WATER SERVICE IMPACT STUDY

February 12, 2019

Smoke Tree Resort

Paradise Valley, Arizona

Water Service Impact Study

Prepared for:

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CVL CONSULTANTS

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EXECUTIVE SUMMARY

The proposed Smoke Tree Resort is remodel of an existing resort. The development will be constructed on 5.36 acres of existing special use permit resort land on the southeast corner of East Lincoln Drive and Quail Run Road. The property lies within the Town of Paradise Valley. Water service to the property is provided by EPCOR Water. A 12-inch waterline in Quail Run Road and a 16-inch waterline in East Lincoln Drive exist to serve the development.

Demand calculations were prepared based on the design requirement for EPCOR Water. Fire flow demands are per the 2018 International Fire Code with City of Phoenix Amendments. The calculated demands are as follow

- Average Day Demand : 67,410 gpd (46.81 gpm)
- Maximum Day Demand: 121,338 gpd (84.26 gpm)
- Peak Hour Demand: 202,230 gpd (140.44 gpm)
- Maximum Day + Fire Flow Demands: 1,592.63 gpm

Modeling of the system was conducted utilizing WaterCAD version 8i software. Pressures in the proposed development were found to range between 84 and 94 psi for the ADD, MDD, and PHD scenarios. Pressures during Fire Flow for all fire flow scenarios were above 10 psi.

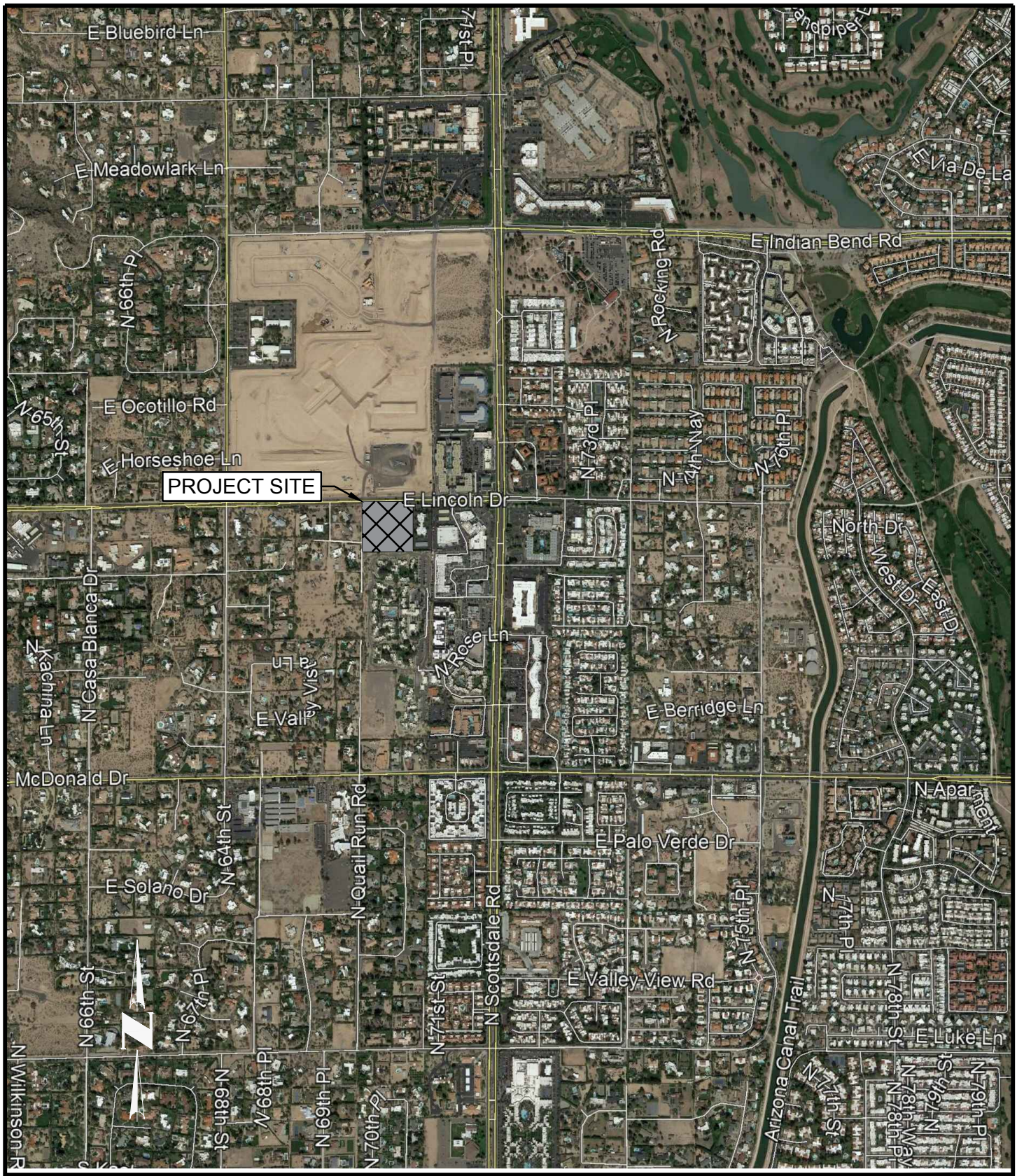
1.0 INTRODUCTION

1.1 General Description

Smoke Tree Resort is a proposed 5.36 acre remodel of a resort with a special use permit for resort uses located in Paradise Valley, Arizona. A total of 135 rental rooms and 30 multi-family (condos) dwelling units (DU) are planned. This study addresses the water service connections and fire protection requirements for the proposed development. EPCOR Water will provide water service to the development. EPCOR Water design standards in the *Developer and Engineering Guide,* Dated January 2015 will be used to determine domestic water demands. The Town of Paradise Valley will provide fire protection service to the site. Fire flow standards will be based on the Town of Paradise Valley design standards.

1.2 Project Location

Smoke Tree Resort is located in Section 10 of Township 2 North, Range 4 East of the Gila and Salt River Base and Meridian. The development is bordered by East Lincoln Drive to the north and Quail Run Road to the west. See Figure 1 and 2.



NOT TO SCALE

1.01.0315301

4550 North 12th Street
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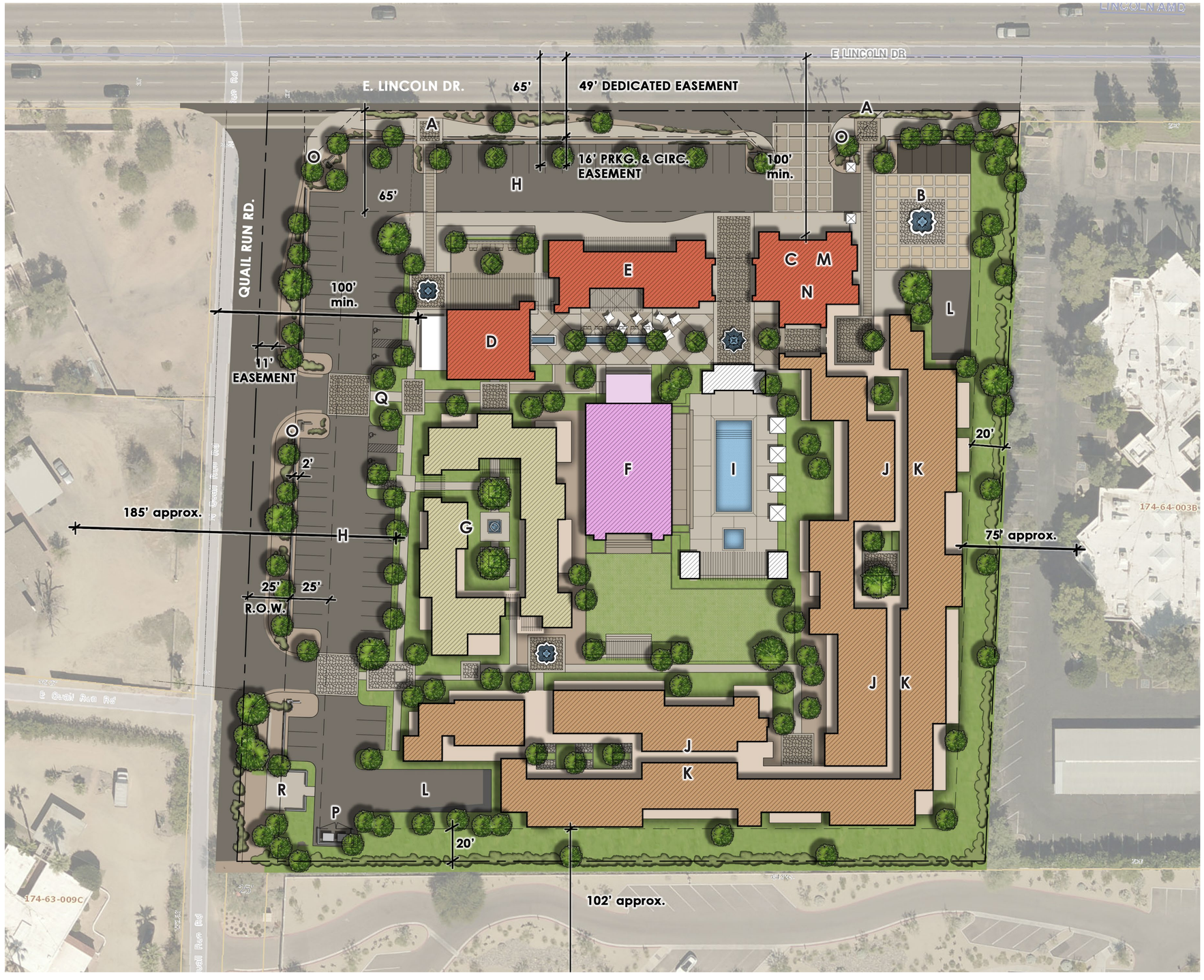
VICINITY MAP

SMOKE TREE RESORT

CVL CONSULTANTS
CELEBRATING 60 YEARS

FIGURE 1

N:\01\0315301\Enviro\Parcel\cad\Vicinity Map.dwg **NicoleW** **December 7, 2018**



PROGRAM

- **A.** Pedestrian Entry
- **B.** Resort Reception Entry Plaza and Valet
- **C.** Resort Reception (1,000 sf.)
- **D.** Resort Market (2,500 sf.)
- **E.** Resort Restaurant (3,500 sf.)
- **F.** Resort Clubhouse (5,000 sf.)
- **G.** Resort Villas
- **H.** Surface Parking
- **I.** Resort Pool
- **J.** Resort Bedrooms (first 2 floors)
- **K.** Resort Residences (3rd floor)
- **L.** Underground parking access
- **M.** Resort Retail (5,000 sf.)
- **N.** Resort Public Area (3,500 sf.)
- **O.** SIgnage
- **P.** Garbage Bins w/Landscape buffer, walls & gates
- **Q.** Delivery Location
- **R.** Employee Break Area

HOTEL UNITS - 120 Units

- Connected building
- Rooms on first and second levels

RESORT RESIDENCES (30 Units)

VILLAS
- 12 units

RESORT PENTHOUSE RESIDENCES
- 18 Units
- 3rd Level of Resort buildings
- 60 Underground dedicated parking (2 per unit)

SURFACE PARKING

- 76 Spaces (4 ADA)

N

0' 25' 50' 100'

2.0 WATER SYSTEM DESIGN CRITERIA

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

2.1 Design Criteria

This water study is based on criteria from the Town of Paradise Valley and EPCOR Water's *Developer & Engineering Guide*, dated January, 2015. The following criteria were used in developing this plan:

- Demand factors
  - Resort Average Day Demand = 446 gpd/room
  - Multi Family Average Day Demand = 240 gpd/dwelling unit
  - Max day factor = 1.8 x Average Day Demand
  - Peak hour factor = 3.0 x Average Day Demand
- Pressure requirements
  - Minimum
    - 20 psi at the meter
  - 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 head loss
  - Maximum = 10ft/1,000 ft of distribution lines
- Hazen-Williams Coefficient = 130
- Fire Flows = 2,000 gpm

3.0 EXISTING INFRASTRUCTURE

3.1 Existing Waterlines

Adjacent existing waterlines to the development include a 16-inch waterline in East Lincoln Drive and an 8-inch waterline in North Quail Run Road. The nearest fire hydrants are located directly east on East Lincoln Drive. See Figure 2.

See Appendix A for an EPCOR Water quarter section for this area.

3.2 Water Quality

Appendix E contains a copy of the 2017 Water Quality Report. No violations were reported.

4.0 PROPOSED INFRASTRUCTURE

4.1 Water Demands

The water demands for Smoke Tree Resort may be seen below in Table 1.

Table 1 – Smoke Tree Resort Water Demands

Number of Rooms	Unit Factor (gpd/unit)	ADD (gpd)	MDF	MDD (gpd)	PHF	PHD (gpd)
135	446	60,210	1.8	108,378	3.0	180,630
30	240	7,200	1.8	12,960	3.0	21,600
Total	-	67,410	-	121,338	-	202,230

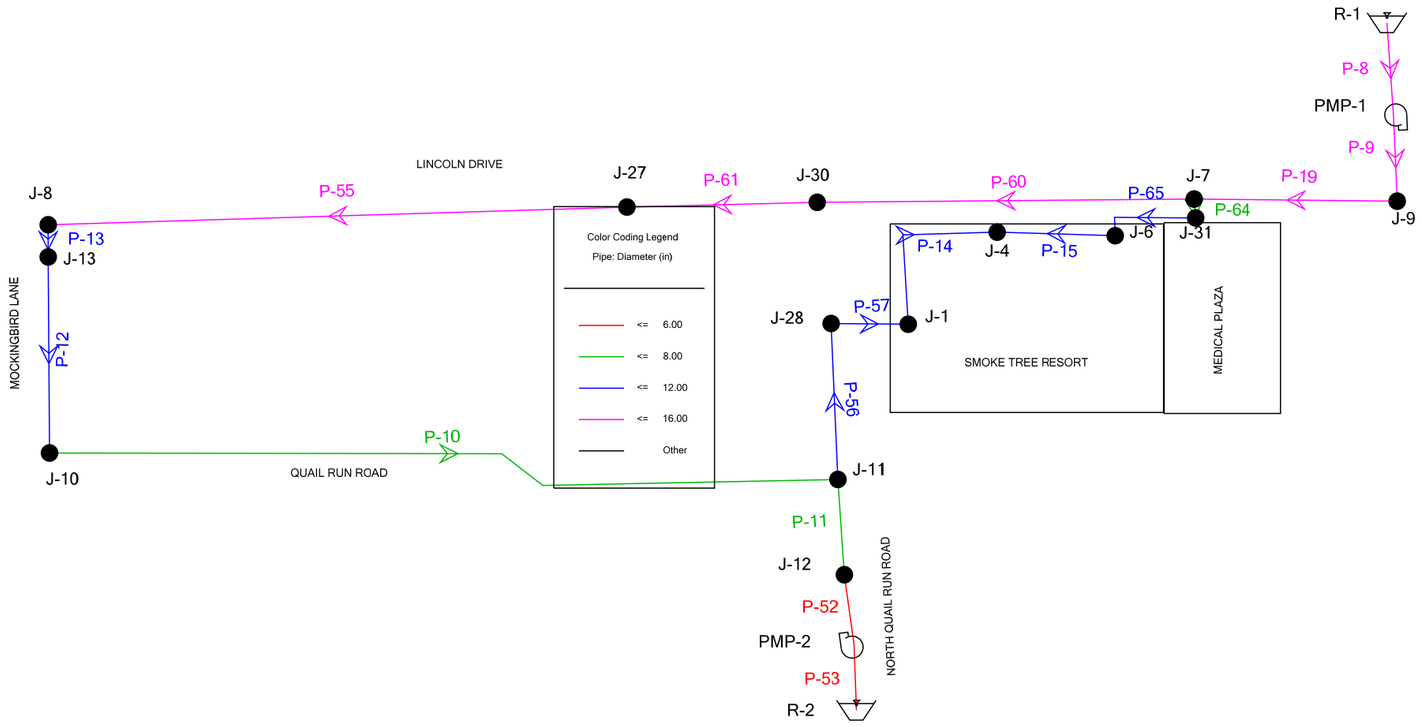
Fire flow demands of 2,000 gpm will be modeled.

4.2 Proposed On-Site Water Infrastructure

A proposed 12-inch waterline is to extend north from the existing 8-inch waterline in North Quail Run Road to the development's southwest entrance. The proposed 12-inch waterline will follow the western and northern parking areas of Smoke Tree Resort to connect to the 8-inch waterline that extends south from the 16-inch waterline in Lincoln Road to the north of the Medical Plaza. See Figure 3. Connection to this 8-inch waterline would require a replacement of the existing 8-inch x 6-inch reducer with an 8-inch to 12-inch tee and a 12-inch x 6-inch reducer to allow for the Medical Plaza to use their existing water meter connected to the 6-inch waterline. See Appendix A: Paradise Valley Water Company Block Map PV – 407 for a detailed map of this connection.

Scenario: Peak Hour

Active Scenario: Peak Hour



5.0 WATER SYSTEM MODELING

5.1 Network Analysis Domestic Demands

The network analysis for the proposed development's 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. All networks were analyzed for average day, maximum day and peak hour demand conditions. The existing conditions were determined by a fire flow test completed on October 11, 2018. Results from this fire flow test may be seen in Appendix B.

The pipes were sized based on pressure requirements for average day, max day, and peak hour 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)
- 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 Domestic Demands

The detailed results of the WaterCAD analysis for the domestic demands are presented in Appendix C. Table 2 summarize the results.

Table 2 – Water Model Results Summary for Domestic Demands

Scenario	Flow (gpm)	Pressure (psi)				Maximum Velocity (fps)	Pipe ID
		Minimum	Node	Maximum	Node		
Average Day	46.81	84.76	J-10	93.84	J-9	0.25	P-64
Max Day	84.26	84.75	J-10	93.84	J-9	0.45	P-64
Peak Hour	140.44	84.73	J-10	93.82	J-9	0.76	P-64

5.3 Network Analysis Fire Flows

The network analysis was performed as described in subsection 5.1 above. The detailed results of the Water CAD analysis for the fire flow scenario are shown in Appendix D. Table 3 summarizes the results.

Table 3 – Water Model Results Summary for Fire Flow Demands

Fire Flow Available (gpm)	Pressure (psi)				Maximum Velocity (fps)	Pipe ID
	Minimum	Node	Maximum	Node		
2,140.44	85.61	J-1	87.62	J-6	11.83	P-64

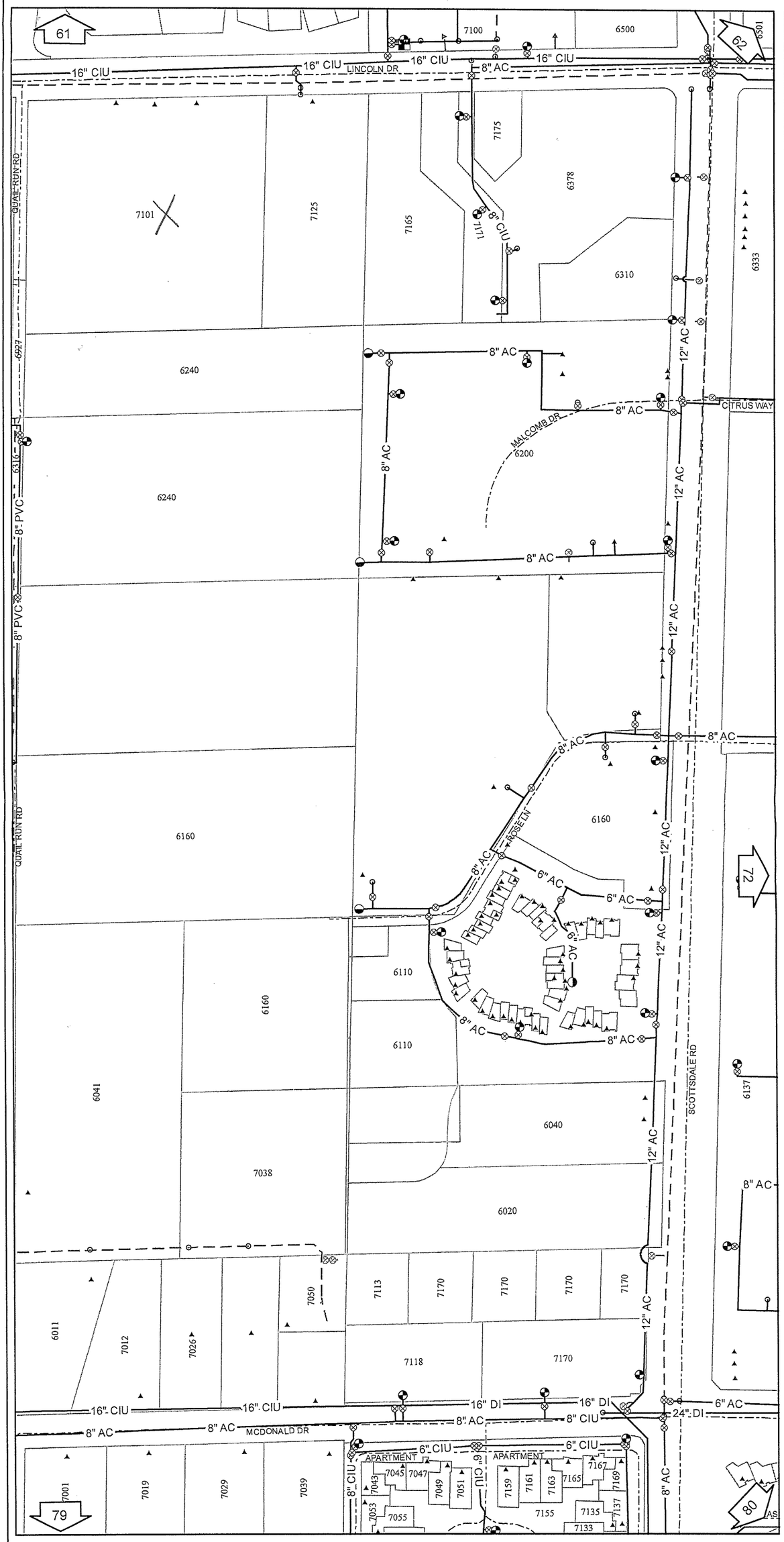
6.0 SUMMARY

This Water Service Impact Study presents the proposed water system connections, and an overview of existing infrastructure surrounding the project site. The following summarizes CVL's findings of the proposed water system to serve Smoke Tree Resort.

- The water service connections will be made to the existing EPCOR Water system.
- An existing adjacent waterline to Smoke Tree Resort consist of an 8-inch waterline in North Quail Run Road and a 16-inch waterline to the north on East Lincoln Drive.
- Demands from the Smoke Tree Resort are:
    - Average Day Demand: 0.0674 MGD
    - Max Day Demand: 0.1214 MGD
    - Peak Hour Demand: 0.2023 MGD
- Pressures within the proposed development are approximately 84-94 psi for all domestic demand scenarios which is within the Town of Paradise Valley's pressure requirements. Individual PRVs are required at lots experiencing pressures greater than 80 psi.
- The nearest fire hydrants to the proposed development is to the east of Smoke Tree Resort.
- Velocities in the existing system are greater than the 10 fps maximum requirement. The maximum velocity that occurs when a fire flow of 2,140.44 gpm is modeled at the site is 11.83 fps within P-64, the 8-inch waterline that extends south from the 16-inch waterline in Lincoln Road to the north of the Medical Plaza.
- The existing water infrastructure exceeds the maximum velocity requirement of 10 fps during maximum day demand plus fire flow. A waiver to allow velocities greater than 10 fps during maximum day demand plus fire flow within the 8-inch waterline that extends south from the 16-inch waterline in Lincoln Road to the north of the Medical Plaza is needed to allow this connection to be acceptable to the Town of Paradise Valley and EPCOR Water.
- Individual PRVs are needed for all sites where pressures at above 80 psi occur.

APPENDIX A

Water Quarter Section Map



N

SCALE
0 100 200
Feet

WATER FEATURES

Street Valves
- Air Release
- Ball (Blow-off)
- Double Check
- Pressure Regulate
- Gate, Butterfly Open
- Gate, Butterfly Closed

Other
- Customer Meter
- Hydrant
- Cap/Reducer
- Pump Station
- Tank (RESV)
- Well (W)
- Water Treatment Plant (WTP)
- System Interconnection

Lateral Service
- All Types

(Domestic Not Shown For Map Clarity)

Mains
- Distribution
- Plant
- Transmission

Abandoned Features
- Mains/Laterals

All Other Features Shown 50% Grey

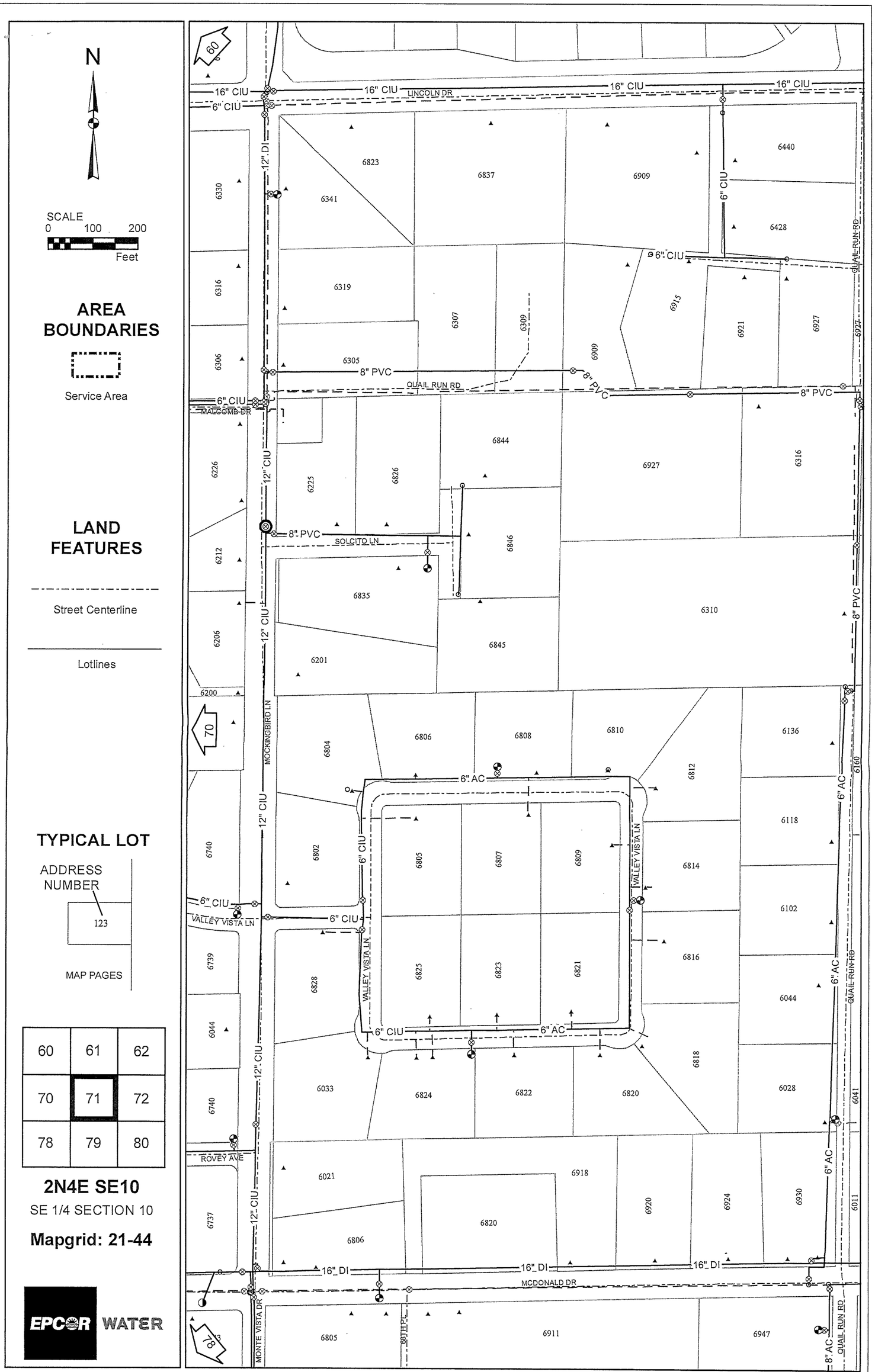
Mapgrid: 21-44

EPCOR WATER

EPCOR Water
EASTERN DIVISION

71
RIGHT

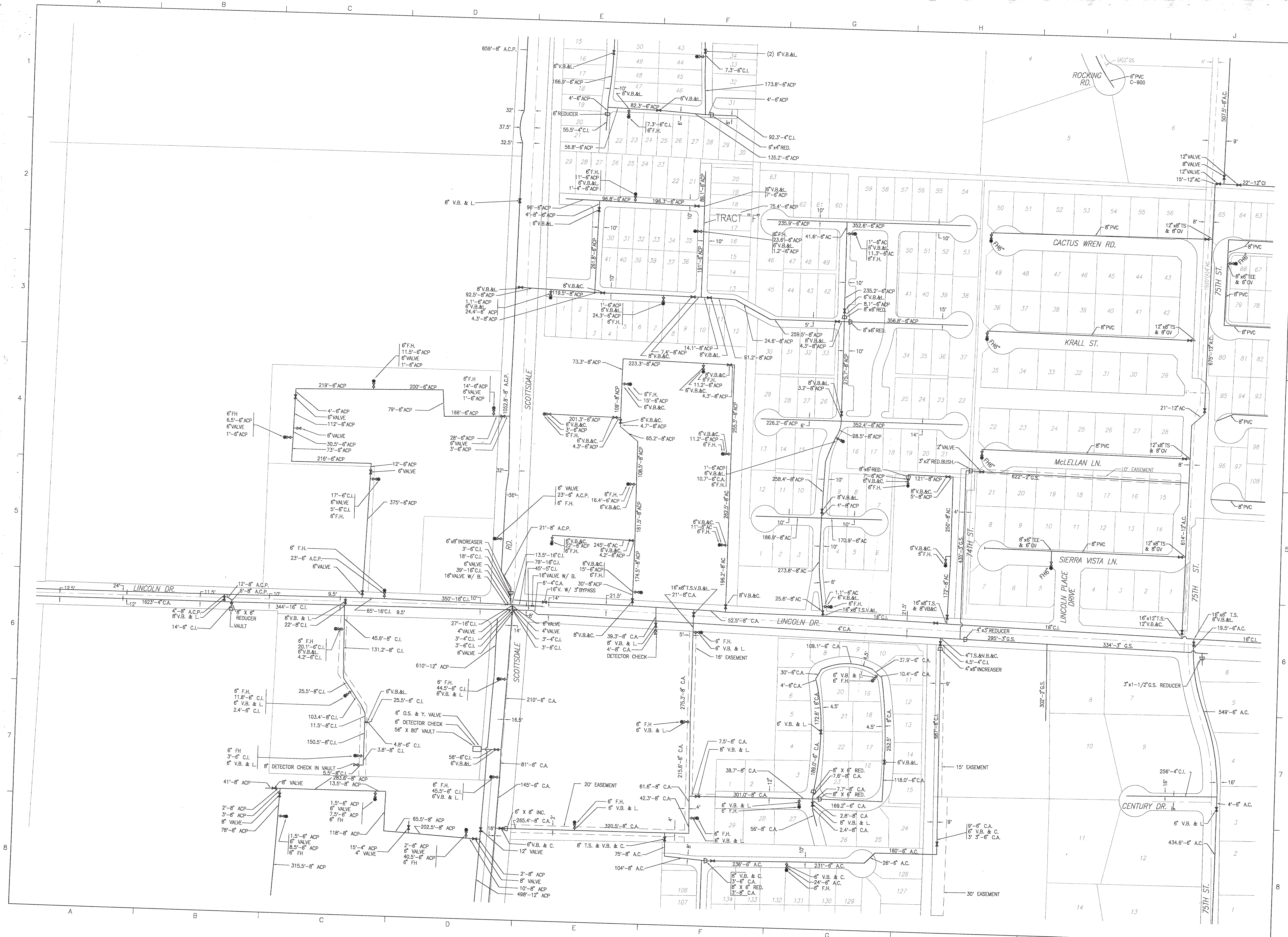
Brad sent flow tests
Fred sent to me



71 PARADISE VALLEY WATER

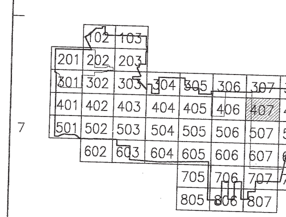
LEFT

REVISED: MAY 2014



Legend

SYMBOL	ABBREV.	DESCRIPTION
	F.H.	COMPANY FIRE HYDRANT
	P.F.H.	PRIVATE FIRE HYDRANT
	REDU.	REDUCER
(M)		WATER METER
		VALVE
		BLOW-OFF
	ARV-M	AIR RELEASE VALVE (MANUAL)
	ARV-A	AIR RELEASE VALVE (AUTOMATIC)
	(A)	ABANDONED
		WELL
	P.STA./P.S.	PUMP STATION
		TANK
	A.C.	ASBESTOS CEMENT
	BRS.	BRASS
	C.A.	CEMENT ASBESTOS
	C.I.	CAST IRON
	COP.	COPPER
	D.I.	DUCTILE IRON
	G.S.	GALVANIZED STEEL
	G.V.	GATE VALVE
	M.J.	MECHANICAL JOINT
	P.V.C.	POLYVINYL CHLORIDE
	R.W.	RAW WATER
	STL.	STEEL
	T.S	TAPPING SLEEVE
	V.B.&C.	VALVE, BOX & COVER
	W.S.	WELDED STEEL
	V.	VALVE



Drawing Key

ORIGINAL PLOTTED SCALE : 1" = 100'-0"

0 50 100 200 300

Graphic Scale

Paradise Valley Water Company

7500 E. McDonald Dr., Suite 200A, Scottsdale, AZ. 85250-6000
Bus. Off.: Ph: (602) 948-5410 Ops. Ctr.: (602) 948-3865

Drawn By: W.R.E.	Date: Mar. 1999
Checked By: RE	Approved By:

REF ORIG. B. MAP	
SEC. 10 SHT. 1	SEC. 11 SHT. 2
SEC. 10 SHT. 3	SEC. 11 SHTS.2A&B
SEC. 11 SHT. 1	SEC. 11 SHT. 4

Block Map PV-407

PVWC FILE I.D. = PV-407

APPENDIX B

Fire Flow Test Results

Flow Test Summary

Project Name:	EJFT 18296-1
Project Address:	7125 E Lincoln Dr, Paradise Valley, AZ 85253
Date of Flow Test:	2018-10-11
Time of Flow Test:	7:45 AM
Data Reliable Until:	2019-04-11
Conducted By:	Eder Cueva & Tayler Lynch (EJ Flow Tests) 602.999.7637
Witnessed By:	Garren Willey (EPCOR) 480.450.4670
City Forces Contacted:	EPCOR Water (480.450.4670)

Raw Flow Test Data

Static Pressure:	104.0 PSI
Residual Pressure:	99.0 PSI
Flowing GPM:	2,831
GPM @ 20 PSI:	12,989

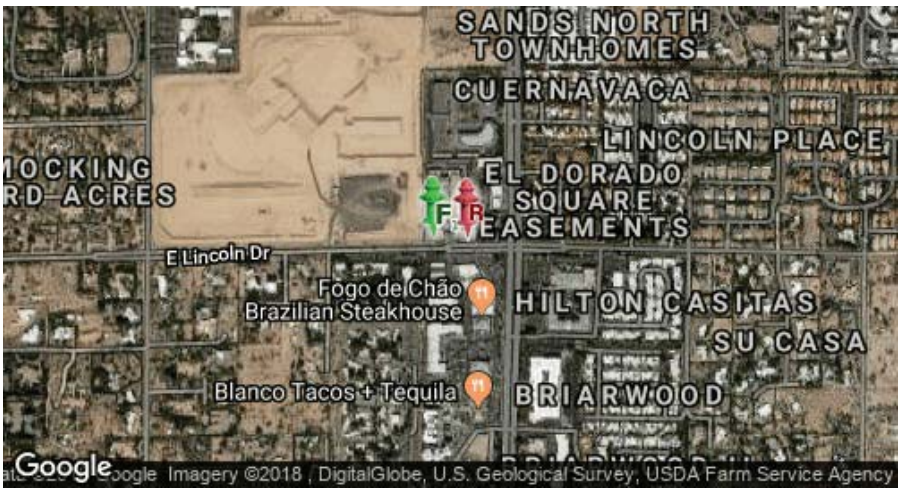
Data with a 10 % Safety Factor

Static Pressure:	93.6 PSI
Residual Pressure:	88.6 PSI
Flowing GPM:	2,831
GPM @ 20 PSI:	12,094

Hydrant F_1

Pitot Pressure (1):	63	PSI
Coefficient of Discharge (1):	0.9	
Hydrant Orifice Diameter (1):	4	inches

Additional Coefficient 0.83 on orifice #1



Static-Residual Hydrant

Flow Hydrant

Distance Between F_1 and R
249 ft (measured linearly)

Static-Residual Elevation
1304 ft (above sea level)

Flow Hydrant (F_1) Elevation
1306 ft (above sea level)

Elevation & distance values are approximate

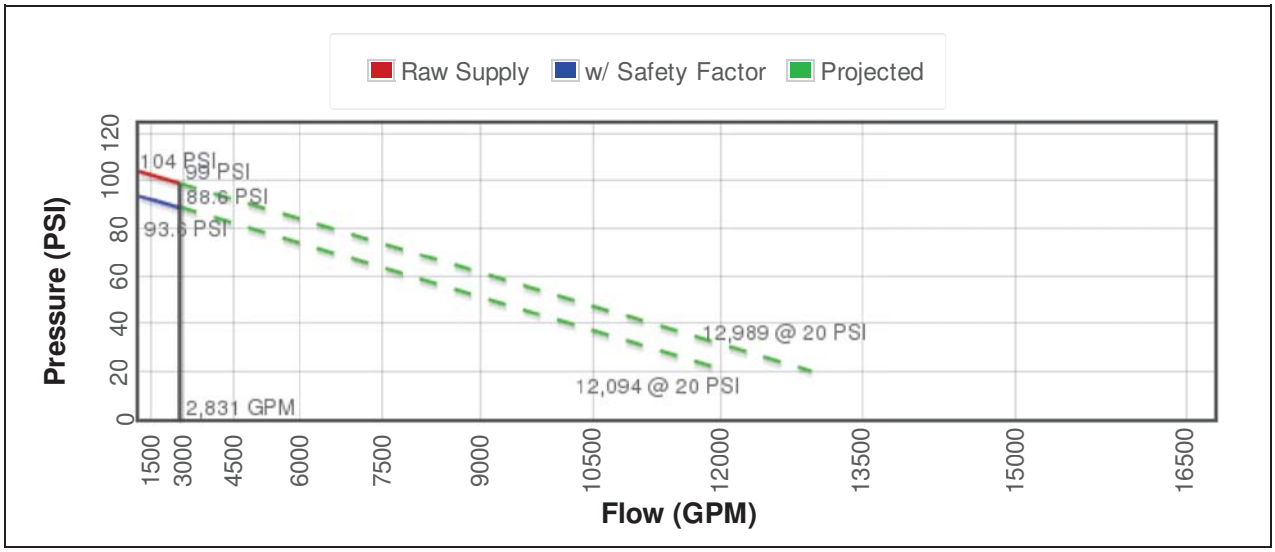
Flow Test Summary

Static-Residual Hydrant

Flow Hydrant (only hydrant F1 shown for clarity)

Approximate Project Site

Water Supply Curve $N^{1.85}$ Graph



Flow Test Summary

Project Name:	EJFT 18296-2
Project Address:	7125 E Lincoln Dr, Paradise Valley, AZ 85253
Date of Flow Test:	2018-12-11
Time of Flow Test:	7:55 AM
Data Reliable Until:	2019-06-11
Conducted By:	Eder Cueva & Tayler Lynch (EJ Flow Tests) 602.999.7637
City Forces Contacted:	EPCOR Water (480.450.4670)

Raw Flow Test Data

Static Pressure:	92.0 PSI
Residual Pressure:	70.0 PSI
Flowing GPM:	1,501
GPM @ 20 PSI:	2,848

Data with a 10 % Safety Factor

Static Pressure:	82.8 PSI
Residual Pressure:	60.8 PSI
Flowing GPM:	1,501
GPM @ 20 PSI:	2,645

Hydrant F_1

Pitot Pressure (1):	20	PSI
Coefficient of Discharge (1):	0.9	
Hydrant Orifice Diameter (1):	2.5	inches
Pitot Pressure (2):	20	PSI
Coefficient of Discharge (2):	0.9	
Hydrant Orifice Diameter (2):	2.5	inches

Static-Residual Hydrant

Flow Hydrant

Distance Between F_1 and R
1036 ft (measured linearly)

Static-Residual Elevation
1316 ft (above sea level)

Flow Hydrant (F_1) Elevation
1315 ft (above sea level)

Elevation & distance values are approximate

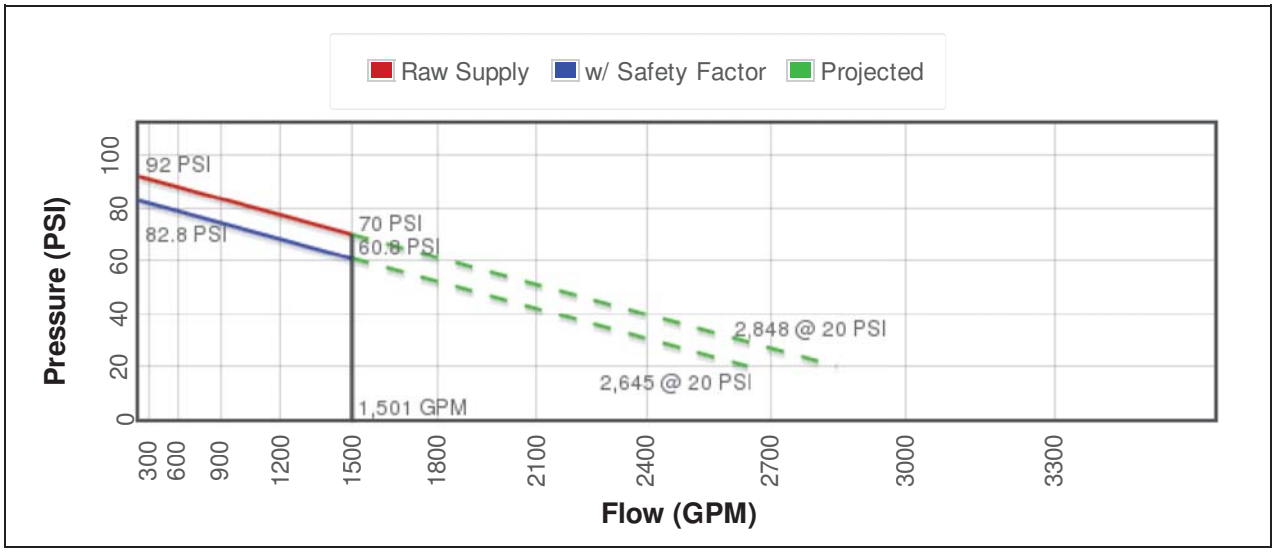
Flow Test Summary

Static-Residual Hydrant

Flow Hydrant (only hydrant F1 shown for clarity)

Approximate Project Site

Water Supply Curve $N^{1.85}$ Graph

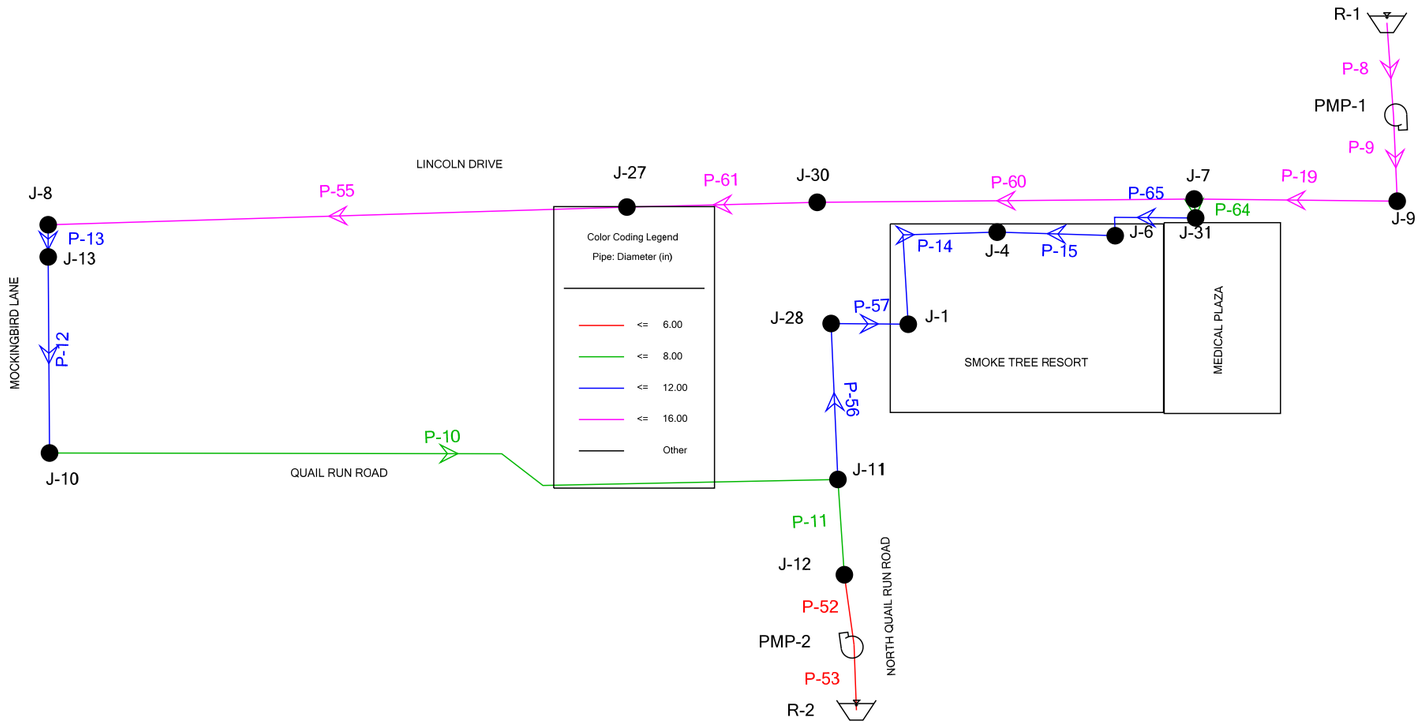


APPENDIX C

WaterCAD Results (Domestic)

Scenario: Peak Hour

Active Scenario: Peak Hour



FlexTable: Pipe Table

Active Scenario: Ave Day

Label	Start Node	Stop Node	Length (User Defined) (ft)	Length (Scaled) (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
P-64	J-7	J-31	12	6	8.00	Copper	135.0	39.59	0.25	0.0000
P-15	J-4	J-6	200	40	12.00	Ductile Iron	130.0	-39.59	0.11	0.0000
P-65	J-31	J-6	127	34	12.00	Copper	135.0	39.59	0.11	0.0000
P-8	R-1	PMP-1	0	32	16.00	Cast iron	130.0	46.81	0.07	0.0000
P-9	PMP-1	J-9	0	29	16.00	Cast iron	130.0	46.81	0.07	0.0000
P-19	J-9	J-7	260	69	16.00	Ductile Iron	130.0	46.81	0.07	0.0000
P-10	J-10	J-11	1,330	273	8.00	PVC	150.0	7.22	0.05	0.0000
P-12	J-10	J-13	640	67	12.00	Ductile Iron	130.0	-7.22	0.02	0.0000
P-13	J-13	J-8	20	11	12.00	Ductile Iron	130.0	-7.22	0.02	0.0000
P-14	J-1	J-4	480	63	12.00	Ductile Iron	130.0	7.22	0.02	0.0000
P-56	J-11	J-28	307	53	12.00	Ductile Iron	130.0	7.22	0.02	0.0000
P-57	J-1	J-28	75	26	12.00	Ductile Iron	130.0	-7.22	0.02	0.0000
P-55	J-27	J-8	1,007	198	16.00	Cast iron	130.0	7.22	0.01	0.0000
P-60	J-7	J-30	490	129	16.00	Cast iron	130.0	7.22	0.01	0.0000
P-61	J-30	J-27	325	65	16.00	Cast iron	130.0	7.22	0.01	0.0000
P-53	R-2	PMP-2	0	22	6.00	Asbestos Cement	140.0	0.00	0.00	0.0000
P-52	PMP-2	J-12	0	24	6.00	Asbestos Cement	140.0	0.00	0.00	0.0000
P-11	J-12	J-11	0	33	8.00	PVC	150.0	0.00	0.00	0.0000

FlexTable: Junction Table

Active Scenario: Ave Day

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-10	1,329.00	0.00	1,524.90	84.76
J-8	1,324.00	0.00	1,524.90	86.92
J-13	1,324.00	0.00	1,524.90	86.92
J-11	1,318.00	0.00	1,524.90	89.52
J-12	1,318.00	0.00	1,524.90	89.52
J-27	1,317.00	0.00	1,524.90	89.95
J-28	1,316.00	0.00	1,524.90	90.38
J-30	1,314.69	0.00	1,524.90	90.95
J-1	1,314.00	0.00	1,524.90	91.25
J-6	1,313.00	0.00	1,524.90	91.68
J-4	1,312.00	46.81	1,524.90	92.11
J-31	1,310.00	0.00	1,524.90	92.98
J-7	1,309.00	0.00	1,524.90	93.41
J-9	1,308.00	0.00	1,524.90	93.84

FlexTable: Reservoir Table

Active Scenario: Ave Day

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-1	1,308.00	46.81	1,308.00
R-2	1,316.00	0.00	1,316.00

FlexTable: Pipe Table

Active Scenario: Max Day

Label	Start Node	Stop Node	Length (User Defined) (ft)	Length (Scaled) (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
P-64	J-7	J-31	12	6	8.00	Copper	135.0	71.26	0.45	0.0001
P-15	J-4	J-6	200	40	12.00	Ductile Iron	130.0	-71.26	0.20	0.0000
P-65	J-31	J-6	127	34	12.00	Copper	135.0	71.26	0.20	0.0000
P-8	R-1	PMP-1	0	32	16.00	Cast iron	130.0	84.26	0.13	0.0000
P-9	PMP-1	J-9	0	29	16.00	Cast iron	130.0	84.26	0.13	0.0000
P-19	J-9	J-7	260	69	16.00	Ductile Iron	130.0	84.26	0.13	0.0000
P-10	J-10	J-11	1,330	273	8.00	PVC	150.0	13.00	0.08	0.0000
P-12	J-10	J-13	640	67	12.00	Ductile Iron	130.0	-13.00	0.04	0.0000
P-13	J-13	J-8	20	11	12.00	Ductile Iron	130.0	-13.00	0.04	0.0000
P-14	J-1	J-4	480	63	12.00	Ductile Iron	130.0	13.00	0.04	0.0000
P-56	J-11	J-28	307	53	12.00	Ductile Iron	130.0	13.00	0.04	0.0000
P-57	J-1	J-28	75	26	12.00	Ductile Iron	130.0	-13.00	0.04	0.0000
P-55	J-27	J-8	1,007	198	16.00	Cast iron	130.0	13.00	0.02	0.0000
P-60	J-7	J-30	490	129	16.00	Cast iron	130.0	13.00	0.02	0.0000
P-61	J-30	J-27	325	65	16.00	Cast iron	130.0	13.00	0.02	0.0000
P-53	R-2	PMP-2	0	22	6.00	Asbestos Cement	140.0	0.00	0.00	0.0000
P-52	PMP-2	J-12	0	24	6.00	Asbestos Cement	140.0	0.00	0.00	0.0000
P-11	J-12	J-11	0	33	8.00	PVC	150.0	0.00	0.00	0.0000

FlexTable: Junction Table

Active Scenario: Max Day

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-10	1,329.00	0.00	1,524.89	84.75
J-8	1,324.00	0.00	1,524.89	86.91
J-13	1,324.00	0.00	1,524.89	86.91
J-11	1,318.00	0.00	1,524.88	89.51
J-12	1,318.00	0.00	1,524.88	89.51
J-27	1,317.00	0.00	1,524.89	89.94
J-28	1,316.00	0.00	1,524.88	90.37
J-30	1,314.69	0.00	1,524.89	90.94
J-1	1,314.00	0.00	1,524.88	91.24
J-6	1,313.00	0.00	1,524.88	91.67
J-4	1,312.00	84.26	1,524.88	92.10
J-31	1,310.00	0.00	1,524.88	92.97
J-7	1,309.00	0.00	1,524.89	93.40
J-9	1,308.00	0.00	1,524.89	93.84

FlexTable: Reservoir Table

Active Scenario: Max Day

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-1	1,308.00	84.26	1,308.00
R-2	1,316.00	0.00	1,316.00

FlexTable: Pipe Table

Active Scenario: Peak Hour

Label	Start Node	Stop Node	Length (User Defined) (ft)	Length (Scaled) (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
P-64	J-7	J-31	12	6	8.00	Copper	135.0	118.77	0.76	0.0003
P-15	J-4	J-6	200	40	12.00	Ductile Iron	130.0	-118.77	0.34	0.0000
P-65	J-31	J-6	127	34	12.00	Copper	135.0	118.77	0.34	0.0000
P-8	R-1	PMP-1	0	32	16.00	Cast iron	130.0	140.44	0.22	0.0000
P-9	PMP-1	J-9	0	29	16.00	Cast iron	130.0	140.44	0.22	0.0000
P-19	J-9	J-7	260	69	16.00	Ductile Iron	130.0	140.44	0.22	0.0000
P-10	J-10	J-11	1,330	273	8.00	PVC	150.0	21.67	0.14	0.0000
P-12	J-10	J-13	640	67	12.00	Ductile Iron	130.0	-21.67	0.06	0.0000
P-13	J-13	J-8	20	11	12.00	Ductile Iron	130.0	-21.67	0.06	0.0000
P-14	J-1	J-4	480	63	12.00	Ductile Iron	130.0	21.67	0.06	0.0000
P-56	J-11	J-28	307	53	12.00	Ductile Iron	130.0	21.67	0.06	0.0000
P-57	J-1	J-28	75	26	12.00	Ductile Iron	130.0	-21.67	0.06	0.0000
P-55	J-27	J-8	1,007	198	16.00	Cast iron	130.0	21.67	0.03	0.0000
P-60	J-7	J-30	490	129	16.00	Cast iron	130.0	21.67	0.03	0.0000
P-61	J-30	J-27	325	65	16.00	Cast iron	130.0	21.67	0.03	0.0000
P-53	R-2	PMP-2	0	22	6.00	Asbestos Cement	140.0	0.00	0.00	0.0000
P-52	PMP-2	J-12	0	24	6.00	Asbestos Cement	140.0	0.00	0.00	0.0000
P-11	J-12	J-11	0	33	8.00	PVC	150.0	0.00	0.00	0.0000

FlexTable: Junction Table

Active Scenario: Peak Hour

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-10	1,329.00	0.00	1,524.85	84.73
J-8	1,324.00	0.00	1,524.85	86.90
J-13	1,324.00	0.00	1,524.85	86.90
J-11	1,318.00	0.00	1,524.83	89.49
J-12	1,318.00	0.00	1,524.83	89.49
J-27	1,317.00	0.00	1,524.85	89.93
J-28	1,316.00	0.00	1,524.83	90.35
J-30	1,314.69	0.00	1,524.85	90.92
J-1	1,314.00	0.00	1,524.83	91.22
J-6	1,313.00	0.00	1,524.84	91.65
J-4	1,312.00	140.44	1,524.83	92.08
J-31	1,310.00	0.00	1,524.85	92.95
J-7	1,309.00	0.00	1,524.85	93.39
J-9	1,308.00	0.00	1,524.86	93.82

FlexTable: Reservoir Table

Active Scenario: Peak Hour

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-1	1,308.00	140.44	1,308.00
R-2	1,316.00	0.00	1,316.00

APPENDIX D

WaterCAD Results (Fire Flow)

Fire Flow Node FlexTable: Fire Flow Report

Active Scenario: Residential Fire Flow

Label	Satisfies Fire Flow Constraints?	Fire Flow (Needed) (gpm)	Flow (Total 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-7	False	2,000.00	(N/A)	20.00	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
J-8	False	2,000.00	(N/A)	20.00	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
J-9	False	2,000.00	(N/A)	20.00	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
J-10	False	2,000.00	(N/A)	20.00	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
J-11	False	2,000.00	(N/A)	20.00	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
J-12	False	2,000.00	(N/A)	20.00	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
J-13	False	2,000.00	(N/A)	20.00	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
J-27	False	2,000.00	(N/A)	20.00	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
J-28	False	2,000.00	(N/A)	20.00	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
J-30	False	2,000.00	(N/A)	20.00	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
J-31	False	2,000.00	(N/A)	20.00	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
J-1	True	2,000.00	2,001.00	20.00	85.61	81.10	J-10	P-64	10.40
J-4	True	2,000.00	2,085.26	20.00	87.48	81.23	J-10	P-64	11.26
J-6	True	2,000.00	2,001.00	20.00	87.62	81.30	J-10	P-64	11.83

FlexTable: Reservoir Table

Active Scenario: Residential Fire Flow

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-1	1,308.00	84.26	1,308.00
R-2	1,316.00	0.00	1,316.00

FlexTable: Pump Table

Active Scenario: Residential Fire Flow

Label	Elevation (ft)	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
PMP-1	1,307.00	1,308.00	1,524.89	84.26	216.89
PMP-2	1,315.00	1,316.00	1,524.88	0.00	0.00

Pump Definition Detailed Report: Pump Definition - 1

Active Scenario: Residential Fire Flow

Element Details			
ID	50	Notes	
Label	Pump Definition - 1		

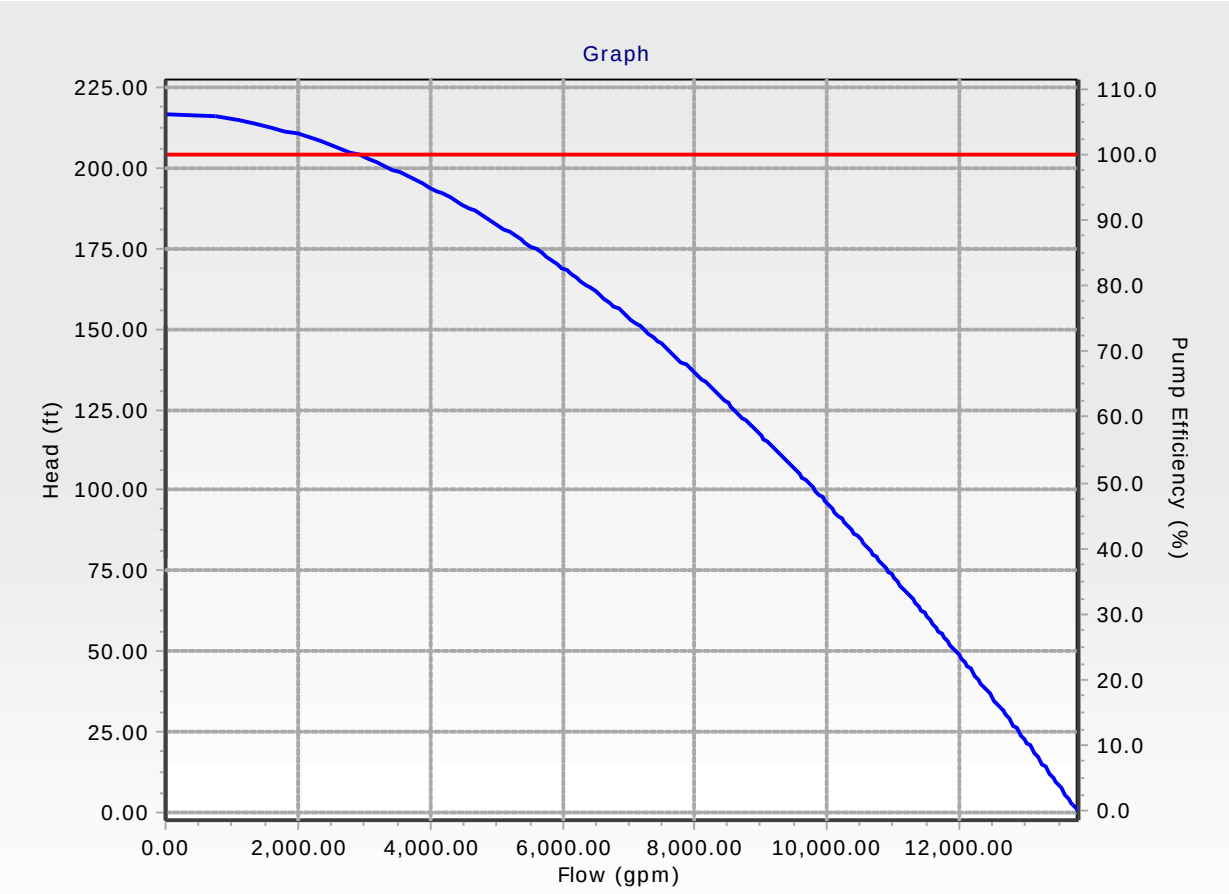
Pump Definition Type			
Pump Definition Type	Standard (3 Point)	Design Head	204.67 ft
Shutoff Flow	0.00 gpm	Maximum Operating Flow	12,094.00 gpm
Shutoff Head	216.91 ft	Maximum Operating Head	46.20 ft
Design Flow	2,831.00 gpm		

Pump Efficiency Type			
Pump Efficiency Type	Constant Efficiency	Motor Efficiency	100.0 %
Constant Efficiency	100.0 %	Is Variable Speed Drive?	False

Transient (Physical)			
Inertia (Pump and Motor)	0.000 lb·ft²	Specific Speed	SI=25, US=1280
Speed (Full)	0 rpm	Reverse Spin Allowed?	True

Pump Definition Detailed Report: Pump Definition - 1

Active Scenario: Residential Fire Flow



Pump Definition Detailed Report: Pump Definition - 2

Active Scenario: Residential Fire Flow

Element Details			
ID	137	Notes	
Label	Pump Definition - 2		

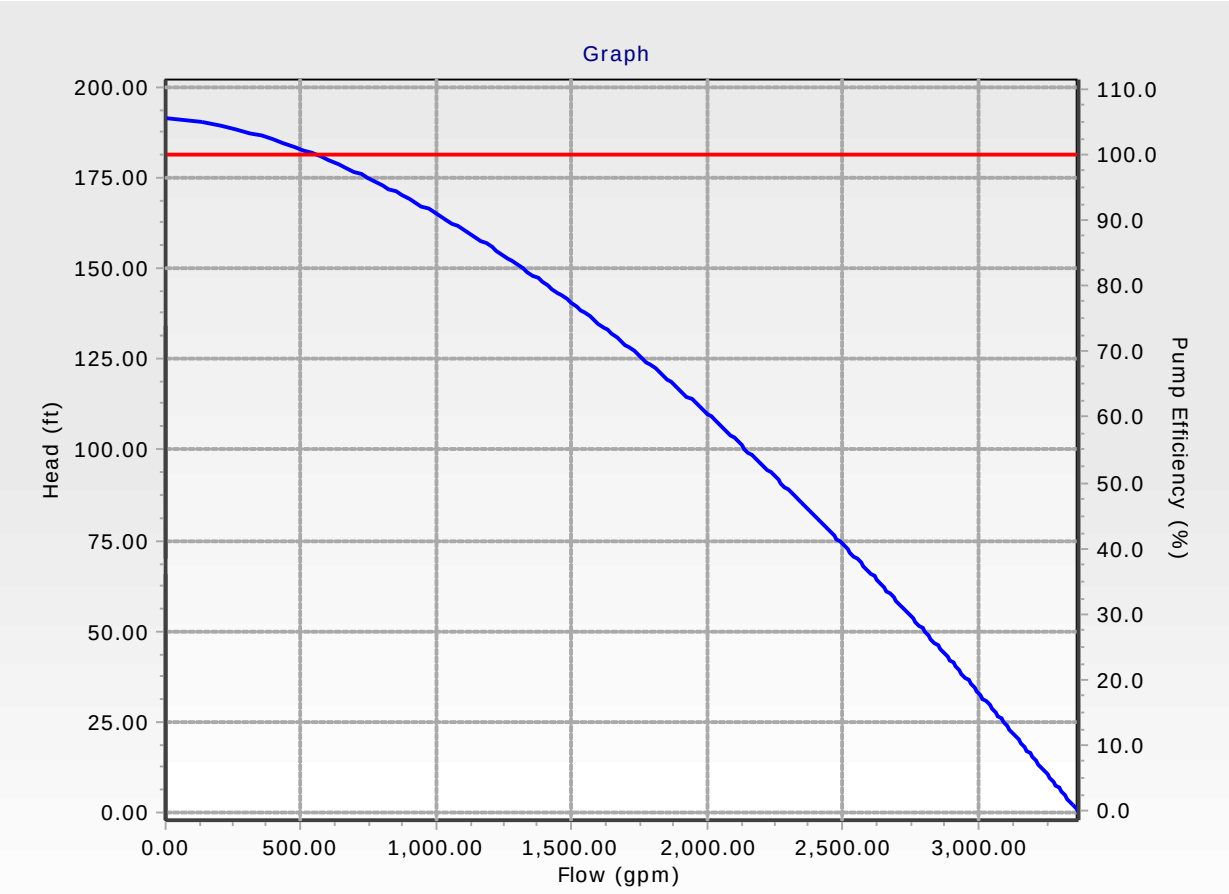
Pump Definition Type			
Pump Definition Type	Standard (3 Point)	Design Head	140.45 ft
Shutoff Flow	0.00 gpm	Maximum Operating Flow	2,848.00 gpm
Shutoff Head	191.27 ft	Maximum Operating Head	46.20 ft
Design Flow	1,501.00 gpm		

Pump Efficiency Type			
Pump Efficiency Type	Constant Efficiency	Motor Efficiency	100.0 %
Constant Efficiency	100.0 %	Is Variable Speed Drive?	False

Transient (Physical)			
Inertia (Pump and Motor)	0.000 lb·ft²	Specific Speed	SI=25, US=1280
Speed (Full)	0 rpm	Reverse Spin Allowed?	True

Pump Definition Detailed Report: Pump Definition - 2

Active Scenario: Residential Fire Flow



APPENDIX E

Water Quality Report

PARADISE VALLEY / SCOTTSDALE

2017 WATER QUALITY REPORT

epcor.com

EPCOR

PWS ID AZ0407056

Safety. Quality. Community. You'll hear these words spoken often around EPCOR.

Water. It's life.

At EPCOR, we're committed to providing you safe, quality, reliable drinking water every day. It's our mission, and it's an honor. Water fuels our daily routine, quenches our thirst and breathes life into our meals.

But we can't take it for granted. Our water system needs a steward, one who's there behind the scenes 24 hours a day, 7 days a week to manage, maintain and invest in it.

EPCOR takes this responsibility seriously. From daily water quality checks that ensure safety and quality to investing in your water system, we're ensuring that water will be available for years to come, whether your water source is deep underground or from rivers and lakes.

In addition to monitoring the water that comes out of your tap, we're also maintaining and improving the miles of pipelines, water mains, wells and hydrants that make up your water system. We're ensuring that water isn't wasted, and that it's a resource that will be there for the long term.

Because every drop matters.

Sincerely,

Joe Gysel

President, EPCOR USA, Inc.

YOU WANT TO KNOW WHAT'S IN THE WATER YOU'RE DRINKING

As your water service provider, we're committed to ensuring the quality and safety of that water. That's why you are receiving this annual water quality report from us. We hope it will help you understand your community's water a little better and what we're doing to protect it.

WHAT WILL I FIND IN THIS REPORT?

This report complies with state and U.S. Environmental Protection Agency (EPA) drinking water regulations.

In it you'll find information on:

- Where your water comes from
- Protecting your water
- What's in your water

Information in this report is compiled, in part, from analytical data generated by laboratories certified in drinking water analysis.

READ THIS REPORT – AND SHARE IT!

Reading this report and understanding your community's water is the first step. But it's also important to share this information with those who might not receive it directly. If you're a landlord, business, school or hospital, please share this report with water users in your community.

QUESTIONS?

EPCOR Customer Care:
1-800-383-0834
mywater@epcor.com
Este informe contiene información muy importante sobre su agua potable. Tradúzcalo o hable con alguien que lo entienda bien.

ABOUT YOUR WATER

PARADISE VALLEY/SCOTTSDALE

ABOUT YOUR DISTRICT

- EPCOR provides water service to approximately 4,900 service connections in the Paradise Valley district.

WHERE YOUR WATER COMES FROM

- Groundwater in the West Salt River Valley (WSRV) Sub-Basin, bordering the Phoenix Mountains

Additional information about the groundwater in your area

- The WSRV Sub-Basin is a broad, gently sloping alluvial plain, drained by the Gila and Salt Rivers.
- Sources of groundwater recharge include natural recharge from stream flows and along mountain fronts, incidental recharge from agricultural and urban uses, and intentional recharge at constructed recharge facilities.

How We Protect Groundwater Together

Both groundwater and the associated pumping and delivery facilities are part of a complex system that needs not just monitoring, but also maintenance. From pipelines to water mains, wells to hydrants, we're ensuring that the groundwater supply is protected and accessible.

How You Can Help

Properly dispose of hazardous household chemicals on hazardous material collection days and limit your pesticide and fertilizer use. For information on household hazardous material collection days in your area, contact the **Arizona Department of Environmental Quality** at **602-771-2300** or **Earth911.com**.

GETTING INVOLVED

Consulting with the community is important to us. If you have a question, concern or suggestion about your local water system, please contact our Customer Care team at **1-800-383-0834**.

NOTICE OF SOURCE WATER ASSESSMENT

In 2004, the Arizona Department of Environmental Quality (ADEQ) completed a source water assessment for the seven wells used by EPCOR-Paradise Valley. The assessment reviewed the adjacent land uses that may pose a potential risk to the sources. These risks include, but are not limited to, gas stations, landfills, dry cleaners, agriculture fields, wastewater treatment plants, and mining activities. Once ADEQ identified the adjacent land uses, they were ranked as to their potential to affect the water sources. The results of the assessment were that two wells had no adjacent land uses, four wells had 10 adjacent land uses that posed a low risk to the source and each well also had one adjacent land use that posed a high risk, and one well had one adjacent land use that posed a high risk.

The complete assessment is available for inspection at the Arizona Department of Environmental Quality, 1110 W. Washington, Phoenix, AZ 85007, between the hours of 8 a.m. and 5 p.m. For more information please contact **ADEQ** at **602-771-2300**.

WHAT YOU CAN EXPECT TO FIND IN YOUR WATER

SOURCES OF DRINKING WATER

The sources of drinking water—both tap water and bottled water—include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over land surfaces or through the ground, it can acquire naturally occurring minerals. In some cases it can also acquire radioactive material and substances resulting from the presence of animals or from human activity.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

More information about contaminants and potential health effects can be obtained by calling the **EPA's Safe Drinking Water Hotline** at **1-800-426-4791**.

DID YOU KNOW?

- **One-Part-Per-Million** (mg/L or ppm) is equivalent to one inch in 16 miles.
- **One-Part-Per-Billion** (ug/L or ppb) is equivalent to a single 4-inch hamburger in a chain of hamburgers long enough to circle the earth at the equator 2.5 times.
- **One-Part-Per-Trillion** (ng/L or ppt) is equal to a single drop of water being diluted into 20 Olympic-size swimming pools.

SUBSTANCES THAT MAY BE PRESENT IN SOURCE WATER

Microbial Contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations or wildlife.

Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.

Pesticides and Herbicides, may come from a variety of sources, such as agriculture, urban stormwater runoff and residential uses.

Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and may also come from gas stations, urban stormwater runoff and septic systems.

Radioactive Contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.

ENSURING YOUR WATER IS SAFE

To ensure that tap water is safe to drink, the EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. To ensure bottled water is safe to drink, U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water.

WHAT YOU CAN EXPECT TO FIND IN YOUR WATER

SPECIAL HEALTH INFORMATION

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly and infants may be particularly at risk from infections. These people should seek advice about drinking water from their healthcare providers. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbial contaminants are available from the **EPA's Safe Drinking Water Hotline** at **1-800-426-4791**.

Lead

EPCOR monitored the water for lead and copper in 2017 at 30 residences throughout the community and met the federal lead and copper standards. The 30 houses sampled were representative of the types of houses throughout the system. If your house was sampled you would have received the analysis results. If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. EPCOR is responsible for providing highquality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods and steps you can take to minimize exposure is available from the **Safe Drinking Water Hotline** or at **www.epa.gov/safewater/lead**.

HOME WATER TREATMENT UNITS

Failure to perform maintenance on your home water treatment unit can result in poor water quality. If you installed a home water treatment system such as a water softener or reverse osmosis system, please remember to follow the manufacturer's instructions on operation and maintenance. For more information, contact the manufacturer of your treatment system for maintenance instructions or assistance. Additional information about home water treatment systems is available from the **Water Quality Association** at **630-505-0160** or by visiting **wqa.org**.

DID YOU KNOW?

Tap water costs a lot less than what you pay for other beverages. **A gallon of water costs you about 1 penny.** Compare that to the cost of a gallon of these beverages*:

- Milk = $3.29/gallon
- Orange Juice = $2.55/gallon
- Beer = $15.00/gallon
- Bottled Water = $1.21/gallon
- Wine = $25/gallon

** Costs for milk, orange juice and bottled water obtained from Bureau of Labor Statistics and Beverage Marketing Association reports. Other costs determined by calculating average supermarket pricing for bottles of soda, wine and beer and converting to a gallon.*

FREQUENTLY ASKED QUESTIONS

WHAT IS THE WHITE OR COLORED DEPOSIT ON MY DISHES OR FAUCETS?

In most cases, the deposits or sediments left behind after water evaporates are calcium carbonate. The amount of calcium in the water is referred to as hardness. Cleaning with white vinegar can help to dissolve and remove deposits. Using a commercial conditioner, liquid detergents or the "air-dry" option in dishwashers can help to decrease the calcium carbonate found on dishes.

ARE THE DEPOSITS OR HARD WATER HARMFUL?

Hardness and/or the deposits left by hard water don't pose a health concern and may have health benefits. We don't treat drinking water for water hardness that can result in hard water deposits.

WHAT IS THE LEVEL OF HARDNESS IN MY WATER?

The hardness in your water ranges from 12 to 20 grains per gallon (gpg).

Degree of water hardness range (gpg)

Soft	Less than 1
Slightly Hard	1 to 3.4
Moderately Hard	3.5 to 6.9
Hard	7 to 10.4
Very Hard	Greater than 10.5

WHY IS MY WATER CLOUDY OR MILKY IN APPEARANCE WHEN IT COMES OUT OF THE TAP?

Water that appears cloudy or milky is typically caused by trapped air (very small air bubbles) in the water. If this occurs, simply let the water stand for a few minutes—the air will dissipate leaving a clear glass of water.

The quality of your water depends on the source water itself as well as factors such as the geology and biology of the area where the water came from. For some elements that are known to have an effect on the aesthetics of the water quality parameters, the EPA has established guidance levels known as secondary maximum contaminant level standards (SMCLs). When levels of these contaminants are found to be above the SMCLs, they may impact the aesthetic quality of the water (e.g., color, taste and odor). Although aesthetic water qualities may vary, your water meets all state and federal regulatory standards and is safe to use for all drinking water purposes. Secondary contaminants include, but are not limited to, manganese, iron and total dissolved solids (TDS).

WHY IS CHLORINE ADDED TO MY DRINKING WATER?

Chlorine is added to your water for your protection and is used as a disinfectant to ensure that harmful organisms, such as bacteria and viruses, are destroyed in the treatment process.

ARE THERE OTHER WAYS TO REMOVE THE CHLORINE TASTE OR SMELL FROM MY WATER?

To remove the taste of chlorine from your water, try these tips:

- Place water in a glass container in the refrigerator overnight, uncovered. This will let the chlorine dissipate.
- Bring your water to a rolling boil for five minutes and let it stand to cool.
- Add a slice of lemon or a few drops of lemon juice to your glass of drinking water.

WILL MY HOME TREATMENT DEVICE REMOVE CHLORINE?

Some home treatment devices can remove chlorine. Once chlorine is removed, the water should be treated like any other beverage product and used as quickly as possible. We recommend that you follow the manufacturer's instructions for maintaining the device to ensure water quality.

DEFINITION OF TERMS

AL (Action Level): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

GPG (grains per gallon): Used to describe the dissolved hardness minerals contained in water and is a unit of weight that equals 1/7,000 of a pound.

HAA5 (Haloacetic Acids): Consist of Monochloroacetic Acid, Dichloroacetic Acid, Trichloroacetic Acid, Bromoacetic Acid and Dibromoacetic Acid.

MCL (Maximum Contaminant Level): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MCLG (Maximum Contaminant Level Goal): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

MNR: Monitored, not regulated.

MRDL (Maximum Residual Disinfectant Level): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG (Maximum Residual Disinfectant Level Goal): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

NA: Not Applicable.

ND: None Detected.

NTU: Nephelometric turbidity units.

ppb (Parts per Billion): One part substance per billion parts water (or micrograms per liter).

pCi/L (Picocuries per Liter): Measurement of the natural rate of disintegration of radioactive contaminants in water (also beta particles).

ppm (Parts per Million): One part substance per million parts water (or milligrams per liter).

ppt (Parts per Trillion): One part substance per trillion parts water (or nanograms per liter).

SMCL (Secondary Maximum Contaminant Level): Non-enforceable guidelines regulating contaminants that may cause cosmetic or aesthetic effects in drinking water.

Total Dissolved Solids: An overall indicator of the amount of minerals in water.

TT (Treatment Technique): A required process intended to reduce the level of a contaminant in drinking water.

TTHM (Total Trihalomethanes): Consist of Chloroform, Bromoform, Bromodichloromethane and Dibromochloromethane.

UCMR (Unregulated Contaminant Monitoring Rule): Unregulated substances are measured, but maximum contaminant levels have not been established by the government.

WHAT'S IN YOUR WATER

HOW TO READ YOUR WATER QUALITY TABLE

Below, you'll see an analysis of your drinking water.
Here's an example of how to read these tables:

Start here and read across	2016 or year prior	The goal level for that substance	Highest level of substance allowed	Highest amount that was found	Highest and lowest amounts found	Yes means the amount found is below gov't requirements	Where substance usually originates
Substance (units)	**Year Sampled**	**MCLG**	**MCL**	**Highest Amount Detected**	**Range of Detections**	**Compliance Achieved**	**Typical Sources**

YOUR WATER QUALITY TABLE

The data shown in the tables below are results from commercial laboratories certified in drinking water analysis by the Arizona Department of Health Services.

The table shows what substances were detected in your drinking water during 2017 or the last required sampling period within the last five years.

Regulated Substances Measured in the Water Leaving the Treatment Facility

Substance (units)	Year Sampled	MCLG	MCL	Highest Amount Detected	Range of Detections	Compliance Achieved	Typical Sources
Arsenic (ppb)	2017	0	10	8.1[1]	7.4 - 8.1	YES	Erosion of natural deposits
Barium (ppm)	2017	2	2	0.017	0.017	YES	Erosion of natural deposits
Chromium (ppb)	2017	100	100	25	25	YES	Erosion of natural deposits
Fluoride (ppm)	2017	4.0	4.0	0.37	0.37	YES	Erosion of natural deposits
Nitrate (ppm)	2017	10	10	4.44	4.44	YES	Runoff from fertilizer use; leaking from septic tanks, sewage; erosion of natural deposits
Sodium (ppb)	2017	NA	MNR	65	65	YES	Erosion of natural deposits
Gross Alpha excluding radon and uranium (pCi/L)	2014	0	15	5.9	3.7 - 5.9	YES	Erosion of natural deposits

WHAT'S IN YOUR WATER

Regulated Substances Measured in the Distribution System

Substance (units)	Year Sampled	MCLG/ MRDLG	MCL/ MRDL	Highest Running Annual Average	Range of Detections	Compliance Achieved	Typical Sources
TTHMs (ppb)	2017	NA[2]	80	4.5	3.7 - 4.5	YES	By-product of drinking water disinfection
Chlorine Residual (ppm)	2017	4	4.0	1.05	0.74 - 1.05	YES	Water additive used to control microbes

Tap Water Samples: Lead and Copper Results

Substance (units)	Year Sampled	MCLG	Action Level	Number of Samples	90th Percentile	Number of Samples Above Action Level	Compliance Achieved	Typical Sources
Copper (ppm)	2017	1.3	1.3	30	0.19	0	YES	Corrosion of household plumbing systems; erosion of natural deposits
Lead (ppb)	2017	0	15	30	ND	0	YES	Corrosion of household plumbing systems; erosion of natural deposits

Unregulated Substances Measured in the Water Leaving the Treatment Facility

Substance (units)	Year Sampled	Range of Detections	Typical Sources
Hardness (grains/gallon)	2014	11.7 - 19.8	Natural calcium and magnesium content
pH (units)	2014	7.1 - 8.5	pH is a measure of the acid/base properties
Total Dissolved Solids (ppm)	2014	470 - 640	Erosion of natural deposits

WHAT'S IN YOUR WATER

Unregulated Contaminant Monitoring Rule Substances Measured at the Treatment Facility and in the Distribution System

Substance (units)	Year Sampled	Range of Detections	Typical Sources
Vanadium (ppb)	2014	20 - 21	Erosion of natural deposits
Strontium (ppm)	2014	0.73 - 0.78	Erosion of natural deposits
Molybdenum (ppb)	2014	1.1	Erosion of natural deposits
Chromium (Total) (ppb)	2014	27 - 28	Erosion of natural deposits
Chromium VI (ppb)	2014	26 - 28	Erosion of natural deposits
Chlorate (ppb)	2014	140 - 150	By-product of drinking water disinfection
Chlorodifluoromethane (ppb)	2014	0.12	Discharge from industrial chemical factories

[1]**Arsenic:** EPCOR's groundwater arsenic removal facility continues to produce water with arsenic levels below the current federal and state standards. While your drinking water meets EPA's standard for arsenic, it does contain low levels of arsenic. EPA's standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

[2]**TTHM/HAA5:** Although there is no collective MCLG for this contaminant group, there are individual MCLGs for some of the individual contaminants: Trihalomethanes: bromodichloromethane (0.0 mg/L); bromoform (0.0 mg/L); chloroform (0.07 mg/L); dibromochloro-methane (0.06 mg/L). Haloacetic acids: dichoroacetic acid (0.0 mg/L); trichloroacetic acid (0.3 mg/L). Monochloroacetic acid, bromoacetic acid and dibromoacetic acid are regulated with this group but have no MCLGs.

ADDITIONAL MONITORING

In addition to the parameters listed in this table, other parameters were monitored for, including regulated pesticides, herbicides, petroleum by-products and metals. None of those parameters were detected in the water. If you have any questions about this report or your drinking water, please call our **Customer Care** team at **1-800-383-0834**.

EPCOR encourages feedback related to the quality of water that is provided to you. Please feel free to submit comments to us directly at **mywater@epcor.com**. You may also provide feedback to the Arizona Corporation Commission (ACC).

Learn more about your
water at **epcor.com**.

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