.57
FH-12	1,427.09	0.0	53	1,548.67
FH-13	1,428.34	0.0	58	1,562.37
FH-14	1,428.77	0.0	58	1,563.07
FH-15	1,427.51	0.0	58	1,562.43
FH-16	1,428.92	0.0	58	1,561.91
FH-17	1,429.43	0.0	57	1,561.15
FH-18	1,426.57	0.0	58	1,560.34
FH-19	1,417.86	0.0	52	1,536.90
FH-20	1,419.34	0.0	51	1,536.90
J-3	1,416.56	0.0	49	1,529.83
J-8	1,423.28	0.0	45	1,528.33
J-35	1,428.39	0.0	58	1,563.44

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FlexTable: Junction Table

Active Scenario: Max Day + Fire Flow (Office FH-4)

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
J-42	1,422.00	0.0	50	1,536.90
J-45	1,423.09	0.0	45	1,528.19
J-46	1,426.00	0.0	50	1,541.97
J-47	1,426.59	0.0	52	1,546.28

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FlexTable: Pipe Table

Active Scenario: Max Day + Fire Flow (Office FH-4)

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
EX P-5	EX FH-TEST-Zone 3	EX FH-FLOW B-Zone 3	1,194	12.0	Asbestos Cement	140.0	533.8	1.51
EX P-10	EX FH-FLOW A-Zone 3	EX FH-TEST-Zone 3	311	12.0	Asbestos Cement	140.0	-3,335.4	9.46
EX P-15	EX J-30	EX FH-FLOW A-Zone 3	377	12.0	Asbestos Cement	140.0	-3,335.4	9.46
EX P-20	EX J-65	EX J-30	1,094	12.0	Asbestos Cement	140.0	-1,377.6	3.91
EX P-25	EX PRV-1	EX FH-5	335	8.0	Asbestos Cement	140.0	1,377.6	8.79
EX P-27	EX J-65	EX PRV-1	423	8.0	Asbestos Cement	140.0	1,377.6	8.79
EX P-30	EX FH-FLOW A-Zone 2	EX FH-5	297	8.0	Asbestos Cement	140.0	-1,377.6	8.79
EX P-35	EX J-20	EX FH-FLOW A-Zone 2	274	8.0	Asbestos Cement	140.0	-1,377.6	8.79
EX P-40	EX FH-3	EX J-20	44	8.0	Ductile Iron	130.0	-1,550.7	9.90
EX P-45	EX FH-2	EX FH-3	238	8.0	Ductile Iron	130.0	-1,550.7	9.90
EX P-50	EX J-15	EX FH-2	27	8.0	Ductile Iron	130.0	-1,550.7	9.90
EX P-53	EX J-41	EX J-15	891	8.0	Ductile Iron	130.0	518.4	3.31
EX P-55	EX J-10	EX J-41	123	8.0	Ductile Iron	130.0	657.8	4.20
EX P-60	EX FH-TEST-Zone 2	EX J-10	1,268	8.0	Asbestos Cement	140.0	657.8	4.20
EX P-62	EX J-7	EX FH-TEST-Zone 2	20	8.0	Asbestos Cement	140.0	657.8	4.20
EX P-64	EX J-5	EX J-7	981	8.0	Ductile Iron	130.0	830.9	5.30
EX P-65	EX FH-1	EX J-5	77	8.0	Asbestos Cement	140.0	534.0	3.41
EX P-67	EX J-7	EX J-245	31	8.0	Asbestos Cement	140.0	173.1	1.10
EX P-69	EX J-245	EX FH-FLOW B-Zone 2	449	8.0	Asbestos Cement	140.0	0.0	0.00
EX P-200	EX J-20	EX J-205	1,322	8.0	Asbestos Cement	140.0	-173.1	1.10
EX P-210	EX J-205	EX J-215	1,300	8.0	Asbestos Cement	140.0	-173.1	1.10
EX P-220	EX J-215	EX J-225	47	12.0	Asbestos Cement	140.0	-173.1	0.49
EX P-230	EX J-225	EX J-235	1,341	12.0	Asbestos Cement	140.0	-173.1	0.49
EX P-240	EX J-235	EX J-245	1,349	8.0	Asbestos Cement	140.0	-173.1	1.10
EX P-250	EX FH-1	EX J-255	179	8.0	Asbestos Cement	140.0	-534.0	3.41
EX P-260	EX J-255	EX J-265	2,637	8.0	Ductile Iron	130.0	-534.0	3.41
EX P-270	EX PRV-2	EX J-265	872	12.0	Asbestos Cement	140.0	534.0	1.51
EX P-280	EX FH-FLOW B-Zone 3	EX PRV-2	2,664	12.0	Asbestos Cement	140.0	533.8	1.51
P-5	EX J-15	J-3	84	8.0	Ductile Iron	130.0	1,225.7	7.82
P-10	J-3	FH-1	168	8.0	Ductile Iron	130.0	997.7	6.37

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FlexTable: Pipe Table

Active Scenario: Max Day + Fire Flow (Office FH-4)

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-15	FH-1	FH-2	263	8.0	Ductile Iron	130.0	997.7	6.37
P-20	FH-2	FH-3	346	8.0	Ductile Iron	130.0	997.7	6.37
P-25	FH-3	FH-9	315	8.0	Ductile Iron	130.0	997.7	6.37
P-27	FH-9	FH-4	96	8.0	Ductile Iron	130.0	997.7	6.37
P-30	FH-4	J-45	340	8.0	Ductile Iron	130.0	-1,877.3	11.98
P-32	J-45	J-8	120	8.0	Ductile Iron	130.0	-228.0	1.46
P-35	J-8	FH-5	29	8.0	Ductile Iron	130.0	-228.0	1.46
P-40	FH-5	FH-6	240	8.0	Ductile Iron	130.0	-228.0	1.46
P-45	FH-6	FH-7	342	8.0	Ductile Iron	130.0	-228.0	1.46
P-55	FH-10	FH-7	436	8.0	Ductile Iron	130.0	228.0	1.46
P-57	J-45	J-46	299	8.0	Ductile Iron	130.0	-1,649.3	10.53
P-58	J-46	J-47	93	8.0	Ductile Iron	130.0	-1,649.3	10.53
P-59	J-47	FH-12	52	8.0	Ductile Iron	130.0	-1,649.3	10.53
P-62	EX J-30	PRV-16	102	8.0	Ductile Iron	130.0	1,957.8	12.50
P-63	PRV-16	J-35	222	8.0	Ductile Iron	130.0	1,958.4	12.50
P-65	FH-10	J-3	221	8.0	Ductile Iron	130.0	-228.0	1.46
P-80	FH-12	FH-13	297	8.0	Ductile Iron	130.0	-1,649.3	10.53
P-85	FH-13	J-35	23	8.0	Ductile Iron	130.0	-1,649.3	10.53
P-90	J-35	FH-14	182	8.0	Ductile Iron	130.0	309.1	1.97
P-95	FH-14	FH-15	304	8.0	Ductile Iron	130.0	309.1	1.97
P-100	FH-15	FH-16	254	8.0	Ductile Iron	130.0	309.1	1.97
P-105	FH-16	FH-17	362	8.0	Ductile Iron	130.0	309.1	1.97
P-110	FH-17	FH-18	393	8.0	Ductile Iron	130.0	309.1	1.97
P-115	FH-18	EX J-5	120	8.0	Ductile Iron	130.0	309.1	1.97
P-120	EX J-41	FH-19	124	8.0	Ductile Iron	130.0	0.0	0.00
P-130	FH-19	FH-20	213	8.0	Ductile Iron	130.0	0.0	0.00
P-140	FH-20	J-42	382	8.0	Ductile Iron	130.0	0.0	0.00
P-PMP-Zone 3	PMP-Zone 3	EX FH-TEST-Zone 3	1	48.0	Ductile Iron	130.0	3,869.2	0.69
P-R-Zone 3	R-Zone 3	PMP-Zone 3	1	48.0	Ductile Iron	130.0	3,869.2	0.69

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FlexTable: Junction Table

Active Scenario: Max Day + Fire Flow (Industrial FH-18)

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1	1,426.18	0.0	57	1,557.84
EX FH-2	1,416.00	0.0	64	1,564.37
EX FH-3	1,418.25	0.0	64	1,566.24
EX FH-5	1,420.00	0.0	67	1,573.93
EX FH-FLOW A-Zone 2	1,418.00	0.0	66	1,570.11
EX FH-FLOW A-Zone 3	1,432.00	0.0	82	1,622.13
EX FH-FLOW B-Zone 2	1,420.82	0.0	61	1,561.28
EX FH-FLOW B-Zone 3	1,437.00	0.0	81	1,624.05
EX FH-TEST-Zone 2	1,416.49	0.0	63	1,561.25
EX FH-TEST-Zone 3	1,434.00	0.0	83	1,625.01
EX J-5	1,425.67	12.2	57	1,557.39
EX J-7	1,416.00	0.0	63	1,561.24
EX J-10	1,417.00	0.0	63	1,562.10
EX J-15	1,416.00	843.4	64	1,564.16
EX J-20	1,418.00	0.0	64	1,566.59
EX J-30	1,430.55	0.0	81	1,618.65
EX J-41	1,417.00	139.4	63	1,562.19
EX J-65	1,425.89	0.0	83	1,616.70
EX J-205	1,409.00	0.0	67	1,564.90
EX J-215	1,409.00	0.0	67	1,563.24
EX J-225	1,409.00	0.0	67	1,563.24
EX J-235	1,409.00	0.0	67	1,563.00
EX J-245	1,416.00	0.0	63	1,561.28
EX J-255	1,428.00	0.0	57	1,558.87
EX J-265	1,432.00	0.0	62	1,576.34
FH-1	1,417.74	0.0	64	1,564.88
FH-2	1,420.79	0.0	63	1,565.26
FH-3	1,419.33	0.0	63	1,565.78
FH-4	1,422.56	0.0	62	1,566.38
FH-5	1,422.90	0.0	62	1,566.64
FH-6	1,421.53	0.0	63	1,566.25
FH-7	1,419.13	0.0	63	1,565.70
FH-9	1,422.12	0.0	62	1,566.24
FH-10	1,416.88	0.0	64	1,564.99
FH-12	1,427.09	0.0	62	1,569.37
FH-13	1,428.34	0.0	62	1,571.03
FH-14	1,428.77	0.0	61	1,569.22
FH-15	1,427.51	0.0	60	1,565.97
FH-16	1,428.92	0.0	58	1,563.26
FH-17	1,429.43	0.0	56	1,559.40
FH-18	1,426.57	1,750.0	56	1,555.20
FH-19	1,417.86	0.0	62	1,562.19
FH-20	1,419.34	0.0	62	1,562.19
J-3	1,416.56	0.0	64	1,564.63
J-8	1,423.28	0.0	62	1,566.69
J-35	1,428.39	0.0	62	1,571.16

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FlexTable: Junction Table

Active Scenario: Max Day + Fire Flow (Industrial FH-18)

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
J-42	1,422.00	0.0	61	1,562.19
J-45	1,423.09	0.0	62	1,566.88
J-46	1,426.00	0.0	62	1,568.56
J-47	1,426.59	0.0	62	1,569.08

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FlexTable: Pipe Table

Active Scenario: Max Day + Fire Flow (Industrial FH-18)

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
EX P-5	EX FH-TEST-Zone 3	EX FH-FLOW B-Zone 3	1,194	12.0	Asbestos Cement	140.0	578.3	1.64
EX P-10	EX FH-FLOW A-Zone 3	EX FH-TEST-Zone 3	311	12.0	Asbestos Cement	140.0	-2,166.7	6.15
EX P-15	EX J-30	EX FH-FLOW A-Zone 3	377	12.0	Asbestos Cement	140.0	-2,166.7	6.15
EX P-20	EX J-65	EX J-30	1,094	12.0	Asbestos Cement	140.0	-890.5	2.53
EX P-25	EX PRV-1	EX FH-5	335	8.0	Asbestos Cement	140.0	890.5	5.68
EX P-27	EX J-65	EX PRV-1	423	8.0	Asbestos Cement	140.0	890.5	5.68
EX P-30	EX FH-FLOW A-Zone 2	EX FH-5	297	8.0	Asbestos Cement	140.0	-890.5	5.68
EX P-35	EX J-20	EX FH-FLOW A-Zone 2	274	8.0	Asbestos Cement	140.0	-890.5	5.68
EX P-40	EX FH-3	EX J-20	44	8.0	Ductile Iron	130.0	-634.8	4.05
EX P-45	EX FH-2	EX FH-3	238	8.0	Ductile Iron	130.0	-634.8	4.05
EX P-50	EX J-15	EX FH-2	27	8.0	Ductile Iron	130.0	-634.8	4.05
EX P-53	EX J-41	EX J-15	891	8.0	Ductile Iron	130.0	-319.4	2.04
EX P-55	EX J-10	EX J-41	123	8.0	Ductile Iron	130.0	-180.0	1.15
EX P-60	EX FH-TEST-Zone 2	EX J-10	1,268	8.0	Asbestos Cement	140.0	-180.0	1.15
EX P-62	EX J-7	EX FH-TEST-Zone 2	20	8.0	Asbestos Cement	140.0	-180.0	1.15
EX P-64	EX J-5	EX J-7	981	8.0	Ductile Iron	130.0	-435.7	2.78
EX P-65	EX FH-1	EX J-5	77	8.0	Asbestos Cement	140.0	578.3	3.69
EX P-67	EX J-7	EX J-245	31	8.0	Asbestos Cement	140.0	-255.7	1.63
EX P-69	EX J-245	EX FH-FLOW B-Zone 2	449	8.0	Asbestos Cement	140.0	0.0	0.00
EX P-200	EX J-20	EX J-205	1,322	8.0	Asbestos Cement	140.0	255.7	1.63
EX P-210	EX J-205	EX J-215	1,300	8.0	Asbestos Cement	140.0	255.7	1.63
EX P-220	EX J-215	EX J-225	47	12.0	Asbestos Cement	140.0	255.7	0.73
EX P-230	EX J-225	EX J-235	1,341	12.0	Asbestos Cement	140.0	255.7	0.73
EX P-240	EX J-235	EX J-245	1,349	8.0	Asbestos Cement	140.0	255.7	1.63
EX P-250	EX FH-1	EX J-255	179	8.0	Asbestos Cement	140.0	-578.3	3.69
EX P-260	EX J-255	EX J-265	2,637	8.0	Ductile Iron	130.0	-578.3	3.69
EX P-270	EX PRV-2	EX J-265	872	12.0	Asbestos Cement	140.0	578.3	1.64
EX P-280	EX FH-FLOW B-Zone 3	EX PRV-2	2,664	12.0	Asbestos Cement	140.0	578.3	1.64
P-5	EX J-15	J-3	84	8.0	Ductile Iron	130.0	-528.0	3.37
P-10	J-3	FH-1	168	8.0	Ductile Iron	130.0	-257.2	1.64

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FlexTable: Pipe Table

Active Scenario: Max Day + Fire Flow (Industrial FH-18)

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-15	FH-1	FH-2	263	8.0	Ductile Iron	130.0	-257.2	1.64
P-20	FH-2	FH-3	346	8.0	Ductile Iron	130.0	-257.2	1.64
P-25	FH-3	FH-9	315	8.0	Ductile Iron	130.0	-257.2	1.64
P-27	FH-9	FH-4	96	8.0	Ductile Iron	130.0	-257.2	1.64
P-30	FH-4	J-45	340	8.0	Ductile Iron	130.0	-257.2	1.64
P-32	J-45	J-8	120	8.0	Ductile Iron	130.0	270.8	1.73
P-35	J-8	FH-5	29	8.0	Ductile Iron	130.0	270.8	1.73
P-40	FH-5	FH-6	240	8.0	Ductile Iron	130.0	270.8	1.73
P-45	FH-6	FH-7	342	8.0	Ductile Iron	130.0	270.8	1.73
P-55	FH-10	FH-7	436	8.0	Ductile Iron	130.0	-270.8	1.73
P-57	J-45	J-46	299	8.0	Ductile Iron	130.0	-528.0	3.37
P-58	J-46	J-47	93	8.0	Ductile Iron	130.0	-528.0	3.37
P-59	J-47	FH-12	52	8.0	Ductile Iron	130.0	-528.0	3.37
P-62	EX J-30	PRV-16	102	8.0	Ductile Iron	130.0	1,276.2	8.15
P-63	PRV-16	J-35	222	8.0	Ductile Iron	130.0	1,276.2	8.15
P-65	FH-10	J-3	221	8.0	Ductile Iron	130.0	270.8	1.73
P-80	FH-12	FH-13	297	8.0	Ductile Iron	130.0	-528.0	3.37
P-85	FH-13	J-35	23	8.0	Ductile Iron	130.0	-528.0	3.37
P-90	J-35	FH-14	182	8.0	Ductile Iron	130.0	748.2	4.78
P-95	FH-14	FH-15	304	8.0	Ductile Iron	130.0	748.2	4.78
P-100	FH-15	FH-16	254	8.0	Ductile Iron	130.0	748.2	4.78
P-105	FH-16	FH-17	362	8.0	Ductile Iron	130.0	748.2	4.78
P-110	FH-17	FH-18	393	8.0	Ductile Iron	130.0	748.2	4.78
P-115	FH-18	EX J-5	120	8.0	Ductile Iron	130.0	-1,001.8	6.39
P-120	EX J-41	FH-19	124	8.0	Ductile Iron	130.0	0.0	0.00
P-130	FH-19	FH-20	213	8.0	Ductile Iron	130.0	0.0	0.00
P-140	FH-20	J-42	382	8.0	Ductile Iron	130.0	0.0	0.00
P-PMP-Zone 3	PMP-Zone 3	EX FH-TEST-Zone 3	1	48.0	Ductile Iron	130.0	2,745.0	0.49
P-R-Zone 3	R-Zone 3	PMP-Zone 3	1	48.0	Ductile Iron	130.0	2,745.0	0.49

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FlexTable: Junction Table

Active Scenario: Max Day + Fire Flow (Multi-Family FH-20)

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1	1,426.18	0.0	62	1,569.37
EX FH-2	1,416.00	0.0	62	1,558.45
EX FH-3	1,418.25	0.0	62	1,562.03
EX FH-5	1,420.00	0.0	66	1,572.49
EX FH-FLOW A-Zone 2	1,418.00	0.0	65	1,567.40
EX FH-FLOW A-Zone 3	1,432.00	0.0	84	1,626.46
EX FH-FLOW B-Zone 2	1,420.82	0.0	61	1,560.99
EX FH-FLOW B-Zone 3	1,437.00	0.0	83	1,628.90
EX FH-TEST-Zone 2	1,416.49	0.0	62	1,560.78
EX FH-TEST-Zone 3	1,434.00	0.0	84	1,629.28
EX J-5	1,425.67	12.2	62	1,569.19
EX J-7	1,416.00	0.0	63	1,560.98
EX J-10	1,417.00	0.0	57	1,547.59
EX J-15	1,416.00	843.4	61	1,558.04
EX J-20	1,418.00	0.0	63	1,562.70
EX J-30	1,430.55	0.0	83	1,623.05
EX J-41	1,417.00	139.4	56	1,546.12
EX J-65	1,425.89	0.0	84	1,620.44
EX J-205	1,409.00	0.0	66	1,562.16
EX J-215	1,409.00	0.0	66	1,561.62
EX J-225	1,409.00	0.0	66	1,561.62
EX J-235	1,409.00	0.0	66	1,561.55
EX J-245	1,416.00	0.0	63	1,560.99
EX J-255	1,428.00	0.0	61	1,569.78
EX J-265	1,432.00	0.0	63	1,576.76
FH-1	1,417.74	0.0	61	1,559.54
FH-2	1,420.79	0.0	60	1,560.35
FH-3	1,419.33	0.0	61	1,561.42
FH-4	1,422.56	0.0	61	1,562.69
FH-5	1,422.90	0.0	61	1,563.23
FH-6	1,421.53	0.0	61	1,562.42
FH-7	1,419.13	0.0	61	1,561.25
FH-9	1,422.12	0.0	61	1,562.39
FH-10	1,416.88	0.0	62	1,559.77
FH-12	1,427.09	0.0	61	1,568.93
FH-13	1,428.34	0.0	62	1,572.41
FH-14	1,428.77	0.0	62	1,572.29
FH-15	1,427.51	0.0	62	1,571.63
FH-16	1,428.92	0.0	62	1,571.08
FH-17	1,429.43	0.0	61	1,570.30
FH-18	1,426.57	0.0	62	1,569.45
FH-19	1,417.86	0.0	53	1,541.33
FH-20	1,419.34	1,500.0	49	1,533.07
J-3	1,416.56	0.0	62	1,559.02
J-8	1,423.28	0.0	61	1,563.33
J-35	1,428.39	0.0	62	1,572.68

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FlexTable: Junction Table

Active Scenario: Max Day + Fire Flow (Multi-Family FH-20)

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
J-42	1,422.00	0.0	48	1,533.07
J-45	1,423.09	0.0	61	1,563.74
J-46	1,426.00	0.0	61	1,567.23
J-47	1,426.59	0.0	61	1,568.32

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FlexTable: Pipe Table

Active Scenario: Max Day + Fire Flow (Multi-Family FH-20)

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
EX P-5	EX FH-TEST-Zone 3	EX FH-FLOW B-Zone 3	1,194	12.0	Asbestos Cement	140.0	352.4	1.00
EX P-10	EX FH-FLOW A-Zone 3	EX FH-TEST-Zone 3	311	12.0	Asbestos Cement	140.0	-2,142.6	6.08
EX P-15	EX J-30	EX FH-FLOW A-Zone 3	377	12.0	Asbestos Cement	140.0	-2,142.6	6.08
EX P-20	EX J-65	EX J-30	1,094	12.0	Asbestos Cement	140.0	-1,040.5	2.95
EX P-25	EX PRV-1	EX FH-5	335	8.0	Asbestos Cement	140.0	1,040.5	6.64
EX P-27	EX J-65	EX PRV-1	423	8.0	Asbestos Cement	140.0	1,040.5	6.64
EX P-30	EX FH-FLOW A-Zone 2	EX FH-5	297	8.0	Asbestos Cement	140.0	-1,040.5	6.64
EX P-35	EX J-20	EX FH-FLOW A-Zone 2	274	8.0	Asbestos Cement	140.0	-1,040.5	6.64
EX P-40	EX FH-3	EX J-20	44	8.0	Ductile Iron	130.0	-902.2	5.76
EX P-45	EX FH-2	EX FH-3	238	8.0	Ductile Iron	130.0	-902.2	5.76
EX P-50	EX J-15	EX FH-2	27	8.0	Ductile Iron	130.0	-902.2	5.76
EX P-53	EX J-41	EX J-15	891	8.0	Ductile Iron	130.0	-845.0	5.39
EX P-55	EX J-10	EX J-41	123	8.0	Ductile Iron	130.0	794.4	5.07
EX P-60	EX FH-TEST-Zone 2	EX J-10	1,268	8.0	Asbestos Cement	140.0	794.4	5.07
EX P-62	EX J-7	EX FH-TEST-Zone 2	20	8.0	Asbestos Cement	140.0	794.4	5.07
EX P-64	EX J-5	EX J-7	981	8.0	Ductile Iron	130.0	656.0	4.19
EX P-65	EX FH-1	EX J-5	77	8.0	Asbestos Cement	140.0	352.4	2.25
EX P-67	EX J-7	EX J-245	31	8.0	Asbestos Cement	140.0	-138.4	0.88
EX P-69	EX J-245	EX FH-FLOW B-Zone 2	449	8.0	Asbestos Cement	140.0	0.0	0.00
EX P-200	EX J-20	EX J-205	1,322	8.0	Asbestos Cement	140.0	138.4	0.88
EX P-210	EX J-205	EX J-215	1,300	8.0	Asbestos Cement	140.0	138.4	0.88
EX P-220	EX J-215	EX J-225	47	12.0	Asbestos Cement	140.0	138.4	0.39
EX P-230	EX J-225	EX J-235	1,341	12.0	Asbestos Cement	140.0	138.4	0.39
EX P-240	EX J-235	EX J-245	1,349	8.0	Asbestos Cement	140.0	138.4	0.88
EX P-250	EX FH-1	EX J-255	179	8.0	Asbestos Cement	140.0	-352.4	2.25
EX P-260	EX J-255	EX J-265	2,637	8.0	Ductile Iron	130.0	-352.4	2.25
EX P-270	EX PRV-2	EX J-265	872	12.0	Asbestos Cement	140.0	352.4	1.00
EX P-280	EX FH-FLOW B-Zone 3	EX PRV-2	2,664	12.0	Asbestos Cement	140.0	352.4	1.00
P-5	EX J-15	J-3	84	8.0	Ductile Iron	130.0	-786.2	5.02
P-10	J-3	FH-1	168	8.0	Ductile Iron	130.0	-383.0	2.44

194966 Seventh-Day Adventists

FlexTable: Pipe Table

Active Scenario: Max Day + Fire Flow (Multi-Family FH-20)

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-15	FH-1	FH-2	263	8.0	Ductile Iron	130.0	-383.0	2.44
P-20	FH-2	FH-3	346	8.0	Ductile Iron	130.0	-383.0	2.44
P-25	FH-3	FH-9	315	8.0	Ductile Iron	130.0	-383.0	2.44
P-27	FH-9	FH-4	96	8.0	Ductile Iron	130.0	-383.0	2.44
P-30	FH-4	J-45	340	8.0	Ductile Iron	130.0	-383.0	2.44
P-32	J-45	J-8	120	8.0	Ductile Iron	130.0	403.3	2.57
P-35	J-8	FH-5	29	8.0	Ductile Iron	130.0	403.3	2.57
P-40	FH-5	FH-6	240	8.0	Ductile Iron	130.0	403.3	2.57
P-45	FH-6	FH-7	342	8.0	Ductile Iron	130.0	403.3	2.57
P-55	FH-10	FH-7	436	8.0	Ductile Iron	130.0	-403.3	2.57
P-57	J-45	J-46	299	8.0	Ductile Iron	130.0	-786.2	5.02
P-58	J-46	J-47	93	8.0	Ductile Iron	130.0	-786.2	5.02
P-59	J-47	FH-12	52	8.0	Ductile Iron	130.0	-786.2	5.02
P-62	EX J-30	PRV-16	102	8.0	Ductile Iron	130.0	1,102.0	7.03
P-63	PRV-16	J-35	222	8.0	Ductile Iron	130.0	1,102.0	7.03
P-65	FH-10	J-3	221	8.0	Ductile Iron	130.0	403.3	2.57
P-80	FH-12	FH-13	297	8.0	Ductile Iron	130.0	-786.2	5.02
P-85	FH-13	J-35	23	8.0	Ductile Iron	130.0	-786.2	5.02
P-90	J-35	FH-14	182	8.0	Ductile Iron	130.0	315.8	2.02
P-95	FH-14	FH-15	304	8.0	Ductile Iron	130.0	315.8	2.02
P-100	FH-15	FH-16	254	8.0	Ductile Iron	130.0	315.8	2.02
P-105	FH-16	FH-17	362	8.0	Ductile Iron	130.0	315.8	2.02
P-110	FH-17	FH-18	393	8.0	Ductile Iron	130.0	315.8	2.02
P-115	FH-18	EX J-5	120	8.0	Ductile Iron	130.0	315.8	2.02
P-120	EX J-41	FH-19	124	8.0	Ductile Iron	130.0	1,500.0	9.57
P-130	FH-19	FH-20	213	8.0	Ductile Iron	130.0	1,500.0	9.57
P-140	FH-20	J-42	382	8.0	Ductile Iron	130.0	0.0	0.00
P-PMP-Zone 3	PMP-Zone 3	EX FH-TEST-Zone 3	1	48.0	Ductile Iron	130.0	2,495.0	0.44
P-R-Zone 3	R-Zone 3	PMP-Zone 3	1	48.0	Ductile Iron	130.0	2,495.0	0.44

FIRE FLOW TEST RESULTS

Arizona Flow Testing LLC

HYDRANT FLOW TEST REPORT

Project Name:	7th Day Adventist
Project Address:	Scottsdale Road and Sutton Drive, Scottsdale, Arizona, 85254
Client Project No.:	194966
Arizona Flow Testing Project No.:	20167
Flow Test Permit No.:	C62100
Date and time flow test conducted:	May 8, 2020 at 9:35 AM
Data is current and reliable until:	November 8, 2020
Conducted by:	F. Vaughan & L. Hirlemann-Az Flow Testing, LLC (480-250-8154)
Witnessed by:	Henry Hursky –City of Scottsdale-Inspector (602-757-2607)

Raw Test Data

Static Pressure: **70.0 PSI**
(Measured in pounds per square inch)

Residual Pressure: **52.0 PSI**
(Measured in pounds per square inch)

Pitot Pressure: **12.0 PSI Hyd A**
21.0 PSI Hyd B
(Measured in pounds per square inch)
+

Diffuser Orifice Diameter: One 4-inch Hose Monster
(Measured in inches) One 4-inch Pollard Diffuser

Coefficient of Diffuser: .7875 and 0.9

Flowing GPM: **3,272 GPM**
(Measured in gallons per minute)
1,303 GPM +1,969 GPM = 3,272 GPM

GPM @ 20 PSI: **5,682 GPM**

Data with 10% Safety Factor

Static Pressure: **63.0 PSI**
(Measured in pounds per square inch)

Residual Pressure: **45.0 PSI**
(Measured in pounds per square inch)

Distance between hydrants: See Below

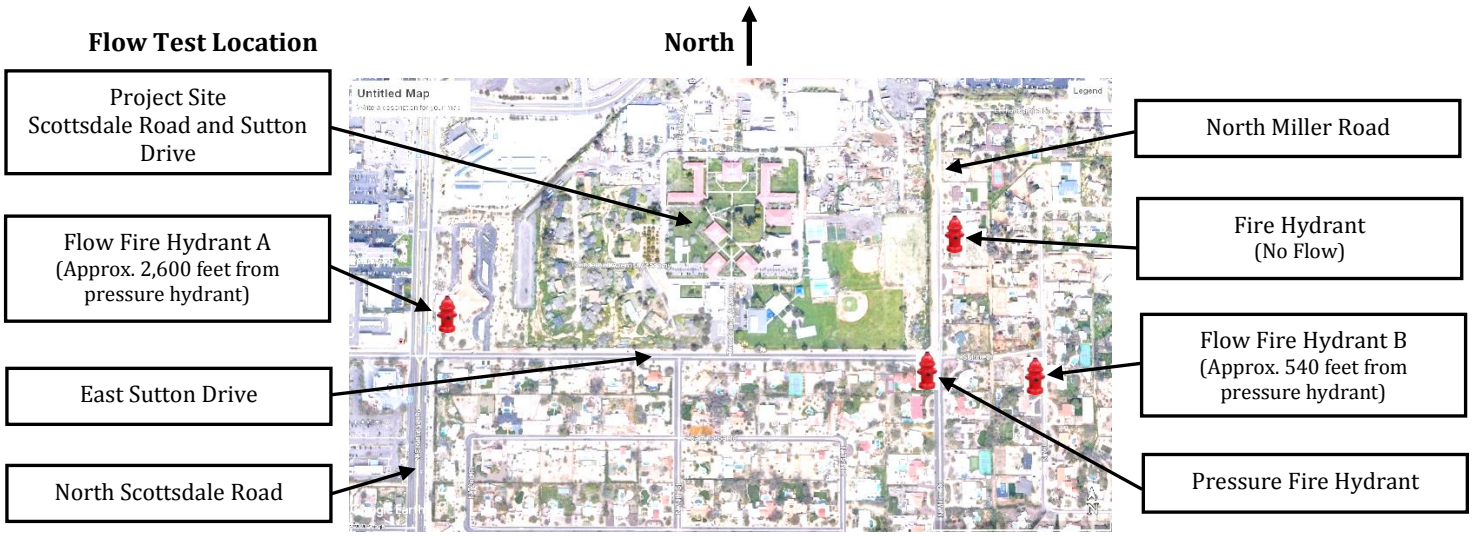
Main size: Not Provided

Flowing GPM: **3,272 GPM**

GPM @ 20 PSI**:** **5,237 GPM**

Flow Test Location

North



Arizona Flow Testing LLC

HYDRANT FLOW TEST REPORT

Project Name:	7th Day Adventist
Project Address:	Scottsdale Road & Sutton Drive, Scottsdale, Arizona, 85254
Client Project No.:	194966.02
Arizona Flow Testing Project No.:	20225
Flow Test Permit No.:	C62389
Date and time flow test conducted:	June 22, 2020 at 7:00 AM
Data is current and reliable until:	December 22, 2020
Conducted by:	F. Vaughan & S. Ballard – Az. Flow Testing, LLC (480-250-8154)
Coordinated by:	Jared Berry – City of Scottsdale-Inspector (602-541-4942)

Raw Test Data

Static Pressure: **94.0 PSI**
(Measured in pounds per square inch)

Residual Pressure: **69.0 PSI**
(Measured in pounds per square inch)

Pitot Pressure: **32.0 PSI Hyd A**
22.0 PSI Hyd B
(Measured in pounds per square inch)

Diffuser Orifice Diameter: One 4-inch Hose Monster (B)
(Measured in inches) One 4 inch Pollard Diffuser (A)

Coefficient of Diffuser: 0.7875/(B) and 0.9/(A)

Flowing GPM: **4,195 GPM**
(Measured in gallons per minute)
2,431 GPM + 1,764 GPM = 4,195 GPM

GPM @ 20 PSI: **7,537 GPM**

Data with 22 PSI Safety Factor

Static Pressure: **72.0 PSI**
(Measured in pounds per square inch)

Residual Pressure: **47.0 PSI**
(Measured in pounds per square inch)

Scottsdale requires a maximum Static Pressure of 72 PSI for AFES Design.

Distance between hydrants: See Below

Main size: Not Provided

Flowing GPM: **4,195 GPM**

GPM @ 20 PSI**:** **6,230 GPM**

Flow Test Location **North**

Pressure Fire Hydrant

East Redfield Road

Flow Fire Hydrant A
(530 Feet from Pressure Hydrant)

Flow Fire Hydrant B
(850 Feet from Pressure Hydrant)

North 76th Street

Project Site
Scottsdale Road &
Sutton Drive

CITY OF SCOTTSDALE REFERENCE DOCUMENTS

Darin Moore

From: Sacks, Richard [mailto:RSacks@ScottsdaleAz.Gov]
Sent: Monday, May 18, 2020 8:47 AM
To: Darin Moore
Cc: Kurt A. Jones
Subject: RE: Sewer Flow Monitoring along Thunderbird - water flow test

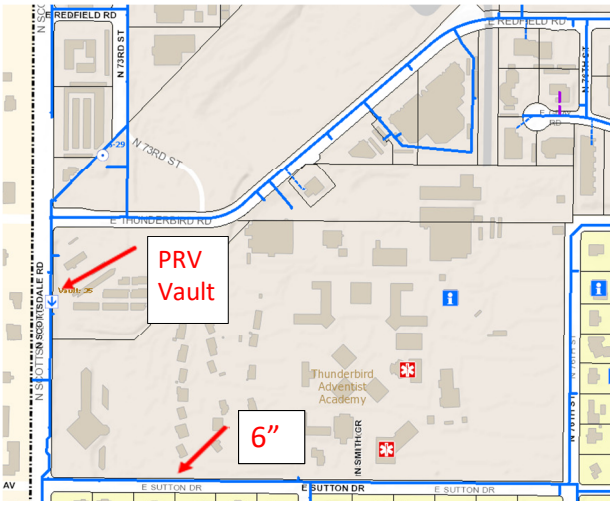
Darin

We'll set the PRV. The HGL for zone two ranges from 1263 to 1643.

The PRV south of Thunderbird on Scottsdale Rd. ranges from 90 psi to 60 psi. There is another PRV located at Sweetwater and the 101. It's range is from 90 to 70 psi.

The critical number is the required fire flow. Suggest verifying with Fire what is that flow.

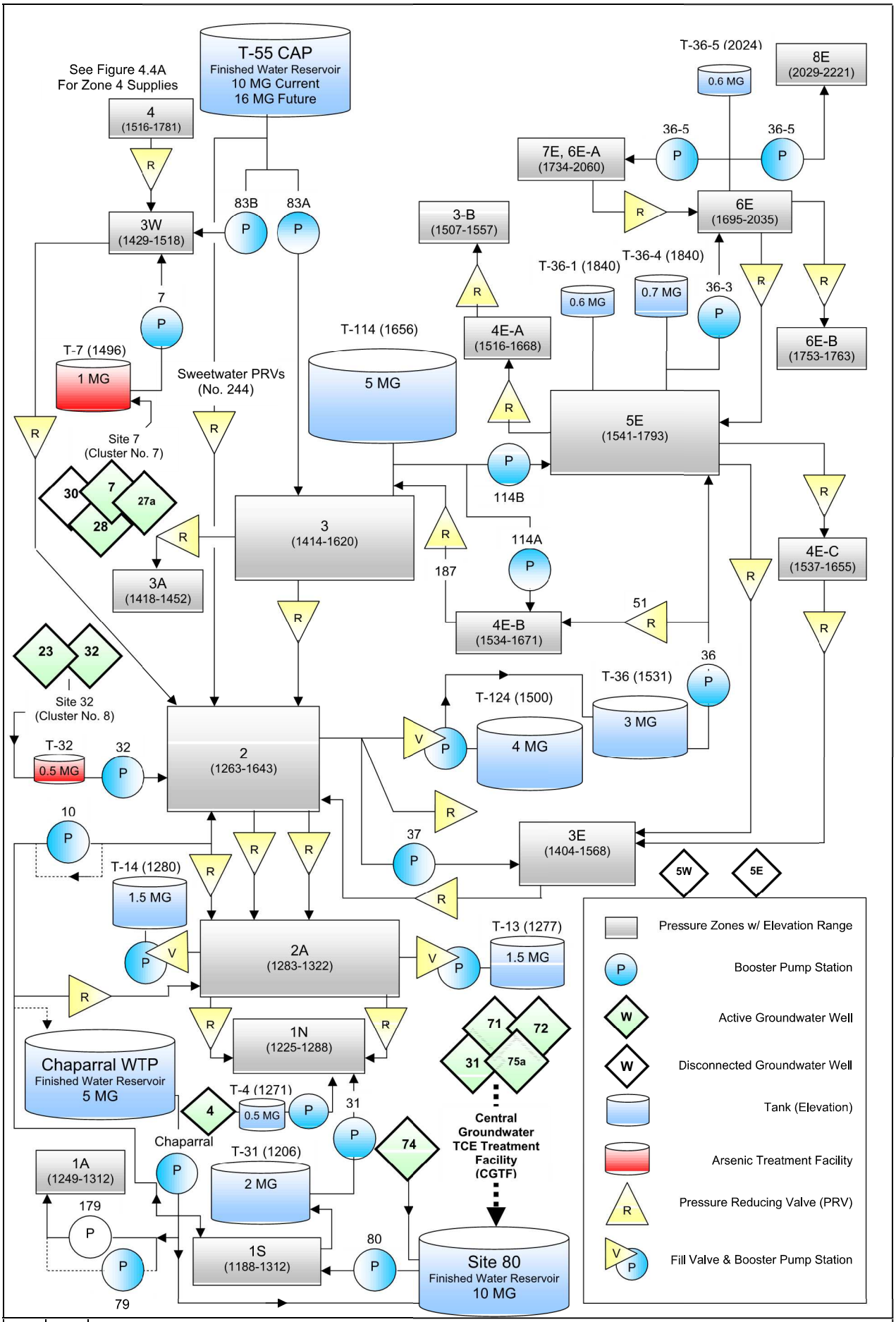
The picture below show the system layout without valves except the PRV.



Richard Sacks, P.E.
Senior Water Resources Engineer
City of Scottsdale
9379 E. San Salvador
Scottsdale, AZ 85258
480-312-5673
rsacks@scottsdaleaz.gov

Sending me an attachment over 5MB? Please use the link below:
https://securemail.scottsdaleaz.gov/filedrop/rsacks@scottsdaleaz.gov

SCOTTSDALE WATER
"Water Sustainability through Stewardship, Innovation and People"



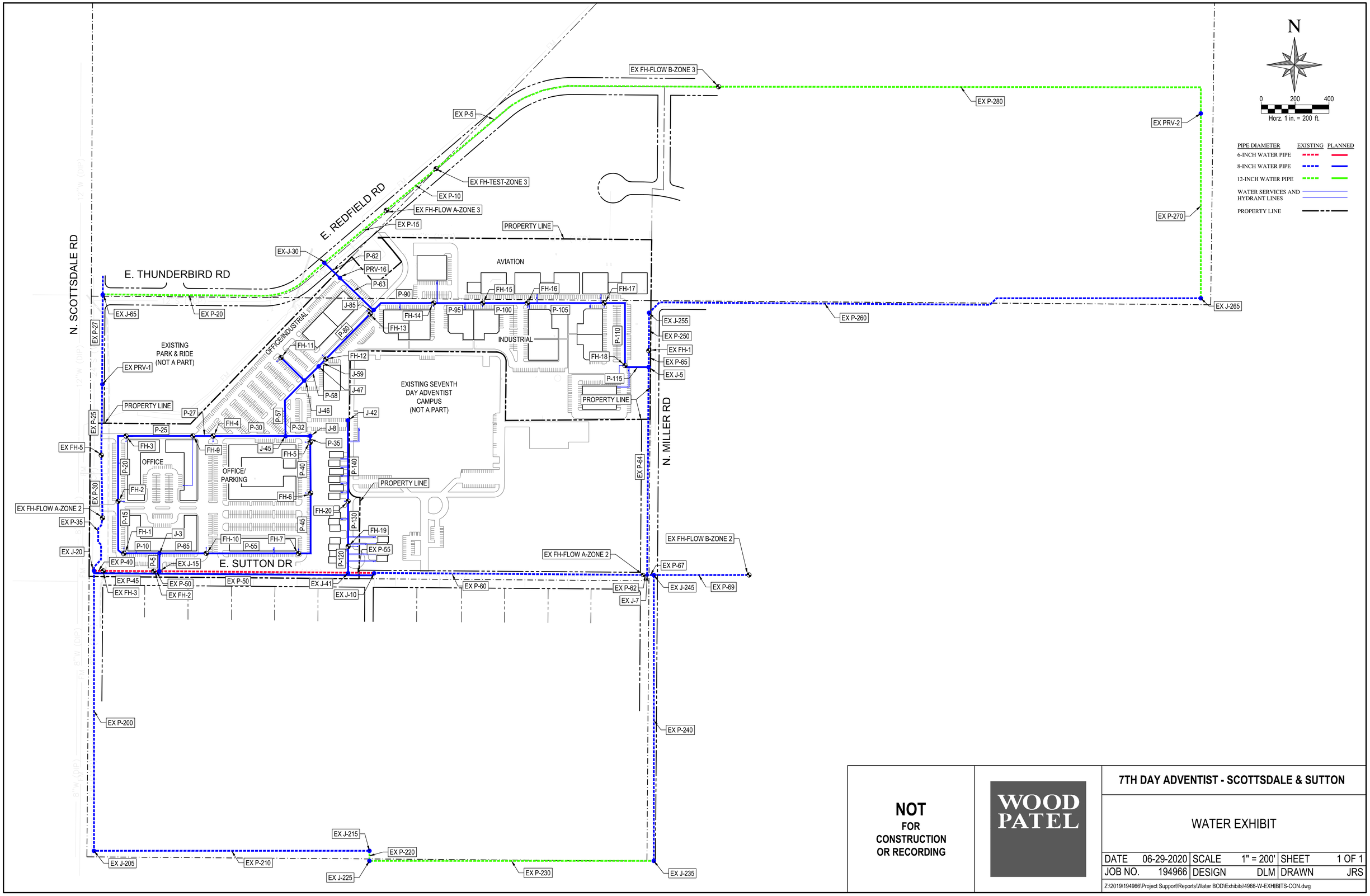
Page 4-29 | Figure 4.4B

PRESSURE ZONE SCHEMATIC OF SOUTHERN SERVICE ZONES

2008 Scottsdale Integrated Water Master Plan

pw:/Client/AZ/Scottsdale/7265A00/Deliverables/Integrated Water Master Plan/Fig 4_4AB_doc.doc

WATER EXHIBIT



NOT FOR CONSTRUCTION OR RECORDING

WOOD PATEL

7TH DAY ADVENTIST - SCOTTSDALE & SUTTON

WATER EXHIBIT

DATE	06-29-2020	SCALE	1" = 200'	SHEET	1 OF 1
JOB NO.	194966	DESIGN	DLM	DRAWN	JRS

Z:\2019\194966\Project Support\Reports\Water BOD\Exhibits\4966-W-EXHIBITS-CON.dwg

-There are inconsistencies in your data tables and your report content. Please revise AHB 9/10/19
- Some of your tabulated ADD values are incorrect. See DSPM FIG 7-1.2 AHB 9/10/19
-You state an incorrect d/D value in one of your tables.DSMP 7-1.404 AHB 9/10/19
-Did not appear to include all building types in your demand calculations. DSPM 7-1.403
-There are inconsistencies in your tables and your report text as to the number of connections to which pipes AHB 9/10/19
-How are you determining your INV elevations? AHB 9/10/19
- May need an interceptor for the air plane hangars. DSPM 7-1.411 AHB 9/10/19

WOOD PATEL

PRELIMINARY Basis of Design Report
❑ ACCEPTED
❑ ACCEPTED AS NOTED
✖ REVISE AND RESUBMIT

Reviewed by carollo
On behalf of the Scottsdale Water Resources Planning and Engineering Department

DISCLAIMER: If accepted, the preliminary approval is granted under the condition that a final basis of design report will also be submitted for city review and approval (Typically during the DR and PP case). The final report shall incorporate further water or sewer design and analysis requirements as defined in the city design standards and policy manual and address those items noted in the preliminary review comments)both separate and included herein). The final report shall be submitted and approved prior to the plan review submission. For questions and clarifications contact the Water Resources Planning and Engineering Department at 480-321-5685

REVIEWER: Andrew Buell
EMAIL: abuell@carollo.com
DATE 09/11/2019

WASTEWATER COLLECTION SYSTEM
BASIS OF DESIGN REPORT
FOR
7th DAY ADVENTIST – SCOTTSDALE & SUTTON

August 6, 2019
WP# 194966

No expiration date on the seal

14-ZN-2019
12/02/2019

WOOD PATEL

August 2, 2019

2051 W Northern Ave #100
Phoenix AZ 85021
P: 602.335.8500
F: 602.335.8580
www.woodpatel.com

Darrel E. Wood, PE, RLS
Ashok C. Patel, PE, RLS, CFM
Michael T. Young, PE, LEED AP
James S. Campbell, PE, LEED GA
Thomas R. Gettings, RLS
Darin L. Moore, PE, LEED GA
Jeffrey R. Minch, PE, CFM
Robert D. Gofonia, PE, RLS

City of Scottsdale
Planning and Development
7447 East Indian School Road
Scottsdale, Arizona 85257

480.312.5319

Re: **7th Day Adventist – Scottsdale & Sutton**
Wastewater Collection System Basis of Design Report
WP# 194966

To Whom It May Concern:

This Wastewater Collection System Basis of Design Report is prepared for Ryan A+E, Inc., and submitted to the City of Scottsdale. 7th Day Adventist – Scottsdale & Sutton (Site) consists of portions of two (2) adjacent parcels totaling an area of approximately 2,148,604 square-feet, or 49.3± acres, located at the northeast corner of North Scottsdale Road and Sutton Road in Scottsdale, Arizona. More specifically, the Site is located in a portion of Section 11, Township 3 North, Range 4 East and a portion of the north half of Section 14, Township 3 North, Range 4 East of the Gila and Salt River Meridian. The Site is located within Assessor Parcel Number 215-56-333A and a portion of 175-04-002A. Refer to the *Vicinity Map* at the back of this report. The Site is bounded by existing Thunderbird Road/Redfield Road to the north, East Sutton Drive on the south, North Miller Road on the east and North Scottsdale Road on the west. The project will include construction of airport hangars, industrial buildings, office buildings, residential townhomes, and single family homes. Proposed improvements include associated landscape, hardscape, paving and utility services. The airport hangars will include 76,250 square-feet of hangar space. The industrial will include 184,450 square-feet. The office buildings will include 636,650 square-feet. The residential townhomes will include 18 multi-family dwelling units and 6 single family dwelling units.

Wastewater flowing from the proposed Site will discharge at two (2) locations to the existing 8-inch VCP sewer line on Sutton Drive and at one (1) location to the existing 12-inch VCP sewer line in Thunderbird Road/Redfield Road. Both sewer lines slope to the west to discharge to the 24-inch VCP sewer line in Scottsdale Road. A portion of the existing 8-inch VCP sewer is proposed to be upsized to a 12-inch sewer line

The design criteria used to estimate wastewater flows and evaluate system hydraulics are based on Wood, Patel & Associates, Inc.'s (WOODPATEL) understanding of the requirements listed in the City of Scottsdale's *Design Standards and Policies manual,* 2018. The following is a summary of the primary design criteria utilized:

- Average Day Wastewater Demand, Office: ..... 0.4 gpd/sf
- Average Day Wastewater Demand, Commercial (Retail)..... 0.5 gpd/sf
- Average Day Wastewater Demand, Multi-Family Residential ..... 140 gpd/DU
- Peaking Factor ..... [1+12/(4+P1/2)] X ADD
- Maximum d/D Ratio at Peak Flow..... (12" dia. or less): 0.65
- Minimum Mean Full Flow Velocity ..... 2.50 fps
- Maximum Peak Full Flow Velocity ..... 10.0 fps
- Minimum Pipe Diameter, Public Wastewater Line..... 8 inches

Abbreviations: gpd = gallons per day; sf = square feet; ADD = average day demand; fps = feet per second; DU = dwelling unit; P = population

Based on the above design criteria, the projected average day flow for the proposed Site is approximately 387,530 gallons per day (gpd), or 269.12 gallons per minute (gpm). The peak flow is projected to be 1,443,045 gpd based on population and peaking factor shown in *Calculations* at the back of this report. The anticipated discharge to the existing 12-inch sewer on Redfield Road is 130,350 gpd with the other 257,180 gpd discharging to the existing 6-inch sewer on Sutton Drive. Analysis of the proposed sewer lines confirms they will have sufficient capacity to convey the peak flow of 1,443,045 gpd. The proposed sewer slopes, projected flow velocities, and pipe flow capacities are summarized on the attached spreadsheets.

It is assumed the infiltration and inflow from wet weather has been accounted for in the published design flow rates for the development and the maximum d/D. Therefore, those flows have not been added into the calculations. The proposed sanitary sewer collection system is designed to have adequate capacity to serve the proposed development.

Thank you for your review of the Wastewater Collection System Basis of Design Report provided for 7th Day Adventist - Scottsdale & Sutton. Feel free to contact me if you have any questions.

Sincerely,

No expiration date on the seal

Wood, Patel & Associates, Inc.

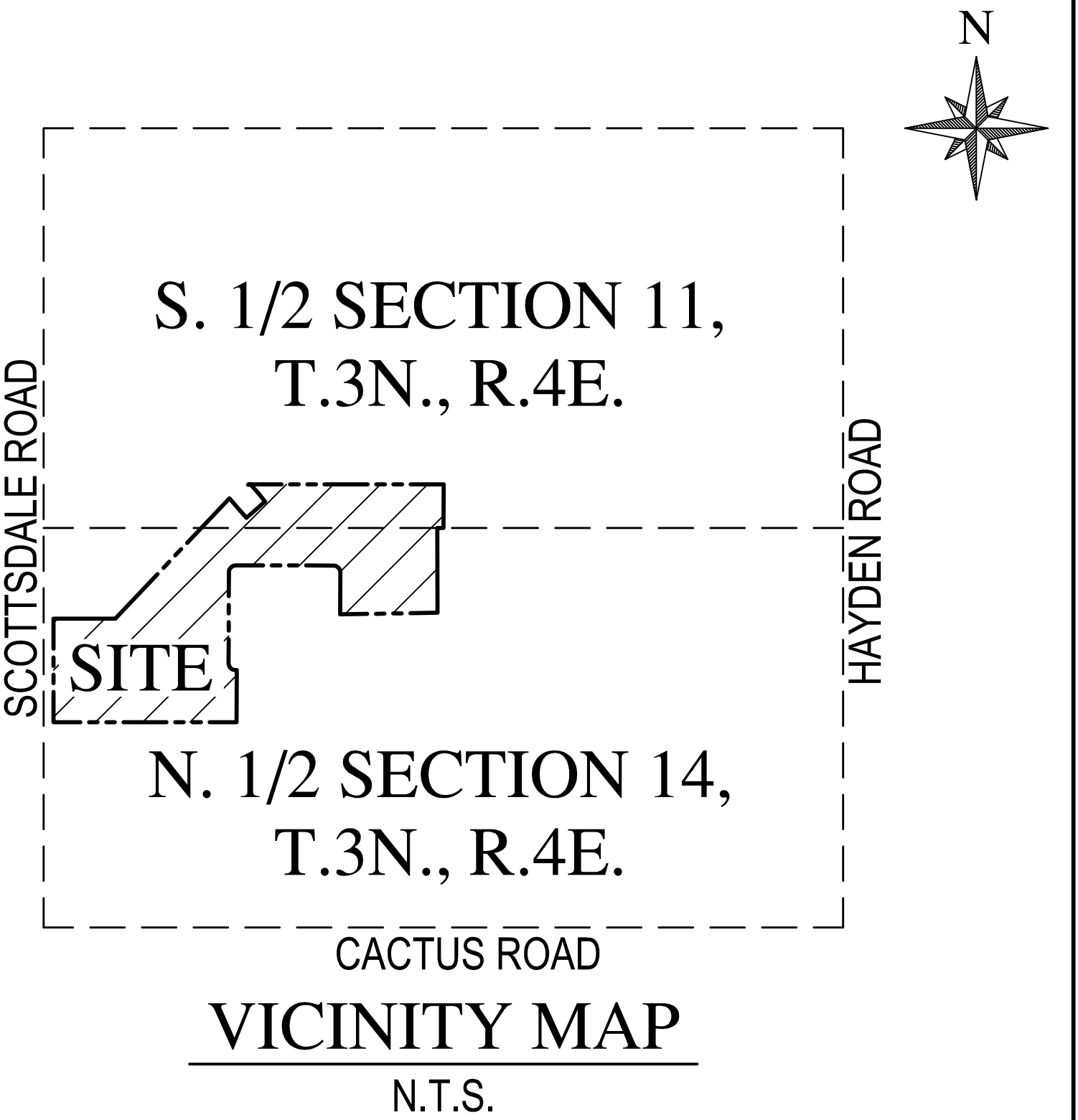
Anthony J. Beuché, PE
Project Manager

AJB/se

se
Y:\WP\Reports\Commercial\194966 7th Day Adventist - Scottsdale & Sutton Wastewater BOD.docx

14-ZN-2019
12/02/2019

VICINITY MAP



VICINITY MAP

N.T.S.

NOT
FOR
CONSTRUCTION
OR RECORDING

WOOD PATEL

SEVENTH-DAY

VICINITY MAP EXHIBIT

DATE	07/26/2019	SCALE	N.T.S.	SHEET	## OF ##
JOB NO.	194966	DESIGN	TB	CHECK	LB
		DRAWN	JO	RFI #	

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14-ZN-2019
12/02/2019

HYDRAULIC CALCULATIONS

WOOD/PATEL
MISSION: CLIENT SERVICE®

CIVIL ENGINEERS * HYDROLOGISTS * LAND SURVEYORS * CONSTRUCTION MANAGERS

TABLE 1 - WASTEWATER DESIGN CRITERIA

Project: SEVENTH DAY
Location: Scottsdale , Arizona
References: City of Scottsdale Design Standards and Policies Manual
Arizona Administrative Code, Title 18, Chapter 9

Project Number: 194966
Project Engineer: Anthony J. Beuche, P.E

RESIDENTIAL WASTEWATER DEMANDS			
LAND USE	AVERAGE DAY DEMAND (ADD)		POPULATION[1]
	VALUE	UNITS	
Single Family Residential		gpd/DU	0 Persons per DU
Multi-Family Residential		gpd/DU	0 Persons per DU

NON-RESIDENTIAL WASTEWATER DEMANDS			
LAND USE	AVERAGE DAY DEMAND (ADD)		POPULATION[1]
	VALUE	UNITS	
Commercial/Retail	0.5	gpd/sf	0.005 Persons per 1,000 sf
Office	0	gpd/sf	0 Persons per 1,000 sf
Restaurant	1	gpd/sf	0.01 Persons per 1,000 sf
High Density Condominium	140	gpd/ unit	1.4 Persons per 1,000 sf
Resort Hotel (includes site amenities)	380	gpd/room	3.8 Persons per Student
School: without cafeteria	30	gpd/student	0.3 Persons per Room
School: with cafeteria	50	gpd/student	0.5 Persons per Room
Cultural	0	gpd/sf	0 Persons per Room
Clubhouse for Subdivision Golf Course	100	gpd/parton*2 patron per du per day	1 Persons per Bed
Fitness Center/Spa/Health Club	1	gpd/sf	Note 2

HYDRAULIC MODELING CRITERIA		
DESCRIPTION		VALUE[3]
PEAK FLOW		
Peak Flow = Peaking Factor (PF) x ADD		$[1+14/(4+P^{1/2})]$ x ADD
(PF is based on upstream population, P = Population/1,000)		
HYDRAULICS		
Minimum Pipe Diameter (in)		8
Manning's "n" value		0.013
Maximum d/D ratio at peak flow		0.75

some of these values are incorrect. DSPM FIG 7-1.2

PIPE SIZE	MEAN VELOCITY[2]		DESIGN SLOPE[2]	
(in)	Minimum (ft/sec)	Maximum (ft/sec)	Minimum (%)	Maximum (%)
8	2.1	10.0	0.380	6.980
10	2.2	10.0	0.306	5.121
12	2.3	10.0	0.256	3.919
15	2.4	10.0	0.205	2.880

0.65

Overall I do not understand the purpose of this page

Notes:

1. Based on Arizona Administrative Code, Title 18, Chapter 9 value of 100 gallons per capita per day.
2. Per Arizona Administrative Code, Title 18, Chapter 9
3. Per City of Scottsdale Design Standards and Policies Manual

WASTEWATER DEMANDS

Project: SEVENTH DAY
Location: Scottsdale , Arizona
References: City of Scottsdale Design Standards and Policies Manual
Arizona Administrative Code, Title 18, Chapter 9

Project Number: 194966
Project Engineer: Anthony J. Beuche, P.E.

UPSTREAM NODE	DOWNSTREAM NODE	BUILDING USE	NUMBER OF UNITS[1]	ADF PER APPLICABLE UNIT	ADD PER BUILDING USE (GPD)	SEWER NODE ADD (GPD)	TOTAL ADD (GPD)	POPULATION[2]	PEAKING FACTOR	TOTAL PEAK FLOW (GPD)
PROP MH 1	PROP MH 2	Industrial	184,450	0.50	92,225	92,225	92,225	922	3.00	276,675
PROP MH 1	PROP MH 2	Airport	76,250	0.50	38,125	38,125	130,350	381	3.00	391,050
Total Outfall #1						**130,350**	**130,350**			**667,725**
PROP MH 3	PROP MH 4	Office	636650	0.4	254,660	254,660	254,660	2,547	3	763,980
Total Outfall #2					**254,660**	**254,660**	**254,660**			**763,980**
PROP MH 5	PROP MH 6	High Density	18	140	2,520	2,520	2,520	25	4.50	11,340
Total Outfall #3					**2,520**	**2,520**	**2,520**			**11,340**
Total of All Outfalls							**387,530.0**			**1,443,045.0**

Notes:
1. Square footage per building and building use provided by architect.
2. Population is assumed to be one guest per room.

Where are the demands for your houses? DSPM 7-1.403

WOOD/PATEL
MISSION: CLIENT SERVICE®

CIVIL ENGINEERS * HYDROLOGISTS * LAND SURVEYORS * CONSTRUCTION MANAGERS

CALCULATED PIPE CAPACITIES

Project: SEVENTH DAY
Location: Scottsdale , Arizona
References: City of Scottsdale Design Standards and Policies Manual
ADEQ Bulletin No. 11

Project Number: 194966
Project Engineer: Anthony J. Beuche, P.E.

FROM NODE	TO NODE	PIPE SIZE	MODELED PIPE SLOPE	PIPE CAPACITY		PEAK FLOW RESULTS					
						PEAK FLOW	PEAK FLOW	d/D	VELOCITY	SURPLUS CAPACITY	PERCENT OF CAPACITY
		(in)	(ft/ft)	(gpd)	(gpm)	(gpd)	(gpm)		(ft/sec)	(gpd)	(%)
PROP MH 1	PROP MH 2	12	0.0073	1,979,877	1,375	667,725.00	463.70	.40	3.50	1,312,152	33.7%
Outfall #2 - South											
PROP MH 3	PROP MH 4	12	0.0113	2,436,771	1,692	763,980.00	530.54	.39	4.30	1,672,791	31.4%
Outfall #3 - East											
PROP MH 5	PROP MH 6	8	0.0181	1,060,517	736	11,340.00	7.88	.07	1.60	1,049,177	1.1%

These are not labeled on the WW exhibit

Assuming these are your 3 connections to the existing sewer, as stated in the introduction you have 1 connection to the 12" and 2 to the 8". I believe these values are backwards

WASTEWATER EXHIBIT

LEGEND

- EXISTING SEWER PIPE
- PROPOSED SEWER PIPE
- EXISTING SEWER MANHOLE
- PROPOSED SEWER MANHOLE
- PROPERTY LINE

N

0 200 400

Horz. 1 in. = 200 ft.

Possibly will need an interceptor for the Hangars. DSPM 7-1.411

E. REDFIELD ROAD

E. THUNDERBIRD ROAD

N. SCOTTSDALE ROAD

N. MILLER ROAD

E. SUTTON DRIVE

PROP. MH INV 12.60

PROP. MH INV 14.33

PROP. MH INV 18.00

PROP. MH INV 21.54

PROP. MH INV 23.08

PROP. 12" SEWER S=0.70%

PROP. 12" SEWER S=0.73%

PROP. 8" SEWER S=0.50%

PROP. MH INV 23.60

PROPERTY LINE

EX. 12" SEWER

Slope?

PROP. MH INV 23.70

PROPERTY LINE

PROP. MH INV 16.50

PROP. MH INV 21.15

PROP. MH INV 18.50

PROP. MH INV 17.27

PROP. 8" SEWER S=1.81%

PROPERTY LINE

PROP. 8" SEWER S=1.00%

EX. 24" SEWER

PROP. 12" SEWER S=1.00%

PROP. MH INV 13.40

PROP. MH INV 16.30

PROP. MH INV 8.90

PROP. MH INV 11.51

PROP. MH INV 6.06

PROP. MH INV 11.00

PROP. MH INV 12.19

PROP. MH INV 12.92

PROP. MH INV 8.26

PROP. 12" SEWER

EX. 8" SEWER

-None of your MH have numbers
-How are you determining your INV values?
-Why are you up-sizing from 8" to 12"

NOT FOR CONSTRUCTION OR RECORDING

WOOD PATEL

SEVENTH-DAY

SEWER LINE EXHIBIT

DATE	07/25/2019	SCALE	1" = 200'	SHEET	1 OF 1
JOB NO.	194966	DESIGN	TB	DRAWN	JO

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14-ZN-2019
12/02/2019