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September 10, 2020

Mr. Levi Dillon, PE
Sr. Water Resource Engineer
City of Scottsdale
9379 East San Salvador Drive
Scottsdale, Arizona 85258

480.312.5319
ldillon@scottsdaleaz.gov

Re: **SEC Hayden-Loop 101 Project**
Preliminary Water Distribution System Basis of Design Report
WP# 205133

Dear Mr. Dillon:

The proposed SEC Hayden-Loop 101 project (Site) is a 74.44-acre site, located in the northwest quarter of Section 36, Township 4 North, Range 4 East of the Gila and Salt River Meridian. More specifically, the Site is located at the northeast corner of Hayden Road and Mayo Boulevard. Refer to the Vicinity Map at the back of this report for project location. Proposed improvements for the Site include a realignment of the existing Mayo Boulevard, one (1) proposed mixed-used structure and associated parking, landscape, hardscape and utilities. The proposed structure is comprised of two (2) buildings separated by a fire wall. Building 1 is a proposed 5-story building with approximately 216,225 square-feet of office and 33,310 square-feet of industrial space. Building 2 is a proposed 114,535 square-foot single story industrial building.

Existing water infrastructure adjacent to the Site includes a public 16-inch waterline within Hayden Road and a public 12-inch waterline within Mayo Boulevard. Two (2) existing water stubs extend from the 12-inch waterline to the Site. Refer to the attached Water Exhibit for a depiction of the existing water infrastructure surrounding the Site.

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 published *City of Scottsdale Design Standards and Policies Manual*, 2018, *City of Phoenix Design Standards Manual for Water and Wastewater Systems*, 2017 and *International Fire Code,* 2015. The following is a summary of the primary design criteria utilized:

- Average Day Water Demand, Office: ..... 8.34×10^{-4} gpm/ sq. ft*
- Average Day Water Demand, Industrial (Phoenix): ..... 9.03×10^{-2} gpm/ 1,000 sq. ft
- Maximum Day Demand: ..... 2.0 x ADD
- Peak Hour Demand: ..... 3.5 x ADD
- Fire Flow Demand: ..... 3,625 gpm (7,250 gpm * 50% reduction)
- 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 ..... 8 ft / 1000 ft
- Maximum Pipe Head Loss, Peak Hour Demand..... 10 ft / 1000 ft
- 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
*Includes both inside and outside use per Figure 6-1.2, COS Design Standards & Policies Manual

Proposed water infrastructure includes two (2) separate 12-inch waterline loops. The first proposed 12-inch loop will be located at the southwest corner of the Site within the realigned Mayo Boulevard and is intended to serve future Site improvements. The loop will connect to the existing waterlines in Hayden Road and Mayo Boulevard. Water demands for the proposed office and warehouse buildings will be served by the second proposed 12-inch waterline loop that ties into the existing 12-inch waterline within Mayo Boulevard at two (2) locations. Domestic water services will be provided by a 4-inch domestic meter. Fire protection for the project will be provided by a combination of a fire service for building fire sprinklers, a proposed remote fire department connection, and 15 proposed fire hydrants that have been located to meet City of Scottsdale coverage requirements.

The average day water demand for the Site is projected to be approximately 192.9 gallons per minute (gpm). Maximum day demands and peak hour demands are projected to be 385.8 gpm and 675.2 gpm, respectively (refer to the attached calculations).

WaterCAD V10i, by Haestad Methods, was utilized to analyze the existing water distribution system and proposed improvements. Results from a fire hydrant flow test, conducted on March 12, 2020, by Arizona Flow Testing LLC, were utilized to simulate the City of Scottsdale water supply for the project (refer to attached modeling results).

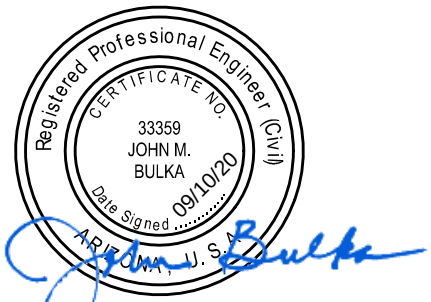
The hydraulic modeling results indicate the proposed system is capable of delivering peak hour demands, totaling 675.2 gpm, to the proposed Site, with pressures ranging from 64 to 75 pounds per square inch (psi).

The *Fire Flow + Max Day* results from the model indicate that while using the reduced flow test results, per City of Scottsdale requirements, the residual pressure in the system does not reach the required 30 psi at the TEE of the operating hydrant, when applying the entire required fire flow at a single hydrant. However, when splitting the flow evenly between six (6) of the nine (9) fire hydrants adjacent to the building, the minimum residual pressure at the TEE of an operating hydrant reached the required 30 psi. When using the raw flow test results and applying the entire fire flow to a single hydrant, the residual pressure at the TEE of the operating hydrant was 39 psi. It is believed that the system is adequate in serving the fire flow requirements for the Site. Hydraulic modeling results, calculations, and exhibits involved in the water system analysis are attached.

Thank you for your review of the Water Distribution System Basis of Design Report provided for the SEC Hayden-Loop 101 Project. Feel free to contact me if you have any questions.

Sincerely,

Wood, Patel & Associates, Inc.



John Bulka, PE
Project Manager

EXPIRES 03-31-23

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CALCULATIONS AND HYDRAULIC MODELING RESULTS

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TABLE 1
WATER DISTRIBUTION SYSTEM DESIGN CRITERIA

Project	SEC Hayden-Loop 101 Project
Location	Scottsdale Arizona
Project Number	205133
Project Engineer	John Bulka, P.E.
References	City of Scottsdale Design Standards & Policies Manual (2018)

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/unit	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	0.0903	gpm/1,000 sf	Note 5
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	3.5 x ADD	gpm	Note 1
PEAK HOUR FLOW				
	Peak Hour Flow = Peaking Factor (PF) x ADD	4 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	3,625	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	130	-	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 IIB, 114,535 sf area (Building 2), 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
5. Per City of Phoenix Design Standards Manual for Water and Wastewater Systems (2017) modified to City of Scotttsdale standards.

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TABLE 2
WATER DEMAND DESIGN FLOWS

Project SEC Hayden-Loop 101 Project
Location Scottsdale Arizona
Project Number 205133
Project Engineer John Bulka, P.E.
References City of Scottsdale Design Standards & Policies Manual (2018)

HYDRAULIC MODEL NODE	ELEVATION (ft)	PRESSURE ZONE	Building	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)
J-46	1,601.9	4	1	Office	gpm/sf	216,225	0.00083	179.5	192.8	359.0	385.6	628.3	674.9	3,625.0
				Industrial	gpm/1,000 sf	33.31	0.0903	3.0		6.0		10.5		
			2	Industrial	gpm/1,000 sf	114.54	0.0903	10.3		20.6		36.1		
Total								**192.8**		**385.6**		**674.9**		

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.

SEC Hayden-Loop 101 Project

FlexTable: Junction Table

Active Scenario: Calibration Static

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1 (FLOW B)	1,595.30	0	70	1,757.30
EX FH-2 (TEST)	1,590.98	0	72	1,757.30
EX FH-3 (FLOW A)	1,586.00	0	74	1,757.30
EX J-10	1,595.30	0	70	1,757.30
EX J-20	1,595.10	0	70	1,757.30
EX J-30	1,592.18	0	71	1,757.30
EX J-50	1,586.00	0	74	1,757.30
EX J-70	1,584.45	0	75	1,757.30
EX J-80	1,581.95	0	76	1,757.30
EX J-90	1,583.61	0	75	1,757.30
EX J-100	1,584.83	0	75	1,757.30
EX J-110	1,591.24	0	72	1,757.30
FH-12	1,584.48	0	75	1,757.30

SEC Hayden-Loop 101 Project

FlexTable: Junction Table

Active Scenario: Calibration Residual

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1 (FLOW B)	1,595.30	2,314	39	1,684.68
EX FH-2 (TEST)	1,590.98	0	43	1,690.31
EX FH-3 (FLOW A)	1,586.00	1,595	44	1,686.61
EX J-10	1,595.30	0	39	1,684.91
EX J-20	1,595.10	0	39	1,686.24
EX J-30	1,592.18	0	42	1,688.86
EX J-50	1,586.00	0	44	1,686.66
EX J-70	1,584.45	0	44	1,686.61
EX J-80	1,581.95	0	45	1,686.61
EX J-90	1,583.61	0	45	1,686.61
EX J-100	1,584.83	0	44	1,686.61
EX J-110	1,591.24	0	41	1,686.61
FH-12	1,584.48	0	44	1,686.61

SEC Hayden-Loop 101 Project

FlexTable: Junction Table

Active Scenario: Calibration Max

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1 (FLOW B)	1,595.30	3,172	14	1,627.08
EX FH-2 (TEST)	1,590.98	0	20	1,637.18
EX FH-3 (FLOW A)	1,586.00	2,187	19	1,630.54
EX J-10	1,595.30	0	14	1,627.49
EX J-20	1,595.10	0	15	1,629.88
EX J-30	1,592.18	0	18	1,634.59
EX J-50	1,586.00	0	19	1,630.62
EX J-70	1,584.45	0	20	1,630.54
EX J-80	1,581.95	0	21	1,630.54
EX J-90	1,583.61	0	20	1,630.54
EX J-100	1,584.83	0	20	1,630.54
EX J-110	1,591.24	0	17	1,630.54
FH-12	1,584.48	0	20	1,630.54

SEC Hayden-Loop 101 Project

FlexTable: Junction Table

Active Scenario: Average Day Demand

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1 (FLOW B)	1,595.30	0	70	1,757.03
EX FH-2 (TEST)	1,590.98	0	72	1,757.04
EX FH-3 (FLOW A)	1,586.00	0	74	1,757.03
EX J-10	1,595.30	0	70	1,757.03
EX J-20	1,595.10	0	70	1,757.03
EX J-30	1,592.18	0	71	1,757.04
EX J-50	1,586.00	0	74	1,757.03
EX J-70	1,584.45	0	75	1,757.03
EX J-80	1,581.95	0	76	1,757.03
EX J-90	1,583.61	0	75	1,757.03
EX J-100	1,584.83	0	75	1,757.03
EX J-110	1,591.24	0	72	1,757.03
FH-1	1,596.50	0	69	1,757.02
FH-2	1,601.60	0	67	1,757.01
FH-3	1,602.00	0	67	1,757.00
FH-4	1,605.00	0	66	1,757.00
FH-5	1,605.50	0	66	1,757.00
FH-6	1,604.50	0	66	1,757.01
FH-7	1,599.70	0	68	1,757.01
FH-8	1,594.00	0	71	1,757.02
FH-9	1,586.50	0	74	1,757.02
FH-10	1,594.53	0	70	1,757.01
FH-11	1,592.38	0	71	1,757.02
FH-12	1,584.48	0	75	1,757.03
FH-13	1,588.09	0	73	1,757.03
FH-14	1,591.62	0	72	1,757.03
FH-15	1,589.30	0	73	1,757.03
J-10	1,596.00	0	70	1,757.02
J-20	1,596.50	0	69	1,757.02
J-30	1,601.60	0	67	1,757.01
J-46	1,601.90	193	67	1,757.00
J-60	1,605.30	0	66	1,757.00
J-100	1,605.50	0	66	1,757.01
J-110	1,605.00	0	66	1,757.01
J-120	1,600.64	0	68	1,757.01
J-150	1,593.00	0	71	1,757.02
J-170	1,588.19	0	73	1,757.03
J-220	1,584.87	0	74	1,757.03
J-230	1,586.00	0	74	1,757.03

SEC Hayden-Loop 101 Project

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-05	EX J-10	EX FH-1 (FLOW B)	19	12.0	Ductile Iron	130.0	0	0.00
EX P-15	EX J-20	EX J-10	111	12.0	Ductile Iron	130.0	108	0.31
EX P-25	EX J-30	EX J-20	219	12.0	Ductile Iron	130.0	108	0.31
EX P-35	EX FH-2 (TEST)	EX J-30	121	12.0	Ductile Iron	130.0	108	0.31
EX P-45	EX J-50	EX FH-2 (TEST)	607	12.0	Ductile Iron	130.0	-85	0.24
EX P-55	EX FH-3 (FLOW A)	EX J-50	7	12.0	Ductile Iron	130.0	0	0.00
EX P-65	FH-12	EX FH-3 (FLOW A)	397	12.0	Ductile Iron	130.0	0	0.00
EX P-67	EX J-70	FH-12	8	12.0	Ductile Iron	130.0	0	0.00
EX P-75	EX J-80	EX J-70	889	12.0	Ductile Iron	130.0	0	0.00
EX P-85	EX J-90	EX J-80	85	12.0	Ductile Iron	130.0	0	0.00
EX P-95	EX J-100	EX J-90	58	12.0	Ductile Iron	130.0	0	0.00
EX P-105	EX J-110	EX J-100	561	16.0	Ductile Iron	130.0	0	0.00
P-05	J-10	EX J-10	53	12.0	Ductile Iron	130.0	-108	0.31
P-15	FH-1	J-10	158	12.0	Ductile Iron	130.0	-108	0.31
P-17	J-20	FH-1	15	12.0	Ductile Iron	130.0	-108	0.31
P-25	J-30	J-20	141	12.0	Ductile Iron	130.0	-108	0.31
P-35	FH-2	J-30	18	12.0	Ductile Iron	130.0	-146	0.41
P-45	J-46	FH-2	183	12.0	Ductile Iron	130.0	-146	0.41
P-47	FH-3	J-46	157	12.0	Ductile Iron	130.0	47	0.13
P-55	J-60	FH-3	105	12.0	Ductile Iron	130.0	47	0.13
P-65	J-60	FH-4	253	12.0	Ductile Iron	130.0	-47	0.13
P-75	FH-4	FH-5	303	12.0	Ductile Iron	130.0	-47	0.13
P-85	FH-5	FH-6	305	12.0	Ductile Iron	130.0	-47	0.13
P-95	J-100	FH-6	188	12.0	Ductile Iron	130.0	47	0.13
P-105	J-110	J-100	81	12.0	Ductile Iron	130.0	47	0.13
P-115	J-120	J-110	50	12.0	Ductile Iron	130.0	47	0.13
P-125	FH-7	J-120	327	12.0	Ductile Iron	130.0	47	0.13
P-135	FH-8	FH-7	400	12.0	Ductile Iron	130.0	47	0.13
P-145	J-150	FH-8	56	12.0	Ductile Iron	130.0	47	0.13
P-155	FH-9	J-150	306	12.0	Ductile Iron	130.0	85	0.24
P-165	J-170	FH-9	105	12.0	Ductile Iron	130.0	85	0.24
P-175	EX J-50	J-170	54	12.0	Ductile Iron	130.0	85	0.24
P-185	J-30	FH-10	398	12.0	Ductile Iron	130.0	-38	0.11
P-195	FH-10	FH-11	312	12.0	Ductile Iron	130.0	-38	0.11
P-205	FH-11	J-150	169	12.0	Ductile Iron	130.0	-38	0.11
P-215	J-220	EX J-70	36	12.0	Ductile Iron	130.0	0	0.00
P-225	J-230	J-220	277	12.0	Ductile Iron	130.0	0	0.00
P-235	FH-13	J-230	257	12.0	Ductile Iron	130.0	0	0.00
P-245	FH-14	FH-13	363	12.0	Ductile Iron	130.0	0	0.00
P-255	FH-15	FH-14	362	12.0	Ductile Iron	130.0	0	0.00
P-265	EX J-110	FH-15	116	12.0	Ductile Iron	130.0	0	0.00
P-PMP-1	PMP-1	EX FH-2 (TEST)	1	48.0	Ductile Iron	130.0	193	0.03
P-R-1	R-1	PMP-1	1	48.0	Ductile Iron	130.0	193	0.03

SEC Hayden-Loop 101 Project

FlexTable: Junction Table

Active Scenario: Max Day Demand

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1 (FLOW B)	1,595.30	0	70	1,756.31
EX FH-2 (TEST)	1,590.98	0	72	1,756.38
EX FH-3 (FLOW A)	1,586.00	0	74	1,756.32
EX J-10	1,595.30	0	70	1,756.31
EX J-20	1,595.10	0	70	1,756.33
EX J-30	1,592.18	0	71	1,756.36
EX J-50	1,586.00	0	74	1,756.32
EX J-70	1,584.45	0	74	1,756.32
EX J-80	1,581.95	0	75	1,756.32
EX J-90	1,583.61	0	75	1,756.32
EX J-100	1,584.83	0	74	1,756.32
EX J-110	1,591.24	0	71	1,756.32
FH-1	1,596.50	0	69	1,756.28
FH-2	1,601.60	0	67	1,756.25
FH-3	1,602.00	0	67	1,756.21
FH-4	1,605.00	0	65	1,756.22
FH-5	1,605.50	0	65	1,756.23
FH-6	1,604.50	0	66	1,756.24
FH-7	1,599.70	0	68	1,756.26
FH-8	1,594.00	0	70	1,756.27
FH-9	1,586.50	0	73	1,756.31
FH-10	1,594.53	0	70	1,756.27
FH-11	1,592.38	0	71	1,756.27
FH-12	1,584.48	0	74	1,756.32
FH-13	1,588.09	0	73	1,756.32
FH-14	1,591.62	0	71	1,756.32
FH-15	1,589.30	0	72	1,756.32
J-10	1,596.00	0	69	1,756.30
J-20	1,596.50	0	69	1,756.28
J-30	1,601.60	0	67	1,756.26
J-46	1,601.90	386	67	1,756.21
J-60	1,605.30	0	65	1,756.21
J-100	1,605.50	0	65	1,756.25
J-110	1,605.00	0	65	1,756.25
J-120	1,600.64	0	67	1,756.25
J-150	1,593.00	0	71	1,756.28
J-170	1,588.19	0	73	1,756.32
J-220	1,584.87	0	74	1,756.32
J-230	1,586.00	0	74	1,756.32

SEC Hayden-Loop 101 Project

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-05	EX J-10	EX FH-1 (FLOW B)	19	12.0	Ductile Iron	130.0	0	0.00
EX P-15	EX J-20	EX J-10	111	12.0	Ductile Iron	130.0	216	0.61
EX P-25	EX J-30	EX J-20	219	12.0	Ductile Iron	130.0	216	0.61
EX P-35	EX FH-2 (TEST)	EX J-30	121	12.0	Ductile Iron	130.0	216	0.61
EX P-45	EX J-50	EX FH-2 (TEST)	607	12.0	Ductile Iron	130.0	-170	0.48
EX P-55	EX FH-3 (FLOW A)	EX J-50	7	12.0	Ductile Iron	130.0	0	0.00
EX P-65	FH-12	EX FH-3 (FLOW A)	397	12.0	Ductile Iron	130.0	0	0.00
EX P-67	EX J-70	FH-12	8	12.0	Ductile Iron	130.0	0	0.00
EX P-75	EX J-80	EX J-70	889	12.0	Ductile Iron	130.0	0	0.00
EX P-85	EX J-90	EX J-80	85	12.0	Ductile Iron	130.0	0	0.00
EX P-95	EX J-100	EX J-90	58	12.0	Ductile Iron	130.0	0	0.00
EX P-105	EX J-110	EX J-100	561	16.0	Ductile Iron	130.0	0	0.00
P-05	J-10	EX J-10	53	12.0	Ductile Iron	130.0	-216	0.61
P-15	FH-1	J-10	158	12.0	Ductile Iron	130.0	-216	0.61
P-17	J-20	FH-1	15	12.0	Ductile Iron	130.0	-216	0.61
P-25	J-30	J-20	141	12.0	Ductile Iron	130.0	-216	0.61
P-35	FH-2	J-30	18	12.0	Ductile Iron	130.0	-292	0.83
P-45	J-46	FH-2	183	12.0	Ductile Iron	130.0	-292	0.83
P-47	FH-3	J-46	157	12.0	Ductile Iron	130.0	94	0.27
P-55	J-60	FH-3	105	12.0	Ductile Iron	130.0	94	0.27
P-65	J-60	FH-4	253	12.0	Ductile Iron	130.0	-94	0.27
P-75	FH-4	FH-5	303	12.0	Ductile Iron	130.0	-94	0.27
P-85	FH-5	FH-6	305	12.0	Ductile Iron	130.0	-94	0.27
P-95	J-100	FH-6	188	12.0	Ductile Iron	130.0	94	0.27
P-105	J-110	J-100	81	12.0	Ductile Iron	130.0	94	0.27
P-115	J-120	J-110	50	12.0	Ductile Iron	130.0	94	0.27
P-125	FH-7	J-120	327	12.0	Ductile Iron	130.0	94	0.27
P-135	FH-8	FH-7	400	12.0	Ductile Iron	130.0	94	0.27
P-145	J-150	FH-8	56	12.0	Ductile Iron	130.0	94	0.27
P-155	FH-9	J-150	306	12.0	Ductile Iron	130.0	170	0.48
P-165	J-170	FH-9	105	12.0	Ductile Iron	130.0	170	0.48
P-175	EX J-50	J-170	54	12.0	Ductile Iron	130.0	170	0.48
P-185	J-30	FH-10	398	12.0	Ductile Iron	130.0	-76	0.22
P-195	FH-10	FH-11	312	12.0	Ductile Iron	130.0	-76	0.22
P-205	FH-11	J-150	169	12.0	Ductile Iron	130.0	-76	0.22
P-215	J-220	EX J-70	36	12.0	Ductile Iron	130.0	0	0.00
P-225	J-230	J-220	277	12.0	Ductile Iron	130.0	0	0.00
P-235	FH-13	J-230	257	12.0	Ductile Iron	130.0	0	0.00
P-245	FH-14	FH-13	363	12.0	Ductile Iron	130.0	0	0.00
P-255	FH-15	FH-14	362	12.0	Ductile Iron	130.0	0	0.00
P-265	EX J-110	FH-15	116	12.0	Ductile Iron	130.0	0	0.00
P-PMP-1	PMP-1	EX FH-2 (TEST)	1	48.0	Ductile Iron	130.0	386	0.07
P-R-1	R-1	PMP-1	1	48.0	Ductile Iron	130.0	386	0.07

SEC Hayden-Loop 101 Project

FlexTable: Junction Table

Active Scenario: Peak Hour Demand

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1 (FLOW B)	1,595.30	0	69	1,754.52
EX FH-2 (TEST)	1,590.98	0	71	1,754.70
EX FH-3 (FLOW A)	1,586.00	0	73	1,754.54
EX J-10	1,595.30	0	69	1,754.52
EX J-20	1,595.10	0	69	1,754.56
EX J-30	1,592.18	0	70	1,754.65
EX J-50	1,586.00	0	73	1,754.54
EX J-70	1,584.45	0	74	1,754.54
EX J-80	1,581.95	0	75	1,754.54
EX J-90	1,583.61	0	74	1,754.54
EX J-100	1,584.83	0	73	1,754.54
EX J-110	1,591.24	0	71	1,754.54
FH-1	1,596.50	0	68	1,754.43
FH-2	1,601.60	0	66	1,754.35
FH-3	1,602.00	0	66	1,754.23
FH-4	1,605.00	0	65	1,754.26
FH-5	1,605.50	0	64	1,754.29
FH-6	1,604.50	0	65	1,754.32
FH-7	1,599.70	0	67	1,754.37
FH-8	1,594.00	0	69	1,754.41
FH-9	1,586.50	0	73	1,754.50
FH-10	1,594.53	0	69	1,754.39
FH-11	1,592.38	0	70	1,754.40
FH-12	1,584.48	0	74	1,754.54
FH-13	1,588.09	0	72	1,754.54
FH-14	1,591.62	0	70	1,754.54
FH-15	1,589.30	0	71	1,754.54
J-10	1,596.00	0	69	1,754.49
J-20	1,596.50	0	68	1,754.42
J-30	1,601.60	0	66	1,754.36
J-46	1,601.90	675	66	1,754.22
J-60	1,605.30	0	64	1,754.24
J-100	1,605.50	0	64	1,754.33
J-110	1,605.00	0	65	1,754.34
J-120	1,600.64	0	67	1,754.34
J-150	1,593.00	0	70	1,754.42
J-170	1,588.19	0	72	1,754.53
J-220	1,584.87	0	73	1,754.54
J-230	1,586.00	0	73	1,754.54

SEC Hayden-Loop 101 Project

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-05	EX J-10	EX FH-1 (FLOW B)	19	12.0	Ductile Iron	130.0	0	0.00
EX P-15	EX J-20	EX J-10	111	12.0	Ductile Iron	130.0	377	1.07
EX P-25	EX J-30	EX J-20	219	12.0	Ductile Iron	130.0	377	1.07
EX P-35	EX FH-2 (TEST)	EX J-30	121	12.0	Ductile Iron	130.0	377	1.07
EX P-45	EX J-50	EX FH-2 (TEST)	607	12.0	Ductile Iron	130.0	-298	0.84
EX P-55	EX FH-3 (FLOW A)	EX J-50	7	12.0	Ductile Iron	130.0	0	0.00
EX P-65	FH-12	EX FH-3 (FLOW A)	397	12.0	Ductile Iron	130.0	0	0.00
EX P-67	EX J-70	FH-12	8	12.0	Ductile Iron	130.0	0	0.00
EX P-75	EX J-80	EX J-70	889	12.0	Ductile Iron	130.0	0	0.00
EX P-85	EX J-90	EX J-80	85	12.0	Ductile Iron	130.0	0	0.00
EX P-95	EX J-100	EX J-90	58	12.0	Ductile Iron	130.0	0	0.00
EX P-105	EX J-110	EX J-100	561	16.0	Ductile Iron	130.0	0	0.00
P-05	J-10	EX J-10	53	12.0	Ductile Iron	130.0	-377	1.07
P-15	FH-1	J-10	158	12.0	Ductile Iron	130.0	-377	1.07
P-17	J-20	FH-1	15	12.0	Ductile Iron	130.0	-377	1.07
P-25	J-30	J-20	141	12.0	Ductile Iron	130.0	-377	1.07
P-35	FH-2	J-30	18	12.0	Ductile Iron	130.0	-510	1.45
P-45	J-46	FH-2	183	12.0	Ductile Iron	130.0	-510	1.45
P-47	FH-3	J-46	157	12.0	Ductile Iron	130.0	165	0.47
P-55	J-60	FH-3	105	12.0	Ductile Iron	130.0	165	0.47
P-65	J-60	FH-4	253	12.0	Ductile Iron	130.0	-165	0.47
P-75	FH-4	FH-5	303	12.0	Ductile Iron	130.0	-165	0.47
P-85	FH-5	FH-6	305	12.0	Ductile Iron	130.0	-165	0.47
P-95	J-100	FH-6	188	12.0	Ductile Iron	130.0	165	0.47
P-105	J-110	J-100	81	12.0	Ductile Iron	130.0	165	0.47
P-115	J-120	J-110	50	12.0	Ductile Iron	130.0	165	0.47
P-125	FH-7	J-120	327	12.0	Ductile Iron	130.0	165	0.47
P-135	FH-8	FH-7	400	12.0	Ductile Iron	130.0	165	0.47
P-145	J-150	FH-8	56	12.0	Ductile Iron	130.0	165	0.47
P-155	FH-9	J-150	306	12.0	Ductile Iron	130.0	298	0.84
P-165	J-170	FH-9	105	12.0	Ductile Iron	130.0	298	0.84
P-175	EX J-50	J-170	54	12.0	Ductile Iron	130.0	298	0.84
P-185	J-30	FH-10	398	12.0	Ductile Iron	130.0	-133	0.38
P-195	FH-10	FH-11	312	12.0	Ductile Iron	130.0	-133	0.38
P-205	FH-11	J-150	169	12.0	Ductile Iron	130.0	-133	0.38
P-215	J-220	EX J-70	36	12.0	Ductile Iron	130.0	0	0.00
P-225	J-230	J-220	277	12.0	Ductile Iron	130.0	0	0.00
P-235	FH-13	J-230	257	12.0	Ductile Iron	130.0	0	0.00
P-245	FH-14	FH-13	363	12.0	Ductile Iron	130.0	0	0.00
P-255	FH-15	FH-14	362	12.0	Ductile Iron	130.0	0	0.00
P-265	EX J-110	FH-15	116	12.0	Ductile Iron	130.0	0	0.00
P-PMP-1	PMP-1	EX FH-2 (TEST)	1	48.0	Ductile Iron	130.0	675	0.12
P-R-1	R-1	PMP-1	1	48.0	Ductile Iron	130.0	675	0.12

SEC Hayden-Loop 101 Project

FlexTable: Junction Table

Active Scenario: Fire Flow + Max Day

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1 (FLOW B)	1,595.30	0	38	1,682.30
EX FH-2 (TEST)	1,590.98	0	42	1,687.05
EX FH-3 (FLOW A)	1,586.00	0	42	1,682.21
EX J-10	1,595.30	0	38	1,682.30
EX J-20	1,595.10	0	38	1,683.47
EX J-30	1,592.18	0	40	1,685.78
EX J-50	1,586.00	0	42	1,682.21
EX J-70	1,584.45	0	42	1,682.21
EX J-80	1,581.95	0	43	1,682.21
EX J-90	1,583.61	0	43	1,682.21
EX J-100	1,584.83	0	42	1,682.21
EX J-110	1,591.24	0	39	1,682.21
FH-1	1,596.50	0	36	1,680.09
FH-2	1,601.60	0	33	1,678.22
FH-3	1,602.00	0	31	1,674.68
FH-4	1,605.00	0	29	1,671.62
FH-5	1,605.50	3,625	27	1,669.03
FH-6	1,604.50	0	29	1,671.08
FH-7	1,599.70	0	33	1,675.44
FH-8	1,594.00	0	36	1,678.13
FH-9	1,586.50	0	41	1,680.95
FH-10	1,594.53	0	36	1,678.47
FH-11	1,592.38	0	37	1,678.50
FH-12	1,584.48	0	42	1,682.21
FH-13	1,588.09	0	41	1,682.21
FH-14	1,591.62	0	39	1,682.21
FH-15	1,589.30	0	40	1,682.21
J-10	1,596.00	0	37	1,681.74
J-20	1,596.50	0	36	1,679.92
J-30	1,601.60	0	33	1,678.44
J-46	1,601.90	386	32	1,676.02
J-60	1,605.30	0	30	1,673.78
J-100	1,605.50	0	29	1,672.35
J-110	1,605.00	0	29	1,672.90
J-120	1,600.64	0	31	1,673.24
J-150	1,593.00	0	37	1,678.51
J-170	1,588.19	0	40	1,681.78
J-220	1,584.87	0	42	1,682.21
J-230	1,586.00	0	42	1,682.21

SEC Hayden-Loop 101 Project

FlexTable: Pipe Table

Active Scenario: Fire Flow + Max Day

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
EX P-05	EX J-10	EX FH-1 (FLOW B)	19	12.0	Ductile Iron	130.0	0	0.00
EX P-15	EX J-20	EX J-10	111	12.0	Ductile Iron	130.0	2,156	6.12
EX P-25	EX J-30	EX J-20	219	12.0	Ductile Iron	130.0	2,156	6.12
EX P-35	EX FH-2 (TEST)	EX J-30	121	12.0	Ductile Iron	130.0	2,156	6.12
EX P-45	EX J-50	EX FH-2 (TEST)	607	12.0	Ductile Iron	130.0	-1,854	5.26
EX P-55	EX FH-3 (FLOW A)	EX J-50	7	12.0	Ductile Iron	130.0	0	0.00
EX P-65	FH-12	EX FH-3 (FLOW A)	397	12.0	Ductile Iron	130.0	0	0.00
EX P-67	EX J-70	FH-12	8	12.0	Ductile Iron	130.0	0	0.00
EX P-75	EX J-80	EX J-70	889	12.0	Ductile Iron	130.0	0	0.00
EX P-85	EX J-90	EX J-80	85	12.0	Ductile Iron	130.0	0	0.00
EX P-95	EX J-100	EX J-90	58	12.0	Ductile Iron	130.0	0	0.00
EX P-105	EX J-110	EX J-100	561	16.0	Ductile Iron	130.0	0	0.00
P-05	J-10	EX J-10	53	12.0	Ductile Iron	130.0	-2,156	6.12
P-15	FH-1	J-10	158	12.0	Ductile Iron	130.0	-2,156	6.12
P-17	J-20	FH-1	15	12.0	Ductile Iron	130.0	-2,156	6.12
P-25	J-30	J-20	141	12.0	Ductile Iron	130.0	-2,156	6.12
P-35	FH-2	J-30	18	12.0	Ductile Iron	130.0	-2,315	6.57
P-45	J-46	FH-2	183	12.0	Ductile Iron	130.0	-2,315	6.57
P-47	FH-3	J-46	157	12.0	Ductile Iron	130.0	-1,929	5.47
P-55	J-60	FH-3	105	12.0	Ductile Iron	130.0	-1,929	5.47
P-65	J-60	FH-4	253	12.0	Ductile Iron	130.0	1,929	5.47
P-75	FH-4	FH-5	303	12.0	Ductile Iron	130.0	1,929	5.47
P-85	FH-5	FH-6	305	12.0	Ductile Iron	130.0	-1,696	4.81
P-95	J-100	FH-6	188	12.0	Ductile Iron	130.0	1,696	4.81
P-105	J-110	J-100	81	12.0	Ductile Iron	130.0	1,696	4.81
P-115	J-120	J-110	50	12.0	Ductile Iron	130.0	1,696	4.81
P-125	FH-7	J-120	327	12.0	Ductile Iron	130.0	1,696	4.81
P-135	FH-8	FH-7	400	12.0	Ductile Iron	130.0	1,696	4.81
P-145	J-150	FH-8	56	12.0	Ductile Iron	130.0	1,696	4.81
P-155	FH-9	J-150	306	12.0	Ductile Iron	130.0	1,854	5.26
P-165	J-170	FH-9	105	12.0	Ductile Iron	130.0	1,854	5.26
P-175	EX J-50	J-170	54	12.0	Ductile Iron	130.0	1,854	5.26
P-185	J-30	FH-10	398	12.0	Ductile Iron	130.0	-159	0.45
P-195	FH-10	FH-11	312	12.0	Ductile Iron	130.0	-159	0.45
P-205	FH-11	J-150	169	12.0	Ductile Iron	130.0	-159	0.45
P-215	J-220	EX J-70	36	12.0	Ductile Iron	130.0	0	0.00
P-225	J-230	J-220	277	12.0	Ductile Iron	130.0	0	0.00
P-235	FH-13	J-230	257	12.0	Ductile Iron	130.0	0	0.00
P-245	FH-14	FH-13	363	12.0	Ductile Iron	130.0	0	0.00
P-255	FH-15	FH-14	362	12.0	Ductile Iron	130.0	0	0.00
P-265	EX J-110	FH-15	116	12.0	Ductile Iron	130.0	0	0.00
P-PMP-1	PMP-1	EX FH-2 (TEST)	1	48.0	Ductile Iron	130.0	4,011	0.71
P-R-1	R-1	PMP-1	1	48.0	Ductile Iron	130.0	4,011	0.71

SEC Hayden-Loop 101 Project

FlexTable: Junction Table

Active Scenario: Fire Flow + Max Day (Six Hydrants)

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1 (FLOW B)	1,595.30	0	38	1,682.35
EX FH-2 (TEST)	1,590.98	0	42	1,687.05
EX FH-3 (FLOW A)	1,586.00	0	42	1,682.17
EX J-10	1,595.30	0	38	1,682.35
EX J-20	1,595.10	0	38	1,683.50
EX J-30	1,592.18	0	40	1,685.79
EX J-50	1,586.00	0	42	1,682.17
EX J-70	1,584.45	0	42	1,682.17
EX J-80	1,581.95	0	43	1,682.17
EX J-90	1,583.61	0	43	1,682.17
EX J-100	1,584.83	0	42	1,682.17
EX J-110	1,591.24	0	39	1,682.17
FH-1	1,596.50	0	36	1,680.15
FH-2	1,601.60	0	33	1,678.35
FH-3	1,602.00	604	32	1,675.76
FH-4	1,605.00	604	30	1,674.88
FH-5	1,605.50	604	30	1,674.75
FH-6	1,604.50	604	30	1,674.79
FH-7	1,599.70	604	33	1,675.94
FH-8	1,594.00	604	36	1,677.90
FH-9	1,586.50	0	41	1,680.89
FH-10	1,594.53	0	36	1,678.47
FH-11	1,592.38	0	37	1,678.44
FH-12	1,584.48	0	42	1,682.17
FH-13	1,588.09	0	41	1,682.17
FH-14	1,591.62	0	39	1,682.17
FH-15	1,589.30	0	40	1,682.17
J-10	1,596.00	0	37	1,681.79
J-20	1,596.50	0	36	1,679.98
J-30	1,601.60	0	33	1,678.51
J-46	1,601.90	386	32	1,676.71
J-60	1,605.30	0	30	1,675.51
J-100	1,605.50	0	30	1,675.13
J-110	1,605.00	0	30	1,675.27
J-120	1,600.64	0	32	1,675.36
J-150	1,593.00	0	37	1,678.43
J-170	1,588.19	0	40	1,681.73
J-220	1,584.87	0	42	1,682.17
J-230	1,586.00	0	42	1,682.17

SEC Hayden-Loop 101 Project

FlexTable: Pipe Table

Active Scenario: Fire Flow + Max Day (Six Hydrants)

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
EX P-05	EX J-10	EX FH-1 (FLOW B)	19	12.0	Ductile Iron	130.0	0	0.00
EX P-15	EX J-20	EX J-10	111	12.0	Ductile Iron	130.0	2,147	6.09
EX P-25	EX J-30	EX J-20	219	12.0	Ductile Iron	130.0	2,147	6.09
EX P-35	EX FH-2 (TEST)	EX J-30	121	12.0	Ductile Iron	130.0	2,147	6.09
EX P-45	EX J-50	EX FH-2 (TEST)	607	12.0	Ductile Iron	130.0	-1,864	5.29
EX P-55	EX FH-3 (FLOW A)	EX J-50	7	12.0	Ductile Iron	130.0	0	0.00
EX P-65	FH-12	EX FH-3 (FLOW A)	397	12.0	Ductile Iron	130.0	0	0.00
EX P-67	EX J-70	FH-12	8	12.0	Ductile Iron	130.0	0	0.00
EX P-75	EX J-80	EX J-70	889	12.0	Ductile Iron	130.0	0	0.00
EX P-85	EX J-90	EX J-80	85	12.0	Ductile Iron	130.0	0	0.00
EX P-95	EX J-100	EX J-90	58	12.0	Ductile Iron	130.0	0	0.00
EX P-105	EX J-110	EX J-100	561	16.0	Ductile Iron	130.0	0	0.00
P-05	J-10	EX J-10	53	12.0	Ductile Iron	130.0	-2,147	6.09
P-15	FH-1	J-10	158	12.0	Ductile Iron	130.0	-2,147	6.09
P-17	J-20	FH-1	15	12.0	Ductile Iron	130.0	-2,147	6.09
P-25	J-30	J-20	141	12.0	Ductile Iron	130.0	-2,147	6.09
P-35	FH-2	J-30	18	12.0	Ductile Iron	130.0	-1,978	5.61
P-45	J-46	FH-2	183	12.0	Ductile Iron	130.0	-1,978	5.61
P-47	FH-3	J-46	157	12.0	Ductile Iron	130.0	-1,592	4.52
P-55	J-60	FH-3	105	12.0	Ductile Iron	130.0	-988	2.80
P-65	J-60	FH-4	253	12.0	Ductile Iron	130.0	988	2.80
P-75	FH-4	FH-5	303	12.0	Ductile Iron	130.0	384	1.09
P-85	FH-5	FH-6	305	12.0	Ductile Iron	130.0	-220	0.62
P-95	J-100	FH-6	188	12.0	Ductile Iron	130.0	824	2.34
P-105	J-110	J-100	81	12.0	Ductile Iron	130.0	824	2.34
P-115	J-120	J-110	50	12.0	Ductile Iron	130.0	824	2.34
P-125	FH-7	J-120	327	12.0	Ductile Iron	130.0	824	2.34
P-135	FH-8	FH-7	400	12.0	Ductile Iron	130.0	1,429	4.05
P-145	J-150	FH-8	56	12.0	Ductile Iron	130.0	2,033	5.77
P-155	FH-9	J-150	306	12.0	Ductile Iron	130.0	1,864	5.29
P-165	J-170	FH-9	105	12.0	Ductile Iron	130.0	1,864	5.29
P-175	EX J-50	J-170	54	12.0	Ductile Iron	130.0	1,864	5.29
P-185	J-30	FH-10	398	12.0	Ductile Iron	130.0	168	0.48
P-195	FH-10	FH-11	312	12.0	Ductile Iron	130.0	168	0.48
P-205	FH-11	J-150	169	12.0	Ductile Iron	130.0	168	0.48
P-215	J-220	EX J-70	36	12.0	Ductile Iron	130.0	0	0.00
P-225	J-230	J-220	277	12.0	Ductile Iron	130.0	0	0.00
P-235	FH-13	J-230	257	12.0	Ductile Iron	130.0	0	0.00
P-245	FH-14	FH-13	363	12.0	Ductile Iron	130.0	0	0.00
P-255	FH-15	FH-14	362	12.0	Ductile Iron	130.0	0	0.00
P-265	EX J-110	FH-15	116	12.0	Ductile Iron	130.0	0	0.00
P-PMP-1	PMP-1	EX FH-2 (TEST)	1	48.0	Ductile Iron	130.0	4,011	0.71
P-R-1	R-1	PMP-1	1	48.0	Ductile Iron	130.0	4,011	0.71

SEC Hayden-Loop 101 Project

FlexTable: Junction Table

Active Scenario: Fire Flow + Max Day (Raw Flow Test Results)

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
EX FH-1 (FLOW B)	1,595.30	0	50	1,710.02
EX FH-2 (TEST)	1,590.98	0	54	1,714.76
EX FH-3 (FLOW A)	1,586.00	0	54	1,709.93
EX J-10	1,595.30	0	50	1,710.02
EX J-20	1,595.10	0	50	1,711.19
EX J-30	1,592.18	0	52	1,713.49
EX J-50	1,586.00	0	54	1,709.93
EX J-70	1,584.45	0	54	1,709.93
EX J-80	1,581.95	0	55	1,709.93
EX J-90	1,583.61	0	55	1,709.93
EX J-100	1,584.83	0	54	1,709.93
EX J-110	1,591.24	0	51	1,709.93
FH-1	1,596.50	0	48	1,707.80
FH-2	1,601.60	0	45	1,705.94
FH-3	1,602.00	0	43	1,702.40
FH-4	1,605.00	0	41	1,699.34
FH-5	1,605.50	3,625	39	1,696.75
FH-6	1,604.50	0	41	1,698.80
FH-7	1,599.70	0	45	1,703.16
FH-8	1,594.00	0	48	1,705.85
FH-9	1,586.50	0	53	1,708.66
FH-10	1,594.53	0	48	1,706.19
FH-11	1,592.38	0	49	1,706.21
FH-12	1,584.48	0	54	1,709.93
FH-13	1,588.09	0	53	1,709.93
FH-14	1,591.62	0	51	1,709.93
FH-15	1,589.30	0	52	1,709.93
J-10	1,596.00	0	49	1,709.46
J-20	1,596.50	0	48	1,707.64
J-30	1,601.60	0	45	1,706.15
J-46	1,601.90	386	44	1,703.74
J-60	1,605.30	0	42	1,701.50
J-100	1,605.50	0	41	1,700.07
J-110	1,605.00	0	41	1,700.62
J-120	1,600.64	0	43	1,700.95
J-150	1,593.00	0	49	1,706.23
J-170	1,588.19	0	52	1,709.50
J-220	1,584.87	0	54	1,709.93
J-230	1,586.00	0	54	1,709.93

SEC Hayden-Loop 101 Project

FlexTable: Pipe Table

Active Scenario: Fire Flow + Max Day (Raw Flow Test Results)

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
EX P-05	EX J-10	EX FH-1 (FLOW B)	19	12.0	Ductile Iron	130.0	0	0.00
EX P-15	EX J-20	EX J-10	111	12.0	Ductile Iron	130.0	2,156	6.12
EX P-25	EX J-30	EX J-20	219	12.0	Ductile Iron	130.0	2,156	6.12
EX P-35	EX FH-2 (TEST)	EX J-30	121	12.0	Ductile Iron	130.0	2,156	6.12
EX P-45	EX J-50	EX FH-2 (TEST)	607	12.0	Ductile Iron	130.0	-1,854	5.26
EX P-55	EX FH-3 (FLOW A)	EX J-50	7	12.0	Ductile Iron	130.0	0	0.00
EX P-65	FH-12	EX FH-3 (FLOW A)	397	12.0	Ductile Iron	130.0	0	0.00
EX P-67	EX J-70	FH-12	8	12.0	Ductile Iron	130.0	0	0.00
EX P-75	EX J-80	EX J-70	889	12.0	Ductile Iron	130.0	0	0.00
EX P-85	EX J-90	EX J-80	85	12.0	Ductile Iron	130.0	0	0.00
EX P-95	EX J-100	EX J-90	58	12.0	Ductile Iron	130.0	0	0.00
EX P-105	EX J-110	EX J-100	561	16.0	Ductile Iron	130.0	0	0.00
P-05	J-10	EX J-10	53	12.0	Ductile Iron	130.0	-2,156	6.12
P-15	FH-1	J-10	158	12.0	Ductile Iron	130.0	-2,156	6.12
P-17	J-20	FH-1	15	12.0	Ductile Iron	130.0	-2,156	6.12
P-25	J-30	J-20	141	12.0	Ductile Iron	130.0	-2,156	6.12
P-35	FH-2	J-30	18	12.0	Ductile Iron	130.0	-2,315	6.57
P-45	J-46	FH-2	183	12.0	Ductile Iron	130.0	-2,315	6.57
P-47	FH-3	J-46	157	12.0	Ductile Iron	130.0	-1,929	5.47
P-55	J-60	FH-3	105	12.0	Ductile Iron	130.0	-1,929	5.47
P-65	J-60	FH-4	253	12.0	Ductile Iron	130.0	1,929	5.47
P-75	FH-4	FH-5	303	12.0	Ductile Iron	130.0	1,929	5.47
P-85	FH-5	FH-6	305	12.0	Ductile Iron	130.0	-1,696	4.81
P-95	J-100	FH-6	188	12.0	Ductile Iron	130.0	1,696	4.81
P-105	J-110	J-100	81	12.0	Ductile Iron	130.0	1,696	4.81
P-115	J-120	J-110	50	12.0	Ductile Iron	130.0	1,696	4.81
P-125	FH-7	J-120	327	12.0	Ductile Iron	130.0	1,696	4.81
P-135	FH-8	FH-7	400	12.0	Ductile Iron	130.0	1,696	4.81
P-145	J-150	FH-8	56	12.0	Ductile Iron	130.0	1,696	4.81
P-155	FH-9	J-150	306	12.0	Ductile Iron	130.0	1,854	5.26
P-165	J-170	FH-9	105	12.0	Ductile Iron	130.0	1,854	5.26
P-175	EX J-50	J-170	54	12.0	Ductile Iron	130.0	1,854	5.26
P-185	J-30	FH-10	398	12.0	Ductile Iron	130.0	-159	0.45
P-195	FH-10	FH-11	312	12.0	Ductile Iron	130.0	-159	0.45
P-205	FH-11	J-150	169	12.0	Ductile Iron	130.0	-159	0.45
P-215	J-220	EX J-70	36	12.0	Ductile Iron	130.0	0	0.00
P-225	J-230	J-220	277	12.0	Ductile Iron	130.0	0	0.00
P-235	FH-13	J-230	257	12.0	Ductile Iron	130.0	0	0.00
P-245	FH-14	FH-13	363	12.0	Ductile Iron	130.0	0	0.00
P-255	FH-15	FH-14	362	12.0	Ductile Iron	130.0	0	0.00
P-265	EX J-110	FH-15	116	12.0	Ductile Iron	130.0	0	0.00
P-PMP-1	PMP-1	EX FH-2 (TEST)	1	48.0	Ductile Iron	130.0	4,011	0.71
P-R-1	R-1	PMP-1	1	48.0	Ductile Iron	130.0	4,011	0.71

FIRE HYDRANT FLOW TEST