Exhibit "E"

ASPEN HEIGHTS STUDENT HOUSING DEVELOPMENT

36.94 Acre Development Project
Analysis Completed Dec 2013

Public Water & Sewer Impact Analysis

Prepared by the City of Flagstaff Utilities Department

Mayor
Jerry Nabours

Council

Coral Evans
Celia Barotz
Karla Brewster
Jeff Oravits
Scott Overton
Mark Woodson

City Manager
Kevin Burke

Utilities Director
Brad Hill, R.G.

City Engineer
Rick Barrett, P.E.

Public Works Director
Erik Solberg

Registered Professional Engineer (Mechanical)
CERTIFICATE NO.
31183
RYAN TEMPLE ROBERTS
Date Signed 12-20-13
ARIZONA U.S.A.
Expires 03/31/2015

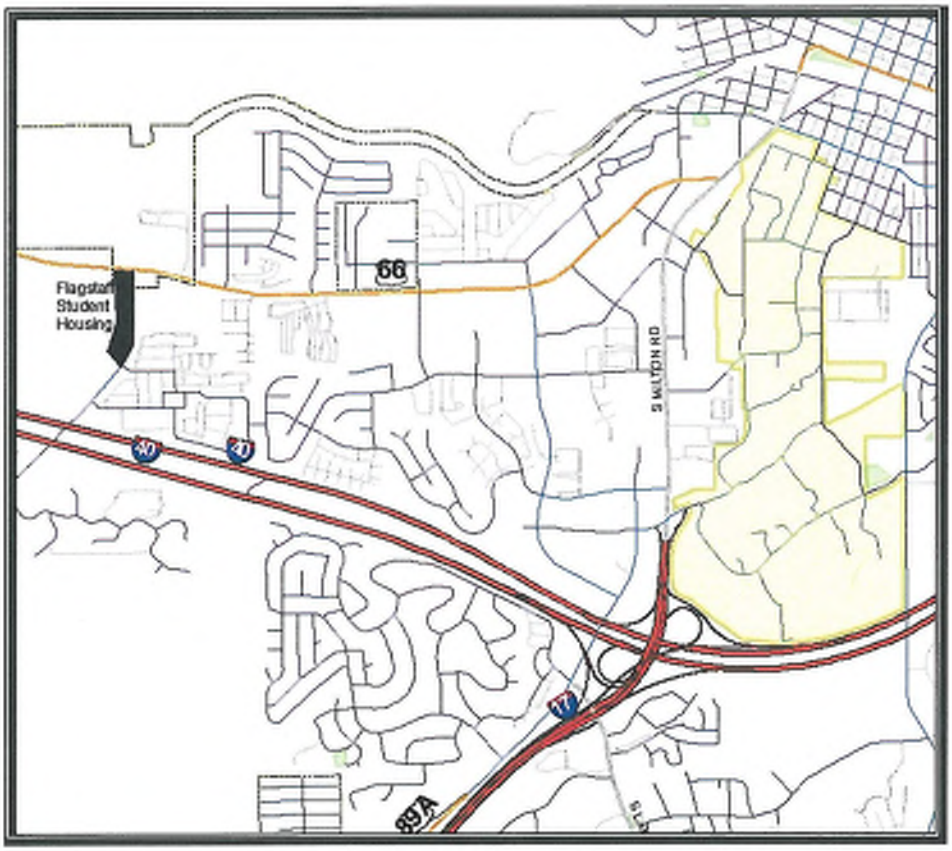
Table of Contents
Public Water and Sewer Impact Analysis
Aspen Heights Student Housing Development

I. INTRODUCTION

The Aspen Heights Development is a proposed student housing development located at 2701 south Woody Mountain Road. Plans for the site include the creation of 214 apartment units/student housing dwelling units. The site is bordered on the North by West Highway 66, on the East by Presidio in the Pines Subdivision, and on the West by undeveloped land. Parcels APN 112-01-019 make up its property boundaries. The existing property consists of 36.94 acres of currently undeveloped land that is zoned rural residential. The proposed development is within the urban service boundary, and has the ability to be serviced with City Water and Sewer Utilities in accordance with the City of Flagstaff Engineering Standards.

The Aspen Heights conceptual site plan and densities were provided by Mogollon Engineering and were used as the basis for this analysis. It was provided to the City of Flagstaff on 24" X 36" drawings and electronically.

The City of Flagstaff Engineering Standards were utilized to determine the flow characteristics for this project. This water and sewer impact study is considered valid for a period of one year from the completion date.



Vicinity Map

N.T.S.

II. ANALYSIS SUMMARY

On-site modifications:

Sewer: Currently there is no infrastructure in the ground to support this development, so all sewer systems will have to be designed and built.

Water: Currently there is no infrastructure in the ground to support this development, so all water systems will have to be designed and built.

Off-site modifications indicated by the analysis are:

Sewer: Approximately 5,500 feet of existing 10" sewer starting at manhole 2A-446 through manhole 2A-203 must be upsized to 18, 21 and 24".

Water: Based upon the City of Flagstaff water model created, no off-site water improvements will be required.

III. WATER SYSTEM ANALYSIS

A. EXISTING WATER SYSTEM

The elevations within this project vary between 7070' and 7112'. The area will be classified as Pressure Zone A+ which can serve up to an elevation of 7220' under normal conditions and continue to satisfy all City of Flagstaff Engineering Standards related to water systems.

The main source of water for this site is the 12" diameter Zone A+ waterline located in Woody Mountain Road. This line extends from Route 66 to the Presidio in the Pines Subdivision along the Eastern boundary of this development within existing public right of way. All existing pipe information is based upon City of Flagstaff GIS information and should be confirmed prior to commencement of detailed design work.

The existing Zone A+ waterlines are fed by the Railroad (RR) Springs tank and a booster pump located in Railroad Springs Subdivision.

B. PROPOSED WATER SYSTEM EXTENSIONS

An existing 12-inch water main currently is currently in place on the east side of the proposed future residential housing development. Three connections will be made to this existing 12 inch main to provide water for the development. The developer is proposing and will be required to provide a looped water system for development of this parcel.

The proposed water main extensions that will serve as the backbone infrastructure for the proposed development are made up of 8-inch waterlines. The proposed water system layout is presented in Figure 1. The city is requiring that a tract of

land (26' wide minimum) be dedicated to the City of Flagstaff to allow for a public utility easement and future accessibility to the proposed looped water line running through this project. Water line stub outs for future connectivity to adjoining parcels on the west side of this development will also need to be provided.

Connection to the 12" main located in Woody Mountain road to Presidio in the Pines Subdivision is acceptable and the pressures and flows within the existing line are adequate and shall be considered the primary water source for this project. The analyzed piping network, including existing and proposed pipe sizes, is shown in the attached copy of the WaterGems System Map (Figure 3).

C. WATER SYSTEM DEMANDS

Water system demands for the proposed development were calculated based on each room per capita per unit. The following calculations are examples on the approach used to estimate demands.

Total number of bedrooms = 714
Dwelling Units = 224
Fire Flow = 1500 gpm
Avg Residential = 100 gpcd
Peak Hour = 250 gcd

Average Water Demand

Average Residential Demand:

714 room units x 1 people/unit x 100 gpcd = 71,400 gal/day

Average Total = 71,400 gal/day

Peak Water Demand

Peak Daily Residential Demand

714 room units x 1 people/unit x 250 gpcd = 178,500 gal/day

Peak Total = 178,500 gal/day
= 123.9 gpm

Water demands for the project were placed at Junction node J-202 within the development. The model was run using peak hour demands plus fire flow. The attached water map shows the analyzed pipe network and applicable junction node numbers. The results of the fire flow analysis for each junction node are also included at the end of this report.

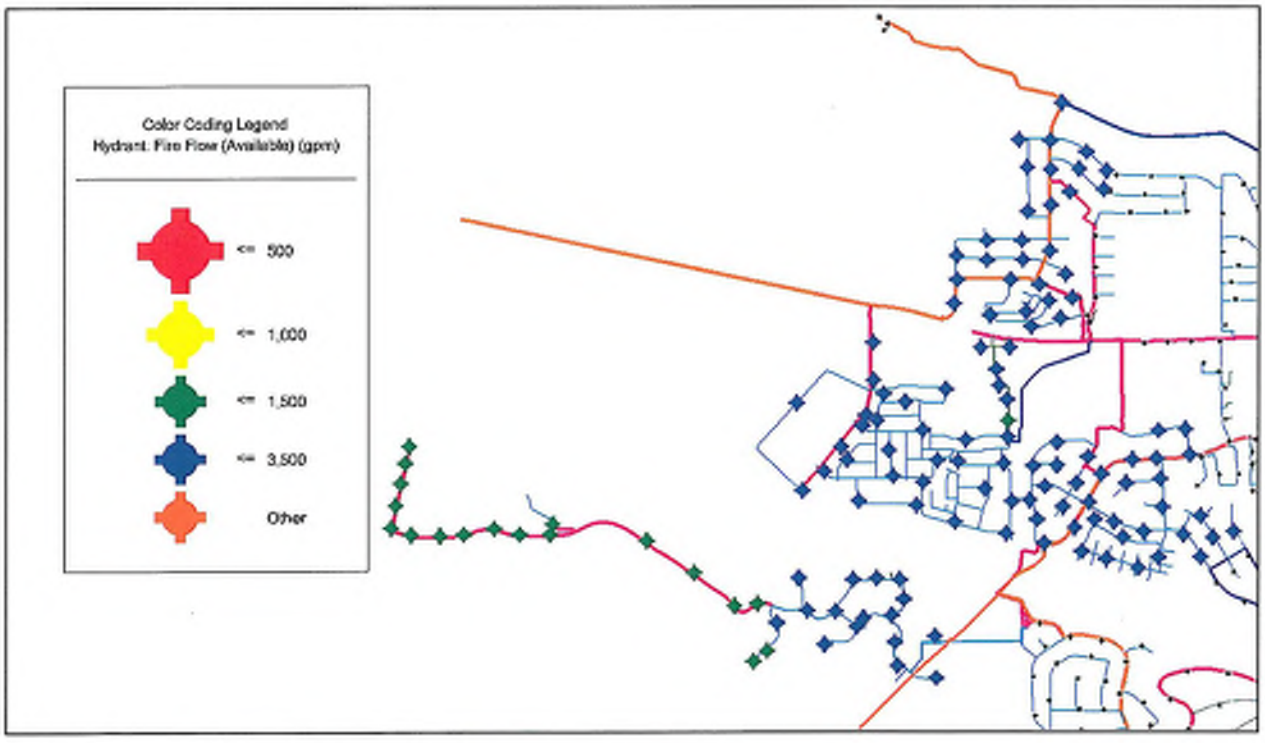
D. WATER SYSTEM ANALYSIS RESULTS

Results of the computer analysis showed that a looped connection to the 12" diameter main in West Highway 66 and the 8" diameter main located in Presidio in the Pines Subdivision is acceptable.

Results of the computer analysis revealed a range in **static pressure offsite** of 41 psi to 157 psi. These pressures are consistent given the elevations of the junction nodes within the analyzed zone boundary. The **static pressure within the project** ranges between 89 psi and 107 psi. The 107 psi reading occurs at an elevation of approximately 7070' at junction node J-201. The lowest static pressure reading of 89 psi is above the City Engineering Standards minimum static pressure of 40 psi.

Results of the computer analysis indicating the available fire flow and residual pressure during the fire flow simulation at each hydrant in the pressure zone are listed in the Fire Flow report (Appendix A). The figure below shows the graphical ranges of available fire flow throughout the pressure zone A+. The available fire flow for this development is 3,100 gpm. The results for the development show that the system satisfies the City's criteria for fire flow and domestic demands in the proposed development area. of fire flow available and residual pressure near the project site.

Available Fire Flow in Zone A+



The minimum residual pressure with a maximum day demand plus fire flow at the proposed site is 69 psi. The minimum residual pressure within the development is above or equal to the City's Engineering Standards minimum residual pressure of 20 psi. The residual pressure with the fire flow needed in Zone A+ ranges between 20 and 130 psi. The 20 psi residual pressures contained in the fire flow simulation occur near the WL Gore property at Kiltie Lane and Flagstaff Ranch Road.

The results of this analysis conclude that the analyzed system satisfies the City of Flagstaff Engineering Standards for fire flow and domestic demands. No off-site water infrastructure improvements other than that necessary to connect to the existing waterlines are required of this development.

IV. SEWER SYSTEM ANALYSIS

A. EXISTING SEWER SYSTEM

There are two likely connection points to the City of Flagstaff sewer system. The nearest sewer lines that allows for gravity flow from this site are located along Woody Mountain road as shown on the conceptual drawing. There are two 8" diameter PVC sewer lines located along the south eastern border of the project. The existing sewer lines are both 8" diameter PVC pipe and the sewage gravity flows to the east. The Rio De Flag Wastewater Treatment Plant, which is currently operating below maximum capacity, will treat all sewage collected in this line.

The current users of this sewer collector system are the Westside residents in Presidio in the Pines, Boulder Pointe, Railroad Springs neighborhoods, Westglen and Wildwood Hills mobile home parks, businesses along Route 66, and the majority of West Flagstaff. This analysis takes into account the anticipated flows generated by proposed projects such as the Presidio in the Pines, Boulder Pointe, Crestview Subdivision and Railroad Springs Townhouses.

B. PROPOSED SEWER SYSTEM EXTENSIONS

The developer proposes a sewer connection to the existing 10" diameter sewer line in West Highway 66 at manhole 2A-327. This existing 10" VCP trunk line does not have sufficient capacity to convey all anticipated sewage flows generated by this site.

The proposed onsite sewer system is shown located within a Public Utility Easement running from the Presidio in the Pines Subdivision to West Highway 66. The onsite sewer system was not analyzed as a part of this report and shall be addressed in the Engineer's Design Report. This work shall be consistent with the requirements called out in the City of Flagstaff Engineering Standards.

It is a requirement that every effort be made to locate all public sewer mains within the right-of-way/roadway (public or private) to serve this subdivision. Accessibility for maintenance purposes is a high priority of this department.

C. SEWER SYSTEM DEMANDS

Sewer system demands for the proposed development were calculated based on each room per capita per unit. The following calculations are examples on the approach used to estimate demands.
Total number of bedrooms = 714
Dwelling Units = 224
Fire Flow = 1500 gpm
Avg Residential = 100 gpcd
Peak Hour = 250 gcd

Average Sewer Demand

Average Residential Demand:
714 room units x 1 people/unit x 75 gpcd = 53,550 gal/day

Average Total = 53,550 gal/day

Peak Sewage Flows

Residential
2.6 (peaking factor) x 53,550 gal/day = 139,230 gal/day

Total Peak Sewage Flows = 139,230 gal/day

The Aspen Heights Student Housing Development will contribute an average of about 53,550 gpd, with an estimated peak flow of 139,230 gpd.

D. SEWER SYSTEM ANALYSIS RESULTS

Results of the computer analysis showed that the existing sewer collector system is not adequate for the proposed development. The City of Flagstaff considers a pipe to be at capacity when the "d/D" ratio is 70%. The capacity of the existing collection system downstream of this project is not adequate to convey the existing and proposed flowrates and maintain the required less than 70% full pipe capacity. Significant off-site infrastructure improvements are required of this development in order to connect to the existing sewer collection system

In the model prepared, the sewer flows for the site were evenly split between two manholes. Sewer flows were contributed to manhole number 2A-612 and manhole 2A-613 located approximately 20 feet off-site from the eastern edge of the property. The affect of the sewage discharge generated by this 714-unit student housing development significantly exceeds the carrying capacity of the existing 10" VCP sewage system and is shown in appendix "C".

The offsite sewer line connects to the existing 10" line in Route 66 at or in the vicinity of manhole 2A-446. From this point on, for approximately 5,500 feet, the existing 10" line, is undersized with inadequate capacity to handle the additional flow and must be upsized to 18", 21" and 24" diameter pipe.

The added load caused by this development make this area susceptible to sewer overflows. All sewer improvements required are shown in Figure 6 (Drawing) .

City Engineering Standards state that when replacement of the sewerline is required, the impact study shall include not only this proposed development but also the anticipated growth into adjacent tracts. All proposed extensions within the project limits must be constructed to accommodate full build-out of the entire drainage basin. All off-site improvements or resizing addressed include this additional required capacity.

The project is required to extend public sewer lines adequate to carry all anticipated contributory flows generated by the future residents of this subdivision, as well as, any potential flows from upstream sources. Likewise the infrastructure design process shall take into consideration exactly how much sewage will enter the public system at peak discharge to insure adequate piping capacity of the existing gravity sewer system in which the flows will be conveyed to the trunk line.

V. CONCLUSIONS

Significant off-site infrastructure improvements to sewer lines as detailed above are required of this development. No off-site water infrastructure improvements other than that necessary to connect to the existing Zone A+ water are required of this development. All on-site and off-site infrastructure must be constructed to City of Flagstaff and ADEQ standards.

The City of Flagstaff will provide water and sewer service to this site upon acceptance and dedication of all required public improvements. The findings of this analysis indicate that the completion of the project can comply with the public water and sewer infrastructure requirements as outlined in the current City of Flagstaff Engineering Standards. Deviations from the intent shown on the Tentative Plat and further development above that shown on the plat will require additional review and must gain full Development Review Board approval.

The city is requiring that a tract of land (26' wide minimum) be dedicated to the City of Flagstaff to allow for a public utility easement and future accessibility to the proposed sewer and looped water line running through this project. Any public mains falling outside of the public right-of-way will need to be located in a Public Utility/Access Easement that ensures unobstructed access at all times. Accessibility to all Public Utility lines for maintenance purposes is a high priority.

The City will require that Pressure Reducing Valves be installed on all water services located within this project because of the high range (89-107 psi) of static water pressures.

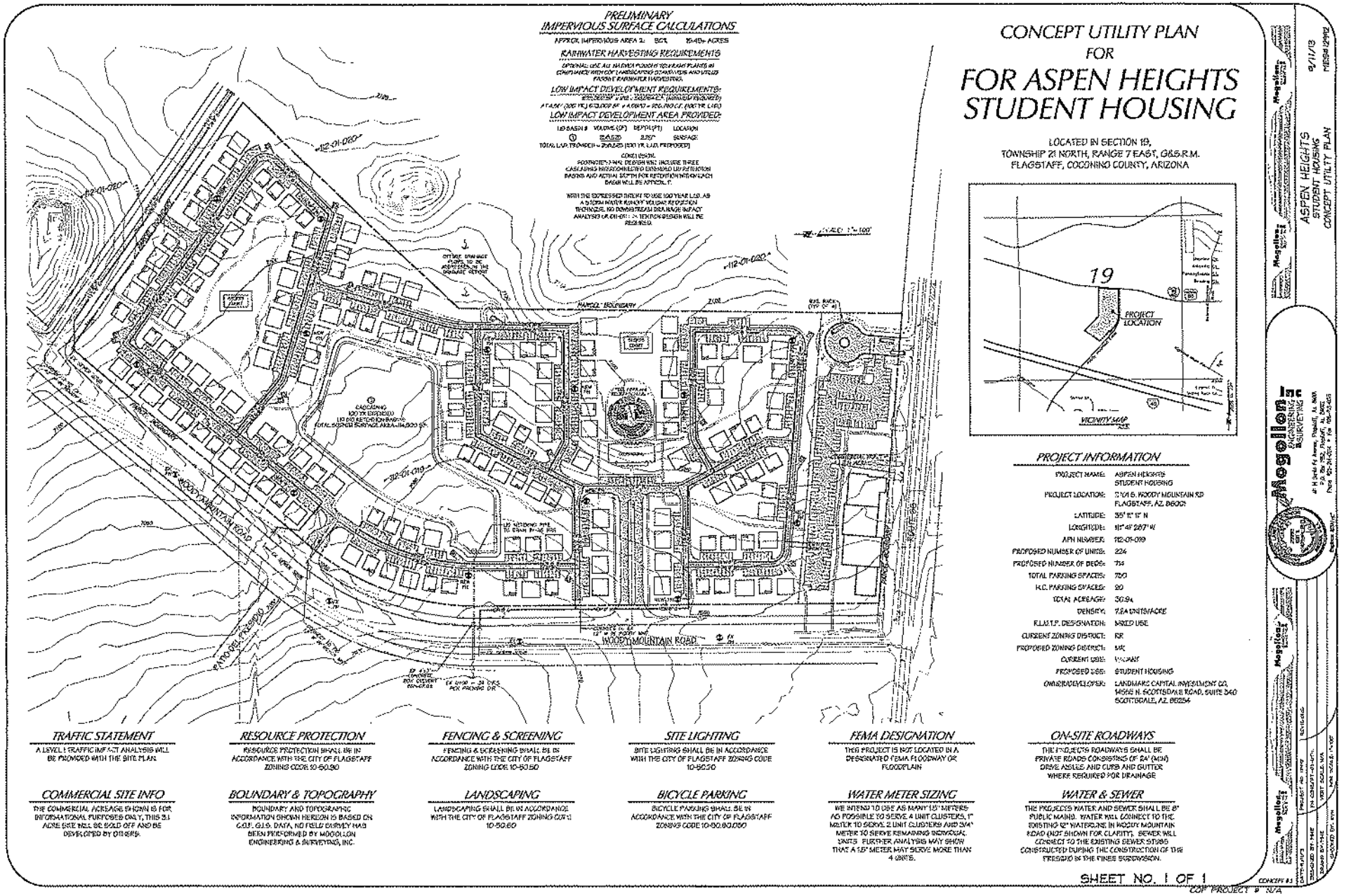
All existing utility information is based upon City of Flagstaff GIS data and the best available data. Field survey work should be done to confirm pipe sizes, materials and location prior to design and construction.

All off-site improvements required for the sewer collection system are subject to the terms of "Recapture Agreements" located in chapter 9-05 of the City of Flagstaff Engineering Design and Construction Standards and Specifications.

This Water and Sewer Impact Study is considered valid for a period of one year from the sealed date of December 20, 2013.

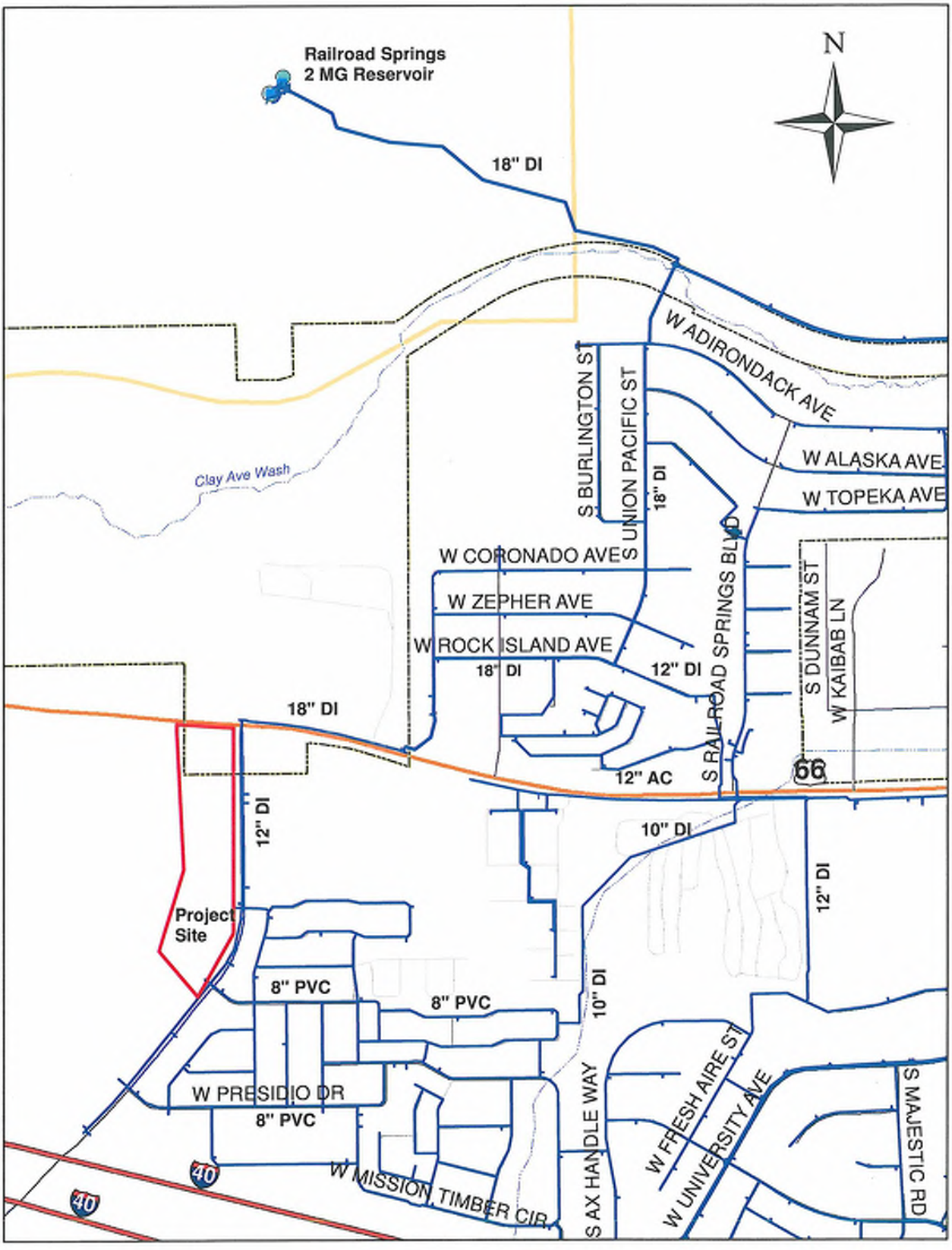
Attachments:

- Aspen Heights Site Plan Drawing
- City of Flagstaff GIS Water Map
- Bentley Systems WaterGEMs Drawing
- City of Flagstaff GIS Sewer Map
- Bentley Systems SewerCad Drawing
- Map of Offsite Public Improvements
- Map of Onsite Public Improvements
- Fire Flow Analysis Report
- Junction Report
- SewerCad Gravity pipe report

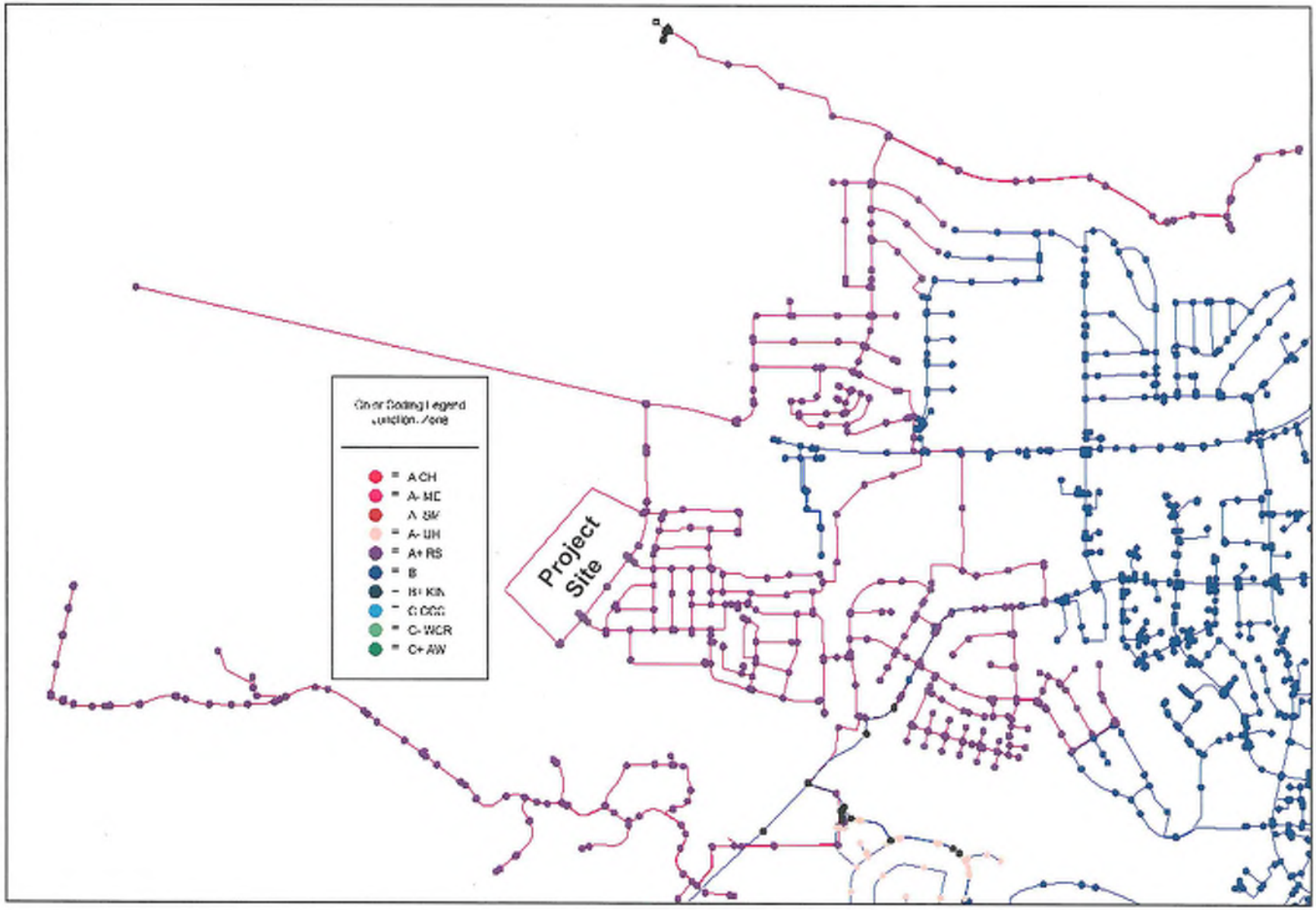


Aspen Heights – Site Plan Drawing

Figure 1

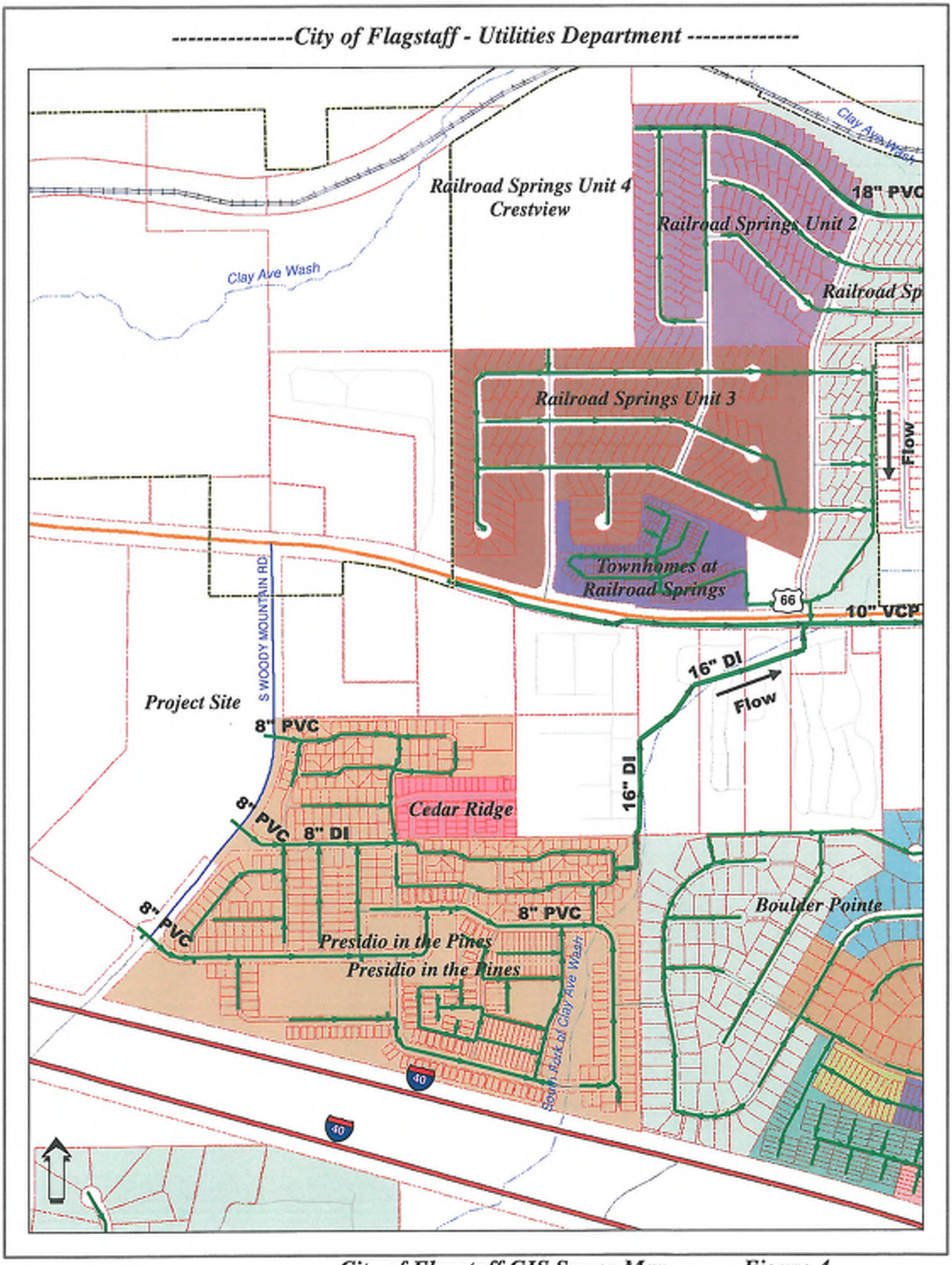


City of Flagstaff GIS Water Map **Figure 2**

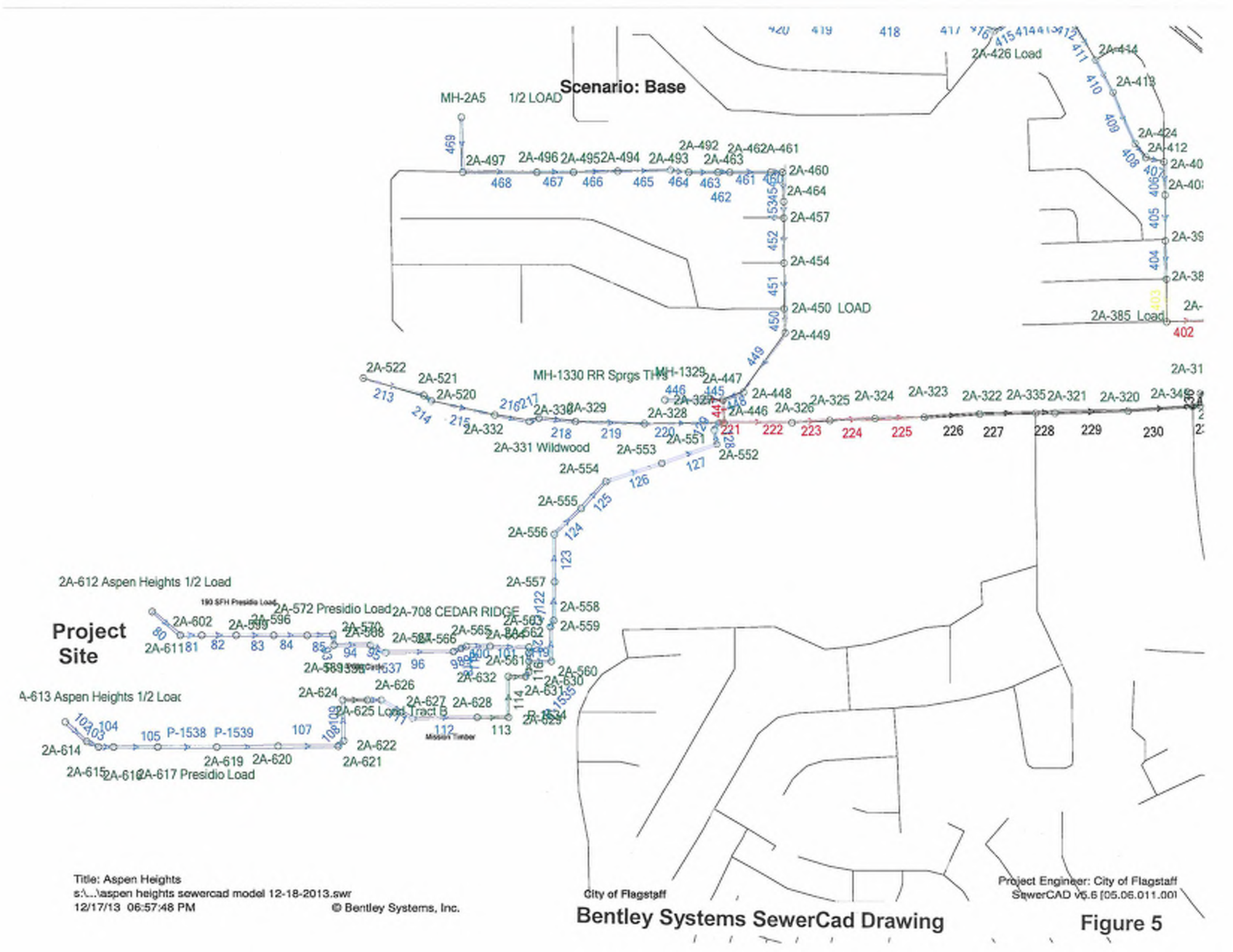


Bentley Systems WaterGEMs Drawing

Figure 3

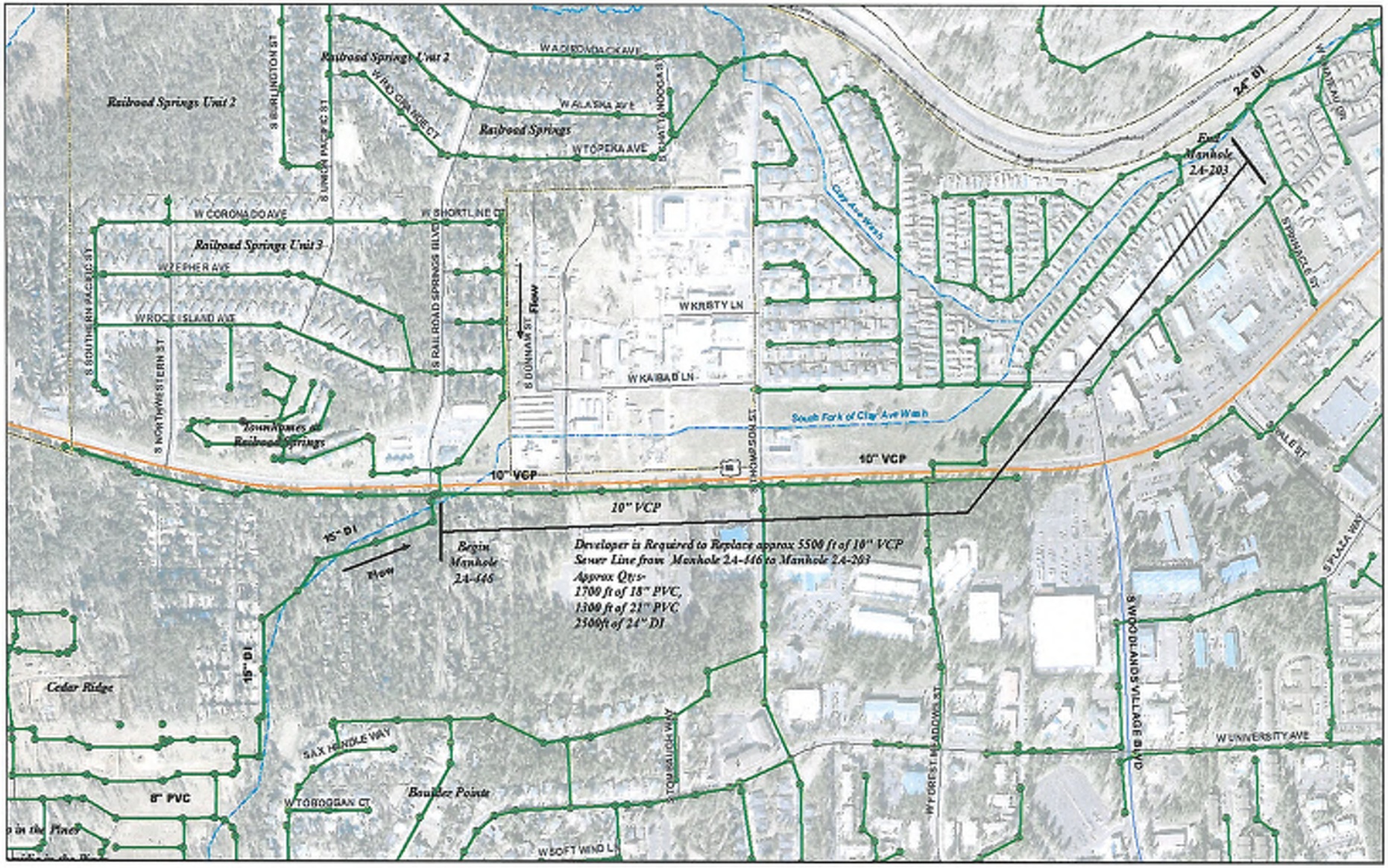


City of Flagstaff GIS Sewer Map Figure 4

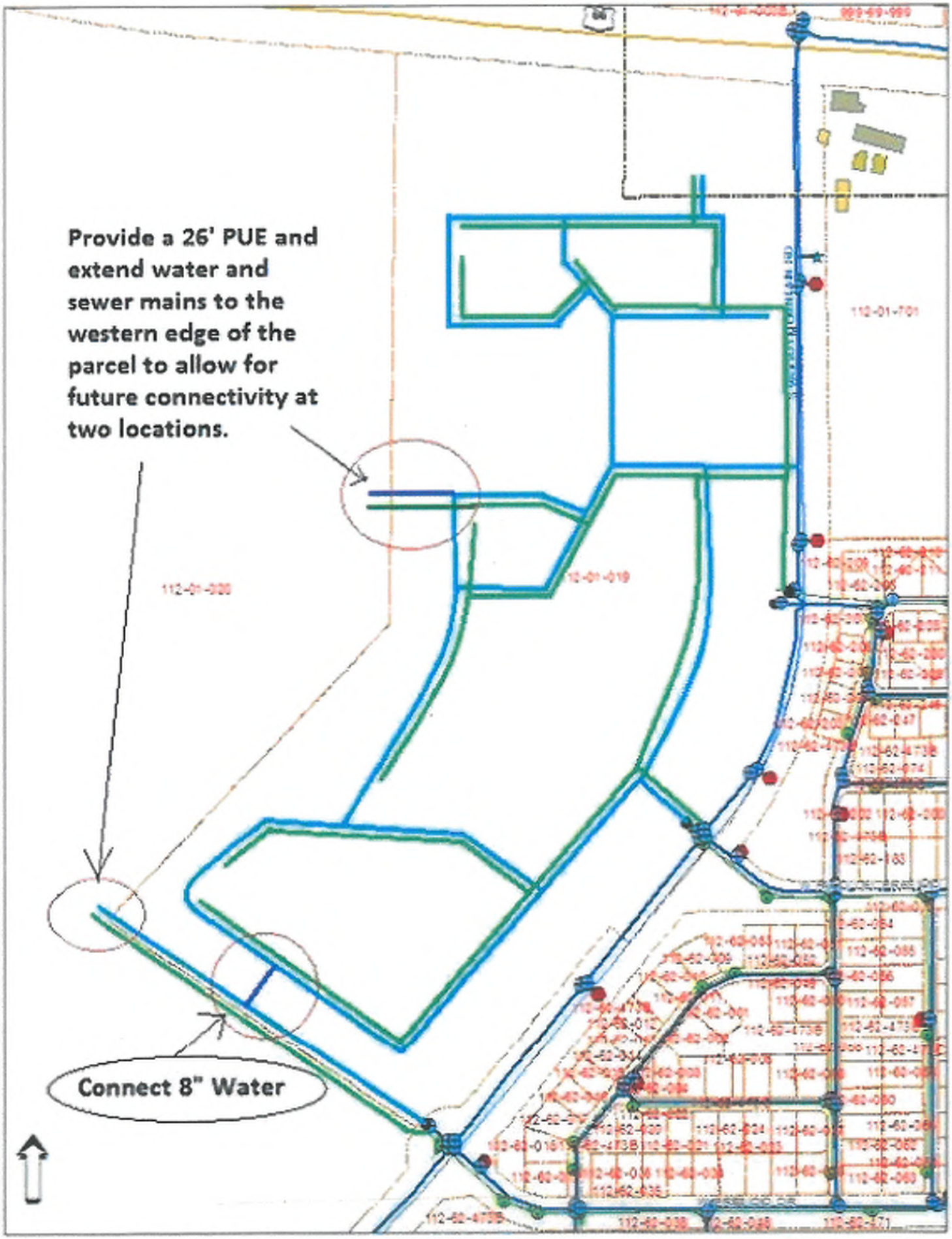


Bentley Systems SewerCad Drawing

Figure 5



Map of Required Public Improvements **Figure 6**



Map of On-Site Public Improvements

Figure 7

Aspen Heights
Fire Flow Analysis
Fire Flow Report

Label	Zone	Is Fire Flow Run Balanced?	Satisfies Fire Flow Constraints?	Needed Fire Flow (gpm)	Total Flow Needed (gpm)	Fire Flow Available (gpm)	Calculated Residual Pressure (psi)	Calculated Minimum Zone Pressure (psi)	Minimum Zone Junction
Aspen Heights	A+	TRUE	TRUE	1500	1624	3106	29.8	36	191634
211646	A+	TRUE	TRUE	1500	1500	1564	73.5	39.7	J-14169
211535	A+	TRUE	TRUE	1500	1500	3500	55.6	26.3	J-13151
211533	A+	TRUE	TRUE	1500	1500	2340	68.4	38.7	191634
211532	A+	TRUE	TRUE	1500	1500	2477	54	38.3	191634
211531	A+	TRUE	TRUE	1500	1500	1741	96	39.6	J-14169
211530	A+	TRUE	TRUE	1500	1500	2339	80	38.7	191634
211529	A+	TRUE	TRUE	1500	1500	2289	75.7	38.9	191634
211528	A+	TRUE	TRUE	1500	1500	2134	84.7	39.2	J-14169
211527	A+	TRUE	TRUE	1500	1500	2300	68.8	38.8	191634
211526	A+	TRUE	TRUE	1500	1500	2285	66	38.9	191634
211525	A+	TRUE	TRUE	1500	1500	2262	69.7	38.9	191634
211414	A+	TRUE	TRUE	1500	1500	3075	67.5	36.2	191634
211413	A+	TRUE	TRUE	1500	1500	2184	20	20.6	J-13151
211412	A+	TRUE	TRUE	1500	1500	1565	55.7	39.7	J-14169
211411	A+	TRUE	TRUE	1500	1500	1797	46.2	26.9	J-13151
211410	A+	TRUE	TRUE	1500	1500	1841	37.6	20	J-13151
211409	A+	TRUE	TRUE	1500	1500	1792	35.4	20	J-13151
211408	A+	TRUE	TRUE	1500	1500	1685	37.2	20	J-13151
211407	A+	TRUE	TRUE	1500	1500	1566	41.9	26.1	J-13151
211406	A+	TRUE	TRUE	1500	1500	1566	23.4	25.5	J-12410
211405	A+	TRUE	TRUE	1500	1500	1595	34	20	J-13151
211404	A+	TRUE	TRUE	1500	1500	1645	34.6	20	J-13151
211403	A+	TRUE	TRUE	1500	1500	1678	34.5	20	J-13151
211402	A+	TRUE	TRUE	1500	1500	1714	33.5	20	J-13151
211401	A+	TRUE	TRUE	1500	1500	1749	35.9	20	J-13151
211311	A+	TRUE	**FALSE**	1500	1500	1414	20	20.8	J-11519
211310	A+	TRUE	**FALSE**	1500	1500	1484	21.1	20	J-11519
211309	A+	TRUE	TRUE	1500	1500	1502	30.5	20	J-13151
211308	A+	TRUE	TRUE	1500	1500	1548	38.3	20	J-13151
211307	A+	TRUE	TRUE	1500	1500	1541	26.7	20	J-13151
211306	A+	TRUE	**FALSE**	1500	1500	1490	34.6	20	J-13151
211305	A+	TRUE	**FALSE**	1500	1500	1470	27.3	20.1	J-13151
211304	A+	TRUE	**FALSE**	1500	1500	1436	25.2	20	J-13151
211301	A+	TRUE	**FALSE**	1500	1500	1374	20	22.3	J-4160
201532	A+	TRUE	TRUE	1500	1500	2195	83.4	39.1	191634
201531	A+	TRUE	TRUE	1500	1500	2445	96.4	38.4	191634
201530	A+	TRUE	TRUE	1500	1500	2755	78	37.3	191634
201529	A+	TRUE	TRUE	1500	1500	3082	79.4	36.1	191634
201528	A+	TRUE	TRUE	1500	1500	2810	80.8	37.1	191634
201527	A+	TRUE	TRUE	1500	1500	1565	99.9	39.7	J-14169
201526	A+	TRUE	TRUE	1500	1500	2428	91.3	38.4	191634
201525	A+	TRUE	TRUE	1500	1500	2827	75.5	37.1	191634
201524	A+	TRUE	TRUE	1500	1500	3500	66.1	34.5	191634
201523	A+	TRUE	TRUE	1500	1500	2974	77.4	36.5	191634
201522	A+	TRUE	TRUE	1500	1500	1565	98.9	39.7	J-14169
201521	A+	TRUE	TRUE	1500	1500	3500	54.9	30.2	J-13151
201520	A+	TRUE	TRUE	1500	1500	2202	80.7	39.1	191634

Aspen Heights
Fire Flow Analysis
Fire Flow Report

Label	Zone	Is Fire Flow Run Balanced?	Satisfies Fire Flow Constraints?	Needed Fire Flow (gpm)	Total Flow Needed (gpm)	Fire Flow Available (gpm)	Calculated Residual Pressure (psi)	Calculated Minimum Zone Pressure (psi)	Minimum Zone Junction
201519	A+	TRUE	TRUE	1500	1500	3500	61.9	33.3	J-13151
201518	A+	TRUE	TRUE	1500	1500	2310	63.5	38.8	191634
201517	A+	TRUE	TRUE	1500	1500	1564	98.4	39.7	J-14169
201516	A+	TRUE	TRUE	1500	1500	1563	99.4	39.7	J-14169
201514	A+	TRUE	TRUE	1500	1500	1563	84.6	39.7	J-14169
201513	A+	TRUE	TRUE	1500	1500	1812	102.4	39.5	J-14169
201512	A+	TRUE	TRUE	1500	1500	2859	69.4	37	191634
201511	A+	TRUE	TRUE	1500	1500	3500	48.1	34.5	191634
201510	A+	TRUE	TRUE	1500	1500	2713	71.1	37.5	191634
201509	A+	TRUE	TRUE	1500	1500	3029	64.6	36.3	191634
201431	A+	TRUE	TRUE	1500	1500	2471	91.9	38.3	191634
201430	A+	TRUE	TRUE	1500	1500	1567	82.1	39.7	J-14169
201429	A+	TRUE	TRUE	1500	1500	2905	66.5	36.8	191634
201428	A+	TRUE	TRUE	1500	1500	2920	61.6	36.7	191634
201427	A+	TRUE	TRUE	1500	1500	2645	71.1	37.7	191634
201426	A+	TRUE	TRUE	1500	1500	2738	65.4	37.4	191634
201425	A+	TRUE	TRUE	1500	1500	2319	88	38.8	191634
201424	A+	TRUE	TRUE	1500	1500	2205	83.6	39.1	191634
201423	A+	TRUE	TRUE	1500	1500	2507	60.6	38.2	191634
201422	A+	TRUE	TRUE	1500	1500	2248	71	39	191634
201421	A+	TRUE	TRUE	1500	1500	2906	62.7	36.8	191634
201420	A+	TRUE	TRUE	1500	1500	2761	81.4	37.3	191634
201419	A+	TRUE	TRUE	1500	1500	2944	71.7	36.7	191634
201418	A+	TRUE	TRUE	1500	1500	2147	110.6	39.2	J-14169
201417	A+	TRUE	TRUE	1500	1500	2725	98.8	37.4	191634
201416	A+	TRUE	TRUE	1500	1500	2199	104.7	39.1	191634
201415	A+	TRUE	TRUE	1500	1500	2162	105.7	39.2	J-14169
201414	A+	TRUE	TRUE	1500	1500	2399	93.2	38.5	191634
201413	A+	TRUE	TRUE	1500	1500	2419	81.6	38.4	191634
201412	A+	TRUE	TRUE	1500	1500	2719	70	37.5	191634
201411	A+	TRUE	TRUE	1500	1500	2415	63	38.5	191634
201410	A+	TRUE	TRUE	1500	1500	3500	40	34.5	191634
201409	A+	TRUE	TRUE	1500	1500	3500	51.8	34.5	191634
201408	A+	TRUE	TRUE	1500	1500	3500	57.2	34.5	191634
201407	A+	TRUE	TRUE	1500	1500	3500	56.6	34.5	191634
201307	A+	TRUE	TRUE	1500	1500	3500	24	34.5	191634
201228	A+	TRUE	**FALSE**	1500	1500	1396	20.8	20	J-5045
201227	A+	TRUE	**FALSE**	1500	1500	1396	22.3	20	J-5045
201226	A+	TRUE	**FALSE**	1500	1500	1389	20	20.6	J-5045
201225	A+	TRUE	**FALSE**	1500	1500	1397	24.7	20	J-5045
201224	A+	TRUE	**FALSE**	1500	1500	1396	24.5	20	J-5045
201211	A+	TRUE	**FALSE**	1500	1500	1396	24.1	20	J-5045
201106	A+	TRUE	**FALSE**	1500	1500	1396	21.1	20	J-5045
201105	A+	TRUE	**FALSE**	1500	1500	1396	21.4	20	J-5045
201104	A+	TRUE	**FALSE**	1500	1500	1396	22	20.1	J-5045
201103	A+	TRUE	**FALSE**	1500	1500	1396	21.9	20.1	J-5045
201102	A+	TRUE	**FALSE**	1500	1500	1396	21.1	20	J-5045
201101	A+	TRUE	**FALSE**	1500	1500	1396	20.8	20	J-5045
191637	A+	TRUE	TRUE	1500	1500	2164	56.4	20	191634

Aspen Heights
Fire Flow Analysis
Fire Flow Report

Label	Zone	Is Fire Flow Run Balanced?	Satisfies Fire Flow Constraints?	Needed Fire Flow (gpm)	Total Flow Needed (gpm)	Fire Flow Available (gpm)	Calculated Residual Pressure (psi)	Calculated Minimum Zone Pressure (psi)	Minimum Zone Junction
191636	A+	TRUE	TRUE	1500	1500	2105	46.4	20	191634
191635	A+	TRUE	TRUE	1500	1500	1765	24.9	20	191634
191634	A+	TRUE	FALSE	1500	1500	1461	20	21.6	J-2566
191536	A+	TRUE	TRUE	1500	1500	2757	74.5	37.3	191634
191535	A+	TRUE	TRUE	1500	1500	2901	67.9	36.8	191634
191534	A+	TRUE	TRUE	1500	1500	2925	89.1	36.7	191634
191533	A+	TRUE	TRUE	1500	1500	2317	116.7	38.8	191634
191531	A+	TRUE	TRUE	1500	1500	2339	92.7	38.7	191634
191530	A+	TRUE	TRUE	1500	1500	1565	105.1	39.7	J-14169
191528	A+	TRUE	TRUE	1500	1500	3500	88.9	34.5	191634
191522	A+	TRUE	TRUE	1500	1500	3500	92.2	34.5	191634
191519	A+	TRUE	TRUE	1500	1500	2359	88.6	38.6	191634
191513	A+	TRUE	TRUE	1500	1500	1565	93.1	39.7	J-14169
191511	A+	TRUE	TRUE	1500	1500	1564	92.5	39.7	J-14169
191510	A+	TRUE	TRUE	1500	1500	3500	87.7	34.5	191634
191509	A+	TRUE	TRUE	1500	1500	1565	101.3	39.7	J-14169
191508	A+	TRUE	TRUE	1500	1500	1564	101.6	39.7	J-14169
191507	A+	TRUE	TRUE	1500	1500	3500	101.2	34.5	191634
191506	A+	TRUE	TRUE	1500	1500	3500	96.1	34.5	191634
191505	A+	TRUE	TRUE	1500	1500	3500	90.2	34.5	191634
191504	A+	TRUE	TRUE	1500	1500	3500	94.1	34.5	191634
191503	A+	TRUE	TRUE	1500	1500	2380	90	38.6	191634
191502	A+	TRUE	TRUE	1500	1500	2841	82.8	37	191634
191501	A+	TRUE	TRUE	1500	1500	1566	103.2	39.7	J-14169
191412	A+	TRUE	TRUE	1500	1500	2206	100.4	39.1	191634
191411	A+	TRUE	TRUE	1500	1500	3500	82.1	34.5	191634
191410	A+	TRUE	TRUE	1500	1500	3500	84.9	34.5	191634
191409	A+	TRUE	TRUE	1500	1500	3500	86.6	34.5	191634
191407	A+	TRUE	TRUE	1500	1500	2898	77.5	36.8	191634
191406	A+	TRUE	TRUE	1500	1500	2085	95.5	39.3	J-14169
191405	A+	TRUE	TRUE	1500	1500	3111	67.8	36	191634
181501	A+	TRUE	TRUE	1500	1500	3500	107.6	34.5	191634

Aspen Heights
Steady State
Junction Report

Label	Elevation (ft)	Zone	Demand (gpm)	Calculated Hydraulic Grade (ft)	Static Pressure (psi)
Flagstaff Student Housing	7129.89	A+	0	7318.12	81.4
J-10060	7048.88	A+	0	7318.04	116.5
J-10079	7016.42	A+	0	7318.04	130.5
J-10211	7095.49	A+	0	7318.07	96.3
J-10232	7051.19	A+	0	7318.37	115.6
J-10267	7066.65	A+	0	7318.03	108.8
J-10268	7065.67	A+	0	7318.03	109.2
J-10329	7077.26	A+	0	7318.07	104.2
J-10400	7031.67	A+	0	7318.06	123.9
J-10454	7031.89	A+	0	7318.02	123.8
J-10691	7105.44	A+	0	7318.09	92
J-10692	7104.71	A+	0	7318.09	92.3
J-10708	7035.65	A+	0	7318.01	122.2
J-10709	7036.26	A+	0	7318.01	121.9
J-10778	7043.85	A+	0	7318.06	118.6
J-10779	7041.22	A+	0	7318.06	119.8
J-10780	7036.67	A+	0	7318.33	121.9
J-10790	7069.98	A+	0	7318.06	107.3
J-10791	7068.42	A+	0	7318.06	108
J-10860	7048.57	A+	0	7317.99	116.6
J-10981	7026.11	A+	0	7318.33	126.4
J-11064	7035.94	A+	0	7318.06	122.1
J-11264	7030.27	A+	1	7318.02	124.5
J-11575	7020.86	A+	0	7318.06	128.6
J-11576	7020.86	A+	0	7318.06	128.6
J-11814	7059.64	A+	0	7318.06	111.8
J-11878	7012.67	A+	0	7318.06	132.1
J-12011	7046.8	A+	0	7318.06	117.4
J-12050	7059.02	A+	0	7318.06	112.1
J-12117	7114.78	A+	0	7318.13	88
J-12122	7017.62	A+	1	7318.32	130.1
J-12269	7030.16	A+	0	7318.06	124.6
J-12511	7040.1	A+	0	7318.33	120.4
J-12539	7005.86	A+	0	7318.08	135.1
J-12743	7039.57	A+	0	7318.33	120.6
J-1277	7046.87	A+	0	7318.37	117.5
J-1278	7047.23	A+	0	7318.37	117.3
J-12786	7024.62	A+	0	7318.02	126.9
J-12788	7039.91	A+	0	7318.06	120.3
J-12970	7049.91	A+	0	7318.36	116.1
J-12971	7033.79	A+	0	7318.35	123.1
J-12982	7025.96	A+	0	7318.03	126.4
J-12992	7053.32	A+	0	7318.06	114.5
J-130	7074	A+	0	7318.26	105.7
J-13023	7067.48	A+	0	7318.04	108.4
J-13026	7028.08	A+	0	7318.06	125.5
J-13039	7064.98	A+	0	7318.06	109.5
J-13040	7064.78	A+	0	7318.06	109.6

Aspen Heights
Steady State
Junction Report

Label	Elevation (ft)	Zone	Demand (gpm)	Calculated Hydraulic Grade (ft)	Static Pressure (psi)
J-13096	7051.41	A+	0	7318.06	115.4
J-13097	7056.32	A+	0	7318.06	113.2
J-13105	7054.06	A+	0	7318.06	114.2
J-13206	7024.98	A+	1	7318.02	126.8
J-13292	7009.18	A+	0	7318.07	133.6
J-13337	7076.06	A+	0	7318.06	104.7
J-13401	7045.51	A+	1	7318.01	117.9
J-13487	7078.98	A+	0	7318.07	103.4
J-13493	7051.7	A+	0	7318.37	115.4
J-13538	7018.07	A+	0	7318.06	129.8
J-13649	7068.56	A+	0	7318.06	107.9
J-13650	7083.54	A+	0	7318.07	101.5
J-13662	7057.76	A+	0	7318.05	112.6
J-13663	7056	A+	0	7318.05	113.4
J-13708	7063.83	A+	0	7318.04	110
J-13723	7082	A+	0	7318.07	102.1
J-13732	7060.76	A+	20	7318.06	111.3
J-1375	7047.63	A+	0	7318.37	117.1
J-1376	7047.98	A+	0	7318.37	117
J-13869	7026.03	A+	0	7318.08	126.4
J-13877	7023.1	A+	0	7318.33	127.7
J-13886	7093.3	A+	0	7318.07	97.2
J-13890	7051.1	A+	0	7317.96	115.5
J-13891	6982.09	A+	0	7318.1	145.4
J-13924	7029.26	A+	0	7318.06	124.9
J-13925	7016.5	A+	0	7318.06	130.5
J-13958	7022.93	A+	0	7318.07	127.7
J-14010	6959.02	A+	0	7318.17	155.4
J-14011	6962.37	A+	0	7318.15	153.9
J-14096	6970.21	A+	0	7318.13	150.5
J-1630	7082.2	A+	0	7318.36	102.2
J-1631	7082.28	A+	0	7318.36	102.1
J-1926	7094.85	A+	0	7318.07	96.6
J-1927	7095.16	A+	0	7318.07	96.4
J-1949	7083.13	A+	0	7318.31	101.8
J-1950	7082.98	A+	0	7318.31	101.8
J-2355	7078.63	A+	0	7318.22	103.7
J-2356	7079.04	A+	0	7318.22	103.5
J-2749	7082.1	A+	0	7318.36	102.2
J-2750	7082.11	A+	0	7318.36	102.2
J-2848	7129.1	A+	0	7318.12	81.8
J-2849	7129.28	A+	2	7318.12	81.7
J-2893	7099.63	A+	0	7318.17	94.6
J-2894	7099.96	A+	0	7318.17	94.4
J-2910	7045.39	A+	0	7318.33	118.1
J-2911	7045.52	A+	0	7318.33	118
J-2939	7074	A+	0	7318.27	105.7
J-2940	7074	A+	0	7318.27	105.7

Aspen Heights
Steady State
Junction Report

Label	Elevation (ft)	Zone	Demand (gpm)	Calculated Hydraulic Grade (ft)	Static Pressure (psi)
J-2968	7082.61	A+	0	7318.36	102
J-3111	7129.53	A+	0	7318.12	81.6
J-3202	7084.08	A+	0	7318.06	101.2
J-3203	7083.91	A+	0	7318.06	101.3
J-3264	7023.14	A+	0	7318.06	127.6
J-3265	7023.01	A+	0	7318.06	127.7
J-3302	7116.08	A+	0	7318.13	87.4
J-3303	7116.09	A+	0	7318.13	87.4
J-3511	7084.56	A+	0	7318.06	101
J-3766	7074	A+	0	7318.26	105.7
J-3795	7048.49	A+	0	7318.37	116.8
J-3809	7116.27	A+	0	7318.13	87.3
J-3816	7079.14	A+	0	7318.22	103.4
J-3862	7099.84	A+	0	7318.17	94.5
J-3960	7082.93	A+	0	7318.31	101.8
J-3966	7051.51	A+	0	7318.06	115.3
J-3967	7053.61	A+	0	7318.06	114.4
J-4064	7115.62	A+	0	7318.13	87.6
J-4065	7038.73	A+	0	7318.06	120.9
J-4066	7038.34	A+	0	7318.06	121
J-4123	7027.74	A+	0	7318.06	125.6
J-4124	7027.93	A+	0	7318.06	125.5
J-4143	7074	A+	0	7318.01	105.6
J-4144	7074	A+	0	7318.01	105.6
J-4282	7128.67	A+	0	7318.12	82
J-4572	7046.17	A+	0	7318.05	117.6
J-4573	7045.73	A+	0	7318.05	117.8
J-5020	7084.35	A+	0	7318.06	101.1
J-5021	7084.68	A+	0	7318.06	101
J-5689	7050.39	A+	0	7318.33	115.9
J-5752	7049.33	A+	0	7317.99	116.2
J-6000	7114.86	A+	0	7318.12	87.9
J-6001	7114.93	A+	0	7318.12	87.9
J-6193	7048.98	A+	0	7318.37	116.6
J-6194	7037.33	A+	0	7318.33	121.6
J-6313	7047.05	A+	1	7318.38	117.4
J-6382	7014	A+	1	7318.32	131.7
J-6633	7051.2	A+	0	7318.33	115.6
J-6660	7047.91	A+	0	7318.33	117
J-6661	7043.85	A+	0	7318.33	118.8
J-6721	7044.78	A+	0	7318.33	118.3
J-6804	7074	A+	0	7318.26	105.7
J-6965	7083.6	A+	0	7318.21	101.5
J-6966	7084.36	A+	0	7318.2	101.2
J-7025	7045.66	A+	0	7317.98	117.8
J-7121	7018.02	A+	1	7318.02	129.8
J-7122	7019.24	A+	1	7318.02	129.3
J-7140	6992.29	A+	3	7318.29	141

Aspen Heights
Steady State
Junction Report

Label	Elevation (ft)	Zone	Demand (gpm)	Calculated Hydraulic Grade (ft)	Static Pressure (psi)
J-7267	7030.72	A+	0	7318.02	124.3
J-7313	7064.09	A+	0	7318.38	110
J-7384	7044.84	A+	0	7317.98	118.2
J-7385	7044.78	A+	1	7317.98	118.2
J-7460	7062.59	A+	0	7318.06	110.5
J-7482	7017.7	A+	0	7318.04	129.9
J-7506	7035.66	A+	1	7318	122.2
J-7595	7013.7	A+	0	7318.06	131.7
J-7642	7006.66	A+	0	7318.08	134.7
J-7671	7093.85	A+	0	7318.07	97
J-7709	7031.21	A+	0	7318.06	124.1
J-7742	7056.46	A+	0	7318.06	113.2
J-7751	7039.93	A+	0	7318.05	120.3
J-7788	7073.44	A+	0	7318.06	105.8
J-7796	7023.86	A+	1	7318.02	127.3
J-7825	7048.59	A+	0	7318.04	116.6
J-7908	7072.27	A+	0	7318.06	106.3
J-7926	7033.63	A+	0	7318.06	123.1
J-7932	7094.18	A+	0	7318.07	96.9
J-7937	7041.17	A+	1	7318.01	119.8
J-7998	7038.1	A+	0	7318.07	121.1
J-8007	7034.17	A+	1	7318.33	122.9
J-8029	7024.87	A+	0	7318.33	127
J-8036	7028.55	A+	1	7318.01	125.2
J-8046	7013.31	A+	0	7318.06	131.9
J-8103	7022.4	A+	1	7318.02	127.9
J-8122	7056.91	A+	0	7318.06	113
J-8257	7066	A+	0	7318.04	109
J-8629	7070.77	A+	0	7318.05	107
J-8630	7071.25	A+	0	7318.05	106.8
J-8678	7063.54	A+	0	7318.06	110.1
J-8708	7075.48	A+	0	7318.06	105
J-8971	7061.65	A+	0	7318.05	110.9
J-8996	7057.53	A+	0	7318.06	112.7
J-9083	7038.34	A+	0	7318.06	121
J-9084	7039.13	A+	0	7318.06	120.7
J-9151	7065.38	A+	0	7318.38	109.5
J-9301	7044.05	A+	0	7318.06	118.6
J-9307	7060.36	A+	0	7318.06	111.5
J-9308	7060.94	A+	0	7318.06	111.2
J-9418	7059.7	A+	0	7318.06	111.8
J-9470	7039.26	A+	0	7318.33	120.7
J-9474	7026.89	A+	0	7318.33	126.1
J-9581	7051.33	A+	0	7318.04	115.4
J-9582	7052	A+	0	7318.04	115.1
J-9724	7063.41	A+	0	7318.38	110.3
J-9752	7086.19	A+	0	7318.06	100.3
J-9864	7013.35	A+	0	7318.06	131.8

Scenario: Base
Gravity Pipe Report

Label	Section Size	Material	Upstream Invert Elevation (ft)	Downstream Sump Elevation (ft)	d/D (Depth/Rise) (%)	Total Flow (gpd)	Upstream Node	Downstream Node
80	8 inch	PVC	7,074.30	7,071.10	14.9	69,615.00	**2A-612**	2A-611
81	8 inch	PVC	7,071.10	7,066.90	13	69,615.00	2A-611	2A-602
82	8 inch	PVC	7,066.90	7,058.50	12.4	69,615.00	2A-602	2A-599
83	8 inch	PVC	7,058.50	7,048.00	12	69,615.00	2A-599	2A-596
84	8 inch	PVC	7,048.00	7,043.62	14.8	69,615.00	2A-596	2A-572
85	8 inch	PVC	7,043.62	7,036.65	19.4	184,328.00	2A-572	2A-570
93	8 inch	PVC	7,036.65	7,036.00	27.7	184,328.00	2A-570	2A-589
94	8 inch	PVC	7,036.00	7,033.13	26.2	184,328.00	2A-589	2A-568
95	8 inch	PVC	7,033.13	7,032.60	33.8	184,328.00	2A-568	2A-567
96	8 inch	PVC	7,032.60	7,018.70	20.7	184,328.00	2A-567	2A-566
98	8 inch	PVC	7,018.70	7,016.68	19.5	184,328.00	2A-566	2A-708
99	8 inch	PVC	7,016.68	7,015.20	22.4	227,457.00	2A-708	2A-565
100	8 inch	PVC	7,015.20	7,005.80	19.3	227,457.00	2A-565	2A-564
101	8 inch	PVC	7,005.80	6,998.59	23.6	227,457.00	2A-564	2A-563
102	8 inch	PVC	7,103.61	7,100.70	15.4	69,615.00	**2A-613**	2A-614
103	8 inch	PVC	7,100.70	7,096.10	11.3	69,615.00	2A-614	2A-615
104	8 inch	PVC	7,096.10	7,092.96	12.8	69,615.00	2A-615	2A-616
105	8 inch	PVC	7,092.96	7,082.65	12.5	69,615.00	2A-616	2A-617
107	8 inch	PVC	7,059.10	7,044.20	28.2	372,525.00	2A-620	2A-621
108	8 inch	PVC	7,044.20	7,042.50	28.9	372,525.00	2A-621	2A-622
109	8 inch	PVC	7,042.50	7,038.00	34.7	372,525.00	2A-622	2A-624
111	8 inch	PVC	7,029.50	7,021.50	29.6	387,525.00	2A-626	2A-627
112	8 inch	PVC	7,021.50	7,009.00	30.6	387,525.00	2A-627	2A-628
113	8 inch	PVC	6,999.62	6,996.48	36.3	387,525.00	2A-628	2A-629
114	8 inch	PVC	6,996.48	6,995.62	56.8	387,525.00	2A-629	2A-632
116	8 inch	PVC	6,994.66	6,990.66	25.9	387,525.00	2A-630	2A-561
117	8 inch	PVC	6,998.59	6,998.10	24.9	227,457.00	2A-563	2A-562
118	8 inch	PVC	6,998.10	6,990.66	18.1	227,457.00	2A-562	2A-561
119	15 inch	PVC	6,990.66	6,980.72	13.6	614,982.00	2A-561	2A-560
120	15 inch	PVC	6,980.72	6,975.04	17.2	614,982.00	2A-560	2A-559
121	15 inch	PVC	6,973.55	6,971.90	14.9	614,982.00	2A-559	2A-558
122	15 inch	PVC	6,971.90	6,964.32	16.9	614,982.00	2A-558	2A-557
123	15 inch	PVC	6,964.32	6,959.07	19.2	614,982.00	2A-557	2A-556
124	15 inch	PVC	6,958.97	6,954.77	19	614,982.00	2A-556	2A-555
125	15 inch	PVC	6,954.77	6,951.80	20.7	614,982.00	2A-555	2A-554
126	15 inch	PVC	6,951.80	6,950.22	27.2	614,982.00	2A-554	2A-553
127	15 inch	PVC	6,950.22	6,948.64	27.2	614,982.00	2A-553	2A-552
128	15 inch	PVC	6,948.64	6,948.08	26.3	614,982.00	2A-552	2A-551
129	15 inch	PVC	6,948.08	6,947.90	27.8	614,982.00	2A-551	2A-327
221	10 inch	VCP	6,947.90	6,946.60	30.3	707,997.00	2A-327	2A-446
222	10 inch	VCP	6,946.60	6,946.21	**100**	1,005,964.00	**2A-446**	2A-326
223	10 inch	VCP	6,946.21	6,945.20	**76.2**	1,005,964.00	2A-326	2A-325
224	10 inch	VCP	6,945.20	6,944.34	**83.6**	1,005,964.00	2A-325	2A-324

Scenario: Base
Gravity Pipe Report

Label	Section Size	Material	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	d/D (Depth/Rise) (%)	Total Flow (gpd)	Upstream Node	Downstream Node
225	10 inch	VCP	6,944.34	6,942.46	**60.4**	1,005,964.00	2A-324	2A-323
226	10 inch	VCP	6,942.46	6,939.99	**59.6**	1,005,964.00	2A-323	2A-322
227	10 inch	VCP	6,939.99	6,937.98	64	1,005,964.00	2A-322	2A-335
228	10 inch	VCP	6,937.98	6,937.50	**74**	1,005,964.00	2A-335	2A-321
229	10 inch	VCP	6,937.50	6,936.15	**85.5**	1,005,964.00	2A-321	2A-320
230	10 inch	VCP	6,936.15	6,935.92	**100**	1,005,964.00	2A-320	2A-345
235	10 inch	VCP	6,935.92	6,935.82	**100**	1,005,964.00	2A-345	2A-319
236	10 inch	VCP	6,935.82	6,935.50	**78.2**	1,005,964.00	2A-319	2A-318
237	10 inch	VCP	6,935.50	6,934.25	**73.7**	1,005,964.00	2A-318	2A-317
238	10 inch	VCP	6,934.25	6,933.26	57.9	1,005,964.00	2A-317	2A-316
239	10 inch	VCP	6,933.26	6,932.64	**100**	1,005,964.00	2A-316	2A-360
240	10 inch	PVC	6,932.64	6,932.26	**100**	1,338,213.00	2A-360	2A-359
241	10 inch	PVC	6,932.26	6,931.89	**100**	1,338,213.00	2A-359	2A-358
242	10 inch	PVC	6,931.89	6,930.49	**100**	1,338,213.00	2A-358	2A-357
243	10 inch	PVC	6,930.49	6,929.30	**100**	1,338,213.00	2A-357	2A-356
244	10 inch	PVC	6,929.30	6,927.57	68.9	1,338,213.00	2A-356	2A-355
245	10 inch	PVC	6,927.57	6,926.83	**78**	1,338,213.00	2A-355	2A-354
246	10 inch	Steel	6,926.83	6,926.30	**100**	1,338,213.00	2A-354	2A-384
260	10 inch	PVC	6,926.30	6,925.40	**100**	1,338,213.00	2A-384	**2A-203**
261	24 inch	PVC	6,925.40	6,925.25	31.7	1,338,213.00	2A-203	2A-147
262	24 inch	PVC	6,925.25	6,924.55	23.6	1,500,643.00	2A-147	2A-146
263	24 inch	PVC	6,924.55	6,918.08	15.8	1,500,643.00	2A-146	2A-144
264	24 inch	PVC	6,918.08	6,910.00	14.2	1,508,743.00	2A-144	2A-202
265	24 inch	PVC	6,910.00	6,908.40	15.9	1,508,743.00	2A-202	2A-143
266	24 inch	PVC	6,908.40	6,904.09	18.1	1,531,243.00	2A-143	2A-142