



## ***Juniper Estates***

***13.8+/- Acre Condo  
Development Project  
Analysis Completed March 10, 2023***

### ***Public Water & Sewer Impact Analysis***

Prepared by Ardurra, for The City of Flagstaff Water Services

#### **Mayor**

*Becky Daggett*

#### **Council**

*Austin Aslan  
Khara House  
Lori Matthews*

*Jim McCarthy  
Miranda Sweet  
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#### **City Manager**

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*Shannon Jones*

#### **City Engineer**

*Paul A. Mood, P.E.*

#### **Public Works Director**

*Scott Overton*



*Alicia Stoffers*

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**Public Water and Sewer Impact Analysis**  
**Juniper Estates**

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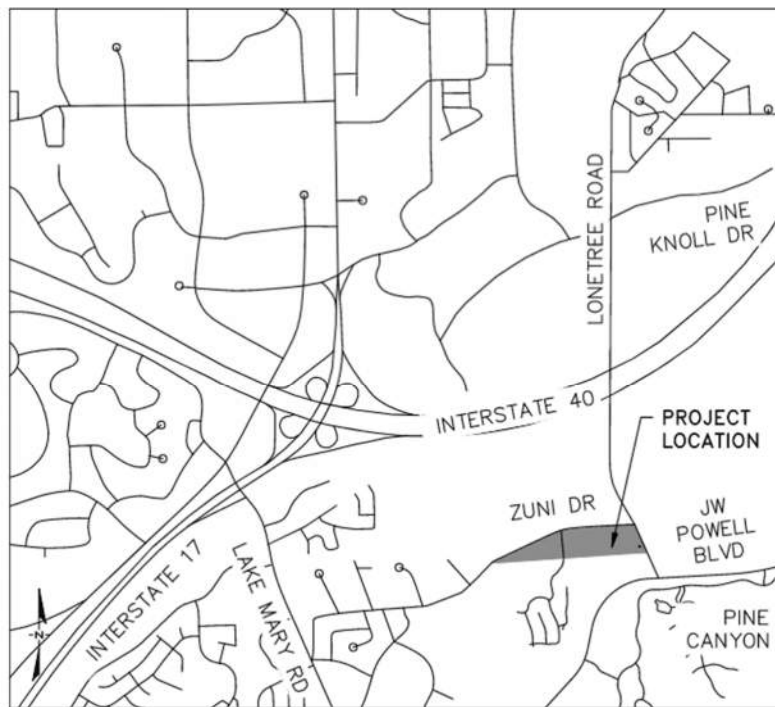
## I. INTRODUCTION

The Juniper Estates project is located on Masonic Lane, southwest of the intersection of Zuni Dr and Lonetree Road. The project is located on Coconino County parcel 103-26-002D in Section 28, Township 21N, Range 7E, Gila and Salt River Base & Meridian (see Figure 1).

The proposed development lies within the City of Flagstaff urban growth boundary and has the ability to be served by City water and sewer utilities.

The Juniper Estates Overall Utility Plan Dated 10/07/22 and Utility Plan Sheets 1 and 2 (Exhibit 1) was provided to the City by ViewPoint Engineering. and has been used as the basis for this preliminary analysis. The developer is proposing two 26' PUEs for a total width of 52' centered on the proposed roadway. All public utilities are within the 52' PUE.

The criteria used herein to estimate the project's utility impacts is from the City of Flagstaff Engineering Design Standards (COF EDS), Chapter 13-09, effective October 2017. This Water and Sewer Impact Analysis (WSIA) is considered valid for two years from its completion date, which is 3/10/2023.



VICINITY MAP  
NOT TO SCALE

## II. ANALYSIS SUMMARY

On-site modifications:

The project site is bisected by Masonic Lane. In that road there are existing public sewer and water mains. Connections are proposed to the existing utilities and to existing utilities in Zuni Drive and Lone Tree Road. The remainder of the parcel is vacant, and it is assumed that there is currently no infrastructure in the ground to support this development, so all systems for the project will have to be designed and built.

Off-site modifications:

**Sewer:** Currently there are sewer mains crossing the parcel that can be utilized for sewer service and also existing mains in the adjacent roadways. Tapping and extending the sewer line should be done according to City of Flagstaff Standards.

**Water:** Currently there is a water main crossing the parcel that can be utilized for water service and also existing mains in the adjacent roadways. Tapping and extending the waterline should be done according to City of Flagstaff Standards.

## III. WATER SYSTEM ANALYSIS

### A. EXISTING WATER SYSTEM

Currently, public water infrastructure exists across the property and in the adjacent roadways. There is a 12" DI water main in Lonetree Rd, a 12" PVC water main Zuni Dr. and an 8" PVC water main in Masonic Lane. This main falls within the City of Flagstaff Pressure Zone 'B'. See Exhibit 3 for the City of Flagstaff GIS map of the existing water facilities.

### B. PROPOSED WATERLINE EXTENSIONS

The Concept Plan shows new 8" water mains extended on both sides of Masonic Lane in a 52' PUE to provide water service to each condo (Exhibit 1). The water mains will have two fire hydrants and individual meters for each of the 87 condos. The site plan provided by View Point Engineering shows the project tapping the public water system in 4 locations to loop the new mains through the site and provide a second source to both sections of the project.

There are structures proposed on the Concept Plan provided. A building on this

development could have multiple stories with water and sewer fixture heights up to 35 feet above ground level (according to zoning category MR Zoning and Table 10-40.30.040.C). This analysis provides the water pressure at the existing ground level. After grading is complete and finished floor elevations are established, analysis should be performed by the Architect/Engineer (A/E) to verify adequate pressure throughout the project.

### **C. WATER SYSTEM DEMANDS**

The following quantifies the anticipated water demands for the project. The following Demand Criteria is from the City of Flagstaff Code 13-09-003-0004.2.

#### **Water System Demand**

Population Density MFR	2.5 person/unit
Average Daily Flow MFR	75 gpcd
Peak Daily Flow SFR	300 gpcd
Single Family Residential	87 Dwelling Units

Average Daily Demand = 87 DU X 2.5 person/unit X 75 gpcd = 16,313 gpd

Peak Daily Demand = 87 DU X 2.5 person/unit X 300 gpcd = 65,250 gpd

Fire Flow Demand = 1,500 gpm

### **D. WATER SYSTEM ANALYSIS RESULTS**

Bentley WaterGEMS software was used for simulations of peak daily and fire flow.

The analysis area was estimated to be the area impacted by the proposed Juniper Estates development additional demands and locations that supply fire flows. This area is bounded by Lake Mary Road and Pine Knoll Dr. See the GIS Water Map Exhibit 3 with the analysis area. Proposed Demands were added to the model at J-14177 on Zuni Dr for the 45 western lots and J-7497 on Lonetree Rd for the 42 eastern lots. The Water Gems Junction Map is Exhibit 4.

Results of the computer analysis (Appendix A) for peak daily flow indicate a range in pressures off-site in the project vicinity from 109.58 psi (J-11543, Pine Knoll Drive) to 54.01 psi (J-2405, Pine Canyon). The nodes are consistent given the elevations of the

junction nodes within the analyzed boundary. The existing waterline in Masonic Lane has an approximate elevation of 6892 at the connection point to the new waterlines. The peak daily flow condition yields a pressure on the project site of 100.64 psi. This project meets the minimum pressure requirements stated in the City of Flagstaff Engineering Standards.

A pressure-reducing valve is required by the City of Flagstaff Engineering Standards if the pressure is above the 80 psi pressure. High pressures on-site will require the developer to install pressure-reducing valves after the meter.

Based on the computer simulation of fire flow, residual pressures in the project vicinity are projected to remain above 20 psi (COF EDS 13-09) or higher during fire flow scenarios of 1500 gpm or less. All of the hydrants in the analysis area can provide the required fire flow. Results are included in Appendix B and the Water Gems Hydrant Map is Exhibit 5. The lowest fire flow available within the analysis area occurs within the existing Bow and Arrow Neighborhood, west of the project site, due to higher elevations and smaller supply mains. This area still meets the minimum required Fire Flow and is not impacted by the proposed development.

It is the developer's responsibility to design, acquire adequate right-of-way for, and construct all on-site and connecting water infrastructure per all applicable City, State, and Federal rules and regulations.

#### **IV. SEWER SYSTEM ANALYSIS**

##### **A. EXISTING SEWER SYSTEM**

The project site is bordered by two existing sewer lines and a sewer line crossing the site in Masonic Lane. To the north of the project in Zuni Dr. is a 21" VC sewer interceptor. An 8" DI sewer in Masonic Dr and a 10" PVC sewer in Lonetree Rd flow to this main. The analysis area looks at the sewer downstream of the project to the Rio De Flag WRP junction MH R-034. See Exhibit 2 for the City of Flagstaff GIS map of the existing sewer system. The Wildcat Hill Treatment Plant treats all sewage collected from this proposed project.

##### **B. PROPOSED SEWER SYSTEM EXTENSIONS**

The Concept Plan shows new 8" sewer mains extended on both sides of Masonic Lane in a 52' PUE to provide sewer collection to each condo (Exhibit 1). Constructing and tapping the sewer line in the right-of-way should be done according to City of

Flagstaff Standards.

The proposed on-site sewer system was not analyzed as a part of this report and shall be addressed by the A/E as part of their design for their project. The A/E's engineering analysis and design shall be consistent with the requirements called out in the City of Flagstaff Engineering Standards.

### **C. SEWER SYSTEM FLOWRATES**

The following criteria were utilized in determining the anticipated wastewater generation for this project. The following Demand Criteria is from the City of Flagstaff Code 13-09-002-0002.

The peaking factor is determined based on existing upstream population and calculated per Figure 13-09-002-01 in the Flagstaff Design Standards. The Population Equivalent for the existing flow rate in the upstream sewer system is 19,000 (100 gpcpd). A peaking factor of 1.75 is used in this analysis.

#### **Sewer System Design Flows Condo**

Population Density	2.5 person/unit
Average Daily Flow	75 gpcd
Peak Factor	1.75
Condos	87

Average Daily Flow = 87 lots X 2.5 person/unit X 75 gpcd = 16,313 gpd

Peak Daily Flow= 16,313 gpd X 1.75 = 28,548 gpd

### **D. SEWER SYSTEM ANALYSIS RESULTS**

The submitted Utility Plan, Exhibit 1, shows connections to all three of the existing sewer mains. Without design elevations to determine flow direction, this analysis assumes the proposed site will contribute a portion of the generated flow to the sewers in both Zuni Dr and Lonetree Rd based on existing topography.

In the SewerGEMS model prepared for this evaluation, the sewer design flows for 45 condos were applied to manhole 6-213 in Zuni Dr. and 42 units at manhole 11-002 in Lonetree Rd (See Exhibit 6). These total design flows from Juniper Estates project

will yield a peak day flow increase of 28,548 gallons per day (0.028 MGD).

The capacity of the existing collection system downstream of this project is adequate to convey the existing and proposed flow rates and maintain the City's required d/D pipe capacity ratio (expressed as a percentage) at less than 70%. The highest D/d in the analysis area is 33.9% in the 24" sewer south of the Rio De Flag Wastewater Reclamation Plant. See Appendix C and Exhibit 6 for results.

According to the City of Flagstaff's Biosolids Master Plan developed by Carollo in 2019, the City's wastewater treatment capacity for both treatment plants combined is 6.3 MGD average daily flow based on current conditions and configurations. Average daily flows for both plants measured 5.404 MGD for the calendar year 2021. The remaining treatment capacity of both plants combined has been previously committed. The City is creating additional wastewater treatment capacity currently scheduled for completion by the end of 2024. The additional wastewater demand created by the Juniper Estates can be accommodated within the current wastewater treatment capacity projections. Therefore, the two-year reservation of capacity through the WSIA is not contingent upon the successful construction of improvements by 2024.

## **V. CONCLUSIONS & REQUIREMENTS**

Sewer and water service to all adjacent homes and businesses must be maintained during construction and tapping for this project.

The findings of this analysis indicate that the completion of the project will comply with public water and sewer infrastructure requirements as outlined in the current City of Flagstaff Engineering Standards as long as all on-site infrastructure is designed and constructed per the Engineering Standards and as stipulated herein. All new service connections to the City water and sewer infrastructure are required to pay capacity fees for the new connection to the public water and sewer system. Deviations from the intent shown on the developer's provided preliminary drawings, and/or further development beyond what was shown on the preliminary drawings will require additional review and must gain full IDS (Inter-Division Staff) Approval. It should be noted that the City of Flagstaff Engineering Standards (Chapter 13 of the City of Flagstaff Code) is the only document used for this analysis. This WSIA does not guarantee conformance to any other codes, standards, or specifications similar to, but not limited to, IBC, IFC, IRC etc.

The location(s) of any required fire hydrants related to this project is (are) left to the discretion of the City of Flagstaff Fire Department per City of Flagstaff Engineering Standards and current Fire Codes. Approval by the City Engineer shall also be obtained.

Water and Sewer computer analyses were done with Bentley Systems WaterGEMS and SewerGEMS software. The existing City of Flagstaff master water and sewer models were modified to incorporate the estimated infrastructure and flows that will be required by this development.

All existing utility information is based on the City of Flagstaff GIS data and other information contained within the WaterGEMS & SewerCAD master models or provided by the City of Flagstaff engineering staff. The developer's A/E should confirm the City water system supply and wastewater collection system pipe sizes, materials, and locations as part of their design for connection to the COF water and sewer systems.

Changes to the development plan can impact the results of this Water and Sewer Impact Analysis. Those changes include modification of the development size, area of commercial space, number or type of residential units, population, etc. If such changes are made, then the developer must apply for an updated analysis and

provide the proposed changes to the City of Flagstaff for review and consideration.

This WSIA is considered valid for two years from its completion date, 3/10/2023, which is the date of the engineer's seal on the cover sheet and table of contents of this WSIA. All water and sewer utility lines and treatment plant capacity reservations as a result of this study will expire at that time. This WSIA will function as place holder for the developer. The capacity assurances discussed within this report will be provided by the City for 2 years. At which time the developer will need to have applied for a building permit or will be removed from the list of assured capacity. If this project is removed from the capacity assurance list, the developer will need to re-apply for capacity assurance by getting a new WSIA.



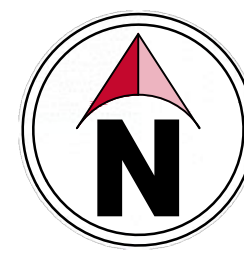
***Exhibit Maps***

LAND USE				ESTIMATED WATER DEMAND		
TYPE		PEAK	# OF UNITS	DESIGN POPULATION	MAXIMUM TOTAL DAILY CONSUMPTION	PEAK DAY FLOW RATE
RESIDENTIAL CONDO	3.5 PERSONS PER DWELLING UNIT	250 (GPCD)	87	304.5	76125 (GPD)	52.86 (GPM)

\*Values found in Table 13-09-003-02 Water Demand Criteria of the Flagstaff Municipal Code.

LAND USE				ESTIMATED WASTE WATER DEMAND	
TYPE		AVERAGE DRY WEATHER FLOW	# OF UNITS	DESIGN POPULATION	ESTIMATED DAILY FLOW
RESIDENTIAL CONDO	3.5 PERSONS PER DWELLING UNIT	75 (GPCD)	87	304.5	22837.5 (GPD)

\*Values found in 13-09-002-01 Average Daily Flows by Land Use of the Flagstaff Municipal Code.

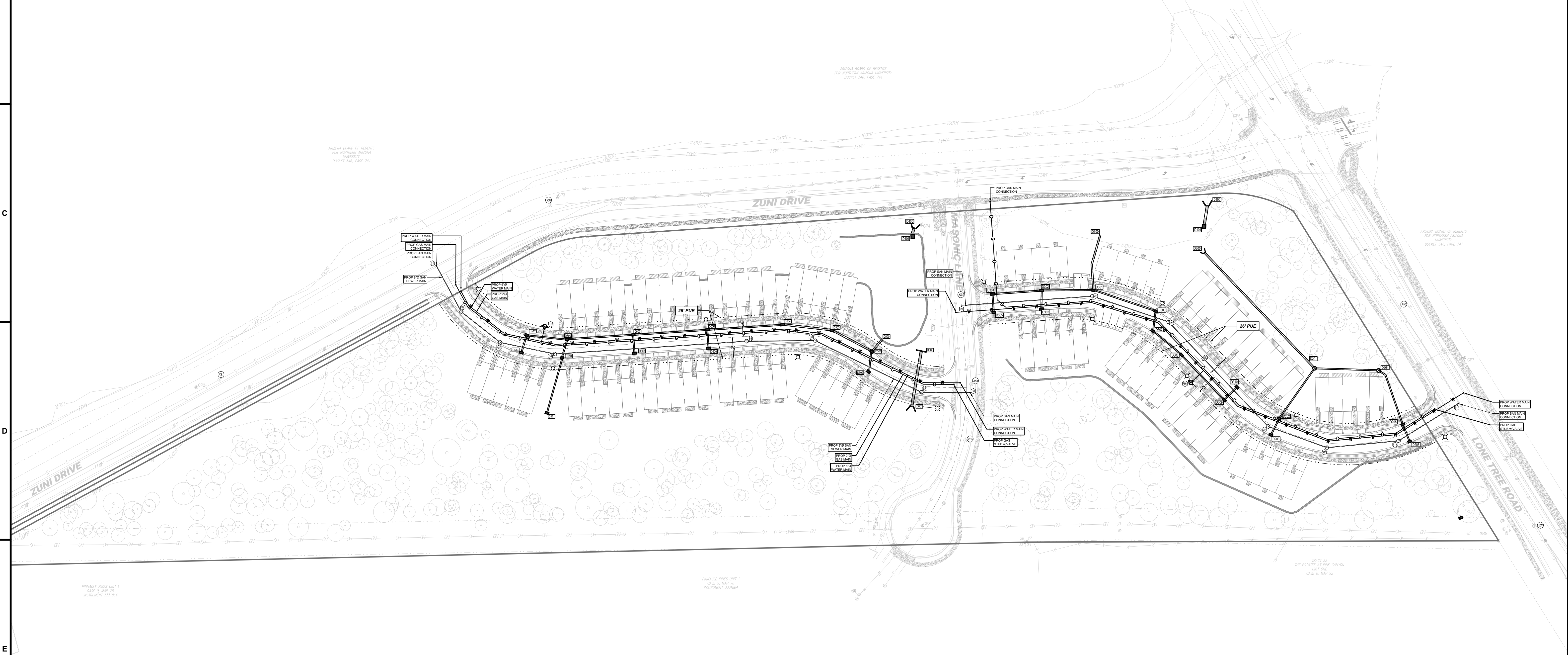


**LEGEND**

- PROPERTY BOUNDARY
- LEGAL RIGHT-OF-WAY
- ULTIMATE RIGHT-OF-WAY
- ROAD/RIGHT-OF-WAY CENTER LINE
- EASEMENT LINE
- 100' R APPROX. FEMA ZONE AE BOUNDARY
- FWDY APPROX. FEMA FLOODWAY BOUNDARY
- FENCE LINE
- EDGE OF ASPHALT
- EDGE OF DIRT/GRAVEL
- S S EX. SANITARY SEWER MAIN
- ST ST EX. STORM PIPE
- E E EX. UNDERGROUND ELECTRIC SERVICE LINE
- OH OH EX. OVERHEAD WIRE
- G G EX. GAS SERVICE MAIN
- T T EX. TELEPHONE/COMMUNICATIONS LINE
- W W EX. WATER MAIN
- 6892 EX. CONTOUR ELEVATION LINE
- --- PROP. CONTOUR ELEVATION LINE
- --- PROP. STORM SEWER
- --- PROP. SAN SEWER MAIN
- --- PROP. GAS SERVICE MAIN
- --- PROP. WATER SERVICE MAIN
- --- PUE

**SYMBOL LEGEND**

- EX. STORM CATCH BASIN / MANHOLE
- EX. WATER VALVE
- EX. FIRE HYDRANT
- EX. TELECOMM. BOX
- EX. SANITARY MANHOLE
- EX. UTILITY POLE w/GUY ANCHOR
- EX. ELECTRIC BOX
- EX. LIGHT POLE
- EX. BOLLARD
- EX. GAS VALVE / LINE MARKER
- EX. SIGN
- EX. CONCRETE PAVEMENT
- SURVEY CONTROL POINT
- PROPERTY CORNER
- PROPERTY MONUMENT FOUND
- EX. TREES
- PROP. STORM STRUCTURE w/ID
- PROP. SAN STRUCTURE w/ID
- PROP. FIRE HYDRANT w/ID
- PROP. LIGHT POLE
- LANDSCAPE STRIP



REV	DATE	DESCRIPTION

**PRELIMINARY NOT FOR CONSTRUCTION**

THIS PLAN HAS BEEN PREPARED FOR GENERAL DISCUSSION ONLY AND IS BASED UPON LIMITED DUE DILIGENCE.

**ViewPoint Engineering**

2121 E 6th STREET, SUITE 203  
AUSTIN, TEXAS 78702

FIRM No. F-23395  
viewpointengineering.com

SCALE: 1" = 50'

0 25 50

DWN BY: M TOTH

CHK BY: E BEALS

PROJECT: JUNIPER ESTATES RESIDENTIAL LAND DEVELOPMENT  
2851 S. MASONIC LANE  
COCONINO COUNTY, ARIZONA

APPLICANT: RODG DT FLAGSTAFF PROP CO LLC  
8914 BENTON BLVD, AUSTIN, TEXAS 78744

TITLE: OVERALL UTILITY PLAN

PROJECT NO.: 22004

DATE: OCTOBER 7, 2022

SHEET ID: REV

0

SHEET 10 of 13

Contact Arizona 811 at least two full working days before you begin excavation

**ARIZONA 811**

BLUE STAKE, INC.

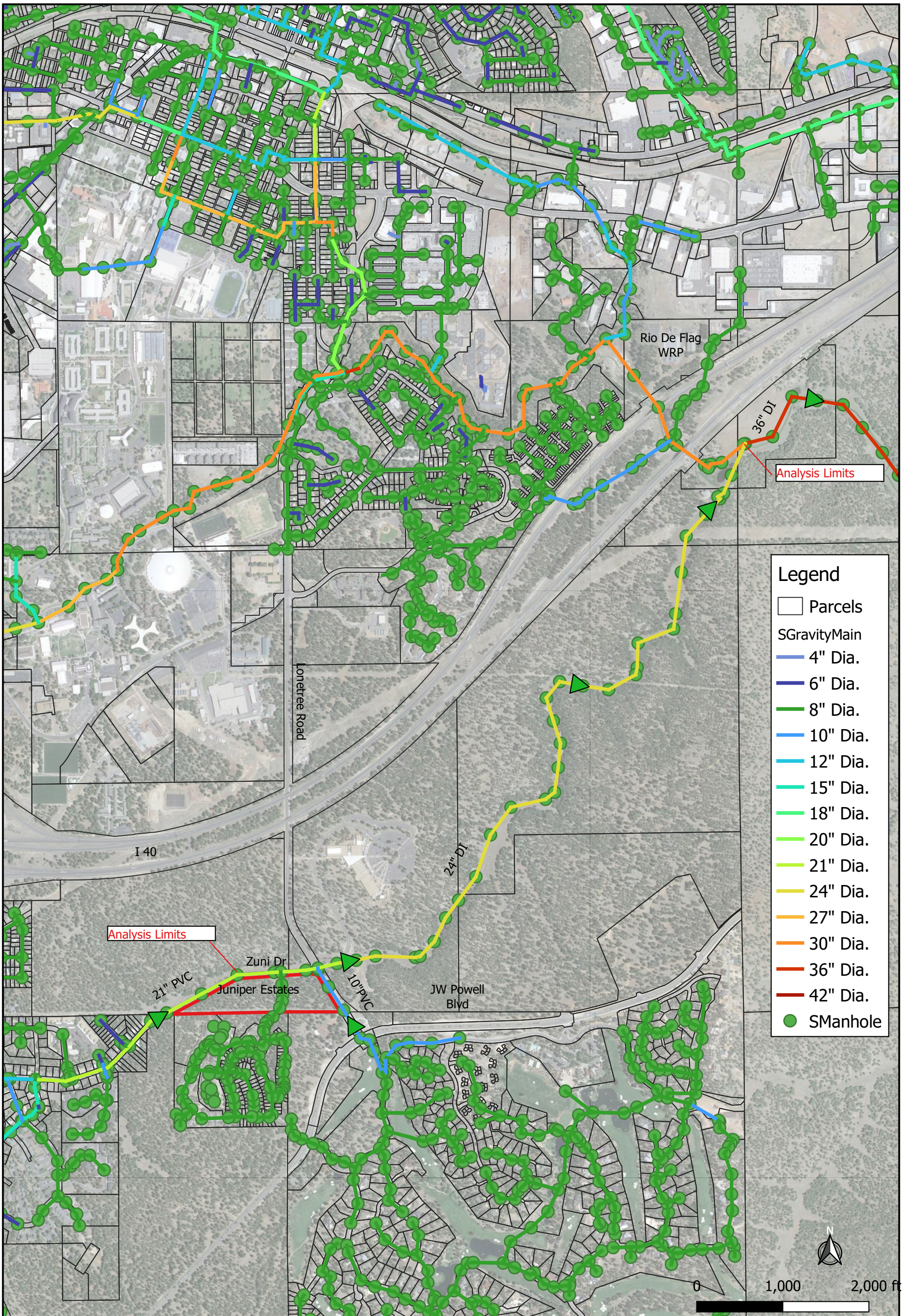
Call 811 or click Arizona811.org

LOCATION OF EXISTING UNDERGROUND UTILITIES IS APPROXIMATE AND BASED ON OBSERVABLE SURFACE FEATURES ONLY. THE CONTRACTOR SHALL CONTACT THE LOCAL UTILITY PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES AND DETERMINE THE EXACT LOCATION OF ALL UTILITIES. CONTRACTOR RESPONSIBLE FOR ANY AND ALL DAMAGES INCURRED BY FAILURE TO LOCATE UTILITIES.

THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.





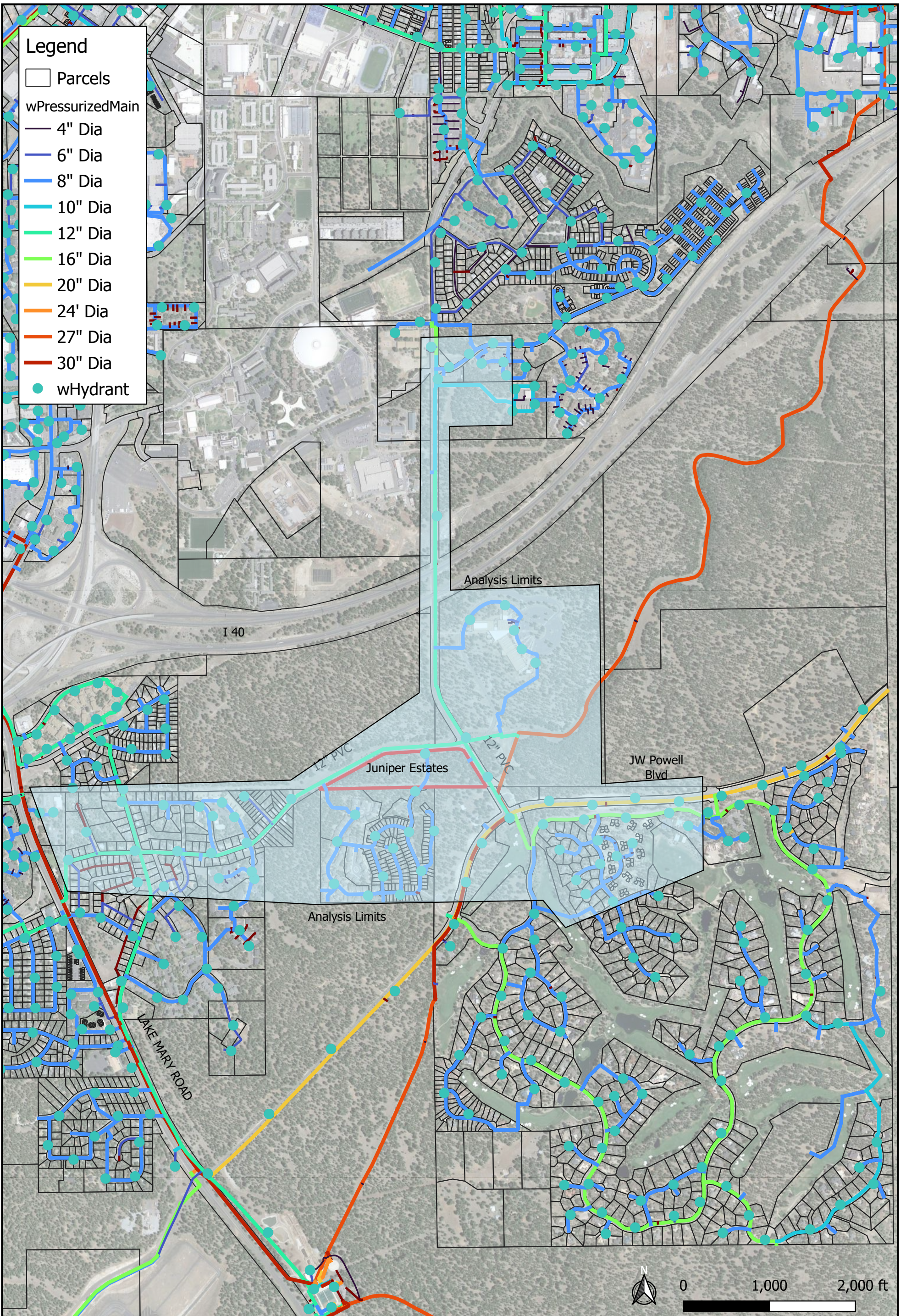


PROJ #  
122802



**WOODSON**  
ENGINEERING AND SURVEYING  
124 N ELDEN ST.  
FLAGSTAFF, AZ 86001  
PHONE: (928) 774-4636 WWW.ARDURRA.COM

**EXHIBIT 2**  
Juniper Estates  
FLAGSTAFF SEWER GIS MAP



PROJ #  
122802

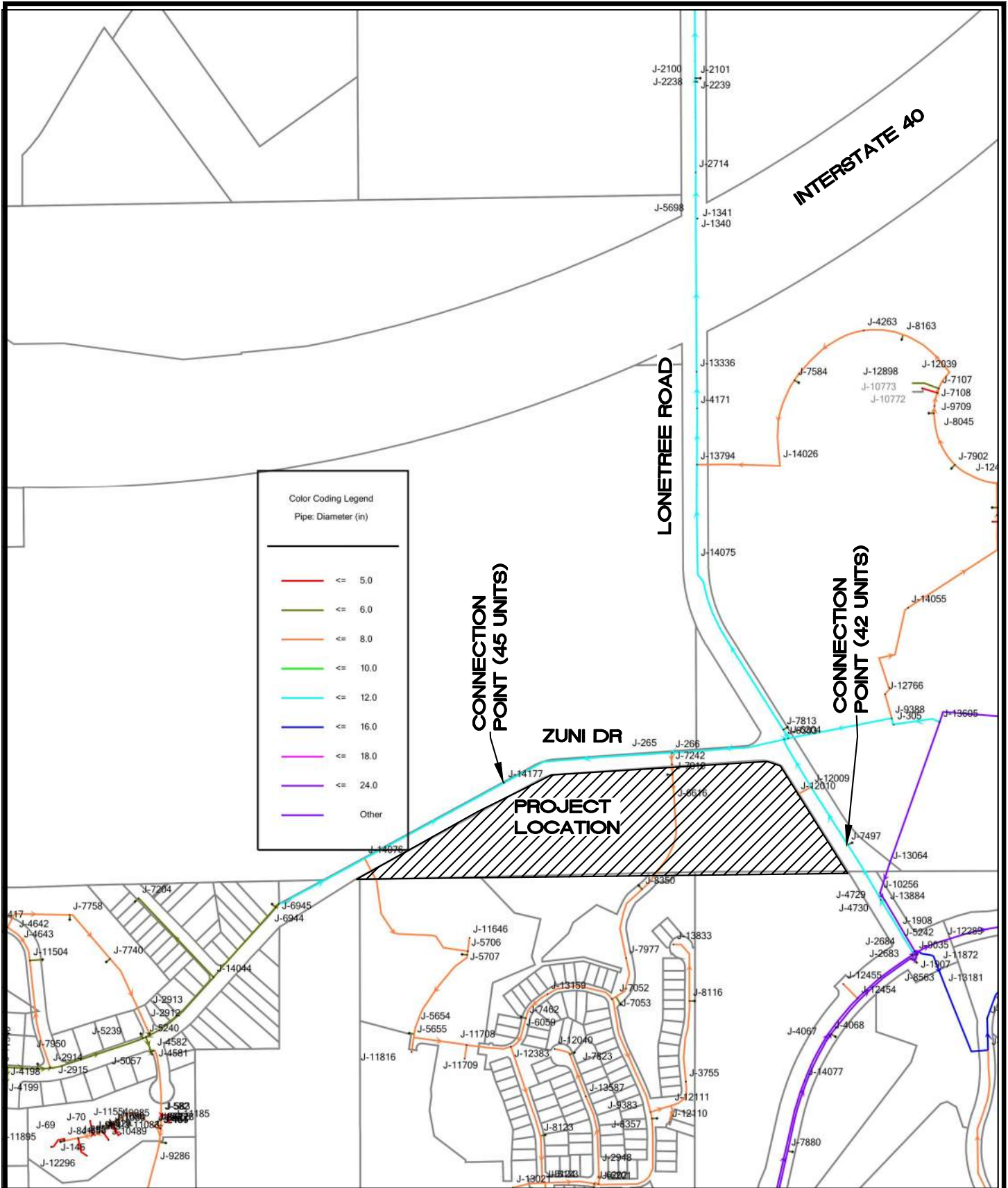


# WOODSON

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## EXHIBIT 3

**JUNIPER ESTATES  
FLAGSTAFF WATER GIS**

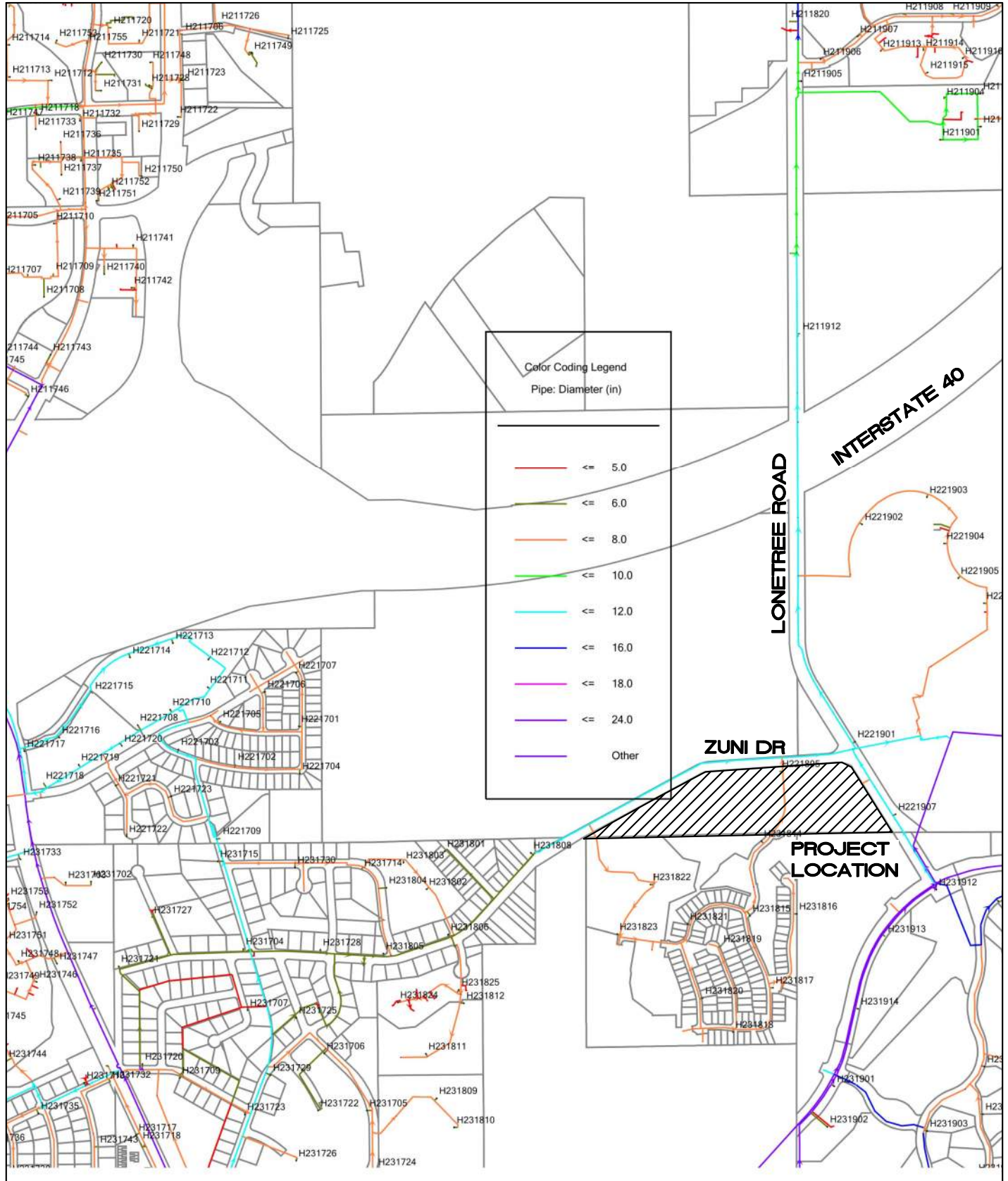


NOT TO SCALE

DRAFTED BY: AAS  
 DATE: 1/24/2023  
 PROJ. NO.: 122802  
 FN: GEMS MAPS

**WOODSON**  
 ENGINEERING & SURVEYING  
 (928)774-4636 | WWW.ARDURRA.COM

EXHIBIT 4  
 WISA JUNIPER ESTATES  
 WATER GEMS JUNCTIONS

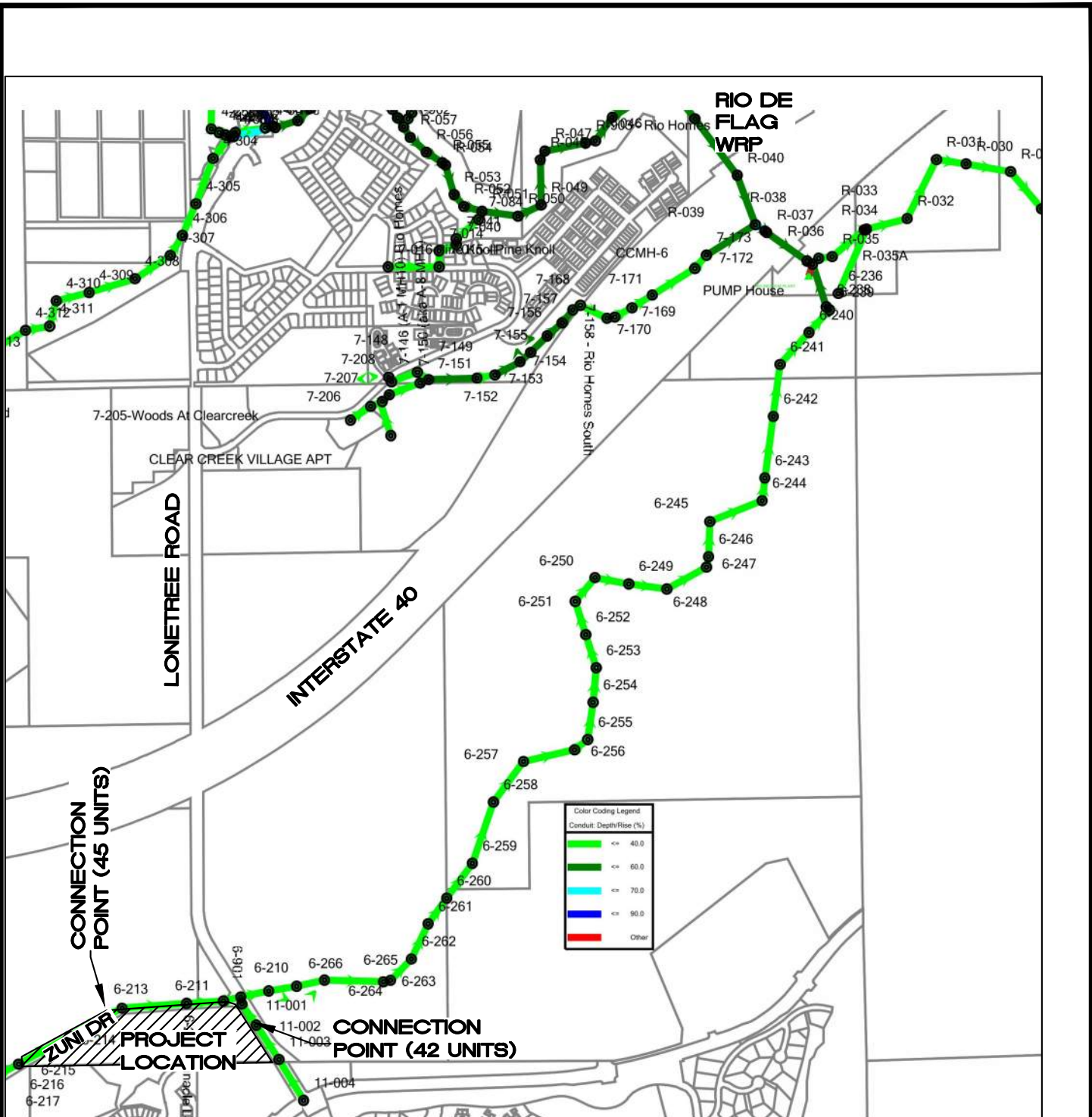


NOT TO SCALE

DRAFTED BY: AAS  
DATE: 1/24/2023  
PROJ. NO.: 122802  
FN: GEMS MAPS

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**EXHIBIT 5**  
WISA JUNIPER ESTATES  
WATER GEMS HYDRANTS



NOT TO SCALE

DRAFTED BY: AAS  
 DATE: 1/24/2023  
 PROJ. NO.: 122802  
 FN: GEMS MAPS

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**EXHIBIT 6**  
 WISA JUNIPER ESTATES  
 SEWER GEMS MANHOLES



***Appendix A***

## FlexTable: Junction Table

Label	Elevation (ft)	Demand (gal/min)	Pressure (psi)	Hydraulic Grade (ft)
J-2405	7,000.00	0.00	54.01	7,124.83
J-2406	7,000.00	0.00	54.01	7,124.83
J-9128	6,999.84	0.23	54.08	7,124.83
J-10863	6,999.21	0.00	54.35	7,124.83
J-5739	6,999.14	0.00	54.38	7,124.83
J-9986	6,998.88	0.00	54.49	7,124.83
J-7903	6,998.57	0.00	54.63	7,124.83
J-5380	6,996.06	0.00	55.71	7,124.83
J-10983	6,995.55	0.08	55.94	7,124.83
J-1299	6,995.53	0.00	55.94	7,124.83
J-1300	6,995.43	0.00	55.99	7,124.83
J-7383	6,995.00	0.09	56.17	7,124.83
J-408	6,994.83	0.08	56.24	7,124.83
J-409	6,994.82	0.00	56.25	7,124.83
J-8225	6,994.64	1.21	56.33	7,124.83
J-10100	6,994.52	0.13	56.38	7,124.83
J-856	6,994.08	0.00	56.57	7,124.83
J-857	6,993.76	0.00	56.71	7,124.83
J-5219	6,993.57	0.00	56.79	7,124.83
J-2501	6,992.86	0.00	57.10	7,124.83
J-2500	6,992.80	0.00	57.13	7,124.83
J-13295	6,992.32	0.39	57.33	7,124.83
J-5473	6,991.38	0.00	57.74	7,124.83
J-12602	6,988.00	0.00	59.21	7,124.86
J-1251	6,987.46	0.00	59.43	7,124.83
J-1252	6,987.35	0.00	59.48	7,124.83
J-5448	6,987.05	0.00	59.61	7,124.83
J-6201	6,983.79	0.37	61.04	7,124.86
J-13296	6,983.73	0.15	61.05	7,124.83
J-2948	6,983.66	0.26	61.09	7,124.86
J-6202	6,983.56	0.00	61.14	7,124.86
J-2317	6,983.19	0.00	61.28	7,124.83
J-2318	6,982.95	0.00	61.38	7,124.83
J-5207	6,982.58	0.00	61.55	7,124.83
J-1682	6,982.00	0.00	61.80	7,124.83
J-1683	6,982.00	0.00	61.80	7,124.83
J-5458	6,982.00	0.00	61.80	7,124.83
J-8152	6,981.94	0.00	61.82	7,124.83
J-9485	6,981.59	0.00	61.97	7,124.83
J-8323	6,980.67	0.00	62.37	7,124.83
J-293	6,980.59	0.00	62.41	7,124.83
J-292	6,980.00	0.00	62.66	7,124.83
J-7189	6,979.68	0.00	62.80	7,124.83
J-7580	6,978.93	0.30	63.13	7,124.83
J-5123	6,978.95	0.00	63.13	7,124.86
J-5124	6,978.89	0.00	63.15	7,124.86
J-5736	6,977.53	0.02	63.73	7,124.83
J-691	6,977.15	0.00	63.90	7,124.83
J-690	6,976.83	0.04	64.03	7,124.83
J-13021	6,976.56	0.00	64.17	7,124.86
J-8092	6,975.25	0.04	64.72	7,124.83
J-13992	6,975.19	0.42	64.74	7,124.83
J-11160	6,973.60	0.00	65.43	7,124.82
J-3755	6,973.23	0.44	65.61	7,124.86
J-13587	6,973.13	0.28	65.65	7,124.86

## FlexTable: Junction Table

Label	Elevation (ft)	Demand (gal/min)	Pressure (psi)	Hydraulic Grade (ft)
J-5708	6,971.51	0.00	66.34	7,124.83
J-4263	6,971.15	0.00	66.50	7,124.86
J-818	6,970.21	0.00	66.90	7,124.83
J-817	6,969.82	0.00	67.07	7,124.83
J-8357	6,969.44	0.37	67.25	7,124.86
J-12110	6,969.40	0.42	67.26	7,124.86
J-12111	6,968.34	0.00	67.72	7,124.86
J-7823	6,968.12	0.11	67.81	7,124.86
J-7584	6,967.65	0.00	68.01	7,124.86
J-12488	6,967.47	0.00	68.09	7,124.86
J-5175	6,967.03	0.00	68.27	7,124.83
J-9383	6,967.05	0.55	68.28	7,124.86
J-8116	6,967.03	0.29	68.29	7,124.86
J-716	6,966.53	0.00	68.49	7,124.83
J-12898	6,966.25	0.00	68.62	7,124.86
J-12040	6,966.07	0.00	68.70	7,124.86
J-717	6,966.02	0.00	68.71	7,124.83
J-5699	6,966.00	0.00	68.72	7,124.83
J-8045	6,966.00	0.00	68.73	7,124.86
J-8019	6,966.00	0.00	68.73	7,124.86
J-9709	6,965.95	0.00	68.75	7,124.86
J-11816	6,965.84	0.00	68.80	7,124.86
J-7902	6,965.76	0.00	68.83	7,124.86
J-7108	6,965.47	0.00	68.96	7,124.86
J-8163	6,965.45	0.00	68.97	7,124.86
J-7107	6,965.33	0.00	69.02	7,124.86
J-12039	6,965.30	0.00	69.04	7,124.86
J-8018	6,964.90	0.00	69.21	7,124.86
J-8123	6,964.83	0.00	69.24	7,124.86
J-8255	6,964.45	0.00	69.40	7,124.86
J-7880	6,961.18	0.00	70.82	7,124.87
J-13833	6,960.78	0.14	70.99	7,124.86
J-5655	6,959.85	0.00	71.39	7,124.86
J-5654	6,959.79	0.00	71.42	7,124.86
J-7404	6,958.95	0.00	71.77	7,124.84
J-6652	6,956.96	0.00	72.62	7,124.81
J-7758	6,955.99	0.00	73.07	7,124.88
J-11138	6,955.56	0.00	73.24	7,124.84
J-4076	6,954.33	0.00	73.76	7,124.82
J-4077	6,954.16	0.00	73.84	7,124.82
J-12417	6,953.20	0.41	74.28	7,124.88
J-6059	6,953.09	0.00	74.32	7,124.86
J-4642	6,952.33	0.00	74.66	7,124.88
J-5707	6,952.00	0.00	74.79	7,124.86
J-4643	6,951.82	0.00	74.88	7,124.88
J-5706	6,951.57	0.00	74.97	7,124.86
J-7462	6,951.50	0.00	75.01	7,124.86
J-10221	6,951.33	0.07	75.09	7,124.89
J-6454	6,950.40	0.47	75.49	7,124.89
J-11646	6,949.87	0.00	75.71	7,124.86
J-7740	6,949.64	0.02	75.82	7,124.88
J-7058	6,949.56	0.92	75.86	7,124.89
J-11975	6,948.96	0.18	76.10	7,124.84
J-11709	6,948.61	0.00	76.26	7,124.86
J-14077	6,948.13	0.00	76.47	7,124.86

## FlexTable: Junction Table

Label	Elevation (ft)	Demand (gal/min)	Pressure (psi)	Hydraulic Grade (ft)
J-14026	6,946.93	0.00	76.98	7,124.85
J-12383	6,946.79	0.00	77.05	7,124.86
J-13566	6,945.55	0.19	77.59	7,124.89
J-11708	6,944.97	0.00	77.83	7,124.86
J-11976	6,944.66	0.00	77.96	7,124.84
J-1224	6,943.93	0.00	78.30	7,124.91
J-4171	6,943.68	0.00	78.38	7,124.85
J-1225	6,943.74	0.00	78.38	7,124.91
J-13159	6,942.59	0.18	78.86	7,124.86
J-13336	6,941.19	0.00	79.46	7,124.85
J-7053	6,937.20	1.22	81.19	7,124.86
J-7052	6,936.61	0.12	81.45	7,124.86
J-4067	6,936.24	0.00	81.61	7,124.87
J-4068	6,935.72	0.00	81.84	7,124.87
J-13794	6,935.40	0.00	81.97	7,124.85
J-11504	6,934.97	8.04	82.17	7,124.88
J-13137	6,934.92	0.00	82.17	7,124.85
J-12289	6,931.85	0.00	83.50	7,124.85
J-11872	6,929.36	0.00	84.58	7,124.85
J-12454	6,929.36	0.00	84.58	7,124.86
J-9035	6,929.32	0.00	84.60	7,124.85
J-1908	6,929.16	0.00	84.68	7,124.87
J-1907	6,929.11	0.00	84.70	7,124.87
J-5242	6,928.99	0.00	84.75	7,124.87
J-2684	6,928.90	0.00	84.78	7,124.85
J-2683	6,928.79	0.00	84.83	7,124.85
J-8563	6,928.54	0.00	84.94	7,124.87
J-12455	6,928.40	0.00	85.00	7,124.86
J-7977	6,927.77	0.00	85.27	7,124.86
J-14055	6,926.86	0.00	85.67	7,124.87
J-12296	6,926.87	0.06	85.67	7,124.87
J-3601	6,921.64	0.00	87.91	7,124.82
J-11083	6,921.55	0.38	87.97	7,124.87
J-3135	6,919.73	0.00	88.74	7,124.82
J-3136	6,919.69	0.00	88.75	7,124.82
J-3147	6,919.68	0.00	88.76	7,124.82
J-896	6,919.16	0.00	89.00	7,124.87
J-9085	6,919.14	0.28	89.01	7,124.87
J-516	6,918.92	0.00	89.08	7,124.82
J-515	6,918.77	0.00	89.15	7,124.82
J-895	6,918.44	0.00	89.32	7,124.87
J-4730	6,917.59	0.00	89.68	7,124.87
J-4729	6,917.54	0.00	89.70	7,124.87
J-13884	6,916.84	0.00	90.00	7,124.87
J-8844	6,916.39	0.67	90.21	7,124.90
J-841	6,915.77	0.00	90.47	7,124.87
J-70	6,915.71	0.00	90.50	7,124.87
J-1089	6,915.64	0.11	90.53	7,124.87
J-69	6,915.46	0.00	90.61	7,124.87
J-1088	6,915.22	0.00	90.71	7,124.87
J-145	6,915.14	0.00	90.74	7,124.87
J-10256	6,915.03	0.00	90.79	7,124.87
J-12653	6,914.83	0.00	90.85	7,124.82
J-8845	6,914.62	0.00	90.98	7,124.90
J-6522	6,913.28	0.00	91.56	7,124.90

## FlexTable: Junction Table

Label	Elevation (ft)	Demand (gal/min)	Pressure (psi)	Hydraulic Grade (ft)
J-6521	6,912.94	0.16	91.70	7,124.90
J-7389	6,912.92	0.27	91.71	7,124.90
J-9286	6,912.89	1.74	91.72	7,124.87
J-10489	6,912.35	0.00	91.95	7,124.87
J-7204	6,911.59	0.94	92.28	7,124.87
J-13181	6,911.16	0.00	92.46	7,124.85
J-8350	6,910.79	0.00	92.62	7,124.86
J-2238	6,909.84	0.00	93.01	7,124.83
J-2100	6,909.70	0.00	93.07	7,124.83
J-920	6,909.47	0.00	93.20	7,124.87
J-868	6,909.39	0.00	93.23	7,124.87
J-983	6,909.25	0.00	93.29	7,124.87
J-10636	6,909.09	0.78	93.37	7,124.89
J-919	6,909.06	0.00	93.37	7,124.87
J-984	6,908.77	0.71	93.50	7,124.87
J-6236	6,908.58	0.06	93.59	7,124.90
J-867	6,908.51	0.00	93.61	7,124.87
J-11895	6,908.51	0.00	93.61	7,124.87
J-8160	6,908.44	0.00	93.65	7,124.89
J-6235	6,908.23	1.11	93.74	7,124.90
J-2101	6,907.96	0.00	93.83	7,124.83
J-464	6,907.94	0.00	93.86	7,124.87
J-2239	6,907.85	0.00	93.87	7,124.83
J-465	6,907.85	0.00	93.90	7,124.87
J-5068	6,907.47	0.00	94.06	7,124.87
J-10797	6,906.94	0.06	94.30	7,124.89
J-4728	6,906.86	0.00	94.32	7,124.87
J-361	6,906.69	0.32	94.41	7,124.89
J-11185	6,905.97	0.00	94.71	7,124.87
J-14075	6,905.87	0.00	94.75	7,124.86
J-85	6,905.53	0.51	94.91	7,124.89
J-86	6,905.48	0.00	94.93	7,124.89
J-11554	6,904.92	0.00	95.16	7,124.87
J-583	6,903.70	1.18	95.69	7,124.87
J-582	6,903.63	0.00	95.72	7,124.87
J-14131	6,903.15	0.00	95.89	7,124.78
J-13767	6,903.05	0.95	95.98	7,124.89
J-13978	6,902.42	0.00	96.22	7,124.81
J-4089	6,900.21	0.12	97.21	7,124.89
J-4090	6,899.91	0.00	97.34	7,124.89
J-7829	6,899.80	0.65	97.39	7,124.90
J-11144	6,899.31	0.00	97.60	7,124.89
J-9813	6,899.18	0.08	97.66	7,124.90
J-8379	6,899.17	0.38	97.66	7,124.89
J-13977	6,899.00	0.00	97.69	7,124.79
J-8378	6,898.98	0.64	97.74	7,124.89
J-13298	6,898.63	0.00	97.89	7,124.89
J-12884	6,898.19	0.93	98.03	7,124.78
J-3446	6,898.00	0.69	98.16	7,124.89
J-5507	6,898.00	0.09	98.16	7,124.89
J-5508	6,898.00	0.23	98.16	7,124.89
J-1038	6,898.00	0.06	98.17	7,124.89
J-1039	6,898.00	0.00	98.17	7,124.89
J-4509	6,898.00	0.42	98.17	7,124.89
J-7497	6,897.13	21.88	98.53	7,124.87

New Demand Location

## FlexTable: Junction Table

Label	Elevation (ft)	Demand (gal/min)	Pressure (psi)	Hydraulic Grade (ft)
J-8044	6,896.79	0.29	98.69	7,124.89
J-3914	6,896.28	0.00	98.91	7,124.89
J-3913	6,896.13	0.24	98.97	7,124.89
J-4198	6,896.00	0.00	99.03	7,124.88
J-4199	6,896.00	0.29	99.03	7,124.88
J-11540	6,896.00	0.35	99.03	7,124.88
J-11748	6,895.63	0.00	99.14	7,124.78
J-7950	6,895.64	0.23	99.18	7,124.88
J-2914	6,895.14	0.60	99.40	7,124.88
J-2915	6,895.12	0.00	99.41	7,124.88
J-4581	6,894.00	0.00	99.89	7,124.88
J-4582	6,894.00	0.33	99.89	7,124.88
J-5057	6,894.00	0.34	99.89	7,124.88
J-2912	6,894.00	0.03	99.89	7,124.88
J-2913	6,894.00	0.00	99.89	7,124.88
J-5239	6,894.00	0.36	99.89	7,124.88
J-5240	6,894.00	0.00	99.89	7,124.88
J-12291	6,893.18	0.00	100.20	7,124.78
J-3436	6,893.05	0.00	100.26	7,124.78
J-3437	6,892.92	0.00	100.31	7,124.78
J-13064	6,892.52	0.00	100.53	7,124.87
J-7736	6,892.38	0.00	100.55	7,124.78
J-6616	6,892.25	0.00	100.64	7,124.86
J-11642	6,892.00	0.00	100.71	7,124.78
J-14044	6,892.00	1.04	100.75	7,124.87
J-6944	6,891.85	0.19	100.81	7,124.86
J-6945	6,891.41	0.00	101.01	7,124.86
J-12550	6,890.99	0.00	101.15	7,124.78
J-14076	6,889.43	0.00	101.86	7,124.86
J-12010	6,889.23	0.00	101.95	7,124.87
J-11681	6,887.63	0.00	102.60	7,124.78
J-11682	6,886.66	0.00	103.02	7,124.78
J-14177	6,886.07	23.44	103.31	7,124.86
J-7910	6,885.37	0.00	103.62	7,124.86
J-7242	6,884.03	0.00	104.20	7,124.86
J-34	6,883.27	0.53	104.49	7,124.78
J-35	6,883.20	0.00	104.52	7,124.78
J-184	6,882.57	0.00	104.79	7,124.78
J-265	6,882.32	0.00	104.94	7,124.86
J-266	6,882.31	3.59	104.94	7,124.86
J-185	6,882.16	0.00	104.97	7,124.78
J-12766	6,881.43	0.00	105.33	7,124.87
J-12009	6,881.20	0.00	105.42	7,124.87
J-7813	6,880.00	0.00	105.94	7,124.86
J-6303	6,880.00	0.00	105.94	7,124.87
J-6304	6,879.96	0.00	105.96	7,124.87
J-6040	6,879.45	0.00	106.14	7,124.77
J-6039	6,879.30	0.00	106.20	7,124.77
J-305	6,876.18	0.00	107.59	7,124.87
J-500	6,876.00	0.00	107.63	7,124.77
J-501	6,876.00	0.00	107.63	7,124.77
J-3554	6,876.00	0.00	107.63	7,124.77
J-3555	6,876.00	0.00	107.63	7,124.77
J-12669	6,875.32	0.00	107.93	7,124.77
J-7767	6,875.28	0.00	107.94	7,124.77

Connection Point in  
Masonic Lane

New Demand Location

### FlexTable: Junction Table

Label	Elevation (ft)	Demand (gal/min)	Pressure (psi)	Hydraulic Grade (ft)
J-9388	6,875.34	0.00	107.96	7,124.87
J-3581	6,875.11	0.00	108.02	7,124.77
J-2196	6,874.83	0.00	108.14	7,124.77
J-2195	6,874.63	0.00	108.23	7,124.77
J-11982	6,874.00	0.00	108.50	7,124.77
J-13605	6,873.98	0.00	108.55	7,124.87
J-2666	6,873.25	0.00	108.82	7,124.77
J-2667	6,873.06	0.00	108.90	7,124.77
J-11983	6,871.96	4.58	109.38	7,124.77
J-11543	6,871.49	0.00	109.58	7,124.77



***Appendix B***

## FlexTable: Hydrant Table

Label	Zone	Elevation (ft)	Satisfies Fire Flow Constraints?	Fire Flow (Needed) (gal/min)	Fire Flow (Available) (gal/min)	Pressure (Calculated Residual) (psi)	Junction w/ Minimum Pressure (Zone @ Total Flow Needed)
231721	B	6,904.96	True	1,500.00	2,924.17	20.01	181701
221901	B	6,879.34	True	1,500.00	3,500.00	94.23	181701
221902	B	6,970.00	True	1,500.00	3,412.09	20.00	181701
231913	B	6,935.86	True	1,500.00	3,500.00	71.89	181701
211909	B	6,869.71	True	1,500.00	3,500.00	46.66	181701
202101	B	6,863.13	True	1,500.00	3,500.00	51.73	181701
192102	B	6,860.04	True	1,500.00	3,500.00	66.14	181701
192001	B	6,879.89	True	1,500.00	3,500.00	77.52	181701
192129	B	6,859.15	True	1,500.00	3,500.00	71.07	181701
192007	B	6,878.00	True	1,500.00	3,500.00	87.93	181701
231914	B	6,962.09	True	1,500.00	3,500.00	60.96	181701
232009	B	6,956.68	True	1,500.00	3,500.00	63.00	181701
211908	B	6,873.94	True	1,500.00	3,500.00	45.38	181701
192218	B	6,839.90	True	1,500.00	3,500.00	77.84	181701
192022	B	6,878.12	True	1,500.00	3,500.00	83.96	181701
192127	B	6,868.68	True	1,500.00	3,500.00	48.28	181701
192032	B	6,878.00	True	1,500.00	3,500.00	76.91	181701
231729	B	6,901.79	True	1,500.00	3,500.00	75.96	181701
192029	B	6,874.26	True	1,500.00	3,500.00	57.65	181701
201923	B	6,903.05	True	1,500.00	3,500.00	28.55	181701
181929	B	6,891.51	True	1,500.00	3,500.00	44.26	181701
231925	B	6,955.55	True	1,500.00	3,500.00	51.62	181701
231808	B	6,892.00	True	1,500.00	3,500.00	68.05	181701
192116	B	6,864.12	True	1,500.00	3,500.00	51.11	181701
231707	B	6,908.98	True	1,500.00	1,603.21	20.00	181701
241804	B	6,963.54	True	1,500.00	3,500.00	46.52	181701
222003	B	6,991.30	True	1,500.00	3,500.00	42.07	181701
221906	B	6,966.00	True	1,500.00	3,245.56	20.02	181701
231726	B	6,935.67	True	1,500.00	3,500.00	26.05	181701
231708	B	6,927.36	True	1,500.00	3,500.00	44.92	181701
231912	B	6,928.38	True	1,500.00	3,500.00	68.64	181701
192124	B	6,877.46	True	1,500.00	3,500.00	70.42	181701
231719	B	6,906.00	True	1,500.00	3,500.00	62.92	181701
192115	B	6,863.20	True	1,500.00	3,500.00	65.55	181701
192123	B	6,862.39	True	1,500.00	3,500.00	50.02	181701
231722	B	6,910.17	True	1,500.00	1,809.75	20.00	181701
222004	B	6,986.59	True	1,500.00	3,500.00	34.87	181701
231902	B	6,986.60	True	1,500.00	2,839.93	20.01	181701
211910	B	6,863.46	True	1,500.00	3,500.00	51.38	181701
231704	B	6,900.21	True	1,500.00	3,500.00	33.13	181701
192120	B	6,858.00	True	1,500.00	3,500.00	85.18	181701
192031	B	6,877.94	True	1,500.00	3,500.00	84.17	181701
231813	B	7,014.29	True	1,500.00	3,500.00	35.63	181701
192208	B	6,852.86	True	1,500.00	3,500.00	66.31	181701
192216	B	6,852.46	True	1,500.00	3,500.00	72.85	181701
231701	B	6,943.00	True	1,500.00	3,500.00	29.99	181701
211821	B	6,908.58	True	1,500.00	2,969.75	20.00	181701
231706	B	6,901.13	True	1,500.00	3,500.00	50.36	181701
231805	B	6,895.62	True	1,500.00	3,500.00	46.96	181701
231824	B	6,913.60	True	1,500.00	2,272.95	20.00	0
192019	B	6,874.20	True	1,500.00	3,500.00	77.43	181701
222002	B	6,988.47	True	1,500.00	3,500.00	30.44	181701
231926	B	6,979.92	True	1,500.00	3,500.00	52.70	181701

### FlexTable: Hydrant Table

Label	Zone	Elevation (ft)	Satisfies Fire Flow Constraints?	Fire Flow (Needed) (gal/min)	Fire Flow (Available) (gal/min)	Pressure (Calculated Residual) (psi)	Junction w/ Minimum Pressure (Zone @ Total Flow Needed)
231727	B	6,912.90	True	1,500.00	1,924.75	20.00	181701
211907	B	6,876.00	True	1,500.00	3,500.00	49.60	181701
221805	B	6,885.80	True	1,500.00	3,500.00	79.31	181701
192130	B	6,860.00	True	1,500.00	3,500.00	26.80	181701
202002	B	6,860.69	True	1,500.00	3,500.00	49.88	181701
192006	B	6,880.16	True	1,500.00	3,500.00	64.90	181701
231705	B	6,913.01	True	1,500.00	3,500.00	33.57	181701
221905	B	6,965.42	True	1,500.00	3,167.90	20.01	181701
232018	B	6,963.96	True	1,500.00	3,500.00	58.84	181701
241805	B	6,985.00	True	1,500.00	3,500.00	38.97	181701
192023	B	6,879.13	True	1,500.00	3,500.00	84.59	181701
192045	B	6,882.00	True	1,500.00	3,228.61	20.00	181701
231806	B	6,894.00	True	1,500.00	3,500.00	44.52	181701
221903	B	6,965.41	True	1,500.00	3,186.75	20.02	181701
231720	B	6,914.00	True	1,500.00	3,500.00	76.45	181701
181955	B	6,899.67	True	1,500.00	3,500.00	67.97	181701
192030	B	6,868.24	True	1,500.00	3,500.00	66.24	181701
201943	B	6,867.76	True	1,500.00	3,500.00	40.65	181701
231809	B	6,960.13	True	1,500.00	2,393.14	20.01	181701
192126	B	6,868.83	True	1,500.00	3,500.00	58.03	181701
222001	B	6,968.00	True	1,500.00	3,500.00	57.70	181701
231812	B	6,912.11	True	1,500.00	2,427.10	28.64	181701
192005	B	6,866.81	True	1,500.00	3,500.00	63.71	181701
192125	B	6,868.89	True	1,500.00	3,500.00	67.14	181701
192033	B	6,879.22	True	1,500.00	3,500.00	53.59	181701
221907	B	6,897.86	True	1,500.00	3,500.00	87.17	181701
192214	B	6,858.27	True	1,500.00	3,500.00	47.58	181701
211912	B	6,902.72	True	1,500.00	3,500.00	65.11	181701
231901	B	6,969.96	True	1,500.00	3,500.00	56.20	181701
211820	B	6,896.64	True	1,500.00	3,500.00	33.60	181701
231731	B	6,911.36	True	1,500.00	3,500.00	66.81	181701
192021	B	6,877.61	True	1,500.00	3,500.00	72.34	181701
192217	B	6,846.43	True	1,500.00	3,500.00	75.30	181701
192114	B	6,863.96	True	1,500.00	3,500.00	63.80	181701
202003	B	6,864.44	True	1,500.00	3,500.00	55.64	181701
231810	B	6,963.18	True	1,500.00	2,110.05	20.00	181701
231801	B	6,913.74	True	1,500.00	1,780.71	20.01	181701
202001	B	6,862.07	True	1,500.00	3,500.00	60.01	181701
192128	B	6,868.00	True	1,500.00	3,500.00	51.06	181701
192122	B	6,865.86	True	1,500.00	3,500.00	41.30	181701
231927	B	6,973.61	True	1,500.00	3,500.00	43.27	181701
211906	B	6,884.61	True	1,500.00	3,500.00	48.11	181701
201802	B	6,911.16	True	1,500.00	3,500.00	26.11	181701
231811	B	6,942.40	True	1,500.00	2,004.23	20.01	181701
192046	B	6,879.86	True	1,500.00	3,500.00	36.73	181701
192020	B	6,878.00	True	1,500.00	3,500.00	80.96	181701
231802	B	6,949.26	True	1,500.00	3,500.00	22.98	181701
231709	B	6,913.18	True	1,500.00	3,500.00	76.07	181701
231728	B	6,896.86	True	1,500.00	3,500.00	37.68	181701
202004	B	6,865.35	True	1,500.00	3,500.00	28.91	181701
231825	B	6,906.18	True	1,500.00	2,686.22	20.02	0
192118	B	6,873.14	True	1,500.00	3,500.00	65.96	181701
211911	B	6,865.98	True	1,500.00	3,500.00	48.08	181701

Masonic Lane and Zuni

Near Connection Point at Lonetree Rd

### FlexTable: Hydrant Table

Label	Zone	Elevation (ft)	Satisfies Fire Flow Constraints?	Fire Flow (Needed) (gal/min)	Fire Flow (Available) (gal/min)	Pressure (Calculated Residual) (psi)	Junction w/ Minimum Pressure (Zone @ Total Flow Needed)
192219	B	6,839.33	True	1,500.00	3,500.00	77.78	181701
231903	B	6,962.62	True	1,500.00	3,500.00	58.28	181701
231723	B	6,903.99	True	1,500.00	3,500.00	80.34	181701
231725	B	6,899.79	True	1,500.00	3,500.00	39.45	181701
221904	B	6,966.00	True	1,500.00	3,130.48	20.02	181701
231724	B	6,916.50	True	1,500.00	3,500.00	37.19	181701
211905	B	6,890.74	True	1,500.00	3,500.00	56.72	181701
192209	B	6,852.12	True	1,500.00	3,500.00	57.43	181701



## ***Appendix C***

**Title: FlexTable: Conduit Table**

Label	Diameter (in)	Material	Manning's n	Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Slope (Calculated) (ft/ft)	Flow (gpd)	Depth/Rise (%)	Capacity (Full Flow) (gpd)	
1832	10.0	Ductile Iron	0.013	11-003	6,891.77	11-004	6,902.00	0.027	334,031.00	31.7	2,329,462.69	Juniper Estates Loading Location
1831	10.0	Ductile Iron	0.013	11-002	6,872.17	11-003	6,891.77	0.060	334,031.00	38.2	3,477,364.34	
1830	10.0	PVC	0.010	11-001	6,871.01	11-002	6,872.17	0.006	347,812.00	36.3	1,391,515.89	Juniper Estates Loading Location
1829	10.0	PVC	0.010	11-001	6,871.01	6-901	6,868.78	0.039	347,812.00	58.0	3,641,012.73	
5810	21.0	PVC	0.010	6-215	6,877.05	6-214	6,875.56	0.003	1,408,958.50	29.8	7,568,351.92	Juniper Estates Loading Location
5811	21.0	PVC	0.010	6-214	6,875.56	6-213	6,873.32	0.005	1,408,958.50	30.5	9,210,002.09	
5812	21.0	PVC	0.010	6-213	6,873.32	6-212 Pinnacle Load	6,871.25	0.004	1,423,724.55	31.2	8,464,646.75	Juniper Estates Loading Location
5813	21.0	PVC	0.010	6-212 Pinnacle Load	6,871.25	6-211	6,869.49	0.006	1,526,849.46	28.9	10,335,311.12	
5814	21.0	PVC	0.010	6-211	6,869.49	6-901	6,868.78	0.005	1,526,849.46	34.3	9,480,337.60	Juniper Estates Loading Location
5815	21.0	PVC	0.010	6-901	6,868.78	6-210	6,867.65	0.005	2,041,263.45	34.2	9,434,233.24	
5816	24.0	PVC	0.010	6-210	6,867.65	6-266	6,864.50	0.014	2,045,013.48	25.7	22,539,024.00	Juniper Estates Loading Location
5817	24.0	PVC	0.010	6-266	6,864.50	6-265	6,861.45	0.014	2,045,013.48	25.8	22,129,036.18	
5818	24.0	PVC	0.010	6-265	6,861.45	6-264	6,856.55	0.011	2,045,013.48	26.5	19,489,869.00	Juniper Estates Loading Location
5819	24.0	PVC	0.010	6-264	6,856.55	6-263	6,856.05	0.009	2,045,013.48	27.2	17,801,287.43	
5820	24.0	PVC	0.010	6-263	6,856.05	6-262	6,853.05	0.013	2,045,013.48	26.0	21,429,323.65	Juniper Estates Loading Location
5821	24.0	PVC	0.010	6-262	6,853.05	6-261	6,851.25	0.006	2,045,013.48	28.2	14,529,970.50	
5822	24.0	PVC	0.010	6-261	6,851.25	6-260	6,850.02	0.005	2,045,013.48	28.8	13,331,726.32	Juniper Estates Loading Location
5823	24.0	PVC	0.010	6-260	6,850.02	6-259	6,848.35	0.005	2,045,013.48	28.8	13,262,182.92	
5824	24.0	PVC	0.010	6-259	6,848.35	6-258	6,844.05	0.008	2,045,013.48	27.1	17,418,192.49	Juniper Estates Loading Location
5825	24.0	PVC	0.010	6-258	6,844.05	6-257	6,838.65	0.014	2,045,013.48	25.8	22,139,060.25	
5826	24.0	PVC	0.010	6-257	6,838.65	6-256	6,833.05	0.013	2,045,013.48	25.8	22,078,715.51	Juniper Estates Loading Location
5827	24.0	PVC	0.010	6-256	6,833.05	6-255	6,831.05	0.015	2,045,013.48	25.5	23,307,356.32	
5828	24.0	PVC	0.010	6-255	6,831.05	6-254	6,824.75	0.021	2,045,013.48	24.7	27,681,899.55	Juniper Estates Loading Location
5830	24.0	PVC	0.010	6-254	6,824.75	6-253	6,823.15	0.006	2,045,013.48	28.2	14,524,077.18	
5831	24.0	PVC	0.010	6-253	6,823.15	6-252	6,821.32	0.007	2,045,013.48	27.8	15,504,688.17	Juniper Estates Loading Location
5832	24.0	PVC	0.010	6-252	6,821.32	6-251	6,819.47	0.007	2,045,013.48	27.8	15,560,916.11	
5833	24.0	PVC	0.010	6-251	6,819.47	6-250	6,817.75	0.007	2,045,013.48	27.6	15,957,804.81	Juniper Estates Loading Location
5834	24.0	PVC	0.010	6-250	6,817.75	6-249	6,816.35	0.005	2,045,013.48	28.6	13,635,887.33	
5835	24.0	PVC	0.010	6-249	6,816.35	6-248	6,814.75	0.005	2,045,013.48	28.5	13,811,553.03	

**Title: FlexTable: Conduit Table**

Label	Diameter (in)	Material	Manning's n	Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Slope (Calculated) (ft/ft)	Flow (gpd)	Depth/Rise (%)	Capacity (Full Flow) (gpd)
5840	24.0	PVC	0.010	6-248	6,814.75	6-247	6,811.05	0.010	2,045,013.48	26.5	19,322,494.26
5841	24.0	PVC	0.010	6-247	6,811.05	6-246	6,810.55	0.006	2,045,013.48	28.1	14,663,890.11
5842	24.0	PVC	0.010	6-246	6,810.55	6-245	6,808.25	0.008	2,045,013.48	27.2	17,134,622.41
5843	24.0	PVC	0.010	6-245	6,808.25	6-244	6,804.95	0.007	2,045,013.48	27.5	16,367,441.70
5844	24.0	PVC	0.010	6-244	6,804.95	6-243	6,802.85	0.012	2,045,013.48	26.2	20,472,656.43
5845	24.0	PVC	0.010	6-243	6,802.85	6-242	6,797.65	0.011	2,045,013.48	32.7	19,579,764.78
5846	24.0	Ductile Iron	0.012	6-242	6,797.65	6-241	6,796.55	0.003	2,077,826.56	35.1	8,164,296.42
5847	24.0	Ductile Iron	0.012	6-241	6,796.55	6-240	6,795.74	0.002	2,122,451.55	35.7	7,730,821.45
5848	24.0	Ductile Iron	0.012	6-240	6,795.74	6-239	6,795.15	0.002	2,122,451.55	33.6	7,836,823.70
4792	24.0	Ductile Iron	0.012	6-239	6,795.15	6-238	6,794.50	0.019	2,122,451.55	26.7	21,899,783.02
4793	24.0	PVC	0.010	6-238	6,794.50	PUMP House	6,791.15	0.009	2,122,451.55	40.1	18,489,476.32