Paul Michaud

From: Robert Lee
Sent: Thursday, September 07, 2017 7:32 AM
To: Paul Michaud
Subject: RE: DT Item: Villas at Cheney Estates

Hi Paul,

The preliminary plat for the Villas at Cheney Estates is acceptable for Fire Prevention. The plan to install a 55' cul-de-sac is a good alternative to a secondary access by easement. Please let me know if you need anything else.

Thanks,
Bob Lee
Building Official
Town of Paradise Valley
480 348-3631

From: Paul Michaud
Sent: Thursday, August 31, 2017 2:33 PM
To: Andrew Miller; Dawn Marie Buckland; Deborah Robberson; Diane Wayland; Eva Cutro; George Burton; Jeremy Knapp; Kevin Burke; Paul Mood; Peter Wingert; Richard Edwards; Robert Lee
Subject: DT Item: Villas at Cheney Estates

For discussion at the DT meeting next week, revised preliminary plat for Town Triangle

BERNEIL WATER COMPANY
P. O. BOX 219
TEMPE, ARIZONA 85280

PHONE 480-966-5804
FAX 480-967-7857

August 19, 2016

Villas at Camelback Country Club

The Berneil Water Company will provide water to the proposed eight lot subdivision which is in the water companies CC&N. This agreement is predicated upon the company obtaining an assured water supply certificate.

Brad Folkman
President

aps

P.O. Box 53933
Phoenix, AZ 85072

8/17/2016

Mr. Fred Fleet
COE & VAN LOO Consultants Inc
4550 North 12th Street
Phoenix, AZ 85014

Re: NWC of Scottsdale Rd and Northern Avenue

Dear Mr. Fleet,

The above referenced project is located in Arizona Public Service Company's electric service area. The Company extends its lines in accordance with the "Conditions Governing Extensions of Electric Distribution Lines and Services," Schedule 3, and the "Terms and Conditions for the Sale of Electric Service," Schedule 1, on file with the Arizona Corporation Commission at the time we begin installation of the electric facilities.

Application for the Company's electric service often involves construction of new facilities for various distances and costs depending upon customer's location, load size and load characteristics. With such variations, it is necessary to establish conditions under which Arizona Public Service will extend its facilities.

The enclosed policy governs the extension of overhead and underground electric facilities to customers whose requirements are deemed by Arizona Public Service to be usual and reasonable in nature.

Please give me a call at 602-493-4468 so that we may set up an appointment to discuss the details necessary for your project.

Sincerely,

Heather Legg
Customer Project Manager
Customer Construction East

SOUTHWEST GAS CORPORATION

August 17, 2016

Mr. Fred Fleet
COE & VAN LOO CONSULTANTS, INC.
4550 North 12th Street
Phoenix, AZ 85014

RE: Natural Gas Service to Parcel 174-36-002X:

Dear Mr. Fleet,

Thank you for your inquiry regarding gas availability for the above referenced project. Southwest Gas has natural gas facilities available to serve this project and can be extended to serve your project in accordance with our Rule Six as filed with the Arizona Corporation Commission

Without reviewing the preliminary engineering plans on the project we cannot determine what fees would be required.

Southwest Gas is very interested in serving this project with the preferred fuel ***natural gas,*** and I look forward to working with you as the project progresses.

If you should have any questions or require additional information, please contact me at 602/763-5122, or email me at crista.longobardo@swgas.com.

Sincerely,

Crista Longobardo
Energy Analyst
Energy Solutions Department
Central Arizona Division

CenturyLink™

CenturyLink Engineering
135 W. Orion St. 1st Floor
Tempe, AZ 85283
BICS@Centurylink.com

August 8, 2016
Mr. Fred Fleet
COE & VAN LOO CONSULTANTS, INC.
4550 North 12th Street
Phoenix, Arizona 85014

RE: Jarvis Parcel

Mr. Fleet:

The above mentioned project is located in a parcel of land located in Section 34, Township 3N and Range 4E in Maricopa County.

In response to your "Service Availability" request for the above mentioned development located at the northwest corner of Scottsdale Road and Northern Avenue, Paradise Valley, AZ, this letter is to acknowledge that this subject property is within CenturyLink serving territory.

The tariff Rates and Regulations prescribed for service for this area are on file with your State Utilities Commission, and may be examined at your local CenturyLink Business Office.

Sincerely,

Ronijean Grant-Sloan
CenturyLink Supervisor Construction/Engineering Permits/Joint Use/Developer Administration
135 W Orion Street, 1st Floor
Tempe, AZ 85283
480/768-4294 (Office)
480/748-1352 (Cell)

1550 W Deer Valley Rd
Phoenix, AZ 85027

August 24th, 2016

Mr. Fred Fleet
COE & VAN LOO CONSULTANTS, INC.
4550 North 12th Street
Phoenix, AZ 85014

RE: Jarvis Parcel

This letter is to confirm that Cox Communications is a licensed telecommunications provider for the above area. Service to a development with public streets and public utility easements, meeting the density requirement as stipulated in the license with the County, will be provided at no cost to the developer. Should the project not meet the density requirement, a capital contribution program is available.

For private communities (whether gated or not), our standard easement agreement will be required. Otherwise the same procedures apply. The developer also has the option of providing service to the community at a reduced rate under the bulk discount program. If you're interested, please contact me for additional information on the program.

Upon receipt of the appropriate trench maps and placement time lines, Cox Communications will place its facilities in the joint utility trenches. For the preliminary information and/or the service area map, please call our Cox Traffic Management Center at 623-328-3554.

Sincerely,

Jessica Baxley

Jessica Baxley
Account Executive
Cox Communications
New Business Development
(623) 328-2022

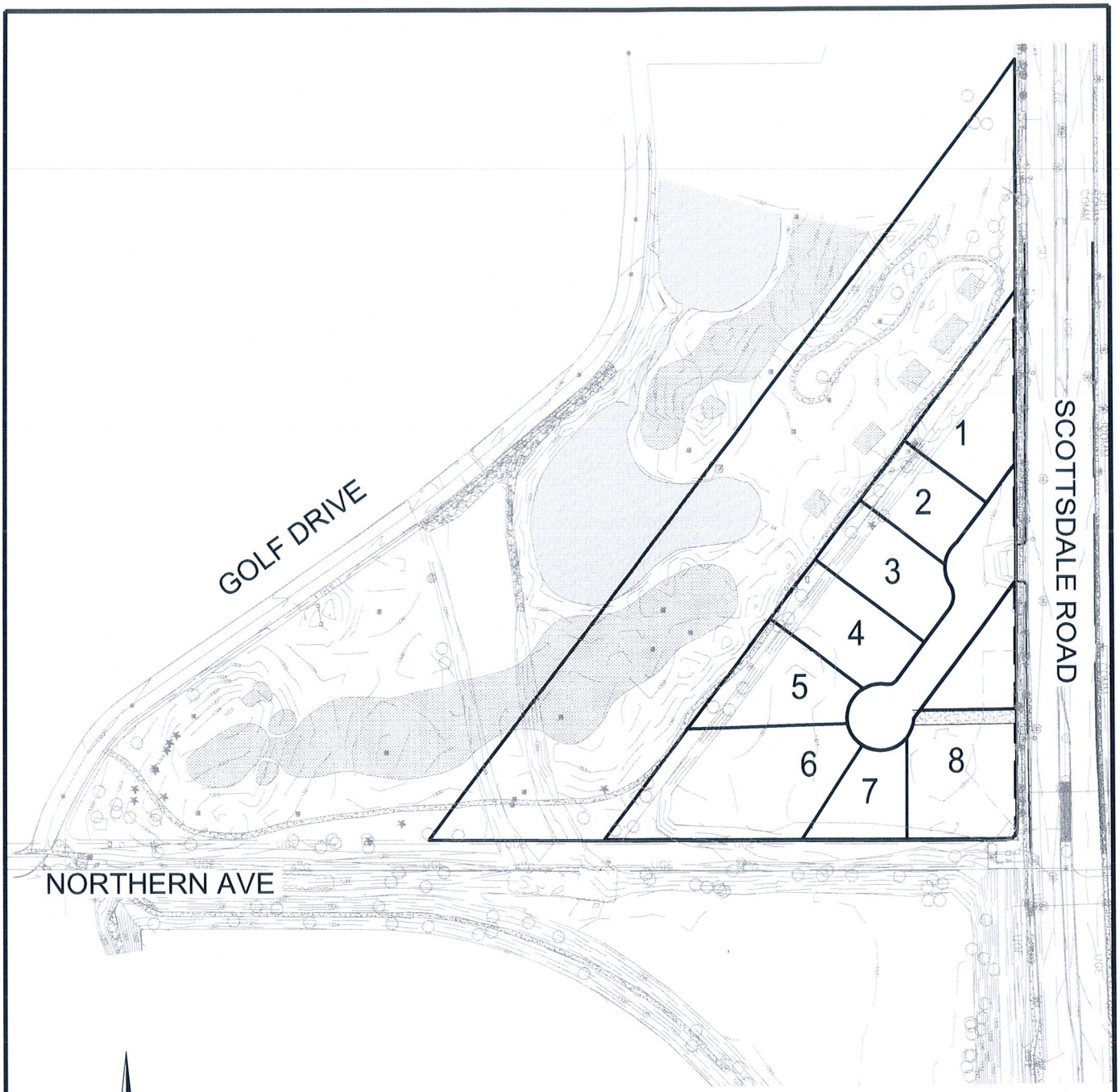
1.0 INTRODUCTION

1.1 General Description

The Villas at Cheney Estates is a proposed 9.636 acre planned Development located in Paradise Valley, Arizona. A total of 8 residential dwelling units (DU) are planned. This report addresses the water distribution system and fire protection for the proposed development. Berneil Water Company will provide water service to the development. The proposed water distribution system will be owned and operated by the Berneil Water Company. City of Scottsdale design requirements and guidelines in the City of Scottsdale's *Design Standards & Policies Manual*, 2010 were used as supplemental material to determine water demands for the development.

1.2 Project Location

The Villas at Cheney Estates is located in Section 34 of Township 4 North, Range 4 East of the Gila and Salt River Base and Meridian. It is bordered by Scottsdale Road to the east, Northern Avenue to the south, and Cheney Estates Golf Course to the northwest. See Figure 1.



SCALE 1" = 200'	SITE MAP	CVL CONSULTANTS
FIGURE 1		
4550 North 12th Street Phoenix, Arizona 85014 Phone 602-264-6831 http://www.cvlci.com	THE VILLAS AT CHENEY ESTATES	1.01.0288101

N:\01\0288101\Enviro\Figures\Site Plan.dwg **CassandraA June 13, 2017**

2.0 WATER SYSTEM DESIGN CRITERIA

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

2.1 Design Criteria

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

- Demand factors
  - Single family residential demand factor = 485.6 gpd/DU
  - Maximum day factor = 2 x Average Day Demand
  - Peak hour factor = 3.5 x Average Day Demand
- Pressure requirements
  - Minimum
    - 20 psi at the meter
  - Maximum = 120 psi
- Velocity
  - Maximum
    - 5 fps for maximum day demand
    - 7 fps for peak hour demand
    - 10 fps for maximum day demand plus fire flow
- Unit friction headloss
  - Maximum = 10ft/1,000 ft of distribution lines
- Hazen-Williams Coefficient = 130
- Fire Flows = 1,500 gpm

3.0 EXISTING INFRASTRUCTURE

3.1 Existing Waterlines

There are no existing waterlines within the proposed development. Adjacent existing waterlines include an existing 6" waterline in Golf Drive. This existing 6" waterline continues north in Golf Drive to the Camelback Country Club Estates 3 Development and east in Northern Avenue to 68th Street where it heads north to serve the Camelback Country Club Estates Development.

See Appendix A for a map of the existing Berneil Water Company system.

3.2 Berneil Water System Fire Protection

The Berneil Water Company has entered into an agreement with the City of Scottsdale to provide emergency water service during times when the Berneil Water System is inoperative or during fire emergencies. See Appendix B for a copy of the Agreement. The emergency interconnection is located at 9000 N. Scottsdale Road and consists of a 4-inch water meter, a PR/PSV control valve, a backflow device and associated 6-inch interconnecting pope. See Appendix C for a copy of the O + M Instructions for operating this emergency interconnection.

3.3 Water Quality

Appendix G contains a copy of the 2015 Annual Water Quality Report. No violations were reported.

4.0 PROPOSED INFRASTRUCTURE

4.1 Water Demands

The water demands for The Villas at Cheney Estates may be seen below in Table 1.

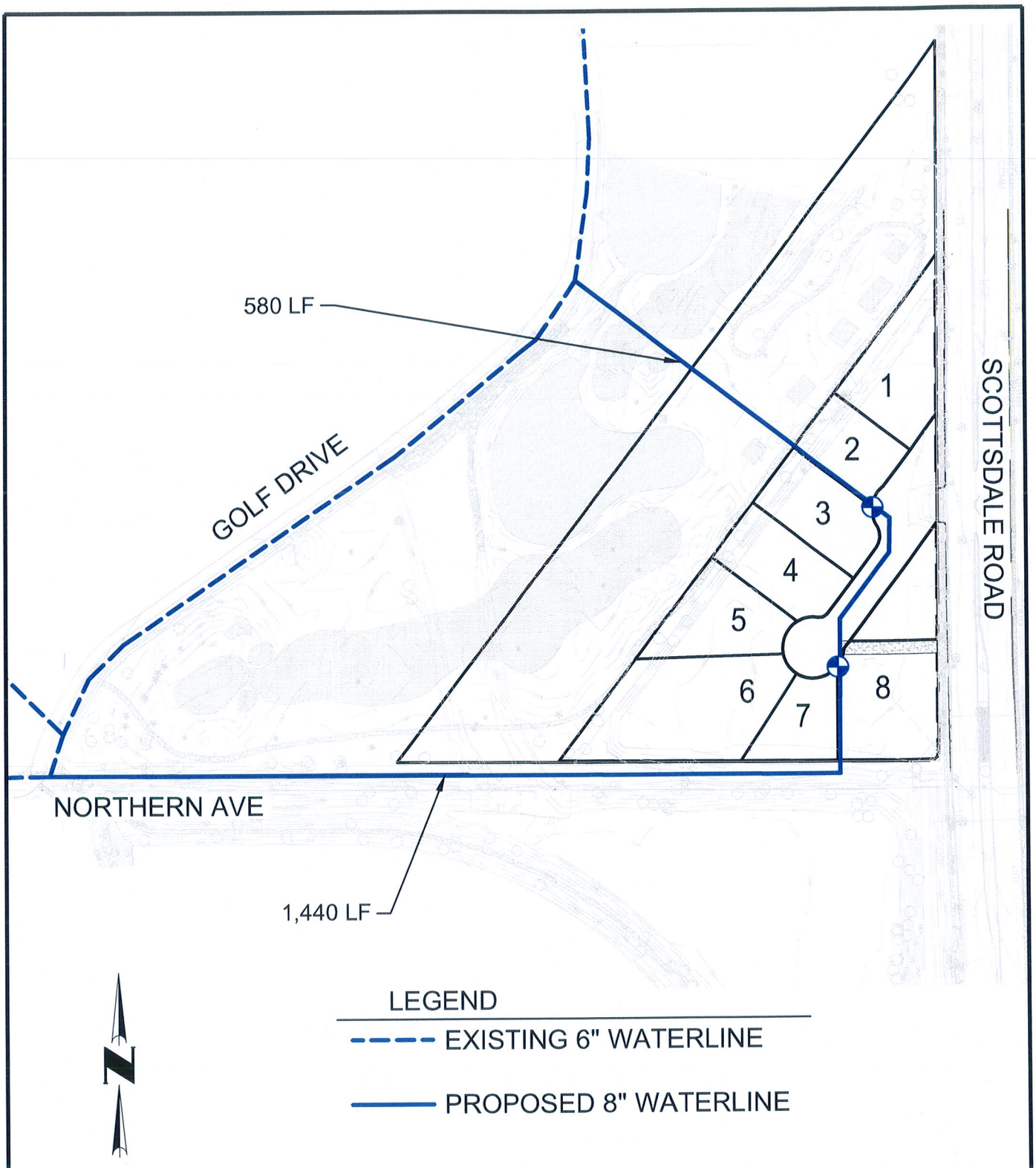
Table 1 – The Villas at Cheney Estates Water Demands

Number of DU	Unit Factor (gpd/unit)	ADD (gpd)	MDF	MDD (gpd)	PHF	PHD (gpd)
8	485.6	3,884.8	2	7,769.6	3.5	13,596.8

Fire flow demands of 1,500 gpm will be modeled.

4.2 Proposed On-Site Infrastructure

A distribution system of 8" waterlines was designed to provide water to The Villas at Cheney Estates. This design may be seen in Figure 2. The proposed design includes two connections to the existing Berneil Water Company System. The first connection will take place approximately 1,700 ft north of Northern Avenue in Gold Drive. This connection includes approximately 580 LF of waterline extension. Second connection will take place at the intersection of Golf Drive and Northern Avenue. This connection includes approximately 1,440 LF of waterline connection.



SCALE 1" = 200'

FIGURE 2

WATER SYSTEM LAYOUT

THE VILLAS AT CHENEY ESTATES

4550 North 12th Street
Phoenix, Arizona 85014
Phone 602-264-6831
http://www.cvlci.com

CVL CONSULTANTS

1.01.0288101

N:\01\0288101\Enviro\Figures\Water System Layout.dwg **CassandraA June 13, 2017**

5.0 WATER SYSTEM MODELING

5.1 Network Analysis Domestic Demands

The network analysis for the proposed development's distribution system was completed using WaterCAD V8*i*. A model was created and modified as necessary to demonstrate that the existing and proposed water infrastructure meets the water system design criteria. All networks were analyzed for average day, maximum day and peak hour demand conditions. The existing conditions were determined by a fire flow test completed on October 10th, 2016. Results from this fire flow test may be seen in Appendix D.

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

Input parameters of the water distribution system modeling include:

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

Output parameters include but are not limited to:

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

5.2 Modeling Results Domestic Demands

The detailed results of the WaterCAD analysis for the domestic demands are presented in Appendix E. Table 2 summarizes the results. We note that the system modeled did not include the emerging connection to the Scottsdale Water System.

Table 2 – Water Model Results Summary for Domestic Demands

Scenario	Flow (gpm)	Pressure (psi)				Maximum Velocity (fps)	Pipe ID
		Minimum	Node	Maximum	Node		
Average Day	2.70	68	J-19	79	J-7	0.03	P-22
Maximum Day	5.40	68	J-19	79	J-7	0.06	P-22
Peak Hour	9.44	68	J-19	79	J-7	0.411	P-22

5.3 Network Analysis Fire Flows

The network analysis was performed as described in subsection 5.1 above with the following modifications

- The water system was expanded to include the emergency water connection with the City of Scottsdale located at 9000 N. Scottsdale Road. It was assumed to be delivering water to the Berneil Water Company system.
- The system conditions were determined by a fire flow test performed on October 10th, 2016 with the emergency interconnection OPEN. See Appendix D for results.

5.4 Modeling Results Fire Flows

The detailed results of the Water CAD analysis for the fire flow scenario are shown in Appendix E. Table 3 summarizes the results.

Table 3 – Water Model Results Summary for Fire Flow Demands

Nodes	Flow (gpm)	Pressure (psi)				Maximum Velocity (fps)	Pipe ID
		Minimum	Node	Maximum	Node		
J-5	1,500	20	J-5	58	J-26	10.55	P-25
J-6	1,500	21	J-5	58	J-26	10.62	P-25

The nodes identified correspond to the proposed fire hydrant locations within the new development.

6.0 SUMMARY

This Water Service Impact Study presents the proposed water system design, and an overview of existing infrastructure surrounding the project site. The following summarizes CVL's findings of the proposed water system to serve The Villas at Cheney Estates.

- The water system will be owned and operated by Berneil Water Company.
- A Water Quality Report for the Berneil Water System may be found in Appendix G of this report.
- Distribution lines for The Villas at Cheney Estates will consist of 8" waterlines. Distribution mains are sized to accommodate all demand requirements.
- Pressures at the property line within the proposed development are approximately 78 psi for all domestic demand scenarios which exceeds the Town of Paradise Valley's minimum requirement of 20 psi.
- Fire flows of 1,500 gpm at Node J-5 and Node J-6 result in pressures above 20 psi and meet Town of Paradise Valley standards.