ST. PATRICK ROMAN CATHOLIC PARISH

LOCATED NEAR THE SOUTHWEST CORNER OF DESERT COVE AVENUE AND N. 85TH PLACE
SCOTTSDALE, ARIZONA

WATER BASIS OF DESIGN REPORT

FEBRUARY 28, 2018
Project No.: 15130

FINAL Basis of Design Report
☑ APPROVED
☐ APPROVED AS NOTED
☐ REVISE AND RESUBMIT

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

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

BY scan DATE 5/4/2018

PREPARED FOR:
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Exp. 12/31/18

HUBBARD ENGINEERING

40-DR-2017
04/12/18

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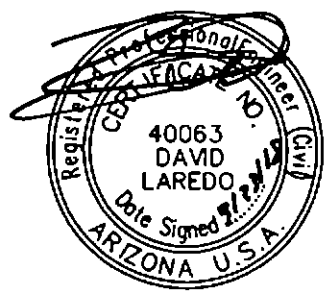


12/31/18

1.0 INTRODUCTION

This report presents the results of a *Water Basis of Design Report* conducted by Hubbard Engineering at the request of HDA Architects, LLC ("client"), for the St. Patrick Roman Catholic Parish ("site"). The purpose of this report is to provide an evaluation of the proposed distribution system for the site. This report addresses design flows and basis of design as well as design criteria.

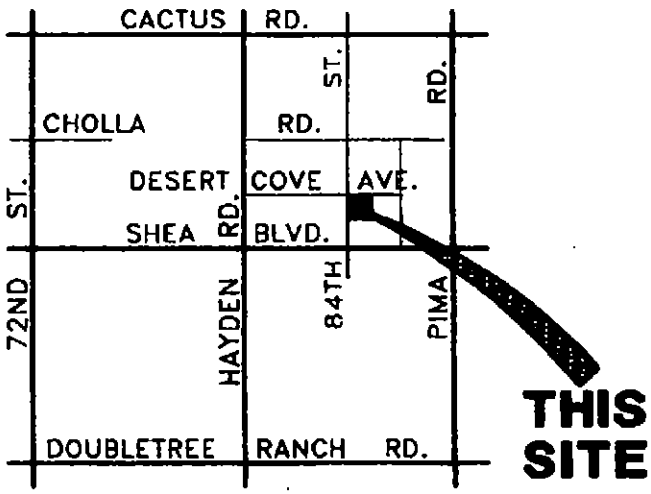
1.1 Site Location

The site is located in the southeast quarter of Section 24 of Township 3N, Range 4E of the Gila and Salt River Base and Meridian, Maricopa County, Arizona. The location of the site is shown on the site *Vicinity Map*, **FIGURE 1**, on the next page. The project is bounded by N. 85th Street on the East, Offices at Sundown Ranch Condominiums to the south, and E. Desert Cove Avenue to the north.

Figure 1: Vicinity Map

ST PATRICK ROMAN CATHOLIC PARISH

A PORTION OF THE SOUTHEAST QUARTER OF SECTION 24
TOWNSHIP 3 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER
MERIDIAN, MARICOPA COUNTY, ARIZONA



VICINITY MAP

N.T.S

Proj. No.	Date
15130	08/21/17
Sht: 1 of 1	
Proj. Mangr.	Proj. Eng.

HUBBARD ENGINEERING
www.hubbardengineering.com
1201 S. Alma School Rd..Ste. 12000 - Mesa, AZ 85210
Ph: 480.892.3313

1.2 Project Type

The site encompasses approximately 12.2 gross acres. The site is currently developed with a parish and hall buildings and two residential units; together with the associated landscape, parking lot, and drainage improvements. The proposed development for this site includes a new activity building and a change of use of the residential units in addition to parking lot, drainage and landscape improvements.

The proposed fire service line will be located along the east side of the site and within Mercer Avenue. This line will be used to provide fire sprinkler service to the existing building to the North of Mercer Avenue.

1.3 Regulatory Jurisdiction

This report was developed in accordance with the following reference standards:

- *2015 Edition of the International Fire Code* (Reference 1)
- *Design Standards & Policies Manual Chapter 6 Water, City of Scottsdale. Dated January 2010.* (Reference 2).
- *Arizona Department of Environmental Quality (ADEQ) Engineering Bulletin 10: Guidelines for the Construction of Water Systems* (Reference 3)
- *Maricopa Association of Governments (MAG) – Uniform Standard Specifications and Details for Public Works Construction* (Reference 5)

2.0 PROJECT DESCRIPTION

2.1 Existing Onsite System

The existing site is currently developed with two church buildings and two residential buildings that currently make up the St. Patrick Roman Catholic Church campus. There are water meters located along the east side of N. 84th Street that serve the current church campus. In addition, the meters serving the residential units are located adjacent to Mercer Avenue. The meters are expected to remain unchanged.

There are two fire hydrants located along the east side of N. 84th Street and one fire hydrant located in the middle of the site within the parking lot area. In addition, there is a fire hydrant at the intersection of Mercer Avenue with 85th street.

The proposed fire service lines for the Church, Hall and New Activity Center are served by two existing 8" DIP water mains located in Desert Cove Avenue and 84th Street.

The proposed fire service line for the residential units changing use to office units will tie in to an existing 6" ACP water main located within Mercer Avenue.

See Exhibit 1 for these tie-in locations.

2.2 Service Area

The proposed project will add a new 25,400 square foot activities building with parking, underground retention pipe, and an 8-inch fire line for the building. The existing 6-inch fire line and fire hydrant serviced by the 8-inch main in E. Desert Cove Ave will be removed and abandoned. A new 3-inch domestic line will be brought over to service the new building.

In addition, a residential unit north of Mercer Avenue will be change to an Office. The existing meters will remain unchanged. On the other hand, the proposed fire line, at Mercer Avenue, will service the fire sprinkler systems for an existing residential building that is being converted into an office space along with an existing detached garage. The proposed 8-inch line will run to the east parallel to the existing line in E Desert Cove Ave until it turns south at the property line. It will run south until just beyond Mercer Ave where it will turn south east and connect to the existing 6-inch line along N 85th Pl, the eastern border of the site. There will be two fire hydrants connected to the proposed line.

See **EXHIBIT 1** for water design.

3.0 DESIGN FLOWS AND BASIS OF DESIGN

3.1 Average Daily Demands

In accordance with the *City of Scottsdale Design Standards & Policies Manual Chapter 6* Section 6-1.205 (Reference 2), the design unit water demands for an office are 0.5 gallons per day per square foot.

The total service area for this phase of the site on the public water system is 10,773 sf.

Thus, the total Average Daily Demand is:

(0.6 gpd/sq. ft) x (10,773 sq. ft.) = 6,463.8 gallons per day (gpd) = 4.488 (gpm)

3.2 Maximum Daily Demand and Peak Hour Flow

In accordance with the *City of Scottsdale Design Standards & Policies Manual Chapter 6* Section 6-1.404 (Reference 2), the Maximum Day peaking factor and Peak Hour peaking factor are as follows:

3.2.1 Maximum Day Demand

Max Day Demand = ADD x 2

3.2.2 Peak Hour Demand

Peak Hour Demand = ADD x 3.5

3.3 Water and Fire Demand Calculations

A summary of the water and fire demand calculations can be found in **Table 1**, below.

Table 1: Water and Fire Demand Calculation Summary

Land Use	Area (*sq. ft.*)	ADD (*gpd*)	ADD (*gpm*)	Max Day Demand (ADD x 2) (*gpm*)	Peak Hour Demand (ADD x 3.5) (*gpm*)	Fire Flow Required (*gpm*)	Max Day Plus Fire Flow (*gpm*)
R1-35	10,773	6,464	4.488	8.976	15.708	1,500	1,508.9

4.0 DESIGN CRITERIA

4.1 Minimum Pressure

The water distribution system shall be designed and constructed to maintain the following minimum pressures:

- Operating pressure shall be a minimum of 30 psi while supplying fire flow, plus max day flow, from multiple hydrants.
- Minimum Pressure 50 psi under Peak Hour Demands.

A water model was run for the proposed system using WaterCAD. The basis of this model was developed using information from a fire hydrant flow test conducted on February 28, 2018. The results of this fire flow test are included in **Appendix A – Fire Flow Test Results**. Information regarding the definition of the pump used in the WaterCAD analysis can be found in **Appendix B – Pump Definition Report for Fire Flow Model**.

4.2 Fire Flows

A fire flow test was performed by Fire Protection Engineering Services. The test was performed on the fire hydrants adjacent to the site on the west side of N. 85th Pl. The results were used to assist in creating the pump curve for the Water CAD model.

A minimum Fire Flow of 2,250 gpm for 2 hours is based on a 10,773-sq. ft. building, per City of Scottsdale fire code, with 50% reduction, a minimum Fire Flow of 1,500 gpm will be used due to NFPA 13 sprinkler system.

4.3 Minimum Pipe Sizing

There is a proposed 2-inch fire service line.

4.4 Pipe Material

All new fire line services for this site will be smaller than 3 inches. Therefore, according to *City of Scottsdale Design Standards & Policies Manual Chapter 6*, Section 6-1.401 (Reference 2), the fire line will be constructed of type K, soft copper.

4.5 Hydrant Spacing

Fire hydrants will be spaced no greater than 700 feet apart at any point on this site. Additionally, all structures will be within 600 feet of a fire hydrant.

4.6 Fire Lane Locations

All fire lanes are shown on the architectural site plan as note number 24. Fire lanes are within 150 feet of all proposed and existing structures on this site.

5. CONCLUSIONS AND RECOMMENDATIONS

- Per the *City of Scottsdale Design Standards & Policies Manual Chapter 6*, Figure 6.1-3 Pressure Zone Map, the site is located in Pressure Zone 2.
- The Average Daily Demand is 6,464 gallons per day = 4.488 gpm.
- The Maximum Daily Demand is 8.976 gpm.
- The Peak Hour Demand is 15.708 gpm.
- The Maximum Daily Demand plus Fire Flow is 1,508.9 gpm.
- Based on the results of the water model, the system can maintain a flow of 2,000 gallons per minute at a pressure of 35 psi
- The proposed water infrastructure is adequate to accommodate for fire protection.

Appendix A
Fire Flow Test Results
St. Patrick Roman Catholic Parish

FIRE PROTECTION ENGINEERING SERVICES
4242 W. Topeka Dr. | Glendale, Arizona 85308
P: (623) 587-1844 | F: (623) 587-7992
E-mail: FPES@Cox.Net

HYDRANT FLOW TEST
SUMMARY REPORT

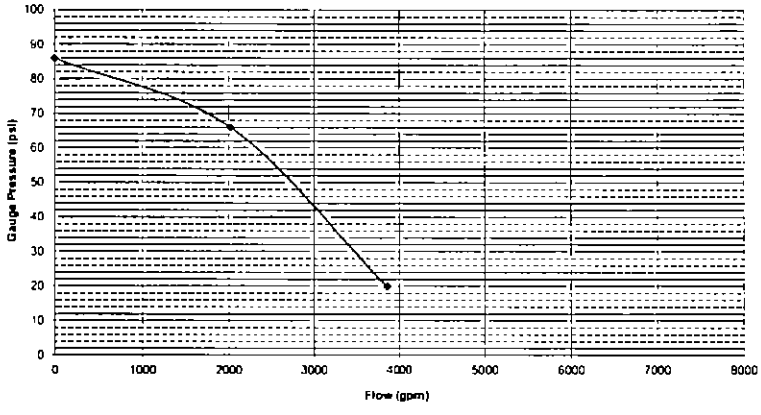
PROJECT LOCATION: 8542 E. MERCER LN.

WITNESSED BY: PHIL CIPOLLA - CITY OF SCOTTSDALE DATE: 02/28/18 TIME: 8:30AM

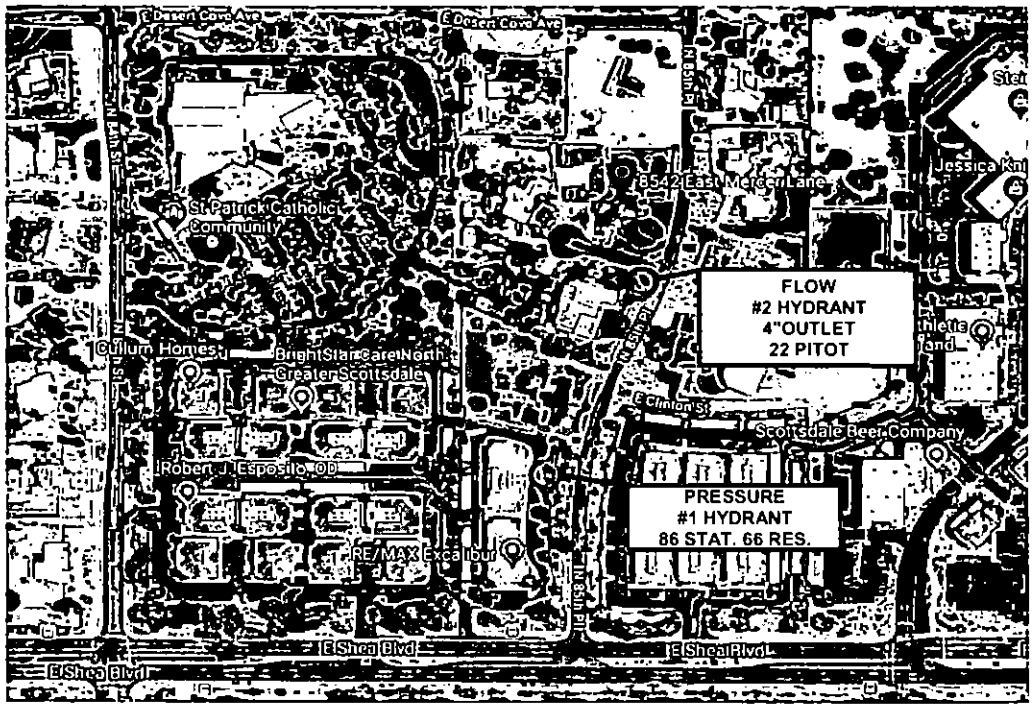
Observed Test Data

Hydrant Designation	Hydrant Number	Flow Opening	*Static Pressure	*Residual Pressure	Pitot Pressure	**Coefficient	Coefficient Steamer use .83	Flow (GPM)
Pressure; R	Hydrant #1	[redacted]	86	66	[redacted]	[redacted]	[redacted]	[redacted]
Flow, F1	Hydrant #2	4	[redacted]	[redacted]	22	0.95	0.95	2021
Flow, F2	Hydrant #2		[redacted]	[redacted]				0
							TOTAL.	2021

Note: If steamer connection was used for the flow test (without stream straightener), An additional Coefficient must be used with a factor of .83
*Static and residual pressures must be adjusted for elevation change (+0.0 FT.) to site **Use .95 Coefficient when stream straightener is utilized



Available flow @ 20 PSI
3851 GPM



ACCEPTED BY: _____ DATE: _____

Appendix B
Pump Definition Report for Fire Flow Model
St. Patrick Roman Catholic Parish

Pump Definition Detailed Report: Pump 1

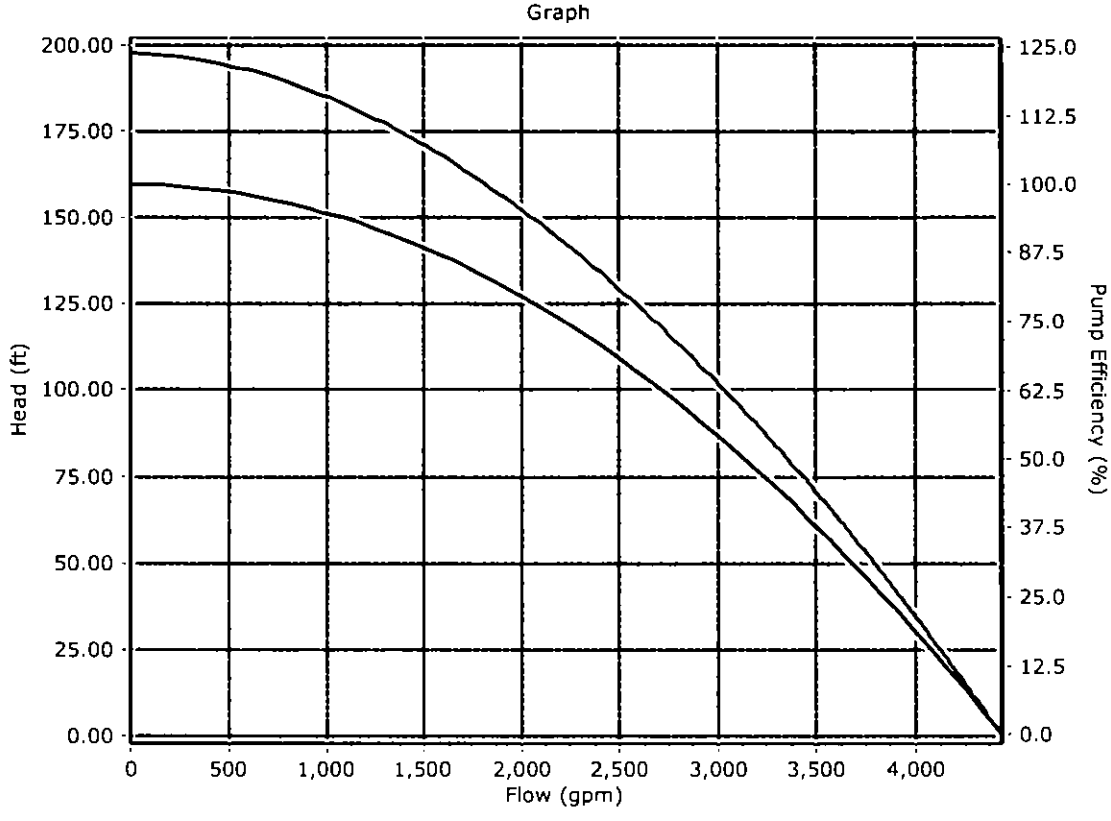
Element Details			
ID	66	Notes	February 28, Test performed at 8:30 am Witnessed by: Phil Cipolla - City of Scottsdale
Label	Pump 1		

Pump Definition Type			
Pump Definition Type	Standard (3 Point)	Design Head	151.80 ft
Shutoff Flow	0 gpm	Maximum Operating Flow	3,851 gpm
Shutoff Head	197.80 ft	Maximum Operating Head	46.00 ft
Design Flow	2,021 gpm		

Pump Efficiency Type			
Pump Efficiency Type	Best Efficiency Point	Motor Efficiency	100.0 %
BEP Efficiency	100.0 %	Is Variable Speed Drive?	False
BEP Flow	0 gpm		

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 1



Appendix C
Fire Flow + Max Day Results
St. Patrick Roman Catholic Parish

Scenario: Fire Flow
Current Time Step: 0.000 h
Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)	Pressure (Calculated Zone Lower Limit) (psi)	Junction w/ Minimum Pressure (Zone)	Pressure (System Lower Limit) (psi)	Pressure (Calculated System Lower Limit) (psi)	Junction w/ Minimum Pressure (System)	Is Fire Flow Run Balanced?
H-1	Zone 2	2	True	1,500	2,000	1,500	2,000	30	43	30	42	D-2	30	42	D-2	True
H-2	Zone 2	2	True	1,500	2,000	1,500	2,000	30	39	30	51	J-12	30	51	J-12	True
H-3	Zone 2	2	True	1,500	2,000	1,500	2,000	30	49	30	52	D-4	30	52	D-4	True
H-4	Zone 2	2	True	1,500	2,000	1,500	2,000	30	42	30	50	J-21	30	50	J-21	True
H-5	Zone 2	2	True	1,500	2,000	1,500	2,000	30	50	30	51	D-3	30	51	D-3	True

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Scenario: Fire Flow
Current Time Step: 0.000 h
FlexTable: Hydrant Table

ID	Label	Hydrant Status	Include Lateral Loss?	Emitter Coefficient (gpm/psi^n)	Lateral Length (ft)	Elevation (ft)	Zone	Demand Collection	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
69	H-1	Open	False	0.000	20	1,373.00	Zone 2	<Collection: 0 items>	0	1,567.66	84
79	H-2	Open	False	0.000	20	1,373.00	Zone 2	<Collection: 0 items>	0	1,567.65	84
80	H-3	Open	False	0.000	20	1,370.00	Zone 2	<Collection: 0 items>	0	1,567.68	86
86	H-4	Open	False	0.000	20	1,373.00	Zone 2	<Collection: 0 items>	0	1,567.66	84
103	H-5	Open	False	0.000	20	1,370.00	Zone 2	<Collection: 0 items>	0	1,567.65	86

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Scenario: Fire Flow
Current Time Step: 0.000 h
FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand Collection	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
139	J-33	1,372.28	<None>	<Collection: 0 items>	0	1,567.66	85
136	J-32	1,371.40	<None>	<Collection: 0 items>	0	1,567.67	85
130	J-30	1,370.00	Zone 2	<Collection: 0 items>	0	1,567.65	86
125	J-28	1,370.00	Zone 2	<Collection: 0 items>	0	1,567.65	86
100	J-27	1,370.00	Zone 2	<Collection: 0 items>	0	1,567.65	86
87	J-23	1,374.50	Zone 2	<Collection: 0 items>	0	1,567.66	84
81	J-21	1,373.00	Zone 2	<Collection: 0 items>	0	1,567.66	84
72	J-18	1,370.00	Zone 2	<Collection: 0 items>	0	1,567.65	86
63	J-15	1,370.00	Zone 2	<Collection: 0 items>	0	1,567 70	86
60	J-14	1,373.00	Zone 2	<Collection: 0 items>	0	1,567.65	84
56	J-13	1,370 00	Zone 2	<Collection: 0 items>	0	1,567.66	86
54	J-12	1,372.00	Zone 2	<Collection: 0 items>	0	1,567 65	85
52	J-11	1,372.00	Zone 2	<Collection: 0 items>	0	1,567.65	85
50	J-10	1,375.00	Zone 2	<Collection: 0 items>	0	1,567.66	83
48	J-9	1,372.00	Zone 2	<Collection: 0 items>	0	1,567.66	85
45	J-8	1,370.00	Zone 2	<Collection: 0 items>	0	1,567.66	86
43	J-7	1,370.00	Zone 2	<Collection: 0 items>	0	1,567.66	86
40	J-6	1,373.00	Zone 2	<Collection: 0 items>	0	1,567.66	84
35	J-4	1,370.00	Zone 2	<Collection: 0 items>	0	1,567.66	86
34	J-3	1,373.00	Zone 2	<Collection: 0 items>	0	1,567.66	84
31	J-2	1,371.00	Zone 2	<Collection: 0 items>	0	1,567.65	85
133	D-4	1,371.90	Zone 2	<Collection: 1 item>	11	1,567.65	85
128	D-3	1,374.00	Zone 2	<Collection: 1 item>	27	1,567.64	84
93	D-2	1,376 70	Zone 2	<Collection: 1 item>	9	1,561.74	80
75	D-1	1,373 50	Zone 2	<Collection: 1 item>	28	1,567.65	84

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Scenario: Fire Flow
Current Time Step: 0.000 h
FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Has Check Valve?	Minor Loss Coefficient (Local)	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)	Has User Defined Length?	Length (User Defined) (ft)
94	P-34	86	J-7	D-2	1.0	Copper	135.0	False	0.000	9	3.66	0.069	False	0
137	P-51	175	J-15	J-32	6.0	Asbestos Cement	140.0	False	0.000	41	0.46	0.000	False	0
129	P-46	47	J-28	D-3	6.0	Ductile Iron	130.0	False	0.000	27	0.31	0.000	False	0
57	P-15	38	J-4	J-13	8.0	Ductile Iron	130.0	False	0.000	34	0.22	0.000	False	0
64	P-20	1,097	J-13	J-15	8.0	Ductile Iron	130.0	False	0.000	34	0.22	0.000	False	0
132	P-48	55	J-30	J-4	8.0	Ductile Iron	130.0	False	0.000	34	0.22	0.000	False	0
138	P-52	190	J-32	J-3	6.0	Asbestos Cement	140.0	False	0.000	19	0.21	0.000	False	0
41	P-6	17	J-3	J-6	6.0	Asbestos Cement	140.0	False	0.000	19	0.21	0.000	False	0
135	P-50	138	J-11	D-1	8.0	Ductile Iron	130.0	False	0.000	28	0.18	0.000	False	0
131	P-47	312	J-28	J-30	8.0	Ductile Iron	130.0	False	0.000	23	0.15	0.000	False	0
140	P-53	205	J-21	J-33	8.0	Ductile Iron	130.0	False	0.000	22	0.14	0.000	False	0
142	P-55	326	J-32	J-33	8.0	Ductile Iron	130.0	False	0.000	22	0.14	0.000	False	0
82	P-28	285	J-12	J-21	8.0	Ductile Iron	130.0	False	0.000	22	0.14	0.000	False	0
55	P-14	202	J-11	J-12	8.0	Ductile Iron	130.0	False	0.000	22	0.14	0.000	False	0
134	P-49	62	J-30	D-4	6.0	Ductile Iron	130.0	False	0.000	11	0.12	0.000	False	0
61	P-18	494	J-6	J-14	6.0	Asbestos Cement	140.0	False	0.000	10	0.11	0.000	False	0
46	P-9	147	J-6	J-8	6.0	Ductile Iron	130.0	False	0.000	9	0.10	0.000	False	0
47	P-10	10	J-8	J-7	6.0	Ductile Iron	130.0	False	0.000	9	0.10	0.000	False	0
62	P-19	632	J-14	J-2	8.0	Ductile Iron	130.0	False	0.000	10	0.06	0.000	False	0
53	P-13	61	J-2	J-11	8.0	Ductile Iron	130.0	False	0.000	6	0.04	0.000	False	0
101	P-36	480	J-2	J-27	8.0	Ductile Iron	130.0	False	0.000	4	0.03	0.000	False	0
102	P-37	44	J-27	J-18	8.0	Ductile Iron	130.0	False	0.000	4	0.03	0.000	False	0
126	P-44	85	J-18	J-28	8.0	Ductile Iron	130.0	False	0.000	4	0.03	0.000	False	0
123	P-42	28	R-2	PMP-2	48.0	Ductile Iron	130.0	False	0.000	75	0.01	0.000	True	1
124	P-43	18	PMP-2	J-15	48.0	Ductile Iron	130.0	False	0.000	75	0.01	0.000	True	1
95	P-35	179	J-8	J-9	2.0	Copper	135.0	False	0.000	0	0.00	0.000	False	0
68	P-22	19	J-3	H-1	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
104	P-38	14	J-27	H-5	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
78	P-27	99	J-12	H-2	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
39	P-5	27	J-4	H-3	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
85	P-30	69	J-21	H-4	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
88	P-31	29	J-9	J-23	2.0	Copper	135.0	False	0.000	0	0.00	0.000	False	0
51	P-12	118	J-9	J-10	2.0	Copper	135.0	False	0.000	0	0.00	0.000	False	0

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Scenario: Fire Flow
Current Time Step: 0.000 h
FlexTable: Pump Table

ID	Label	Elevation (ft)	Pump Definition	Status (Initial)	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
122	PMP-2	1,370.00	Pump 1	On	1,370.00	1,567.70	75	197.70

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Scenario: Fire Flow
Current Time Step: 0.000 h
FlexTable: Reservoir Table

ID	Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
121	R-2	1,370.00	Zone 2	75	1,370.00

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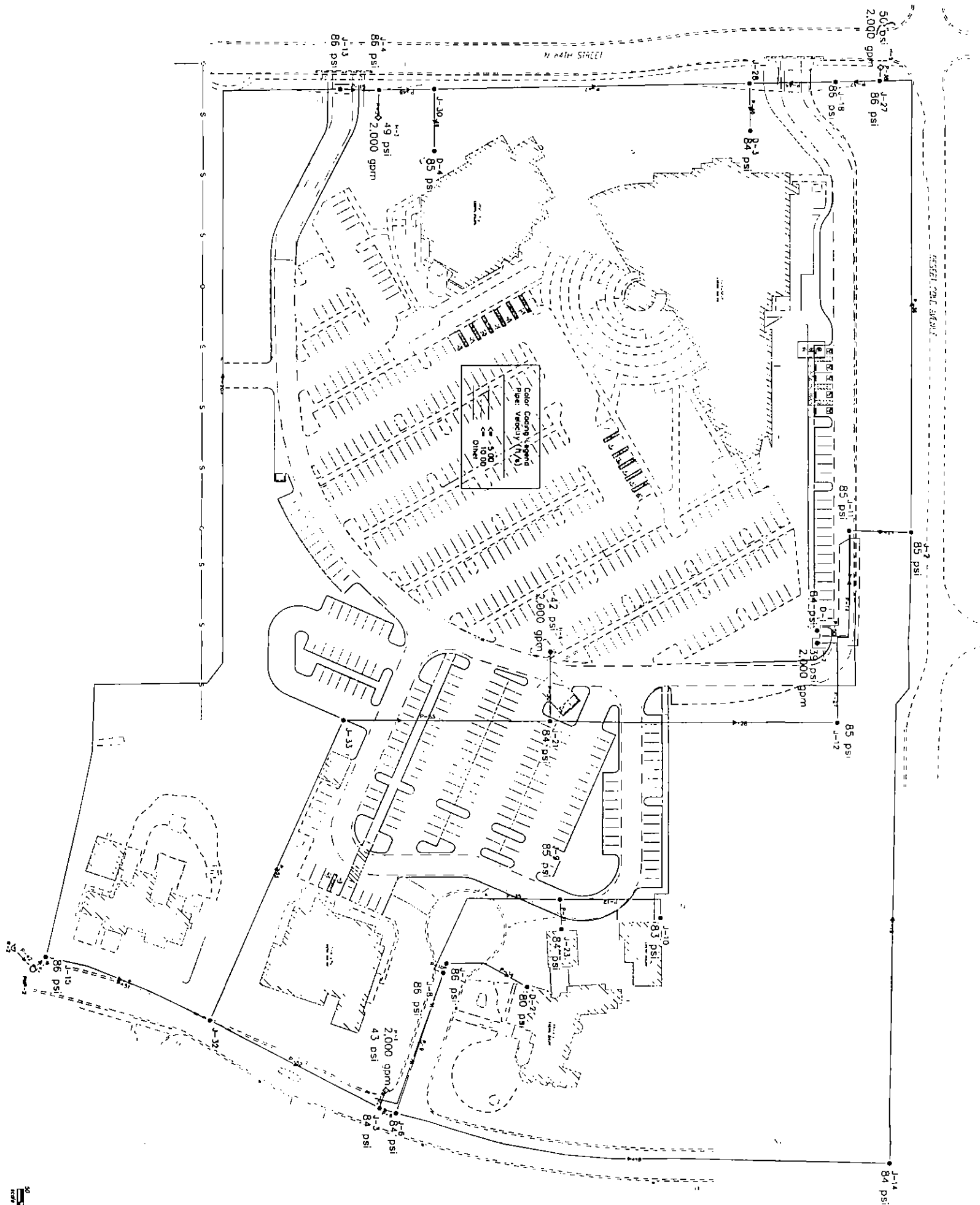

Project No. 15130	Date 02/25/2018	
Project Mgr. D. LAREDO	Project Eng D. LAREDO	

MAX DAY PLUS FIRE FLOW

ST. PATRICK ROMAN CATHOLIC PARISH

A PORTION OF THE SOUTHEAST QUARTER OF SECTION 24
TOWNSHIP 3 NORTH RANGE 4 EAST OF THE GILA AND SALT RIVER
MERIDIAN MARICOPA COUNTY ARIZONA

Call before you dig 1 800 STAKE IT 602 263 1100

NOT FOR CONSTRUCTION PRELIMINARY DO RECORDING BID AT RISK

HUBBARD ENGINEERING
1201 S Alma School Rd
Suite 12000
Mesa AZ 85210
Ph 480 892 3313
www.hubbardengineering.com

Appendix D
Peak Hour Model Results
St. Patrick Roman Catholic Parish

Scenario: Peak Hour Demand
Current Time Step: 0.000 h
FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand Collection	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
139	J-33	1,372.28	<None>	<Collection: 0 items>	0	1,567.41	84
136	J-32	1,371.40	<None>	<Collection: 0 items>	0	1,567.42	85
130	J-30	1,370.00	Zone 2	<Collection: 0 items>	0	1,567.39	85
125	J-28	1,370.00	Zone 2	<Collection: 0 items>	0	1,567.38	85
100	J-27	1,370.00	Zone 2	<Collection: 0 items>	0	1,567.38	85
87	J-23	1,374.50	Zone 2	<Collection: 0 items>	0	1,567.39	83
81	J-21	1,373 00	Zone 2	<Collection: 0 items>	0	1,567.40	84
72	J-18	1,370.00	Zone 2	<Collection: 0 items>	0	1,567.38	85
63	J-15	1,370 00	Zone 2	<Collection: 0 items>	0	1,567.51	85
60	J-14	1,373.00	Zone 2	<Collection. 0 items>	0	1,567 38	84
56	J-13	1,370.00	Zone 2	<Collection 0 items>	0	1,567.40	85
54	J-12	1,372 00	Zone 2	<Collection 0 items>	0	1,567.39	85
52	J-11	1,372.00	Zone 2	<Collection. 0 items>	0	1,567.38	85
50	J-10	1,375.00	Zone 2	<Collection 0 items>	0	1,567 39	83
48	J-9	1,372 00	Zone 2	<Collection 0 items>	0	1,567.39	85
45	J-8	1,370.00	Zone 2	<Collection. 0 items>	0	1,567.39	85
43	J-7	1,370.00	Zone 2	<Collection 0 items>	0	1,567 39	85
40	J-6	1,373 00	Zone 2	<Collection 0 items>	0	1,567.40	84
35	J-4	1,370 00	Zone 2	<Collection. 0 items>	0	1,567.40	85
34	J-3	1,373.00	Zone 2	<Collection 0 items>	0	1,567 40	84
31	J-2	1,371 00	Zone 2	<Collection: 0 items>	0	1,567.38	85
133	D-4	1,371 90	Zone 2	<Collection: 1 item>	19	1,567.39	85
128	D-3	1,374 00	Zone 2	<Collection: 1 item>	48	1,567.36	84
93	D-2	1,376 70	Zone 2	<Collection: 1 item>	16	1,550.73	75
75	D-1	1,373.50	Zone 2	<Collection: 1 item>	49	1,567.37	84

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Scenario: Peak Hour Demand
Current Time Step: 0.000 h
FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Has Check Valve?	Minor Loss Coefficient (Local)	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)	Has User Defined Length?	Length (User Defined) (ft)
94	P-34	86	J-7	D-2	1.0	Copper	135.0	False	0.000	16	6.41	0.194	False	0
137	P-51	175	J-15	J-32	6.0	Asbestos Cement	140.0	False	0.000	72	0.81	0.000	False	0
129	P-46	47	J-28	D-3	6.0	Ductile Iron	130.0	False	0.000	48	0.54	0.000	False	0
57	P-15	38	J-4	J-13	8.0	Ductile Iron	130.0	False	0.000	-60	0.38	0.000	False	0
64	P-20	1,097	J-13	J-15	8.0	Ductile Iron	130.0	False	0.000	60	0.38	0.000	False	0
132	P-48	55	J-30	J-4	8.0	Ductile Iron	130.0	False	0.000	-60	0.38	0.000	False	0
138	P-52	190	J-32	J-3	6.0	Asbestos Cement	140.0	False	0.000	32	0.37	0.000	False	0
41	P-6	17	J-3	J-6	6.0	Asbestos Cement	140.0	False	0.000	32	0.37	0.000	False	0
135	P-50	138	J-11	D-1	8.0	Ductile Iron	130.0	False	0.000	49	0.31	0.000	False	0
131	P-47	312	J-28	J-30	8.0	Ductile Iron	130.0	False	0.000	-41	0.26	0.000	False	0
55	P-14	202	J-11	J-12	8.0	Ductile Iron	130.0	False	0.000	-39	0.25	0.000	False	0
82	P-28	285	J-12	J-21	8.0	Ductile Iron	130.0	False	0.000	-39	0.25	0.000	False	0
140	P-53	205	J-21	J-33	8.0	Ductile Iron	130.0	False	0.000	-39	0.25	0.000	False	0
142	P-55	326	J-32	J-33	8.0	Ductile Iron	130.0	False	0.000	39	0.25	0.000	False	0
134	P-49	82	J-30	D-4	6.0	Ductile Iron	130.0	False	0.000	19	0.21	0.000	False	0
61	P-18	494	J-6	J-14	6.0	Asbestos Cement	140.0	False	0.000	17	0.19	0.000	False	0
46	P-9	147	J-6	J-5	6.0	Ductile Iron	130.0	False	0.000	16	0.18	0.000	False	0
47	P-10	10	J-8	J-7	6.0	Ductile Iron	130.0	False	0.000	16	0.18	0.000	False	0
62	P-19	632	J-14	J-2	8.0	Ductile Iron	130.0	False	0.000	17	0.11	0.000	False	0
53	P-13	61	J-2	J-11	8.0	Ductile Iron	130.0	False	0.000	10	0.06	0.000	False	0
101	P-36	480	J-2	J-27	8.0	Ductile Iron	130.0	False	0.000	7	0.04	0.000	False	0
102	P-37	44	J-27	J-18	8.0	Ductile Iron	130.0	False	0.000	7	0.04	0.000	False	0
126	P-44	85	J-18	J-28	8.0	Ductile Iron	130.0	False	0.000	7	0.04	0.000	False	0
124	P-43	18	PMP-2	J-15	48.0	Ductile Iron	130.0	False	0.000	131	0.02	0.000	True	1
123	P-42	28	R-2	PMP-2	48.0	Ductile Iron	130.0	False	0.000	131	0.02	0.000	True	1
104	P-38	14	J-27	H-5	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
68	P-22	19	J-3	H-1	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
39	P-5	27	J-4	H-3	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
85	P-30	69	J-21	H-4	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
88	P-31	29	J-8	J-23	2.0	Copper	135.0	False	0.000	0	0.00	0.000	False	0
78	P-27	99	J-12	H-2	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
51	P-12	118	J-9	J-10	2.0	Copper	135.0	False	0.000	0	0.00	0.000	False	0
95	P-35	179	J-8	J-9	2.0	Copper	135.0	False	0.000	0	0.00	0.000	False	0

Scenario: Peak Hour Demand
Current Time Step: 0.000 h
FlexTable: Pump Table

ID	Label	Elevation (ft)	Pump Definition	Status (Initial)	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
122	PMP-2	1,370 00	Pump 1	On	1,370 00	1,567 51	131	197.51

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Scenario: Peak Hour Demand
Current Time Step: 0.000 h
FlexTable: Reservoir Table

ID	Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
121	R-2	1,370.00	Zone 2	131	1,370.00

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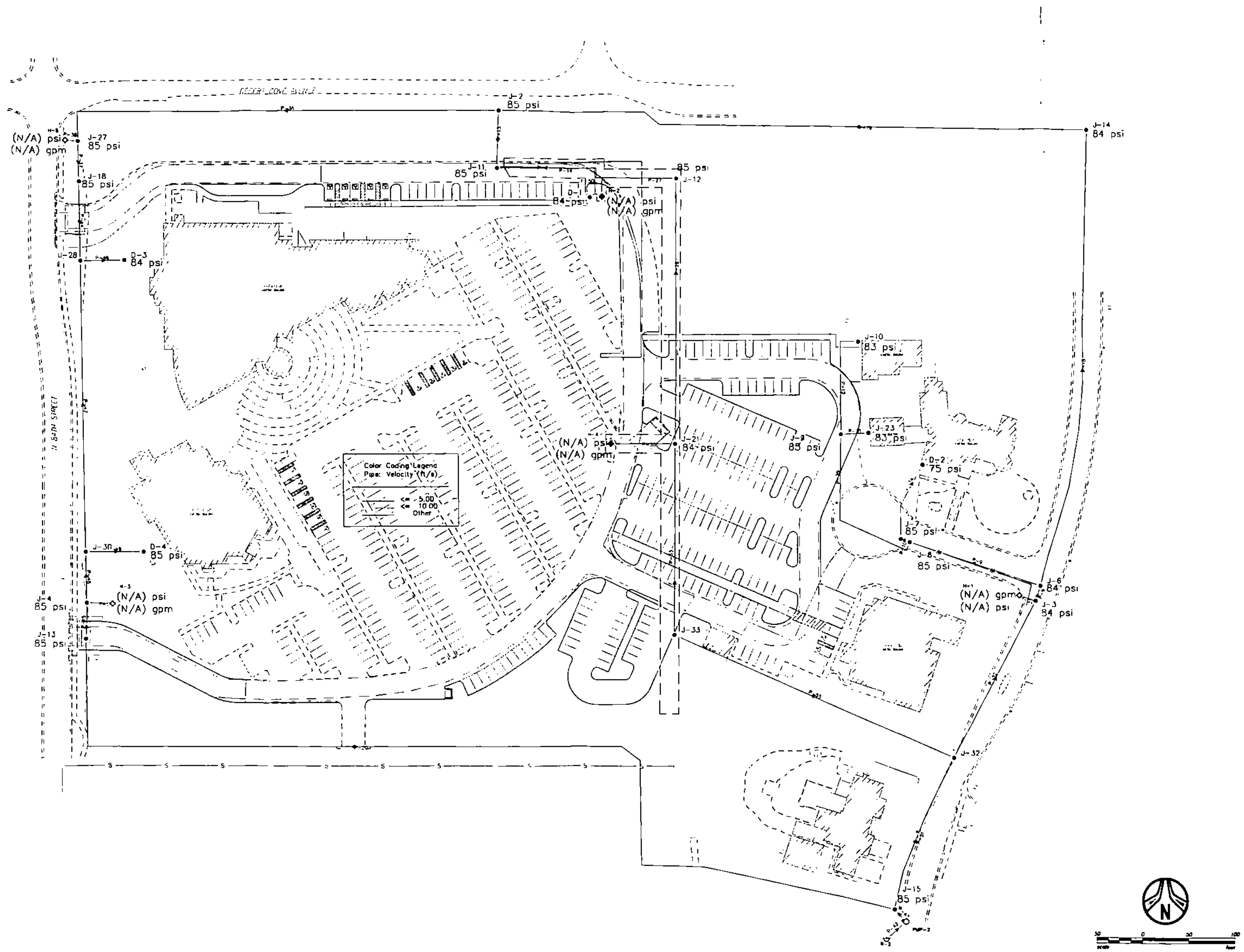

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PEAK HOUR DEMAND

ST. PATRICK ROMAN CATHOLIC PARISH

A PORTION OF THE SOUTHEAST QUARTER OF SECTION 24
TOWNSHIP 3 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER
MERIDIAN MARICOPA COUNTY ARIZONA

Project No.	Date
15130	02/25/2018
Project Mgr	Project Eng
D. LAREDO	D. LAREDO

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