Records

WATER BASIS OF DESIGN REPORT

October 24, 2014

February 3, 2015

January 18, 2016

Revised: May 19, 2016

Wildcat Hill

Scottsdale, Arizona

Accepted For:
City of Scottsdale
Water Resources Department
9379 E. San Salvador
Scottsdale, Arizona

By: DSG MAN
Date: 6-10-16

Water Report

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ARIZONA, U.S.A.

Expires: 6/30/18

Job # 1.01.0252003

424-16
2nd

CVL CONSULTANTS

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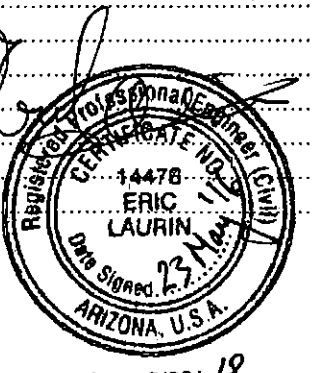
Tables



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Appendices

1.0 INTRODUCTION

1.1 General Description

Wildcat is a proposed 353 acre master planned community located in Scottsdale, Arizona, that is to be constructed in three phases. A total of 122 residential dwelling units (DU) are planned at build-out. This report addresses the water distribution system for the proposed Wildcat development at build out as well as a brief analysis of the proposed phasing for the development. The proposed water collection system will adhere to the requirements and guidelines set forth in the City of Scottsdale's *Design Standards & Policies Manual*, 2010.

1.2 Project Location

Wildcat is located in Sections 21, 22, 27, 28 of Township 6 North, Range 5 East of the Gila and Salt River Base and Meridian. It is bordered by Bartlett Dam Road to the north, and Cave Creek Road to the northwest.

1.3 Land Use

Wildcat has three phases; Phase 1 consists of 75 DU's, Phase 2 consists of 34 DU's and Phase 3 consists of 13 DU's. The following is for the proposed Wildcat development at build out.

Table 1 – Land Use and Population

Land Use	Area (acres)	DU's	Density (DU/acre)
Low Density Residential	*353*	*122*	*0.35*

1.4 Topographic Conditions

The property slopes to the south. The Wildcat development's elevation change is approximately 225 feet, dropping from approximately 3,275 feet above mean sea level (MSL) at the at the northwest corner of the development to approximately 3,050 feet above MSL at the southwest corner of the development.

2.0 WATER SYSTEM DESIGN CRITERIA

The following criteria will be used in developing the water report.

2.1 Design Criteria

This water report is based on criteria from the City of Scottsdale's *Design Standards & Policies Manual*, dated January, 2010. The following criteria were used in developing this plan:

- Demand factors
  - Single family residential demand factor = 485.6 gpd/DU
  - Maximum day factor = 2 x ADD
  - Peak hour factor = 3.5 x ADD
- Fire flow requirements:
  - 1,000 gpm
- Pressure requirements
  - Minimum
    - 50 psi during average day, maximum day and peak hour demand
    - 30 psi during maximum day plus fire flow
  - Maximum = 120 psi
- Velocity
  - Maximum
    - 5 fps for maximum day demand
    - 7 fps for peak hour demand
    - 10 fps for maximum day demand plus fire flow
- Unit friction headloss
  - Maximum = 10ft/1,000 ft of distribution lines
- Hazen-Williams Coefficient = 130
- Storage
  - Three hours fire flow reserve plus 25% of the maximum day demand

3.0 EXISTING INFRASTRUCTURE

3.1 Existing Waterlines

One waterline exists within the Wildcat Hill Development. A 16" transmission main Cave Creek Road turns east and passes through an existing Tract G directly south of Bartlett Lake Road. This 16" waterline will provide water to the Site 158 booster pump station and reservoir from the future Zone 14-B booster pump station to be located within the Encellia development, east of Cave Creek Road and north of Lone Mountain Parkway. Adjacent developments are currently served by an existing 8-inch waterline in Cave Creek Road.

The Site 158 booster pump station and reservoir as well as the Zone 14-B booster pump station are both planned future water infrastructure and are not evaluated in this report. Both stations will be constructed by others before the proposed Wildcat development is in use.

3.2 Pressure Zones

Due to the topography of Wildcat and the surrounding developments, many pressure zones exist in this area. Pressure zone boundaries in and around Wildcat were provided by the City of Scottsdale Water Resources Department in a meeting on August 26, 2014. These boundaries were used to determine connection locations to tie into existing lines, as well as the placement of pressure reducing valves (PRV) in the Wildcat development. The three pressure zones in Wildcat and their corresponding hydraulic grade lines may be seen in Table 2. The number of lots to be located in each pressure zone is also identified. A site plan of these pressures zones may be seen in Figure 3.

Table 2– Wildcat Pressure Zones

Pressure Zone	Hydraulic Grade Line	# of DU's
16-A	3,454 ft	8
15-B	3,378 ft	89
15-Q	3,257 ft	25

4.0 PROPOSED INFRASTRUCTURE

4.1 Water Demands

The water demands by pressure zone for the proposed Wildcat development may be seen in Table 3. Demands are based on the design criteria presented in Section 2.1. The proposed water system layout is based on the maximum day plus residential fire flow demand being met.

The water distribution system was also sized to provide water to 2 off-site parcel areas. The first set of parcels contains 4 single family residential parcels and is within pressure zone 15-B. The second set of parcels is to the south of Wildcat in pressure zone 14- Q. The land use for these parcels is assumed to be the same as Wildcat. The number of dwelling units in this parcel is based on the 0.35 DU/acre density for Wildcat. Water demands for the offsite parcels may be seen in Table 3.

Table 3 – Wildcat Water Demands

Wildcat Parcels									
Pressure Zone	**Number of DU**	**Persons per DU**	**Population (Capita)**	**Unit Factor (gpd/unit)**	**ADD (gpd)**	**MDF**	**MDD (gpd)**	**PHF**	**PHD (gpd)**
16-A	8	2.5	20	485.6	3,885	2	7,770	3.5	13,597
15-B	89	2.5	222.5	485.6	43,218	2	86,437	3.5	151,264
15-Q	25	2.5	62.5	485.6	12,140	2	24,280	3.5	42,490
Sub-Total	**122**		**305**		**59,243**		**118,486**		**207,351**
OffSite Parcels									
15-B	4	2.5	10	485.6	1,942	2	3,885	3.5	6,798
14-Q	27	2.5	67.5	486.6	13,138	2	26,276	3.5	45,984
Total	**153**		**382.5**		**74,324**		**148,648**		**260,133**

4.2 Water Supply Schematic

A water supply schematic was completed for Wildcat based on pressure zones. This water supply schematic may be seen in Figure 4. Each pressure zone in Wildcat must have a primary source of water and a secondary source of water. Sources of water for each pressure zone may be seen below in Table 4.

Table 4 – Pressure Zone Water Sources BELIEVE AN 8" NOW

Pressure Zone	Primary Source of Water	Secondary Source of Water
16-A	Wildcat BPS	12-inch in Cave Creek Road [2)]
15-B	Zone 16-A[1)]	8-inch in Cave Creek Road [2)]
15-Q	Zone 15-B[1)]	Boulder View Drive Connection

[1)] Pressure reducing valves will be placed at pressure zone boundaries.
[2)] Line will be used to begin construction

As shown in the water supply schematic, PRV's will be present in any water line that crosses a zonal boundary.

The proposed connections to existing infrastructure in Cave Creek Road will be to lines within the same pressure zone having the same HGL as the Wildcat pressure zones. The proposed pressure zone 15-Q connection to pressure zone 14-B at Boulder View Drive will only provide water to the Wildcat development when the HGL in pressure zone 15-Q drops below 3,203 ft.

4.3 Proposed On-Site Infrastructure

NAP on Fig 5

A distribution network of 8-inch waterlines was designed to provide water to the Wildcat development. This design may be seen in Figure 5. Four parcels in pressure zone 15-B and future development south of Wildcat in pressure zone 14-Q were also considered when designing this distribution system.

14B, per our maps but will tie in at 14A in Joy Ranch Road w/ a PRV

Wildcat's primary source of water is from the future Site 158 booster pump station and reservoir. A 12-inch line will run from the booster pump station to pressure zone 16-A. This line will run south in Wildcat and pass through PRV's at each pressure zone boundary. To create a looped system, a connection to pressure zone 14-B in Boulder View Drive just west of Wildcat is proposed.

To provide a secondary source of water to Wildcat, 3 connections to the existing infrastructure are proposed.

4.4 Phasing

911

Three phases are proposed for the Wildcat Hill Development. See Figure 5. To begin construction on the proposed Wildcat development, a 12-inch waterline connecting to the existing infrastructure for the Painted Sky development is required. This line would allow construction to begin on Phase 1 of Wildcat before the Site 158 booster pump station and reservoir are complete. Phase 1 will consist of 75 dwelling units in all 3 pressure zones. The WaterCAD system modeled for each phase and the ultimate design may be seen in Figures 6 through 8.

May impose limitations on max. Q allowed.

Phase 2 infrastructure includes the infrastructure that is required to serve Phase 2, as well as the offsite parcels considered in this analysis. Phase 2 consists of 34 lots in 2 pressure zones. The WaterCAD system modeled for Phase 2 may be seen in Figure 9.

5.0 WATER SYSTEM MODELING

5.1 Network Analysis

The network analysis for the distribution system was completed using WaterCAD V8*i*. A model was created and modified as necessary to demonstrate that the existing and proposed water infrastructure meets the water system design criteria. The network distribution system for Phase 1 is shown in Figure 8, Phase 2 in Figure 9 and the network for build out is shown in Figure 7. All networks were analyzed for average day, maximum day, peak hour and maximum day plus fire flow demand conditions. Demands were allocated to the nodes based on the proposed lotting and overall layout. Residential fire flow (1,000 gpm) was assigned to each appropriate node independently to verify available pressure and flow for the system during a fire flow event. The existing conditions were determined by HGLs provided by the City of Scottsdale and shown in Table 2.

The pipes were sized based on pressure requirements for average day, maximum day, peak hour and maximum day plus fire flow, as described in Section 2.0.

Input parameters of the water distribution system modeling include:

- Pipe Diameters (inches)
- Elevations of Nodes/Junctions (feet)
- System Water Demands (gpm)
- Residential Fire Flow = 1,000 gpm
- Hazen-Williams, C=130

Output parameters include but are not limited to:

- Velocities (fps)
- Pressure (psi)
- Head Loss (feet)
- Flow Rates (gpm)

5.2 Modeling Results

The detailed results of the WaterCAD analysis for Phase 1 and Build Out conditions are presented in Appendix A and B, sequentially. Table 5 summarizes the results for Phase 1, Table 6 summarizes the results for Phase 2 and Table 7 summarizes the results at build out.

Table 5 – Water Model Results Summary for Phase 1

Scenario	Flow [2] (gpm)	Pressure (psi)				Maximum Velocity (fps)	Pipe ID
		Minimum	Node	Maximum	Node		
Average Day	36	51.5	J-3	113.8 [1]	J-42	0.13	P-50
Maximum Day	71.5	51.5	J-3	113.8 [1]	J-42	0.26	P-50
Peak Hour	125	51.5	J-3	113.8 [1]	J-42	0.45	P-50
Maximum Day + Residential Fire Flow	1,071.5	48.1	J-3	106.6 [1]	J-42	6.65	P-50

1) Individual PRV's are required at lots experiencing pressures greater than 80 psi.
2) Includes demand from Phase 1 and offsite parcels.

Table 6 – Water Model Results Summary for Phase 2

Scenario	Flow [2] (gpm)	Pressure (psi)				Maximum Velocity (fps)	Pipe ID
		Minimum	Node	Maximum	Node		
Average Day	47	51.5	J-3	113.8 [1]	J-42	0.16	P-50
Maximum Day	94	51.5	J-3	113.8 [1]	J-42	0.31	P-50
Peak Hour	165	51.5	J-3	113.8 [1]	J-42	0.54	P-50
Maximum Day + Residential Fire Flow	1,094.4	48.1	J-3	106.6 [1]	J-42	6.70	P-52

1) Individual PRV's are required at lots experiencing pressures greater than 80 psi.
2) Includes demand from Phase 1, Phase 2 and offsite parcels.

Table 7 – Water Model Results Summary for Build Out

Scenario	Flow [2] (gpm)	Pressure (psi)				Maximum Velocity (fps)	Pipe ID
		Minimum	Node	Maximum	Node		
Average Day	52	51.5	J-3	113.8 [1]	J-42	0.17	P-50
Maximum Day	103	51.5	J-3	113.8 [1]	J-42	0.35	P-50
Peak Hour	181	51.5	J-3	113.8 [1]	J-42	0.59	P-50
Maximum Day + Residential Fire Flow	1,103	48.1	J-3	106.6 [1]	J-42	6.74	P-52

1) Individual PRV's are required at lots experiencing pressures greater than 80 psi.
2) Includes Phase 1, 2 and 3 demands at build out, and offsite parcels. See Table 3.

6.0 SUMMARY

This Water System Analysis presents the water system design criteria, proposed water system design, and an overview of existing infrastructure surrounding the project site. The following summarizes CVL's findings of the proposed water system to serve Wildcat

- The water system will be owned and operated by the City of Scottsdale.
- The supply and storage requirements will be provided by the City of Scottsdale through existing and planned future infrastructure including existing infrastructure in Cave Creek Road, and the planned future booster pump station and reservoir at Site 158.
- The on-site service area is located within three pressure zones, 16-A, 15-B, 15-Q.
- Distribution lines for Wildcat will consist of 8-inch waterlines. Distribution mains are sized to accommodate all demand requirements and meet City of Scottsdale design criteria.
- Waterline layout will conform to Scottsdale's Design Standards and Policy Manual Section 6-1.402(5).
- Demands at Phase 1, Phase 2, and Build Out for Wildcat are as follows:

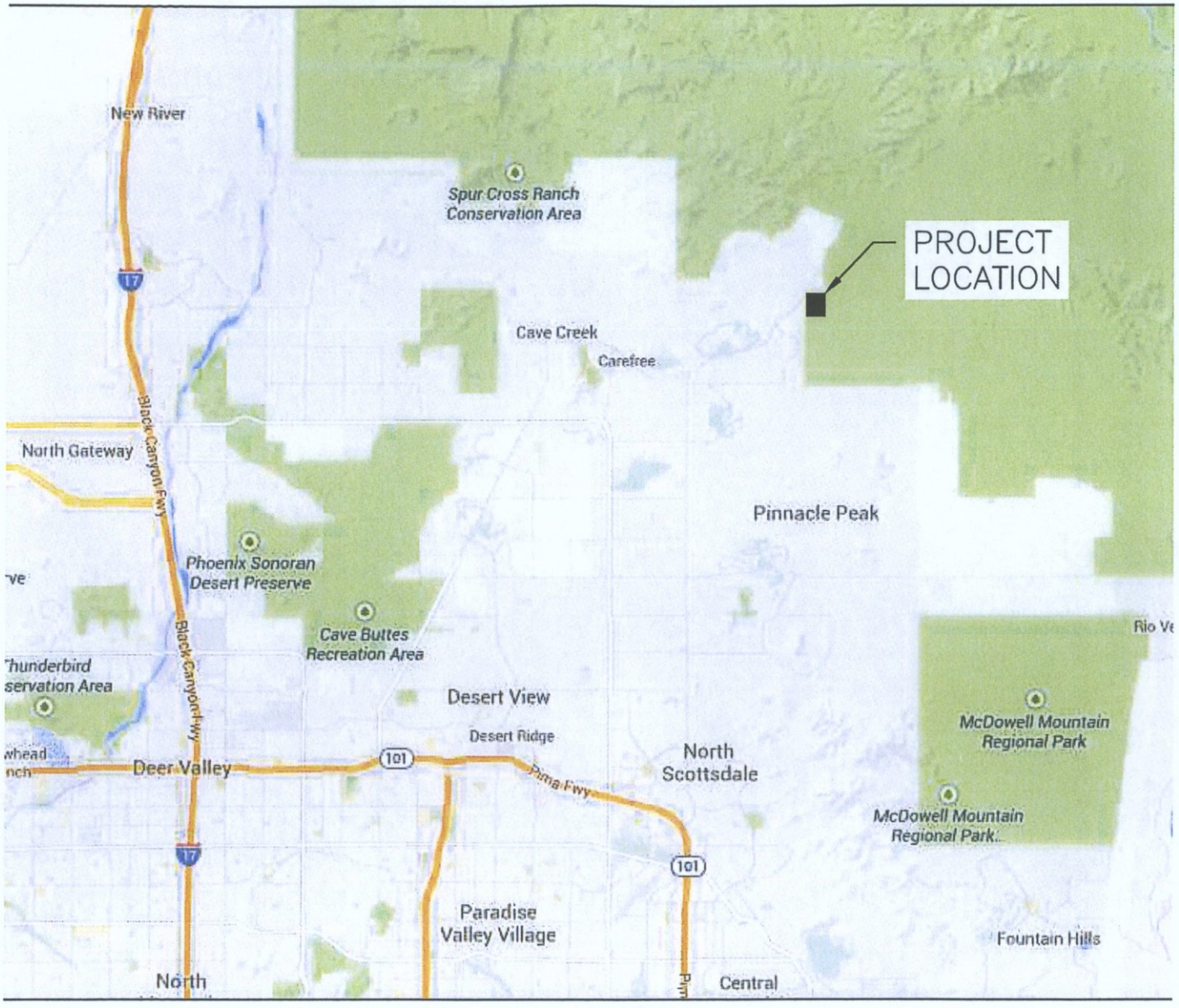
	Average Day Demand (gpm)	Maximum Day Demand (gpm)	Peak Hour Demand (gpm)	Maximum Day Plus Fire Flow Demand
Phase 1	36.7	71.5	125	1,071.5
Phase 2	47.2	94.4	165	1,094.4
Build Out	52	103	181	1,103

- Wildcat will also provide water to 4 parcels not within the proposed Wildcat development as well as future development is pressure zone 14-Q. Water demands for these parcels are as follows:
  - Average day demand = 11 gpm
  - Maximum day demand = 21 gpm
  - Peak hour demand = 37 gpm
- Wildcat will consist of 3 phases. All necessary water lines needed to serve the dwelling units in Phase 1 will be constructed during Phase 1. During Phase 2 the additional infrastructure required to serve Phase 2 will be constructed. The remaining waterlines will be constructed during build out.
- Pressures in the system range from 47.8 psi to 113.8 psi at build out. Individual PRV's are required at all lots experiencing pressures greater than 80 psi, approximately 52 lots.
- Wildcat has a primary source of water from the future Site 158 reservoir and BPS, as well as a secondary source of water from 3 connections to existing lines. These connections will create a looping system for Wildcat.

All offsite/onsite waterlines shown in Fig 6 shall be installed at the sole cost of the Developer.

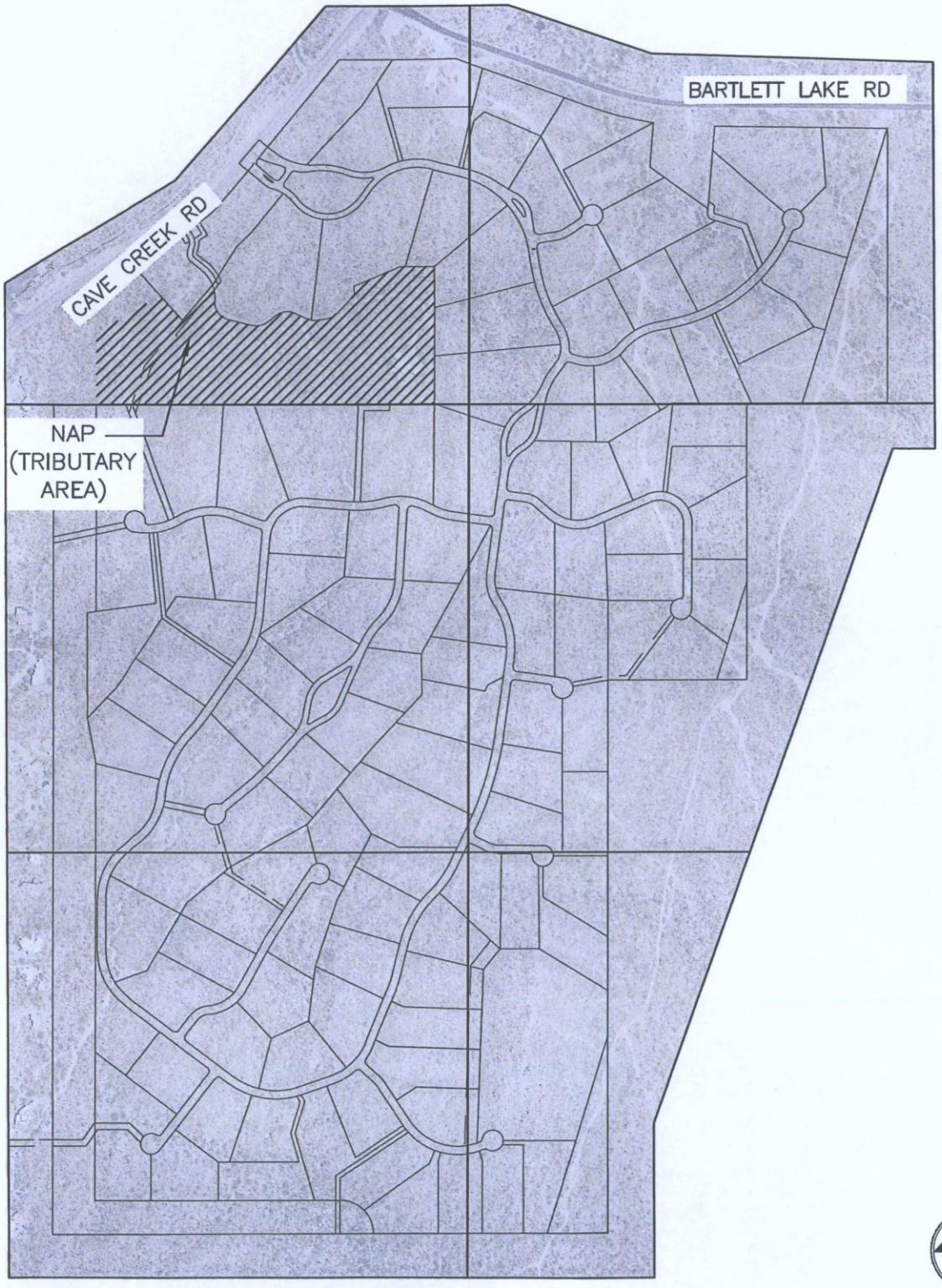
APPENDIX A

FIGURES



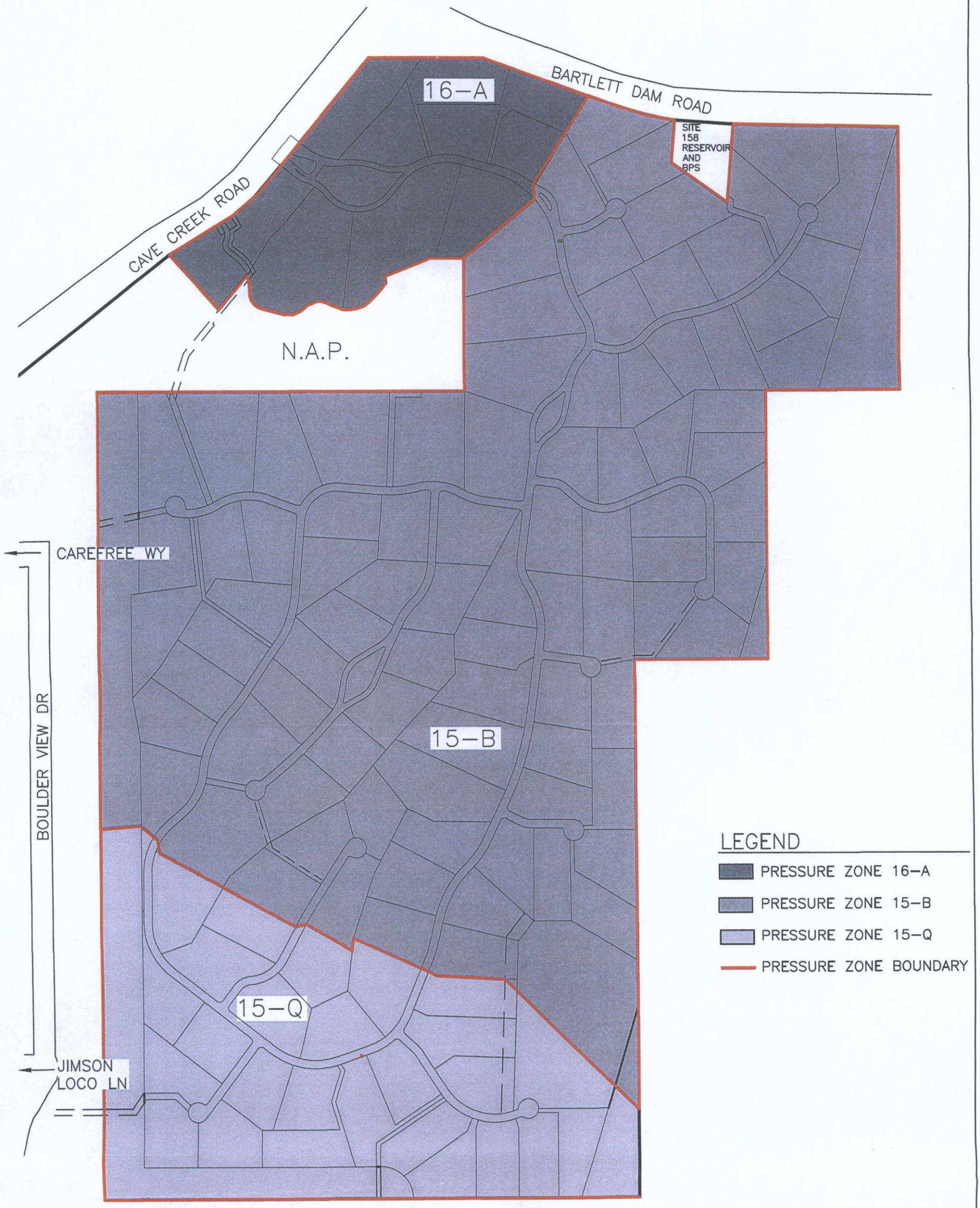
SCALE NTS

JOB NO 1.01.0252003	VICINITY MAP	WILDCAT HILL
FIGURE 1	4550 NORTH 12TH STREET PHOENIX, ARIZONA 85014 TELEPHONE (602) 264-6831	COE & VAN LOO PLANNING • ENGINEERING • LANDSCAPE ARCHITECTURE



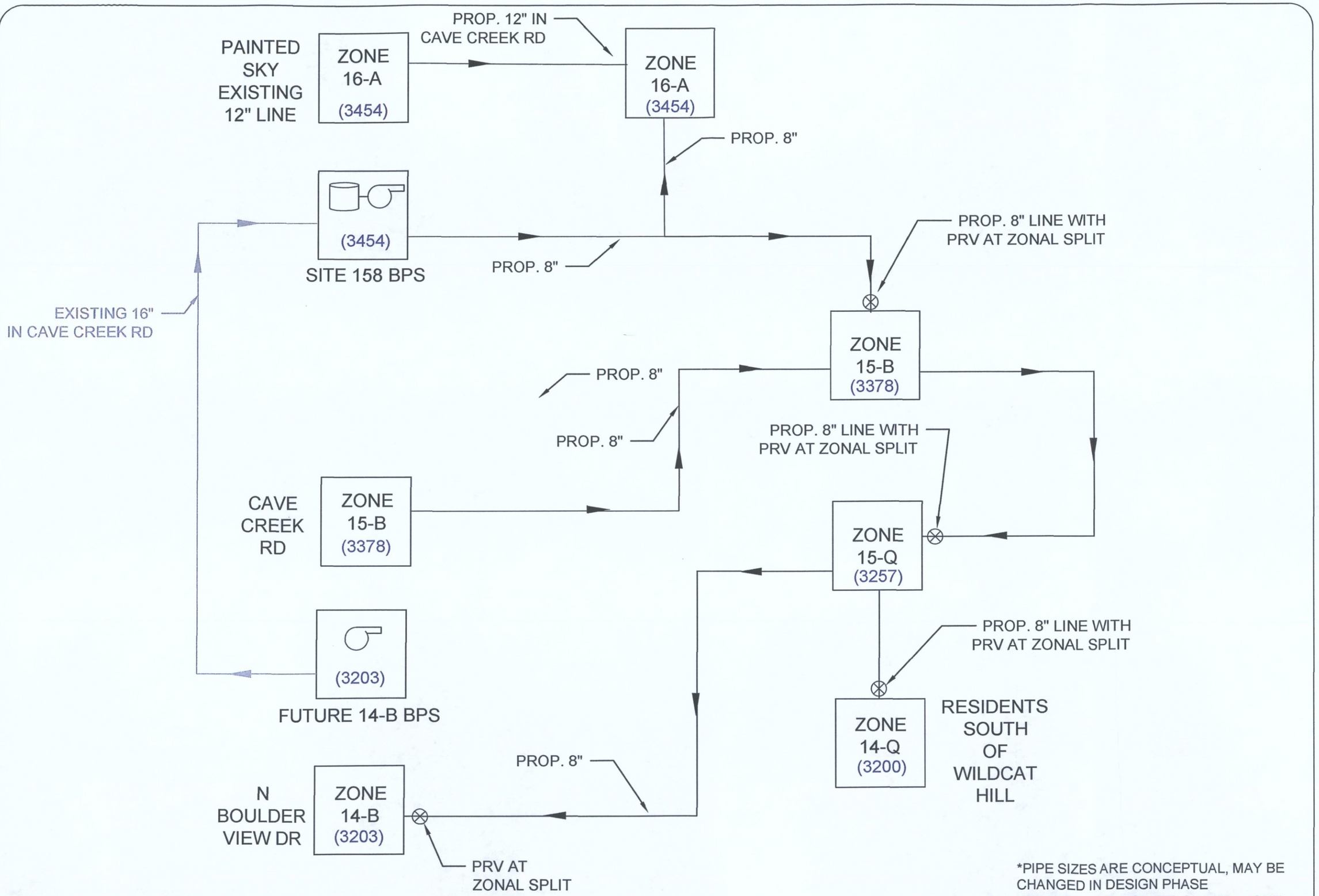
JOB NO 1.01.0252003	SITE MAP	WILDCAT
FIGURE 2	4550 NORTH 12TH STREET PHOENIX, ARIZONA 85014 TELEPHONE (602) 264-6831	COE & VAN LOO PLANNING • ENGINEERING • LANDSCAPE ARCHITECTURE

N:\01\0252003\Enviro\Figures\Pressure Zones.dwg CassandraA Jan 18, 2016 - 4:45pm



SCALE NTS

JOB NO 1.01.0252003	PRESSURE ZONES	WILDCAT HILL
FIGURE 3	4550 NORTH 12TH STREET PHOENIX, ARIZONA 85014 TELEPHONE (602) 264-6831	COE & VAN LOO PLANNING • ENGINEERING • LANDSCAPE ARCHITECTURE



NOTE: SEE ATTACHED FIGURE FOR SITE PLAN.

*PIPE SIZES ARE CONCEPTUAL, MAY BE CHANGED IN DESIGN PHASE
**BLUE TEXT IS HGL (FT) OF THAT ZONE

WILDCAT HILL

WATER SUPPLY SCHEMATIC

COE & VAN LOO
PLANNING • ENGINEERING • LANDSCAPE ARCHITECTURE
4550 NORTH 12TH STREET
PHOENIX, ARIZONA 85014
TELEPHONE (602) 264-6831

JOB NO
1.01.0252003

FIGURE
4 2B

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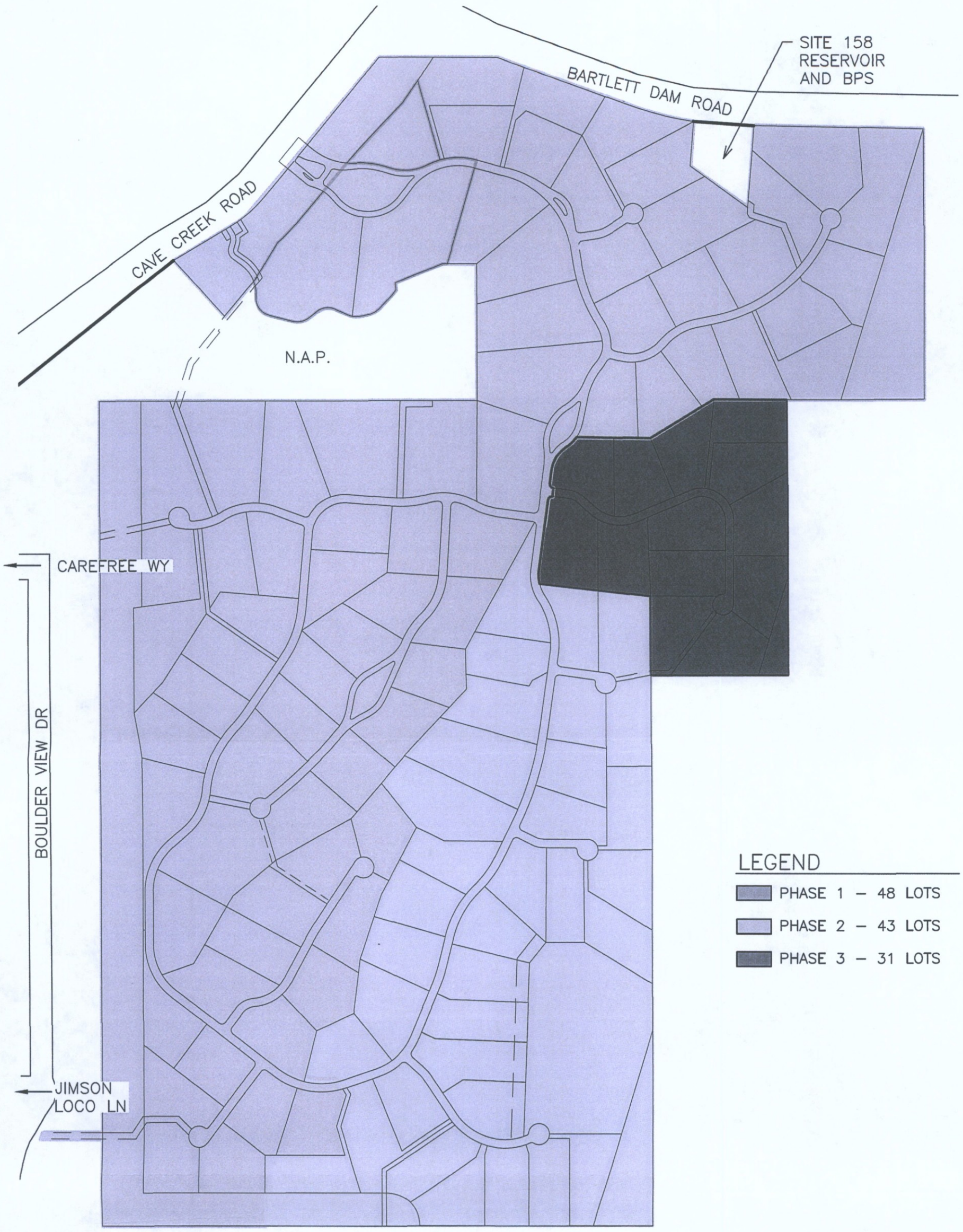

SCALE NTS

JOB NO 1.01.0252003	PHASING	WILDCAT HILL
FIGURE 3	4550 NORTH 12TH STREET PHOENIX, ARIZONA 85014 TELEPHONE (602) 264-6831	COE & VAN LOO PLANNING • ENGINEERING • LANDSCAPE ARCHITECTURE

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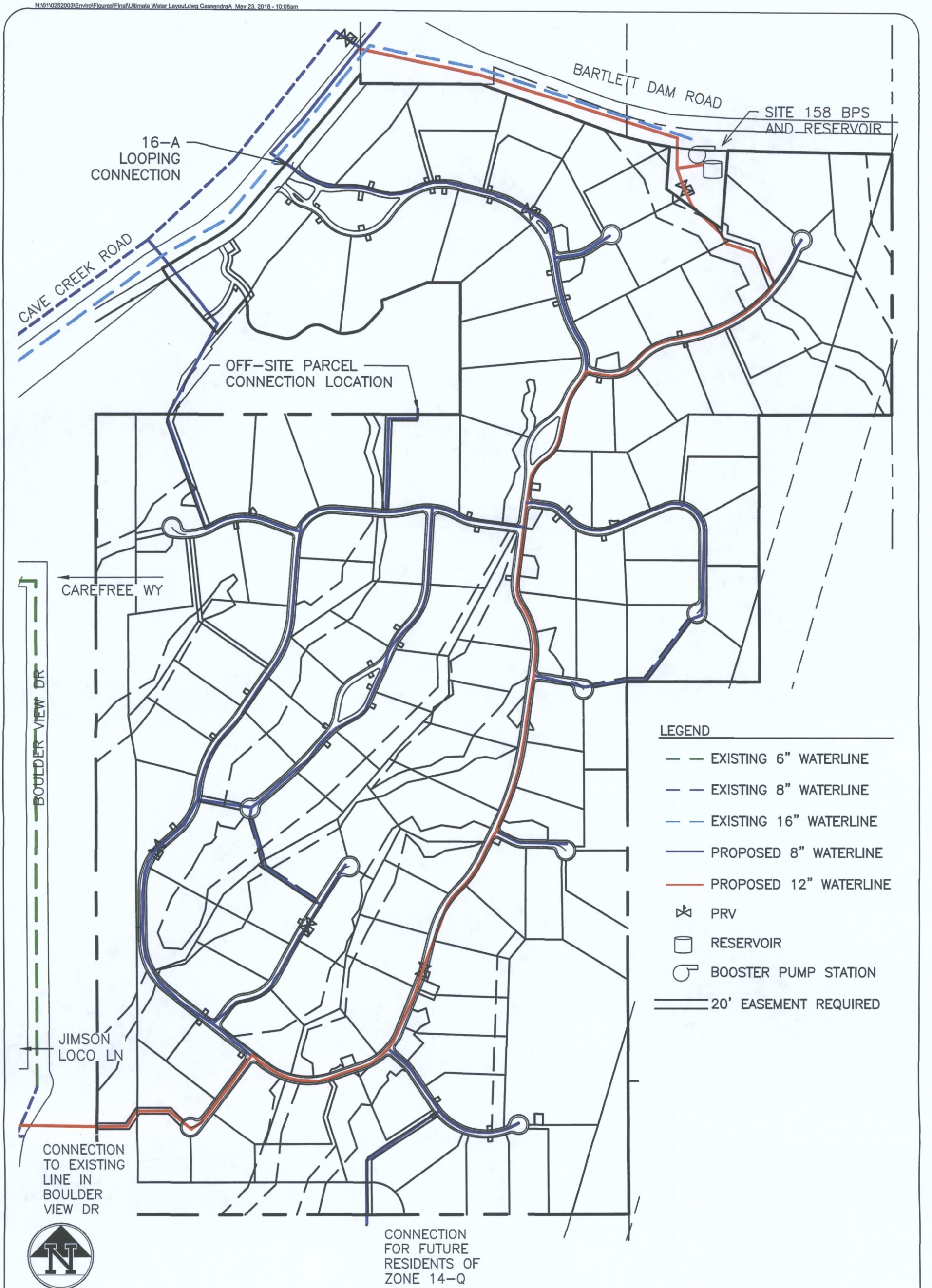

JOB NO 1.01.0252003	ULTIMATE WATER LAYOUT	WILDCAT HILL
FIGURE 4	4550 NORTH 12TH STREET PHOENIX, ARIZONA 85014 TELEPHONE (602) 264-6831	COE & VAN LOO PLANNING • ENGINEERING • LANDSCAPE ARCHITECTURE

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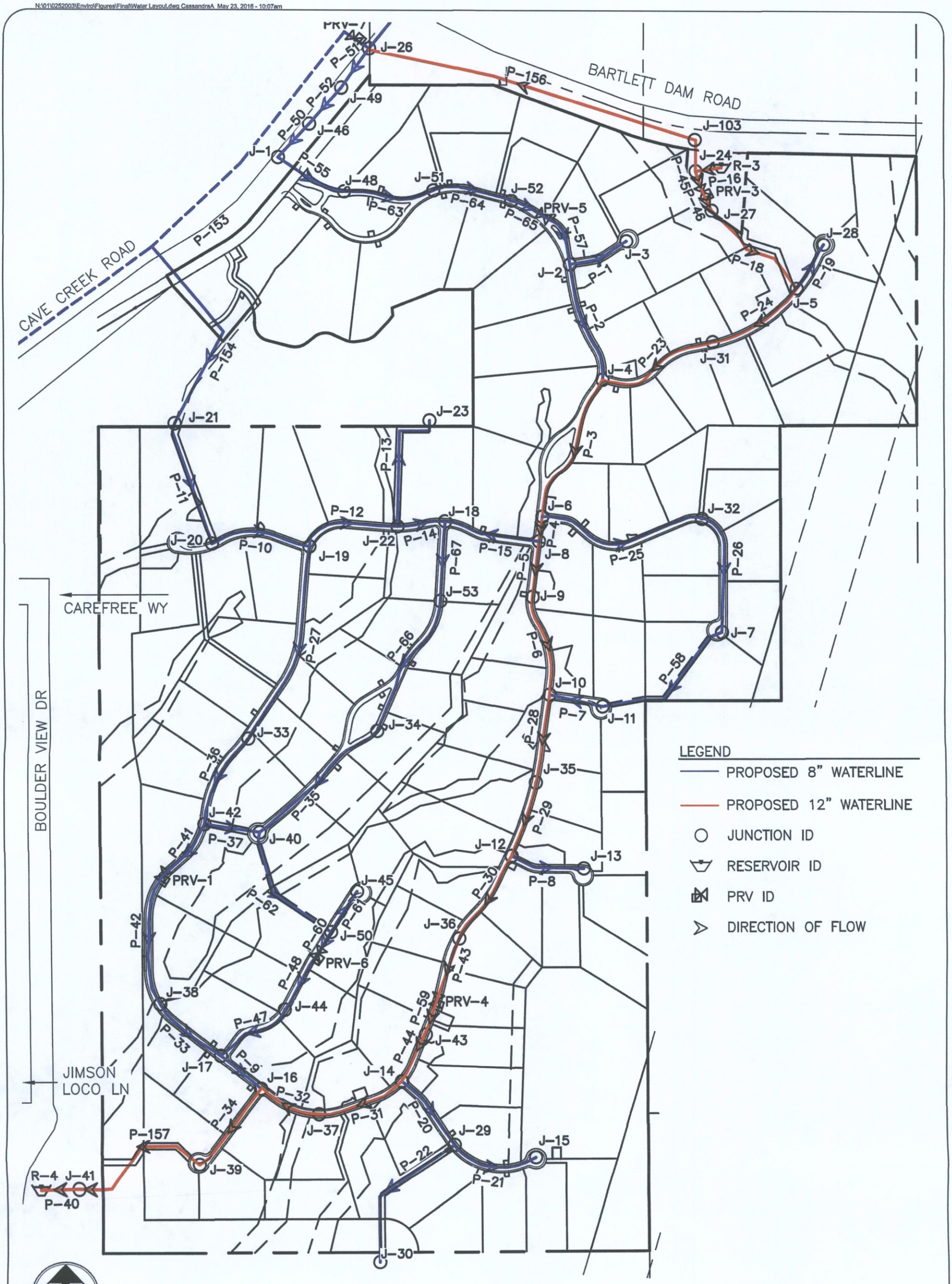

JOB NO 1.01.0252003	ULTIMATE WATERCAD LAYOUT	WILDCAT HILL
FIGURE 5	4550 NORTH 12TH STREET PHOENIX, ARIZONA 85014 TELEPHONE (602) 264-6831	COE & VAN LOO PLANNING • ENGINEERING • LANDSCAPE ARCHITECTURE

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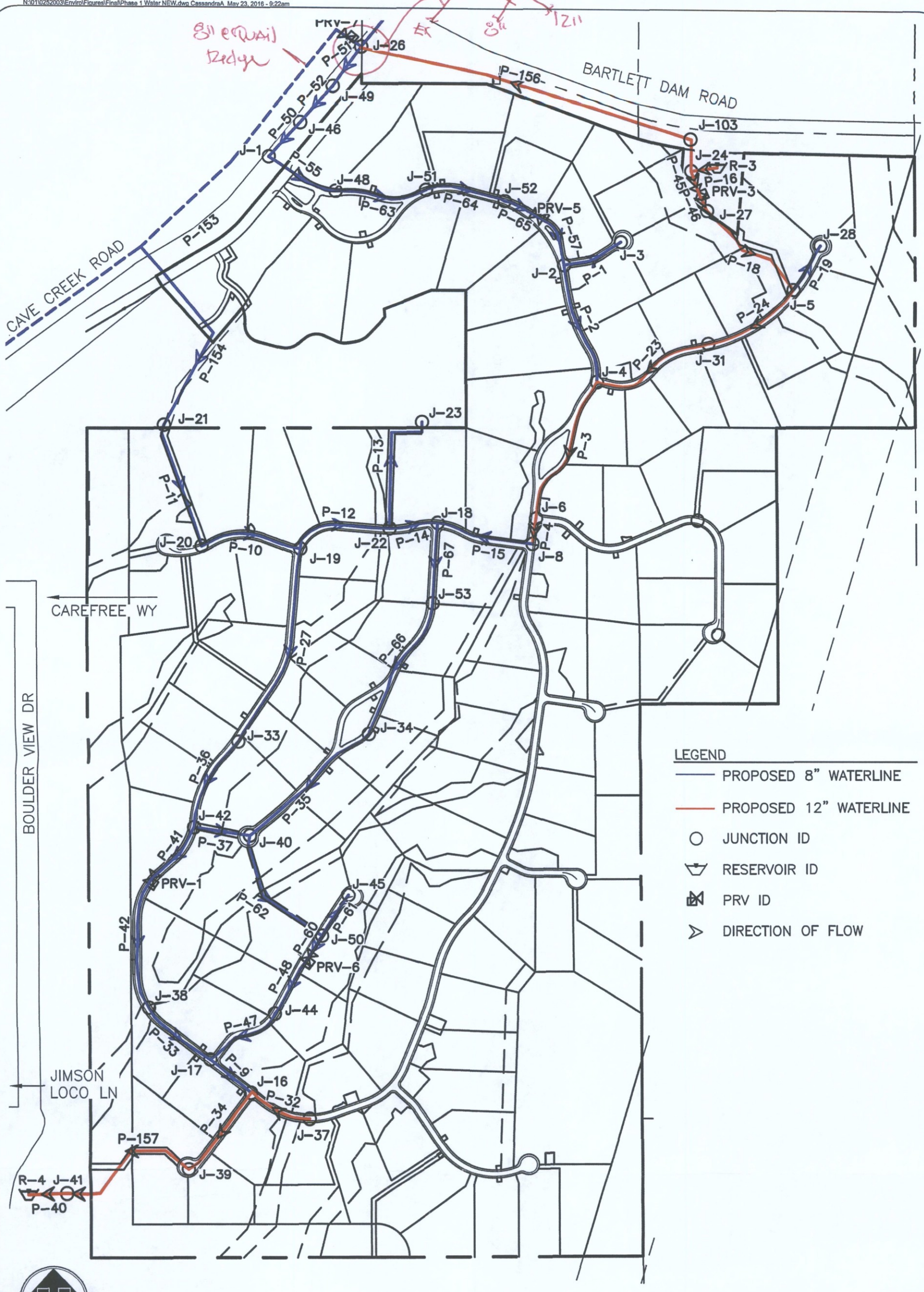

JOB NO 1.01.0252003	PHASE 1 WATERCAD LAYOUT	WILDCAT HILL
FIGURE 6	4550 NORTH 12TH STREET PHOENIX, ARIZONA 85014 TELEPHONE (602) 264-6831	COE & VAN LOO PLANNING • ENGINEERING • LANDSCAPE ARCHITECTURE

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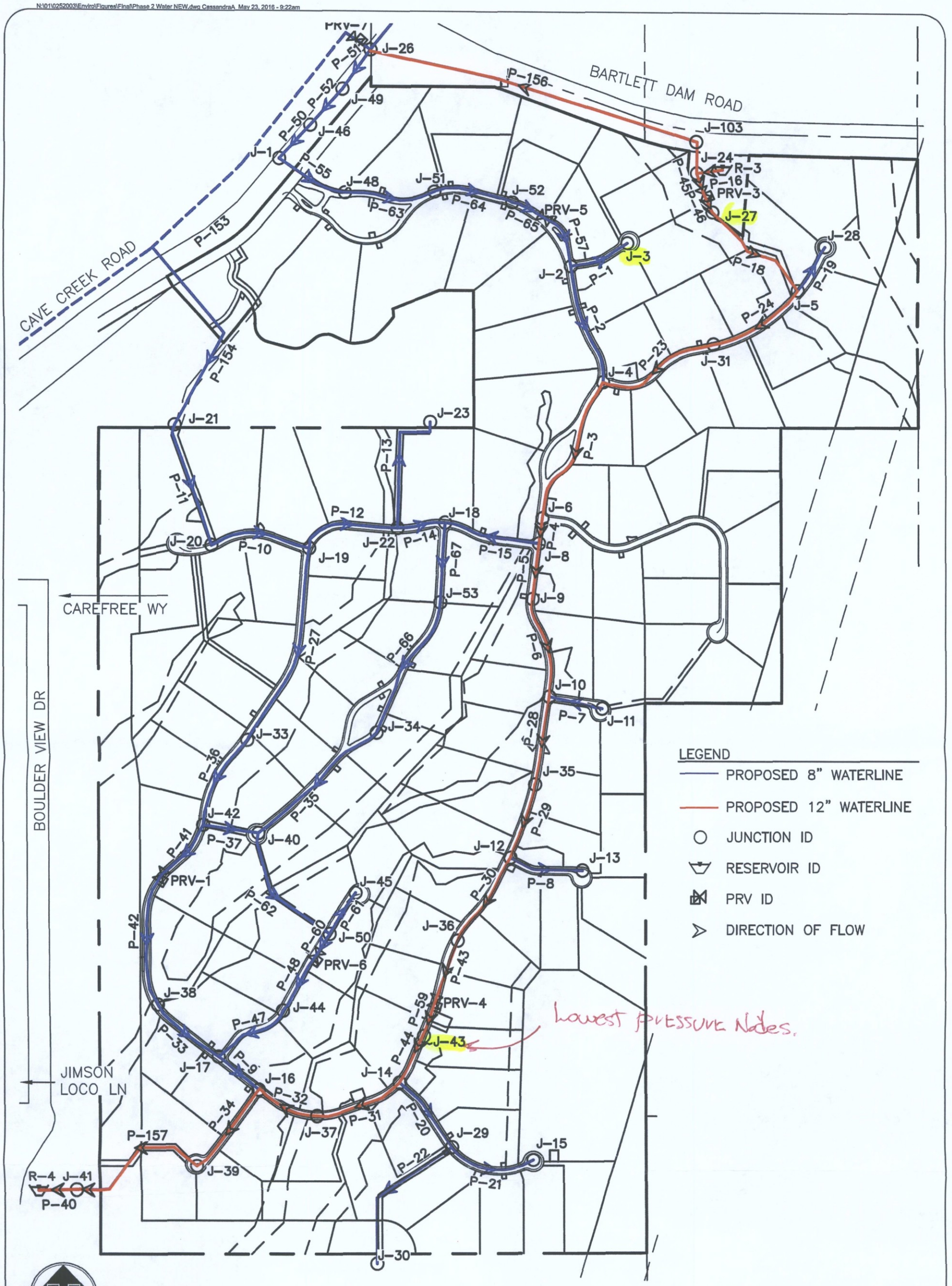

SCALE NTS

JOB NO	PHASE 2 WATERCAD LAYOUT	WILDCAT HILL
1.01.0252003		
FIGURE 7	4550 NORTH 12TH STREET PHOENIX, ARIZONA 85014 TELEPHONE (602) 264-6831	COE & VAN LOO PLANNING • ENGINEERING • LANDSCAPE ARCHITECTURE

APPENDIX B

WATERCAD ANALYSIS PHASE 1

FlexTable: Reservoir Table

Active Scenario: Average Day Demand

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-2	3,454.00	8	3,454.00
R-3	3,454.00	28	3,454.00
R-4	3,203.00	0	3,203.00

FlexTable: Junction Table

Active Scenario: Average Day Demand

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-1	3,265.00	0	3,453.99	81.8
J-2	3,239.00	1	3,378.05	60.2
J-3	3,259.00	2	3,378.05	51.5
J-4	3,235.00	1	3,378.05	61.9
J-5	3,234.00	2	3,378.05	62.3
J-6	3,200.00	1	3,378.04	77.0
J-8	3,198.00	0	3,378.04	77.9
J-16	3,096.00	0	3,257.05	69.7
J-17	3,098.00	0	3,257.05	68.8
J-18	3,211.00	1	3,378.04	72.3
J-19	3,193.00	2	3,378.04	80.1
J-20	3,171.00	2	3,378.04	89.6
J-21	3,197.00	1	3,378.04	78.3
J-22	3,194.00	0	3,378.04	79.6
J-23	3,221.00	1	3,378.04	67.9
J-24	3,247.00	0	3,454.00	89.6
J-26	3,280.00	0	3,454.00	75.3
J-27	3,245.00	0	3,378.05	57.6
J-28	3,225.00	1	3,378.05	66.2
J-31	3,234.44	2	3,378.05	62.1
J-33	3,145.94	1	3,378.04	100.4
J-34	3,163.56	1	3,378.04	92.8
J-37	3,102.58	9	3,257.05	66.8
J-38	3,104.00	1	3,257.05	66.2
J-39	3,060.00	2	3,257.05	85.3
J-40	3,130.68	2	3,378.03	107.0
J-41	3,060.00	0	3,257.05	85.3
J-42	3,115.00	1	3,378.03	113.8
J-44	3,113.22	1	3,257.05	62.2
J-45	3,144.00	1	3,378.03	101.3
J-46	3,276.82	0	3,454.00	76.7
J-48	3,259.29	1	3,453.99	84.2
J-49	3,278.40	0	3,454.00	76.0
J-50	3,133.72	0	3,378.03	105.7
J-51	3,252.36	1	3,453.99	87.2
J-52	3,246.23	1	3,453.99	89.9
J-53	3,194.36	1	3,378.04	79.5
J-103	3,249.00	0	3,454.00	88.7
J-104	3,199.00	0	3,378.04	77.5

FlexTable: Pipe Table

Active Scenario: Average Day Demand

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
P-1	302	J-3	J-2	8.0	130.0	-2	0.01	0.000
P-2	595	J-2	J-4	8.0	130.0	8	0.05	0.000
P-3	739	J-4	J-6	12.0	130.0	19	0.05	0.000
P-4	120	J-6	J-8	12.0	130.0	18	0.05	0.000
P-9	252	J-16	J-17	8.0	130.0	-11	0.07	0.000
P-10	496	J-19	J-20	8.0	130.0	-5	0.03	0.000
P-11	611	J-20	J-21	8.0	130.0	-7	0.04	0.000
P-12	487	J-19	J-22	8.0	130.0	-6	0.04	0.000
P-13	653	J-22	J-23	8.0	130.0	1	0.00	0.000
P-14	232	J-22	J-18	8.0	130.0	-7	0.04	0.000
P-15	468	J-18	J-8	8.0	130.0	-18	0.11	0.000
P-16	135	R-3	J-24	12.0	130.0	28	0.08	0.000
P-18	584	J-27	J-5	12.0	130.0	16	0.05	0.000
P-19	253	J-5	J-28	8.0	130.0	1	0.00	0.000
P-23	616	J-4	J-31	12.0	130.0	-12	0.03	0.000
P-24	497	J-31	J-5	12.0	130.0	-14	0.04	0.000
P-27	990	J-33	J-19	8.0	130.0	-9	0.06	0.000
P-32	323	J-37	J-16	12.0	130.0	-9	0.03	0.000
P-33	387	J-17	J-38	8.0	130.0	-11	0.07	0.000
P-34	473	J-16	J-39	12.0	130.0	2	0.00	0.000
P-35	755	J-40	J-34	8.0	130.0	-8	0.05	0.000
P-36	475	J-33	J-42	8.0	130.0	8	0.05	0.000
P-37	270	J-40	J-42	8.0	130.0	4	0.02	0.000
P-40	381	R-4	J-41	12.0	130.0	0	0.00	0.000
P-41	318	J-42	PRV-1	8.0	130.0	12	0.07	0.000
P-42	646	PRV-1	J-38	8.0	130.0	12	0.07	0.000
P-45	119	J-24	PRV-3	12.0	130.0	16	0.05	0.000
P-46	101	PRV-3	J-27	12.0	130.0	16	0.05	0.000
P-47	394	J-17	J-44	8.0	130.0	0	0.00	0.000
P-48	316	J-44	PRV-6	8.0	130.0	-1	0.01	0.000
P-49	443	R-2	J-26	8.0	130.0	8	0.05	0.000
P-50	221	J-46	J-1	8.0	130.0	20	0.13	0.000
P-51	231	J-26	J-49	8.0	130.0	8	0.05	0.000
P-52	232	J-49	J-46	8.0	130.0	20	0.13	0.000
P-55	345	J-1	J-48	8.0	130.0	13	0.08	0.000
P-57	288	PRV-5	J-2	8.0	130.0	10	0.07	0.000
P-60	120	PRV-6	J-50	8.0	130.0	-1	0.01	0.000
P-61	232	J-50	J-45	8.0	130.0	1	0.01	0.000
P-62	638	J-50	J-40	8.0	130.0	-2	0.02	0.000
P-63	442	J-48	J-51	8.0	130.0	12	0.08	0.000
P-64	391	J-51	J-52	8.0	130.0	11	0.07	0.000
P-65	173	J-52	PRV-5	8.0	130.0	10	0.07	0.000
P-66	708	J-34	J-53	8.0	130.0	-9	0.06	0.000
P-67	382	J-53	J-18	8.0	130.0	-10	0.07	0.000
P-153	1,219	PRV-7	J-104	8.0	130.0	7	0.05	0.000
P-154	661	J-21	J-104	8.0	130.0	-7	0.05	0.000
P-155	130	J-24	J-103	12.0	130.0	12	0.03	0.000

FlexTable: Pipe Table

Active Scenario: Average Day Demand

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
P-156	1,752	J-103	J-49	12.0	130.0	12	0.03	0.000
P-157	727	J-39	J-41	12.0	130.0	0	0.00	0.000
P-158	116	J-1	PRV-7	8.0	130.0	7	0.05	0.000

FlexTable: PRV Table

Active Scenario: Average Day Demand

ID	Label	Elevation (ft)	Diameter (Valve) (in)	Minor Loss Coefficient (Local)	Hydraulic Grade Setting (Initial) (ft)
210	PRV-1	3,115.00	8.0	0.000	3,257.00
255	PRV-3	3,245.98	12.0	0.000	3,378.00
309	PRV-5	3,243.52	8.0	0.000	3,378.00
318	PRV-6	3,128.38	8.0	0.000	3,257.00
331	PRV-7	3,256.00	8.0	0.000	3,378.00

Pressure Setting (Initial) (psi)	Flow (gpm)	Hydraulic Grade (From) (ft)	Hydraulic Grade (To) (ft)	Headloss (ft)
61.5	12	3,378.03	3,257.05	120.98
57.1	16	3,454.00	3,378.05	75.95
58.2	10	3,453.99	3,378.05	75.94
55.7	1	3,378.03	3,257.05	120.99
52.8	7	3,453.99	3,378.04	75.95

FlexTable: Reservoir Table

Active Scenario: Maximum Day Demand

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-2	3,454.00	17	3,454.00
R-3	3,454.00	55	3,454.00
R-4	3,203.00	0	3,203.00

FlexTable: Junction Table

Active Scenario: Maximum Day Demand

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-1	3,265.00	0	3,453.97	81.8
J-2	3,239.00	2	3,378.05	60.2
J-3	3,259.00	3	3,378.04	51.5
J-4	3,235.00	2	3,378.04	61.9
J-5	3,234.00	3	3,378.04	62.3
J-6	3,200.00	0	3,378.04	77.0
J-8	3,198.00	0	3,378.04	77.9
J-16	3,096.00	0	3,257.04	69.7
J-17	3,098.00	0	3,257.04	68.8
J-18	3,211.00	1	3,378.02	72.3
J-19	3,193.00	3	3,378.02	80.0
J-20	3,171.00	3	3,378.02	89.6
J-21	3,197.00	1	3,378.03	78.3
J-22	3,194.00	1	3,378.02	79.6
J-23	3,221.00	0	3,378.02	67.9
J-24	3,247.00	0	3,454.00	89.6
J-26	3,280.00	0	3,454.00	75.3
J-27	3,245.00	0	3,378.05	57.6
J-28	3,225.00	1	3,378.04	66.2
J-31	3,234.44	4	3,378.04	62.1
J-33	3,145.94	2	3,378.00	100.4
J-34	3,163.56	3	3,378.01	92.8
J-37	3,102.58	18	3,257.04	66.8
J-38	3,104.00	4	3,257.05	66.2
J-39	3,060.00	3	3,257.04	85.3
J-40	3,130.68	3	3,378.00	107.0
J-41	3,060.00	0	3,257.04	85.3
J-42	3,115.00	1	3,378.00	113.8
J-44	3,113.22	3	3,257.04	62.2
J-45	3,144.00	4	3,377.99	101.2
J-46	3,276.82	0	3,453.98	76.7
J-48	3,259.29	2	3,453.97	84.2
J-49	3,278.40	0	3,453.99	76.0
J-50	3,133.72	0	3,377.99	105.7
J-51	3,252.36	1	3,453.96	87.2
J-52	3,246.23	2	3,453.95	89.9
J-53	3,194.36	3	3,378.01	79.5
J-103	3,249.00	0	3,454.00	88.7
J-104	3,199.00	0	3,378.03	77.5

FlexTable: Pipe Table

Active Scenario: Maximum Day Demand

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
P-1	302	J-3	J-2	8.0	130.0	-3	0.02	0.000
P-2	595	J-2	J-4	8.0	130.0	13	0.08	0.000
P-3	739	J-4	J-6	12.0	130.0	35	0.10	0.000
P-4	120	J-6	J-8	12.0	130.0	35	0.10	0.000
P-9	252	J-16	J-17	8.0	130.0	-21	0.13	0.000
P-10	496	J-19	J-20	8.0	130.0	-13	0.08	0.000
P-11	611	J-20	J-21	8.0	130.0	-16	0.10	0.000
P-12	487	J-19	J-22	8.0	130.0	-10	0.07	0.000
P-13	653	J-22	J-23	8.0	130.0	0	0.00	0.000
P-14	232	J-22	J-18	8.0	130.0	-12	0.07	0.000
P-15	468	J-18	J-8	8.0	130.0	-35	0.22	0.000
P-16	135	R-3	J-24	12.0	130.0	55	0.16	0.000
P-18	584	J-27	J-5	12.0	130.0	32	0.09	0.000
P-19	253	J-5	J-28	8.0	130.0	1	0.01	0.000
P-23	616	J-4	J-31	12.0	130.0	-24	0.07	0.000
P-24	497	J-31	J-5	12.0	130.0	-27	0.08	0.000
P-27	990	J-33	J-19	8.0	130.0	-20	0.13	0.000
P-32	323	J-37	J-16	12.0	130.0	-18	0.05	0.000
P-33	387	J-17	J-38	8.0	130.0	-12	0.08	0.000
P-34	473	J-16	J-39	12.0	130.0	3	0.01	0.000
P-35	755	J-40	J-34	8.0	130.0	-17	0.11	0.000
P-36	475	J-33	J-42	8.0	130.0	18	0.12	0.000
P-37	270	J-40	J-42	8.0	130.0	-2	0.01	0.000
P-40	381	R-4	J-41	12.0	130.0	0	0.00	0.000
P-41	318	J-42	PRV-1	8.0	130.0	16	0.10	0.000
P-42	646	PRV-1	J-38	8.0	130.0	16	0.10	0.000
P-45	119	J-24	PRV-3	12.0	130.0	32	0.09	0.000
P-46	101	PRV-3	J-27	12.0	130.0	32	0.09	0.000
P-47	394	J-17	J-44	8.0	130.0	-9	0.06	0.000
P-48	316	J-44	PRV-6	8.0	130.0	-12	0.07	0.000
P-49	443	R-2	J-26	8.0	130.0	17	0.11	0.000
P-50	221	J-46	J-1	8.0	130.0	40	0.26	0.000
P-51	231	J-26	J-49	8.0	130.0	17	0.11	0.000
P-52	232	J-49	J-46	8.0	130.0	40	0.26	0.000
P-55	345	J-1	J-48	8.0	130.0	23	0.15	0.000
P-57	288	PRV-5	J-2	8.0	130.0	18	0.12	0.000
P-60	120	PRV-6	J-50	8.0	130.0	-12	0.07	0.000
P-61	232	J-50	J-45	8.0	130.0	4	0.02	0.000
P-62	638	J-50	J-40	8.0	130.0	-15	0.10	0.000
P-63	442	J-48	J-51	8.0	130.0	21	0.13	0.000
P-64	391	J-51	J-52	8.0	130.0	20	0.13	0.000
P-65	173	J-52	PRV-5	8.0	130.0	18	0.12	0.000
P-66	708	J-34	J-53	8.0	130.0	-19	0.12	0.000
P-67	382	J-53	J-18	8.0	130.0	-22	0.14	0.000
P-153	1,219	PRV-7	J-104	8.0	130.0	17	0.11	0.000
P-154	661	J-21	J-104	8.0	130.0	-17	0.11	0.000
P-155	130	J-24	J-103	12.0	130.0	24	0.07	0.000

FlexTable: Pipe Table

Active Scenario: Maximum Day Demand

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
P-156	1,752	J-103	J-49	12.0	130.0	24	0.07	0.000
P-157	727	J-39	J-41	12.0	130.0	0	0.00	0.000
P-158	116	J-1	PRV-7	8.0	130.0	17	0.11	0.000

FlexTable: PRV Table

Active Scenario: Maximum Day Demand

ID	Label	Elevation (ft)	Diameter (Valve) (in)	Minor Loss Coefficient (Local)	Hydraulic Grade Setting (Initial) (ft)
210	PRV-1	3,115.00	8.0	0.000	3,257.00
255	PRV-3	3,245.98	12.0	0.000	3,378.00
309	PRV-5	3,243.52	8.0	0.000	3,378.00
318	PRV-6	3,128.38	8.0	0.000	3,257.00
331	PRV-7	3,256.00	8.0	0.000	3,378.00

Pressure Setting (Initial) (psi)	Flow (gpm)	Hydraulic Grade (From) (ft)	Hydraulic Grade (To) (ft)	Headloss (ft)
61.5	16	3,378.00	3,257.05	120.94
57.1	32	3,454.00	3,378.05	75.95
58.2	18	3,453.95	3,378.05	75.91
55.7	12	3,377.99	3,257.05	120.95
52.8	17	3,453.97	3,378.04	75.93

FlexTable: Reservoir Table

Active Scenario: Peak Hour Demand

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-2	3,454.00	29	3,454.00
R-3	3,454.00	96	3,454.00
R-4	3,203.00	0	3,203.00

FlexTable: Junction Table

Active Scenario: Peak Hour Demand

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-1	3,265.00	0	3,453.92	81.7
J-2	3,239.00	4	3,378.04	60.2
J-3	3,259.00	6	3,378.04	51.5
J-4	3,235.00	4	3,378.03	61.9
J-5	3,234.00	6	3,378.04	62.3
J-6	3,200.00	0	3,378.02	77.0
J-8	3,198.00	0	3,378.02	77.9
J-16	3,096.00	0	3,257.03	69.7
J-17	3,098.00	0	3,257.04	68.8
J-18	3,211.00	2	3,377.98	72.2
J-19	3,193.00	6	3,377.97	80.0
J-20	3,171.00	6	3,377.98	89.5
J-21	3,197.00	2	3,377.99	78.3
J-22	3,194.00	0	3,377.97	79.6
J-23	3,221.00	2	3,377.97	67.9
J-24	3,247.00	0	3,454.00	89.6
J-26	3,280.00	0	3,453.99	75.3
J-27	3,245.00	0	3,378.05	57.6
J-28	3,225.00	2	3,378.04	66.2
J-31	3,234.44	7	3,378.04	62.1
J-33	3,145.94	4	3,377.94	100.4
J-34	3,163.56	5	3,377.94	92.8
J-37	3,102.58	30	3,257.03	66.8
J-38	3,104.00	4	3,257.04	66.2
J-39	3,060.00	6	3,257.03	85.2
J-40	3,130.68	6	3,377.92	107.0
J-41	3,060.00	0	3,257.03	85.2
J-42	3,115.00	2	3,377.93	113.8
J-44	3,113.22	5	3,257.04	62.2
J-45	3,144.00	4	3,377.91	101.2
J-46	3,276.82	0	3,453.95	76.6
J-48	3,259.29	4	3,453.91	84.2
J-49	3,278.40	0	3,453.98	76.0
J-50	3,133.72	0	3,377.91	105.6
J-51	3,252.36	2	3,453.89	87.2
J-52	3,246.23	4	3,453.88	89.8
J-53	3,194.36	5	3,377.96	79.4
J-103	3,249.00	0	3,453.99	88.7
J-104	3,199.00	0	3,378.01	77.4

FlexTable: Pipe Table

Active Scenario: Peak Hour Demand

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
P-1	302	J-3	J-2	8.0	130.0	-6	0.04	0.000
P-2	595	J-2	J-4	8.0	130.0	21	0.14	0.000
P-3	739	J-4	J-6	12.0	130.0	57	0.16	0.000
P-4	120	J-6	J-8	12.0	130.0	57	0.16	0.000
P-9	252	J-16	J-17	8.0	130.0	-36	0.23	0.000
P-10	496	J-19	J-20	8.0	130.0	-22	0.14	0.000
P-11	611	J-20	J-21	8.0	130.0	-28	0.18	0.000
P-12	487	J-19	J-22	8.0	130.0	-17	0.11	0.000
P-13	653	J-22	J-23	8.0	130.0	2	0.01	0.000
P-14	232	J-22	J-18	8.0	130.0	-19	0.12	0.000
P-15	468	J-18	J-8	8.0	130.0	-57	0.37	0.000
P-16	135	R-3	J-24	12.0	130.0	96	0.27	0.000
P-18	584	J-27	J-5	12.0	130.0	55	0.16	0.000
P-19	253	J-5	J-28	8.0	130.0	2	0.01	0.000
P-23	616	J-4	J-31	12.0	130.0	-40	0.11	0.000
P-24	497	J-31	J-5	12.0	130.0	-47	0.13	0.000
P-27	990	J-33	J-19	8.0	130.0	-33	0.21	0.000
P-32	323	J-37	J-16	12.0	130.0	-30	0.09	0.000
P-33	387	J-17	J-38	8.0	130.0	-18	0.12	0.000
P-34	473	J-16	J-39	12.0	130.0	6	0.02	0.000
P-35	755	J-40	J-34	8.0	130.0	-27	0.17	0.000
P-36	475	J-33	J-42	8.0	130.0	29	0.19	0.000
P-37	270	J-40	J-42	8.0	130.0	-5	0.03	0.000
P-40	381	R-4	J-41	12.0	130.0	0	0.00	0.000
P-41	318	J-42	PRV-1	8.0	130.0	22	0.14	0.000
P-42	646	PRV-1	J-38	8.0	130.0	22	0.14	0.000
P-45	119	J-24	PRV-3	12.0	130.0	55	0.16	0.000
P-46	101	PRV-3	J-27	12.0	130.0	55	0.16	0.000
P-47	394	J-17	J-44	8.0	130.0	-18	0.11	0.000
P-48	316	J-44	PRV-6	8.0	130.0	-23	0.14	0.000
P-49	443	R-2	J-26	8.0	130.0	29	0.18	0.000
P-50	221	J-46	J-1	8.0	130.0	70	0.45	0.000
P-51	231	J-26	J-49	8.0	130.0	29	0.18	0.000
P-52	232	J-49	J-46	8.0	130.0	70	0.45	0.000
P-55	345	J-1	J-48	8.0	130.0	40	0.25	0.000
P-57	288	PRV-5	J-2	8.0	130.0	31	0.20	0.000
P-60	120	PRV-6	J-50	8.0	130.0	-23	0.14	0.000
P-61	232	J-50	J-45	8.0	130.0	4	0.02	0.000
P-62	638	J-50	J-40	8.0	130.0	-26	0.17	0.000
P-63	442	J-48	J-51	8.0	130.0	36	0.23	0.000
P-64	391	J-51	J-52	8.0	130.0	34	0.22	0.000
P-65	173	J-52	PRV-5	8.0	130.0	31	0.20	0.000
P-66	708	J-34	J-53	8.0	130.0	-31	0.20	0.000
P-67	382	J-53	J-18	8.0	130.0	-36	0.23	0.000
P-153	1,219	PRV-7	J-104	8.0	130.0	30	0.19	0.000
P-154	661	J-21	J-104	8.0	130.0	-30	0.19	0.000
P-155	130	J-24	J-103	12.0	130.0	41	0.12	0.000

FlexTable: Pipe Table

Active Scenario: Peak Hour Demand

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
P-156	1,752	J-103	J-49	12.0	130.0	41	0.12	0.000
P-157	727	J-39	J-41	12.0	130.0	0	0.00	0.000
P-158	116	J-1	PRV-7	8.0	130.0	30	0.19	0.000

FlexTable: PRV Table

Active Scenario: Peak Hour Demand

ID	Label	Elevation (ft)	Diameter (Valve) (in)	Minor Loss Coefficient (Local)	Hydraulic Grade Setting (Initial) (ft)
210	PRV-1	3,115.00	8.0	0.000	3,257.00
255	PRV-3	3,245.98	12.0	0.000	3,378.00
309	PRV-5	3,243.52	8.0	0.000	3,378.00
318	PRV-6	3,128.38	8.0	0.000	3,257.00
331	PRV-7	3,256.00	8.0	0.000	3,378.00

Pressure Setting (Initial) (psi)	Flow (gpm)	Hydraulic Grade (From) (ft)	Hydraulic Grade (To) (ft)	Headloss (ft)
61.5	22	3,377.92	3,257.05	120.87
57.1	55	3,453.99	3,378.05	75.95
58.2	31	3,453.87	3,378.05	75.82
55.7	23	3,377.91	3,257.05	120.86
52.8	30	3,453.92	3,378.04	75.88

FlexTable: Reservoir Table

Active Scenario: Maximum Day Plus Fire Flow

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-2	3,454.00	17	3,454.00
R-3	3,454.00	55	3,454.00
R-4	3,203.00	0	3,203.00

Fire Flow Node FlexTable: Fire Flow Report

Active Scenario: Maximum Day Plus Fire Flow

Label	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Calculated System Lower Limit) (psi)	Junction w/ Minimum Pressure (System)	Pipe w/ Maximum Velocity	Velocity of Maximum Pipe (ft/s)
J-1	1,000	1,001	30.0	76.9	51.5	J-3	P-50	6.65
J-2	1,000	1,001	30.0	59.2	50.5	J-3	P-50	4.66
J-3	1,000	1,001	30.0	48.1	57.5	J-27	P-1	6.41
J-4	1,000	1,001	30.0	61.1	51.2	J-3	P-50	2.95
J-5	1,000	1,001	30.0	61.9	51.4	J-3	P-16	2.58
J-6	1,000	1,001	30.0	75.7	51.3	J-3	P-50	3.14
J-8	1,000	1,001	30.0	76.5	51.3	J-3	P-50	3.17
J-16	1,000	1,001	30.0	65.7	51.3	J-3	P-9	6.52
J-17	1,000	1,001	30.0	66.9	51.3	J-3	P-15	4.53
J-18	1,000	1,001	30.0	69.1	51.3	J-3	P-15	4.68
J-19	1,000	1,001	30.0	76.1	51.4	J-3	P-15	4.27
J-20	1,000	1,001	30.0	85.0	51.4	J-3	P-50	4.25
J-21	1,000	1,001	30.0	73.7	51.4	J-3	P-50	4.59
J-22	1,000	1,001	30.0	75.8	51.3	J-3	P-15	4.56
J-23	1,000	1,001	30.0	59.0	51.3	J-3	P-13	6.39
J-24	1,000	1,001	30.0	89.4	51.5	J-3	P-16	2.69
J-26	1,000	1,001	30.0	74.2	51.5	J-3	P-49	3.40
J-27	1,000	1,001	30.0	57.5	51.5	J-3	P-16	2.66
J-28	1,000	1,001	30.0	63.8	51.4	J-3	P-19	6.40
J-31	1,000	1,001	30.0	61.5	51.3	J-3	P-16	2.53
J-33	1,000	1,001	30.0	93.7	51.3	J-3	P-15	4.47
J-34	1,000	1,001	30.0	86.1	51.3	J-3	P-15	4.59
J-37	1,000	1,001	30.0	62.5	51.3	J-3	P-9	6.52
J-38	1,000	1,001	30.0	64.3	51.3	J-3	P-15	4.53
J-39	1,000	1,001	30.0	80.7	51.3	J-3	P-9	6.52
J-40	1,000	1,001	30.0	99.7	51.3	J-3	P-15	4.54
J-41	1,000	1,001	30.0	79.9	51.3	J-3	P-9	6.52
J-42	1,000	1,001	30.0	106.6	51.3	J-3	P-15	4.51
J-44	1,000	1,001	30.0	60.9	51.3	J-3	P-62	4.54
J-45	1,000	1,001	30.0	86.9	51.3	J-3	P-62	6.49
J-46	1,000	1,001	30.0	73.7	51.5	J-3	P-52	6.65
J-48	1,000	1,001	30.0	76.6	51.5	J-3	P-50	6.65
J-49	1,000	1,001	30.0	75.0	51.5	J-3	P-51	2.55
J-50	1,000	1,001	30.0	93.2	51.3	J-3	P-62	6.49
J-51	1,000	1,001	30.0	75.9	51.5	J-3	P-50	6.65
J-52	1,000	1,001	30.0	75.4	51.5	J-3	P-50	6.65
J-53	1,000	1,001	30.0	74.5	51.3	J-3	P-67	4.95
J-103	1,000	1,001	30.0	88.5	51.5	J-3	P-16	2.57
J-104	1,000	1,001	30.0	73.4	51.4	J-3	P-50	4.97

FlexTable: PRV Table

Active Scenario: Maximum Day Plus Fire Flow

ID	Label	Elevation (ft)	Diameter (Valve) (in)	Minor Loss Coefficient (Local)	Hydraulic Grade Setting (Initial) (ft)
210	PRV-1	3,115.00	8.0	0.000	3,257.00
255	PRV-3	3,245.98	12.0	0.000	3,378.00
309	PRV-5	3,243.52	8.0	0.000	3,378.00
318	PRV-6	3,128.38	8.0	0.000	3,257.00
331	PRV-7	3,256.00	8.0	0.000	3,378.00

Pressure Setting (Initial) (psi)	Flow (gpm)	Hydraulic Grade (From) (ft)	Hydraulic Grade (To) (ft)	Headloss (ft)
61.5	16	3,378.00	3,257.05	120.94
57.1	32	3,454.00	3,378.05	75.95
58.2	18	3,453.95	3,378.05	75.91
55.7	12	3,377.99	3,257.05	120.95
52.8	17	3,453.97	3,378.04	75.93

APPENDIX C

WATERCAD ANALYSIS PHASE 2

FlexTable: Reservoir Table

Active Scenario: Average Day Demand

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-2	3,454.00	10	3,454.00
R-3	3,454.00	37	3,454.00
R-4	3,203.00	0	3,203.00

FlexTable: Junction Table

Active Scenario: Average Day Demand

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-3	3,259.00	2	3,378.05	51.5
J-43	3,128.62	0	3,257.04	55.6
J-27	3,245.00	0	3,378.05	57.6
J-15	3,119.00	2	3,257.04	59.7
J-2	3,239.00	1	3,378.05	60.2
J-29	3,114.82	1	3,257.04	61.5
J-4	3,235.00	1	3,378.04	61.9
J-31	3,234.44	2	3,378.04	62.1
J-44	3,113.22	1	3,257.05	62.2
J-5	3,234.00	2	3,378.05	62.3
J-14	3,111.00	2	3,257.04	63.2
J-38	3,104.00	1	3,257.05	66.2
J-28	3,225.00	1	3,378.05	66.2
J-37	3,102.58	0	3,257.04	66.8
J-23	3,221.00	1	3,378.04	67.9
J-17	3,098.00	0	3,257.05	68.8
J-16	3,096.00	0	3,257.04	69.7
J-18	3,211.00	1	3,378.04	72.3
J-26	3,280.00	0	3,454.00	75.3
J-49	3,278.40	0	3,454.00	76.0
J-46	3,276.82	0	3,453.99	76.7
J-6	3,200.00	0	3,378.04	77.0
J-104	3,199.00	0	3,378.04	77.5
J-8	3,198.00	0	3,378.04	77.9
J-21	3,197.00	1	3,378.04	78.3
J-11	3,197.00	1	3,378.04	78.3
J-53	3,194.36	1	3,378.04	79.5
J-22	3,194.00	0	3,378.04	79.6
J-19	3,193.00	2	3,378.04	80.1
J-30	3,070.00	9	3,257.04	80.9
J-9	3,190.00	0	3,378.04	81.4
J-1	3,265.00	0	3,453.99	81.8
J-48	3,259.29	1	3,453.99	84.2
J-39	3,060.00	2	3,257.04	85.3
J-41	3,060.00	0	3,257.04	85.3
J-10	3,179.00	1	3,378.04	86.1
J-13	3,178.00	2	3,378.04	86.5
J-51	3,252.36	1	3,453.98	87.2
J-103	3,249.00	0	3,454.00	88.7
J-24	3,247.00	0	3,454.00	89.6
J-20	3,171.00	2	3,378.04	89.6
J-52	3,246.23	1	3,453.98	89.9
J-35	3,169.90	1	3,378.04	90.1
J-34	3,163.56	1	3,378.03	92.8
J-12	3,162.00	1	3,378.04	93.5
J-33	3,145.94	1	3,378.03	100.4
J-45	3,144.00	1	3,378.03	101.3

FlexTable: Junction Table

Active Scenario: Average Day Demand

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-36	3,135.00	1	3,378.04	105.2
J-50	3,133.72	0	3,378.03	105.7
J-40	3,130.68	2	3,378.03	107.0
J-42	3,115.00	1	3,378.03	113.8

FlexTable: Pipe Table

Active Scenario: Average Day Demand

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
P-40	381	R-4	J-41	12.0	130.0	0	0.00	0.000
P-157	727	J-39	J-41	12.0	130.0	0	0.00	0.000
P-48	316	J-44	PRV-6	8.0	130.0	0	0.00	0.000
P-60	120	PRV-6	J-50	8.0	130.0	0	0.00	0.000
P-19	253	J-5	J-28	8.0	130.0	1	0.00	0.000
P-13	653	J-22	J-23	8.0	130.0	1	0.00	0.000
P-34	473	J-16	J-39	12.0	130.0	2	0.00	0.000
P-61	232	J-50	J-45	8.0	130.0	1	0.01	0.000
P-62	638	J-50	J-40	8.0	130.0	-1	0.01	0.000
P-47	394	J-17	J-44	8.0	130.0	1	0.01	0.000
P-7	261	J-10	J-11	8.0	130.0	1	0.01	0.000
P-1	302	J-3	J-2	8.0	130.0	-2	0.01	0.000
P-8	360	J-12	J-13	8.0	130.0	2	0.01	0.000
P-21	438	J-29	J-15	8.0	130.0	2	0.01	0.000
P-44	388	J-43	J-14	12.0	130.0	5	0.01	0.000
P-59	172	PRV-4	J-43	12.0	130.0	5	0.01	0.000
P-43	314	J-36	PRV-4	12.0	130.0	5	0.01	0.000
P-30	474	J-12	J-36	12.0	130.0	6	0.02	0.000
P-31	441	J-14	J-37	12.0	130.0	-8	0.02	0.000
P-32	323	J-37	J-16	12.0	130.0	-8	0.02	0.000
P-29	372	J-35	J-12	12.0	130.0	9	0.03	0.000
P-28	428	J-10	J-35	12.0	130.0	10	0.03	0.000
P-37	270	J-40	J-42	8.0	130.0	5	0.03	0.000
P-12	487	J-19	J-22	8.0	130.0	-5	0.03	0.000
P-14	232	J-22	J-18	8.0	130.0	-5	0.03	0.000
P-5	268	J-8	J-9	12.0	130.0	12	0.03	0.000
P-6	486	J-9	J-10	12.0	130.0	12	0.03	0.000
P-155	130	J-24	J-103	12.0	130.0	14	0.04	0.000
P-156	1,752	J-103	J-49	12.0	130.0	14	0.04	0.000
P-10	496	J-19	J-20	8.0	130.0	-6	0.04	0.000
P-35	755	J-40	J-34	8.0	130.0	-7	0.05	0.000
P-11	611	J-20	J-21	8.0	130.0	-8	0.05	0.000
P-23	616	J-4	J-31	12.0	130.0	-18	0.05	0.000
P-36	475	J-33	J-42	8.0	130.0	8	0.05	0.000
P-66	708	J-34	J-53	8.0	130.0	-9	0.06	0.000
P-158	116	J-1	PRV-7	8.0	130.0	9	0.06	0.000
P-153	1,219	PRV-7	J-104	8.0	130.0	9	0.06	0.000
P-154	661	J-21	J-104	8.0	130.0	-9	0.06	0.000
P-24	497	J-31	J-5	12.0	130.0	-20	0.06	0.000
P-22	755	J-29	J-30	8.0	130.0	9	0.06	0.000
P-27	990	J-33	J-19	8.0	130.0	-9	0.06	0.000
P-9	252	J-16	J-17	8.0	130.0	-10	0.06	0.000
P-67	382	J-53	J-18	8.0	130.0	-10	0.06	0.000
P-45	119	J-24	PRV-3	12.0	130.0	23	0.06	0.000
P-18	584	J-27	J-5	12.0	130.0	23	0.06	0.000
P-46	101	PRV-3	J-27	12.0	130.0	23	0.06	0.000
P-49	443	R-2	J-26	8.0	130.0	10	0.07	0.000

FlexTable: Pipe Table

Active Scenario: Average Day Demand

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
P-51	231	J-26	J-49	8.0	130.0	10	0.07	0.000
P-2	595	J-2	J-4	8.0	130.0	11	0.07	0.000
P-33	387	J-17	J-38	8.0	130.0	-11	0.07	0.000
P-20	399	J-14	J-29	8.0	130.0	11	0.07	0.000
P-41	318	J-42	PRV-1	8.0	130.0	12	0.08	0.000
P-42	646	PRV-1	J-38	8.0	130.0	12	0.08	0.000
P-3	739	J-4	J-6	12.0	130.0	28	0.08	0.000
P-4	120	J-6	J-8	12.0	130.0	28	0.08	0.000
P-65	173	J-52	PRV-5	8.0	130.0	13	0.08	0.000
P-57	288	PRV-5	J-2	8.0	130.0	13	0.08	0.000
P-64	391	J-51	J-52	8.0	130.0	14	0.09	0.000
P-63	442	J-48	J-51	8.0	130.0	15	0.10	0.000
P-55	345	J-1	J-48	8.0	130.0	16	0.10	0.000
P-15	468	J-18	J-8	8.0	130.0	-16	0.10	0.000
P-16	135	R-3	J-24	12.0	130.0	37	0.11	0.000
P-50	221	J-46	J-1	8.0	130.0	25	0.16	0.000
P-52	232	J-49	J-46	8.0	130.0	25	0.16	0.000

FlexTable: PRV Table

Active Scenario: Average Day Demand

ID	Label	Elevation (ft)	Diameter (Valve) (in)	Minor Loss Coefficient (Local)	Hydraulic Grade Setting (Initial) (ft)
210	PRV-1	3,115.00	8.0	0.000	3,257.00
255	PRV-3	3,245.98	12.0	0.000	3,378.00
306	PRV-4	3,132.79	8.0	0.000	3,257.00
309	PRV-5	3,243.52	8.0	0.000	3,378.00
318	PRV-6	3,128.38	8.0	0.000	3,257.00
331	PRV-7	3,256.00	8.0	0.000	3,378.00

Pressure Setting (Initial) (psi)	Flow (gpm)	Hydraulic Grade (From) (ft)	Hydraulic Grade (To) (ft)	Headloss (ft)
61.5	12	3,378.03	3,257.05	120.98
57.1	23	3,454.00	3,378.05	75.95
53.8	5	3,378.04	3,257.04	121.00
58.2	13	3,453.98	3,378.05	75.93
55.7	0	3,378.03	3,257.05	0.00
52.8	9	3,453.99	3,378.04	75.94

FlexTable: Reservoir Table

Active Scenario: Maximum Day Demand

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-2	3,454.00	20	3,454.00
R-3	3,454.00	74	3,454.00
R-4	3,203.00	0	3,203.00

FlexTable: Junction Table

Active Scenario: Maximum Day Demand

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-3	3,259.00	3	3,378.04	51.5
J-43	3,128.62	0	3,257.04	55.6
J-27	3,245.00	0	3,378.05	57.6
J-15	3,119.00	3	3,257.04	59.7
J-2	3,239.00	2	3,378.04	60.2
J-29	3,114.82	1	3,257.04	61.5
J-4	3,235.00	2	3,378.03	61.9
J-31	3,234.44	4	3,378.04	62.1
J-44	3,113.22	3	3,257.05	62.2
J-5	3,234.00	3	3,378.04	62.3
J-14	3,111.00	3	3,257.04	63.2
J-38	3,104.00	4	3,257.05	66.2
J-28	3,225.00	1	3,378.04	66.2
J-37	3,102.58	0	3,257.04	66.8
J-23	3,221.00	0	3,378.01	67.9
J-17	3,098.00	0	3,257.05	68.8
J-16	3,096.00	0	3,257.04	69.7
J-18	3,211.00	1	3,378.01	72.3
J-26	3,280.00	0	3,453.99	75.3
J-49	3,278.40	0	3,453.99	76.0
J-46	3,276.82	0	3,453.98	76.6
J-6	3,200.00	0	3,378.03	77.0
J-104	3,199.00	0	3,378.03	77.5
J-8	3,198.00	0	3,378.02	77.9
J-21	3,197.00	1	3,378.02	78.3
J-11	3,197.00	3	3,378.02	78.3
J-53	3,194.36	3	3,378.01	79.5
J-22	3,194.00	1	3,378.01	79.6
J-19	3,193.00	3	3,378.01	80.0
J-30	3,070.00	18	3,257.03	80.9
J-9	3,190.00	0	3,378.02	81.3
J-1	3,265.00	0	3,453.96	81.8
J-48	3,259.29	2	3,453.95	84.2
J-39	3,060.00	3	3,257.04	85.3
J-41	3,060.00	0	3,257.04	85.3
J-10	3,179.00	2	3,378.02	86.1
J-13	3,178.00	3	3,378.02	86.5
J-51	3,252.36	1	3,453.94	87.2
J-103	3,249.00	0	3,454.00	88.7
J-24	3,247.00	0	3,454.00	89.6
J-20	3,171.00	3	3,378.02	89.6
J-52	3,246.23	2	3,453.93	89.9
J-35	3,169.90	1	3,378.02	90.0
J-34	3,163.56	3	3,378.01	92.8
J-12	3,162.00	2	3,378.02	93.5
J-33	3,145.94	2	3,378.00	100.4
J-45	3,144.00	4	3,378.00	101.2

FlexTable: Junction Table

Active Scenario: Maximum Day Demand

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-36	3,135.00	3	3,378.02	105.1
J-50	3,133.72	0	3,378.00	105.7
J-40	3,130.68	3	3,378.00	107.0
J-42	3,115.00	1	3,378.00	113.8

FlexTable: Pipe Table

Active Scenario: Maximum Day Demand

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
P-40	381	R-4	J-41	12.0	130.0	0	0.00	0.000
P-157	727	J-39	J-41	12.0	130.0	0	0.00	0.000
P-48	316	J-44	PRV-6	8.0	130.0	-6	0.04	0.000
P-60	120	PRV-6	J-50	8.0	130.0	-6	0.04	0.000
P-19	253	J-5	J-28	8.0	130.0	1	0.01	0.000
P-13	653	J-22	J-23	8.0	130.0	0	0.00	0.000
P-34	473	J-16	J-39	12.0	130.0	3	0.01	0.000
P-61	232	J-50	J-45	8.0	130.0	4	0.02	0.000
P-62	638	J-50	J-40	8.0	130.0	-10	0.06	0.000
P-47	394	J-17	J-44	8.0	130.0	-3	0.02	0.000
P-7	261	J-10	J-11	8.0	130.0	3	0.02	0.000
P-1	302	J-3	J-2	8.0	130.0	-3	0.02	0.000
P-8	360	J-12	J-13	8.0	130.0	3	0.02	0.000
P-21	438	J-29	J-15	8.0	130.0	3	0.02	0.000
P-44	388	J-43	J-14	12.0	130.0	16	0.05	0.000
P-59	172	PRV-4	J-43	12.0	130.0	16	0.05	0.000
P-43	314	J-36	PRV-4	12.0	130.0	16	0.05	0.000
P-30	474	J-12	J-36	12.0	130.0	19	0.05	0.000
P-31	441	J-14	J-37	12.0	130.0	-9	0.03	0.000
P-32	323	J-37	J-16	12.0	130.0	-9	0.03	0.000
P-29	372	J-35	J-12	12.0	130.0	24	0.07	0.000
P-28	428	J-10	J-35	12.0	130.0	25	0.07	0.000
P-37	270	J-40	J-42	8.0	130.0	0	0.00	0.000
P-12	487	J-19	J-22	8.0	130.0	-6	0.04	0.000
P-14	232	J-22	J-18	8.0	130.0	-7	0.05	0.000
P-5	268	J-8	J-9	12.0	130.0	29	0.08	0.000
P-6	486	J-9	J-10	12.0	130.0	29	0.08	0.000
P-155	130	J-24	J-103	12.0	130.0	28	0.08	0.000
P-156	1,752	J-103	J-49	12.0	130.0	28	0.08	0.000
P-10	496	J-19	J-20	8.0	130.0	-14	0.09	0.000
P-35	755	J-40	J-34	8.0	130.0	-13	0.08	0.000
P-11	611	J-20	J-21	8.0	130.0	-17	0.11	0.000
P-23	616	J-4	J-31	12.0	130.0	-37	0.11	0.000
P-36	475	J-33	J-42	8.0	130.0	15	0.09	0.000
P-66	708	J-34	J-53	8.0	130.0	-15	0.10	0.000
P-158	116	J-1	PRV-7	8.0	130.0	18	0.12	0.000
P-153	1,219	PRV-7	J-104	8.0	130.0	18	0.12	0.000
P-154	661	J-21	J-104	8.0	130.0	-18	0.12	0.000
P-24	497	J-31	J-5	12.0	130.0	-41	0.12	0.000
P-22	755	J-29	J-30	8.0	130.0	18	0.11	0.000
P-27	990	J-33	J-19	8.0	130.0	-17	0.11	0.000
P-9	252	J-16	J-17	8.0	130.0	-13	0.08	0.000
P-67	382	J-53	J-18	8.0	130.0	-18	0.11	0.000
P-45	119	J-24	PRV-3	12.0	130.0	46	0.13	0.000
P-18	584	J-27	J-5	12.0	130.0	46	0.13	0.000
P-46	101	PRV-3	J-27	12.0	130.0	46	0.13	0.000
P-49	443	R-2	J-26	8.0	130.0	20	0.13	0.000

FlexTable: Pipe Table

Active Scenario: Maximum Day Demand

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
P-51	231	J-26	J-49	8.0	130.0	20	0.13	0.000
P-2	595	J-2	J-4	8.0	130.0	20	0.13	0.000
P-33	387	J-17	J-38	8.0	130.0	-9	0.06	0.000
P-20	399	J-14	J-29	8.0	130.0	22	0.14	0.000
P-41	318	J-42	PRV-1	8.0	130.0	13	0.08	0.000
P-42	646	PRV-1	J-38	8.0	130.0	13	0.08	0.000
P-3	739	J-4	J-6	12.0	130.0	56	0.16	0.000
P-4	120	J-6	J-8	12.0	130.0	56	0.16	0.000
P-65	173	J-52	PRV-5	8.0	130.0	25	0.16	0.000
P-57	288	PRV-5	J-2	8.0	130.0	25	0.16	0.000
P-64	391	J-51	J-52	8.0	130.0	27	0.17	0.000
P-63	442	J-48	J-51	8.0	130.0	28	0.18	0.000
P-55	345	J-1	J-48	8.0	130.0	30	0.19	0.000
P-15	468	J-18	J-8	8.0	130.0	-26	0.17	0.000
P-16	135	R-3	J-24	12.0	130.0	74	0.21	0.000
P-50	221	J-46	J-1	8.0	130.0	49	0.31	0.000
P-52	232	J-49	J-46	8.0	130.0	49	0.31	0.000

FlexTable: PRV Table

Active Scenario: Maximum Day Demand

ID	Label	Elevation (ft)	Diameter (Valve) (in)	Minor Loss Coefficient (Local)	Hydraulic Grade Setting (Initial) (ft)
210	PRV-1	3,115.00	8.0	0.000	3,257.00
255	PRV-3	3,245.98	12.0	0.000	3,378.00
306	PRV-4	3,132.79	8.0	0.000	3,257.00
309	PRV-5	3,243.52	8.0	0.000	3,378.00
318	PRV-6	3,128.38	8.0	0.000	3,257.00
331	PRV-7	3,256.00	8.0	0.000	3,378.00

Pressure Setting (Initial) (psi)	Flow (gpm)	Hydraulic Grade (From) (ft)	Hydraulic Grade (To) (ft)	Headloss (ft)
61.5	13	3,378.00	3,257.05	120.95
57.1	46	3,454.00	3,378.05	75.95
53.8	16	3,378.02	3,257.04	120.97
58.2	25	3,453.93	3,378.05	75.88
55.7	6	3,378.00	3,257.05	120.95
52.8	18	3,453.96	3,378.04	75.92

FlexTable: Reservoir Table

Active Scenario: Peak Hour Demand

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-2	3,454.00	35	3,454.00
R-3	3,454.00	129	3,454.00
R-4	3,203.00	0	3,203.00

FlexTable: Junction Table

Active Scenario: Peak Hour Demand

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-1	3,265.00	0	3,453.89	81.7
J-2	3,239.00	4	3,378.03	60.2
J-3	3,259.00	6	3,378.03	51.5
J-4	3,235.00	4	3,378.01	61.9
J-5	3,234.00	6	3,378.03	62.3
J-6	3,200.00	0	3,377.99	77.0
J-8	3,198.00	0	3,377.98	77.9
J-9	3,190.00	0	3,377.98	81.3
J-10	3,179.00	4	3,377.97	86.1
J-11	3,197.00	5	3,377.97	78.3
J-12	3,162.00	4	3,377.97	93.4
J-13	3,178.00	6	3,377.96	86.5
J-14	3,111.00	6	3,257.04	63.2
J-15	3,119.00	6	3,257.02	59.7
J-16	3,096.00	0	3,257.04	69.7
J-17	3,098.00	0	3,257.04	68.8
J-18	3,211.00	2	3,377.96	72.2
J-19	3,193.00	6	3,377.96	80.0
J-20	3,171.00	6	3,377.97	89.5
J-21	3,197.00	2	3,377.99	78.3
J-22	3,194.00	0	3,377.96	79.6
J-23	3,221.00	2	3,377.96	67.9
J-24	3,247.00	0	3,453.99	89.6
J-26	3,280.00	0	3,453.98	75.3
J-27	3,245.00	0	3,378.05	57.6
J-28	3,225.00	2	3,378.03	66.2
J-29	3,114.82	2	3,257.02	61.5
J-30	3,070.00	31	3,257.00	80.9
J-31	3,234.44	7	3,378.02	62.1
J-33	3,145.94	4	3,377.95	100.4
J-34	3,163.56	5	3,377.95	92.8
J-35	3,169.90	2	3,377.97	90.0
J-36	3,135.00	5	3,377.96	105.1
J-37	3,102.58	0	3,257.04	66.8
J-38	3,104.00	4	3,257.05	66.2
J-39	3,060.00	6	3,257.04	85.3
J-40	3,130.68	6	3,377.94	107.0
J-41	3,060.00	0	3,257.04	85.3
J-42	3,115.00	2	3,377.94	113.8
J-43	3,128.62	0	3,257.04	55.6
J-44	3,113.22	5	3,257.05	62.2
J-45	3,144.00	4	3,377.93	101.2
J-46	3,276.82	0	3,453.93	76.6
J-48	3,259.29	4	3,453.86	84.2
J-49	3,278.40	0	3,453.97	76.0
J-50	3,133.72	0	3,377.94	105.7
J-51	3,252.36	2	3,453.83	87.2

FlexTable: Junction Table

Active Scenario: Peak Hour Demand

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-52	3,246.23	4	3,453.81	89.8
J-53	3,194.36	5	3,377.96	79.4
J-103	3,249.00	0	3,453.99	88.7
J-104	3,199.00	0	3,378.01	77.4

FlexTable: Pipe Table

Active Scenario: Peak Hour Demand

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
P-1	302	J-3	J-2	8.0	130.0	-6	0.04	0.000
P-2	595	J-2	J-4	8.0	130.0	34	0.22	0.000
P-3	739	J-4	J-6	12.0	130.0	96	0.27	0.000
P-4	120	J-6	J-8	12.0	130.0	96	0.27	0.000
P-5	268	J-8	J-9	12.0	130.0	59	0.17	0.000
P-6	486	J-9	J-10	12.0	130.0	59	0.17	0.000
P-7	261	J-10	J-11	8.0	130.0	5	0.03	0.000
P-8	360	J-12	J-13	8.0	130.0	6	0.04	0.000
P-9	252	J-16	J-17	8.0	130.0	-17	0.11	0.000
P-10	496	J-19	J-20	8.0	130.0	-23	0.15	0.000
P-11	611	J-20	J-21	8.0	130.0	-29	0.19	0.000
P-12	487	J-19	J-22	8.0	130.0	-6	0.04	0.000
P-13	653	J-22	J-23	8.0	130.0	2	0.01	0.000
P-14	232	J-22	J-18	8.0	130.0	-9	0.05	0.000
P-15	468	J-18	J-8	8.0	130.0	-37	0.23	0.000
P-16	135	R-3	J-24	12.0	130.0	129	0.37	0.000
P-18	584	J-27	J-5	12.0	130.0	80	0.23	0.000
P-19	253	J-5	J-28	8.0	130.0	2	0.01	0.000
P-20	399	J-14	J-29	8.0	130.0	39	0.25	0.000
P-21	438	J-29	J-15	8.0	130.0	6	0.04	0.000
P-22	755	J-29	J-30	8.0	130.0	31	0.20	0.000
P-23	616	J-4	J-31	12.0	130.0	-65	0.19	0.000
P-24	497	J-31	J-5	12.0	130.0	-72	0.21	0.000
P-27	990	J-33	J-19	8.0	130.0	-24	0.15	0.000
P-28	428	J-10	J-35	12.0	130.0	51	0.14	0.000
P-29	372	J-35	J-12	12.0	130.0	49	0.14	0.000
P-30	474	J-12	J-36	12.0	130.0	39	0.11	0.000
P-31	441	J-14	J-37	12.0	130.0	-11	0.03	0.000
P-32	323	J-37	J-16	12.0	130.0	-11	0.03	0.000
P-33	387	J-17	J-38	8.0	130.0	-11	0.07	0.000
P-34	473	J-16	J-39	12.0	130.0	6	0.02	0.000
P-35	755	J-40	J-34	8.0	130.0	-16	0.11	0.000
P-36	475	J-33	J-42	8.0	130.0	20	0.13	0.000
P-37	270	J-40	J-42	8.0	130.0	-3	0.02	0.000
P-40	381	R-4	J-41	12.0	130.0	0	0.00	0.000
P-41	318	J-42	PRV-1	8.0	130.0	14	0.09	0.000
P-42	646	PRV-1	J-38	8.0	130.0	14	0.09	0.000
P-43	314	J-36	PRV-4	12.0	130.0	34	0.10	0.000
P-44	388	J-43	J-14	12.0	130.0	34	0.10	0.000
P-45	119	J-24	PRV-3	12.0	130.0	80	0.23	0.000
P-46	101	PRV-3	J-27	12.0	130.0	80	0.23	0.000
P-47	394	J-17	J-44	8.0	130.0	-6	0.04	0.000
P-48	316	J-44	PRV-6	8.0	130.0	-10	0.07	0.000
P-49	443	R-2	J-26	8.0	130.0	35	0.23	0.000
P-50	221	J-46	J-1	8.0	130.0	84	0.54	0.000
P-51	231	J-26	J-49	8.0	130.0	35	0.23	0.000
P-52	232	J-49	J-46	8.0	130.0	84	0.54	0.000

FlexTable: Pipe Table

Active Scenario: Peak Hour Demand

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
P-55	345	J-1	J-48	8.0	130.0	53	0.34	0.000
P-57	288	PRV-5	J-2	8.0	130.0	43	0.28	0.000
P-59	172	PRV-4	J-43	12.0	130.0	34	0.10	0.000
P-60	120	PRV-6	J-50	8.0	130.0	-10	0.07	0.000
P-61	232	J-50	J-45	8.0	130.0	4	0.02	0.000
P-62	638	J-50	J-40	8.0	130.0	-14	0.09	0.000
P-63	442	J-48	J-51	8.0	130.0	49	0.31	0.000
P-64	391	J-51	J-52	8.0	130.0	47	0.30	0.000
P-65	173	J-52	PRV-5	8.0	130.0	43	0.28	0.000
P-66	708	J-34	J-53	8.0	130.0	-21	0.14	0.000
P-67	382	J-53	J-18	8.0	130.0	-26	0.17	0.000
P-153	1,219	PRV-7	J-104	8.0	130.0	31	0.20	0.000
P-154	661	J-21	J-104	8.0	130.0	-31	0.20	0.000
P-155	130	J-24	J-103	12.0	130.0	49	0.14	0.000
P-156	1,752	J-103	J-49	12.0	130.0	49	0.14	0.000
P-157	727	J-39	J-41	12.0	130.0	0	0.00	0.000
P-158	116	J-1	PRV-7	8.0	130.0	31	0.20	0.000

FlexTable: PRV Table

Active Scenario: Peak Hour Demand

ID	Label	Elevation (ft)	Diameter (Valve) (in)	Minor Loss Coefficient (Local)	Hydraulic Grade Setting (Initial) (ft)
210	PRV-1	3,115.00	8.0	0.000	3,257.00
255	PRV-3	3,245.98	12.0	0.000	3,378.00
306	PRV-4	3,132.79	8.0	0.000	3,257.00
309	PRV-5	3,243.52	8.0	0.000	3,378.00
318	PRV-6	3,128.38	8.0	0.000	3,257.00
331	PRV-7	3,256.00	8.0	0.000	3,378.00

Pressure Setting (Initial) (psi)	Flow (gpm)	Hydraulic Grade (From) (ft)	Hydraulic Grade (To) (ft)	Headloss (ft)
61.5	14	3,377.94	3,257.05	120.89
57.1	80	3,453.99	3,378.05	75.94
53.8	34	3,377.96	3,257.04	120.92
58.2	43	3,453.80	3,378.05	75.75
55.7	10	3,377.93	3,257.05	120.89
52.8	31	3,453.89	3,378.04	75.84

FlexTable: Reservoir Table

Active Scenario: Maximum Day Plus Fire Flow

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-2	3,454.00	20	3,454.00
R-3	3,454.00	74	3,454.00
R-4	3,203.00	0	3,203.00

Fire Flow Node FlexTable: Fire Flow Report

Active Scenario: Maximum Day Plus Fire Flow

Label	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Calculated System Lower Limit) (psi)	Junction w/ Minimum Pressure (System)	Pipe w/ Maximum Velocity	Velocity of Maximum Pipe (ft/s)
J-1	1,000	1,001	30.0	76.9	51.5	J-3	P-52	6.70
J-2	1,000	1,001	30.0	59.2	50.5	J-3	P-52	4.70
J-3	1,000	1,001	30.0	48.1	55.6	J-43	P-1	6.41
J-4	1,000	1,001	30.0	61.1	51.2	J-3	P-52	3.01
J-5	1,000	1,001	30.0	61.9	51.4	J-3	P-16	2.63
J-6	1,000	1,001	30.0	75.7	51.3	J-3	P-52	3.21
J-8	1,000	1,001	30.0	76.4	51.3	J-3	P-52	3.23
J-9	1,000	1,001	30.0	79.6	51.3	J-3	P-52	3.23
J-10	1,000	1,001	30.0	83.8	51.3	J-3	P-52	3.23
J-11	1,000	1,001	30.0	73.9	51.3	J-3	P-7	6.41
J-12	1,000	1,001	30.0	90.2	51.3	J-3	P-52	3.23
J-13	1,000	1,001	30.0	80.4	51.3	J-3	P-8	6.41
J-14	1,000	1,001	30.0	62.8	51.3	J-3	P-52	3.30
J-15	1,000	1,001	30.0	52.6	51.3	J-3	P-20	6.53
J-16	1,000	1,001	30.0	69.0	51.3	J-3	P-52	3.35
J-17	1,000	1,001	30.0	68.1	51.3	J-3	P-52	3.46
J-18	1,000	1,001	30.0	69.1	51.3	J-3	P-15	4.63
J-19	1,000	1,001	30.0	76.1	51.3	J-3	P-15	4.22
J-20	1,000	1,001	30.0	85.0	51.4	J-3	P-52	4.30
J-21	1,000	1,001	30.0	73.7	51.4	J-3	P-52	4.64
J-22	1,000	1,001	30.0	75.8	51.3	J-3	P-15	4.51
J-23	1,000	1,001	30.0	59.0	51.3	J-3	P-13	6.39
J-24	1,000	1,001	30.0	89.4	51.5	J-3	P-16	2.74
J-26	1,000	1,001	30.0	74.2	51.5	J-3	P-49	3.41
J-27	1,000	1,001	30.0	57.5	51.5	J-3	P-16	2.71
J-28	1,000	1,001	30.0	63.7	51.4	J-3	P-19	6.40
J-29	1,000	1,001	30.0	57.9	51.3	J-3	P-20	6.53
J-30	1,000	1,001	30.0	71.1	51.3	J-3	P-20	6.53
J-31	1,000	1,001	30.0	61.5	51.3	J-3	P-16	2.58
J-33	1,000	1,001	30.0	93.7	51.3	J-3	P-15	4.42
J-34	1,000	1,001	30.0	86.1	51.3	J-3	P-15	4.54
J-35	1,000	1,001	30.0	87.2	51.3	J-3	P-52	3.23
J-36	1,000	1,001	30.0	101.4	51.3	J-3	P-52	3.23
J-37	1,000	1,001	30.0	66.3	51.3	J-3	P-52	3.33
J-38	1,000	1,001	30.0	64.9	51.3	J-3	P-52	3.56
J-39	1,000	1,001	30.0	84.1	51.3	J-3	P-52	3.35
J-40	1,000	1,001	30.0	99.8	51.3	J-3	P-15	4.49
J-41	1,000	1,001	30.0	83.3	51.3	J-3	P-52	3.35
J-42	1,000	1,001	30.0	106.6	51.3	J-3	P-15	4.46
J-43	1,000	1,001	30.0	55.4	51.3	J-3	P-52	3.28
J-44	1,000	1,001	30.0	61.3	51.3	J-3	P-62	3.74
J-45	1,000	1,001	30.0	87.0	51.3	J-3	P-62	6.45
J-46	1,000	1,001	30.0	73.7	51.5	J-3	P-52	6.70
J-48	1,000	1,001	30.0	76.4	51.5	J-3	P-52	6.70
J-49	1,000	1,001	30.0	75.0	51.5	J-3	P-51	2.58

Fire Flow Node FlexTable: Fire Flow Report

Active Scenario: Maximum Day Plus Fire Flow

Label	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Calculated System Lower Limit) (psi)	Junction w/ Minimum Pressure (System)	Pipe w/ Maximum Velocity	Velocity of Maximum Pipe (ft/s)
J-50	1,000	1,001	30.0	93.3	51.3	J-3	P-62	6.45
J-51	1,000	1,001	30.0	75.8	51.5	J-3	P-52	6.70
J-52	1,000	1,001	30.0	75.2	51.5	J-3	P-52	6.70
J-53	1,000	1,001	30.0	74.5	51.3	J-3	P-67	4.93
J-103	1,000	1,001	30.0	88.5	51.5	J-3	P-16	2.62
J-104	1,000	1,001	30.0	73.4	51.4	J-3	P-52	5.02

FlexTable: PRV Table

Active Scenario: Maximum Day Plus Fire Flow

ID	Label	Elevation (ft)	Diameter (Valve) (in)	Minor Loss Coefficient (Local)	Hydraulic Grade Setting (Initial) (ft)
210	PRV-1	3,115.00	8.0	0.000	3,257.00
255	PRV-3	3,245.98	12.0	0.000	3,378.00
306	PRV-4	3,132.79	8.0	0.000	3,257.00
309	PRV-5	3,243.52	8.0	0.000	3,378.00
318	PRV-6	3,128.38	8.0	0.000	3,257.00
331	PRV-7	3,256.00	8.0	0.000	3,378.00

Pressure Setting (Initial) (psi)	Flow (gpm)	Hydraulic Grade (From) (ft)	Hydraulic Grade (To) (ft)	Headloss (ft)
61.5	13	3,378.00	3,257.05	120.95
57.1	46	3,454.00	3,378.05	75.95
53.8	16	3,378.02	3,257.04	120.97
58.2	25	3,453.93	3,378.05	75.88
55.7	6	3,378.00	3,257.05	120.95
52.8	18	3,453.96	3,378.04	75.92

APPENDIX D

WATERCAD ANALYSIS ULTIMATE

FlexTable: Reservoir Table

Active Scenario: Average Day Demand

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-2	3,454.00	11	3,454.00
R-3	3,454.00	41	3,454.00
R-4	3,203.00	0	3,203.00

FlexTable: Junction Table

Active Scenario: Average Day Demand

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-1	3,265.00	0	3,453.99	81.8
J-2	3,239.00	1	3,378.05	60.2
J-3	3,259.00	2	3,378.05	51.5
J-4	3,235.00	1	3,378.04	61.9
J-5	3,234.00	2	3,378.05	62.3
J-6	3,200.00	1	3,378.04	77.0
J-7	3,210.00	2	3,378.04	72.7
J-8	3,198.00	0	3,378.04	77.9
J-9	3,190.00	0	3,378.04	81.4
J-10	3,179.00	1	3,378.04	86.1
J-11	3,197.00	1	3,378.04	78.3
J-12	3,162.00	1	3,378.04	93.5
J-13	3,178.00	2	3,378.04	86.5
J-14	3,111.00	2	3,257.04	63.2
J-15	3,119.00	2	3,257.04	59.7
J-16	3,096.00	0	3,257.04	69.7
J-17	3,098.00	0	3,257.05	68.8
J-18	3,211.00	1	3,378.04	72.3
J-19	3,193.00	2	3,378.04	80.1
J-20	3,171.00	2	3,378.04	89.6
J-21	3,197.00	1	3,378.04	78.3
J-22	3,194.00	0	3,378.04	79.6
J-23	3,221.00	1	3,378.04	67.9
J-24	3,247.00	0	3,454.00	89.6
J-26	3,280.00	0	3,454.00	75.3
J-27	3,245.00	0	3,378.05	57.6
J-28	3,225.00	1	3,378.05	66.2
J-29	3,114.82	1	3,257.04	61.5
J-30	3,070.00	9	3,257.04	80.9
J-31	3,234.44	2	3,378.04	62.1
J-32	3,205.82	1	3,378.04	74.5
J-33	3,145.94	1	3,378.03	100.4
J-34	3,163.56	1	3,378.03	92.8
J-35	3,169.90	1	3,378.04	90.1
J-36	3,135.00	1	3,378.04	105.2
J-37	3,102.58	0	3,257.04	66.8
J-38	3,104.00	1	3,257.05	66.2
J-39	3,060.00	2	3,257.04	85.3
J-40	3,130.68	2	3,378.03	107.0
J-41	3,060.00	0	3,257.04	85.3
J-42	3,115.00	1	3,378.03	113.8
J-43	3,128.62	0	3,257.04	55.6
J-44	3,113.22	1	3,257.05	62.2
J-45	3,144.00	1	3,378.03	101.3
J-46	3,276.82	0	3,453.99	76.7
J-48	3,259.29	1	3,453.98	84.2
J-49	3,278.40	0	3,454.00	76.0

FlexTable: Junction Table

Active Scenario: Average Day Demand

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-50	3,133.72	0	3,378.03	105.7
J-51	3,252.36	1	3,453.98	87.2
J-52	3,246.23	1	3,453.98	89.9
J-53	3,194.36	1	3,378.03	79.5
J-103	3,249.00	0	3,454.00	88.7
J-104	3,199.00	0	3,378.04	77.5

FlexTable: Pipe Table

Active Scenario: Average Day Demand

Label	Start Node	Stop Node	Diameter (in)	Length (ft)	Hazen-Williams C	Flow (gpm)	Headloss Gradient (ft/ft)	Velocity (ft/s)
P-1	J-3	J-2	8.0	302	130.0	-2	0.000	0.01
P-2	J-2	J-4	8.0	595	130.0	12	0.000	0.08
P-3	J-4	J-6	12.0	739	130.0	32	0.000	0.09
P-4	J-6	J-8	12.0	120	130.0	26	0.000	0.08
P-5	J-8	J-9	12.0	268	130.0	11	0.000	0.03
P-6	J-9	J-10	12.0	486	130.0	11	0.000	0.03
P-7	J-10	J-11	8.0	261	130.0	0	0.000	0.00
P-8	J-12	J-13	8.0	360	130.0	2	0.000	0.01
P-9	J-16	J-17	8.0	252	130.0	-10	0.000	0.06
P-10	J-19	J-20	8.0	496	130.0	-7	0.000	0.04
P-11	J-20	J-21	8.0	611	130.0	-9	0.000	0.06
P-12	J-19	J-22	8.0	487	130.0	-4	0.000	0.03
P-13	J-22	J-23	8.0	653	130.0	1	0.000	0.00
P-14	J-22	J-18	8.0	232	130.0	-5	0.000	0.03
P-15	J-18	J-8	8.0	468	130.0	-15	0.000	0.10
P-16	R-3	J-24	12.0	135	130.0	41	0.000	0.12
P-18	J-27	J-5	12.0	584	130.0	25	0.000	0.07
P-19	J-5	J-28	8.0	253	130.0	1	0.000	0.00
P-20	J-14	J-29	8.0	399	130.0	11	0.000	0.07
P-21	J-29	J-15	8.0	438	130.0	2	0.000	0.01
P-22	J-29	J-30	8.0	755	130.0	9	0.000	0.06
P-23	J-4	J-31	12.0	616	130.0	-21	0.000	0.06
P-24	J-31	J-5	12.0	497	130.0	-23	0.000	0.07
P-25	J-6	J-32	8.0	839	130.0	4	0.000	0.03
P-26	J-32	J-7	8.0	600	130.0	3	0.000	0.02
P-27	J-33	J-19	8.0	990	130.0	-9	0.000	0.06
P-28	J-10	J-35	12.0	428	130.0	10	0.000	0.03
P-29	J-35	J-12	12.0	372	130.0	9	0.000	0.03
P-30	J-12	J-36	12.0	474	130.0	6	0.000	0.02
P-31	J-14	J-37	12.0	441	130.0	-8	0.000	0.02
P-32	J-37	J-16	12.0	323	130.0	-8	0.000	0.02
P-33	J-17	J-38	8.0	387	130.0	-11	0.000	0.07
P-34	J-16	J-39	12.0	473	130.0	2	0.000	0.00
P-35	J-40	J-34	8.0	755	130.0	-7	0.000	0.05
P-36	J-33	J-42	8.0	475	130.0	8	0.000	0.05
P-37	J-40	J-42	8.0	270	130.0	5	0.000	0.03
P-40	R-4	J-41	12.0	381	130.0	0	0.000	0.00
P-41	J-42	PRV-1	8.0	318	130.0	12	0.000	0.08
P-42	PRV-1	J-38	8.0	646	130.0	12	0.000	0.08
P-43	J-36	PRV-4	12.0	314	130.0	5	0.000	0.01
P-44	J-43	J-14	12.0	388	130.0	5	0.000	0.01
P-45	J-24	PRV-3	12.0	119	130.0	25	0.000	0.07
P-46	PRV-3	J-27	12.0	101	130.0	25	0.000	0.07
P-47	J-17	J-44	8.0	394	130.0	1	0.000	0.01
P-48	J-44	PRV-6	8.0	316	130.0	0	0.000	0.00
P-49	R-2	J-26	8.0	443	130.0	11	0.000	0.07
P-50	J-46	J-1	8.0	221	130.0	27	0.000	0.17

FlexTable: Pipe Table

Active Scenario: Average Day Demand

Label	Start Node	Stop Node	Diameter (in)	Length (ft)	Hazen-Williams C	Flow (gpm)	Headloss Gradient (ft/ft)	Velocity (ft/s)
P-51	J-26	J-49	8.0	231	130.0	11	0.000	0.07
P-52	J-49	J-46	8.0	232	130.0	27	0.000	0.17
P-55	J-1	J-48	8.0	345	130.0	17	0.000	0.11
P-57	PRV-5	J-2	8.0	288	130.0	14	0.000	0.09
P-58	J-7	J-11	8.0	740	130.0	1	0.000	0.01
P-59	PRV-4	J-43	12.0	172	130.0	5	0.000	0.01
P-60	PRV-6	J-50	8.0	120	130.0	0	0.000	0.00
P-61	J-50	J-45	8.0	232	130.0	1	0.000	0.01
P-62	J-50	J-40	8.0	638	130.0	-1	0.000	0.01
P-63	J-48	J-51	8.0	442	130.0	16	0.000	0.10
P-64	J-51	J-52	8.0	391	130.0	15	0.000	0.10
P-65	J-52	PRV-5	8.0	173	130.0	14	0.000	0.09
P-66	J-34	J-53	8.0	708	130.0	-9	0.000	0.05
P-67	J-53	J-18	8.0	382	130.0	-10	0.000	0.06
P-153	PRV-7	J-104	8.0	1,219	130.0	9	0.000	0.06
P-154	J-21	J-104	8.0	661	130.0	-9	0.000	0.06
P-155	J-24	J-103	12.0	130	130.0	15	0.000	0.04
P-156	J-103	J-49	12.0	1,752	130.0	15	0.000	0.04
P-157	J-39	J-41	12.0	727	130.0	0	0.000	0.00
P-158	J-1	PRV-7	8.0	116	130.0	9	0.000	0.06

FlexTable: PRV Table

Active Scenario: Average Day Demand

Label	Elevation (ft)	Diameter (Valve) (in)	Hydraulic Grade Setting (Initial) (ft)	Flow (gpm)	Hydraulic Grade (From) (ft)	Hydraulic Grade (To) (ft)	Headloss (ft)	Pressure Setting (Initial) (psi)
PRV-1	3,115.00	8.0	3,257.00	12	3,378.03	3,257.05	120.98	61.5
PRV-3	3,245.98	12.0	3,378.00	25	3,454.00	3,378.05	75.95	57.1
PRV-4	3,132.79	8.0	3,257.00	5	3,378.04	3,257.04	120.99	53.8
PRV-5	3,243.52	8.0	3,378.00	14	3,453.98	3,378.05	75.93	58.2
PRV-6	3,128.38	8.0	3,257.00	0	3,378.03	3,257.05	0.00	55.7
PRV-7	3,256.00	8.0	3,378.00	9	3,453.99	3,378.04	75.94	52.8

FlexTable: Reservoir Table

Active Scenario: Maximum Day Demand

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-2	3,454.00	23	3,454.00
R-3	3,454.00	86	3,454.00
R-4	3,203.00	0	3,203.00

FlexTable: Junction Table

Active Scenario: Maximum Day Demand

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-1	3,265.00	0	3,453.95	81.7
J-2	3,239.00	2	3,378.04	60.2
J-3	3,259.00	3	3,378.04	51.5
J-4	3,235.00	2	3,378.03	61.9
J-5	3,234.00	3	3,378.04	62.3
J-6	3,200.00	2	3,378.02	77.0
J-7	3,210.00	4	3,378.01	72.7
J-8	3,198.00	0	3,378.02	77.9
J-9	3,190.00	0	3,378.02	81.3
J-10	3,179.00	2	3,378.01	86.1
J-11	3,197.00	3	3,378.01	78.3
J-12	3,162.00	2	3,378.01	93.5
J-13	3,178.00	3	3,378.01	86.5
J-14	3,111.00	3	3,257.04	63.2
J-15	3,119.00	3	3,257.04	59.7
J-16	3,096.00	0	3,257.04	69.7
J-17	3,098.00	0	3,257.05	68.8
J-18	3,211.00	1	3,378.01	72.3
J-19	3,193.00	3	3,378.01	80.0
J-20	3,171.00	3	3,378.01	89.6
J-21	3,197.00	1	3,378.02	78.3
J-22	3,194.00	1	3,378.01	79.6
J-23	3,221.00	0	3,378.01	67.9
J-24	3,247.00	0	3,454.00	89.6
J-26	3,280.00	0	3,453.99	75.3
J-27	3,245.00	0	3,378.05	57.6
J-28	3,225.00	1	3,378.04	66.2
J-29	3,114.82	1	3,257.04	61.5
J-30	3,070.00	18	3,257.03	80.9
J-31	3,234.44	4	3,378.03	62.1
J-32	3,205.82	4	3,378.01	74.5
J-33	3,145.94	2	3,378.00	100.4
J-34	3,163.56	3	3,378.00	92.8
J-35	3,169.90	1	3,378.01	90.0
J-36	3,135.00	3	3,378.01	105.1
J-37	3,102.58	0	3,257.04	66.8
J-38	3,104.00	4	3,257.05	66.2
J-39	3,060.00	3	3,257.04	85.3
J-40	3,130.68	3	3,377.99	107.0
J-41	3,060.00	0	3,257.04	85.3
J-42	3,115.00	1	3,377.99	113.8
J-43	3,128.62	0	3,257.04	55.6
J-44	3,113.22	3	3,257.05	62.2
J-45	3,144.00	4	3,377.99	101.2
J-46	3,276.82	0	3,453.97	76.6
J-48	3,259.29	2	3,453.94	84.2
J-49	3,278.40	0	3,453.99	76.0

FlexTable: Junction Table

Active Scenario: Maximum Day Demand

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-50	3,133.72	0	3,377.99	105.7
J-51	3,252.36	1	3,453.92	87.2
J-52	3,246.23	2	3,453.91	89.9
J-53	3,194.36	3	3,378.00	79.5
J-103	3,249.00	0	3,454.00	88.7
J-104	3,199.00	0	3,378.03	77.5

FlexTable: Pipe Table

Active Scenario: Maximum Day Demand

Label	Start Node	Stop Node	Diameter (in)	Length (ft)	Hazen-Williams C	Flow (gpm)	Headloss Gradient (ft/ft)	Velocity (ft/s)
P-1	J-3	J-2	8.0	302	130.0	-3	0.000	0.02
P-2	J-2	J-4	8.0	595	130.0	24	0.000	0.15
P-3	J-4	J-6	12.0	739	130.0	67	0.000	0.19
P-4	J-6	J-8	12.0	120	130.0	55	0.000	0.16
P-5	J-8	J-9	12.0	268	130.0	29	0.000	0.08
P-6	J-9	J-10	12.0	486	130.0	29	0.000	0.08
P-7	J-10	J-11	8.0	261	130.0	1	0.000	0.00
P-8	J-12	J-13	8.0	360	130.0	3	0.000	0.02
P-9	J-16	J-17	8.0	252	130.0	-13	0.000	0.08
P-10	J-19	J-20	8.0	496	130.0	-16	0.000	0.10
P-11	J-20	J-21	8.0	611	130.0	-19	0.000	0.12
P-12	J-19	J-22	8.0	487	130.0	-5	0.000	0.03
P-13	J-22	J-23	8.0	653	130.0	0	0.000	0.00
P-14	J-22	J-18	8.0	232	130.0	-6	0.000	0.04
P-15	J-18	J-8	8.0	468	130.0	-26	0.000	0.16
P-16	R-3	J-24	12.0	135	130.0	86	0.000	0.24
P-18	J-27	J-5	12.0	584	130.0	54	0.000	0.15
P-19	J-5	J-28	8.0	253	130.0	1	0.000	0.01
P-20	J-14	J-29	8.0	399	130.0	23	0.000	0.15
P-21	J-29	J-15	8.0	438	130.0	3	0.000	0.02
P-22	J-29	J-30	8.0	755	130.0	18	0.000	0.12
P-23	J-4	J-31	12.0	616	130.0	-45	0.000	0.13
P-24	J-31	J-5	12.0	497	130.0	-49	0.000	0.14
P-25	J-6	J-32	8.0	839	130.0	10	0.000	0.06
P-26	J-32	J-7	8.0	600	130.0	6	0.000	0.04
P-27	J-33	J-19	8.0	990	130.0	-17	0.000	0.11
P-28	J-10	J-35	12.0	428	130.0	26	0.000	0.08
P-29	J-35	J-12	12.0	372	130.0	25	0.000	0.07
P-30	J-12	J-36	12.0	474	130.0	20	0.000	0.06
P-31	J-14	J-37	12.0	441	130.0	-9	0.000	0.03
P-32	J-37	J-16	12.0	323	130.0	-9	0.000	0.03
P-33	J-17	J-38	8.0	387	130.0	-9	0.000	0.06
P-34	J-16	J-39	12.0	473	130.0	3	0.000	0.01
P-35	J-40	J-34	8.0	755	130.0	-13	0.000	0.08
P-36	J-33	J-42	8.0	475	130.0	15	0.000	0.10
P-37	J-40	J-42	8.0	270	130.0	-1	0.000	0.00
P-40	R-4	J-41	12.0	381	130.0	0	0.000	0.00
P-41	J-42	PRV-1	8.0	318	130.0	13	0.000	0.09
P-42	PRV-1	J-38	8.0	646	130.0	13	0.000	0.09
P-43	J-36	PRV-4	12.0	314	130.0	17	0.000	0.05
P-44	J-43	J-14	12.0	388	130.0	17	0.000	0.05
P-45	J-24	PRV-3	12.0	119	130.0	54	0.000	0.15
P-46	PRV-3	J-27	12.0	101	130.0	54	0.000	0.15
P-47	J-17	J-44	8.0	394	130.0	-3	0.000	0.02
P-48	J-44	PRV-6	8.0	316	130.0	-6	0.000	0.04
P-49	R-2	J-26	8.0	443	130.0	23	0.000	0.15
P-50	J-46	J-1	8.0	221	130.0	55	0.000	0.35

FlexTable: Pipe Table

Active Scenario: Maximum Day Demand

Label	Start Node	Stop Node	Diameter (in)	Length (ft)	Hazen-Williams C	Flow (gpm)	Headloss Gradient (ft/ft)	Velocity (ft/s)
P-51	J-26	J-49	8.0	231	130.0	23	0.000	0.15
P-52	J-49	J-46	8.0	232	130.0	55	0.000	0.35
P-55	J-1	J-48	8.0	345	130.0	35	0.000	0.22
P-57	PRV-5	J-2	8.0	288	130.0	29	0.000	0.19
P-58	J-7	J-11	8.0	740	130.0	2	0.000	0.01
P-59	PRV-4	J-43	12.0	172	130.0	17	0.000	0.05
P-60	PRV-6	J-50	8.0	120	130.0	-6	0.000	0.04
P-61	J-50	J-45	8.0	232	130.0	4	0.000	0.03
P-62	J-50	J-40	8.0	638	130.0	-10	0.000	0.06
P-63	J-48	J-51	8.0	442	130.0	33	0.000	0.21
P-64	J-51	J-52	8.0	391	130.0	31	0.000	0.20
P-65	J-52	PRV-5	8.0	173	130.0	29	0.000	0.19
P-66	J-34	J-53	8.0	708	130.0	-16	0.000	0.10
P-67	J-53	J-18	8.0	382	130.0	-18	0.000	0.12
P-153	PRV-7	J-104	8.0	1,219	130.0	21	0.000	0.13
P-154	J-21	J-104	8.0	661	130.0	-21	0.000	0.13
P-155	J-24	J-103	12.0	130	130.0	32	0.000	0.09
P-156	J-103	J-49	12.0	1,752	130.0	32	0.000	0.09
P-157	J-39	J-41	12.0	727	130.0	0	0.000	0.00
P-158	J-1	PRV-7	8.0	116	130.0	21	0.000	0.13

FlexTable: PRV Table

Active Scenario: Maximum Day Demand

Label	Elevation (ft)	Diameter (Valve) (in)	Hydraulic Grade Setting (Initial) (ft)	Flow (gpm)	Hydraulic Grade (From) (ft)	Hydraulic Grade (To) (ft)	Headloss (ft)	Pressure Setting (Initial) (psi)
PRV-1	3,115.00	8.0	3,257.00	13	3,377.99	3,257.05	120.94	61.5
PRV-3	3,245.98	12.0	3,378.00	54	3,454.00	3,378.05	75.95	57.1
PRV-4	3,132.79	8.0	3,257.00	17	3,378.01	3,257.04	120.96	53.8
PRV-5	3,243.52	8.0	3,378.00	29	3,453.91	3,378.05	75.86	58.2
PRV-6	3,128.38	8.0	3,257.00	6	3,377.99	3,257.05	120.94	55.7
PRV-7	3,256.00	8.0	3,378.00	21	3,453.95	3,378.04	75.90	52.8

FlexTable: Reservoir Table

Active Scenario: Peak Hour Demand

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-2	3,454.00	39	3,454.00
R-3	3,454.00	143	3,454.00
R-4	3,203.00	0	3,203.00

FlexTable: Junction Table

Active Scenario: Peak Hour Demand

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-1	3,265.00	0	3,453.87	81.7
J-2	3,239.00	4	3,378.03	60.2
J-3	3,259.00	6	3,378.03	51.5
J-4	3,235.00	4	3,378.00	61.9
J-5	3,234.00	6	3,378.03	62.3
J-6	3,200.00	5	3,377.97	77.0
J-7	3,210.00	7	3,377.96	72.7
J-8	3,198.00	0	3,377.97	77.9
J-9	3,190.00	0	3,377.96	81.3
J-10	3,179.00	4	3,377.96	86.1
J-11	3,197.00	5	3,377.96	78.3
J-12	3,162.00	4	3,377.95	93.4
J-13	3,178.00	6	3,377.95	86.5
J-14	3,111.00	6	3,257.04	63.2
J-15	3,119.00	6	3,257.02	59.7
J-16	3,096.00	0	3,257.04	69.7
J-17	3,098.00	0	3,257.04	68.8
J-18	3,211.00	2	3,377.95	72.2
J-19	3,193.00	6	3,377.95	80.0
J-20	3,171.00	6	3,377.96	89.5
J-21	3,197.00	2	3,377.98	78.3
J-22	3,194.00	0	3,377.95	79.6
J-23	3,221.00	2	3,377.95	67.9
J-24	3,247.00	0	3,453.99	89.6
J-26	3,280.00	0	3,453.98	75.3
J-27	3,245.00	0	3,378.04	57.6
J-28	3,225.00	2	3,378.03	66.2
J-29	3,114.82	2	3,257.02	61.5
J-30	3,070.00	32	3,257.00	80.9
J-31	3,234.44	7	3,378.02	62.1
J-32	3,205.82	4	3,377.96	74.5
J-33	3,145.94	4	3,377.93	100.4
J-34	3,163.56	5	3,377.93	92.7
J-35	3,169.90	2	3,377.95	90.0
J-36	3,135.00	5	3,377.95	105.1
J-37	3,102.58	0	3,257.04	66.8
J-38	3,104.00	4	3,257.05	66.2
J-39	3,060.00	6	3,257.04	85.3
J-40	3,130.68	6	3,377.93	107.0
J-41	3,060.00	0	3,257.04	85.3
J-42	3,115.00	2	3,377.93	113.8
J-43	3,128.62	0	3,257.04	55.6
J-44	3,113.22	5	3,257.05	62.2
J-45	3,144.00	4	3,377.92	101.2
J-46	3,276.82	0	3,453.92	76.6
J-48	3,259.29	4	3,453.84	84.2
J-49	3,278.40	0	3,453.97	76.0

FlexTable: Junction Table

Active Scenario: Peak Hour Demand

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-50	3,133.72	0	3,377.92	105.7
J-51	3,252.36	2	3,453.80	87.2
J-52	3,246.23	4	3,453.77	89.8
J-53	3,194.36	5	3,377.94	79.4
J-103	3,249.00	0	3,453.99	88.7
J-104	3,199.00	0	3,378.00	77.4

FlexTable: Pipe Table

Active Scenario: Peak Hour Demand

Label	Start Node	Stop Node	Diameter (in)	Length (ft)	Hazen-Williams C	Flow (gpm)	Headloss Gradient (ft/ft)	Velocity (ft/s)
P-1	J-3	J-2	8.0	302	130.0	-6	0.000	0.04
P-2	J-2	J-4	8.0	595	130.0	39	0.000	0.25
P-3	J-4	J-6	12.0	739	130.0	110	0.000	0.31
P-4	J-6	J-8	12.0	120	130.0	89	0.000	0.25
P-5	J-8	J-9	12.0	268	130.0	54	0.000	0.15
P-6	J-9	J-10	12.0	486	130.0	54	0.000	0.15
P-7	J-10	J-11	8.0	261	130.0	-1	0.000	0.01
P-8	J-12	J-13	8.0	360	130.0	6	0.000	0.04
P-9	J-16	J-17	8.0	252	130.0	-17	0.000	0.11
P-10	J-19	J-20	8.0	496	130.0	-26	0.000	0.16
P-11	J-20	J-21	8.0	611	130.0	-32	0.000	0.20
P-12	J-19	J-22	8.0	487	130.0	-4	0.000	0.03
P-13	J-22	J-23	8.0	653	130.0	2	0.000	0.01
P-14	J-22	J-18	8.0	232	130.0	-6	0.000	0.04
P-15	J-18	J-8	8.0	468	130.0	-35	0.000	0.22
P-16	R-3	J-24	12.0	135	130.0	143	0.000	0.41
P-18	J-27	J-5	12.0	584	130.0	90	0.000	0.26
P-19	J-5	J-28	8.0	253	130.0	2	0.000	0.02
P-20	J-14	J-29	8.0	399	130.0	40	0.000	0.26
P-21	J-29	J-15	8.0	438	130.0	6	0.000	0.04
P-22	J-29	J-30	8.0	755	130.0	32	0.000	0.20
P-23	J-4	J-31	12.0	616	130.0	-75	0.000	0.21
P-24	J-31	J-5	12.0	497	130.0	-82	0.000	0.23
P-25	J-6	J-32	8.0	839	130.0	16	0.000	0.11
P-26	J-32	J-7	8.0	600	130.0	13	0.000	0.08
P-27	J-33	J-19	8.0	990	130.0	-24	0.000	0.15
P-28	J-10	J-35	12.0	428	130.0	52	0.000	0.15
P-29	J-35	J-12	12.0	372	130.0	49	0.000	0.14
P-30	J-12	J-36	12.0	474	130.0	40	0.000	0.11
P-31	J-14	J-37	12.0	441	130.0	-11	0.000	0.03
P-32	J-37	J-16	12.0	323	130.0	-11	0.000	0.03
P-33	J-17	J-38	8.0	387	130.0	-11	0.000	0.07
P-34	J-16	J-39	12.0	473	130.0	6	0.000	0.02
P-35	J-40	J-34	8.0	755	130.0	-16	0.000	0.10
P-36	J-33	J-42	8.0	475	130.0	20	0.000	0.13
P-37	J-40	J-42	8.0	270	130.0	-3	0.000	0.02
P-40	R-4	J-41	12.0	381	130.0	0	0.000	0.00
P-41	J-42	PRV-1	8.0	318	130.0	15	0.000	0.09
P-42	PRV-1	J-38	8.0	646	130.0	15	0.000	0.09
P-43	J-36	PRV-4	12.0	314	130.0	35	0.000	0.10
P-44	J-43	J-14	12.0	388	130.0	35	0.000	0.10
P-45	J-24	PRV-3	12.0	119	130.0	90	0.000	0.26
P-46	PRV-3	J-27	12.0	101	130.0	90	0.000	0.26
P-47	J-17	J-44	8.0	394	130.0	-6	0.000	0.04
P-48	J-44	PRV-6	8.0	316	130.0	-10	0.000	0.07
P-49	R-2	J-26	8.0	443	130.0	39	0.000	0.25
P-50	J-46	J-1	8.0	221	130.0	92	0.000	0.59

FlexTable: Pipe Table

Active Scenario: Peak Hour Demand

Label	Start Node	Stop Node	Diameter (in)	Length (ft)	Hazen-Williams C	Flow (gpm)	Headloss Gradient (ft/ft)	Velocity (ft/s)
P-51	J-26	J-49	8.0	231	130.0	39	0.000	0.25
P-52	J-49	J-46	8.0	232	130.0	92	0.000	0.59
P-55	J-1	J-48	8.0	345	130.0	58	0.000	0.37
P-57	PRV-5	J-2	8.0	288	130.0	48	0.000	0.31
P-58	J-7	J-11	8.0	740	130.0	6	0.000	0.04
P-59	PRV-4	J-43	12.0	172	130.0	35	0.000	0.10
P-60	PRV-6	J-50	8.0	120	130.0	-10	0.000	0.07
P-61	J-50	J-45	8.0	232	130.0	4	0.000	0.02
P-62	J-50	J-40	8.0	638	130.0	-14	0.000	0.09
P-63	J-48	J-51	8.0	442	130.0	54	0.000	0.35
P-64	J-51	J-52	8.0	391	130.0	52	0.000	0.33
P-65	J-52	PRV-5	8.0	173	130.0	48	0.000	0.31
P-66	J-34	J-53	8.0	708	130.0	-21	0.000	0.14
P-67	J-53	J-18	8.0	382	130.0	-26	0.000	0.17
P-153	PRV-7	J-104	8.0	1,219	130.0	34	0.000	0.22
P-154	J-21	J-104	8.0	661	130.0	-34	0.000	0.22
P-155	J-24	J-103	12.0	130	130.0	53	0.000	0.15
P-156	J-103	J-49	12.0	1,752	130.0	53	0.000	0.15
P-157	J-39	J-41	12.0	727	130.0	0	0.000	0.00
P-158	J-1	PRV-7	8.0	116	130.0	34	0.000	0.22

FlexTable: PRV Table

Active Scenario: Peak Hour Demand

Label	Elevation (ft)	Diameter (Valve) (in)	Hydraulic Grade Setting (Initial) (ft)	Flow (gpm)	Hydraulic Grade (From) (ft)	Hydraulic Grade (To) (ft)	Headloss (ft)	Pressure Setting (Initial) (psi)
PRV-1	3,115.00	8.0	3,257.00	15	3,377.92	3,257.05	120.87	61.5
PRV-3	3,245.98	12.0	3,378.00	90	3,453.99	3,378.05	75.94	57.1
PRV-4	3,132.79	8.0	3,257.00	35	3,377.95	3,257.04	120.90	53.8
PRV-5	3,243.52	8.0	3,378.00	48	3,453.76	3,378.05	75.71	58.2
PRV-6	3,128.38	8.0	3,257.00	10	3,377.92	3,257.05	120.87	55.7
PRV-7	3,256.00	8.0	3,378.00	34	3,453.87	3,378.04	75.82	52.8

FlexTable: Reservoir Table

Active Scenario: Maximum Day Plus Fire Flow

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-2	3,454.00	23	3,454.00
R-3	3,454.00	86	3,454.00
R-4	3,203.00	0	3,203.00

Fire Flow Node FlexTable: Fire Flow Report

Active Scenario: Maximum Day Plus Fire Flow

Label	Fire Flow (Needed) (gpm)	Fire Flow (Upper Limit) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Calculated Zone Lower Limit) (psi)	Junction w/ Minimum Pressure (Zone)	Velocity of Maximum Pipe (ft/s)
J-1	1,000	1,001	1,001	30.0	76.8	51.5	J-3	6.74
J-2	1,000	1,001	1,003	30.0	59.1	50.5	J-3	4.73
J-3	1,000	1,001	1,004	30.0	48.1	55.6	J-43	6.41
J-4	1,000	1,001	1,003	30.0	61.1	51.2	J-3	3.05
J-5	1,000	1,001	1,004	30.0	61.8	51.4	J-3	2.67
J-6	1,000	1,001	1,003	30.0	75.6	51.3	J-3	3.25
J-7	1,000	1,001	1,005	30.0	68.5	51.3	J-3	3.44
J-8	1,000	1,001	1,001	30.0	76.4	51.3	J-3	3.28
J-9	1,000	1,001	1,001	30.0	79.6	51.3	J-3	3.27
J-10	1,000	1,001	1,003	30.0	84.0	51.3	J-3	3.27
J-11	1,000	1,001	1,004	30.0	75.3	51.3	J-3	4.62
J-12	1,000	1,001	1,003	30.0	90.4	51.3	J-3	3.27
J-13	1,000	1,001	1,004	30.0	80.7	51.3	J-3	6.41
J-14	1,000	1,001	1,004	30.0	62.8	51.3	J-3	3.34
J-15	1,000	1,001	1,004	30.0	52.6	51.3	J-3	6.54
J-16	1,000	1,001	1,001	30.0	69.0	51.3	J-3	3.39
J-17	1,000	1,001	1,001	30.0	68.1	51.3	J-3	3.50
J-18	1,000	1,001	1,002	30.0	69.1	51.3	J-3	4.63
J-19	1,000	1,001	1,004	30.0	76.0	51.3	J-3	4.23
J-20	1,000	1,001	1,004	30.0	85.0	51.4	J-3	4.34
J-21	1,000	1,001	1,002	30.0	73.7	51.4	J-3	4.67
J-22	1,000	1,001	1,002	30.0	75.8	51.3	J-3	4.51
J-23	1,000	1,001	1,001	30.0	59.0	51.3	J-3	6.39
J-24	1,000	1,001	1,001	30.0	89.4	51.5	J-3	2.78
J-26	1,000	1,001	1,001	30.0	74.2	51.5	J-3	3.43
J-27	1,000	1,001	1,001	30.0	57.5	51.5	J-3	2.75
J-28	1,000	1,001	1,002	30.0	63.7	51.4	J-3	6.40
J-29	1,000	1,001	1,002	30.0	57.9	51.3	J-3	6.54
J-30	1,000	1,001	1,019	30.0	71.1	51.3	J-3	6.54
J-31	1,000	1,001	1,005	30.0	61.5	51.3	J-3	2.61
J-32	1,000	1,001	1,005	30.0	70.5	51.3	J-3	3.84
J-33	1,000	1,001	1,003	30.0	93.7	51.3	J-3	4.42
J-34	1,000	1,001	1,004	30.0	86.1	51.3	J-3	4.54
J-35	1,000	1,001	1,002	30.0	87.5	51.3	J-3	3.27
J-36	1,000	1,001	1,004	30.0	101.6	51.3	J-3	3.27
J-37	1,000	1,001	1,001	30.0	66.3	51.3	J-3	3.37
J-38	1,000	1,001	1,005	30.0	64.9	51.3	J-3	3.60
J-39	1,000	1,001	1,004	30.0	84.1	51.3	J-3	3.39
J-40	1,000	1,001	1,004	30.0	99.7	51.3	J-3	4.49
J-41	1,000	1,001	1,001	30.0	83.3	51.3	J-3	3.39
J-42	1,000	1,001	1,002	30.0	106.6	51.3	J-3	4.47
J-43	1,000	1,001	1,001	30.0	55.4	51.3	J-3	3.32
J-44	1,000	1,001	1,004	30.0	61.3	51.3	J-3	3.75
J-45	1,000	1,001	1,005	30.0	87.0	51.3	J-3	6.45
J-46	1,000	1,001	1,001	30.0	73.6	51.5	J-3	6.74

Fire Flow Node FlexTable: Fire Flow Report

Active Scenario: Maximum Day Plus Fire Flow

Label	Fire Flow (Needed) (gpm)	Fire Flow (Upper Limit) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Calculated Zone Lower Limit) (psi)	Junction w/ Minimum Pressure (Zone)	Velocity of Maximum Pipe (ft/s)	Pipe w/ Maximum Velocity	Satisfies Fire Flow Constraints?
J-48	1,000	1,001	1,003	30.0	76.4	51.5	J-3	6.74	P-52	True
J-49	1,000	1,001	1,001	30.0	75.0	51.5	J-3	2.59	P-52	True
J-50	1,000	1,001	1,001	30.0	93.3	51.3	J-3	6.45	P-1	True
J-51	1,000	1,001	1,002	30.0	75.7	51.5	J-3	6.74	P-52	True
J-52	1,000	1,001	1,003	30.0	75.0	51.5	J-3	6.74	P-16	True
J-53	1,000	1,001	1,004	30.0	74.5	51.3	J-3	4.93	P-52	True
J-103	1,000	1,001	1,001	30.0	88.4	51.5	J-3	2.66	P-7	True
J-104	1,000	1,001	1,001	30.0	73.4	51.4	J-3	5.06	P-52	True
									P-52	True
									P-52	True
									P-7	True
									P-52	True
									P-8	True
									P-52	True
									P-20	True
									P-52	True
									P-52	True
									P-15	True
									P-15	True
									P-52	True
									P-52	True
									P-15	True
									P-13	True
									P-16	True
									P-49	True
									P-16	True
									P-19	True
									P-20	True
									P-20	True
									P-16	True
									P-25	True
									P-15	True
									P-15	True
									P-52	True

Good

Fire Flow Node FlexTable: Fire Flow Report

Active Scenario: Maximum Day Plus Fire Flow

Pipe w/ Maximum Velocity	Satisfies Fire Flow Constraints?
P-52	True
P-52	True
P-52	True
P-52	True
P-15	True
P-52	True
P-15	True
P-52	True
P-62	True
P-62	True
P-52	True
P-52	True
P-51	True
P-62	True
P-52	True
P-52	True
P-67	True
P-16	True
P-52	True

FlexTable: PRV Table

Active Scenario: Maximum Day Plus Fire Flow

Label	Elevation (ft)	Diameter (Valve) (in)	Hydraulic Grade Setting (Initial) (ft)	Flow (gpm)	Hydraulic Grade (From) (ft)	Hydraulic Grade (To) (ft)	Headloss (ft)	Pressure Setting (Initial) (psi)
PRV-1	3,115.00	8.0	3,257.00	13	3,377.99	3,257.05	120.94	61.5
PRV-3	3,245.98	12.0	3,378.00	54	3,454.00	3,378.05	75.95	57.1
PRV-4	3,132.79	8.0	3,257.00	17	3,378.01	3,257.04	120.96	53.8
PRV-5	3,243.52	8.0	3,378.00	29	3,453.91	3,378.05	75.86	58.2
PRV-6	3,128.38	8.0	3,257.00	6	3,377.99	3,257.05	120.94	55.7
PRV-7	3,256.00	8.0	3,378.00	21	3,453.95	3,378.04	75.90	52.8